

Quick Start Manual



Read the user's manual carefully before starting to use the unit.
Producer reserves the right to implement changes without prior notice.

LevelPro® — ProScan®2 Series

Radar Level Sensor (80GHz)

Safety Information

- De-pressurize and vent system prior to installation or removal
- Confirm chemical compatibility before use
- **DO NOT** exceed maximum temperature or pressure specifications
- **ALWAYS** wear safety goggles or face-shield during installation and/or service
- **DO NOT** alter product construction



Warning | Caution | Danger

Indicates a potential hazard. Failure to follow all warnings may lead to equipment damage, injury, or death.



Note | Technical Notes

Highlights additional information or detailed procedure.



Hand Tighten Only

Over tightening may permanently damage product threads and lead to failure.



Personal Protective Equipment (PPE)

Always utilize the most appropriate PPE during installation and service of Truflo products.



Specifications

Measuring Performance	
Minimum Range	8"
Maximum Range	34' 10m
Resolution	0.04" 1mm
Beam Angle	8°
Response Rate	1.1 Sec
Measurement Accuracy	> 0.1% 0.16" 4mm
Repeatability	±0.11" ±3mm

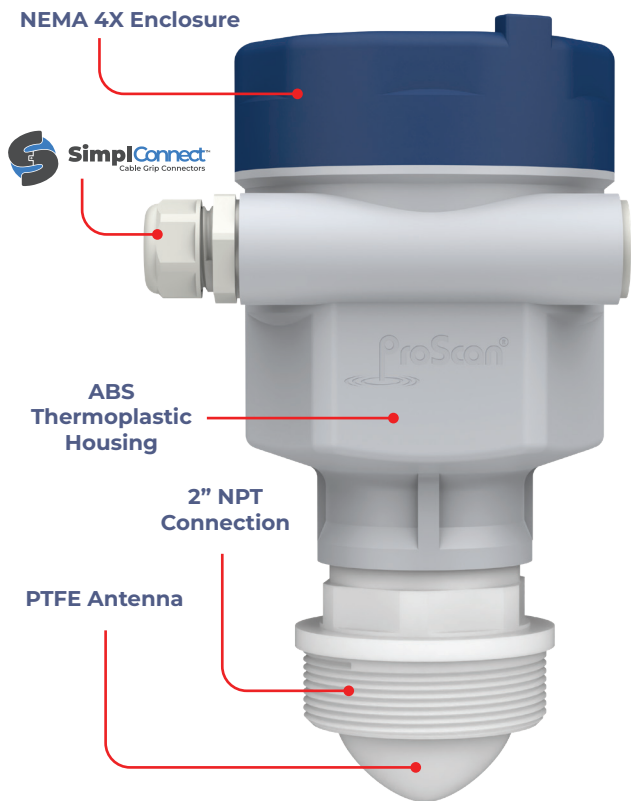
Operating Conditions	
Operating Frequency Band	80 GHz
Mains Power Supply	24 VDC 2-wire loop powered
Communication Interface	4-20mA RS485 HART
Enclosure Protection	NEMA 4X IP66
Vacuum Pressure	-14.5Hg -362PSI
Operating Temperature Range	-40°F – 250°F -40°C – 121°C

Housing & Mounting			
Housing Material	GFPP Body PTFE Antenna	316 SS+GFPP Body PTFE Antenna	Epoxy Coated CI + 316 SS Body PTFE Antenna
Dimensions	93mm x 190mm	93mm x 207mm	96.5mm x 221mm
Installation	2" NPT 150lb ANSI Flange		

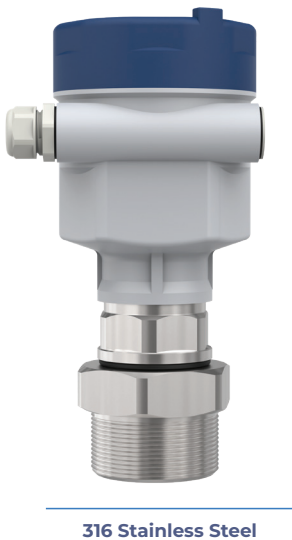
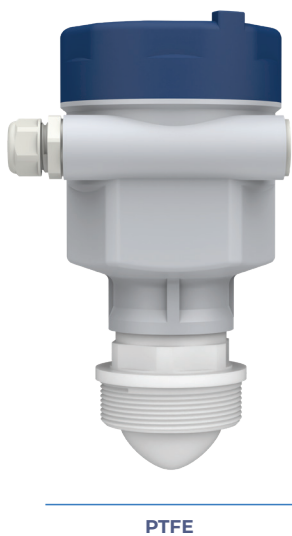
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Product Introduction



ProScan®2 Versions



GFPP

PTFE

316SS

CI


RoHS
Compliant

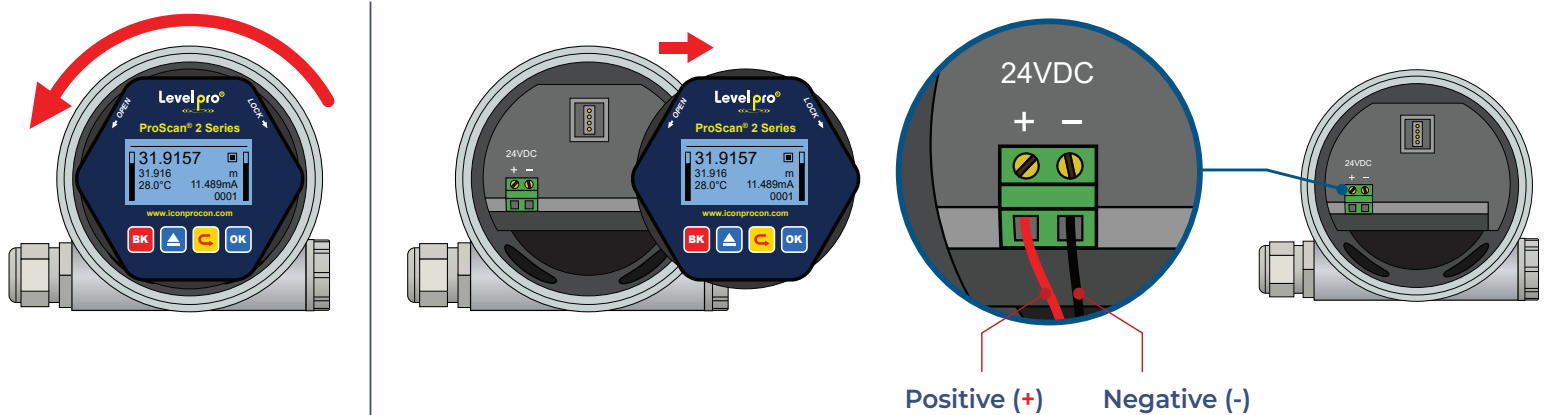


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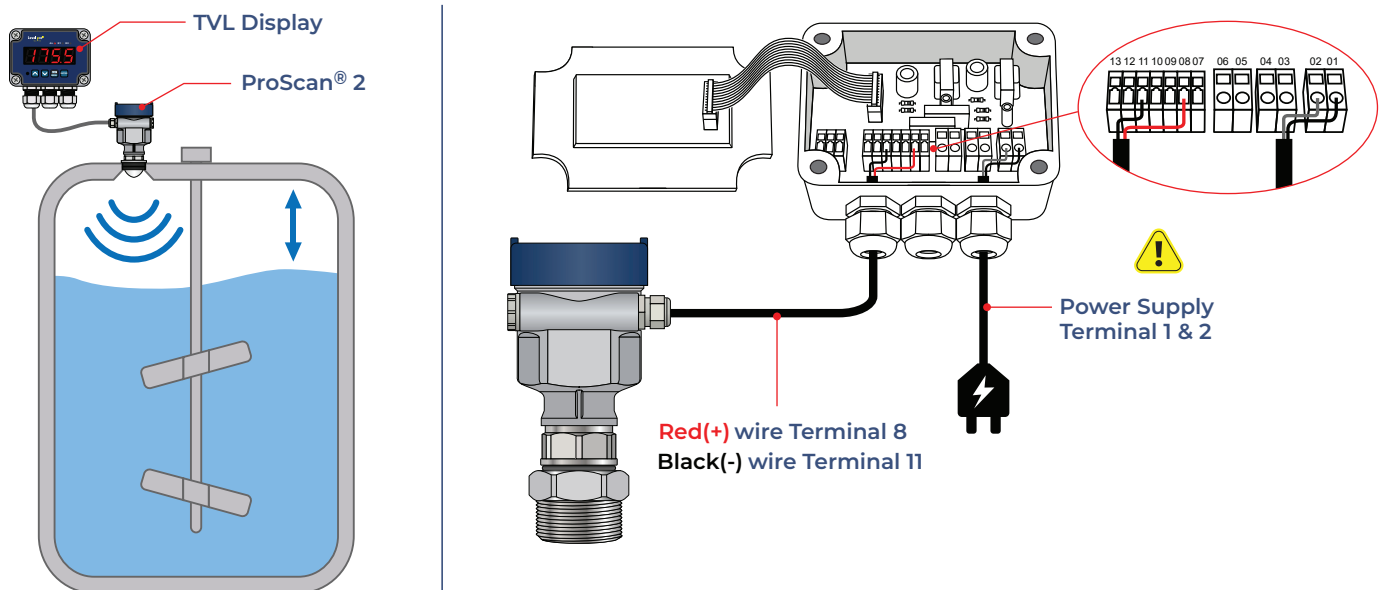
Wiring Diagram

The sensor power supply and current signal share the same two-wire shielded cable. The sensor supply voltage should never exceed 24VDC. Always provide complete electrical and physical separation between the sensor supply circuit and the main circuit.



Note : Remember that the output voltage of the power supply can be lower under nominal load (with a sensor current of 20.5 mA or 22 mA) and/or with the addition of other instruments placed within the circuit. If voltage spikes or surges are expected, adequate isolation protection must also be provided.

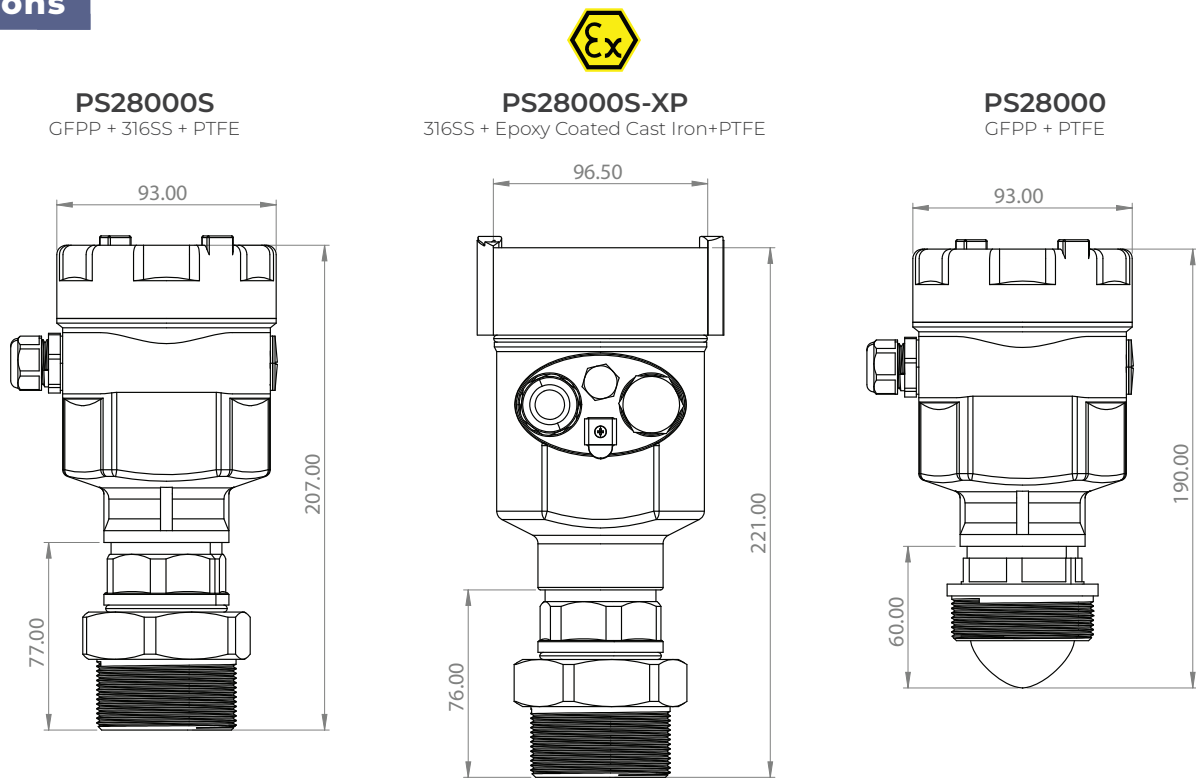
Wiring Diagram – External Display



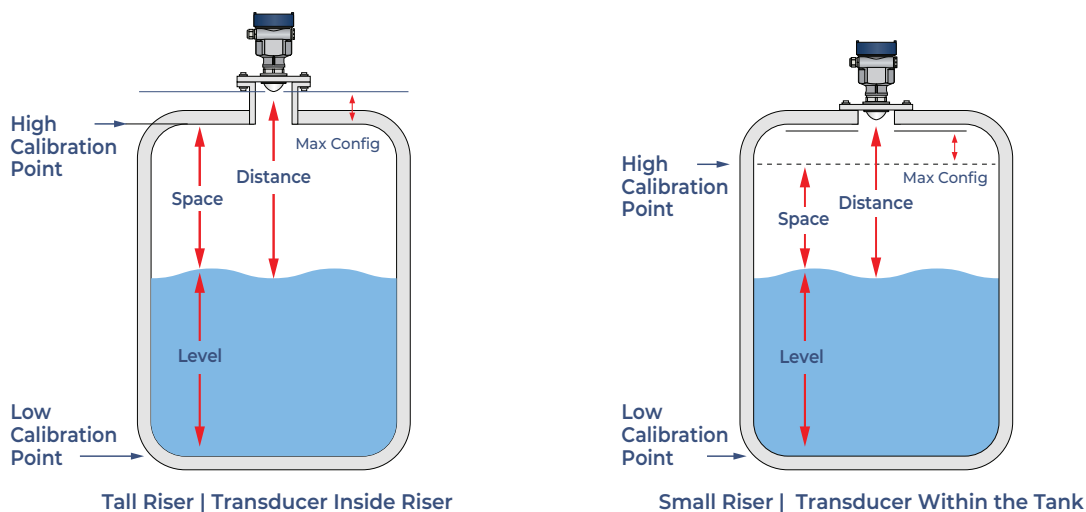
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Dimensions

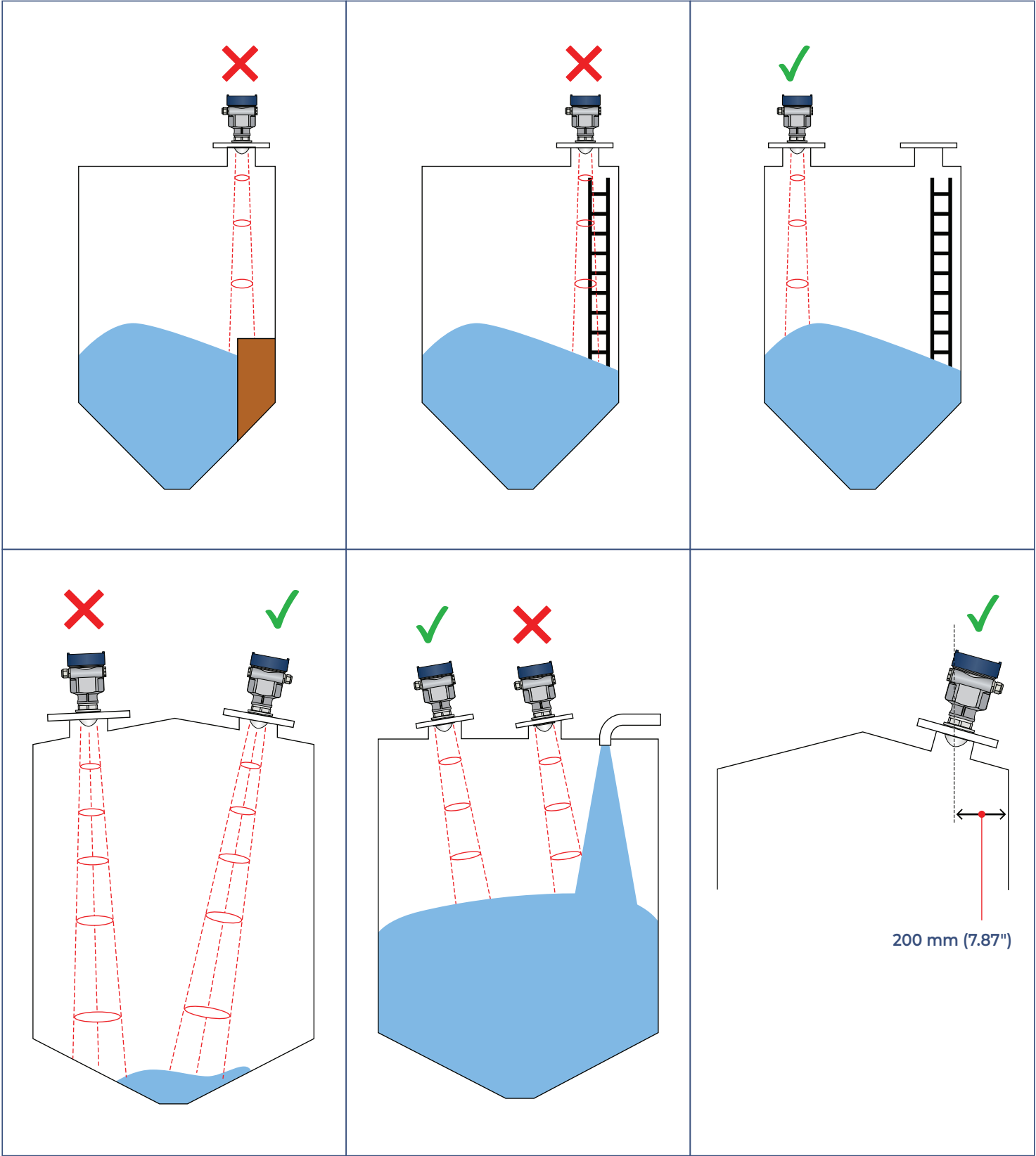


Tank Installation



Above are some examples of different tank configurations. The ProScan® 2 radar sensor has a blanking area also referred to as the dead band or dead zone. This is the area just below the tip of the sensor that consists of signal echo's that are returned too quickly to differentiate the false signal from the measuring echo, there this space is not measured. Special consideration is required during the installation to ensure the blanking area is taken into account.

Sensor Positioning



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Setting 4-20mA Range

Measuring the tank is one of the most important aspects in configuring the sensor. When measuring the tank, take into account the location of the sensor with respect to fittings, risers, dome tops and bottoms, and identify where the measurements are taken from the sensor.

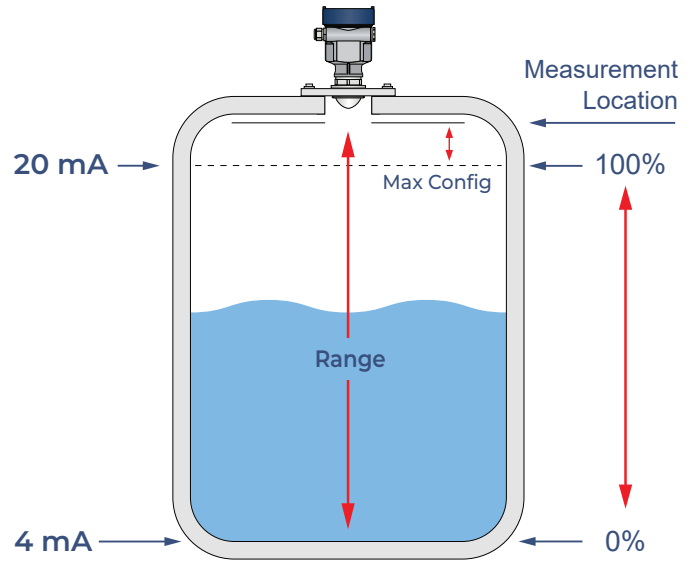
The Range is the overall distance from the Max or Full Liquid Level to the Lowest Liquid level | Normally this would be when the tank is Empty

✓ Min Configuration = 4mA setting.

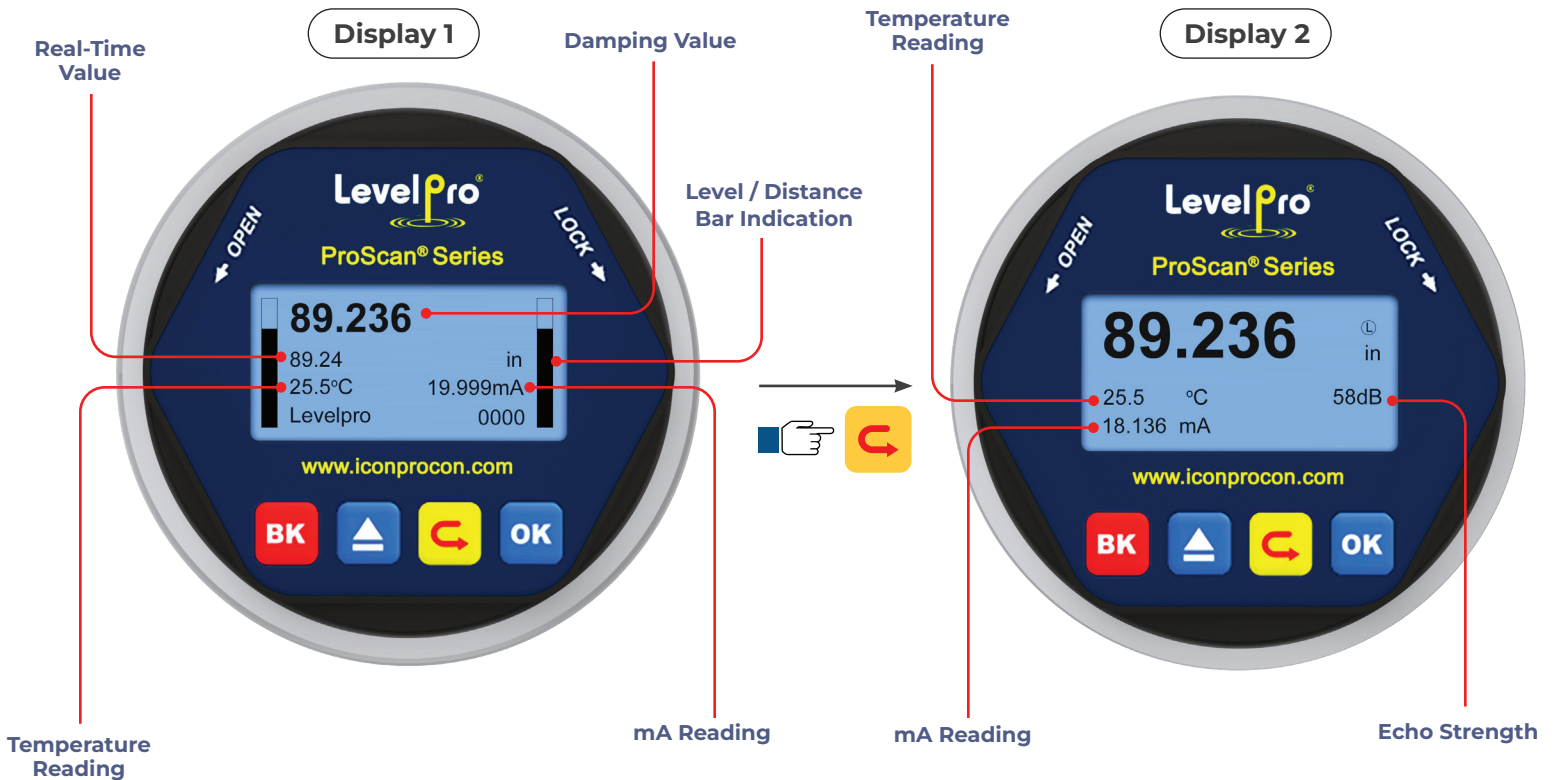
With flat bottom tanks, the Range and Empty Configuration values can be the same.

✓ Max Configuration = 20mA setting.

The distance from the tip of the sensor to the highest liquid or full level



Display Description



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Basic Programming

BK

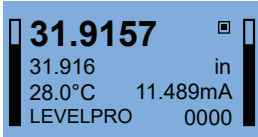
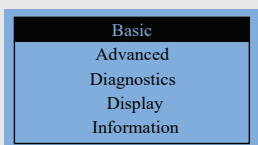
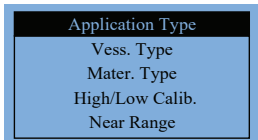
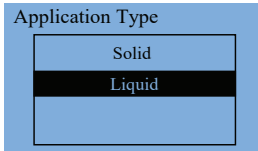
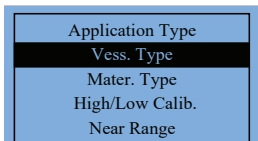
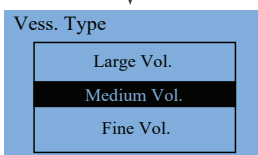
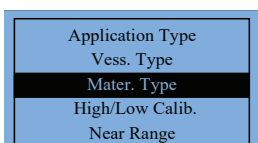
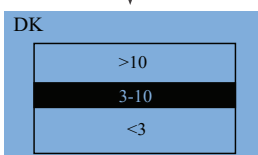
Return to Previous

Change Digit Values

Move Selection

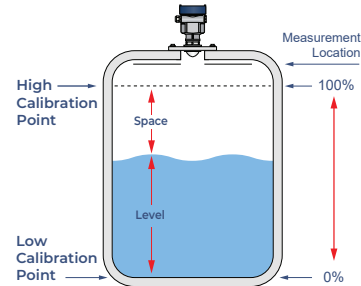
OK

Select/Confirm

STEPS	DISPLAY	OPERATION								
1 Home Screen 		Home Screen								
2 Main Menu 		Main Menu Select Basic								
3 Application Type 	  	Application Type Select type of application Factory Default : Liquid								
4 Vessel Type 	  	Vessel Type Vessel Type affects the radar algorithm by adjusting fill / empty rate, damping time, and tracking status automatically. Factory Default : Medium Volume <table><tr><td>Large volume</td><td>Filling Speed: 0.1m/min Damping time: 60s</td></tr><tr><td>Medium Volume</td><td>Filling Speed: 1m/min Damping time: 10s</td></tr><tr><td>Fine volume</td><td>Filling speed: 10m/min Damping time: 0s</td></tr><tr><td>Demo</td><td>Damping time: 0s</td></tr></table>	Large volume	Filling Speed: 0.1m/min Damping time: 60s	Medium Volume	Filling Speed: 1m/min Damping time: 10s	Fine volume	Filling speed: 10m/min Damping time: 0s	Demo	Damping time: 0s
Large volume	Filling Speed: 0.1m/min Damping time: 60s									
Medium Volume	Filling Speed: 1m/min Damping time: 10s									
Fine volume	Filling speed: 10m/min Damping time: 0s									
Demo	Damping time: 0s									
5 Material Type 	  	Material Type This setting is critical for complex applications like low Dielectric Constant (DK) liquid measurement and must be selected based on the application. Factory Default : >10								

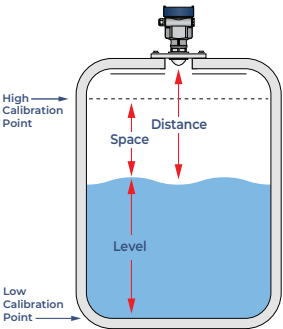
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STEPS	DISPLAY	OPERATION
6 High/Low Calibration (4-20mA) ▶  	Application Type Vess. Type Mater. Type High/Low Calib. Near Range   High/Low Calib. Low 40.00 in High 0.00 in	High / Low Calibration Points Set High & Low Level Values 1. Level : Low = 4mA Setpoint High = 20mA Setpoint 2. Space : Low = 20mA Setpoint High = 4mA Setpoint Eg: For a level measurement from 0 ~ 40in, set low calibration point as 40in and high calibration point as 0. 
7 Near Range ▶  	Application Type Vess. Type Mater. Type High/Low Calib. Near Range   Near Range 2.00 in	Near Range Sets the minimum measurement distance to filter out false echoes from nearby structures. Factory Default : 2 in
8 Far Range ▶  	High/Low Calib. Near Range Far Range Damping Sensor Mode   Far Range 48.00 in	Far Range Defines the maximum measurement distance for detecting the liquid surface accurately. Factory Default : 48.00 in.
9 Damping ▶  	High/Low Calib. Near Range Far Range Damping Sensor Mode   Damping 2 s	Damping Reduces the impact of sudden level fluctuations for a smoother output signal. Factory Default : 2 Sec

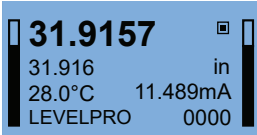
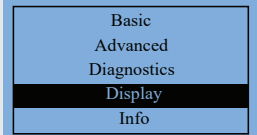
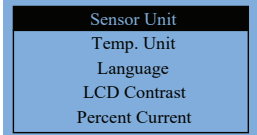
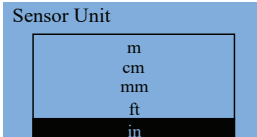
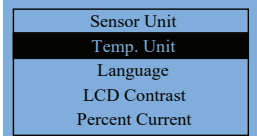
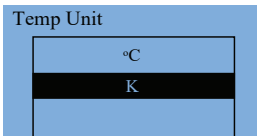
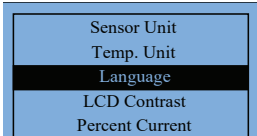
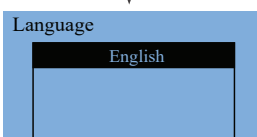
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STEPS	DISPLAY	OPERATION
10 Sensor Mode  BK x3	High/Low Calib. Near Range Far Range Damping Sensor Mode  OK Sensor Mode Level Space Distance	Sensor Mode Select Sensor Mode Factory Default : Level Level : Distance from Low Calibration Point to material surface. Space : Distance from High Calibration Point to material surface. Distance : Distance from Sensor Reference Point to material surface. 
11 Home Screen	31.9157 31.916 28.0°C LEVELPRO in 11.489mA 0000	Home Screen

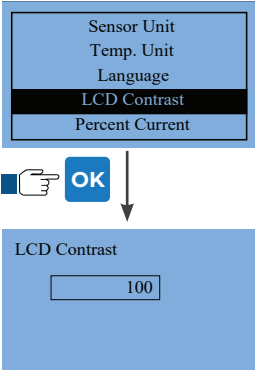
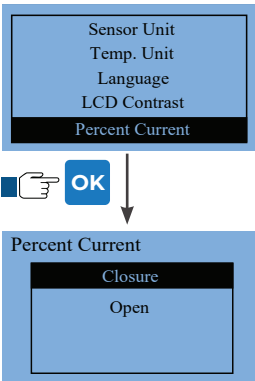
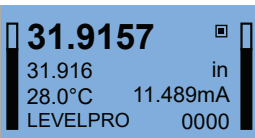
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Display Settings			 Return to Previous	 Change Digit Values	 Move Selection	 Select/Confirm
STEPS	DISPLAY	OPERATION				
1 Home Screen ▶ 		Home Screen				
2 Main Menu ▶ 		Main Menu Select Display				
3 Sensor Unit ▶ 	  	Sensor Unit Select the measurement unit : m mm cm ft in Factory Default : in				
4 Temperature Unit ▶ 	  	Temperature Unit Select the temperature unit : °C K Factory Default : °C				
5 Language ▶ 	  	Language Factory Default : English				

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STEPS	DISPLAY	OPERATION
6 LCD Contrast ▶ 		LCD Contrast Adjust the display contrast as required
7 Percent Current ▶ 		Percent Current The Home Screen displays real-time level in either Percentage (Open Mode) or Distance/Level Value (Closure Mode). Factory Default : Closure
8 Home Screen ▶		Home Screen

Model Selection

ProScan® 2 — Radar Level Transmitter			
Connection	Part Number	Body Material	Antenna Material
NPT	PS28000	GFPP	PTFE Teflon®
Flange	PS28500	GFPP	PTFE Teflon®
NPT	PS28000S	Epoxy Coated Cast Iron + 316SS	PTFE Teflon®
Flange	PS28500S	Epoxy Coated Cast Iron + 316SS	PTFE Teflon®

Warranty, Returns and Limitations

Warranty

Icon Process Controls Ltd warrants to the original purchaser of its products that such products will be free from defects in material and workmanship under normal use and service in accordance with instructions furnished by **Icon Process Controls Ltd** for a period of one year from the date of sale of such products. **Icon Process Controls Ltd** obligation under this warranty is solely and exclusively limited to the repair or replacement, at Icon Process Controls Ltd option, of the products or components, which **Icon Process Controls Ltd** examination determines to its satisfaction to be defective in material or workmanship within the warranty period. **Icon Process Controls Ltd** must be notified pursuant to the instructions below of any claim under this warranty within thirty (30) days of any claimed lack of conformity of the product. Any product repaired under this warranty will be warranted only for the remainder of the original warranty period. Any product provided as a replacement under this warranty will be warranted for the one year from the date of replacement.

Returns

Products cannot be returned to **Icon Process Controls Ltd** without prior authorization. To return a product that is thought to be defective, go to www.iconprocon.com, and submit a customer return (MRA) request form and follow the instructions therein. All warranty and non-warranty product returns to **Icon Process Controls Ltd** must be shipped prepaid and insured. **Icon Process Controls Ltd** will not be responsible for any products lost or damaged in shipment.

Limitations

This warranty does not apply to products which: 1) are beyond the warranty period or are products for which the original purchaser does not follow the warranty procedures outlined above; 2) have been subjected to electrical, mechanical or chemical damage due to improper, accidental or negligent use; 3) have been modified or altered; 4) anyone other than service personnel authorized by **Icon Process Controls Ltd** have attempted to repair; 5) have been involved in accidents or natural disasters; or 6) are damaged during return shipment to **Icon Process Controls Ltd** reserves the right to unilaterally waive this warranty and dispose of any product returned to **Icon Process Controls Ltd** where: 1) there is evidence of a potentially hazardous material present with the product; or 2) the product has remained unclaimed at **Icon Process Controls Ltd** for more than 30 days after **Icon Process Controls Ltd** has dutifully requested disposition. This warranty contains the sole express warranty made by **Icon Process Controls Ltd** in connection with its products. **ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY DISCLAIMED.** The remedies of repair or replacement as stated above are the exclusive remedies for the breach of this warranty. **IN NO EVENT SHALL Icon Process Controls Ltd BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING PERSONAL OR REAL PROPERTY OR FOR INJURY TO ANY PERSON. THIS WARRANTY CONSTITUTES THE FINAL, COMPLETE AND EXCLUSIVE STATEMENT OF WARRANTY TERMS AND NO PERSON IS AUTHORIZED TO MAKE ANY OTHER WARRANTIES OR REPRESENTATIONS ON BEHALF OF Icon Process Controls Ltd.** This warranty will be interpreted pursuant to the laws of the province of Ontario, Canada.

If any portion of this warranty is held to be invalid or unenforceable for any reason, such finding will not invalidate any other provision of this warranty.

For additional product documentation and technical support visit:

www.iconprocon.com | e-mail: sales@iconprocon.com or support@iconprocon.com | Ph: 905.469.9283



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