



fill level



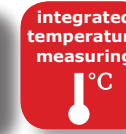
Type:
Hydrocont® HP4SC

*Hydrostatic filling level transmitter
for general applications*

Technical information TI02.20

In brief

Piktogramme:



Application

- Water and waste water sector
- Machinery and plant engineering
- Air-conditioning and refrigeration plant engineering
- Hydraulic and pneumatic systems
- Process industry
- Environmental technology

Main features

- Measuring ranges from 100 mbar up to 10 bar
- Robust ceramic front-flush diaphragm
- Precise dry capacitive sensor
- Highest accuracy to $\leq 0,05\%$
- Integrated long-term stable temperature sensor
- Process temperature range -20°C to $+70^{\circ}\text{C}$
- Electronic RS485 Modbus®-RTU
- Integrated overvoltage protection



Description

The device is an electronic hydrostatic filling level transmitter for monitoring, control and continuous measurement of filling levels and temperatures.

Due to its high accuracy and the digital adjustability by RS485 Modbus®-RTU 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 or other process materials.

ACS-CONTROL-SYSTEM
knowledge and systems

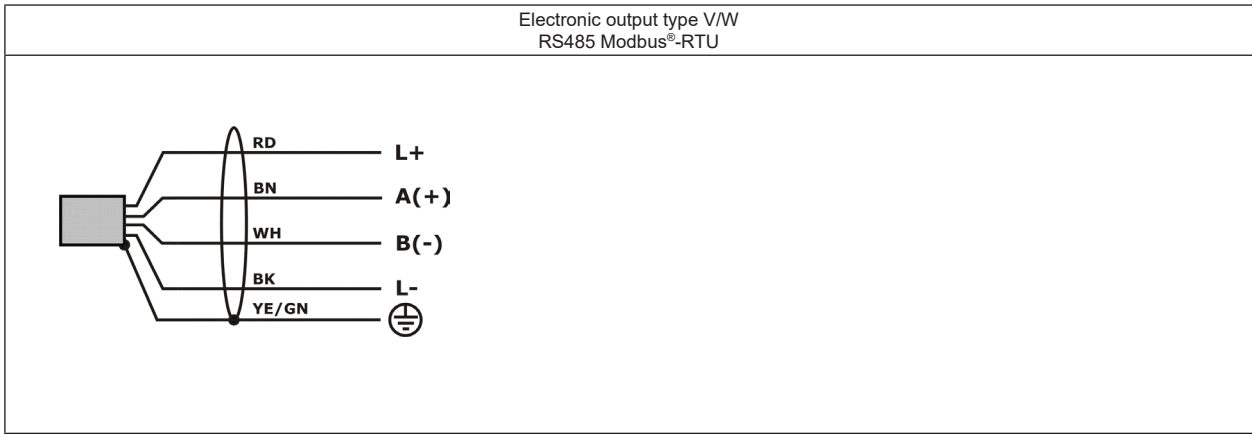


Your partner for measuring technology and automation

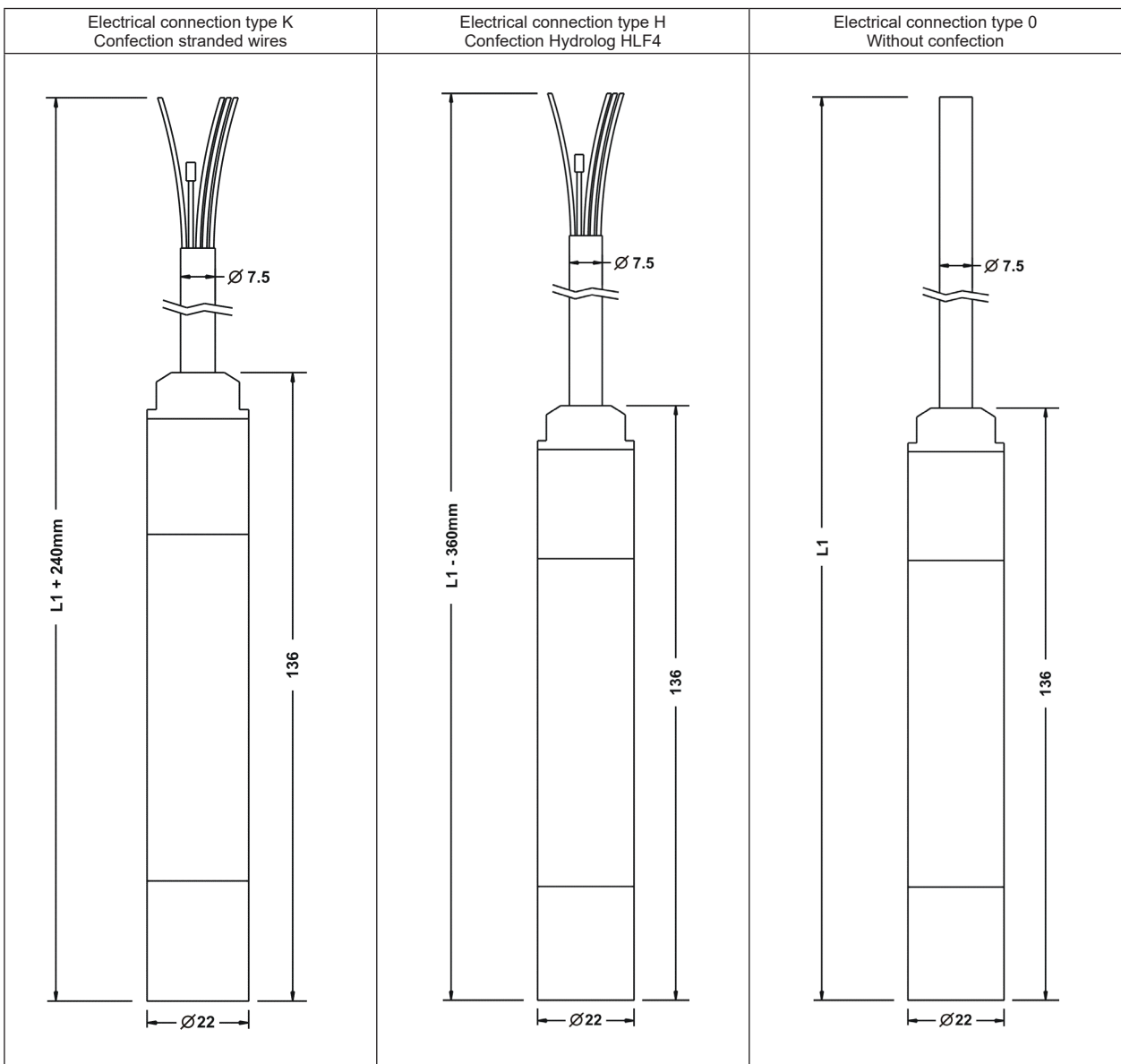
Technical Data

Input Pressure										
Nom. pressure PN rel.	[bar]	0...0,1	0...0,2	0...0,4	0...0,6	0...1	0...2	0...4	0...6	0...10
Under-/Overload press.	[bar]	-1/5	-1/5	-1/6	-1/10	-1/10	-1/15	-1/25	-1/40	-1/40
Reference conditions	EN/IEC 60770-1: Characteristic deviation – Limit value adjustment 15..25°C / 860..1060kPa / 45..75%r.F. / ton240s / 24VDC±0,1V /vertical, sensor downside									
	Characteristic deviation = Nonlinearity + Hysteresis + Reproducibility FSO = Full Scale Output = Nominal measuring range Tk = Temperature coefficient Higher deviations possible for special adjustment									
Resolution measuring input	FSO ≥ 16 Bit									
Characteristic deviation	≤ ±0,05%/±0,1%/±0,2%FSO (Hysteresis + Reproducibility negligible)									
Influence of auxiliary power	≤ ±0,002%FSO/V									
Long term drift	≤ ±0,15%FSO/year									
Temperature deviation	Tk Zero ≤ ±0,015%FSO/K, ≤ ±0,75%FSO Tk Span ≤ ±0,015%FSO/K, ≤ ±0,5%FSO (≥0,4bar) / ≤ ±0,8%FSO (<0,4bar)									
Time behavior	T90 ≤ 2ms (t _d = 0s)									
Mounting position	≤ 0,18mbar Position vertical, sensor topside									
Input Temperature										
Sensor type	Pt1000 class A									
Measuring range (FSO)	-40...+150°C									
Reference conditions	EN/IEC 60770-1 25°C / 860..1060kPa / 45..75%r.F. / ton240s / 24VDC±0,1V /vertical, sensor downside									
Resolution measuring input	FSO ≥ 16 Bit									
Characteristic deviation	≤ ±0,1K + 0,002 x [dt (25°C)]									
Influence of auxiliary power	≤ ±0,002%FSO/V									
Long term drift	≤ ±0,1K/year									
Time behavior	T90 ≤ 4s (t _d = 0s) acc. to EN/IEC 60751 / water / 0,4m/s / 23..33°C									
Output RS485 Modbus®-RTU										
Interface	RS485, bidirectional / Modbus®-RTU / 9600 Baud (4800...38400 Baud)									
Input resistance	112kΩ									
Time behavior	ton ≤ 250ms (t _d = 0s)									
Auxiliary power										
Supply voltage Us polarity protected	6...35VDC									
Residual ripple voltage	≤ 2Vpp									
Supply current	≤ 10mA (no load)									
Overvoltage protection										
Coarse protection	75V / 10kA – wave 8/20µs / all lines to PE									
Fine protection	36V / all lines to -L									
Process conditions										
Process temperature	-20°C...+70°C									
Pressure cycles	≥ 100 Mio. (1,2xPN)									
Environmental conditions										
Environmental temperature	-20°C...+70°C									
Protection level	IP68 [≤100m/≤10bar] (EN/IEC 60529)									
Climatic classification	4K4H (EN/IEC 60721-3-4)									
Shock classification	50g [11ms] (EN/IEC 60068-2-27)									
Vibration classification	20g [10...2000 Hz] (EN/IEC 60068-2-6)									
EM compatibility	Operation device class B / Industrial range (EN/IEC 61326)									
Insulation voltage	500Vac / 50Vdc – without / with overvoltage protection									
MTTF	463 years									
Weight	0,3kg + (L1 x 0,068kg/m)									
Materials										
Process wetted	Measuring range ≤ 1bar: Ceramic Al ₂ O ₃ – 99,7% Measuring range ≥ 2bar: Ceramic Al ₂ O ₃ – 96% Steel 1.4404/316L, Steel 1.4571/316Ti, FPM, EPDM, PE, PUR									
Cable	Breaking force > 900N Bending radius > 120mm Cross-section 0,22mm ² Resistance 90Ohm/km									

Electrical connection



Dimensions (mm)



Order code

HP4S	Type	Standard
C	Measuring system – material diaphragm (process wetted) / sensor type	Ceramic Al2O3 96%/99,7% / capacitive
S	Approval	Standard
o	Process connection	without
Y		others
1	Material process gaskets (process wetted)	FPM – fluorelastomere (e.g. Viton®)
3		EPDM – ethylene-propylene-dienmonomere, FDA-listed
Y		others
V	Material process connection (process wetted)	CrNi-steel
V		CrNi-steel, duplex, sea water resistant
Y		others
0	Material terminal enclosure	without
01	Measuring range	0...100 mbar
02		0...200 mbar
03		0...400 mbar
04		0...600 mbar
05		0...1 bar
07		0...2 bar
08		0...4 bar
09		0...6 bar
10		0...10 bar
YY		Special measuring range
V	Electronic – output	RS485 Modbus®-RTU, 4-wire
W		RS485 Modbus®-RTU, 4-wire, without over voltage protection
0	Electronic – function	without
3		Temperature sensor Pt1000
Y		others
0	Process temperature	Standard –20°C...+70°C
R	Pressure type	Gauge pressure
1	Measuring system – accuracy	0,2%
3		0,1%, linearization protocol
6		Xcellence – 0,05% (FS ≥ 200mbar), linearization protocol
K	Electrical connection	Cable, confection stranded wires, length L1 +240mm
H		Cable, confection Hydrolog HLF4, length L1 -360mm
0		Cable, without confection, incl. confection kit
A	Material Cable (process wetted)	Cable sheath PE
B		Cable sheath PUR
G		Cable sheath PUR, increased diffusion-tightness
	Length L1 / mm (≤ 300.000mm)	
	Additional options	
	-SF	LABS-free, silicone-free / paint compatible version
	-ML	Measurement point designation / TAG – Laser marking
	-KL	Customer label on device – Laser marking
	-TN	Type label neutral
	-MZ	Material test certificate – EN10204 3.1
	-WT	Factory certification – drink water suitability
	-KF	Configuration / Preset
	-WK	Factory calibration – calibration certificate

Hydrocont® HP4SC C S 0 0 R



fill level



water level



pressure



temperature



flow



visualization



signal converter



sensoric



IoT-Solutions



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knowhow with system



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