

Ultrasonic Level Transmitter for General Application

8177

G thread process connection

- Two-wire version
- Reliable non-contact measurement
- HART configuration

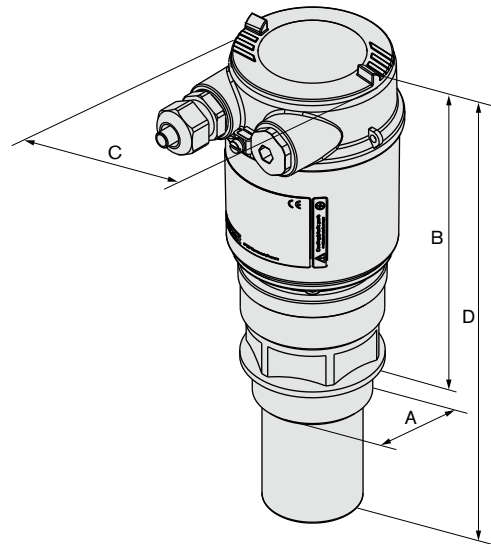


Ultrasonic level transmitters for non-contact measurement of process liquids and solids. Standard HART and 4-20mA HART compatible output.

Technical Data

Housing / Cover	PBT, Stainless steel 316L / PC
Seal ring / Ground terminal	NBR / Stainless steel 316Ti/316L (1.4571/1.4435)
Seal	EPDM
Transducer	PVDF
Display	LCD in full dot matrix*
Voltage supply	2-wire, 14 to 36 V DC (10-30 V DC for Ex)
Current consumption max.	22 mA
Electrical connections	Cable glands M20 x 1.5
Outputs	4-20 mA/HART
Output load max.	See diagram
Dead zone	0.4 m
Measuring range:	8176: up to 5 m 8177: up to 8 m
Beam angle	11°
Accuracy	< 0.2% or ± 4 mm
Process temperature	-40 °C to +80 °C
Vessel pressure	-0.2 to 2 bar (-2.9 to 29.02 PSI) (-20 to 200 kPa)
Vibration resistance	Mechanical vibrations with 4 g and 5-100 Hz
Temperature coefficient	0.06%/10K (Average temperature coefficient of the zero signal - temperature error)
Resolution	max. 1 mm
Frequency	55 kHz
Interval	> 2 s (dependent on the parameter adjustment)
Beam angle at 3 dB	11°
Adjustment time¹⁾	> 3 s (dependent on the parameter adjustment)
Ingress protection	IP66/IP67, with M20 x 1.5 gland mounted and tightened
Electrical data	
Operating voltage	14 - 36 V DC or 14 - 30 V DC (Ex ia instrument)
Permissible residual ripple	< 100 Hz: U _{ss} < 1 V 100 Hz... 10 kHz: U _{ss} < 10 mV
Output signal	4... 20 mA/HART
Resolution	1.6 µA
Fault signal	current output unchanged; 20.5 mA; 22 mA < 3.6 mA (adjustable)
Current limitation	22 mA
Load	see load diagram
Damping (63% of the input variable)	0... 999 s, adjustable

Envelope Dimensions [mm] (see datasheet for details)



A	B	C	D
NPT 2	123	80.5	274
G 2"	123	80.5	274

Option

- Process connection clamp 2", 3", 3 1/2", 4"

* Must be ordered separately

¹⁾ Time to output the correct level (with max. 10% deviation) after a sudden level change.

Technical Data (continued)

Environment	
Ambient temperature with display, adjustment elements	-20 to +70°C (-4 to 158°F) (operation and storage)
Relative humidity	Max. 75% (operation), max. 85% (storage); without condensation
Standards and approvals	
Protection	IP66/IP67 with M20 x 1.5 gland mounted and tightened
Overvoltage category	III
Protection class	II
Standard	
EMC	EN61326
Security	EN61010-1
NAMUR	NE 21; NE 43
Approvals	ATEX ²⁾ : EN50014; EN50020; EN50284

Specifications Ex	
Ex - Protection	Categories 1/2G or 2G
Ex - Certification	EEx ia IIC T6
Conformity specifications ²⁾	
Operating voltage U _i	30 V
Short circuit rating I _i	131 mA
Power limitation P _i	983 mW
Ambient temperature	-20 to +41°C (-4 to 105.8°F) (dependent on categories)
Internal capacity C _i	negligible
Internal inductivity L _i	negligible

²⁾ Homologation certificate PTB 07 ATEX 2003X

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Ordering Chart (versions with display)

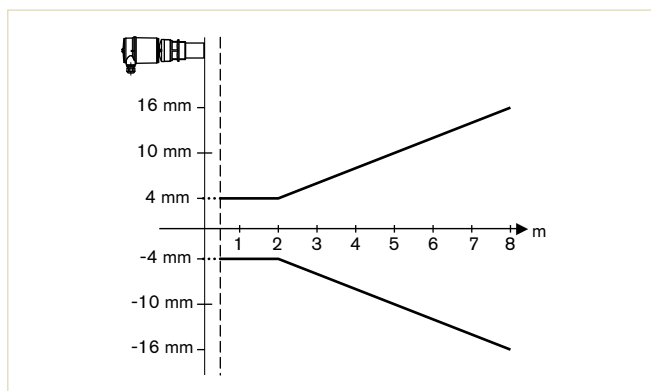
Area of application	Process connection [inch]	Range (liquids)	Range (solids)	Electrical connection	Item no.
8177					
Without Ex	G 2" ISO 228	0.4 - 8 m	0.4 - 3.5 m	M20 cable gland	558 224
Ex	G 2" ISO 228	0.4 - 8 m	0.4 - 3.5 m	M20 cable gland	558 226

Note: Display not included, must be ordered separately (see accessories)

Accessories for Type 8177

Description	Item no.
Set with 2 reductions M20 x 1.5/NPT½" + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 x 1.5	551 782
Set with a display/configuration module, a transparent cover and a seal ring	559 279
Set with a transparent cover and a seal ring	561 006

Accuracy diagram



Load diagram

