

Catalog 2022

Prices valid from January 01, 2022 to December 31, 2022



YOUR PARTNER FOR
MEASURING TECHNOLOGY & AUTOMATION

ACS
CONTROL-SYSTEM

Measuring fill level continuously
Recording limit levels in liquids
Recording limit levels in solids

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This catalog covers the offer of the ACS-CONTROL-SYSTEM GmbH.
All devices in this catalog are CE certified.

The devices listed are just a selection from the entire product range.

Other device versions such as other mechanical connections, materials, etc. are of course possible. Our Customer Service Team will be happy to help.

We would be delighted if you could convince yourself of the quality and performance of our products and bring ACS products in your company to use.

This catalog supersedes all previous editions, which thereby become invalid.

The prices listed shall be net prices excluding VAT, ex work, inclusive packing and are valid from 01.01.2022 to 31.12.2022.

Transport packaging, taxes and shipping costs must be added.

Our minimum order is 50,00 €

If payment is made within 8 days of the invoice date
2% discount granted within 30 days, net cash.

Our general terms and conditions of sale and delivery shall apply exclusively, which we send to you on request.

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Prices valid from 01.01.2022 to 31.12.2022

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1. Fill level measurement




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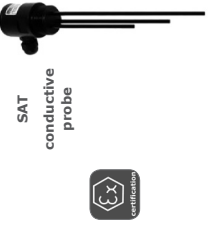



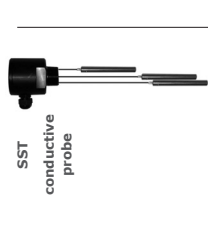
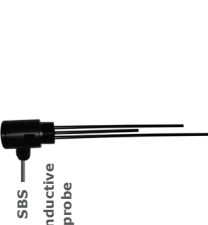
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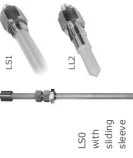

	Hydrocont® HN4	Hydrocont® S50	Hydrocont® M/B	Hydrocont® HP4	Hydrocont® LK	Sonicont USN4	Sonicont USG2/USF2	Sonicont USP4	SAT, STK, SST, SHT, SNT, SBS, KAK, PUK	SLK, KLIK	Vibrocont SCM-300	Vibrocont SHM-300	Silocont SIC-350	Capcont L, M
Measuring principle														
Hydrostatic	●	●	●	●	●									
Ultrasonic						●	●	●						
Conductive									●	●				
Mechanically													●	
vibration											●	●		
Capacitive														●
Function														
Level detection	●	●				●	●		●	●	●	●	●	●
Continuous measurement	●	●	●	●	●	●	●	●						
Media														
Liquids	●	●	●	●	●	●	●	●	●	●	●	●		●
Solids						●	●						●	●
Operating conditions														
Hazardous area		Ex	Ex				Ex		Ex	Ex			Ex	Ex
WHG area											●	●		
Aggressive media		●	●	●	●	●	●	●						
Coat forming media	●	●	●	●	●	●	●	●			●	●		
High dust													●	●
Non conductive media	●	●	●	●	●	●	●	●			●	●	●	●
Foaming	●	●	●	●	●			●	●	●	●	●		
Vacuum or Druckbeaufschl. container									●	●	●	●	●	●
Extreme climatic conditions					●	●	●		●	●	●	●	●	●
Hygienic sector	●	●	●							●		●		●

Type	Hydrostat® S5N0	Hydrostat® S50	Hydrostat® B and ExB	Hydrostat® M and ExM	Hydrostat® LK	Hydrostat® HP4
Operating principle	Hydrostatic measurement  compact version, cable-, tube extension liquids, standard-measurements, hygienic applications	Hydrostatic measurement  compact version, cable-, tube extension liquids, standard-measurements, hygienic applications	Hydrostatic measurement  slope probe liquids water level measurement	Hydrostatic measurement  slope probe liquids water level measurement	Hydrostatic measurement  slope probe, screw-in probe liquids water level measurement	Hydrostatic measurement  slope probe liquids water level measurement
Design	compact version, cable-, tube extension	compact version, cable-, tube extension	slope probe	slope probe	slope probe, screw-in probe	slope probe
Areas of application	liquids, standard-measurements, hygienic applications	liquids, standard-measurements, hygienic applications	liquids water level measurement	liquids water level measurement	liquids water level measurement	liquids water level measurement
Measure ranges	-1...20 bar relative	-1...20 bar relative	0,05...20 bar 1...100 mWts	0,1...20 bar 1...100 mWts	0...1 bar	0...10 bar
Process connections	thread G 1/2" G1 1/2", milk tube, Varivent; DRD, Tri-Clamp, flange, groov nut adapter	thread G 1/2" G1 1/2", milk tube, Varivent; DRD, Tri-Clamp, flange, groov nut adapter	rope clamps screw plug, G1", G1 1/2", Connection housing G1 1/2", screw-in thread, G 1/2", G1 1/2"	rope clamps screw plug G1", G1 1/2", Connection housing G1 1/2"	rope clamps G 1/2"	rope clamps screw plug
Process temperature/ Operating temperature	-40...+100°C, with temperature decoupler: up to 125°C	-40...+100°C, with temperature decoupler: up to 125°C	-20...+70°C	-20...+70°C	-20...+70°C	-20...+70°C
Process pressure	-	-	-	-	-	-
Sensor voltage/ Auxiliary power	(0)4...20 mA; 9...30V DC 0...10V; 14...30V DC	10,5...45 V DC	4...20mA: 11...45 V DC ATEX: 12,5...25,2 V DC 0...10V: 14...30 V DC	4...20mA: 11...45 V DC ATEX: 12,5...25,2 V DC 0...10V: 14...30 V DC	4...20mA: 10...36 V DC 0...10V: 14...30 V DC	6...35 V DC
Output	(0)4...20 mA / 0...10V	4...20 mA 2-wire, 0...10 V 3-wire,	4...20 mA 2-wire non-adjustable	4...20 mA 2-wire non-adjustable	4...20 mA 2-wire 0...10 V 3-wire	RS 485 Modbus RTU
Switching points	0 / 2x PNP / 4x PNP	0 / 2x PNP	-	-	-	-
display	color display TFT	4-digit 7-Segment- LED-display	-	-	-	-
Certifications	-	ATEX	ATEX	ATEX	-	-
Accuracy	≤ ±0,05% / 0,1% / 0,2%	0,05% / 0,20%	0,10% / 0,20%	0,10% / 0,25%	0,10% / 0,25%	0,05% / 0,10% / 0,20%
Long term stability	≤ ±0,1% year	0,1% / year	0,1% / year	0,15% / year	0,15% / year	0,15% / year
Blocking distance	-	-	-	-	-	-
Medium contacting materials	1.4404 (316L), Al2O3, PE, FEP, gasket per choice	1.4404 (316L), Al2O3, PE, FEP, gasket per choice	1.4404 (316L), marine bronze, Hastelloy, PEEK, Titan, Al2O3, PE, FEP, gasket per choice	1.4404 (316L), Al2O3, PE, PUR, gasket per choice	1.4404 (316L), Al2O3, PE, PUR, gasket per choice	1.4404 (316L), Al2O3, PE, PUR, gasket per choice
Measuring cell	capacitive ceramic	capacitive ceramic	capacitive ceramic	capacitive ceramic	capacitive ceramic	capacitive ceramic
min DK	-	-	-	-	-	-
max. viscosity	-	-	-	-	-	-
Limits of use	-	-	-	-	-	-

Type	Sonicont® USN4 ultrasonic measurement	Sonicont® USG2/USF2 ultrasonic measurement seperated	Sonicont® USP4
Operating principle			
Design	compact version	seperated version	28 slope probe
Areas of application	ultrasonic fill level sensor for solids and liquids	ultrasonic fill level sensor for solids and liquids	ultrasonic fill level sensor for solids and liquids
Measure ranges	liquids: 2 / 5 / 8 m solids: 1 / 2 / 3,5 m	liquids: 2 / 5 / 8 m solids: 1 / 2 / 3,5 m	liquids: 2 / 5 / 8 m solids: 1 / 2 / 3,5 m
Process connections	G1", G1½", G2"	G1", G1½", G2"	rope clamps screw plug
Process temperature/ Operating temperature	-40...+80°C	-40...+80°C	-20...+70°C
Process pressure	-0,3 up to +2 bar	-0,3 up to +2 bar	-0,3 up to +2 bar
Sensor voltage/ Auxiliary power	Output 0/4...20mA; 9...30 VDC Output 0...10 V; 14...30 VDC	Output 0/4...20mA; 9...30 VDC Output 0...10 V; 14...30 VDC	11...35 VDC
Output	(0)4...20 mA / 0...10V	(0)4...20 mA / 0...10V	4...20 mA 2-wire
Switching points	0/2x PNP / 4x PNP	0/2x relay /4x relay	-
display	color display TFT	color display TFT	-
Certifications	-	ATEX	-
Accuracy	0,2%	0,2%	0,2%
Long term stability	-	-	-
Blocking distance	< 0,2m / < 0,25m / <0,35 m	< 0,2m / < 0,25m / <0,35 m	< 0,1m / < 0,15m / <0,350m
Medium contacting materials	steel 1.4404 / PVDF / EPDM	steel 1.4404 / PVDF	PVDF / POM / PA / NBR / FPM / PE/ PUR
Measuring cell	-	-	-
min DK	-	-	-
max. viscosity	-	-	-
Limits of use	-	-	-

Type	SAT conductive probe	STK conductive probe	SLK conductive probe	SST conductive probe	SHT conductive probe	SNT conductive probe	SBS conductive probe
Operating principle			  				
Design	rod probe with plastic screw-in thread, up to 7 rods	rod probe with metal screw-in thread, up to 5 rods	rod probe with hygienic connection, up to 5 rods	rod probe with plastic screw-in nut, up to 7 probes	cable probe to hang, up to 2 probes	rod probe with plug connection, up to 4 rods	rod probe with sealed cable, up to 5 rods
Areas of application	conductive liquids standard measurements	conductive liquids standard measurements, aggressive liquids	conductive liquids hygienic applications in breweries and dairies	conductive liquids standard measurements in wells and pools	conductive liquids submersible sensor	conductive liquids standard measurements	conductive liquids standard measurements
Measure ranges	-	-	-	-	-	-	-
Process connections	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ " , G2" DIN-flange DN 50	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ " , G2" DIN-flange DN 50	thread G $\frac{1}{2}$ " , G1" , thread G1 $\frac{1}{2}$ " , with front-flush gasket, Milk tube connection DIN 11851	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ " , G $\frac{3}{4}$ "	to slope on cable	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ "	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ "
Process temperature/ Operating temperature	-15...+150°C	-15...+150°C	-40...+130°C	-10...+120°C	-20...+100°C	-20...+100°C	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ " -20...+100°C
Process pressure	-1...10 bar	-1...20 bar	-1...20 bar	pressureless	pressureless	0...10 bar	0...10 bar
Sensor voltage/ Auxiliary power	-	-	-	-	-	-	-
Output	-	-	-	-	-	-	-
Switching points	max. 7	max. 5	max. 4	max. 7	max. 1	max. 4	max. 5
display	-	-	-	-	-	-	-
Certifications	ATEX	ATEX	ATEX	-	-	-	-
Accuracy	-	-	-	-	-	-	-
Long term stability	-	-	-	-	-	-	-
Blocking distance	-	-	-	-	-	-	-
Medium contacting materials	I.4404 (316L), I.4571 (316), Hastelloy, Titan, PA, E-CTFE (Halar), PP, POM, PTFE, NBR, FPM	I.4404 (316L), I.4571 (316), Hastelloy, Titan, PA, E-CTFE (Halar), PTFE, NBR, FPM	I.4404 (316L), I.4571 (316), Hastelloy, Titan, PA, E-CTFE (Halar), PTFE, NBR, FPM	I.4404 (316L), PTFE, POM, polypropylene, NBR	I.4404 (316L), PE, E-CTFE (Halar), polypropylene	I.4404 (316L), I.4571 (316), PA, E-CTFE (Halar), PP, POM, PTFE, Hastelloy, Titan	I.4404 (316L), I.4571 (316), PA, E-CTFE (Halar), PP, POM, PTFE, Hastelloy, Titan
Measuring cell	-	-	-	-	-	-	-
min DK	-	-	-	-	-	-	-
max. viscosity	-	-	-	-	-	-	-
Limits of use	-	-	-	-	-	-	-

Type	Operating principle	PUK | PUKK electrode probe	KAK / KLK conductive compact probe	SRA / EXSRA-100-U0 electrode relay conductive	Vibrocont SCM-300 vibration limit switch	Vibrocont SHM-300 vibration limit switch
Design		electrode probe for floor mounting; separated or compact electronics	rod probe with compact electronics, up to 3 rods universal voltage	B/H/T 22.5x1.14x99 mm	compact smallest dimensions	compact hygienic connections
Areas of application	leakage detection	conductive liquids limit switch two-point controller	for conductive liquids		liquids of all sorts standard measurements	liquids of all sorts hygienic applications
Measure ranges	-	0...200 kOhm	0...10 kOhm 0...1 kOhm, 0...200 kOhm		-	-
Process connections	-	thread G1/2", G1" thread G1 1/2" Milk tube connection DIN 11851	-		thread G1/2", G3/4", G1"	thread G3/4", G1" front-flush DIN 11851, DN25/32, Tri-Clamp
Process temperature/ Operating temperature	-20...+60°C	-40...+100°C	-40...+85°C		-40...+100°C or -40...+150°C	-40...+150°C
Process pressure	-	0...20 bar	-		-1...40 bar	-1...40 bar
Sensor voltage/ Auxiliary power	AC voltage 24 V DC +/- 10% universal voltage 20...30 V AC, DC	AC voltage 24 V DC +/- 10% universal voltage 20...253 V AC, DC	universal voltage 20...253 V AC/DC		20...253 V AC 2-wire; 10...30 V DC PNP 3-wire	19...253 V AC 2-wire; 10...55 V DC PNP 3-wire
Output	1 PNP 1 relay	1 PNP 1 relay	1 / 2 relay		1x PNP 1x Relay	1x PNP 1x Relay
Switching points	1 switching point	max. 2	max. 2		1	1
display	-	-	LED		LED	LED
Certifications	-	-	ATEX		WHG	EHDG-certificate, 3-A, WHG
Accuracy	-	-	-		-	-
Long term stability	-	-	-		-	-
Blocking distance	-	-	-		-	-
Medium contacting materials	1.4404 (316L), POM, FPM, PA, NBR	1.4404 (316L), 1.4571 (316), Hastelloy, Titan, PA, E-CrTE (Halar), FPM, EPDM	-		1.4404 (316L)	1.4404 (316L)
Measuring cell	-	-	-		-	-
min DK	-	-	-		-	-
max. viscosity	-	-	-		-	-
Limits of use	-	-	isolating liquids		very viscous media (viscosity max. 10.000 cSt)	very viscous media (viscosity max. 10.000 cSt)

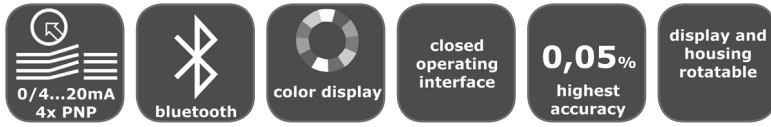
Type	Silocont SIC-350 rotary paddle switch	Capcont M capacitive limit switch	Capcont L capacitive limit switch	Microcont MCN4 capacitive level controller
Operating principle				
Design	Cable extension compact	compact	compact tube extension	compact
Areas of application	solids of all sorts	liquids and solids of all sorts	liquids and solids of all sorts	conductive liquids standard measurement, coat forming media, hygienic applications
Measure ranges	-	-	-	-
Process connections	thread PBT/303 NPT 1-1/2"; NPT 1-1/4"; G 1-1/2"	thread M18, G1/2"	sliding sleeve G1/2" or thread G1/2"	standard thread G1/2" elastomerfrei PEEK Spitze
Process temperature/ Operating temperature	-20...+80°C	-30...+125°C	LS -40...+100°C LL -40...+140°C	0 ... +100°C
Process pressure	0,5...2,5 bar abs. / ≤ 1,5 bar Überdruck	-1...10 bar	LS -1...+1 bar LL -1...+10 bar	max. 10 bar
Sensor voltage/ Auxiliary power	20-28VDC; 24VAC; 115VAC; 230VAC	10...35 V DC	10...35 V DC	Ub = 24V +/-20% (18...32VDC)
Output	micro switch with switch contact max. 6 A/250 VAC 100 mA	PNP (NO/NC)	PNP (NO/NC)	1x PNP
Switching points	1	1	1	-
display	-	LED	LED	-
Certifications	ATEX II 1/3 D; CSA DIP/ II, III/1/E-G (applied for); FM DIP/ II, III/1/E-G	-	ATEX	EHDEG
Accuracy	-	-	-	-
Long term stability	-	-	-	-
Blocking distance	-	-	-	-
Medium contacting materials	1.4305	1.4404 (316L), 1.4571 (316Ti), PTFE, gasket per choice	1.4404 (316L), 1.4571 (316Ti), PTFE-TFM / PEEK LS -> gasket EPDM, FPM	Stainless steel PEEK
Measuring cell	-	-	-	-
min DK	-	> 1,8	> 1,8	> 2,0
max. viscosity	-	-	-	-
Limits of use	-	-	-	-

Hydrocont® HN4

Hydrostatic level transmitter / level switch with data memory for general applications
Monitoring of levels in liquids

1 / 01.22

Technical data



Supply voltage: Setting output 0/4...20 mA: 9...30 VDC, reverse polarity protected
Setting output 0...10 V: 14...30 VDC, reverse polarity protected

Supply current: ≤ 50mA up to ≤ 100mA (depending on output, bluetooth ON/Off, US)

Start-up time: ≤ 1s

Step response time: ≤ 15 ms (td = 0s)

Operating range: Analogue output – current 0...20mA IOut: 0...20,5mA, max. 22mA
Analogue output – current 4...20mA IOut: 3,8...20,5mA, min. 3,6mA, max. 22mA
Analogue output – voltage 0...10V UOut: 0 ... 10,5 V, max. 11 V

Switch output PNP S1 / S2 / S3 / S4

Function: PNP switch to +L

Output current: 0... ≤ 200mA current limited, short circuit protected

Measuring accuracy

Characteristic deviation: ≤ ±0,05% / ±0,1% / ±0,2% FS

Long term drift: ≤ ± 0,1% FS / year not cumulative

Temperature deviation
Zero: ≤ ±0,015% FS 2) / K, max. ±0,75 % (-20°C...+80°C)
Span: ≤ ±0,015% FS 2) / K, max. ±0,5 % (-20°C...+80°C / > 0,4 bar), max. ±0,8 % (-20°C...+80°C / ≤ 0,4 bar)

Materials

Diaphragm: (process wetted) Process connection Type 7 – G1½" / Sensor Ø40mm:
Ceramic Al₂O₃ – 99,9%
Process connection Type 8 – G¾" / Sensor Ø22mm Measuring range ≤ 1bar:
Ceramic Al₂O₃ – 99,9%
Process connection Type 8 – G¾" / Sensor Ø22mm Measuring range ≥ 1,6bar:
Ceramic Al₂O₃ – 96%

Process connection: (process wetted) Steel 1.4404/316L / Steel 1.4571/316Ti

Terminal enclosure: CrNi-steel

Gaskets (process wetted): FPM – fluorelastomere (e.g. Viton®)
EPDM – ethylene-propylene-dienmonomere, FDA-listed
FFKM – perfluorelastomere (e.g. Kalrez®)
FFKM hd – perfluorelastomere high density

Environmental conditions

Environmental temperature: – 20°C...+70°C

Process temperature: –40...+100°C (extended –40...+125°C)

Process pressure: – 1 bar ...20 bar (depending on process connection)

Protection: IP65/IP67 EN/IEC 60529



Application

The device is an electronic level transmitter / level switch for monitoring, control as well as continuous measurement of levels in liquids.

Due to the device construction with measuring ranges from -1 bar to 20 bar, measuring spans from 50 mbar to 20 bar, process temperatures from -40°C to +125°C and process materials Al₂O₃-ceramic / CrNi-steel as well as the availability of the two construction types extension cable (e.g. at limited installation situations, long sensor length) or extension tube (e.g. at strong turbulences, aggressive media, high temperatures) and the availability of industrial standard process connections like thread connection ISO 228-1 the device is especially suitable for the use for level and volume measurement, flow measurement at open channels and measuring weirs and for general applications in water and waste water sector machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry and environmental technology.

The device is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

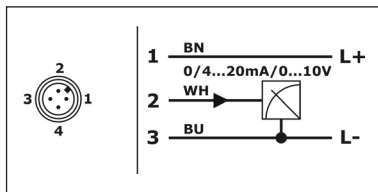
The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether low temperatures when used outdoors, high shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

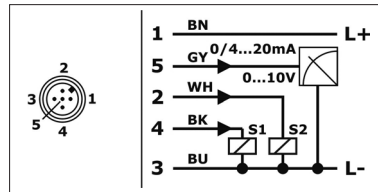
Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or factory certifications for drink water resp. food suitability.

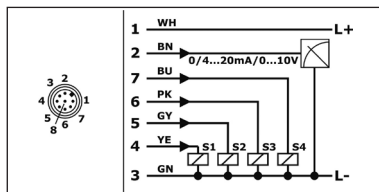
connection



Electronic output type M
1x signal 0/4...20mA-0...10V, supply 24VDC



Electronic output type K
1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC



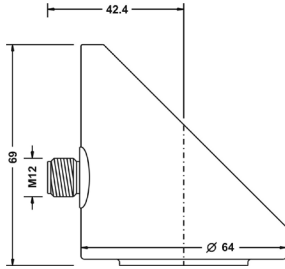
Electronic output type R
1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

Hydrocont® HN4

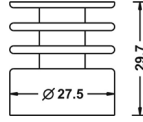
Hydrostatic level transmitter / level switch with data memory for general applications
Monitoring of levels in liquids

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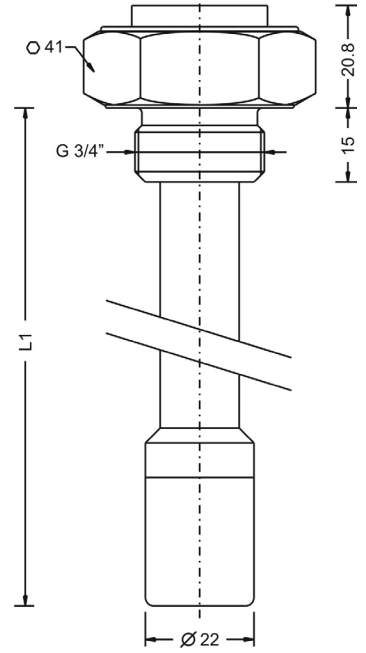
Terminal enclosure



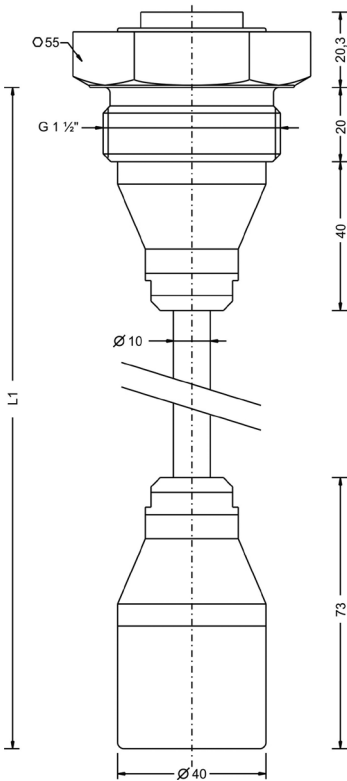
Temperature decoupler



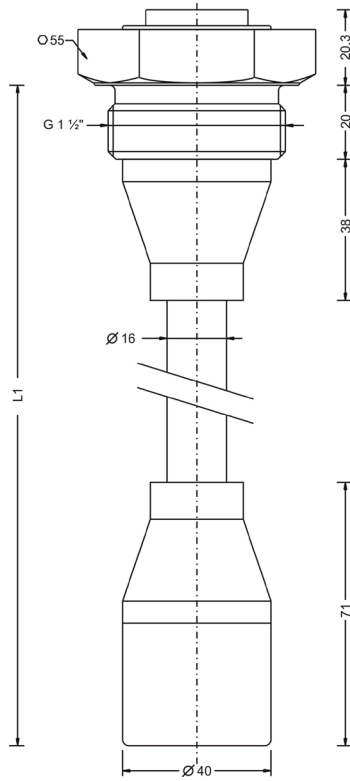
Type 8 – Thread ISO 228-1 –
G3/4" Probe extension type F –
Tube Ø16mm / Probe Ø22mm
Length L1 ≤ 2000 mm



Type 7 – Thread ISO 228-1 –
G1 1/2" Probe extension type A / E
– Extension cable / Probe Ø40mm
Length L1 ≤ 100 000 mm



Type 7 – Thread ISO 228-1 –
G1 1/2" Probe extension type D –
Tube Ø16mm / Probe Ø40mm
Length L1 ≤ 3000 mm



Hydrocont® HN4

Hydrostatic level transmitter / level switch with data memory for general applications
Monitoring of levels in liquids

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Basic price

692,00 €

Price group A

Type

HN4R	Probe extension tube	251,00 €
HN4T	Probe extension cable	338,00 €

Measuring system – material diaphragm (process wetted) / sensor type

C	Ceramic Al2O3 96%/99,7%/99,9%	capacitive	0,00 €
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Approval

S	Standard	0,00 €
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Process connection

7	Thread ISO 228-1 – G1½"A	66,00 €
8	Thread ISO 228-1 – G¾"A	49,00 €
Y	others	on request

Material process gaskets (process wetted)

1	FPM – fluorelastomere (e.g. Viton®)	0,00 €
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed	0,00 €
4	FFKM – perfluorelastomere (e.g. Kalrez®)	180,00 €
6	FFKM hd – perfluorelastomere high density - gas applications	192,00 €
Y	others	on request

Material process connection (process wetted)

V	CrNi-steel	0,00 €
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Material terminal enclosure

C	CrNi-steel	0,00 €
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Measuring range

26	0...50 mbar	0,00 €
01	0...100 mbar	0,00 €
02	0...200 mbar	0,00 €
03	0...400 mbar	0,00 €
04	0...600 mbar	0,00 €
05	0...1 bar	0,00 €
06	0...1,6 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...20 bar	0,00 €
15	-100...0 mbar	0,00 €
16	-1...0 bar	0,00 €
17	-1...+1 bar	0,00 €
18	-100...+100 mbar	0,00 €
YY	Special measuring range	41,00 €

Electronic – output

M	1x signal 0/4...20mA-0...10V, supply 24VDC	212,00 €
K	1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC	272,00 €
R	1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC	332,00 €

Electronic – function

0	without	0,00 €
1	Bluetooth-Interface	113,00 €
2	Data logger with time stamp, battery powered	50,00 €
3	Bluetooth-Interface / Data logger with time stamp, battery powered	164,00 €
Y	others	on request

Process temperature

0	Standard -40°C...+100°C	0,00 €
1	Extended -40°C...+125°C, temperature decoupler	65,00 €
5	Reduced -20°C...+70°C, probe extension – extension cable	0,00 €

Pressure type

R	Gauge pressure	0,00 €
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Measuring system – accuracy

1	0,2%	0,00 €
3	0,1% (FS ≥ 100mbar), linearization protocol	113,00 €
6	Xcellence – 0,05% (FS ≥ 200mbar), linearization protocol	168,00 €

Electrical connection

S	Plug M12	0,00 €
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Probe extension

(Price per started 100 mm)

A	Extension cable PE / Probe Ø40mm	0,40 €
E	Extension cable FEP / Probe Ø40mm	3,90 €
D	Tube Ø16mm / Probe Ø40mm	8,40 €
F	Tube Ø16mm / Probe Ø22mm	9,60 €
Y	others	on request

Length L1 / mm

Hydrocont®

HN4R/
HN4T

C

S

V

C

R

S

Hydrocont® HN4

Hydrostatic level transmitter / level switch with data memory for general applications
Monitoring of levels in liquids

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+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version	90,00 €
ML Measurement point designation / TAG – Laser marking	20,00 €
KF Configuration / Preset	55,00 €
MZ Material test certificate – EN10204 3.1	105,00 €

Equipment

Order information

LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
LKZ0805PUR-AS
BKZ0412-VA
BKZ0512-VA

Model

Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole, shielded
Connection cable 5 m, 5-pole, shielded
Connection cable 10 m, 5-pole, shielded
Connection cable 5 m, 8-pole, shielded
Matching cable socket, VA-nut
Matching cable socket, VA-nut (at 0...10 V)

22,50 €
28,50 €
26,00 €
35,00 €
38,00 €
18,50 €
19,50 €

PGE

Hydrocont® S50

Hydrostatic filling level measurement, suitable also for Ex areas, with dry capacitive measurement system, with display, 4-20mA or 0-10V output and 2 pnp switching outputs

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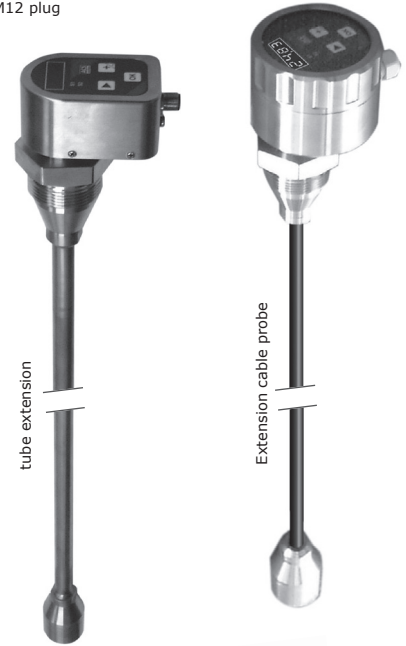
Technical data



Output variations A/B/C/D:	4...20 mA, 2-wire	
Output variations E/F/G/H:	0...10 V, 3-wire	
Permitted supply voltage:	Variation C/D:	10,5 V up to 45 V DC
Variation A/B/E/F/G/H:	14,5 V up to 45 V DC	
Residual ripple:	≤ 2 V _{SS}	
Switching outputs (S1 / S2):	2x PNP switching on +VS	
Output current:	> 250 mA, current limited, short circuit protected	
Measuring accuracy:	≤ 0,1% / 10 K of the nominal range	
Temperature deviation:	≤ 0,1% / 0,2% of the nominal range (depending on the order code)	
Deviation in characteristics:	≤ 0,05% of the nominal range	
Calibration deviation:	≤ 0,1% / year of the nominal range	
Long term drift:	≤ 0,02% / 10 V of the nominal range	
Influence of supply voltage:	better 1 µA resp. 0,5 mV (16 Bit = 65536 steps)	
Resolution:		
Material:		
Membrane:	Ceramic AL2O3 96% resp. 99,9%	
Process connection:	Steel 1.4404 / otherson request	
Temperaturtrennstück:	Steel 1.4404 / otherson request	
Gaskets:	Viton® / EPDM Neoprene® / Perfluorelastomer	
Connection housing:	Steel 1.4301 / POM - Delrin® / PBT	
Extension cable:	PE/FEP	
Environmental conditions:		
Medium temperature:	-40°C...+125°C (for 1h 140°C)	
with extension cable -20°C...+70°C		
Ambient / storage temperature:	-40°C...+85°C; with extension cable -20°C...+70°C	
Protection:	IP65 / IP67	



M12 plug

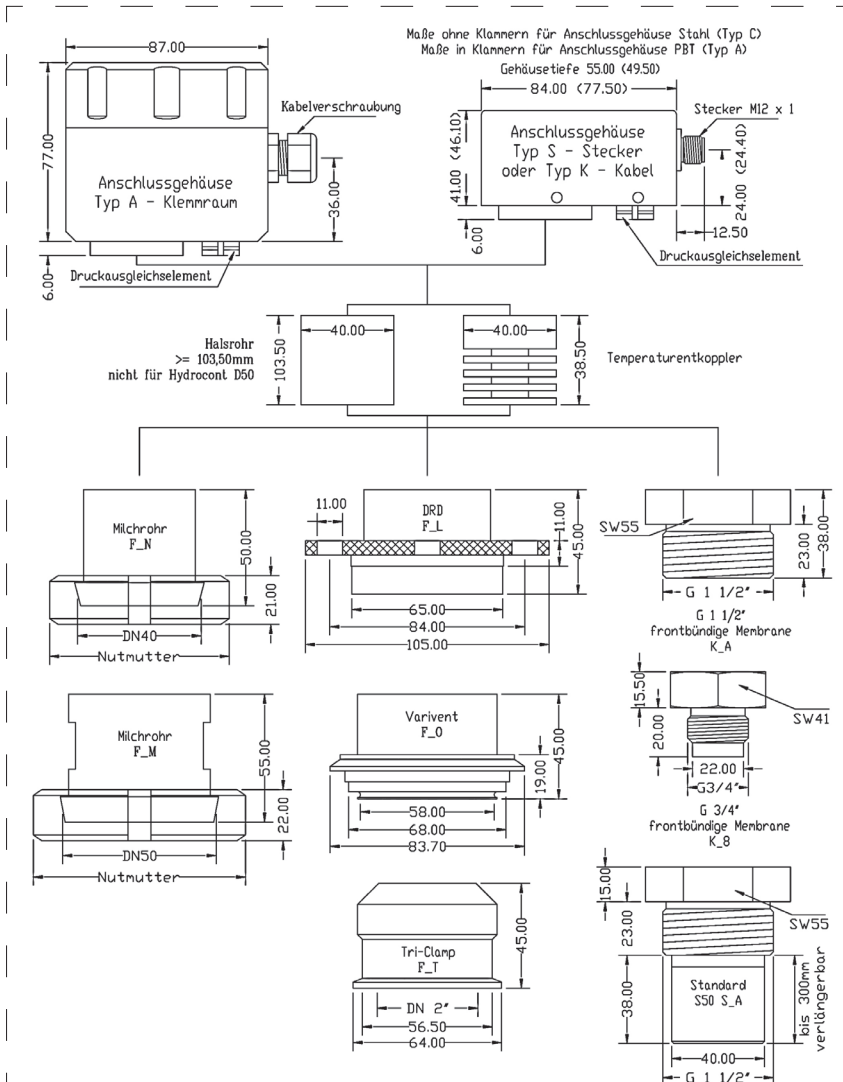


tube extension

Extension cable probe



Terminal box



Application

The devices of the series Hydrocont® S50 with integrated digital evaluation electronic are compact sensors for measuring and monitoring of fill levels. The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all pressureless containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc. The level measurement system Hydrocont® S50 is built in the wall of the medium container. The medium contacts directly the ceramic membrane of the sensor without using a pressure mediator liquid and causes there a deflection of the membrane because of the hydrostatic pressure of the medium. At the maximum deflection the membrane contacts a robust ceramic carrier and because of this, the membrane come through over pressure of e.g. 80-times of nominal load at a sensor with a pressure range of 0...50 mbar without damage. The fill level proportional pressure signal of the ceramic membrane is recorded from a processor with high resolution, adjusted according to the settings and converted into a high resolution output signal of 4...20mA or 0...10V. By using 3 keys and an LED display the sensor measurement range, the display, the PNP-switching outputs and the damping can be adjusted or the behaviour in the case of failure and the release of the fast adjustment can be set.

Hydrocont® S50

Hydrostatic filling level measurement, suitable also for Ex areas, with dry capacitive measurement system, with display, 4-20mA or 0-10V output and 2 pnp switching outputs

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Equipment

Equipment like Hydrocont® HN4 page 12

Welded flanges page 64

Connection

connection type A; plug M12

connection type A; terminal box

Kl. 1 → PE/Schirm Kl. 2 → +Vs
Kl. 3 → I_{OUT} (4...20mA) Kl. 4 → nicht belegt
Kl. 5 → SP1 Kl. 6 → SP2

connection type E; plug M12

connection type E; terminal box

Additional Options

SF LABS-free, silicone-free / paint compatible version .90,00 €
ML Measurement point designation / TAG - Laser marking 20,00 €
KF Configuration / Preset..... 55,00 €
MZ Material test certificate - EN10204 3.1.....105,00 €

Order code

Hydrocont® mm

Basic price

Type		
S50 standard	.....	0,00 €
ExS50 ATEX II 1/2 G Ex ia IIC T4 Ga/Gb (not for construction form type W - extension cable probe)	.....	46,00 €
XDS50 ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	.....	57,00 €
Construction form		
S Standard - process connection type A / 6 - Probe extension type C	.....	52,00 €
K Short form flush-mounted - process connection type 8 / 9 / A / 6	.....	0,00 €
T Extension cable - Probe extension type A / E	.....	252,00 €
R Tube extension - Probe extension Type D / F	.....	338,00 €
F Flush-mounted - process connection type N / M / O / L / R / F / G / H / J / T / B	.....	0,00 €
H High-Temperature -10...+200°C process diaphragm seal metallic membrane	.....	505,00 €
W Extension cable probe / Field enclosure	.....	on request
Y Special construction	.....	252,00 €

Measuring membrane - material / accuracy (medium contact)

H Ceramic 99,9%, capacitive / 0,2%	.....	0,00 €
(Probe extension type F >> membrane ceramic 96%)		
L Ceramic 99,9%, capacitive / 0,1%, linearization protocol; Measuring span ≥ 0,1 bar	.....	113,00 €
(Probe extension type F >> membrane ceramic 96%)		
M Xcellence - ceramic 99,9%, capacitive / 0,05%, linearization protocol (Measuring span ≥ 0,2 bar; not for process connection type 9; Construction form short form type K - Process connection type 8 >> membrane ceramic 96%; Construction form tube extension type R - Probe extension type F >> membrane ceramic 96%)	.....	168,00 €

Process connection

8 G ^{3/4} " A, ISO228-1	.....	0,00 €
9 G ^{1/2} " A, ISO 228-1	.....	0,00 €
6 G ^{1/2} " A, ISO 228-1, PEEK	.....	459,00 €
A G ^{1/2} " A, ISO 228-1	.....	66,00 €
M Milk tube DN 50, PN40 DIN 11851	.....	119,00 €
N Milk tube DN 40, PN25 DIN 11851	.....	119,00 €
O Varivent® N, Ø68 mm, DN40-125 (1 1/2"-6"), PN 40	.....	213,00 €
L DRD 65 mm DN 50, PN 25	.....	208,00 €
T Tri-Clamp 2" (ISO 2852 DN51 / DIN32767 DN50), PN16/40	.....	241,00 €
R Flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40	.....	350,00 €
F Flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40	.....	406,00 €
G Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40	.....	514,00 €
H Flange DIN EN 1092-1, A (B - DIN 2527), DN80, PN10-40	.....	108,00 €
B Nut groove adapter Ø44mm	.....	230,00 €
W Extension cable probe Ø40mm	.....	0,00 €

Electronic - output

A 2-wire, signal 4...20mA, 2x PNP, LED display, keypad	.....	272,00 €
B 2-wire, signal 4...20mA, LED display, keypad	.....	212,00 €
C 2-wire, signal 4...20mA, keypad	.....	160,00 €
D 2-wire, signal 4...20mA	.....	94,00 €
E 3-wire, signal 0...10V, 2x PNP, LED display, keypad	.....	272,00 €
F 3-wire, signal 0...10V, LED display, keypad	.....	212,00 €
G 3-wire, signal 0...10V, keypad	.....	160,00 €
H 3-wire, signal 0...10V	.....	94,00 €

Measuring range

0 0...200 mbar	5 0...10 bar	.....	0,00 €
1 0...400 mbar	6 0...20 bar	.....	0,00 €
2 0...1 bar	7 -1...+1 bar	.....	0,00 €
3 0...2 bar	8 0...50 mbar	.....	0,00 €
4 0...4 bar	9 0...100 mbar	.....	0,00 €
Y Special measuring range		.....	40,00 €

Material terminal enclosure

A PBT - polybutyleneterephthalat, not for Electrical connection Type A	.....	0,00 €
C CrNi-steel	.....	160,00 €
D POM - polyoxymethylene (Delrin®), only for Electrical connection Type A	.....	65,00 €
W PC - polycarbonate or PS - polystyrene, only for construction form type W	.....	0,00 €

Electrical connection

S Plug M12	.....	0,00 €
K Cable, L = 2m	.....	22,00 €
A Terminal box	.....	157,00 €

Material process connection / process temperature

1 Steel 1.4404/316L / -40°C...+100°C	.....	0,00 €
2 Steel 1.4404/316L / -40°C...+125°C, temperature decoupler	.....	65,00 €
6 PEEK / standard, -40°C...+100°C	.....	505,00 €
Y Others	.....	on request

Material gaskets (process wetted)

1 FPM - fluorelastomere (Viton®)	.....	0,00 €
2 CR - chloroprene-rubber (Neopren®)	.....	0,00 €
3 EPDM - ethylene-propylene-dienomomere - food applications	.....	0,00 €
4 FFKM - perfluorelastomere (Kalrez®), not for type R / T / S / W	.....	100,00 €
7 FFKM - perfluorelastomere (Kalrez®) - type R / T / S / W	.....	180,00 €
5 welded - construction form type H	.....	0,00 €
6 FFKM hd - perfluorelastomere high density - gas applications	.....	113,00 €
8 FFKM hd - perfluorelastomere high density - type R / T / S / W	.....	192,00 €

Probe extension

(Price per started 100 mm)

A Extension cable PE / -20°C...+70°C (not for XDS50)	.....	0,40 €
C Tube Ø40 mm / probe Ø40 mm	.....	41,00 €
D Tube Ø16 mm / probe Ø40 mm	.....	8,40 €
E Extension cable FEP / -20°C...+70°C	.....	3,70 €
F Tube Ø16 mm / probe Ø22 mm	.....	9,60 €
Y Special construction	.....	on request
0 No probe extension	.....	0,00 €

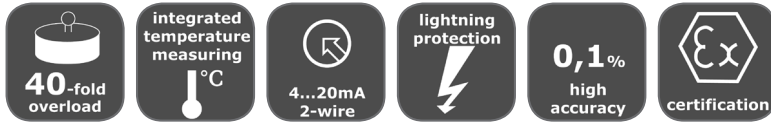
Length L1 / mm (probe)

Hydrocont® B and Hydrocont® ExB

Hydrostatic filling level sensor – Ø 40mm
for continuous measurement of filling levels and temperatures in liquids, level probe

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Technical data



Output: signal 4-20 mA 2-wire
 Permitted supply voltage: 11.5 V to 45 V DC for Ex version 11.5 V to 30 V DC
 Ripple: ≤ 2 Vpp (condition: within the permitted supply voltage range)
 Temperature deviation: $\leq 0.1\%$ / 10 K of the nominal measurement range
 Accuracy: $\leq 0.1\%$ / 0.2% of nominal measurement range (see order code)
 Calibration deviation: $\leq 0.05\%$ of the nominal measurement range
 Long term drift: $\leq 0.1\%$ / year of nominal measurement range
 Supply voltage influence: $\leq 0.02\%$ / 10V of nominal measurement range
 Resolution: infinite, because analog measurement electronics
 Delay time output: T90 < 100us
 Surge Protection: Max signal voltage: 30V (peak value; to ground)
 Nominal discharge current: 2 500A (wave 8/20µs)
 Temperature-measuring resistance: Pt100 class B 3-wire connection
 0 °C - Deviation + / - 0.30 K
 End point error + / - (0.30 K + 0.005 K per K DT0 ° C)
 (Optional built-in wall mounting case Pt100 - Transmitter type e.g. KTM, which is adjusted according to customer specification)
 Suspension sensor IP68
 End Cap / Connector Housing IP67
 Wall-mounted housing IP65

Protection:
 Membrane material: AL2O3 96%, High Purity 99.9%
 Material slopes sensor: Steel 1.4404
 Cap material: Steel 1.4404
 Sealing material: FPM (Viton®) / EPDM / Neoprene® / Kalrez®
 Material Connection housing: Polyacetal POM (Delrin), screw steel 1.4404
 Material carrying cable: PE / PUR / FEP
 Allowable product temperature: -20°C ... +70°C



W - Wall-mounted casing



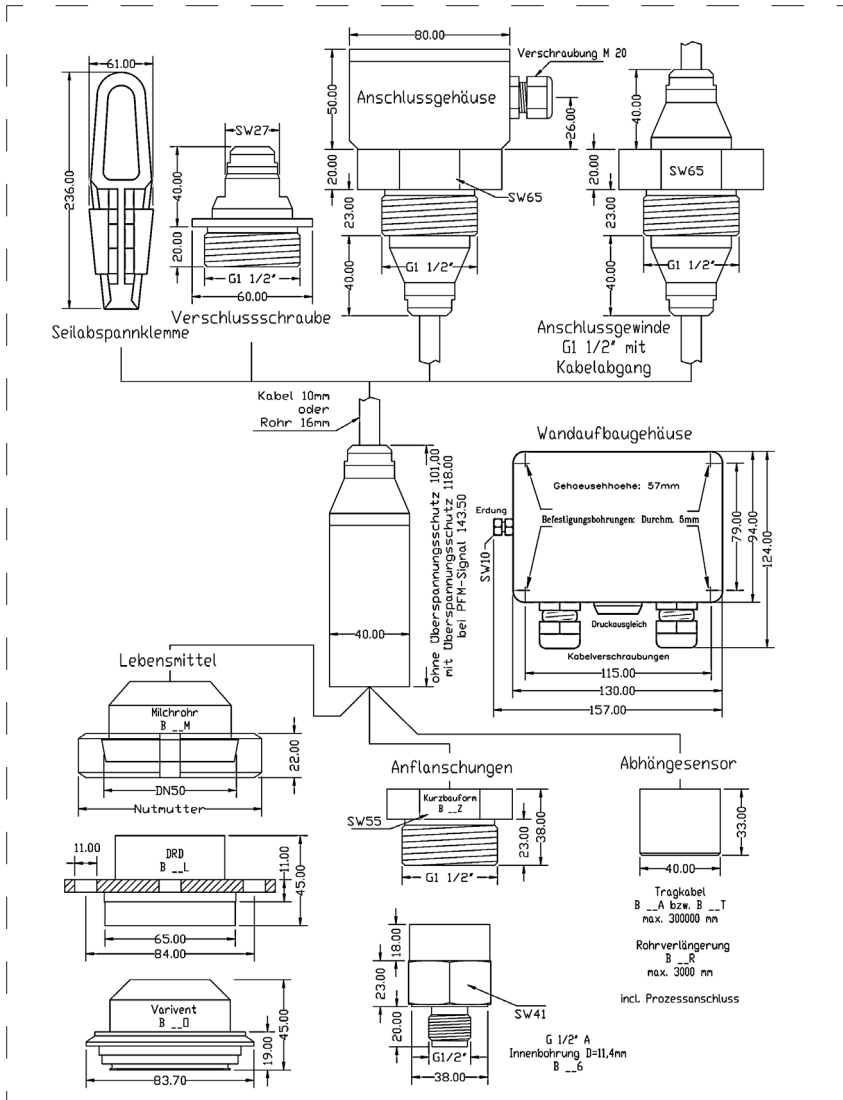
S | U - Straining clamp



V - Sealing screw G1½"



Ø40 mm



Application

The device Hydrocont® B with integrated analogue evaluation electronic is a compact sensor for continuous measurement of fill levels in liquid media. This includes e.g. the registration of levels in reservoirs, clarification basins, deep wells etc., but also the fill level measurement in closed containers. For applications, where food or drink water suitability is necessary, a corresponding put in variant can be ordered.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitivity against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc. In addition to the level measurement the temperature of the medium can be measured by a Pt100 resistor, that is integrated in the sensor.

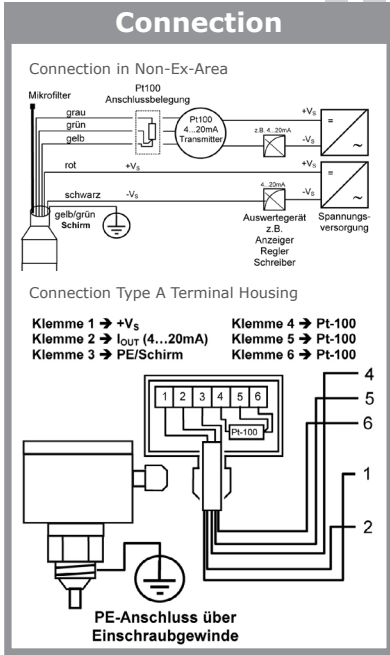
Hydrocont® B and Hydrocont® ExB

Hydrostatic filling level sensor – Ø 40mm
for continuous measurement of filling levels and temperatures in liquids, level probe

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Equipment

Equipment page 64



Additional Options

SF	LABS-free, silicone-free / paint compatible version	.90,00 €
ML	Measurement point designation / TAG – Laser marking	20,00 €
KF	Configuration / Preset	55,00 €
MZ	Material test certificate – EN10204 3.1	105,00 €

Basic price		635,00 €
Type		
B	Standard	0,00 €
Ex1B	ATEX II 2 G Ex ib IIC T4	45,00 €
Ex0B	ATEX II 1/2 G Ex ia IIC T4	45,00 €
Wall installation housing		
W	Wall installation housing	43,00 €
0	Without wall installation housing	0,00 €
Put-in device – process connection		
0	Without put-in device	0,00 €
S	Cable clamp fixing steel, hot galvanized	30,00 €
U	Cable clamp fixing CrNi-steel	36,00 €
V	Screw plug G 1½" DIN EN ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	66,00 €
G	Connection housing G 1½" DIN EN ISO228-1	116,00 €
H	Connection thread G 1½" DIN EN ISO228-1	
	probe cable connection specify cable length	116,00 €
Variant sensor – process connection		
A	Standard	0,00 €
T	Food and drink water suitability of all medium contacting materials	28,00 €
R	Tube prolongation Ø 16mm (only for type G or type H)	162,00 €
Z	G 1½" B DIN EN ISO228-1	80,00 €
6	G 1½" B DIN EN ISO228-1 inside drill 11,4 mm	39,00 €
M	Dairy coupling DIN 11851 – DN50, PN25	201,00 €
L	DRD – DN50 / Ø65mm, PN25	198,00 €
O	Varivent® – Type N / tube DN40-162 / 1½"-6", PN40	201,00 €
Electronic – output		
0	2-wire-technology 4...20 mA	0,00 €
P	2-wire-technology PFM 90...520 Hz (not for Ex)	216,00 €
Measurment range in bar		
8	0...100 mbar	
0	0...200 mbar	
1	0...400 mbar	
6	0...600 mbar	
2	0...1000 mbar	
3	0...2000 mbar	
4	0...4000 mbar	
7	0...6000 mbar	
9	0...5000 mbar	
5	0...10000 mbar	
P	0...50 mbar	
Z	0...20 bar	
Measurment range in m water column		
A	0...1 m water column	0,00 €
B	0...2 m water column	0,00 €
C	0...4 m water column	0,00 €
M	0...5 m water column	0,00 €
D	0...6 m water column	0,00 €
E	0...10 m water column	0,00 €
F	0...20 m water column	0,00 €
L	0...25 m water column	0,00 €
G	0...40 m water column	0,00 €
J	0...50 m water column	0,00 €
K	0...60 m water column	0,00 €
H	0...100 m water column	0,00 €
Y	Special measuring range	38,00 €
Accuracy measuring system		
H	0,2% ceramic AL ₂ O ₃ 99,9% (highly clean)	0,00 €
L	0,1% Linearization protocol ceramic AL ₂ O ₃ 99,9% (highly clean)	108,00 €
Over voltage protection		
0	Without over voltage protection	0,00 €
P	Integrated over voltage protection not for variant type Ex0B	0,00 €
Temperature sensor		
0	Without temperature sensor	0,00 €
1	Integrated temperature sensor Pt100	109,00 €
2	Integrated temperature sensor Pt100 with an installed Pt100 transmitter in the wall installation housing	
	specify temperature measurement range separately	288,00 €
Material probe (medium contact)		
1	Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	0,00 €
3	Navy bronze CU SN 12	133,00 €
4	Hastelloy C	on request
6	PEEK	766,00 €
7	Titan	on request
Material gaskets (medium contact)		
1	FPM fluorelastomere (Viton®)	0,00 €
2	CR chloroprene-rubber (Neopren®)	0,00 €
3	EPDM ethylene-propylene-dienmonomere for food applications	0,00 €
4	FFKM perfluorelastomere (Kalrez®)	100,00 €
6	FFKM perfluorelastomere high density for gas application	113,00 €
7	FFKM perfluorelastomere (Kalrez®) – construction form type R/T/S	180,00 €
8	FFKM perfluorelastomere high density–construction form type R/T/S	192,00 €
Material probe prolongation (medium contact, price per 100mm)		
A	PE Polyethylene	0,40 €
E	FEP Fluorinated Ethylene Propylene	3,70 €
D	Tube Ø 16mm steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	8,00 €
Sensor length		
incl. Process connection: measure in mm		

Price group A

Order code

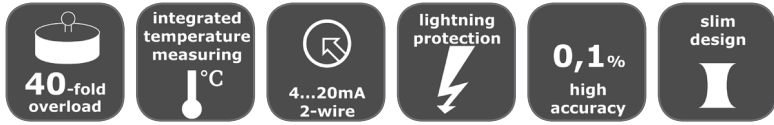
Hydrocont®

Hydrocont® M and Hydrocont® ExM

Hydrostatic filling level sensor – Ø 22mm
for continuous measurement of filling levels and temperatures in liquids,
integrated temperature measurement with Pt100, level probe

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Technical data



Output:	Signal 4...20 mA, 2-wire	
Residual ripple:	≤ 2 Vss (Condition: within the permitted supply voltage range)	
Permitted supply voltage:	Output signal 4...20mA: 11 V up to 45 V DC	
Output signal 10...10 V:	14...30 V DC	
at Ex-Variation 12,5 V up to 25,2 V DC		
Measuring accuracy		
Temperature deviation:	≤ 0,15% / 10 K of the nominal range	
Deviation in characteristics:	≤ 0,1% / 0,25% of the nominal range (depending on the order code)	
Calibration deviation:	≤ 0,05% of the nominal range	
Long term drift:	≤ 0,15% / year of the nominal range	
Influence of supply voltage:	≤ 0,02% / 10 V of the nominal range	
Resolution:	infinite, because analog measurement electronics	
Material		
Membrane:	Ceramic AL2O3 96%	
Material slopes sensor:	Steel 1.4404	
Sealing screw:	Steel 1.4404	
Gaskets:	FPM (Viton®) / EPDM / Neoprene®	
Connection housing:	Polyacetal POM (Delrin), screw-in thread aus Steel 1.4404	
Wall-mounted casing:	PC / PS	
Extension cable:	PE / PUR	
Environmental conditions		
Permitted filling temperature:	-20°C...+70°C	
Protection:	Material slopes sensor IP68	
	Sealing screw / Connection housing IP67	
	Wall-mounted casing IP65	



W - Wall-mounted casing



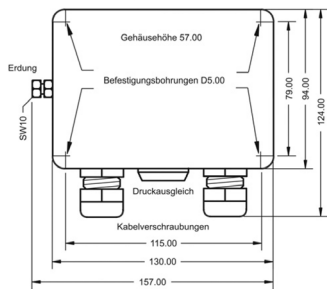
S | U - Straining clamp



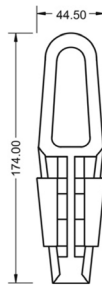
T - Sealing screw G1½"
W - Sealing screw G1"

ø22 mm

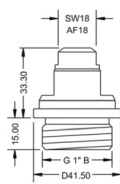
Wandaufbaugeschäuse 130 x 98mm



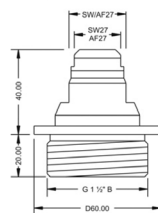
Seilspannklemme D8mm



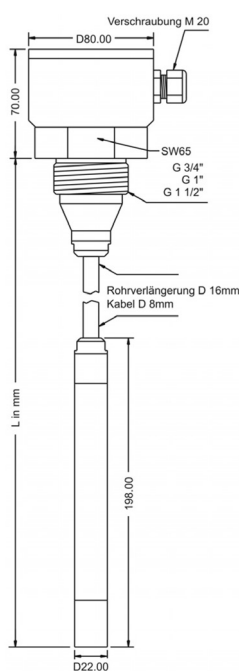
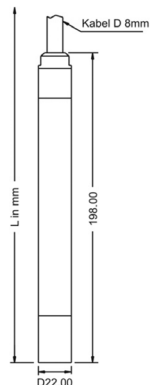
Verschlusssschraube G 1"



Verschlusssschraube G 1 ½"



Sensor – ohne Anschlussgehäuse



Application

The filling level sensor Hydrocont® M with integrated analogue evaluation electronic is a compact transmitter for continuous measuring of fill levels and temperatures in liquid media.

This includes e.g. the measurement of levels in reservoirs, clarification basins, deep wells etc., but also the fill level measurement in closed containers. For applications, where food or drink water suitability is necessary, a corresponding variant can be ordered.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in various applications with liquid media like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc.

Besides the level measurement it is possible to get the temperature of the medium by an integrated Pt100 resistor in parallel with this sensor.

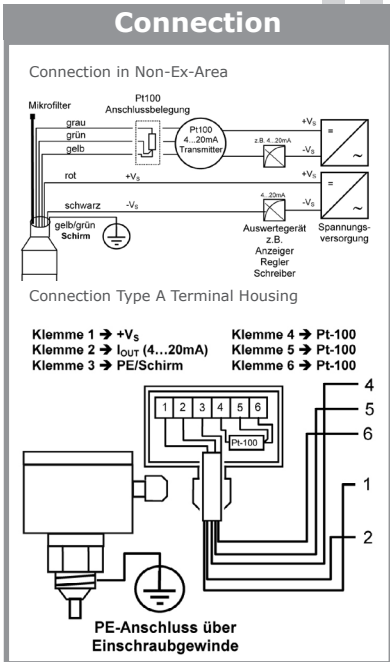
Hydrocont® M and Hydrocont® ExM

Hydrostatic filling level sensor – Ø 22mm
for continuous measurement of filling levels and temperatures in liquids,
integrated temperature measurement with Pt100, level probe

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Equipment

Equipment page 64



Basic price

Type	
M	Standard
Ex0M II 1/2 G Ex ia IIC T4 for Ex zone 0	45,00 €
Ex1M II 2 G Ex ib IIC T4 for Ex zone 1	45,00 €

Variant wall installation housing

W	Wall installation housing	44,00 €
0	Without wall installation housing	0,00 €

Put-in device / process connection

0	Without put-in device	0,00 €
S	Cable clamp fixing steel, hot galvanized	30,00 €
U	Cable clamp fixing CrNi-steel	36,00 €
W	Screw plug G 1" ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	60,00 €
T	Screw plug G 1½" ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	68,00 €
G	Connection housing G 1½" ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	116,00 €
8	Connection housing G ¾" ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	102,00 €
9	Connection housing G 1" ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	110,00 €

Variant sensor

S	Standard	0,00 €
T	Food and drink water suitability of all medium contacting materials	28,50 €
R	Tube prolongation Ø 16mm only for connection housing – type G / 8 / 9	166,00 €

Transmitter electronic

0	2-wire-technology 4...20mA	- €
B	3-wire-technology 0...10 VDC	on request

Measure range in bar

8	0...100 mbar
0	0...200 mbar
1	0...400 mbar
6	0...600 mbar
2	0...1000 mbar
3	0...2000 mbar
4	0...4000 mbar
9	0...5000 mbar
7	0...6000 mbar
5	0...10000 mbar
Z	0...20 bar

Measure range in m water column

A	0...1 m water column	0,00 €
B	0...2 m water column	0,00 €
C	0...4 m water column	0,00 €
M	0...5 m water column	0,00 €
D	0...6 m water column	0,00 €
E	0...10 m water column	0,00 €
F	0...20 m water column	0,00 €
L	0...25 m water column	0,00 €
G	0...40 m water column	0,00 €
J	0...50 m water column	0,00 €
K	0...60 m water column	0,00 €
H	0...100 m water column	0,00 €
Y	Special measuring range	39,00 €

Accuracy measuring system

0	0,25% ceramic AL2O3 96%	0,00 €
K	0,1% Linearization protocol ceramic AL2O3 96%	68,00 €

Over voltage protection

0	Without over voltage protection	0,00 €
P	Integrated over voltage protection not for Ex zone 0 – type Ex0M	0,00 €

Temperature sensor

0	Without temperature sensor	0,00 €
1	Integrated temperature sensor Pt100 not for Ex0M / Ex1M	112,00 €
2	Integrated temperature sensor Pt100 not for Ex0M / Ex1M With an installed Pt100 transmitter in the wall installation housing	296,00 €

Material probe (medium contact)

1	Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	0,00 €
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Material gaskets (medium contact)

1	FPM fluorelastomere (Viton®)	0,00 €
2	CR chloroprene-rubber (Neopren®)	0,00 €
3	EPDM ethylene-propylene-dienmonomere for food applications	0,00 €

Materials probe prolongation

A	PE polyethylene	0,50 €
B	PUR polyurethane	0,70 €
D	Tube Ø 16mm	8,20 €

Sensor length

Measure in mm (inclusive process connection)

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking	20,00 €
MZ	Material test / certificate – EN10204 3.1	105,00 €

661,00 €

Price group A

Order code

Hydrocont®

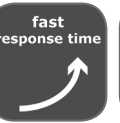
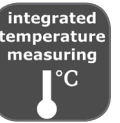
1 mm

Hydocont® HP4SC

Levelsensor ø 22mm, for hydrostatic level measurement with capacitive ceramic measuring cell;
Output signal RS 485 Modbus RTU

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Technical data



Input Pressure
Nom. pressure PN relative: 0...0,1bar up to 0...10bar
Characteristic deviation: $\leq \pm 0,05\% / \pm 0,1\% / \pm 0,2\% \text{ FSO}$
Temperature deviation: Tk Zero $\leq \pm 0,015\% \text{ FSO/K}$, $\leq \pm 0,75\% \text{ FSO}$
Tk Span $\leq \pm 0,015\% \text{ FSO/K}$, $\leq \pm 0,5\% \text{ FSO} (\geq 0,4\text{bar}) / \leq \pm 0,8\% \text{ FSO} (< 0,4\text{bar})$
T90 $\leq 2\text{ms}$ (td = 0s)

Time behavior:
Input Temperature
Sensor type: Pt1000 class A
Characteristic deviation: $\leq \pm 0,1\text{K} + 0,002 \times [\text{dt} (25^\circ\text{C})]$
Time behavior: T90 $\leq 4\text{s}$

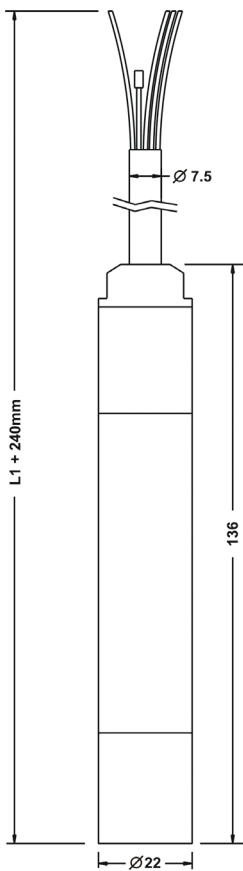
Output RS485 Modbus®-RTU
Interface: RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)
Time behavior: ton $\leq 250\text{ms}$ (td = 0s)

Auxiliary power
Supply voltage Us
polarity protected: 6...35VDC
Overvoltage protection
Coarse protection: 75V / 10kA - wave 8/20µs / all lines to PE
Fine protection: 36V / all lines to -L

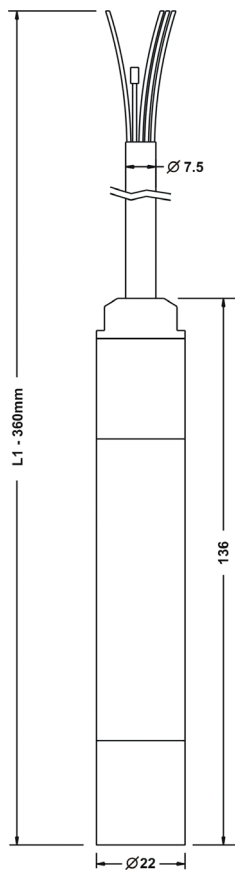
Environmental conditions
Environmental temperature: -20°C...+70°C
Protection level: IP68 (EN/IEC 60529)
Materials
Process wetted: Ceramic Al2O3, CrNi-Steel, FPM, EPDM, PE, PUR



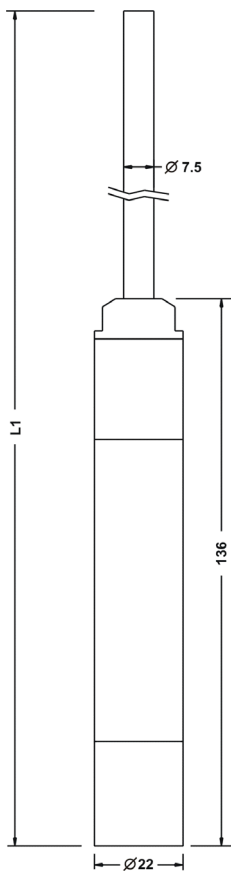
Electrical connection type K
Confection stranded wires



Electrical connection type H
Confection Hydrolog HLF4



Electrical connection type 0
Without confection



Application

The hydrostatic level probe Hydrocont HP4SC is suitable for monitoring, control and continuous measurement of levels and temperatures. Thanks to the capacitive ceramic measuring cell, the submersible probe offers maximum accuracy and long-term stability. Its slim design, with a diameter of 22mm, enables it to be used even in small dip tubes. Due to the possibility of combining different materials for sensors, cables and seals, the measuring system can be designed for a large number of, also aggressive, filling media.

The signal evaluation is based on RS485 Modbus-RTU. This also makes it possible to digitally adjust the sensor according to the respective circumstances.

In addition to level measurement, the Hydrocont HP4SC can also measure the temperature of the medium via a built-in sensor and also output it using the Modbus protocol.

To ensure safe operation, especially outdoors, the Hydrocont HP4SC has an integrated surge protection, which is designed as a coarse and fine protection.

A captive laser inscription on the nameplate ensures identifiability over the entire life of the device.

Hydocont® HP4SC

Levelsensor ø 22mm, for hydrostatic level measurement with capacitive ceramic measuring cell;
Output signal RS 485 Modbus RTU

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Basic price		643,00 €
Type		
S Standard		0,00 €
Measuring system – material diaphragm (process wetted) / sensor type		
C Ceramic Al2O3 96%/99,7% / capacitive		0,00 €
Approval		
S Standard		0,00 €
Process connection		
O without		0,00 €
Y others		on request
Material process gaskets (process wetted)		
1 FPM – fluorelastomere (e.g. Viton®)		0,00 €
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed		0,00 €
Y others		on request
Material process connection (process wetted)		
V CrNi-steel		0,00 €
V CrNi-steel, duplex, sea water resistant		55,00 €
Y others		on request
Material terminal enclosure		
0 without		0,00 €
Measuring range		
01 0...100 mbar	07 0...2 bar	0,00 €
02 0...200 mbar	08 0...4 bar	0,00 €
03 0...400 mbar	09 0...6 bar	0,00 €
04 0...600 mbar	10 0...10 bar	0,00 €
05 0...1 bar		0,00 €
YY Sondermessbereich		38,00 €
Electronic – output		
V RS485 Modbus®-RTU, 4-wire		0,00 €
Electronic – function		
0 without		0,00 €
3 Temperature sensor Pt1000		104,00 €
Y others		on request
Process temperature		
0 Standard -20°C...+70°C		0,00 €
Pressure type		
R Gauge pressure		0,00 €
Measuring system – accuracy		
1 0,2%		0,00 €
3 0,1%, linearization protocol		66,00 €
6 Xcellence – 0,05% (FS ≥ 200mbar), inearization protocol		164,00 €
Electrical connection		
K Cable, confection stranded wires, length L1 +240mm		0,00 €
H Cable, confection Hydrolog HLF4, length L1 -360mm		0,00 €
0 Cable, without confection, incl. confection kit		0,00 €
Material Cable (process wetted)		
A Cable sheath PE		0,50 €
B Cable sheath PUR		0,70 €
G Cable sheath PUR, increased diffusion-tightness		0,80 €
Length L1 / mm (≤ 300.000mm)		

Price group A

+ Additional options

SF LABS-free, silicone-free / paint compatible version	90,00 €
ML Measurement point designa- tion / TAG – Laser marking	20,00 €
MZ Material test certificate – EN10204 3.1	105,00 €
WT Factory certification – drink water suitability	28,00 €
KF Configuration / Preset	55,00 €

Order code

Hydrocont® HP4 S C S 0 V 0 R mm

Equipment

Order designation	execution	
65000399	Tension clamp, galvanized steel	31,00 €
65001899	Tension clamp, CrNi-steel	37,00 €
91982121	Screw G1" CrNi-steel	72,00 €
91982124	Screw, G1 1/2" CrNi-steel	81,00 €
	Junction box G1"	on request
	Junction box, G1 1/2"	on request
	Wall mounting housing made of plastic	73,00 €
	Reduction kit cable	on request

Price group E

Hydrocont® LK

Level probe as a probe or suspension suitable for outdoor installation; **Low Cost Version**

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Technical data

capacitive ceramic sensor	4...20mA 2-wire	0...10 V 3-wire	0,1% high accuracy	fast response time	flush mounted
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2-wire 4...20 mA 10...30 V DC
 3-wire 0...10 V 14...30 V DC

Supply current:
 2-wire 4...20 mA ≤ 30 mA
 3-wire 0...10 V ≤ 6 mA

Measuring accuracy
 Deviation in characteristics: ≤ ± 0,1% / 0,25% FS
 Long term drift: ≤ ± 0,15% FS / year not cumulative
 Temperature deviation : ≤ ± 0,15% FS / 10 K

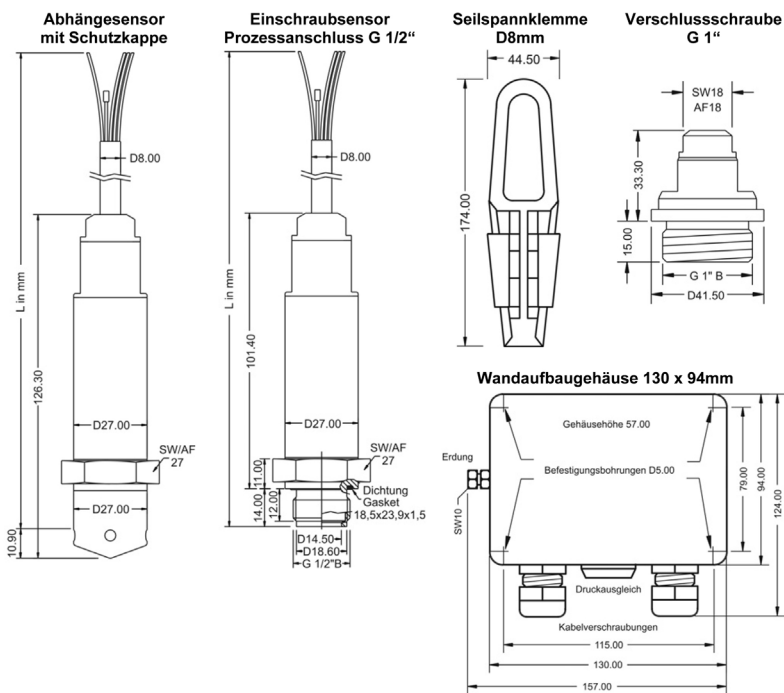
Material
 Membrane: Ceramic AL₂O₃ 96% (medium contact)
 Process connection: Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti) (medium contact)
 Housing rope: CrNi-steel
 Gaskets: FPM – Fluoroelastomer (Viton®)
 (medium contact) EPDM – ethylene-propylene-diene monomer
 NBR – Nitrile Butadiene Rubber
 Coated cable PE Polyethylen

Connection cable:
 Environmental conditions
 Ambient temperature: - 20°C...+70°C
 Process temperature: - 20°C...+70°C
 outdoor installation via process connection
 - 40°C...+100°

Process pressure ranges:
 Protection: 0...1 bar DIN EN 60529



with front cap



Sealing screw



Straining clamp



Wall-mounted casing

Application

The device Hydrocont® LK with integrated analogue evaluation electronic is a compact hydrostatic transmitter for continuous measuring of filling levels in liquids at hydrostatic pressures from 0 up to 1 bar within pressure less container, at process temperatures from - 40°C to +100°C.

The use of a capacitive measuring sensor with ceramic membrane, allows the use in nearly all fields of industry.

Application fields are e.g. the measurement of levels in reservoirs, clarification basins, deep wells etc., but also the filling level measurement in closed containers at liquids, like e.g. water, waste water, solvents, oil, sludge, fat, cleaning liquids, etc.

Hydrocont® LK

Level probe as a probe or suspension suitable for outdoor installation; **Low Cost Version**

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Fill level measurement

Basic price		379,00 €
Type		
0	Standard	0,00 €
LK	Measuring membrane (medium contact) Ceramic capacitive membrane ceramic AL2O3 96%	0,00 €
Process connection		
0	G ½" B DIN EN ISO228-1 slopes probe with flush measuring cell and cap, suitable by G- "connection for outdoor installation	0,00 €
Y	Others on request.	on request
Gaskets (medium contact)		
1	FPM fluorelastomere (Viton®)	0,00 €
3	EPDM etylene-propylene-dienmonomere for food applications	0,00 €
Material process connection (medium contact)		
V	Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	0,00 €
Material Connection housing		
C	CrNi-steel	0,00 €
Measuring range		
01	0...0,1 bar	0,00 €
02	0...0,2 bar	0,00 €
03	0...0,4 bar	0,00 €
04	0...0,6 bar	0,00 €
05	0...1 bar	0,00 €
YY	Special measuring range separate spec. necessary	39,00 €
Electronic – output		
A	2-wire-technology signal 4...20 mA	0,00 €
B	3-wire-technology signal 0...10 V	0,00 €
Process temperature		
0	Standard -40°C to 100°C outside installation, -20°C to +70°C as slope version	0,00 €
Pressure type		
R	Relative pressure	0,00 €
Accuracy measuring system *):		
0	0,1 %, with Linearization protocol.	67,00 €
2	0,25 %	0,00 €
Probe prolongation (price per 100mm) Carrying cable PE		
A	.....	0,50 €
Probe length L incl. process connection measure in mm		

Price group D

Order code

Hydrocont® - LK V C 0 R A mm

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking	20,00 €
MZ	Material test / certificate – EN10204 3.1	105,00 €

Equipment

Sealing screw VSM-1000 G1"	75,00 €
Sealing screw VSM-1500 G1 ½"	83,00 €
Straining clamp hot galvanized	32,00 €
Wall-mounted casing without laser marking	73,00 €

PGE

Sonicont® USG2 / USF2

Ultrasonic fill level sensor for liquids and solid materials - separate version

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Technical data Sensor USG2



Supply voltage: Supplied by signal converter Sonicont USF
 Output
 Distance signal: Analog voltage / pulse signal
 Temperature signal: Resistance - NTC 10 kΩ
 Measurement range
 Liquids: USG2 020: 2 m; USG2 050: 5 m; USG2 080: 8 m
 USG2 150: 15 m; USG2 250: 25 m
 Solids: USG2 020: 1 m; USG2 050: 2 m; USG2 080: 3,5 m
 USG2 150: 7 m; USG2 250: 12 m
 Process conditions
 Process temperature: -40°C...+85°C
 Process pressure: -0,3...2 bar
 Material
 Sensor (medium contact): PVDF
 Process connection (medium contact): Measuring range 020/050/080/150: PVDF
 Measuring range 250: PVDF, PBT Valox
 Sensor back (casting): PVDF
 Connection cable: TPE-U
 Environmental conditions
 Ambient temperature: -40°C...+85°C
 Protection: Electrical connection type B - cable: IP65 / IP68 [≤ 1 mWs-1h] (EN/IEC 60529)
 Electrical connection type S - cable/plug connection M12: IP67 (EN/IEC 60529)
 4K4H [-20...+55°C / 4...100%] (EN/IEC 60721-3-4)
 Climate Class: 15 g [11ms] (EN/IEC 60068-2-27)
 Shock resistance: 4g [10...2000 Hz] (EN/IEC 60068-2-6)
 Vibration resistance: Equipment Class B / industrial sector (EN/IEC 61326)
 EM - compatibility: USG2 020/050/080: 0,3 kg ; USG2 150: 0,6 kg ; USG2 250: 0,9 kg
 Weight sensor:

Technical data Transmitter USF2



Supply voltage Type A/B/C: 18...30 V
 Power consumption Type A/B/C: ≤ 5W
 Supply voltage Type S/T/U: 186...253V AC
 Power consumption Type S/T/U: ≤ 20 VA
 Output Signal U/I
 Work area: (0)4...20mA / 0...10 V, adjustable
 Sprungantwortzeit: ≤ 35 ms
 Measurement range
 Liquids: USG2 020: 2 m; USG2 050: 5 m; USG2 080: 8 m
 USG2 150: 15 m; USG2 250: 25 m
 Solids: USG2 020: 1 m; USG2 050: 2 m; USG2 080: 3,5 m
 USG2 150: 7 m; USG2 250: 12 m
 Switching outputs
 Amount: 0/2/4 depending on device version
 Function: potential-free changeover contact
 Output current: 6A at 253 V AC (resistive load)
 Response time: ≤ 20 ms
 USB Interface
 Version: 2.0 FS
 Function: Host
 Connection: Micro-USB AB
 Bluetooth Interface
 Version: 2.0 Full Speed
 Function: Host
 Output voltage: 5V ±5%, ≤ 100mA
 Jack socket: USB 2.0-A
 Datenspeicher: ≥ 500.000 measurement values
 Measuring accuracy
 Deviation in characteristics: ≤ ± 2 mm or ±0,2 % of the measuring ranges (whichever is greater) (td ≥ 5s)
 Temperature deviation: ≤ ±0,06% FS / 10 K (Zero / Span)
 Material
 Connection housing wall-mounted casing / DIN rail housing : PC / PES / CrNi-Steel / PA / CR-NBR
 Connection housing front panel housing: PPE / PES / Steel verzinkt / CrNi-Steel / PA / NBR-EPDM
 Environmental conditions
 Ambient temperature: -20°C...+50°C
 Expansion
 Backlight LCD ≤ 80% >> -20°C...+60°C
 Backlight LCD ≤ 60% >> -20°C...+70°C
 Protection: wall-mounted casing / DIN rail housing: IP65 EN/IEC 60529
 Protection: front panel housing: Front side IP54 / IP65 (Option) EN/IEC 60529
 Back side IP20 EN/IEC 60529



Application

With the Sonicont® USF2 and USG2 provides ACS-CONTROL-SYSTEM GmbH an ultrasonic level transmitter remote version for non-contact level measurement of fluids, pastes and coarse bulk materials before. By long life, easy installation and less maintenance, the ultrasonic measuring system is a proven and cost-effective solution.

Combined with up to 4 freely adjustable switching points and suitable for measuring ranges up to 8m in liquids and up to 3.5 m in bulk materials (on request up to 25m in liquids and up to 12m in solids), this sensor can be used for various measuring tasks for volume linear display in all container types - and with an accuracy of 0.2% and ≤ 2 mm. In addition, the analog output 0 (4) ... 20 mA and 0 ... 10V is switchable. The morn transmitter has extensive diagnostic functions for system analysis and still allows easy setup and operation by clear menu guidance.

Besides level measurements the Sonicont® USG2 and USF2 is able for measurement of flow rates and currents. The mathematical formulas are already stored in the device. The sensor Sonicont® USG2 can be installed up to 300m from the transmitter Sonicont® USF2 and has IP65/ IP68 protection. The 2 „TFT color display of the Sonicont® USF2 provides an excellent representation of the measured values and easy readability. Intelligent data management enables the Sonicont® USF2 to record measured values through the Bluetooth interface and a built-in data logger function.

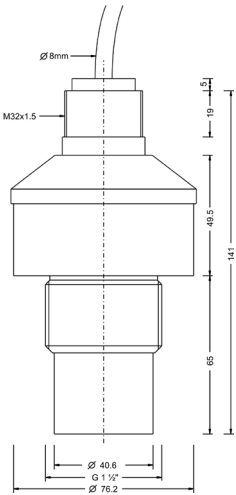
Sonicont® USG2 / USF2

Ultrasonic fill level sensor for liquids and solid materials - separate version

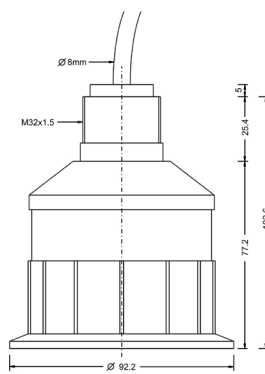
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Sensor Sonicont® USG2

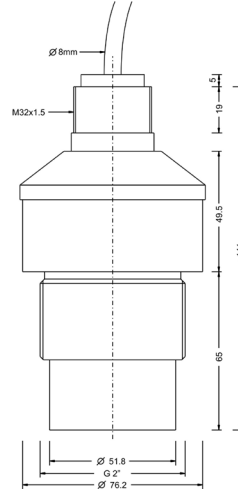
Process connection
Type USG2 020 G15 - G 1 1/2" ISO 228-1
Type USG2 050 G15 - G 1 1/2" ISO 228-1



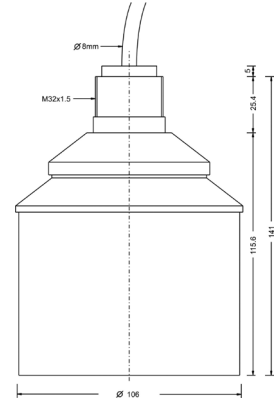
Process connection
Type USG2 150



Process connection
Type USG2 080 G20 - G 2" ISO 228-1

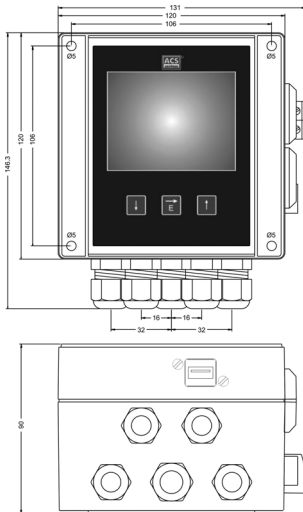


Process connection
Type USG2 250

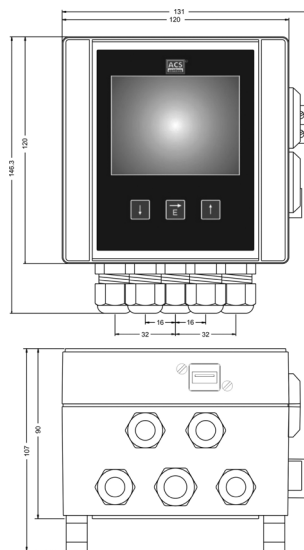


Signal converter Sonicont® USF2

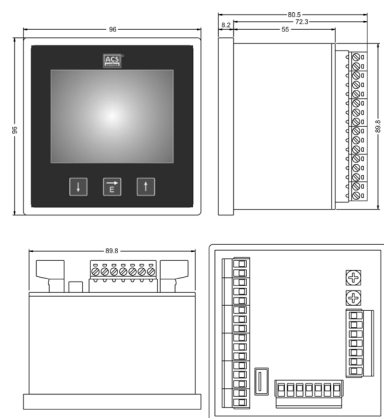
Connection housing
Wall mounted housing
Type F



Connection housing
DIN rail housing
Type P



Connection housing
Front panel enclosure
Type M



Sonicont® USG2

Ultrasonic fill level sensor for liquids and solid materials - separate version

1 / 01.22

Sensor



Basic price

Measuring range

020 2m	233,00 €
050 5m	268,00 €
080 8m	313,00 €
150 15m	464,00 €
250 25m	650,00 €

Approval

0 Standard	0,00 €
X ATEX II 1 G Ex ia IIC T6/T5 Ga / ATEX II 1 D Ex ia IIIC T95°C Da	118,00 €

Process connection

G15 Thread ISO 228-1 - G1½", Thread DIN 13 - M32x1,5	Measuring range 020 / 050	0,00 €
G20 Thread ISO 228-1 - G2", Thread DIN 13 - M32x1,5	Measuring range 080	0,00 €
M32 Thread DIN 13 - M32x1,5	Measuring range 150 / 250	0,00 €

0

0

Material process connection (medium contact)

P PVDF (Measuring range 020/050/080/150) resp. PVDF/PBT (Measuring range 250)	0,00 €
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0

Electrical connection

B Connection cable TPE-U	0,00 €
S Cable TPE-U, plug connection M12	120,00 €

Length L1 - connection cable

1 5m	0,00 €
2 10m	26,50 €
3 15m	53,00 €
4 20m	82,00 €
5 25m	110,00 €
6 30m	136,00 €

0 Standard	0,00 €
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Price group B

+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version	41,00 €
ML Measurement point designation / TAG - Laser marking	20,00 €

Order code

Sonicont® USG2 0 0 P 0 0

For the measurement you need the sensor Sonicont® USG2 and the transmitter Sonicont® USF2.

Equipment

Cable TPE-U price per m.

3,50 €

PGE

Sonicont® USF2

Ultrasonic fill level sensor for liquids and solid materials - separate version

1 / 01.22

Transmitter



Basic price		643,00 €
Approval		
0	Standard	0,00 €
X	ATEX II (1) G [Ex ia Ga] IIC / ATEX II (1) D [Ex ia Da] IIIC	114,00 €
Enclosure type		
F	Wall-mounted casing	69,00 €
M	Front panel housing	0,00 €
P	DIN rail housing	69,00 €
Electronic – supply / output		
A	18...36V DC / 1x 0/4...20mA - 0...10V	0,00 €
B	18...36V DC / 1x 0/4...20mA - 0...10V, 2x relay, 2x digital input	66,00 €
D	18...36V DC / 1x 0/4...20mA - 0...10V, 4x relay, 4x digital input	130,00 €
S	186...253V AC / 1x 0/4...20mA - 0...10V	0,00 €
T	186...253V AC / 1x 0/4...20mA - 0...10V, 2x relay, 2x digital input	66,00 €
U	186...253V AC / 1x 0/4...20mA - 0...10V, 4x relay, 4x digital input	130,00 €
Electronic - function		
0	USB-Interface	0,00 €
1	USB+Bluetooth-Interface	116,00 €
2	USB-Interface / Data logger with time stamp, battery powered	51,00 €
3	USB+Bluetooth-Interface / Data logger with time stamp, battery powered	168,00 €
Y	Others	on request
Electronic - extras		
0	Standard	0,00 €
1	USB device jack – Enclosure type F / P	64,00 €
2	Increased protection class IP65 – Enclosure type M	39,00 €
0	Standard	0,00 €

Price group A

+ Additional Options (optional)

KF	Configuration / Preset	55,00 €
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Order code

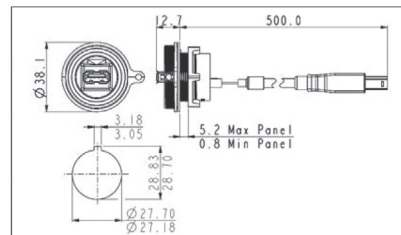
Sonicont® USF2 0

For the measurement you need the sensor Sonicont® USG2 and the transmitter Sonicont® USF2.

Equipment

Ordering information
611000312

Model
USB socket for front panel installation, for installation of USB-socket in the switchboard door, incl. covering cap IP68



911000482	USB 2.0 adapter socket A on plug Micro-B	9,40 €
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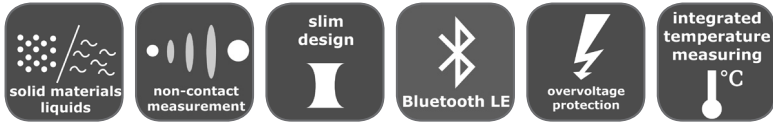
Price group H

Sonicont® USP4

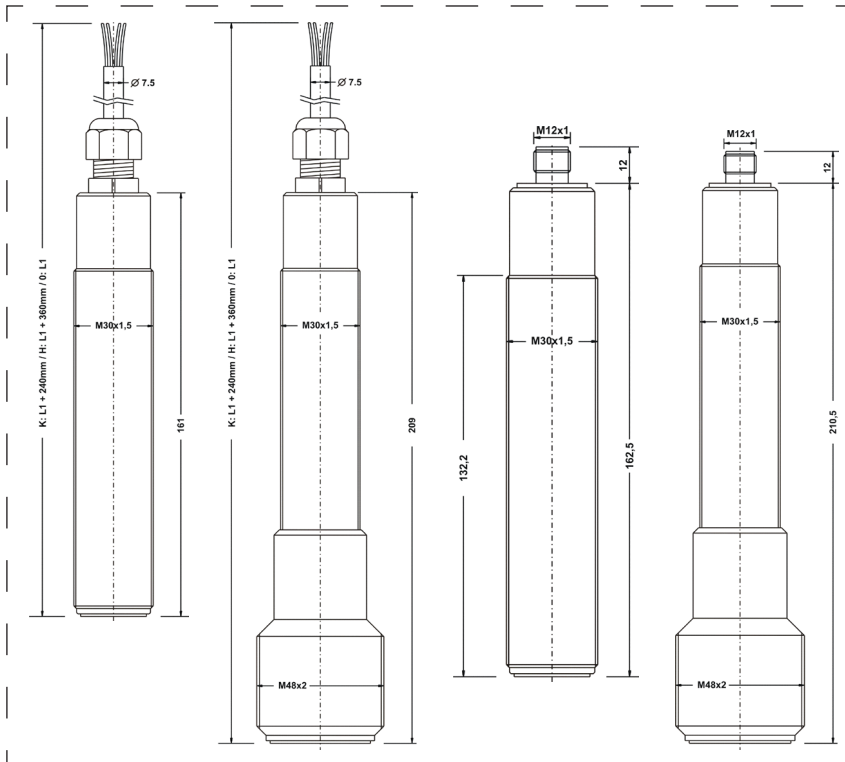
Ultrasonic sensor for non-contact level measurement in liquids and bulk materials
Suspended version

1 / 01.22

Technical data



Input Distance
 Measuring range: MB-02: 0...≤ 2m MB-05: 0...≤ 5m MB-08: 0...≤ 8m
 Blocking distance BD: ≤ 0,10m (typ. 0,06m) ≤ 0,15m (typ. 0,10m) ≤ 0,30m (typ. 0,19m)
 Pulse rate tp (meas. cycle time): ≤ 10Hz / ≥ 100ms ≤ 4Hz / ≥ 250ms ≤ 2Hz / ≥ 500ms
 Characteristic deviation: ≤ ±2mm or ±0,2%FSO
 Temperature deviation: Tk Zero (mean value) ≤ ±0,006%FSO/K
 Output current 4...20mA Bluetooth® 5.0 LE
 Analogue output 4...20mA: 3,8...20,5mA / ≥ 3,6mA / ≤ 22mA / dI ≤ 1µA
 Time behavior: T90 ≤ Pulsrate tp (td = 0s) / ton ≤ 3s (td = 0s)
 Interface: Bluetooth 5.0 LE (2Mbit/s)
 Auxiliary power
 Supply voltage Us polarity protected: 11...35VDC
 Overvoltage protection
 Coarse protection: EL-K/H/0: 75V / 10kA - wave 8/20µs / +L/-L to cable shield
 EL-S: 150V / 10kA - wave 8/20µs / +L to -L
 Fine protection: 36V / all lines to -L
 Environmental conditions
 Environmental temperature: -20°C...+70°C
 Protection level: EL-K/H/0: IP68 [≤3m/≤0,3bar] (EN/IEC 60529)
 EL-S: IP65/IP67 (EN/IEC 60529)
 Materials
 Process wetted: PVDF, POM, PA, NBR, FPM, PE, PUR



Application

The Sonicont USP4 is an ultrasonic sensor for non-contact level measurement and monitoring in liquids and bulk solids.

The sensor is designed as a suspended version with a cable outlet or as a screw-in sensor with a cable or plug connection. Due to its slim design, the sensor can be inserted through small container bores or installed in thin water wells. The Sonicont USP4 can optionally be combined with measuring tubes made of PE. As a result, the ultrasound signal receives a defined measuring path, which influences, e.g. would affect the ultrasonic signal through oxidized and uneven level pipes or container walls.

The electronics are designed as 4... 20mA 2-wire signals. To ensure safe operation, especially outdoors, the Sonicont USP4 has an integrated surge protection.

Due to its high accuracy, the compact Sensor for various applications in Range of ground and surface water measurements, tank monitoring, wastewater area and distance measurements can be used. By means of a free app, the Sonicont USP4 can Bluetooth® 5.0 LE, can be adapted to the respective conditions of use.

Sonicont® USP4

Ultrasonic sensor for non-contact level measurement in liquids and bulk materials
Suspended version

Fill level measurement

1 / 01.22

Basic price		438,00 €
Type	S Standard	0,00 €
Measuring system – material diaphragm (process wetted) / sensor type	P PVDF / Piezo	0,00 €
Approval	S Standard	0,00 €
Process connection	U Terminal enclosure, thread DIN 13 – M30x1,5	0,00 €
	Y others	on request
Material process connection (process wetted)	0 POM	0,00 €
	G others	on request
	Y others	on request
Measuring range	02 0...2 m	0,00 €
	05 0...5 m	78,00 €
	08 0...8 m	130,00 €
	YY Special measuring range	on request
Electronic – output	A Current 4...20mA, 2-wire, Bluetooth® 5.0 LE	44,00 €
	Y others	on request
Electronic – function	1 Standard	0,00 €
	Y others	on request
Process temperature	0 Standard –20°C...+70°C	0,00 €
	0 Standard –20°C...+70°C	0,00 €
	0 Standard –20°C...+70°C	0,00 €
Electrical connection	K Cable, confection stranded wires, length L1 +240mm	0,00 €
	H Cable, confection Hydrolog HLF4, length L1 –360mm	0,00 €
	0 Cable, without confection, incl. confection kit	0,00 €
	S Plug M12	117,00 €
	Y others	on request
Material Cable (process wetted)	0 without	0,00 €
	A Cable sheath PE	0,40 €
	B Cable sheath PUR	0,50 €
	G Cable sheath PUR, increased diffusion-tightness	0,60 €
	Y others	on request
Length L1 / mm	(≤ 300.000mm)	

Price group A

+ Additional options

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking. ...	20,00 €
KF	Configuration / Preset.	55,00 €

Order code

Sonicont®USP4 S P S 0 0 0 0 0 0 0 mm

Equipment

Order designation

65000399
65001899
91982121
91982124

611000542
611000544
611000545
611000559

execution

Tension clamp, galvanized steel

Tension clamp, CrNi-steel

Screw G1" CrNi-steel

Screw, G1 1/2" CrNi-steel

Junction box G1"

Junction box, G1 1/2"

Measuring tube PE2m for ultrasonic sensor USP4-02

Measuring tube PE 2m basic module for ultrasonic sensor USP4-05

Measuring tube PE 2m extension for ultrasonic sensor USP4-05

Measuring tube PE 1m extension for USP4_05

PG E

31,00 €
37,00 €
72,00 €
81,00 €
on request
on request
32,00 €
39,00 €
39,00 €
37,00 €

Sonicont® USN4

Ultrasonic filling level transmitter, non-contact measurement of filling levels in liquids, pastes and coarse bulk materials, level measurement in liquids up to 2 / 5 / 8 m and in bulk materials up to 1 / 2 / 3,5 m

1 / 01.22

Technical data

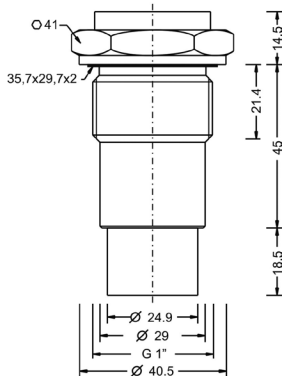
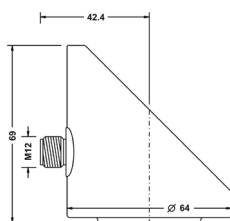


Supply voltage:	Setting output 0/4...20 mA: 9..30 VDC, reverse polarity protected Setting output 0...10 V: 14..30 VDC, reverse polarity protected
Supply current:	≤ 50mA up to ≤ 100mA (depending on output, bluetooth ON/Off, US)
Start-up time:	≤ 1s
Operating range:	Analogue output – current 0...20mA IOut: 0...20,5mA, max. 22mA Analogue output – current 4...20mA IOut: 3,8...20,5mA, min. 3,6mA, max. 22mA Analogue output – voltage 0...10V UOut: 0 ... 10,5 V, max. 11 V
Switch output PNP S1 / S2 / S3 / S4	
Function:	PNP switch to +L
Output current:	0... ≤ 200mA current limited, short circuit protected
Measuring accuracy	
Characteristic deviation:	≤ ±2mm or ±0,2% of set measuring range
Long term drift:	≤ ± 0,1% FS / year not cumulative
Temperature deviation	≤ ±0,006% FS / K
Materials	
Sensor	PVDF
Process connection	Steel 1.4404/316L / Steel 1.4571/316Ti
Gaskets	EPDM – ethylene-propylene-dienmonomere
Terminal enclosure	CrNi-steel
Control panel surface	PES
Electrical connection part:	Device plug PUR
Pressure compensation element:	Acrylic copolymer
Gaskets:	FPM – fluorelastomere (e.g. Viton®)
Environmental conditions	
Environmental temperature:	- 20°C...+70°C
Process temperature:	-40...+85°C
Process pressure:	-0,3...2 bar
Protection:	IP65/IP67 EN/IEC 60529

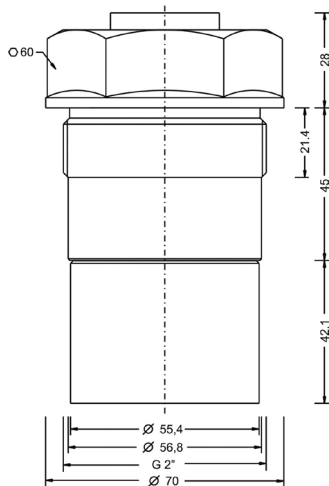


Terminal enclosure

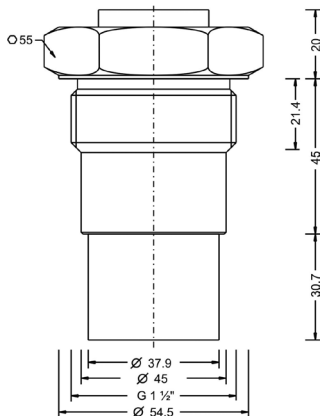
Type 5 – Thread ISO 228-1 – G1”B
/ Measuring range type 02 – 2m



Type D – Thread ISO 228-1 –
G2”B / Measuring range type
08 – 8m



Type 7 – Thread ISO 228-1 –
G1½”B / Measuring range type
05 – 5m



Application

The device is an electronic level transmitter / level switch for monitoring, control as well as continuous measurement of filling levels in liquids, pastes and coarse bulk materials.

Additional application fields are volume or flow measurement.

The software was optimized and extended by a new algorithm. The Sonicont is a better algorithm for the detection of ultrasonic signals, so that interference signals e.g. agitators etc. can be recognized even better and thus a safe operation can be ensured.

Due to the device construction with measuring ranges of 2m / 5m / 8m, process temperatures from -40°C to +85°C and process materials PVDF / CrNi-steel / EPDM as well as the availability of extensive equipment and functionality predefined vessel types for fast commissioning, predefined linearization curves for volume and flow measurement, integrated error signal suppression for adaption the installation situation, integrated compensation of the process temperature, limit value function for two-point control, pump control function, impulse output function for quantity counter and error indication function for error monitoring the device is especially suitable for the use for level and volume measurement and flow measurement at open channels and measuring weirs for water and waste water sector, process industry, environmental technology, storage tanks, storage bunkers, silos.

The device is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether low temperatures when used outdoors, high shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

Sonicont® USN4

Ultrasonic filling level transmitter, non-contact measurement of filling levels in liquids, pastes and coarse bulk materials, level measurement in liquids up to 2 / 5 / 8 m and in bulk materials up to 1 / 2 / 3,5 m

Fill level measurement

1 / 01.20

Basic price		600,00 €	Price group A
Measuring system – material diaphragm (process wetted) / sensor type			
P	PVDF / Piezo	0,00 €	
Approval			
S	Standard	0,00 €	
Process connection			
5	Thread ISO 228-1 – G1" B (only at measuring range 2m)	0,00 €	
7	Thread ISO 228-1 – G1½" B (only at measuring range 5m)	0,00 €	
D	Thread ISO 228-1 – G2" B (only at measuring range 8m)	0,00 €	
Y	others	on request	
Material process gaskets (process wetted)			
3	EPDM – ethylene-propylene-dienmonomere	0,00 €	
Material process connection (process wetted)			
V	CrNi-steel	0,00 €	
Material terminal enclosure			
C	CrNi-steel	0,00 €	
Measuring range			
02	2 m	0,00 €	
05	5 m	42,00 €	
08	8 m	69,00 €	
Electronic – output			
M	1x signal 0/4...20mA-0...10V, supply 24VDC	212,00 €	
K	1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC	272,00 €	
R	1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC	332,00 €	
Electronic – function			
0	without	0,00 €	
1	Bluetooth-Interface	113,00 €	
2	Data logger with time stamp, battery powered	50,00 €	
3	Bluetooth-Interface / Data logger with time stamp, battery powered	164,00 €	
Y	others	on request	
Process temperature			
0	Standard -40°C...+85°C	0,00 €	
0		0,00 €	
0		0,00 €	
Electrical connection			
S	Plug M12	0,00 €	

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking	20,00 €
KF	Configuration/ Preset	55,00 €

Order code

Sonicont® USN4S P S 3 V C 0 0 0 S

Equipment

Order information

LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
LKZ0805PUR-AS
BKZ0412-VA
BKZ0512-VA

Model

Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole, shielded
Connection cable 5 m, 5-pole, shielded
Connection cable 10 m, 5-pole, shielded
Connection cable 5 m, 8-pole, shielded
Matching cable socket, VA-nut
Matching cable socket, VA-nut (at 0...10 V)

22,50 €
28,50 €
26,00 €
35,00 €
38,00 €
18,50 €
19,50 €

Price group E

Rod probe SAT

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to 7 electrode rods – plastic screwing thread; up to 6 measuring points; temperature: -40°C...+150°C; pressure: 10 bar

1 / 01.22

Technical data



certification



process temperature

150°C



up to

10 bar

pressure



no moving parts in the tank

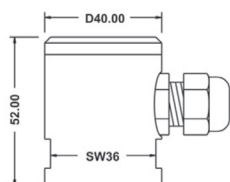


up to 7 measuring points

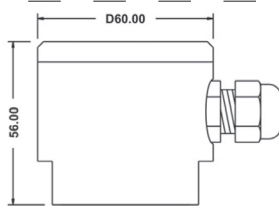


corrosion resistant

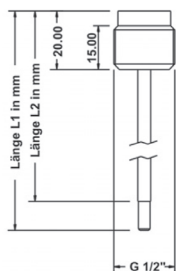
Process pressure: -1...10 bar
 Process temperature: -40°C...+150°C, observe limitations (see operating instructions)
 Protection classification: IP65 EN/IEC 60529
 Material Process connection: POM / PP / PTFE
 Material Electrode rod: Stahl 1.4404 (AISI316L) bzw. 1.4571 (AISI316Ti) / Hastelloy C22
 Isolation Electrode rod isolation: PA / ETFE bzw. E-CTFE
 Gaskets (medium contact) Electrode isolation PA: NBR / Electrode isolation ETFE bzw. E-CTFE: FPM



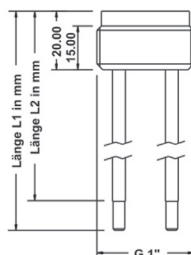
Anschlussgehäuse
Ø 40mm



Anschlussgehäuse
Ø 60mm (nur Werkstoff POM)

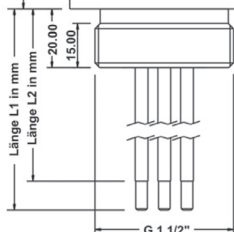


Prozessanschluss
G12 – G 1/2"

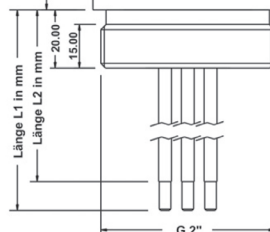
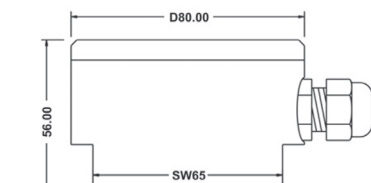


Prozessanschluss
G10 – G 1"

mit Anschlussgehäuse Ø 40mm oder Ø 60mm (nur Werkstoff POM)



Prozessanschluss
G15 – G 1 1/2"



Prozessanschluss
G20 – G 2"



Application

The SAT rod probes are used in conjunction with the evaluation units (eg, SRA-100-U0) is used for level detection and level control in conductive liquids. Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized. Depending on model selected can include the container wall as a mass, to be implemented to 7 switch points. The ground connection elfloht either directly to the container or conducting a probe rod. In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.

In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

Rod probe SAT

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to 7 electrode rods – plastic screwing thread; up to 6 measuring points; temperature: -40°C...+150°C; pressure: 10 bar

1 / 01.22

Equipment

mounting sleeves and nuts
page 64

amplifiers
page 50

Surcharge

* each rod
over 1500 mm
25,50 € surcharge!

Model		
0	Standard	0,00 €
Ex	ATEX II 1 G Ex ia IIB/IIC T6...T1 Ga	16,00 €
Electrode rods		
1	1 electrode rod	85,00 €
2	2 electrode rods	95,00 €
3	3 electrode rods	106,00 €
4	4 electrode rods	120,00 €
5	5 electrode rods	143,00 €
7	7 electrode rods	163,00 €
Process connection		
G12	Thread ISO 228-1 – G½" only with one electrode rod possible	0,00 €
G10	Thread ISO 228-1 – G1" up to three electrode rods possible	8,20 €
G15	Thread ISO 228-1 – G1½" up to five electrode rods possible	17,50 €
G20	Thread ISO 228-1 – G2" up to seven electrode rods possible	22,50 €
Material probe rod <i>(price per 100mm)</i>		
A4	CrNi-steel, rod diameter 4mm	2,70 €
A8	CrNi-steel, rod diameter 8mm	5,00 €
D	Hastelloy® C22, rod diameter 3,2 mm oder 6 mm	on request
Y	Others	on request
Material Connection housing		
D	POM – polyoxymethylene Delrin®, Ø 40 mm for G½" / G1" resp. Ø 80 mm for G1½" / G2"	0,00 €
E	POM – polyoxymethylene Delrin®, Ø 60 mm for G½" / G1"	18,00 €
P	PP – polypropylene, Ø 40 mm for G½" / G1"	0,00 €
M	PP – polypropylene, Ø 80 mm for G1½" / G2"	18,00 €
T	PTFE – Polytetrafluoroethylene Teflon®, Ø 40 mm for G½" / G1"	on request
L	PTFE – Polytetrafluoroethylene Teflon®, Ø 80 mm for G1½" / G2"	on request
Material probe insulation <i>(price per 100mm)</i>		
R	PA – Polyamid (standard) <i>not for material process connection T / L – PTFE</i>	0,00 €
H4	E-CTFE – Ethylene-chlorotrifluoroethylene (Halar®) 4mm	6,70 €
H8	E-CTFE – Ethylene-chlorotrifluoroethylene (Halar®) 8mm	11,50 €
Circuit monitoring		
A	Without circuit monitoring	0,00 €
B	Diode module LBM only for terminal enclosure from Ø 60mm (only at head Ø ≥ 60 mm, resp. thread ≥ 1½")	21,50 €
Diameter probe rod		
0	4 mm (L1 max. 3000mm)	0,00 €
W	8 mm (L1 max. 3000mm)	0,00 €
Length L1 probe rod in mm		
Length L2 insulation mm		

Price group C

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking	46,00 €
ME	Measuring point label as adhesive label	18,00 €

Order code

SAT	mm	mm
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SAT probes are only available in 500 mm increments!
Probe rods should be shortened by oneself!

Equipment

<i>Order information</i>	<i>Model</i>	
AH-2	Spacers for 2-rod probes	24,50 €
AH-3	Spacers for 3-rod probes	30,00 €
AH-4	Spacers for 4-rod probes	30,00 €
AH-5	Spacers for 5-rod probes	30,00 €

Price group E

Rod probe STK

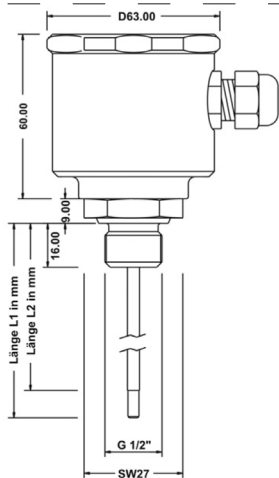
Electrode probe for conductive limit level detection in electrically conductive filling materials with up to five electrode rods – metallic process connection; temperature: -15°C...+150°C; pressure: 20 bar

1 / 01.22

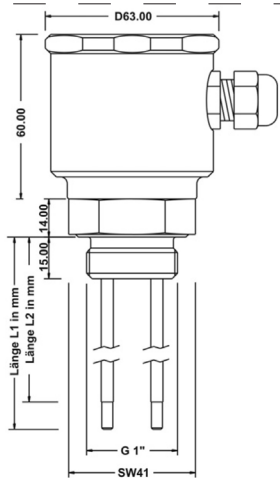
Technical data



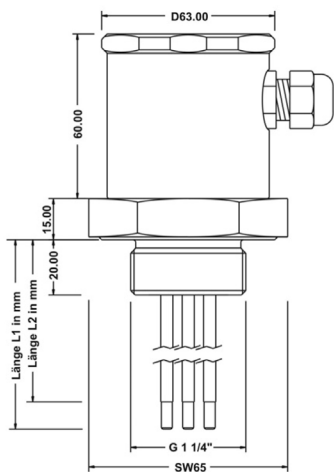
Process pressure max: -1...+20 bar
 Medium temperature: -15°C...150°C
 Protection: IP65 EN/IEC 60529
 Material connection housing: CrNi-steel / POM / PP / PTFE
 Material Process connection: Steel 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti)
 Material probe rod: Steel 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti) / Hastelloy C22 / Titan (medium contact)
 Isolation probe rod: PA / ETFE resp. E-CTFE
 Gaskets: Medium contact: Electrode isolation PA: NBR / Electrode isolation ETFE resp. E-CTFE: FPM, Others: NBR, FPM



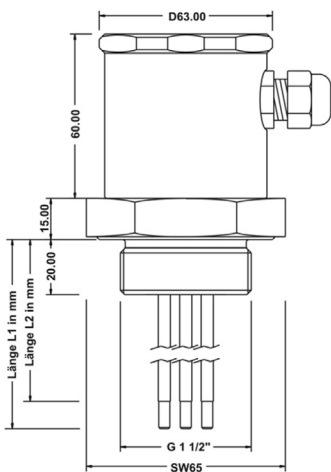
Prozessanschluss
G12 – G 1/2"



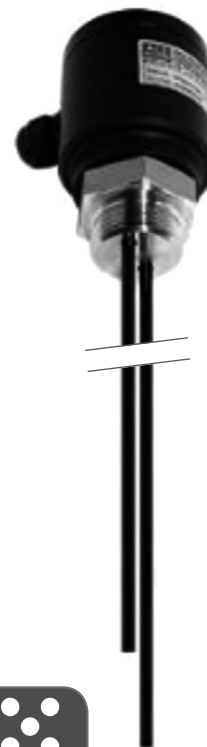
Prozessanschluss
G10 – G 1"



Prozessanschluss
G14 – G 1 1/4"



Prozessanschluss
G15 – G 1 1/2"



Application

The STK rod probes are used in conjunction with the evaluation units (eg, SRA-100-U0) is used for level detection and level control in conductive liquids.

Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on model selected can include the container wall as a mass, to be implemented to 5 switch points. The ground connection is made in the probe head and is transferred through the threads on the conductive container.

In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.

In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

By stainless steel process connection, the probe is to 20bar pressure stable and in conjunction with the ETFE- resp. E-CTFE coating, process temperatures up to +150 °C can be realized.

Rod probe STK

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to five electrode rods – metallic process connection; temperature: -15°C...+150°C; pressure: 20 bar

1 / 01.22

Equipment

mounting sleeves and nuts page 64

amplifiers page 50

Surcharge

* each rod over 1500 mm 25,50 € surcharge!

Model			
0	Standard		0,00 €
Ex	ATEX II 1 G Ex ia IIB/IIC T6...T1 Ga		16,50 €
Electrode rods			
1	1 electrode rod		125,00 €
2	2 electrode rods		172,00 €
3	3 electrode rods		241,00 €
4	4 electrode rods		282,00 €
5	5 electrode rods		328,00 €
Process connection material steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)			
G12	G1/2" only possible with one electrode rod		0,00 €
G10	G1" up to three electrode rods possible		0,00 €
G14	G1 1/4" up to four electrode rods possible		0,00 €
G15	G1 1/2" up to five electrode rods possible		0,00 €
G20	G2" up to four electrode rods possible		0,00 €
F50	Flange EN 1092-1 – DN50, PN 10-20, sealing surface ASTM D 2527		185,00 €
YYY	Others		on request
Material electrode rod (price per 100mm)			
A4	CrNi-steel, rod diameter 4 mm		2,80 €
A8	CrNi-steel, rod diameter 8 mm		5,10 €
A10	CrNi-steel, rod diameter 10 mm		on request
D	Hastelloy C22, rod diameter 3,2 mm oder 6 mm		on request
T4	Titan not for Ex-version, 4 mm		21,00 €
T8	Titan not for Ex-version, 8 mm		49,00 €
T10	Titan not for Ex-version, 10 mm		71,00 €
E	Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti) tantalum tips 20 mm		on request
Y	Others		on request
Material Connection housing			
D	POM, Ø 60 mm		0,00 €
V	CrNi-Steel, Ø 60 mm		51,00 €
M	PP, Ø 60 mm		18,50 €
L	PTFE, Ø 60 mm		on request
Material probe insulation (price per 100mm)			
R	PA-Polyamid (standard)		0,00 €
H4	ETFE resp. E-CTFE, rod diameter 4 mm		6,90 €
H8	ETFE resp. E-CTFE, rod diameter 8 mm		12,00 €
Circuit monitoring			
A	Without circuit monitoring		0,00 €
B	With circuit monitoring		22,00 €
Diameter probe rod			
0	4 mm (L1 max. 3000mm)		0,00 €
W	8 mm (L1 max. 3000mm)		0,00 €
Z	10 mm		on request
Length L1 probe rod in mm			
Length L2 insulation mm			

Price group C

Order code

STK

mm

mm

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking	46,00 €
ME	Measuring point label as adhesive	18,00 €

Equipment

Order information	Model	
AH-2	Spacers for 2-rod probes	24,50 €
AH-3	Spacers for 3-rod probes	30,00 €
AH-4	Spacers for 4-rod probes	30,00 €
AH-5	Spacers for 5-rod probes	30,00 €

PGE

Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2
standard lengths in 500 mm increments. Others on request. Probe rods should be shortened by oneself!

Rod probe SLK

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to five electrode rods – metallic hygienic process connection for food applications up to 4 measurement points; temperature: -40°C...+130°C; pressure: 20 bar

1 / 01.22

Technical data



certification



hygienic design



CIP
SIP
capable



process temperature
130°C

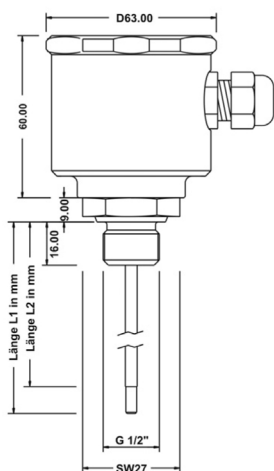


up to
20
bar
pressure

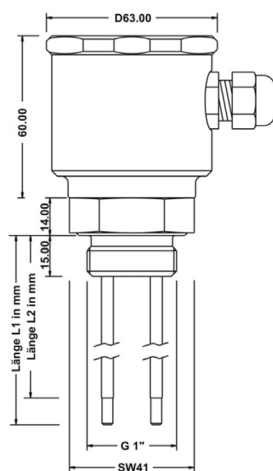


up to 4
measuring points

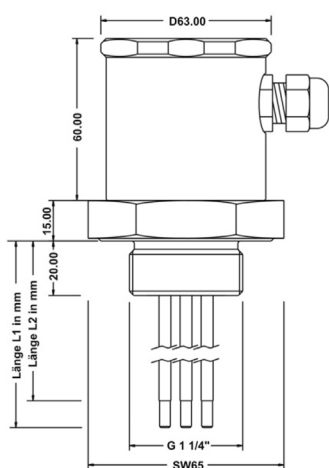
Process pressure max: -1...+20 bar
 Medium temperature: -40°C...130°C
 Protection: IP65 EN/IEC 60529
 Material connection housing: CrNi-steel / POM / PP / PTFE
 Material process connection: Steel 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti)
 Material probe rod: Steel 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti)/Hastelloy C22/Titan
 Isolation probe rod: ETFE
 Gaskets: Medium contact: EPDM, FDA-listed / Others: NBR, FPM



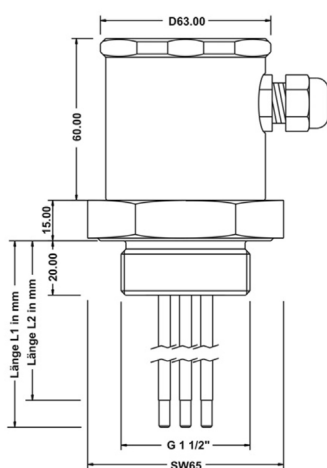
Prozessanschluss
G12 – G 1/2"



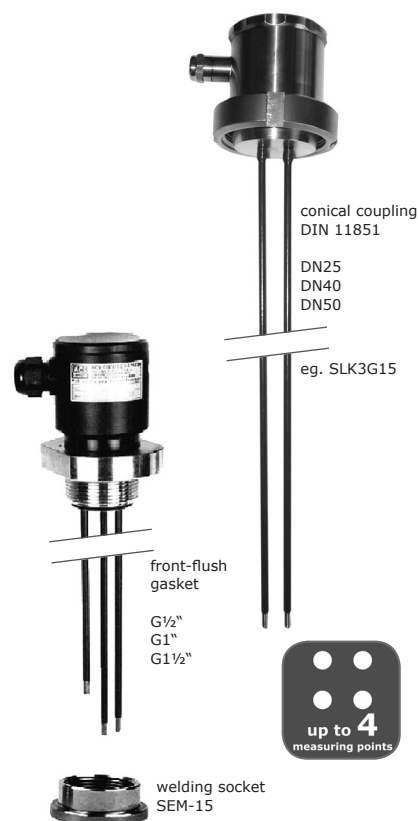
Prozessanschluss
G10 – G 1"



Prozessanschluss
G14 – G 1 1/4"



Prozessanschluss
G15 – G 1 1/2"



Application

The SLK rod probes are used in conjunction with the evaluation units (eg. SRA-100-U0) for level detection and level control in conductive liquids, especially in food and used in the pharmaceutical sector, where high hygiene requirements. Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on model selected can include the container wall as a mass, to be implemented to 4 set points. The ground connection is made in the probe head and is transferred through the threads on the conductive container. process connections, various hygienic connections are available, the seal gap, flush.

In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.

In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

By stainless steel process connection the probe is to 20bar pressure stable and in conjunction with the ETFE coating, process temperatures up to +130°C can be realized.

Rod probe SLK

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to five electrode rods – metallic hygienic process connection for food applications up to 4 measurement points; temperature: -40°C...+130°C; pressure: 20 bar

1 / 01.20

Equipment

mounting sleeves and nuts
page 64

amplifiers
page 50

Surcharge

* each rod
over 1500 mm
25,50 € surcharge!

<p>Model</p> <p>0 Standard 0,00 €</p> <p>Ex ATEX II 1 G Ex ia IIB/IIC T6...T1 Ga 16,00 €</p> <p>Electrode rods</p> <p>1 one-rod-probe 137,00 €</p> <p>2 two-rod-probe 186,00 €</p> <p>3 three-rod-probe 254,00 €</p> <p>4 four-rod-probe 294,00 €</p> <p>Process connection material steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)</p> <p>D25 Dairy coupling DIN 11851 – DN25, only with one electrode rod possible 23,00 €</p> <p>D40 Dairy coupling DIN 11851 – DN40, up to three electrode rods possible 23,00 €</p> <p>D50 Dairy coupling DIN 11851 – DN50, up to four electrode rods possible 23,00 €</p> <p>G12 G½" O-ring flush mounted only with one electrode rod possible 12,50 €</p> <p>G10 G1" O-ring flush mounted up to three electrode rods possible 12,50 €</p> <p>G15 G1½" O-ring flush mounted up to four electrode rods possible 12,50 €</p> <p>M12 G½" metal-seated only with electrode rod possible 0,00 €</p> <p>Material probe rod (price per 100mm)</p> <p>A4 CrNi-steel, rod diameter 4 mm 2,70 €</p> <p>A8 CrNi-steel, rod diameter 8 mm 5,00 €</p> <p>D Hastelloy C22, rod diameter 3,2 mm oder 6 mm on request</p> <p>T4 Titan not for Ex-version, 4 mm on request</p> <p>T8 Titan not for Ex-version, 8 mm on request</p> <p>E 1.4404 steel with 50 mm tantalum tips on request</p> <p>Y Others on request</p> <p>Material Connection housing</p> <p>D POM, Ø 60 mm 0,00 €</p> <p>V CrNi-Steel, Ø 60 mm 50,00 €</p> <p>M PP, Ø 60 mm 18,00 €</p> <p>L PTFE, Ø 60 mm on request</p> <p>Y Others on request</p> <p>Material probe insulation (price per 100mm)</p> <p>H4 ETFE, rod diameter 4 mm 6,70 €</p> <p>H8 ETFE, rod diameter 8 mm 11,50 €</p> <p>Circuit monitoring</p> <p>A Without circuit monitoring 0,00 €</p> <p>B Diode module LBM 21,50 €</p> <p>Diameter probe rod</p> <p>0 4 mm (L1 max. 3000mm) 0,00 €</p> <p>W 8 mm (L1 max. 3000mm) 21,50 €</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Price group C</p>
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+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version	90,00 €
ML Measurement point designation / TAG – Laser marking	46,00 €
ME Measuring point label as adhesive label	18,00 €

Order code

SLK

H

mm

mm

Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2

Equipment

<p><i>Order information</i></p> <p>AH-2 Spacers for 2-rod probes 24,50 €</p> <p>AH-3 Spacers for 3-rod probes 30,00 €</p> <p>AH-4 Spacers for 4-rod probes 30,00 €</p> <p>AH-5 Spacers for 5-rod probes 30,00 €</p>	<p><i>Model</i></p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">PGE</p>
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Rope probes SST

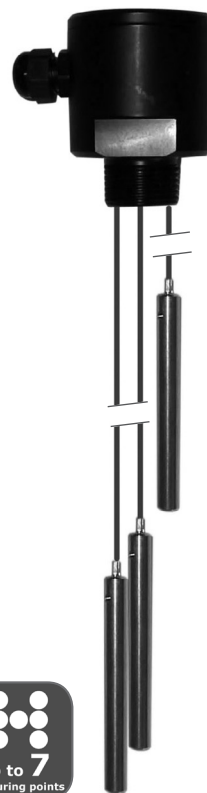
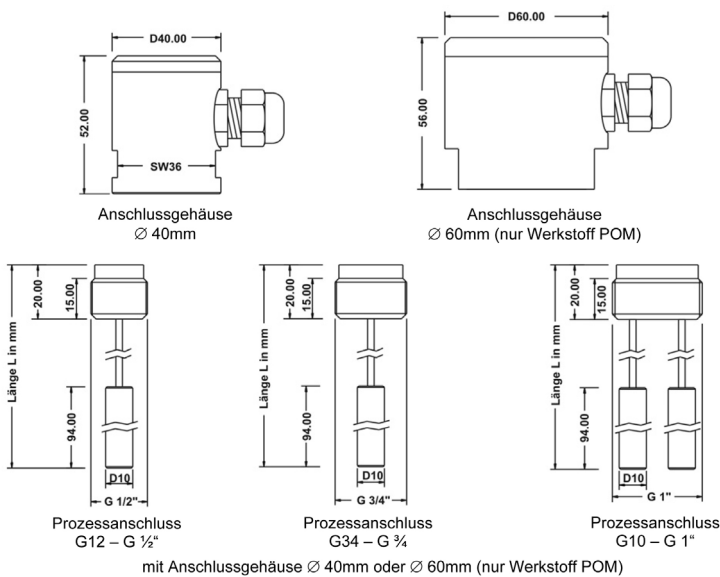
Electrode probe for conductive limit level detection in electrically conductive filling materials with up to seven electrode ropes – plastic screwing thread; up to 6 measuring points; temperature: -10°C...+120°C; pressure: at pressure zero

1 / 01.22

Technical data



Process pressure max: pressureless operation
 Medium temperature: -10°C...120°C
 Material connection housing: POM / PP / PTFE
 Material process connection: POM / PP / PTFE
 Material probe rope: Steel 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti)
 Isolation probe rope: PTFE
 Gaskets: Medium contact : NBR; Others: NBR, FPM



Application

The cable SST probes are related to the evaluators (eg, SRA-100-U0) is used for level detection and level control in conductive liquids.

Depending on the number of cables used and the evaluation units, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on the selected version, can include the container wall as a mass, to be implemented to 7 switch points. The ground connection is made either directly to the conductive container or through a cable probe.

In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.

In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

Rope probes SST

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to seven electrode ropes – plastic screwing thread; up to 6 measuring points; temperature: -10°C...+120°C; pressure: at pressure zero

1 / 01.22

Equipment

mounting sleeves
and nuts
page 64

amplifiers
page 50

<p>Model</p> <p>Standard</p> <p>Number of electrodes <i>(Basic price incl. 3 m rope!)</i></p> <p>1 1 electrode rope</p> <p>2 2 electrode ropes</p> <p>3 3 electrode ropes</p> <p>4 4 electrode ropes</p> <p>5 5 electrode ropes</p> <p>6 6 electrode ropes</p> <p>7 7 electrode ropes</p> <p>Connection</p> <p>G12 Thread ISO 228-1 – G½" only with one electrode rope possible</p> <p>G34 Thread ISO 228-1 – G¾" up to two electrode ropes possible</p> <p>G10 Thread ISO 228-1 – G1" up to three electrode ropes possible</p> <p>G15 Thread ISO 228-1 – G1½" up to four electrode ropes possible</p> <p>G20 Thread ISO 228-1 – G2" up to seven electrode ropes possible</p> <p>Material probe rope <i>(Preis pro angefangene 1000 mm je Seil)</i></p> <p>A CrNi-steel</p> <p>Y Others</p> <p>Material Connection housing</p> <p>D POM, Ø 40 mm for G½" / G1" / G¾" resp. Ø 80 mm for G1½" / G2"</p> <p>E POM, Ø 60 mm for G½" / G¾" / G1"</p> <p>P PP, Ø 40 mm for G½" / G¾" / G1"</p> <p>M PP, Ø 80 mm for process connection G1½" / G2"</p> <p>T PTFE, Ø 40 mm for G½" / G1" / G¾"</p> <p>L PTFE, Ø 80 mm for G1½" / G2"</p> <p>Material probe insulation</p> <p>H PTFE</p> <p>Circuit monitoring</p> <p>A Without circuit monitoring</p> <p>B With circuit monitoring (only at head Ø ≥ 60 mm, resp. thread ≥ 1½")</p> <p>Length electrode rope in mm</p>	<p>0,00 €</p> <p>114,00 €</p> <p>159,00 €</p> <p>202,00 €</p> <p>245,00 €</p> <p>289,00 €</p> <p>333,00 €</p> <p>376,00 €</p> <p>0,00 €</p> <p>0,00 €</p> <p>0,00 €</p> <p>0,00 €</p> <p>0,00 €</p> <p>5,00 €</p> <p>on request</p> <p>0,00 €</p> <p>18,00 €</p> <p>0,00 €</p> <p>18,00 €</p> <p>on request</p> <p>on request</p> <p>0,00 €</p> <p>0,00 €</p> <p>21,50 €</p>
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Price group C

+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version	90,00 €
ML Measurement point designation / TAG – Laser marking	46,00 €
ME Measuring point label as adhesive label	18,00 €

Order code

SST

0

H

mm

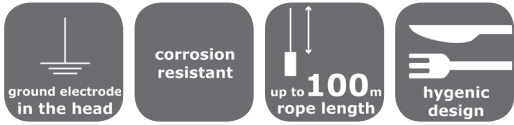
Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2

Rope probes SHT

with cable or terminal connection, 2-pole rod probe, 1 point level

1 / 01.22

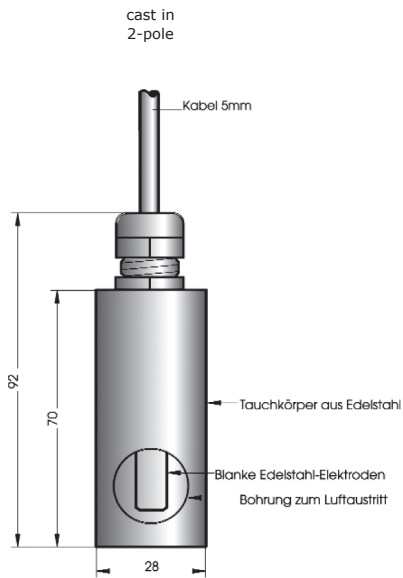
Technical data



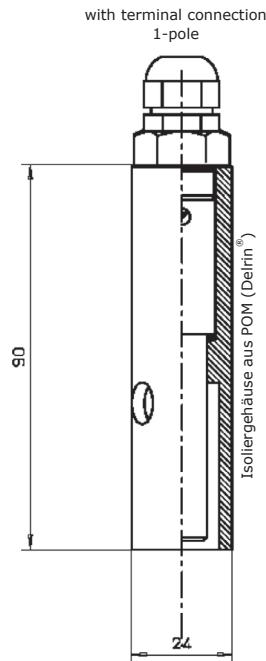
Operating pressure max:
Medium temperature:
Material submersible heating element:
Material probes:
IsolationSondenkabel:

pressureless
-20°C...60°C
POM (Delrin®)/ stainless steel 1.4571
Stainless steel 1.4571
PVC

SHT-2000 / 2001



SHT-1



SHT-2000 / 2001

SHT-1

Application

The cable electrode SHT is primarily used as a submersible sensor in conjunction with appropriate evaluation devices (eg SRA-100-U0) for limit detection and level control in conductive liquids.

The switch point is given by the length of the connecting cable, thus a simple switching point adjustment possible. With the 2-pole version no additional mass probe is required. The SHT-1 probe can be equipped with a cable.

Rope probes SHT

with cable or terminal connection, 2-pole rod probe, 1 point level

1 / 01.22

Equipment
amplifiers
page 50

Basic price	126,00 €	PG C
Circuit monitoring		
A Without circuit monitoring	0,00 €	
B With circuit monitoring	21,50 €	
Length probe cable in m price per meter	4,40 €	

Order code

SHT-2000-ADH m

2-pole fountain sensor for use in drinking water areas with drinking water certificatB

Basic price	270,00 €	PG C
Circuit monitoring		
A Without circuit monitoring	0,00 €	
B With circuit monitoring	21,50 €	
Length probe cable in m price per meter	4,40 €	

Order code

SHT-2001-ADH m

Basic price	57,00 €	PG C
Model		
0 Standard	0,00 €	
Number of electrodes		
1 1 electrode contact	0,00 €	
Material electrode contacts (medium contact)		
A Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)	0,00 €	
Material Connection housing (medium contact)		
D POM – polyoxymethylene (Delrin®)	0,00 €	

Order code

SHT 0 1 A D

Rod probes SNT

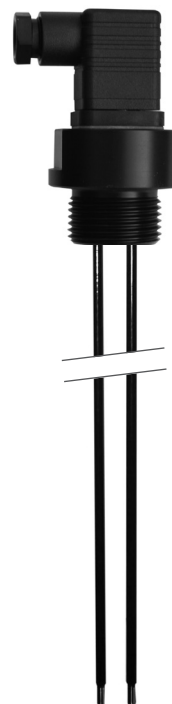
with plastic screw-in thread and plug-in connection; up to 3 measurement points, with 4 rods.
 medium temperature: -20°C...+100°C; pressure: 10 bar

1 / 01.21

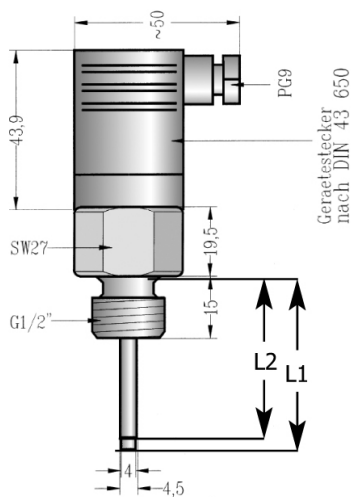
Technical data

up to 10 bar pressure	corrosion resistant	up to 4 measuring points	plug connection	process temperature 100°C
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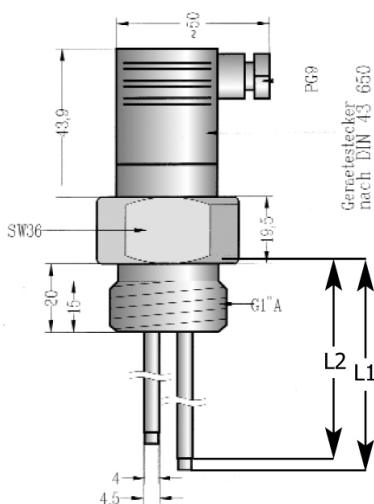
Operating pressure max: 10bar
 Medium temperature: -20°C...100°C
 Material connection head: POM / polypropylene (PP) / PTFE
 Material probes: Stainless steel 1.4571, 1.4404 / Hastelloy® C22
 Isolation probe rod: Polyamid / E-CTFE



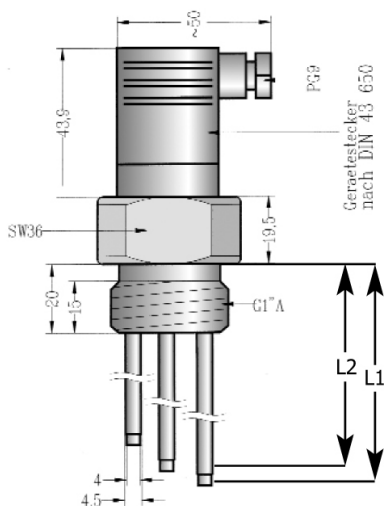
Typ: SNT 1



Typ: SNT 2



Typ: SNT 3



Application

The SNT rod probes are used in conjunction with the evaluation units (eg, SRA-100-U0) for level detection and level control in conductive liquids.

Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on the model selected, the container wall can be implemented as a mass, to be implemented to 5 switchpoints. The ground connection goes either directly to the container or conducting a probe rod.

The electrical connection is made via a plug type SNT contact, thus a rapid assembly and disassembly of the probe or a repositioning of the indicator to other probes is possible.

Rod probes SNT

with plastic screw-in thread and plug-in connection; up to 3 measurement points, with 4 rods.
medium temperature: -20°C...+100°C; pressure: 10 bar

1 / 01.22

Equipment

mounting sleeves and nuts
page 64

amplifiers
page 50

Surcharge

* each rod
over 1500 mm
25,50 € surcharge!

Electrode rods		
1	One-rod-probe	53,00 €
2	Two-rod-probe	67,00 €
3	Three-rod-probe	80,00 €
4	Four-rod-probe	90,00 €
Connection		
G12	G1/2" plastic connection (only for 1-rod)	0,00 €
G10	G1" plastic connection (up to 3-rod)	0,00 €
G15	G1 1/2" plastic connection (for alle probes possible)	0,00 €
Material probe rod (price per 100mm)		
A	1.4404 steel 4 mm	2,70 €
D	Hastelloy® C22, 3,2 mm oder 6 mm	on request
Y	Others.	on request
Material process connection		
D	POM – polyoxymethylene Delrin®	0,00 €
P	PP – polypropylene	0,00 €
T	PTFE – Polytetrafluoroethylene Teflon®	on request
Material probe insulation (price per 100mm)		
R	PA-Polyamid (standard)	0,00 €
H	E-CTFE – Ethylene-chlorotrifluoroethylene Halar® 4 mm	6,70 €
Diameter probe rod		
0	4 mm (L1 max. 3000mm)	0,00 €
Length L1 probe rod in mm		
Length L2 insulation mm		
Plug		
0	Type: NKW04-0 (1x included with delivery)	0,00 €
1	Additional plug NKW04-0	15,50 €

Price group C

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking	46,00 €
ME	Measuring point label as adhesive label	18,00 €

Order code

SNT

0

mm

mm

0

SNT probes are only available in 500 mm increments!
Probe rods should be shortened by oneself!

Rod probes SBS

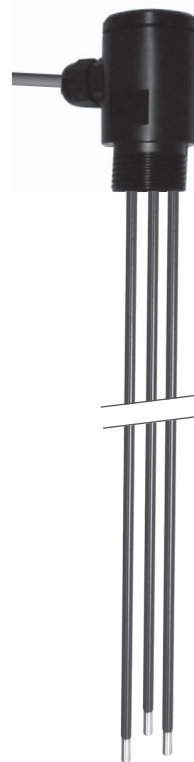
with permanently attached cable and encapsulated probe head; up to 4 measurement points, with 5 rods.
 medium temperature: -20°C...+150°C; pressure: 10 bar

1 / 01.22

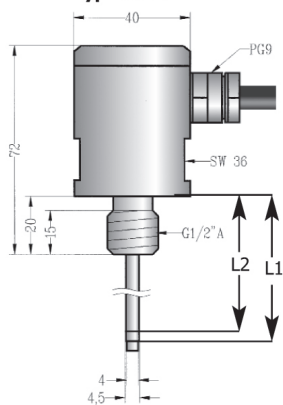
Technical data

up to 10 bar pressure	corrosion resistant	up to 5 measuring points	process temperature 150°C
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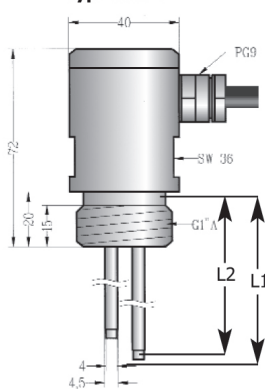
Elektrode rod (medium contact):	Stahl 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti) / Hastelloy C22 / Titan
Elektrode trod isolation (medium contact):	PA / ETFE resp. E-CTFE
Connection housing:	POM / PP / PTFE
Cable screw:	Housing PA / Gaskets CR, NBR
Gaskets:	Medium contact: Elektrode isolation PA: NBR / Elektrode isolation ETFE resp. E-CTFE: FPM; others: NBR, FPM
Process temperature:	Max - 20°C...+100°C
Process pressure max:	10 bar
Protection:	IP65 EN/IEC 60529



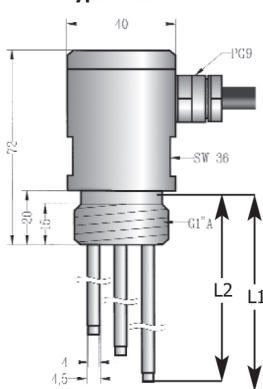
Typ: SBS 1



Typ: SBS 2



Typ: SBS 3



Application

The bar probe SBS is related to the evaluators (eg, SRA-100-U0) is used for level detection and level control in conductive liquids.

Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on model selected can include the container wall as a mass, to be implemented to 5 switch points. The ground connection works either directly to the container or conducting a probe rod.

Type in the SBS is the connecting cable already connected and encapsulated in the probe head. Through this encapsulation, the probe is outside of the container completely submersible.

Leakage probe PUK | PUKK

for conductive leak detection of electrically conductive filling materials; with separated or compact electronics

1 / 01.22

Technical data

corrosion resistant	 ground electrode in the head	easy installation
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Operating pressure max:
Medium temperature:
Material connection head:
Material probes:

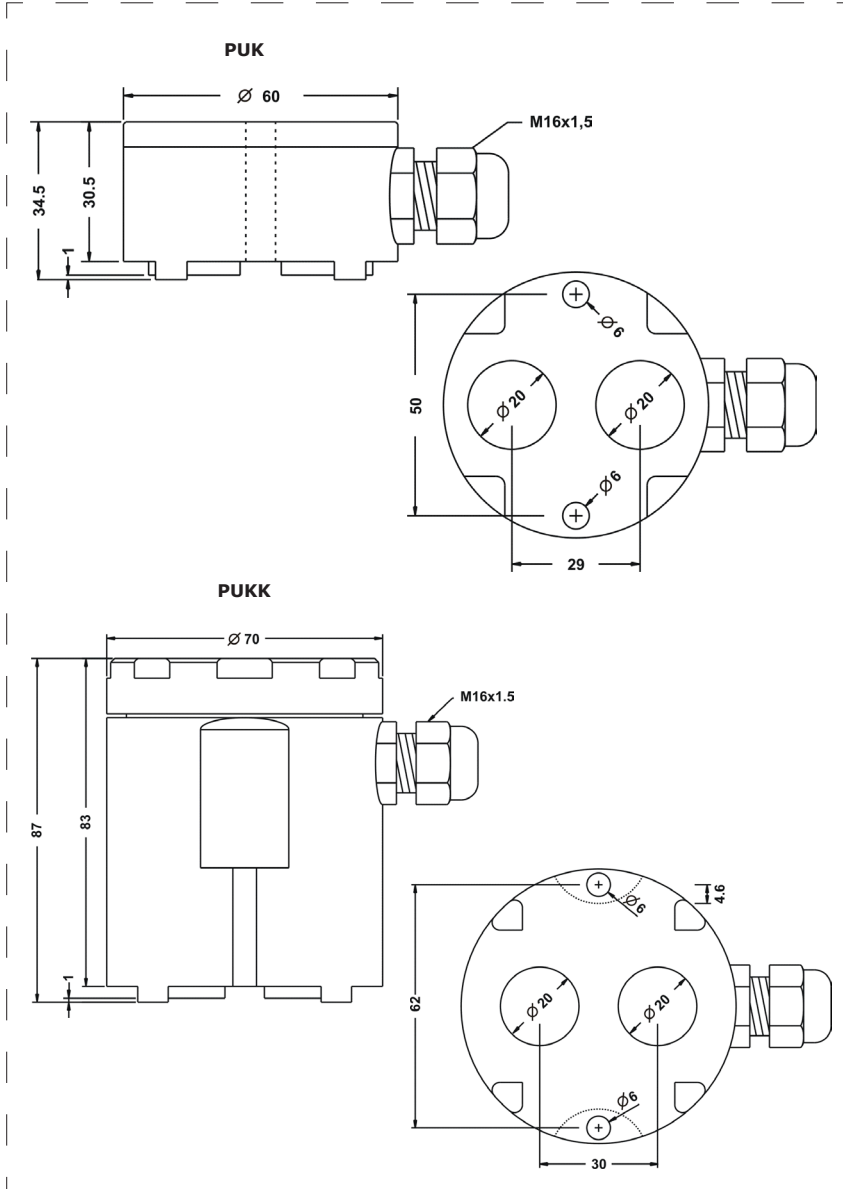
pressureless
-20°C...60°C
POM / polypropylene (PP) / PTFE
Stainless steel 1.4571, 1.4404 / Hastelloy® C



Leakage probe PUK



Leakage probe PUKK



Application

The leakage probes of the series PUK / PukK are used in conjunction with a suitable evaluation for conductive leakage monitoring of electrically conductive products.

The leak detector is designed for a wide range of applications. The conductivity, even of aggressive contents, from 1 $\mu\text{S}/\text{cm}$ are recorded at process temperatures from -20 °C to +60 °C.

Once the electrically conductive filling material forms a connection between the electrodes, a measurable current is flowing, which causes a reaction of the connected evaluation unit.

By the use of an AC voltage the corrosion of the electrode and the electrolytic decomposition of the contents is avoided.

An additional module (diode module LBM) for line monitoring in the housing can be installed in the device. In the event of a line break between the leak probe and a suitable evaluation the evaluation may issue an alert.

Leakage probe PUK separated version

for conductive leak detection of electrically conductive filling materials

1 / 01.22

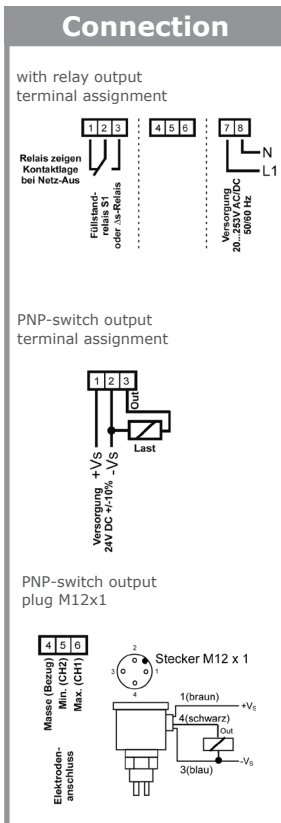
Basic price		124,00 €	Price group C
Model			
0	Standard	0,00 €	
number electrodes			
2	2 electrodes	0,00 €	
Material electrodes (medium contact)			
A	Steel 1.4404 (316L) / 1.4571 (316Ti)	0,00 €	
Y	Others	on request	
Material housing (medium contact)			
D	POM – polyoxymethylene (Delrin®)	0,00 €	
P	PP – polypropylene	21,50 €	
Y	others	on request	
Electrical connection			
K	Terminal box	0,00 €	
V	Cable 5 m - silicone	21,50 €	
Y	Cable others length	on request	
Circuit monitoring			
A	Without circuit monitoring	0,00 €	
B	With circuit monitoring (Diodenmodul LBM)	21,50 €	

Order code

PUK 0 2

Leakage probe PUKK compact version

for conductive leak detection of electrically conductive filling materials



Order code

PUKK 2 A

Basic price		231,00 €	Price group C
electrical connection			
K	Terminal box	0,00 €	
V	Cable 5 m - silicone	21,50 €	
Y	Cable others length	on request	
auxiliary power			
G	DC voltage 24 V DC	0,00 €	
U	AC / DC voltage 20 ... 30V AC / DC	54,00 €	
electronic output			
A	1x PNP switch output (only at electronic supply type G)	0,00 €	
B	1x relay output (only at electronic supply type U)	0,00 €	
Model			
2	2-electrodes 1x limit	22,00 €	
Process connection			
A	screw fixing	0,00 €	
Material electrodes (medium contact)			
A	Steel 1.4404 (316L) / 1.4571 (316Ti)	0,00 €	
D	Hastelloy® C 4	on request	
Y	Others	on request	
Material housing (medium contact)			
D	POM – polyoxymethylene (Delrin®)	0,00 €	
P	PP – polypropylene	21,50 €	
T	PTFE – Polytetrafluoroethylene (Teflon®)	on request	

Conductive compact probes limit switch or two-position controller

KAK for standard application

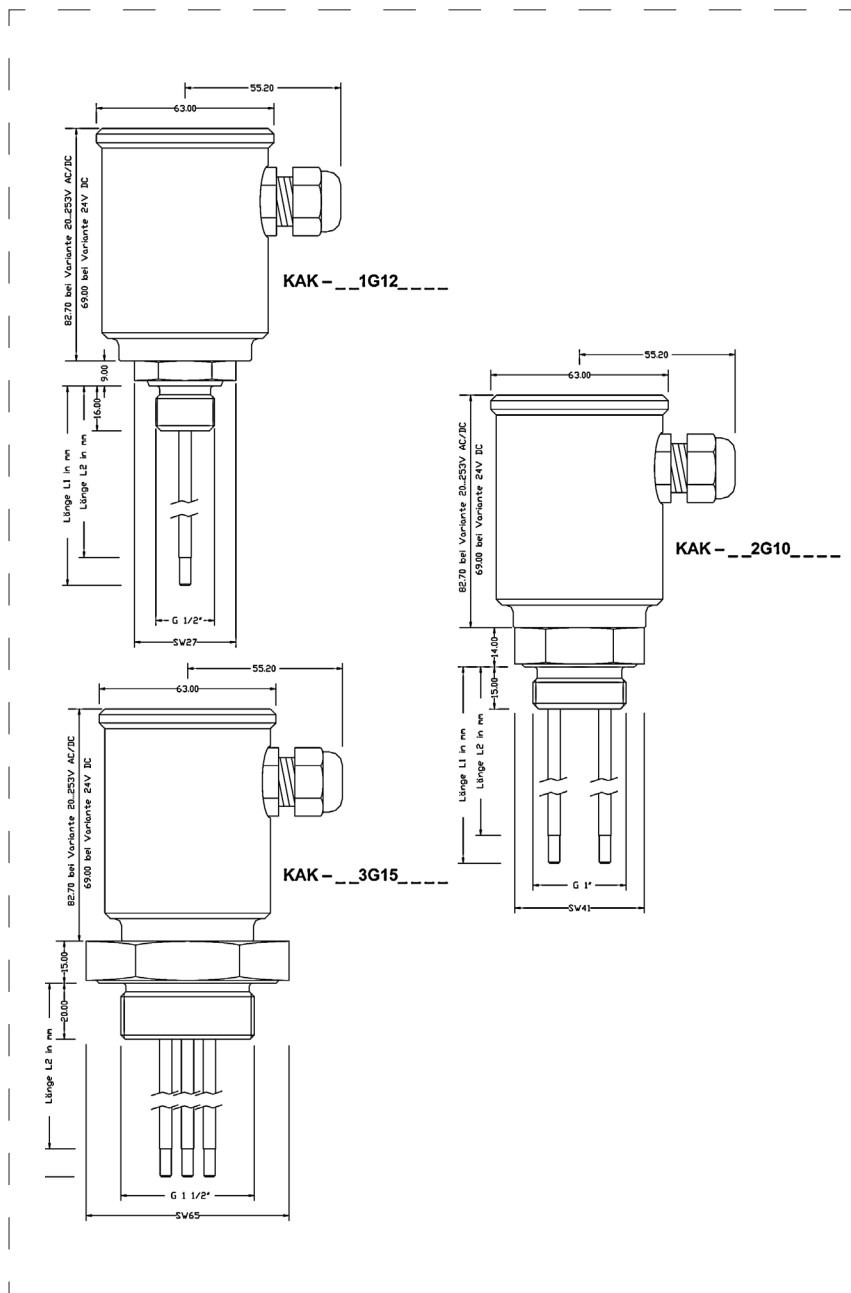
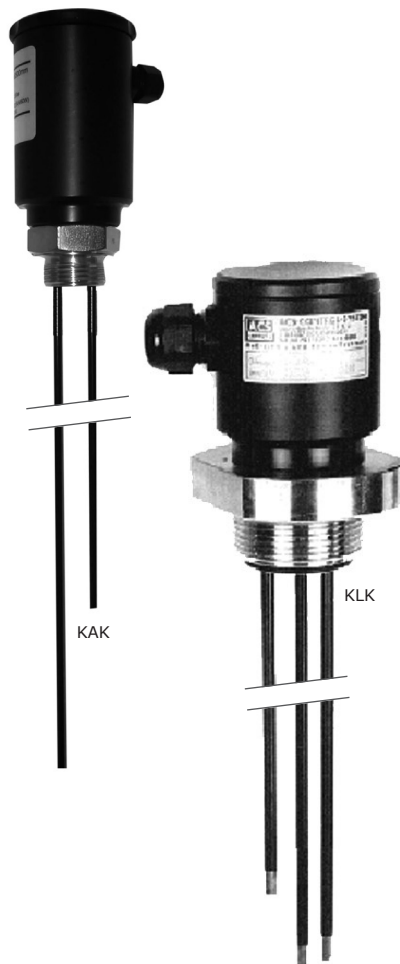
KLK for food application

1 / 01.22

Technical data



Process pressure max: -1...+10bar
 Medium temperature: -40°C...100°C
 Protection: IP65 DIN EN 60529
 Material Gaskets: KAK: FPM / KLK: EPDM, FDA-listed
 Material Process connection: Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
 Material probe rod: Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti) / Hastelloy C22 / Titan
 Isolation probe rod: KAK: PA / ETFE bzw. E-CTFE / KLK: ETFE, FDA-listed



Application

The filling level limit switch KAK resp. KLK is used, to evaluate one or two filling levels resp. limit levels in electrically conductive liquids with a conductivity of minimum 5µS/cm resp. a resistance of maximum 200kOhm.

The device is also useable as overflow protection in container with liquids, for the realization of a two-position-control e.g. for pump control or also as dry run protection.

The conductivity also of aggressive filling liquids can be detected, at process temperatures from -40 °C to +100 °C, at pressures from -1 bar to +10 bar.

The version KAK is the standard type for general applications, whereas the version KLK is especially conceived for food applications.

Conductive compact probes limit switch or two-position controller

KAK for standard application

KLK for food application

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Equipment

Einbaumuffen
page 64

Surcharge

* each rod
over 1500 mm
25,50 € surcharge!

Connection

with relay output terminal assignment

Relais zeigen Kontaktlage bei Netz-Aus

Filialstand-Relais S1 oder -S2-Relais

Filialstand-Relais S2

Versorgung 24V DC

PNP-switch output terminal assignment

Versorgung +Vs
24V DC +/-10% -Vs

Last

PNP-switch output plug M12x1

Stecker M12 x 1

Masse (Baugrupp) Min. (CHZ) Max. (CH1)

Elektroden-anschlüsse

KAK - Standard application

KLK - Food resp. hygienic application

Electrical connection

- 0 Terminal box
- V Plug M12x1 only at auxiliary power direct voltage 24 V DC

Auxiliary power

- G DC voltage 24 V DC (only with output „A“ - PNP)
- U Wide range power supply 20...253 V AC/DC

Output

- A 1 x PNP-switch output, only at auxiliary power DC voltage 24 V DC
- B 1 x relay output, only at auxiliary power universal voltage 20...253 V AC/DC
- C 2 x relay output, only at auxiliary power universal voltage 20...253 V AC/DC

Model measurement system

- 1 1-rod, 1x limit, reference electrode over process connection
- 2 2-rod, 1x limit, reference electrode over longest rod - number 2
- 3 3-rod, 2x limit, reference electrode over longest rod - number 3
- 4 2-rod, 2x limit, reference electrode over process connection

Process connection material stainless steel 1.4404 (medium contact)

- D25 Dairy coupling DIN 11851 – DN25 (only at KLK) (only for 1-rod)
- D40 Dairy coupling DIN 11851 – DN40 (only at KLK) (only up to 2-rod)
- D50 Dairy coupling DIN 11851 – DN50 (only at KLK) (only up to 3-rod)
- G12 G1/2" connecting thread(only for 1-rod)
- G10 G1" connecting thread(only up to 2-rod)
- G15 G1 1/2" connecting thread(only up to 3-rod)
- YYY Others

Material electrode rod

(price per 100mm)

- A4 Steel 1.4404, 4 mm
- A8 Steel 1.4404, 8 mm
- D Hastelloy® C22, rod diameter 3,2 mm oder 6 mm
- T4 Titan not for Ex-version, rod diameter 4 mm
- T8 Titan not for Ex-version, rod diameter 8 mm
- E CrNi-steel, tip tantalum 50mm, on request
- Y Others

Material housing

- D POM – polyoxymethylenee Delrin®, (standard)
- P PP – polypropylenee
- L PTFE – Polytetrafluoroethylene Teflon®
- V CrNi-steel

Material probe insulation

(price per 100mm)

- R PA-Polyamid (standard) (not at KLK)
 - H4 ETFE (KLK) resp. E-CTFE, rod diameter 4 mm
 - H8 ETFE (KLK) resp. E-CTFE, rod diameter 8mm
- * at length over 1 m

Diameter probe rod

- 0 4 mm
- W 8 mm

Length L1/L2/L3 electrode rod in mm, max. 2500 mm

199,00 €

212,00 €

Price group C

+ Additional Options (optional)

- SF LABS-free, silicone-free / paint compatible version 90,00 €
- ML Measurement point designation / TAG – Laser marking 46,00 €
- ME Configuration / Preset 18,00 €
- KF Measuring point label as adhesive label. 28,50 €

Order code

KAK | KLK mm

Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2

Conductive electrode relay SRA-100-U0

evaluation unit for fill level measurement to connect on conductive probes

1 / 01.22

Technical data



Permitted supply voltage:	20...253 V AC / DC 48...62 Hz
Power consumption:	≤ 3,5 VA / 1,3 W
Isolation voltage:	4kV~ auxiliary power against relay outputs against signal inputs
Contact rating:	U~ maximal 250 V AC; I~ maximal 10 A AC; P~ maximal 2500 VA
Level sensor:	one resp. two level electrodes with common reference electrode
Measuring Range:	≤ 1kΩ resp. ≥ 1mS/cm / ≤ 10kΩ resp. ≥ 100µS/cm / ≤ 200kΩ resp. ≥ 5µS/cm
Line monitoring:	only with level sensor with built-in modul LBM
Housing:	modular housing, 22,5mm wide



Application

The electrode relay SRA-100-U0 works in conjunction with conductive probes as a level limit switch or a control in conductive liquids such as water, alkalis and acids. While a low voltage according to VDE 0100 Section 410 stands at the electrodes of about 9V, thereby touching the probes is completely safe.

As soon as the electrically conductive filling builds a connection between mass and eg the maximum electrode, a small alternating current flows which is implemented in the evaluation in a relay output. As mass with metal vessel the wall of the vessel can be used, or an electrode with non-metallic container. The use of AC avoids the corrosion of the probe rods and electrolytic destruction of the product.

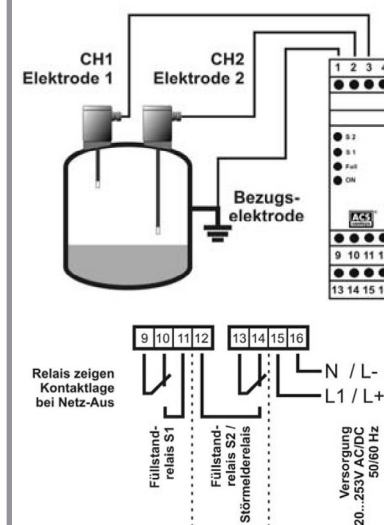
The device can be used with latching relay, Min and Max switching point work, as well as a double level detectors, with two separate outputs.

As a result, the number of applications, such as overflow, dry run protection, two-point control, moisture detection, etc. can be realized.

Via a coarse and fine tuning teh sensitivity can be adjusted on the conductivity of the liquid. With the adjustable trigger delay to approximately 8 seconds, possibly undulations in the container are hidden.

As further details the SRA-100-U0 offers a line break monitoring with fault relay and a wide range power supply of 20 ... 253V AC / DC.

Connection



Electrode relay SRA-100-U0

SRA-100-U0/20...253 V AC/DC	Electrode relay, 22,5 mm	114,00 €	A
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Surcharge - special measuring range

Special measuring range	0-1 MegaOhm	18,00 €	A
Special measuring range	0-8 MegaOhm	18,00 €	

+ Additional Options (optional)






KF Configuration / Preset	23,00 €	
KA Configuration setting as an adhesive label	14,50 €	

Conductive electrode relay ExSRA-100-U0

evaluation unit for fill level measurement to connect on conductive probes for Ex-area

1 / 01.22

Technical data

 certification	 AC/DC	 adjustable sensitivity	 Line break detection	 multifunction
<p>Permitted supply voltage: 20...253 V AC / DC 48...62 Hz Power consumption: ≤ 3,5 VA / 1,3 W Isolation voltage: 4kV~ auxiliary power against relay outputs against signal inputs Contact rating: U~ maximal 250 V AC; I~ maximal 10 A AC; P~ maximal 2500 VA Level sensor: one resp. two level electrodes with common reference electrode Measuring Range: ≤ 1kΩ resp. ≥ 1mS/cm / ≤ 10kΩ resp. ≥ 100µS/cm / ≤ 200kΩ resp. ≥ 5µS/cm Line monitoring: only with level sensor with built-in modul LBM Housing: modular housing, 22,5mm wide</p>				



Application

The electrode relay ExSRA-100-U0 works in conjunction with conductive probes as a level limit switch or a control in conductive liquids such as water, alkalis and acids. While a low voltage according to VDE 0100 Section 410 stands at the electrodes of about 9V, thereby touching the probes is completely safe.

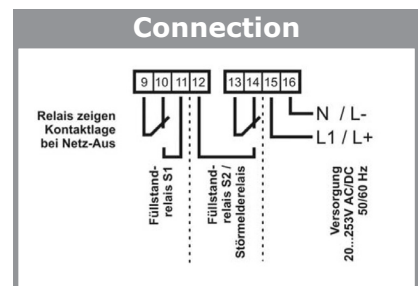
As soon as the electrically conductive filling builds a connection between mass and eg the maximum electrode, a small alternating current flows which is implemented in the evaluation in a relay output. As mass with metal vessel the wall of the vessel can be used, or an electrode with non-metallic container. The use of AC avoids the corrosion of the probe rods and electrolytic destruction of the product.

The device can be used with latching relay, Min and Max switching point work, as well as a double level detectors, with two separate outputs.

As a result, the number of applications, such as overflow, dry run protection, two-point control, moisture detection, etc. can be realized.

Via a coarse and fine tuning teh sensitivity can be adjusted on the conductivity of the liquid. With the adjustable trigger delay to approximately 8 seconds, possibly undulations in the container are hidden.

As further details the SRA-100-U0 offers a line break monitoring with fault relay and a wide range power supply of 20 ... 253V AC / DC.



Electrode relay ExSRA-100-U0 with Ex-licence ATEX

ExSRA-100-U0/20...253 V AC/DC	Electrode relay, 22,5 mm, 2 Wechsler, ATEX II (1) G [Ex ia Ga] IIB/IIC resp. ATEX II (1) D [Ex ia Da] IIIB/IIIC	157,00 €	A
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Surcharge - special measuring range

Special measuring range	0-1 MegaOhm	18,00 €	A
Special measuring range	0-8 MegaOhm	18,00 €	

+ Additional Options (optional)

KF Configuration / Preset.....	23,00 €	
KA Configuration setting as an adhesive label.....	14,50 €	

Vibrocont SCM-300

Vibration level limit switch for liquids;
Miniaturized small vibration fork
Screw-in thread G1/2" und G3/4"

1 / 01.22

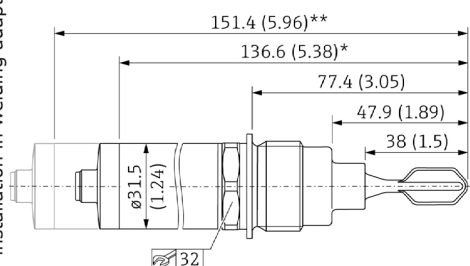
Technical data

WHG licence	up to 40 bar pressure	corrosion resistant	compact design
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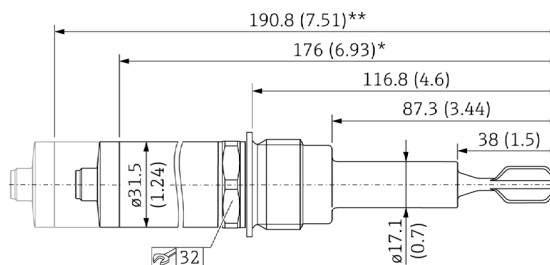
Measuring Principle: Vibration Liquids
 Characteristic / Application: Level switch for liquids and is used in tanks, vessels and pipes.
 Supply / Communication: 20 ... 253V AC/DC, 2-wire; 10 ... 35V DC-PNP 3-wire
 Ambient temperature: 40 °C ... 70 °C (-40 °F ... 158 °F)
 Process temperature: - 40 °C ... 150 °C (-40 °F ... 302 °F)
 Process pressure absolute / max. overpressure limit: Vacuum ... 40 bar (Vacuum ... 580 psi)
 Min. density of medium: >0,7g/cm³ (>0,5g/cm³ optional)
 Main wetted parts: 316L
 Process connection Threads: G1/2, G3/4, G1, MNPT1/2, MNPT3/4, MNPT1, R1/2, R3/4, R1
 Output: AC/DC, DC-PNP
 Certificates / Approvals: WHG; EN10204-3.1 material; Final Inspection Report
 Options: Adjustment switching delay; Cleaned from oil+grease, PWIS free



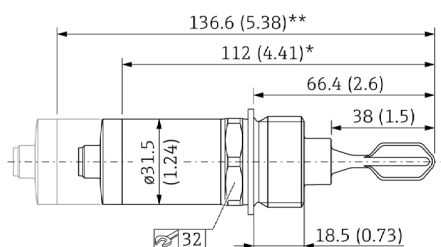
Compact version thread ISO 228 G1" for flush wall installation in welding adapter



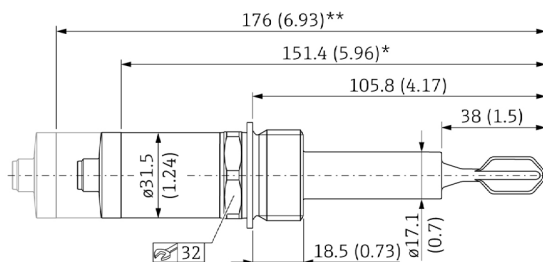
Short tube version thread ISO 228 G1" for flush wall installation on in welding adapter



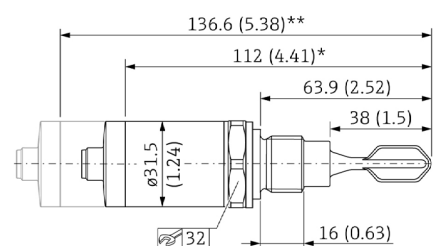
Compact version Thread ISO 228 G1"



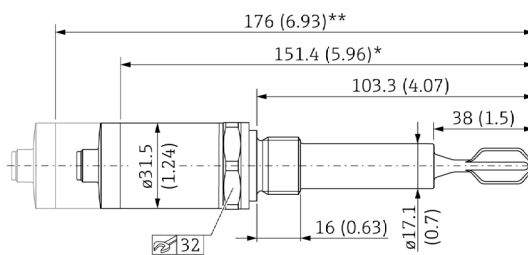
Short tube version Thread ISO 228 G1"



Compact version Thread ISO 228 G1/2", G3/4"



Short tube version Thread ISO 228 G1/2", G3/4"



* Dimensions for process temperature max. 100 °C
 ** Dimensions for process temperature max. 150 °C

Vibrocont SCM-300

Vibration level limit switch for liquids;
Miniaturized small vibration fork
Screw-in thread G½" und G¾"

1 / 01.22

Basic price (*scale prices)		173,00 €	Price group D
300	Standard admission 100°C	0,00 €	
302	Overfill safety WHG + leakage detection 100°C process temperature	16,00 €	
350	Standard admission 150°C	18,00 €	
352	Overfill safety WHG + leakage detection 150°C process temperature	33,00 €	
Construction form			
K	Compact version	0,00 €	
R	Probe extension: tube (= Switching point as VCL 200/202)	13,00 €	
Y	Special version	on request	
Process connection			
2	Screw-in piece G½"	0,00 €	
1	Screw-in piece G¾"	0,00 €	
6	G1" B; DIN EN ISO228-1, flush mounting in welding socket BEFV-10 (= Process connection as VCL 200/202)	13,50 €	
6	Screw-in piece G1"	11,00 €	
Y	Special version	on request	
Electronics			
WA	Electronic: 20...253V AC/DC	0,00 €	
GA	Electronic: 10...30V DC	0,00 €	
Y	Special version	on request	
Electrical connection			
02	Model: valve plug	0,00 €	
01	Model: plug M12 (not for AC-Version)	0,00 €	
Y	Special version	on request	
S	Standard	0,00 €	

*Scale prices - Basic price

1 - 3	pieces	173,00 €	PG D
4 - 10	pieces	156,00 €	
11 - 35	pieces	141,00 €	

Application

Vibrocont SCM-300 is a point level switch for liquids. The Vibrocont SCM-300 is designed for industrial applications in all industries, mainly the machinery industry. The Vibrocont SCM-300 is used for overfill prevention or pump dry-run protection in cleaning and filter systems as well as in cooling and lubrication vessels.

Compact:

- Smallest vibronic sensor

Safe:

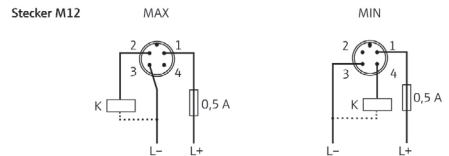
- Continuous self-monitoring
- Reliable switching independent of media properties

Easy:

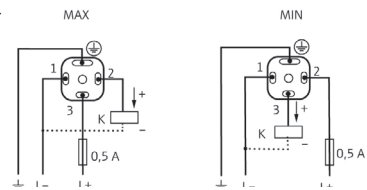
- No calibration or adjustment
- Plug & play

connection

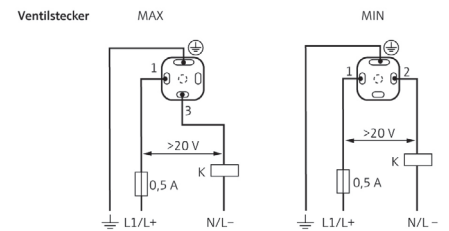
Elektronikvariante 3-Leiter DC-PNP



Ventilstecker



Elektronikvariante 2-Leiter AC/DC



Order code

Vibrocont SCM

Equipment

Order information
BEF-SCM34

LKW0405PUR
LKWP405PUR
BKZ0412-VA

Model

Welding socket G¾"	97,00 €	B
Connection cable 5 m	17,50 €	E
Connection cable LED 5 m	24,00 €	
Cable socket	18,50 €	

Vibrocont SHM-300

Vibration level limit switch for liquids in hygienic applications

1 / 01.22

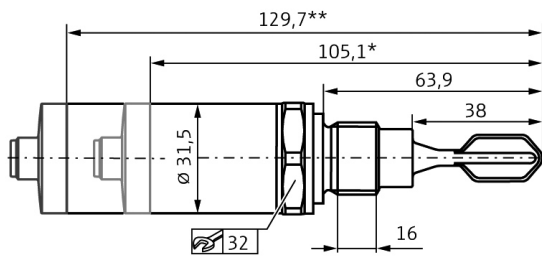
Technical data

up to 40 bar pressure	process temperature 150°C	CIP SIP capable	WHG licence	compact design	EHEDG licence
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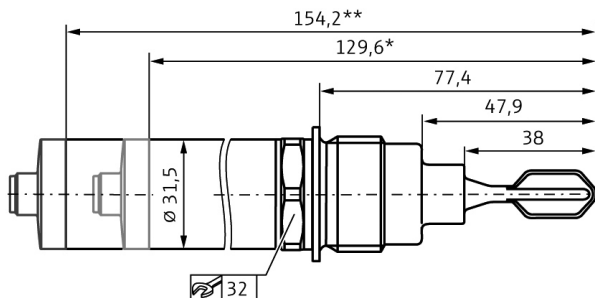
Measuring Principle:	Vibration Liquids
Characteristic / Application:	Point level switch for liquids in the food sector
Supply / Communication:	20 ... 253V AC/DC, 2-wire; 10 ... 35V DC-PNP, 3-wire
Ambient temperature:	40 °C ... 70 °C (-40 °F ... 158 °F)
Process temperature:	-40 °C ... 150 °C (-40 °F ... 302 °F)
Process pressure absolute / max. overpressure limit:	Vacuum ... 40 bar (Vacuum ... 580 psi)
Min. density of medium:	>0,7g/cm ³ (>0,5g/cm ³ optional)
Main wetted parts:	316L
Process connection: Threads:	G1/2, G3/4, G1, MNPT1/2, MNPT3/4, MNPT1, R1/2, R3/4, R1
Process connection hygienic:	Flush mount by use of weld in adapter; DIN11851; Tri-Clamp
Output:	AC/DC, DC-PNP
Certificates / Approvals:	WHG; EN10204-3.1 material; EHEDG, 3A; Final inspection report
Options:	Switching delay; Cleaned from oil+grease, Surface finish measurement



Gewinde ISO 228 G³/₄" für frontbündigen Einbau in Einschweißadapter

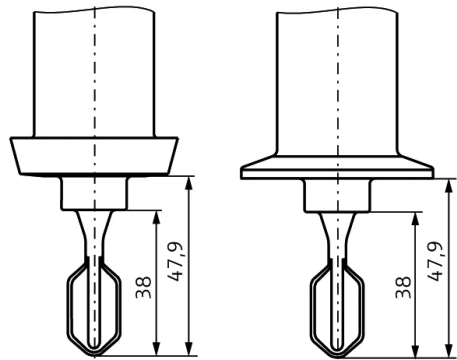


Gewinde ISO 228 G1" für frontbündigen Einbau in Einschweißadapter



DIN11851 DN25; DN32; DN40

Tri-Clamp ISO2852 DN25-38; DN40-51



* Abmessung für Prozesstemperatur max. 100 °C
 ** Abmessung für Prozesstemperatur max. 150 °C

Einbau gemäß Betriebsanleitung

Vibrocont SHM-300

Vibration level limit switch for liquids in hygienic applications

1 / 01.22

Basic price (*scale prices)

300	Standard admission 100°C	0,00 €
302	Overfill safety WHG + leakage detection 100°C process temperature	16,00 €
350	Standard admission 150°C	18,00 €
352	Overfill safety WHG + leakage detection 150°C process temperature	33,00 €
Y	Special version	on request
Process connection		
GD	Screw-in piece G $\frac{3}{4}$ " flush mounted	0,00 €
GE	Screw-in piece G1" flush mounted	13,50 €
T1	Tri-Clamp ISO2852 DN25-38 (1.1-1/2"), 316L, DIN32676 DN25-40	53,00 €
TD	Tri-Clamp ISO2852 DN40-51 (2"), 316L, DIN32676 DN50	53,00 €
MN	DIN 11851 DN25 milk tube	53,00 €
MP	DIN 11851 DN32 milk tube	53,00 €
M4	DIN 11851 DN40 milk tube	53,00 €
Y	Special version	on request
Electronics		
WA	Electronic: 20...253V AC/DC	0,00 €
GA	Electronic: 10...30V DC	0,00 €
Y	Special version	on request
Electrical connection		
02	Model: valve plug	0,00 €
01	Model: plug M12 (not for AC-Version)	0,00 €
Y	Special version	on request
Surface roughness		
S	Surface roughness <1,5 μ m	0,00 €
H	Surface roughness <0,76 μ m	13,50 €
Y	Special version	on request
S	Standard	0,00 €

217,00 €

Price group H

*Scale prices - Basic price

1	-	3	pieces	217,00 €
4	-	10	pieces	197,00 €
11	-	35	pieces	179,00 €

PG H

Application

Vibrocont SHM-300 is a point level switch for liquids. The Vibrocont SHM-300 is especially designed for food & beverage applications where hygienic requirements are requested. The Vibrocont SHM-300 is used for overfill prevention or pump dry-run protection preferably in storage tanks, mixing vessels and pipes.

Compact:

- Smallest vibronic sensor

Safe:

- Continuous self-monitoring
- Reliable switching independent of media properties

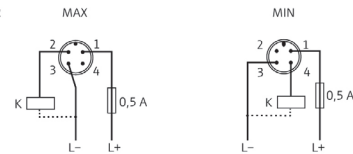
Easy:

- No calibration or adjustment
- Plug & play

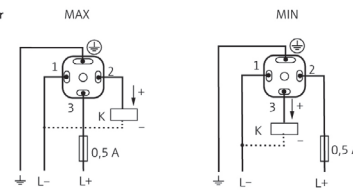
connection

Elektronikvariante 3-Leiter DC-PNP

Stecker M12

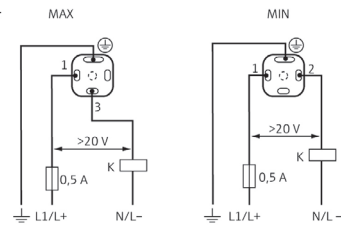


Ventilstecker



Elektronikvariante 2-Leiter AC/DC

Ventilstecker



Order code

Vibrocont SHM

S

Equipment

Order information

BEF-SCM34
BEFASCM10
BEFBSCM10

LKW0405PUR
LKWP405PUR
BKZ0412-VA

Model

Welding socket G $\frac{3}{4}$ " for process connection GD
Welding socket G1" for process connection GE
Welding socket G1", ausrichtbar

Connection cable 5 m
Connection cable LED 5 m
Cable socket

97,00 €
110,00 €
229,00 €

B

17,50 €
24,00 €
18,50 €

E

Silocont SIC-350

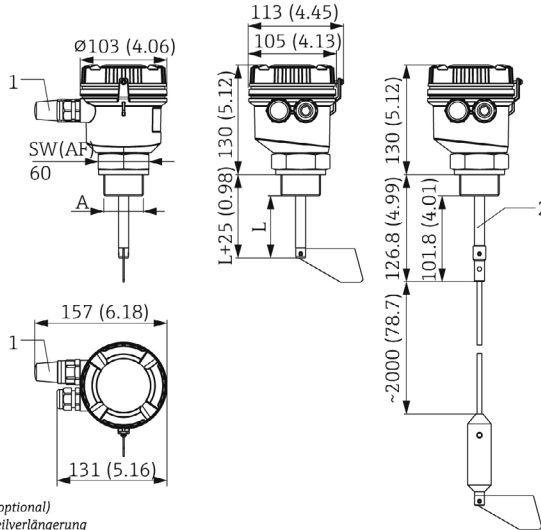
rotary paddle switch for solids;
 simple mechanism, extremely robust and cost-effective;
 medium temperature: -20...+80°C; pressure: 0,5...2,5 bar abs.

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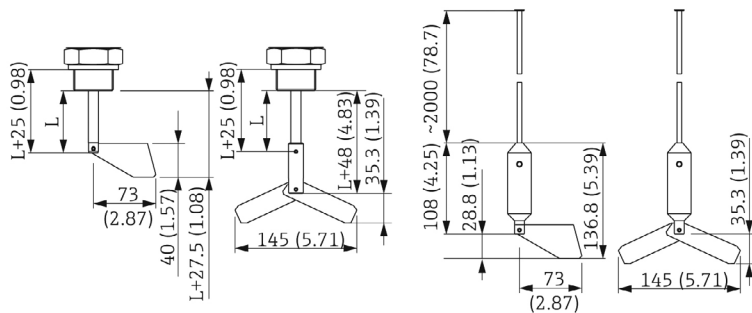
Technical data



Measuring Principle: Paddle
 Characteristic / Application: Universally applicable as a full, empty and demand alarm on silos containing solids
 Supply / Communication: 230 VAC 50/60 Hz; 115 VAC 50/60 Hz; 24 VAC 50/60 Hz; 20 bis 28 VDC
 Ambient temperature: -20 °C ... 60 °C (-4 °F ... 140 °F)
 Process temperature: -20 °C ... 80 °C (-4 °F ... 170 °F)
 Process pressure absolute / max. overpressure limit: 0.5 bar to 1.8 bar (7 psi ... 25 psi)
 Min. density of medium: >= 80 g/l
 Main wetted parts: 1.4305
 Max. tensile strength: Rope version >1500N
 Process connection: NPT 1 1/2", PBT; NPT 1 1/4", PBT; G 1 1/2", PBT; NPT 1 1/2", 1.4305; NPT 1 1/4", 1.4305; G 1 1/2", 1.4305
 Sensor length: 75 mm (3"); 100 mm (4"); 120 mm (4 3/4"); 200 mm (8"); 300 mm (12"); Rope length of approx 2000 mm (80"), can be shortened
 Output: Micro switch with changeover contact max. 10 A/250 VAC
 Certificates / Approvals: ATEX II 1/3 D; CSA DIP/ II, III/1/E-G (requested!); FM DIP/ II, III/1/E-G
 Options: Rotation Monitoring System; Signal Lamp; Fold-away paddle; Weather protection cover
 Specialities: Rotation Monitoring System; Fold-away paddle
 Components: HAW569 Surge arrester



- 1 Signallampe (optional)
- 2 Version mit Seilverlängerung



Abmessungen je nach Variante

A	Prozessanschluss	NPT 1¼", NPT 1½", G 1½"
L	Länge der Welle	75...300 mm (2,95...11,81 in)

Application

The economical Silocont SIC-350 is a paddle switch for point level detection in bulk materials. Its robust polymer housing and compact design makes it an ideal sensor for full, empty and demand alarm in applications with bulk solids. The optimized polymers make the unit outstandingly robust and therefore suitable for use in dust explosive areas according to the latest standards.

Advantages

- Safety comes first - Overfill prevention with an automatic rotation monitoring system
- Optical rotation control for a fast and easy check either for installation or for trouble shooting
- Extremely robust polymer housing with the latest dust Ex certification for ATEX, FM and CSA
- Cost savings over the whole life cycle: quick installation; fast trouble shooting concept without the need of demounting; best price performance ratio in the market
- Adjustment to weight of solids without the need for tools
- Housing can be rotated 360° to enable optimal alignment following installation.

Silocont SIC-350

rotary paddle switch for solids;
simple mechanism, extremely robust and cost-effective;
medium temperature: -20...+80°C; pressure: 0,5...2,5 bar abs.

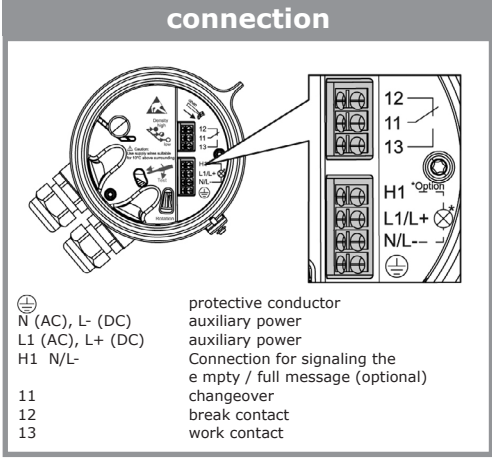
1 / 01.22

Basic price	201,00 €
Licence	
AA Non-Ex-area	0,00 €
BI ATEX II 1/2D Ex ta/tb IIIC Da/Db (signal lamp not possible with Ex)	86,00 €
CC CSA DIP/ II, III/1/E-G	86,00 €
FC FM DIP/ II, III/1/E-G	86,00 €
Process connection; material	
11 Thread NPT 1-1/2", PBT	0,00 €
12 Thread NPT 1-1/4", PBT	0,00 €
13 Thread G 1-1/2", PBT	0,00 €
14 Thread NPT 1-1/2", 303	43,00 €
15 Thread NPT 1-1/4", 303	43,00 €
16 Thread G 1-1/2", 303	43,00 €
99 Special version	on request
Model; length	
AA Spindle, 75mm	0,00 €
AB Spindle, 100mm	0,00 €
AC Spindle, 120mm	0,00 €
AD Spindle, 200mm	0,00 €
AE Spindle, 300mm	0,00 €
AF rope, 2000mm, can be shortened	86,00 €
AY Special version	on request
power supply	
1 20-28VDC	66,00 €
2 24VAC	16,50 €
3 115VAC	0,00 €
4 230VAC	0,00 €
9 Special version	on request
Measuring blade; material	
1 Standard; 304	0,00 €
2 Foldable; 304	37,00 €
3 Special version	on request
NN	0,00 €
CA Inklusive rotation monitoring (increased safety)	130,00 €
CO Without rotation monitoring	0,00 €
Equipment mounted	
NA Signal lamp (NOT WITH EX)	32,00 €
N9 Special version	on request
00 Without equipment	0,00 €

Price group D

Order code

SIC-350 NN



Capcont M

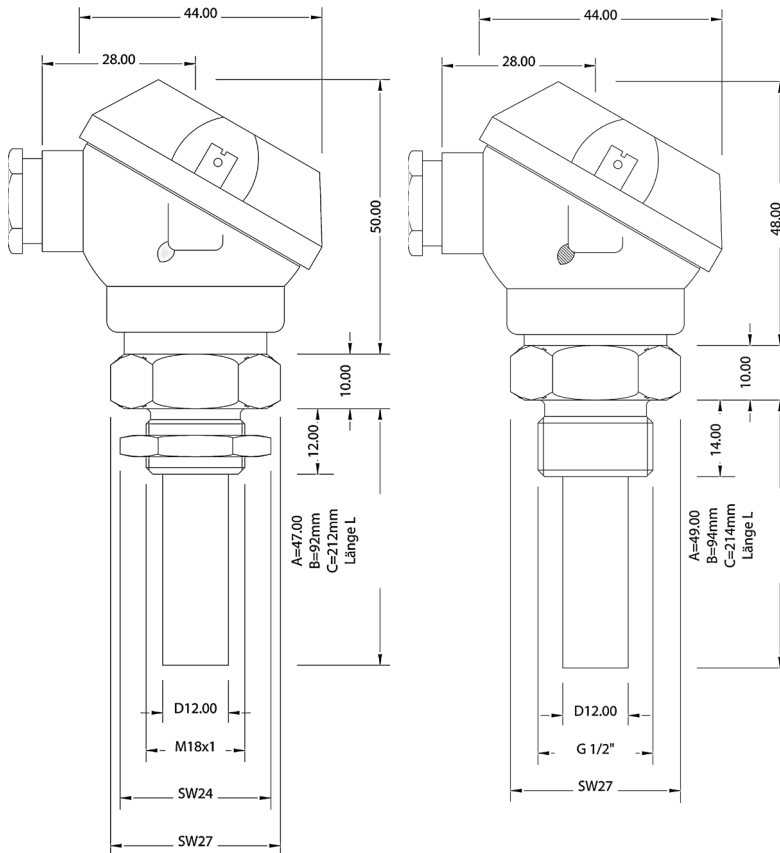
for capacitive fill level supervision in liquids and solid materials
medium temperature: -30...+125°C; pressure: -1...10 bar

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Technical data



Power supply	10 V bis 35 V DC protected against polarity reversal
Supply voltage:	≤ 2 VSS only within the permissible voltage limits
Residual ripple :	≤ 10mA switching outputs in idle mode
Current consumption:	75VDC
Isolation voltage:	
Switching output	
Function:	PNP-switching on +Vs, principle (NO/NC) invertible via jumper
Output voltage:	VS1 ≥ +Vs - 2 V
Output current:	≤ 250 mA current-limited, shortcircuit proof
Rise time:	≤ 30 μs RL ≤ 3 000 Ω resp. IL ≥ 4,5 mA
Delay time:	≤ 200 ms / ≥ 5 Hz
Switching cycles:	≥ 100.000.000
Switching hysteresis:	depends on the media
Sensitivity adjustment:	multi-start trimmer
Materials	
Rod isolation:	PTFE – polytetrafluoroethylene (Teflon®)
(medium contact)	
Process connection:	Steel 1.4404 (AISI 316L) resp. 1.4571 (AISI 316Ti)
(medium contact)	
Connection housing:	die-cast aluminium housing in powder-coated finish
Cable screw connection:	brass nickel-plated screw, sealing CR / NBR
Sealing:	medium-contact FPM – fluorelastomer (Viton®) EPDM – Etylen-P



Application

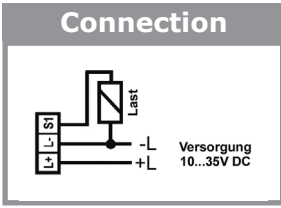
The devices of the series Capcont M with integrated evaluation electronic are compact fill level limit switches for supervision of fill levels in liquids and solid materials in containers or pipelines at process temperatures from -30°C to +125°C and process pressures from -1 up to 10 bar.

The device is suitable for limit value detection or also as dry run protection in liquids and viscous substances but also in powdery and fine-grained materials, like e.g. grain, flour, powdered milk, mixing food, cement, chalk or gypsum. It can be used in electrically conductive as well as non-conductive materials.

Capcont M

for capacitive fill level supervision in liquids and solid materials
 medium temperature: -30...+125°C; pressure: -1...10 bar

1 / 01.22



Basic price		161,00 €
Model		
M	Standard	0,00 €
Material electrode rod isolation / length L (medium contact)		
A	PTFE Polytetrafluoroethylene (Teflon®) L=49 mm (-2 mm at process connection 0 - M18x1)	0,00 €
B	PTFE Polytetrafluoroethylene (Teflon®) L=94 mm (-2 mm at process connection 0 - M18x1)	22,50 €
C	PTFE Polytetrafluoroethylene (Teflon®) L=214 mm (-2 mm at process connection 0 - M18x1)	44,00 €
Y	Other isolation material / others length separate disclosure required	on request
Process connection		
0	M18 x 1 DIN ISO 724	0,00 €
1	G½" B DIN EN ISO 228-1	0,00 €
Y	Others	on request
Gaskets (medium contact)		
1	FPM Fluoroelastomer (Viton®)	0,00 €
2	CR Chloroprene rubber (Neoprene®)	0,00 €
3	EPDM Ethylen-Propylen-Dinmonomer for food applications	0,00 €
4	FFKM Perfluoroelastomer (Kalrez®)	75,00 €
Material process connection (medium contact)		
V	Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)	0,00 €
Construction form / material Connection housing		
3	Form F according to DIN 43729 Aluminium	0,00 €
electronic - output		
A	1x PNP-switch output	0,00 €
Process temperature		
0	-30°C up to +125°C	0,00 €
Electrical connection		
K	Terminal box	0,00 €
Length L in mm		

Price group A

+ Additional Option (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
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Order code

Capcont M V 3 A 0 K mm

Capcont LS and LL

for capacitive filling level supervision in liquids and solids

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Technical data

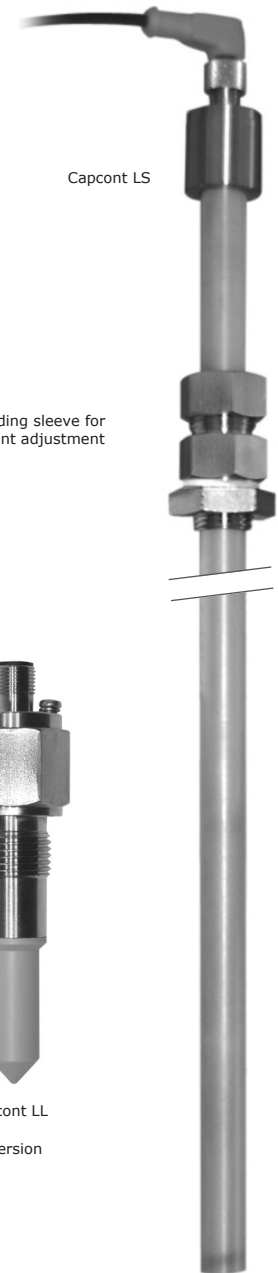


Power supply: 10 V bis 35 V DC protected against polarity reversal
 Supply voltage: 10 V bis 35 V DC protected against polarity reversal
 Current consumption: ≤ 10mA switching outputs in idle mode

Switching output
 Function: PNP-transistor output, on contact +L
 Output current: ≤ 250 mA current-limited, shortcircuit proof
 Sperrstrom: ≤ 100 µA current-limited, shortcircuit proof
 Rise time: ≤ 30 µs RL ≤ 3 000 Ω resp. IL ≥ 4,5 mA
 Delay time: ≤ 200 ms / ≥ 5 Hz
 Switching hysteresis: depends on the media
 Sensitivity adjustment: multi-start trimmer

Materials
 Rod isolation: Capcont LS PTFE – polytetrafluoroethylene (Teflon®)
 Capcont LL PEEK

Process connection: 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
 Plug M12x1: frame CrNi-steel, insert PUR, contact gold-coated
 Sealing: medium-contact (LS) FPM – fluorelastomer (Viton®)
 EPDM – ethylene-propylene-diene monomer
 other FPM – fluorelastomer (Viton®)

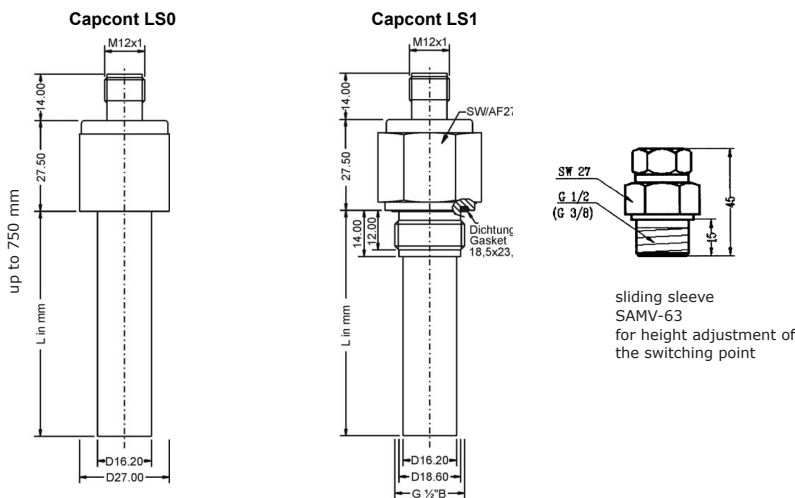


Capcont LS

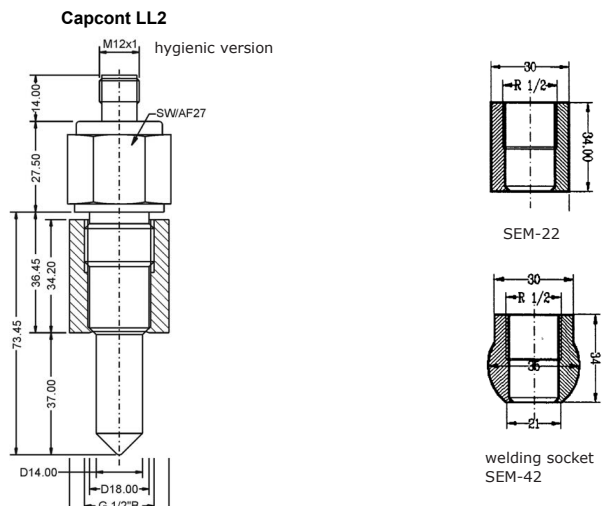
Sliding sleeve for point adjustment



Capcont LL
hygienic version



sliding sleeve SAMV-63 for height adjustment of the switching point



welding socket SEM-42

Application

The device is suitable for limit value detection of also as dry run protection in liquids and viscous substances and also in powdery and fine granular substances, like e.g. grain, flour, powdered milk, mixing food, cement, chalk or gypsum.

It can be used in electrically conductive as well as in non-conductive materials.

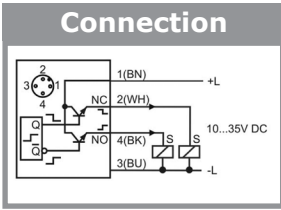
The device is certificated for the use as overflow protection acc. to WHG.

Capcont L with integrated evaluation electronic is a compact filling level limit switch for supervision of filling levels in liquids and solids within container or pipes, also in explosive hazardous areas, at process temperatures from - 40°C to +140°C and process pressures from -1 up to 10 bar. Capcont LL with metallic gasket and rod isolation in PEEK is especially suitable for the use in hygienic applications

Capcont LS

for capacitive filling level supervision in liquids and solids

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Model		
L	Standard	198,00 €
X2L	ATEX II 3G Ex ic IIC T6 ...T1 Gc / ATEX II 3D Ex ic IIIC T98°C Dc	221,00 €
Material electrode rod isolation (medium contact)		
S	PTFE Polytetrafluoroethylene (Teflon®)	0,00 €
Process connection		
0	Without – mounting with sliding sleeve SAMV-63	0,00 €
1	G½" B; DIN EN ISO228-1; DIN 3852-11-E	14,50 €
Y	Others	on request
Material gaskets (medium contact)		
1	FPM Fluoroelastomer (Viton®)	0,00 €
3	EPDM Etylen-Propylen-Dienmonomer - for food applications	0,00 €
Material process connection (medium contact)		
V	Steel 1.4404/316L or 1.4571/316Ti	0,00 €
Material Connection housing		
C	CrNi-Steel	0,00 €
Electronic - output		
A	DC voltage 24V _{DC} 1x PNP switch output	49,00 €
Process temperature		
0	Standard, -40°C ... +100°C	0,00 €
Electrical connection		
S	Plug M12x1	0,00 €
Length L		
A	Length L = 150 mm	0,00 €
B	Length L = 300 mm	16,00 €
C	Length L = 500 mm	27,00 €
D	Length L = 750 mm	71,00 €

Price group A

Order code

Capcont- S V C A O S

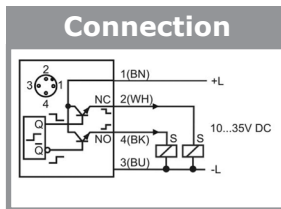
+ Additional Option (optional)

SF LABS-free, silicone-free / paint compatible version

90,00 €

Capcont LL2

for capacitive filling level supervision in liquids and solids in hygienic applications



Model		
L	Standard	198,00 €
X2L	ATEX II 3G Ex ic IIC T6 ...T1 Gc / ATEX II 3D Ex ic IIIC T98°C Dc	221,00 €
Material electrode rod isolation (medium contact)		
L	PEEK	0,00 €
Process connection		
2	G½" B, DIN EN ISO228-1 – mounting with welding socket SEM-22 / SEM-42	37,00 €
Material gaskets		
0	Without	0,00 €
Material process connection (medium contact)		
V	Steel 1.4404/316L or 1.4571/316Ti	0,00 €
Material Connection housing		
C	CrNi-Steel	0,00 €
Electronic - output		
A	DC voltage 24V _{DC} 1x PNP switch output	49,00 €
Process temperature		
1	Advanced, -40°C ... +140°C	0,00 €
Electrical connection		
S	Plug M12x1	0,00 €
0		0,00 €

Price group A

Order code

Capcont- L 2 0 V C A 1 S 0

+ Additional Option (optional)

SF LABS-free, silicone-free / paint compatible version

90,00 €

Equipment

Order information
LKZ0405PUR-AS
LKZ0410PUR-AS
BKZ0412-VA
SAMV-63

Model		
Connection cable 5 m, 4-pole, shielded		22,50 €
Connection cable 10 m, 4-pole, shielded		28,50 €
Matching cable socket, VA-nut		18,50 €
Sliding sleeve G½" DIN EN ISO228-1 / ø 16 mm, for Capcont LS-		
Steel 1.4404 / 1.4571 / gasket PTFE		39,00 €

Price group E

Mycrocont MCN4

Microwave - limit switch for level detection or limit level monitoring in liquids and solids

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Technical data



hygienic design

**CIP
SIP**
capable

**Min/
Max**

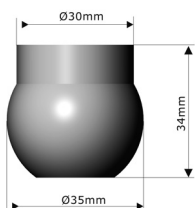
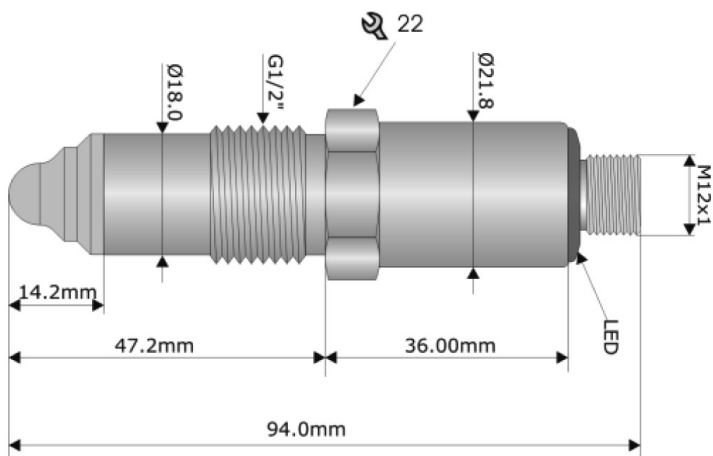
corrosion resistant



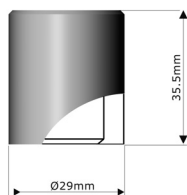
easy-to-use

**V4A
PEEK**

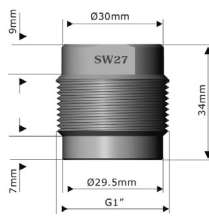
Process connection	G1 / 2 "hygienic
Output signal	PNP, NPN or push-pull switchable
Materials (in process PB)	PEEK * 1
Materials Housing parts	316L
Protection class	IP67 according to DIN EN 60529
Switch-on delay	<0.3 sec
Response dynamics	<0.2sec
Supply voltage	U _b = 24V (12 ... 32VDC)
Permissible load	0ohm, 24VDC, 100mA
Setting	by PC software "MCN SOFT"
Electrical connection	M12 plug 5-pin. Pin 2 + 5 milled, for data communication



ball weld
BEFH-30



standard weld
BEFH-20



fork adapter 1"
HEM-10



BEFH-30



BEFH-20

Application

The level monitor Mycrocont MCN is used for easy and reliable level monitoring of liquids or solids. In addition to aqueous media, also e.g. oils, honey, chocolate, Emulsions and various fine-grained materials such as grain, sugar, milk powder, etc. can be recorded. Because of the elastomer-free seal between the tip and sleeve the Mycrocont MCN can also be used for hygienic applications. The medium can be balanced via DIP switches or an optional software. The control software can detect differences in media and the switching characteristics of this situation can be matched exactly. Suitable in the appropriate configuration for media with $\epsilon_r > 2$, including chocolate, honey, vegetable oil, etc., and all aqueous media.

Equipment for Hydrocont® Equipment for probes Equipment for electrode relays

1 / 01.22

Welded flanges for container for installation of Hydrocont®, Precont®, Vibrocont etc.

Order information	Model/material	Price	Price group
BEFV-10	Welding socket G1"	113,00 €	B
BEFV-34	Welding socket G¾", gasket FPM-Viton®	38,00 €	
BEFE-34	Welding socket G¾", gasket EPDM	38,00 €	
BEFK12	Welding socket G½", sealing attachment in the back	71,00 €	
BEFK60	Welding socket G½" EG, sealing attachment in the back	98,00 €	
BEFV-60	Welding flange Ø 65 mm with Viton® seal	145,00 €	
BEFE-60	Welding flange Ø 65 mm with EPDM seal	145,00 €	
BEF-61	Welding flange for DRD-connection 65 mm	187,00 €	
BEFA-62	Welding flange milk tube connection DN50 n. DIN 11851 aus 1.4301	111,00 €	
BEFB-62	Welding flange milk tube connection DN40 n. DIN 11851 aus 1.4301	108,00 €	
BEFC-62	Welding flange milk tube connection DN25 n. DIN 11851 aus 1.4301	105,00 €	
BEF-63	Welding flange Varivent® Ø 68 mm PN40	260,00 €	
BEF-66	Welding flange for Coupling nut adapter	166,00 €	

DIN-flanges with 1,5"-borehole

Order information	Model/material	Price	Price group
FL-4001	DN 40 / PN 16	148,00 €	E
FL-5001	DN 50 / PN 16	162,00 €	
FL-8001	DN 80 / PN 16	227,00 €	
FL-1001	DN 100 / PN 16	298,00 €	
FL-2201	ANSI 2" / PSI 150	85,00 €	
FL-3201	ANSI 3" / PSI 150	122,00 €	
FL-4201	ANSI 4" / PSI 150	141,00 €	

Reductions

Order information	Model/material	Price	Price group
RD-20Z15	Reduction G2" A auf G½" I	60,00 €	E
RD-20Z10	Reduction G2" A auf G1" I	60,00 €	
RD-15Z10	Reduction G1½" A auf G1" I	48,00 €	
RD-15Z12	Reduction G1½" A auf G½" I	48,00 €	

Tube nuts

Order information	Model/material	Price	Price group
RM-15GV	Tube nut DIN 431, G½"	25,00 €	E
RM-10GV	Tube nut DIN 431, G1"	15,50 €	
RM-20GV	Tube nut DIN 431, G2"	26,50 €	
RM-38GV	Tube nut DIN G¾"	8,60 €	
RM-12GV	Tube nut DIN G½"	9,80 €	

Welding sleeves for conductive probes in food applications

Order information	Model/material	Price	Price group
BEFA-62	Welding flange milk tube connection DN50 acc. to DIN 11851 from 1.4301	111,00 €	B
BEFB-62	Welding flange milk tube connection DN40 acc. to DIN 11851 from 1.4301	108,00 €	
BEFC-62	Welding flange milk tube connection DN25 acc. to DIN 11851 from 1.4301	105,00 €	
SEM-12	food application welding sleeve for probe SLK/KLK with G½"	64,00 €	
SEM-10	food application welding sleeve for probe SLK/KLK with G1"	83,00 €	
SEM-15	food application welding sleeve for probe SLK/KLK with G1½"	96,00 €	
SEM-22	Welding socket metal-seated G½"	53,00 €	
SEM-42	Ball welding sleeve metal-seated G½"	53,00 €	

Spacers for conductive probes

Order information	Model	Price	Price group
AH-2	Spacers for 2-rod probes	24,50 €	E
AH-3	Spacers for 3-rod probes	30,00 €	
AH-4	Spacers for 4-rod probes	30,00 €	
AH-5	Spacers for 5-rod probes	30,00 €	

Line break module for installation in the probe head

Order information	Model	Price	Price group
LBM	For installation in STK, SLK, SST.	22,50 €	E
ExLBM	For installation in Ex-probes of type STK, SLK	22,50 €	

Sealing screw for Hydrocont®-xtension cable montage

Order information	Model	Price	Price group
VSM-1000	G1", cable strength 7,5 mm (for Hydrocont® M + LK)	75,00 €	E
VS-1500	G1½", cable strength 10 mm (for Hydrocont® B)	83,00 €	
VSM-1500	G1½", cable strength 7,5 mm (for Hydrocont® M + LK)	83,00 €	

Straining clamps

Order information	Model	Price	Price group
Straining clamp	Galvanized, for Extension cable 7,5 - 10,5 mm	32,00 €	E
Straining clamp	CrNi-Steel, for Extension cable 7,5 - 10,5 mm	38,00 €	

Wall-mounted casing with pressure equalization

Order information	Model	Price	Price group
Wall-mounted casing	For Hydrocont® B, M + LK without inscription	73,00 €	E
Wall-mounted casing	For Hydrocont® B, M + LK as an EX-variant	81,00 €	

sliding sleeve for Capcont LS

Order information	Model	Price	Price group
SAMV-63	Sliding sleeve G½" DIN EN ISO228-1 / ø 16 mm, for Capcont LS-Steel 1.4404 / 1.4571 / gasket PTFE	39,00 €	E

Marking measuring point

AS-50	Hang tag of VA with laser inscription	38,00 €	
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2. Water level measurement, data transmission, battery powered

Contents

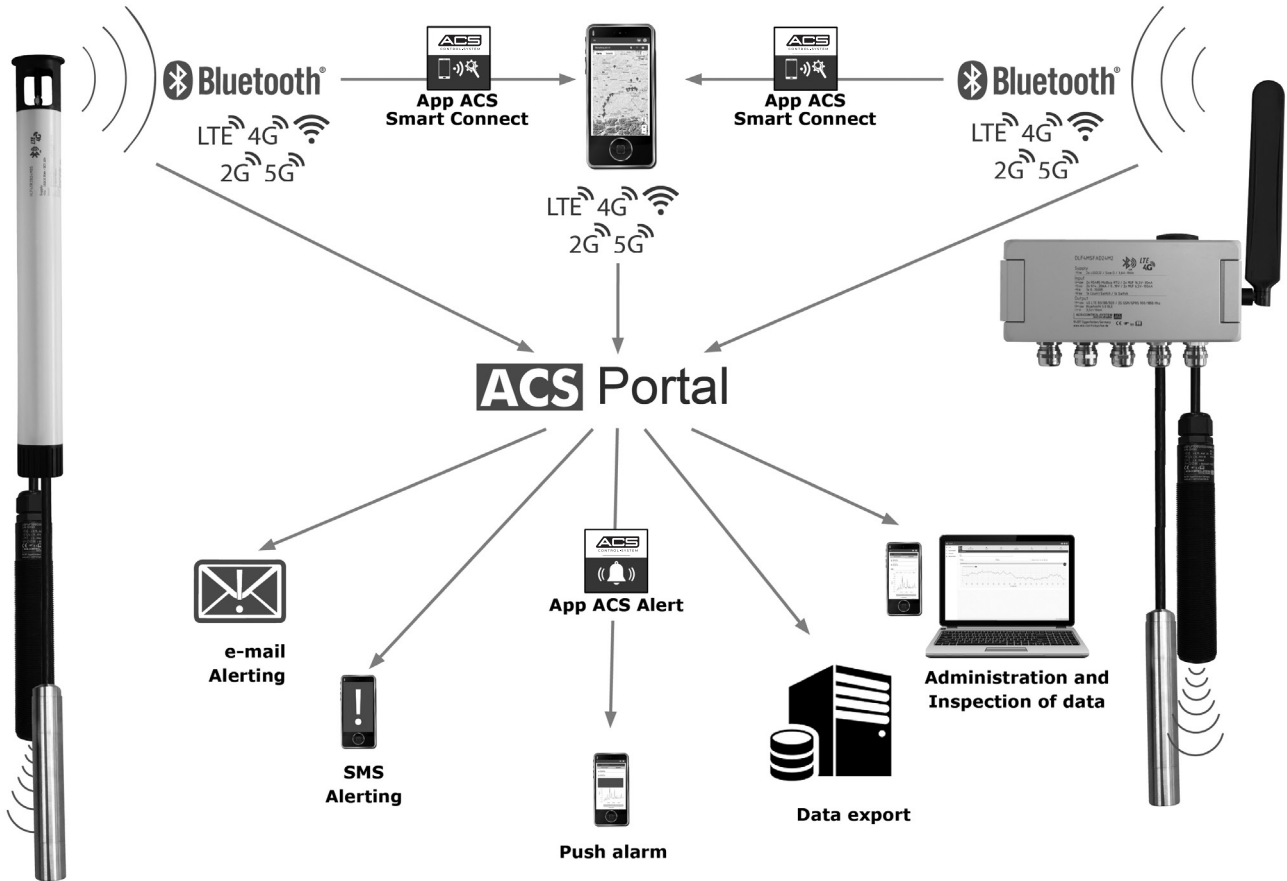
Data logger for water level measurement (hydrostatic)

Hydrocont® HP4 Hydrostatic level sensor	68
Sonicont® USP4 Ultrasonic sensor for non-contact redundancy measurement	70
Datalogger DLF4 Remote data transmission module for wall installation	72
Hydrolog® HLF4 Remote data transfer system for pipe installation from 2"	74
Tariffs – IoT Solutions.	76
Equipment for water level measurement	78

What to use where

	Hydrocont HP4	Sonicont USP4	Datalogger DLF4	Hydrolog HLF4
Function				
Battery powered			●	●
External supply e.g. via PV modules			●	●
Data transmission			●	●
Data logger			●	●
Media				
Liquids	●	●	●	●
Solids		●		
Operating conditions				
Aggressive media	●	●		
Coat forming media	●	●		
Non conductive media	●	●		
Foaming	●			
Flood proof	●	●	●	●
Measuring principle				
Hydrostatic	●			
Ultrasonic		●		
application				
Groundwater measurement	●	●		●
Surface water measurement	●	●	●	●
Well measurement	●	●		●
Level measurement in containers	●	●	●	●
Rain overflow basin measurement	●	●	●	●

Water level measurement - transmission



Hydocont® HP4SC

Levelsensor ø 22mm, for hydrostatic level measurement with capacitive ceramic measuring cell;
Output signal RS 485 Modbus RTU

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Water level
measurement

Technical data



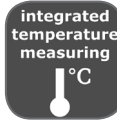
overvoltage protection



slim design



0,05%
highest accuracy

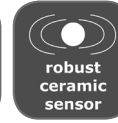


integrated temperature measuring

°C



fast response time



robust ceramic sensor

Input Pressure

Nom. pressure PN relative: 0...0,1bar up to 0...10bar

Characteristic deviation: $\leq \pm 0,05\% / \pm 0,1\% / \pm 0,2\%$ FSO

Temperature deviation: Tk Zero $\leq \pm 0,015\%$ FSO/K, $\leq \pm 0,75\%$ FSO

Tk Span $\leq \pm 0,015\%$ FSO/K, $\leq \pm 0,5\%$ FSO ($\geq 0,4$ bar) / $\leq \pm 0,8\%$ FSO ($< 0,4$ bar)

T90 ≤ 2 ms (td = 0s)

Time behavior:

Input Temperature

Sensor type: Pt1000 class A

Characteristic deviation: $\leq \pm 0,1K + 0,002 \times [dt (25^\circ C)]$

Time behavior: T90 ≤ 4 s

Output RS485 Modbus®-RTU

Interface: RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)

Time behavior: ton ≤ 250 ms (td = 0s)

Auxiliary power

Supply voltage Us

polarity protected: 6...35VDC

Overvoltage protection

Coarse protection: 75V / 10kA - wave 8/20µs / all lines to PE

Fine protection: 36V / all lines to -L

Environmental conditions

Environmental temperature: $-20^\circ C \dots +70^\circ C$

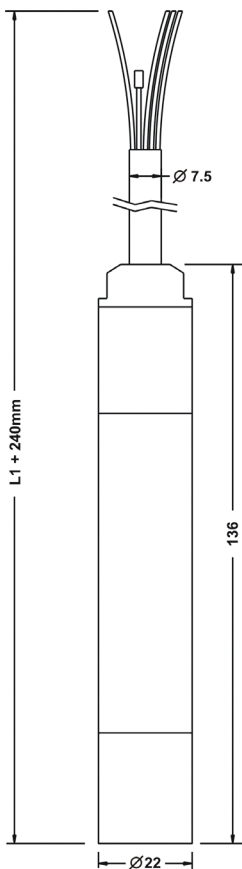
Protection level: IP68 (EN/IEC 60529)

Materials

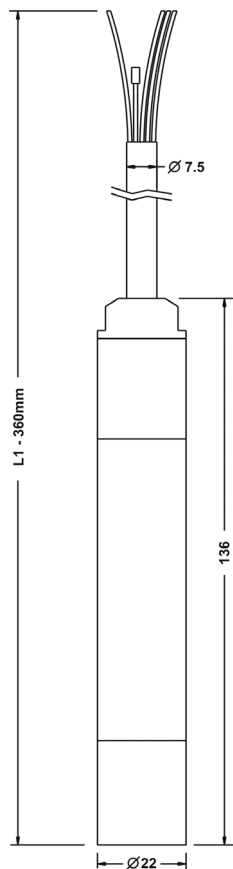
Process wetted: Ceramic Al2O3, CrNi-Steel, FPM, EPDM, PE, PUR



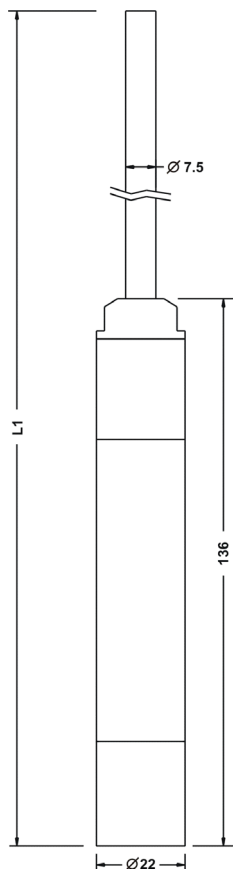
Electrical connection type K
Confection stranded wires



Electrical connection type H
Confection Hydrolog HLF4



Electrical connection type 0
Without confection



Application

The hydrostatic level probe Hydrocont HP4SC is suitable for monitoring, control and continuous measurement of levels and temperatures. Thanks to the capacitive ceramic measuring cell, the submersible probe offers maximum accuracy and long-term stability. Its slim design, with a diameter of 22mm, enables it to be used even in small dip tubes. Due to the possibility of combining different materials for sensors, cables and seals, the measuring system can be designed for a large number of, also aggressive, filling media.

The signal evaluation is based on RS485 Modbus-RTU. This also makes it possible to digitally adjust the sensor according to the respective circumstances.

In addition to level measurement, the Hydrocont HP4SC can also measure the temperature of the medium via a built-in sensor and also output it using the Modbus protocol.

To ensure safe operation, especially outdoors, the Hydrocont HP4SC has an integrated surge protection, which is designed as a coarse and fine protection.

A captive laser inscription on the nameplate ensures identifiability over the entire life of the device.

Hydocont® HP4SC

Levelsensor ø 22mm, for hydrostatic level measurement with capacitive ceramic measuring cell;
Output signal RS 485 Modbus RTU

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Basic price		643,00 €
Type	S Standard	0,00 €
Measuring system – material diaphragm (process wetted) / sensor type		
C	Ceramic Al2O3 96%/99,7% / capacitive	0,00 €
Approval		
S	Standard	0,00 €
Process connection		
O	without	0,00 €
Y	others	on request
Material process gaskets (process wetted)		
1	FPM – fluorelastomere (e.g. Viton®)	0,00 €
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed	0,00 €
Y	others	on request
Material process connection (process wetted)		
V	CrNi-steel	0,00 €
V	CrNi-steel, duplex, sea water resistant	55,00 €
Y	others	on request
Material terminal enclosure		
0	without	0,00 €
Measuring range		
01	0...100 mbar	07 0...2 bar
02	0...200 mbar	08 0...4 bar
03	0...400 mbar	09 0...6 bar
04	0...600 mbar	10 0...10 bar
05	0...1 bar	
YY	Sondermessbereich	38,00 €
Electronic – output		
V	RS485 Modbus®-RTU, 4-wire	0,00 €
Electronic – function		
0	without	0,00 €
3	Temperature sensor Pt1000	104,00 €
Y	others	on request
Process temperature		
0	Standard -20°C...+70°C	0,00 €
Pressure type		
R	Gauge pressure	0,00 €
Measuring system – accuracy		
1	0,2%	0,00 €
3	0,1%, linearization protocol	66,00 €
6	Xcellence – 0,05% (FS ≥ 200mbar), inearization protocol	164,00 €
Electrical connection		
K	Cable, confection stranded wires, length L1 +240mm	0,00 €
H	Cable, confection Hydrolog HLF4, length L1 -360mm	0,00 €
0	Cable, without confection, incl. confection kit	0,00 €
Material Cable (process wetted)		
A	Cable sheath PE	0,50 €
B	Cable sheath PUR	0,70 €
G	Cable sheath PUR, increased diffusion-tightness	0,80 €
Length L1 / mm (≤ 300.000mm)		
		0,00 €

Price group A

Water level measurement

+ Additional options

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designa- tion / TAG – Laser marking	20,00 €
MZ	Material test certificate – EN10204 3.1	105,00 €
WT	Factory certification – drink water suitability	28,00 €
KF	Configuration / Preset	55,00 €
WK	Factory calibration – calibration certificate	0,00 €

Order code

Hydrocont® HP4 S C S 0 V 0 R mm

Equipment

Order designation
65000399
65001899
91982121
91982124

execution

Tension clamp, galvanized steel	31,00 €
Tension clamp, CrNi-steel	37,00 €
Screw G1" CrNi-steel	72,00 €
Screw, G1 1/2" CrNi-steel	81,00 €
Junction box G1"	on request
Junction box, G1 1/2"	on request
Wall mounting housing made of plastic	73,00 €
Reduction kit cable	on request

Price group E

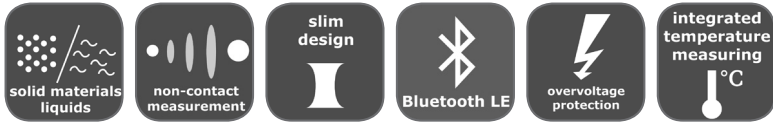
Sonicont® USP4

Ultrasonic sensor for non-contact level measurement in liquids and bulk materials
Suspended version

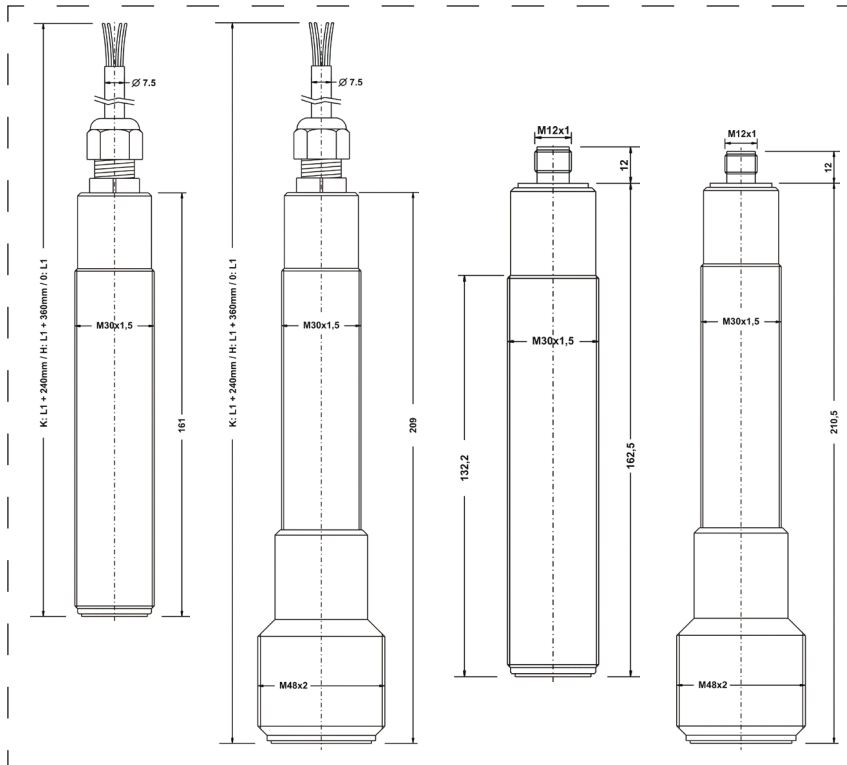
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Water level
measurement

Technical data



Input Distance
Measuring range: MB-02: 0...≤ 2m MB-05: 0...≤ 5m MB-08: 0...≤ 8m
Blocking distance BD: ≤ 0,10m (typ. 0,06m) ≤ 0,15m (typ. 0,10m) ≤ 0,30m (typ. 0,19m)
Pulse rate tp (meas. cycle time): ≤ 10Hz / ≥ 100ms ≤ 4Hz / ≥ 250ms ≤ 2Hz / ≥ 500ms
Characteristic deviation: ≤ ±2mm or ±0,2%FSO
Temperature deviation: Tk Zero (mean value) ≤ ±0,006%FSO/K
Output current 4...20mA Bluetooth® 5.0 LE
Analogue output 4...20mA: 3,8...20,5mA / ≥ 3,6mA / ≤ 22mA / dI ≤ 1µA
Time behavior: T90 ≤ Pulsrate tp (td = 0s) / ton ≤ 3s (td = 0s)
Interface: Bluetooth 5.0 LE (2Mbit/s)
Auxiliary power
Supply voltage Us polarity protected: 11...35VDC
Overvoltage protection
Coarse protection: EL-K/H/0: 75V / 10kA - wave 8/20µs / +L/-L to cable shield
EL-S: 150V / 10kA - wave 8/20µs / +L to -L
Fine protection: 36V / all lines to -L
Environmental conditions
Environmental temperature: -20°C...+70°C
Protection level: EL-K/H/0: IP68 [≤3m/≤0,3bar] (EN/IEC 60529)
EL-S: IP65/IP67 (EN/IEC 60529)
Materials
Process wetted: PVDF, POM, PA, NBR, FPM, PE, PUR



Application

The Sonicont USP4 is an ultrasonic sensor for non-contact level measurement and monitoring in liquids and bulk solids.

The sensor is designed as a suspended version with a cable outlet or as a screw-in sensor with a cable or plug connection. Due to its slim design, the sensor can be inserted through small container bores or installed in thin water wells. The Sonicont USP4 can optionally be combined with measuring tubes made of PE. As a result, the ultrasound signal receives a defined measuring path, which influences, e.g. would affect the ultrasound signal through oxidized and uneven level pipes or container walls.

The electronics are designed as 4... 20mA 2-wire signals. To ensure safe operation, especially outdoors, the Sonicont USP4 has an integrated surge protection.

Due to its high accuracy, the compact Sensor for various applications in Range of ground and surface water measurements, tank monitoring, wastewater area and distance measurements can be used. By means of a free app, the Sonicont USP4 can Bluetooth® 5.0 LE, can be adapted to the respective conditions of use.

Sonicont® USP4

Ultrasonic sensor for non-contact level measurement in liquids and bulk materials
Suspended version

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Basic price		438,00 €
Type	S Standard	0,00 €
Measuring system – material diaphragm (process wetted) / sensor type	P PVDF / Piezo	0,00 €
Approval	S Standard	0,00 €
Process connection	U Terminal enclosure, thread DIN 13 – M30x1,5	0,00 €
	Y others	on request
Material process connection (process wetted)	0 POM	0,00 €
	G others	on request
	Y others	on request
Measuring range	0 0...2 m	0,00 €
	02 0...5 m	78,00 €
	05 0...8 m	130,00 €
	08 Special measuring range	on request
	YY Special measuring range	on request
Electronic – output	A Current 4...20mA, 2-wire, Bluetooth® 5.0 LE	44,00 €
	Y others	on request
Electronic – function	1 Standard	0,00 €
	Y others	on request
Process temperature	0 Standard –20°C...+70°C	0,00 €
Electrical connection	K Cable, confection stranded wires, length L1 +240mm	0,00 €
	H Cable, confection Hydrolog HLF4, length L1 –360mm	0,00 €
	0 Cable, without confection, incl. confection kit	0,00 €
	S Plug M12	117,00 €
	Y others	on request
Material Cable (process wetted)	0 without	0,00 €
	A Cable sheath PE	0,40 €
	B Cable sheath PUR	0,50 €
	G Cable sheath PUR, increased diffusion-tightness	0,60 €
	Y others	on request
Length L1 / mm	(≤ 300.000mm)	

Price group A

Water level measurement

+ Additional options

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking.	20,00 €
KF	Configuration / Preset.	55,00 €

Order code

Sonicont®USP4 S P S 0 0 0 0 0 0 0 mm

Equipment

Order designation	execution	
65000399	Tension clamp, galvanized steel	31,00 €
65001899	Tension clamp, CrNi-steel	37,00 €
91982121	Screw G1" CrNi-steel	72,00 €
91982124	Screw, G1 1/2" CrNi-steel	81,00 €
	Junction box G1"	on request
	Junction box, G1 1/2"	on request
611000542	Measuring tube PE2m for ultrasonic sensor USP4-02	32,00 €
611000544	Measuring tube PE 2m basic module for ultrasonic sensor USP4-05	39,00 €
611000545	Measuring tube PE 2m extension for ultrasonic sensor USP4-05	39,00 €
611000559	Measuring tube PE 1m extension for USP4_05	37,00 €

PG E

Datalogger DLF4

Self-sufficient data logger with remote data transmission for wall and field mounting

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Water level measurement

Technical data

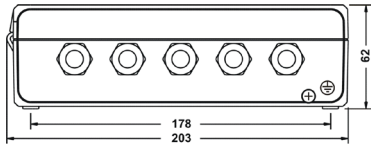


Auxiliary power
 Battery: Lithium / 3,6V-19Ah / 3,6V-35Ah
 Battery rechargeable: LiION / 4,2V-20Ah
 Supply voltage DC: 7...32VDC / ≤ 350mA
 PV module: 4,5...35VDC / ≤ 2A
 Input COM CI1 / CI2
 Interface: RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)
 Input analogue Ai1 / Ai2 / Ai3
 Operating range current I: Ai1 / Ai2: FSI 0...28mA / Ri 27R
 Operating range voltage U: Ai1 / Ai2: FSI 0...19V / Ri ≥ 1,2MR
 Operating range resistance R: Ai3: FSI 0...2200Ohm / Io = 340µA
 Characteristic deviation: ≤ ±0,05% FSI
 Temperature deviation: ≤ ±0,1% FSI / 10K
 Input digital Di1 / Di2
 Operating range: ≤ 20kOhm / ≤ 1kHz
 Transmitter power supply
 Output voltage Uo1 / Uo2: 16,6V ±0,3V (0mA) / 15,9V ±0,3V (30mA) / 0...30mA, max. 40mA
 Output voltage Uo3 / Uo4: 6,7V ±0,2V (0mA) / 6,6V ±0,2V (100mA) / 0...100mA, max. 300mA
 Output voltage Uo5: 3,8V ±0,2V (0mA) / 3,0V ±0,2V (100mA) / 0...100mA, max. 220mA
 Interface Bluetooth
 Version: Bluetooth 5.0 LE (2Mbit/s, Advertising Mode 2s)
 Interface 4G/2G
 Version: 4G LTE Cat. 1 (B3, B8, B20), 2G EDGE, GSM, GPRS (900MHz/1800MHz)
 Data memory
 Memory size: 8MB, ≥ 800.000 measuring values
 Environmental conditions
 Environmental temperature: -20°C...+60°C
 Protection level: IP65/IP67 (EN/IEC 60529)
 Materials
 Process wetted: PA, aluminum, PUR, brass, nickel, silicone, NBR

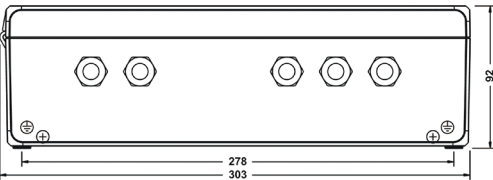
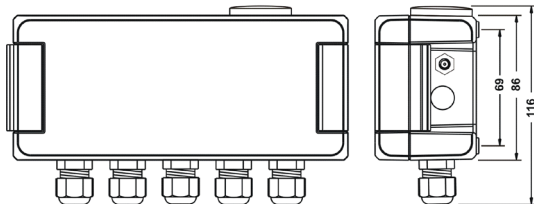
Approval DLF4



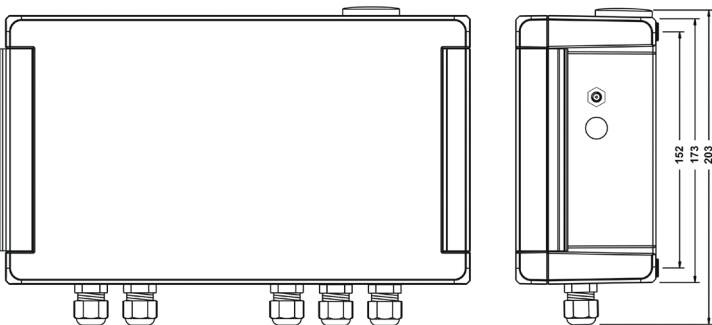
Approval DLF4 X5



Approval DLF4



Approval DLF4 X5



Application

The self-sufficient Datalogger DLF4 with remote data transmission is suitable with its robust and weatherproof aluminum housing for wall and field mounting.

Both analog and digital sensors can be connected via 7 sensor inputs. The input signals range from analog signals such as electricity, voltage, resistance, via Modbus RTU protocols to digital inputs, which can be used as counter or control signals. This results in a wide range of applications for the Datalogger DLF4. It can be used for level measurement in surface water, sewage treatment plants, landfills, for level measurement in tank systems, silos, containers, flow measurement on channels, temperature monitoring, etc.

Independent measurement verification is to be regarded as an absolute novelty in this area. Two different sensors with different measuring principles are connected to the Datalogger DLF4. The primary measured value of the hydrostatic level probe is compared cyclically by the measured value of an ultrasonic sensor. In the event of an adjustable deviation, the Datalogger DLF4 generates an alarm. This considerably minimizes the control effort at the level measuring point.

The Datalogger DLF4 is supplied with a wide range of options. These range from lithium batteries, which can have a service life of up to 10 years, depending on the application, batteries and the connection options for an external power supply or a PV module.

For data transmission of up to 800,000 measured values to the ACS portal, the Datalogger DLF4 is equipped with mobile radio modules that can operate both 2G, 4G and LTE networks. Preparations for the upcoming 5G network are already in place. An embedded SIM is installed in the data transmission, which independently uses the strongest mobile network and the strongest provider on site. The data transfer takes place according to the latest security standards such as Data encryption and VPN tunnel.

Datalogger DLF4

Self-sufficient data logger with remote data transmission for wall and field mounting

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Equipment

Equipment page 262

Basic price		859,00 €	Price group A
Type	DLF4 Standard.....	0,00 €	
Approval	S Standard	0,00 €	
	X5 ATEX II (1) G/ ATEX II (1) D.....	378,00 €	
Enclosure type	FA Field enclosure, aluminum.....	0,00 €	
	YY others.....	on request	
Electronic – Supply	B1 Battery lithium 19Ah / DC supply 7...32V	0,00 €	
	B2 Battery lithium 35Ah / DC supply 7...32V	43,00 €	
	A1 Accu Li-ION 20Ah / DC supply 7...32V / PV module	106,00 €	
	YY others	on request	
Electronic – Function	0 without	0,00 €	
	4 4G (LTE Cat-1) / 2G (EDGE, GSM, GPRS)	108,00 €	
	Y others.....	on request	
Electronic – Input	M 2x analogue 0/4...20mA-0...10V / 2x interface RS485 / 2x digital-In / 1x analogue 0...2200R	0,00 €	
	R 1x analogue 4...20mA – Ex, 1x analogue 0/4...20mA-0...10V / 2x interface RS485 / 2x digital-In / 1x analogue 0...2200R	151,00 €	
	S 2x analogue 4...20mA – Ex 2x interface RS485 / 2x digital-In / 1x analogue 0...2200R	302,00 €	
	T 1x analogue 4...20mA – Ex / 1x digital-In – Ex, 1x analogue 0/4...20mA-0...10V / 2x interface RS485 / 1x digital-In / 1x analogue 0...2200R	on request	
	U 2x analogue 4...20mA – Ex / 2x Digital-In – Ex 2x interface RS485 / 1x analogue 0...2200R	on request	
Tariff	0 Separate billing	0,00 €	
	XS1B ACS DataComplete XS, Basic, 5 years	54,00 €	
	XS1S ACS DataComplete XS, Standard, 5 years	189,00 €	
	XS1P ACS DataComplete XS, Premium, 3 years.....	194,40 €	
	S1B ACS DataComplete S, Basic, 5 years	162,00 €	
	S1S ACS DataComplete S, Standard, 3 years	291,60 €	
	S1P ACS DataComplete S, Premium, 3 years.....	486,00 €	
	M1B ACS DataComplete M, Basic, 3 years	194,40 €	
	M1S ACS DataComplete M, Standard, 3 years	502,20 €	
	M1P ACS DataComplete M, Premium, 3 years	810,00 €	
	L1B ACS DataComplete L, Basic, 3 years	388,80 €	
	L1S ACS DataComplete L, Standard, 3 years.....	842,40 €	
	L1P ACS DataComplete L, Premium, 3 years.....	1296,00 €	

Water level measurement

Order code

Datalogger DLF4
S

+ Additional options

ML	Measurement point designation / TAG – Laser marking. . .	20,00 €
KF	Configuration / Preset.	55,00 €

Equipment

<i>Order designation</i>	<i>Antenna:</i>		
611000539	Rod antenna, connection cable 5m & mounting bracket, for HLF4/DLF4	52,00 €	PG E
611000540	Dome antenna, connection cable 3m, for HLF4/DLF4	52,00 €	
611000541	Flat antenna, adhesive mounting, connection cable 3m, for HLF4/DLF4.	52,00 €	
911001827	Antenna cable extension, SMA, L=5m	26,00 €	
611000566	<i>Spare batteries:</i>		
611000567	battery BAT19AH, Lithium 19Ah, for HLF4/DLF4	65,00 €	
611000569	batteryBAT35AH, Lithium 35Ah, for HLF4/DLF4	86,00 €	
611000629	Accu ACCU20AH, Li-ION 20Ah, for HLF4/DLF4	173,00 €	
	Charging unit 230Vac for Li-ION-Accu, for HLF4/DLF4	45,00 €	
611000614	<i>External power supply and PV modules:</i>		
611000581	Switching Power supply, field housing 230Vac, to supply up to two DLF4 with battery, to supply up to one DLF4 with Li-ION Accu	67,00 €	
911001822	External power supply 230Vac, to supply up to two DLF4 with battery, to supply up to one DLF4 with Li-ION Accu	44,00 €	
	Solar-PV-Module 10W, for HLF4/DLF4	86,00 €	
611000571	<i>Mounting accessories, connection cables</i>		
611000578	Mast fixation for DLF4, Mounting bracket with worm screw strap for ø 50-90mm	27,00 €	
611000582	Mast / wall fixation for PV-module, tiltable, for ø 30-63mm	81,00 €	
611000630	Weather protection cover for DLF4.	76,00 €	
	Connection cable for PV-module, 2-wire, 5m.	27,00 €	

Hydrolog® HLF4

Data logger for pipe installation
with battery or accumulator operation and cellular data transmission

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Water level
measurement

Technical data



Auxiliary power
 Battery: Lithium / 3,6V-19Ah / 3,6V-35Ah
 Battery rechargeable: LiION / 4,2V-20Ah
 Supply voltage DC: 7...32VDC / ≤ 350mA
 PV module: 4,5...35VDC / ≤ 2A
 Input COM Ci1 / Ci2
 Interface: RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)
 Input analogue Ai1-I / Ai2-I
 Operating range: 0...28mA / Ri 27R
 Characteristic deviation: ≤ ±0,05% FSI
 Temperature deviation: ≤ ±0,1% FSI / 10K
 Input digital Di1
 Operating range: ≤ 20kOhm / ≤ 1kHz
 Transmitter power supply
 Output voltage Uo1 / Uo2: 16,6V ±0,3V (0mA) / 15,9V ±0,3V (30mA) / 0...30mA, max. 40mA
 Output voltage Uo3 / Uo4: 6,7V ±0,2V (0mA) / 6,6V ±0,2V (100mA) / 0...100mA, max. 300mA
 Interface Bluetooth
 Version: Bluetooth 5.0 LE (2Mbit/s, Advertising Mode 2s)
 Interface 4G/2G
 Version: 4G LTE Cat. 1 (B3, B8, B20), 2G EDGE, GSM, GPRS (900MHz/1800MHz)
 Data memory
 Memory size: 8MB, ≥ 800.000 measuring values
 Environmental conditions
 Environmental temperature: -20°C...+60°C
 Protection level: IP68 [≤3m/≤0,3bar] (EN/IEC 60529)
 Materials
 Process wetted: PA, aluminum, PUR, brass, nickel, silicone, NBR



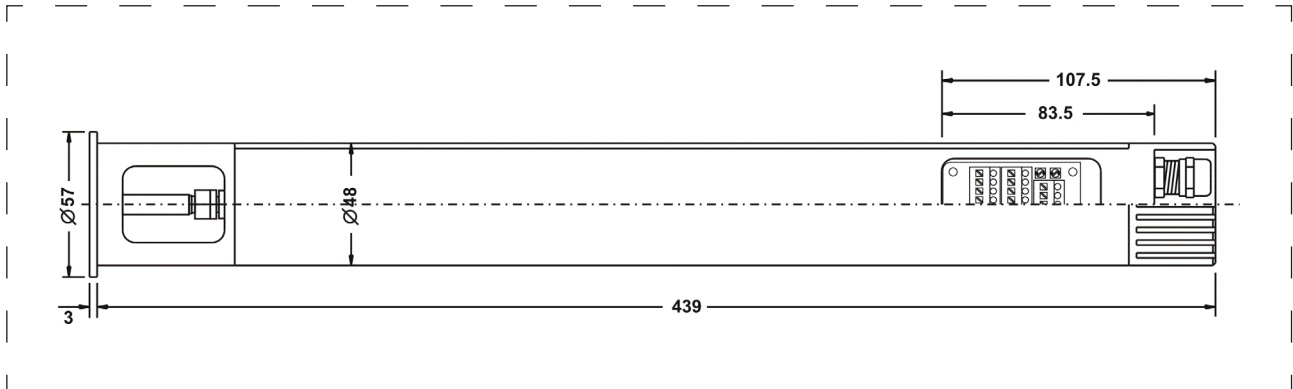
Application

The Hydrolog HLF4 is a data logger with remote data transmission for installation in water wells. Both analog and digital sensors can be connected via 5 sensor inputs. In conjunction with the hydrostatic level probes Hydrocont HP4 and the ultrasonic sensors Sonicont USP4, the device is suitable for the measurement of surface waters such as rivers and lakes, groundwater levels, wells or landfill sites. Due to the slim design, installation in 2" level pipes is possible.

Independent measurement verification is to be regarded as an absolute novelty in this area. Two different sensors with different measuring principles are connected to the Hydrolog HLF4. The primary measured value of the hydrostatic level probe is compared cyclically by the measured value of an ultrasonic sensor. In the event of an adjustable deviation, the Hydrolog HLF4 generates an alarm. This considerably minimizes the control effort at the level measuring point.

The Hydrolog HLF4 is supplied with a wide range of options. These range from lithium batteries, which can have a service life of up to 8 years, depending on the application, batteries and the connection options for an external power supply or a PV module.

For data transmission of up to 800,000 measured values to the ACS portal, the Hydrolog HLF4 is equipped with mobile radio modules that can operate both 2G, 4G and LTE networks. Preparations for the upcoming 5G network are already in place. An embedded SIM is installed in the data transmission, which independently uses the strongest mobile network and the strongest provider on site. The data transfer takes place according to the latest security standards such as Data encryption and VPN tunnel.



Hydrolog® HLF4

Data logger for pipe installation with battery or accumulator operation and cellular data transmission

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Equipment
Equipment page 262

Basic price		751,00 €
Type	HLF4 Standard	0,00 €
Approval	S Standard	0,00 €
Enclosure type	R2 Tube enclosure 2" - Ø48mm	0,00 €
	YY others	on request
Electronic – Supply		
B1	Battery lithium 19Ah / DC supply 7...32V	0,00 €
B2	Battery lithium 35Ah / DC supply 7...32V	43,00 €
A1	Li-ION rechargeable battery 20Ah / DC supply 7...32V / PV module	106,00 €
YY	others	on request
Electronic – Function		
0	without	0,00 €
4	4G (LTE Cat-1) / 2G (EDGE, GSM, GPRS)	108,00 €
Y	others	on request
Electronic – Input		
M	2x analogue 0/4...20mA / 2x interface RS485 / 1x digital-In	0,00 €
Tariff		
0	Separate billing	0,00 €
XS1B	ACS DataComplete XS, Basic, 5 years	54,00 €
XS1S	ACS DataComplete XS, Standard, 5 years	189,00 €
XS1P	ACS DataComplete XS, Premium, 3 years	194,40 €
S1B	ACS DataComplete S, Basic, 5 years	162,00 €
S1S	ACS DataComplete S, Standard, 3 years	291,60 €
S1P	ACS DataComplete S, Premium, 3 years	486,00 €
M1B	ACS DataComplete M, Basic, 3 years	194,40 €
M1S	ACS DataComplete M, Standard, 3 years	502,20 €
M1P	ACS DataComplete M, Premium, 3 years	810,00 €
L1B	ACS DataComplete L, Basic, 3 years	388,80 €
L1S	ACS DataComplete L, Standard, 3 years	842,40 €
L1P	ACS DataComplete L, Premium, 3 years	1296,00 €

Preisgruppe A

Water level measurement

+ Additional options

ML	Measurement point designation / TAG – Laser marking.	20,00 €
KF	Configuration / Preset.	55,00 €

Order code

Hydrolog® HLF4 S M S

Equipment

Order designation	Antenna:	
611000539	Rod antenna, connection cable 5m & mounting bracket, for HLF4/DLF4	52,00 €
611000540	Dome antenna, connection cable 3m, for HLF4/DLF4	52,00 €
611000552	Dome antenna for HLF4, connection cable short, specially for 2" caps	78,00 €
611000599	Dome antenna for HLF4, connection cable short, specially for 3-4" caps	78,00 €
611000600	Dome antenna for HLF4, connection cable short, specially for 5-6" caps	78,00 €
611000541	Flat antenna, adhesive mounting, connection cable 3m, for HLF4/DLF4	52,00 €
911001827	Antenna cable extension, SMA, L=5m	26,00 €
	Spare batteries:	
611000566	battery BAT19AH, Lithium 19Ah, for HLF4/DLF4	65,00 €
611000567	batteryBAT35AH, Lithium 35Ah, for HLF4/DLF4	86,00 €
611000569	Accu ACCU20AH, Li-ION 20Ah, for HLF4/DLF4	173,00 €
611000629	Charging unit 230Vac for Li-ION-Accu, for HLF4/DLF4	45,00 €
911001822	External power supply and PV modules:	
	Solar-PV-Module 10W, for HLF4/DLF4	86,00 €
	Mounting accessories, connection cables	
611000610	strain relief HLF4 for 1 or 2 sensores, required for total sensor weight >1kg	31,00 €
611000549	Adapter plate 3" & 4", Level cap for installation HLF4	31,00 €
611000550	Adapter plate 4 1/2" & 5", Level cap for installation HLF4	36,00 €
611000551	Adapter plate 6", Level cap for installation HLF4	39,00 €
611000578	Mast / wall fixation for PV-module, tiltable, for ø 30-63mm	81,00 €
611000630	Connection cable for PV-module, 2-wire, 5m.	27,00 €

PGE

Tariffs - ACS DataComplete

Monthly fees ACS portal and data transfer

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Water level measurement

ACS Portal – functions

	Basic	Standard	Premium
Unlimited use	✓	✓	✓
Device overview	✓	✓	✓
Logbook display		✓	✓
Device settings		✓	✓
Status information of the measuring points		✓	✓
Gallery function		✓	✓
Map display / position map		✓	✓
Data analysis		✓	✓
Advanced data analysis			✓
Manual data export		✓	✓
Reading memory	min. 14 days	min. 1 years	min. 3 years
Auto-export of the measured values to customer IT	optional	optional	✓
Extended self-diagnosis function (Heartbeat)		✓	✓
Alarm management		✓	✓
Alerting (AlertApp, text message, e-mail)			✓
Automatic software update of data logger	✓	✓	✓
Note functions		✓	✓
Grouping of measuring points		✓	✓
User	1	5	10
Add-on option per device			
AutoExport / month	on request	on request	included in tariff
Rain overflow calculation / month Measuring point	on request	on request	on request
Additional measured value memory	on request	on request	on request
Alarmierungskosten			
per text message	0,12 €	0,12 €	0,12 €
E-mail	free	free	free
ACS Alter App	free	free	free
NOTE: Prepaid minimum amount 20,00 €			

Additional posting per client

User management / 10 users / year 50,00 €

Credit for alerting (Email, SMS) 50,00 €

ACS Portal

Level data management - the easy way!

The ACS portal is the perfect solution for your countless level measurement data! Functional, flexible, interconnected and clear! The comprehensive data management system automatically saves your measurement data and presents them in vivid tables and charts or in map view (based on Google Maps).

You also have control over the connected measurement technology. Not only a device overview, but also status information, device settings and an extended self-diagnosis function are possible in the ACS portal. In addition, the alarm function, the automatic data export and the extended data analysis facilitate the administration and processing of your level measurement data.

ACS Portal – Services

- ✓ Automatic data transfer to the ACS portal including mobile phone use the strongest network on site
- ✓ Use of the ACS portal and administration the measurement data
- ✓ Secure access to the data via the Internet
- ✓ Graphics and table views of the measured values, map view of the measuring points based on Google Maps
- ✓ Possibility to parameterize the measuring point via the platform
- ✓ Automatic update function of the devices
- ✓ Automatic data export in common Formats possible
- ✓ Free phone support
- ✓ Storage of data in a certified data center (ISO 27001) with weekly data backup

Tariffs - ACS DataComplete

Monthly fees ACS portal and data transfer

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Water level measurement

ACS DataComplete - Monthly fees					
ACS-Portal & data transmission GSM, LTE, LTE-M, NB-IOT					
		DataComplete XS	DataComplete S	DataComplete M	DataComplete L
Max. Channels		1	2	6	12
Shortest transmission interval		24 h	3 h	30 min	5 min
Shortest measuring cycle		1 h	5 min	30 sec	5 sec
Max. readings / day		24	300	3 000	20 000
price per month	Basic	1,00 €*	3,00 €*	6,00 €	12,00 €
	Standard	3,50 €*	9,00 €	15,50 €	26,00 €
	Premium	6,00 €	15,00 €	25,00 €	40,00 €

*minimum term 5 years

Contractual conditions / term	
<p>Billing separately</p> <ul style="list-style-type: none"> ✓ Billing takes place as a separate order item with monthly (> 20 measuring points) or ✓ billed annually Minimum contract term 1 year 	<p>Billing integrated in the device price</p> <ul style="list-style-type: none"> ✓ The cost for 3 years is already in the Integrated device price ✓ An offer for a further 3 years is automatically created 6 months before the 3-year period expires

Discounts			
Measuring points / platform	Discounts	Measuring points / platform	Discounts
to 10	0%	from 250	30%
from 10	10%	from 500	40%
from 100	20%	from 1000	50%

ACS DataComplete

Device class

XS
S
M
L

Data transfer

0 Without data transfer
1 With data transfer

scope of services

B Basic
S Standard
P Premium

Order code

ACS DataComplete DC

Equipment water level measurement & Training

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Water level measurement

Equipment for Level pipes in general

ACS aluminium closure caps for level tubes with Whitworth-threads (pipe thread)

200	thread 2" - ISO 228-1 / DIN 259	32,00 €
300	thread 3" - ISO 228-1 / DIN 259	45,00 €
400	thread 4" - ISO 228-1 / DIN 259	45,00 €
412	thread 4 1/2" - ISO 228-1 / DIN 259	57,00 €
500	thread 5" - ISO 228-1 / DIN 259	78,00 €
600	thread 6" - ISO 228-1 / DIN 259	78,00 €



0	Standard 6-socket-closure	0,00 €
S	5-socket-security-closure	6,60 €

SCHVK-6	wrench for Standard 6-socket-closure	2,70 €
SCHVK-5	wrench for 5-socket-security-closure	8,90 €

Equipment for Hydrolog® 1000 Hydrolog® 3000 GSM-3000

Interface cable

STK-RSU-USB	Interface transfer cable to connect Hydrolog®/GSM-Module with USB-Port on PC	185,00 €
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Intermediate rings for the mounting of the level sensor in larger caps

ZR-2-3	intermediate ring 2" on 3"	27,00 €
ZR-2-4	intermediate ring 2" on 4"	27,00 €
ZR-2-412	intermediate ring 2" on 4 1/2"	33,00 €
ZR-2-5	intermediate ring 2" on 5"	33,00 €
ZR-2-6	intermediate ring 2" on 6"	37,00 €

Replacement batteries Hydrolog®-1000/3000

SPB-1000	Service-Pack for battery change on Hydrolog® With battery and replacement seals for clipping	36,00 €
SPB-1001	Service-Pack for battery change on Hydrolog® With battery and replacement seals for soldering	36,00 €

Replacement batteries GSM-3000

BATGSM	replacement battery for GSM-Module	45,00 €
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Bluetooth adapter

STK-RSU-BT	Bluetooth adapter for wireless communication between readout unit (Notebook, smartphone, tablet) and Hydrolog 3000/1000, or GSM-3000	286,00 €
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Basic training

Commissioning & parameterization

of the ACS level measurement technology

Duration about 3 hours

Base price
€ 324,00
+ per person
€ 54,00

Price group E

3. Pressure measurement

Contents

Relative pressure (R), absolute (A), difference (D)

Precont® PN4SC	ceramics, Anzeige TFT, 4...20mA / 0...10V, 4x PNP, Datenlogger	(R, A)	84
Precont® PN4SM	metal, Anzeige TFT, 4...20mA / 0...10V, 4x PNP, Datenlogger	(R, A)	86
Precont® PN4LM	hygiene, Anzeige TFT, 4...20mA / 0...10V, 4x PNP, Datenlogger	(R, A)	88
Precont® S10	ceramics, metal, Anzeige LED, 4...20mA / 0...10V, 2x PNP	(R, A)	90
Precont® S20	metal, Anzeige LED, 4...20mA / 0...10V, 2x PNP	(R, A)	92
Precont® S30	hygiene, metal, Anzeige LED, 4...20mA / 0...10V, 2x PNP	(R, A)	94
Precont® S40	ceramics, Anzeige LED, 4...20mA / 0...10V, 2x PNP	(R, A)	96
Precont® S70	special diaphragm, Anzeige LED, 4...20mA / 0...10V, 2x PNP	(R, A)	98
Precont® PU4SE	ceramics, 4...20mA HART / IO-Link / Modbus	(R)	100
Precont® PU4SC	ceramics, 4...20mA HART / IO-Link / Modbus	(R, A)	102
Precont® PU4SK	ceramics, 4...20mA HART / IO-Link / Modbus	(R, A)	104
Precont® PU4SM	metal, 4...20mA HART / IO-Link / Modbus	(R, A)	106
Precont® PU4LM	hygiene, metal, 4...20mA HART / IO-Link / Modbus	(R, A)	108
Precont® PK4SH	miniature, metall, 200°C, 4...20mA HART	(R, A)	110
Precont® TM	ceramics, 4...20mA	(R, A)	112
Precont® MT	metal, 4...20mA / 0...10V	(R, A)	114
Precont® KT	ceramics, 4...20mA / 0...10V	(R, A)	116
Precont® CT	ceramics, 4...20mA / 0...10V	(R, A)	118
Precont® ML	hygiene, metal, 4...20mA / 0...10V	(R, A)	120
Precont® PS4SK	ceramics, Anzeige LED, 4...20mA, 2x PNP	(R, A)	122
Precont® PS4SC	ceramics, Anzeige LED, 4...20mA, 2x PNP	(R, A)	124
Precont® PS4SM	metal, Anzeige LED, 4...20mA, 2x PNP	(R, A)	128
Precont® PS4LM	hygiene, metal, Anzeige LED, 4...20mA, 2x PNP	(R, A)	130
Precont® HE5409	cost-effective differential pressure transmitter with two-wire technology(D)		132
Equipment for pressure sensors			134

What to use where

Pressure measurement

Pressure type	Precont® PN4SC	Precont® PN4SM	Precont® PN4LM	Precont® S10	Precont® S20	Precont® S30	Precont® S40	Precont® S70	Precont® PS4SC	Precont® PS4SK	Precont® PS4SM	Precont® PS4LM	Precont® PU4SE	Precont® PU4SC	Precont® PU4SK	Precont® PU4SM	Precont® PU4LM	Precont® PK4SH	Precont® TM	Precont® MT	Precont® ML	Precont® KT	Precont® CT	Precont® HE5409
Relative pressure	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Absolute pressure	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●		●	●	●	●	●	●
Differential pressure																								●

Function

Pressure measurement	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FILL level measurement			●			●	●	●	●			●					●		●		●		●	
Flow measurement	●	●	●																					
Limit transmitter with switching outputs	4	4	4	2	2	2	2	2	2	2	2	2												
Data logger	●	●	●																					

Media

Liquids	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Gases	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hydraulic oil / oils		●			●					●	●		●	●	●	●	●			●		●		
Viscose media		●	●		●	●	●	●	●		●	●							●	●	●		●	

Operating conditions

Hazardous area				Ex	Ex	Ex	Ex	Ex							Ex	Ex	Ex	Ex	Ex	Ex	Ex	Ex	Ex	Ex
Aggressive media	●			●			●	●	●										●				●	
Coat forming media		●	●		●	●	●	●			●	●			●				●	●	●		●	
Pressure blow resistive	●			●			●	●						●					●				●	
High temperature applications									●										●					
High pressure applications		●			●					●	●		●		●	●		●		●		●		
Hygienic sector			●			●	●	●				●					●				●			

Type	Precont® PN4SC	Precont® PN4SM	Precont® PN4LM	Precont® S10	Precont® S20	Precont® S30	Precont® S40	Precont® S70
Principle of operation	Digital pressure sensor and pressure transmitter with internal ceramic membrane 0,05% accuracy	Digital pressure sensor and pressure transmitter with metal membrane up to 1000 bar up to 1000 bar pressure	Digital pressure sensor and pressure transmitter for hygienic applications up to 25 bar absolute/relative	Digital pressure sensor and pressure transmitter with ceramic membrane up to 1000 bar pressure	Digital pressure sensor and pressure transmitter with metal membrane up to 1000 bar up to 1000 bar pressure	Digital pressure sensor and pressure transmitter for hygienic applications up to 25 bar absolute/relative	Digital pressure sensor with flush capacitive ceramic cell up to 60 bar absolute/relative	Digital pressure sensor for high temperature areas up to 400 bar absolute/relative up to 400°C
Design	compact	compact	compact	compact	compact	compact	compact	compact with diaphragm seal
Application areas	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement	Hygienic applications, CIP, SIP, food technology	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, hydraulic oil, standard measurement	Hygienic applications, CIP, SIP, food technology	Liquids, gases, vapors standard measurement, hygienic areas, viscose media	Liquids, vapors, gases, high temperature, Hygienic applications
Measuring ranges	-1 up to 60 bar absolute/relative	-1 up to 1000 bar absolute/relative	-1 up to 25 bar absolute/relative	-1 up to 60 bar absolute/relative	-1...-1000 bar absolute/relative	-1...+25 bar absolute/relative	-1 up to 60 bar absolute/relative	-1 up to 400 bar absolute/relative
Measuring cell	Capacitive Ceramic	Metal Thin film - resp. piezoresistive DMS	Metal, front-flush piezoresistive DMS	Capacitive Ceramic	Metal Thin film - resp. piezoresistive DMS	Metal, front-flush piezoresistive DMS	Capacitive Ceramic	Metal capacitive ceramic thin film - DMS
Process connections	Thread G 1/4", G 1/2"	Thread G 1/4", G 1/2", G 1"	Thread 1" Milk tube Varivent DRD	Thread G 1/4", G 1/2"	Thread G 1/4", G 1/2"	Thread 1" Milk tube Varivent DRD	Thread G 1/4", G 1/2", G 3/4", G 1", G 1 1/2", G 2" DIN-Flange Tri-Clamp, Flange	Thread G 1/4", G 3/4", G 1", G 1 1/2", G 2" DIN-Flange Tri-Clamp, Flange
Process temperatures	-40 up to +125°C	-40 up to +125°C	-20 up to +150°C	-40 up to +125°C	-40 up to +125°C	-20...+150°C	-40 up to +125°C	-90 up to +400°C
Electronics	3-wire: 0/4...20 mA / 0...10 V	3-wire: 0/4...20 mA / 0...10 V	3-wire: 0/4...20 mA / 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V
Outputs can be calibrated	via display keys	via display keys	via display keys	via display keys	via display keys	via display keys	via display keys	via display keys
Switching points	40/2x PNP / 4x PNP	0/2x PNP / 4x PNP	0/2x PNP / 4x PNP	2x PNP	2x PNP	2 x PNP	2x PNP	2x PNP
Display	2" TFT-Display	2" TFT-Display	2" TFT-Display	4-digit LED	4-digit LED	4-digit LED	4-digit LED	4-digit LED
Certification				ATEX	ATEX	ATEX	ATEX	ATEX
Accuracy	< 0,05% / 0,10% / 0,20%	< 0,15% / 0,50%	< 0,15% / 0,50%	< 0,05% / 0,10% / 0,20%	< 0,15% / 0,50%	< 0,15% / 0,5%	< 0,05% / 0,10% / 0,20%	< 0,20% / 0,50%
Long term stability	0,1% / year	0,2% / year	0,2% / year	0,1% / year	0,2% / year	>0,2% / year	0,1% / year	0,2% / year

Pressure measurement

Type	Precont® PS4SK	Precont® PS4SM	Precont® PS4LM	Precont® PU4SE	Precont® PU4SC	Precont® PU4SK	Precont® PU4SM
Principle of operation	Digital pressure sensor with capacitive ceramic cell	Digital pressure sensor with metallic membrane	Digital pressure sensor for hygienic applications	Pressure transmitter with Modbus-Option	Pressure transmitter with Modbus-Option	Pressure transmitter with Modbus-Option	Pressure transmitter with Modbus-Option
Design	compact	compact	compact	compact	compact	compact	compact
Application areas	Liquids, vapors, gases, standard measurements, pressure switch, oils	Liquids, vapors, gases, standard measurements, pressure switch, oils	Hygienic applications, CIP, SIP, food technology	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement
Measuring ranges	-1...60 bar relative/absolute	0...600 bar relative/absolute	-1...+25 bar absolute/relative	0...+100 bar relative	50mbar...+20 bar relative/absolute	-1 mbar...+600 bar relative/absolute	-1 mbar...+1000 bar relative/absolute
Measuring cell	capacitive ceramic	Ceramic, thick film - DMS	Metal, front-flush piezoresistive DMS	Ceramic, Thickfilm-DMS	capacitive ceramic	Ceramic, Thickfilm-DMS	Thin film - resp. piezoresistive DMS
Process connections	Thread G ^{1/4} ", G ^{1/2} ", G ^{3/4} ", G ¹ ", G ^{1 1/2} " also front-flush	Thread G ^{1/4} ", G ^{1/2} ", G ¹ " also front-flush	Thread 1" Milk tube Varivent DRD	Thread G ^{1/4} ", G ^{1/2} "	Thread G ^{1/4} ", G ^{1 1/2} ", Milk tube, Varivent, DRD, Tri-Clamp, Flange	Thread G ^{1/4} ", G ^{1/2} ", G ^{3/4} ", G ¹ ", also front-flush	Thread G ^{1/4} ", G ^{1/2} ", G ¹ ", also front-flush
Process temperatures	-40...+125°C	-40...+125°C	-20...+150°C	-40...+100°C	-40...+125°C	-40...+135°C	-40...+125°C
Electronics	3-wire: 4...20 mA	3-wire: 4...20 mA	3-wire: 4...20 mA	2-wire: 4...20 mA, HART® 4-wire: Modbus RTU	2-wire: 4...20 mA, HART® 4-wire: Modbus RTU	2-wire: 4...20 mA, HART® 4-wire: Modbus RTU	2-wire: 4...20 mA, HART® 4-wire: Modbus RTU
Outputs can be calibrated	via display keys	via display keys	via display keys	HART®	HART®	HART®	HART®
Switching points	2 x PNP	2 x PNP	2 x PNP	-	-	-	-
Display	4-digit LED	4-digit LED	4-digit LED	-	-	-	-
Certification	-	-	-	ATEX II 1 G / IECEx Ex ia IIC Ga bzw. ATEX II 1 D / IECEx Ex ia IIIC Da	ATEX II 1 G / IECEx Ex ia IIC Ga bzw. ATEX II 1 D / IECEx Ex ia IIIC Da	ATEX II 1 G / IECEx Ex ia IIC Ga bzw. ATEX II 1 D / IECEx Ex ia IIIC Da	ATEX II 1 G / IECEx Ex ia IIC Ga bzw. ATEX II 1 D / IECEx Ex ia IIIC Da
Accuracy	< 0,2%	< 0,5%	< 0,5%	< 0,50%	< 0,050%	< 0,150%	< 0,150%
Long term stability	0,1% / year	0,2%/year	0,2%/year	0,2% / year	0,15% / year	0,2% / year	0,2% / year

Type	Precont® PU4LM	Precont® PK4SH	Precont® HE5409	Precont® TM	Precont® MT	Precont® ML	Precont® KT	Precont® CT
Principle of operation	Pressure transmitter with Modbus-Option	Pressure transmitter small design	Differential pressure transmitter	Pressure sensor with capacitive ceramic cell	Pressure sensor with metal membrane	Pressure sensor for hygienic applications	Pressure sensor with ceramic membrane	Pressure sensor with front-flush capacitive ceramic cell
Design	compact	compact	compact	compact	compact	compact	compact	compact
Application areas	Liquids, vapors, gases, standard measurement	Flüssigkeiten, Dämpfe, Gase, Standardmessung	air as well as dry, not aggressive gases	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement	Hygienic applications, CIP, SIP, food technology	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement
Measuring ranges	-1 mbar...+25 bar relative/absolute	-0...+600 bar relative	0...100 mbar	-1 up to 60 bar absolute/relative	-1...+1000 bar relative/absolute	-1...+25 bar relative/absolute	0...+600 bar relative/absolute	-1...+16 bar relative/absolute
Measuring cell	Metall, front-flush piezoresistive DMS	Metall, Thin film-DMS	semiconductor sensor	Capacitive Ceramic	Metall piezoresistive DMS	Metall, front-flush piezoresistive DMS	Ceramic Thickfilm-DMS	Capacitive Ceramic
Process connections	Thread 1" Milk tube Varivent DRD	Gewinde G 1/4"	quick coupling for 6 mm outer diameter	Thread G 1/4", G 1/2", G 3/4", G 1 1/2" Milk tube also front-flush	Thread G 1/4", G 1/2"	Thread 1" Milk tube Varivent DRD	Thread G 1/4", G 1/2" also front-flush	Thread G 1/2" front-flush
Process temperatures	-40...+150°C	-40...+200°C	-20...+55°C	-40 up to +125°C	-40...+125°C	-20...+150°C	-40...+125°C	-40...+125°C
Electronics	2-wire: 4...20 mA, HART® 4-wire: Modbus RTU	2-wire: 4...20 mA, HART®	2-wire: 4...20 mA	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V
Outputs can be calibrated	HART®	HART®	via keyboard	-	-	-	-	-
Switching points	-	-	-	-	-	-	-	-
Display	-	-	LCD	-	-	-	-	-
Certification	ATEX II 1 G / IECEx Ex ia IIC Ga bzw. ATEX II 1 D / IECEx Ex ia IIC Da	AREX	ATEX	ATEX	ATEX	-	ATEX	ATEX
Accuracy	< 0,150%	< 0,50%	< ± 1 % from terminal value	< 0,10% / 0,20%	< 0,50%	< 0,50%	< 0,50%	< 0,10% / 0,25%
Long term stability	0,2% / year	0,2% / year	-	0,1% / year	0,2% / year	0,2% / year	0,15% / year	0,15% / year

Pressure measurement

Precont® PN4SC

Pressure transmitter / Pressure switch with data memory for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Technical data



Supply voltage: Setting output 0/4...20 mA: 9...30 VDC, reverse polarity protected
Setting output 0...10 V: 14...30 VDC, reverse polarity protected

Analogue output
Operating range: current 0...20mA: 0...20,5mA, max. 22mA
current 4...20mA: 3,8...20,5mA, min. 3,6mA, max. 22mA
voltage 0...10V: 0 ... 10,5 V, max. 11 V
current 0...20mA / current 4...20mA: $\leq (US - 9V) / 22mA$
voltage 0...10V: $\geq U_{Out} / 3mA$

Permitted load:

Step response time: ≤ 15 ms ($t_d = 0s$)
Start-up time: $\leq 1s$
Switch output PNP: S1 / S2 / S3 / S4
Function: PNP switch to +L
Output current: IL 0... $\leq 200mA$, current limited, short circuit protected
Step response time: ≤ 25 ms ($t_d = 0s$)
Switch cycles: $\geq 100.000.000$

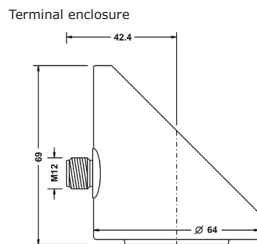
Bluetooth Interface
Version: Bluetooth 2.1 + EDR
Specification: Class 2
Transmit power: $\leq 2,5mW/4dBm$
Range: $\leq 10m$

Measuring accuracy
Characteristic deviation: $\leq \pm 0,05\%$ / $\pm 0,1\%$ / $\pm 0,2\%$ FS
Long term drift: $\leq \pm 0,15\%$ FS / year
Temperature deviation: Zero: $\leq \pm 0,015\%$ FS / K / max. $\pm 0,75\%$ (-20°C...+80°C)
Span: $\leq \pm 0,015\%$ FS / K / max. $\pm 0,5\%$ (-20°C...+80°C / > 0,4 bar) / max. $\pm 0,8\%$ (-20°C...+80°C / $\leq 0,4$ bar)

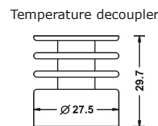
Materials
Membrane (process wetted): Measuring range $\leq 1bar$: Ceramic Al_2O_3 - 99,7% (SIP suitable)
Measuring range $\geq 1,6bar$: Ceramic Al_2O_3 - 96% (SIP suitable)
Process connection 1/2/4/6/7/A/N/M/P/L/S/T: Ceramic Al_2O_3 - 99,9% (CIP/SIP suitable)

Process connection (process wetted): Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure: CrNi-steel
Control panel surface: PES
Gaskets (process wetted): FPM - fluorelastomere (e.g. Viton®) / EPDM - ethylene-propylene-dienmonomere, FDA-listed / FFKM - perfluorelastomere (e.g. Kalrez®) / FFKM hd - perfluorelastomere high density

Environmental conditions
Environmental temperature: - 20°C...+70°C
Process temperature: - 40°C...+100°C resp. 125°C
Process pressure: 50 mbar up to 60 bar depending on type
Protection: IP68 EN/IEC 60529

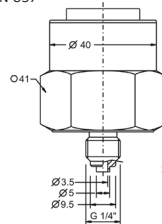


Terminal enclosure
Type 1 - Thread ISO 228-1 - G 1/2" A, EN 837



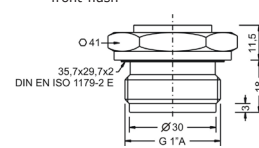
Temperature decoupler
Type 4 - Thread ISO 228-1 - G 1/4" L, inner thread

Type 6 - Thread ISO 228-1 - G 1/4" A, EN 837

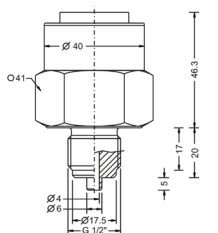
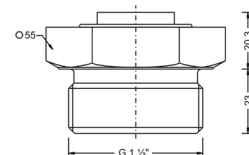


Type 2 - Thread ISO 228-1 - G 1/2" A, inner bore

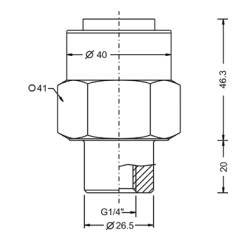
Type 5 - Thread ISO 228-1 - G 1" A, front-flush



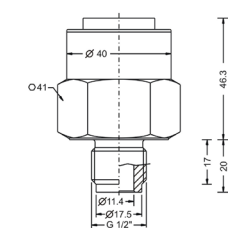
Type 7 - Thread ISO 228-1 - G 1 1/2" B, front-flush



Type A - Thread ISO 228-1 - G 1 1/2" A

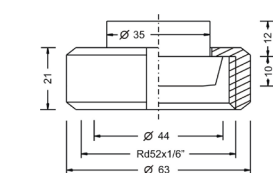


Type 9 - Thread ISO 228-1 - G 1/2" B, front-flush



Type 8 - Thread ISO 228-1 - G 3/4" A, front-flush

Type R - Dairy coupling DIN 11851 - DN25, PN40



Precont® PN4SM

Pressure transmitter / Pressure switch with data memory for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust up to 1000 bar

3 / 01.22

Technical data



Supply voltage: Setting output 0/4...20 mA: 9...30 VDC, reverse polarity protected
Setting output 0...10 V: 14...30 VDC, reverse polarity protected

Analogue output
Operating range: current 0...20mA: 0...20,5mA, max. 22mA
current 4...20mA: 3,8...20,5mA, min. 3,6mA, max. 22mA
voltage 0...10V: 0 ... 10,5 V, max. 11 V
current 0...20mA / current 4...20mA: $\leq (US - 9V) / 22mA$
voltage 0...10V: $\geq U_{Out} / 3mA$

Permitted load:

Step response time: ≤ 15 ms ($t_d = 0s$)
Start-up time: $\leq 1s$
Switch output PNP: S1 / S2 / S3 / S4
Function: PNP switch to +L
Output current: IL 0... $\leq 200mA$, current limited, short circuit protected
Step response time: ≤ 25 ms ($t_d = 0s$)
Switch cycles: $\geq 100.000.000$

Bluetooth Interface
Version: Bluetooth 2.1 + EDR
Specification: Class 2
Transmit power: $\leq 2,5mW/4dBm$
Range: $\leq 10m$

Measuring accuracy
Characteristic deviation: $\leq \pm 0,15\%$ / $\pm 0,5\%$ FS
Long term drift: $\leq \pm 0,2\%$ FS / year
Temperature deviation: Measuring range ≤ 25 bar: $\leq \pm 0,02\%$ FS / K (0...+80°C) / $\leq \pm 0,03\%$ FS / K (-40...0°C / +80...+125°C)
Measuring range ≥ 40 bar: $\leq \pm 0,02\%$ FS / K (-40...+100°C) / $\leq \pm 0,03\%$ FS / K (+100...+125°C)

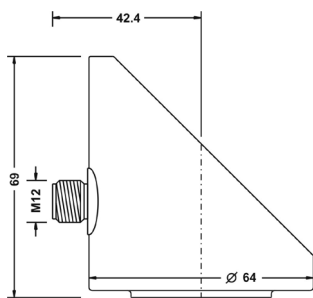
Materials
Membrane (process wetted): Measuring range ≤ 1 bar: Ceramic Al_2O_3 - 99,7% (SIP suitable)
Measuring range $\geq 1,6$ bar: Ceramic Al_2O_3 - 96% (SIP suitable)
Process connection 1/2/4/6/7/A/N/M/P/L/S/T: Ceramic Al_2O_3 - 99,9% (CIP/SIP suitable)

Process connection (process wetted): Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure: CrNi-steel
Control panel surface: PES
Gaskets (process wetted): FPM - fluorelastomere (e.g. Viton®) / EPDM - ethylene-propylene-dienmonomere, FDA-listed / FFKM - perfluorelastomere (e.g. Kalrez®) / FFKM hd - perfluorelastomere high density

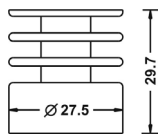
Environmental conditions
Environmental temperature: $- 20^\circ C...+70^\circ C$
Process temperature: $- 40^\circ C...+100^\circ C$ resp. $125^\circ C$
Process pressure: 400 mbar up to 1000 bar depending on type
Protection: IP68 EN/IEC 60529



Terminal enclosure

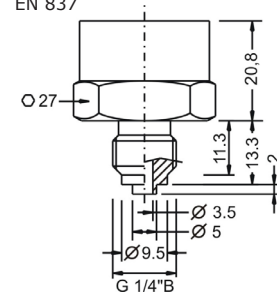


Temperature decoupler



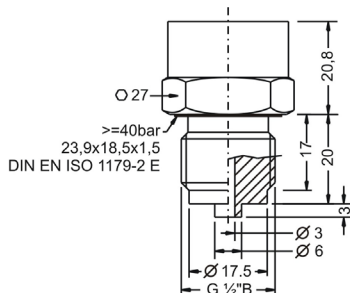
Type 6 - Thread ISO 228-1 - G 1/4" B,

EN 837



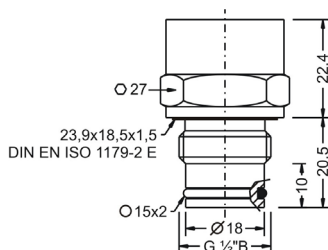
Type 1 - Thread ISO 228-1 - G 1/2" B,

EN 837



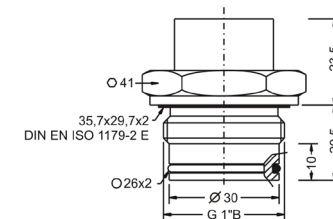
Type 0 - Thread ISO 228-1 - G 1/2" B,

front-flush



Type 5 - Thread ISO 228-1 - G 1" B,

front-flush



Precont® PN4SM

Pressure transmitter / Pressure switch with data memory for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust up to 1000 bar

3 / 01.22

Basic price **692,00 €**

Model
PN4S Standard 0,00 €

Measuring system – material diaphragm (process wetted) / sensor type
CrNi-steel / strain gauge 0,00 €

Approval
S Standard 0,00 €

Process connection
6 Thread ISO 228-1 – G¼”B, EN 837 manometer (without process gasket) 0,00 €
1 Thread ISO 228-1 – G½”B, EN 837 manometer (≥ 40 bar without process gasket) ... 0,00 €
0 Thread ISO 228-1 – G½”B, front-flush, O-ring gasket
not for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar 0,00 €
5 Thread ISO 228-1 – G1”B, front-flush, O-ring gasket
for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar 83,00 €
Y others on request

Material gaskets (process wetted)
0 without / NBR – nitrile-butadiene-rubber 0,00 €
1 FPM – fluorelastomere (e.g. Viton®) 0,00 €
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed 0,00 €
Y others on request

Material process connection (process wetted)
V CrNi-steel 0,00 €

Material terminal enclosure
C CrNi-steel 0,00 €

Measuring range
03 0...400 mbar 0,00 €
05 0...1 bar 0,00 €
08 0...4 bar 0,00 €
09 0...6 bar 0,00 €
10 0...10 bar 0,00 €
11 0...16 bar 0,00 €
12 0...20 bar 0,00 €
13 0...40 bar 0,00 €
14 0...60 bar 0,00 €
19 0...100 bar 0,00 €
20 0...160 bar 0,00 €
21 0...250 bar 0,00 €
22 0...320 bar 0,00 €
23 0...400 bar 0,00 €
24 0...600 bar 0,00 €
25 0...1000 bar,
only for process connection type 1, 6 – G½”B, G¼”B (EN 837) ... 0,00 €
16 -1...0 bar 0,00 €
17 -1...+1 bar 0,00 €
YY Special measuring range 41,00 €

Electronic – output
M 1x signal 0/4...20mA-0...10V, supply 24VDC 212,00 €
K 1x signal 0/4...20mA-0...10V, 2x switch PNP,
supply 24VDC 272,00 €
R 1x signal 0/4...20mA-0...10V, 4x switch PNP,
supply 24VDC 332,00 €

Electronic – function
0 without 0,00 €
1 Bluetooth-Interface 113,00 €
2 Data logger with time stamp, battery powered 50,00 €
3 Bluetooth-Interface / Data logger with time stamp,
battery powered 164,00 €
Y others on request

Process temperature
0 Standard -40°C...+100°C 0,00 €
1 Extended -40°C...+125°C, temperature decoupler 65,00 €

Pressure type
R Gauge pressure 0,00 €
A Absolute pressure (FS ≥ 100mbar) 28,50 €

Measuring system – accuracy
4 0,5% 0,00 €
8 Xcellence – 0,15%, linearization protocol 145,00 €

Electrical connection
S Plug M12x1 0,00 €

Additional Options

SF LABS-free, silicone-free /
paint compatible version .90,00 €
SF LABS-free, silicone-free /
paint compatible version
>40 bar106,00 €
ML Measurement point designation /
TAG – Laser marking20,00 €
KF Configuration / Preset55,00 €

Application

The device is an electronic pressure transmitter / pressure switch for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with measuring ranges from -1 bar to 1000 bar (gauge), measuring ranges from 0 bar to 1000 bar (absolute), measuring spans from 400 mbar to 1000 bar, process temperatures from -40°C to +125°C, process material CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer, front-flush) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology, facility and building automation.

The device is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether low temperatures when used outdoors, high shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

Order code

Precont®

PN4S

M

S

V

C

03

05

08

09

10

11

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19

20

21

22

23

24

25

16

17

YY

M

K

R

0

1

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3

Y

0

1

R

A

4

8

S

Equipment

Order information

LKZ0405PUR-AS

LKZ0410PUR-AS

LKZ0505PUR-AS

LKZ0510PUR-AS

LKZ0805PUR-AS

BKZ0412-VA

BKZ0512-VA

Model

Connection cable 5 m, 4-pole, shielded 22,50 €

Connection cable 10 m, 4-pole, shielded 28,50 €

Connection cable 5 m, 5-pole, shielded 26,00 €

Connection cable 10 m, 5-pole, shielded 35,00 €

Connection cable 5 m, 8-pole, shielded 38,00 €

Matching cable socket, VA-nut 18,50 €

Matching cable socket, VA-nut (at 0...10 V) 19,50 €

PG E

Precont® PN4LM

Pressure transmitter / Pressure switch with data memory for hygienic applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

3 / 01.22

Technical data



hygienic design



0/4...20mA
4x PNP



CIP
SIP
capable



process temperature
150°C



bluetooth



conform

Supply voltage: Setting output 0/4...20 mA: 9...30 VDC, reverse polarity protected
Setting output 0...10 V: 14...30 VDC, reverse polarity protected

Analogue output
Operating range: current 0...20mA: 0...20,5mA, max. 22mA
current 4...20mA: 3,8...20,5mA, min. 3,6mA, max. 22mA
voltage 0...10V: 0...10,5 V, max. 11 V
current 0...20mA / current 4...20mA: $\leq (US - 9V) / 22mA$
voltage 0...10V: $\geq U_{Out} / 3mA$

Permitted load:
Step response time: ≤ 15 ms ($t_d = 0s$)
Start-up time: $\leq 1s$

Switch output PNP
Function: PNP switch to +L
Output current: IL 0... $\leq 200mA$, current limited, short circuit protected
Step response time: ≤ 25 ms ($t_d = 0s$)
Switch cycles: $\geq 100.000.000$

Bluetooth Interface
Version: Bluetooth 2.1 + EDR
Specification: Class 2
Transmit power: $\leq 2,5mW/4dBm$
Range: $\leq 10m$

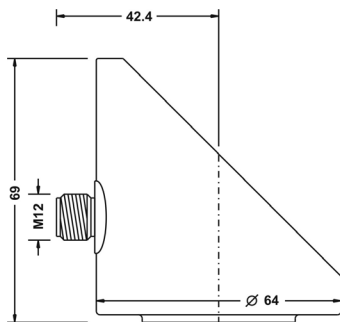
Measuring accuracy
Characteristic deviation: $\leq \pm 0,15\%$ / $\pm 0,5\%$ FS
Long term drift: $\leq \pm 0,2\%$ FS / year
Temperature deviation: Measuring range ≤ 250 mbar: $\leq \pm 0,04\%$ FS / K (0...+80°C) / $\leq \pm 0,06\%$ FS / K (-20...0°C / +80...+150°C)
Measuring range ≥ 400 mbar: $\leq \pm 0,02\%$ FS / K (0...+80°C) / $\leq \pm 0,03\%$ FS / K (-20...0°C / +80...+150°C)

Materials
Membrane (process wetted): Steel 1.4435/316L
Process connection (process wetted): Steel 1.4435/316L
Terminal enclosure: CrNi-steel
Control panel surface: PES
Gaskets (process wetted): FPM – fluorelastomere (e.g. Viton®), FDA-listed
EPDM – ethylene-propylene-dienmonomere, FDA-listed

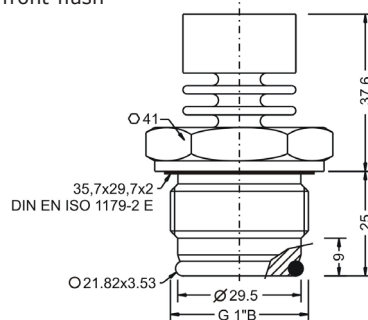
Environmental conditions
Environmental temperature: -20°C...+70°C
Process temperature: -20°C...+150°C
Process pressure: 100 mbar up to 25 bar depending on type
Protection: IP68 EN/IEC 60529



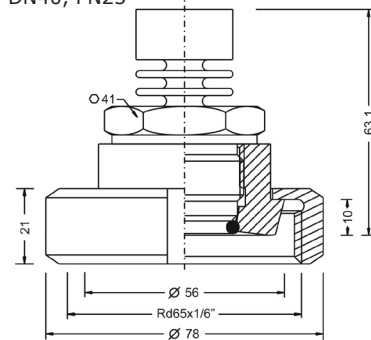
Terminal enclosure



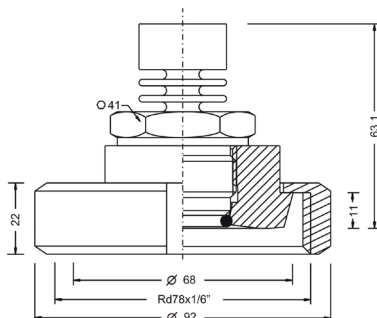
Type 5 – Thread ISO 228-1 – G1" B, front-flush



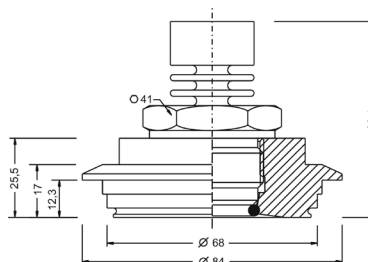
Type N – Dairy coupling DIN 11851 – DN40, PN25



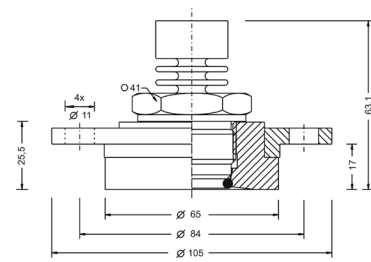
Type M – Dairy coupling DIN 11851 – DN50, PN25



Type P – Varivent® – Type N / tube DN40-162 / 1/2"-6", PN40



Type L – DRD – DN50 / 65mm, PN25



Precont® PN4LM

Pressure transmitter / Pressure switch with data memory for hygienic applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Basic price **767,00 €**

Model
PN4L Hygienic applications 0,00 €

Measuring system – material diaphragm (process wetted) / sensor type
CrNi-steel / strain gauge 0,00 €

Approval
S Standard 0,00 €

Process connection
5 Thread ISO 228-1 – G1”B, front-flush, O-ring gasket, EHEDG conformal, for welding socket BEFVE10 0,00 €
N Dairy coupling DIN 11851 – DN40, PN40 122,00 €
M Dairy coupling DIN 11851 – DN50, PN25 132,00 €
P Varivent® – Type N / tube DN40-162 / 1½”-6”, PN40 160,00 €
L DRD – DN50 / Ø65mm, PN25 208,00 €
Y others on request

Material gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®), FDA-listed 0,00 €
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed 0,00 €
Y others on request

Material process connection (process wetted)
V CrNi-steel 0,00 €

Material terminal enclosure
C CrNi-steel 0,00 €

Measuring range
01 0...100 mbar 0,00 €
02 0...250 mbar 0,00 €
03 0...400 mbar 0,00 €
04 0...600 mbar 0,00 €
05 0...1 bar 0,00 €
07 0...2,5 bar 0,00 €
08 0...4 bar 0,00 €
09 0...6 bar 0,00 €
10 0...10 bar 0,00 €
11 0...16 bar 0,00 €
12 0...25 bar 0,00 €
16 -1...0 bar 0,00 €
17 -1...+1 bar 0,00 €
YY Special measuring range 41,00 €

Electronic – output
M 1x signal 0/4...20mA-0...10V, supply 24VDC 212,00 €
K 1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC 272,00 €
R 1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC 332,00 €

Electronic – function
0 without 0,00 €
1 Bluetooth-Interface 113,00 €
2 Data logger with time stamp, battery powered 50,00 €
3 Bluetooth-Interface / Data logger with time stamp, battery powered 164,00 €
Y others on request

Process temperature
1 Standard -20°C...+150°C 0,00 €

Pressure type
R Gauge pressure 0,00 €
A Absolute pressure (FS ≥ 100mbar) 0,00 €

Measuring system – accuracy
4 0,5% 0,00 €
8 Xcellence – 0,15%, linearization protocol 145,00 €

Electrical connection
S Plug M12x1 0,00 €

+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version 90,00 €
ML Measurement point designation / TAG – Laser marking 20,00 €
KF Configuration / Preset 55,00 €

Application

The device is an electronic pressure transmitter / pressure switch for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with measuring ranges from -1 bar to 25 bar (gauge), measuring ranges from 0 bar to 25 bar (absolute), measuring spans from 100 mbar to 25 bar, process temperatures from -20°C to +150°C, process material CrNi-steel as well as the availability of a variety of hygienic EHEDG-conformal process connections like thread ISO 228-1 with front-flush O-ring gasket, dairy coupling DIN 11851, Varivent® and DRD the device is especially suitable for the use for food and beverage industry, pharmaceutical industry, biotechnology and sterile process engineering.

The device is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The device with front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections.

Through its optimized design, the front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process.

The device is particularly suitable for the special conditions of CIP/SIP cleaning processes, such as chemical stability towards cleaning liquids and high temperatures.

Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

The front-flush diaphragm is completely welded with the process connection and supplied with a positive seal. A reliable, dead-space free sealing between the process connection and the process adapter resp. measuring medium is thus assured.

Order code

Precont® PN4L M S V C 1 S
Equipment

Order information
LKZ0405PUR-AS Connection cable 5 m, 4-pole, shielded 22,50 €
LKZ0410PUR-AS Connection cable 10 m, 4-pole, shielded 28,50 €
LKZ0505PUR-AS Connection cable 5 m, 5-pole, shielded 26,00 €
LKZ0510PUR-AS Connection cable 10 m, 5-pole, shielded 35,00 €
LKZ0805PUR-AS Connection cable 5 m, 8-pole, shielded 38,00 €
BKZ0412-VA Matching cable socket, VA-nut 18,50 €
BKZ0512-VA Matching cable socket, VA-nut (at 0...10 V) 19,50 €
BEFVE10 Welding flange for process connection 5 111,00 €

Price group B

Pressure measurement

PG E

Precont® S10

Digital pressure sensor with internal, dry, capacitive ceramic measuring cell up to 60 bar, 4-digit LED-display, 2 PNP-switching outputs, 2- or 3-wire electronics selectable

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Equipment
welding flanges
page 134

Basic price

295,00 €

Price group A

Model		
S10	Standard	0,00 €
ExS10	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	46,00 €
XDS10	ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db	57,00 €
		<i>only for material terminal enclosure type C – CrNi-steel</i>
Process connection		
0	G½" A DIN EN 837-3, DIN EN ISO228-1	0,00 €
6	G½" A with inner bore 11 mm, DIN EN ISO228-1	0,00 €
1	G¼" A, DIN EN 837-3, DIN EN ISO228-1	0,00 €
4	G¼" ISO 228-1 - internal thread	0,00 €
Transmitter electronics		
A	4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs	272,00 €
B	4...20 mA, 2-wire-electronics, with display	212,00 €
C	4...20 mA, 2-wire-electronics, without display, adjustment via keys	160,00 €
D	4...20 mA, 2-wire-electronics, preset, without display	94,00 €
E	0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs	272,00 €
F	0...10 V 3-wire-electronics, with display	212,00 €
G	0...10 V 3-wire-electronics, without display, adjustment via keys	160,00 €
H	0...10 V 3-wire-electronics, preset, without display	94,00 €
Material connection		
V	Stainless steel 1.4404	0,00 €
Material Connection housing (for type XD only material steel possible)		
A	PBT (polybutylene terephthalate) (not with terminal compartment)	0,00 €
C	CrNi-steel	160,00 €
D	POM (Polyacetal - Delrin®) - only with terminal compartment housing	65,00 €
Measuring range		
01	0...100 mbar	0,00 €
02	0...200 mbar	0,00 €
03	0...400 mbar	0,00 €
04	0...600 mbar	0,00 €
05	0...1 bar	0,00 €
06	0...1,6 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...20 bar	0,00 €
13	0...40 bar	0,00 €
14	0...60 bar	0,00 €
15	-100...0 mbar	0,00 €
16	-1...0 bar	0,00 €
17	-1...1 bar	0,00 €
18	-100...+100 mbar	0,00 €
YY	Special measuring range	41,00 €
Material gaskets (process wetted)		
1	FPM - fluoroelastomer (Viton®)	0,00 €
2	CR - chloroprene rubber (Neopren®)	0,00 €
3	EPDM - ethylene-propylene-diene monomer - food applications	0,00 €
4	FFKM - perfluorelastomere (Kalrez®)	100,00 €
6	FFKM hd - high density perfluorelastomere - gas applications	113,00 €
Process temperature		
0	Standard -40°C up to +100°C	0,00 €
1	Extended, -40°C...+125°C, temperature decoupler	65,00 €
Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure	0,00 €
Measuring system - accuracy		
1	Ceramics 99,9% high purity, capacitive / 0,2%	0,00 €
3	Ceramics 99,9%, capacitive / 0,1%, linearization protocol	113,00 €
6	Xcellence - ceramics 99,9% high purity, capacitive / 0,05%, linearization protocol	168,00 €
Electrical connection		
S	Plug M12x1	0,00 €
K	Cable 2 m	22,00 €
A	Terminal compartment housing	157,00 €

Pressure measurement

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG - Laser marking	20,00 €
KF	Configuration / Preset	55,00 €
MZ	Material test certificate - EN10204 3.1	105,00 €

Order code

Precont®

V

Equipment

Order information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
BKZ0412-VA
BKZ0512-VA

Model

Connection cable 5 m, 4-pole, shielded	22,50 €
Connection cable 10 m, 4-pole, shielded	28,50 €
Connection cable 5 m, 5-pole, shielded	26,00 €
Connection cable 10 m, 5-pole, shielded	35,00 €
Matching cable socket, VA-nut	18,50 €
Matching cable socket, VA-nut (at 0...10 V)	19,50 €

PG E

Precont® S20

Digital pressure sensor with metal membrane, up to 1000 bar, 4-digit LED-display, 2 switching outputs, analog output

3 / 01.22

Technical data



Power supply:	14,5...45V DC at output signal	4...20mA / with display / Ex 14,5...30V DC
	10,5...45V DC at output signal	4...20mA / without display / Ex 10,5...30V DC
Supply current:	14,5...45V DC at output signal	0...10V / Ex 14,5...30V DC
	≤ 22 mA; at 2-wire 4...20mA	PNP-switching outputs in neutral
	≤ 10 mA; at 3-wire 0...10V	PNP-switching outputs in neutral
PNP-switching output		
Function:	PNP-switching on +Vs	
Output current:	≤ 250 mA current limited, short circuit protected	
Measurement accuracy		
Characteristics deviation:	≤ ±0,15 / 0,5% FS	
Long term drift:	≤ ±0,2% FS / year not cumulative	
Temperature deviation:	≤ ±0,20% FS / 10 K (Zero / Span)	
Materials		
Membrane:		
(medium contact)	≥ 40 bar Steel 1.4571/316Ti	
	< 40 bar Steel 1.4542/630 resp. 1.4534	
Process connection:		
(medium contact)	Steel 1.4571/316Ti	
Connection housing:	CrNi-steel / PBT polybutylene terephthalate / POM - polyoxymethylene (Delrin®)	
Gaskets:		
(medium contact)	FPM - fluoroelastomer (Viton®)	
	EPDM - ethylene-propylene-diene monomer	
	NBR - nitrile-butadiene rubber	
Environmental conditions		
Ambient temperature:	- 40°C...+85°C	
Process temperatures:	- 40°C...+100°C resp. +125°C	
Process pressure ranges:	- 1 bar ...1000 bar	
Turn down:	30:1	
Protection:	IP65 / IP67 EN/IEC 60529	



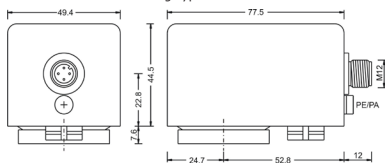
Plug M12



Terminal compartment housing

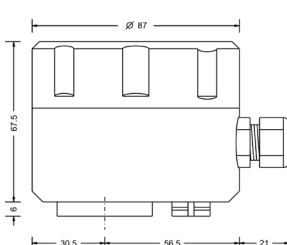
Connection housing

Electrical connection Type S - plug M12
Material connection housing Type A - PBT

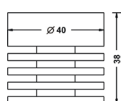


Connection housing

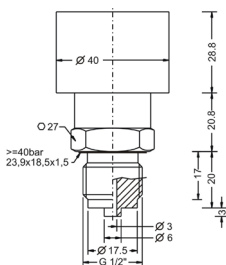
Electrical connection Type A - terminal compartment
Material connection housing Type C
CrNi-steel / Type D - POM



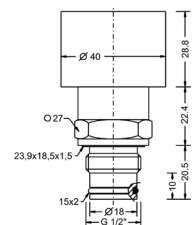
temperature decoupler



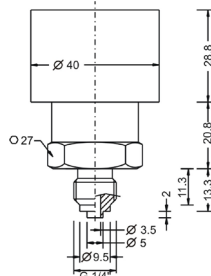
Type 0
G 1/2" ISO 228-1 - DIN 837-3



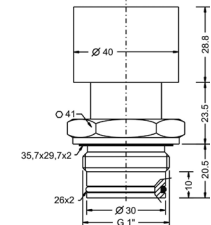
Type 2
G 1/2" ISO 228-1 - front-flush



Type 6
G 1/4" ISO 228-1 - DIN 837-3



Type 5
G 1" ISO 228-1 - front-flush



Application

The Precont® S20 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

The polysilicone resp. thin-film measurement sensor guarantees highest pressure ranges, good reproducibility and hysteresis, an up to 4 times overload resistance and a good long term stability.

Precont® S20

Digital pressure sensor with metal membrane, up to 1000 bar,
4-digit LED-display, 2 switching outputs, analog output

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Equipment

welding flanges
page 134

Basic price

281,00 €

Price group A

Model		
S20	Standard	0,00 €
EXS20	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	46,00 €
XDS20	ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb <i>only for material terminal enclosure type C – CrNi-steel</i>	57,00 €
Process connection		
0	G½" B, DIN EN ISO228-1 DIN EN 837-3, manometer connection	0,00 €
2	G½" B, DIN EN ISO228-1 front-flush, with radial O-ring not for following ranges 0...400 mbar, 0..1 bar and -1...0 bar	0,00 €
5	G1" B, DIN EN ISO228-1 front-flush, with radial O-ring for ranges 0...400 mbar, 0...1 bar and -1...0 bar	80,00 €
6	G¼" B, DIN EN ISO228-1 DIN EN 837-3, manometer connection	0,00 €
Electronics - output		
A	4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs	279,00 €
B	4...20 mA, 2-wire-electronics, with display	217,00 €
C	4...20 mA, 2-wire-electronics, without display, adjustment via keys	164,00 €
D	4...20 mA, 2-wire-electronics, preset, without display	96,00 €
E	0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs	279,00 €
F	0...10 V 3-wire-electronics, with display	217,00 €
G	0...10 V 3-wire-electronics, without display, adjustment via keys	164,00 €
H	0...10 V 3-wire-electronics, preset, without display	96,00 €
Material process connection (medium contact)		
V	Stainless steel 1.4571/316Ti / 1.4542 (AISI 630) / 1.4534	0,00 €
Gaskets (medium contact)		
0	NBR - nitrile-butadiene rubber	0,00 €
1	FPM - fluoroelastomer (Viton®)	0,00 €
3	EPDM - ethylene-propylene-diene monomer, for food applications	0,00 €
Measuring range		
03	0...400 mbar	0,00 €
05	0...1 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...25 bar	0,00 €
13	0...40 bar	0,00 €
14	0...60 bar	0,00 €
19	0...100 bar	0,00 €
20	0...160 bar	0,00 €
21	0...250 bar	0,00 €
22	0...320 bar	0,00 €
23	0...400 bar	0,00 €
24	0...600 bar	0,00 €
25	0...1000 bar (not for G½" B according to DIN EN837-3)	0,00 €
16	-1...0 bar	0,00 €
17	-1...+1 bar	0,00 €
YY	Special measuring range	42,00 €
Material Connection housing <i>(for type XD only material steel - C - possible)</i>		
A	PBT polybutylene terephthalate only with housing with plug M12x1 or cable	0,00 €
C	CrNi-steel	164,00 €
D	POM Polyacetal (Delrin®) - only with housing with terminal compartment	66,00 €
Process temperature		
0	Standard -40...+100°C	0,00 €
1	Advanced, -40...+125°C, temperature decoupler	66,00 €
Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure ≥ 40bar only with accuracy measuring system type 4 - 0,5%	0,00 €
Measuring system - accuracy		
4	Metall, DMS-thin-film/piezoresistive / 0,5%	69,00 €
8	Xcellence - metall, DMS-thin-film/piezoresistive / 0,15%, linearization protocol.	148,00 €
Electrical connection		
S	Plug M12x1	0,00 €
K	Cable 2 m	22,50 €
A	Terminal compartment housing	160,00 €

Pressure
measurement

Order code

Precont®

V

4

Equipment

Order information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
BKZ0412-VA
BKZ0512-VA

Model

Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole, shielded
Connection cable 5 m, 5-pole, shielded
Connection cable 10 m, 5-pole, shielded
Matching cable socket, VA-nut
Matching cable socket, VA-nut (at 0...10 V)

22,50 €
28,50 €
26,00 €
35,00 €
18,50 €
19,50 €

PG E

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
SF	LABS-free, silicone-free / paint compatible version > 40 bar	106,00 €
ML	Measurement point designation / TAG - Laser marking	20,00 €
KF	Configuration / Preset	55,00 €

Precont® S30

Digital pressure sensor with metal membrane from -1 up to 25 bar for hygienic applications, 4-digit LED-display, 2 switching outputs, analog output

3 / 01.22

Pressure measurement

Technical data



Power supply:	14,5...45V DC at output signal 4...20mA / with display / Ex 14,5...30V DC 10,5...45V DC at output signal 4...20mA / without display / Ex 10,5...30V DC
Supply current:	14,5...45V DC at output signal 0...10V / Ex 14,5...30V DC ≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral ≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral
PNP-switching output	
Function:	PNP-switching on +Vs
Output current:	≤ 250 mA current limited, short circuit protected
Measurement accuracy	
Characteristics deviation:	≤ ±0,15 / 0,5% FS
Long term drift:	≤ ±0,2% FS / year not cumulative
Temperature deviation:	≤ ±0,20% FS / 10 K (Zero / Span)
Materials	
Membrane:	Steel 1.4435/316L
Process connection:	Steel 1.4435/316L
(medium contact)	
Connection housing:	CrNi-steel / PBT polybutylene terephthalate / POM - polyoxymethylene (Delrin®)
Gaskets:	
(medium contact)	FPM - fluoroelastomer (Viton®) EPDM - ethylene-propylene-diene monomer silicone
Environmental conditions	
Ambient temperature:	- 40°C...+85°C
Process temperatures:	- 20°C...+150°C
Process pressure ranges:	- 1 bar ...25 bar
Turn down:	30:1
Protection:	IP65 / IP67 EN/IEC 60529

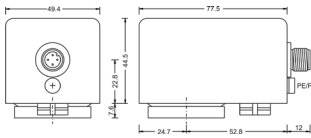


Plug M12

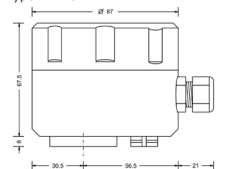


Terminal compartment housing

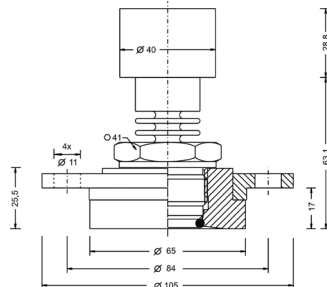
Connection housing
Electrical connection Type S - plug M12
Material connection housing Type A - PBT



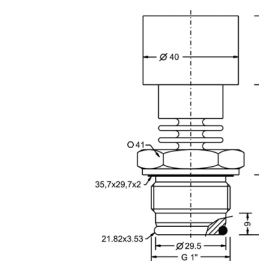
Connection housing
Electrical connection Type A - terminal compartment
Material connection housing Type C CrNi-steel / Type D - POM



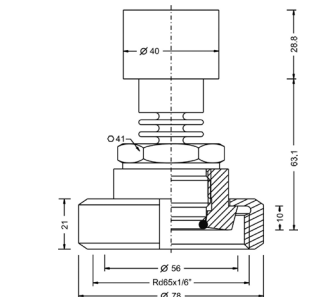
Type L
DRD DN50, Ø65 mm



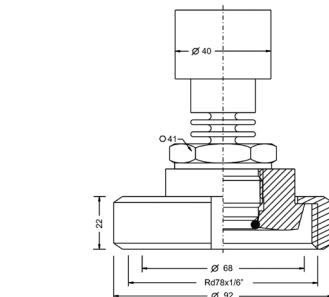
Type 5
G 1" ISO 228-1 - front-flush



Type N
DN40 DIN 11851 - front-flush



Type M
DN50 DIN 11851 - front-flush



Application

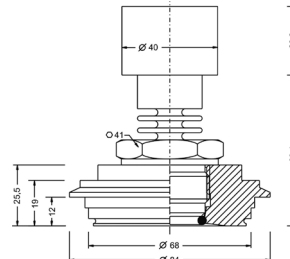
The Precont® S30 with EHEDG conform process connection for hygienic applications are used for supervision, control and also for continuous measurement of pressures from -1 up to +25 bar in gases, steams, liquids and dusts within closed containers or pipelines at process temperatures from -40°C to +150°C.

The pressure sensor Precont® S30 is especially designed for the requirements in the food and semiluxury item industry, as well as the pharmaceutical industry and biotechnology. This is especially relevant for the extreme conditions like chemical resistance against cleaning agents as well as insensitivity against increases temperatures in the case of CIP/SIP cleaning processes.

Due to the availability of adapters for the common process connections like varivent or connections acc. to DIN11851 with cone flange with nut groove for pipes acc. to DIN 11850, as well as a suitable weld-in sleeve the pressure transmitter can be installed in nearly hygienic application.

The use of a strain gauge with metallic membrane guarantees excellent characteristics like high pressure and pressure blow strength, high resistance against chemicals and corrosion, very good insensitivity against temperature shocks and EM interferences, high accuracy and long term stability as well as low temperature sensitiveness.

Type P
Varivent® N, Ø68 mm



Precont® S30

Digital pressure sensor with metal membrane from -1 up to 25 bar for hygienic applications, 4-digit LED-display, 2 switching outputs, analog output

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Equipment
welding flanges
page 134

Basic price **487,00 €**

Model		
S30	Standard	0,00 €
ExS30	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	48,00 €
XDS30	ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb <i>only for material terminal enclosure type C – CrNi-steel</i>	58,00 €

Process connection		
S	G1" B, DIN EN ISO228-1 front-flush, with radial O-ring, EHEDG conform	0,00 €
N	Milk tube DN 40 DIN 11851	125,00 €
M	Milk tube DN 50 DIN 11851	125,00 €
P	Varivent® Ø 68 mm	164,00 €
L	DRD-connection Ø 65 mm	214,00 €

Electronics - output		
A	4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs	279,00 €
B	4...20 mA, 2-wire-electronics, with display	217,00 €
C	4...20 mA, 2-wire-electronics, without display, adjustment via keys	164,00 €
D	4...20 mA, 2-wire-electronics, preset, without display	96,00 €
E	0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs	279,00 €
F	0...10 V 3-wire-electronics, with display	217,00 €
G	0...10 V 3-wire-electronics, without display, adjustment via keys	164,00 €
H	0...10 V 3-wire-electronics, preset, without display	96,00 €

Material process connection (medium contact)		
V	Stainless steel 1.4571/316Ti / 1.4542/630 resp. 1.4534	0,00 €

Measuring range		
01	0...100 mbar	0,00 €
02	0...250 mbar	0,00 €
03	0...400 mbar	0,00 €
04	0...600 mbar	0,00 €
05	0...1 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...25 bar	0,00 €
16	-1...0 bar	0,00 €
17	-1...+1 bar	0,00 €
YY	Special measuring range	42,00 €

Material Connection housing <i>(for type XD only material steel-C possible)</i>		
A	PBT polybutylene terephthalate only with housing with plug M12x1 or cable	0,00 €
C	CrNi-steel	164,00 €
D	POM Polyacetal (Delrin®) - only with housing with terminal compartment	66,00 €

Process temperature		
1	Standard, -20 up to +150°C	0,00 €

Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure	0,00 €

Measuring system - accuracy		
4	Metall, DMS-thin-film/piezoresistive / 0,5%	69,00 €
8	Xcellence - metall, DMS-thin-film/piezoresistive / 0,15%, linearization protocol	148,00 €

Electrical connection		
S	Plug M12x1	0,00 €
K	Cable 2 m	22,50 €
A	Terminal compartment housing	160,00 €

Price group A

Pressure measurement

Order code

Precont® V 0 1 4

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
SF	LABS-free, silicone-free / paint compatible version > 40 bar	106,00 €
ML	Measurement point designation / TAG – Laser marking	20,00 €
KF	Configuration / Preset	55,00 €

Equipment

Order information	Model	
LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded	22,50 €
LKZ0410PUR-AS	Connection cable 10 m, 4-pole, shielded	28,50 €
LKZ0505PUR-AS	Connection cable 5 m, 5-pole, shielded	26,00 €
LKZ0510PUR-AS	Connection cable 10 m, 5-pole, shielded	35,00 €
BKZ0412-VA	Matching cable socket, VA-nut	18,50 €
BKZ0512-VA	Matching cable socket, VA-nut (at 0...10 V)	19,50 €

PG E

Precont® S40

Digital pressure sensor with front-flush, dry, capacitive ceramic measuring cell up to 60 bar, 4-digit LED-display, 2 PNP-switching outputs, 2- or 3-wire-electronics selectable

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Pressure measurement

Technical data



Power supply:	14,5...45V DC at output signal 4...20mA / with display / Ex 14,5...30V DC 10,5...45V DC at output signal 4...20mA / without display / Ex 10,5...30V DC
Supply current:	14,5...45V DC at output signal 0...10V / Ex 14,5...30V DC ≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral ≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral
PNP-switching output	
Function:	PNP-switching on +Vs
Output current:	≤ 250 mA current limited, short circuit protected
Measurement accuracy	
Characteristics deviation:	≤ ±0,05 / 0,1 / 0,2% FS
Long term drift:	≤ ±0,1% FS / year not cumulative
Temperature deviation:	≤ ±0,15% FS / 10 K (Zero / Span)
Materials	
Membrane:	
(medium contact)	Ceramics Al ₂ O ₃ 99,9%
Process connection:	
(medium contact)	Steel 1.4404/316L resp. 1.4571/316Ti
Connection housing:	CrNi-steel / PBT polybutylene terephthalate / POM - polyoxymethylene (Delrin®)
Gaskets:	
(medium contact)	FPM - fluoroelastomer (Viton®) EPDM - ethylene-propylene-diene monomer CR - chloroprene rubber (Neopren®) FFKM - perfluoroelastomere (Kalrez®) NBR - nitrile-butadiene rubber
Environmental conditions	
Ambient temperature:	- 40°C...+85°C
Process temperatures:	- 40°C...+100°C resp. +125°C
Process pressure ranges:	- 1 bar ...60 bar
Turn down:	30:1
Protection:	IP65 / IP67 EN/IEC 60529



plug M12

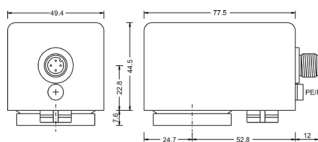


plug M12

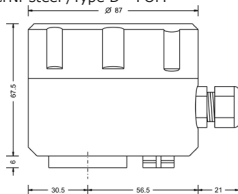


terminal compartment housing

Connection housing
Electrical connection Type S - plug M12
Material connection housing Type A - PBT



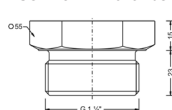
Connection housing
Electrical connection Type A - terminal compartment; Material connection housing Type C CrNi-steel / Type D - POM



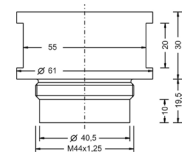
Temperature decoupler



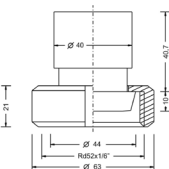
Type 7
G 1 1/2" ISO 228-1 - front-flush



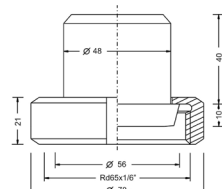
Type Z
M44x1,25 DIN 13 M



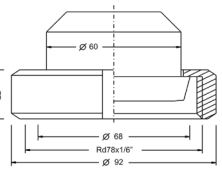
Type R
DN25 DIN 11851 - front-flush



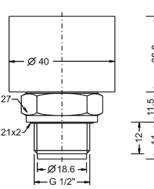
Type N
DN40 DIN 11851 - front-flush



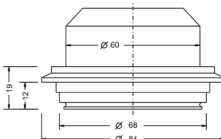
Type M
DN50 DIN 11851 - front-flush



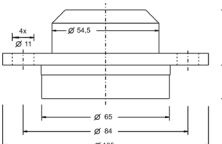
Type 9
G 1/2" ISO 228-1 - front-flush



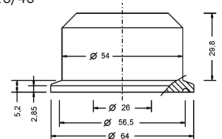
Type P
Varivent® N, Ø68 mm



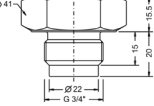
Type L
DRD DN50, Ø65 mm



Type T
Tri-Clamp 2"/DN51
PN16/40



Type 8
G 3/4" ISO 228-1 - front-flush



Precont® S40

Digital pressure sensor with front-flush, dry, capacitive ceramic measuring cell up to 60 bar, 4-digit LED-display, 2 PNP-switching outputs, 2- or 3-wire-electronics selectable

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Equipment

welding flanges
page 134

Application

The Precont® S40 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

Additional Options

SF LABS-free, silicone-free / paint compatible version90,00 €
ML Measurement point designation / TAG - Laser marking20,00 €
KF Configuration / Preset55,00 €
MZ Material test certificate - EN10204 3.1105,00 €

Basic price		544,00 €
Model		
S40	Standard	0,00 €
ExS40	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	46,00 €
XDS40	ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	57,00 €
<i>only for material terminal enclosure type C - CrNi-steel</i>		
Process connection		
7	G1½" B, ISO 228-1, front-flush	66,00 €
8	G¾" A, ISO 228-1, front-flush, ≤ 20 bar	50,00 €
9	G½" B, ISO 228-1, front-flush, ≤ 20 bar	50,00 €
R	Milk tube DIN 11851, DN25, PN40, ≤ 20 bar	87,00 €
N	Milk tube DIN 11851, DN40, PN40	125,00 €
M	Milk tube DIN 11851, DN50, PN25	125,00 €
P	Varivent® N, DN68, PN16	164,00 €
L	DRD DN65, Ø 65 mm, PN25	125,00 €
T	TriClamp 2"/DN51, PN16/40	125,00 €
G	Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40	417,00 €
F	Flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40	359,00 €
Z	M44x 1,25 DIN 13 M - paper industry	64,00 €
B	Groove nut adapter Ø 44 mm	235,00 €
Transmitter electronics		
A	4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs	279,00 €
B	4...20 mA, 2-wire-electronics, with display	217,00 €
C	4...20 mA, 2-wire-electronics, without display, adjustment via keys	164,00 €
D	4...20 mA, 2-wire-electronics, preset, without display	96,00 €
E	0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs	279,00 €
F	0...10 V 3-wire-electronics, with display	217,00 €
G	0...10 V 3-wire-electronics, without display, adjustment via keys	164,00 €
H	0...10 V 3-wire-electronics, preset, without display	96,00 €
Material connection		
V	Stainless steel 1.4404/316L resp. 1.4571/316Ti	0,00 €
Material Connection housing (for type XD only material steel possible)		
A	PBT (polybutylene terephthalate) (not with terminal compartment)	0,00 €
C	CrNi-steel	164,00 €
D	POM (Polyacetal - Delrin®) - only with terminal compartment housing	66,00 €
Measuring range		
01	0...100 mbar	0,00 €
02	0...200 mbar	0,00 €
03	0...400 mbar	0,00 €
04	0...600 mbar	0,00 €
05	0...1 bar	0,00 €
06	0...1,6 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...20 bar	0,00 €
13	0...40 bar	0,00 €
14	0...60 bar	0,00 €
15	-100...0 mbar	0,00 €
16	-1...0 bar	0,00 €
17	-1...1 bar	0,00 €
18	-100...+100 mbar	0,00 €
YY	Special measuring range	42,00 €
Material gaskets (process wetted)		
1	FPM - fluoroelastomer (Viton®)	0,00 €
2	CR - chloroprene rubber (Neopren®)	0,00 €
3	EPDM - ethylene-propylene-diene monomer - food applications	0,00 €
4	FFKM - perfluorelastomere (Kalrez®)	104,00 €
6	FFKM - perfluorelastomere high density - gas applications	116,00 €
Process temperature		
0	Standard -40°C up to +100°C	0,00 €
1	Advanced -40°C up to +125°C, temperature decoupler	66,00 €
Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure	0,00 €
Measuring system - accuracy		
1	Ceramics 99,9%, capacitive / 0,2% With process connection 8/9/R >> membrane Ceramics 96%	0,00 €
3	Ceramics 99,9%, capacitive / 0,1%, linearization protocol With process connection 8/9/R >> membrane Ceramics 96%	116,00 €
6	Xcellence - ceramics 99,9%, capacitive / 0,05%, linearization protocol Measuring span 0,2 bar With process connection 8/R >> membrane Ceramics 96% not for process connection 9	173,00 €
Electrical connection		
S	Plug M12x1	0,00 €
K	Cable 2 m	22,50 €
A	Terminal compartment housing	160,00 €

Order code

Precont® V

Equipment

Order information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
BKZ0412-VA
BKZ0512-VA

Model

Connection cable 5 m, 4-pole, shielded

Connection cable 10 m, 4-pole, shielded

Connection cable 5 m, 5-pole, shielded

Connection cable 10 m, 5-pole, shielded

Matching cable socket, VA-nut

Matching cable socket, VA-nut (at 0...10 V)

22,50 €
28,50 €
26,00 €
35,00 €
18,50 €
19,50 €

PG E

Price group A

Pressure measurement

Precont® S70

Digital pressure sensor with special diaphragm seal for all areas of process engineering for temperature applications from -90°C up to +400°C

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Pressure measurement

Technical data



hygienic design



4...20mA
2x PNP



CIP
SIP
capable



385.2
bright LED
display



Ex
certification



process
temperature
400°C

Power supply: 14,5...45V DC at output signal 4...20mA / with display / Ex 14,5...30V DC
10,5...45V DC at output signal 4...20mA / without display / Ex 10,5...30V DC

Supply current: 14,5...45V DC at output signal 0...10V / Ex 14,5...30V DC
≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral
≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral

PNP-switching output Function: PNP-switching on +Vs

Output current: ≤ 250 mA current limited, short circuit protected

Measurement accuracy

Characteristics deviation: ≤ ±0,2%/ 0,5% FS, depending on sensor element

Long term drift: ≤ ±0,2% year not cumulative

Temperature deviation: depending on membrane diameter, sensor element, fill fluid and diaphragm seal

Materials

Membrane: Steel 1.4432 (316L)
(medium contact) optional z.B. steel 1.4571/316Ti; Hastelloy; Titan; coating gold/rhodium etc. depending on used diaphragm seal

Process connection: Steel 1.4432 (316L)
(medium contact) optional z.B. steel 1.4571/316Ti; Hastelloy; Titan; depending on used diaphragm seal

Connection housing: CrNi-steel / PBT polybutylene terephthalate / POM - polyoxymethylene (Delrin®)

Environmental conditions

Ambient temperature: - 40°C...+85°C

Process temperatures: - 90°C...+400°C

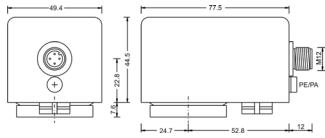
Process pressure ranges: - 1 bar ...400 bar

Turn down: 30:1

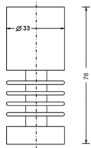
Protection: IP65 / IP67 EN/IEC 60529



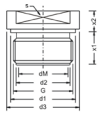
Connection housing
Electrical connection Type S - plug M12
Material connection housing Type A - PBT



Temperature decoupler
cooling fins up to 150°C

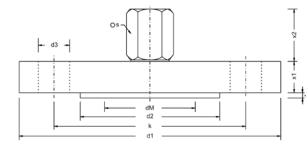


Type Gx
thread ISO 228-1



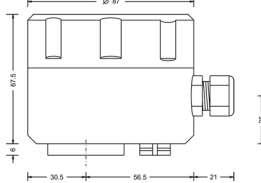
	G	PN	d1	d2	dM	x1	d3	x2	s
G1	G 1/2" B	600	18	16	20	-	35	27	
G2	G 3/8" B	600	32	22	20	-	36	32	
G3	G 1" B	600	39	28	21	-	34	41	
G4	G 1 1/2" B	600	55	44	38	30	58	35	50
G5	G 2" B	600	68	56	46	30	78	40	65

Type Fx
Flange DIN EN 1092-1, B1



	DN	PN	d1	d2	dM	x1	f	k	d3	s	x2 ±2
F1	25	40	115	68	28	15	3	85	4xØ14	27	34,5
F3	50	40	165	102	52	17	3	125	4xØ18	27	34,5
F5	80	40	200	138	80	20,5	3,5	160	8xØ18	27	34
F6	100	16	220	158	80	16	4	180	8xØ18	27	33,5

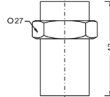
Connection housing
Electrical connection Type A - terminal compartment; Material connection housing Type C CrNi-steel / Type D - POM



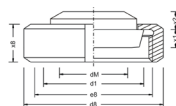
Temperature decoupler
standard up to 150°C/250°C



Temperature decoupler
adapter up to 100°C for process connections Dx, Mx and Tx



Type Mx
DIN 11851



	DN	PN	d1	dM	x1	x2	d8	x8	e8
M2	25	40	44	26	10	10	63	21	Rd52x1/8"
M4	40	40	56	38	10	10	78	21	Rd65x1/8"
M5	50	25	68	48	11	9	92	22	Rd78x1/8"

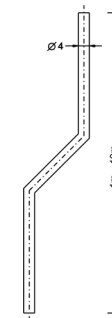
adapter ≤ 60 bar



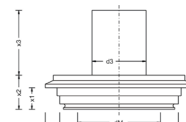
adapter ≥ 100 bar



Temperature decoupler
Long-distance line

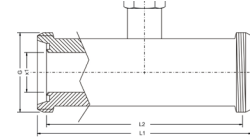


Type Vx
Varivent®



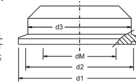
		DN	PN	d1	d2	dM	x1	x2	d3	x3
V1	N	68	16	84	68	46	12	19	30	38
V2	F	50	25	66	50	30	12	19	30	38

Type Rx
tube DIN 11851



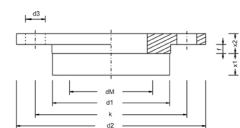
	DN	PN	L1	L2	x1	G
R1	25	40	148	128	26,2	Rd52x1/8"
R3	40	40	140	128	38	Rd65x1/8"
R4	50	25	114	100	50,7	Rd78x1/8"
R5	65	25	116	100	65,7	Rd95x1/8"
R6	80	25	116	100	79,7	Rd110x1/4"
R7	100	25	120	100	99,7	Rd130x1/4"

Type Tx
Tri-Clamp



	NPS	DN	PN	d1	d2	dM	x1	x2	d3	x3
T1	1"	25	16/40	64	50,5	21	2,85	5,2	25,6	14,8
T2	1 1/2"	38	16/40	64	50,5	30	2,85	5,2	38,6	14,8
T3	2"	51	16/40	64	56,5	38	2,85	5,2	51,6	14,8

Type Dx
DRD



	DN	PN	d1	d2	dM	x1	x2	f	k	d3
D1	50	40	65	105	46	12	11	5	84	4xØ10,5

Precont® S70

Digital pressure sensor with special diaphragm seal for all areas of process engineering for temperature applications from -90°C up to +400°C

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Equipment

welding flanges
page 134

Application

The Precont® S70 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

The process pressure is applied to the metallic membrane of the diaphragm seal and is transferred by vegetable oil to the behind placed ceramic or metallic membrane of the respective measurement sensor. By this an essential extension of the permitted process temperature range up to -40...+370°C is achieved.

Basic price

		504,00 €
Model		
S70	Standard	0,00 €
ExS70	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	46,00 €
XDS70	ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb <i>only for material terminal enclosure type C – CrNi-steel</i>	57,00 €
Process connection		
G1	G½" B, ISO 228-1, DIN 3852-A	356,00 €
G2	G¾" B, ISO 228-1, DIN 3852-A	405,00 €
G3	G1" B, ISO 228-1, DIN 3852-A	435,00 €
G4	G1½" B, ISO 228-1, DIN 3852-A	499,00 €
G5	G2" B, ISO 228-1, DIN 3852-A	529,00 €
F1	Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN25, PN10-40	864,00 €
F3	Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN50, PN10-40	880,00 €
F5	Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN80, PN10-40	1.117,00 €
F6	Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN100, PN16	1.425,00 €
M2	Milk tube DIN 11851, DN25, PN40	366,00 €
M4	Milk tube DIN 11851, DN40, PN40	392,00 €
M5	Milk tube DIN 11851, DN50, PN25	417,00 €
V1	Varivent® N, DN68, PN16	450,00 €
V2	Varivent® F, DN50, PN25	443,00 €
D1	DRD DN50, Ø65 mm, PN25	563,00 €
T1	Tri-Clamp 1"/DN25, PN16/40	311,00 €
T2	Tri-Clamp 1 ½"/DN38, PN16/40	311,00 €
T3	Tri-Clamp 2"/DN51, PN16/40	342,00 €
R1	Pipe diaphragm seal milk tube DIN 11851, DN25, PN40	697,00 €
R3	Pipe diaphragm seal milk tube DIN 11851, DN40, PN40	802,00 €
R4	Pipe diaphragm seal milk tube DIN 11851, DN50, PN25	909,00 €
R5	Pipe diaphragm seal milk tube DIN 11851, DN65, PN25	1.065,00 €
R6	Pipe diaphragm seal milk tube DIN 11851, DN80, PN25	on request
R7	Pipe diaphragm seal milk tube DIN 11851, DN100, PN25	on request
YY	Others	on request
Process temperature		
A	Standard, -20°C...+100°C silicone oil	0,00 €
B	Advanced, -10°C...+150°C, temperature decoupler, white oil (paraffin oil) {FDA} free of silicone	145,00 €
C	Advanced, -40°C...+250°C, temperature decoupler, silicone oil FA5	254,00 €
D	Advanced, 0°C...+400°C, capillary line, silicone oil FA5	on request
Y	Others (temperature range, reference temperatur, fill fluid)	on request
Transmitter electronics		
A	4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs	279,00 €
B	4...20 mA, 2-wire-electronics, with display	217,00 €
C	4...20 mA, 2-wire-electronics, without display, adjustment via keys	164,00 €
E	0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs	279,00 €
F	0...10 V 3-wire-electronics, with display	217,00 €
G	0...10 V 3-wire-electronics, without display, adjustment via keys	164,00 €
Material connection		
V	Steel 1.4404/316L	0,00 €
Y	Others	on request
Material Connection housing <i>(for type XD only material steel possible)</i>		
A	PBT (polybutylene terephthalate) (not with terminal compartment)	0,00 €
C	CrNi-steel	164,00 €
D	POM (Polyacetal - Delrin®) - only with terminal compartment housing	66,00 €
Measuring range		
01	0...100 mbar	0,00 €
02	0...200 mbar	0,00 €
03	0...400 mbar	0,00 €
04	0...600 mbar	0,00 €
05	0...1 bar	0,00 €
06	0...1,6 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...20 bar	42,00 €
13	0...40 bar	0,00 €
14	0...60 bar	0,00 €
15	-100...0 mbar	0,00 €
16	-1...0 bar	0,00 €
17	-1...1 bar	0,00 €
18	-100...+100 mbar	0,00 €
19	0...100 bar	0,00 €
20	0...160 bar	0,00 €
21	0...250 bar	0,00 €
22	0...320 bar	0,00 €
23	0...400 bar	0,00 €
YY	Special measuring range	42,00 €
Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure	0,00 €
Measuring system - accuracy		
2	Ceramics 96%, capacitive / 0,2% ≤ 60 bar	0,00 €
4	Metall, DMS-thin-film / 0,5% ≥ 100 bar	69,00 €
Electrical connection		
S	Plug M12x1	0,00 €
K	Cable 2 m	22,50 €
A	Terminal compartment housing	160,00 €

Price group A

Pressure measurement

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG - Laser marking	20,00 €
KF	Configuration / Preset	55,00 €

Order code

Precont®

Precont® PU4SE

Pressure switch for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust,
HART® / RS485 Modbus®-RTU / IO-Link® and ATEX / IECEx

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Technical data



Measuring range

Nominal pressure PN 0...1bar to 0...100bar

Output type A – Current 4...20mA HART®

Analogue output 4...20mA 3,9...20,5mA / $\geq 3,8\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

Time behavior T90 $\leq 5\text{ms}$ / ton $\leq 0,2\text{s}$

Interface HART®-compliant (7.0) / 1200 Bit/s

Output type V – RS485 Modbus®-RTU

Interface RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)

Time behavior T90 $\leq 2\text{ms}$ (td = 0s) / ton $\leq 0,1\text{s}$ (td = 0s)

Output type L – IO-Link®

Interface IO-Link® V1.1 / Com2 (38400 Baud)

Analogue output 0...20mA: 0...20,5mA / $\leq 0,05\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

4...20mA: 3,8...20,5mA / $\geq 3,6\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

Switch output 2x PP (Push-Pull), switch to +L/-L

Output Uout $\leq 0,2\text{V}$, $\geq U_s - 2\text{V}$ / Iout 0...200mA

(current limited $\leq 450\text{mA}$, short circuit protected)

Time behavior T90 $\leq 2\text{ms}$ / ton $\leq 0,1\text{s}$

Auxiliary power

Supply voltage U_s

polarity protected

Type A – 4...20mA HART®: 9...35VDC / Ex: 9...30VDC

Type V – RS485 Modbus®-RTU: 6...35VDC

Type L – IO-Link®: 9...35VDC, without IO-Link® / 18...30VDC, with IO-Link®

Measuring accuracy

Characteristic deviation $\leq \pm 0,5\%\text{FSO}$

Long term drift $\leq \pm 0,2\%\text{FSO}/\text{year}$

Temperature deviation Tk Zero+Span $\leq \pm 0,05\%\text{FSO}/\text{K}$

Process conditions

Process temperature $-25^\circ\text{C} \dots +100^\circ\text{C}$

Pressure cycles $\geq 10 \text{ Mio. (1,2xPN)}$

Environmental conditions

Environmental temperature $-25^\circ\text{C} \dots +100^\circ\text{C}$

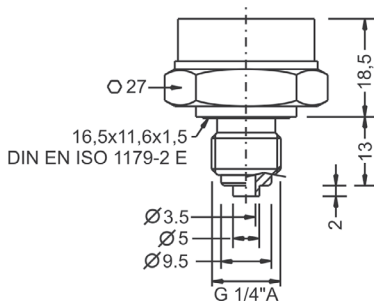
Protection level IP69K/IP67 (EN/IEC 60529)

MTTF 463 years

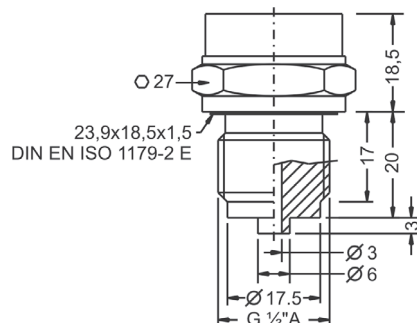


Pressure measurement

Process connection type 6
Thread G $\frac{1}{4}$ "A, EN 837



Process connection type 1
Thread G $\frac{1}{2}$ "A, EN 837



Application

The device is an electronic pressure transmitter / pressure switch for monitoring, control and continuous measurement of pressures.

Due to its high accuracy and the digital adjustability by HART®, RS485 Modbus®-RTU or IO-Link® the device can be suited to a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

Precont® PU4SE

Pressure switch for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust,
HART® / RS485 Modbus®-RTU / IO-Link®

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Basic price		110,00 €
Type		
PU4S	Standard	0,00 €
Measuring system – material diaphragm (process wetted) / sensor type		
E	Ceramic Al ₂ O ₃ 96%, DMS	0,00 €
Approval		
S	Standard	0,00 €
Process connection		
6	Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837 manometer	0,00 €
1	Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837 manometer	0,00 €
Material gaskets (process wetted)		
1	FPM – fluorelastomere (e.g. Viton®)	0,00 €
Y	others	0,00 €
Material process connection (process wetted)		
V	CrNi-steel	0,00 €
Material terminal enclosure		
C	CrNi-steel	0,00 €
Measuring range		
05	0...1 bar	0,00 €
08	0...4 bar	0,00 €
10	0...10 bar	0,00 €
13	0...40 bar	0,00 €
19	0...100 bar	12,00 €
Electronic – output		
A	4-wire, current 4...20mA, HART® compliant	0,00 €
V	4-wire, RS485, Modbus RTU	0,00 €
L	IO-Link®, 1x current 0/4...20mA / 2x switch, 4-wire	0,00 €
Electronic – function		
S	Standard	0,00 €
Process temperature		
0	Standard –25°C...+100°C	0,00 €
Y	others	0,00 €
Pressure type		
R	Gauge pressure	0,00 €
Measuring system – accuracy		
4	0,5%	0,00 €
Y	others	0,00 €
Electrical connection		
S	Plug M12x1	0,00 €

No price group

Pressure measurement

Order code

Precont® PU4S E S V C S R S

Equipment

Order information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
BKZ0412-VA
BKZ0512-VA

Model
Connection cable 5 m, 4-pole, shielded

22,50 €
28,50 €
26,00 €
35,00 €
18,50 €
19,50 €

PG E

Precont® PU4SC

Pressure transmitter for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust,
HART® / RS485 Modbus®-RTU / IO-Link® and ATEX / IECEx

3 / 01.22

Technical data



Measuring range

Nominal pressure PN -0,1...0bar / -0,1...0,1bar / -1...0bar / -1...1bar / 0...0,05bar to 0...20bar

Output type A – Current 4...20mA HART®

Analogue output 4...20mA 3,9...20,5mA / $\geq 3,8\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

Time behavior $T90 \leq 5\text{ms}$ / $\text{ton} \leq 0,2\text{s}$

Interface HART®-compliant (7.0) / 1200 Bit/s

Output type V – RS485 Modbus®-RTU

Interface RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)

Time behavior $T90 \leq 2\text{ms}$ ($t_d = 0\text{s}$) / $\text{ton} \leq 0,1\text{s}$ ($t_d = 0\text{s}$)

Output type L – IO-Link®

Interface IO-Link® V1.1 / Com2 (38400 Baud)

Analogue output 0...20mA: 0...20,5mA / $\leq 0,05\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

4...20mA: 3,8...20,5mA / $\geq 3,6\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

Switch output 2x PP (Push-Pull), switch to +L/-L

Output $U_{\text{out}} \leq 0,2\text{V}$, $\geq U_s - 2\text{V}$ / $I_{\text{out}} 0...200\text{mA}$

(current limited $\leq 450\text{mA}$, short circuit protected)

Time behavior $T90 \leq 2\text{ms}$ / $\text{ton} \leq 0,1\text{s}$

Auxiliary power

Supply voltage U_s

polarity protected

Type A – 4...20mA HART®: 9...35VDC / Ex: 9...30VDC

Type V – RS485 Modbus®-RTU: 6...35VDC

Type L – IO-Link®: 9...35VDC, without IO-Link® / 18...30VDC, with IO-Link®

Measuring accuracy

Characteristic deviation $\leq \pm 0,05\%$ / $\pm 0,1\%$ / $\pm 0,2\%$ FSO

Long term drift $\leq \pm 0,15\%$ FSO/year

Temperature deviation $T_k \text{ Zero} \leq \pm 0,015\%$ FSO/K, $\leq \pm 0,75\%$ FSO (-20°C...+80°C)

$T_k \text{ Span} \leq \pm 0,015\%$ FSO/K
 $\leq \pm 0,5\%$ FSO (-20°C...+80°C/ $\geq 0,4\text{bar}$) / $\leq \pm 0,8\%$ FSO (-20°C...+80°C/ $< 0,4\text{bar}$)

Process conditions

Process temperature Standard: -40°C...+100°C

Extended: -40°C...+125°C (+140°C – 1h)

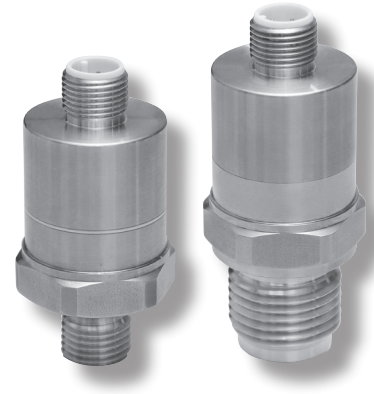
$\geq 100 \text{ Mio.}$ (1,2xPN)

Environmental conditions

Environmental temperature -40°C...+100°C

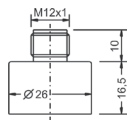
Protection level IP69K/IP67 (EN/IEC 60529)

MTTF 463 years

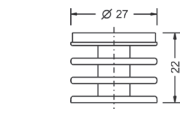


Pressure measurement

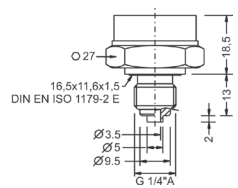
Terminal enclosure



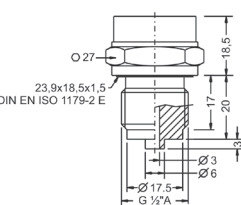
Temperature decoupler



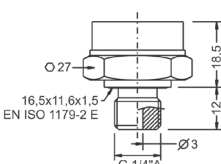
Process connection type 6



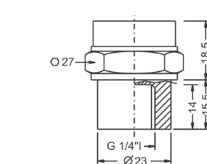
Process connection type 1



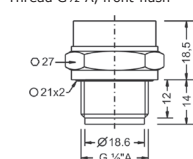
Process connection type 3



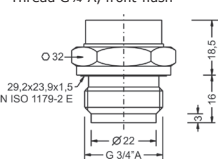
Process connection type 4



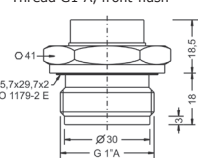
Process connection type 9



Process connection type 8



Process connection type 5



You will find further dimension drawings in the operating instructions.

Application

The device is an electronic pressure transmitter / pressure switch for monitoring, control and continuous measurement of pressures.

A high variety of versions of process connections and electronic types allows the use for a wide range of applications, also for demanding measuring requirements.

The front-flush process connection enables the cleanliness of the wetted diaphragm to be integrated into the process, also by CIP/SIP cleaning processes.

Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with viscous or also frequently changing media.

Due to its high accuracy and the digital adjustability by HART®, RS485 Modbus®-RTU or IO-Link® the device can be suited to a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS- resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or a factory certifications for drink water suitability.

Customer specific special versions can be realized short-term on request, e.g. special designs for the process connection or other process materials.

Precont® PU4SC

Pressure transmitter for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust,
HART® / RS485 Modbus®-RTU / IO-Link® and ATEX / IECEx

3 / 01.21

Basic price **289,00 €**

Type
PU4S Standard 0,00 €

Measuring system – material diaphragm (process wetted) / sensor type
C Ceramic Al₂O₃ 96%/99,7%/99,9% / capacitive 0,00 €

Approval
S Standard 0,00 €
X ATEX II 1 G / IECEx Ex ia IIC Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Da (Output type – A) 56,00 €

Process connection
6 Thread ISO 228-1 – G¼”A, EN 837 manometer 0,00 €
1 Thread ISO 228-1 – G½”A, EN 837 manometer 0,00 €
3 Thread ISO 228-1 – G¼”A, DIN EN ISO 1179-2 E 0,00 €
4 Thread ISO 228-1 – G¼”I, inner thread 0,00 €
9 Thread ISO 228-1 – G½”A, front-flush 49,00 €
8 Thread ISO 228-1 – G¾”A, front-flush 49,00 €
5 Thread ISO 228-1 – G1”A, front-flush 82,00 €
R Dairy coupling DIN 11851 – DN25, PN40 85,00 €
N Dairy coupling DIN 11851 – DN40, PN40 121,00 €
M Dairy coupling DIN 11851 – DN50, PN25 121,00 €
P Varivent® – Type N / tube DN40-162 / 1½”-6”, PN40 159,00 €
L DRD – DN50 / Ø65mm, PN25 159,00 €
S Clamp ISO 2852 – DN25-38 / BS 4825 – 1”-1½” / DIN 32676 – DN25-38, PN25 105,00 €
T Clamp ISO 2852 – DN40-51 / BS 4825 – 2” / DIN 32676 – DN50, PN25 121,00 €
Y others on request

Material gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®) 0,00 €
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed 0,00 €
4 FFKM – perfluorelastomere (e.g. Kalrez®) 100,00 €
6 FFKM hd – perfluorelastomere high density – gas applications 112,00 €
Y others on request

Material process connection (process wetted)
V CrNi-steel 0,00 €

Material terminal enclosure
C CrNi-steel 0,00 €

Measuring range
26 0...50 mbar 0,00 €
01 0...100 mbar 0,00 €
02 0...200 mbar 0,00 €
03 0...400 mbar 0,00 €
04 0...600 mbar 0,00 €
05 0...1 bar 0,00 €
06 0...1,6 bar 0,00 €
07 0...2,5 bar 0,00 €
08 0...4 bar 0,00 €
09 0...6 bar 0,00 €
10 0...10 bar 0,00 €
11 0...16 bar 0,00 €
12 0...20 bar 0,00 €
15 -100...0 mbar 0,00 €
16 -1...0 bar 0,00 €
17 -1...+1 bar 0,00 €
18 -100...+100 mbar 0,00 €
YY Special measuring range 41,00 €

Electronic – output
A 2-wire, current 4...20mA, HART® compliant 0,00 €
V 4-wire, RS485, Modbus RTU 0,00 €
L IO-Link®, 1x current 0/4...20mA / 2x switch, 4-wire 0,00 €

Electronic – function
S Standard 0,00 €

Process temperature
0 Standard –40°C...+100°C 0,00 €
1 Extended –40°C...+125°C, temperature decoupler 40,00 €

Pressure type
R Gauge pressure 0,00 €
A Absolute pressure (FS ≥ 100mbar) 28,50 €

Measuring system – accuracy
1 0,2% 0,00 €
3 0,1% (FS ≥ 100mbar), linearization protocol 67,00 €
6 Xcellence – 0,05% (FS ≥ 200mbar), linearization protocol 167,00 €

Electrical connection
S Plug M12x1 0,00 €

+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version 36,00 €
ML Measurement point designation / TAG – Laser marking 23,00 €
KF Configuration / Preset 45,00 €
MZ Material test certificate – EN10204 3.1 105,00 €

Price group A

Pressure measurement

Order code

Precont® PU4S C V C S S

Precont® PU4SK

Pressure transmitter for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust,
HART® / RS485 Modbus®-RTU / IO-Link® and ATEX / IECEx

3 / 01.22

Technical data



Measuring range

Nominal pressure PN -1...0bar / -1...1bar / 0...0,25bar to 0...600bar

Output type A – Current 4...20mA HART®

Analogue output 4...20mA 3,9...20,5mA / $\geq 3,8\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

Time behavior $T90 \leq 5\text{ms}$ / $\text{ton} \leq 0,2\text{s}$

Interface HART®-compliant (7.0) / 1200 Bit/s

Output type V – RS485 Modbus®-RTU

Interface RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)

Time behavior $T90 \leq 2\text{ms}$ ($t_d = 0\text{s}$) / $\text{ton} \leq 0,1\text{s}$ ($t_d = 0\text{s}$)

Output type L – IO-Link®

Interface IO-Link® V1.1 / Com2 (38400 Baud)

Analogue output 0...20mA: 0...20,5mA / $\leq 0,05\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

4...20mA: 3,8...20,5mA / $\geq 3,6\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

Switch output 2x PP (Push-Pull), switch to +L/-L

Output $U_{\text{out}} \leq 0,2\text{V}$, $\geq U_{\text{s}} - 2\text{V}$ / $I_{\text{out}} 0...200\text{mA}$

(current limited $\leq 450\text{mA}$, short circuit protected)

Time behavior $T90 \leq 2\text{ms}$ / $\text{ton} \leq 0,1\text{s}$

Auxiliary power

Supply voltage U_{s}

polarity protected

Type A – 4...20mA HART®: 9...35VDC / Ex: 9...30VDC

Type V – RS485 Modbus®-RTU: 6...35VDC

Type L – IO-Link®: 9...35VDC, without IO-Link® / 18...30VDC, with IO-Link®

Measuring accuracy

Characteristic deviation $\leq \pm 0,15\%$ / $\pm 0,5\%$ FSO

Long term drift $\leq \pm 0,2\%$ FSO/year

Temperature deviation T_k Zero+Span $\leq \pm 0,05\%$ FSO/K

Process conditions

Process temperature Standard: $-40^\circ\text{C}...+100^\circ\text{C}$

Extended: $-40^\circ\text{C}...+135^\circ\text{C}$ (+140°C – 1h)

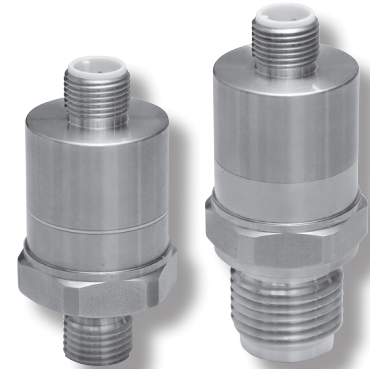
Pressure cycles ≥ 10 Mio. (1,2xPN)

Environmental conditions

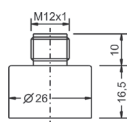
Environmental temperature $-40^\circ\text{C}...+100^\circ\text{C}$

Protection level IP69K/IP67 (EN/IEC 60529)

MTTF 463 years

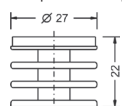


Terminal enclosure



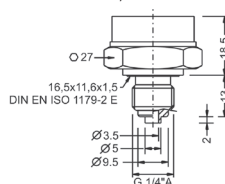
Temperature decoupler

Extended temperature range



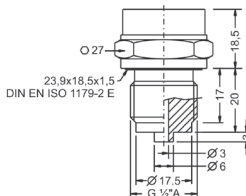
Process connection type 6

Thread G 1/4" A, EN 837



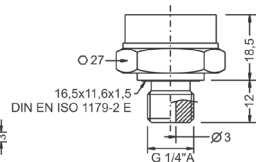
Process connection type 1

Thread G 1/2" A, EN 837



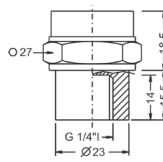
Process connection type 3

Thread G 3/4" A, DIN EN ISO 1179-2 E



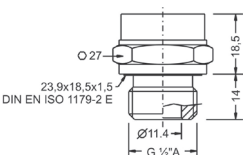
Process connection type 4

Thread G 1/4" I, inner thread



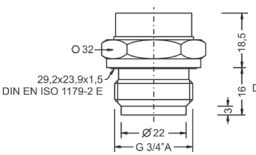
Process connection type 2

Thread G 1/2" A, DIN EN ISO 1179-2 E



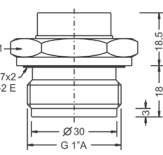
Process connection type 8

Thread G 3/4" A, front-flush



Process connection type 5

Thread G 1" A, front-flush



Application

The device is an electronic pressure transmitter / pressure switch for monitoring, control and continuous measurement of pressures.

A high variety of versions of process connections and electronic types allows the use for a wide range of applications, also for demanding measuring requirements.

The front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process, also by SIP cleaning processes. Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with viscous or also frequently changing media.

Due to its high accuracy and the digital adjustability by HART®, RS485 Modbus®-RTU or IO-Link® the device can be suited to a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS- resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or a factory certifications for drink water suitability.

Customer specific special versions can be realized short-term on request, e.g. special designs for the process connection or other process materials.

Precont® PU4SK

Pressure transmitter for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust,
HART® / RS485 Modbus®-RTU / IO-Link® and ATEX / IECEx

3 / 01.22

Basic price		210,00 €
Type		
PU4S	Standard	0,00 €
Measuring system – material diaphragm (process wetted) / sensor type		
K	Ceramic Al ₂ O ₃ 96% / strain gauge	0,00 €
Approval		
S	Standard	0,00 €
X	ATEX II 1 G / IECEx Ex ia IIC Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Da (Output type – A)	56,00 €
Process connection		
6	Thread ISO 228-1 – G¼" A, EN 837 manometer	0,00 €
1	Thread ISO 228-1 – G½" A, EN 837 manometer	0,00 €
3	Thread ISO 228-1 – G¼" A, DIN EN ISO 1179-2 E	0,00 €
4	Thread ISO 228-1 – G¼" I, inner thread	0,00 €
2	Thread ISO 228-1 – G½" A, DIN EN ISO 1179-2 E, inner bore	0,00 €
8	Thread ISO 228-1 – G¾" A, front-flush, ≤ 10 bar	0,00 €
5	Thread ISO 228-1 – G1" A, front-flush, ≤ 1 bar	24,00 €
Y	others	on request
Material gaskets (process wetted)		
1	FPM – fluorelastomere (e.g. Viton®)	0,00 €
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed	0,00 €
Y	others	on request
Material process connection (process wetted)		
V	CrNi-steel	0,00 €
Material terminal enclosure		
C	CrNi-steel	0,00 €
Measuring range		
02	0...250 mbar	0,00 €
03	0...400 mbar	0,00 €
04	0...600 mbar	0,00 €
05	0...1 bar	0,00 €
06	0...1,6 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...25 bar	0,00 €
13	0...40 bar	0,00 €
14	0...60 bar	0,00 €
19	0...100 bar	18,00 €
20	0...160 bar	18,00 €
21	0...250 bar	18,00 €
22	0...320 bar	18,00 €
23	0...400 bar	18,00 €
24	0...600 bar	18,00 €
16	-1...0 bar	0,00 €
17	-1...+1 bar	0,00 €
YY	Special measuring range	41,00 €
Electronic – output		
A	2-wire, current 4...20mA, HART® compliant	0,00 €
V	4-wire, RS485, Modbus RTU	0,00 €
L	IO-Link®, 1x current 0/4...20mA / 2x switch, 4-wire	0,00 €
Electronic – function		
S	Standard	0,00 €
Process temperature		
0	Standard –40°C...+100°C	0,00 €
1	Extended –40°C...+135°C, temperature decoupler	40,00 €
Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure, ≥ 1bar ... ≤ 40bar	28,50 €
Measuring system – accuracy		
4	0,5%	0,00 €
8	Xcellence – 0,15%, linearization protocol	144,00 €
Electrical connection		
S	Plug M12x1	0,00 €

Price group A

Pressure measurement

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	36,00 €
ML	Measurement point designation / TAG – Laser marking	23,00 €
KF	Configuration / Preset	45,00 €
MZ	Material test certificate – EN10204 3.1	105,00 €

Order code

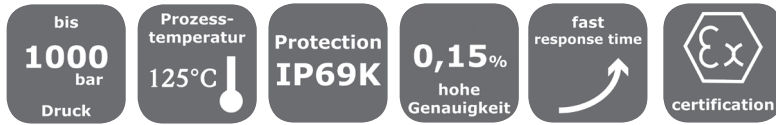
Precont® PU4S K V C S S

Precont® PU4SM

Pressure transmitter for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust,
HART® / RS485 Modbus®-RTU / IO-Link® and ATEX / IECEx

3 / 01.22

Technical data



Measuring range

Nominal pressure PN -1...0bar / -1...1bar / 0...0,4bar bis 0...1000bar

Output type A – Current 4...20mA HART®

Analogue output 4...20mA 3,9...20,5mA / $\geq 3,8\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

Time behavior $T90 \leq 5\text{ms}$ / $\text{ton} \leq 0,2\text{s}$

Interface HART®-compliant (7.0) / 1200 Bit/s

Output type V – RS485 Modbus®-RTU

Interface RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)

Time behavior $T90 \leq 2\text{ms}$ ($t_d = 0\text{s}$) / $\text{ton} \leq 0,1\text{s}$ ($t_d = 0\text{s}$)

Output type L – IO-Link®

Interface IO-Link® V1.1 / Com2 (38400 Baud)

Analogue output
0...20mA: 0...20,5mA / $\leq 0,05\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$
4...20mA: 3,8...20,5mA / $\geq 3,6\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

Switch output 2x PP (Push-Pull), switch to +L/-L

Output $U_{\text{out}} \leq 0,2\text{V}$, $\geq U_{\text{s}} - 2\text{V}$ / $I_{\text{out}} 0...200\text{mA}$

(current limited $\leq 450\text{mA}$, short circuit protected)

Time behavior $T90 \leq 2\text{ms}$ / $\text{ton} \leq 0,1\text{s}$

Auxiliary power

Supply voltage U_{s}

polarity protected

Type A – 4...20mA HART®: 9...35VDC / Ex: 9...30VDC

Type V – RS485 Modbus®-RTU: 6...35VDC

Type L – IO-Link®: 9...35VDC, without IO-Link® / 18...30VDC, with IO-Link®

Measuring accuracy

Characteristic deviation $\leq \pm 0,15\%$ / $\pm 0,5\%$ FSO

Long term drift $\leq \pm 0,2\%$ FSO/year

Temperature deviation
Tk Zero Span
 $\leq \pm 0,02\%$ FSO/K (-20°C...+85°C)
 $\leq \pm 0,03\%$ FSO/K (-40...-20°C / +85...+125°C)

Process conditions

Process temperature Standard: -40°C...+100°C

Extended: -40°C...+125°C

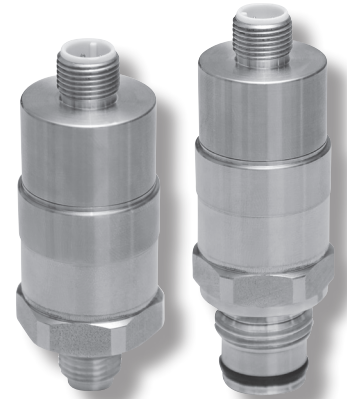
Pressure cycles ≥ 100 Mio. (1,2xPN)

Environmental conditions

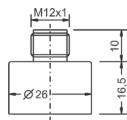
Environmental temperature -40°C...+100°C

Protection level IP69K/IP67 (EN/IEC 60529)

MTTF 463 years

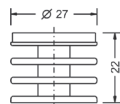


Terminal enclosure



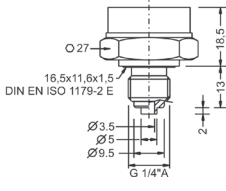
Temperature decoupler

Extended temperature range



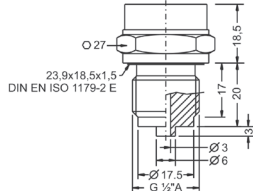
Process connection type 6

Thread G 1/4" A, EN 837



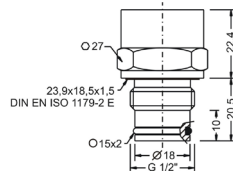
Process connection type 1

Thread G 1/2" A, EN 837



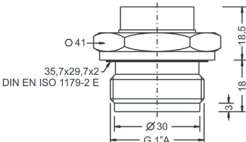
Process connection type 0

Thread G 1/2" A, front-flush



Process connection type 5

Thread G 1" A, front-flush



Application

The device is an electronic pressure transmitter / pressure switch for monitoring, control and continuous measurement of pressures.

A high variety of versions of process connections and electronic types allows the use for a wide range of applications, also for demanding measuring requirements.

The front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process.

Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with viscous or also frequently changing media.

Due to its high accuracy and the digital adjustability by HART®, RS485 Modbus®-RTU or IO-Link® the device can be suited to a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS- resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like factory certifications for drink water suitability.

Customer specific special versions can be realized on request, e.g. special designs for the process connection or other process materials.

Precont® PU4SM

Pressure transmitter for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust,
HART® / RS485 Modbus®-RTU / IO-Link® and ATEX / IECEx

3 / 01.22

Basic price **210,00 €**

Type
PU4S Standard 0,00 €

Measuring system – material diaphragm (process wetted) / sensor type
M CrNi-steel / strain gauge 0,00 €

Approval
S Standard 0,00 €
X ATEX II 1 G / IECEx Ex ia IIC Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Da (Output type – A) 56,00 €

Process connection
6 Thread ISO 228-1 – G¼”B, EN 837 manometer (without process gasket) 0,00 €
1 Thread ISO 228-1 – G½”B, EN 837 manometer (≥ 40 bar without process gasket) 0,00 €
0 Thread ISO 228-1 – G½”B, front-flush, O-ring gasket
not for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar / 0...1000 bar 0,00 €
5 Thread ISO 228-1 – G1”B, front-flush, O-ring gasket
for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar 24,00 €
Y others on request

Material gaskets (process wetted)
0 without / NBR – nitrile-butadiene-rubber 0,00 €
1 FPM – fluorelastomere (e.g. Viton®) 0,00 €
3 EPDM – ethylene-propylene-dienmonomere 0,00 €
Y others on request

Material process connection (process wetted)
V CrNi-steel 0,00 €

Material terminal enclosure
C CrNi-steel 0,00 €

Measuring range
03 0...400 mbar 0,00 €
05 0...1 bar 0,00 €
08 0...4 bar 0,00 €
09 0...6 bar 0,00 €
10 0...10 bar 0,00 €
11 0...16 bar 0,00 €
12 0...25 bar 0,00 €
13 0...40 bar 0,00 €
14 0...60 bar 0,00 €
19 0...100 bar 18,00 €
20 0...160 bar 18,00 €
21 0...250 bar 18,00 €
22 0...320 bar 18,00 €
23 0...400 bar 18,00 €
24 0...600 bar 18,00 €
25 0...1000 bar, only for process connection type 1,
6 – G½”B, G¼”B (EN 837) 18,00 €
16 -1...0 bar 0,00 €
17 -1...+1 bar 0,00 €
YY Special measuring range 41,00 €

Electronic – output
A 2-wire, current 4...20mA, HART® compliant 0,00 €
V 4-wire, RS485, Modbus RTU 0,00 €
L IO-Link®, 1x current 0/4...20mA / 2x switch, 4-wire 0,00 €

Electronic – function
S Standard 0,00 €

Process temperature
0 Standard -40°C...+100°C 0,00 €
1 Extended -40°C...+125°C, temperature decoupler 40,00 €

Pressure type
R Gauge pressure 0,00 €
A Absolute pressure (≤ 25 bar) 28,50 €

Measuring system – accuracy
4 0,5% 0,00 €
8 Xcellence – 0,15%, linearization protocol 144,00 €

Electrical connection
S Plug M12x1 0,00 €

+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version 36,00 €
ML Measurement point designation / TAG – Laser marking 23,00 €
KF Configuration / Preset 45,00 €

Order code

Precont® PU4S M V C S S

Equipment

Order information	Model	
LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded	22,50 €
LKZ0410PUR-AS	Connection cable 10 m, 4-pole, shielded	28,50 €
LKZ0505PUR-AS	Connection cable 5 m, 5-pole, shielded	26,00 €
LKZ0510PUR-AS	Connection cable 10 m, 5-pole, shielded	35,00 €
BKZ0412-VA	Matching cable socket, VA-nut	18,50 €
BKZ0512-VA	Matching cable socket, VA-nut (at 0...10 V)	19,50 €

Price group A

Pressure measurement

PG E

Precont® PU4LM

Pressure transmitter for hygienic applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust,
HART® / RS485 Modbus®-RTU / IO-Link® and ATEX / IECEx

3 / 01.22

Pressure measurement

Technical data

up to 25 bar pressure	process temperature 150°C	Protection IP69K	0,15% high accuracy	fast response time	 certification
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Measuring range

Nominal pressure PN -1...0bar / -1...1bar / 0...0,1bar bis 0...25bar

Output type A – Current 4...20mA HART®

Analogue output 4...20mA 3,9...20,5mA / $\geq 3,8\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

Time behavior T90 $\leq 5\text{ms}$ / ton $\leq 0,2\text{s}$

Interface HART®-compliant (7.0) / 1200 Bit/s

Output type V – RS485 Modbus®-RTU

Interface RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)

Time behavior T90 $\leq 2\text{ms}$ (td = 0s) / ton $\leq 0,1\text{s}$ (td = 0s)

Output type L – IO-Link®

Interface IO-Link® V1.1 / Com2 (38400 Baud)

Analogue output 0...20mA: 0...20,5mA / $\leq 0,05\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

4...20mA: 3,8...20,5mA / $\geq 3,6\text{mA}$ / $\leq 22\text{mA}$ / $dI \leq 1\mu\text{A}$

Switch output 2x PP (Push-Pull), switch to +L/-L

Output Uout $\leq 0,2\text{V}$, $\geq U_s - 2\text{V}$ / Iout 0...200mA

(current limited $\leq 450\text{mA}$, short circuit protected)

Time behavior T90 $\leq 2\text{ms}$ / ton $\leq 0,1\text{s}$

Auxiliary power

Supply voltage Us

polarity protected

Type A – 4...20mA HART®: 9...35VDC / Ex: 9...30VDC

Type V – RS485 Modbus®-RTU: 6...35VDC

Type L – IO-Link®: 9...35VDC, without IO-Link® / 18...30VDC, with IO-Link®

Measuring accuracy

Characteristic deviation $\leq \pm 0,15\%$ / $\pm 0,5\%$ FSO

Long term drift $\leq \pm 0,2\%$ FSO/year

Temperature deviation

Tk Zero $\leq \pm 0,04\%$ FSO/K (0°C...+80°C) / $\leq \pm 0,06\%$ FSO/K

(-20...0°C / +80...+150°C)

$\geq 400\text{mbar}$: $\leq \pm 0,02\%$ FSO/K (0°C...+80°C) / $\leq \pm 0,03\%$ FSO/K

(-20...0°C / +80...+150°C)

Tk Span: $\leq \pm 0,02\%$ FSO/K (0°C...+80°C) / $\leq \pm 0,03\%$ FSO/K

(-20...0°C / +80...+150°C)

Process conditions

Process temperature -20°C...+150°C

Pressure cycles ≥ 100 Mio. (1,2xPN)

Environmental conditions

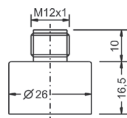
Environmental temperature -40°C...+100°C

Protection level IP69K/IP67 (EN/IEC 60529)

MTTF 463 years

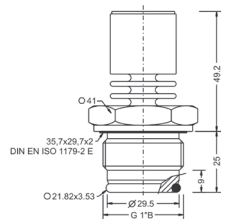


Terminal enclosure



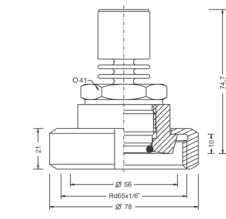
Process connection type 5

Thread G1" B, front-flush



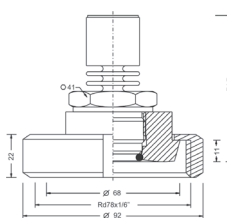
Process connection type N

Dairy coupling DIN 11851 – DN40, PN40



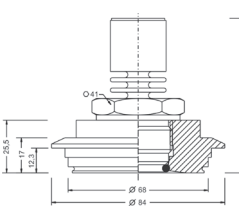
Process connection type M

Dairy coupling DIN 11851 – DN50, PN25



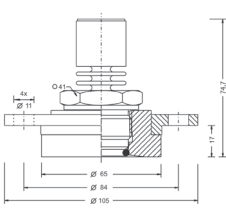
Process connection type P

Varivent® – Typ N / Ø68mm, PN40



Process connection type L

DRD – DN50 / Ø65mm, PN25



Application

The device is an electronic pressure transmitter / pressure switch for monitoring, control and continuous measurement of pressures.

A high variety of versions of process connections and electronic types allows the use for a wide range of applications, also for demanding measuring requirements.

The front-flush process connection enables the cleanliness of the wetted diaphragm to be integrated into the process, also by CIP/SIP cleaning processes.

Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with viscose or also frequently changing media.

The front-flush diaphragm is completely welded with the process connection and supplied with a positive seal. A reliable, dead-space free sealing is thus assured.

Due to its high accuracy and the digital adjustability by HART®, RS485 Modbus®-RTU or IO-Link® the device can be suited to a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS- resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like factory certifications for drink water resp. food suitability.

Precont® PU4LM

Pressure transmitter for hygienic applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust,
HART® / RS485 Modbus®-RTU / IO-Link® and ATEX / IECEx

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Basic price		410,00 €
Type		
PU4L	Hygienic applications	0,00 €
Measuring system – material diaphragm (process wetted) / sensor type		
M	CrNi-steel / strain gauge	0,00 €
Approval		
S	Standard	0,00 €
X	ATEX II 1 G / IECEx Ex ia IIC Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Da (Output type – A)	56,00 €
Process connection		
S	Thread ISO 228-1 – G1" B, front-flush, O-ring gasket, EHEDG conformal, for welding socket BEFVE10	0,00 €
N	Dairy coupling DIN 11851 – DN40, PN40	118,00 €
M	Dairy coupling DIN 11851 – DN50, PN25	118,00 €
P	Varivent® – Type N / tube DN40-162 / 1½"-6", PN40	159,00 €
L	DRD – DN50 / Ø65mm, PN25	207,00 €
Y	others	on request
Material gaskets (process wetted)		
1	FPM – fluorelastomere (e.g. Viton®), FDA-listed	0,00 €
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed	0,00 €
Y	others	on request
Material process connection (process wetted)		
V	CrNi-steel	0,00 €
Material terminal enclosure		
C	CrNi-steel	0,00 €
Measuring range		
01	0...100 mbar	0,00 €
02	0...250 mbar	0,00 €
03	0...400 mbar	0,00 €
04	0...600 mbar	0,00 €
05	0...1 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...25 bar	0,00 €
16	-1...0 bar	0,00 €
17	-1...+1 bar	0,00 €
YY	Special measuring range	41,00 €
Electronic – output		
A	2-wire, current 4...20mA, HART® compliant	0,00 €
V	4-wire, RS485, Modbus RTU	0,00 €
L	IO-Link®, 1x current 0/4...20mA / 2x switch, 4-wire	0,00 €
Electronic – function		
S	Standard	0,00 €
Process temperature		
0	Standard –20°C...+150°C	0,00 €
Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure	0,00 €
Measuring system – accuracy		
4	0,5%	0,00 €
8	Xcellence – 0,15%, linearization protocol	144,00 €
Electrical connection		
S	Plug M12x1	0,00 €

Price group A

Pressure measurement

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	36,00 €
ML	Measurement point designation / TAG – Laser marking	23,00 €
KF	Configuration / Preset	45,00 €

Order code

Precont® PU4L M V C S O S

Equipment

Order information	Model	
LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded	22,50 €
LKZ0410PUR-AS	Connection cable 10 m, 4-pole, shielded	28,50 €
LKZ0505PUR-AS	Connection cable 5 m, 5-pole, shielded	26,00 €
LKZ0510PUR-AS	Connection cable 10 m, 5-pole, shielded	35,00 €
BKZ0412-VA	Matching cable socket, VA-nut	18,50 €
BKZ0512-VA	Matching cable socket, VA-nut (at 0...10 V)	19,50 €

PG E

Precont® PK4SH

Pressure switch for high temperature applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Technical data



Supply voltage:	9...35VDC, reverse polarity protected
Supply current:	≤ 22mA
Analogue output 4...20mA	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (US - 9V) / 22mA
Start-up time:	≤ 0,2s
Communication	FSK modulated current signal – HART® compliant (7.0)
Signal	0,5mASS – 1200Hz / 2200Hz
Communication resistor	≥ 250Ω, external
Activity	20s (td = 0...<1s) / ∞ (td = ≥1s)
Address	0 (0...15)
Transmission rate	1200 Bit/s
Measuring accuracy	±0,5% FS
Characteristic deviation:	
Long term drift:	Process temperature type 0 – Standard -40...+125°C: ≤ ±0,2% FS (1000h/+125°C) Process temperature type 1 – Extended -40...+200°C: ≤ ±0,5% FS (1000h/+200°C) Tk 4) Zero: ≤ ±0,015% FS / 10K Tk 4) Span: ≤ ±0,015% FS / 10K
Temperature deviation:	
Materials	
Diaphragm:	(process wetted) Process temperature type 0 – Standard -40...+125°C: Steel 1.4548 Process temperature type 1 – Extended -40...+200°C: Inconel 718 (process wetted) Steel 1.4404/316L
Process connection:	
Terminal enclosure:	CrNi-steel
Electrical connection part	Device plug PUR
Pressure compensation element	Acrylic copolymer
Gaskets	FPM – fluorelastomere (Viton®)
Gaskets:	(process wetted) FPM – fluorelastomere (Viton®)
Environmental conditions	
Environmental temperature Ta:	Process temperature Type 0 - Standard -40...+125°C: Ta = -40°C...+125°C Process temperature Type 1 - Extended -40...+200°C: Ta = -40°C...+125°C, Tp = -40...+150°C / Ta = -40°C...+100°C, Tp = +150...+175°C / Ta = -40°C...+85°C, Tp = +175...+200°C
Process temperature Tp:	Process temperature type 0 - Standard: -40°C...+125°C Process temperature type 1 - Extended: -40°C...+200°C
Process pressure:	0...10 bar [R] / 0...40 bar [R] / 0...100 bar [R] / 0...600 bar [R]
Protection:	IP69K/IP67 (EN/IEC 60529)



Application

Due to the miniaturized device construction with small diameter and short length, with measuring ranges from 10 bar to 600 bar, gauge, adjustable, with process temperatures from -40°C to +125°C/+200°C, with process material and terminal enclosure CrNi-steel, fully welded, with environmental temperatures from -40°C to +125°C and as well as the availability of industrial standard process connections like thread ISO 228-1, DIN EN ISO 1179-2 E, like thread ANSI NPT – on request the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology and facility and building automation.

The pressure transmitter is suitable for demanding measuring requirements, especially at constricted installation situations and high temperature stress. Due to its high accuracy and the digital adjustability by HART® (7.0), the device can be suited a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

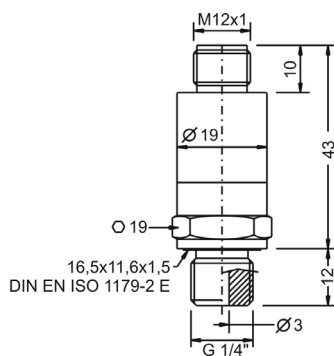
A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

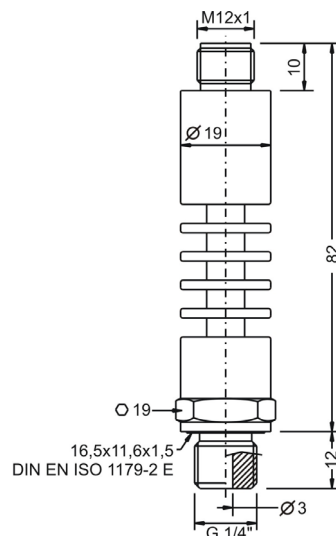
A factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or factory certifications for drink water resp. food suitability.

Customer specific special versions can be realized on request.

Type 0 – Standard -40...+125°C
Process connection type 3 – Thread ISO 228-1 – G¾" – DIN EN ISO 1179-2 E



Type 1 – Extended -40...+200°C
Process connection type 3 – Thread ISO 228-1 – G¾" – DIN EN ISO 1179-2 E



Precont® PK4SH

Pressure switch for high temperature applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Basic price	233,00 €
Type	
PK4S Standard	0,00 €
Measuring system – material diaphragm (process wetted) / sensor type	
H CrNi-steel / strain gauge	0,00 €
Approval	
S Standard	0,00 €
X ATEX II 1 G Ex ia IIC T6...T1 Ga bzw. II 2G Ex ib IIC T6...T1 Gb	57,00 €
II 1 D Ex ia IIIC T80°C...T195°C Da bzw. II 2D Ex ib IIIC T80°C...T195°C Db.	
Process connection	
3 Thread ISO 228-1 – G¼"A, DIN EN ISO 1179-2 E	0,00 €
Y others	on request
Material process gaskets (process wetted)	
1 FPM – fluorelastomere (e.g. Viton®)	0,00 €
Y others	on request
Material process connection (process wetted)	
V CrNi-steel	0,00 €
Material terminal enclosure	
C CrNi-steel	0,00 €
Measuring range	
10 0...10 bar.	0,00 €
13 0...40 bar.	0,00 €
19 0...100 bar.	12,50 €
24 0...600 bar.	12,50 €
YY Special measuring range	on request
Electronic – output	
A 2-wire, current 4...20mA, HART® compliant	0,00 €
Electronic – function	
S Standard	0,00 €
Process temperature	
0 Standard –40°C...+125°C	0,00 €
1 Extended –40°C...+200°C	39,00 €
Pressure type	
R Gauge pressure.	0,00 €
Measuring system – accuracy	
4 0,5%	0,00 €
Electrical connection	
S Plug M12x1	0,00 €

No price group

Pressure measurement

Order code

Precont® PK4S H V C A S R S

Equipment

Order information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
BKZ0412-VA
BKZ0512-VA

Model
Connection cable 5 m, 4-pole, shielded

22,50 €
28,50 €
26,00 €
35,00 €
18,50 €
19,50 €

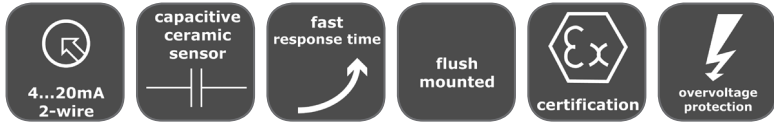
PGE

Precont® TM

Pressure sensor with dry capacitive ceramic measuring cell for tough industrial applications, 2-wire electronics 4...20 mA, overvoltage protection

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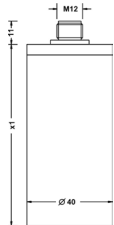
Technical data



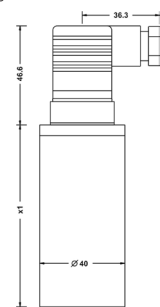
Power supply:	11,5...45 V DC	With EX-version 11,5...30 V DC
Analog output 4...20mA		
Min. delay time:	≤ ± 2 ms	
Overvoltage protection:	not for Ex-version Ex0TM	
Overvoltage protection:	coarse protection / fine protection	
Category:	max. 30 V peak value, against PE-connection	
Signal voltage:	Nominal discharge current: 10 000 A - wave 8/20μs	
Measurement accuracy		
Characteristics deviation:	≤ ± 0,1% FS / 0,2% FS	
Long term drift:	≤ ± 0,1% FS / year not cumulative	
Temperature deviation:	≤ ± 0,10% FS / 10 K (Zero / Span)	
Materials		
Membrane:	(medium contact)	Ceramics AL2O3 99,9%
Process connection:	(medium contact)	Steel 1.4404/316L resp. 1.4571/316Ti
Housing pipe:	CrNi-steel	
Gaskets:	(medium contact)	
	FPM – fluoroelastomer (Viton®)	
	EPDM – ethylene-propylene-diene monomer	
	CR – chloroprene rubber (Neopren®)	
	FFKM – perfluorelastomere (Kalrez®)	
	NBR – nitrile-butadiene rubber	
Device plug:	DIN EN 175-301-803-A	
	housing PA polyamide, contacts tinned, gasket NBR	
	M12x1	
	socket CrNi-steel, inserted part PUR, contacts gold-plated	
Environmental conditions		
Ambient temperature:	- 40°C...+85°C	
Process temperatures:	- 40°C...+100°C resp. +125°C	
Process pressure ranges:	- 1 bar ...60 bar	
Protection:	Plug version according to DIN 175-301-803	
	IP65 DIN EN 60529	
	Plug version M12x1 and version with direct cable outlet	
	IP68 / 1mH2O for 1h DIN EN 60529	



Connection housing
Electrical connection Type V - plug M12



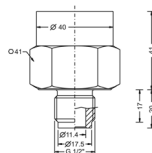
Connection housing
Electrical connection Type S
plug EN 175-301-803-A



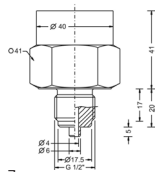
Temperature decoupler



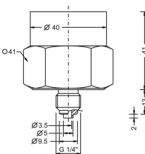
Type 6
G 1/2" ISO 228-1 - inner bore 11,4mm



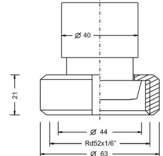
Type 0
G 1/2" ISO 228-1 - DIN 837-3



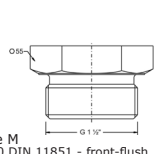
type 1
G 1/4" ISO 228-1 - DIN 837-3



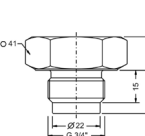
Type R
DN25 DIN 11851 - front-flush



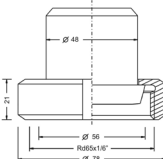
Type 7
G 1/2" ISO 228-1 - front-flush



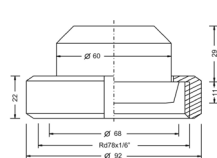
Type 8
G 3/4" ISO 228-1 - front-flush



Type N
DN40 DIN 11851 - front-flush



Type M
DN50 DIN 11851 - front-flush



Application

The Precont® TM is a very rugged overload resistant pressure transmitter for gases, steams, liquids and dusts in hard industrial applications. By use of a dry capacitive ceramic measurement sensor in combination with high-grade steel 1.4571 (V4A), this pressure transmitter can be also used in very aggressive substances. The ceramic membrane has also an extreme overload resistance, highest measurement precision, long life time and no need for maintenance.

Precont® TM

Pressure sensor with dry capacitive ceramic measuring cell for tough industrial applications, 2-wire electronics 4...20 mA, overvoltage protection

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Equipment
welding flanges
page 134

Basic price **531,00 €**

Model	
TM Standard	0,00 €
Ex0TM ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	102,00 €
Ex1TM ATEX II 2 G Ex ib IIC T4 Gb	84,00 €

Process connection	
0 G½" A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer	0,00 €
1 G¼" A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer	0,00 €
6 G½" A, ISO 228-1, inner bore 11,4 mm	0,00 €
7 G1½" B, ISO 228-1, front-flush	83,00 €
8 G¾" A, ISO 228-1, front-flush, ≤ 20 bar	0,00 €
9 G½" B, ISO 228-1, front-flush, ≤ 20 bar	0,00 €
R Milk tube DIN 11851, DN25, PN40, ≤ 20 bar	91,00 €
N Milk tube DIN 11851, DN40, PN40	118,00 €
M Milk tube DIN 11851, DN50, PN25	118,00 €

Transmitter electronics	
A 2-wire-electronics 4...20 mA	0,00 €

Material connection	
V Stainless steel 1.4404/316L resp. 1.4571/316Ti	0,00 €

Over voltage protection	
B With integrated overvoltage protection (not for Ex0TM)	83,00 €
0 Without overvoltage protection	0,00 €

Measurement ranges		
01 0...100 mbar	10 0...10 bar	0,00 €
02 0...200 mbar	11 0...16 bar	0,00 €
03 0...400 mbar	12 0...25 bar	0,00 €
04 0...600 mbar	13 0...40 bar	0,00 €
05 0...1 bar	14 0...60 bar	0,00 €
06 0...1,6 bar	15 -100...0 mbar	0,00 €
07 0...2,5 bar	16 -1...0 bar	0,00 €
08 0...4 bar	17 -1...1 bar	0,00 €
09 0...6 bar	18 -100...+100 mbar	0,00 €
	19 -1...+9 bar	0,00 €
	YY Special measuring range	41,00 €

Material gasket	
1 FPM - fluoroelastomer (Viton®)	0,00 €
2 CR - chloroprene rubber (Neopren®)	0,00 €
3 EPDM - ethylene-propylene-diene monomer - food applications	0,00 €
4 FFKM - perfluorelastomere (Kalrez®)	100,00 €
6 FFKM hd - perfluorelastomere high density - gas applications	113,00 €

Process temperature	
0 Standard -20°C...+100°C	0,00 €
H Extended -40°C...+125°C, temperature decoupler	77,00 €

Pressure type	
R Gauge pressure	0,00 €
A Absolute pressure	0,00 €

Measuring system - accuracy	
1 Ceramics 99,9%, capacitive / 0,2% With process connection 8 / 9 / R >> membrane Ceramics 96%	0,00 €
3 Ceramics 99,9%, capacitive / 0,1%, linearization protocol With process connection 8 / 9 / R >> membrane Ceramics 96%	113,00 €

Connection	
S Plug according to DIN EN 175-301-803-A (DIN 43650-A)	0,00 €
V M12 plug	50,00 €
K Direct cable outlet 2m	50,00 €
surcharge per meter (at cable), PE	4,60 €

+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version	90,00 €
ML Measurement point designation / TAG - Laser marking	20,00 €
MZ Material test certificate - EN10204 3.1	105,00 €

Order code

Precont® A V

Price group A

Pressure measurement

Precont® MT

Analog pressure transmitter with metallic DMS-membrane up to 1000 bar
analog output 4...20 mA or 0...10 V

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Equipment

welding flanges
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Basic price

237,00 €

Price group A

Type		
0 Standard		0,00 €
Ex ATEX II 1 G Ex ia IIB/IIC Tx Ga		93,00 €
Measuring system – material diaphragm (process wetted) / sensor type		
MT CrNi-steel / strain gauge		0,00 €
Process connection		
6 Thread ISO 228-1 – G $\frac{1}{4}$ "B, EN 837 manometer (without process gasket)		0,00 €
1 Thread ISO 228-1 – G $\frac{1}{2}$ "B, EN 837 manometer (\geq 40 bar without process gasket)		0,00 €
0 Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush, O-ring gasket not for measuring range 0...1000 bar		0,00 €
Y others		on request
Material process gaskets (process wetted)		
0 without / NBR – nitrile-butadiene-rubber		0,00 €
1 FPM – fluorelastomere (e.g. Viton®)		0,00 €
3 EPDM – ethylene-propylene-dienmonomere		0,00 €
Y others		on request
Material process connection (process wetted)		
V CrNi-steel		0,00 €
Material terminal enclosure		
C CrNi-steel		0,00 €
Measuring range		
05 0...1 bar		0,00 €
06 0...1,6 bar		0,00 €
07 0...2,5 bar		0,00 €
08 0...4 bar		0,00 €
09 0...6 bar		0,00 €
10 0...10 bar		0,00 €
11 0...16 bar		0,00 €
12 0...25 bar		0,00 €
13 0...40 bar		0,00 €
14 0...60 bar		0,00 €
19 0...100 bar		0,00 €
20 0...160 bar		0,00 €
21 0...250 bar		0,00 €
22 0...320 bar		0,00 €
23 0...400 bar		0,00 €
24 0...600 bar		0,00 €
25 0...1000 bar only for process connection type 1, 6 – G $\frac{1}{2}$ "B, G $\frac{1}{4}$ "B (EN 837)		0,00 €
16 -1...0 bar		0,00 €
17 -1...+1 bar		0,00 €
VY Special measuring range		40,00 €
Electronic – output		
A 2-wire, current 4...20mA		0,00 €
B 3-wire, voltage 0...10V		0,00 €
Process temperature		
0 Standard -40°C...+100°C		0,00 €
1 Extended -40°C...+125°C, temperature decoupler		40,00 €
Pressure type		
R Gauge pressure		0,00 €
A Absolute pressure (\leq 25 bar)		0,00 €
Measuring system – accuracy		
4 0,5%		0,00 €
Electrical connection		
V Plug M12x1		31,00 €
S Plug EN 175-301-803-C (DIN 43650-C)		43,00 €
T Plug EN 175-301-803-A (DIN 43650-A)		0,00 €
K Kabel, L1 = 2m		50,00 €
surcharge per meter (at cable), PE		4,60 €

Pressure measurement

+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version	90,00 €
ML Measurement point designation / TAG – Laser marking	20,00 €
WK Factory calibration – calibration certificate	60,00 €
WK Factory calibration – calibration certificate > 60 bar	129,00 €

Order code

Precont®

MT V C 0 4

Equipment

Ordering information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
REMO12
BEFM12

Model
Matching cable socket, VA-nut
Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole, shielded
Weld-in socket G $\frac{1}{2}$ " for Precont® MT
Weld-in socket G $\frac{1}{2}$ ", sealing attachment at the back

18,50 €
22,50 €
28,50 €
71,00 €
71,00 €

PG E

Precont® KT

Analog pressure transmitter with ceramic DMS-membrane up to 600 bar
analog output 4...20 mA or 0...10 V

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Equipment

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Basic price

Type		
0	Standard	0,00 €
Ex	ATEX II 1 G Ex ia IIB/IIC Tx Ga	93,00 €
Measuring system – material diaphragm (process wetted) / sensor type		
KT	Ceramic Al ₂ O ₃ 96% / strain gauge	0,00 €
Process connection		
1	Thread ISO 228-1 – G½" B, EN 837 manometer	0,00 €
3	Thread ISO 228-1 – G¾" B, DIN EN ISO 1179-2 E	0,00 €
4	Thread ISO 228-1 – G¾" I, inner thread	0,00 €
2	Thread ISO 228-1 – G½" B, inner bore	0,00 €
Y	others	on request
Material process gaskets (process wetted)		
1	FPM – fluorelastomere (e.g. Viton®)	0,00 €
3	EPDM – ethylene-propylene-dienmonomere	0,00 €
Y	others	on request
Material process connection (process wetted)		
V	CrNi-steel	0,00 €
L	Aluminum (measuring range ≤ 0..16 bar)	0,00 €
Material terminal enclosure		
C	CrNi-steel	0,00 €
Measuring range		
02	0...250 mbar	0,00 €
03	0...400 mbar	0,00 €
04	0...600 mbar	0,00 €
05	0...1 bar	0,00 €
06	0...1,6 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...25 bar	0,00 €
13	0...40 bar	0,00 €
14	0...60 bar	0,00 €
19	0...100 bar	0,00 €
20	0...160 bar	0,00 €
21	0...250 bar	0,00 €
22	0...320 bar	0,00 €
23	0...400 bar	0,00 €
24	0...600 bar	0,00 €
YY	Special measuring range	40,00 €
Electronic – output		
A	2-wire, current 4...20mA	0,00 €
B	3-wire, voltage 0...10V	0,00 €
Process temperature		
0	Standard -40°C...+100°C	0,00 €
1	Extended -40°C...+125°C, temperature decoupler	40,00 €
Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure (≤ 25 bar)	0,00 €
Measuring system – accuracy		
4	0,5%	0,00 €
Electrical connection		
V	Plug M12x1	31,00 €
S	Plug EN 175-301-803-C (DIN 43650-C)	43,00 €
T	Plug EN 175-301-803-A (DIN 43650-A)	0,00 €
K	Kabel, L1 = 2m	50,00 €
	surcharge per meter (at cable), PE	4,60 €

242,00 €

Price group A

Pressure measurement

Order code

Precont®

KT V C 0 4

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking	20,00 €
WK	Factory calibration – calibration certificate	60,00 €
WK	Factory calibration – calibration certificate > 60 bar	129,00 €
MZ	Material test certificate – EN10204 3.1	105,00 €

Equipment

Ordering information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

Model
Matching cable socket, VA-nut
Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole, shielded

18,50 €
22,50 €
28,50 €

PG E

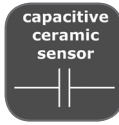
Precont® CT

Analog pressure transmitter with **front-flush** ceramic capacitive membrane up to 16 bar analog output 4...20 mA or 0...10 V

3 / 01.22

Pressure measurement

Technical data



Power supply: Type A – 2-wire, current 4...20mA: 10...30VDC, reverse polarity protected
Type B – 3-wire, voltage 0...10V: 14...30VDC, reverse polarity protected

Supply current: Type A – 2-wire, current 4...20mA: ≤ 30mA
Type B – 3-wire, voltage 0...10V: ≤ 6mA

Measurement accuracy
Characteristics deviation: ≤ ±0,1% / ±0,25% FS
Long term drift: ≤ ±0,15% FS / year not cumulative
Temperature deviation: Zero: ≤ ±0,015% FS / K / max. ±0,75 % (-20°C...+80°C)
Span: ≤ ±0,015% FS / K / max. ±0,5 % (-20°C...+80°C / > 0,4 bar) / max. ±0,8 % (-20°C...+80°C / ≤ 0,4 bar)

Material
Membrane (medium contact): Measuring range ≤ 1bar: Ceramic Al₂O₃ – 99,7% (SIP suitable)
Measuring range ≥ 1,6bar: Ceramic Al₂O₃ – 96% (SIP suitable)

Process connection (medium contact): Steel 1.4404/316L / Steel 1.4571/316Ti

Terminal enclosure: CrNi-steel

Gaskets (medium contact): FPM – fluorelastomere (e.g. Viton®)
EPDM – ethylene-propylene-dienmonomere, FDA-listed
FFKM – perfluorelastomere (e.g. Kalrez®)
FFKM hd – perfluorelastomere high density

Electrical connection part: Electrical connection type V – Plug M12: Device plug PUR
Electrical connection type S/T – Plug EN 175-301-803: Device plug PA / Gasket NBR
Electrical connection type K – Cable: Cable gland PA / Gasket CR / NBR / Cable sheath PE

Environmental conditions
Ambient temperature: – 40°C...+85°C
Process temperatures: – 40°C...+100°C resp. 125°C
Process pressure ranges: – 1 bar ...16 bar (depending on type)
Protection: Electrical connection type V – Plug M12: IP69K/IP67 (EN/IEC 60529)
Electrical connection type S/T – Plug EN 175-301-803: IP65 (EN/IEC 60529)
Electrical connection type K – Cable: IP69K (EN/IEC 60529) / IP68 [≤ 10 mwc] (EN/IEC 60529)



Application

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with measuring ranges from -1 bar to 16 bar (gauge), measuring ranges from 0 bar to 16 bar (absolute), measuring spans from 100 mbar to 16 bar, process temperatures from -40°C to +125°C, environmental temperatures from -40°C to +85°C, process materials Al₂O₃-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology, facility and building automation.

The device is suitable for demanding measuring requirements.

Through its optimized design, the front-flush process connection enables the cleanliness of the wetted diaphragm to be integrated into the process.

The device is suitable for the use at SIP cleaning processes.

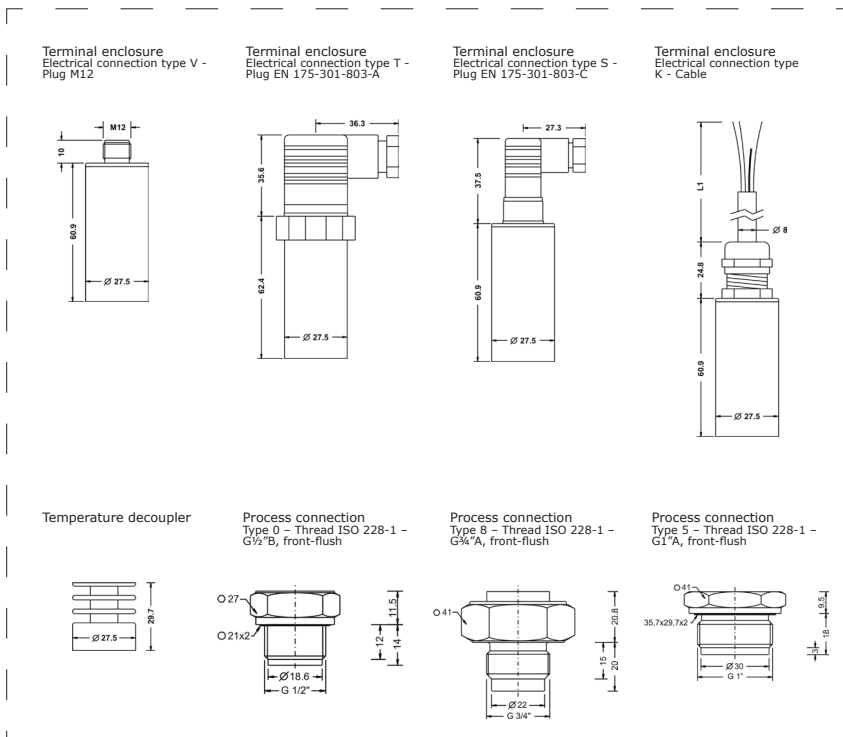
Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

The certification acc. to ATEX II 1 G Ex ia IIB/IIC Tx Ga allows the use in explosion hazardous areas.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.



Precont® CT

Analog pressure transmitter with **front-flush** ceramic capacitive membrane up to 16 bar
analog output 4...20 mA or 0...10 V

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Equipment
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Basic price

387,00 €

Price group A

Type		
0	Standard	0,00 €
Ex	ATEX II 1 G Ex ia IIB/IIC Tx Ga	93,00 €
Measuring system – material diaphragm (process wetted) / sensor type		
CT	Ceramic Al ₂ O ₃ , 96%/99,7% / capacitive	0,00 €
Process connection		
0	Thread ISO 228-1 – G½" B, front-flush	0,00 €
8	Thread ISO 228-1 – G¾" A, front-flush	0,00 €
5	Thread ISO 228-1 – G1" A, front-flush	0,00 €
Y	others	on request
Material process gaskets (process wetted)		
1	FPM – fluorelastomere (e.g. Viton®)	0,00 €
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed	0,00 €
4	FFKM – perfluorelastomere (e.g. Kalrez®)	100,00 €
6	FFKM hd – perfluorelastomere high density - gas applications	113,00 €
Y	others	on request
Material process connection (process wetted)		
V	CrNi-steel	0,00 €
Material terminal enclosure		
C	CrNi-steel	0,00 €
Measuring range		
01	0...100 mbar	0,00 €
02	0...200 mbar	0,00 €
03	0...400 mbar	0,00 €
04	0...600 mbar	0,00 €
05	0...1 bar	0,00 €
06	0...1,6 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
17	-100...+100 mbar	0,00 €
18	-1...+1 bar	0,00 €
YY	Special measuring range	40,00 €
Electronic – output		
A	2-wire, current 4...20mA	0,00 €
B	3-wire, voltage 0...10V	0,00 €
Process temperature		
0	Standard -40°C...+100°C	0,00 €
1	Extended -40°C...+125°C, temperature decoupler	40,00 €
Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure (≤ 25 bar)	0,00 €
Measuring system – accuracy		
2	0,25%	0,00 €
0	0,1%, linearization protocol	68,00 €
Electrical connection		
V	Plug M12x1	31,00 €
S	Plug EN 175-301-803-C (DIN 43650-C)	43,00 €
T	Plug EN 175-301-803-A (DIN 43650-A)	0,00 €
K	Kabel, L1 = 2m	50,00 €
	surcharge per meter (at cable), PE	4,60 €

Pressure measurement

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking	20,00 €
WK	Factory calibration – calibration certificate	60,00 €
MZ	Material test certificate – EN10204 3.1	105,00 €

Order code

Precont® CT V C

Equipment

Ordering information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

Model
Matching cable socket, VA-nut
Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole, shielded

18,50 €
22,50 €
28,50 €

PG E

Precont® ML

Pressure transmitter with metallic membrane for hygienic applications

3 / 01.22

Pressure measurement

Technical data



Power supply: Type A - 2-wire, current 4...20mA: 10...30VDC, reverse polarity protected
Type B - 3-wire, voltage 0...10V: 14...30VDC, reverse polarity protected

Supply current: Type A - 2-wire, current 4...20mA: $\leq 30\text{mA}$
Type B - 3-wire, voltage 0...10V: $\leq 6\text{mA}$

Measurement accuracy
Characteristics deviation: $\leq \pm 0,5\%$ FS
Long term drift: $\leq \pm 0,2\%$ FS / year not cumulative
Temperature deviation: Measuring range $\leq 250\text{mbar}$:
 $\leq \pm 0,04\%$ FS / K (0...+80°C) / $\leq \pm 0,06\%$ FS / K (-20...0°C / +80...+150°C)
Measuring range $\geq 400\text{mbar}$:
 $\leq \pm 0,02\%$ FS / K (0...+80°C) / $\leq \pm 0,03\%$ FS / K (-20...0°C / +80...+150°C)

Material
Membrane (medium contact): Steel 1.4435/316L
Process connection (medium contact): Steel 1.4435/316L
Terminal enclosure: CrNi-steel
Gaskets (medium contact): FPM - fluorelastomere (e.g. Viton®), FDA-listed
EPDM - ethylene-propylene-dienmonomere, FDA-listed

Electrical connection part: Electrical connection type V - Plug M12: Device plug PUR
Electrical connection type S/T - Plug EN 175-301-803:
Device plug PA / Gasket NBR
Electrical connection type K - Cable:
Cable gland PA / Gasket CR / NBR / Cable sheath PE

Environmental conditions
Ambient temperature: -40°C...+85°C
Process temperatures: -40°C...+150°C
Process pressure ranges: -1 bar ...25 bar (depending on type)
Protection: Electrical connection type V - Plug M12: IP69K/IP67 (EN/IEC 60529)
Electrical connection type S/T - Plug EN 175-301-803: IP65 (EN/IEC 60529)
Electrical connection type K - Cable: IP69K (EN/IEC 60529) / IP68 [$\leq 10\text{mwc}$] (EN/IEC 60529)



Application

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with Measuring ranges from -1 bar to 25 bar, gauge measuring ranges from 0 bar to 25 bar (absolute), measuring spans from 100 mbar to 25 bar, process temperatures from -20°C to +150°C, environmental temperatures from -40°C to +85°C, process material CrNi-steel as well as the availability of a variety of hygienic EHEDG-conformal process connections like thread ISO 228-1 with front-flush O-ring gasket, dairy coupling DIN 11851 and Varivent® the device is especially suitable for the use for food and beverage industry, pharmaceutical industry, biotechnology and sterile process engineering.

The device is suitable for demanding measuring requirements.

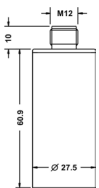
The device with front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections.

Through its optimized design, the front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process. The device is particularly suitable for the special conditions of CIP/SIP cleaning processes, such as chemical stability towards cleaning liquids and high temperatures.

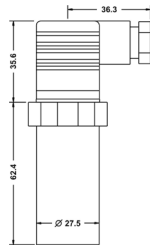
Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

The front-flush diaphragm is completely welded with the process connection and supplied with a positive seal. A reliable, dead-space free sealing between the process connection and the process adapter resp. measuring medium is thus assured. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

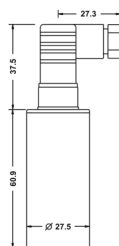
Terminal enclosure
Electrical connection type V -
Plug M12



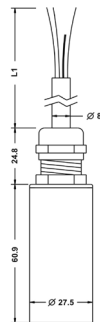
Terminal enclosure
Electrical connection type T -
Plug EN 175-301-803-A



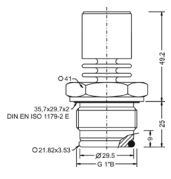
Terminal enclosure
Electrical connection type S -
Plug EN 175-301-803-C



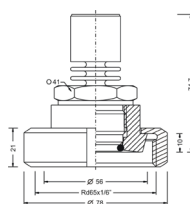
Terminal enclosure
Electrical connection type
K - Cable



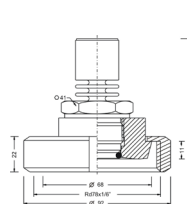
Process connection
Type 5 - Thread ISO 228-1 -
G1" B, front-flush



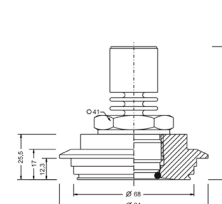
Process connection
Type N - Dairy coupling DIN
11851 - DN40, PN25



Process connection
Type M - Dairy coupling DIN 11851
- DN50, PN25



Process connection
Type P - Varivent® - Type N /
tube DN40-162 / 1/2"-6", PN40



Precont® ML

Pressure transmitter with metallic membrane
for hygienic applications

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Equipment

welding flanges
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Basic price		396,00 €
Type	0 Standard	0,00 €
Measuring system – material diaphragm (process wetted) / sensor type	ML CrNi-steel / strain gauge	0,00 €
Process connection		
5	Thread ISO 228-1 – G1" B, front-flush, O-ring gasket, EHEDG conformal, for welding socket BEFVE10	0,00 €
N	Dairy coupling DIN 11851 – DN40, PN25	124,00 €
M	Dairy coupling DIN 11851 – DN50, PN25	124,00 €
P	Varivent® – Type N / tube DN40-162 / 1½"-6", PN40	163,00 €
Y	others	on request
Material process gaskets (process wetted)		
1	FPM – fluorelastomere (e.g. Viton®), FDA-listed	0,00 €
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed	0,00 €
Y	others	on request
Material process connection (process wetted)	V CrNi-steel	0,00 €
Material terminal enclosure	C CrNi-steel	0,00 €
Measuring range		
01	0...100 mbar	0,00 €
02	0...250 mbar	0,00 €
03	0...400 mbar	0,00 €
04	0...600 mbar	0,00 €
05	0...1 bar	0,00 €
06	0...1,6 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...25 bar	0,00 €
16	-1...0 bar	0,00 €
17	-1...+1 bar	0,00 €
YY	Special measuring range	42,00 €
Electronic – output		
A	2-wire, current 4...20mA	0,00 €
B	3-wire, voltage 0...10V	0,00 €
Process temperature	0 Standard -40°C...+150°C	0,00 €
Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure (≤ 25 bar)	0,00 €
Measuring system – accuracy	4 0,5%	69,00 €
Electrical connection		
V	Plug M12x1	32,00 €
S	Plug EN 175-301-803-C (DIN 43650-C)	44,00 €
T	Plug EN 175-301-803-A (DIN 43650-A)	0,00 €
K	Kabel, L1 = 2m	51,00 €
	surcharge per meter (at cable), PE	4,80 €

Price group A

Pressure measurement

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG – Laser marking	20,00 €
WK	Factory calibration - calibration certificate	60,00 €

Order code

Precont® 0 ML V C 0 4

Equipment

Ordering information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
BEFVE-10

Model
Matching cable socket, VA-nut

18,50 €
22,50 €
28,50 €
111,00 €

PGE

Precont® PS4SK

Pressure switch for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Technical data



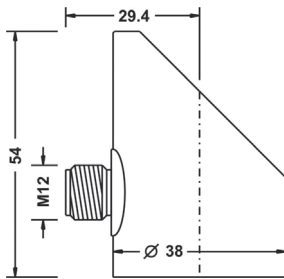
Supply voltage: 10,5...35VDC, reverse polarity protected
Supply current: ≤ 60mA Analogue output max. 22,5mA Switch output with no load
Switch output S1 / S2
Function: PNP switch to +L
Output current: 0... ≤ 200mA current limited, short circuit protected
Analogue output: 4...20mA
Operating range: 3,9...21mA, min. 3,8mA, max. 22mA
Permitted load: ≤ (US - 10,5V) / 20mA
Start-up time: ≤ 1 s
Measurement accuracy
Characteristic deviation: ≤ ± 0,5% FS
Long term drift: ≤ ± 0,2% FS / year not cumulative
Temperature deviation
Measuring range 0...250 mbar to 0...2,5 bar: ≤ ± 0,05% FS / K
Measuring range 0...4 bar to 0...600 bar: ≤ ± 0,04% FS / K

Materials
Diaphragm: (process wetted) Ceramic aluminum oxide Al₂O₃ - 96%
Process connection: (process wetted) Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure: CrNi-steel
Gaskets: (process wetted) FPM - fluorelastomere (e.g. Viton®)
EPDM - ethylene-propylene-dienmonomere, FDA-listed

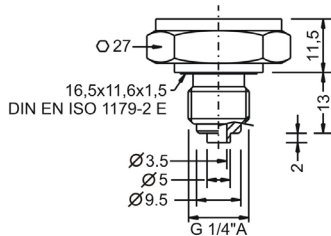
Environmental conditions
Environmental temperature: -40°C...+85°C
Process temperature: -40...+100°C (extended -40...+135°C)
Process pressure: 0 bar ...600 bar (depending on process connection)
Protection: IP65/IP67 EN/IEC 60529



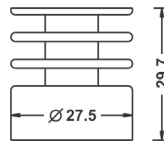
Terminal enclosure



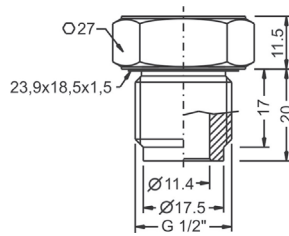
Type 6 - Thread ISO 228-1 - G $\frac{1}{4}$ "A, EN 837



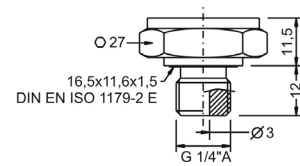
Temperature decoupler



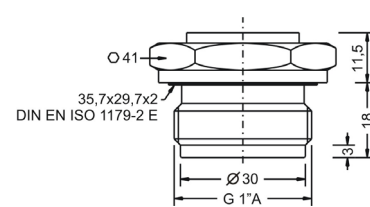
Type 2 - Thread ISO 228-1 - G $\frac{1}{2}$ "B, inner bore



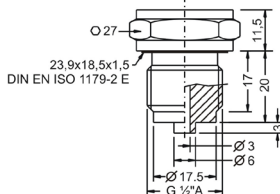
Type 3 - Thread ISO 228-1 - G $\frac{1}{4}$ "A, DIN EN ISO 1179-2 E2 E



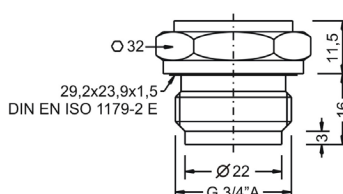
Type 5 - Thread ISO 228-1 - G $\frac{1}{4}$ "A, front-flush



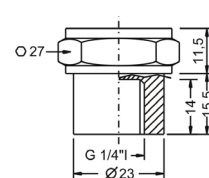
Type 1 - Thread ISO 228-1 - G $\frac{1}{2}$ "A, EN 837



Type 8 - Thread ISO 228-1 - G $\frac{3}{4}$ "A, front-flush



Type 4 - Thread ISO 228-1 - G $\frac{1}{4}$ " I, inner thread



Precont® PS4SK

Pressure switch for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Equipment

welding flanges
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Additional Options

SF	LABS-free, silicone-free / paint compatible version...90,00 €
ML	Measurement point designation / TAG – Laser marking.....20,00 €
WK	Factory calibration – calibration certificate.....60,00 €
WK	Factory calibration – calibration certificate > 60 bar.....129,00 €
MZ	Material test certificate – EN10204 3.1.....105,00 €
KF	Configuration / Preset.....55,00 €

Application

Due to the device construction with measuring ranges from -1 bar to 600 bar, gauge, measuring ranges from 1 bar to 40 bar, absolute, measuring spans from 250 mbar to 600 bar, process temperatures from -40°C to +135°C and process materials Al2O3-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread connection ISO 228-1, EN 837 manometer, thread connection ISO 228-1 (inner thread), thread connection ISO 228-1 (EN 1179-2 E), thread connection ISO 228-1 (inner bore) and thread connection ISO 228-1 (front-flush) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology and facility and building automation.

The device is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or factory certifications for drink water resp. food suitability.

Basic price (*scale prices)

Type	PS4S Standard	0,00 €
Measuring system – material diaphragm (process wetted) / sensor type	K Ceramic Al2O3 96% / strain gauge	0,00 €
Approval	S Standard	0,00 €
Process connection	6 Thread ISO 228-1 – G¼”A, EN 837 manometer	0,00 €
1	Thread ISO 228-1 – G½”A, EN 837 manometer	0,00 €
3	Thread ISO 228-1 – G¼”A, DIN EN ISO 1179-2 E	0,00 €
4	Thread ISO 228-1 – G¼”I, inner thread	0,00 €
2	Thread ISO 228-1 – G½”B, inner bore	0,00 €
8	Thread ISO 228-1 – G¾”A, front-flush, ≤ 10 bar	24,50 €
5	Thread ISO 228-1 – G1”A, front-flush, ≤ 1 bar	24,50 €
Y	others	on request
Material gaskets (process wetted)	1 FPM – fluorelastomere (e.g. Viton®)	0,00 €
3	EPDM – ethylene-propylene-dienmonomere	0,00 €
Y	others	on request
Material process connection (process wetted)	V CrNi-steel	0,00 €
Material terminal enclosure	C CrNi-steel	0,00 €
Measuring range	02 0...0,25 bar	0,00 €
03	0...0,4 bar	0,00 €
04	0...0,6 bar	0,00 €
05	0...1 bar	0,00 €
06	0...1,6 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...25 bar	0,00 €
13	0...40 bar	0,00 €
14	0...60 bar	0,00 €
19	0...100 bar	0,00 €
20	0...160 bar	0,00 €
21	0...250 bar	0,00 €
22	0...320 bar	0,00 €
23	0...400 bar	0,00 €
24	0...600 bar	0,00 €
16	-1...0 bar	0,00 €
17	-1...+1 bar	0,00 €
YY	Special measuring range	41,00 €
Electronic – output	A 4-wire, 2x switch PNP	0,00 €
B	4-wire, 1x switch PNP, 1x signal 4...20mA	41,00 €
C	5-wire, 2x switch PNP, 1x signal 4...20mA	53,00 €
D	4-wire, 1x switch PNP, 1x signal 4...20mA, Desina	53,00 €
Electronic – function	S Standard	0,00 €
Process temperature	0 Standard -40°C...+100°C	0,00 €
1	Extended -40°C...+135°C, temperature decoupler	40,00 €
Pressure type	R Gauge pressure	0,00 €
A	Absolute pressure, ≥ 1bar ... ≤ 40bar	28,50 €
Measuring system – accuracy	4 0,5%	0,00 €
Electrical connection	S Plug M12x1	0,00 €

298,00 €

Price group D

Pressure measurement

Order code

*scale prices - basic price Precont®

Precont® PS4S

K S V C S 4 S

PS4SK

1 - 5 pieces	298,00 €
6 - 10 pieces	284,00 €
11 - 30 pieces	270,00 €

Equipment

Order information

LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded	22,50 €
LKZ0410PUR-AS	Connection cable 10 m, 4-pole, shielded	28,50 €
LKZ0505PUR-AS	Connection cable 5 m, 5-pole, shielded	26,00 €
LKZ0510PUR-AS	Connection cable 10 m, 5-pole, shielded	35,00 €
BKZ0412-VA	Matching cable socket, VA-nut	18,50 €
BKZ0512-VA	Matching cable socket, VA-nut (at 0...10 V)	19,50 €

Model

Connection cable 5 m, 4-pole, shielded	22,50 €
Connection cable 10 m, 4-pole, shielded	28,50 €
Connection cable 5 m, 5-pole, shielded	26,00 €
Connection cable 10 m, 5-pole, shielded	35,00 €
Matching cable socket, VA-nut	18,50 €
Matching cable socket, VA-nut (at 0...10 V)	19,50 €

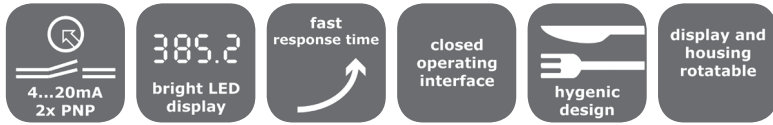
PG E

Precont® PS4SC

Pressure switch for hygienic and general applications:
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Technical data



Supply voltage:	10,5...35VDC, reverse polarity protected
Supply current:	≤ 60mA Analogue output max. 22,5mA Switch output with no load
2xPNP-switch output	
Function:	PNP switch to +L
Output current:	0... ≤ 200mA current limited, short circuit protected
Analogue output	4...20mA
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (US - 10,5V) / 20mA
Start-up time:	≤ 1 ms
Measuring accuracy	
Characteristic deviation:	≤ ± 0,2% FS
Long term drift:	≤ ± 0,1% FS / year not cumulative
Temperature deviation	Zero: ≤ ±0,015% FS / K, max. ±0,75% (-20°C...+80°C) Span: ≤ ±0,015% FS / K, max. ±0,5% (-20°C...+80°C / > 400mbar), max. ±0,8% (-20°C...+80°C / ≤ 400 mbar)
Materials	
Diaphragm: (process wetted)	Measuring range ≤ 1bar: Ceramic Al2O3 – 99,7% (SIP suitable) Measuring range ≥ 1,6bar: Ceramic Al2O3 – 96% (SIP suitable) Process connection 1/2/4/6/7/N/M/P/L/S/T: Ceramic Al2O3 – 99,9% (CIP/SIP suitable)
Process connection: (process wetted)	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere, FDA-listed FFKM – perfluorelastomere (e.g. Kalrez®) FFKM hd – perfluorelastomere high density
Environmental conditions	
Environmental temperature:	-40°C...+85°C
Process temperature:	-40°C...+100°C (extended -40...+125°C)
Process pressure:	-1 bar ...60 bar (depending on process connection)
Protection:	IP65/IP67 EN/IEC 60529

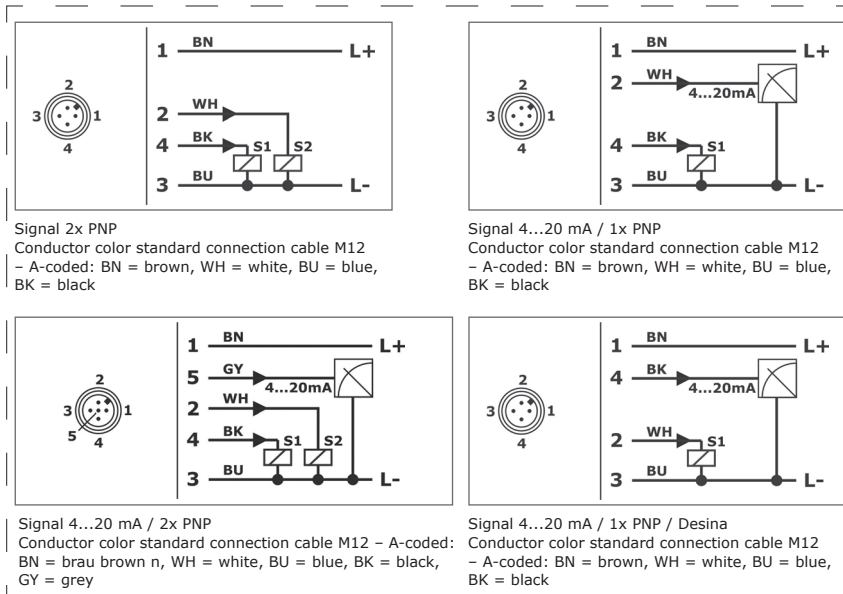


Application

Due to the device construction with measuring ranges from -1 bar to 60 bar (gauge), measuring ranges from 0 bar to 60 bar (absolute), measuring spans from 100 mbar to 60 bar, process temperatures from -40°C to +125°C and process materials high purity Al2O3-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer / inner thread / front-flush), dairy coupling DIN 11851 (front-flush), Varivent® (front-flush), clamp ISO 2852 / BS 4825 / DIN 32676 (front-flush) and DRD (front-flush) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology and facility and building automation.

The device is suitable for demanding measuring requirements. Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications. Through its optimized design, the front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process. The device is suitable for the use at CIP/SIP cleaning processes. Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device. Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking. A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or factory certifications for drink water resp. food suitability.

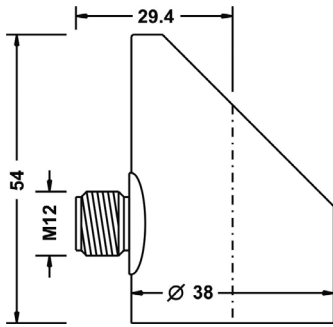


Precont® PS4SC

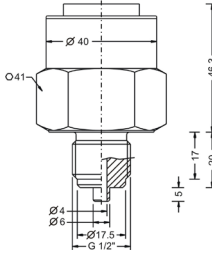
Pressure switch for hygienic and general applications:
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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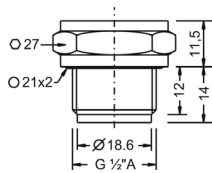
Terminal enclosure



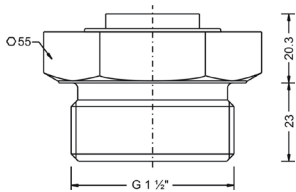
Type 1 - Thread ISO 228-1 - G1/2"A, EN 837



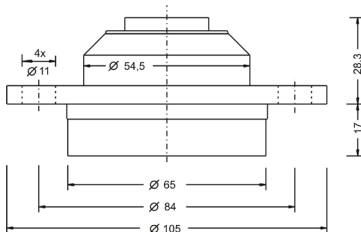
Type 9 - Thread ISO 228-1 - G1/2"B, front-flush



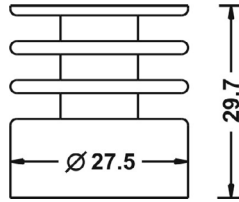
Type 7 - Thread ISO 228-1 - G1/2"B, front-flush



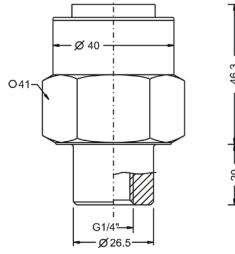
Type M - Dairy coupling DIN 11851 - DN50, PN25



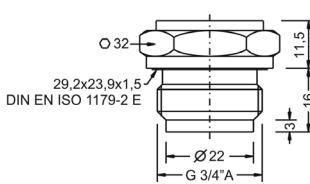
Temperature decoupler



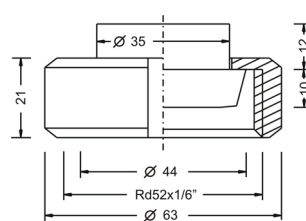
Type 4 - Thread ISO 228-1 - G1/4"I, inner thread



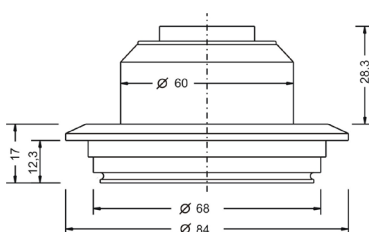
Type 8 - Thread ISO 228-1 - G3/4"A, front-flush



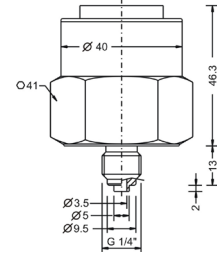
Type R - Dairy coupling DIN 11851 - DN25, PN40



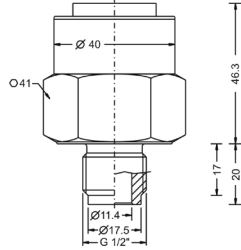
Type P - Varivent® - Type N / tube DN40-162 / 1 1/2"-6", PN40



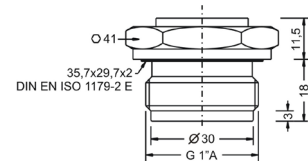
Type 6 - Thread ISO 228-1 - G1/4"A, EN 837



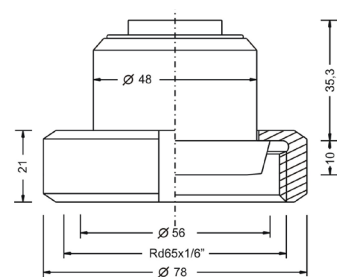
Type 2 - Thread ISO 228-1 - G1/2"A, inner bore



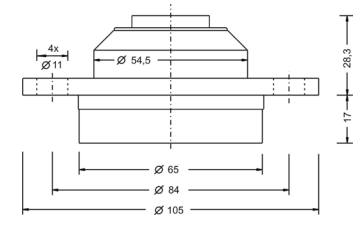
Type 5 - Thread ISO 228-1 - G1"A, front-flush



Type N - Dairy coupling DIN 11851 - DN40, PN25



Type L - DRD - DN50 / Ø65mm, PN25



Pressure measurement

Precont® PS4SC

Pressure switch for hygienic and general applications:
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Pressure measurement

Basic price		411,00 €
Type		
PS4S	Standard	0,00 €
Measuring system – material diaphragm (process wetted) / sensor type		
C	Ceramic Al2O3 96%/99,7%/99,9% / capacitive	0,00 €
Approval		
S	Standard	0,00 €
Process connection		
6	Thread ISO 228-1 – G¼"A, EN 837 manometer	0,00 €
1	Thread ISO 228-1 – G½"A, EN 837 manometer	0,00 €
4	Thread ISO 228-1 – G¼"I, inner thread.	0,00 €
2	Thread ISO 228-1 – G½"A, inner bore	0,00 €
9	Thread ISO 228-1 – G½"B, front-flush, ≤ 20 bar	49,00 €
8	Thread ISO 228-1 – G¾"A, front-flush, ≤ 20 bar	49,00 €
5	Thread ISO 228-1 – G1"A, front-flush, ≤ 20 bar	83,00 €
7	Thread ISO 228-1 – G1½"B, front-flush	83,00 €
R	Dairy coupling DIN 11851 – DN25, PN40, ≤ 20 bar	85,00 €
N	Dairy coupling DIN 11851 – DN40, PN40	122,00 €
M	Dairy coupling DIN 11851 – DN50, PN25	132,00 €
P	Varivent® – Type N / tube DN40-162 / 1½"-6", PN40	160,00 €
L	DRD – DN50 / Ø65mm, PN25	156,00 €
S	Clamp ISO 2852 – DN25-38 / BS 4825 – 1"-1½" / DIN 32676 – DN25-38, PN25	106,00 €
T	Clamp ISO 2852 – DN40-51 / BS 4825 – 2" / DIN 32676 – DN50, PN25	162,00 €
Y	others	on request
Material process gaskets (process wetted)		
1	FPM – fluorelastomere (e.g. Viton®)	0,00 €
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed	0,00 €
4	FFKM – perfluorelastomere (e.g. Kalrez®)	100,00 €
6	FFKM hd – perfluorelastomere high density – gas applications	113,00 €
Y	others	on request
Material process connection (process wetted)		
V	CrNi-steel	0,00 €
Material terminal enclosure		
C	CrNi-steel	0,00 €
Measuring range		
01	0...0,1 bar	0,00 €
02	0...0,2 bar	0,00 €
03	0...0,4 bar	0,00 €
04	0...0,6 bar	0,00 €
05	0...1 bar	0,00 €
06	0...1,6 bar	0,00 €
07	0...2,5 bar	0,00 €
08	0...4 bar	0,00 €
09	0...6 bar	0,00 €
10	0...10 bar	0,00 €
11	0...16 bar	0,00 €
12	0...20 bar	0,00 €
13	0...40 bar	0,00 €
14	0...60 bar	0,00 €
15	-0,1...0 bar	0,00 €
16	-1...0 bar	0,00 €
17	-1...+1 bar	0,00 €
18	-0,1...+0,1 bar	0,00 €
YY	Special measuring range	41,00 €
Electronic – output		
A	2x switch PNP, supply 24VDC	0,00 €
B	1x switch PNP, 1x signal 4...20mA, supply 24VDC	41,00 €
C	2x switch PNP, 1x signal 4...20mA, supply 24VDC	53,00 €
D	1x switch PNP, 1x signal 4...20mA, supply 24VDC, Desina ..	53,00 €
Electronic – function		
S	Standard	0,00 €
Process temperature		
0	Standard –40°C...+100°C	0,00 €
1	Extended –40°C...+125°C, temperature decoupler	65,00 €
Pressure type		
R	Gauge pressure	0,00 €
A	Absolute pressure, ≥ 1 bar	0,00 €
Measuring system – accuracy		
1	0,2%	0,00 €
Electrical connection		
S	Plug M12x1	0,00 €

Price group A

Order code

Precont® PS4S C S V C S 1 S

Precont® PS4SC

Pressure switch for hygienic and general applications:
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version	90,00 €
ML Measurement point designation / TAG – Laser marking	20,00 €
KF Configuration / Preset	55,00 €
MZ Material test certificate – EN10204 3.1	105,00 €
WK Factory calibration – calibration certificate.	60,00 €

Pressure measurement

Equipment

Order information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
BKZ0412-VA
BKZ0512-VA

Model
 Connection cable 5 m, 4-pole, shielded
 Connection cable 10 m, 4-pole, shielded
 Connection cable 5 m, 5-pole, shielded
 Connection cable 10 m, 5-pole, shielded
 Matching cable socket, VA-nut
 Matching cable socket, VA-nut (at 0...10 V)

22,50 €
28,50 €
26,00 €
35,00 €
18,50 €
19,50 €

PGE

Precont® PS4SM

Pressure switch for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Technical data



flush mounted

385.2
bright LED display

up to
1000 bar
pressure

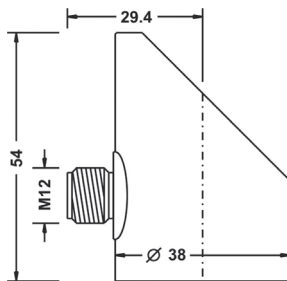
process temperature
125°C

display and housing rotatable

Supply voltage:	10,5...35VDC, reverse polarity protected
Supply current:	≤ 60mA Analogue output max. 22,5mA Switch output with no load
Switch output S1 / S2	
Function:	PNP switch to +L
Output current:	0... ≤ 200mA current limited, short circuit protected
Analogue output	4...20mA
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (US - 10,5V) / 20mA
Start-up time:	≤ 1 s
Measuring accuracy	
Characteristic deviation:	≤ ± 0,5% FS
Long term drift:	≤ ± 0,2% FS / year not cumulative
Temperature deviation	Measuring range ≤ 25 bar: ≤ ± 0,02% FS / K (0...80°C) / ≤ ± 0,03% FS / K (-40...0°C / +80...+125°C) Measuring range ≥ 40 bar: ≤ ± 0,02% FS / K (-40...100°C) / ≤ ± 0,03% FS / K (+100...+125°C)
Materials	
Diaphragm: (process wetted)	Process connection type 0 / type 5 - front-flush / Process connection type 1 / type 6 - EN 837 / ≤ 25 bar: Steel 1.4571/316Ti Process connection type 1 / type 6 - EN 837 / ≥ 40 bar: Steel 1.4542/630 / Steel 1.4534/SI13800
Process connection:	(process wetted) Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	NBR - nitrile-butadiene-rubber FPM - fluorelastomere (Viton®) EPDM - ethylene-propylene-dienmonomere
Environmental conditions	
Environmental temperature:	- 40°C...+85°C
Process temperature:	- 40°C...+100°C (Expansion: -40°C...+125°C)
Process pressure:	-1 bar ...1000 bar (depending on process connection)
Protection:	IP65/IP67 EN/IEC 60529

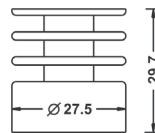


Terminal enclosure

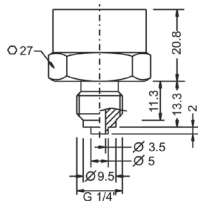


Type 6 - Thread ISO 228-1 - G 1/4", EN 837

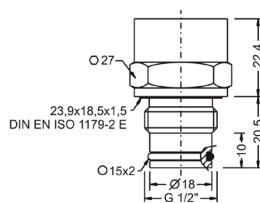
Temperature decoupler



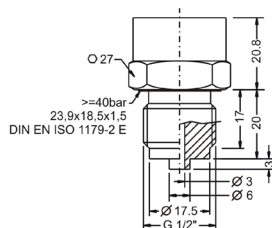
Type 0 - Thread ISO 228-1 - G 1/2", front-flush



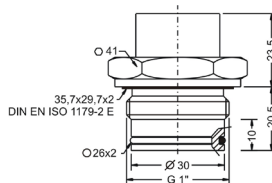
Type 1 - Thread ISO 228-1 - G 1/2", EN 837



Type 5 - Thread ISO 228-1 - G 1", front-flush



Type 1 - Thread ISO 228-1 - G 1/2", EN 837



Type 5 - Thread ISO 228-1 - G 1", front-flush

Application

Due to the device construction as well as the availability of industrial standard process connections the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry and environmental technology.

The pressure switch is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The pressure switch with front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections.

The front-flush diaphragm is completely welded with the process connection and supplied with a positive seal. A reliable, dead-space free sealing between the process connection and the process adapter resp. measuring medium is thus assured.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse Environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or factory certifications for drink water resp. food suitability.

Precont® PS4SM

Pressure switch for general applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Equipment

welding flanges
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Additional Options

SF LABS-free, silicone-free / paint compatible version...90,00 €

ML Measurement point designation / TAG - Laser marking.....20,00 €

WK Factory calibration - calibration certificate.....60,00 €

WK Factory calibration - calibration certificate > 60 bar..... 129,00 €

KF Configuration / Preset.....55,00 €

Basic price (*scale prices)		330,00 €
Type	PS4S Standard	0,00 €
M	Measuring system – material diaphragm (process wetted) / sensor type	
	CrNi-steel / strain gauge	0,00 €
S	Approval	
	Standard	0,00 €
6	Process connection	
	Thread ISO 228-1 – G¼”B, EN 837 manometer (without process gasket)	0,00 €
	Thread ISO 228-1 – G½”B, EN 837 manometer (≥ 40 bar without process gasket)	0,00 €
	Thread ISO 228-1 – G½”B, front-flush, O-ring gasket not for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar	0,00 €
	Thread ISO 228-1 – G1”B, front-flush, O-ring gasket for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar	24,00 €
	others	on request
0	Material process gaskets (process wetted)	
	without / NBR – nitrile-butadiene-rubber	0,00 €
	FPM – fluorelastomere (e.g. Viton®)	0,00 €
	EPDM – ethylene-propylene-dienmonomere	0,00 €
	others	on request
Y	Material process connection (process wetted)	
	CrNi-steel	0,00 €
Y	Material terminal enclosure	
	CrNi-steel	0,00 €
03	Measuring range	
	0...0,4 bar	0,00 €
	0...1 bar	0,00 €
	0...4 bar	0,00 €
	0...6 bar	0,00 €
	0...10 bar	0,00 €
	0...16 bar	0,00 €
	0...25 bar	0,00 €
	0...40 bar	0,00 €
	0...60 bar	0,00 €
	0...160 bar	0,00 €
	0...250 bar	0,00 €
	0...320 bar	0,00 €
	0...100 bar	0,00 €
	0...400 bar	0,00 €
	0...600 bar	0,00 €
	0...1000 bar, only for process connection type 1, 6 – G½”B, G¼”B EN 837	0,00 €
	-1...0 bar	0,00 €
	-1...+1 bar	0,00 €
	Special measuring range	41,00 €
16	Electronic – output	
	2x switch PNP, supply 24VDC	0,00 €
	1x switch PNP, 1x signal 4...20mA, supply 24VDC	41,00 €
	2x switch PNP, 1x signal 4...20mA, supply 24VDC	53,00 €
	1x switch PNP, 1x signal 4...20mA, supply 24VDC, Desina	53,00 €
17	Electronic – function	
	Standard	0,00 €
YY	Process temperature	
	Standard -40°C...+100°C	0,00 €
	Extended -40°C...+125°C, temperature decoupler	40,00 €
17	Pressure type	
	Gauge pressure	0,00 €
	Absolute pressure, (≤ 25 bar)	28,50 €
YY	Measuring system – accuracy	
	0,5%	0,00 €
YY	Electrical connection	
	Plug M12x1	0,00 €

Price group D

Pressure measurement

***scale prices - basic price**

Order code	Precont® PS4SM	
	1 - 5 pieces	330,00 €
	6 - 10 pieces	313,00 €
	11 - 30 pieces	295,00 €

Precont® PS4S M S V C S 4 S

Equipment

Order information	Model	
LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded	22,50 €
LKZ0410PUR-AS	Connection cable 10 m, 4-pole, shielded	28,50 €
LKZ0505PUR-AS	Connection cable 5 m, 5-pole, shielded	26,00 €
LKZ0510PUR-AS	Connection cable 10 m, 5-pole, shielded	35,00 €
BKZ0412-VA	Matching cable socket, VA-nut	18,50 €
BKZ0512-VA	Matching cable socket, VA-nut (at 0...10 V)	19,50 €
REMO12	weld-in socket, for connection 2	71,00 €
REMO10	weld-in socket, for connection 5	71,00 €
BEFK12	weld-in socket, for connection 0	71,00 €

PG B | PGE



Precont® PS4LM

Pressure switch for hygienic applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Pressure measurement

Technical data



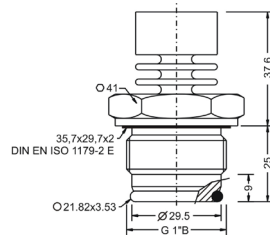
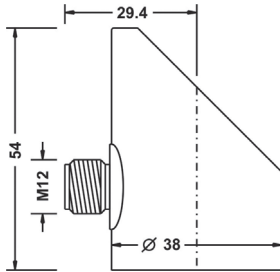
Supply voltage:	10,5...35VDC, reverse polarity protected	
Supply current:	≤ 60mA Analogue output max. 22,5mA Switch output with no load	
Switch output S1/S2		
Function:	PNP switch to +L	
Output current:	0... ≤ 200mA current limited, short circuit protected	
Analogue output	4...20mA	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA	
Permitted load:	≤ (US - 10,5V) / 20mA	
Start-up time:	≤ 1 ms	
Measuring accuracy		
Characteristic deviation:	≤ ± 0,5% FS	
Long term drift:	≤ ± 0,2% FS / year not cumulative	
Temperature deviation	Zero:	
	≤ ± 0,02% FS / K (0...80°C) / ≤ ± 0,03% FS / K (-20...0°C / +80...+150°C)	
	Zero - Measuring range 0...100 mbar / 0...250 mbar:	
	≤ ± 0,04% FS / K (0...+80°C) / ≤ ± 0,06% FS / K (-20...0°C / +80...+150°C)	
	Span:	
	≤ ± 0,02% FS / K (0...80°C) / ≤ ± 0,03% FS / K (-20...0°C / +80...+150°C)	
Materials		
Diaphragm:	(process wetted)	Steel 1.4435/316L
Process connection:	(process wetted)	Steel 1.4435/316L
Terminal enclosure:	CrNi-steel	
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere, FDA-listed	
Environmental conditions		
Environmental temperature:	- 40°C...+85°C	
Process temperature:	- 20°C...+150°C	
Process pressure:	- 1 bar ...25 bar	
Protection:	IP65/IP67	EN/IEC 60529



process connection 5

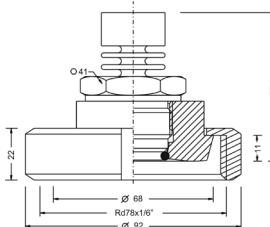
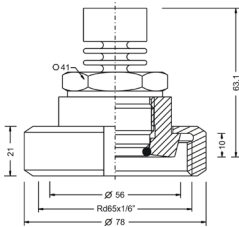
Anschlussgehäuse

Type 5 – Thread ISO 228-1 – G1" B, front-flush



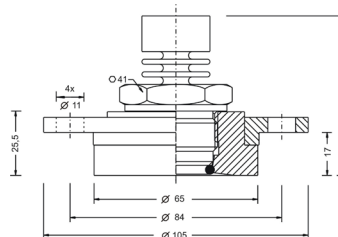
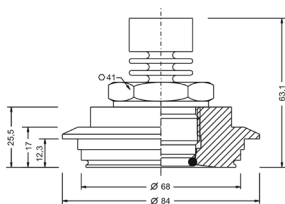
Type N – Dairy coupling DIN 11851 – DN40, PN40

Type M – Dairy coupling DIN 11851 – DN50, PN25



Type P – Varivent® – Type N / tube DN40-162 / 1 1/2"-6", PN40

Type L – DRD – DN50 / Ø65mm, PN25



Application

The device is an electronic pressure switch for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

The operational reliability of the device is ensured only at the intended use. Due to the device construction with measuring ranges from -1 bar to 25 bar (gauge), measuring ranges from 0 bar to 25 bar (absolute), measuring spans from 100 mbar to 25 bar, process temperatures from -20°C to +150°C, process material CrNi-steel as well as the availability of a variety of hygienic EHEDG-conformal process connections like thread ISO 228-1 with front-flush O-ring gasket dairy coupling DIN 11851, Varivent® and DRD the device is especially suitable for the use for food and beverage industry, pharmaceutical industry, biotechnology and sterile process engineering. The pressure switch is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications. The device with front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-containing and contaminated media, which would clog the pressure channel of conventional process connections.

Through its optimized design, the front-flush process connection enables the cleanliness of the wetted diaphragm to be integrated into the process. The device is particularly suitable for the special conditions of CIP/SIP cleaning processes, such as chemical stability towards cleaning liquids and high temperatures.

Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

The front-flush diaphragm is completely welded with the process connection and supplied with a positive seal. A reliable, dead-space free sealing between the process connection and the process adapter resp. measuring medium is thus assured. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Precont® PS4LM

Pressure switch for hygienic applications
Monitoring of absolute or relative pressure in gases, vapors, liquids and dust

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Equipment

welding flanges
page 134

	Basic price	534,00 €	Price group A
	Type PS4L Hygienic applications	0,00 €	
M	Measuring system – material diaphragm (process wetted) / sensor type CrNi-steel / strain gauge	0,00 €	
	Approval S Standard	0,00 €	
	Process connection		
S	Thread ISO 228-1 – G1”B, front-flush, O-ring gasket, EHEDG conformal, for welding socket BEFVE10	0,00 €	
N	Dairy coupling DIN 11851 – DN40, PN40	119,00 €	
M	Dairy coupling DIN 11851 – DN50, PN25	119,00 €	
P	Varivent® N tube – DN40...DN162 / 1½”..6”, PN40	160,00 €	
L	DRD – DN50 / Ø65mm, PN25	208,00 €	
Y	others	on request	
	Material process gaskets (process wetted)		
1	FPM – fluorelastomere (e.g. Viton®), FDA-listed	0,00 €	
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed	0,00 €	
	Material process connection (process wetted) V CrNi-steel	0,00 €	
	Material terminal enclosure C CrNi-steel	0,00 €	
	Measuring range		
01	0...0,1 bar	0,00 €	
02	0...0,25 bar	0,00 €	
03	0...0,4 bar	0,00 €	
04	0...0,6 bar	0,00 €	
05	0...1 bar	0,00 €	
07	0...2,5 bar	0,00 €	
08	0...4 bar	0,00 €	
09	0...6 bar	0,00 €	
10	0...10 bar	0,00 €	
11	0...16 bar	0,00 €	
12	0...25 bar	0,00 €	
16	-1...0 bar	0,00 €	
17	-1...+1 bar	0,00 €	
YY	Special measuring range	41,00 €	
	Electronic – output		
A	2x switch PNP, supply 24VDC	0,00 €	
B	1x switch PNP, 1x signal 4...20mA, supply 24VDC	41,00 €	
C	2x switch PNP, 1x signal 4...20mA, supply 24VDC	53,00 €	
D	1x switch PNP, 1x signal 4...20mA, supply 24VDC, Desina ..	53,00 €	
	Electronic – function S Standard	0,00 €	
	Process temperature 1 Standard -20°C...+150°C	0,00 €	
	Pressure type R Gauge pressure	0,00 €	
	A Absolute pressure	0,00 €	
	Measuring system – accuracy 4 0,5%	0,00 €	
	Electrical connection S Plug M12x1	0,00 €	

+ Additional Options (optional)

SF LABS-free, silicone-free / paint compatible version	90,00 €
ML Measurement point designation / TAG – Laser marking	20,00 €
KF Configuration / Preset	55,00 €
WK Factory calibration – calibration certificate	60,00 €

Order code

Precont® PS4L
M
S
V
C
S
4
S

Equipment

<i>Order information</i>	<i>Model</i>	
LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded	22,50 €
LKZ0410PUR-AS	Connection cable 10 m, 4-pole, shielded	28,50 €
LKZ0505PUR-AS	Connection cable 5 m, 5-pole, shielded	26,00 €
LKZ0510PUR-AS	Connection cable 10 m, 5-pole, shielded	35,00 €
BKZ0412-VA	Matching cable socket, VA-nut	18,50 €
BKZ0512-VA	Matching cable socket, VA-nut (at 0...10 V)	19,50 €
BEFVE10	Welding flange for process connection 5	111,00 €

PGE

Precont® HE5409

cost-effective differential pressure transmitter with hose connection for wall mounting, in two-wire technology

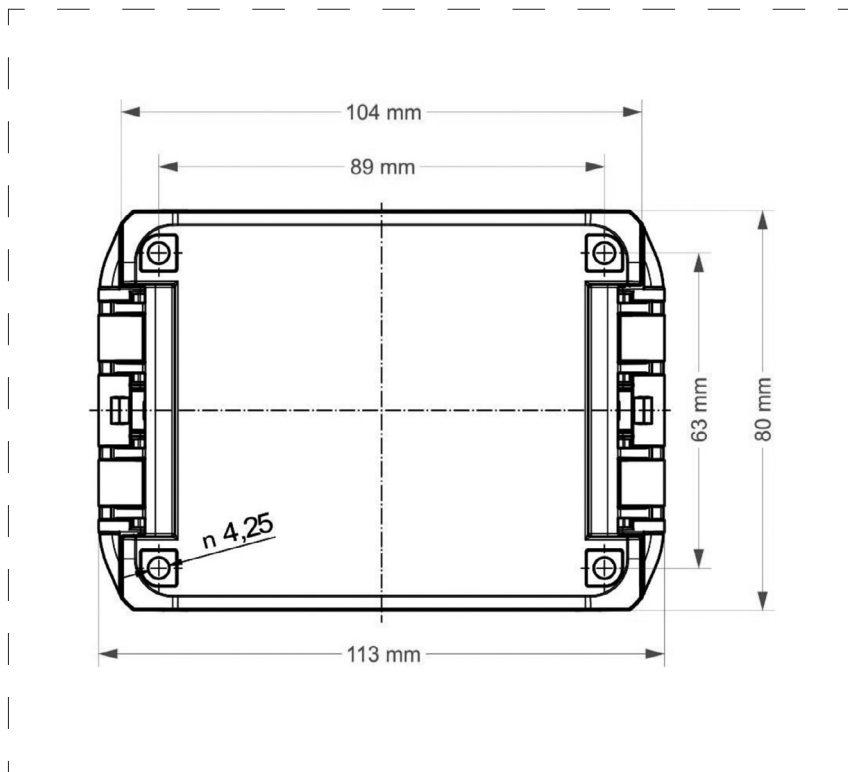
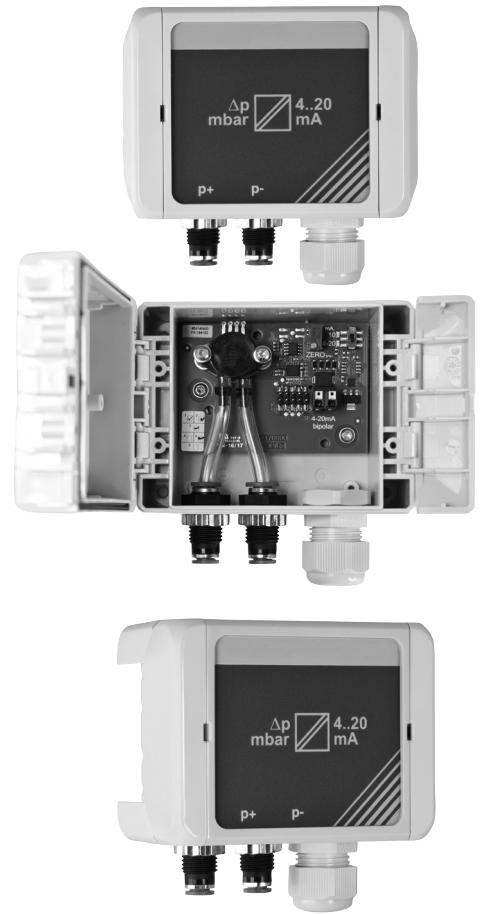
3 / 01.22

Pressure measurement

Technical data



Measuring range:	0-10 mbar; 0-25 mbar; 0-50 mbar; 0-100 mbar; 0-1000 mbar according to the data on the type plate
Max. Differential pressure:	750 mbar
Max. Pressure against ambient:	1000 mbar
Medium:	air, as well as dry, non-aggressive gases
Basic Accuracy:	± 1% of full scale
Temperature drift:	± 0.05% / K of final value
Hysteresis:	± 0.5% of full scale
Measuring system:	semiconductor sensor
Auxiliary energy:	U _b = 10 ... 36 V DC
Analog output:	4 ... 20 mA, 2-wire technology
Max. Permissible load:	RA ≤ (U _b - 9 V) / 0,02 A
Pressure connection:	Schott plug-in fittings for 6 mm hose outer diameter
Housing:	Dust-proof polycarbonate housing
Dimension:	113x80x60 (wxhxd)
Protection class:	IP 65
Mounting:	wall mounting, installation vertical
Connection:	cage clamps
Cable gland:	1 × M 16 × 1,5 N for cable diameters of 4 ... 8 mm



Application

The differential pressure transmitter is a transmitter Precont® HE5409 for small and medium pressures. Due to the layout with different pressure sensors measuring ranges between 0 and 2,5 mbar, 0 and 5 mbar, 0 and 10 mbar, 0 and 25 can mbar, 0 to 50 mbar and performed 0 to 100 mbar. Two connecting cables are used for power supply. The supply current is the measurement signal of 4 .. 20 mA. The state is indicated by an LED.

Precont® HE5409

cost-effective differential pressure transmitter with hose connection for wall mounting, in two-wire technology

3 / 01.22

Basic price		170,00 €
mounting		
W	Wall mounting	0,00 €
Measuring range (difference)		
A	0...2,5 mbar	23,00 €
B	0...5 mbar	23,00 €
C	0...10 mbar	23,00 €
D	0...25 mbar	0,00 €
G	0...50 mbar	0,00 €
I	0...100 mbar	0,00 €
Y	Special measuring range	on request
hose connection		
6	push-in bulkhead connector for 6mm outer diameter	0,00 €
power supply		
0	10...36 V DC	0,00 €
Output		
0	4...20mA two-wire-technology	0,00 €
licence		
Ex	ATEX II 3D T135°C IP 65 zone 22	0,00 €

Price group B

Pressure measurement

Order code

Precont® HE5409 W 6 0 0 Ex

Equipment for pressure sensors

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Pressure measurement

siphon for temperature decoupling

Ordering information

WSR-20 SAV
WSR-20 SBV

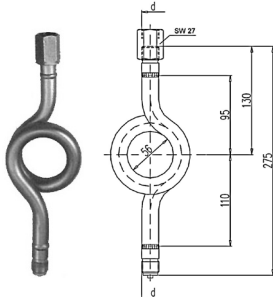
Model

siphon, horizontal pressure-taking, steel 1.4571
siphon, vertical pressure-taking, steel 1.4571

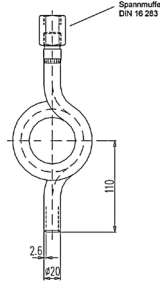
option: acceptance test certificate EN10204-3.1

132,00 €
132,00 €
187,00 €

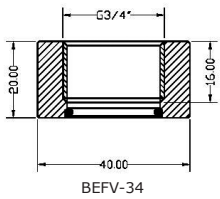
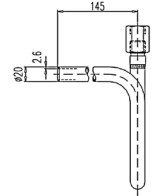
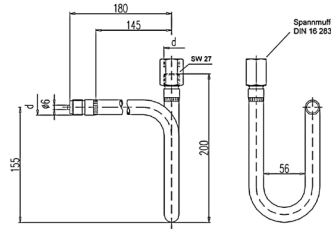
PGE



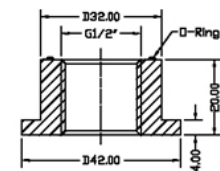
WSR-20 SBV
vertical pressure-taking



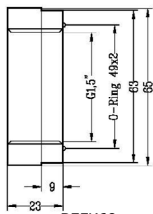
WSR-20 SAV
horizontal pressure-taking



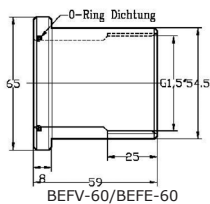
BEFV-34



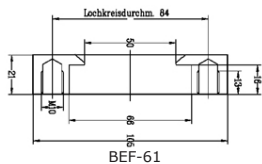
BEFK12



BEFK60



BEFV-60/BEFE-60



BEF-61

welding flanges for container for installation of Precont®

Ordering information

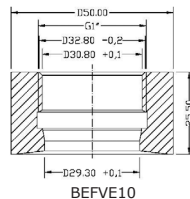
BEFV-34
BEFK12
BEFK60
BEFV-60
BEFE-60
BEF-61
BEFVE-10
BEFA-62
BEFB-62
BEFC-62
BEF-63
REMO12
REMO10
TEM-11

Model/material 1.4571 (gasket Viton®, others gaskets on request)

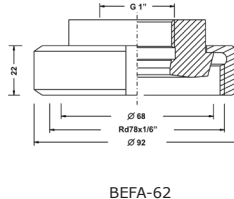
weld-in socket G3/4" Viton® seal
weld-in socket G1/2" EG, sealing attachment at the back
weld-in socket G1/2" EG, sealing attachment at the back
welding flange Ø 65 mm with Viton® seal
welding flange Ø 65 mm with EPDM seal
welding flange for DRD-connection Ø 65 mm
welding flange for Precont® PL, ML, and S30 process connection 5
welding flange milk tube connection DN50 according to DIN11851/1.4301
welding flange milk tube connection DN40 according to DIN11851/1.4301
welding flange milk tube connection DN25 according to DIN11851/1.4301
welding flange Varivent® Ø 68 mm PN40
weld-in socket G1/2" for Precont® MT
weld-in socket G1" for Precont® MT
weld-in socket 1/2" for Precont® CT

38,00 €
71,00 €
98,00 €
145,00 €
145,00 €
187,00 €
111,00 €
111,00 €
108,00 €
105,00 €
260,00 €
71,00 €
71,00 €
32,00 €

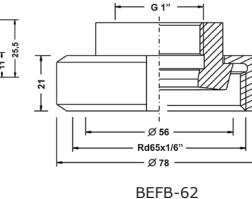
PGB



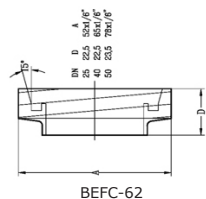
BEFVE10



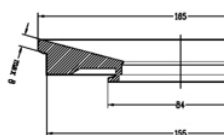
BEFA-62



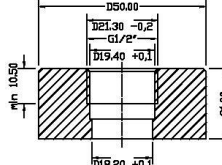
BEFB-62



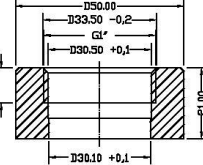
BEFC-62



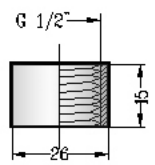
BEF-63



REMO12



REMO10



TEM-11

DIN-flanges with 1,5"-bore hole / reductions / tube nuts

Ordering information

FL-4001
FL-5001
FL-8001
FL-1001
FL-2201
FL-3201
FL-4201
RD-20Z15
RD-20Z10
RD-15Z10
RD-15Z12
RM-15GV
RM-10GV
RM-20GV
RM-38GV
RM-12GV

Model/material 1.4571

DN 40 / PN 16
DN 50 / PN 16
DN 80 / PN 16
DN 100 / PN 16
ANSI 2" / PSI 150
ANSI 3" / PSI 150
ANSI 4" / PSI 150
reduction G2" A auf G1 1/2" I
reduction G2" A auf G1" I
reduction G1 1/2" A auf G1" I
reduction G1 1/2" A auf G1/2" I
tube nut DIN 431, 1 1/2"
tube nut DIN 431, 1"
tube nut DIN 431, 2"
tube nut DIN 3 / 8"
tube nut DIN 1 / 2"

148,00 €
162,00 €
227,00 €
298,00 €
85,00 €
122,00 €
141,00 €
60,00 €
60,00 €
48,00 €
48,00 €
25,00 €
15,50 €
26,50 €
8,60 €
9,80 €

PGE

marking measurement point

AS-50

trailer plate made of VA with laser marking

38,00 €

E

4. Temperature measurement

Contents

Resistance thermometer with display	
Thermocont® ST	display LED, 4...20mA / 0...10V, 2x PNP. 140
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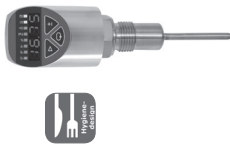
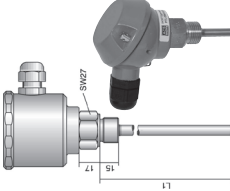
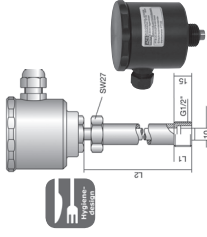
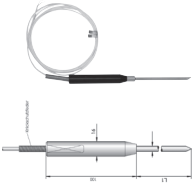
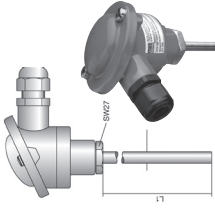
What to use where

Temperature measurement

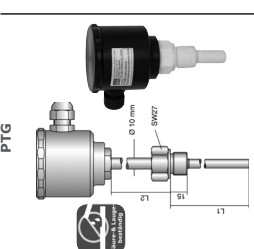
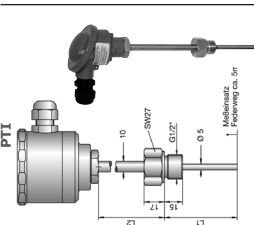
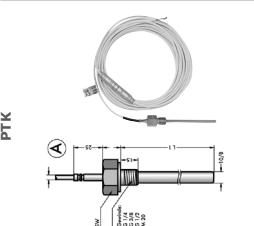
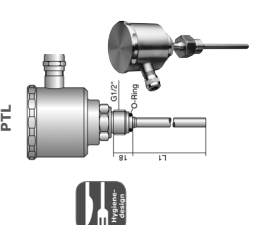
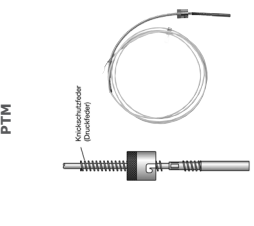
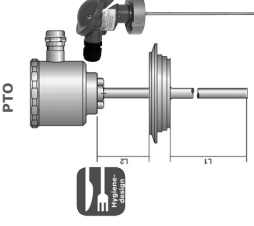
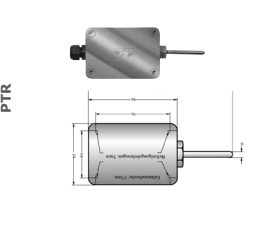
Function	Thermocont® ST	Thermocont® TS4S	Thermocont® TS4L	PTA	PTB	PTE	PTF	PTG	PTI	PTK	PTL	PTM	PTO	PTR	PTS	PTU	PTW	PTX	PTZ	Thermocont® TK	PTV
Pt100 signal				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Current output 0 ... 40mA	●	●	●																	●	●
Switching output	2	2	2																		
Current output 0 ... 10V	●																				●
Integrated display	●	●	●																		
V4A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
CIP / SIP capable	●	●	●	●			●	●	●	●	●		●					●	●	●	
Self-monitoring		●	●																		
Housing rotatable		●	●																		
Measurement in pipelines / contact sensors					●											●					●
Screw-in thermometer	●	●	●	●				●	●	●	●								●	●	
with neck tube	●	●	●	●	●			●	●		●		●						●	●	●
with handle						●															
Immersion thermometer						●	●		●						●						
with cable or plug						●				●		●			●	●					●
Bayonet lock											●										
Room/outside temperature														●							
Surface sensor																●					●
Air duct																	●				

Operating conditions

Hazardous area	Ex																			Ex		
Aggressive media								●												●		
Coat forming media	●	●	●	●		●	●	●	●	●	●		●							●	●	
Hygienic sector	●		●								●		●							●	●	

Type	Thermocont® ST	Thermocont® TS4S	Thermocont® TS4L	PTA	PTB	PTE	PTF
Operating principle							
Design	digital temperature sensor with display and switching points	digital temperature sensor with display and switching points	digital temperature sensor with display and switching points	standard - screw-in resistance thermometer measuring insert exchangeable	clamp-on sensor for front-flush welding sleeve measuring insert exchangeable	resistance thermometer zum grooving and immersion	standard- thermometer for sliding sleeve measuring insert exchangeable
Measure ranges	-99,9 up to +500°C	-99,9 up to +500°C	-99,9 up to +500°C	up to 300°C (600°C)	up to 200°C	up to 160°C	up to 300°C (600°C)
Areas of application:							
standard applications	X	X	X	X	X	X	X
Food applications / pharma industry	X	-	X	-	X	X	-
Heating, ventilation and air conditioning	X	X	X	X	X	X	X
Acid / bases	-	-	-	-	-	X	-
Ex-area	X	-	-	-	-	-	-
Process connections	thread G $\frac{1}{2}$ ", G $\frac{3}{8}$ ", G $\frac{1}{4}$ ", milk tube, Varivent, DRD, Tri-Clamp, DIN-flange	thread G $\frac{1}{2}$ ", G $\frac{3}{8}$ "	milk tube, Varivent, Tri-Clamp, for welding sleeve SEM-22, SEM-42	thread G $\frac{1}{2}$ ", G $\frac{3}{8}$ ", G $\frac{1}{4}$ ", DIN flange DN25, DN50	for welding sleeve TEM-10 TEM-11	grooving or immersion sensor	for sliding sleeve SEM and SEMT
Output/electronics	4...20 mA, 2-wire 0...10 V, 3-wire 2 PNP switching outputs	1 (2) PNP switching outputs 4...20 mA 3-wire	1 (2) PNP switching outputs 4...20 mA 3-wire	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA
Output adjustable	X	X	X	-	-	-	-
multi-function output	-	-	-	-	-	-	-
output passive/active	-	-	-	-	-	-	-
Multi-function input	-	-	-	-	-	-	-
Operating voltage/ universal mains supply circuit	-	-	-	-	-	-	-
Transmitter power supply	-	-	-	-	-	-	-
Certifications	ATEX	-	-	-	-	-	-
Limit values	-	-	-	-	-	-	-
Other information	-	self-monitoring function	self-monitoring function	-	-	-	-

Temperature measurement

Type	PTG	PTI	PTK	PTL	PTM	PTO	PTR
Operating principle							
Design	screw-in-thermometer acid and alkali resistant measuring insert exchangeable	thermowell thermometer with spring-loaded measuring insert measuring insert exchangeable	screw-in thermometer with cable outlet	resistance thermometer for hygienic applications measuring insert exchangeable	resistance thermometer with bayonet joint	resistance thermometer for hygienic applications measuring insert exchangeable	room sensor with connection box
Measure ranges	up to 180°C	up to 300°C (600°C)	up to 200°C (300°C)	up to 300°C	up to 200°C (300°C)	up to 300°C	-35 up to +80°C
Areas of application:							
standard applications	-	X	X	-	X	-	-
Food applications / pharma industry	-	-	X	X	-	X	-
Heating, ventilation and air conditioning	-	X	X	-	X	-	X
Acid / bases	X	-	-	-	-	-	-
Ex-area	-	-	-	-	-	-	-
Process connections	thread G $\frac{1}{2}$ " , G $\frac{3}{8}$ " , M20	thread G $\frac{1}{2}$ " , G1"	thread G $\frac{1}{4}$ " , G $\frac{3}{8}$ " , G $\frac{1}{2}$ " , M6, M8, M10, M20	for welding sockets SEM-12, SEM-32, SEM-42	bayonet 12,2	milk tube, Varivent flange, Tri-Clamp	wall mounting housing for drying room, humidator, refrigeration room
Output/electronics	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	cable outlet, Pt100	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	cable outlet, Pt100	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA
Output adjustable	-	-	-	-	-	-	-
multi-function output	-	-	-	-	-	-	-
output passive/active	-	-	-	-	-	-	-
Multi-function input	-	-	-	-	-	-	-
Operating voltage/ universal mains supply circuit	-	-	-	-	-	-	-
Transmitter power supply	-	-	-	-	-	-	-
Certifications	-	-	-	-	-	-	-
Limit values	-	-	-	-	-	-	-
Other information	PTFE coated or PTFE full material						

Thermocont® ST

digital temperature sensor with resistance thermometer Pt100, 4-digit LED-display, 2 PNP-switching outputs, 2- or 3-wire-electronics selectable

4 / 01.22

Technical data



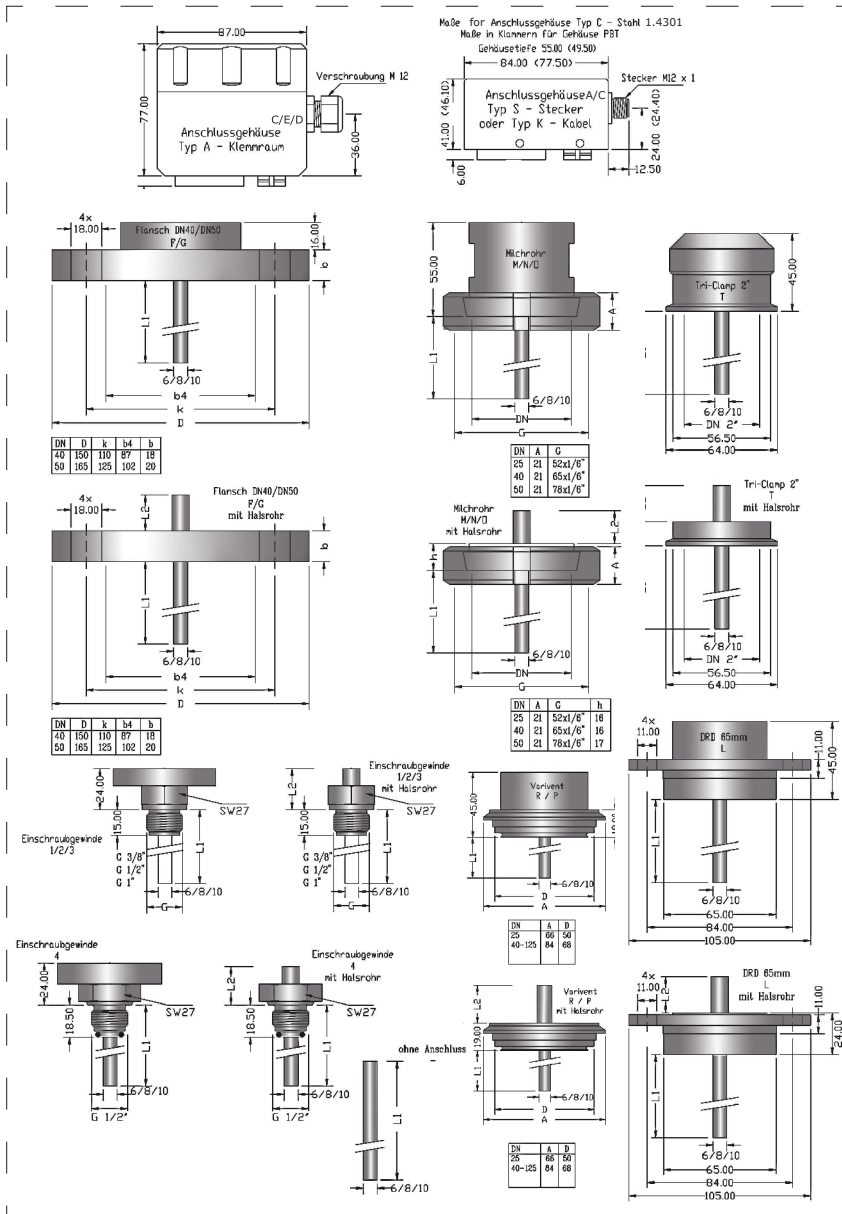
output variations A/B:
output variations E/F:
permissible supply voltage:
residual ripple:
deviation Pt100:

Characteristics deviation:
Resolution:
adjustment range damping:
switching outputs (S1 / S2):
Output current:
protection
material sensor tube:
material Process connection:
material Connection housing:
material connection cable:
process temperature:
ambient-, storage temperature:

4...20mA, 2-wire
0...10 V, 3-wire
variation A/B/E/F: 14,5 V up to 45 V DC
≤ 2 Vss
class A: 0°C; ± 0,15K
class B: 0°C; ± 0,30K
class AA: 0°C; ± 0,10K
≤ ± 0,2K
≤ 1 µA resp. 0,5 mV
0,3...30 seconds / 100 steps
2xPNP-switching on +VS
> 250 mA, current limited, short circuit protected
IP65 / IP67 EN/IEC 60529
Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)
Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)
CrNi-steel / PBT / POM
PE - polyethylene
-50°C...+200°C/100°C...500°C
-40°C...+85°C



Temperature measurement



Application

The device Thermocont® ST with integrated digital evaluation electronic is a compact sensor for measuring and monitoring of temperatures in the range from -100°C up to +500°C. Because of the integrated four digit digital display and two implemented PNP-switching outputs, separate evaluation and display devices are not necessary in most cases.

Through the resistor Pt100, that is implemented in the sensor, flows a constant current. This current leads to a voltage drop, that becomes higher or lower, dependent on the measured medium temperature. The resistance proportional signal that is produced at the Pt100 is recorded from a processor with high resolution, linearized and adjusted according to the settings and converted into a high resolution output signal of 4...20mA or 0...10V.

By using 3 keys and an LED display the sensor measurement range, a zero correction in the range of -25,0 K to +25,0 K (e.g. for extraction of dissipation's in the measurement signal that is produced through the container wall), the PNP-switching outputs and the damping can be adjusted or the behaviour in the case of failure and the release of the fast adjustment can be set. The switching state of the two PNP-switching output is signalled by one LED for every output.

Thermocont® ST

digital temperature sensor with resistance thermometer Pt100 4-digit
LED-display, 2 PNP-switching outputs, 2- or 3-wire-electronics selectable

4 / 01.21

Equipment

welding flanges
page 134

immersion pocket and
weld-in sockets
on page 170

Basic price		205,00 €
sensor type		
ST	Standard	0,00 €
ExST	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	89,00 €
XDST	ATEX II 1/2 D Ex ia IIIC T85°C/T102°C Da/Db	106,00 €
temperature range		
2	range -50°C up to +200,0°C freely programmable	0,00 €
3	range -99,9°C up to +500,0°C freely programmable	0,00 €
Y	preset according to customer requirements	40,00 €
class		
B	class B	0,00 €
A	class A	8,70 €
C	class AA (formerly class 1/5B)	19,00 €
Y	calibration	on request
Process connection		
1	screw-in thread G½"	0,00 €
2	screw-in thread G1"	0,00 €
3	screw-in thread G¾"	0,00 €
4	G½" with O-ring-gasket Viton® for sleeve SEM-12 or SEM-32	0,00 €
5	G½" with O-ring-gasket EPDM for sleeve SEM-12 or SEM-32	0,00 €
6	G½" metal-seated for sleeve SEM-22 or SEM-42	24,50 €
M	Milk tube connection DN50 DIN 11851 DN 50, PN 25	83,00 €
N	Milk tube connection DN40 DIN 11851 DN 40, PN 40	83,00 €
O	Milk tube connection DN25 DIN 11851 DN 25, PN 40	83,00 €
R	Varivent flange Ø 50 mm for tube DN 25	177,00 €
P	Varivent flange Ø 68 mm for tubes DN 32 - 125	205,00 €
L	DRD-connection Ø 65 mm DN 50, PN 25	205,00 €
F	Flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40	247,00 €
G	Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40	267,00 €
T	Tri-Clamp® 2" ISO 2852	104,00 €
Y	Others	on request
0	Without connection (for sliding sleeves)	0,00 €
Material, sensor diameter, process side		
K	1.4571 / 6 mm	0,00 €
N	1.4571 / 8 mm	0,00 €
L	1.4571 / 10 mm	0,00 €
M	1.4571 / 8 mm, reduced tip 5 mm; 40 mm long	9,40 €
O	1.4571 / 10 mm, reduced tip 6 mm; 40 mm long	9,40 €
R	1.4571 / 8 mm, reduced tip 3 mm, 40 mm long	25,50 €
Y	Others	on request
neck tube		
A	Without neck tube	0,00 €
B	With neck tube (standard L2 =100 mm)	see below
Y	With neck tube by choice in mm	see below
Material Connection housing (for type XD only material steel possible)		
A	PBT (polybutylene terephthalate) (not with terminal compartment)	0,00 €
C	CrNi-steel	157,00 €
D	POM (Polyacetal - Delrin®) - only with terminal compartment housing ..	64,00 €
Electrical connection		
S	Plug M12x1	0,00 €
K	Cable 2 m	21,50 €
A	Terminal compartment housing	152,00 €
Transmitter electronics		
A	4...20 mA 2-wire-electronics with display, 2 PNP-switching output	274,00 €
B	4...20 mA 2-wire-electronics with display	205,00 €
E	0...10 V 3-wire-electronics with display, 2 PNP-switching output	267,00 €
F	0...10 V 3-wire-electronics with display	205,00 €
length L1 sensor in mm (price per commenced 100 mm)		
		11,00 €
length L2 neck tube in mm (price per commenced 100 mm)		
		11,00 €

Price group B

Temperature measurement

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG - Laser marking	20,00 €
WK	Factory calibration - calibration certificate	129,00 €
MZ	Material test certificate - EN10204 3.1	105,00 €
KF	Configuration / Preset	55,00 €

Order code

Thermocont® mm mm

Equipment

Ordering information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0505PUR-AS

Model
Matching cable socket, VA-nut

18,50 €
19,50 €
22,50 €
26,00 €

PGE

Thermocont® TS4S

Temperature switch for general applications
Monitoring of temperatures in gases, vapors, liquids and dusts

4 / 01.22

Technical data



Supply voltage:	10,5...35VDC, reverse polarity protected
Supply current:	≤ 60mA
	Analogue output max. 22,5mA
Switch output with no load	
2xPNP-switch output	
Function:	PNP switch to +L
Output current:	0... ≤ 200mA; current limited, short circuit protected
Analogue output 4...20mA	
Operating Range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (US - 10,5V) / 20mA
Start-up time:	≤ 1 ms
Measuring accuracy	
Characteristic deviation:	Display / Switch output: ≤ ±0,6% FS
	Current output: ≤ ±0,9Kat ±100°C
	Type self-supervision: Display / Switch output: ≤ ±0,2K /
	Current output: ≤ ±0,4K / Drift monitoring: ≤ ±0,2K
	≤ ± 0,1% FS / year
Long term drift:	Display / Switch output: ≤ ±0,003% FS/ K
Temperature deviation	Current output: ≤ ±0,008% FS/ K
Sensor tube: (process wetted)	Steel 1.4404/316L / Steel 1.4571/316Ti
Process connection: (recess wetted)	Steel 1.4404/316L / Steel 1.4571/316Ti
Surface quality:	Ra < 0,8µm
Neck tube:	CrNi-Steel
Terminal enclosure:	CrNi-Steel
Control panel surface:	PES
Electrical connection part:	Device plug PUR
Pressure compensation element:	Acrylic copolymer
Gaskets:	FPM – fluorelastomere (e.g. Viton®) / Type 4 / type 5 process wetted: FPM – fluorelastomere (e.g. Viton®), EPDM, FDA-listet -40°C...+85°C
Environmental temperature:	depending on type: -50°C...+200°C/-99,9°C...+500°C/
Process temperature:	-50°C...+175°C
Process pressure:	depending on type: ≤ 20 bar / ≤ 100 bar / ≤ 50 bar
Protection:	IP65/IP67 EN/IEC 60529



Application

The device is an electronic temperature switch for monitoring, control as well as continuous measurement of temperatures in gases, vapors, liquids and dusts.

Due to the device construction with process temperature from up to -99,9°C to +500°C, process pressures up to 100 bar, process contacting material stainless steel V4A as well as the availability of a variety of process connections like connection for compression fitting, thread connections ISO 228-1, thread connection ISO 228-1 with front-flush O-ring gasket the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology and paint and coating industry. The temperature switch is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

Compared with temperature sensors, which are calibrated cyclic, the process safety increases when using the temperature switch with self-supervision. At cyclic calibration an occurring drift will be also detected, but an undefined time it has been produced with a drift affected sensor. Because the device generates a signal immediately at exceedance of the set drift limit, it must not be waited until to the end of the calibration interval. Thus the process safety and with this the product quality will be improved significantly.

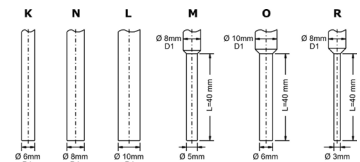
Besides the increased process safety, the use of the temperature switch with self-supervision allows substantial cost savings. Due to the use of two redundantly working sensors, which are mutually monitored, the calibration intervals can be increased and thus calibrations can be saved.

The pressure switch with front-flush O-ring gasket has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media. The process connection is supplied with a positive seal. A reliable, dead-space free sealing between the process connection and the process adapter resp. measuring medium is thus assured.

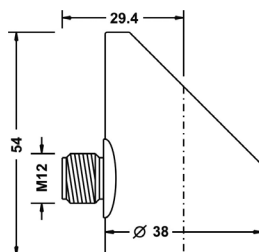
The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

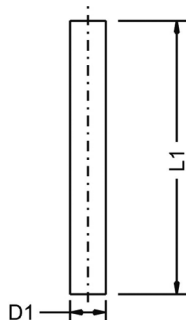
Sensor tube



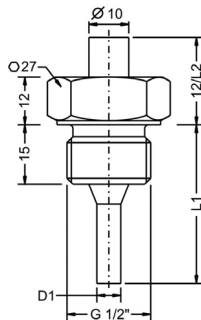
Terminal enclosure



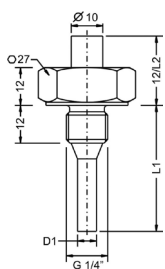
Type 0 – without thread



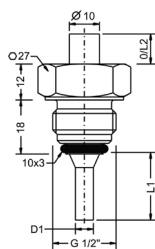
Type 1 – Thread ISO 228-1 – G½"



Type 3 – Thread ISO 228-1 – G¼" B



Type 4 / type 5 – Thread ISO 228-1 – G½" B – front-flush gasket



Thermocont® TS4S

Temperature switch for general applications
Monitoring of temperatures in gases, vapors, liquids and dusts

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Equipment
immersion pocket and
weld-in sockets
on page 170

Basic price (*scale prices)		245,00 €
Type		
TS4S	Standard	0,00 €
Measuring system		
S	Resistance sensor Pt100-A	0,00 €
D	Resistance sensor Pt100-A / semiconductor sensor, self-supervision function	135,00 €
Approval		
S	Standard	0,00 €
Process connection		
0	Without thread, for compression fitting	0,00 €
1	Thread ISO 228-1 - G½"B	0,00 €
3	Thread ISO 228-1 - G¼"B	0,00 €
4	Thread ISO 228-1 - G½", front-flush gasket FPM (e.g.Viton®) (socket SEM-12/SEM-32)	0,00 €
5	Thread ISO 228-1 - G½", front-flush gasket EPDM (FDA-listed) (socket SEM-12/SEM-32)	0,00 €
Y	Others	on request
Sensor tube material / diameter (process wetted)		
K	CrNi-steel, Ø6mm	0,00 €
N	CrNi-steel, Ø8mm	0,00 €
L	CrNi-steel, Ø10mm	0,00 €
M	CrNi-steel, Ø8mm, Tip Ø5mm / L 40mm - only measuring system type S	9,60 €
O	CrNi-steel, Ø10mm, Tip Ø6mm	9,60 €
R	CrNi-steel, Ø8mm, Tip Ø3mm / L 40mm - only measuring system type S	26,00 €
Y	Others	on request
Neck tube		
0	Without	0,00 €
1	Neck tube, Standard L2 = 100mm	see below
Y	Neck tube, other length L2	see below
Material terminal enclosure		
C	CrNi-steel	0,00 €
Measuring range		
2	-99,9°C ... +200°C - Measuring system type S	0,00 €
3	-99,9°C ... +500°C - Measuring system type S	0,00 €
4	-50°C ... +175°C - Measuring system type D	0,00 €
Electronic - output		
A	2x switch PNP, supply 24VDC	0,00 €
B	1x switch PNP, 1x signal 4...20mA, supply 24VDC	46,00 €
C	2x switch PNP, 1x signal 4...20mA, supply 24VDC	69,00 €
D	1x switch PNP, 1x signal 4...20mA, supply 24VDC, Desina	69,00 €
Electronic - function		
S	Standard	0,00 €
Electrical connection		
S	Plug M12x1	0,00 €
Length L1 - Sensor tube / mm (L1 ≤ 2000mm) (price per commenced 100 mm)		
		9,60 €
Length L2 - Neck tube / mm (L2 ≤ 200mm) (price per commenced 100 mm)		
		9,60 €

Temperature measurement

***scale prices - basic price**

Thermocont® TS4S	
1 - 5 pieces	245,00 €
6 - 10 pieces	232,00 €
11 - 30 pieces	221,00 €

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG - Laser marking	20,00 €
WK	Factory calibration - calibration certificate	129,00 €
MZ	Material test certificate - EN10204 3.1	105,00 €
KF	Configuration / Preset	55,00 €

Order code

Thermocont® TS4S S C S S mm mm

Equipment

Order information	Model	
LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded	22,50 €
LKZ0410PUR-AS	Connection cable 10 m, 4-pole, shielded	28,50 €
LKZ0505PUR-AS	Connection cable 5 m, 5-pole, shielded	26,00 €
LKZ0510PUR-AS	Connection cable 10 m, 5-pole, shielded	35,00 €
BKZ0412-VA	Matching cable socket, VA-nut	18,50 €
BKZ0512-VA	Matching cable socket, VA-nut (at 0...10 V)	19,50 €

PGE



Thermocont® TS4L

Temperature switch for hygienic applications
Monitoring of temperatures in gases, vapors, liquids and dusts

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Equipment

immersion pocket and
weld-in sockets
on page 170

Basic price (*scale prices)

245,00 €

TS4L	Type	Hygienic applications	0,00 €
S	Measuring system	Resistance sensor Pt100-A	0,00 €
D		Resistance sensor Pt100-A / semiconductor sensor, self-supervision function	135,00 €
S	Approval	Standard	0,00 €
6	Process connection	Thread ISO228-1 - G½", metallic/elastomer-free sealing (socket SEM-22/SEM-42)	25,00 €
F		Aseptic tube coupling DIN 11864-1-A - DN25, PN40	80,00 €
G		Aseptik-Rohrverschraubung DIN 11864-1-A - DN40, PN25	80,00 €
O		Dairy coupling DIN 11851 - DN25, PN40	80,00 €
N		Dairy coupling DIN 11851 - DN40, PN40	80,00 €
M		Dairy coupling DIN 11851 - DN50, PN25	80,00 €
R		Varivent® F tube - DN25...DN32 / 1"...1¼", PN40	198,00 €
P		Varivent® N tube - DN40...DN162 / 1½"...6", PN40	170,00 €
T		Clamp ISO 2852 - DN40-51 / BS 4825 - 2" / DIN 32676 - DN50, PN25	106,00 €
Y		Others	on request
K	Sensor tube material / diameter (process wetted)	CrNi-steel, Ø6mm	0,00 €
N		CrNi-steel, Ø8mm	0,00 €
L		CrNi-steel, Ø10mm	0,00 €
M		CrNi-steel, Ø8mm, Tip Ø5mm / L 40mm - only measuring system type S	9,60 €
O		CrNi-steel, Ø10mm, Tip Ø6mm	9,60 €
R		CrNi-steel, Ø8mm, Tip Ø3mm / L 40mm - only measuring system type S	26,00 €
Y		Others	on request
0	Neck tube	Without	0,00 €
1		Neck tube, Standard L2 = 100mm	see below
Y		Neck tube, other length L2	see below
C	Material terminal enclosure	CrNi-steel	0,00 €
2	Measuring range	-99,9°C ... +200°C - Measuring system type S	0,00 €
3		-99,9°C ... +500°C - Measuring system type S	0,00 €
4		-50°C ... +175°C - Measuring system type D	0,00 €
A	Electronic - output	2x switch PNP, supply 24VDC	0,00 €
B		1x switch PNP, 1x signal 4...20mA, supply 24VDC	46,00 €
C		2x switch PNP, 1x signal 4...20mA, supply 24VDC	69,00 €
D		1x switch PNP, 1x signal 4...20mA, supply 24VDC, Desina	69,00 €
S	Electronic - function	Standard	0,00 €
S	Electrical connection	Plug M12x1	0,00 €
	Length L1 - Sensor tube / mm	(L1 ≤ 2000mm) (price per commenced 100 mm)	9,60 €
	Length L2 - Neck tube / mm	(L2 ≤ 200mm) (price per commenced 100 mm)	9,60 €

Price group D

Temperature measurement

*scale prices - basic price

Thermocont® TS4L	
1 - 5 pieces	245,00 €
6 - 10 pieces	232,00 €
11 - 30 pieces	221,00 €

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG - Laser marking	20,00 €
WK	Factory calibration - calibration certificate	129,00 €
MZ	Material test certificate - EN10204 3.1	105,00 €
KF	Configuration / Preset	55,00 €

Order code

Thermocont® TS4L S C S S mm mm

Resistance thermometer Pt100

universal temperature sensor for virtually all process conditions

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Technical data



measuring element: platinum resistance element Pt100/ Pt1000, others on request
 temperature ranges: at the measuring tip: -70°C...+300°C
 +500°C/ +600°C and low-temperature version on request
 tolerance Class: AA, A, B - according to IEC 60751
 signal type: - 1x Pt100: in 2-, 3-, 4-wire connection
 - 2x Pt100: in 2x 2-wire or 2x 3-wire connection
 - 3x Pt100: in 3x 2-wire connection
 - free skinner for self-installation of a head transmitter
 - head transmitter, 4...20 mA/ 0...10 V output, standard, Ex, Profibus; others on request
 connection type: - terminal compartment in Alu-, plastic- or stainless steel housing
 - fix connection cable - PTFE shielded, silicone, PVC, glass silk with steel mesh, others on request
 - Lemo-plug system, M12 plug system
 materials (process side): - protective tubes made of seamless stainless steel: 1.4571(AISI 316Ti)
 - flanges, process connections: 1.4571 (AISI 316 Ti)
 - special materials on request
 materials (connection side): - housing: aluminium, CrNi-steel, PP-polypropylene, POM-polyoxymethylene
 - cable material see „connection type“

Application

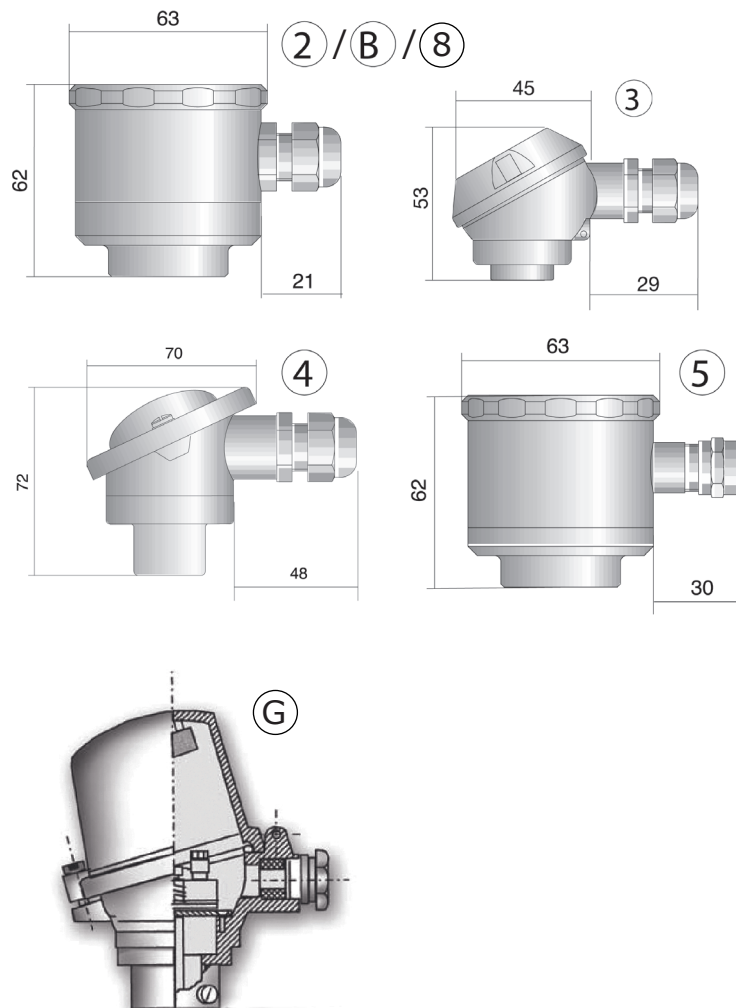
Fundamentals of ACS Universal resistance thermometer are standardized, high-quality platinum RTDs of a nominal resistance of 100 ohms at 0 ° C, tolerance classes A, B, 1/3B (AA) - in accordance with DIN EN / IEC 60751st.
 ACS Pt100 probes have a high accuracy and reproducibility are extremely reliable.
 The sensing elements are embedded in the protective tube with magnesium oxide powder and are sealed hermetically.
 Thus, a good heat transfer and vibration protection is achieved.

Standard measuring temperatures are -70 ° C .. +300 ° C; High temperature versions +500 ° C / +600 ° C, low-temperature versions, special materials, special process connections and OEM versions are also available.

The given measuring temperature refers to an average temperature at the probe tip.

With cable versions, for example PTS / PTK and Pt100 sensors with connection head, possibly with integrated head transmitter, the respective maximum temperature of the cable, heads, etc. with on-site isolation, use of Pt100 must be considered.
 The measurement speed of the individual Pt100 sensor is highly dependent on operating conditions, the measured medium and the physical dimensions.

The immersion depth should not be less than 50 mm. Please clarify always shorter probe lengths with the ACS staff.



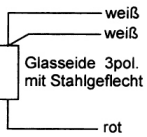
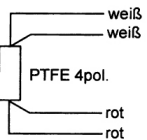
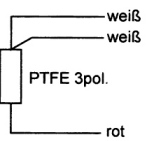
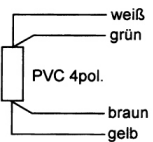
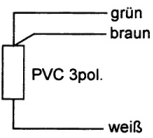
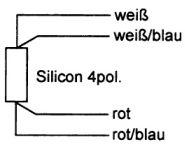
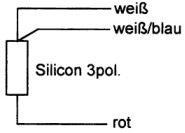
Temperature measurement

Resistance thermometer Pt100

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Connection

Pt-100 Kabelbelegung



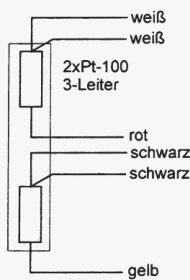
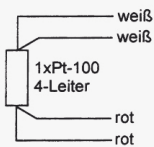
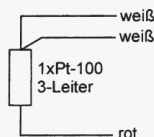
error limits of the Pt-measurement resistors

°C	Klasse A		Klasse B	
	Ohm	entspr. °C	Ohm	entspr. °C
-200	±0.24	±0.55	±0.56	±1.3
-100	±0.14	±0.35	±0.32	±0.8
-60	-	-	-	-
0	±0.06	±0.15	±0.12	±0.3
100	±0.13	±0.35	±0.30	±0.8
180	-	-	-	-
200	±0.20	±0.55	±0.48	±1.3
300	±0.27	±0.75	±0.64	±1.8
400	±0.33	±0.95	±0.79	±2.3
500	±0.38	±1.15	±0.93	±2.8
600	±0.43	±1.35	±1.06	±3.3
650	±0.46	±1.45	±1.13	±3.6
700	-	-	±1.17	±3.8
800	-	-	±1.28	±4.3
850	-	-	±1.34	±4.6

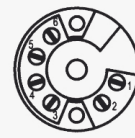
1/3 DIN B (AA) $\hat{=}$ $\pm 0,10^{\circ}\text{C}$ at 0°C = 1/3 from class B

Temperature measurement

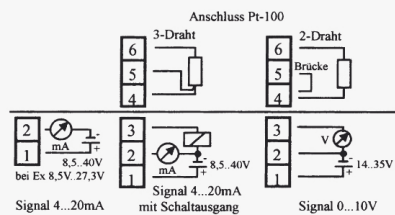
Anschluss Klemmsoclel



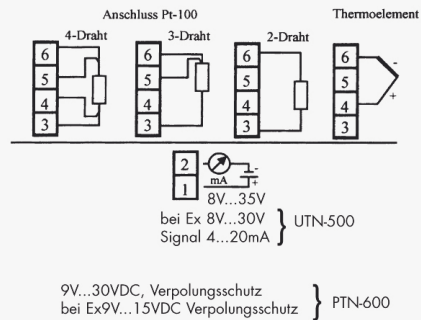
Anschluss Kopfransmitter



Klemmenplan KTM...



Klemmenplan UTN-500/PTN-600



PTA-

standard-screw-in resistance thermometer Pt100 With and without neck tube

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Equipment

(1) please order head transmitter separately on page 236

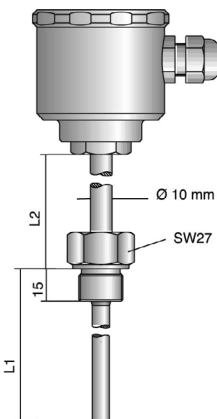
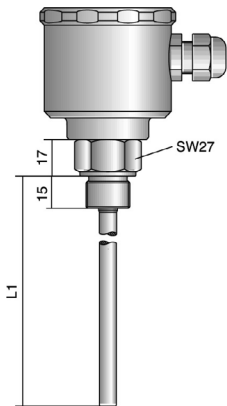
immersion pocket and weld-in sockets on page 170

Connector heads

Attention!

Temperature ranges of the connector heads: with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C
Please use neck tubes at higher process temperatures!

Temperature measurement



Order code

PTA

sensor type

1	1x Pt100, 2-wire	80,00 €
2	1x Pt100, 3-wire	83,00 €
3	1x Pt100, 4-wire	86,00 €
4	2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	111,00 €
5	2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	116,00 €
6	1x Pt1000, 3-wire	91,00 €
7	3x Pt100, 2-wire (3x Pt100 with exchangeable measuring insert, only from ø 8 mm)	146,00 €

accuracy class (with double Pt100 price x 2)

B	class B, up to +500°C	0,00 €
A	class A, up to +300°C	9,00 €
C	class AA (formerly class 1/3B), up to +150°C	18,50 €
Y	Special version eg. high temperature etc.	on request
P	class AA (formerly class 1/3B), paired version, for eg. heat quantity measurement	63,00 €

Process connection

1	screw-in thread G1/2"	0,00 €
2	screw-in thread G1"	22,50 €
3	screw-in thread G3/8"	0,00 €
5	union nut G3/4"	22,50 €
F	Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40	114,00 €
E	Flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40	97,00 €
Y	Others process connections	on request

Material, sensor diameter, process side

T	1.4571 / 3 mm	0,00 €
U	1.4571 / 5 mm	0,00 €
K	1.4571 / 6 mm	0,00 €
N	1.4571/ 8 mm	0,00 €
L	1.4571 / 10 mm	0,00 €
W	1.4571 / 12 mm	0,00 €
P	1.4571 / 6 mm, reduced tip 4 mm; 40 mm long	9,00 €
M	1.4571 / 8 mm, reduced tip 5 mm; 40 mm long	9,00 €
O	1.4571 / 10 mm, reduced tip 6 mm; 40 mm long	9,00 €
R	1.4571 / 8 mm, reduced tip 3 mm; 40 mm long	24,50 €
Y	Others	on request

neck tube

A	Without neck tube	0,00 €
B	With neck tube (standard L2 = 100 mm)	see below
Y	With neck tube by choice in mm	see below

connector head

A	PP-head small	on request
B	PP-head big	24,00 €
1	plastic head made of Delrin® small	on request
2	plastic head made of Delrin® big	24,00 €
3	aluminum head small (not with sensor type-variation 5 and 7)	18,50 €
4	aluminum head big	24,00 €
5	Stainless steel head big	49,00 €
7	PTFE-head small	on request
8	PTFE-head big	on request
G	aluminum head double size	49,00 €
Y	other designs	on request

Measuring insert

F	rigidly mounted	0,00 €
W	exchangeable (at high temperature version always mandatory)	18,50 €

Connection type

K	connection with terminal socket	9,60 €
M	connection for head transm. (1) 4-20mA/0-10V fixed value	9,60 €
X	connection head transmitter (1) UTN-500 software programmable	9,60 €
D	connection with skinner for self-installation of head transmitter*	0,00 €
V	5-pole M12-plug	9,00 €
G	connection for 2x head transmitter	20,00 €
L	connection with 2x terminal socket	20,00 €
Y	Special version	on request

length L1 sensor in mm

(price per commenced 100 mm) 9,60 €
(price from 1000 mm length) on request
(preferred lengths: 50 | 100 | 150 mm)

length L2 neck tube in mm

(price per commenced 100 mm) 9,60 €
(price from 1000 mm length) on request
(preferred length 100 mm)

Price group B

PTB-

resistance thermometer-clamp-on sensor Pt100 for front-flush weld-in socket

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Equipment

⁽¹⁾ please order head transmitter separately on page 236

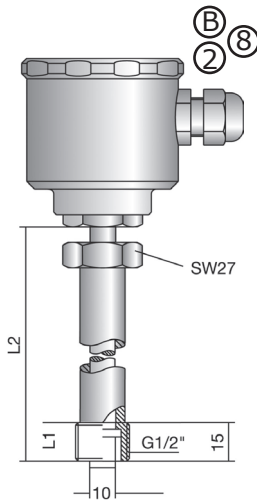
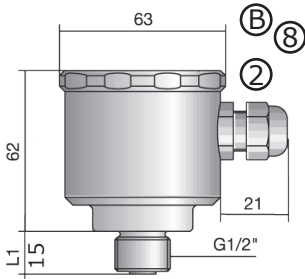
immersion pocket and weld-in sockets on page 170

Connector heads

Attention!

Temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTB

G mm mm

sensor type

- 1 1x Pt100, 2-wire 80,00 €
- 2 **1x Pt100, 3-wire** **84,00 €** (preferred type)
- 3 1x Pt100, 4-wire 86,00 €

accuracy class (with double Pt100 price x 2)

- B class B 0,00 €
- A class A** **9,00 €** (preferred type)

Process connection G1/2" (weld-in sockets see page 170)

- A for weld-in socket TEM-10 or TEM-11** (see drawing A) **0,00 €** (preferred type)
- Y (weld-in socket not included) on request

Material measuring surface

- N 1.4571** **0,00 €** (preferred type)
- Y Others on request

neck tube

- A Without neck tube up to +85°C** **0,00 €** (preferred type)
- B With neck tube made of VA (standard L2 = 100 mm) up to +200°C adjustable see below
- Y With neck tube by choice in mm see below

construction type

- B PP-head big 24,00 €
- 2 **plastic head made of Delrin® big** **24,00 €** (preferred type)
- 4 for valve plug DIN 43650 on request
- 8 PTFE-head big on request
- Y other designs on request

Measuring insert

- G rigidly mounted** (version with neck tube made of VA or valve plug, exchangeable at Version without neck tube Version 2.0 (preferred type) **0,00 €**

Connection type

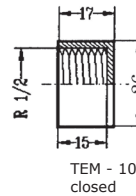
- K connection with terminal socket** **9,60 €** (preferred type)
- M connection for head transmitter⁽¹⁾ 4-20mA/0-10V fixed value** **9,60 €**
- X connection head transmitter⁽¹⁾ UTN-500 software programmable 9,60 €
- D connection with skinner for self-installation from head transmitter 0,00 €
- signal converter only with connector U head "big" possible** on request
- Z With connection cable 1 m 0,00 €
- Y valve plug DIN 43650 on request
- Special version on request

length L1 sensor in mm (clamp-on sensor)

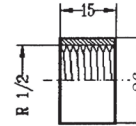
- length 0015 mm 0,00 €

length L2 neck tube in mm

- neck tube made of VA, adjustable 100mm 56,00 €
- other lengths on request



TEM - 10 closed



TEM - 11 open

Price group B

Temperature measurement

PTF-

standard-immersion-resistance thermometer Pt100 for sliding sleeve

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Equipment

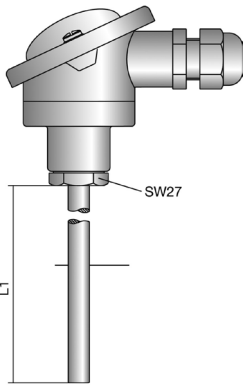
⁽¹⁾ please order head transmitter separately on page 236

immersion pocket and weld-in sockets on page 170

Connector heads

Attention!

Temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C



Order code

PTF

0

mm

sensor type

1	1x Pt100, 2-wire	80,00 €
2	1x Pt100, 3-wire (preferred type)	84,00 €
3	1x Pt100, 4-wire	86,00 €
4	2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	111,00 €
5	2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	116,00 €
6	1x Pt1000, 3-wire	91,00 €
7	3x Pt100, 2-wire (3x Pt100 with exchangeable measuring insert, only from ø 8 mm)	146,00 €

accuracy class (with double Pt100 price x 2)

B	class B, up to +500°C (preferred type)	0,00 €
A	class A, up to +300°C	9,00 €
C	class AA (formerly class 1/3B), up to +150°C	18,50 €
Y	Special version eg. high temperature etc.	on request
P	class AA (formerly class 1/3B), paired version, for eg. heat quantity measurement	63,00 €

Process connection, sensor diameter

(please order sliding sleeve separately see page 170)

1	8 mm tube diameter (preferred type)	0,00 €
2	10 mm tube diameter	0,00 €
3	6 mm tube diameter	0,00 €
4	8 mm, reduced tip 5 mm, 40 mm length	9,00 €
6	10 mm, reduced tip 6 mm, 40 mm length	9,00 €
7	15 mm x 2 mm	17,50 €
Y	Others	on request

Material process side

N	1.4571 (preferred type)	0,00 €
O	heat-resistant steel 1.4841 up to 1100°C	on request
Y	Others	on request

0

connector head

A	PP-head small	on request
B	PP-head big	24,00 €
1	plastic head made of Delrin® small	on request
2	plastic head made of Delrin® big	24,00 €
3	aluminum head small (not with sensor type-variation 5 and 7)	18,50 €
4	aluminum head big (preferred type)	24,00 €
5	Stainless steel head big	49,00 €
7	PTFE-head small	on request
8	PTFE-head big	on request
G	aluminum head double size	49,00 €
Y	other designs	on request

Measuring insert

F	rigidly mounted (preferred type)	0,00 €
W	exchangeable (at high temperature version always mandatory)	18,50 €

Connection type

K	connection with terminal socket (preferred type)	9,60 €
M	connection for head transm.⁽¹⁾ 4-20mA/0-10V fixed value	9,60 €
X	connection head transmitter ⁽¹⁾ UTN-500 software programmable.	9,60 €
D	connection with skinner for self-installation from head transmitter	0,00 €
G	connection for 2x head transmitter	20,00 €
L	connection with 2x terminal socket	20,00 €
Y	Special version	on request

length L1 sensor in mm

	(price per commenced 100 mm)	9,60 €
	(price from 1000 mm length)	on request
	(preferred lengths: 100 | 150 | 200 mm)	

Price group B

Temperature measurement

PTG-

resistance thermometer Pt100, acid and alkali resistant

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Equipment

⁽¹⁾ please order head transmitter separately on page 236

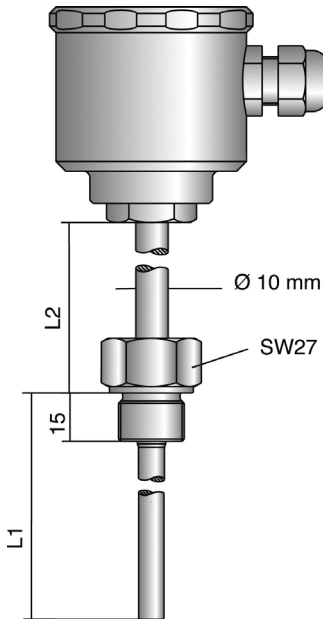
immersion pocket and weld-in sockets on page 170

Connector heads

Attention!

temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTG

mm mm

sensor type

- 1 1x Pt100, 2-wire
- 2 **1x Pt100, 3-wire** (preferred type)
- 3 1x Pt100, 4-wire
- 4 2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 5 2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)

accuracy class (with double Pt100 price x 2)

- B **class B** (preferred type)
- A class A
- C class AA (formerly class 1/5B)

Process connection

- 1 **screw-in thread G½"** (preferred type)
- 2 screw-in thread G¾"
- 3 screw-in thread M 20
- Y Special version

Material, sensor diameter, process side

- L **PTFE 12 mm** (max. 150 mm = L1) (preferred type)
- H 1.4571 8 mm with ETFE-coating up to 1000 mm L1
- P PTFE 12 mm made of one piece up to 150 mm L1
- Y Special version eg. special coating

neck tube

- A **Without neck tube**
- B **With neck tube** (standard L2 = 100 mm)
- Y With neck tube by choice in mm

connector head, design

- 1 PTFE-head small
- 2 **plastic head made of Delrin® big diameter 63 mm** (preferred type) ..
- 3 PTFE-head big
- Y Special version

Measuring insert

- F **rigidly mounted**
- W exchangeable

Connection type

- K **connection with terminal socket**
- M connection for head transmitter⁽¹⁾ 4-20 mA with festem Wert ..
- X connection head transmitter⁽¹⁾ UTN-500 software programmable ..
- D connection with skinner for self-installation from head transmitter ..
- Y Special version

length L1 sensor in mm

- (price per commenced 100 mm)
- (price from 1000 mm length)

length L2 neck tube in mm

- (price per commenced 100 mm)
- (price from 1000 mm length)

80,00 €
84,00 €
86,00 €
111,00 €
116,00 €

0,00 €
9,00 €
18,50 €

0,00 €
0,00 €
0,00 €
on request

on request
on request
on request

0,00 €
see below
see below

on request
42,00 €
on request
on request

0,00 €
18,50 €

9,60 €
9,60 €
9,60 €
0,00 €
on request

18,50 €
on request

18,50 €
on request

Price group B

Type of medium, temperature, concentration, etc. important!

PTI-

immersion pocket - resistance thermometer Pt100 with spring-loaded measuring insert

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Equipment

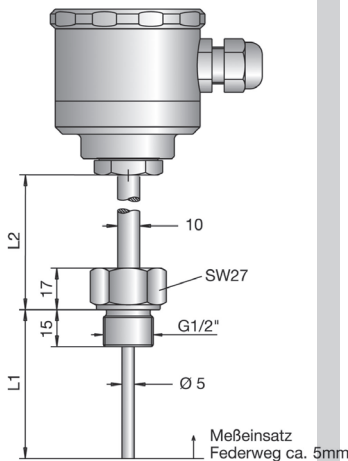
⁽¹⁾ please order head transmitter separately on page 236

Special matching immersion pocket STH-X06 page 171

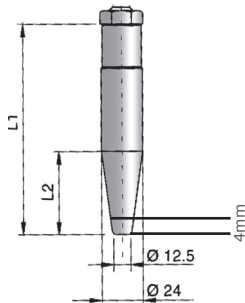
Connector heads

Attention!
temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Pressure-tight only in connection with adapted immersion pocket!



Order code

PTI

W mm mm

sensor type

1	1x Pt100, 2-wire	80,00 €
2	1x Pt100, 3-wire (preferred type)	84,00 €
3	1x Pt100, 4-wire	86,00 €
4	2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	111,00 €
5	2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	116,00 €
6	1x Pt1000, 3-wire	91,00 €
7	3x Pt100, 2-wire (3x Pt100 with exchangeable measuring insert, only from ø 8 mm)	146,00 €

accuracy class (with double Pt100 price x 2)

B	class B, up to +500°C (preferred type)	0,00 €
A	class A, up to +300°C	9,00 €
C	class AA (formerly class 1/3B), up to +150°C	18,50 €
P	class AA (formerly class 1/3B), paired version, for eg. heat quantity measurement	63,00 €
Y	Special version eg. high temperature version etc.	on request

Process connection

1	screw-in thread G1/2" (for immersion pocket STHA/STHB/STHX) (preferred type)	0,00 €
2	screw-in thread G1"	24,00 €
Y	Special version	on request

Material, measuring insert diameter, process side

U	1.4571 / 5 mm (for STH with 6 mm inner diameter) (preferred type)	0,00 €
Y	Others	on request

neck tube

A	Without neck tube (preferred type)	0,00 €
B	With neck tube (standard L2 =100 mm) (preferred type)	see below
Y	With neck tube by choice in mm	see below

connector head

B	PP-head big	18,50 €
2	plastic head made of Delrin® big (preferred type)	24,00 €
4	aluminum head big	24,00 €
5	Stainless steel head big	49,00 €
G	aluminum head double size	49,00 €
Y	other designs	on request

Measuring insert

W	exchangeable (preferred type)	18,50 €
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Connection type

K	connection with terminal socket (preferred type)	9,60 €
M	connection for head transm.⁽¹⁾ 4-20mA/0-10V fixed value	9,60 €
X	connection head transmitter ⁽¹⁾ UTN-500 software programmable	9,60 €
D	connection with skinner for self-installation from head transmitter	0,00 €
V	5-pole M12-plug	9,60 €
G	connection for 2x head transmitter	20,00 €
L	connection with 2x terminal socket	20,00 €
Y	Special version	on request

length L1 sensor in mm

	(price per commenced 100 mm)	9,60 €
	(price from 1000 mm length)	on request
	(preferred lengths: 50 | 100 | 150 mm)	

length L2 neck tube in mm

	(price per commenced 100 mm)	9,60 €
	(price from 1000 mm length)	on request
	(preferred length 100 mm)	

Price group B

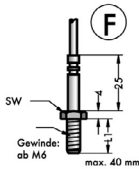
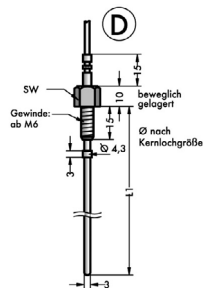
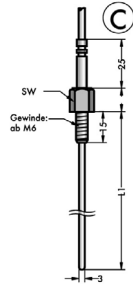
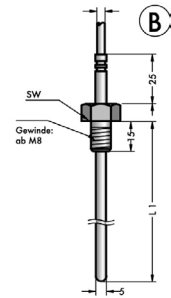
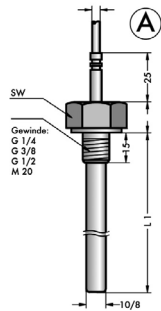
Temperature measurement

PTK-

screw-in resistance thermometer Pt100
with permanently attached cable or socket

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Temperature measurement



Order code

PTK mm

sensor type

- 1 1x Pt100, 2-wire 80,00 €
- 2 **1x Pt100, 3-wire** **82,00 €** (preferred type)
- 3 1x Pt100, 4-wire 86,00 €
- 4 2x Pt100, 2-wire (double Pt100 only from ø 5 mm) 111,00 €
- 5 2x Pt100, 3-wire (double Pt100 only from ø 5 mm) 116,00 €

accuracy class (with double Pt100 price x 2)

- B class B, up to +500°C** **0,00 €** (preferred type)
- A class A, up to +300°C 9,00 €
- C class AA (formerly class 1/2B), up to +150°C 18,50 €
- Y Special version eg. high temperature etc. on request

design

- A see drawing A (thread G1/4"; G3/8"; G1/2" or M20) 18,50 €
- B see drawing B (thread from M8) 15,00 €
- C see drawing C (thread from M6) 15,00 €
- D see drawing D (thread from M6) 35,00 €
- F see drawing F 18,50 €

thread

- A screw-in thread M6 0,00 €
- H screw-in thread M10 x 1 0,00 €
- D screw-in thread M8 0,00 €
- N screw-in thread G3/8" 0,00 €
- F screw-in thread M8 x 1 0,00 €
- O screw-in thread G1/2" 0,00 €
- G screw-in thread M10 0,00 €
- P screw-in thread G1/4" 0,00 €
- T screw-in thread M20 0,00 €
- Y other connections on request

Material, sensor diameter, process side

- T 1.4571/ 3 mm (design C + D) 0,00 €
- U 1.4571/ 5 mm (design B) 0,00 €
- V 1.4571/ 10 mm (design A) 0,00 €
- Z 1.4571/ 8 mm (design A) 0,00 €
- O 1.4571/ sensor diameter correspond to thread (design F) 0,00 €

cable

- A PVC see below
- B PTFE** **see below** (preferred type)
- C silicone (4pol.) see below
- D glass silk with steel mesh up to +300°C see below
- L socket LEMOSA 4-pole size 1 up to +80°C 24,00 €
- Y Special version on request

Cable length

- 1 1000 mm PVC 0,00 €
- A 1000 mm PTFE / glass silk / silicone 5,40 €
- 2 2000 mm PVC 6,30 €
- B 2000 mm PTFE / glass silk / silicone 11,50 €
- 5 5000 mm PVC 16,00 €
- C 5000 mm PTFE / glass silk / silicone 27,00 €
- Y Special length on request
- 0 Without cable (plug version) on request

strain relief

- 0 squeezed** (conditionally waterproof) **0,00 €** (preferred type)
- 2 tightly rolled, IP 67, only with PTFE-cable 18,50 €
- Y Special version on request

length L1 sensor in mm (preferred lengths: 50 | 100 | 150 mm)

- (price per commenced 100 mm) 9,60 €

Price group B

PTL-

screw-in resistance thermometer Pt100 for food industry with front-flush hygienic gasket or metal-seated

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Equipment

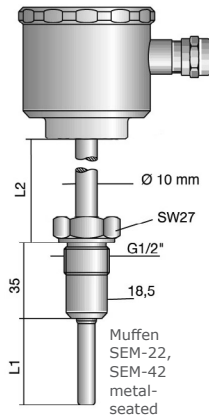
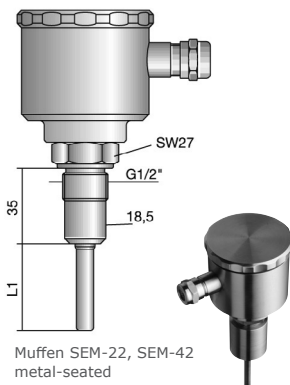
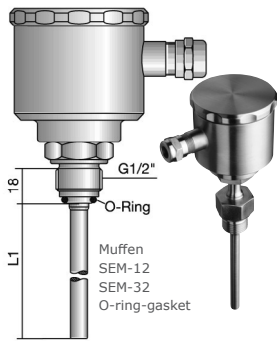
⁽¹⁾ please order head transmitter separately on page 236

immersion pocket and weld-in sockets on page 170

Connector heads

Attention!
temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTL

mm

mm

sensor type

- 1 1x Pt100, 2-wire
- 2 **1x Pt100, 3-wire** (preferred type)
- 3 1x Pt100, 4-wire
- 4 2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 5 2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)

accuracy class (with double Pt100 price x 2)

- B class B, up to +500°C
- A class A, up to +300°C** (preferred type)
- C class AA (formerly class 1/3B), up to +150°C
- Y Special version eg. high temperature etc.

Process connection for weld-in sockets

(please order weld-in socket separately see page 170)

- 4 G1/2" with O-ring-gasket Viton® for sleeve SEM-12 or SEM-32
- 5 **G1/2" with O-ring-gasket EPDM for sleeve SEM-12 or SEM-32** (preferred type)
- X G1/2" with other O-ring-gasket for sleeve SEM-12 or SEM-32
- 6 **G1/2" metal-seated for sleeve SEM-22 or SEM-42** (preferred type)
- Y Special version

Material, sensor diameter, process side

- K 1.4571/ 6 mm
- N 1.4571/8 mm (with exchangeable measuring insert)** (preferred type)
- L 1.4571/ 10 mm
- P 1.4571/ 6 mm, reduced tip 4 mm; 40 mm long
- M 1.4571/ 8 mm, reduced tip 5 mm; 40 mm long
- O 1.4571/ 10 mm, reduced tip 6 mm; 40 mm long
- R 1.4571/ 8 mm, reduced tip 3 mm; 40 mm long
- Y Others

neck tube

- A Without neck tube** (preferred type)
- B With neck tube (standard L2 =100 mm)** (preferred type)
- Y With neck tube by choice in mm

connector head

- A PP-head small
- B PP-head big
- 1 plastic head made of Delrin® small
- 2 plastic head made of Delrin® big
- 3 aluminum head small (not with sensor type-variation 5)
- 4 aluminum head big
- 5 Stainless steel head big** (preferred type)
- 7 PTFE-head small
- 8 PTFE-head big
- Y other designs

Measuring insert

- F rigidly mounted
- W exchangeable** (at high temperature version mandatory) (preferred type)

Connection type

- K connection with terminal socket** (preferred type)
- M connection for head transmitter⁽¹⁾ 4-20mA/0-10V fixed value**
- X connection head transmitter⁽¹⁾ UTN-500 software programmable
- Y connection with skinner for self-installation of head transm.
- Special version

length L1 sensor in mm

(price per commenced 100 mm)
(price from 1000 mm length)
(preferred lengths: 50 | 100 | 150 mm)

length L2 neck tube in mm

(price per commenced 100 mm)
(price from 1000 mm length)
(preferred length 100 mm)

80,00 €
84,00 €
86,00 €
111,00 €
116,00 €

0,00 €
9,00 €
18,50 €
on request

25,00 €
25,00 €
25,00 €
25,00 €
on request

0,00 €
0,00 €
0,00 €
9,60 €
9,60 €
9,60 €
9,60 €
24,50 €
on request

0,00 €
see below
see below

18,50 €
24,00 €
18,50 €
24,00 €
18,50 €
24,00 €
49,00 €
on request
on request

0,00 €
18,50 €

9,60 €
9,60 €
9,60 €
0,00 €
on request

9,60 €
on request

9,60 €
on request

Price group B

Temperature measurement

PTM-

resistance thermometer Pt100 with bayonet joint

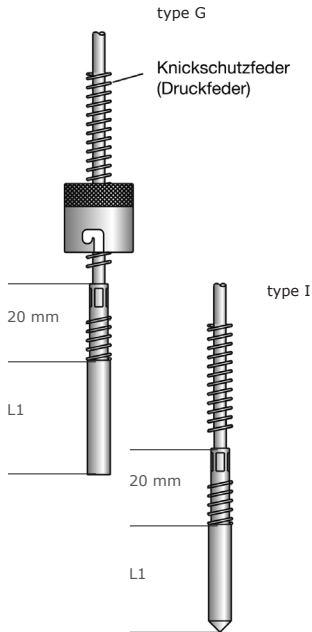
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Equipment

please order thread nipple separately
Seite 171



Temperature measurement



Order code

PTM

N 0 mm

Sensor type	
1	1x Pt100, 2-wire.....
2	1x Pt100, 3-wire (preferred type).....
3	1x Pt100, 4-wire.....
4	2x Pt100, 2-wire.....
5	2x Pt100, 3-wire.....
Accuracy class (with double Pt100 price x 2)	
B	class B, up to +500°C (preferred type)
A	class A, up to +300°C.....
C	class AA (formerly class 1/3B), up to +150°C.....
Y	Special version eg. high temperature etc.....
Design, diameter	
G	see drawing G 6 mm measuring surface plan.....
I	see drawing I 6 mm measuring surface 120°.....
Y	Special version.....
Bayonet	
A	bayonet 12,2 mm.....(preferred type)
0	Without bayonet.....
Material sensor	
N	1.4571 (preferred type)
Cable	
B	PTFE (preferred type)
D	glass silk with steel mesh 300°C.....
Y	Special version.....
Cable length (PTFE / glass silk)	
1	1000 mm.....
2	2000 mm.....
5	5000 mm.....
Y	Special length.....
Strain relief	
0	squeezed (conditionally waterproof)
	With break protection spring 250 mm (preferred type).....
2	tightly rolled, IP 67, only with PTFE-cable.....
Y	Special version.....
Length L1 sensor in mm (preferred length 30 mm) (price per commenced 100 mm).....	

80,00 €
84,00 €
74,00 €
78,00 €
80,00 €

0,00 €
9,00 €
18,50 €
on request

0,00 €
0,00 €
on request

0,00 €
0,00 €

0,00 €

see below
see below
on request

5,50 €
12,00 €
27,50 €
on request

0,00 €
18,50 €
on request

9,60 €

Price group B

PTO-

resistance thermometer Pt100 for food applications- and pharma industry with hygienic process connections

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Equipment

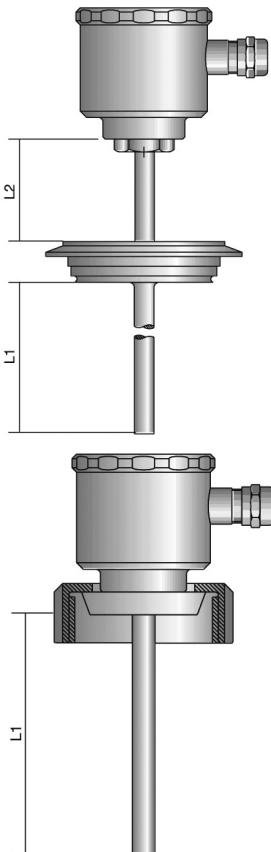
⁽¹⁾ please order head transmitter separately on page 236

immersion pocket and weld-in sockets on page 170

Connector heads

Attention!
temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTO

mm mm

sensor type		
1	1 x Pt100, 2-wire	80,00 €
2	1 x Pt100, 3-wire (preferred type)	84,00 €
3	1 x Pt100, 4-wire	86,00 €
4	2 x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	111,00 €
5	2 x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	116,00 €

accuracy class (with double Pt100 price x 2)		
B	class B, up to +500°C	0,00 €
A	class A, up to +300°C (preferred type)	9,00 €
C	class AA (formerly class 1/3B), up to +150°C	18,50 €
Y	Special version eg. high temperature etc.	on request

Process connection for weld-in sockets

F	DN 25 DIN 11864-1-A aseptic	80,00 €
G	DN 40 DIN 11864-1-A aseptic	80,00 €
M	Milk tube DN 50 DIN 11851 (preferred type)	80,00 €
N	Milk tube DN 40 DIN 11851 (preferred type)	80,00 €
O	Milk tube DN 25 DIN 11851	80,00 €
P	Varivent flange 68 mm diameter for tubes DN 32 - 125 (preferred type)	198,00 €
R	Varivent flange 50 mm diameter for tube DN 25	170,00 €
T	Tri-Clamp® G2" ISO 2852	106,00 €
Y	Special version	on request

Material, sensor diameter, process side

K	1.4571/ 6 mm	0,00 €
N	1.4571/ 8 mm (with exchangeable measuring insert) (preferred type)	0,00 €
L	1.4571/ 10 mm	0,00 €
P	1.4571/ 6 mm, reduced tip 4 mm; 40 mm long	9,60 €
M	1.4571/ 8 mm, reduced tip 5 mm; 40 mm long	9,60 €
O	1.4571/ 10 mm, reduced tip 6 mm; 40 mm long	9,60 €
R	1.4571/ 8 mm, reduced tip 3 mm; 40 mm long	24,50 €
Y	Others	on request

neck tube

A	Without neck tube (preferred type)	0,00 €
B	With neck tube (standard L2 = 100 mm) (preferred type)	see below
Y	With neck tube by choice in mm	see below

connector head

B	PP-head big	24,00 €
2	plastic head made of Delrin® big	24,00 €
3	aluminum head small (not with sensor type-variation 5)	18,50 €
4	aluminum head big	24,00 €
5	Stainless steel head big (preferred type)	49,00 €
8	PTFE-head big	on request
Y	other designs	on request

Measuring insert

F	rigidly mounted	0,00 €
W	exchangeable (at high temperature version mandatory) (preferred type)	18,50 €

Connection type

K	connection with terminal socket (preferred type)	9,60 €
M	signal converter only	9,60 €
X	connection for head transmitter⁽¹⁾ 4-20mA/0-10V fixed value	9,60 €
D	connection head transmitter ⁽¹⁾ UTN-500 software programmable.	0,00 €
Y	connection with skinner for self-installation of head transm. Special version	on request

length L1 sensor in mm

	(price per commenced 100 mm)	9,60 €
	(price from 1000 mm length)	on request
	(preferred lengths: 50 | 100 | 150 mm)	

length L2 neck tube in mm

	(price per commenced 100 mm)	9,60 €
	(price from 1000 mm length)	on request
	(preferred length: 100 mm)	

Price group B

Temperature measurement

PTR-

room and outdoor temperature sensor Pt100 with connection box

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Equipment

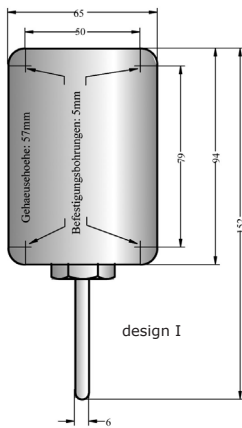
(1) please order head transmitter separately on page 236

Connector heads

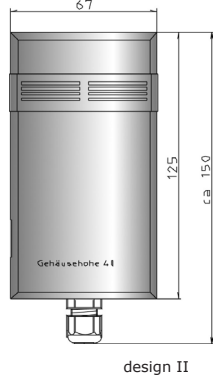
Attention!
temperature ranges of the connector heads:
with aluminum head:
130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!

outdoor sensor



room sensor



Order code

PTR

0 mm

sensor type	
1	1 x Pt100, 2-wire
2	1 x Pt100, 3-wire
3	1 x Pt100, 4-wire
4	2 x Pt100, 2-wire
5	2 x Pt100, 3-wire
accuracy class (with double Pt100 price x 2)	
B	class B
A	class A
C	class AA (formerly class 1/2B)
Wall housing	
1	Wall housing design I
2	Wall housing design II
Material sensor	
N	1.4571 (only at design I)
T	sensor in housing (design II)
Y	Others
Material housing	
K	plastic
Y	Others
0	.....
Measuring insert	
F	sensor for humidior -20° up to +80°C (design. I)
T	sensor for drying room 0° up to +80°C (perforated protection tube design I)
G	sensor for refrigeration room -35° C (design I)
H	sensor for interior 0 up to +60°C (design II)
Connection type	
K	connection with terminal socket
M	connection for head transmitter(1) 4-20mA/0-10V fixed value
X	connection head transmitter(1) UTN-500 software programmable.
D	connection with skinner for self-installation of head transm.
Y	Special version.
length L1 sensor in mm (preferred length 50 mm at design. I) no length information is necessary at design II! (price per commenced 100 mm)	

80,00 €
84,00 €
86,00 €
111,00 €
116,00 €

Price group B

0,00 €
0,00 €

0,00 €
0,00 €
on request

0,00 €
on request

0,00 €

0,00 €
0,00 €
0,00 €
0,00 €

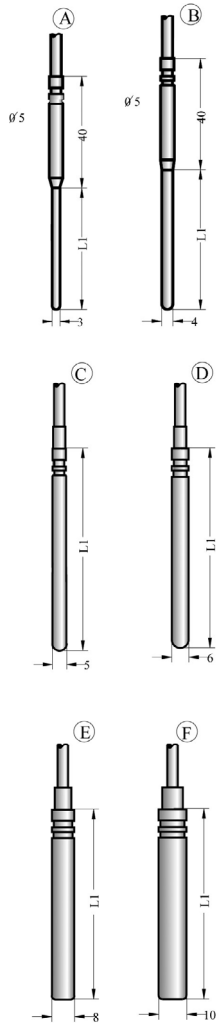
9,60 €
9,60 €
9,60 €
0,00 €
on request

9,60 €

PTS-

immersion resistance thermometer Pt100
with permanently attached cable or socket

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Order code

PTS mm

sensor type

1	1x Pt100, 2-wire	80,00 €
2	1x Pt100, 3-wire (preferred type)	84,00 €
3	1x Pt100, 4-wire	86,00 €
4	2x Pt100, 2-wire (double Pt100 only from ø 5 mm)	111,00 €
5	2x Pt100, 3-wire (double Pt100 only from ø 5 mm)	116,00 €
6	1x Pt1000, 3-wire	91,00 €
7	2x Pt100, 4-wire (double Pt100 only from ø 5 mm)	125,00 €

accuracy class (with double Pt100 price x 2)

B	class B, up to +500°C (preferred type)	0,00 €
A	class A, up to +300°C	9,00 €
C	class AA (formerly class 1/3B), up to +150°C	18,50 €
Y	Special version eg. high temperature etc.	on request

design

A	see drawing A	3 x 0,3 mm	0,00 €
B	see drawing B	4 x 0,3 mm	0,00 €
C	see drawing C	5 x 0,5 mm	0,00 €
D	see drawing D	6 x 0,5 mm	0,00 €
E	see drawing E	8 x 1 mm	0,00 €
F	see drawing F	10 x 1 mm	0,00 €

Material sensor

N	1.4571 (preferred type)	0,00 €
T	1.4571 with PTFE-coating	on request
Y	Special version	on request

cable

A	PVC up to +80°C	see below
B	PTFE up to +200°C (preferred type)	see below
C	silicone up to +180°C (Apol.)	see below
D	glass silk with steel mesh 300°C	see below
L	socket LEMO type PCA 4-pole size 1 up to +80°C	22,50 €
Y	Special version	on request

Cable length

1	1000 mm, PVC	0,00 €
A	1000 mm, PTFE / glass silk / silicone	5,40 €
2	2000 mm, PVC	6,30 €
B	2000 mm, PTFE / glass silk / silicone	11,50 €
5	5000 mm, PVC	16,00 €
C	5000 mm, PTFE / glass silk / silikon	27,00 €
Y	Special length	on request
0	Without cable at plug version	0,00 €

strain relief

0	squeezed (conditionally waterproof) (preferred type)	0,00 €
1	angled exit (only at ø 8mm)	18,50 €
2	tightly rolled, IP 67, only with PTFE-cable	18,50 €
3	tightly rolled and shrink tubing, IP 67, only with PTFE-cable	32,00 €
4	tightly rolled, IP 67, with break protection spring	32,00 €

length L1 sensor in mm (preferred lengths: 50 | 100 | 150 mm) (price per commenced 100 mm)

		9,60 €
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Price group B

Temperature measurement

Equipment

Ordering information
LEM04
LEM08

Model	
LEM04	LEMO SA-socket 4-pole size 1
LEM08	LEMO SA-socket 8-pole size 2

19,50 €
25,50 €

PTU-

surface temperature sensor

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sensor type

- 1 1 x Pt100, 2-wire
- 2 **1 x Pt100, 3-wire** (preferred type)
- 3 1 x Pt100, 4-wire

class

- B class B, up to +500°C** (preferred type)
- A class A, up to +300°C
- Y Special version eg. high temperature etc.

design

- A 6 x 6 x 20 mm** (preferred type)
- B 5 x 5 x 16 mm** (only made of copper/PVC possible) **up to +80°C** (preferred type)
- C 6 x 10 x 20 mm
- E 6 x 10 x 20 mm with bore hole
- F 10 x 12 x 30 mm with custom radius, specify radius!

Material sensor

- N 1.4571** (preferred type)
- C copper** (preferred type)
- M brass

Cable

- A PVC up to +80°C
- B PTFE up to +200°C** (preferred type)
- C silicone up to +150°C
- D glass silk with steel mesh 300°C
- Y Special version

Cable length

- 1 1000 mm PVC
- A 1000 mm PTFE / glass silk / silicone.
- 2 2000 mm PVC
- B 2000 mm PTFE / glass silk / silicone.
- 5 5000 mm PVC
- C 5000 mm PTFE / glass silk / silicone.
- Y Special length

strain relief

- 0 squeezed** (conditionally waterproof) (preferred type)

80,00 €
84,00 €
86,00 €

0,00 €
9,00 €
on request

14,00 €
20,00 €
33,00 €
45,00 €
51,00 €

0,00 €
0,00 €
0,00 €

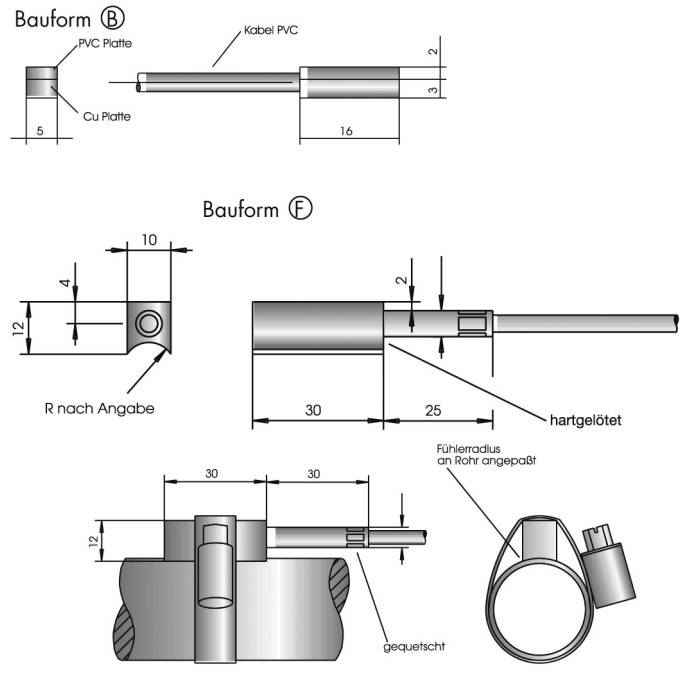
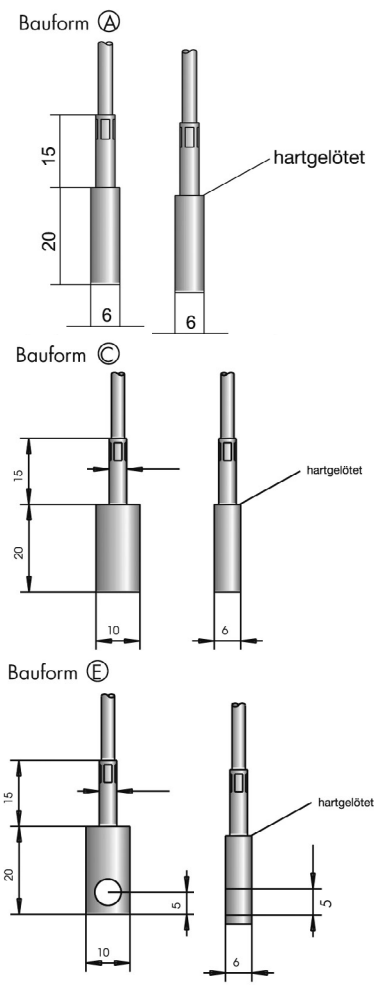
see below
see below
see below
see below
on request

0,00 €
5,40 €
6,30 €
11,50 €
16,00 €
27,00 €
on request

0,00 €

Price group B

Temperature measurement



Order code

PTU

Equipment

Ordering information
tubular tapes

on request

PTW-

air duct - resistance thermometer Pt100

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Equipment

(1) please order head transmitter separately on page 236

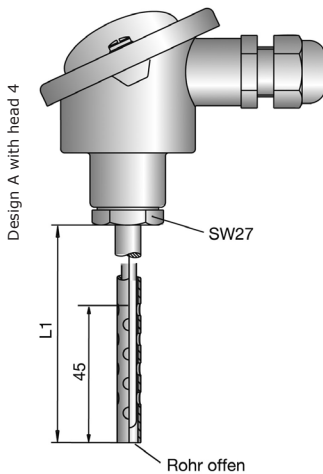
immersion pocket and weld-in sockets on page 170

Connector heads

Attention!

Temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTW

W mm mm

sensor type

1	1x Pt100, 2-wire	80,00 €
2	1x Pt100, 3-wire (preferred type)	84,00 €
3	1x Pt100, 4-wire	86,00 €
4	2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	111,00 €
5	2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	116,00 €
6	1x Pt1000, 3-wire	91,00 €
7	3x Pt100, 2-wire (3x Pt100 with exchangeable measuring insert, only from ø 8 mm)	146,00 €

accuracy class (with double Pt100 price x 2)

B	class B, up to +180°C (preferred type)	0,00 €
A	class A, up to +180°C	9,00 €
C	class AA (formerly class 1/3B), up to +180°C	18,50 €
Y	Special version eg. high temperature version etc.	on request

Process connection

1	screw-in thread G1/2" (design A) (preferred type)	0,00 €
2	screw-in thread G1" (design A)	22,50 €
3	screw-in thread G3/8" (design A)	0,00 €
0	Without thread for sliding sleeves (design B)	0,00 €
Y	Special version	on request

Material, sensor diameter, process side

L	1.4571 / 10 mm (preferred type)	0,00 €
Y	Others	on request

neck tube

A	Without neck tube (preferred type)	0,00 €
B	With neck tube (standard L2 = 100 mm) only at design A (preferred type)	see below
Y	With neck tube by choice in mm only at design A.	see below

connector head

B	PP-head big	24,00 €
2	plastic head made of Delrin® big (preferred type)	24,00 €
3	aluminum head small (not with sensor type-variation 5 and 7)	18,50 €
4	aluminum head big (preferred type)	24,00 €
5	Stainless steel head big	49,00 €
G	aluminum head double size	49,00 €
Y	other designs	on request

Measuring insert

W	exchangeable (preferred type)	18,50 €
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Connection type

K	connection with terminal socket (preferred type)	9,60 €
M	connection with head transmitter⁽¹⁾ 4-20mA/0-10V fixed value	9,60 €
X	connection head transmitter ⁽¹⁾ UTN-500 software programmable.	9,60 €
D	connection with skinner for self-installation of head transm.	0,00 €
V	5-pole M12-plug.	9,60 €
L	connection for 2x head transmitter.	20,00 €
G	connection with 2x terminal socket.	20,00 €
Y	Special version.	on request

length L1 sensor in mm

	(price per commenced 100 mm)	9,60 €
	(price from 1000 mm length)	on request
	(preferred lengths 100 | 150 | 200 mm)	

length L2 neck tube in mm (only design A)

	(preferred length 100 mm)	
	(price per commenced 100 mm)	9,60 €
	(price from 1000 mm length)	on request

Price group B

Temperature measurement

PTZ-

resistance thermometer Pt100
acid and alkali resistant

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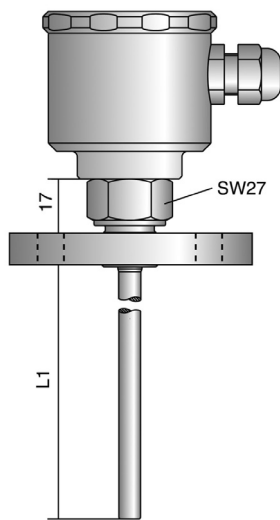
Equipment

(1) please order head transmitter separately on page 236

Connector heads

Attention!
temperature ranges of the connector heads:
with aluminum head:
130°C
plastic head: 100°C
head transmitter: -10°C
up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTZ

mm mm

sensor type

1	1 x Pt100, 2-wire	80,00 €
2	1 x Pt100, 3-wire (preferred type)	84,00 €
3	1 x Pt100, 4-wire	86,00 €
4	2 x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	111,00 €
5	2 x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	116,00 €
6	1 x Pt1000, 3-wire	91,00 €
7	3 x Pt100, 2-wire (3x Pt100 with exchangeable measuring insert, only from ø 8 mm)	146,00 €

accuracy class (with double Pt100 price x 2)

B	class B, up to +500°C (preferred type)	0,00 €
A	class A, up to +300°C	9,00 €
C	class AA (formerly class 1/3B), up to +150°C	18,50 €
Y	Special version eg. high temperature etc.	on request

Process connection

E	Flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40 with ETFE coating	on request
F	Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40 with ETFE coating	on request
G	Flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40 with ETFE coating	on request
Y	Special version eg. special coating	on request

Material, sensor diameter, process side

K	1.4571 6 mm	0,00 €
N	1.4571 8 mm	0,00 €
L	1.4571 10 mm (preferred type)	0,00 €
W	1.4571 12 mm	0,00 €
P	1.4571 6 mm, reduced tip 4 mm; 40 mm long	9,00 €
M	1.4571 8 mm, reduced tip 5 mm; 40 mm long	9,00 €
O	1.4571 10 mm, reduced tip 6 mm; 40 mm long	9,00 €
R	1.4571 8 mm, reduced tip 3 mm; 40 mm long	25,00 €
Y	Others	on request

neck tube

A	Without neck tube	0,00 €
B	With neck tube (standard L2 = 100 mm)	see below
Y	With neck tube by choice in mm (preferred type)	see below

connector head

B	PP-head big	24,00 €
2	plastic head made of Delrin® big	24,00 €
3	aluminum head small (not with sensor type-variation 5 and 7)	18,50 €
4	aluminum head big	24,00 €
5	Stainless steel head big	49,00 €
8	PTFE-head big	on request
G	aluminum head double size	49,00 €
Y	other designs	on request

Measuring insert

F	rigidly mounted (preferred type)	0,00 €
W	exchangeable (at high temperature version always mandatory)	18,50 €

Connection type

K	connection with terminal socket (preferred type)	9,60 €
M	connection for head transmitter⁽¹⁾ 4-20mA/0-10V fixed value	9,60 €
X	connection head transmitter ⁽¹⁾ UTN-500 software programmable	9,60 €
D	connection with skinner for self-installation of head transm.	0,00 €
V	5-pole M12-plug	9,00 €
G	connection for 2x head transmitter	20,00 €
L	connection with 2x terminal socket	20,00 €
Y	Special version	on request

length L1 sensor in mm

(price per commenced 100 mm)	9,60 €
(price from 1000 mm length)	on request

length L2 neck tube in mm

(price per commenced 100 mm)	9,60 €
(price from 1000 mm length)	on request

Price group B

Temperature measurement

PTV-

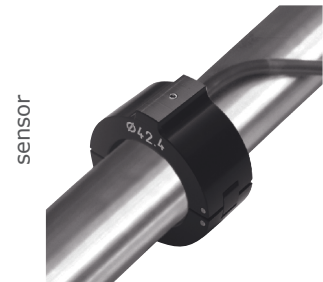
clamp-on sensor, temperature measurement of media in pipelines

4 / 01.22

Technical data



measuring element: platinum resistance element Pt100
 measuring temperature: up to 140°C
 tolerance Class: class A, according to IEC 60751
 signal type: 1x Pt100 in 4-wire-connection
 4...20 mA / 20...4 mA with line transmitter LTN-500
 mounting: clamp-on sensor with special clamp
 connection type: silicone/PTFE cable with shielding
 Others on request
 materials: Measuring surface: silver Ag
 sensor housing: aluminium, anodized
 clamp: POM; others on request
 Protection: IP68



sensor



pipe clamp on*



tubular tape*

*not included

Application

- no dead room - 100% hygienic
- free of dubious heat sink compounds
- fast response
- smallest dimensions
- fast installation
- easy validation
- calibrateable
- measuring transducer 4...20mA optional

The sensor with integrated strain relief is produced with a contact plane of a silver basis (Ag) and is adapted to the radius of the respective pipeline. Besides the style adapted measuring plane an adjustable spring mechanism ensures best measuring results

without the need for heat sink compounds. The technology of this miniaturized 4-wire Pt100 sensor with a shielded silicone/PTFE cable is the core of our new development and meets the quality requirements that are demanded especially in the sterile technology in the fields food and pharmacy. Pipeline covering plastic clamps (POM) for the installation of the temperature sensor at the pipe outside diameter are deliverable at present from DN8 to DN100. For replacing the sensor element the clamp must be opened only partially with a screw. The clamp remains meanwhile at the tube. By this an easy validation is ensured, where the „PTV“ can be dipped directly into the testing liquid by the cable. For further pipeline diam-

eters there can be delivered also tube band in high-grade steel. Furthermore a miniaturized measuring transducer that can be integrated into the measuring pipeline is available.

The mini-clamp-on temperature sensors „PTV“ allows the measurement of the process temperature in the pipeline with only minor (unavoidable) temperature deviation.

For guarantee the long-term operational safety of our pipeline sensors every sensor is tested in a extensive test program before delivery.

Basic price

sensor type	3	4-wire Pt100	0,00 €
class	A	class A	0,00 €
Material sensor	K	Aluminium with silver contact surface (Ag)	0,00 €
cable	C	silicone/PTFE-cable with shielding	0,00 €
Electrical connection	OT	0,30m, cable with cast-on M8 plug (4 pol.)	0,00 €
	YY	Special version	on request
protection	3	water proof IP68	0,00 €
diameter		mm diameter in mm	0,00 €

322,00 €

Price group E

Order code

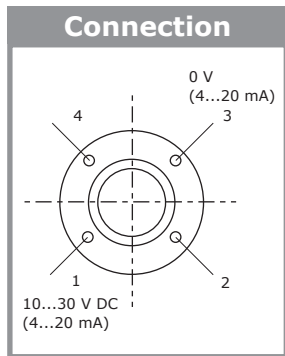
PTV

3 A K C 3 mm

Equipment PTV

LTN-500 signal converter Pt100 on 4...20 mA for connecting in between in the sensor line

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certifications

A variation for Ex-free range

Connection type

Y Input (Pt100) M8-female; Output (4...20 mA) M12-female

S Others

sensor type

A Pt100 4-wire / 4...20 mA

configuration

A Standard factory setting Pt100 / 0...100°C

B customer specific setting (please specify measuring range!)

191,00 €

0,00 €
on request

0,00 €

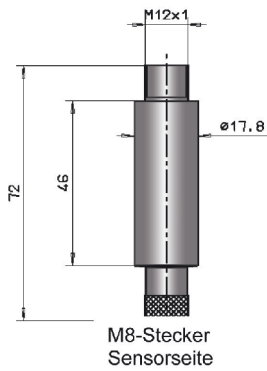
0,00 €
12,00 €

Price group E

Order code

LTN-500

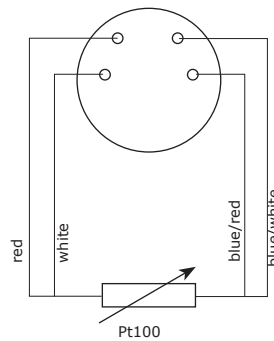
A A S



M8-Stecker
Sensorseite



pin assignment Pt100
plug M8



Equipment PTV/LTN



Ordering information

RH-MM-? ? ?

RH-MM-? ? ?

SB-MM-? ? ?

LKZO410PUR-AS

FKZO420SIL

Model

Pipe clamp on aus POM up to 49 mm

please specify outer tube diameter!

Pipe clamp on made of POM from 50 mm...80 mm

please specify outer tube diameter!

tubular tape made of Inox with sensor holder

for tube diameter 8 up to 150 mm

please specify diameter in „mm“!

10 m PUR-cable, 4-pole, shielded, M12 plug,

for connection an LTN-500

20 m silicone-cable, 4-pole, M8 coupling,

for direct connection on PTV

105,00 €

140,00 €

82,00 €

28,00 €

94,00 €

Price group E

Temperature
measurement

PTX-

standard-screw-in resistance thermometer Pt100 with and without neck tube for Ex-areas

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Technical data



ATEX classes

ATEX II 1 G Ex ia IIC T6...T1 Ga

ATEX II 1 D Ex ia IIIC Tx°C Da

Measurement accuracy IEC 60751

accuracy class B - type B
accuracy class A - type A

accuracy class AA - type C

type S - accuracy class B
type S - accuracy class A
type S - accuracy class AA

Materials

protection tube: (medium contact)
Process connection: (medium contact)
neck tube:
Connection housing:
POM - polyoxymethylene (Delrin®)
Environmental conditions
Ambient temperature:

Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
CrNi-steel
CrNi-steel / aluminium lackiert / PP - polypropylene /

Process temperatures:

- 40°C...+130°C (limitation through material
see technical manual)
limitation through category / temperature class /
electrical power; see EG type examination certificate
max. - 50°C...+400°C / high temperature version -
200°C...+600°C

Process pressure ranges:

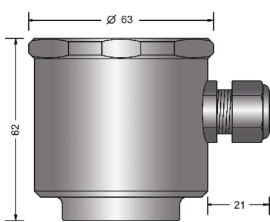
depending on process connection version, max. -1 bar ...60 bar
IP67 (EN/IEC 60529)

Protection:

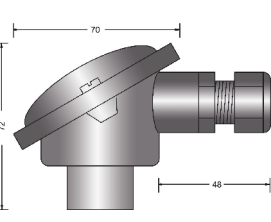


Temperature measurement

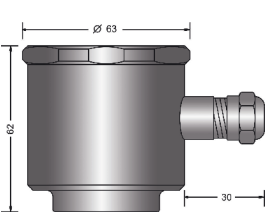
Connection housing type 2 / B



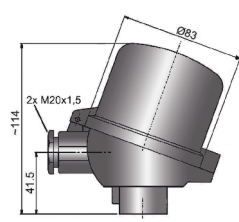
Connection housing type 4



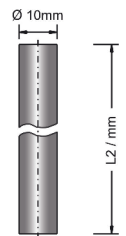
Connection housing type 5



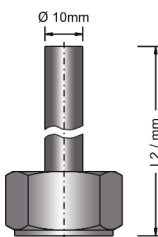
Connection housing type G



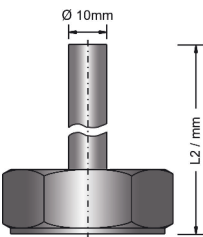
neck tube process connection type E / F



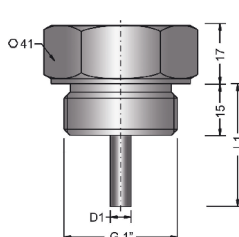
neck tube process connection type 1



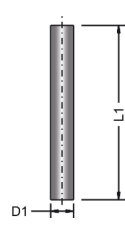
neck tube process connection type 2



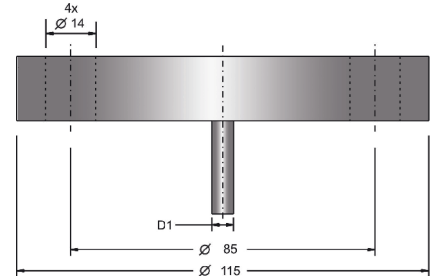
process connection type 2 - G 1" ISO 228-1



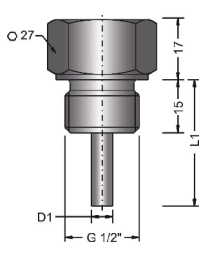
process connection type 0 - without (for sliding sleeve)



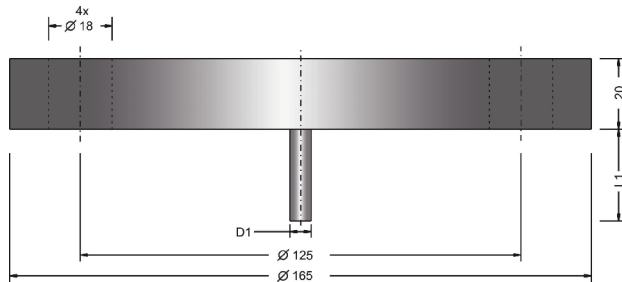
type E - flange DIN EN 1092-1, A (B - DIN 2527), DN25



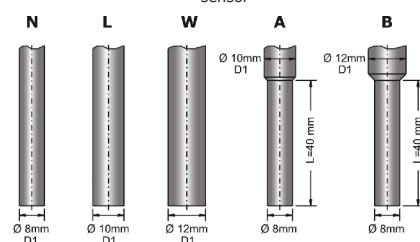
process connection type 1 - G 1/2" ISO 228-1



type F - flange DIN EN 1092-1, A (B - DIN 2527), DN50



sensor



PTX-

standard-screw-in resistance thermometer Pt100 with and without neck tube for EX-range

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Equipment

(1) please order head transmitter separately on page 236

immersion pocket and weld-in sockets on page 170

Connector heads

Attention!
temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!

Application

Basis of the ACS ex-RTD Series PTX form standardized, high-grade platinum measuring resistors with a nominal resistance of 100 ohms at 0 ° C, the tolerance classes AA, A, B according to IEC 60751st ACS ex-Pt100 probes are characterized by high accuracy, repeatability and reliability. PTX-resistance thermometers are approved for gas and dust explosion requirements, and are generally delivered with exchangeable measuring insert Pt100. Thus, the actual sensor may be removed from the probe tube and possibly replaced without draining the pipe or the container. This saves costs and avoids loss of production.

Order code

PTX

W mm mm

Type certificate

1	ATEX II 1 G Ex ia IIC T6...T1 Ga	0,00 €
2	ATEX II 1 G Ex ia IIC T6...T1 Ga / ATEX II 1 D Ex ia IIIC Tx°C Da	0,00 €

Only with connection type K / M; Only with material terminal enclosure type 4 / 5; Not with surface coating

Sensor type

1	1x Pt100 / 2-wire	119,00 €
2	1x Pt100 / 3-wire	127,00 €
3	1x Pt100 / 4-wire	131,00 €
4	2x Pt100 / 2-wire	152,00 €

Accuracy class / Process temperature

B	Class B - IEC 60751 / -50°C...+400°C	0,00 €
A	Class A - IEC 60751 / -50°C...+400°C not for sensor type 4	9,20 €
Y	others (e.g. high temperature type -200...+600°C, not for sensor type 4/ surface coating e.g. ETFE)	on request

Process connection

0	without	23,00 €
1	Thread ISO 228-1 - G½" B	0,00 €
2	Thread ISO 228-1 - G1" B	73,00 €
E	Flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40	100,00 €
F	Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40	118,00 €
Y	others	on request

Material process connection/probe (process wetted) - probe diameter D1

N	CrNi-steel - Ø8 mm	0,00 €
L	CrNi-steel - Ø10 mm	0,00 €
W	CrNi-steel - Ø12 mm	0,00 €
A	CrNi-steel - Ø10 mm - reduced tip Ø8 mm/L=40 mm	9,20 €
B	CrNi-steel - Ø12 mm - reduced tip Ø8 mm/L=40 mm	9,20 €
Y	others	on request

Neck tube

A	without	0,00 €
B	Neck tube L2=100mm	see below
Y	Neck tube L2/mm	see below

Material terminal enclosure

B	PP	24,50 €
2	POM	24,50 €
4	Aluminum form B - EN 50446	24,50 €
5	CrNi-steel	50,00 €
G	Aluminum double size	on request
Y	others	on request

Measuring insert

W	Exchangeable measuring insert	19,00 €
----------	--------------------------------------	----------------

Connection type

K	Terminal socket	9,80 €
M	Connection for head transmitter ExKTM-_A0 (4...20mA/fix adjusted) integrated	9,80 €
X	Connection for head transmitter UTN500-B (4...20mA/programmable) integrated	9,80 €
D	Loose wires	0,00 €
G	1x terminal socket / 1x head transmitter type M/X/T/ others terminal enclosure type G	on request
L	2x terminal socket terminal enclosure type G	on request
Y	others	on request

Sensor length L1 sensor in mm

		9,80 €
--	--	--------

(Price per started 100 mm)
(Preferred length: 50 | 100 | 150 mm)

Halsrohrlänge L2 Halsrohr in mm

		9,80 €
--	--	--------

(Price per started 100 mm)
(Preferred length 100 mm)

+ Additional Options (optional)

SF	LABS-free, silicone-free / paint compatible version	90,00 €
ML	Measurement point designation / TAG - Laser marking	20,00 €
WK	Factory calibration - calibration certificate	129,00 €
MZ	Material test certificate - EN10204 3.1	105,00 €

Price group B

Temperature measurement

Thermocont® TK

compact thermometer class A according to IEC 60751 with 4...20 mA output or Pt100 direct, with standard- and hygienic process connections for food applications

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Technical data



sensor element:
output:
Power supply:
accuracy (signal converter):
Long term drift:
operating temperature:
Ambient temperature:
EMV compatibility:

Pt100 class A according to IEC 60751
analog 4...20mA
10...35V DC, reverse polarity protected
0,1K or 0,08%
≤ ±0,1K or 0,05% FS / year - not cumulative
-50...+150°C
-40...+85°C
operating material class B / industrial sector (EN/IEC 61326)

transmitter electronics type A



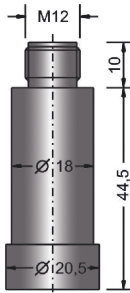
transmitter electronics type B / C



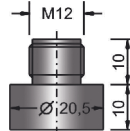
sensor length L1

sensor length L1

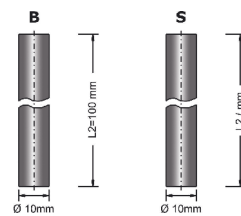
Connection housing electronics output type A / E - 2-wire, signal 4...20mA



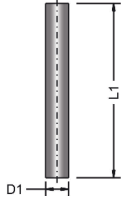
Connection housing electronics output type B / C - Pt100, 4-wire



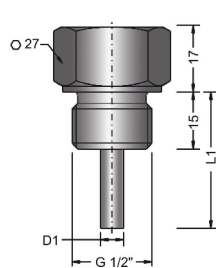
neck tube



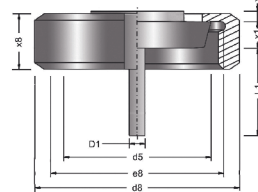
type 2 - without (for sliding sleeve)



type 1 - G 1/2" ISO 228-1

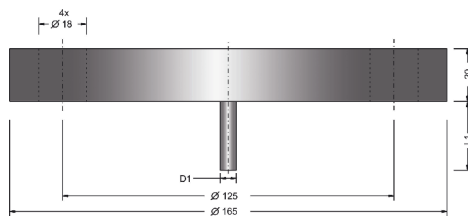


type M / N / O - DIN 11851

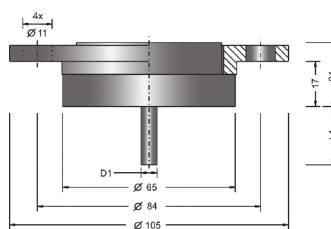


	DN	PN	d5	x1	x2	d8	x8	e8
O	25	40	44	10	4	63	21	Rd52x1/8"
N	40	40	56	10	4	78	21	Rd65x1/8"
M	50	40	68	11	3	92	22	Rd78x1/8"

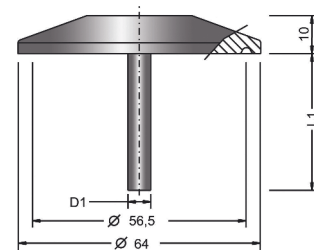
type G - flange DIN EN 1092-1, A (B - DIN 2527), DN50



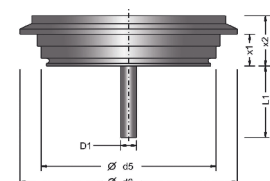
type L - DRD DN50, Ø65 mm



type T - Clamp ISO 2852 DN51 (2") / DIN 32676 DN50

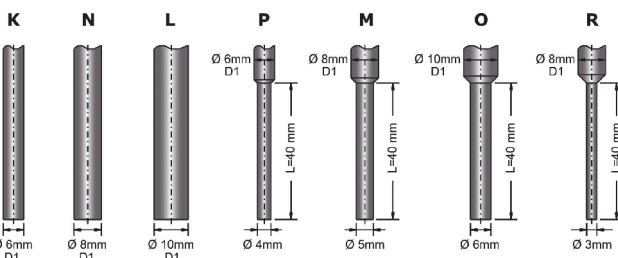


type R / P - Varivent®



	DN	PN	d5	d6	x1	x2
R	25-32	40	F 50	66	12	19
P	40-125	40	N 68	84	12	19

sensor



Temperature measurement

Application

The compact thermometer Thermocont® TK is used to measure temperatures from -50 ... 150 ° C. Locations are for example Pipelines or containers. The ACS is available Thermocont® TK on standard process connections, but also for use in hygienic areas.

Rapid installation with M12 connector with IP66/67, small and compact design in stainless steel, high quality, reliability and accuracy characteristics of this sensor. Besides the standard version with 4 .. 20 mA output and selectable ranges, can also direct Pt100 4-wire output to work (optional). Various process connections, sensor diameter, length or other versions with reduced peak, or with neck allow a flexible use for virtually all process conditions.

Thermocont® TK

compact thermometer class A according to IEC 60751
with 4...20 mA output or Pt100 direct, with standard- and
hygienic process connections for food applications

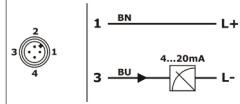
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Equipment

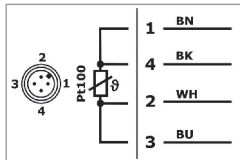
weld-in sockets
on Seite 170

Connection

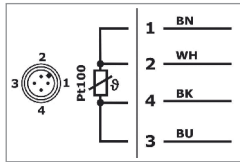
2-wire / 4...20 mA / type A/E
wire colors
standard connection cable M12:
BN = brown, BU = blue



4-wire / Pt100 / Type B
wire colors
standard connection cable M12:
BN = brown, WH = white,
BU = blue, BK = Schwarz



4-wire / Pt100 / type C
wire colors
standard connection cable M12:
BN = brown, WH = white,
BU = blue, BK = Schwarz



Additional Options

- SF LABS-free, silicone-free / paint compatible version 90,00 €
- ML Measurement point designation / TAG - Laser 20,00 €
- WK Factory calibration - calibration certificate 129,00 €
- MZ Material test certificate - EN10204 3.1 105,00 €

model

TK Standard 113,00 €

design

K compact - cylindric 0,00 €

sensor / class

A Pt100 class A - IEC 60751 0,00 €

Process connection

- 1 G½" B, ISO 228-1 0,00 €
- 2 Without 0,00 €
- M Milk tube DIN 11851, DN50, PN25 44,00 €
- N Milk tube DIN 11851, DN40, PN40 44,00 €
- O Milk tube DIN 11851, DN25, PN40 44,00 €
- R Varivent® F, Ø50 mm, DN25-32, PN 40 44,00 €
- P Varivent® N, Ø68 mm, DN40-125, PN 40 52,00 €
- L DRD DN50, Ø65 mm, PN25 132,00 €
- G Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40 97,00 €
- T Tri-Clamp 2"/DN51, PN16/40 106,00 €
- Y Others on request

Material process connection/sensor

(process wetted) - sensor diameter D1

- K Steel 1.4571/316TI - Ø6 mm 0,00 €
- N Steel 1.4571/316TI - Ø8 mm 0,00 €
- L Steel 1.4571/316TI - Ø10 mm 0,00 €
- P Steel 1.4571/316TI - Ø6 mm - reduced tip Ø4 mm/L=40 mm 9,60 €
- M Steel 1.4571/316TI - Ø8 mm - reduced tip Ø5 mm/L=40 mm 9,60 €
- O Steel 1.4571/316TI - Ø10 mm - reduced tip Ø6 mm/L=40 mm 9,60 €
- R Steel 1.4571/316TI - Ø8 mm - reduced tip Ø3 mm/L=40 mm 9,60 €
- Y Others on request

neck tube

- A Without 0,00 €
- B neck tube L2=100mm see below
- Y neck tube L2/mm by choice see below

Material Connection housing

- C CrNi-steel 0,00 €

Electrical connection

- S Plug M12 0,00 €

Electronics - output

- A 2-wire, signal 4...20mA 44,00 €
- B Pt100, 4-wire, connection B 0,00 €
- C Pt100, 4-wire, connection C 0,00 €
- E 2-wire, signal 4...20mA, programmable 68,00 €

Measuring range

- BA -50...+100°C 0,00 €
- CA -40...+60°C 0,00 €
- DA -30...+60°C 0,00 €
- DB -30...+150°C 0,00 €
- DC -30...+70°C 0,00 €
- EA -20...+20°C 0,00 €
- EB -20...+60°C 0,00 €
- EN -10...+40°C 0,00 €
- FC 0...+50°C 0,00 €
- FE 0...+100°C 0,00 €
- FG 0...+150°C 0,00 €
- 00 Pt100, 4-wire 0,00 €
- XX Special measuring range (poss. higher deviation accuracy) 41,00 €

sensor length L1 / mm

- B 50 mm 0,00 €
- C 100 mm 0,00 €
- D 150 mm 22,50 €
- E 200 mm 28,50 €
- Y Others on request

length L2 neck tube in mm

(price per commenced 100 mm) 9,60 €

*scale prices - basic price

Thermocont® TK

- 1 - 5 pieces 113,00 €
- 6 - 10 pieces 108,00 €
- 11 - 30 pieces 102,00 €

Order code

Thermocont® TK K A C S

Equipment

Order information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
BKZ0412-VA
BKZ0512-VA

Model

- Connection cable 5 m, 4-pole, shielded 22,50 €
- Connection cable 10 m, 4-pole, shielded 28,50 €
- Connection cable 5 m, 5-pole, shielded 26,00 €
- Connection cable 10 m, 5-pole, shielded 35,00 €
- Matching cable socket, VA-nut 18,50 €
- Matching cable socket, VA-nut (at 0...10 V) 19,50 €

Price group D

Temperature measurement

Price group E

Equipment for Pt100

sliding- and weld-in sockets

4 / 01.22

sliding sleeves for Pt100, press-ring made of 1.4571 / 1.4404 (pressure-resistant up to 20 bar), material 1.4571 / 1.4404

Ordering information

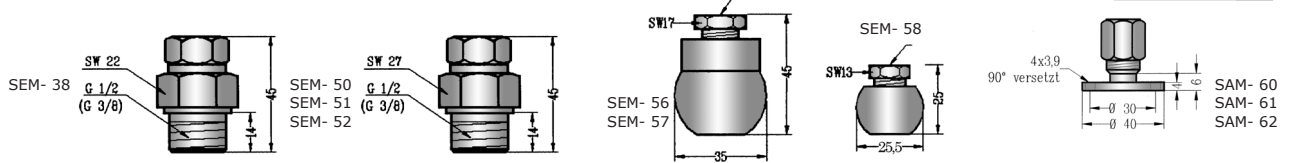
SEM-38
SEM-50
SEM-51
SEM-52
SEM-56
SEM-57
SEM-58
SAM-62
SAM-60
SAM-61

Model

G $\frac{3}{8}$ " 8 mm sensor diameter
G $\frac{1}{2}$ " 8 mm sensor diameter
G $\frac{1}{2}$ " 10 mm sensor diameter
G $\frac{1}{2}$ " 6 mm sensor diameter
ball-weld-in socket \varnothing 35 mm 8 mm sensor diameter
ball-weld-in socket \varnothing 35 mm 10 mm sensor diameter
ball-weld-in socket \varnothing 25,5 mm 6 mm sensor diameter
screw-in-socket 6 mm sensor diameter
screw-in-socket 8 mm sensor diameter
screw-in-socket 10 mm sensor diameter

36,00 €
36,00 €
39,00 €
36,00 €
52,00 €
52,00 €
48,00 €
39,00 €
39,00 €
39,00 €

PG B



sliding sleeves for Pt100, with press-ring made of PTFE (Teflon®) movable (pressureless application), material 1.4571 / 1.4404

Ordering information

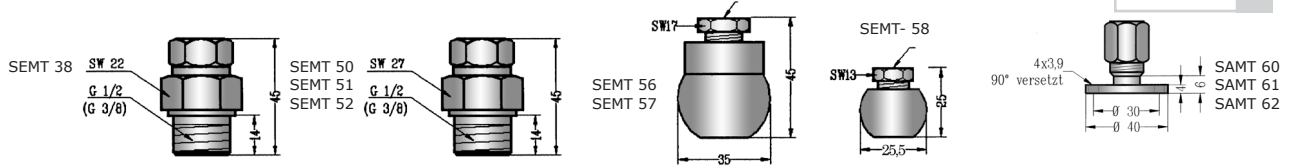
SEMT 38
SEMT 50
SEMT 51
SEMT 52
SEMT 59
SEMT 56
SEMT 57
SEMT 58
SANT 62
SANT 60
SANT 61

Model

G $\frac{3}{8}$ " 8 mm sensor diameter
G $\frac{1}{2}$ " 8 mm sensor diameter
G $\frac{1}{2}$ " 10 mm sensor diameter
G $\frac{1}{2}$ " 6 mm sensor diameter
G $\frac{1}{2}$ " 4 mm sensor diameter
ball-weld-in socket \varnothing 35 mm 8 mm sensor diameter
ball-weld-in socket \varnothing 35 mm 10 mm sensor diameter
ball-weld-in socket \varnothing 25,5 mm 6 mm sensor diameter
screw-in-socket 6 mm sensor diameter
screw-in-socket 8 mm sensor diameter
screw-in-socket 10 mm sensor diameter

36,00 €
36,00 €
39,00 €
36,00 €
36,00 €
52,00 €
52,00 €
48,00 €
39,00 €
39,00 €
39,00 €

PG B



weld-in sockets (front-flush) for Pt100, material 1.4571 / 1.4404, for food applications and hygienic applications

Ordering information

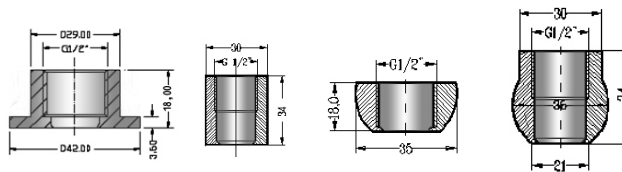
SEM-12
SEM-22
SEM-32
SEM-42

Model

G $\frac{1}{2}$ " for PTL with O-ring gasket
G $\frac{1}{2}$ " metal-seated
G $\frac{1}{2}$ " ball-weld-in socket for PTL with O-ring gasket
G $\frac{1}{2}$ " metal-seated, ball-weld-in socket

64,00 €
53,00 €
52,00 €
53,00 €

PG B



SEM-12

SEM-22

SEM-32

SEM-42

weld-in sockets for Pt100, material 1.4571 / 1.4404

Ordering information

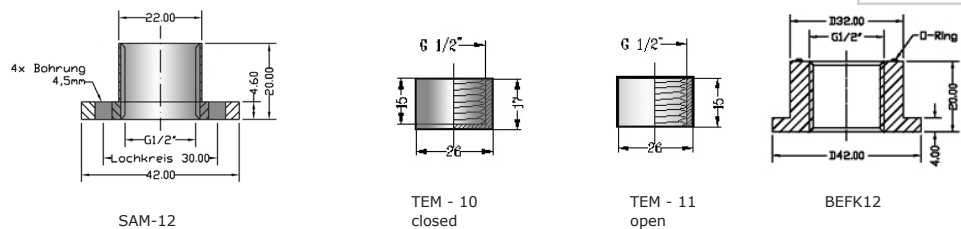
SAM-12
TEM - 10
TEM - 11
BEFK12

Model

screw-in-socket for air ducts
frontally closed
frontally open
weld-in socket G $\frac{1}{2}$ ", sealing attachment at the back

42,00 €
32,00 €
32,00 €
71,00 €

PG B



SAM-12

TEM - 10
closed

TEM - 11
open

BEFK12

marking measurement point

Ordering information

AS-50

Model

hang tag made of VA with laser inscription

38,00 €

PG B

Equipment for Pt100

immersion pocket and thread nipple for bayonet connector

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STH - immersion pocket for Pt100, material 1.4571 / 1.4404

Basic price **68,00 €**

immersion pocket sensor

0 design A, B with internal thread and design C, D, E
With press-ring made of steel 1.4571 0,00 €
T -press-ring made of PTFE (only with design C, D, E possible) 5,70 €

design

A design see drawing A for Pt100 with G $\frac{1}{2}$ " thread resp. type PTI 0,00 €
B design see drawing B for Pt100 with G $\frac{1}{2}$ " thread resp. type PTI 9,80 €
C design see drawing C for Pt100 - sensor PTF, PTS 0,00 €
D design see drawing D for Pt100 - sensor PTF, PTS 9,80 €
E design see drawing E for Pt100 - sensor PTF, PTS 5,70 €
X design see drawing X for Pt100 with G $\frac{1}{2}$ " thread resp. type PTI on request
Y Special design on request

inner tube diameter

04 inner tube diameter 4 mm (for \varnothing 3 mm sensor) 0,00 €
06 inner tube diameter 6 mm (for Pt100 sensor type PTI) (for \varnothing 5 mm sensor) 0,00 €
07 inner tube diameter 7 mm (for \varnothing 6 mm sensor) 0,00 €
09 inner tube diameter 9 mm (with design E not possible) (for \varnothing 8 mm sensor) 0,00 €
11 inner tube diameter 11 mm (with design E not possible) (for \varnothing 10 mm sensor) 0,00 €

Pressure stage

0 100 bar 0,00 €
D 500 bar on request

length L1 incl. process connection (price per commenced 100 mm)

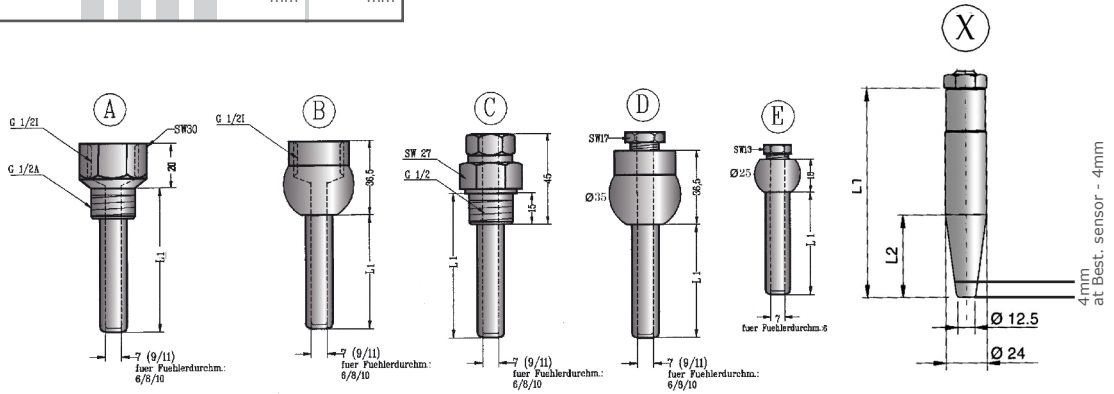
9,80 €

length L2 at STH-X (price per commenced 100 mm)

15,00 €

Order code

STH- mm mm



Temperature measurement

GWN - thread nipple for bayonet joint (continuous or closed) matching for PTM 1.4571 / 1.4404

A type for 12,2 mm bayonet (only for PTM with 6 mm diameter) 27,00 €

design

S design S (open) 0,00 €
T design T (closed) on request

Connection

1 M10x1 0,00 €
Y Special version on request

length L 2 in mm

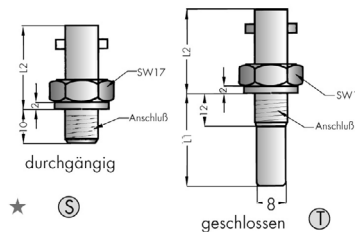
20 mm 0,00 €

length L 1 in mm (only at design T) (price per commenced 100 mm)

9,80 €

Order code

GWN- A mm mm



Price group B

Equipment for Pt100

immersion flanges

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STF- immersion sensor flanges for Pt100

Basic price **56,00 €**

design/process connection

E	Flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40, 316L.....	97,00 €
F	Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40, 316L.....	114,00 €
J	Flange DIN EN 1092-1, A (B - DIN 2527), DN100, PN10-40, 316L.....	191,00 €
S	Flange 1 Zoll ANSI, 150 RF 316L.....	92,00 €
T	Flange 1 1/2 Zoll ANSI, 150 RF 316L.....	133,00 €

inner tube diameter/outer diameter

04	inner tube diameter 4 mm (for ø 3 mm sensor).....	0,00 €
06	inner tube diameter 6 mm (for Pt100 sensor type PTI) (for ø 5 mm sensor).....	0,00 €
07	inner tube diameter 7 mm (for ø 6 mm sensor).....	0,00 €
09	inner tube diameter 9 mm (at design E not possible) (for ø 8 mm sensor).....	0,00 €
11	inner tube diameter 11 mm (at design E not possible) (for ø 10 mm sensor).....	0,00 €

neck tube

A	Without neck tube.....	0,00 €
B	With neck tube (standard L2 =100 mm).....	see below
Y	With neck tube by choice in mm.....	see below

sensor mounting

A	1/2 Zoll thread.....	0,00 €
C	clamp screw connection.....	26,00 €

Pressure stage

0	100 bar.....	0,00 €
D	500 bar.....	0,00 €

length L1 Sensor

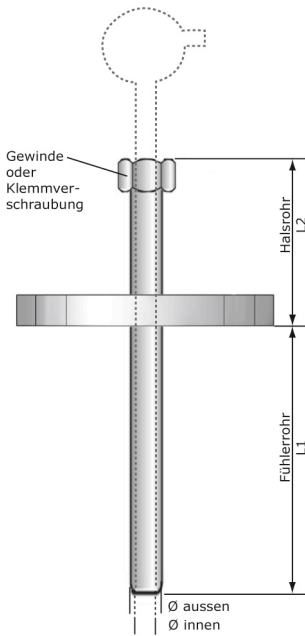
(price per commenced 100 mm) 14,50 €

length L2 neck tube

(price per commenced 100 mm)..... 14,50 €

Price group B

Temperature measurement



Order code

STF-		mm		mm
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Thermohunter BA

contactless infrared temperature measurement device

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Thermohunter *contactless infrared temperature measurement device*

BA-06 TA-S, 0-500°C 6 mm visual field / 200 mm; 4...20 mA output
 BA-30 TA-S, 0-500°C 30 mm visual field / 1000 mm; 4...20 mA output

1.545,00 €
 1.545,00 €

PG B

Technical data

temperature range	0 - 500 °C (display -20 °C / +520 °C)
min. measuring surface	Ø 6 / 200 mm
optics	silicone lens
sensor / wavelength	thermopile / 8 - 14 µm
response time	500 ms / 90%
accuracy	± 1% of the measured value or ± 2 °C ± 1-Digit (the higher value) (E = 1.0)
repetition time	± 1 °C of the measured value
resolution	1 °C
analog output	BA-06TA: 1 mV / °C BA-06TA: 4-20 mA
output resolution	0,2 °C
center	coaxial laser positioning
emission factor	0.10 - 1.20
delay	nominal 1 - 200 (0,05 - 10 seconds) variable
supply	12 - 24 VDC ± 10% / max. 150 mA
ambient temperature	0 - 50 °C
ambient moisture	35 - 85 % r.F. (not condensing)
storage temperature	-10 / 60 °C
vibrations	30G (20 - 50 Hz)
waterproof	IP65
weight	350 g

Temperature
measurement

Equipment for temperature sensors

limit switches, signal converter, signal duplicators, head transmitter and supply isolators



GWAP-250-UO

temperature limit switch for Pt100 input, 2 limit switch, universal mains supply circuit, snap-on-housing 22,5 mm

Transcont WTA-100-GO and ExWTA-100-GO

Pt100 converter passive, with 2- or 3-wire connection preset, analog output 4...20 mA
 2-wire technology or analog output 0...10 V 3-wire technology, 2 PNP-switching outputs,
 snap-on-housing 22,5 mm

Transcont WTAU-100-UO

Pt100-signal converter active, galvanic isolation and conversion of a 2-wire or 3-wire- Pt100, free adjustable,
 1 input / 1 output, 20...253 V AC / DC long range supply (universal mains supply circuit), snap-on-housing 22,5 mm

Transcont WTAU-200-UO Pt100- signal duplicators

Pt100-signal converter active, galvanic isolation and conversion of a 2-wire or 3-wire Pt100, free adjustable,
 1 input / 2 outputs, 20...253 V AC / DC long range supply (universal mains supply circuit), snap-on-housing 22,5 mm

Transcont WTAU-120-UO Pt100-signal converter, preset

Pt100-signal converter active, galvanic isolation and conversion of a 2-wire or 3-wire Pt100, preset,
 1 output, 20...253 V AC / DC long range supply, universal mains supply circuit, snap-on-housing 22,5 mm, 1 input

Transcont WTAU-220-UO Pt100- signal duplicators, preset

Pt100-signal converter active, galvanic isolation and conversion of a 2-wire or 3-wire Pt100, preset,
 1 input / 2 outputs, 20...253 V AC / DC long range supply (universal mains supply circuit), snap-on-housing 22,5 mm

Transcont UTN-500 temperature head transmitter, universal head transmitter, adjustable via PC

Transcont KTM and Transcont ExKTM

temperature head transmitter with 2- or 3-wire connection, preset, analog output 4...20 mA
 2-wire technology or analog output 0...10 V, 3-wire technology, 1 PNP switching output

EXTVA-500-UC supply isolators Ex-version

Ex safety barriers, separating barriers



prices on page 229



5. Flow measurement

Contents

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Do you need vortex flow meters or coriolis flow meters?

Of course we also offer these flowmeters to you!

**Our sales engineers are available for you:
+49 (0) 8721 9668 0.**

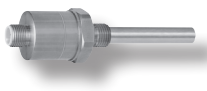

What to use where

	Fluxicont FS4SK	Fluxicont FS4LK	Fluxicont FU4S	Fluxicont FU4L	Flowcont® F630	Flowcont® L630	Flowcont® UN	Flowcont® Magsmall	Flowgas TMS 300	Flowgas TMS 500
Function										
Flow measurement	●	●	●	●	●	●	●	●	●	●
Flow monitor	●	●	●	●						
Consumption meter compressed air / gases									●	●
Operating conditions										
Hazardous area					Ex	Ex				
Aggressive media									●	●
Non conductive media	●	●	●	●			●	●	●	●
Hygienic sector		●		●		●				

Flow measurement

Measurement principle Type	Areas of application	calorimetric flow switch Fluixcont FS45K/ FS4LK	magnetic-inductive Flowcont® F630	magnetic-inductive Flowcont® L630	cost-effective consumption sensor for compressed air and gases Flowgas TMS 200	consumption sensor for compressed air and gases with big outer tube diameter Flowgas TMS 400	cost-effective magnetic-inductive flow meter Flowcont® Magsmall	contactless ultrasonic flow meter Flowcont® UN
								
Minimum conductivity		0	5µS/cm	5µS/cm	-	-	-	-
Nominal width		DN 40-125	DN 3-2000	DN 3-200	DN 15-50	universal	DN 10-25	DN 10-25
Process connection		thread G1/4", G1/2",	DIN-flanges, ANSI-flanges	Flange, milk pipe screw connection, welded socket, TriClamp	connection thread G1/2"	connection thread G1/2"	Thread G1/4", G1/2", G3/4", G1" and G2"	external pipe thread external thread NPT collar clamp adapter
Process temperature		-20...+110°C	up to 180°C	up to 180°C	-30...+80°C	-30 ... 110°C sensor tube; -30...+80°C housing	-10...+70°C	0...+80°C
Lining material		1.4404 / 316L	PFA/PTFE, hard /soft rubber	PFA/PTFE, hard /soft rubber	1.4301 / 1.4404 stainless steel	1.4301 stainless steel	1.4404/316L	1PSU polysulfone (Ultrason S)
Flange material		-	steel 1.4571	steel 1.4571	-	-	1.4404/316L	-
Electrode material		-	1.4571, Hastelloy C4/B2, Titan, Tantal	1.4571, Hastelloy C4/B2, Titan, Tantal	-	-	1.4435/316L	-
Electronics compact or separated with signal converter		X	X	X	X	X	X	X
Display		LED-Display	graphic display, adjustable	graphic Display, adjustable	LCD-Display	LCD-Display	LCD-Display	LCD-Display
Power supply		DC voltage 16...45VDC / universal voltage 20...253VAC/DC	100...230V AC/ 24V AC/DC	100...230V AC/ 24V AC/DC	24 VDC smoothed ± 15%	24 VDC	18 V DC ... 30 V DC	18 V DC ... 30 V DC
Outputs		relay output / PNP switching output	4...20mA, impulse output, switch output, frequency output	4...20mA, impulse output, switch output, frequency output	digital output analog output impulse output	digital output analog output impulse output	Digital output	analog output / PNP-transistor output
Communication		-	HART protocol	HART protocol	Modbus	Modbus	IO-Link, Bluetooth	-
Certifications		-	ATEX	ATEX	-	-	-	-

Flow measurement

Measurement principle Type	calorimetric flow switch Fluxicont FU4S	calorimetric flow switch Fluxicont FU4L
Areas of application	liquids  Modbus IO-Link	liquids  Modbus IO-Link
Minimum conductivity	0	0
Nominal width	DN 40-125	DN 40-125
Process connection	thread G $\frac{1}{4}$ ", G $\frac{1}{2}$ "	thread G $\frac{1}{2}$ " metallic sealing
Process temperature	-20...+110°C	-20...+110°C
Lining material	1.4404 / 316L	1.4404 / 316L
Flange material	-	-
Electrode material	-	-
Electronics compact or separated with signal converter	X	X
Display		
Power supply	Modbus RTU 6...35 VDC IO-Link 9...35 VDC	Modbus RTU 6...35 VDC IO-Link 9...35 VDC
Outputs	RS485 Modbus RTU / IO-Link 1x electricity 0(4)...20mA /2x switch	RS485 Modbus RTU / IO-Link 1x electricity 0(4)...20mA /2x switch
Communication	Modbus / IO-Link	Modbus / IO-Link
Certifications	-	-

Fluxicont FS4SK

Flow switch for general applications
Monitoring of flow and temperature in liquids

5 / 01.22

Technical data



liquids



bright LED display



3-key operation
with tactile feedback



easy-to-use



display and housing rotatable



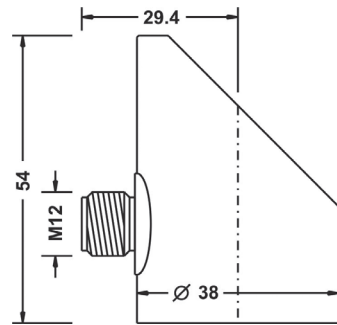
DC
PNP

Technical Data

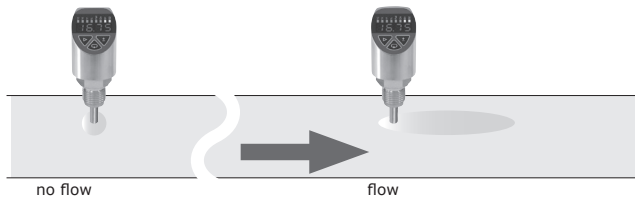
Step response time	Flow: $\leq 6s$ ($t_d = 0s / 0\% \gg 90\% / 100\% \gg 10\%$); Temperature: $\leq 4s$
Start-up time t_{ON}	Flow: $\leq 10s$; Temperature: $\leq 2s$
Direct voltage	
Electronic output type	A / B / C / D
Supply voltage US	10,5...35VDC, reverse polarity protected
Residual ripple UPP	$\leq 2V_{PP} / U_{Smin} \leq U_S \leq U_{Smax}$
Supply current IIn	$\leq 100mA$ S1 / S2 = 0mA Iout = 22mA
Isolation voltage	500VAC (electrical connections – enclosure)
Universal voltage	
Electronic output type	W
Supply voltage US	20...253VAC – 48/62Hz 20...220VDC
Supply power PIn	$\leq 4VA / 2W$
Protection classification	I (EN 61140)
Overvoltage category	II (EN 60664-1)
Input	
Measurement parameter	Flow velocity
Measurement principle	calorimetric
Measurement medium	Liquids
Measurement range	3...300 cm/s / Greatest sensitivity 3...100 cm/s / Factory setting 0...100 cm/s
Temperature gradient	$\geq 300 K/min$
Switch output PNP S1 / S2	
Electronic output type	A / B / C / D
Function	PNP switch to +L
Output voltage UOut	$U_{Out} \geq U_S - 2V$
Output current IL	0... $\leq 200mA$, current limited, short circuit protected
Rise time T90	$< 30\mu s$ (RL $< 3k\Omega / I_{Out} > 4,5mA$)
Switch cycles	$\geq 100.000.000$
Switch output relay S1	
Electronic output type	W
Function	Relay changeover contact - switch to L/+L
Switching values	$\leq 2A / \leq 62,5VA / 60W$
Switch cycles	$\geq 100.000.000$
Analogue output Aout – Current	4...20mA
Electronic output type	B / C / D
Operating range IOut	3,8...20,5mA, min. 3,6mA, max. 22mA
Permitted load RL	$\leq (U_S - 10,5V) / 20mA$
Measuring accuracy	
Accuracy	Flow: $\leq \pm 5\% MEV14$ (5...100cm/s) / (-20°C...+85°C) / $\leq \pm 10\% MEV14$ (100...175cm/s) / (-20°C...+85°C); Temperature: $\leq \pm 1,5K$ ($\geq 20cm/s$) Flow: $\leq \pm 10\% MV13$ / year (-20°C...+85°C) Flow: $\leq \pm 0,4cm/s / K$ (-20°C...+85°C)
Long term drift	
Temperature deviation	Flow: $\leq \pm 0,4cm/s / K$ (-20°C...+85°C)
Materials	
Probe	Steel 1.4571/316Ti (process wetted)
Process connection	Steel 1.4404/316L / Steel 1.4571/316Ti (process wetted)
Gaskets	process wetted: FPM – fluorelastomere (e.g. Viton®) / EPDM – ethylene-propylene-dienmonomere, FDA-listed
Environmental conditions	
Environmental temperature	-20°C...+85°C
Process temperature	-20°C...+110°C; maximum -30°C...+120°C; compensated -30°C...+125°C
Process pressure	$\leq 40 bar$
Schutzart:	IP65/IP67 (EN/IEC 60529)



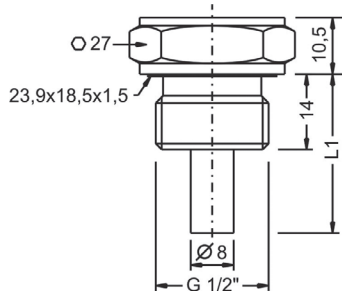
Connection housing



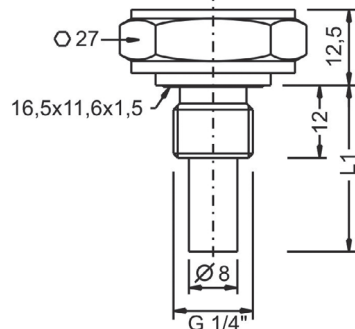
Fluxicont FS4SK installation



Type 0 – Thread ISO 228-1 – G $\frac{1}{2}$ " , DIN EN ISO 1179-2 E



Type 3 – Thread ISO 228-1 – G $\frac{1}{4}$ " , DIN EN ISO 1179-2 E



Fluxicont FS4SK

Flow switch for general applications
Monitoring of flow and temperature in liquids

5 / 01.22

Application

Due to the device construction with flow velocities from 3cm/s to 300cm/s, process temperatures from -20°C to +85°C, process pressures up to 40bar, process material stainless steel V4A as well as the availability of industrial standard process connections like thread ISO 228-1, thread ANSI NPT – on request and thread ISO 225-1 M18x1,5 for adapter – on request the device is especially suitable for the use for monitoring cooling water circulation systems of pumps, turbines, compressors and heat exchangers, for monitoring pump functionality, for dry run protection for pumps, for leak monitoring in process lines, for monitoring lubrication systems and for filter monitoring in the beverage industry.

The flow switch is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or factory certifications for drink water resp. food suitability.

Customer specific special versions can be realized on request, e.g. software adaption (menu navigation, special functions, etc.), changed terminal assignment resp. connector orientation, design adaption of the user surface, special designs for the process connection.

Basic price

Type
FS4S Standard

Measuring system

K

Approval

S

Process connection

0

3

Y

Material gaskets (process wetted)

1

3

Material process connection/Probe (process wetted)

V

Material terminal enclosure

C

Sensor length L1

Process connection

Type 0 – G½" / Type 3 – G¼"

0

1

2

3

Electronic – output

A

B

C

D

W

Electronic – function

S

Process temperature

0

0

0

0

Electrical connection

S

309,00 €

0,00 €

0,00 €

0,00 €

0,00 €

0,00 €

on request

0,00 €

0,00 €

0,00 €

0,00 €

0,00 €

15,50 €

21,50 €

26,50 €

0,00 €

41,00 €

52,00 €

52,00 €

36,00 €

0,00 €

0,00 €

0,00 €

0,00 €

0,00 €

Price group C

Flow measurement

Order code

Fluxicont

FS4S

K

S

V

C

S

0

0

0

0

S

Equipment

Ordering information

BKZ0412-VA

LKZ0405PUR-AS

LKZ0410PUR-AS

Model

Matching cable socket, VA-nut

Connection cable 5 m, 4-pole, shielded

Connection cable 10 m, 4-pole, shielded

18,50 €

22,50 €

28,50 €

PG E

Fluxicont FS4LK

Flow switch for hygienic applications
Monitoring of flow and temperature in liquids

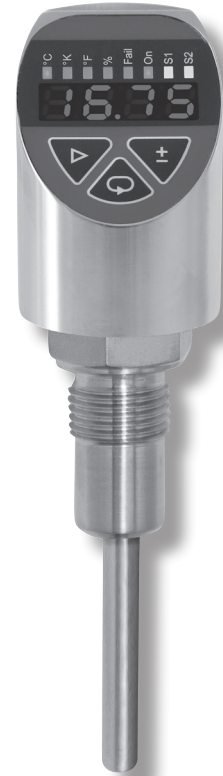
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Technical data

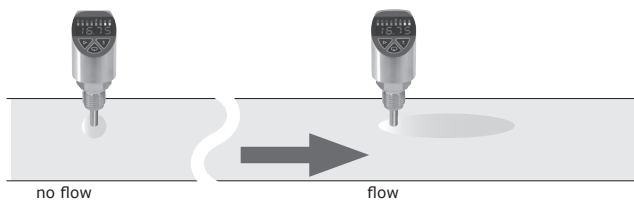


Technical Data

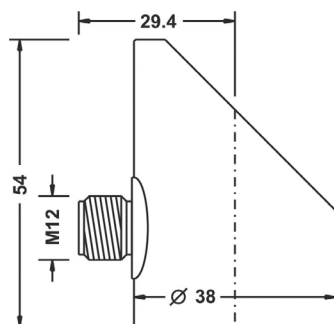
Step response time	Flow: $\leq 6s$ ($t_d = 0s / 0\% \gg 90\% / 100\% \gg 10\%$); Temperature: $\leq 4s$
Start-up time tOn	Flow: $\leq 10s$; Temperature: $\leq 2s$
Direct voltage	
Electronic output type	A / B / C / D
Supply voltage US	10,5...35VDC, reverse polarity protected
Residual ripple UPP	$\leq 2V_{PP} / U_{Smin} \leq U_S \leq U_{Smax}$
Supply current IIn	$\leq 100mA$ S1 / S2 = 0mA Iout = 22mA
Isolation voltage	500VAC (electrical connections - enclosure)
Universal voltage	
Electronic output type	W
Supply voltage US	20...253VAC - 48/62Hz 20...220VDC
Supply power PIn	$\leq 4VA / 2W$
Protection classification	I (EN 61140)
Overvoltage category	II (EN 60664-1)
Input	
Measurement parameter	Flow velocity
Measurement principle	calorimetric
Measurement medium	Liquids
Measurement range	3...300 cm/s / Greatest sensivity 3...100 cm/s / Factory setting 0...100 cm/s
Temperature gradient	$\geq 300 K/min$
Switch output PNP S1 / S2	
Electronic output type	A / B / C / D
Function	PNP switch to +L
Output voltage UOut	$U_{Out} \geq U_S - 2V$
Output current IL	0... $\leq 200mA$, current limited, short circuit protected
Rise time T90	$< 30\mu s$ (RL $< 3k\Omega$ / IOut $> 4,5mA$)
Switch cycles	$\geq 100.000.000$
Switch output relay S1	
Electronic output type	W
Function	Relay changeover contact - switch to L/+L
Switching values	$\leq 2A / \leq 62,5VA / 60W$
Switch cycles	$\geq 100.000.000$
Analogue output Aout - Current	4...20mA
Electronic output type	B / C / D
Operating range IOut	3,8...20,5mA, min. 3,6mA, max. 22mA
Permitted load RL	$\leq (U_S - 10,5V) / 20mA$
Measuring accuracy	
Accuracy	Flow: $\leq \pm 5\%$ MEV14 (5...100cm/s) / (-20°C...+85°C) / $\leq \pm 10\%$ MEV14 (100...175cm/s) / (-20°C...+85°C); Temperature: $\leq \pm 1,5K$ ($\geq 20cm/s$) Flow: $\leq \pm 10\%$ MV13 / year (-20°C...+85°C) Flow: $\leq \pm 0,4cm/s / K$ (-20°C...+85°C)
Long term drift	
Temperature deviation	Flow: $\leq \pm 0,4cm/s / K$ (-20°C...+85°C)
Materials	
Probe	Steel 1.4571/316Ti (process wetted)
Process connection	Steel 1.4404/316L / Steel 1.4571/316Ti (process wetted)
Gaskets	not process wetted: FPM - fluorelastomere (e.g. Viton®) /
Environmental conditions	
Environmental temperature	-20°C...+85°C
Process temperature	-20°C...+110°C; maximum -30°C...+120°C; compensated -30°C...+125°C
Process pressure	$\leq 40 bar$
Schutzart:	IP65/IP67 (EN/IEC 60529)



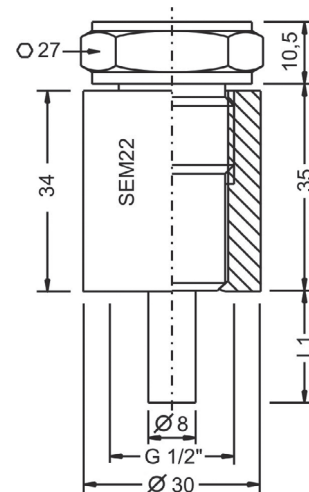
Fluxicont FS4LK installation



Connection housing



Type 2 – Thread ISO 228-1 – G $\frac{1}{2}$ " , metallic/elastomer-free sealing



Fluxicont FS4LK

Flow switch for hygienic applications
Monitoring of flow and temperature in liquids

5 / 01.22

Application

Due to the device construction with flow velocities from 3cm/s to 300cm/s, process temperatures from -20°C to +85°C, process pressures up to 16bar, process material stainless steel V4A as well as the availability of a variety of process connections like elastomer-free and free of dead space metallic sealing connection, EHEDG-/3A-/FDA-conformal, Varivent® - on request, dairy coupling DIN 11851 - on request, Tri-Clamp® / Clamp DIN 32676 / Clamp ISO 2852 - on request, aseptic tube coupling DIN 11864-1-A - on request, DRD, APV-In-line, BioControl®, SMS, flanges acc. to DIN and ISO - on request the device is especially suitable for the use for food and beverage industry, for pharmaceutical industry, for biotechnology and for sterile process engineering.

The flow switch is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications. The process connection with metallic sealing has been specifically designed for the hygienic, dead-space and elastomer-free process adaption.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or factory certifications for drink water resp. food suitability.

Customer specific special versions can be realized on request, e.g. software adaption (menu navigation, special functions, etc.), changed terminal assignment resp. connector orientation, design adaption of the user surface and special designs for the process connection.

Basic price

Type

FS4L Hygienic applications

Measuring system

Calorimetric sensor

Approval

Standard

Process connection

Thread ISO 228-1 - G½" B, metallic/elastomer-free sealing (socket SEM-22/SEM-42).

others

Material process connection/Probe (process wetted)

CrNi-steel

Material terminal enclosure

CrNi-steel

Sensor length L1

0 30 mm

1 50 mm

2 80 mm

Electronic - output

A 2x switch PNP, supply 24VDC

B 1x switch PNP, 1x signal 4...20mA, supply 24VDC

C 2x switch PNP, 1x signal 4...20mA, supply 24VDC

D 1x switch PNP, 1x signal 4...20mA, Desina, supply 24VDC

W 1x switch relay, supply 20...253VAC/DC

Electronic - function

S

Standard

Process temperature

0 Standard -20°C...+110°C

0

0

0

Electrical connection

S Plug M12

309,00 €

Price group C

0,00 €

0,00 €

0,00 €

17,50 €

on request

0,00 €

0,00 €

0,00 €

0,00 €

15,50 €

21,50 €

0,00 €

41,00 €

52,00 €

52,00 €

36,00 €

0,00 €

0,00 €

0,00 €

0,00 €

0,00 €

0,00 €

Order code

Fluxicont

FS4L

K

S

0

V

C

S

0

0

0

0

S

Equipment

Ordering information

BKZ0412-VA

LKZ0405PUR-AS

LKZ0410PUR-AS

Model

Matching cable socket, VA-nut

Connection cable 5 m, 4-pole, shielded

Connection cable 10 m, 4-pole, shielded

18,50 €

22,50 €

28,50 €

PG E

Fluxicont FU4S

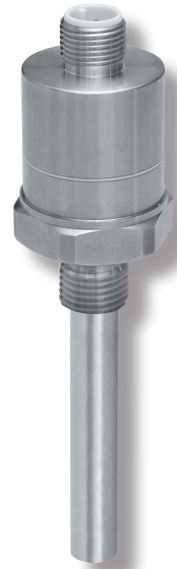
Flow transmitter / flow switch
for general industrial applications

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Technical data

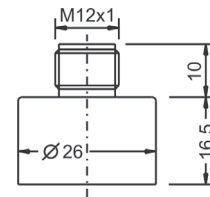


Measuring range	Calorimetric flow measurement	
Measuring principle	3...300 cm/s	
Nominal measuring range	3...300 cm/s	
Output type V – RS485 Modbus®-RTU		
Interface	RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)	
Time behavior	Flow: T90 ≤ 6s / ton ≤ 10s Temperature: T90 ≤ 4s / ton ≤ 2s	
Output type L – IO-Link®		
Interface	IO-Link® V1.1 / Com2 (38400 Baud)	
Analogue output	0...20mA: 0...20,5mA / ≤ 0,05mA / ≤ 22mA / dI ≤ 1µA 4...20mA: 3,8...20,5mA / ≥ 3,6mA / ≤ 22mA / dI ≤ 1µA	
Switch output	2x PP (Push-Pull), switch to +L/-L	
Output	Uout ≤ 0,2V, ≥ Us – 2V / Iout 0...200mA (current limited ≤ 450mA, short circuit protected)	
Time behavior	Flow: T90 ≤ 6s / ton ≤ 10s Temperature: T90 ≤ 4s / ton ≤ 2s	
Auxiliary power		
Supply voltage Us polarity protected	Type V – RS485 Modbus®-RTU: 6...35VDC	Type L – IO-Link®: 9...35VDC, without IO-Link® / 18...30VDC, with IO-Link®
Measuring accuracy		
Accuracy	Flow: ≤ ±5% Measuring end value (5...100cm/s) / (-20°C...+85°C) ≤ ±10% Measuring end value (100...175cm/s) / (-20°C...+85°C) Temperature: ≤ ±1,5K (≥ 20cm/s)	
Long term drift	Flow: ≤ ±10% of measuring value / year (-20°C...+85°C)	
Temperature deviation	Flow: ≤ ±0,4cm/s / K (-20°C...+85°C)	
Process conditions		
Process temperature	-20°C...+110°C	
Process pressure	≤ 40 bar	
Environmental conditions		
Environmental temperature	-20°C...+100°C	
Protection level	IP69K/IP67 (EN/IEC 60529)	
MTTF	463 years	

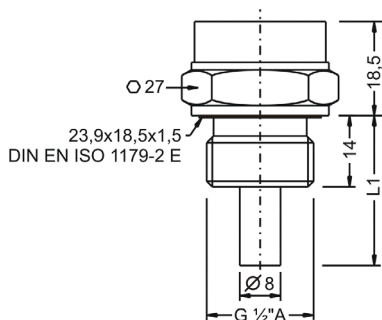


Flow measurement

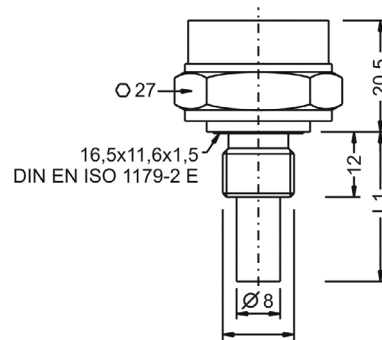
Terminal enclosure



Process connection type 0
Thread G½"A, DIN EN ISO 1179-2 E



Process connection type 3
Thread G¾"A, DIN EN ISO 1179-2 E



Fluxicont FU4S

Flow transmitter / flow switch
for general industrial applications

5 / 01.22

Application

The device is an electronic flow resp. temperature switch for monitoring, control and continuous measurement of flow and temperatures in liquids.

A high variety of versions of process connections and electronic types allows the use for a wide range of applications, also for demanding measuring requirements. Due to its high accuracy and the digital adjustability by RS485 Modbus®-RTU or IO-Link® the device can be suited to a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS- resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or a factory certifications for drink water suitability.

Customer specific special versions can be realized short-term on request, e.g. special designs for the process connection or other process materials.

Basic price

Type

FU4S Standard

Measuring system

K

Approval

S

Process connection

0 Thread ISO 228-1 - G½"A, DIN EN ISO 1179-2 E
3 Thread ISO 228-1 - G¼"A, DIN EN ISO 1179-2 E
Y others

Material process gaskets (process wetted)

1 FPM - fluorelastomere (e.g. Viton®)
3 EPDM - ethylene-propylene-dienmonomere
Y others

Material process connection (process wetted)

V

CrNi-steel

Material terminal enclosure

C

CrNi-steel

Sensor length L1

Process connection

Type 0 - G½"/Type 3 - G¼"

0 30 mm / 28mm 0,00 €
1 49 mm / 47mm 15,50 €
2 79 mm / 77mm 21,50 €
3 119 mm / 117mm 26,50 €

Electronic - output

V RS485 Modbus®-RTU, 4-wire 0,00 €
L IO-Link®, 1x current 0/4...20mA / 2x Schalter, 4-wire 0,00 €

Electronic - function

S Standard 0,00 €

Process temperature

0 Standard -20°C...+110°C 0,00 €

0 0,00 €

0 0,00 €

Electrical connection

S Plug M12 0,00 €

222,00 €

Price group C

0,00 €

0,00 €

0,00 €

0,00 €

0,00 €

on request

0,00 €

0,00 €

on request

0,00 €

0,00 €

0,00 €

15,50 €

21,50 €

26,50 €

0,00 €

0,00 €

0,00 €

0,00 €

0,00 €

0,00 €

0,00 €

+ Additional options (optional)

SF LABS-free, silicone-free / paint compatible version. 90,00 €
ML Measurement point designation / TAG - Laser marking 20,00 €
WT Factory certification - drink water suitability. on request
KF Configuration / Preset 55,00 €

Order code

Fluxicont

FU4S

K

S

V

C

S

0

0

0

0

S

Flow measurement

Fluxicont FU4L

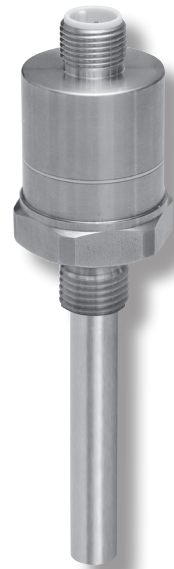
Flow transmitter / flow switch
for general industrial applications

5 / 01.22

Technical data

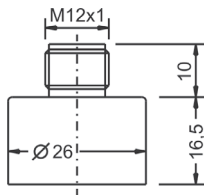


Measuring range	Calorimetric flow measurement	
Measuring principle	3...300 cm/s	
Nominal measuring range	3...300 cm/s	
Output type V – RS485 Modbus®-RTU		
Interface	RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)	
Time behavior	Flow: T90 ≤ 6s / ton ≤ 10s Temperature: T90 ≤ 4s / ton ≤ 2s	
Output type L – IO-Link®		
Interface	IO-Link® V1.1 / Com2 (38400 Baud)	
Analogue output	0...20mA: 0...20,5mA / ≤ 0,05mA / ≤ 22mA / dI ≤ 1µA 4...20mA: 3,8...20,5mA / ≥ 3,6mA / ≤ 22mA / dI ≤ 1µA	
Switch output	2x PP (Push-Pull), switch to +L/-L	
Output	Uout ≤ 0,2V, ≥ Us – 2V / Iout 0...200mA (current limited ≤ 450mA, short circuit protected)	
Time behavior	Flow: T90 ≤ 6s / ton ≤ 10s Temperature: T90 ≤ 4s / ton ≤ 2s	
Auxiliary power		
Supply voltage Us polarity protected	Type V – RS485 Modbus®-RTU: 6...35VDC	Type L – IO-Link®: 9...35VDC, without IO-Link® / 18...30VDC, with IO-Link®
Measuring accuracy		
Accuracy	Flow: ≤ ±5% Measuring end value (5...100cm/s) / (-20°C...+85°C) ≤ ±10% Measuring end value (100...175cm/s) / (-20°C...+85°C) Temperature: ≤ ±1,5K (≥ 20cm/s)	
Long term drift	Flow: ≤ ±10% of measuring value / year (-20°C...+85°C)	
Temperature deviation	Flow: ≤ ±0,4cm/s / K (-20°C...+85°C)	
Process conditions		
Process temperature	-20°C...+110°C, +140°C/1h	
Process pressure	≤ 40 bar	
Environmental conditions		
Environmental temperature	-20°C...+100°C	
Protection level	IP69K/IP67 (EN/IEC 60529)	
MTTF	463 years	

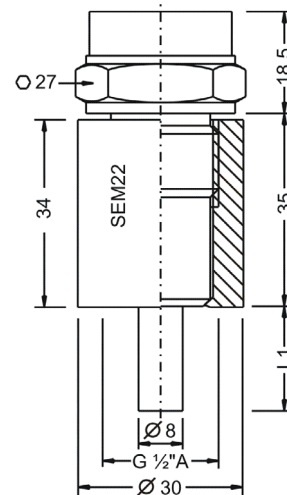


Flow
measurement

Terminal enclosure



Process connection type 2
Thread G 1/2" A, metallic elastomer-free sealing



Fluxicont FU4L

Flow transmitter / flow switch
for general industrial applications

5 / 01.22

Application

The device is an electronic flow resp. temperature switch for monitoring, control and continuous measurement of flow and temperatures in liquids.

A high variety of versions of process connections and electronic types allows the use for a wide range of applications, also for demanding measuring requirements.

The process connection with metallic sealing has been specifically designed for the hygienic, dead-space and elastomer-free process adaption.

Due to its high accuracy and the digital adjustability by RS485 Modbus®-RTU or IO-Link® the device can be suited to a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS- resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or a factory certifications for drink water resp. food suitability.

Customer specific special versions can be realized short-term on request, e.g. special designs for the process connection or other process materials.

Basic price

Type

FU4L Hygienic applications 0,00 €

Measuring system

K Calorimetric sensor 0,00 €

Approval

S Standard 0,00 €

Process connection

2 Thread ISO 228-1 – G½”A, metallic elastomer-free sealing (socket SEM-22/SEM-42) 0,00 €

Y others on request

0 0,00 €

Material process connection (process wetted)

V CrNi-steel 0,00 €

Material terminal enclosure

C CrNi-steel 0,00 €

Sensor length L1

0 30 mm 0,00 €

1 49 mm 15,50 €

2 79 mm 21,50 €

Electronic – output

V RS485 Modbus®-RTU, 4-wire 0,00 €

L IO-Link®, 1x current 0/4...20mA / 2x Schalter, 4-wire 0,00 €

Electronic – function

S Standard 0,00 €

Process temperature

0 Standard –20°C...+110°C 0,00 €

0 0,00 €

0 0,00 €

0 0,00 €

S 0,00 €

Electrical connection

Plug M12 0,00 €

222,00 €

Price group C

+ Additional options (optional)

SF	LABS-free, silicone-free / paint compatible version.	90,00 €
ML	Measurement point designation / TAG – Laser marking	20,00 €
WT	Factory certification – drink water suitability.	on request
KF	Configuration / Preset	55,00 €

Order code

Fluxicont FU4L K S 0 V C S 0 0 0 S

Flow measurement

Flowcont® F630

compact or separated magnetic inductive flow measurement device
 application: water industry, waste water industry, chemical industry, plant engineering



5 / 01.22

Flow
measurement



Explosion protection		
0	without	0,00 €
L	ATEX / IECEx zone 1 / 21 (price up to DN150, from DN200 on request)	1.148,00 €
M	ATEX / IECEx zone 2 / 22 (price up to DN150, from DN200 on request)	120,00 €
Design		
K	compact	0,00 €
G	separated	415,00 €
H	separated, for Ex-Version	595,00 €
	zone 1 / 21	416,00 €
	zone 2 / 21	on request
T	High temperature design (max. 180°C)	on request
F630 - flange version process connection / nominal width		
003	DN3	065 DN65
004	DN4	080 DN80 resp. 3"
006	DN6	100 DN100 resp. 4"
008	DN8	125 DN125
010	DN10	150 DN150 resp. 6"
015	DN15 resp. ½"	200 DN200 resp. 8"
020	DN20	250 DN250 resp. 10"
025	DN25 resp. 1"	300 DN300 resp. 12"
032	DN32	350 DN350 resp. 14"
040	DN40 resp. 1½"	400 DN400 resp. 16"
050	DN50 resp. 2"	500 DN500 resp. 20"
Process connection		
1	flange DIN PN 10	
2	flange DIN PN 16	
3	flange DIN PN 25 (price on request)	
4	flange DIN PN 40	
7	flange ASME CL 150 B16.5 (only with flange in 1.4571)	
8	flange ASME CL 300 B16.5 (price on request)	
9	flange ASME CL 600 RF (price on request)	
lining		
H	hard rubber < 80°C	
W	soft rubber < 60°C	
G	ETFE < 130°C	
P	PTFE < 130°C	
E	PFA < 130°C (< 180°C with high temperature version)	
F	thick PTFE < 180°C	
Process connection, flange material		
Z	steel ST 37.2	
X	CrNi steel 316 Ti 1.4571 (up to DN 15 standard)	
Electrode version		
1	standard	0,00 €
5	pointed head (only for Alloy C-4 and 1.4571)	98,00 €
Measuring electrode material		
4	Alloy C-4 (2.4610)	0,00 €
6	Titan (Price up to DN200, > DN200 on request)	326,00 €
5	Tantal (Price up to DN100, > DN100 on request)	643,00 €
3	Alloy B-3 (2.4600)	on request
8	Platin-Iridium	on request
2	CrNi-steel 316Ti (1.4571)	0,00 €
Earthing electrode / full tube detection		
0	without grounding electrode / without full tube detection	0,00 €
1	without grounding electrode / with full pipe detection (from DN50)	337,00 €
2	with grounding electrode / without full tube detection	281,00 €
3	with grounding electrode / with full pipe detection (from DN50)	618,00 €
Grounding accessories		
0	without	0,00 €
B	Grounding disc mounted on one side	on request
C	Earthing disk mounted on both sides	on request
Protection class transmitter / sensor		
A	IP 67 / IP 67	0,00 €
B	IP 67 / IP 68 (only at separate Version) ¹⁾	251,00 €
power supply		
1	100...230 V AC, 50 Hz	0,00 €
2	24 V DC, 50 Hz	0,00 €
3	100...230 V AC, 60Hz	0,00 €
4	24 V DC, 60Hz	0,00 €
Outputs		
2	1 current output (active or passive), 2 digital outputs (passive), HART	0,00 €

Price group G

Order code

Flowcont® F630

2

¹⁾ option: please order the casting compound separately TYPE: VGM-D141B038U01

on request



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Option card 1

0	without	0,00 €
1	1x digital input	90,00 €
2	1x digital output	90,00 €
3	24 V DC transmitter supply voltage output	140,00 €
4	1x passive analog output (4 ... 20mA)	112,00 €

Option card 2

0	without	0,00 €
1	1x digital input	90,00 €
2	1x digital output	90,00 €
4	1x passive analog output (4 ... 20mA)	112,00 €

Material certificates

A	Measuring tube with DGRL-approval	0,00 €
2	Material confirmation with acceptance test certificate 3.1 according to EN 10204 (for pipe and flanges)	99,00 €
3	Pressure test according to DIN	140,00 €

Calibration certificates

2	Standard calibration (0,4%, 2-point)	0,00 €
3	Increased accuracy (0,2%, 3-point)	669,00 €
	DN 10-80	1.159,00 €
	DN 100-300	on request
	from DN 350	on request
8	Certified calibration (0,4%, 2-point)	on request
9	Certified calibration (0,2%, 3-point)	on request
5	5 points DAkkS calibration (0,2%)	on request

language of the documentaries

M1	german	0,00 €
M5	english	0,00 €
MW	language pack Western Europe / Scandinavia	0,00 €
ME	language pack Eastern Europe	0,00 €

signal cable

0	Without cable	0,00 €
1	5 m	20,00 €
2	10 m	40,00 €
3	20 m	80,00 €
4	30 m	121,00 €
5	50 m	200,00 €
6	80 m	320,00 €
7	100 m	401,00 €
8	150 m	601,00 €

amount test points

(according to „calibration“ see above)

P2	2 points	0,00 €
P3	3 points	0,00 €
P5	5 points	0,00 €

Flow measurement

Order code / continuation



Flowcont® L630

compact magnetic inductive flow measurement device
 application: food industry, pharma industry
 diverse process connections



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Flow measurement



0	without
L	ATEX / IECEx zone 1 / 21
M	ATEX / IECEx zone 2 / 22

Bauform

K	compact	.....
G	seperated	.....
H	seperated, for Ex-Version	zone 1 / 21
		zone 2 / 21
T	High temperature design (max. 180°C)	.....

L630 - flange version process connection / nominal width

003	DN3	2.262,00 €	025	DN25 resp. 1"	.....
004	DN4	2.262,00 €	032	DN32	.....
006	DN6	2.262,00 €	040	DN40 resp. 1½"	.....
008	DN8	2.262,00 €	050	DN50 resp. 2"	.....
010	DN10	2.262,00 €	065	DN65	.....
015	DN15 resp. ½"	2.262,00 €	080	DN80 resp. 3"	.....
020	DN20	2.382,00 €	100	DN100 resp. 4"	.....

Process connection

2	flange DIN PN 16	.....
4	flange DIN PN 40	.....
A	Male thread according to ISO 228	up to DN25
M	Milk tube screw connection after DIN 11851	DN3-32
		DN40-100
P	Welding socket according to ISO 2037	DN3-32
		DN40-100
Q	Welding socket according to DIN 2463	DN3-32
		DN40-100
R	Welding socket according to DIN 11850	DN3-32
		DN40-100
S	Welding socket according to OD Tubing	DN3-32
		DN40-50
T	Tri-Clamp according to DIN 32676	DN3-32
		DN40-100
Z	Intermediate flange

lining

E	PFA < 130°C (< 180°C with high temperature version)
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Process connection, flange material

U	steel 1.4571 (only with fixed flange version)
W	steel 1.4404 (316L with EPDM seal)	.....
G	steel 1.4404 (316L with silicone seal)	.....
Z	without process connection (only with intermediate flange)	.....

Electrode version

1	standard	.....
5	pointed head	.....

Measuring electrode material

7	CrNi-steel 904 (1.4539)	.....
4	Alloy C-4 (2.4610)	.....
6	Titan	.....
5	Tantal	.....
3	Alloy B-3 (2.4600)	.....
8	Platin-Iridium	.....
2	CrNi-steel 316Ti (1.4571)	.....

Earthing electrode / full tube detection

0	without grounding electrode / without full tube detection	.....
2	with grounding electrode / without full tube detection	.....

Protection class transmitter / sensor

A	IP 67 / IP 67	.....
B	IP 67 / IP 68 (only with separate version) ¹⁾

power supply

1	100...230 V AC, 50 Hz	.....
2	24 V DC, 50 Hz	.....
3	100...230 V AC, 60Hz	.....
4	24 V DC, 60Hz	.....

Outputs

2	1 current output (active or passive), 2 digital outputs (passive), HART
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Price group G

on request

Order code

Flowcont® L630

E

2

¹⁾ option: please order the casting compound seperately TYPE: VGM-D141B038U01

on request

Flowcont® L630

compact magnetic inductive flow measurement device
 application: food industry, pharma industry
 diverse process connections



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Option card 1

- 0 without
- 1 1x digital input
- 2 1x digital output
- 3 24 V DC transmitter supply voltage output
- 4 1x passive analog output (4 ... 20mA)

Option card 2

- 0 without
- 1 1x digital input
- 2 1x digital output
- 4 1x analogue output passive (4 ... 20mA)

Material certificates

- A Measuring tube with DGRL-approval
- 2 Material confirmation with acceptance test certificate 3.1 according to EN 10204 (for pipe and flanges)
- 3 Pressure test according to DIN

Calibration certificates

- 2 Standard calibration (0,4%, 2-point)
- 3 Increased accuracy (0,2%, 3-point)
- DN 10-80
- DN 100
- 8 Certified calibration (0,4%, 2-point)
- 9 Certified calibration (0,2%, 3-point)
- 5 5 points DAKkS calibration (0,2%)

Documentation language

- M1 german
- M5 english
- MW language pack Western Europe / Scandinavia
- ME language pack Eastern Europe

signal cable

- 0 Without cable
- 1 5 m
- 2 10 m
- 3 20 m
- 4 30 m
- 5 50 m
- 6 80 m
- 7 100 m
- 8 150 m

amount test points

(according to „calibration“ see above)

- P2 2 points
- P3 3 points
- P5 5 points

..... on request

Flow measurement

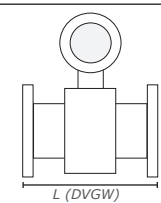
Order code / continuation



Measuring range depending on nominal width

Flowcont® F630 and L630

5 / 01.22

nominal width		standard pressure stage PN (amount of the holes)	dimensions Flange version ^{1), 2)} L in mm	min. full-scale range ³⁾ 0,02 x Q _{max} DN (≈ 0,2 m/s)	Q _{max} DN 0... ≈ 10 m/s
DN	inches				
3	1/10	40 (4 hole)	200	0,08 l/min	4 l/min
4	5/32	40 (4 hole)	200	0,16 l/min	8 l/min
6	¼	40 (4 hole)	200	0,4 l/min	20 l/min
8	5/16	40 (4 hole)	200	0,6 l/min	30 l/min
10	3/8	40 (4 hole)	200	0,9 l/min	45 l/min
15	½	40 (4 hole)	200	2 l/min	100 l/min
20	¾	40 (4 hole)	200	3 l/min	150 l/min
25	1	40 (4 hole)	200	4 l/min	200 l/min
32	1 ¼	40 (4 hole)	200	8 l/min	400 l/min
40	1 ½	40 (4 hole)	200	12 l/min	600 l/min
50	2	40 (4 hole)	200	1,2 m³/h	60 m³/h
65	2 ½	10-16 (4 hole) / 25-40 (8 hole)	200	2,4 m³/h	120 m³/h
80	3	40 (8 hole)	200	3,6 m³/h	180 m³/h
100	4	16 (8 hole)	250	4,8 m³/h	240 m³/h
125	5	16 (8 hole)	250	8,4 m³/h	420 m³/h
150	6	16 (8 hole)	300	12 m³/h	600 m³/h
200	8	10 (8 hole) / 16 (12 hole)	350	21,6 m³/h	1.080 m³/h
250	10	10 (12 hole) / 16 (12 hole)	450	36 m³/h	1.800 m³/h
300	12	10 (12 hole) / 16 (12 hole)	500	48 m³/h	2.400 m³/h
350	14	10 (16 hole) / 16 (16 hole)	550	66 m³/h	3.300 m³/h
400	16	10 (16 hole) / 16 (16 hole)	600	90 m³/h	4.500 m³/h
450	18	-	686	120 m³/h	6.000 m³/h
500	20	10 (20 hole)	650	132 m³/h	6.600 m³/h
600	24	10 (20 hole)	780	192 m³/h	9.600 m³/h
700	28	10 (24 hole)	910	264 m³/h	13.200 m³/h
800	32	10 (24 hole)	1040	360 m³/h	18.000 m³/h
900	36	10 (28 hole)	1170	480 m³/h	24.000 m³/h
1000	40	10 (28 hole)	1300	540 m³/h	27.000 m³/h
1050	42			616 m³/h	30.800 m³/h
1100	44			660 m³/h	33.000 m³/h
1200	48			840 m³/h	42.000 m³/h
1400	54			1.080 m³/h	54.000 m³/h
1500	60			1.260 m³/h	63.000 m³/h
1600	66			1.440 m³/h	72.000 m³/h
1800	72			1.800 m³/h	90.000 m³/h
2000	80			2.280 m³/h	114.000 m³/h

¹⁾ If a grounding plate (one-sidedly mounted at the flange) is installed, the L dimension increases by: DN3-DN100: 3mm; DN125-400: 5mm.

²⁾ If protection plates (one-sidedly mounted at the flange) are installed, the L dimension increases by: DN3-DN100: 6mm; DN125-400: 10mm.

³⁾ The measuring range is adjustable between 0,02 x Q_{max}DN and 2 x Q_{max}DN.

Flow measurement

Flowcont® F630 - nominal width

basic price / lining

5 / 01.22

DN	PTFE	ETFE	Thick-PTFE	Hard rubber	PFA	Soft rubber
3	-			-	4.073,00 €	
4	-			-	4.073,00 €	
6	-			-	4.073,00 €	
8	-			-	4.073,00 €	
10	2.975,00 €			-	3.649,00 €	
15	2.975,00 €			-	3.649,00 €	
20	2.975,00 €			-	3.649,00 €	
25	3.057,00 €			3.118,00 €	3.727,00 €	
32	3.075,00 €			3.132,00 €	3.744,00 €	
40	3.3123,00 €			3.179,00 €	3.792,00 €	
50	3.153,00 €	on request	on request	3.213,00 €	3.821,00 €	on request
65	3.186,00 €			3.243,00 €	3.856,00 €	
80	3.234,00 €			3.313,00 €	3.905,00 €	
100	3.457,00 €			3.568,00 €	4.187,00 €	
125	3.673,00 €			3.740,00 €	4.551,00 €	
150	3.908,00 €			3.989,00 €	5.011,00 €	
200	4.611,00 €			4.648,00 €	6.045,00 €	
250	6.122,00 €			5.073,00 €	-	
300	8.317,00 €			6.496,00 €	-	
350	11.581,00 €			9.522,00 €	-	
400	13.430,00 €			10.695,00 €	-	
500	18.016,00 €			12.386,00 €	-	
600	-				-	
700	-				-	
800	-				-	
900	-				-	
1000	-				-	
1200	-			on request	-	
1400	-				-	
1600	-				-	
1800	-				-	
2000	-				-	

Price group G

Flow measurement

Flowcont® F630 - pressure stage, process connection surcharge for material

DN	PN10 ST37.2	PN10 1.4571	PN16 ST37.2	PN16 1.4571	PN40 ST37.2	PN40 1.4571	ASME-CL150 1.4571
3	-	-	-	-	-	0,00 €	-
4	-	-	-	-	-	0,00 €	-
6	-	-	-	-	-	0,00 €	-
8	-	-	-	-	-	0,00 €	-
10	-	-	-	-	-	0,00 €	-
15	-	-	-	-	-	0,00 €	-
20	-	-	-	-	0,00 €	217,00 €	217,00 €
25	-	-	-	-	0,00 €	217,00 €	217,00 €
32	-	-	-	-	0,00 €	326,00 €	326,00 €
40	-	-	-	-	0,00 €	326,00 €	326,00 €
50	-	-	-	-	0,00 €	326,00 €	326,00 €
65	-	-	-	-	0,00 €	442,00 €	442,00 €
80	-	-	-	-	0,00 €	442,00 €	442,00 €
100	-	-	0,00 €	442,00 €	on request	on request	779,00 €
125	-	-	0,00 €	470,00 €			1.010,00 €
150	-	-	0,00 €	516,00 €			1.112,00 €
200	0,00 €	788,00 €			on request	on request	
250	0,00 €	1.279,00 €					
300	0,00 €	1.683,00 €					
350	0,00 €	2.248,00 €	on request	on request			
400	0,00 €	2.682,00 €					
500	0,00 €	auf Anfrage					
600			on request	on request			on request
700							
800							
900							
1000							
1200	on request	on request					
1400							
1600							
1800							
2000							

Price group G

Surcharge for grounding plates

without mounting option at the flange

5 / 01.22

Grounding plate material: 1.4571

DN 3...DN 8	PN 10...PN 40	D374A165U21	100,00 €
DN 10	PN 10...PN 40	D374A165U22	100,00 €
DN 15	PN 10...PN 40	D374A165U23	100,00 €
DN 20	PN 10...PN 40	D374A165U24	100,00 €
DN 25	PN 10...PN 40	D374A165U25	100,00 €
DN 32	PN 10...PN 40	D374A165U26	100,00 €
DN 40	PN 10...PN 40	D374A165U27	100,00 €
DN 50	PN 10...PN 40	D374A165U28	100,00 €
DN 65	PN 10...PN 40	D374A165U29	118,00 €
DN 80	PN 10...PN 40	D374A165U30	118,00 €
DN 100	PN 10...PN 16	D374A165U31	118,00 €
DN 125	PN 10...PN 16	D374A165U32	118,00 €
DN 150	PN 10...PN 16	D374A165U33	118,00 €
DN 200	PN 10...PN 16	D374A165U34	133,00 €
DN 250	PN 10...PN 16	D374A165U35	166,00 €
DN 300	PN 10	D374A165U39	267,00 €
	PN 16	D374A165U44	267,00 €
DN 350	PN 10	D374A165U40	332,00 €
	PN 16	D374A165U45	332,00 €
DN 400	PN 10	D374A165U41	396,00 €
	PN 16	D374A165U46	396,00 €
DN 500	PN 10	D374A165U42	598,00 €
	PN 16	D374A165U47	598,00 €
DN 600	PN 10	D374A165U43	598,00 €
	PN 16	D374A165U48	598,00 €
> DN 600			on request

Price group A

Grounding plate material: Hastelloy C-4

DN 3...DN 8	PN 10...PN 40	D374A166U21	118,00 €
DN 10	PN 10...PN 40	D374A166U22	118,00 €
DN 15	PN 10...PN 40	D374A166U23	118,00 €
DN 20	PN 10...PN 40	D374A166U24	141,00 €
DN 25	PN 10...PN 40	D374A166U25	141,00 €
DN 32	PN 10...PN 40	D374A166U26	174,00 €
DN 40	PN 10...PN 40	D374A166U27	174,00 €
DN 50	PN 10...PN 40	D374A166U28	213,00 €
DN 65	PN 10...PN 40	D374A166U29	259,00 €
DN 80	PN 10...PN 40	D374A166U30	283,00 €
DN 100	PN 10...PN 16	D374A166U31	332,00 €
DN 125	PN 10...PN 16	D374A166U32	396,00 €
DN 150	PN 10...PN 16	D374A166U33	465,00 €
DN 200	PN 10...PN 16	D374A166U34	664,00 €
DN 250	PN 10...PN 16	D374A166U35	930,00 €
DN 300	PN 10	D374A166U39	on request
DN 350	PN 10	D374A166U40	on request
	PN 16	D374A166U45	on request
DN 400	PN 10	D374A166U41	on request
	PN 16	D374A166U46	on request
DN 500	PN 10	D374A166U42	on request
	PN 16	D374A166U47	on request
DN 600	PN 10	D374A166U43	on request

Price group A

Grounding plate conductive PTFE

DN10 / PN40	D377B106U01	407,00 €
DN15 / PN40	D377B106U02	407,00 €
DN20 / PN40	D377B106U03	407,00 €
DN25 / PN40	D377B106U04	407,00 €
DN32 / PN40	D377B106U05	407,00 €
DN40 / PN40	D377B106U06	407,00 €
DN50 / PN40	D377B106U07	407,00 €
DN65 / PN40	D377B106U09	407,00 €
DN80 / PN40	D377B106U10	407,00 €
D100 / PN16	D377B106U11	407,00 €

PG A

Flow measurement

Flange equipment material 1.4571

Nominal width	Protection plates	Earthing rings
DN003 - 032	132,00 €	87,00 €
DN040 - 050	176,00 €	104,00 €
DN065 - 080	230,00 €	135,00 €
DN100	246,00 €	149,00 €
DN125	310,00 €	181,00 €
DN150	387,00 €	231,00 €
DN200	522,00 €	309,00 €
DN250	576,00 €	342,00 €
DN300 - 350	1.232,00 €	730,00 €
DN400	1.308,00 €	781,00 €
DN500	2.514,00 €	1.500,00 €
DN600	3.020,00 €	1.791,00 €

PG A

Sealing ring for aseptic screwed pipe joint

DN004 - 010	D110A020U06	21,50 €
DN015	D110A004U08	22,50 €
DN020	D110A005U06	24,00 €
DN025	D110A006U07	24,00 €
DN032	D110A007U06	25,50 €
DN040	D110A008U08	27,50 €
DN050	D110A003U06	32,00 €
DN065	D110A009U06	38,00 €
DN080	D110A011U06	41,00 €
DN100	D110A012U06	55,00 €

PG A

Weld-in fitting

DN3 - 10	D413C470U01	79,00 €
DN15	D413C471U01	79,00 €
DN20	D413C472U01	79,00 €
DN25	D413C473U01	104,00 €
DN32	D413C474U01	126,00 €
DN40	D413C475U01	159,00 €
DN50	D413C488U03	176,00 €
DN65	D413C461U09	226,00 €
DN80	D413C496U03	288,00 €
DN100	D413C498U03	303,00 €

PG A

Marking measurement point

<small>Ordering information</small> AS-50 <small>Model</small> hang tag made of VA with laser inscription	38,00 €
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PG A

Intermediate flange equipment for vortex flow

Material CrNi-steel (bolts, nuts, spring washers) centering elements, gaskets are not included in equipment

DN 15 / DN 25 /, PN 10-40	D614L384U01	125,00 €
DN 15, PN 64-100	D614L384U15	272,00 €
DN 25, PN 64 -100	D614L384U11	272,00 €
DN 40, PN 10-40	D614L384U02	125,00 €
DN 40, PN 64	D614L384U14	272,00 €
DN 50, PN 10-40	D614L384U03	125,00 €
DN 50, PN 64	D614L384U13	272,00 €
DN 80, PN 10-40	D614L384U04	272,00 €
DN 80, PN 64	D614L384U12	507,00 €
DN 100, PN 10-16	D614L384U05	272,00 €
DN 100, PN 25-40	D614L384U06	272,00 €
DN 100, PN 64	D614L384U16	507,00 €
DN 150, PN 10-16	D614L384U07	272,00 €
DN 150, PN 25-40	D614L384U08	507,00 €
DN 150, PN 64	D614L384U17	1.009,00 €

PG A

Flowcont® Magsmall

Smart magmeter for utilities – intuitive · convenient · multivariable

5 / 01.22

Technical data



liquids



compact design



easy-to-use

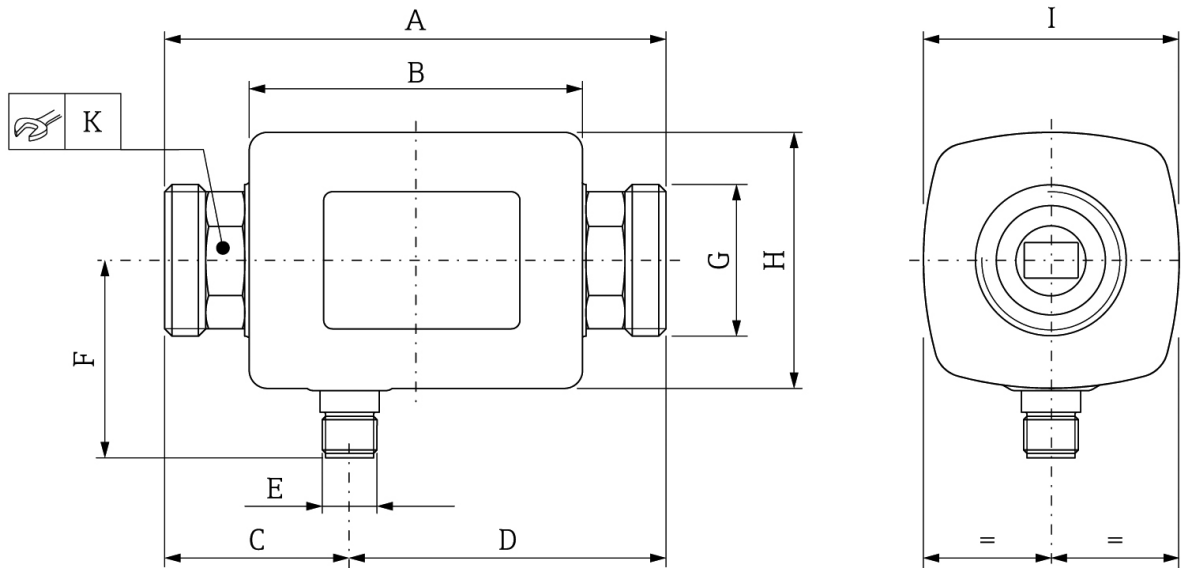


closed operating interface

Supply voltage range:	18 to 30 VDC (SELV, PELV, Class 2)
Power consumption:	Max. 3 W (w/o outputs IO1 and IO2, 120 mA (+ 2 x 250 mA with I/Os))
Measuring range:	DN 15 (1/2"): 0.4 to 25 l/min DN 20 (3/4"): 0.75 to 50 l/min DN 25 (1"): 1.2 to 100 l/min DN 50 (2"): 5 to 750 l/min
Maximum measured error:	Volume flow measurement: ±2 % o.r. and ±0.5 % o.f.s. Medium temperature measurement: ±2.5 °C
Repeatability:	Volume flow measurement: ±0.2 % o.r. Medium temperature measurement: ±0.5 °C
Environment	
Environment temperature:	in process: -10 ... +60 °C (+14 ... +140 °F) in storage: -25 ... +85 °C (-13 ... +185 °F)
Medium temperature range:	-10 to +70 °C (+14 to +158 °F) Permissible short-term temperature, maximum one hour: 85 °C (185 °F) Repetition after 4 hours at the earliest
Medium properties:	Liquid, conductivity > 20 µS/cm
Process pressure:	Max. 16 bar _{ref}
Degree of protection:	IP65/67, pollution degree 3



Flow measurement



DN	A (mm)	B (mm)	C (mm)	D (mm)	E	F (mm)	G	H (mm)	I (mm)	K (mm)
15	110	73	40,5	69,5	M12 x 1	43	G1/2"	56	56	24
20	110	73	40,5	69,5	M12 x 1	43	G3/4"	56	56	27
25	110	73	40,5	69,5	M12 x 1	43	G1"	56	56	27
50	200	113	80	120	M12 x 1	58	G2"	86	86	52

Flowcont® Magsmall

Smart magmeter for utilities – intuitive · convenient · multivariable

5 / 01.21

Basic price

Type		
DMA15	DN 15 flow min. 0,4 - 25 l/min	548,00 €
DMA20	DN 20 flow min. 0,75 - 50 l/min	630,00 €
DMA25	DN 25 flow min. 1,2 - 100 l/min	735,00 €
DMA50	DN 50 flow min. 5,0 - 750 l/min	934,00 €
Approval		
AA	Non-hazardous area.	0,00 €
Output; Input:		
A	IO-Link/4-20mA/pulse/switch output/ 2-10V; status input, configurable	0,00 €
Sensor; Housing:		
A	PEEK, stainl. steel; stainl. steel.	0,00 €
Device Model		
A1	1	0,00 €

Price group D

Application

Flowcont Magsmall is the economical magmeter for many applications in secondary circuits with conductive liquids in all industries. End customers, skid builders, equipment manufacturers and system integrators value the space-saving Flowcont Magsmall for its flexible installation capabilities. Additionally, its future-oriented, intuitive operation via SmartBlue app on every Bluetooth-enabled smartphone or tablet ensures fast, secure and simple commissioning.

Order code

Flowcont® Magsmall AA A A A1

Equipment

Ordering information
LKZ0505PUR-AS
LKZ0510PUR-AS
LKZ0805PUR-AS
BKZ0512-VA
BKW0512-VA

Model

Connection cable 5 m, 5-pole, shielded	26,00 €
Connection cable 10 m, 5-pole, shielded	35,00 €
Connection cable 5 m, 8-pole, shielded	38,00 €
Cable socket M12 - Spol -straight with VA-nut	19,50 €
Cable socket M12 - Spol -angled with VA-nut	19,50 €

Price group E

Flowgas TMS 300

cost-effective consumption sensor for compressed air and gases including measurement section

5 / 01.22

Technical data



no moving parts



no calibration



easy installation



robust

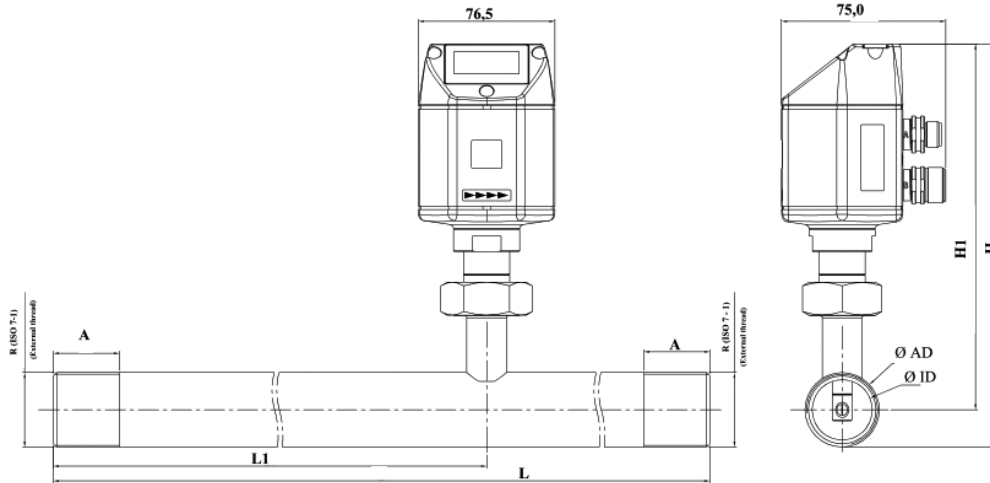


compact

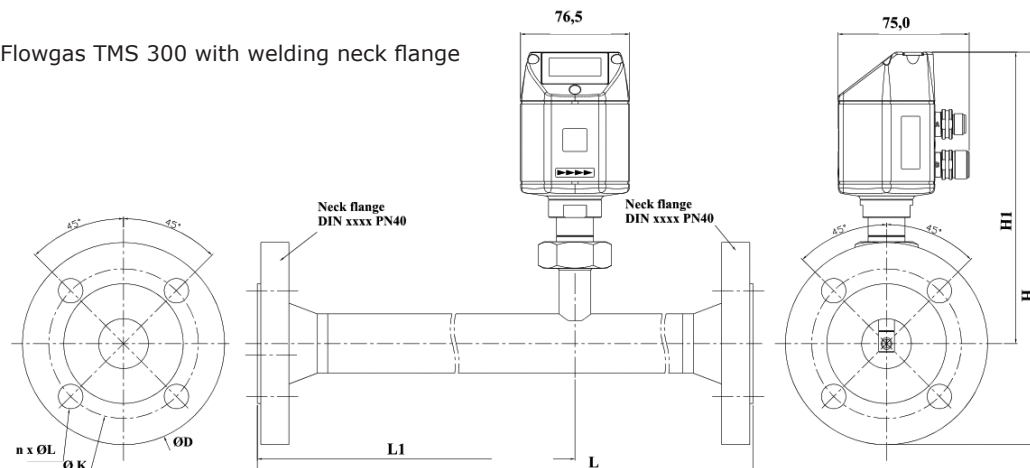
measurement types: m³/h, l/min (1000 mbar, 20°C) for compressed air resp. Nm³/h, NI/min (1013 mbar, 0°C) for gases
 measurement principle: calorimetric measurement
 sensor: thermal mass flow sensor
 measured medium: air, gases
 operating temperature: -30 ... 80°C
 operating pressure: up to 16 bar, special version PN 40 (40 bar)
 Power supply: 24 VDC smoothed ± 15%
 Supply current: max. 80 mA at 24 VDC
 load: < 500 Ohm
 digital output: RS485, Modbus RTU
 analog output: 4...20 mA, for m³/h resp. l/min
 impulse output: 1 impulse per m³ resp. per l, pulse output galvanically isolated; pulse value on display adjustable
 accuracy: ± 1,5 % v.M., ± 0,3 % v. E.
 mounting threads: R 1/4", R 1/2", R 3/4", R 1", R 1 1/4" R 1 1/2", R 2" DIN EN 10226 (ISO 7-1)
 Housing: polycarbonate
 Measuring Range: stainless steel 1.4301 / 1.4404;
 Version with flange DIN EN 1092-1: stainless steel 1.4404



Flowgas TMS 300 without flange with connection thread



Flowgas TMS 300 with welding neck flange



Flow measurement

Flowgas TMS 300

cost-effective consumption sensor for compressed air and gases including measurement section

5 / 01.22

Application

The affordable consumption counter TMS 300 works according to the proven calorimetric measuring principle. An additional pressure and temperature compensation is not necessary. The newly developed evaluation electronic detects, unlike the bridge circuits commonly used, all readings digitally. Thus very precise and fast measurements are possible.

Due to the new evaluation electronic all TMS 300 come with a Modbus output. Thus all measured variables can be transmitted via Modbus.

Due to its compact design it is possible the new cheap consumption meters TMS 300 are usable for all pressure air pipe lines, from production to consumption smallest unit („1/4 to 2 inches). For larger pipe diameters from DN 50 to DN 300 the consumption sensors TMS 500 are available.

In addition to pressure air, other gases can e.g. Nitrogen, oxygen, CO2 be measured, too.

The installation of the meter TMS 300 is simple and fast. A particular advantage is the removable measuring unit. This allows the unit of measurement for calibration or cleaning purposes be removed quickly and easily without removing the complete measuring section.

Basic price

Model	Price
300 Standard	870,00 €
Process connection	
0 connection thread 1/4"	0,00 €
1 connection thread 1/2"	0,00 €
2 connection thread 3/4"	46,00 €
3 connection thread 1"	69,00 €
5 connection thread 1 1/2"	261,00 €
6 connection thread 2"	322,00 €
4 connection thread 1 1/4"	261,00 €
A connection flange DN15	185,00 €
B connection flange DN20	261,00 €
C connection flange DN25	310,00 €
D connection flange DN32	609,00 €
E connection flange DN40	609,00 €
F connection flange DN50	762,00 €
Y Special version	on request
Material (medium contact)	
V2 1.4301 stainless steel	0,00 €
V4 1.4404 stainless steel	87,00 €
Y Special version	on request
Pressure stage	
16 PN16	0,00 €
40 PN40	222,00 €
Y Special version	on request
gas type standard measuring range	
LUFT air - measuring range according to DIN 1945/ ISO 1217 .....please specify ..	0,00 €
11AR argon measuring range according to DIN 1343 .....please specify ..	111,00 €
1CO2 carbon dioxide CO2 measuring range according to DIN 1343 .....please specify ..	111,00 €
11O2 oxygen incl. cleaning oil and fat free	
Measuring range according to DIN 1343 .....please specify ..	111,00 €
111N nitrogen measuring range according to DIN 1343 .....please specify ..	111,00 €
111Y Special medium .....please specify ..	on request
accuracy calibration	
A +/- 1,5% from measured value (standard).....	0,00 €
B +/- 1,0% from measured value.....	228,00 €
Y Special calibration via 5-point ISO-certificate	453,00 €
Output	
AP analog output: 4 .. 20 mA for m³/h resp. l/min	
impulse output: 1 impulse pro m³ resp. per liter galvanically isolated	
digital output: RS 485 interface (Modbus-RTU)	
5-pol. cable socket M12 included	
Y Special version	0,00 €
supply	
2 24 VDC smoothed +/- 15%	
5-pol. cable socket M12 included	
Y Special version	0,00 €

Price group B

Flow measurement

Order code

Flowgas TMS 300

Dimensions Flowgas TMS 300 with connecting thread Flow measuring ranges Flowgas TMS 300 for compressed air (ISO 1217: 1000 mbar, 20°C)

Pipe size	AD / ID (mm)	L (mm)	L1 (mm)	H (mm)	H1 (mm)	R	A (mm)	A mm	Measuring range
DN 8	13,7 / 8,5	194	137	176,6	166,3	R 1/4"	15	165,7	0,8...90 l/min
DN 15	21,3 / 16,1	300	210	177,0	166,3	R 1/2"	20	165,7	0,2...90 m³/h
DN 20	26,9 / 21,7	475	275	179,8	166,3	R 3/4"	20	165,7	0,3...170 m³/h
DN 25	33,7 / 27,3	475	275	183,2	166,3	R 1"	25	165,7	0,5...290 m³/h
DN 32	42,4 / 36,0	475	275	187,5	166,3	R 1 1/4"	25	165,7	0,7...530 m³/h
DN 40	48,3 / 41,9	475	275	190,5	166,3	R 1 1/2"	25	165,7	1,0...730 m³/h
DN 50	60,3 / 53,1	475	275	196,5	166,3	R 2"	30	165,7	2,0...1195 m³/h

Dimensions Flowgas TMS 300 with weld neck

Flange DIN EN 1092-1

Flow measuring ranges Flowgas TMS 300 for compressed air (ISO 1217: 1000 mbar, 20°C)

Pipe size	AD/ID	L (mm)	L1 (mm)	H (mm)	H1 (mm)	Ø D (mm)	Ø K (mm)	n x ØL (mm)	Measuring range from ... to
DN 15	21,3 / 16,1	300	210	213,8	166,3	95	65	4 x 14	0,2...90 m³/h
DN 20	26,9 / 21,7	475	275	218,8	166,3	105	75	4 x 14	0,3...170 m³/h
DN 25	33,7 / 27,3	475	275	223,8	166,3	115	85	4 x 14	0,5...290 m³/h
DN 32	42,4 / 36,0	475	275	263,3	166,3	140	100	4 x 18	0,7...530m³/h
DN 40	48,3 / 41,9	475	275	2 40,7	166,3	150	110	4 x 18	1,0...730 m³/h
DN 50	60,3 / 53,1	475	275	248,2	166,3	165	125	4 x 18	2,0...1195 m³/h

Flowgas TMS 500

consumption sensor for compressed air and gases

5 / 01.22

Technical data



no moving parts



no calibration



easy installation

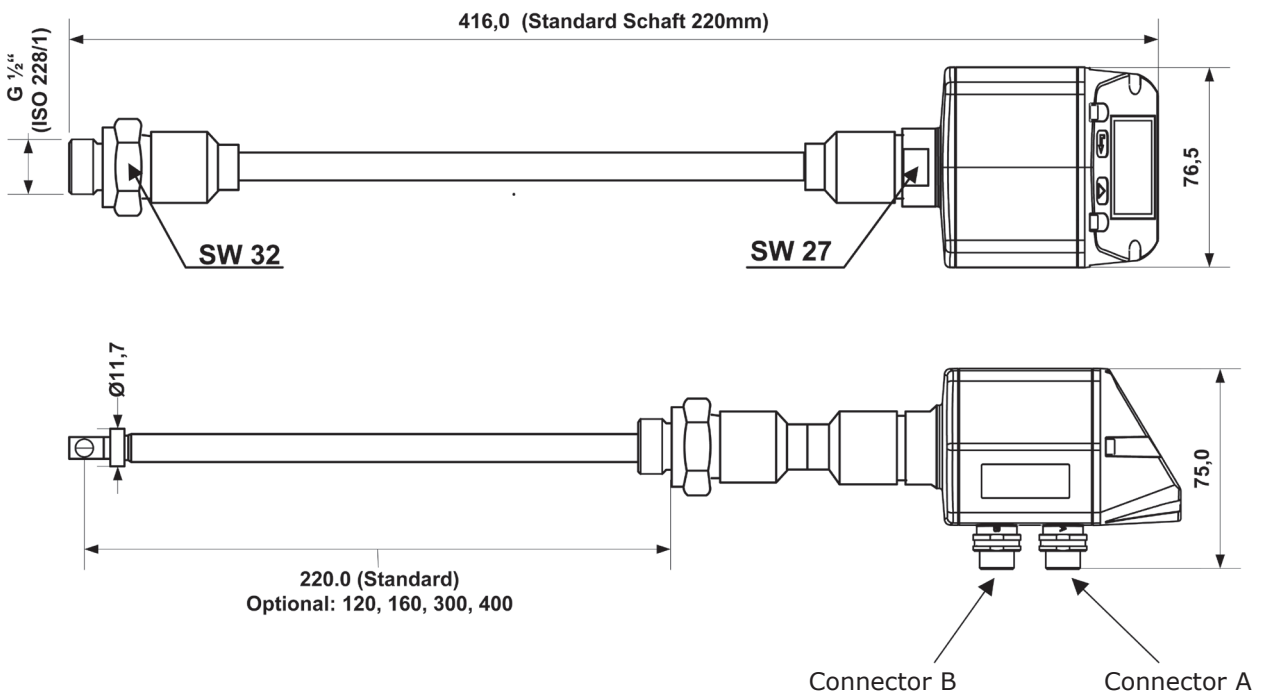


robust



compact

measurement types: m³/h, l/min (1000 mbar, 20°C) for compressed air resp. Nm³/h, NI/min (1013 mbar, 0°C) for gases
 measurement principle: calorimetric measurement
 sensor: thermal mass flow sensor
 measured medium: air, gases
 operating temperature: -30 ... 80°C housing
 -30 ... 110 ° C probe tube
 operating pressure: up to 50 bar
 Power supply: 24 VDC smoothed ± 15%
 Supply current: max. 80 mA at 24 VDC
 load: < 500 Ohm
 digital output: RS485, Modbus RTU
 analog output: 4 ... 20 mA for m³ / h or l / min
 on request: scaling for cfm, m³ / min, l / s, ft / min, m / s
 impulse output: 1 impulse per m³ resp. per l, pulse output galvanically isolated;
 pulse value on display adjustable
 accuracy: ± 1,5 % v.M., ± 0,3 % v. E.
 mounting threads: G1/2"
 material: Housing: polycarbonate
 Sensor tube: stainless steel 1.4301 / 1.4301; length 220 mm,
 diameter 10 mm



Flow measurement

Flowgas TMS 500

consumption sensor for compressed air and gases

5 / 01.22

Application

The affordable consumption counter TMS 500 works according to the proven calorimetric measuring principle. A heated sensor is cooled by the gas flowing around him. The flow-dependent cooling is utilized as a measuring scale while the degree of cooling is directly dependent on the passing air or gas mass. An additional pressure and temperature compensation is therefore not necessary.

For larger pipe diameters from DN 50 to DN 300 the consumption sensors TMS 500 are available. In addition to pressure air, other gases can be measured e.g. Nitrogen, oxygen, CO2.

The installation of the TMS 500 via a standard G 1/2 „ball valve under pressure. The retaining ring prevents the probe is thrown out uncontrollably during installation and removal by the operating pressure. For installation in different pipe diameters the TMS 500 can be associated with different probe lengths. The exact positioning of the sensor in the center of the pipe is possible via an engraved depth scale.

Basic price	1.858,00 €
Model	
500 Standard	0,00 €
Connection thread	
1 1/2"	0,00 €
Y Special version	on request
Material (medium contact)	
V2 1.4301 stainless steel	0,00 €
Y Special version	on request
probe length pipe	
A 220 mm	0,00 €
B 120 mm	0,00 €
C 160 mm	0,00 €
D 300 mm	93,00 €
E 400 mm	211,00 €
F 500 mm	327,00 €
G 600 mm	370,00 €
H 700 mm	380,00 €
Y Special version	on request
gas type standard measuring range	
LUFT air - measuring range according to DIN 1945/ ISO 1217	0,00 €
11AR argon measuring range according to DIN 1343	111,00 €
1CO2 carbon dioxide CO2 measuring range according to DIN 1343	111,00 €
11O2 oxygen incl. cleaning oil and fat free	
Measuring range according to DIN 1343	111,00 €
111N nitrogen measuring range according to DIN 1343	111,00 €
111Y Special medium	on request
accuracy calibration	
A +/-1,5% of measured value (Standard)	0,00 €
B +/-1,0% of measured value	222,00 €
Y on request: special calibration via 5-point ISO-certificate	453,00 €
Output	
AP analog output: 4 .. 20 mA for m³/h resp. l/min	
impulse output: 1 impulse pro m³ resp. per liter galvanically isolated	
digital output: RS 485 interface (Modbus-RTU)	
5-pol. cable socket M12 included	0,00 €
Y Special version	on request
supply	
2 24 VDC smoothed +/- 15%	
5-pol. cable socket M12 included	0,00 €
Y Special version	on request
Measuring range	
S Standard measuring range up to 92,7m/s	0,00 €
M max version measuring range up to 185m/s	485,00 €
H High speed version measuring range up to 224m/s	716,00 €
Y Special version	on request
display	
S Without display	0,00 €
D LCD-Display	233,00 €
Y Special version	on request

Price group B

Flow measurement

Order code

Flowgas TMS 500

Flow measuring ranges Flowgas TMS 500 for compressed air (ISO 1217: 1000 mbar, 20°C)					
Pipe inner diameter			TMS 500 Standard (92,7 m/s)	TMS 500 Max. (185,0 m/s)	TMS 500 High-Speed (224,0 m/s)
Inch	mm		Measuring range from ... to	Measuring range from ... to	Measuring range from ... to
1/2"	16,1	DN15	2,5...760l/min	3,5...1516 l/min	6,0...1836 l/min
3/4"	21,7	DN20	0,3...89 m³/h	0,4...178 m³/h	0,7...215 m³/h
1"	27,3	DN25	0,5...148 m³/h	0,6...295 m³/h	1,1...357 m³/h
1 1/4"	36,0	DN32	0,9...280 m³/h	1,2...531 m³/h	2,5...644 m³/h
1 1/2"	41,9	DN40	1,2...366 m³/h	1,5...732 m³/h	3,0...886 m³/h
2"	53,1	DN50	2...600 m³/h	2,5...1198 m³/h	4,6...1450 m³/h
2 1/2"	71,1	DN65	3,5...1096 m³/h	5...2187 m³/h	7...2648 m³/h
3"	84,9	DN80	5...1570 m³/h	7...3133 m³/h	12...3794 m³/h
4"	110,0	DN100	9...2645 m³/h	12...5279 m³/h	16...6391 m³/h
5"	133,7	DN125	13...3912 m³/h	18...7808 m³/h	24...9453 m³/h
6"	159,3	DN150	18...5560 m³/h	25...11097 m³/h	43...13436 m³/h
8"	200,0	DN200	26...8786 m³/h	33...17533 m³/h	50...21230 m³/h
10"	250,0	DN250	40...13744 m³/h	52...27429 m³/h	80...33211 m³/h
12"	300,0	DN300	60...19815 m³/h	80...39544 m³/h	100...47881 m³/h

Flowcont® UN

Ultrasonic flow meter Flowcont® UN
contactlessly flow measuring

5 / 01.22

Technical data



liquids



LCD
display



compact
design



easy-to-use



up to
10
bar
pressure



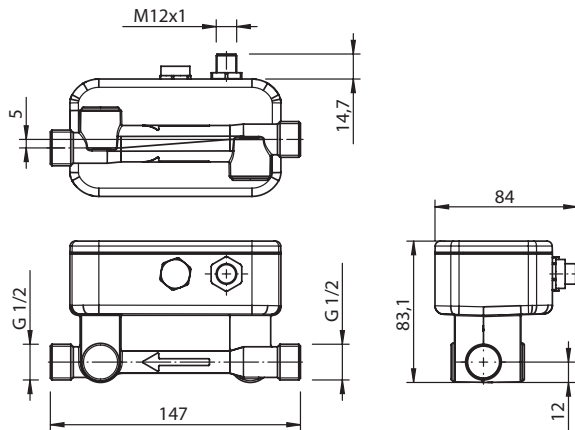
closed
operating
interface

Power supply: 18 V DC ... 30 V DC protected against polarity reversal, short circuit and over load protected
Supply current: ≤ 180 mA
Measurement accuracy: ≤ 2 % (vom end value)
Materials
medium contact materials: PSU polysulfone (Ultrason S)
housing: PSU polysulfone (Ultrason S)
Environmental conditions
Ambient temperature: operating: 0°C...+60°C
storage: - 20°C...+70°C

Process temperatures: 0°C...+80°C
Process pressure ranges: DN 10 / DN 15: max. 10 bar; DN 20 / DN 25: max. 6 bar
Protection: IP67
residual ripple: ≤ 5 V_{ss}
initialization time: ≤ 5 s
protection: III
connection type: M12x1, 5-pol. / M12x1, 8-pol. (depending on the type)
impulse/frequency output: 0 kHz ... 10 kHz; pulse width ≤ 1 s
signal voltage: HIGH UV - 2 V; LoW ≤ 2 V
output current: < 100 mA
load: inductive: 1 H; capacitive: 100 nF
response time: filter off 100 ms, filter low 300 ms, filter middle 1 s, filter strong 4,2 s
output load: < 500 ohm
signal level lower signal level: 3,8 mA ... 4 mA; upper signal level 20 mA ... 20,5 mA

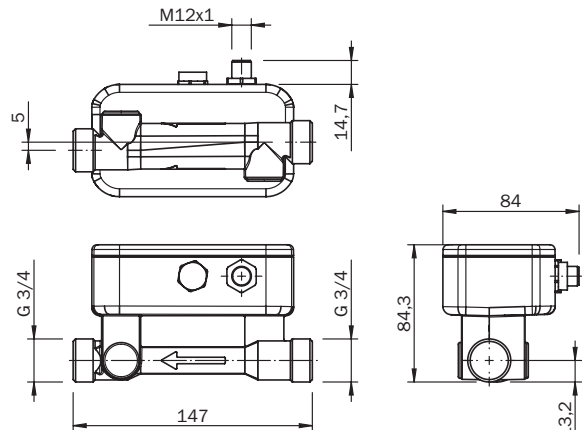


DN 10, Prozessanschluss G 1/2



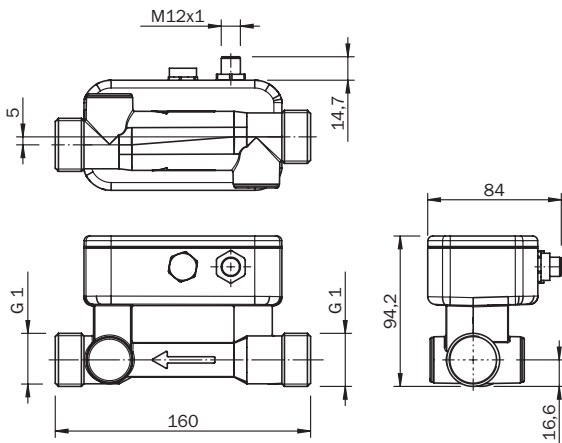
Alle Maße in mm

DN 15, Prozessanschluss G 3/4



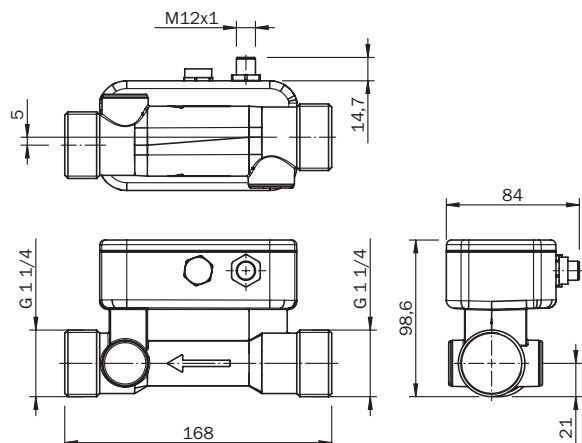
Alle Maße in mm

DN 20, Prozessanschluss G 1



Alle Maße in mm

DN 25, Prozessanschluss G 1 1/4



Alle Maße in mm

more dimension drawings see data sheet or Homepage www.acs-controlssystem.de

Flow
measurement

Flowcont® UN

Ultrasonic flow meter Flowcont® UN
contactlessly flow measuring

5 / 01.22

Basic price		692,00 €
Model		
UN	Standard ultrasonic flow measurement for non-conductive liquids.	0,00 €
Measuring pipe nominal width		
10	DN 10 flow min. 0,3 l/min...max. 21 l/min	0,00 €
15	DN 15 flow min. 0,9 l/min...max. 36 l/min	27,50 €
20	DN 20 flow min. 3,5 l/min...max. 60 l/min	92,00 €
25	DN 25 flow min. 5 l/min...max. 240 l/min	122,00 €
Sensor material		
1	PSU polysulfone (Ultrason S)	0,00 €
Process connection		
G1	External pipe thread G according to 228 (standard)	0,00 €
N1	External thread NPT	on request
C1	Collar clamp adapter (DIN11864-3) BKS, Form A	on request
Electronics		
I0	Current output, 1 transistor output, M12x1, 5-pol. (standard)	0,00 €
	Electronics: 1 analog output: 4 mA ... 20 mA, 0 mA ... 20 mA for latest flow, 1 impulse/status output: PNP-transistor output for quantity counter, empty tube monitoring , flow limit value	
SR	Current output, 2 transistor output, 1 signal input M12x1, 5-pol.	on request
	Electronics: 1 analog output: 4 mA ... 20 mA, 0 mA ... 20 mA for latest flow, 2 impulse/status outputs: PNP-transistor output for quantity counter, empty tube monitoring , flow limit value, 1 digital input	

Price group C

Application

The non-contact, ultrasonic flow sensor Flowcont UN detects the flow volumes of conductive and non-conductive liquids.

Swimming against the current requires more strength than with the current – this is the simple fact on which ultrasonic flow measurement according to the phase difference process is based.

The device has a compact design, and its wide range of possible applications means it can also be used in restricted spaces.

The seal-free sensor design, with high-quality polysulfone (Ultrason S) combined with enclosure rating IP 67, not only makes it possible to use the device in harsh ambient conditions, but also guarantees high process reliability. The large text display also helps ensure simple, fast and problem-free commissioning.

Order code

Flowcont®

UN

1

Equipment

Ordering information
LKZ0505PUR-AS
LKZ0510PUR-AS
LKZ0805PUR-AS
BKZ0512-VA
BKW0512-VA

Model

Connection cable 5 m, 5-pole, shielded

26,00 €

Connection cable 10 m, 5-pole, shielded

35,00 €

Connection cable 5 m, 8-pole, shielded

38,00 €

Cable socket M12 - Spol -straight with VA-nut

19,50 €

Cable socket M12 - Spol -angled with VA-nut

19,50 €

PG E


6. Visualization

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Industrial controllers / text displays

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What to use where

	Regicont RCE-300	Regicont RCD-450	DPA	DAL-401	DAL-101	DAL-111	DAL-311	DAP-101	DAP-311	DAM-311	DAK-101	DAK-111	MIR-401/411/421	MIR-491/492
Messprinzip														
Bildschirmschreiber	●	●												
Anzeigen	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Registrieren	●	●	●											
Fernübertragung	●	●												
Analyse	●	●	●											
Farbdisplay	●	●	●											
Digitaleingang	●	●	●											
LCD-Anzeige 4-Stellig					●			●			●		●	●
LCD-Anzeige 5-Stellig				●		●	●		●			●		
Bargraph	●	●	●							●				
Messumformerversorgung	●	●	●	●		●	●		●	●		●	●	●
Datenlogger	●	●	●											
Relaisausgang	●	●	●	●		●	●		●	●			●	●
Fronttafeleinbau	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ethernet	●	●												
USB	●	●	●											
Modbus	●	●											●	
Profibus		●												●
Bluetooth			●											
Feldgehäuse	●	●	●											
Tischaufbau	●	●												
Einsatzbedingungen														
Ex-Bereich			Ex											

Visualization

Type	RCE-300	RCD-450	DPA	DAL-401	DAL-101
					
Model	paperless recorder	paperless recorder	front panel installation 96x96mm wall mounting housing, top-hat rail mounting	front panel installation 48x96mm horizontal format	front panel installation 96 x 48 x 41 mm horizontal format short design
Application	in all industries for displaying and registration of production processes	displaying, analyzing, monitoring and saving, industry and multi product systems	5-digit 1. bar-graph	5-digit	4-digit
Design	front panel installation 144x144mm tabletop model field housing IP65	front panel installation tabletop model field housing IP65	1x 0...10V; 0(4)...20mA	1x 0...10V; 0(4)...20mA	1x 0...10V; 0(4)...20mA
Analog inputs	0 / 4 / 8 / 12	4 / 8 / 12 / 16 / 20	-	-	2- and 3-wire type L, J, U, B, S, N, E, T, R
multifunction analog outputs	X	X	-	-	R, Poti, frequency, U/I-AC
Impulse inputs	6x digital (max.)	up to 14	-	-	-
Measurement display	TFT 5,7" color display	TFT 7" color display	85...253V AC / 24 V DC	230V AC or 24V UC	230V AC; 24V DC
Switching outputs	6x relay	max. 12x relay	1x 0...10V; 0(4)...20mA	1x 0...10V; 0(4)...20mA	2-wire current loop supply
Analog outputs	-	2x analog output	4x relay	2x relay NO	2 PhotoMos-outputs bei current loop version
Mathematical software	X	X	-	-	-
Internal memory	128MB	256 MB	-	-	-
Exchangable memory	SD memory card 1GB	SD memory card 1GB	1x transmitter power supply 24V	transmitter power supply	programming interface
Operating voltage	115...230V AC, 24V UC	115...230V AC, 24V UC	Bluetooth	programming interface	-
Transmitter power supply	X	X	-	-	-
Certifications	UL/CSA	ATEX; UL	ATEX	ATEX	ATEX
Remotely controllable	-	-	-	-	-
Interfaces optional	Ethernet, RS232 / RS485, USB, OPC-Server, WEB-Server, Profibus, Modbus, RTU / TCP-Slave	Ethernet, RS232 / RS485, USB, OPC-Server, WEB-Server, Profibus, Modbus	Bluetooth-Interface data logger 500000 measured values	O2 input	-

Type	DAK-111	DAL-311	DAP-101	DAP-311	DAM-311	DAK-101	DAK-111
Design							
Digital-display	front panel installation 96 x 48 x 89 mm horizontal format	front panel installation 96 x 48 x 139 mm horizontal format	front panel installation 296 x 24 x 74 mm horizontal format	front panel installation 96 x 24 x 139 mm horizontal format	front panel installation 96 x 24 mm vertical and horizontal format	front panel installation 48 x 24 x 54 mm horizontal format	front panel installation 48 x 24 x 101 mm horizontal format
Bar graph display	-	-	-	-	30-points-bargraph (Tricolor) + Digital-display red	-	-
input U / I	1x 0...10V; 0(4)...20mA	1x 0...10V; 0(4)...20mA	1x 0...10V; 0(4)...20mA	1x 0...10V; 0(4)...20mA	0/4-20mA, 0-10V DC	1x 0...10V; 0(4)...20mA	1x 0...10V; 0(4)...20mA
Input Pt-100	-	-	-	-	-	-	-
Input Thermoelements	2-, 3- and 4-wire type L, J, U, B, S, N, E, T, R	3- and 4-wire type L, J, U, B, S, N, E, T, R	2- and 3-wire type L, J, U, B, S, N, E, T, R	3- and 4-wire type L, J, U, B, S, N, E, T, R	-	2- and 3-wire type L, J, U, B, S, N, E, T, R	2- and 3-wire type L, J, U, B, S, N, E, T, R
Input sonstige	Poti, resistor, mV	R, Poti, frequency, U/T-AC	Poti, resistor, mV	R, Poti, frequency, U/T-AC	-	Poti, resistor, mV	Poti, resistor, mV
Multi-function input	-	-	-	-	-	-	-
Operating voltage	230V AC; 10...30 V DC	230V AC; 10...30 V DC	230V AC; 24V DC or current loop supply	115/230V AC; 24V DC	85-265VAC/10-30 VDC/230V AC with sensor supply 24V DC/50 mA	24V DC / 4...20mA, 2-wire	24V DC, 4...20mA, 2-wire
Output analog	1x 0...10V or 0/4...20 mA	1x 0...10V or 0/4...20mA	1x 0...10V or 0/4...20mA	1x 0...10V or 4...20mA	0/4-20mA, 0-10V	-	-
Switch output	2x SPDT relay	2x SPDT relay 4x relay outputs	2 PhotoMos-outputs at current loop version	2x SPDT relay	2 relay outputs possible	-	-
Control output	-	-	-	-	-	-	-
Transmitter power supply	transmitter power supply	transmitter power supply	-	transmitter power supply	-	-	-
Programming interface	-	-	-	-	-	-	-
Process interface	-	-	-	-	-	-	-
Certifications	-	-	-	-	-	-	-
Other information	-	-	-	-	-	-	-

Type	MIR-401/411/421	MIR-491/492
Design	front panel installation 48 x 96 mm front panel installation 96 x 96mm standing, lying	front panel installation 48 x 96 mm standing
Digital-display Bar graph display	2x 4-digit	2x 4-digit
input U / I	1x 0...10V; 0(4)...20mA 1x 0...50mA AC heating current	1x 0...10V; 0(4)...20mA 1x 0...50mA AC heating current
Input Pt-100 Input Thermoelemente Input sonstige Multi-function input	2-and 3-wire TC input KTY, Pt-100 multi-function input	2x 2-and 3-wire TC input KTY, Pt-100, mV, Poti multi-function input
Operating voltage	230V AC or 24V UC	230V AC or 24V UC
Output analog	1x 0...10V; 0(4)...20mA	2x 0...10V; 0(4)...20mA
Switch output	2x relay NO + 1x SPDT relay 1x logic	4x SPDT relay 2x logic
Control output	2-point, 3-point, constantly motor step	2-point, 3-point, constantly motor step + Yp
Transmitter power supply	transmitter power supply	transmitter power supply
Programming interface	programming interface	programming interface
Process interface	Modbus RTU	Modbus RTU, Profibus
Certifications	DIN 3440, UL, GL	DIN 3440, UL
Other information		O2 input, DAC-function

Regicont RCE-300

paperless paperless recorder for displaying, register and remotely transmitting
6 x digital input, 6x relay output, front panel installation 144 x 144 mm

6 / 01.22



Basic price		1.003,00 €	Price group D
signal input			
A	Without	0,00 €	
B	4x universal	212,00 €	
C	8x universal	424,00 €	
D	12x universal	637,00 €	
power supply			
1	100-230VAC (+/-10%)	0,00 €	
2	24V (+/-10%; +15%) AC/DC	0,00 €	
communication			
A	Ethernet RJ45 + USB	0,00 €	
B	RS232/485 + Ethernet RJ45 + USB	95,00 €	
C	Modbus TCP Slave + Ethernet RJ45 + USB	193,00 €	
D	Modbus RTU/TCP Slave + RS232/485 + Ethernet RJ45 + USB	288,00 €	
0	.....	0,00 €
Operating language display			
AA	english	0,00 €	
AB	german	0,00 €	
AC	french	0,00 €	
AD	spanish	0,00 €	
AE	italian	0,00 €	
AF	dutch	0,00 €	
AG	portuguese	0,00 €	
AH	polish	0,00 €	
AI	russian	0,00 €	
AK	chinese abbreviations	0,00 €	
AL	japanese	0,00 €	
AR	czech	0,00 €	
AS	chinese traditional characters	0,00 €	
AT	swedish	0,00 €	
storage media			
0	Without	0,00 €	
C1	SD card industry standard, 1 GB.	81,00 €	
application package			
0	Without	0,00 €	
E1	mathematics	327,00 €	
housing			
0	Without	0,00 €	
G1	field housing	482,00 €	
G2	table top stand, cable with shock-proof plug	613,00 €	
G3	table top stand, cable with US plug.	613,00 €	
G4	table top stand, cable with swiss plug	613,00 €	

Order code

RCE-300 0

Equipment

Model

software FDM-Essential for data retrieval, saving in data base, visualization, pressure (included)

0,00 €

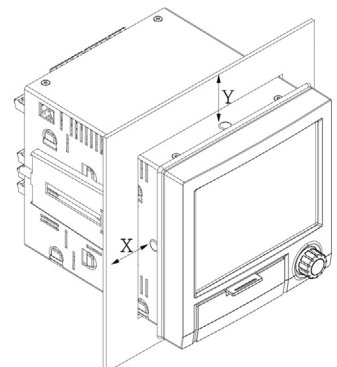
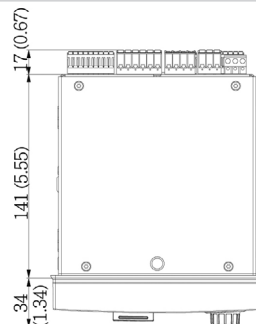
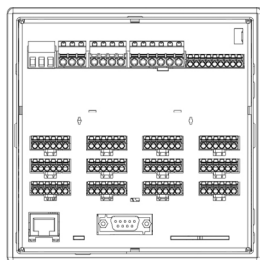
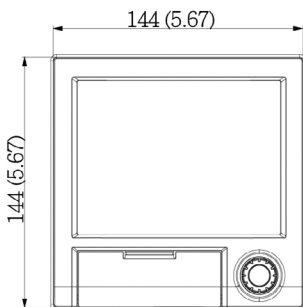
software FDM-Professional with 1/5/10 licences: saving and visualization historical data, read out via online interface or from mass memory, data export and data import, PDF file generation, creating reports and templates.

on request

PG E

Application

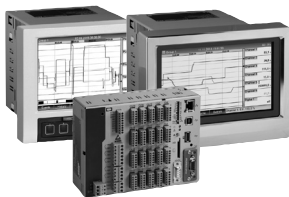
The Regicont RCE-300 graphic display recorder records and visualizes relevant process values via analog or digital input signals. The measured values are securely saved and limit values are monitored. Furthermore the Regicont RCE-300 offers intuitive operation and simple system integration. Remote configuration and visualization of the current and recorded data is easy thanks to the integrated web server - no additional software needs to be installed. In addition the Essential Version of the Field Data Manager software is also supplied with the product as standard. This software can be used to export the recorded data, save the data to an SQL database in a way that the data cannot be manipulated, and visualize the data externally.



Regicont RCD-450

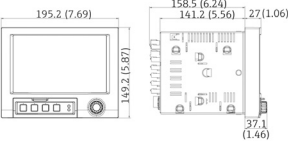
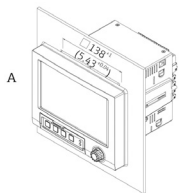
Paperless paperless recorder for recording, visualization and analyzing

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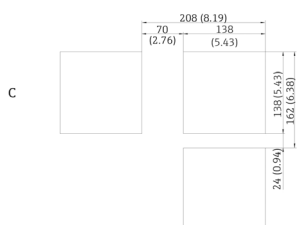


Application

The Advanced Data Manager RCD-450 is a flexible and powerful system for organizing process values. Thanks to its intuitive operation, the RCD-450 adapts quickly and easily to any application. The process values are clearly presented on the display and logged safely, limits are monitored and analyzed. Via communication protocols, the measured and calculated values can be easily transferred to higher-level systems and plant modules can be interconnected. Also available as DIN rail version without display.



A Version with navigator and front interfaces



C Grid dimensions of panel cutouts for multiple devices

Order code

RCD-450

+

--- possibly additional options (see below)

Basic price

2.829,00 €

Pricegroup B

Approval

AA	Non-hazardous area	0,00 €
BK	ATEX II2G Ex px IIC, II2D Ex pD IIIC	179,00 €
GR	*Non-hazardous area + EAC marking	0,00 €

Power supply

1	100-230VAC (+/-10%)	0,00 €
2	24V (-10%, +15%) AC/DC	0,00 €

Slot 1

A	Not used	0,00 €
B	4x universal U,I,TC,RTD, pulse-/frequency input 10kHz	577,00 €
C	4x HART®/4...20mA input, HART® transparency	501,00 €

Slot 2

A	Not used	0,00 €
B	4x universal U,I,TC,RTD, pulse-/frequency input 10kHz	577,00 €
C	4x HART®/4...20mA input, HART® transparency	501,00 €

Slot 3

A	Not used	0,00 €
B	4x universal U,I,TC,RTD, pulse-/frequency input 10kHz	577,00 €
C	4x HART®/4...20mA input, HART® transparency	501,00 €

Slot 4

A	Not used	0,00 €
B	4x universal U,I,TC,RTD, pulse-/frequency input 10kHz	577,00 €
C	4x HART®/4...20mA input, HART® transparency	501,00 €

Slot 5

A	Not used	0,00 €
B	4x universal U,I,TC,RTD, pulse-/frequency input 10kHz	577,00 €
C	4x HART®/4...20mA input, HART® transparency	501,00 €
D	Add. 8x digital input, 25Hz, 6x relay, (6x SPST), 2x analogue output	489,00 €

Front Bezel

A	Zink diecast, powder-coated, light grey, interfaces + SD card front side, panel 149x195mm, IP65, NEMA type 4 Encl.	0,00 €
B	Stainless steel, touchscreen, front interface + SD card unaccessible, panel 149x195mm, IP65, NEMA type 4 Encl.	1.054,00 €

Communication Master Functionality

1	None	0,00 €
2	Modbus RTU/TCP, Master, max. 40x analog.	696,00 €

Communication Slave Functionality

A	None	0,00 €
B	Modbus RTU/TCP, Slave, max. 40x analog, 20x digital	696,00 €
C	PROFIBUS DP, Slave, max. 40x analog, 20x digital	696,00 €
D	PROFINET, Device, max. 40x analog, 20x digital	696,00 €
E	EtherNet/IP, Adapter, max. 40x Analog 20x Digital	696,00 €

Application package

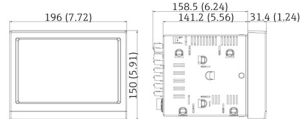
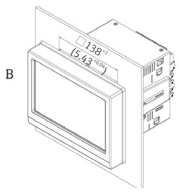
1	None	0,00 €
2	Mathematic	319,00 €
3	Telealarm + mathematic	554,00 €
4	Badge software + mathematic	554,00 €
5	Waste Water + storm overflow + telealarm + mathematic	663,00 €
6	Energy software (water + steam) + mathematic	356,00 €
7	Telealarm + energy software (water + steam) + mathematic	621,00 €
9	Sonderausführung, TSP-Nr. zu spez.	on request

Operation language display

AB	German	0,00 €
AA	English	0,00 €
Y	others	on request

Visualization

Additional options



B Version with stainless steel front and touchscreen

Calibration

F1	Werkskalibrierschein	105,00 €
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Housing

GA	Terminal cover	73,00 €
G1	Field, IP65, NEMA type 4 Encl.	746,00 €
G2	Desk top, cable with European two-pin earthed plug	963,00 €
G3	Desk top, cable with US plug	963,00 €
G4	Desk top, cable with Swiss plug	963,00 €
G9	Special version, TSP-no. to be spec.	on request

Service

HK	IQ/OQ Template + software backup	1.185,00 €
HL	IQ/OQ Template for fieldbuses + Software backup	1.185,00 €
H8	Customized pre-configured	329,00 €
H9	Special version, TSP-no. to be spec.	on request

Licence package for FDM Software MS20

MA	Professional 1x workplace licence	650,00 €
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Accessory mounted

N1	SD card industrial grade, 1GB	120,00 €
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Marking

Z1	Tagging (TAG), metal	on request
Z2	Tagging (TAG), on device	on request
Z3	Commissioning label, paper	on request
Z6	Tagging (TAG), by customer.	on request

Pricegroup B

Digital Process display, transmitter and control device DPA

1x input U/I, 1x output U/I, 4 relay-switching outputs, transmitter supply, data logger, Bluetooth-Interface
 Easy and clear display and analysis, for display, processing, implementation and galvanic separation of electric standard signals - even from hazardous areas

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Technical data



auxiliary power	
power supply	18..36V DC, reverse polarity protected
type A/B/D:	186..253V _{AC}
power consumption	
type A/B/D:	≤ 5 W
type S/T/U:	≤ 15 VA
galvanic isolation	
type A/B/D:	supply to relay input / output 2KV DC / 4KV AC
type S/T/U:	supply input to output ≥ 500 V DC
input	supply to relay input/output 3KV AC
transmitter supply	supply input to output ≥ 500 V DC
output signal U/I	0/4...20 mA max 50 mA
Work space:	0...10 V max 30 V
Resolution:	24 V DC / ≤30 mA, overload and short circuit protected
Reaction time:	
switch output	
Amount:	(0)4...20mA / 0...10V, adjustable
Function:	≤ 1 μA / ≤ 1mV
switching capacity:	≤ 15 ms
Reaction time:	0/2/4 depending on device version
Measurement accuracy	potential-free switch contact
Characteristics deviation:	max 253V AC / 220 V DC - 6A - 1500 VA / 180W
Temperature deviation:	≤ 25 ms
Bluetooth Interface	
Version:	2.0 Full Speed
Function:	Host
Jack socket:	USB 2.0-A
Environmental conditions	
Ambient temperature:	-20°C...+70°C
protection	
top-hat rail mounting:	IP66 EN/IEC 60529
wall mounting housing:	IP66 EN/IEC 60529
front panel housing:	front side IP54 EN/IEC 60529
	back side IP20 EN/IEC 60529
Materials	
top-hat rail mounting :	PC / PES / CrNi-steel / PA / CR-NBR
wall mounting housing:	PC / PES / PA / CR-NBR
front panel housing:	PPE / PES / steel verzinkt / PA / NBR-EPDM
certifications	ATEX II (1) G [Ex ia Ga] IIC resp. ATEX II (1) D [Ex ia Da] IIIC



Front panel housing



Field case

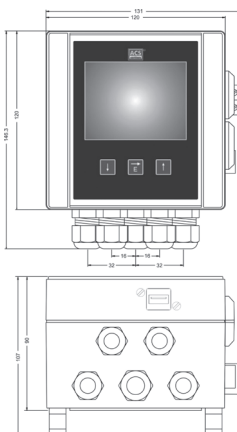
Application

the digital display unit DPA is designed for front panel mounting or on-site assembly or for mounting on a standard DIN rail. The electrical standard signal in the range of 0-10V or 0 to 20 mA is detected by the evaluation, adjusted in accordance with the programmed settings and is transmitted and electrically isolated on the output signal 0 .. 10V or 0/4...20mA. Due to the possible entry of 40 breakpoints also non-linear input signals, eg of horizontal cylindrical tanks can be linearized for further processing. Up to 4 programmable relay switching points can be assigned to the input signal.

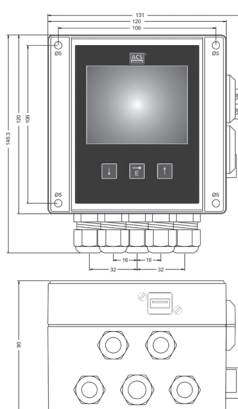
The modern transmitter has extensive diagnostic functions for system analysis and still allows easy setup and operation through the clear navigation. The digital process meter DPA is also suitable for the detection and measurement of flow rates and currents. The mathematical formulas for this are already stored in the device.

The TFT color display provides an excellent representation of the measured values and easy readability. Intelligent Data management is made possible with the digital display unit DPA by the Bluetooth interface and a built-in data logger function with a time stamp to record up to 500,000 readings.

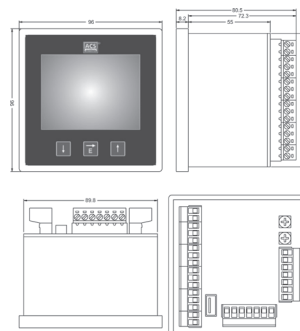
version top-hat rail mounting type P



Connection housing version wall mounting housing type F - electronics type S / T / U



version front panel housing type M



Digital Process display, transmitter and control device DPA

1x input U/I, 1x output U/I, 4 relay-switching outputs, transmitter supply, data logger, Bluetooth-Interface
 Easy and clear display and analysis, for display, processing, implementation and galvanic
 separation of electric standard signals - even from hazardous areas

6 / 01.22

Basic price		441,00 €
Electronic – input		
1	1x 0/4...20mA - 0...10V, transmitter power supply	0,00 €
Approval		
0	Standard	0,00 €
X	ATEX II (1) G / ATEX II (1) D	114,00 €
Enclosure type		
F	Field enclosure	69,00 €
M	Front panel enclosure	0,00 €
P	DIN-rail enclosure	69,00 €
Electronic – supply / output		
A	18...36V DC / 1x 0/4...20mA - 0...10V.	0,00 €
B	18...36V DC / 1x 0/4...20mA - 0...10V, 2x relay, 2x digital input.	66,00 €
D	18...36V DC / 1x 0/4...20mA - 0...10V, 4x relay, 4x digital input.	130,00 €
S	186...253V AC / 1x 0/4...20mA - 0...10V.	0,00 €
T	186...253V AC / 1x 0/4...20mA - 0...10V, 2x relay, 2x digital input	66,00 €
U	186...253V AC / 1x 0/4...20mA - 0...10V, 4x relay, 4x digital input	130,00 €
Electronic - function		
0	USB-Interface	0,00 €
1	USB+Bluetooth-Interface	116,00 €
2	USB-Interface / Data logger with time stamp, battery powered	51,00 €
3	USB+Bluetooth-Interface / Data logger with time stamp, battery powered	168,00 €
Y	Others	on request
Electronic - extras		
0	Standard	0,00 €
1	USB device jack – Enclosure type F / P	64,00 €
2	Increased protection class IP65 – Enclosure type M	39,00 €
S	Standard	0,00 €

Price group A

+ Additional Options (optional)

KF Configuration / Preset 55,00 €

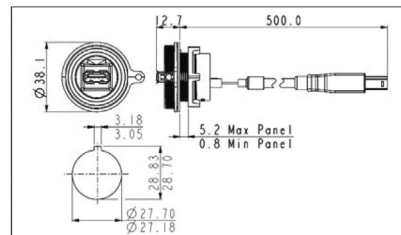
Order code

DPA 1 0 S

Equipment

Ordering information
611000312

Model
 USB socket for front panel installation, for installation of USB-socket in the
 switchboard door, incl. covering cap IP68



911000482

USB 2.0 adapter socket A on plug Micro-B

58,00 €

9,40 €

Price group H

Visualization

DAL-401

universal panel meter 96x48mm 5-digit

6 / 01.22



Basic price

355,00 €

Device version

0	90...250V AC without outputs.	0,00 €
2	90...250V AC, 2 relay NO + mA/V/logic.	74,00 €
1	24V AC / 18...30V DC without outputs.	22,50 €
3	24V AC / 18...30V DC, 2 relay NO + mA/V/logic.	95,00 €

Options

0	No options	0,00 €
1	RS422/485 + transmitter power supply + di2,di3	116,00 €

Software settings

0	Standard configuration	0,00 €
1	Display with 2 limit values (turnkey)	0,00 €
2	Display with 2 limit values + analog output	0,00 €
9	Configuration as specified	59,00 €

Operating instructions

0	No operating instructions	-5,00 €
D	Operating instructions german	0,00 €
E	Operating instructions english.	0,00 €

Price group B

Order code

DAL-401 S

Equipment

Ordering information
STW-407-50001
STK-600-00003
9407-998-00061
BCB-400-00002
BCD-400-00003

Model

Heating current transformer 50A AC	75,00 €
PC-adaptor USB/TTL for MIR-4xx, MIR-5xx.	156,00 €
DIN rail adapter	41,00 €
BlueControl Basic	423,00 €
BlueControl Expert.	636,00 €

PG H

DAL-101

digital panel meter **96x48x41 mm** incl. plug-in terminal (short design), display colour red, 4-digit, without sensor supply, optional current loop supply

6 / 01.22



field mount housing

DAL-101

Basic price

Power supply

0	230V AC	0,00 €
2	24V DC galvanic separated	18,00 €
6	4...20 mA, 2-wire current loop display	-5,00 €

Function input

0	0/4-20mA, 0-10VDC	0,00 €
1	0...50V DC, 0...100V DC (please specify)	15,50 €
2	Pt100 input, 2 + 3-wire up to 850 °C	37,00 €
3	Shunt 60/150 mV	27,00 €
4	Potentiometer measurement > 1 kOhm up to < 1000 kOhm	27,00 €
5	Resistance measurement 1K / 10K / 100K / 1MOhm	27,00 €
6	4...20mA 2-wire current loop display	0,00 €
8	Thermal element type L, J, K, B, S, N, E, T, R	40,00 €
Y	Other inputs	on request

Function output

0	Display (230V AC + 24 V DC version)	0,00 €
B	Display (current loop)	0,00 €
C	Current loop with 2 PhotoMos outputs	22,00 €

0	Standard configuration	0,00 €
9	Dimension strips and configuration as specified	23,00 €

S	Standard, protection IP65	0,00 €
V	Field mount housing (plastic)	152,00 €

179,00 €

Price group A

DAL-111

digital panel meter **96x48x89 mm** incl. plug-in terminal, display colour red, 5-digit, optional with analog output or sensor supply, 2 limit contacts and digital input

Anmerkung

¹⁾ sensor supply only with 0/4...20 mA, 0...10V DC input and without analog output possible!



field mount housing

DAL-111

Basic price

Power supply

0	230V AC	0,00 €
2	10...30V DC galvanic separated	42,00 €
3	230V AC with sensor supply 24V DC/50 mA and digital input (no analog output possible) ¹⁾	46,00 €
4	10...30V DC galvanic separated with sensor supply 24V DC/ 50 mA and digital input (no analog output possible) ¹⁾	81,00 €

Function input

0	0...10V, 0/4...20mA	0,00 €
2	Pt100 input, 2-, 3-, 4-wire, 850°C	49,00 €
3	600V / 300V / 100V / 1A DC	71,00 €
8	Thermal element type L, J, K, B, S, N, E, T, R	52,00 €
9	Weighing technology	120,00 €
F	Frequenzy; 0,01 Hz up to 999,99 kHz	37,00 €
Y	Other inputs	on request

Function output

0	Display	0,00 €
A	Display + 2 relay outputs (changeover)	46,00 €
B	Display with analog output 0/4...20 mA, 0...10V DC ¹⁾	147,00 €
C	Display with 2 relay and analog output ¹⁾	147,00 €

0	Standard configuration	0,00 €
9	Dimension strips and configuration as specified	23,00 €

S	Standard, protection IP65	0,00 €
V	Field mount housing (metal housing)	302,00 €

224,00 €

Price group A

visualization

DAL-311

digital panel meter **96x48x139 mm** incl. plug-in terminal, display colour red, 5-digit, optional with analog output and sensor supply and digital input, 2 or 4 limit contacts

6 / 01.22

Note

¹⁾ sensor supply only at 0/4...20 mA, 0...10V DC input



Basic price

Power supply

0	100-240V AC	0,00 €
2	10...40V DC galvanic separated	42,00 €
3	100-240V AC with sensor supply 24V DC/50mA and digital input ¹⁾	27,00 €
4	10...40V DC galvanic separated with sensor supply 24V DC/50mA and digital input ¹⁾	78,00 €
Y	other voltages	on request

Function input

0	0/4...20 mA, 0...10V DC	0,00 €
1	50/300/600V DC, 1A DC	71,00 €
2	Pt100 input, 3 + 4-wire up to 850°C	49,00 €
3	60 / 150 / 300 / 1000 mV	42,00 €
4	10V / 50V AC / 1A / 5A AC	90,00 €
5	300/600V AC, 1A, 5A AC	120,00 €
6	Potentiometer measurement > 1 kOhm up to < 1000kOhm	40,00 €
7	Resistance measurement 1k, 10k, 100 kOhm	40,00 €
8	Thermal element type L, J, K, B, S, N, E, T, R	52,00 €
9	Weighing technology	120,00 €
F	Frequenzy 0,01Hz-999,99kHz	37,00 €
Y	Other inputs	on request

Function output

A	Display + 2 relay outputs (changeover)	46,00 €
B	Display + 4 relay outputs	91,00 €
C	Display with analog output 0-10V/4-20mA, switchable	147,00 €
D	Display + 2 relay with analog output 0-10V/4-20mA, switchable	194,00 €
E	Display + 4 relay with analog output 0-10V/4-20mA, switchable	240,00 €
Y	Others outputs	on request

0	Standard configuration	0,00 €
9	Dimension strips and configuration as specified	23,00 €

S	Standard, protection IP65	0,00 €
V	Field mount housing	on request

279,00 €

Price group A

DAL-311

DAP-101

digital panel meter **96x24x74 mm**, incl. plug-in terminal, 4-digit, optional with current loop supply



Basic price

Power supply

0	230V AC	0,00 €
2	24V DC galvanic separated	13,00 €
6	4...20 mA, 2-wire current loop display	-5,00 €

Function input

0	0/4...20mA, 0...10V DC	0,00 €
2	Pt100 input, 2 + 3-wire up to 850°C	37,00 €
3	Shunt 60 / 150 mV	27,00 €
4	Potentiometer measurement >1 kOhm up to < 1000kOhm	27,00 €
5	Resistance measurement 1K / 10K / 100K / 1 MOhm	27,00 €
6	4...20mA, 2-wire current loop display	0,00 €
8	Thermal element type L, J, K, B, S, N, E, T, R	40,00 €
Y	Other inputs	on request

Function output

0	Display (230V AC + 24V DC Version)	0,00 €
B	Display (current loop)	0,00 €
C	Display current loop with 2 PhotoMos outputs	22,00 €

0	Standard configuration	0,00 €
9	Dimension strips and configuration as specified	23,00 €

S	Standard, protection IP65	0,00 €
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201,00 €

Price group A

DAP-101

visualization

DAP-311

digital universal panel meter **96x24x145mm**, incl. plug-in terminal, 2 relay outputs, 5-digit, processor controlled, optional with analog output and sensor supply and digital input

6 / 01.22

Anmerkung

¹⁾ sensor supply only at 0/4...20 mA, 0...10V DC input



Basic price

Power supply

0	85-265VAC	0,00 €
2	10...40V DC galvanic separated	0,00 €
3	85-265VAC with sensor supply 24VDC/50mA and digital input	49,00 €
4	10-40VDC with sensor supply 24VDC/50mA and digital input	71,00 €
Y	Others	on request

Function input

0	0/4...20 mA, 0...10V DC	0,00 €
1	600VDC, 1ADC (only at AC-Version)	71,00 €
2	Pt100 input, 3 + 4-wire up to 850°C	49,00 €
3	60 / 150 / 300 / 1000 mV	42,00 €
4	10V / 50V AC / 1A / 5A AC	120,00 €
6	Potentiometer measurement > 1 kOhm up to < 1000kOhm	40,00 €
7	Resistance measurement 1k, 10k, 100 kOhm	40,00 €
8	Thermal element type L, J, K, B, S, N, E, T, R	52,00 €
F	Frequenzy 0,01Hz-999,99kHz	37,00 €
Y	Other inputs	on request

Function output

0	No output	0,00 €
A	Display with 2 relay outputs (changeover)	42,00 €
C	Display with analog output 0/4-20mA, 0-10V, switchable	147,00 €
D	Display + 1 relay with analog output 0/4-20mA, 0-10V, switchable	189,00 €
Y	Others	on request

0	Standard configuration	0,00 €
9	Dimension strips and configuration as specified	23,00 €

S	Standard, protection IP65	0,00 €
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307,00 €

Price group A

DAP-311

S

DAM-311

digital panel meter **96x24x144mm**, incl. plug-in terminal, 2 relay outputs, 30-points-bargraph (Tricolor) + digital-display red, vertikal or horizontal



Basic price

Power supply

0	100-240VAC	0,00 €
2	10-40 VDC galvanic separated	0,00 €
3	100-240 VAC with sensor supply 24V DC/40 mA and digital input (no analog output possible) ¹⁾	46,00 €
4	10...40V DC galvanic separated with sensor supply 24V DC/ 40 mA and digital input (no analog output possible) ¹⁾	81,00 €

Function input

0	0/4-20mA, 0-10V DC	0,00 €
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Function output

0	No output	0,00 €
A	Display with 2 relay outputs (changeover)	42,00 €
C	Display with analog output 0/4-20mA, 0-10V, switchable	147,00 €
D	Display + 1 relay with analog output 0/4-20mA, 0-10V, switchable	189,00 €

0	Standard configuration	0,00 €
9	Dimension strips and configuration as specified	23,00 €

Model

0	Vertical model	0,00 €
1	Horizontal model	0,00 €

S	Standard, protection IP65	0,00 €
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350,00 €

Price group A

DAM-311

0

S

DAK-101

Display device **48x24x54 mm**, incl. plug-in terminal, 4-digit, processor controlled, optional current loop supply

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Basic price		181,00 €
Power supply		
2	24V DC galvanic separated.	0,00 €
6	4-20mA 2-wire, current loop display	-5,00 €
Function input		
0	0/4-20mA, 0-10V DC	0,00 €
2	Pt100 input, 2 + 3-wire up to 850°C	40,00 €
3	Shunt 60 / 150 mV	37,00 €
4	Potentiometer measurement > 1 kOhm up to < 1000 kOhm.	37,00 €
5	Resistance measurement 1K / 10K / 100K / 1 MOhm (please specify measuring range!)	37,00 €
6	4...20 mA 2-wire (current loop display)	0,00 €
8	Thermal element type L, J, K, B, S, N, E, T, R	49,00 €
Y	Other inputs	on request
Function output		
0	Display	0,00 €
0	Standard configuration.	0,00 €
9	Dimension strips and configuration as specified	23,00 €
S	Standard, protection IP65.	0,00 €

Price group A

DAK-101 0 S

DAK-111

Display device **48x24x101 mm**, incl. plug-in terminal, 5-digit, processor controlled, with 2 PhotoMos outputs, optional analog output or sensor supply

annotation

¹⁾ sensor supply only at 0/4...20 mA, 0...10V DC input and without analog output possible!



Basic price		279,00 €
Power supply		
2	24V DC galvanic separated.	0,00 €
4	24V DC galvanic separated with sensor supply ¹⁾	55,00 €
Function input		
0	0/4-20mA, 0-10V DC	49,00 €
2	Pt100 input, 2 + 3-wire up to 850°C	42,00 €
3	Shunt 60 / 150 mV	40,00 €
5	Resistance measurement 1K / 10K / 100K / 1 MOhm (please specify measuring range!)	40,00 €
6	Poti > 1kOhm up to < 1000 kOhm.	52,00 €
8	Thermal element type L, J, K, B, S, N, E, T, R	49,00 €
Y	Other inputs	on request
Function output		
B	Display with 2 PhotoMos outputs	0,00 €
C	Display with 2 PhotoMos outputs and analog output 0/4...20 mA, 0-10V ¹⁾	168,00 €
0	Standard configuration.	0,00 €
9	Dimension strips and configuration as specified	23,00 €
S	Standard, protection IP65.	0,00 €

Price group A

DAK-111 S

MIR-401 Universal industrial controller 48x96mm
MIR-411 Universal industrial controller 96x48mm (horizontal format)
MIR-421 Universal industrial controller 96x96mm

6 / 01.22



MIR-401



MIR-411



MIR-421

MIR-401-	Basic price	434,00 €
MIR-411-	Basic price	434,00 €
MIR-421-	Basic price	462,00 €
0	Connection via flat-pin terminal	0,00 €
1	Connection via screw terminals	0,00 €
0	90...250V AC, 3 relay	0,00 €
1	24V AC / 18...30V DC, 3 relay	20,00 €
2	90...250V AC, 2 relay + mA / V / logic	40,00 €
3	24V AC / 18...30V DC, 2 relay + mA / V / logic	69,00 €
0	No option	0,00 €
1	Modbus RTU + transmitter supply + di2, di3	110,00 €
00		
0	without configuration	0,00 €
9	Configuration as specified (standard)	59,00 €
0	No operating instructions	-5,00 €
D	Operating instructions german	0,00 €
E	Operating instructions english	0,00 €
F	Operating instructions french	0,00 €
0	Standard	0,00 €
U	UL-certificated	16,50 €
D	Certificated according to EN 14597 (formerly DIN 3440)	16,50 €

Price group B

Order code

MIR-4_1- 00 S

Equipment

Ordering information
STW-407-50001
STK-600-00003
9407-998-00061
BCB-400-00002
BCD-400-00003

Model
 Heating current transformer 50A AC

75,00 €
 156,00 €
 41,00 €
 423,00 €
 636,00 €

PGH

Visualization

MIR-491 Industry and process controller 48x96mm
MIR-492 Industry and process controller 96x96mm

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MIR-491



MIR-492

MIR-491- Basic price		598,00 €
MIR-492- Basic price		653,00 €
0	Connection via flat-pin terminal	0,00 €
1	Connection via screw terminals	0,00 €
0	90...250V AC, 4 relay	0,00 €
1	24V AC / 18...30V DC, 4 relay	22,50 €
2	90...250V AC, 3 relay + mA / V / logic	49,00 €
3	24V AC / 18...30V DC, 3 relay + mA / V / logic	75,00 €
4	90...250V AC, 2 relay + 2 x mA / V / logic	78,00 €
5	24V AC / 18...30V DC, 2 relay + 2 x mA / V / logic	102,00 €
0	No bus interface	0,00 €
1	RS422/RS485 + transmitter supply + di2, di3 + OUT5, OUT6	122,00 €
2	PROFIBUS-DP + UT + di2/di3 + OUT5/OUT6	332,00 €
0	INP1 and INP2	0,00 €
1	INP1, INP2 and INP3	95,00 €
0	Controller	0,00 €
1	Program controller with 8 programs * 1)	281,00 €
2	Program controller with 16 programs * 1)	462,00 €
0	without configuration	0,00 €
9	Configuration as specified (standard)	68,00 €
0	No operating instructions	-5,00 €
D	Operating instructions german	0,00 €
E	Operating instructions english	0,00 €
F	Operating instructions french	0,00 €
0	Standard	0,00 €
U	UL-certificated	18,00 €
D	Certificated according to EN 14597 (ersetzt DIN 3440)	18,00 €

Price group B

* 1) Attention!!! please use other operation instructions!
 „program controller“ instead of standard!
 Please see additional equipment below.

Order code

MIR-49_- S

Equipment

Ordering information
STK-600-00003
BCB-400-00002
BCD-400-00003

Model
 PC-adapter USB/TTL for MIR-4xx, MIR-5xx
 BlueControl Basic
 BlueControl Expert

156,00 €
 423,00 €
 636,00 €

PGH

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Digital pulse counter



Ordering info	Function	Number of digits	Limit values	Contacts	
LCM-60	Digital pulse counter	.6	-	-	294,00 €
LCM-61	Digital pulse counter	.6	1	.1WE	319,00 €
LCM-62	Digital pulse counter	.6	2	.2WE	384,00 €
LBM-62	Digital pulse counter	.6	2	.2WE	448,00 €
LBM-62 S	Digital pulse counter	.6	2	.2WE	463,00 €
NCM-50	Digital pulse counter	.5	-	-	319,00 €
NCM-51	Digital pulse counter	.5	1	.1WE	330,00 €
NCM-52	Digital pulse counter	.5	2	.2WE	384,00 €
GCM-50 1)	Digital pulse counter	.5	-	-	253,00 €
GCM-51 1)	Digital pulse counter	.5	1	.1WE	274,00 €

Price group A

Rev counter, frequency meter



Ordering info	Function	Number of digits	Limit values	Contacts	
LFM-40	Rev counter and frequency meter	4	-	-	375,00 €
LFM-41	Rev counter and frequency meter	4	1	.1WE	448,00 €
LFM-42	Rev counter and frequency meter	4	2	.2WE	473,00 €
LFM-50	Rev counter and frequency meter	5	-	-	391,00 €
LFM-40-AN	Rev counter and frequency meter	4	-	- analog output	473,00 €
NFM-40	Rev counter and frequency meter	4	-	-	376,00 €
NFM-41	Rev counter and frequency meter	4	1	.1WE	451,00 €
NFM-42	Rev counter and frequency meter	4	2	.2WE	473,00 €
NFM-50	Rev counter and frequency meter	5	-	-	390,00 €
GFM-41 1)	Rev counter and frequency meter	4	1	.1WE	299,00 €
GFM-40 1)	Rev counter and frequency meter	4	-	-	237,00 €

Price group A

Difference-, Drehzahl-, frequency meter



Ordering info	Function	Number of digits	Limit values	Contacts	
VFM-240 AN	Difference-, rev counter and frequency meter	.4 + 3	-	- analog output	1.183,00 €

A

Digital time counter



Ordering info	Function	Number of digits	Limit values	Contacts	
LTM-60	Digital time counter	.6	-	-	285,00 €
LTM-61	Digital time counter	.6	1	.1WE	319,00 €
LTM-62	Digital time counter	.6	1	.2WE	340,00 €
NTM-50	Digital time counter	.5	-	-	313,00 €
NTM-51	Digital time counter	.5	1	.1WE	319,00 €
NTM-52	Digital time counter	.5	1	.2WE	340,00 €
NTMP-52	Digital time counter	.5	1	.2WE switched in parallel.	340,00 €
GTM-50 1)	Digital time counter	.5	-	-	261,00 €
GTM-51 1)	Digital time counter	.5	1	.1WE	278,00 €

PG A

Impulse-pause-time-relay



Ordering info	Function	Number of digits	Limit values	Contacts	
LHM-61	Impulse-pause-time-relay	.6	2	.1WE	319,00 €
LHM-62	Impulse-pause-time-relay	.6	2	.2WE	340,00 €
NHM-51	Impulse-pause-time-relay	.5	2	.1WE	319,00 €
NHM-52	Impulse-pause-time-relay	.5	2	.2WE	340,00 €
GHM-51 1)	Impulse-pause-time-relay	.5	2	.1WE	283,00 €

PG A

1) available with 11-pole plug-in base

Visualization

7. Signal converter, head transmitter, isolation amplifier, limit switch

Contents

Signal converter

Transcont CR- temperature signal converter with BluePort®-interface	229
Transcont WTAU-100-U0 signal converter active, adjustable, 20...253V AC/DC, 4...20mA / 0...10V . . .	230
Transcont WTAU-200-U0 signal duplicators active, adjustable, 20...253V AC/DC, 2x4...20mA / 0...10V . . .	230
Transcont WTAU-120-U0 signal converter active, non-adjustable, 20...253V AC/DC, 4...20mA / 0...10V . . .	230
Transcont WTAU-220-U0 signal duplicators active, non-adjustable, 20...253V AC/DC, 2x4...20mA / 0...10V . . .	231

Isolation amplifier / supply isolators

Transcont TVA-120-U0 20...253V AC/DC, 4...20mA / 0...10V, transmitter power supply	231
Transcont TVA-180-U0 20...253V AC/DC, 4...20mA / 0...10V	232
Transcont TVA-220-U0 20...253V AC/DC, 4...20mA / 0...10V, transmitter power supply	232
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Transcont TVA-100-U0 20...253V AC/DC, 4...20mA / 0...10V, transmitter power supply	233
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Supply isolators with ATEX-licence

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Limit switches

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GWAP-250-U0. Pt100 input, 20...253V AC/DC, 2 relay	234

Head transmitter

 Transcont KTM Pt-100, 4...20mA.	236
 Transcont ExKTM Pt-100, 4...20mA.	236
Transcont UTN-500 universal, 4...20mA	237

What to use where

Signal converter

Function	Transcont CR-	Transcont WTA-100-G0	Transcont ExWTA-100-G0	Transcont WTAU-100-U0	Transcont WTAU-200-U0	Transcont WTAU-120-U0	Transcont WTAU-220-U0	Transcont TVA-120-U0	Transcont TVA-180-U0	Transcont TVA-220-U0	Transcont TVA-080-U0	Transcont TVA-100-U0	Transcont TVA-200-U0	EXTVA-500-UC	GWA -250-U0	GWAP-250-U0	Transcont KTM	Transcont ExKTM	Transcont UTM-500
Signal converter	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●
Temperature signal converter	●	●	●	●	●	●	●										●	●	●
Pt100-converter	●	●	●	●	●	●	●										●	●	●
Isolation amplifier								●	●	●	●	●	●	●					
Supply isolators	●							●		●		●	●	●					
Limit switch	●														●	●	●		
Head transmitter																	●	●	●
BluePort®-interface	●																		
Display	●																		
Universal input	●																		●
for 2-or 3-wire	●	●	●	●	●	●	●									●	●	●	●
Output	2	1	1	1	2	1	2	1	1	2	1	1	2	2	2	2	1	1	1
4...20 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●
0...10V	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	
Switching output	2														2	2	1		
Limit values	2														2	2	1		
Operating conditions																			
Hazardous area			Ex											Ex				Ex	Ex

Type	Transcont-CR	Type	WTAU 100-U0	WTAU 120-U0	WTAU 200-U0	WTAU 220-U0
Design	top hat rail device 22,5mm width	Design	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm
Digital-display Bar graph display	4-digit	Input	Pt100	Pt100	Pt100	Pt100
Input U / I	1x 0...10V; 0(4)...20mA	Multi-function input	-	-	-	-
Input Pt100	2-, 3-, and 4-wire	Operating voltage	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC
Input TC	TC input	Universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit
Input sonstige	mV, potentiometer, Pt100	Output	0...10V/ 0(4)...20mA active	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA 2x separated; active	0...10V/ 0(4)...20mA 2x separated; active
Multi-function input	multi-function input	Output adjustable	output adjustable	-	output adjustable	-
Operating voltage	230V AC or 24V UC	Multi-function output	multi-function input	-	multi-function input	-
Output analog	1x 0...10V; 0(4)...20mA	Transmitter power supply	-	-	-	-
Switch output	2x relay NO 1x logic	Certifications	-	-	-	-
Control output	-	Limit values	-	-	-	-
Transmitter power supply	transmitter power supply	Other options	-	1 output, non-adjustable	2 separate multi-function outputs	2 separate outputs, non-adjustable
Programming interface	programming interface					
Process interface	-					
Certifications	-					
Other information	-					

Signal converter

Type	TVA-120-U0	TVA-180-U0	TVA-220-U0	TVA-080-U0	TVA-100-U0	TVA-200-U0
Design	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm
Digital-display	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	2x 0...10V/ 0(4)...20mA
Bar graph display	PPM input, 90...520Hz	-5...+5V/ 0...1V	-5...+5V/ 0...1V	-5...+5V/ 0...1V	-5...+5V/ 0...1V	-5...+5V/ 0...1V
Input U / I	-	-	-	multi-function input	multi-function input	multi-function input
Input Pt100	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC
Input TC	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit
Input sonstige	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA
Multi-function input	active	active	2x separated, active	active	active	2x separated, active
Operating voltage	-	-	output adjustable	output adjustable	output adjustable	output adjustable
Output analog	-	-	-	multi-function output	multi-function output	multi-function output
Switch output	-	-	-	-	transmitter power supply	transmitter power supply
Control output	-	-	-	-	-	-
Transmitter power supply	-	-	-	-	-	-
Programming interface	1 output non-adjustable	1 output non-adjustable	2 separate in- and outputs non-adjustable	-	-	2 separate in- and outputs adjustable
Process interface						
Certifications						
Other information						

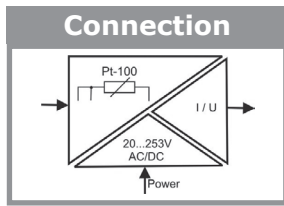
Type	GWA-250-U0	GWAP-250-U0	UTN-500	KTM
Design	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	head transmitter 44x26,8 mm	head transmitter 44x26,8 mm
Input	0...10V/ 0(4)...20mA	Pt100	Pt100, TC	Pt100
Multi-function input	-	-	multi-functn input	-
Operating voltage	20...253V AC/DC	20...253V AC/DC	24V	8,5...40 V DC / 4...20 mA 14,5...35 V DC / 0...10 V
Universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	-	-
Output	2x relay	2x relay	4...20 mA passive	4...20mA, 0...10V Option passive
Output adjustable	output adjustable	output adjustable	-	-
Multi-function output	-	-	-	-
Transmitter power supply	transmitter power supply	-	-	-
Certifications	-	-	ATEX	ATEX
Limit values	2x SPDT relay	2x SPDT relay	-	1x PNP-Out
Other options	-	-	programmable via software	-

Signal converter

Transcont WTAU-100-U0

Pt100-signal converter active galvanic isolation and conversion of a 2-wire or 3-wire Pt100, free adjustable, 1 input / 1 output (0...10 V / 0...20mA / 4...20 mA); long range supply 20...253 V AC/ DC (universal mains supply circuit), snap-on-housing 22,5 mm

7 / 01.22



Order code

WTAU-100-U0

U0=universal current

scale prices

1 - 3 pieces	136,00 €
4 - 10 pieces	130,00 €
11 - 35 pieces	124,00 €

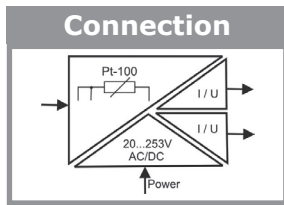
PG D	136,00 €
	130,00 €
	124,00 €

+ Additional Options (optional)

KF Configuration / Preset.....	22,50 €
KA Configuration setting as an adhesive label.....	14,00 €

Transcont WTAU-200-U0

Pt100- signal duplicators active galvanic isolation and conversion of a 2-wire or 3-wire- Pt100, free adjustable, 1 input / 2 outputs; long range supply 20...253 V AC / DC (universal mains supply circuit), snap-on-housing 22,5 mm



Order code

WTAU-200-U0

U0=universal current

scale prices

1 - 3 pieces	183,00 €
4 - 10 pieces	173,00 €
11 - 35 pieces	165,00 €

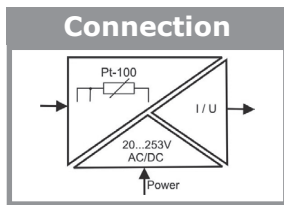
PG D	183,00 €
	173,00 €
	165,00 €

+ Additional Options (optional)

KF Configuration / Preset.....	22,50 €
KA Configuration setting as an adhesive label.....	14,00 €

Transcont WTAU-120-U0

Pt100-signal converter active galvanic isolation and conversion of a 2-wire or 3-wire Pt100, preset, 1 input / 1 output; long range supply 20...253 V AC / DC (universal mains supply circuit), snap-on-housing 22,5 mm



Order code

WTAU-120 U0

Basic price (*scale prices)

temperature range

A	0°C...+50°C	H	0°C...+400°C	0,00 €
B	0°C...+100°C	J	0°C...+500°C	0,00 €
C	0°C...+150°C	L	0°C...+600°C	0,00 €
E	0°C...+200°C	Q	-40°C...+60°C	0,00 €
F	0°C...+250°C	O	-50°C...+100°C	0,00 €
G	0°C...+300°C	N	-100°C...+50°C	0,00 €
		Y	Special range	11,00 €

signal output

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €
Y	Special range	11,00 €

Price group D	104,00 €
	0,00 €
	0,00 €
	11,00 €

*scale prices - basic price

1 - 3 pieces	104,00 €
4 - 10 pieces	95,00 €
11 - 35 pieces	92,00 €

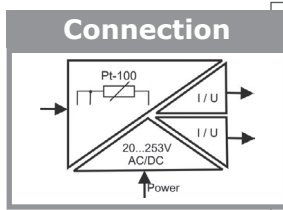
PG D	104,00 €
	95,00 €
	92,00 €

Signal converter

Transcont WTAU-220-U0

Pt100- signal duplicators (2 output channels) **active** galvanic isolation and conversion of a 2-wire or 3-wire Pt100, preset, 1 input / 2 outputs; long range supply 20...253 V AC / DC (universal mains supply circuit), snap-on-housing 22,5 mm

7 / 01.22



Order code

WTAU-220-

U0=universal current

U0

Basic price (*scale prices)

temperature range

A	0°C...+50°C	H	0°C...+400°C
B	0°C...+100°C	J	0°C...+500°C
C	0°C...+150°C	L	0°C...+600°C
E	0°C...+200°C	Q	-40°C...+60°C
F	0°C...+250°C	O	-50°C...+100°C
G	0°C...+300°C	N	-100°C...+50°C
		Y	Special range

signal output 1

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €
Y	Special range	10,00 €

signal output 2

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €
Y	Special range	11,00 €

***scale prices - basic price**

1 - 3	pieces	170,00 €
4 - 10	pieces	162,00 €
11 - 35	pieces	156,00 €

170,00 €

Price group D

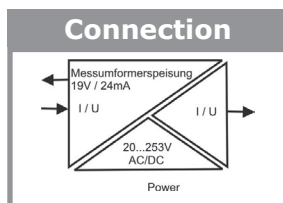
PG D

Isolation amplifier, signal converter

Transcont TVA-120-U0

isolation amplifier

active, 1-channel, universal mains supply circuit, non-adjustable, transmitter power supply



Order code

TVA-120

U0=universal current

U0

Basic price (*scale prices)

signal input

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €
P	PFM input frequency 90-520 Hz	296,00 €
Y	Special range	on request

signal output

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €
Y	Special range	on request

***scale prices - basic price**

1 - 3	pieces	132,00 €
4 - 10	pieces	126,00 €
11 - 35	pieces	121,00 €

132,00 €

Price group D

PG D

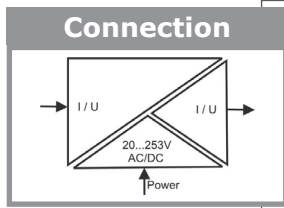
Signal converter

Transcont TVA-180-U0

universal-isolation amplifier

active, 1-channel, universal mains supply circuit, 22,5 mm

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Basic price (*scale prices)

signal input

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €
P	PFM input frequency 90-520 Hz	296,00 €
Y	Special range	on request

signal output

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €

98,00 €

Price group D

***scale prices - basic price**

1 - 3 pieces	98,00 €
4 - 10 pieces	93,00 €
11 - 35 pieces	89,00 €

98,00 €
93,00 €
89,00 €

PG D

Order code

TVA-180

U0=universal current

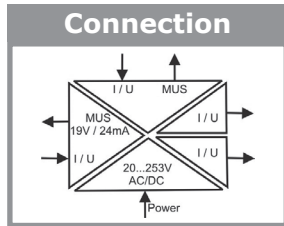
U0

Transcont TVA-220-U0

universal-isolation amplifier

active, 2-channel, universal mains supply circuit, 22,5 mm, transmitter power supply

Connection



Basic price (*scale prices)

signal input 1

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €
Y	Special range	on request

signal input 2

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €
Y	Special range	on request

signal output 1

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €
Y	Special range	on request

signal output 2

1	0...10 V	0,00 €
2	0...20 mA	0,00 €
3	4...20 mA	0,00 €
Y	Special range	on request

213,00 €

Price group D

***scale prices - basic price**

1 - 3 pieces	213,00 €
4 - 10 pieces	203,00 €
11 - 35 pieces	197,00 €

213,00 €
203,00 €
197,00 €

PG D

Order code

TVA-220

U0=universal current

U0

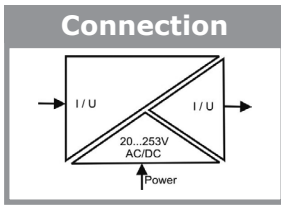
Signal converter

Transcont TVA-080-U0

universal-isolation amplifier
active, universal mains supply circuit, 22,5 mm

design: top hat rail, 22,5x 114,5x 99 mm
input: 0...10 V/ 0(4)...20 mA, -5...+5 V/ 0...1 V
operating voltage: 20...253 V AC/DC universal mains supply circuit
output: 0...10 V/ 0(4)...20 mA
 active, adjustable
multi-function output, multi-function input

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order code

TVA-080-U0

U0=universal current

scale prices

1 - 3 pieces
4 - 10 pieces
11 - 35 pieces	.....

116,00 €	PG D
111,00 €	
106,00 €	

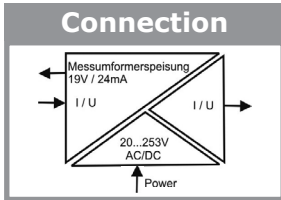
+ Additional Options (optional)

KF Configuration / Preset.....	22,50 €
KA Configuration setting as an adhesive label.....	14,00 €

Transcont TVA-100-U0

universal-isolation amplifier
active, universal mains supply circuit, 22,5 mm
 transmitter power supply

design: top hat rail, 22,5x 114,5x 99 mm
input: 0...10 V/ 0(4)...20 mA, -5...+5 V/ 0...1 V
operating voltage: 20...253 V AC/DC universal mains supply circuit
output: 0...10 V/ 0(4)...20 mA
 active, adjustable
multi-function output, multi-function input, transmitter power supply



Order code

TVA-100-U0

U0=universal current

scale prices

1 - 3 pieces	.....
4 - 10 pieces	.....
11 - 35 pieces	.....

170,00 €	PG D
163,00 €	
157,00 €	

+ Additional Options (optional)

KF Configuration / Preset.....	22,50 €
KA Configuration setting as an adhesive label.....	14,00 €

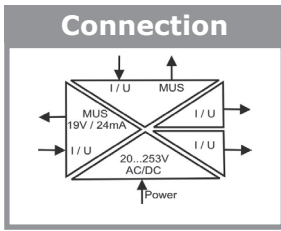
Signal converter

Transcont TVA-200-U0

universal-isolation amplifier
active, 2-channel, universal mains supply circuit,
 22,5mm, transmitter power supply

design: top hat rail, 22,5x 114,5x 99 mm
input: 2x 0...10 V/ 0(4)...20 mA, -5...+5 V/ 0...1 V
operating voltage: 20...253 V AC/DC universal mains supply circuit
output: 0...10 V/ 0(4)...20 mA, 2x separated, active, adjustable
multi-function input, multi-function output, transmitter power supply

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Order code

TVA-200-U0

scale prices

1 - 3 pieces	221,00 €
4 - 10 pieces	208,00 €
11 - 35 pieces	200,00 €

PG D

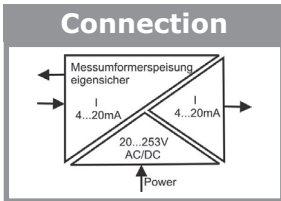
+ Additional Options (optional)

KF Configuration / Preset	22,50 €
KA Configuration setting as an adhesive label	14,00 €

ExTVA-500-UC

supply isolators in Ex-version
active, 1-channel, universal mains supply circuit,
 22,5mm, intrinsically safe transmitter power supply

design: mounting rail 35mm, housing 22,5mm
input: 4...20 mA eigensicher
operating voltage: 20...250 V AC/DC; Hart-compatible
output: 4...20 mA, active
certification: ATEX II (1) GD [Ex ia] IIC
Eigensichere transmitter power supply



Order code

ExTVA-500-UC

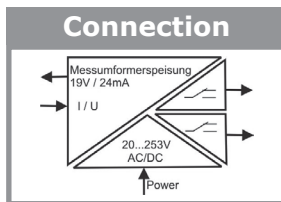
scale prices

1 - 3 pieces	158,00 €
4 - 10 pieces	147,00 €
11 - 35 pieces	137,00 €

PG H

Double-limit switch for standard signals / for Pt100 input

Signal converter



Order code

GWA-250-U0

double limit switch for standard signal; 2 limit values, universal mains supply circuit, 22,5 mm

scale prices

1 - 3 pieces	159,00 €
4 - 10 pieces	150,00 €
11 - 35 pieces	141,00 €

PG D

GWAP-250-U0

double limit switch for Pt100 input; 2 limit values, universal mains supply circuit, 22,5 mm

scale prices

1 - 3 pieces	199,00 €
4 - 10 pieces	191,00 €
11 - 35 pieces	179,00 €

PG D

+ Additional Options (optional)

KF Configuration / Preset	22,50 €
KA Configuration setting as an adhesive label	14,00 €

Separating barriers, overvoltage protection

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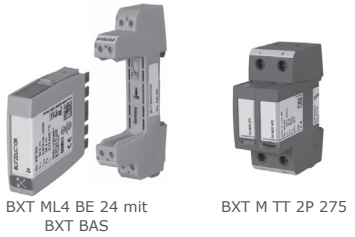
Separating barriers

9002/13-252-121-04 Ex-seperating barrier for 4...20 mA signals.	158,00 €
9002/77-220-146-00 Ex-seperating barrier for conductive probes	175,00 €
9002/22-032-300-11 Ex-seperating barrier for Pt100	129,00 €
9001/02-016-150-11 Ex-seperating barrier for Pt100	129,00 €

PG B

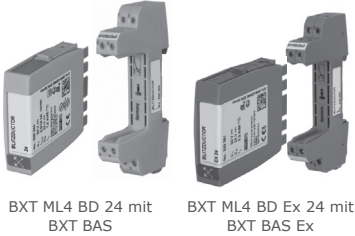
Attention: for one Pt100 in 3-wire connection both types are necessary !!!

Overvoltage protection devices



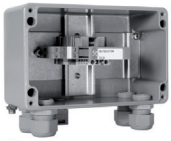
BXT ML4 BE 24 mit BXT BAS

BXT M TT 2P 275



BXT ML4 BD 24 mit BXT BAS

BXT ML4 BD Ex 24 mit BXT BAS Ex



ITAK EXI BXT 24



IGA 24 IP54 Wandgehäuse

BXT BAS Base part for standard module	40,00 €
BXT ML4 BE 24 DC24V Lightning protection module for 4 single wires	208,00 €
BXT ML4 BD 24 DC24V Lightning protection module for 2 double axes	198,00 €
DG M TT 2P 275 Network lightning protection - 2-pole	159,00 €
BXT-BAS-Ex Base part for Ex module	44,00 €
BXT ML4 BD Ex 24 DC24V Ex-lightning protection module for 2 double axes.	208,00 €
ITAK EXI BXT 24 Ready-to-connect unit for 2x Ex circuits 160x100x81mm	529,00 €
IGA 24 IP54 Wall housing 2x 12 TE (295x458x129mm)	245,00 €

Price group D

Signal converter

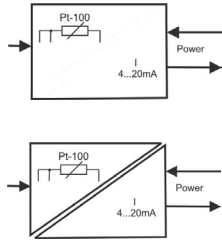
Transcont KTM / Transcont ExKTM

temperature head transmitter for 2- or 3-wire Pt100 preset, analog output 4...20 mA in 2-wire technology or analog output 0 - 10 V in 3-wire technology, 1 PNP switching output



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Connection



Order code

Transcont KTM

Basic price (*scale prices)

certifications		
KTM-	Without certificate.	0,00 €
ExKTM-	ATEX II 1 G Ex ia IIC T4	32,00 €
temperature range		
A	0°C...+50°C	0,00 €
B	0°C...+100°C	0,00 €
C	0°C...+150°C	
E	0°C...+200°C	0,00 €
F	0°C...+250°C	0,00 €
G	0°C...+300°C	0,00 €
H	0°C...+400°C	
J	0°C...+500°C	
L	0°C...+600°C	
Q	-40°C...+60°C	0,00 €
O	-50°C...+100°C	0,00 €
N	-100°C...+50°C	0,00 €
Y	custom specified measuring range	11,00 €

Transmitter electronics

A0	4...20 mA, 2-wire-electronics.	0,00 €
AS	4...20 mA, 2-wire-electronics with one PNP switching output (not for Ex-version)	17,50 €
AG	2-wire current, signal 4...20mA, galvanic separated (not for Ex-version)	0,00 €
B0	0...10 V, 3-wire-electronics (not for Ex-version)	0,00 €

*scale prices - basic price

1 - 3	pieces	
4 - 10	pieces	
11 - 35	pieces	

89,00 €

Price group D

0,00 €
32,00 €

0,00 €
0,00 €

0,00 €
0,00 €

0,00 €
0,00 €

0,00 €
17,50 €

0,00 €
0,00 €

0,00 €
11,00 €

PG D

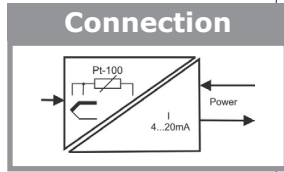
89,00 €
85,00 €
81,00 €

Transcont UTN-500

temperature head transmitter
universal head transmitter, adjustable via PC



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Basic price (*scale prices)

certifications

A	variation for Ex-free range	0,00 €
B	ATEX II 1 G EEx ia IIC T4/T5/T6	71,00 €
C	FM IS, Class I, Div. 1+2, Group A,B,C,D	71,00 €
D	CSA IS, Class I, Div. 1+2, Group A,B,C,D	71,00 €
E	ATEX II 3 G EEx nA IIC T4/T5/T6	71,00 €

Connection type

A	Standard factory setting 3-wire	0,00 €
2	configuration connection type RTD 2-wire	0,00 €
3	configuration connection type RTD 3-wire	0,00 €
4	configuration connection type RTD 4-wire	0,00 €
1	configuration connection type thermal element TC	0,00 €

configuration temperature sensor

A	Standard factory setting Pt100	0,00 €
1	Pt100 (-200°C... 850°C, min.SP 10K) according to IEC 60751 (a=0,00385)	0,00 €
2	Ni100 (-60°C... 180°C, min.SP 10K)	0,00 €
3	Pt500 (-200°C...250°C, min.SP 10K)	0,00 €
4	Ni500 (-60°C...150°C, min.SP 10K)	0,00 €
5	Pt1000 (-200°C...250°C, min.SP 10K)	0,00 €
6	Ni1000 (-60°C...150°C, min.SP 10K)	0,00 €
7	resistiv sensor 10...400 ohm, min. span 10 ohm	0,00 €
8	resistiv sensor 10...2000 ohm, min. span 100 ohm	0,00 €
B	type B (0°C...1820°C, min.SP 500K)	0,00 €
C	type C (0°C...2320°C, min.SP 500K)	0,00 €
D	type D (0°C...2495°C, min.SP 500K)	0,00 €
E	type E (-200°C... 1000°C, min.SP 50K)	0,00 €
J	type J (-200°C...1200°C, min.SP 50K)	0,00 €
K	type K (-200°C...1372°C, min.SP 50K)	0,00 €
L	type L (-200°C...900°C, min.Sp 50K)	0,00 €
N	type N (-270°C...1300°C, min.Sp 50K)	0,00 €
R	type R (-50°C...1768°C, min.Sp 500K)	0,00 €
S	type S (-50°C...1768°C, min.Sp 500K)	0,00 €
T	type T (-200°C... 400°C, min.Sp 50K)	0,00 €
U	type U (-200°C... 600°C, min.Sp 50K)	0,00 €
V	configuration voltage transducer -10...100mV, min. span 5mV	0,00 €

configuration

A	Standard-factory setting Pt100/3-wire/0-100°C	0,00 €
B	custom specified configuration measuring range	14,00 €
C	custom specified erweiterte configuration TC	44,00 €
D	custom specified erweiterte configuration RTD	44,00 €

*scale prices - basic price

1 - 3 pieces	265,00 €
4 - 10 pieces	259,00 €
11 - 35 pieces	237,00 €

265,00 €

Price group D

Order code

UTN-500-

S

Equipment

Ordering information

KKN 500
GM 500
TTL/RS 232 C
KKN 501

Model

configuration kit (incl. GM 500) + RS232-interface cable	178,00 €
setup-programm	0,00 €
PC-interface cable	73,00 €
configuration kit (incl. GM500 and USB-connection)	178,00 €

PG E

8. Sensoric

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What are inductive sensors?

Inductive sensors work without contact. They detect metal objects that approach the sensor and switch at certain distances (proximity switches).

A standard measuring plate of steel St-37 with an edge length of the larger value than the coil diameter of the sensor is evaluated as a standard of the switching distance. The switching distance is also influenced by different materials.

Correction factor inductive sensors:

Material	Switching distance in%
Steel St-37	100
Stainless steel	70
Brass	50
Copper	45
Aluminum	40

What are capacitive sensors?

Capacitive sensors operate without contact. They recognize conductive materials and non-conductive materials with a dielectric constant of $E > 1$.

The switching distance depends on the material so that different distances can be reached depending on the dielectric constant. For a constant dimension, the switching distance is indicated for steel St-37. By means of adjustable sensitivity ranges of the sensors, it is also possible to penetrate the switching area in the case of plastic containers and plastic tubes, thus detecting liquids or objects.

Correction factor Capacitive sensors:

Material	E	Switching distance in%
Steel St-37		100
Salt water	80	100
Marble	4-5	50
Porcelain	2,3	10
Oil	?	?
Wood	2-7	10-60

What are ultrasonic sensors?

Ultrasonic sensors switch and measure without contact. A special sound transducer emits sound waves and these are received again by the measuring object. The speed of the sound is the measure of the switching distance or the measuring range.

Areas of application	Insensitivity to
Distance measurement	Material
Level measurement	Light
Object recognition	Color
Material	Smoke
Sagging control	Dust

Graduated prices

Quantity	Discount
1 - 3	List price
4 - 10	5%
11 - 35	7%
36 - 100	10 %

Inductive sensors DC version

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Inductive sensors DC version DC voltage standard



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SIN-0,6NGSPKSB	3mm Ø	0,6 mm flush		yes		Cable	Stainless Steel	140,00 €
SIN-01NGSPKSB	3mm Ø		1 mm flush	yes		Cable	Stainless Steel	164,00 €
SIE-0,6NGSPKSB	M4x0,5	0,6 mm flush		yes		Cable	Stainless Steel	140,00 €
SIAT0,8NGSPKSB	4mm Ø	0,8 mm flush		yes		M8 plug	Stainless Steel	68,00 €
SIAT0,8NGOPKSB	4mm Ø	0,8 mm flush		yes		M8 plug	Stainless Steel	75,00 €
SIAT1,5NGSPKSB	4mm Ø		1,5 mm flush	yes		M8 plug	Stainless Steel	86,00 €
SIA-0,8NGSPKSB	4mm Ø	0,8 mm flush		yes		M8 plug	Stainless Steel	65,00 €
SIA-0,8NGOPKSB	4mm Ø	0,8 mm flush		yes		M8 plug	Stainless Steel	75,00 €
SIA-1,5NGSPKSB	4mm Ø		1,5 mm flush	yes		M8 plug	Stainless Steel	86,00 €



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SIB-0,8NGSPKSB	M5x0,5	0,8 mm flush		yes		Cable	Stainless Steel	46,00 €
SIB-1,5NGSPKSB	M5x0,5		1,5 mm flush	yes		Cable	Stainless Steel	83,00 €
SIBT0,8NGSPKSB	M5x0,5	0,8 mm flush		yes		M8 plug	Stainless Steel	49,00 €
SIBT1,5NGSPKSB	M5x0,5	1,5 mm flush		yes		M8 plug	Stainless Steel	83,00 €
SID-1,5MGSPKSB	M8x1	1,5 mm flush		yes		Cable	Nickel-plated-brass	24,50 €
SID-1,5MGOPKSB	M8x1	1,5 mm flush		yes		Cable	Nickel-plated-brass	24,50 €
SID-02MGSPKSNB	M8x1	2 mm not flush		yes		Cable	Nickel-plated-brass	24,50 €
SID-02MGOPKSNB	M8x1	2 mm not flush		yes		Cable	Nickel-plated-brass	24,50 €
SIDT1,5MGSPKSB	M8x1	1,5 mm flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDT1,5MGOPKSB	M8x1	1,5 mm flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDT02MGSPKSNB	M8x1	2 mm not flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDT02MGOPKSNB	M8x1	2 mm not flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDV1,5MGSPKSB	M8x1	1,5 mm flush		yes		M12 plug	Nickel-plated-brass	27,00 €



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SIDV1,5MGOPKSB	M8x1	1,5 mm flush		yes		M12 plug	Nickel-plated-brass	27,00 €
SIDV02MGSPKSNB	M8x1	2 mm not flush		yes		M12 plug	Nickel-plated-brass	27,00 €
SIDV02MGOPKSNB	M8x1	2 mm not flush		yes		M12 plug	Nickel-plated-brass	27,00 €
SIF-02MGSPKSB	M12x1	2 mm flush		yes		Cable	Nickel-plated-brass	22,50 €

Inductive sensors DC version DC voltage standard increased switching distance

Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SIF-02MGOPKSB	M12x1	2 mm flush		yes		Cable	Nickel-plated-brass	21,50 €
SIF-04MGAPKSB	M12x1		4 mm flush	yes		Cable	Nickel-plated-brass	38,00 €
SIF-04MGSPKSNB	M12x1	4 mm not flush		yes		Cable	Nickel-plated-brass	21,50 €
SIF-04MGOPKSNB	M12x1	4 mm not flush		yes		Cable	Nickel-plated-brass	21,50 €
SIF-08MGAPKSNB	M12x1		8 mm not flush	yes		Cable	Nickel-plated-brass	38,00 €
SIFV02MGSPKSB	M12x1	2 mm flush		yes		M12 plug	Nickel-plated-brass	22,50 €
SIFV02MGOPKSB	M12x1	2 mm flush		yes		M12 plug	Nickel-plated-brass	22,50 €
SIFV04MGSPKSB	M12x1		4 mm flush	yes		M12 plug	Nickel-plated-brass	22,50 €
SIFV04MGAPKSNB	M12x1	4 mm not flush		yes		M12 plug	Nickel-plated-brass	42,00 €
SIFV04MGOPKSNB	M12x1	4 mm not flush		yes		M12 plug	Nickel-plated-brass	22,50 €
SIFV08MGAPKSNB	M12x1		8 mm not flush	yes		M12 plug	Nickel-plated-brass	42,00 €
SIG-05MGSPKSB	M18x1	5 mm flush		yes		Cable	Nickel-plated-brass	24,00 €
SIG-05MGOPKSB	M18x1	5 mm flush		yes		Cable	Nickel-plated-brass	24,00 €
SIG-08MGAPKSB	M18x1		8 mm flush	yes		Cable	Nickel-plated-brass	43,00 €
SIG-08MGSPKSNB	M18x1	8 mm not flush		yes		Cable	Nickel-plated-brass	24,00 €
SIG-08MGOPKSNB	M18x1	8 mm not flush		yes		Cable	Nickel-plated-brass	24,00 €
SIG-14MGAPKSNB	M18x1		14 mm not flush	yes		Cable	Nickel-plated-brass	43,00 €
SIGV05MGSPKSB	M18x1	5 mm flush		yes		M12 plug	Nickel-plated-brass	26,00 €

Graduated prices see page 240

Sensoric

Inductive sensors DC version

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Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SIGV05MG0PKSB	M18x1	5 mm flush		yes		M12 plug	Nickel-plated-brass	26,00 €
SIGV08MGAPKSB	M18x1		8 mm flush	yes		M12 plug	Nickel-plated-brass	49,00 €
SIGV08MGSPKSNB	M18x1	8 mm not flush		yes		M12 plug	Nickel-plated-brass	26,00 €
SIGV08MG0PKSNB	M18x1	8 mm not flush		yes		M12 plug	Nickel-plated-brass	26,00 €
SIGV14MGAPKSNB	M18x1		14 mm not flush	yes		M12 plug	Nickel-plated-brass	49,00 €
SIH-10MGSPKSB	M30x1	10 mm flush		yes		Cable	Nickel-plated-brass	32,00 €
SIH-10MG0PKSB	M30x1	10 mm flush		yes		Cable	Nickel-plated-brass	32,00 €
SIH-15MGAPKSB	M30x1		15 mm flush	yes		Cable	Nickel-plated-brass	51,00 €
SIH-15MGSPKSNB	M30x1	15 mm not flush		yes		Cable	Nickel-plated-brass	32,00 €
SIH-15MG0PKSNB	M30x1	15 mm not flush		yes		Cable	Nickel-plated-brass	32,00 €
SIH-20MGAPKSNB	M30x1		20 mm not flush	yes		Cable	Nickel-plated-brass	55,00 €
SIHV10MGSPKSB	M30x1	10 mm flush		yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV10MG0PKSB	M30x1	10 mm flush		yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV15MGAPKSB	M30x1		15 mm flush	yes		M12 plug	Nickel-plated-brass	55,00 €
SIHV15MGSPKSNB	M30x1	15 mm not flush		yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV15MG0PKSNB	M30x1	15 mm not flush		yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV20MGAPKSNB	M30x1		20 mm not flush	yes		M12 plug	Nickel-plated-brass	55,00 €
SID-1,5MGSPKKB	M8x1	1,5 mm flush		yes		Cable	Nickel-plated-brass	24,50 €

Inductive sensors DC voltage short design + increased switching distance



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SID-1,5MG0PKKB	M8x1	1,5 mm flush		yes		Cable	Nickel-plated-brass	24,50 €
SID-02MGSPKKB	M8x1		2 mm flush	yes		Cable	Nickel-plated-brass	24,50 €
SID-02MG0PKKB	M8x1		2 mm flush	yes		Cable	Nickel-plated-brass	33,00 €
SID-02MGSPKKNB	M8x1	2 mm not flush		yes		Cable	Nickel-plated-brass	24,50 €
SID-02MG0PKKNB	M8x1	2 mm not flush		yes		Cable	Nickel-plated-brass	24,50 €
SID-03MGSPKKNB	M8x1		3 mm not flush	yes		Cable	Nickel-plated-brass	24,50 €
SID-03MG0PKKNB	M8x1		3 mm not flush	yes		Cable	Nickel-plated-brass	24,50 €
SIDT1,5MGSPKKB	M8x1	1,5 mm flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDT1,5MG0PKKB	M8x1	1,5 mm flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDT02MGSPKKB	M8x1		2 mm flush	yes		M8 plug	Nickel-plated-brass	33,00 €
SIDT02MG0PKKB	M8x1		2 mm flush	yes		M8 plug	Nickel-plated-brass	33,00 €
SIDT02MGSPKKNB	M8x1	2 mm not flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDT02MG0PKKNB	M8x1	2 mm not flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDT03MGSPKKNB	M8x1		3 mm not flush	yes		M8 plug	Nickel-plated-brass	38,00 €
SIDT03MG0PKKNB	M8x1		3 mm not flush	yes		M8 plug	Nickel-plated-brass	27,00 €
SIDV1,5MGSPKKB	M8x1	1,5 mm flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDV1,5MG0PKKB	M8x1	1,5 mm flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDV02MGSPKKB	M8x1		2 mm flush	yes		M8 plug	Nickel-plated-brass	27,00 €
SIDV02MG0PKKB	M8x1		2 mm flush	yes		M8 plug	Nickel-plated-brass	27,00 €
SIDV02MGSPKKNB	M8x1	2 mm not flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDV02MG0PKKNB	M8x1	2 mm not flush		yes		M8 plug	Nickel-plated-brass	27,00 €
SIDV03MGSPKKNB	M8x1		3 mm not flush	yes		M8 plug	Nickel-plated-brass	27,00 €
SIDV03MG0PKKNB	M8x1		3 mm not flush	yes		M8 plug	Nickel-plated-brass	27,00 €
SIF-02MGSPKKB	M12x1	2 mm flush		yes		Cable	Nickel-plated-brass	21,50 €
SIF-02MG0PKKB	M12x1	2 mm flush		yes		Cable	Nickel-plated-brass	21,50 €
SIF-04MGSPKKB	M12x1		4 mm flush	yes		Cable	Nickel-plated-brass	21,50 €
SIF-04MG0PKKB	M12x1		4 mm flush	yes		Cable	Nickel-plated-brass	21,50 €
SIF-04MGSPKKNB	M12x1	4 mm not flush		yes		Cable	Nickel-plated-brass	21,50 €
SIF-04MG0PKKNB	M12x1	4 mm not flush		yes		Cable	Nickel-plated-brass	21,50 €
SIF-08MGSPKKNB	M12x1		8 mm not flush	yes		Cable	Nickel-plated-brass	21,50 €
SIF-08MG0PKKNB	M12x1		8 mm not flush	yes		Cable	Nickel-plated-brass	21,50 €
SIFV02MGSPKKB	M12x1	2 mm flush		yes		M12 plug	Nickel-plated-brass	22,50 €

Graduated prices see page 240

Sensonic

Inductive sensors DC version

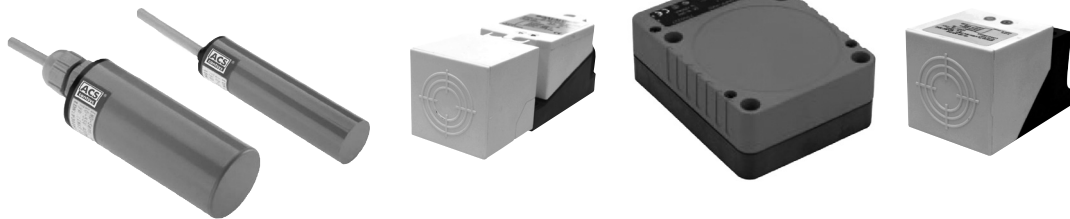
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Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SIFV02MG0PKKB	M12x1	2 mm flush		yes		M12 plug	Nickel-plated-brass	22,50 €
SIFV04MG0PKKB	M12x1		4 mm flush	yes		M12 plug	Nickel-plated-brass	22,50 €
SIFV04MG0PKKB	M12x1		4 mm flush	yes		M12 plug	Nickel-plated-brass	22,50 €
SIFV04MG0PKKNB	M12x1	4 mm not flush		yes		M12 plug	Nickel-plated-brass	22,50 €
SIFV04MG0PKKNB	M12x1	4 mm not flush		yes		M12 plug	Nickel-plated-brass	22,50 €
SIFV08MG0PKKNB	M12x1		8 mm not flush	yes		M12 plug	Nickel-plated-brass	22,50 €
SIFV08MG0PKKNB	M12x1		8 mm not flush	yes		M12 plug	Nickel-plated-brass	22,50 €
SIG-05MG0PKKB	M18x1	5 mm flush		yes		Cable	Nickel-plated-brass	24,00 €
SIG-05MG0PKKB	M18x1	5 mm flush		yes		Cable	Nickel-plated-brass	24,00 €
SIG-08MG0PKKB	M18x1		8 mm flush	yes		Cable	Nickel-plated-brass	24,00 €
SIG-08MG0PKKB	M18x1		8 mm flush	yes		Cable	Nickel-plated-brass	24,00 €
SIG-08MG0PKKNB	M18x1	8 mm not flush		yes		Cable	Nickel-plated-brass	24,00 €
SIG-08MG0PKKNB	M18x1	8 mm not flush		yes		Cable	Nickel-plated-brass	24,00 €
SIG-14MG0PKKNB	M18x1		14 mm not flush	yes		Cable	Nickel-plated-brass	24,00 €
SIG-14MG0PKKNB	M18x1		14 mm not flush	yes		Cable	Nickel-plated-brass	24,00 €
SIGV05MG0PKKB	M18x1	5 mm flush		yes		M12 plug	Nickel-plated-brass	26,00 €
SIGV05MG0PKKB	M18x1	5 mm flush		yes		M12 plug	Nickel-plated-brass	26,00 €
SIGV08MG0PKKB	M18x1		8 mm flush	yes		M12 plug	Nickel-plated-brass	26,00 €
SIGV08MG0PKKB	M18x1		8 mm flush	yes		M12 plug	Nickel-plated-brass	26,00 €
SIGV08MG0PKKNB	M18x1	8 mm not flush		yes		M12 plug	Nickel-plated-brass	26,00 €
SIGV08MG0PKKNB	M18x1	8 mm not flush		yes		M12 plug	Nickel-plated-brass	26,00 €
SIGV14MG0PKKNB	M18x1		14 mm not flush	yes		M12 plug	Nickel-plated-brass	26,00 €
SIGV14MG0PKKNB	M18x1		14 mm not flush	yes		M12 plug	Nickel-plated-brass	26,00 €
SIH-10MG0PKKB	M30x1	10 mm flush		yes		Cable	Nickel-plated-brass	32,00 €
SIH-10MG0PKKB	M30x1	10 mm flush		yes		Cable	Nickel-plated-brass	32,00 €
SIH-15MG0PKKB	M30x1		15 mm flush	yes		Cable	Nickel-plated-brass	32,00 €
SIH-15MG0PKKB	M30x1		15 mm flush	yes		Cable	Nickel-plated-brass	32,00 €
SIH-15MG0PKKNB	M30x1	15 mm not flush		yes		Cable	Nickel-plated-brass	32,00 €
SIH-15MG0PKKNB	M30x1	15 mm not flush		yes		Cable	Nickel-plated-brass	32,00 €
SIH-20MG0PKKNB	M30x1		20 mm not flush	yes		Cable	Nickel-plated-brass	32,00 €
SIH-20MG0PKKNB	M30x1		20 mm not flush	yes		Cable	Nickel-plated-brass	32,00 €
SIHV10MG0PKKB	M30x1	10 mm flush		yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV10MG0PKKB	M30x1	10 mm flush		yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV15MG0PKKB	M30x1		15 mm flush	yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV15MG0PKKB	M30x1		15 mm flush	yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV15MG0PKKNB	M30x1	15 mm not flush		yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV15MG0PKKNB	M30x1	15 mm not flush		yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV20MG0PKKNB	M30x1		20 mm not flush	yes		M12 plug	Nickel-plated-brass	38,00 €
SIHV20MG0PKKNB	M30x1		20 mm not flush	yes		M12 plug	Nickel-plated-brass	38,00 €

Graduated prices see page 240

Inductive sensors DC voltage standard plastic material



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SIP-10KGSPKSNB	20 mm Ø	10 mm flush		yes		Cable	PBT	71,00 €
SIP-10K0SPKSNB	20 mm Ø	10 mm flush		yes		Cable	PBT	89,00 €
SIR-20KGSPKSNB	34 mm Ø	20 mm not flush		yes		Cable	PBT	100,00 €
SIR-20K0G0PKSNB	34 mm Ø	20 mm not flush		yes		Cable	PBT	100,00 €
SISK15KGPPKSB	40x40x118 mm Ø	15 mm flush		yes		Terminals	PBT (RESIN)	51,00 €
SISK15KGPPKSNB	40x40x118 mm Ø	30 mm not flush		yes		Terminals	PBT (RESIN)	21,50 €
SIWK60KGSPKSNB	80x105x40	60 mm not flush		yes		Terminals	Plastic	264,00 €
SIZK15KGPPKSB	40x40x35	15 mm flush		yes		M12 plug	PBT (RESIN)	63,00 €

Sensoric

Inductive sensors AC version / Special inductive sensors DC-version

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Inductive sensors AC version metal



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SIF-02MWS00SB	M12x1	2 mm flush			yes	Cable	Nickel-plated-brass	73,00 €
SIFV02MWS00SB	M12x1	2 mm flush			yes	M12 plug	Nickel-plated-brass	73,00 €
SIG-05MWS00SB	M18x1	5 mm flush			yes	Cable	Nickel-plated-brass	53,00 €
SIGV05MWS00SB	M18x1	5 mm flush			yes	M12 plug	Nickel-plated-brass	53,00 €
SIH-10MWS00SB	M30x1	10 mm flush			yes	Cable	Nickel-plated-brass	73,00 €
SIHV10MWS00SB	M30x1	10 mm flush			yes	M12 plug	Nickel-plated-brass	63,00 €

Inductive sensors AC version plastic material



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SISK15KAS00SB	40x40x118 mm Ø	15 mm flush			yes	Terminals	PBT (RESIN)	63,00 €
SISK15KA000SB	40x40x118 mm Ø	15 mm flush			yes	Terminals	PBT (RESIN)	71,00 €
SISK30KAS00SNB	40x40x118 mm Ø	30 mm not flush			yes	Terminals	PBT (RESIN)	63,00 €
SISK30KA000SNB	40x40x118 mm Ø	30 mm not flush			yes	Terminals	PBT (RESIN)	71,00 €
SIWK60KW000SNB	80x105x40	60 mm not flush			yes	Terminals	Plastic	264,00 €

Special inductive sensors climate-resistant up to 120 °C DC voltage



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SIFH-02NGSPKSB	M12x1	2 mm flush		yes		Cable	PTFE / Stainless steel 1.4571	140,00 €
SIFH-04NGSPKSNB	M12x1	4 mm not flush		yes		Cable	PTFE / Stainless steel 1.4572	140,00 €
SIGH-05NGSPKSB	M18x1	5 mm flush		yes		Cable	PTFE / Stainless steel 1.4573	149,00 €
SIGH-05NG0PKSB	M18x1	5 mm flush		yes		Cable	PTFE / Stainless steel 1.4574	149,00 €
SIGH-07NGSPKSNB	M18x1	7 mm not flush		yes		Cable	PTFE / Stainless steel 1.4575	167,00 €
SIGH-07NG0PKSNB	M18x1	7 mm not flush		yes		Cable	PTFE / Stainless steel 1.4576	167,00 €
SIHH-10NGSPKSB	M30x1	10 mm flush		yes		Cable	PTFE / Stainless steel 1.4577	177,00 €
SIHH-10NG0PKSB	M30x1	10 mm flush		yes		Cable	PTFE / Stainless steel 1.4578	177,00 €
SIHH-15NGSPKSNB	M30x1	15 mm not flush		yes		Cable	PTFE / Stainless steel 1.4577	177,00 €
SIHH-15NG0PKSNB	M30x1	15 mm not flush		yes		Cable	PTFE / Stainless steel 1.4578	177,00 €

Graduated prices see page 240

Inductive PTFE special sensors DC-version / AC-version

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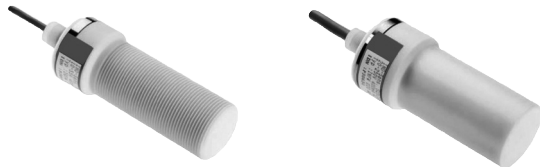
Inductive PTFE special sensors rolling oil resistant up to 120 °C DC voltage



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material
SIHW-10KGSPKSB	M30x1	10 mm flush		yes		Cable	PTFE
SIHW-14KGSPKSNB	M30x1	14 mm not flush		yes		Cable	PTFE
SIRW-19NGSPKSNB	35 mm Ø	19 mm not flush		yes		Cable	PTFE

154,00 €
154,00 €
173,00 €

Inductive PTFE special sensors rolling oil resistant up to 120 °C alternating voltage AC version



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material
SIHW-10KWS00SB	M30x1	10 mm flush			yes	Cable	PTFE
SIHW-14KWS00SNB	M30x1	14 mm not flush			yes	Cable	PTFE
SIRW-19KWS00SNB	35 mm Ø	19 mm not flush			yes	Cable	PTFE

165,00 €
165,00 €
183,00 €

Graduated prices see page 240

Capacitive sensors DC-version

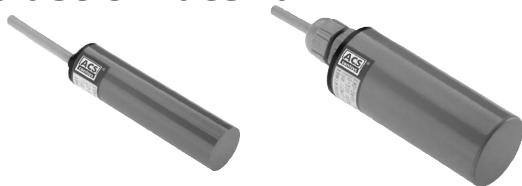
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Capacitive sensors DC voltage standard metal



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SGK-05MGAPKSB	M18x1	1-5 mm flush		yes		Cable	Nickel-plated-brass	71,00 €
SGK-10MGAPKSNB	M18x1	1-10 mm not flush		yes		Cable	Nickel-plated-brass	71,00 €
SKGV05MGAPKSB	M18x1	1-5 mm flush		yes		M8 plug	Nickel-plated-brass	78,00 €
SKGV10MGAPKSNB	M18x1	1-10 mm not flush		yes		M8 plug	Nickel-plated-brass	78,00 €
SKH-15MGAPKSB	M30x1,5	1-15 mm flush		yes		Cable	Nickel-plated-brass	73,00 €
SKH-25MGAPKSNB	M30x1,5	1-25 mm not flush		yes		Cable	Nickel-plated-brass	73,00 €
SKHV015MGAPKSB	M30x1,5	1-15 mm flush	CS-10	yes		M8 plug	Nickel-plated-brass	81,00 €
SKHV25MGAPKSNB	M30x1,5	1-25 mm not flush		yes		M8 plug	Nickel-plated-brass	81,00 €

Capacitive sensors DC voltage standard plastic material



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SKP-10KGSPKSNB	20 mm Ø	10 mm not flush		yes		Cable	PBT	122,00 €
SKPB10MGSPKSNB	20 mm Ø	10 mm not flush		yes		M12 plug	PBT	132,00 €
SKR-20KGSPKSNB	34 mm Ø	10 mm not flush		yes		Cable	PBT	134,00 €
SKR-20KG0PKSNB	34 mm Ø	10 mm not flush		yes		Cable	PBT	134,00 €
SKRB20KGSPKSNB	34 mm Ø	20 mm not flush		yes		M12 plug	PBT	140,00 €
SKRB20KG0PKSNB	34 mm Ø	20 mm not flush		yes		M12 plug	PBT	140,00 €

Capacitive special sensors DC voltage PTFE-housing (chemical-resistant)



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SKHW-10KGSPKSB	M30x1,5	10 mm flush		yes		Cable	PTFE / PVDF	176,00 €
SKHW-10KG0PKSB	M30x1,5	10 mm flush		yes		Cable	PTFE / PVDF	176,00 €
SKHW-14KGSPKSNB	M30x1,5	14 mm not flush		yes		Cable	PTFE / PVDF	176,00 €
SKHW-14KG0PKSNB	M30x1,5	14 mm not flush		yes		Cable	PTFE / PVDF	176,00 €
SKRW-20KGSPKSNB	35 mm Ø	20 mm not flush		yes		Cable	PTFE / PVDF	190,00 €
SKRW-20KG0PKSNB	35 mm Ø	20 mm not flush		yes		Cable	PTFE / PVDF	190,00 €

Graduated prices see page 240

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Capacitive sensors AC-version

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Capacitive sensors alternating voltage AC version



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SKGV08MWS00SB	M18x1	2-8 mm flush			yes	M12 plug	Plastic (PBT)	85,00 €
SKGV15MWS00SNB	M18x1	2-15 mm not flush			yes	M12 plug	Plastic (PBT)	85,00 €
SKHV20MWS00SB	M30x1,5	2-20 mm flush			yes	M12 plug	Plastic (PBT)	91,00 €
SKHV30MW000NB	M30x1,5	2-30 mm not flush			yes	M12 plug	Plastic (PBT)	91,00 €
SKH-20MWR00SB	M30x1,5	2-20 mm flush			yes	Cable	Nickel-plated-brass	108,00 €
SKH-20MWR00SB	M30x1,5	2-20 mm flush			yes	Cable	Nickel-plated-brass	117,00 €
SKH-30MWR00SNB	M30x1,5	2-30 mm not flush			yes	Cable	Nickel-plated-brass	108,00 €
SKH-30MWR00SNB	M30x1,5	2-30 mm not flush			yes	Cable	Nickel-plated-brass	117,00 €

Capacitive PTFE special sensors alternating voltage AC version



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
SKHW-10KWS00SB	M30x1,5	10 mm flush			yes	Cable	PTFE / PVDF	193,00 €
SKHW-14KWS00SNB	M30x1,5	14 mm not flush			yes	Cable	PTFE / PVDF	193,00 €
SKRW-20KWS00SNB	35 mm Ø	20 mm not flush			yes	Cable	PTFE / PVDF	193,00 €

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Ultrasonic sensors

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Ultrasonic sensors switch output, analog output 4-20mA/0-10V



Name	Design	Rated operating distance	increased switching distance	DC	AC	Connection	Housing Material	
US18-PA-5-N03_OH	M18x1	axial digital		yes		M12 plug	Plastic (PBT)	364,00 €
US18-PR-5-N03_OH	M18x1	radial digital		yes		M12 plug	Plastic (PBT)	364,00 €
US18-PA-5-N03_IH	M18x1	axial analog		yes		M12 plug	Plastic (PBT)	489,00 €
US18-PR-5-N03_IH	M18x1	radial analog		yes		M12 plug	Plastic (PBT)	489,00 €
US18-PA-5-N03_VH	M18x1	axial analog		yes		M12 plug	Plastic (PBT)	489,00 €
US18-PR-5-N03_VH	M18x1	radial analog		yes		M12 plug	Plastic (PBT)	489,00 €
US50-PR-N43-OH	M50	digital		yes		M12 plug	Polycarbonates (ABS)	828,00 €
US50-PR-N43-IVH	M50	analog		yes		M12 plug	Polycarbonates (ABS)	895,00 €
US30-PR-5-N13-OH	M30x1	100...1000mm digital		yes		M12 plug	Plastic (PBT)	445,00 €
US30-PR-5-N13-IH	M30x1	100...1000mm 4-20mA		yes		M12 plug	Plastic (PBT)	534,00 €
US30-PR-5-N23-OH	M30x1	200...2000mm digital		yes		M12 plug	Plastic (PBT)	463,00 €
US30-PR-5-N23-IH	M30x1	200...2000mm 4-20mA		yes		M12 plug	Plastic (PBT)	552,00 €
US30-PR-5-N13-VH	M30x1	100...1000mm 0-10V		yes		M12 plug	Plastic (PBT)	534,00 €
US30-PR-5-N23-VH	M30x1	200...2000mm 0-10V		yes		M12 plug	Plastic (PBT)	552,00 €

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Connection cable and cable boxes

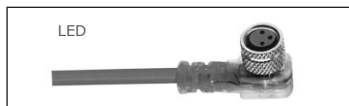
Order code please see page Seite 250



FKZO-02PUR	3 pole M8-plug	2m	9,40 €
FKZO-05PUR	3 pole M8-plug	.5m (Preferred type)	15,50 €
FKZO-10PUR	3 pole M8-plug	.10m (Preferred type)	20,50 €
FKZO-20PUR	3 pole M8-plug	.20m (Preferred type)	23,00 €
FKZO-02PVC	3 pole M8-plug	2m	9,40 €
FKZO-05PVC	3 pole M8-plug	5m	14,50 €
FKZO-10PVC	3 pole M8-plug	10m	17,50 €



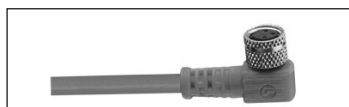
FKWO-02PUR	3 pole M8-plug	.2m (Preferred type)	9,40 €
FKWO-05PUR	3 pole M8-plug	.5m (Preferred type)	15,50 €
FKWO-10PUR	3 pole M8-plug	.10m (Preferred type)	20,50 €
FKWO-02PVC	3 pole M8-plug	2m	9,40 €
FKWO-05PVC	3 pole M8-plug	5m	13,50 €
FKWO-10PVC	3 pole M8-plug	10m	17,50 €



FKWP-02PUR	3 pole M8-plug	2m	.LED/PNP	17,50 €
FKWP-05PUR	3 pole M8-plug	5m	.LED/PNP	21,00 €
FKWP-10PUR	3 pole M8-plug	10m	.LED/PNP	22,50 €
FKWP-02PVC	3 pole M8-plug	2m	.LED/PNP	15,50 €
FKWP-05PVC	3 pole M8-plug	5m	.LED/PNP	17,50 €
FKWP-10PVC	3 pole M8-plug	10m	.LED/PNP	19,50 €



FKZO402PUR	4 pole M8-plug	2m	12,50 €
FKZO405PUR	4 pole M8-plug	.5m (Preferred type)	17,50 €
FKZO410PUR	4 pole M8-plug	.10m (Preferred type)	21,50 €
FKZO402PVC	4 pole M8-plug	2m	11,00 €
FKZO405PVC	4 pole M8-plug	5m	15,00 €
FKZO410PVC	4 pole M8-plug	10m	19,00 €



FKWO402PUR	4 pole M8-plug	2m	12,50 €
FKWO405PUR	4 pole M8-plug	.5m (Preferred type)	17,50 €
FKWO410PUR	4 pole M8-plug	10m	21,50 €
FKWO402PVC	4 pole M8-plug	2m	11,00 €
FKWO405PVC	4 pole M8-plug	5m	15,00 €
FKWO410PVC	4 pole M8-plug	10m	19,00 €

Price group E

Sensoric

Connection cable and cable boxes

Isolation amplifier and power supply

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	LKZO-02PUR 3 pole M12-plug2m (Preferred type)	13,50 €
	LKZO-05PUR 3 pole M12-plug5m (Preferred type)	17,50 €
	LKZO-10PUR 3 pole M12-plug10m (Preferred type)	20,00 €
	LKZO-20PUR 3 pole M12-plug20m (Preferred type)	23,00 €
	LKZO-02PVC 3 pole M12-plug 2m	10,00 €
	LKZO-05PVC 3 pole M12-plug 5m	15,50 €
	LKZO-10PVC 3 pole M12-plug 10m	19,00 €
	LKWO-02PUR 3 pole M12-plug2m (Preferred type)	13,50 €
	LKWO-05PUR 3 pole M12-plug5m (Preferred type)	17,50 €
	LKWO-10PUR 3 pole M12-plug10m (Preferred type)	20,00 €
	LKWO-15PUR 3 pole M12-plug15m (Preferred type)	22,00 €
	LKWO-02PVC 3 pole M12-plug 2m	10,00 €
	LKWO-05PVC 3 pole M12-plug 5m	15,50 €
	LKWO-10PVC 3 pole M12-plug 10m	19,00 €
	LKWP-02PUR 3 pole M12-plug2m (Preferred type) .LED/PNP	20,00 €
	LKWP-05PUR 3 pole M12-plug5m (Preferred type) .LED/PNP	21,00 €
	LKWP-10PUR 3 pole M12-plug 10mLED/PNP	23,00 €
	LKWP-02PVC 3 pole M12-plug 2mLED/PNP	19,50 €
	LKWP-05PVC 3 pole M12-plug 5mLED/PNP	20,50 €
	LKWP-10PVC 3 pole M12-plug 10mLED/PNP	22,50 €
	LKZO402PUR 4 pole M12-plug2m (Preferred type)	15,00 €
	LKZO405PUR 4 pole M12-plug5m (Preferred type)	17,50 €
	LKZO405PUR-AS 4 pole M12-plug5m (Preferred type) .Shielded	22,50 €
	LKZO410PUR 4 pole M12-plug 10m	21,00 €
	LKZO410PUR-AS 4 pole M12-plug10m (Preferred type)Shielded	28,50 €
	LKZO415PUR-AS 4 pole M12-plug15m (Preferred type)Shielded	40,00 €
	LKZO425PUR 4 pole M12-plug25m (Preferred type)	32,00 €
	LKZO420PUR-AS 4 pole M12-plug20m (Preferred type)Shielded	52,00 €
	LKZO450PUR-AS 4 pole M12-plug50m (Preferred type)Shielded	95,00 €
	LKZO402PVC 4 pole M12-plug 2m	14,50 €
	LKZO405PVC 4 pole M12-plug 5m	15,00 €
	LKZO410PVC 4 pole M12-plug 10m	21,50 €
	LKZO505PUR-AS 5 pole M12-plug5m (Preferred type)	26,00 €
	LKZO510PUR-AS 5 pole M12-plug10m (Preferred type)	35,00 €
	LKZO520PUR-AS 5 pole M12-plug20m (Preferred type)	55,00 €
	LKZO805PUR-AS 8 pole M12-plug 5mShielded	38,00 €
	LKWO402PUR 4 pole M12-plug2m (Preferred type)	15,00 €
	LKWO405PUR 4 pole M12-plug5m (Preferred type)	17,50 €
	LKWO405PUR-AS 4 pole M12-plug5m (Preferred type) .Shielded	21,50 €
	LKWO505PUR-AS 5 pole M12-plug5m (Preferred type) .Shielded	26,00 €
	LKWO410PUR 4 pole M12-plug10m (Preferred type)	21,00 €
	LKWO410PUR-AS 4 pole M12-plug10m (Preferred type)Shielded	28,50 €
	LKWO425PUR 4 pole M12-plug 25m	39,00 €
	LKWO510PUR-AS 5 pole M12-plug10m (Preferred type)Shielded	33,00 €
	LKWO402PVC 4 pole M12-plug 2m	14,50 €
	LKWO405PVC 4 pole M12-plug 5m	15,00 €
	LKWO410PVC 4 pole M12-plug 10m	21,50 €
	LKWP402PUR 4 pole M12-plug2m (Preferred type)	22,50 €
	LKWP405PUR 4 pole M12-plug5m (Preferred type)	24,00 €
	LKWP410PUR 4 pole M12-plug10m (Preferred type)	26,50 €
	LKWP-15PUR 4 pole M12-plug15m (Preferred type)	33,00 €
	LKWP-25PUR 4 pole M12-plug25m (Preferred type)	39,00 €
	LKWP402PVC 4 pole M12-plug 2m	21,50 €
	LKWP405PVC 4 pole M12-plug 5m	24,00 €
	LKWP410PVC 4 pole M12-plug 10m	26,00 €
	DKZ0408 4 pole M8-plug clampable	19,50 €
	DKW0408 4 pole M8-plug clampable	19,50 €
	BKZ0412 4 pole M12-plug clampable	15,50 €
	BKZ0412-VA 4 pole M12-plugVA-nut (Preferred type)	18,50 €
	BKZ0512-VA 5 pole M12-plugVA-nut	19,50 €
	BKW0412 4 pole M12-plugclampable (Vorzugstyp)	15,50 €
	BKW0412-VA 4 pole M12-plugVA-nut (Vorzugstyp)	19,00 €
	BKW0512-VA 5 pole M12-plugVA-nut	19,50 €
	NKW04-0 4 pole Valve plug clampable	15,50 €
	NKW0410 4 pole Valve plug clampable (matching for Vibrocont)	17,50 €
	(matching for Precont KS)	

Connection cable/ plugs clampable

Isolation amplifier for Ex-areas



Ordering info	Function/voltage	Price
GE-90-Ex-1-230	amplifier 230V AC	123,00 €
EGE-90-Ex-1-24	amplifier 24V DC	123,00 €

PG B

Power supply - initiator relay



Ordering info	Function/voltage	Price
NSP-2001	2 x 24V DC altogether 200mA 2 relay outputs	125,00 €

A

Order code for connection cable and cable boxes

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Connection cable

- F M8 - with screw connection
- L M12 - with screw connection
- T M8 - old version - without screw connection
- K Cable
 - W 90° angled
 - Z Central / straight
 - O Without LED
 - P LED for PNP
 - M Cable with plug (Male)
 - 3 pole
 - 4 4 pole
 - 5 5 pole
 - 8 8 pole
 - F Connection cable 3-pole with 1x connector 3-pole and 1x connector 3-pole
 - 02 2m Cable
 - 05 5m Cable
 - 10 10m Cable
 - 15 15m Cable
 - 20 20m Cable
 - 25 25m Cable
 - 30 30m Cable
 - YY ?? m Cable
 - PUR PUR-Material/Cable sheath
 - PVC PVC-Material/Cable sheath



Additional options connection cable

- AS Shielding
- VA Stainless steel mounting nut

Cable sockets / plugs - clampable

- B M12 plug coupling (female)
- D M8 plug coupling (female)
- N Valve connector (4-pin only)
- K Cable box
 - W 90° angled
 - Z Central / straight
 - 04 4 pole
 - 05 5 pole
 - 08 M8
 - 12 M12
 - 0 Ventilstecker DIN EN 175-301-803-A/DIN43650-A
 - 10 Ventilstecker DIN EN 175-301-803-C/DIN43650-C



Additional options connection cable

- VA Stainless steel mounting nut

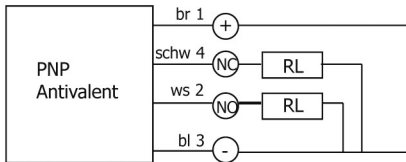
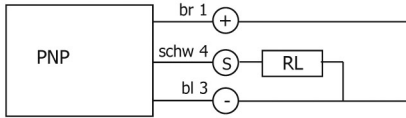
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Connection diagrams and order code

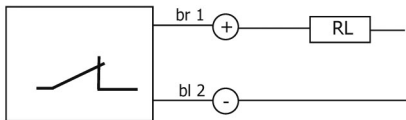
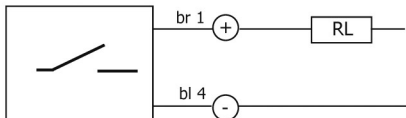
for initiators

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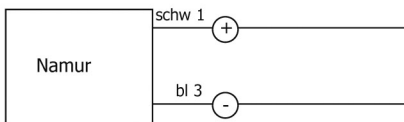
Gleichspannung DC 3-Draht



Gleichspannung DC 2-Draht

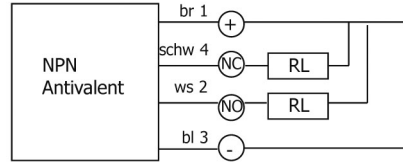
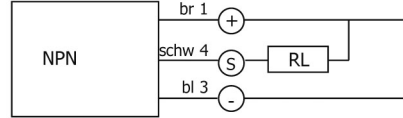


Namur nach DIN 19234

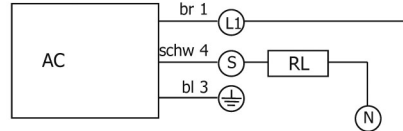


operating voltage U_b	5...25V DC
nominal voltage U_n	8,2V DC
residual ripple U_{ss}	$\leq 5\%$ from U_b
supply current damped	$\leq 1,0\text{mA}$
supply current undamped	$\geq 2,5\text{mA}$
self-capacitance	$\leq 20...110\text{nF}$
self-inductance	$\leq 20...7\mu\text{H}$
line resistance	$\leq 50 \Omega$
hysteresis H	1%-10%
shortcircuit proof	ja
protected against reverse polarity	ja
protection according to DIN 40050	IP67
ambient temperature	-25...+70°C
EMV according to prEN 60 947-5-2	

Gleichspannung DC 3-Draht



Wechselspannung AC 2-Draht



Order code for inductive and capacitive sensors

S_ _ design/type

- Cable 2,5m
- K Terminal connection
- T Miniature plug connection M8 + LED
- B M12-plug connection plastic + LED
- V M12-plug connection metal
- X M18-plug connection + LED
- 5 Cable 5 m

08 Switching distance in mm (St 37)

Material housing

- N Stainless steel 1.4571
- M Brass nickel-plated
- A Aluminium
- K Plastic

- G DC voltage
- W AC voltage
- A Universal current
- N Namur

- S Turnkey
- O Opener
- A Antivalent
- R Relay output

- P PNP output
- M NPN output
- 2 2-wire DC voltage

- K Short-circuit protection
- 0 Without short-circuit protection

- S Standard
- K Short design
- L For food applications

- B Flush
- NB Not flush

Example Order code

S_ _ 08 N G S P K S NB

Sensoric

9. IOT Solutions

Contents

IOT Solutions: From the sensor to the cloud – everything from a single source!

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IOT-Solutions from ACS-CONTROL-SYSTEM

The IOT-Solutions from ACS-CONTROL-SYSTEM open up many new possibilities for monitoring and measurement for a wide range of applications. Measurement data visualization, management of devices and much more - anytime and worldwide!




The clearly arranged web portal of ACS offers the possibility to manage all of your measurement points centrally. In combination with the autonomously operated Datalogger DLF4, it is now very easy to get the most accurate measured values – even from the most remote locations. Therefore the data is automatically, and with the highest standards of safety, transferred in the ACS portal.

A well thought-out alarm management with various escalation levels and modern alerting methods via ACS Alert, text message, e-mail, etc. offers you the possibility to react on an early stage to a change of state.

The specially developed apps ACS-SmartConnect, for mobile configuration of the devices on site and ACS-Alert, for a secure alerting and status overview of the measuring points via smartphone, complete the portfolio. So we can guarantee an easy handling and installation for your measuring device.

The Datalogger DLF4 has got different sensor inputs for standard sensors with analog signal, as well as digital sensors with Modbus protocol or puls signals, that function as count- or control inputs.

Your benefits at ACS

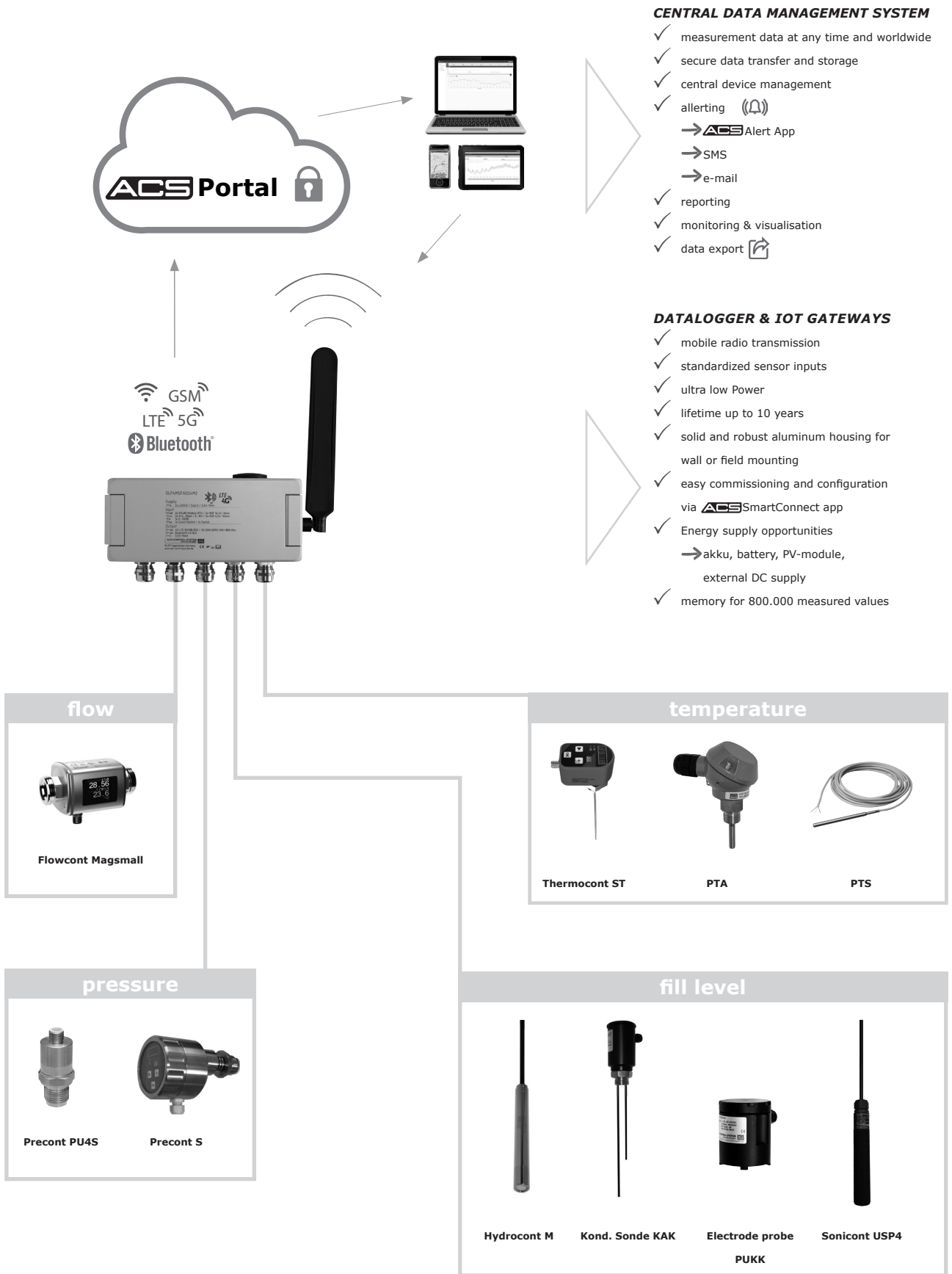
- ✓ all-around-carefree package
- ✓ in-house  **conception**
-  **installation**
-  **maintenance**
- ✓ everything from a single source – from sensor to cloud!
- ✓ full cost control
- ✓ Simple operating system
- ✓ free telephone support

Examples of applications

- ✓ level monitoring in silos
- ✓ monitoring of rain overflow basins
- ✓ flow measuring in open flumes
- ✓ temperature monitoring in ripening cellars
- ✓ level measurement in waters



From sensor to cloud – everything from a single source!



CENTRAL DATA MANAGEMENT SYSTEM

- ✓ measurement data at any time and worldwide
- ✓ secure data transfer and storage
- ✓ central device management
- ✓ alerting (🔔)
 - ACSAlert App
 - SMS
 - e-mail
- ✓ reporting
- ✓ monitoring & visualisation
- ✓ data export 📄

DATALOGGER & IOT GATEWAYS

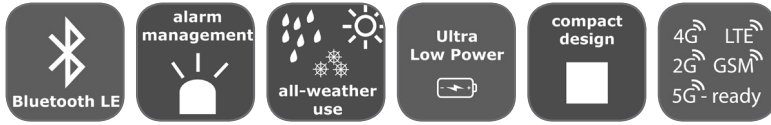
- ✓ mobile radio transmission
- ✓ standardized sensor inputs
- ✓ ultra low Power
- ✓ lifetime up to 10 years
- ✓ solid and robust aluminum housing for wall or field mounting
- ✓ easy commissioning and configuration via ACS SmartConnect app
- ✓ Energy supply opportunities
 - akku, battery, PV-module, external DC supply
- ✓ memory for 800.000 measured values

Datalogger DLF4

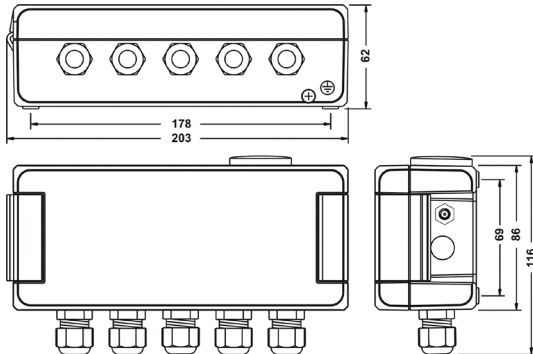
Self-sufficient data logger with remote data transmission for wall and field mounting

2 / 01.22

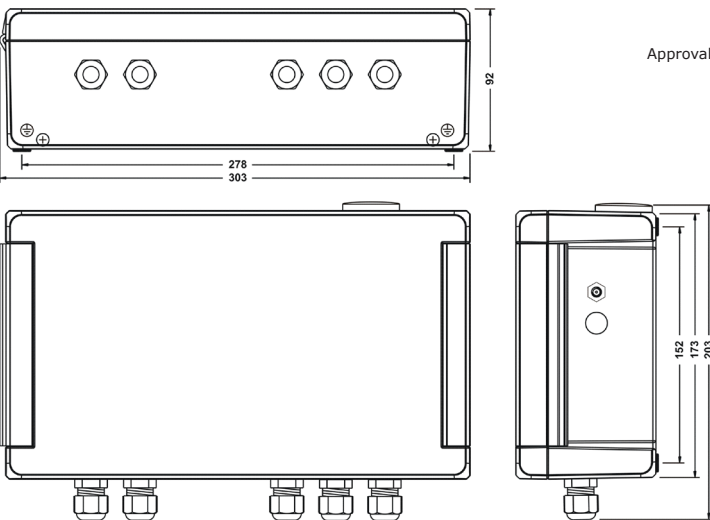
Technical data



Auxiliary power
 Battery: Lithium / 3,6V-19Ah / 3,6V-35Ah
 Battery rechargeable: LiION / 4,2V-20Ah
 Supply voltage DC: 7...32VDC / ≤ 350mA
 PV module: 4,5...35VDC / ≤ 2A
 Input COM CI1 / CI2
 Interface: RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)
 Input analogue Ai1 / Ai2 / Ai3
 Operating range current I: Ai1 / Ai2: FSI 0...28mA / Ri 27R
 Operating range voltage U: Ai1 / Ai2: FSI 0...19V / Ri ≥ 1,2MR
 Operating range resistance R: Ai3: FSI 0...2200Ohm / Io = 340µA
 Characteristic deviation: ≤ ±0,05% FSI
 Temperature deviation: ≤ ±0,1% FSI / 10K
 Input digital Di1 / Di2
 Operating range: ≤ 20kOhm / ≤ 1kHz
 Transmitter power supply
 Output voltage Uo1 / Uo2: 16,6V ±0,3V (0mA) / 15,9V ±0,3V (30mA) / 0...30mA, max. 40mA
 Output voltage Uo3 / Uo4: 6,7V ±0,2V (0mA) / 6,6V ±0,2V (100mA) / 0...100mA, max. 300mA
 Output voltage Uo5: 3,8V ±0,2V (0mA) / 3,0V ±0,2V (100mA) / 0...100mA, max. 220mA
 Interface Bluetooth
 Version: Bluetooth 5.0 LE (2Mbit/s, Advertising Mode 2s)
 Interface 4G/2G
 Version: 4G LTE Cat. 1 (B3, B8, B20), 2G EDGE, GSM, GPRS (900MHz/1800MHz)
 Data memory
 Memory size: 8MB, ≥ 800.000 measuring values
 Environmental conditions
 Environmental temperature: -20°C...+60°C
 Protection level: IP65/IP67 (EN/IEC 60529)
 Materials
 Process wetted: PA, aluminum, PUR, brass, nickel, silicone, NBR



Approval DLF4



Approval DLF4 X5

Application

The self-sufficient Datalogger DLF4 with remote data transmission is suitable with its robust and weatherproof aluminum housing for wall and field mounting.

Both analog and digital sensors can be connected via 7 sensor inputs. The input signals range from analog signals such as electricity, voltage, resistance, via Modbus RTU protocols to digital inputs, which can be used as counter or control signals. This results in a wide range of applications for the Datalogger DLF4. It can be used for level measurement in surface water, sewage treatment plants, landfills, for level measurement in tank systems, silos, containers, flow measurement on channels, temperature monitoring, etc.

Independent measurement verification is to be regarded as an absolute novelty in this area. Two different sensors with different measuring principles are connected to the Datalogger DLF4. The primary measured value of the hydrostatic level probe is compared cyclically by the measured value of an ultrasonic sensor. In the event of an adjustable deviation, the Datalogger DLF4 generates an alarm. This considerably minimizes the control effort at the level measuring point.

The Datalogger DLF4 is supplied with a wide range of options. These range from lithium batteries, which can have a service life of up to 10 years, depending on the application, batteries and the connection options for an external power supply or a PV module.

For data transmission of up to 800,000 measured values to the ACS portal, the Datalogger DLF4 is equipped with mobile radio modules that can operate both 2G, 4G and LTE networks. Preparations for the upcoming 5G network are already in place. An embedded SIM is installed in the data transmission, which independently uses the strongest mobile network and the strongest provider on site. The data transfer takes place according to the latest security standards such as Data encryption and VPN tunnel.

Datalogger DLF4

Self-sufficient data logger with remote data transmission for wall and field mounting

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Basic price		859,00 €	Price group A	
Type				
DLF4	Standard	0,00 €		
Approval				
S	Standard	0,00 €		
X5	ATEX II (1) G/ ATEX II (1) D	378,00 €		
Enclosure type				
FA	Field enclosure, aluminum	0,00 €		
YY	others	on request		
Electronic – Supply				
B1	Battery lithium 19Ah / DC supply 7...32V	0,00 €		
B2	Battery lithium 35Ah / DC supply 7...32V	43,00 €		
A1	Accu Li-ION 20Ah / DC supply 7...32V / PV module	106,00 €		
YY	others	on request		
Electronic – Function				
0	without	0,00 €		
4	4G (LTE Cat-1) / 2G (EDGE, GSM, GPRS)	108,00 €		
Y	others	on request		
Electronic – Input				
M	2x analogue 0/4...20mA-0...10V / 2x interface RS485 / 2x digital-In / 1x analogue 0...2200R	0,00 €		
R	1x analogue 4...20mA – Ex, 1x analogue 0/4...20mA-0...10V / 2x interface RS485 / 2x digital-In / 1x analogue 0...2200R	151,00 €		
S	2x analogue 4...20mA – Ex 2x interface RS485 / 2x digital-In / 1x analogue 0...2200R	302,00 €		
T	1x analogue 4...20mA – Ex / 1x digital-In – Ex, 1x analogue 0/4...20mA-0...10V / 2x interface RS485 / 1x digital-In / 1x analogue 0...2200R	on request		
U	2x analogue 4...20mA – Ex / 2x Digital-In – Ex 2x interface RS485 / 1x analogue 0...2200R	on request		
Tariff				
0	Separate billing	0,00 €		
XS1B	ACS DataComplete XS, Basic, 5 years	54,00 €		
XS1S	ACS DataComplete XS, Standard, 5 years	189,00 €		
XS1P	ACS DataComplete XS, Premium, 3 years	194,40 €		
S1B	ACS DataComplete S, Basic, 5 years	162,00 €		
S1S	ACS DataComplete S, Standard, 3 years	291,60 €		
S1P	ACS DataComplete S, Premium, 3 years	486,00 €		
M1B	ACS DataComplete M, Basic, 3 years	194,40 €		
M1S	ACS DataComplete M, Standard, 3 years	502,20 €		
M1P	ACS DataComplete M, Premium, 3 years	810,00 €		
L1B	ACS DataComplete L, Basic, 3 years	388,80 €		
L1S	ACS DataComplete L, Standard, 3 years	842,40 €		
L1P	ACS DataComplete L, Premium, 3 years	1296,00 €		

Order code

Datalogger DLF4

S

+ Additional options

ML	Measurement point designation / TAG – Laser marking. . .	20,00 €
KF	Configuration / Preset.	55,00 €

Equipment

Order designation	Antenna:		Price group E
611000539	Rod antenna, connection cable 5m & mounting bracket, for HLF4/DLF4	52,00 €	
611000540	Dome antenna, connection cable 3m, for HLF4/DLF4	52,00 €	
611000541	Flat antenna, adhesive mounting, connection cable 3m, for HLF4/DLF4	52,00 €	
911001827	Antenna cable extension, SMA, L=5m	26,00 €	
Spare batteries:			
611000566	battery BAT19AH, Lithium 19Ah, for HLF4/DLF4	65,00 €	
611000567	batteryBAT35AH, Lithium 35Ah, for HLF4/DLF4	86,00 €	
611000569	Accu ACCU20AH, Li-ION 20Ah, for HLF4/DLF4	173,00 €	
611000629	Charging unit 230Vac for Li-ION-Accu, for HLF4/DLF4	45,00 €	
External power supply and PV modules:			
611000614	Switching Power supply, field housing 230Vac, to supply up to two DLF4 with battery, to supply up to one DLF4 with Li-ION Accu	67,00 €	
611000581	External power supply 230Vac, to supply up to two DLF4 with battery, to supply up to one DLF4 with Li-ION Accu	44,00 €	
911001822	Solar-PV-Module 10W, for HLF4/DLF4	86,00 €	
Mounting accessories, connection cables			
611000571	Must fixation for DLF4, Mounting bracket with worm screw strap for ø 50-90mm	27,00 €	
611000578	Mast / wall fixation for PV-module, tiltable, for ø 30-63mm	81,00 €	
611000582	Weather protection cover for DLF4	76,00 €	
611000630	Connection cable for PV-module, 2-wire, 5m	27,00 €	

Hydrolog® HLF4

Data logger for pipe installation
with battery or accumulator operation and cellular data transmission

2 / 01.22

Technical data



Auxiliary power
 Battery: Lithium / 3,6V-19Ah / 3,6V-35Ah
 Battery rechargeable: LiION / 4,2V-20Ah
 Supply voltage DC: 7...32VDC / ≤ 350mA
 PV module: 4,5...35VDC / ≤ 2A
 Input COM Ci1 / Ci2
 Interface: RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)
 Input analogue Ai1-I / Ai2-I
 Operating range: 0...28mA / Ri 27R
 Characteristic deviation: ≤ ±0,05% FSI
 Temperature deviation: ≤ ±0,1% FSI / 10K
 Input digital Di1
 Operating range: ≤ 20kOhm / ≤ 1kHz
 Transmitter power supply
 Output voltage Uo1 / Uo2: 16,6V ±0,3V (0mA) / 15,9V ±0,3V (30mA) / 0...30mA, max. 40mA
 Output voltage Uo3 / Uo4: 6,7V ±0,2V (0mA) / 6,6V ±0,2V (100mA) / 0...100mA, max. 300mA
 Interface Bluetooth
 Version: Bluetooth 5.0 LE (2Mbit/s, Advertising Mode 2s)
 Interface 4G/2G
 Version: 4G LTE Cat. 1 (B3, B8, B20), 2G EDGE, GSM, GPRS (900MHz/1800MHz)
 Data memory
 Memory size: 8MB, ≥ 800.000 measuring values
 Environmental conditions
 Environmental temperature: -20°C...+60°C
 Protection level: IP68 [≤3m/≤0,3bar] (EN/IEC 60529)
 Materials
 Process wetted: PA, aluminum, PUR, brass, nickel, silicone, NBR



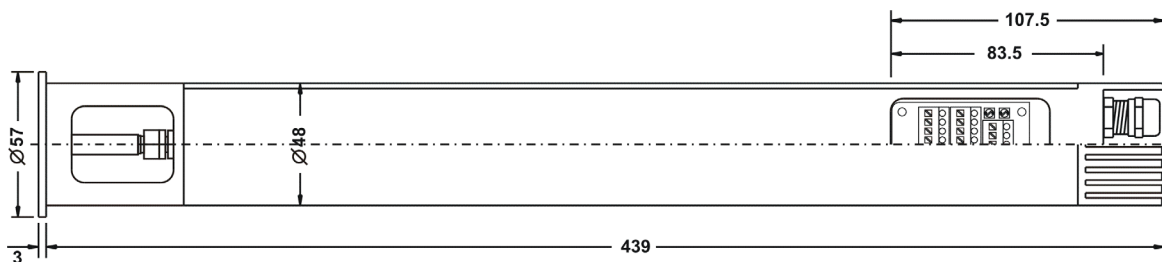
Application

The Hydrolog HLF4 is a data logger with remote data transmission for installation in water wells. Both analog and digital sensors can be connected via 5 sensor inputs. In conjunction with the hydrostatic level probes Hydrocont HP4 and the ultrasonic sensors Sonicont USP4, the device is suitable for the measurement of surface waters such as rivers and lakes, groundwater levels, wells or landfill sites. Due to the slim design, installation in 2" level pipes is possible.

Independent measurement verification is to be regarded as an absolute novelty in this area. Two different sensors with different measuring principles are connected to the Hydrolog HLF4. The primary measured value of the hydrostatic level probe is compared cyclically by the measured value of an ultrasonic sensor. In the event of an adjustable deviation, the Hydrolog HLF4 generates an alarm. This considerably minimizes the control effort at the level measuring point.

The Hydrolog HLF4 is supplied with a wide range of options. These range from lithium batteries, which can have a service life of up to 8 years, depending on the application, batteries and the connection options for an external power supply or a PV module.

For data transmission of up to 800,000 measured values to the ACS portal, the Hydrolog HLF4 is equipped with mobile radio modules that can operate both 2G, 4G and LTE networks. Preparations for the upcoming 5G network are already in place. An embedded SIM is installed in the data transmission, which independently uses the strongest mobile network and the strongest provider on site. The data transfer takes place according to the latest security standards such as Data encryption and VPN tunnel.



Hydrolog® HLF4

Data logger for pipe installation
with battery or accumulator operation and cellular data transmission

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Basic price **751,00 €**

Type
HLF4 Standard 0,00 €

Approval
S Standard 0,00 €

Enclosure type
R2 Tube enclosure 2" - Ø48mm 0,00 €
YY others on request

Electronic – Supply
B1 Battery lithium 19Ah / DC supply 7...32V 0,00 €
B2 Battery lithium 35Ah / DC supply 7...32V 43,00 €
A1 Li-ION rechargeable battery 20Ah / DC supply 7...32V / PV module 106,00 €
YY others on request

Electronic – Function
0 without 0,00 €
4 4G (LTE Cat-1) / 2G (EDGE, GSM, GPRS) 108,00 €
Y others on request

Electronic – Input
M 2x analogue 0/4...20mA / 2x interface RS485 / 1x digital-In 0,00 €

Tariff
0 Separate billing 0,00 €
XS1B ACS DataComplete XS, Basic, 5 years 54,00 €
XS1S ACS DataComplete XS, Standard, 5 years 189,00 €
XS1P ACS DataComplete XS, Premium, 3 years 194,40 €
S1B ACS DataComplete S, Basic, 5 years 162,00 €
S1S ACS DataComplete S, Standard, 3 years 291,60 €
S1P ACS DataComplete S, Premium, 3 years 486,00 €
M1B ACS DataComplete M, Basic, 3 years 194,40 €
M1S ACS DataComplete M, Standard, 3 years 502,20 €
M1P ACS DataComplete M, Premium, 3 years 810,00 €
L1B ACS DataComplete L, Basic, 3 years 388,80 €
L1S ACS DataComplete L, Standard, 3 years 842,40 €
L1P ACS DataComplete L, Premium, 3 years 1296,00 €

Preisgruppe A

+ Additional options

ML Measurement point designation / TAG – Laser marking. 20,00 €
KF Configuration / Preset. 55,00 €

Order code

Hydrolog® HLF4 S M S

Equipment

Order designation
611000539
611000540
611000552
611000599
611000600
611000541
911001827

Antenna:
Rod antenna, connection cable 5m & mounting bracket, for HLF4/DLF4 52,00 €
Dome antenna, connection cable 3m, for HLF4/DLF4 52,00 €
Dome antenna for HLF4, connection cable short, specially for 2" caps 78,00 €
Dome antenna for HLF4, connection cable short, specially for 3-4" caps 78,00 €
Dome antenna for HLF4, connection cable short, specially for 5-6" caps 78,00 €
Flat antenna, adhesive mounting, connection cable 3m, for HLF4/DLF4 52,00 €
Antenna cable extension, SMA, L=5m 26,00 €

611000566
611000567
611000569
611000629

Spare batteries:
battery BAT19AH, Lithium 19Ah, for HLF4/DLF4 65,00 €
battery BAT35AH, Lithium 35Ah, for HLF4/DLF4 86,00 €
Accu ACCU20AH, Li-ION 20Ah, for HLF4/DLF4 173,00 €
Charging unit 230Vac for Li-ION-Accu, for HLF4/DLF4 45,00 €

911001822

External power supply and PV modules:
Solar-PV-Module 10W, for HLF4/DLF4 86,00 €

611000610

Mounting accessories, connection cables
strain relief HLF4 for 1 or 2 sensores, required for total sensor weight >1kg 31,00 €

611000549
611000550
611000551
611000578
611000630

Adapter plate 3" & 4", Level cap for installation HLF4 31,00 €
Adapter plate 4 1/2" & 5", Level cap for installation HLF4 36,00 €
Adapter plate 6", Level cap for installation HLF4 39,00 €
Mast / wall fixation for PV-module, tiltable, for ø 30-63mm 81,00 €
Connection cable for PV-module, 2-wire, 5m. 27,00 €

PGE

Precipitation sensor NR4M

Precipitation sensor for automatic weather stations

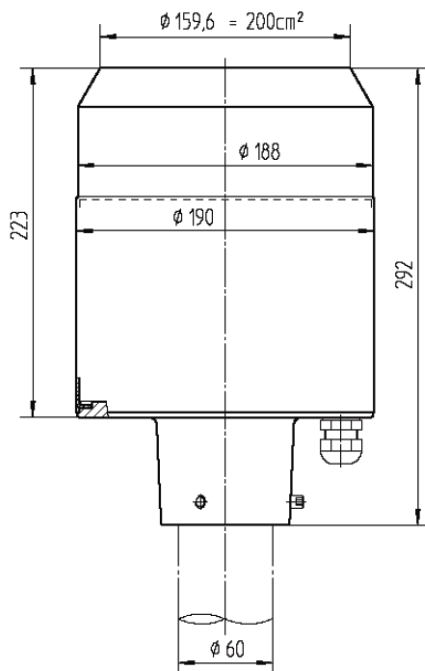
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Technical data

Variation 1 with 2 cm³-rocker, unheated
Measuring Principle Tilting Scale with rocker design based on Joss-Tognini
Measuring range 2 cm³ (2 g water) – rocker volume 0...8 mm/min
Resolution 0,1 mm
Accuracy ± 2 % with intensity compensation
Application area 0...+70 °C measuring
Impulse output Reed contact • reverse polarity protection • debounced signal
Maximum current consumption 100 µA • typically 50 µA
Operation voltage 4...30 V DC
Switching load max. 30 V DC / 0,5 A
Dimensions see dimension drawing
Mounting diameter 60 mm
Weight app. 3 kg
Norms WMO-No. 8 • VDI 3786 Bl. 7 EN 50081/82 • VDE 0100

Variation 2 with 4 cm³-rocker, unheated
Data like variation 1, but for higher amounts of rainfall
Measuring range 4 cm³ (4 g water) – rocker volume 0...16 mm/min
Resolution 0,2 mm

Variation 3 with 2 cm³ / 4 cm³-rocker, heated
Data like variation 1, but with regulated 2-circuits heating system
Heating data electronically controlled, 2 heating circuits
Accuracy 4 °C ± 2 °C control temperature in the range of -20...+4 °C
Heat output 80 W (drain funnel)
70 W (drainpipe / rocker)
Supply voltage 24 V DC / 150 W
Application area -20...+70 °C (no icing, no snow drifts)



Application

The weighing precipitation sensor NR4M operates with a low-friction mounted rocker, based on Joss-Tognini. With other tilting scales errors occur due to an incomplete drain of the precipitation because of its surface tension. The tilting scale based on Joss-Tognini is designed to compensate these deviations automatically. The rocker volume contains 2 cm³ (2 g) resp. 4 cm³ (4 g) water. This corresponds to a quantity of 0.1 mm resp. 0.2 mm precipitation per square meter. When the scale tilts, an integrated Reed contact is closed. The pulse rate can be electronically scanned, remotely transmitted or recorded.

The Precipitations sensor NR4M is mounted on a mast with a diameter of 60 mm. For the application in areas with snowfall, the variant with integrated heating allows a year-round use. Two separately controlled heating circuits guarantee a precise temperature regulation.

There are only used weather-resistant materials like aluminium and stainless steel. This ensures a long service life. The precipitation sensor NR4M complies with the WMO standards.

Precipitation sensor NR4M

Precipitation sensor for automatic weather stations

2 / 01.22

Basic price		880,00 €
Type		
NR4M Standard		0,00 €
Measuring system – material / sensor type		
W Weighing rocker – CrNi-steel / Tilting Scale, Joss-Tognini		0,00 €
Approval		
S Standard		0,00 €
Mounting		
R60 Pipe mounting Ø 60 mm		0,00 €
Material tilting scale		
0 CrNi-steel		0,00 €
Material housing		
A Aluminium anodized		0,00 €
Rocker volume / measuring range		
20 2cm ³ rocker volume, 0...8mm/min		0,00 €
40 4cm ³ rocker volume, 0...16mm/min		67,00 €
Electronics – output		
I Impulse output, Reed contact		0,00 €
Electronics – function		
0 Unheated		0,00 €
1 Heated, 2 cm ³ rocker volume (separate power supply with 24V / 150W needed)		284,00 €
2 Heated, 4 cm ³ rocker volume (separate power supply with 24V / 150W needed)		365,00 €
Operating temperature		
0 Unheated 0...+70°C (frost-proof up to -20°C) ...		0,00 €
1 Heated -20...+70°C		0,00 €
Measuring system – accuracy		
0 ±2% with intensity compensation		0,00 €
Electronic connection		
K Terminal box		0,00 €

Price group B

Order code

Precipitation sensor NR4M	W	S	R60	0	V	A	I	0	1	K
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Equipment

Order designation
611000616

611000617

611000618

611000619

611000620

611000621

611000622

611000623

execution

High-grade steel mast for concrete foundation with base plate, Ø 60 mm, length 650 mm

High-grade steel mast for concrete foundation, Ø 60 mm, length 1,2 m, for measuring height up to 1 m

Bird control ring

Connection cable for sensor, 2-wire, 7m

Mounting bracket for power supply unit

Power supply unit for heating

Dirt trap coil (spare part)

Connection cable for the heating power supply unit, 4-wire, 1m

174,00 €

174,00 €

144,00 €

71,00 €

44,00 €

439,00 €

10,00 €

58,00 €

PGE

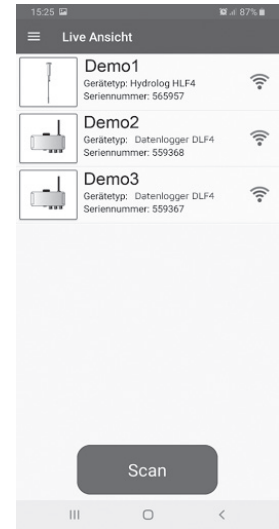
Equipment IOT-Solutions APP ACS-Smart-Connect

A tool for wireless device configuration

2 / 01.22



android 



Application

SmartConnect is an app developed by ACS for the wireless configuration of sensors and devices from ACS-CONTROL-SYSTEM.



Available in the playstore.....

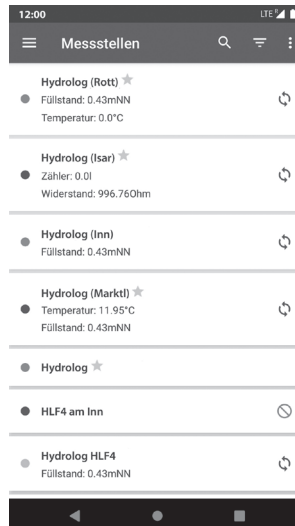
for free

APP ACS-Alert

The current device status always in view; the free alarm function



android 



Anwendung

With this application, customers of the ACS-CONTROL-SYSTEM company are informed about alarms from their ACS devices in a matter of seconds. The app provides an overview of the purchased devices with lots of additional information. The current device status, current measured values and an alarm history are therefore available at all times.



Available in the playstore.....

for free

ACS-Portal & Training

Data management - the easy way!

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Applications

The ACS Portal is the perfect solution for all of your measured data!
Functional, flexible, interconnected and clear!
The comprehensive data management system automatically saves your measured data and presents them in vivid tables and charts or in map view (based on GoogleMaps).

Furthermore you have control over the connected measurement device. Not only device overview, but also status information, device settings and enhanced self-diagnostic function are possible in Portal. Additionally the management and the processing of your data will be a lot easier through the alarm function, the automatically remote data transmission and the advanced data analysis.

Application examples

- ✓ Automatic data transfer to the ACS portal including mobile phone use with the strongest local network
- ✓ Use of the ACS portal and management of the measurement data
- ✓ Secure access to the data via the Internet
- ✓ Graphics and table views of the measured values. Map view of the measuring points, based on Google Maps, parameterization of the measuring point via the platform
- ✓ Automatic update function of the devices
- ✓ Automatic data export in common formats possible
- ✓ Free phone support



Tariffs

Basic training

Function and operation of the ACS portal

Duration about 4 hours

see page
264

Base price
432,00 €
+ per person
54,00 €

SAMSUNG Galaxy Tab Active Pro LTE

Robust and powerful tablet for wireless sensor parameterization and data analysis of everyone
SmartConnect compatible sensors

Technical data



Dimensions: 243.5 mm x 170.2 mm x 9.9 mm
Weight: 653 g
Screen size: 10.1 inches / 25.54 cm
Image quality: WUXGA
Screen type: TFT
Touchscreen

RAM / hard disk: 4 GB / 64 GB
Processor: Octa-Core, 4x2 GHz, 4x 1.7 GHz
Connections: 1x USB Type-C, 1x3.5mm jack
WiFi: 802.11 ac
Bluetooth: version 5.0
Mobile radio standard: 2G (GSM), 3G (UMTS), 4G (LTE)
operating system: Android
Max. Memory card capacity: 512 GB
Memory card format: Micro-SD
SIM card format: Nano-SIM (4FF) / SIM card slot
Sensors: acceleration sensor, barometer, fingerprint scanner, position sensor, Compass, Hall sensor, ambient light sensor, proximity sensor
Supported audio formats: MP3, M4A, 3GA, AAC, OGG, OGA, WAV, WMA, AMR, AWB, FLAC, MID, MIDI, XMF, MXMF, IMY, RTTTL, RTX, OTA
Supported video formats: MP4, M4V, 3GP, 3G2, WMV, ASF, AVI, FLV, MKV, WEBM
Camera: 4K @ 30fps, front camera 8 megapixels, rear camera 13 megapixels
Battery capacity: 7600 mAh, battery replaceable
Scope of delivery: tablet, charging adapter, charging cable, quick guide, S Pen



Basic price SAMSUNG Galaxy Tab Active Pro

Resistant Galaxy Tab Active Pro • with IP68 certification • shock-absorbing design
• robust cover

on request

PG H

Tariffs - ACS DataComplete

Monthly fees ACS portal and data transfer

2 / 01.22

ACS Portal – functions			
	Basic	Standard	Premium
Unlimited use	✓	✓	✓
Device overview	✓	✓	✓
Logbook display		✓	✓
Device settings		✓	✓
Status information of the measuring points		✓	✓
Gallery function		✓	✓
Map display / position map		✓	✓
Data analysis		✓	✓
Advanced data analysis			✓
Manual data export		✓	✓
Reading memory	min. 14 days	min. 1 years	min. 3 years
Auto-export of the measured values to customer IT	optional	optional	✓
Extended self-diagnosis function (Heartbeat)		✓	✓
Alarm management		✓	✓
Alerting (AlertApp, text message, e-mail)			✓
Automatic software update of data logger	✓	✓	✓
Note functions		✓	✓
Grouping of measuring points		✓	✓
User	1	5	10
Add-on option per device			
AutoExport / month	on request	on request	included in tariff
Rain overflow calculation / month Measuring point	on request	on request	on request
Additional measured value memory	on request	on request	on request
Alarmierungskosten			
per text message	0,12 €	0,12 €	0,12 €
E-mail	free	free	free
ACS Alter App	free	free	free
NOTE: Prepaid minimum amount 20,00 €			

Additional posting per client	
User management / 10 users / year	50,00 €
Credit for alerting (Email, SMS)	50,00 €

ACS Portal

Level data management - the easy way!

The ACS portal is the perfect solution for your countless level measurement data! Functional, flexible, interconnected and clear! The comprehensive data management system automatically saves your measurement data and presents them in vivid tables and charts or in map view (based on Google Maps).

You also have control over the connected measurement technology. Not only a device overview, but also status information, device settings and an extended self-diagnosis function are possible in the ACS portal. In addition, the alarm function, the automatic data export and the extended data analysis facilitate the administration and processing of your level measurement data.

ACS Portal – Services

- ✓ Automatic data transfer to the ACS portal including mobile phone use the strongest network on site
- ✓ Use of the ACS portal and administration the measurement data
- ✓ Secure access to the data via the Internet
- ✓ Graphics and table views of the measured values, map view of the measuring points based on Google Maps
- ✓ Possibility to parameterize the measuring point via the platform
- ✓ Automatic update function of the devices
- ✓ Automatic data export in common Formats possible
- ✓ Free phone support
- ✓ Storage of data in a certified data center (ISO 27001) with weekly data backup

Tariffs - ACS DataComplete

Monthly fees ACS portal and data transfer

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ACS DataComplete - Monthly fees					
ACS-Portal & data transmission GSM, LTE, LTE-M, NB-IOT					
		DataComplete XS	DataComplete S	DataComplete M	DataComplete L
Max. Channels		1	2	6	12
Shortest transmission interval		24 h	3 h	30 min	5 min
Shortest measuring cycle		1 h	5 min	30 sec	5 sec
Max. readings / day		24	300	3 000	20 000
price per month	Basic	1,00 €*	3,00 €*	6,00 €	12,00 €
	Standard	3,50 €*	9,00 €	15,50 €	26,00 €
	Premium	6,00 €	15,00 €	25,00 €	40,00 €

*minimum term 5 years

Contractual conditions / term	
<p>Billing separately</p> <ul style="list-style-type: none"> ✓ Billing takes place as a separate order item with monthly (> 20 measuring points) or ✓ billed annually Minimum contract term 1 year 	<p>Billing integrated in the device price</p> <ul style="list-style-type: none"> ✓ The cost for 3 years is already in the Integrated device price ✓ An offer for a further 3 years is automatically created 6 months before the 3-year period expires

Discounts			
Measuring points / platform	Discounts	Measuring points / platform	Discounts
to 10	0%	from 250	30%
from 10	10%	from 500	40%
from 100	20%	from 1000	50%

ACS DataComplete

Device class

XS
S
M
L

Data transfer

0 Without data transfer
1 With data transfer

scope of services

B Basic
S Standard
P Premium

Order code

ACS DataComplete DC

Maintenance - IOT Solutions

Monthly fees ACS portal and data transfer

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Service description	Scope of services	Contractual conditions / term
<p>STANDARD</p> <ul style="list-style-type: none"> ✓ Half-yearly maintenance of the measuring points on site as well as functional control of the devices, for example battery levels, measured values, etc. ✓ Acquisition of the measured values by means of light plummet and calibration with probe ✓ Logging of the measured values ✓ Battery replacement if necessary ✓ Software update ✓ Repair or exchange of defective devices ✓ Logging damage and necessary Care measures (e.g. removal of wild growth) <p>PREMIUM</p> <ul style="list-style-type: none"> ✓ Immediate control of defective or conspicuously reported measuring points without additional costs ✓ Free repair or exchange of sensors, data loggers and remote data transmission modules from ACS (basic price includes 1 sensor and 1 logger; surcharge for several sensors on request) ✓ Installation and recommissioning of repaired devices ✓ Batteries and consumables such as Seals at no additional cost 	<p>STANDARD / PREMIUM</p> <ul style="list-style-type: none"> ✓ Action radius: The areas of application are divided into groups (up to 50km radius around the service base, 51-100km and 101-200km) ✓ Support: Free phone support during our regular business hours 	<p>STANDARD</p> <ul style="list-style-type: none"> ✓ Cyclical activities (maintenance) are billed every six months according to the service provided power ✓ Unscheduled activities, for example repairs will be billed separately after the service has been performed ✓ The minimum contract term for maintenance is 1 year <p>PREMIUM</p> <ul style="list-style-type: none"> ✓ Billing takes place every six months ✓ Each measuring point including the setting parameters of the devices will be checked by ACS-CONTROL-SYSTEM approved on site ✓ The Premium maintenance contract is only offered in connection with new measuring points ✓ The installed probes and data loggers are and remain the property of the client ✓ The minimum contract term for maintenance is 1 year <p>To be charged extra:</p> <ul style="list-style-type: none"> ◦ Device costs, installation and commissioning of new measuring points ◦ Measuring points which have been destroyed by flooding, high water, lightning, storm or other forces of nature ◦ Willfully damaged level measuring points ◦ Maintenance and repair work on level measuring places that were not caused by a device defect

Maintenance packages			
	Standard	Premium	Comment:
Maintenance packages	✓	✓	
Check and log of the measured values	✓	✓	The measured values refer to water levels. Measured values such as conductivities and flow values cannot on site be checked.
Visual inspection of the measuring point for damage and necessary maintenance measures	✓	✓	Damage and necessary care measures such as removal of wild growth are documented and reported on.
Battery replacement	✓	✓	In the course of cyclical maintenance
Firmware updates	✓	✓	In the course of cyclical maintenance
Removal of defective devices	✓	✓	In the course of cyclical maintenance
Working hours for maintenance	✓	✓	Innocent waiting times will be charged separately.
Travel costs for maintenance	✓	✓	
Consumables like Batteries and seals	+	✓	
Repair service: Unscheduled visits to the measuring points by the customer or the ACS Portal are reported as "conspicuous" or "failed"	+	✓	
Reference alarm: unscheduled visits to the measuring points, the via "reference alarm" from the ACS Portal are reported as an "incorrect measured value"	+	✓	The response threshold of the reference alarm must be set by the customer to a practical value (usually > 3cm). If the alarm is not triggered by "device problems", the service calls are billed separately.
Disassembly of the measuring devices; Repair or replacement of defective devices with new devices and recommissioning of the measuring point	+	✓	The repairs only refer to ACS products. Increased workload, for example caused by third-party devices when restarting, will be charged separately according to effort.
First commissioning of new ones Measuring points	+	+	

✓ = included
 + = billing

IoT-Solutions

Maintenance - IOT Solutions

Monthly fees ACS portal and data transfer

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Maintenance packages		
	Standard	Premium
Maintenance module / Measuring point / year up to 50km	319,00 €	962,00 €
Maintenance module / Measuring point / year up to 100km	379,00 €	1.044,00 €
Maintenance module / Measuring point / year up to 200km	489,00 €	1.209,00 €
Allowances and discounts		
1 piece	450%	165%
2 piece	300%	100%
3-5 piece	150%	50%
6-10 piece	100%	20%
11-25 piece	50%	10%
26-50 piece	10%	5%
51-100 piece	0%	0%
101-250 piece	-5%	-5%
from 251	-10%	-10%
Note! Quantity discounts can only be granted for devices within a contiguous area.		
Prices for unscheduled activities		
Working hours technician per hour	100,00 €	-
Travel costs per km	0,80 €	-
Travel time per hour	87,00 €	-

- proprietary calibration of all ACS-devices and of third-party products
- traceable on established national standards
- documentation of the proprietary calibration according to ISO-9001
- safe measures values due to regular controlling

Pressure measurement devices, resp. hydrostatic fill level sensors

Calibration certificate (linearity protocol) of new devices ACS

version: linearity protocol for ACS-devices of the Hydrocont® and Precont® series.
Only possible in conjunction with an order of a new device.

measurement range: -1...700 bar
relative pressure, absolute pressure and vacuum

measuring points: standard linearity protocol with 11 measuring points

delivery contents: calibration certificate
device labelling via inspection tag

costs: 63,00 €

Factory test (re-examination)

version: recalibration of ACS pressure and hydrostatic measurement devices and of third-party products

measurement range: -1...700 bar
relative pressure, absolute pressure and vacuum

measuring points: standard linearity protocol with 11 measuring points

delivery contents: calibration certificate
device labelling via inspection tag

costs: 92,00 €
The costs may vary for third-party- products,
special process connections or for other output signals.

Temperature sensors

Calibration certificate at ACS-new devices

version: proprietary calibration for ACS Pt100 sensors or compact temperature sensors with integrated electronics, like eg. Thermocont® TK, ST, TS or sensors with head transmitter.
Only possible in conjunction with an order of a new device, devices from 100mm probe length.

measurement range: -30...+155°C

measuring points: standard calibration certificate with three measuring points to customer agreement

delivery contents: calibration certificate
device labelling via inspection tag

costs: 127,00 € / 3 measuring points
The costs may vary for special sensors
(eg. big clamp-on sensors).

Factory test (re-examination)

version: proprietary calibration for ACS-Pt100 sensors or compact temperature sensors with integrated electronics, like eg. Thermocont® TK, ST, TS or sensors with head transmitter.

measurement range: -30...+155°C

measuring points: three measuring points and position of the measuring points to customer agreement

delivery contents: calibration certificate
device labelling via inspection tag

costs: 156,00 € / 3 measuring points
costs may vary with special sensors
(eg. big clamp-on sensor)

Temperature signal converter

Proprietary calibration

version: calibration certificate for head transmitter and temperature signal converter, for which a separate certificate is necessary (without Pt100 Fühler), also third-party products

measurement range: -200...+850°C (temperature is ohmically simulated)

measuring points: standard linearity protocol with 5 measuring points, in the adjusted measurement range

delivery contents: calibration certificate
device labelling via inspection tag

costs: 97,00 €

Isolation amplifier, signal converter, display devices, recorder

Proprietary calibration

version: calibration certificate for isolation amplifier, signal converter, display devices, etc.

measurement range: standard signal inputs, eg. 0...10 V, 0(4)...20 mA

measuring points: standard linearity protocol with 5 measuring points, in custom specified signal range

delivery contents: calibration certificate
device labelling via inspection tag

costs: 75,00 € / per channel and signal range

Test certificates according to EN 10204 2.1 factory certification according to EN 10204 2.1

What is to certify:

This is to certify that the products supplied comply with the order agreements. Test results are not documented.

version: One certificate for the whole order.

ordering process: Can also be issued retrospectively for an order.

costs: 43,00 €

Factory certification according to EN 10204 2.2

What is to certify:

This is to certify that the products supplied comply with the order agreements. In addition, it is confirmed that in the manufacture of those products, the internal ACS-tests were performed.

Test results are not documented. However, certain product characteristics, eg. the material used, probe length, etc. are confirmed.

version: Normally one certificate for the whole order.

ordering process: Can also be issued retrospectively for an order.

costs: 43,00 €

Acceptance test certificate according to EN 10204 3.1 material test certificate according to EN 10204 3.1

What is to certify:

It is confirmed that in the manufacture of those products the required material tests were performed. In addition, a list of medium-contacting materials is created.

version: One certificate per order number with identical devices.

ordering process: Must be ordered with order.

costs: 105,00 €

Acceptance test certificate according to EN 10204 3.1

What is to certify:

It is confirmed that in the manufacture of those products the required material tests and / or the additionally customer specified quality tests were performed and the necessary approvals have been granted.

The tests will be certified with expression of test results.

version: One certificate per order number with identical devices

ordering process: Must be ordered with order.

costs: at cost

Test certificates according to EN 10204 Acceptance test certificate according to EN 10204 3.2

What is to certify:

It is confirmed that the ACS expert and commissioned expert (by the client or those mentioned in the official rules locations, eg. TÜV), certify that at the production of those products the prescribed and any additional agreed quality tests were performed and the necessary approvals have been created.

The tests will be certified with expression of test results.

version: One certificate per order number with identical devices

ordering process: Must be ordered with order.

costs: at cost

EG - Declaration of conformity CE - certification

What is to certify:

It is confirmed, according to which standards and regulations the delivered product was manufactured and that it matches with these.

version: One certificate per order number with identical devices

ordering process: Can also be issued retrospectively for an order.

costs: free

EG - Examination certificate according to ATEX directive

What is to certify:

The notified body (eg. TÜV) certifies conformity of the device according to the ATEX Directive with the relevant standards.

version: One certificate for jedes Gerät

ordering process: Automatically attached at all Ex-devices.

costs: free

General technical approval by WHG §19h

What is to certify:

The Deutsche Institut für Bautechnik DIBt confirms the approval of the respective devices as overflow protection according to WHG §19h.

version: One certificate for jedes Gerät

ordering process: Automatically attached at all WHG-devices.

costs: free

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