Data Sheet

Sanitary Mini Ultrasonic Level Transmitter

3-wire | 4-20 mA | RS485

Overview

The UM-SAN mini ultrasonic level transmitter is the ideal solution for hygienic short range liquid level applications. The sensor is designed with a 316L stainless steel transducer face and tri-clamp mounting.

Operation

An ultrasonic pulse is transmitted from the sensor. The pulse travels to the surface being monitored and is reflected off the surface back to the sensor. The time-of-flight is divided by two and converted to an output signal directly proportional to the material level.

The sensor has feedback with the environment and automatically adjusts the transmit power and receiver sensitivity to match the current conditions. With self-adjusting technology, false echoes are eliminated providing accurate and reliable level measurements.

Benefits

- Surface finish exposed to process exceeds a No.4/dairy finish (~18 micro inches)
- Steam cleaning / CIP for 30 min. with high temp. and pressure option (up to 130°C / 266°F and 5 bar / 72.5 PSI)
- Maintenance-free due to self-cleaning design (no build-up on transducer face) and non-contact operation
- Accurate and reliable measurements with ABM self-adjusting technology, false echoes eliminated
- Plug-and-play installation with simple push-button calibration

Features

- Measuring range up to 33 ft (10.1 m)
- Non-contact continuous level measurements
- Stainless steel 316L transducer face
- 1.5″ or 2″ tri-clamp mounting
- Built-in temperature compensation
- 3-wire operation
- 4-20 mA / 20-4 mA output standard
- RS485 communications with calibration, diagnostics and data logging software
- Optional High Level Alarm relay
- PLC compatible (Modbus RTU)
- Ingress protection class IP68 (NEMA 6)
- Optional remote monitoring and 24/7 support

Applications

Sanitary / hygienic liquid level measurement for:

- Food
- Beverage
- Pharmaceutical
- Water

SS316L surface exposed to process

Technical Specifications

Range Code	Range	Blanking	Frequency	Beam Angle	Resolution
148	0.33 - 6 ft / 0.10 – 1.8 m	4.0"	148 kHz	12°	0.03” (0.7 mm)
081	0.6 - 16 ft / 0.18 - 4.9 m	7.2"	81 kHz	12°	0.07” (1.8 mm)
080	0.7 - 20 ft / 0.21 - 6.1 m	8.4"	80 kHz	12°	0.09” (2.3 mm)
070	0.8 - 33 ft / 0.24 - 10.1 m	9.6"	70 kHz	12°	0.15” (3.8 mm)

Operational	
Accuracy	+/- 0.1% of maximum range (in lab using 4-20 mA current output) +/- 0.25% of maximum range (typical in field)
Response Time	2 - 3 echoes / second standard (6 echoes / second standard with less damping) 10 - 30 echoes / second fast protocol (if required)
Beam Angle	12° at –3 dB
Loss of Echo	Programmable from 1 minute to 4 minutes (Default = 1 minute) 22 mA or 2 mA output
Temperature Compensation	In transducer
Calibration	Push-button or programmable via RS485 communications port
Diagnostics	Echo Profile via communications port

Electrical	
Power	12 to 30 VDC, 0.07 A max @ 24 VDC, R load = (Vs - 6) / 24 mA
Output	4-20 mA output 6.1 uA resolution
	RS485 communications port
	Optional Relay SPDT 8A / 230 VAC

Mechanical	
Conduit Entry	3/8” NPT hole
Enclosure Material	PVC - 94V0
Transducer Material*	SS316L face with PVC ferrule standard
	SS316L face and ferrule for high temperature and pressure processes [-HTP]
Ingress Protection	IP68 (NEMA 6)

* Surface finish exposed to process exceeds a No.4/dairy finish (~18 micro inches)

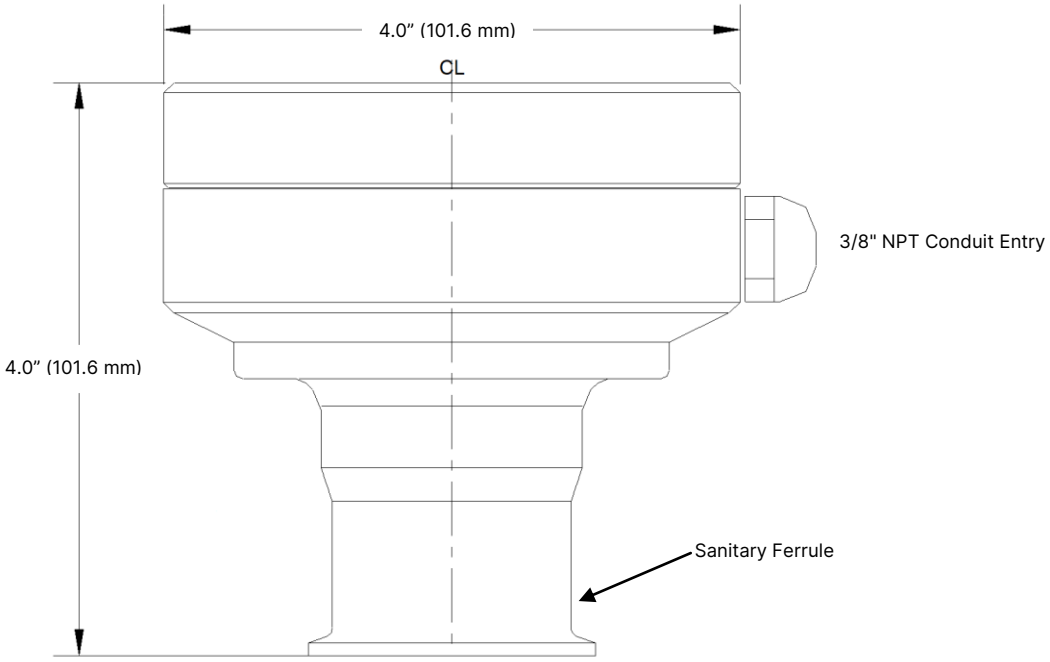
Process	
Pressure	≤ 2 Bar (29 psi) standard
	≤ 5 Bar (72.5 psi) with high pressure ferrule [-HTP] upgrade
Temperature	-40 to 60°C (-40 to 140°F) standard (no steam cleaning / CIP)
	-40 to 130°C (-40 to 266°F) with high temperature ferrule [-HTP] upgrade (30 minutes of steam cleaning / CIP. Remove sensor for longer cleaning cycles, recommended. Not for continuous operation)

Environment	
Ambient Temperature	-40 to 60°C (-40 to 140°F)
Installation Category	Class II

Approvals	
CE	IEC 61010-1:90 + A1:92 +A2:95

Dimensions and Mounting

Tri-clamp mounting



Range Code	Tri-Clamp Mounting
148	1.5” (38.1 mm) / 2.0” (50.8 mm)
081	1.5” (38.1 mm) / 2.0” (50.8 mm)
080	2.0” (50.8 mm)
070	2.0” (50.8 mm)

*Sanitary sensors include nylon tri-clamp and sanitary silicon gasket for 1.5” or 2” ferrule.

Model Numbering

View the UM-SAN model number table below or configure a product online at: abmsensor.com/product-configurator/.

ABM	XXX -	XXX	XX	XX	XX	XXX
Supply Voltage	-					
12-30 VDC Power (3-wire)	300					
Maximum Range		-				
6 ft (1.8 m)		148				
16 ft (4.9 m)		081				
20 ft (6.1 m)		080				
33 ft (10.1 m)		070				
Product Series			-			
Mini Ultrasonic Transmitter			UM			
Communication				-		
RS485				C4		
Enclosure Material					-	
PVC					PV	
Transducer Material & Mounting						-
1.5" Sanitary SS316L Ferrule - Standard (no steam / CIP)						S15
2" Sanitary SS316L Ferrule - Standard (no steam / CIP)						S20
1.5” Sanitary SS316L Ferrule - High temperature and pressure						S15-HTP
2” Sanitary SS316L Ferrule - High temperature and pressure						S20-HTP

Contact

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