

XT-1000 Series

Magnetostrictive Level Sensors

- Measuring accuracy up to ±0.008" (0.2 mm)
- Resolution better than 0.004" (0.1 mm)
- Temperature-compensated
- 2-wire terminal (4-20mA)
- Measuring range along the complete probe length
- Lengths of 8" to 157" (200 to 4,000 mm)

The high-precision and robust level sensor is designed to provide continuous gauging of liquid media levels in tanks. The measuring principle used by the sensor exploits the physical effect of magnetostriction and is largely unaffected by temperature. Magnetostriction is particularly ideal where level measurements are required to be extremely accurate, e.g. in the chemical industry. The level sensor outputs measuring signals in the range 4 to 20 mA. Available in lengths of 8" to 157" (200 to 4,000 mm), it is compatible with a variety of tank dimensions. It also comes in the following versions:

The explosion-proof version of the level sensor can be installed in potentially explosive atmospheres in which electrical equipment of category 1 (zone 0) or category 1/2 (zone 0/1) are required. Operating on the digital HART protocol, the HART level sensor is able to output the position of the first, second or both floats.

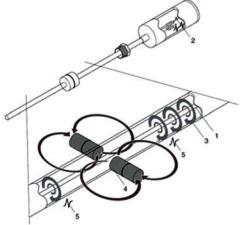
Specifications

IP 68		
Stainless Steel		
0.19" to 0.394" (5 to 10 mm)		
0.472"(12 mm)		
Stainless Steel 316 Ti; Hastelloy C		
8" to 157" (200 to 4,000 mm)		
2-wire		
10 to 30 VDC		
4 to 20 mA		
Adjustable to 3.6 or 21.5 mA		
Up to 0.020" (0.5 mm)		
Up to 0.04"(0.1 mm)		
±0.1% / K, resolution better 0.5 μA		

Operating Principle

Inside the probe tube there is a rigid wire (1) made of magnetostrictive material. The sensor circuitry emits pulses of current (2) through the wire, generating a circular magnetic field (3). The level transmitter is a magnet (4), which is integrated into the float. Its magnetic field magnetizes the wire axially. Since the two magnetic fields are superimposed, around the float magnet a torsion wave (5) is generated which runs in both directions along the wire. One wave runs directly to the probe head while the other is reflected at the bottom of the probe tube. The time is measured between emission of the current pulse and arrival of the wave at the probe head. The position of the float is determined on the basis of the transit times.





Mounting Types

Size	Material	Mounting Type	Code
R 1-1/2*	Brass	Threaded	1
2″NPT		Threaded	2
3″ - 150#	316 Stainless Steel	Flange	3
G 1/2″		Threaded	4
DN 25 PN6 DIN		Flange	5
DN 50 PN6 DIN		Flange	6

^{*} Includes adjustable mounting option

Float Types

Min. Specific Gravity	Max. Operating Pressure	Float Type	Material	Diameter	Code
≥0.50	- 290 psi (20 bar)) Ball -	Titanium	1.99" (50 mm)	11
≥0.60		Dall	316 Ti	2.05" (52 mm)	02
≥0.70	145 psi (10 bar)	Cylinder	C276	1.81" (46 mm)	12
	232 psi (16 bar)				07
≥0.85	290 psi (20 bar)		316 Ti	1.69" (43 mm)	09
≥0.95	725 psi (50 bar)	Ball			03

Temperature Ranges

Ambient -40°F to +185°F (-40°C to +85°C)

Process Medium

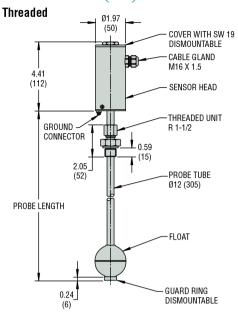
Termperature	Range	Code
Standard	-40°F to +257°F (-40°C to +125°C)	1
Low	-85°F to +257°F (-65°C to +125°C)	4
High	-40°F to +482°F (-40°C to +250°C)	3
Highest	-40°F to +842°F (-40°C to +450°C)	5

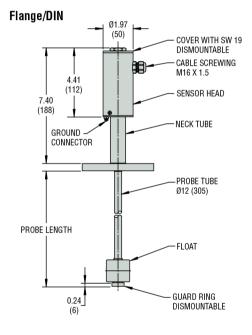
How to Order

Use the **bold** characters from the chart below to construct a product code

XT-1000 - 0 - XXXX - XX - X - X - X - X Signal Current **0** - 4-20 mA Probe Lengths Probe Length is 8-157 inches or 200-4000 millimeters. and may be specified in either unit. Label with "in" when using inches, or with "mm" when using millimeters. Length Ordering Code Examples: 12 inches = 12in; 125 inches = 125in 2830 millimeters = **2830mm**; 350 millimeters = **350mm** Float Type **00** - None **02** - Ball dia. 2.05" (52 mm), 316 Ti, 290 psi (20 bar), ≥ 0.60 SG **03** - Ball dia. 1.69" (43 mm), 316 Ti, 725 psi (50 bar), ≥ 0.95 SG 07 - Cylinder dia. 1.69" (43 mm), 316 Ti, 232 psi (16 bar), ≥0.70 SG **09** - Ball dia. 1.69" (43 mm), 316 Ti, 290 psi (20 bar), ≥ 0.85 SG **10** - Ball dia. 2.05" (52 mm), 316 Ti, 580 psi (40 bar), ≥ 0.70 SG **11** - Ball dia. 1.99" (50 mm), Titanium, 290 psi (20 bar), ≥ 0.50 SG **12** - Cylinder dia. 1.81" (46 mm), C276, 145 psi (10 bar), ≥ 0.70 SG

Dimensions – in. (mm)





Note:

1. The explosion-proof version of the level sensor can be installed in potentially explosive atmospheres in which electrical equipment of category 1 (zone 0) or category 1/2 (zone 0/1) are required. Operating on the the position of the first, second or both floats.

digital Hart Protocol, the Hart level sensor is able to output

HART

0 - None

0 - None

Mounting Type

0 - None

1 - Ex (ATEX)1

Medium Temperature Range

3 - High Temperature

4 - Low Temperature

5 - Highest Temperature

1 - R 1-1/2" Threaded, Brass

2 - 2" NPT Threaded, 316 Stainless Steel

3 - 3" 150# Flange, 316 Stainless Steel

4 - G 1/2" Threaded, 316 Stainless Steel

5 - DN 25 PN6 DIN Flange, 316 Stainless Steel 6 - DN 50 PN6 DIN Flange, 316 Stainless Steel

1 - Standard Temperature

Certificate

1 - Hart Protocol