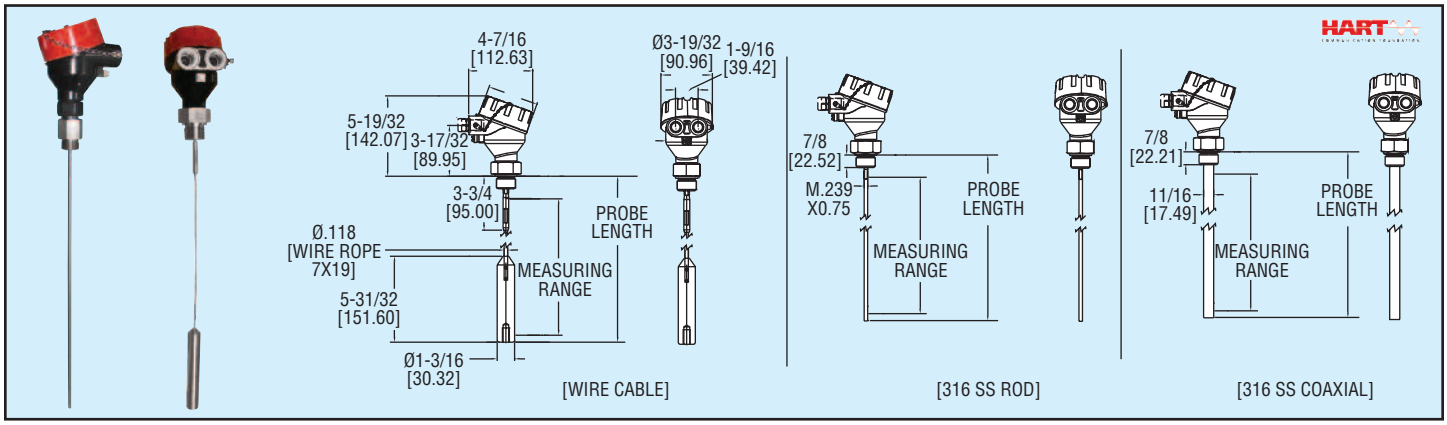
Mercoid®

Series GWL

Guided Wave Radar Transmitter for Liquids

Low Cost, Analog & Switch Output



The Series GWL Guided Wave Radar Transmitter for Liquids is a level transmitter providing continuous level indication of liquids. The sensor can output level indication as a continuous measurement reading through its 4 to 20 mA analog output, or it can alter that information into freely adjustable (NC) switching output signals. State-of-the-art Time Domain Reflectometry technology in this transmitter makes for excellent accuracy and stability. Suppression of disturbance signals allows the GWL to measure precisely even when operating close to interfering structures. This series is available with either a rigid or flexible probe depending on the application installation required, as well as a custom probe length. One of the GWL characteristics is virtually no installation restrictions making it ideal for small tanks, tall and narrow nozzles, and various other types of processing and storage applications. The guided wave radar transmitter for liquids features exceptional performance in liquids with low reflectivity such as oils and hydrocarbons, and factory settings can be configured via HART® Communication protocol.

FEATURES

- Precise continuous level measurement and reliable point level detection.
- Disturbance signal suppression.
- Simple installation.
- HART® Communication protocol.
- Economical.
- No density or conductivity restrictions.
- Zero and full span adjustable within measuring range (length minus the top and bottom dead bands).

METHOD OF OPERATION

The GWL senses low-energy, high-frequency electromagnetic impulses, produced by the sensor which are transmitted along the probe immersed in the fluid to be measured. When these impulses hit the surface of the liquid, part of the impulse energy is reflected back up the probe to the senor which then utilizes the time difference between the impulses sent and the impulses reflected to determine the fluid level.

SPECIFICATIONS

Service: Compatible, non-combustible liquids and gases.
Wetted Materials:
316 SS rod: 316 L SS, PEEK & Klingersil; 316 SS coaxial: 316 L, PEEK & Klingersil C-4400;
Wire cable: 316 SS, PEEK & Klingersil.
Accuracy: ±0.12″.
Repeatability: < 0.08″.
Resolution: < 0.04″.
Dielectric Constant [εr]:
316 SS rod/wire cable: > 1.8;
316 SS coaxial: > 1.4.
Dynamic Viscosity: 316 SS rod/wire cable: < 5.00 mPa; s=5.000 cP; 316 SS; Coaxial: < 50 mPa; s=500 cP.
Velocity of Level Change: < 3.2 fps.
Start-Up Time: < 6 s.
Temperature Limits:
Ambient: -13 to 176°F (-25 to 80°C);
Process: -40 to 302°F (-40 to 150°C).
Pressure Limits: -14.5 to 580 psi (-1 to 40 bar).
Output Signal: Analog or switch type.
Analog Output: 4 to 20 mA.
Switch Type: SPST, NC.
Power Requirements: 12 to 30 VDC.
Electrical Rating: 70 mA @ 24 VDC.
Mounting Orientation: Vertical.
Response Time: 0.5 s, 2 s, 5 s selectable.
Electrical Connection: Screwless, cage clamp terminal block for stranded and solid wires AWG 22-14.
Conduit Connection: 1/2″ NP or M20.
Process Connection: 3/4″ male NPT or 3/4″ male G.
Enclosure Rating: NEMA 4X (IP66).
Weight: 2.09 lb (0.95 kg).

Example Model
GWL-RN4-01-120

Probe Type Recommendations

	WIRE CABLE PROBE	316 SS ROD PROBE	316 SS COAXIAL PROBE
PROBE MOUNTING			
Tall & narrow nozzles	+	•	•
Difficult tank or nozzle geometries	+	•	•
Close to internal tank structures or tank wall	+	•	•
Probe might move or touch internal tank structures/tank wall	+	•	•
Liquid spray may touch probe above the liquid surface	+	•	•
Non-stationary interface targets, e.g. agitator blades	+	•	•
Measurement readings at the very top or bottom of the tank	+	•	•
Non-metallic tanks	+	•	•
Bypass chambers and stilling wells	•	+	-
Limited headroom for installation	•	•	+
Tall tanks	•	•	+
MEDIA CHARACTERISTICS			
Bulk solids	-	-	+
Measuring low reflectivity liquids (i.e. low dielectric constant)	+	•	•
Viscous, crystallizing, adhesive, coating, or sticky liquids	-	+	+
Fibrous liquids, sludge, slurry, pulp	-	+	+
Liquids containing solid particles	-	+	+
Clean-ability of probe is important	-	+	+

+ = Recommended
• = Possible, maybe with configuration and/or mounting adjustments
- = Not recommended

Example	GWL	R	N4	0	1	120	GWL-RN4-01-120
Series	GWL						Guided Wave Radar Transmitter for Liquids
Probe Type		R C W					316 SS rod 316 SS coaxial Wire cable
Enclosure			N4				NEMA 4X
Process Connection				0 1			3/4″ NPT 3/4″ G
Conduit Entries & Cable Glands					1 2 3		1/2″ NPT (2) Cable gland (2) 1/2″ NPT, cable gland
Probe Lengths						XXX	Insertion length in inches. Example 048 is 48″ length. 316 SS range of 4 to 118″. Wire cable range of 40 to 780″.