True Echo™ Pulse Radar Level Transmitter For Liquids
Series: PRL

The True Echo™ PRL Pulse Radar Level Transmitter brings the unassailably accurate level readings of radar sensors to all types of liquid level measurement. The True Echo™ PRL comes with a variety of housing and antenna materials, and all are IP68 for worry-free operation. True Echo™ pulse radars also automatically adjusts signal power for optimal accuracy and clarity. With echo masking and damping factors programmable via software, getting dependable level readings from all kinds of liquids is simple.

FEATURES

- Ranges to 17, 50, or 100 feet
- ±0.25% of measured range accuracy
- 6.1 μA output resolution
- Field configurable 4-20 mA/20-4 mA Output
- RS-232, RS-485, or HART communications
- PC calibration, diagnostic and data logging software
- PLC compatible (Modbus RTU)
- Nema 6/ IP68 enclosure rating
- Simple installation and setup
- Automatic adjustments for most tank conditions
- Very low material dielectric constant requirement
- Low Dielectric Material mode for \( \varepsilon < 4 \)
- Firmware addition for Oil-Water Interface measurement
- Optional Fast Firmware for quickly changing levels
# True Echo™ Series PRL Specifications

## Performance
- Operating Range:
  - PRL-017: 1 - 17 ft. (0.3 - 5 m)
  - PRL-050: 1 - 50 ft. (0.3 - 15 m)
  - PRL-100: 1 - 100 ft. (0.3 - 30 m)
- Frequency: 6.3 GHz
- Accuracy: ± 0.25% of measured range
- 4-20 mA Resolution: 6.1 μA (approx. 2622 digital counts across range)
- Target Dielectric Constant: ε > 2

## Environmental
- Enclosure Operating Temperature: -40º to 140ºF (-40 to 60°C)
- Process/Probe Temperatures:
  - Standard: -40º to 176ºF (-40 to 80ºC)
  - High Temp: -40º to 350ºF (-40 to 177ºC)
  - Sanitary: -40º to 400ºF (-40 to 204ºC)
  - Extreme Temp: -40º to 572ºF (-40 to 300ºC)
- Maximum Process Pressures:
  - Standard Temp/Pressure: 5 bar (72.5 psi)
  - Standard Temp/High Press: 70 bar (1015.3 psi)
  - High/Sanitary/Extreme Temps: 2 bar (29.0 psi)
- Enclosure: NEMA 6: Aluminum or 316L Stainless Steel, IP68 Sealing

## Electrical
- Loop Resistance: \( R_L = (V_s - 6) / 24 \text{ mA} \)
- Input Voltage: 12-30 VDC; 20-35 VDC (HART); 115 VAC (60 Hz); 230 VAC (50 Hz)
- Power Consumption: 0.07 A max, 1.68 W @ 24 VDC
  - 1.7 VA for 115/230 VAC

## Connectivity
- Output: 4-20 mA (shared common or isolated); HART 7
- RS-485, RS-232, or HART for calibration and diagnostics

## Physical
- Antenna
  - Rod: Teflon, 10.3" (261.6 mm)
  - Beam Spread: 6° from center
  - Horn: 316L Stainless Steel, Ø 6.3” (160 mm)
  - Beam spread: 3° from center

## Certifications
- FCC
  - Part 15 for low power communications class II install
Common Model Configurations

6.3 GHz, Teflon Antenna, 2” NPT Mount, 4-20 mA output

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Model Description</th>
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</thead>
<tbody>
<tr>
<td>PRL-050-V024-C4-AL-TE-T2-S</td>
<td>50' range, 12-30 VDC Supply, Aluminum Body, RS-485 communication</td>
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<tr>
<td>PRL-050-V024-C4-SS-TE-T2-S</td>
<td>50' range, 12-30 VDC Supply, 316L SS Body, RS-485 communication</td>
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<tr>
<td>PRL-050-V115-C4-AL-TE-T2-S</td>
<td>50' range, 115 VAC Supply, Aluminum Body, RS-485 communication</td>
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<tr>
<td>PRL-100-V024-C4-AL-TE-T2-S</td>
<td>100’ range, 12-30 VDC Supply, Aluminum Body, RS-485 communication</td>
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PRL Accessories

Please order separately, by part number.

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<tr>
<td>USB to RS-232 converter</td>
<td>122971-0104</td>
</tr>
<tr>
<td>USB to RS-485 converter</td>
<td>200501</td>
</tr>
</tbody>
</table>
Model Configuration Options

Model Number: PRL - ____ - ____ - ____ - ____ - ____ - ____ - ____

A. Range
- □ 017 17 ft (5m)
- □ 050 50 ft (15m)
- □ 100 100 ft (30m)

B. Supply Voltage, Signal
- □ V115 115 VAC (60 Hz) - 4-wire, Isolated 4-20 mA
- □ V230 230 VAC (50 Hz) - 4-wire, Isolated 4-20 mA
- □ V024 12-30 VDC - 3 wire, 4-20 mA w/ shared com
- □ V20L 20-35 VDC - 2 wire HART†

C. PC Communications (Calibration & Diagnostics)
- □ C2 RS-232
- □ C4 RS-485
- □ CH HART†

D. Housing Material
- □ AL ▲ Aluminum
- □ SS 316L Stainless Steel

E. Antenna Material
- □ TE ▲ Teflon Rod
- □ TE6 Teflon Rod with 6 in. extension
- □ TE8 Teflon Rod with 8 in. extension
- □ LT Teflon Rod with 1.5 in. built-in extension
- □ ST Sanitary Tri-Clamp mount, Teflon Ant. †
- □ PT High Pressure Teflon Rod Ant. (< 70 bar) †††
- □ S6 316L Stainless Steel 6 in. Ø Horn ††
- □ HS High Temp. Radar, 316L SS 6 in. Ø Horn ††

F. Mounting
- □ T15 1.5 in. NPT
- □ T2 ▲ 2 in. NPT
- □ T3 3 in. NPT
- □ S15 1.5 in. Sanitary Tri-Clamp (ST only)
- □ S2 2 in. Sanitary Tri-Clamp (ST only)
- □ BF 13 in. Ø 316L SS Bottom Flange (S6, HS only)

G. Firmware
- □ S ▲ Standard
- □ F Fast Firmware
- □ OW Oil-Water Interface Detection ††††

Note: † CH HART PC Communications requires V20L 20-35 VDC
Supply Voltage

Note: † ST Teflon Rod Ant. with Sanitary Tri-Clamp mount requires S15 1.5 in. or S2 2 in. Sanitary Tri-Clamp mount
Note: †† S6 and HS 316L SS horns require T3 3 in. NPT or BF 13 in. Bottom Flange mount
Note: ††† PT High Pressure Teflon Rod requires T2 2 in. NPT mount
Note: †††† OW Oil-Water Interface Detection requires Supply Voltage V024: 12-30 VDC and either TE Teflon Rod antenna or S6 316L SS horn antenna