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

Description

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.
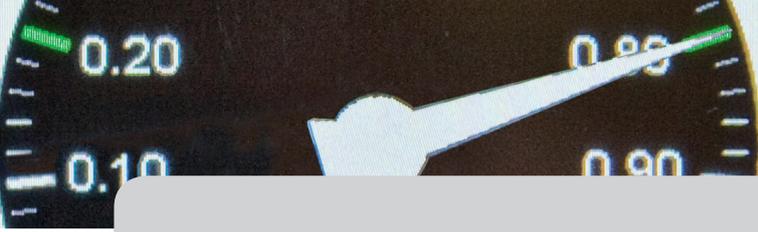
Transmitter

Sensors

Special

solid materials liquids

non-contact measurement

self-cleaning effect

0/4...20mA 4x PNP

bluetooth

Zulassung

Order code. . . . . . page |**06-07**|

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Technical data

Sensor Sonicont® USG2

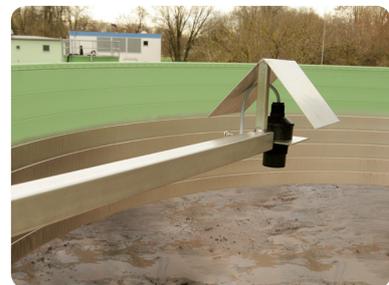| Technical data	
Supply voltage:	Supplied by signal converter Sonicont USF
Output	
Distance signal:	Analog voltage / pulse signal
Temperature signal:	Resistance – NTC 10 kΩ
Measurement range	
Liquids:	USG2 020: 2 m; USG2 050: 5 m; USG2 080: 8 m USG2 150: 15 m; USG2 250: 25 m
Solids:	USG2 020: 1 m; USG2 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)
Climate Class:	4K4H [-20…+55°C / 4…100%] (EN/IEC 60721-3-4)
Shock resistance:	15 g [11ms] (EN/IEC 60068-2-27)
Vibration resistance:	4g [10…2000 Hz] (EN/IEC 60068-2-6)
EM – compatibility:	Equipment Class B / industrial sector (EN/IEC 61326)
Weight sensor:	USG2 020/050/080: 0,3 kg ; USG2 150: 0,6 kg; USG2 250: 0,9 kg

Your benefits

- Hermetically sealed sensor made of PVDF, for *highest chemical resistance*, no gaskets with medium contact
- *Integrated temperature sensor* for time correction
- The sensor can be *installed up to 300m away from the signal converter*
- Weather resistant and safe from flooding
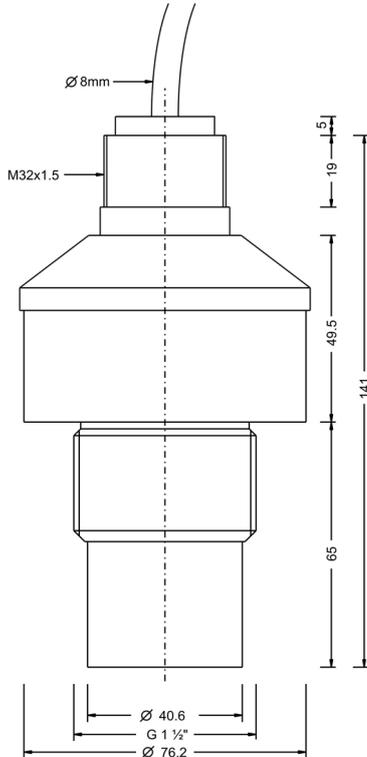
In use

Application

- Contactless fill level measurement in liquids pastes, slurries and solids
- Flow measurement in flumes and weirs
- Use in harsh Environmental conditions by separate signal converter
- Fill level measurement in high tanks and silos
- For Connection to signal converter Sonicont USF2

Dimension drawings

Sonicont® USG2 & USF2
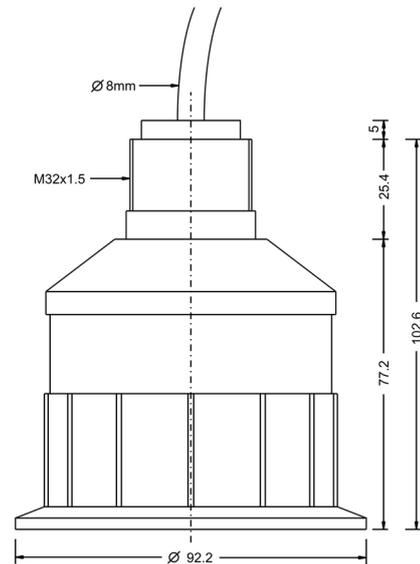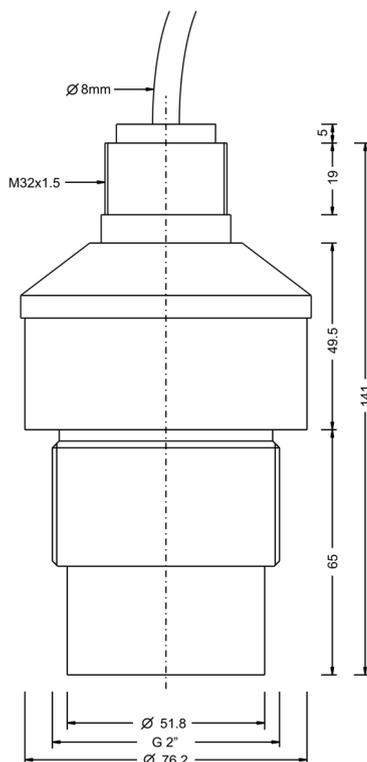*separate version*

Sensor Sonicont® USG2

Process connection
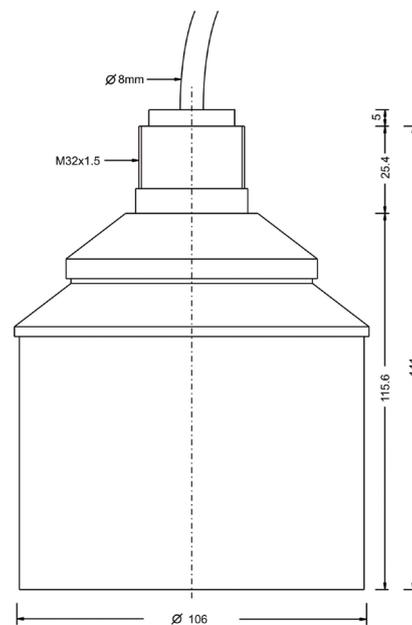Type USG2 020 G15 - G 1½" ISO 228-1
Type USG2 050 G15 - G 1½" ISO 228-1

Process connection
Type USG2 150

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

Process connection
Type USG2 250

Technical data

Technical data	
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
Jack socket	USB 2.0-A
Data storage	
Size:	≥ 500.000 measurement values
Measuring accuracy	
Deviation in characteristics:	≤ ± 2 mm or ±0,2 % of the measuring ranges (whichever is greater)
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...+70°C
Protection: wall-mounted casing / DIN rail housing:	IP65 EN/IEC 60529
Protection: front panel housing:	Front side IP54 / IP65 EN/IEC 60529 Back side IP20 EN/IEC 60529

Application

- Contactless fill level measurement in liquids pastes, slurries and solids
- Flow measurement in flumes and weirs
- Use in harsh Environmental conditions by separate signal converter
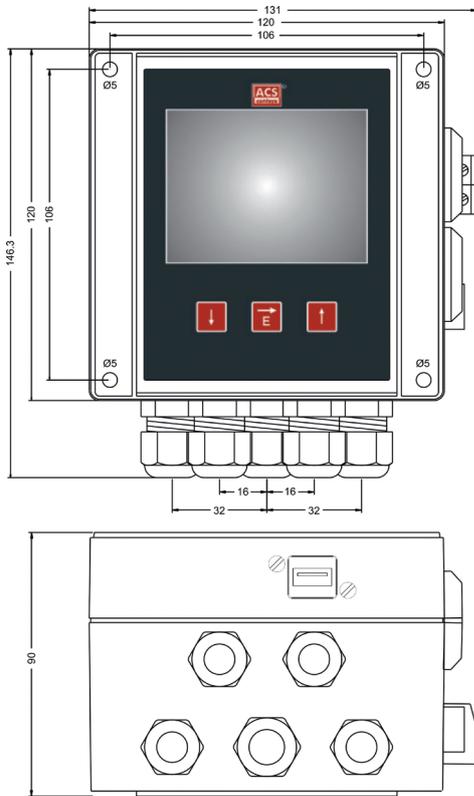- Fill level measurement in high tanks and silos

Your benefits

- Easy installation and operation setup due to *well-arranged menu*
- Large Display - values of far distance readable
- *Data logger* for recording of measured values
- *Klartextbedienführung*
- High range
- Low blocking distance
- Extensive diagnostic functions for system analysis

Transmitter Sonicont® USF2
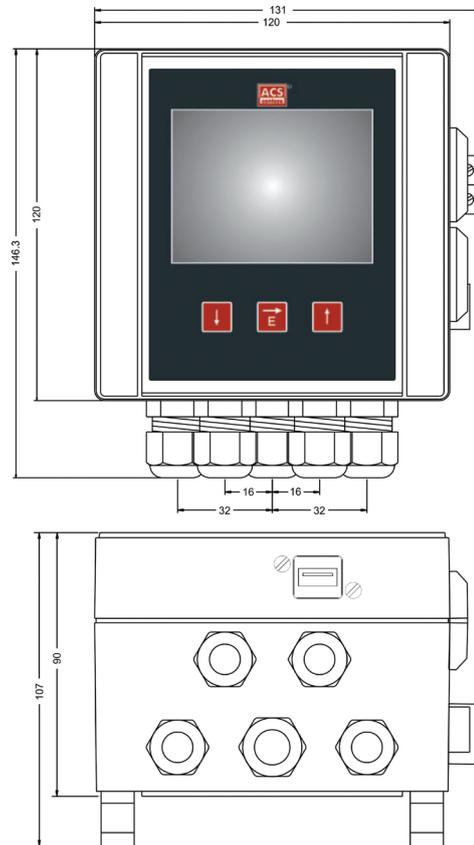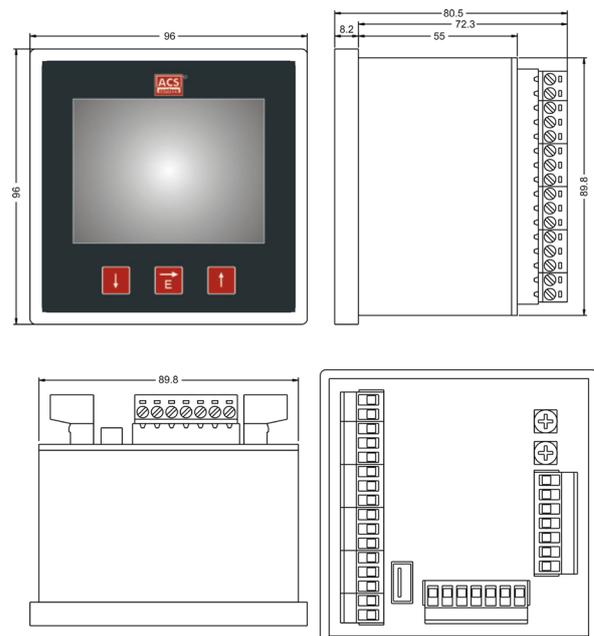
Connection housing
Wall mounted housing
Type F

Connection housing
DIN rail housing
Type P

Connection housing
Front panel enclosure
Type M

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Sensor Sonicont® USG2

Sensor

Type
USG2 Standard

Measuring range
020   2m
050   5m
080   8m
150   15m
250   25m

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

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

0

0

Material process connection (medium contact)
P   PVDF *(Measuring range 020/050/080/150)* resp. PVDF/PBT *(Measuring range 250)*

0

Electrical connection
B   Connection cable TPE-U
S   Cable TPE-U, plug connection M12

Length L1 - connection cable
1   5m
2   10m
3   15m
4   20m
5   25m
6   30m

0   Standard

Order code

| **Sonicont® USG2** | | | 0 | 0 | P | 0 | | 0 |

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

Transmitter Sonicont® USF2

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Transmitter

Approval
0   Standard
X   ATEX II (1) G [Ex ia Ga] IIC / ATEX II (1) D [Ex ia Da] IIIC

Enclosure type
F   Wall-mounted casing
M   Front panel housing
P   DIN rail housing

Electronic – supply / output
A   18…36V DC / 1x 0/4…20mA - 0…10V
B   18…36V DC / 1x 0/4…20mA - 0…10V, 2x relay, 2x digital input
D   18…36V DC / 1x 0/4…20mA - 0…10V, 4x relay, 4x digital input
S   186…253V AC / 1x 0/4…20mA - 0…10V
T   186…253V AC / 1x 0/4…20mA - 0…10V, 2x relay, 2x digital input
U   186…253V AC / 1x 0/4…20mA - 0…10V, 4x relay, 4x digital input

Electronic - function
0   USB-Interface
1   USB+Bluetooth-Interface
2   USB-Interface / Data logger with time stamp, battery powered
3   USB+Bluetooth-Interface / Data logger with time stamp, battery powered
Y   Others

Electronic - extras
0   Standard
1   USB device jack – Enclosure type F / P
2   Increased protection class IP65 – Enclosure type M

S   Standard

Order code

| **Sonicont® USF2** | | | | S | |

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

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