

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



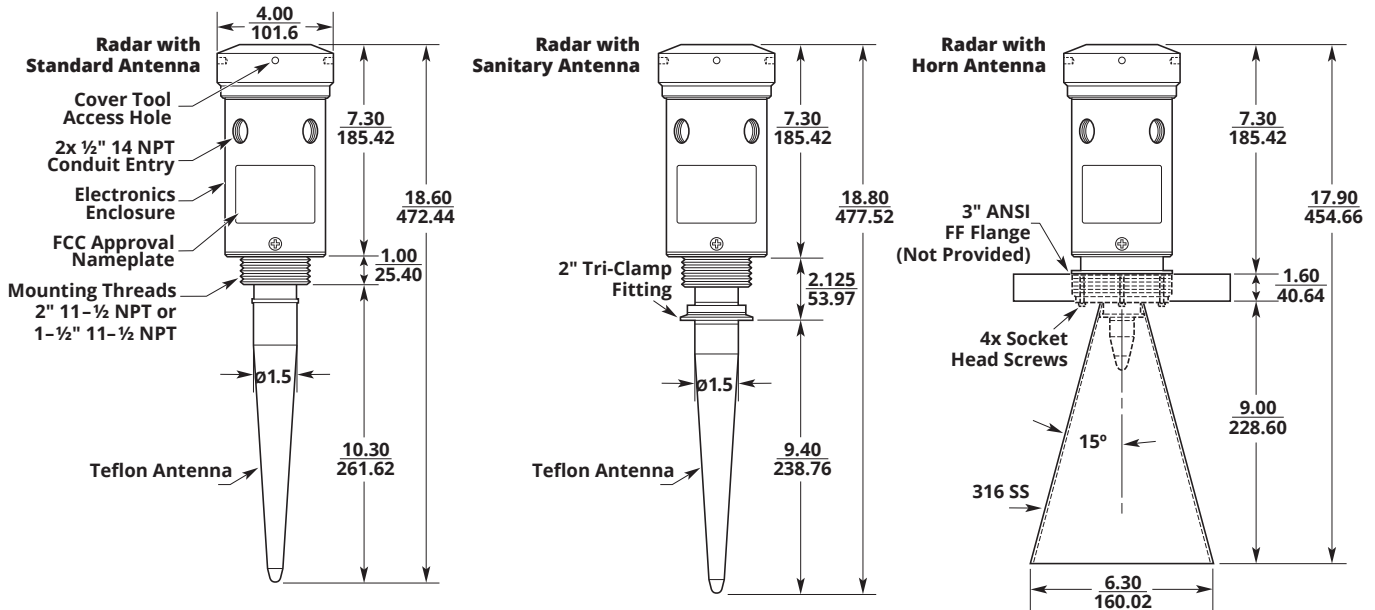
The True Echo™ PRL Pulse Radar Level Transmitter brings the unassailably accurate level readings of radar sensors to all types of liquid level measurement. The True Echo™ PRL comes with a variety of housing and antenna materials, and all are IP68 for worry-free operation. True Echo™ pulse radars also automatically adjust 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
- $\pm 0.25\%$  of measured range accuracy
- 6.1  $\mu\text{A}$  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  $\epsilon < 4$
- 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:  $\pm 0.25\%$  of measured range
- 4-20 mA Resolution: 6.1  $\mu\text{A}$  (approx. 2622 digital counts across range)
- Target Dielectric Constant:  $\epsilon_r > 2$

## Environmental

- Enclosure Operating Temperature: -40° to 140°F (-40 to 60°C)
- Process/Probe Temperatures:
  - Standard -40° to 176°F (-40 to 80°C)
  - High Temp -40° to 350°F (-40 to 177°C)
  - Sanitary -40° to 400°F (-40 to 204°C)
  - Extreme Temp -40° to 572°F (-40 to 300°C)
- 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

## Programming

- 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,  $\varnothing$  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

Model Number	Model Description
PRL-050-V024-C4-AL-TE-T2-S	<b>50' range, 12-30 VDC Supply, Aluminum Body</b> , RS-485 communication
PRL-050-V024-C4-SS-TE-T2-S	<b>50' range, 12-30 VDC Supply, 316L SS Body</b> , RS-485 communication
PRL-050-V115-C4-AL-TE-T2-S	<b>50' range, 115 VAC Supply, Aluminum Body</b> , RS-485 communication
PRL-050-V115-C4-SS-TE-T2-S	<b>50' range, 115 VAC Supply, 316L SS Body</b> , RS-485 communication
PRL-100-V024-C4-AL-TE-T2-S	<b>100' range, 12-30 VDC Supply, Aluminum Body</b> , RS-485 communication
PRL-100-V024-C4-SS-TE-T2-S	<b>100' range, 12-30 VDC Supply, 316L SS Body</b> , RS-485 communication
PRL-100-V115-C4-AL-TE-T2-S	<b>100' range, 115 VAC Supply, Aluminum Body</b> , RS-485 communication
PRL-100-V115-C4-SS-TE-T2-S	<b>100' range, 115 VAC Supply, 316L SS Body</b> , RS-485 communication

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## PRL Accessories

Please order separately, by part number.

Description	Part Number
USB to RS-232 converter	122971-0104
USB to RS-485 converter	200501

# Model Configuration Options



Model Number: PRL -      -      -      -      -      -      -       
                          A      B      C      D      E      F      G

## 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<sup>▲</sup>**        12-30 VDC - 3 wire, 4-20 mA w/ shared com
- V20L**          20-35 VDC - 2 wire HART<sup>†</sup>

## C. PC Communications (Calibration & Diagnostics)

- C2**            RS-232
- C4<sup>▲</sup>**          RS-485
- CH**            HART<sup>†</sup>

## D. Housing Material

- AL<sup>▲</sup>**          Aluminum
- SS**            316L Stainless Steel

<sup>▲</sup>This option is standard

Note: <sup>†</sup> CH HART PC Communications requires V20L 20-35 VDC Supply Voltage

## E. Antenna Material

- TE<sup>▲</sup>**           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. <sup>†</sup>
- HT**            High Temp. Radar, Teflon Rod Ant.
- PT**            High Pressure Teflon Rod Ant. (< 70 bar) <sup>††</sup>
- S6**            316L Stainless Steel 6 in. Ø Horn <sup>††</sup>
- HS**            High Temp. Radar, 316L SS 6 in. Ø Horn <sup>††</sup>

## F. Mounting

- T15**           1.5 in. NPT
- T2<sup>▲</sup>**           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<sup>▲</sup>**            Standard
- F**             Fast Firmware
- OW**           Oil-Water Interface Detection <sup>†††</sup>

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