

Thank You

Thanks for purchasing a TRUE ECHO® Radar Level Sensor from APG! We appreciate your business and your trust. Please take a moment to familiarize yourself with the product and this manual before installation. If you have any questions, don't hesitate to call us at 888-525-7300.

You can find the TRUE ECHO CR-S General Purpose Radar manual at: <https://apgsensors.com/product/cr-s>

Table of Contents

1. Description	5. FCC Information	10. Keypad Function
2. How To Read Your Label	6. Dimensions	11. Basic Setup Parameters
3. Warranty and Return Information	7. Wiring Information	12. Removal Instructions
4. General Care	8. True Echo App	
	9. Mounting Instructions	

1 Description

The TRUE ECHO CR-S Radar is a Frequency Modulated Continuous Wave (FMCW) radar operating at 76-81 GHz. It brings the accurate level readings of radar sensors to industrial liquid and bulk solid measurements. It can accurately measure in many adverse environments. The narrow beam angle can detect small targets and achieve precise positioning with high resolution. All TRUE ECHO CR-S sensors can be easily setup and field adjusted via the TRUE ECHO mobile app and onboard keypad.

2 How To Read Your Label

Each sensor comes with a label on the body with a full model number, a part number, and a serial number. The model number for the TRUE ECHO Radar Level Sensor will look something like this:

SAMPLE: CR-S-GP-32-L1-A-T0-3-S4D-C1-K-B0

The model number correlates with all the configurable options and tells you exactly what you have. Compare the model number to the options on the datasheet to identify your exact configuration. You can also call us with the model, part, or the serial number and we can help you.

3 Warranty and Return Information

This product is covered by APG's warranty to be free from defects in material and workmanship under normal use and service of the product for 24 months. For a full explanation of our Warranty, please visit apgsensors.com/warranty-returns. Contact Technical Support to receive a Return Material Authorization (RMA) before shipping your product back.

If your radar level sensor needs to be returned for evaluation, contact us via email, phone, or on-line chat on our website. We will issue you an RMA number with instructions. You can find RMA & Return form on our website by clicking "RMA" in the web footer, or go to apgsensors.com/RMA-Form

- Phone: 888-525-7300
- Email: sales@apgsensors.com
- Online chat at www.apgsensors.com

Please have your radar part number and serial number available.

4 General Care

Your TRUE ECHO Radar is very low maintenance and will need little care, as long as it is installed correctly. However, in general, you should:

- Avoid applications for which the sensor was not designed, such as extreme temperatures, contact with incompatible corrosive chemicals, or other damaging environments.
- Inspect the threads whenever you remove the sensor from duty or change its location.

5 FCC Information

FCC regulations require 75-85 GHz radars to be installed to ensure a vertically downward orientation at fixed locations only. They must not operate while being moved or while inside a moving container. Hand-held applications are prohibited as well as marketing to residential consumers.

FCC ID: VPK-APGCRS
IC: 7385A-APGCRS
Contains Transmitter Module
ID: 2ABN2-2340B1
IC: 23949-2340B1

TRUE ECHO® RADAR LEVEL SENSOR

CR-S RADAR LEVEL SENSOR, 80GHZ FMCW

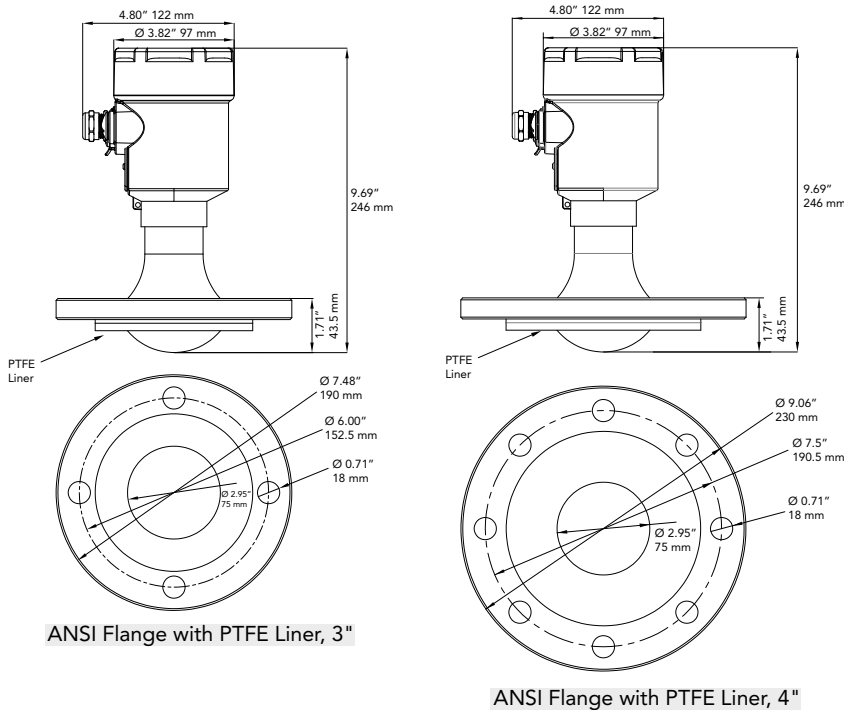
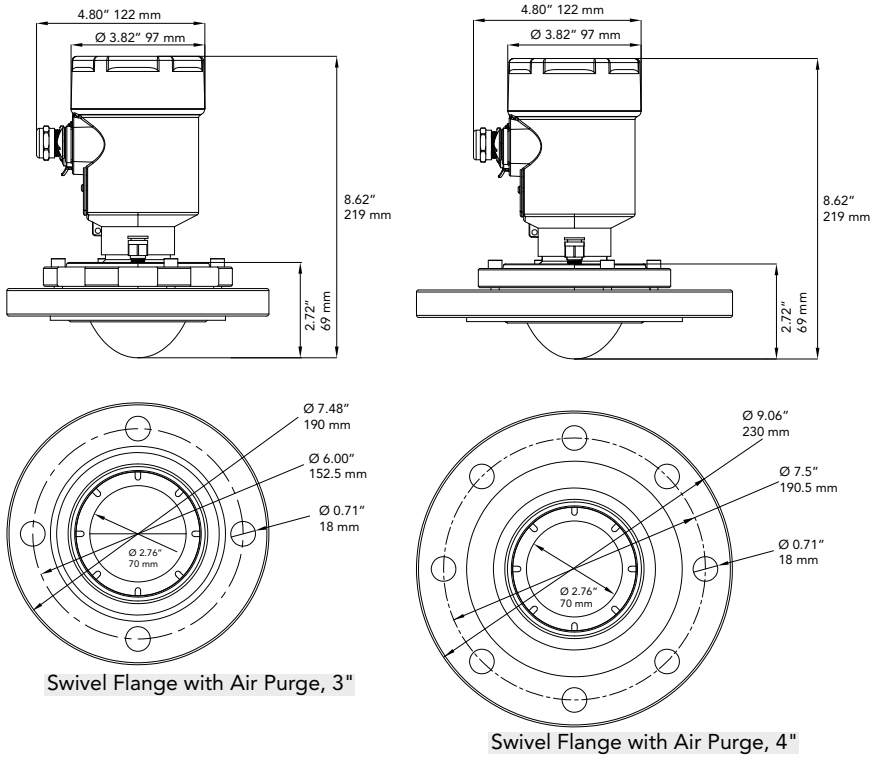
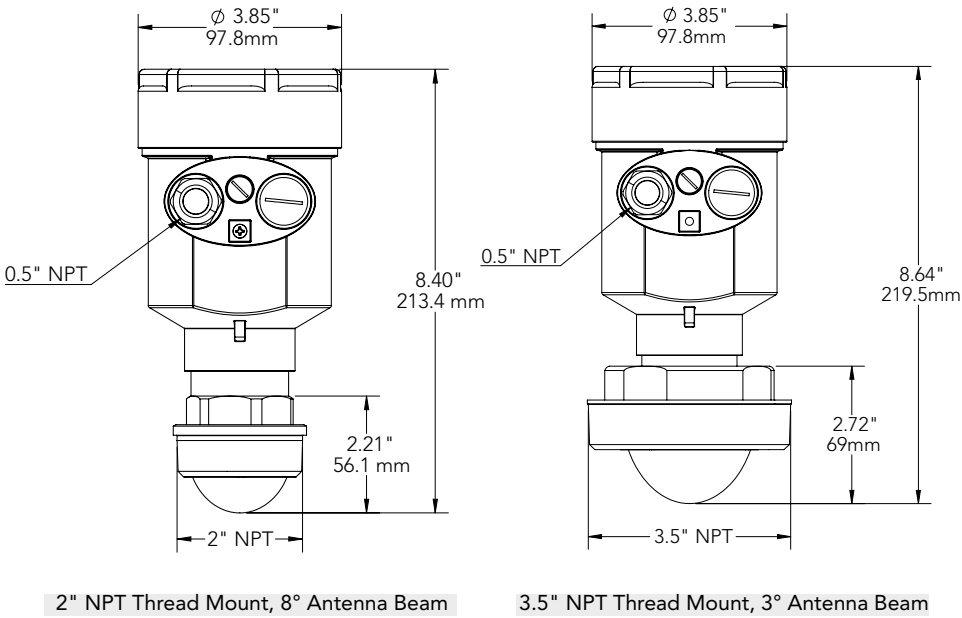
Installation Guide



Automation Products Group, Inc.
1025 W 1700 N Logan, UT 84321
www.apgsensors.com | phone: 888-525-7300 | email: sales@apgsensors.com

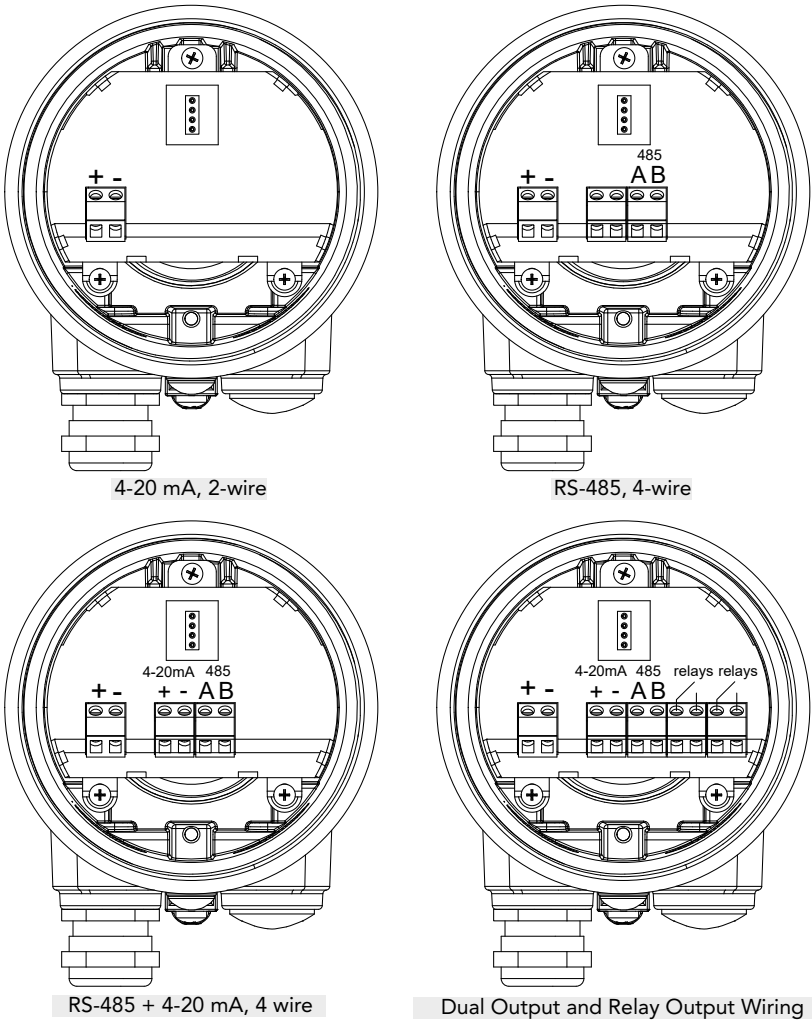
Doc # 9006853 Rev A
Part # 201143
07/2026

6 Dimensions



7 Wiring Information

Remove the keypad and display module by gently twisting it counterclockwise to access the wiring connectors. Note the position of the keypad for reinstallation before removing.



When finished wiring, align the metallic strips on the back of the keypad with the pins inside the radar. Reattach the keypad by gently twisting clockwise. The keypad should be aligned with the APG logo centered and the buttons towards the cable entry.

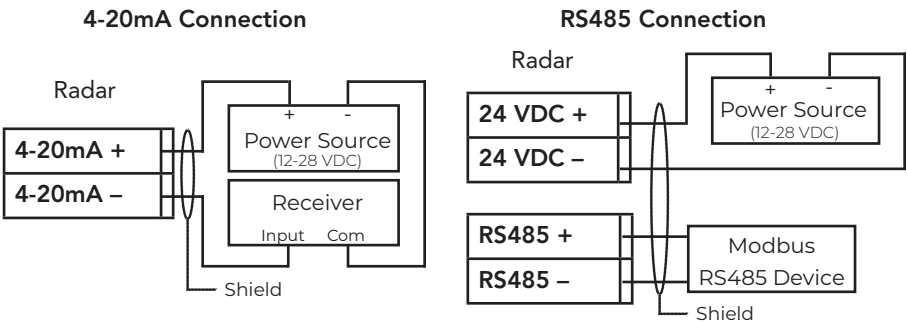


CR-S RADAR SUPPLY POWER TABLE

Output	Voltage (VDC)	RMS Current (mA)	Peak Current (mA)
4-20 mA	12 to 28 VDC	4 to 20 mA	4 to 20 mA
RS-485	12 VDC	53 to 70 mA	73 mA
	24 VDC	28 to 36 mA	41 mA
	28 VDC	24 to 31 mA	34 mA

WIRING DIAGRAM

A single multi-core cable with an outer diameter of 6-10 mm is recommended for cable entry. The single-core conductor size should be 24-14 AWG, up to 2.5 mm². Use a 2-3 mm flat-head screwdriver, and tighten screws with a torque of 5.0 kgf.cm.



⚠ IMPORTANT: Connect Shield Wire to Power Supply Earth Ground.

8 True Echo App

Use your mobile device to connect wirelessly to your TRUE ECHO Radar, change radar parameters, and view the echo waveform graph.

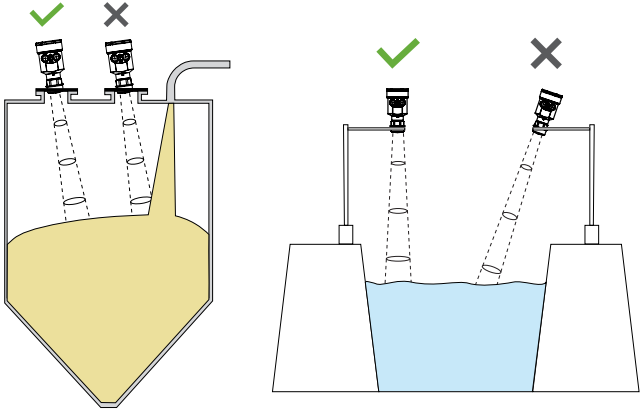
1. Install the TRUE ECHO app from the app store.
2. Open the TRUE ECHO app. On the Select Device screen, press “CR-S Solid/Liquid Level Radar.”
3. Each radar’s name is displayed with either its Level and Current for 4-20 mA units or its Level and Modbus Address for RS485 units. Press the radar’s name to access it.
4. Enter the password. The factory default password is 000000. This can be changed in the app settings. In the case of a forgotten password, contact APG with the serial number to receive an unlock password.



NOTE: When opening the app for the first time after installation, the app will prompt users to accept the Privacy Policy and will request Location and Relative Position permissions. These permissions are required to connect to the radar.

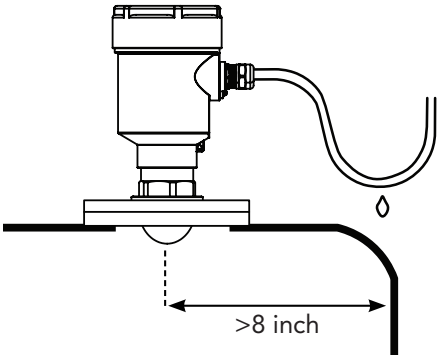
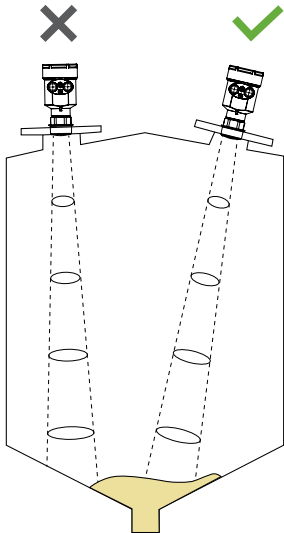
9 Mounting Instructions

- Mount your TRUE ECHO series radar so it has a clear, perpendicular path to the surface being monitored. Your sensor should be mounted away from inlets and outlets.
- The radar path should be free from obstructions and as open as possible for the 4° off axis beam pattern.
- Install the radar at least 8” (20 cm) away from side walls.
- Wrap PTFE tape around threads before installing the radar. **Do NOT over tighten.**



Ensure the radar is installed **perpendicular** to the measured surface. Ensure there are no interferences within the beam angle, such as walls, steps, ladders, river banks, etc.

For instruments installed outdoors, in humid environments, or on cooling/heating tanks, moisture protection measures should be taken. Tighten the cable gland to prevent moisture ingress, and ensure the cable is bent downward at the entry point.



Install the radar at least 8” (20 cm) away from side walls. When installing in narrow wells or pipes, place the radar as close to the center as possible to avoid interference from side walls. When installing in tanks with domed lids, install off center to avoid additional false echoes. In tapered vessels with solid material, aim the antenna beam at the bottom of the vessel to get an accurate measurement.

10 Basic Setup Parameters

Keypad Menu	Corresponding True Echo App Menu	Parameter Range	Short Description
Display/ Distance Unit	Unit Setting	ft / m / in / cm / mm	Display unit selection.
Basic/ Min adjustment	High Low Setting / Low Level	0.33 ft (0.1 m) to Max Range	The farthest distance to be measured; one range value for current output.
Basic/ Max adjustment	High Low Setting / High Level	0.33 ft (0.1 m) to Max Range	The nearest distance to be measured; the other range value for current output.
Basic/ Blind Zone	Blind Zone	0.33 ft (0.1 m) to Max Range	Area where measurement is not performed.
Basic/ Measuring Range	Range Setting	1.64 ft (0.5 m) to Max Range	Maximum detection distance.

NOTE: For more information about operating your TRUE ECHO CR-S Radar Level Sensor, including setting descriptions and examples, please see the user manual at <https://apgsensors.com/product/cr-s>

11 Keypad Function

Key	From Measurement Display	From Echo Curve Display	From Setting Display
ESC	View Echo Curve Display	Return to Measurement Display	Return to Measurement Display
+	n/a	Toggle Time Varying Threshold (TVT) curve on and off	- Navigate up menu lists - Increment digit value
▶	n/a	Toggle Time Varying Threshold (TVT) curve on and off	- Navigate down the menu - Highlight next digit to the right
OK	Enter Settings Display	Enter Settings Display	- Select menu option - Confirm setting selection

12 Removal Instructions

Removing your radar from service must be done with care.

1. Ensure power is turned off.
2. Disconnect the radar wires.
3. Remove the radar from its mount.
4. Store it in a dry place, at a temperature between -40° to 158°F (-40° to 70°C).