Quick Start Manual

ICON™ PROCESS CONTROLS Corrosion-Free Instrumentation Equipment™

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

Corrosion-Free
Instrumentation Equipment™

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

Warning | Caution | Danger

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

Hand Tighten Only

Over tightening may permanently damage product threads and lead to failure of the retaining nut.

Note | Technical Notes

Highlights additional information or detailed procedure.

Intended Use

- It is the operator's responsibility to verify the suitability of the device for the intended application. If there are any doubts, please contact our technical department to ensure proper usage and compatibility.
- LevelPro® is not liable for incorrect selections and their consequences.
- Permissible media are liquids (no solids or frozen media) as specified in the data sheet. Additionally, it is essential to confirm that the medium is compatible with all wetted parts of the level sensor.
- The technical data provided in the current data sheet is binding and must be followed. If the data sheet is unavailable, download it from our website (www.iconprocon.com).

Personnel for Installation, Commissioning, and Operation

All operations described in this manual must be performed only by trained or accredited personnel. The qualified personnel must have read and understood the operating instructions in this manual and follow them accordingly.

LevelPro® — ProScan®3 Series
Radar Level Sensor (80GHz)

ICON PROCESS CONTROLS

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Features

- ✓ Bluetooth Connectivity (30m | 100')
- ✓ Excellent Reliability and Accuracy
- ✓ Not Affected by Vapor or Outgassing
- ✓ RS-485 Communication | 4–20mA
- ✓ Measurement Under Vacuum | High Pressure
- ✓ Unaffected by Temperature Fluctuations
- ✓ NEMA 4X | Suitable for Outdoors

Cord Grip
PC Cover
Corrosion Resistant PP Body
2" NPT
PP Transducer

The Future of Non-Contact Level Measurement is Radar Technology!

The **ProScan® 3** 80 GHz high frequency technology permits a significantly more precise transmission signal focus. This makes it easier to distinguish between actual level signals and interference signals, making the measurement more reliable coupled with a higher degree of accuracy. The new **ProScan® 3** series of compact instruments are ideally suited for more complex level applications.

Specifications

Measuring Performance

Measuring Performance	
Minimum Range	50mm (2in)
Maximum Range	34 ft (std), 68 ft (special order)
Bluetooth Range	30m
Resolution	1mm
Azimuth Beam Width (3 dB)	3°
Elevation Beam Width (3 dB)	3°
Measurement Accuracy	±2mm

Operating Conditions

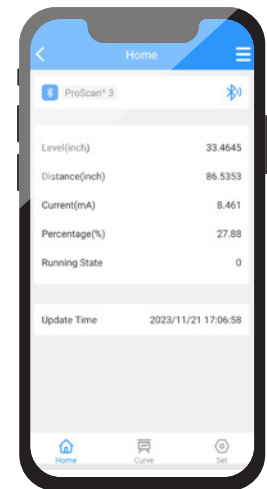| Operating Conditions	
Operating Frequency Band	76 – 81 GHz
Mains Power Supply	18 – 24 VDC
Operating Average Current	20 mA
Effective Isotropic Radiated Power	13 dBm
Output	4-20mA	RS485
Enclosure Protection	NEMA 4X	IP67
Operating Temperature Range	-49°F – +185°F	-45°C – +85°C

Materials

Materials		
Housing Material	PP+PC	316 SS
Transducer	PP	

Bluetooth®

Level(inch) 33.4645
Distance(inch) 86.5353
Current(mA) 8.461
Percentage(%) 27.88
Running State 0
Update Time 2023/11/21 17:06:58

Monitor Your ProScan® 3 with the Free App

Available on the App Store
ANDROID APP ON Google play

Scan the above QR codes to download the app

LevelPro® — ProScan®3 Series
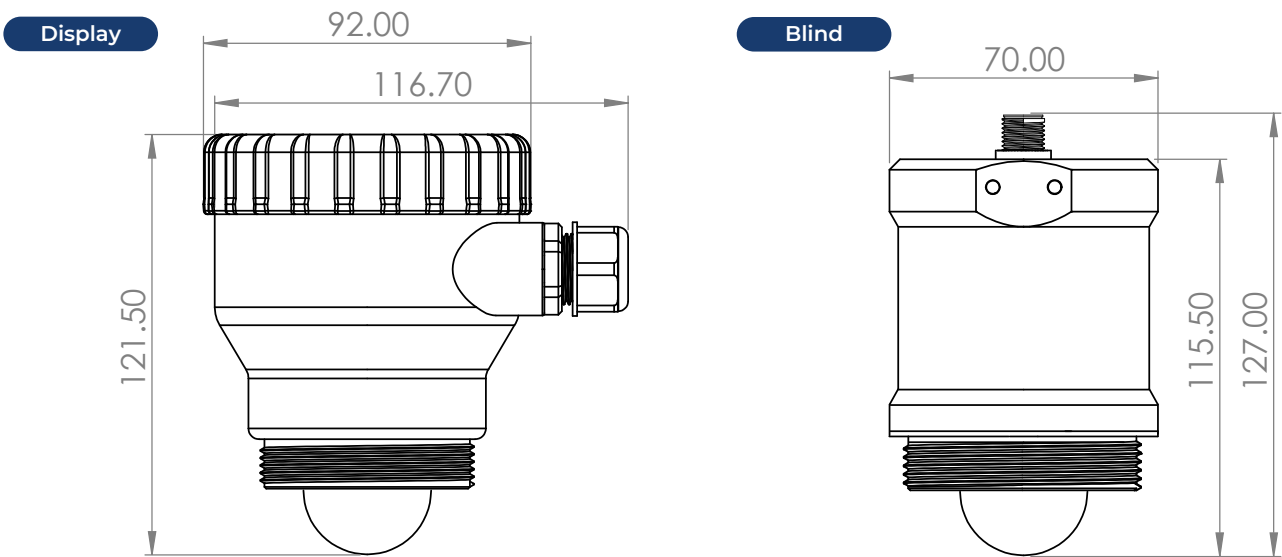## Radar Level Sensor (80GHz)

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Operating Principle

The **ProScan® 3** (80GHz) radar is a transmitter for continuous level measurements using fast sweep Frequency Modulated Continuous Wave (FMCW) technology. The transducer of radar continuously emits signal sweeps with a constant frequency towards the liquid surface. The reflected signal is then captured by the transducer. The time to send and receive is known as the time of flight.

Plastic Tank

Emitted Signal

3° Angle

Signal Reaching Liquid

2" Deadband

Unaffected by Vapor

Dimensions

Display

92.00

116.70

121.50

Blind

70.00

115.50

127.00
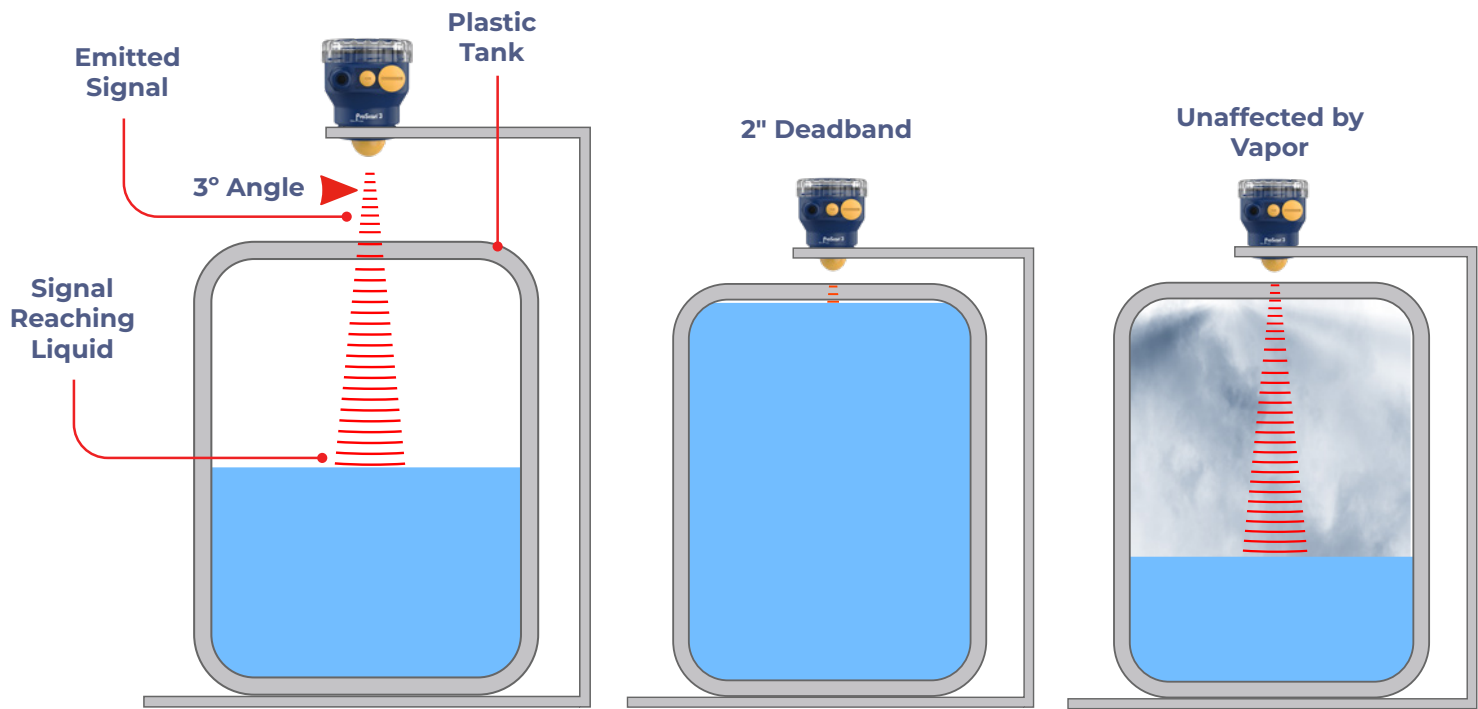
LevelPro® — ProScan®3 Series
Radar Level Sensor (80GHz)

Wiring – PS38000

01	02	03
Rotate the lid counterclockwise and lift it off.		Turn the display counterclockwise and carefully remove it.

04	05	06 Loop Powered | 24VDC
Unscrew and detach the cable grip from the sensor housing.	Feed the wire through the cable grip, ensuring a secure fit.	Positive (+) / Negative (-) — Connect the positive and negative wires to their respective terminals. Tighten the cable grip to hold the wire firmly in place.

Wiring – PS38000S

M12 Wiring (For SS Model)		
Pin	Color	Description
Pin 1	Brown	+VDC | +mA
Pin 2		
Pin 3	Blue	-VDC | -mA
Pin 4		

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Wiring – ProScan®3 | ShoPro® Liquid Level Display

SP-100
ShoPro Tank Level Display

ProScan®3
Radar Liquid Level Sensor

⚠️ **Power Supply
120VAC**

Red Tab : +ve from Junction Box (Red)
Blue Tab : -ve from Junction Box (Black)

Red Wire : +ve Terminal
Black Wire : -ve Terminal
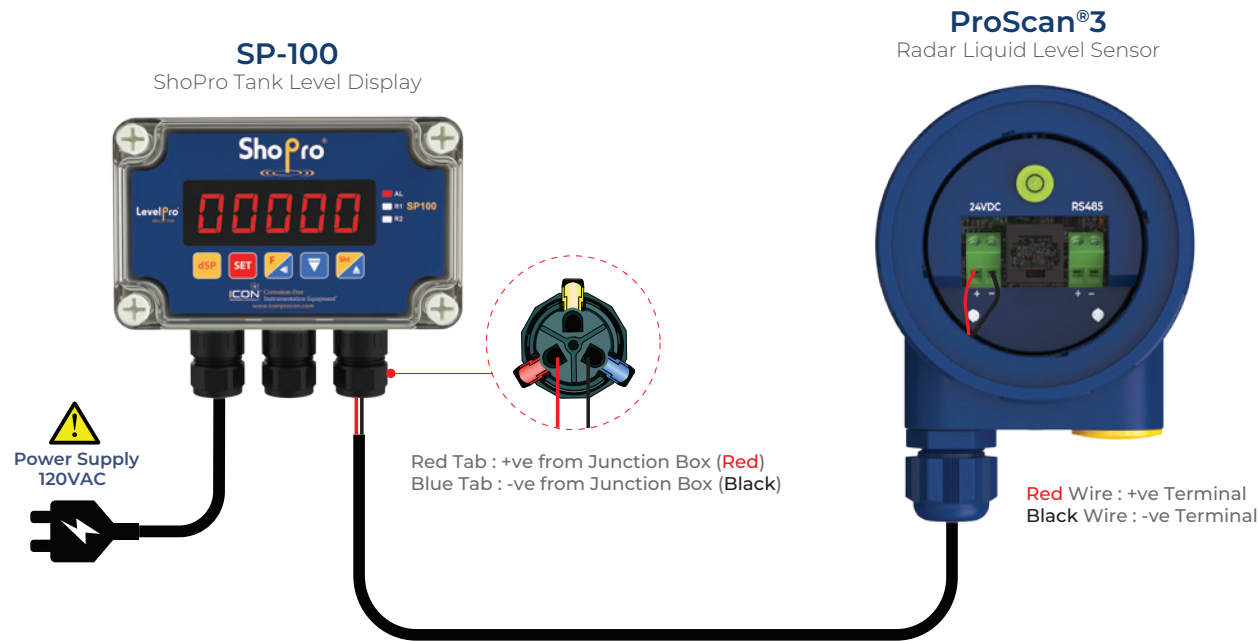
Wiring – ProScan®3 | TVL Liquid Level Display

Relay 1   Relay 2

13 12 11 10 09 08 07   06 05   04 03   02 01

Red Wire (+ve) : TVL Terminal 8
Black Wire (-ve) : TVL Terminal 11

Red Wire : +ve Terminal
Black Wire : -ve Terminal

Rotate display anti-clockwise to
access wiring terminals

ProScan®3
Radar Liquid Level Sensor

⚠️ **Power Supply
Terminal 1 & 2**

TVL Series
Level Display | Controller
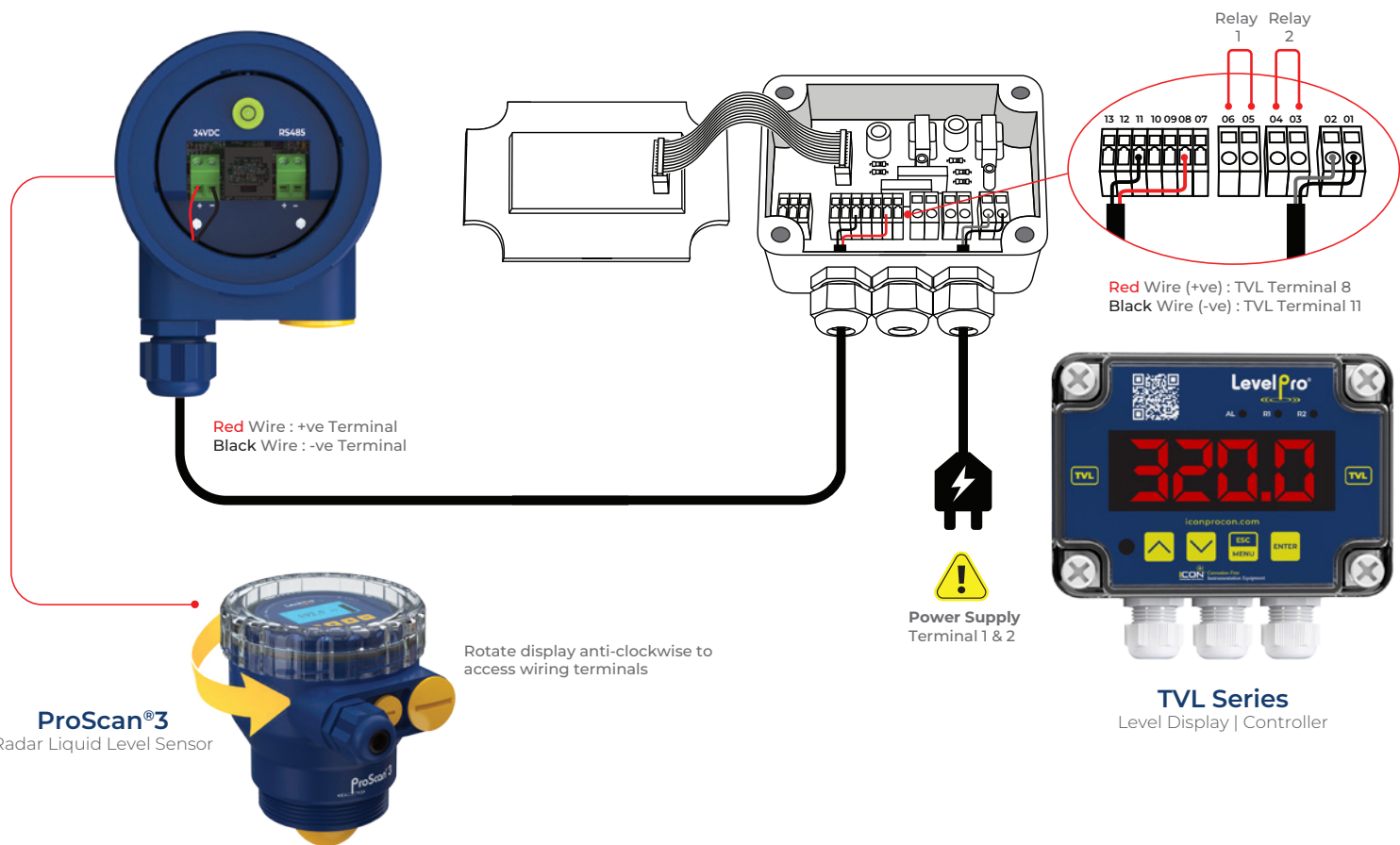
Sensor Positioning

- For plastic or FRP tanks, ensure the sensor is positioned away from the sidewall.
- Avoid placing the sensor near metallic objects outside the tank that could interfere with detection.
- Ensure the radar signal strikes the liquid surface at a 90° angle.
- Use the inbuilt bubble level to confirm the sensor is vertical.
- Account for the dead band during installation.
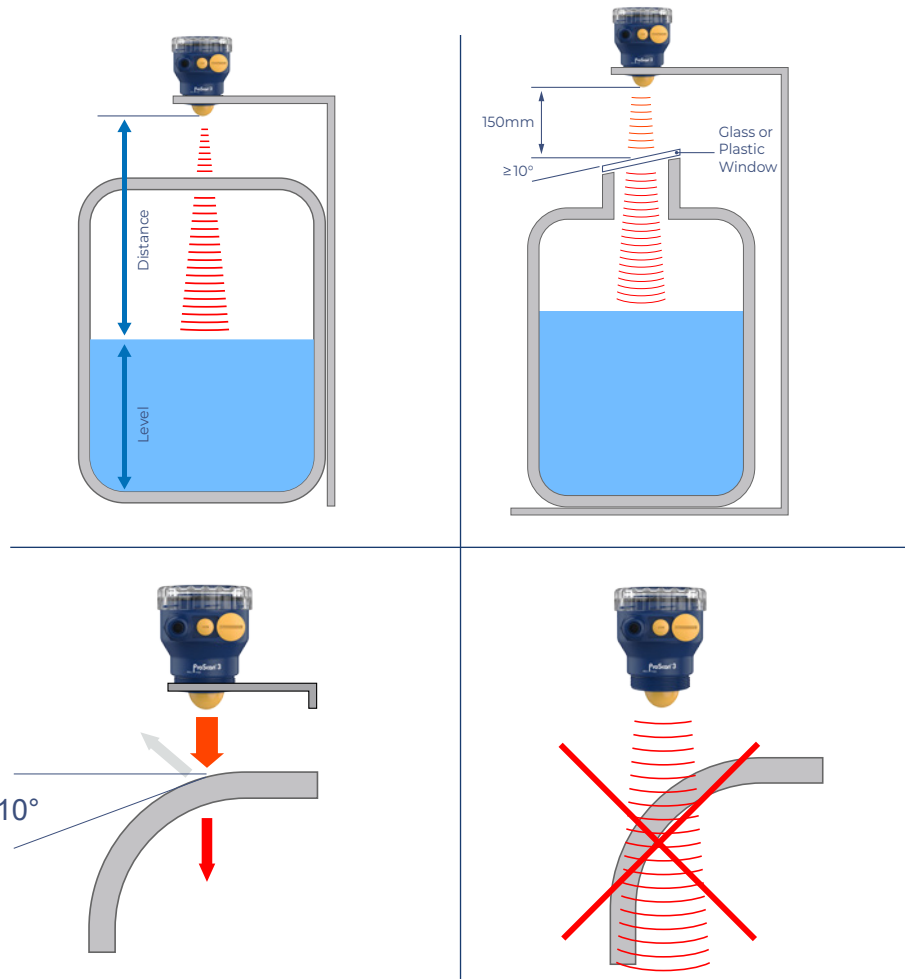
Measurement

Accurate tank measurement is essential for configuring the sensor. When measuring, consider the sensor's position relative to fittings, risers, dome tops, and bottoms. Identify the reference point from which measurements are taken.

- **Range:** The total distance from the sensor tip to the lowest liquid level.
- **Minimum Configuration (4mA)**: The distance from the sensor tip to the empty level.
- **Maximum Configuration (20mA)**: The distance from the sensor tip to the highest liquid or full level.
- Always consider blind spot (2") when setting 4-20mA.
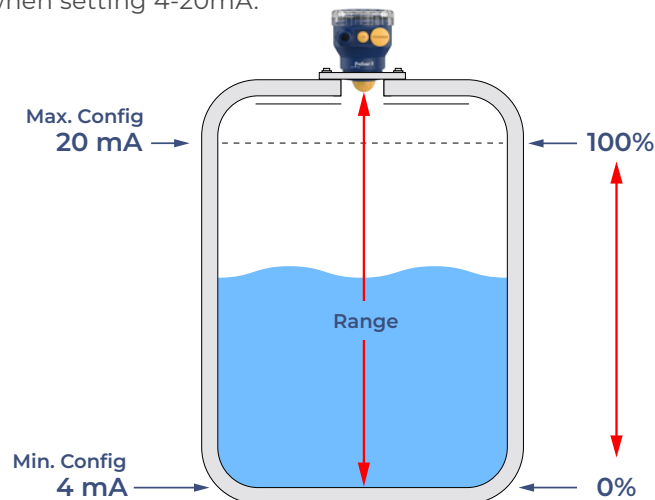
Error Codes

Code	Description
E01	Liquid level not detected
E02	Liquid level changing too fast
E04	Internal capacitor issue
E08	Actual liquid level doesn't match 4–20 mA range
E40	Display communication error

keypad Functions

Key	Function
ESC	▪ Exit Programming Mode ▪ Return to Previous Screen ▪ Display Echo Curve
⬆	▪ Edit Digits ▪ Select Display Mode
⬇	▪ Edit Digits ▪ Select Display Mode
OK	▪ Access Main Menu ▪ Confirm Edit

Factory Reset Password : (Dynamic Code x 2) + 1

Eg: If Dynamic Code is 12. Password will be 25

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Radar Level Sensor (80GHz)

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Programming 4-20mA

STEPS	DISPLAY	OPERATION
Home Screen ▶ 👉 OK	192.5 IN	**Home Screen** * Approx. 30 secs for the level reading to display ➡️ Level Searching...
1 **Main Menu** ▶ 👉 OK	Main Menu ▶ User Para. Factory Para.	**STEP 1** Select **User Parameter** ▶ Press OK
2 **User Parameters** ▶ 👉 OK	User Para. ▶ Basic Setup Measure Setup Backup Para.	**STEP 2** Select **Basic Setup** ▶ Press OK
3 **4-20mA Settings** ▶ 👉 ⬇️ OK Enter 4mA & 20mA 👉 ⬆️ OK Navigate to Range Settings	Basic Setup Pos 4ma: 0 mm ▶ Pos 20ma: 3000 mm Blind: 50 mm	**STEP 3** Set **4mA** ▶ Press OK • **4mA** : Low Level | **Default = 0** Set **20mA** ▶ Press OK • **20mA** : High Level | **Should be lower than Range** **Note:** ▪ Use ⬇️ to move cursor. 3000 — Cursor ▪ Use ⬆️ to change digits. 20mA (High) 4mA (Low)
4 **Range Settings** ▶ 👉 ESC x 3 Back to Home Screen	Basic Setup ▶ Range : 5000 mm Offset : 10 mm Pos 4ma: 0 mm	**STEP 4** Set **Range** ▶ Press OK • **Range** : Distance from Sensor Tip to Bottom of Tank. **Note:** ▪ Use ⬇️ to move cursor. 5000 — Cursor ▪ Use ⬆️ to change digits. Range

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Factory Reset

| STEPS	DISPLAY	OPERATION
Home Screen ▸ 👉 OK	192.5 IN	**Home Screen** * Approx. 30 secs for the level reading to display →	Level Searching...
1 **Main Menu** ▸ 👉 ⬇ OK	Main Menu User Para. ▸ Factory Para.	**STEP 1** Select **Factory Parameter** ▶ Press OK
2 **Password** ▸ 👉 OK	Factory PWD Dynamic Code: 32 Password: 06<u>5</u>	**STEP 2** Enter **Password** ▶ Press OK • **Password** : (Dynamic Code x 2) + 1 **Note:** ▪ Use ⬇ to move cursor. 065 ▪ Use ⬆ to change digits. Cursor
3 **Factory Parameters** ▸ 👉 ⬇ OK	Factory Para System Setup Measure Setup ▸ Restore Factory	**STEP 3** Select **Restore Factory** ▶ Press OK
4 **Factory Reset** ▸ 👉 ESC x 3 to go back to Home Screen	Factory Default OK ▸ Factory Default Warn: Factory Default?	**STEP 4** Select **Factory Default** ▶ Press OK • **Note :** The display will show 'OK' after the reset is completed successfully.

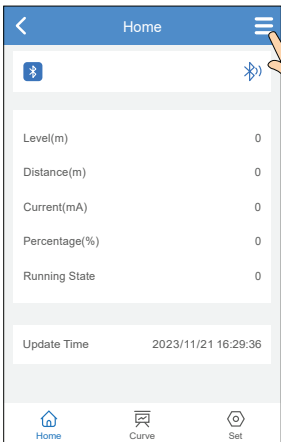# LevelPro® — ProScan®3 Series
Radar Level Sensor (80GHz)

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Bluetooth Application Settings

Install RadarMe App in your Device

Download on the App Store

GET IT ON Google Play
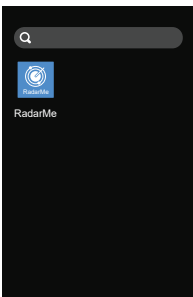
RadarMe

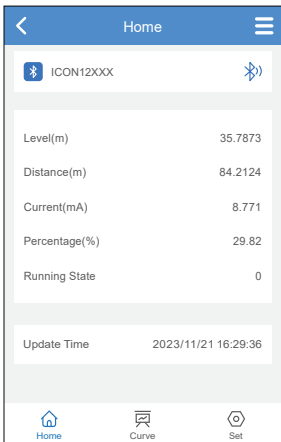🔵 **Make sure your Device Bluetooth is ON**
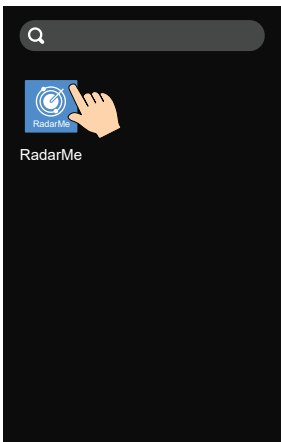
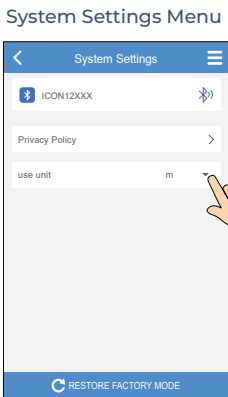|			
Open RadarMe App in the Device	**Click Device List Menu**	**Select ICON12XXX from the List Enter Password: 123456**	**ProScan3 Connected**
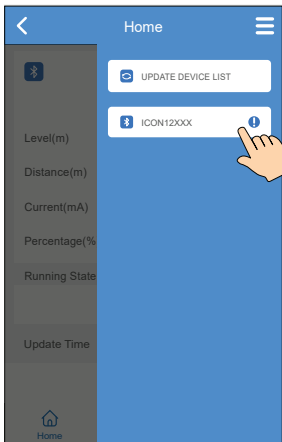
Setting Display Unit
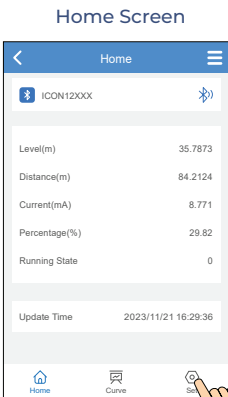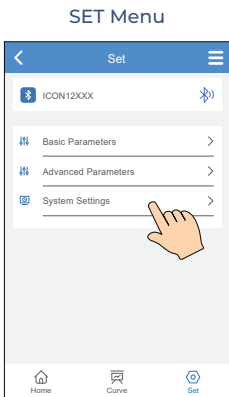
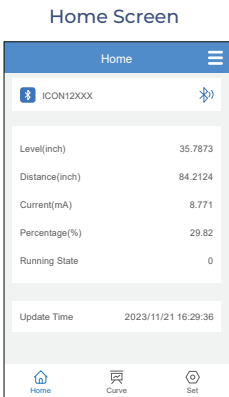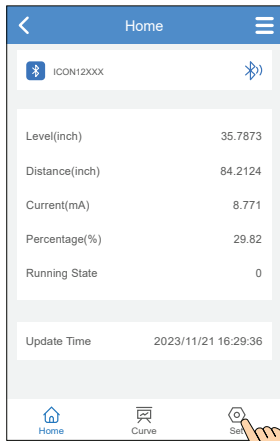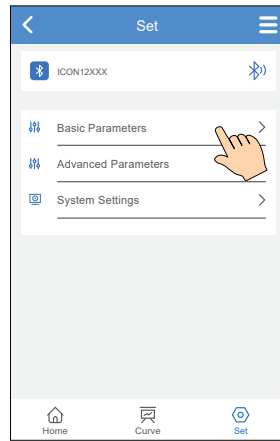| Home Screen	SET Menu	System Settings Menu	System Settings Menu	Home Screen
Click Set Button	**Select System Settings**	**Click Unit Drop Down Arrow**	**Select Unit (m | inch)**	**Unit Changed Successfully!**

LevelPro® — ProScan®3 Series
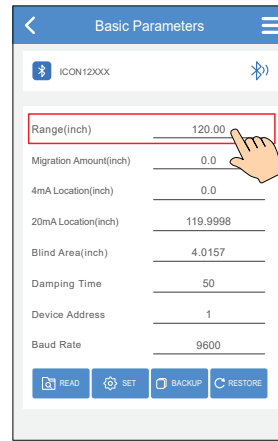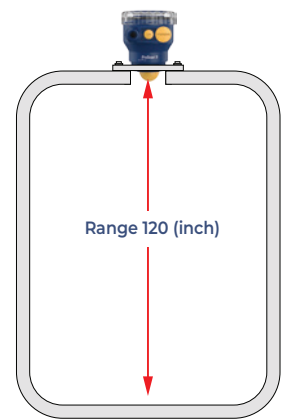## Radar Level Sensor (80GHz)

Setting Range

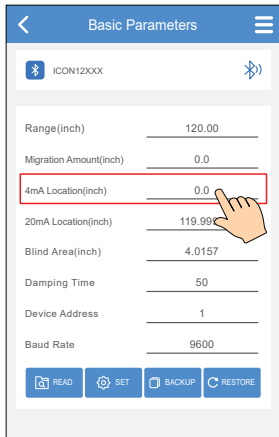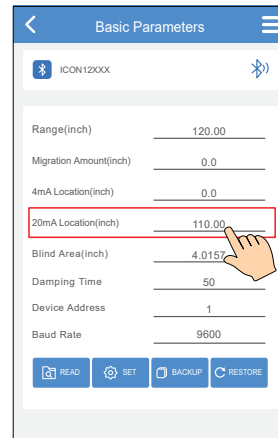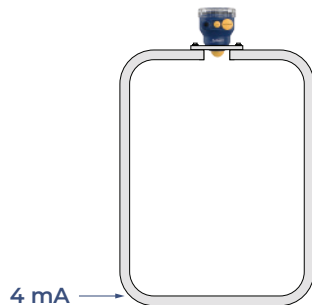**Click Set Button** **Select Basic Parameters** **Set Range Value**
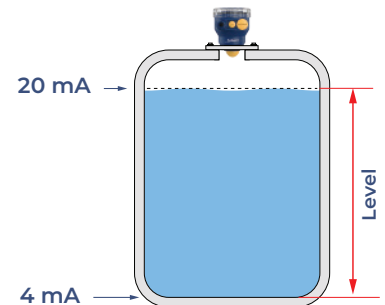**E.g. Range Value = 120 (inch)**
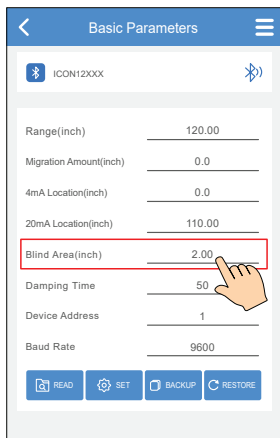
Setting Level

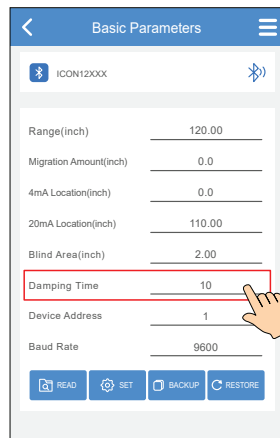**Set 4mA Location**
4mA (Low Level) = 0

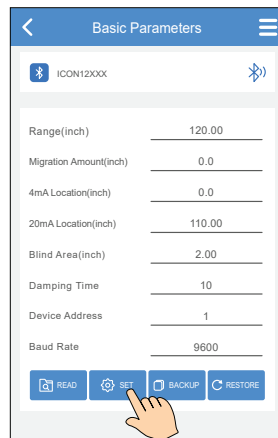**Set 20mA Location**
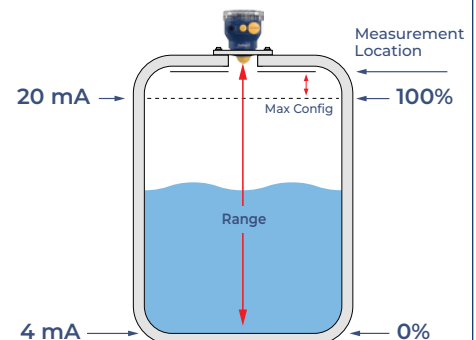**20mA (High Level) = 110(inch)**

Setting Parameters

Set Blind Area
E.g. Blind Area = 2.00(Inch)

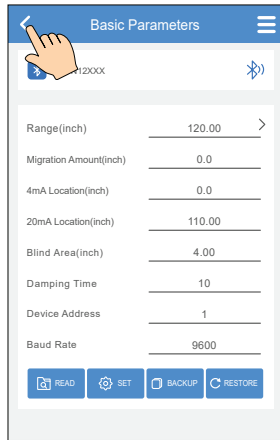**Set Damping Time**
E.g. Damping Time = 10(sec)
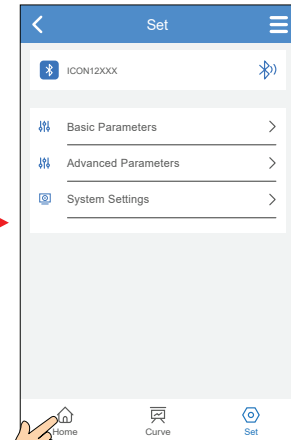
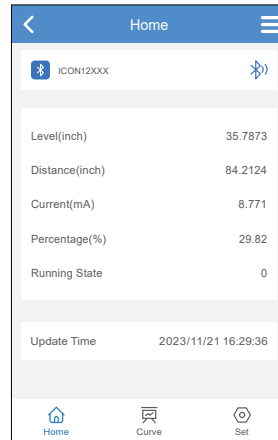**Click Set Button to**
Save the Parameters

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Basic Parameters

Range(inch)	120.00
Migration Amount(inch)	0.0
4mA Location(inch)	0.0
20mA Location(inch)	110.00
Blind Area(inch)	4.00
Damping Time	10
Device Address	1
Baud Rate	9600

READ   SET   BACKUP   RESTORE

Back to Setting Menu

Set

- Basic Parameters
- Advanced Parameters
- System Settings

Home   Curve   Set

Click Home Button to Show Home Screen

Home

Level(inch)	35.7873
Distance(inch)	84.2124
Current(mA)	8.771
Percentage(%)	29.82
Running State	0
Update Time	2023/11/21 16:29:36

Home   Curve   Set

Bluetooth Settings
Video Tutorial

Parameter Backup

Basic Parameters

Range(inch)	120.00
Migration Amount(inch)	0.0
4mA Location(inch)	0.0
20mA Location(inch)	110.00
Blind Area(inch)	2.00
Damping Time	50
Device Address	1
Baud Rate	9600

READ   SET   BACKUP   RESTORE
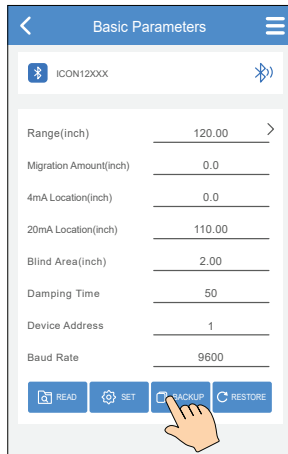
Select Backup

Saves the device's current configuration. Only one backup is stored at a time.

Basic Parameters

Range(inch)	60.00
Migration Amount(inch)	0.0
4mA Location(inch)	0.0
20mA Location(inch)	50.00
Blind Area(inch)	2.00
Damping Time	10
Device Address	1
Baud Rate	9600

READ   SET   BACKUP   RESTORE
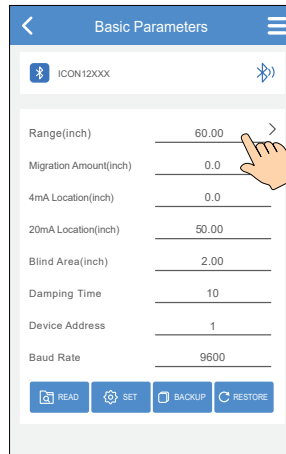
Adjust Settings

You can now set any parameters you want. Your saved backup remains unchanged.

Basic Parameters

Range(inch)	120.00
Migration Amount(inch)	0.0
4mA Location(inch)	0.0
20mA Location(inch)	110.00
Blind Area(inch)	2.00
Damping Time	10
Device Address	1
Baud Rate	9600

READ   SET   BACKUP   RESTORE
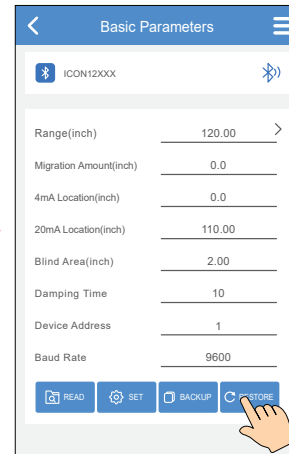
Select Restore

Reverts the device to the previously saved configuration, replacing the current values.

Model Selection

ProScan® 3 — Radar Level Transmitter					
Connection	Part Number	Material	Display	Output	Range
2" NPT	PS38000	PP	LCD	4-20mA Loop	RS485	0-10m
2" NPT	PS38000S	316 SS	Blind	4-20mA Loop (2 Wire)	0-10m
2" NPT	PS38000RT	PP	Blind	4-20mA	0-10m
2" NPT	PS38000RT-R	PP	Blind	RS485	0-10m
2" NPT	LB75 Tank Top Mounting Bracket	PVC	-	-	-
2" NPT	LB50 Wall Mount Bracket	GFPP	-	-	-
2" NPT	SBF Self Aligning Bulkhead	PVC	-	-	-
Clamp	LB80S SS Mounting Bracket	316 SS	-	-	-

Add Suffix "-20" for 20m Range

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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