

TRUE ECHO[®] X⁺

Radar and Pressure Dual Sensor

The TRUE ECHO[®] Plus combines the accurate level readings of the CR-L radar with the precision PT-400 pressure transducer. Together, they form a versatile dual sensor that is uniquely engineered for detecting and measuring overflow or flood conditions so you don't have to operate in the dark when systems overflow.

The radar's narrow beam can detect small targets and achieve precise positioning with high resolution. It has a maximum measuring range of 49.2 feet (15 m) and a minimum blind zone of 8 inches (0.2 m). All TRUE ECHO CR-L radar sensors can be easily set up and field adjusted via the TRUE ECHO Bluetooth app.

When liquid levels rise and the radar is submerged, the pressure sensor continues the monitoring. This 30 psia sensor uses the same reliable technology as APG's PT-400. With heavy duty wetted materials, this robust sensor is designed to keep you in the know.



FEATURES

- Dual sensor technology for enhanced accuracy and redundancy
- Suitable for a wide range of industrial applications
- Self draining to reduce post-flood maintenance
- Continuous level measurement in overflow conditions
- Single cable RS-485 Modbus output

COMMON APPLICATIONS

The TRUE ECHO Plus is designed for a wide range of industrial applications where high accuracy and overflow detection is needed. It's ideally suited for the following:

- Wastewater level and treatment
- Stormwater management
- High level detection
- Overflow measurement and detection
- Tank level

TRUE ECHO PLUS SPECIFICATIONS

RADAR SENSOR PERFORMANCE

- **Range:** 8 inch to 49.21 ft (0.2 to 15 m)
- **Measuring Frequency:**
 - W Band, 76 to 81GHz, 5GHz FMCW bandwidth
- **Update Rate:** 1.25 Hz
- **Power on to 1st Reading:** 7 seconds (minimum)*
- **Accuracy:** $\pm 3\text{mm}$
- **Beam Angle:** 8° (4° half angle)

PRESSURE SENSOR PERFORMANCE

- **Accuracy** (linearity, hysteresis, and repeatability):
 - $\pm 0.25\%$ of span (BFSL) (1% for $\leq 1\text{ psi}$)
- **Pressure Range:** 0 to 30 psia
- **1 Year Stability:** 0.75% FSO
- **Temp Effects on Zero & Span:** $\leq 0.025\% \text{ FS}/^\circ\text{F}$ @ 70°

CONNECTIVITY

- **Output Signal:** Modbus/RTU (RS-485) 4 wire + shield
- **Bluetooth Version (Radar):** 5

ENVIRONMENTAL

- **Standard Compensated Temp.:**
 - -10° to 70°C / 14° to 158°F
- **Storage Temp:** -40° to 70°C / -40° to 158°F
- **Operating Temp:** -40° to 70°C / -40° to 158°F
- **Protection Rating:** IP68 (1 m for 24 hours)
- **Dielectric Constant of Measured Medium:** ≥ 2

PHYSICAL

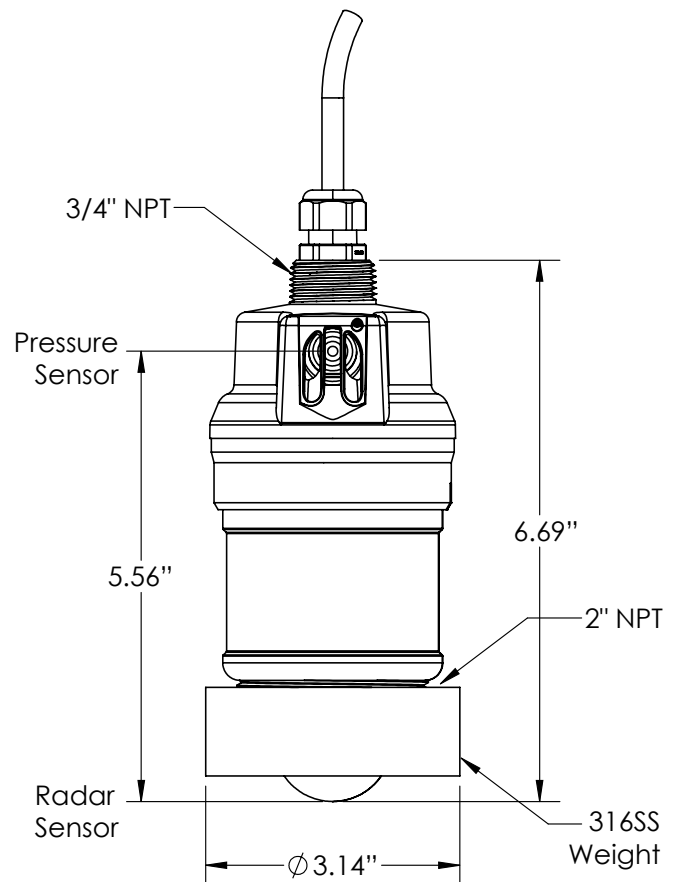
- **Weight:** ~900g
- **Wetted Materials:**
 - Cable Jacket: Polyurethane
 - Cable Gland: Nylon
 - Pressure Sensor: 316SS
 - Case: PBT + PC Resin Blend, POMH Plastic
 - Radar Body: PE or PDVF
 - Weight: 316SS

ELECTRICAL

- **Operating Voltage:** 12–28 VDC
 - 5 to 17 mA RMS @ 24 VDC
- **Reverse Voltage Protection:** $\leq 30\text{V}$
- **Spike Protection:** $< 3\text{kV}$
- **Cable:** Polyurethane jacket with shielded 18awg wires

RADAR CERTIFICATION

- FCC
- ISED



*Time to first reading is determined by the Damping setting as explained in the TRUE ECHO User Manual.

MODEL CONFIGURATION OPTIONS

MODEL NUMBER: CR- $\frac{L}{A}$ - $\frac{DGP}{B}$ - $\frac{49}{C}$ - $\frac{L31}{D}$ - $\frac{}{E}$ - $\frac{E5}{F}$ - $\frac{}{G}$ - $\frac{P2}{H}$ - $\frac{B0}{I}$

A. Product

☐ L Continuous Wave Radar for Liquids

B. Purpose

☐ DGP Dual Sensor General Purpose

C. Range (ft)

☐ 49 49 ft (15 m)

D. Output

☐ L31 RS-485 Modbus RTU

E. Material

☐ P Polyethylene

☐ K Kynar/PVDF

F. Connector

☐ E5 Pigtail with cable

G. Cable Length (ft)

☐ 16 16 ft (5 m)

☐ 40 40 ft (12 m)

H. Process Connection

☐ P2 2" NPT

I. Customer Label

☐ B0 APG

COMMON MODEL CONFIGURATIONS

Model Number	Model Description
CR-L-DGP-49-L31-P-E5-16-P2-B0	Dual Sensor General Purpose, 49 ft Range, RS-485, Polyethylene, 16 ft Cable
CR-L-DGP-49-L31-K-E5-40-P2-B0	Dual Sensor General Purpose, 49 ft Range, RS-485, Kynar/PVDF, 40 ft Cable

ACCESSORIES

Please order separately, by part number.

Description	Part Number
Adjustable Angle Mounting Bracket, Wall to Radar Mount; 8.5"	201150
Adjustable Angle Mounting Bracket, Wall to Radar Mount; 3"	201151