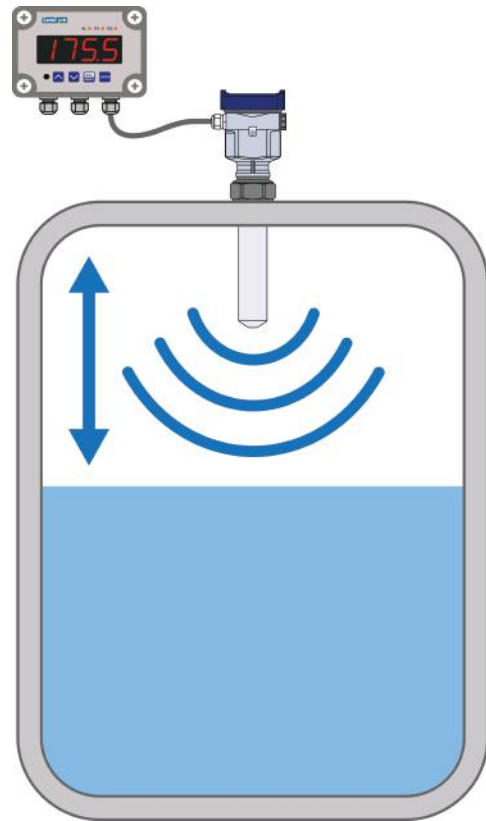


Quick Start ProScan® Radar Sensor





WARNING!

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

Where personal safety or significant property damage can occur due to a spill, the installation must have a redundant fail-safe backup system installed which accounts for sensor and/or power failure.

Safety Information

1. De-pressurize and Vent System Prior to Installation or Removal.
2. Confirm Chemical Compatibility Before Use.
3. DO NOT Exceed Maximum Temperature or Pressure Specifications.
4. ALWAYS Wear Safety Goggles or Face-Shield During Installation and/or Service.
5. DO NOT Alter Product Construction.
6. Where personal safety or significant property damage can occur due to a spill, the installation must have a redundant fail-safe backup system installed which accounts for sensor and/or power failure.



Warning | Caution | Danger

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



Hand Tighten

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



Note | Technical Notes

Highlights additional information or detailed procedure.

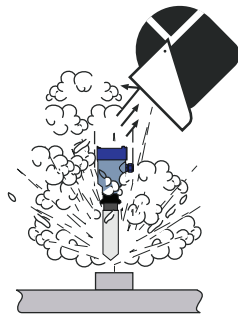


Then Carefully Use Proper Wrench to Tighten

Use of tool(s) may damage product beyond repair and potentially void product warranty.



WARNING!



Personal Protective Equipment (PPE)

Always utilize the most appropriate PPE during installation and service of Truflo[®] Products



Pressurized System Warning

Sensor may be under pressure, take caution to vent system prior to installation or removal. Failure to do so may result in equipment damage and/or serious injury.

General Information

Specification	Description
Operating Voltage	16 - 24VDC
Current Consumption	60mA max.
Control Output	4-20mA RS 485
Transmitter	4-20mA
Communication	Modbus Hart
Measured Units	Ft or M
Display Bar	% of Overall Span
Accuracy	± 0.5% of F.S. @ 25°C
Process Mount	1.5 NPT
Range	33ft 10M
Resolution	0.01M
Materials of Construction	ABS Housing PTFE Teflon [®] Horn Epoxy Coated Aluminium PTFE Teflon [®] Horn
O-Ring Material	Viton
Operating Temperature	-40° - 266°F -40° - 130°C
Approval Epoxy Coated Body	ATEX (ia): II 1/2 G Ex ia IIB T6...T5 Ga/Gb ICEX (ia): EX ia IIB T6...T5 Ga/Gb
Approval ABS Body	CE RoHS

ProScan® Radar Sensor

The ProScan® is two-wire, pulse radar level transmitter that provides a continuous 4-20mA current output. This output is directly proportional to the liquid level in a sump or a tank.

ProScan® Radar Sensor

Warning: Liquids must remain at least 30cm from the antenna.

Note: ProScan® Series: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

This instrument complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this instrument may not cause harmful interference, and; (2) this instrument must accept any interference received, including interference that may cause undesired operation.

Programming Display

The removable display comprises a visual LCD dot matrix display with 4 separate push buttons. The factory measurement is preset to feet, and the range of sensor is 32' 8" or 10M. The bar graph at the right side of the display indicates the current level reading relative to the span - the distance between the 4mA | Empty and the 20mA | Full



Buttons & Description

<ul style="list-style-type: none"> Exit Programming Mode Return to a Previous Display Echo Curve 	<ul style="list-style-type: none"> Edit Digits Select Display Mode
<ul style="list-style-type: none"> Select Configuration Options Select Digits to Edit Display Current Program Parameters 	<ul style="list-style-type: none"> Enter Configuration Confirm Edit

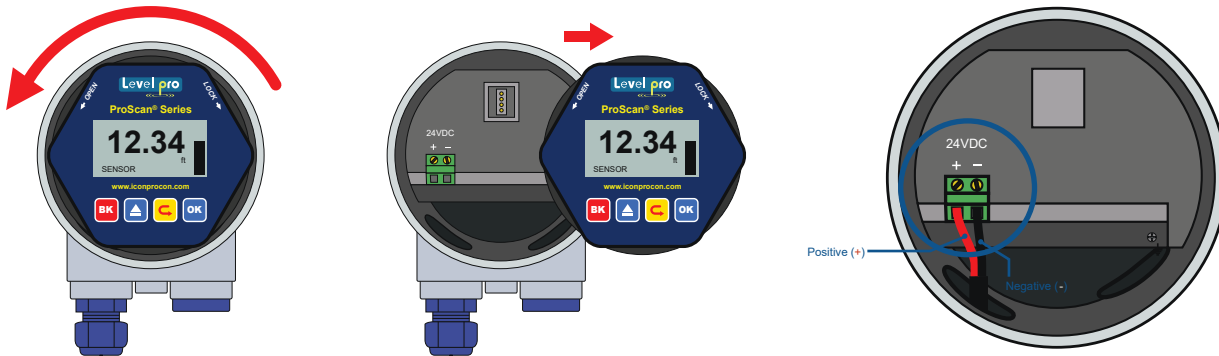
Power Supply

The sensor power supply and current signal share the same two-wire shielded cable. The sensor supply voltage should never exceed 24 VDC. 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.

Terminal Connections

The Positive (+) and Negative (-) terminals are for connection to a 24 VDC power supply or to a 4-20 mA loop power source. The wire to the terminals can be extended up to 1,000 feet using 16-22 gauge shielded instrumentation wire

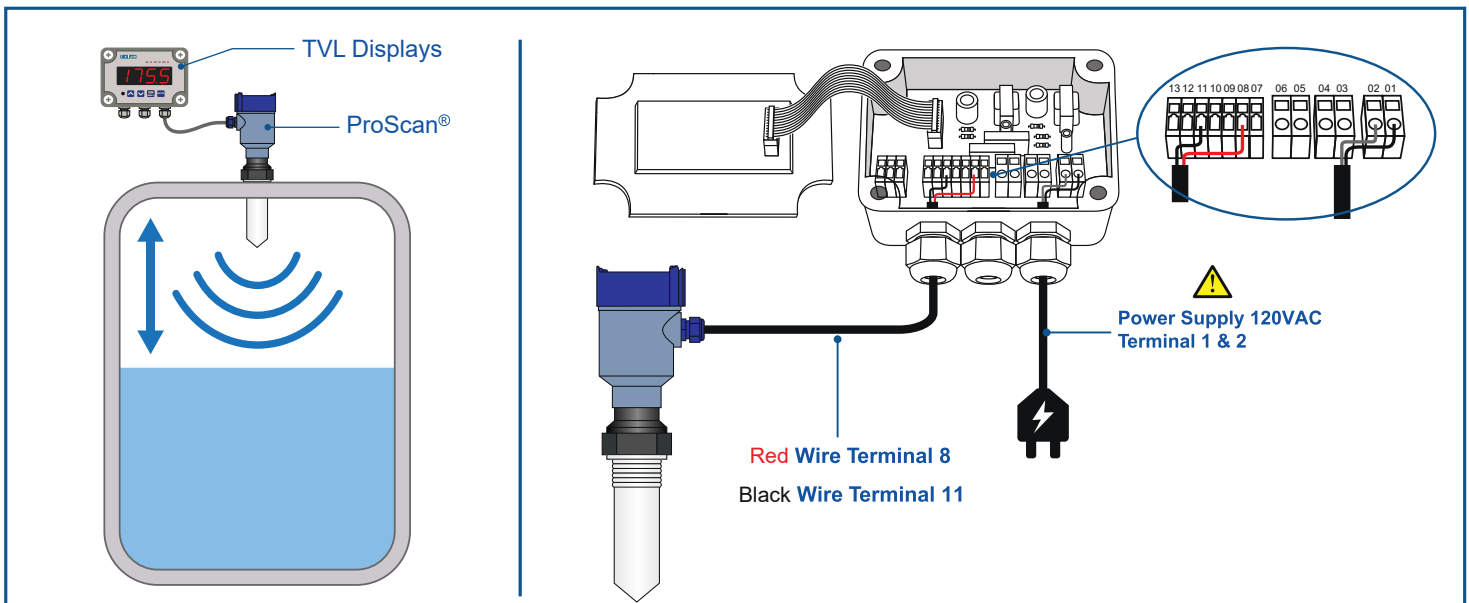


The sensor should be wired with shielded 2-conductor cable (16 to 22 AWG) to protect from electromagnetic interference. If using a liquid tight connector, select a cable with an outer diameter that is designed to ensure an effective seal with the connector [typically between 0.20" to 0.35" (5 to 9 mm)].

Electrical Safety

1. Wiring should always be done by a licensed electrician in accordance with federal, state, provincial and local codes.

Wiring to TVL Display



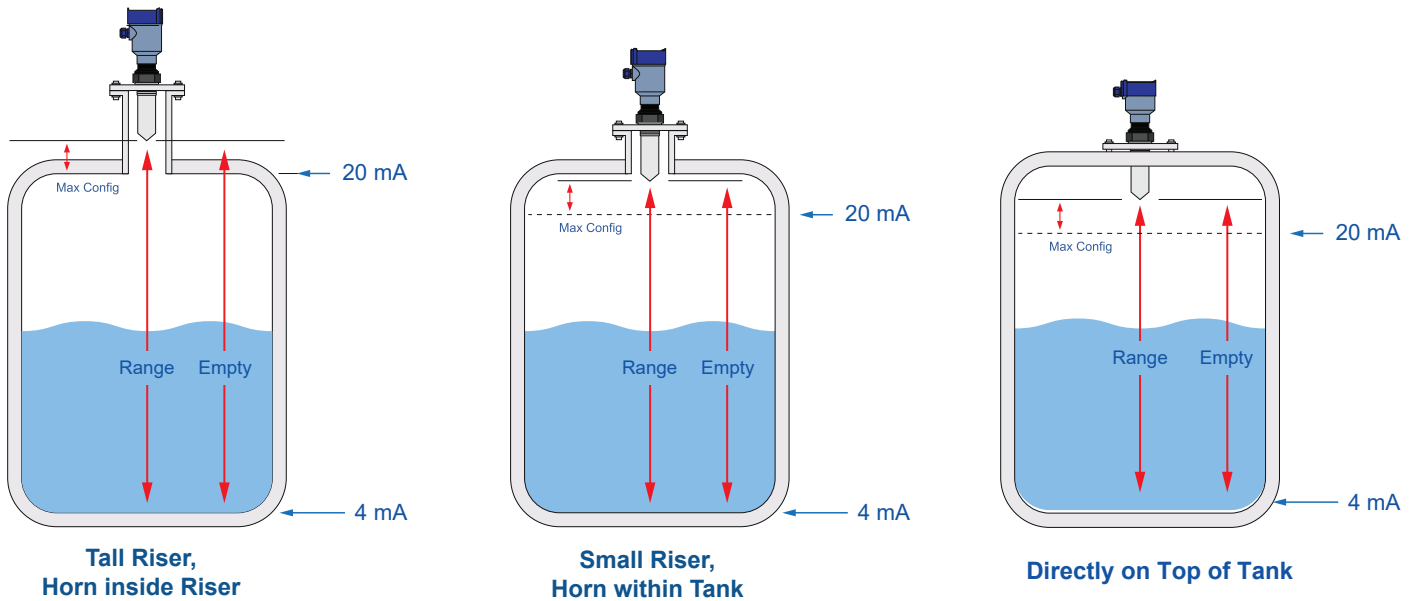
Tank Installation

Below are some considerations with respect to how the sensor can be installed on top of a tank. ProScan® has a dead band that extends out from the measurement transducer of the sensor. As a result, the height of the sensor above or below the top of the tank will affect the dead band and 20mA settings.

Below are some examples of different tank configurations. The ProScan® 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, therefore this space is not measured.

Special consideration is required during the installation to ensure the blanking area is taken into account.

The position of the sensor above or below the top of the tank will affect the blanking area and the 20mA setting.



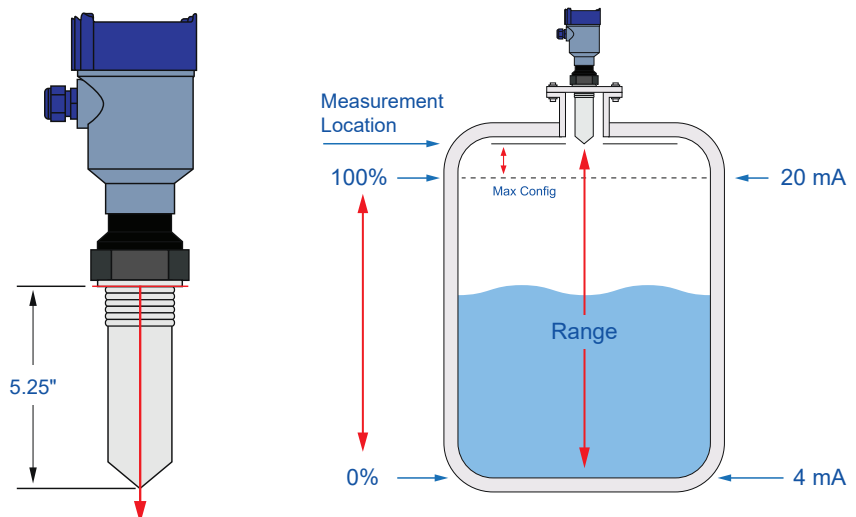
Programming Display

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.

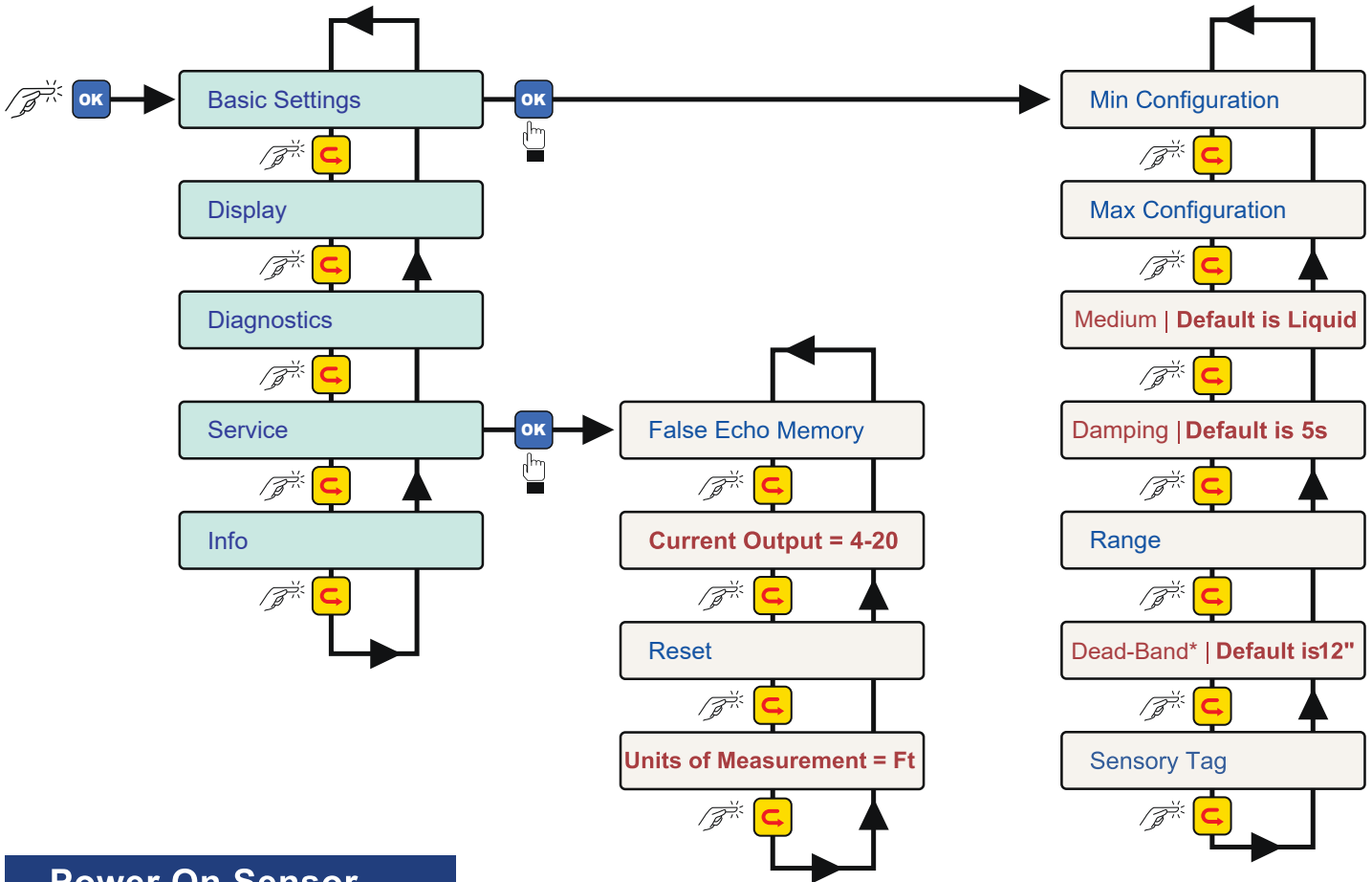
1. The Range is the overall distance from the Max or Full Liquid Level to the lowest liquid level | Normally this would be when the tank is Empty

- a) Min Configuration = 4mA setting.
- b) With flat bottom tanks, the Range and Empty Configuration values can be the same.

2. Max Configuration = 20mA setting.
The distance from the tip of the sensor to the highest liquid or full level



Menu Introduction



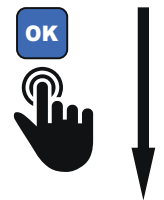
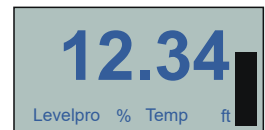
Power On Sensor

* Dead-Band = Near Blanking

2. **OK** Button to Enter the **Main Menu**

Use the **C** button to scroll through the **Sub Menus**

- | | | | | |
|-------------------------|------------------|----------------------|------------------|----------------|
| ▶ Basic Settings | Basic Settings | Basic Settings | Basic Settings | Basic Settings |
| Display | ▶ Display | Display | Display | Display |
| Diagnostics | Diagnostics | ▶ Diagnostics | Diagnostics | Diagnostics |
| Service | Service | Service | ▶ Service | Service |
| Info | Info | Info | Info | ▶ Info |



Basic Menu Setting

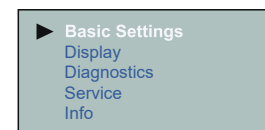
OK Button. to Enter **Basic Settings Menu**

Use the **C** button to scroll through the **Basic Settings Sub Menu** options.

- | | | |
|---------------------------------------|------------------------------|---------------|
| 1. Min Adjustment = 4mA | 4. Damping = Seconds | 7. Sensor Tag |
| 2. Max Adjustment = 20mA | 5. Range = Max Sensor Range | |
| 3. Medium = Liquid Solid Micro DK | 6. Near Blanking = Dead-Band | |

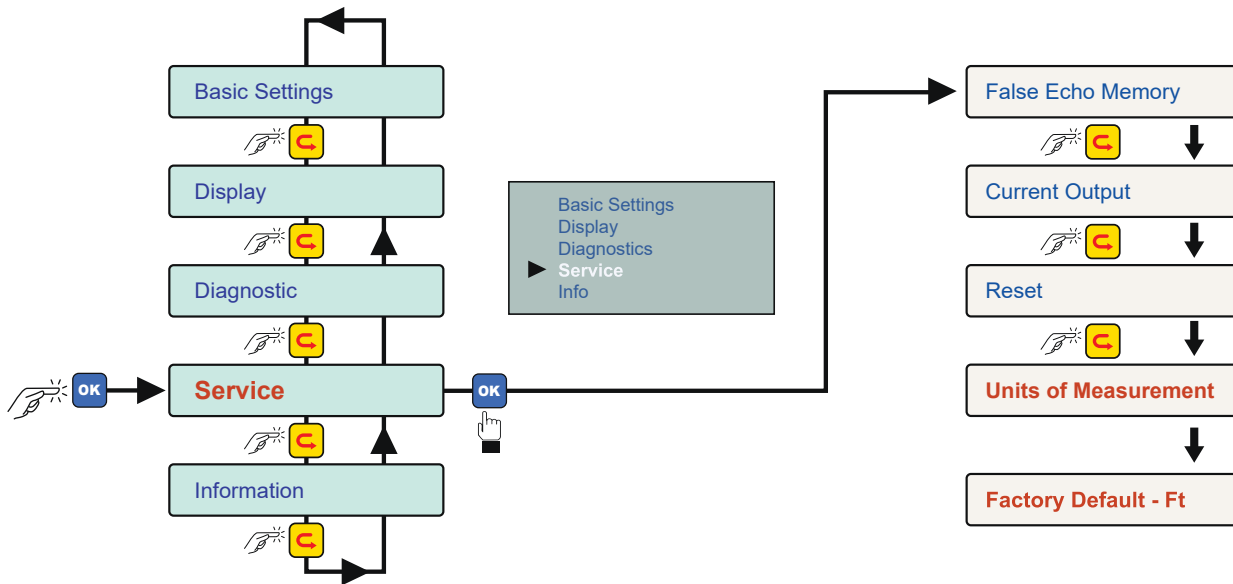
BK to go back to main menu.

Use the **C** button to scroll through the Menu options.



Programming Units of Measurement } Factory Default is Ft

This function sets the units for all measurement values to be entered into the sensor. The choices for units are feet and meters. The unit is shipped with a **Factory Default Setting of feet**.



1. From the Main Screen, to advance into the Main Menu.

2. Arrow repeatedly until the arrow is next to Service.

3. to advance into the Service menu (False Echo Memory will appear).

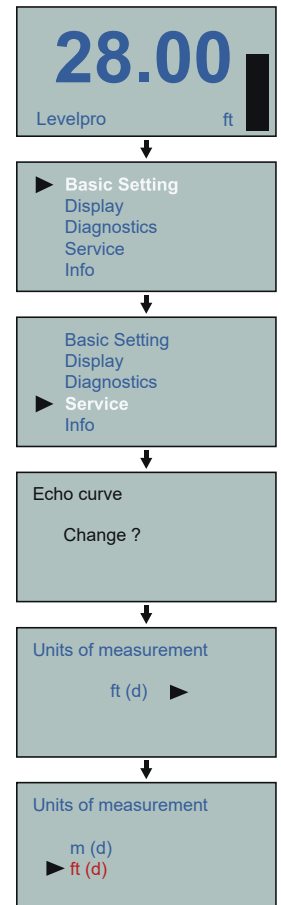
4. Arrow repeatedly until the menu shows Units of Measurement.

5. to advance into Units of Measurement.

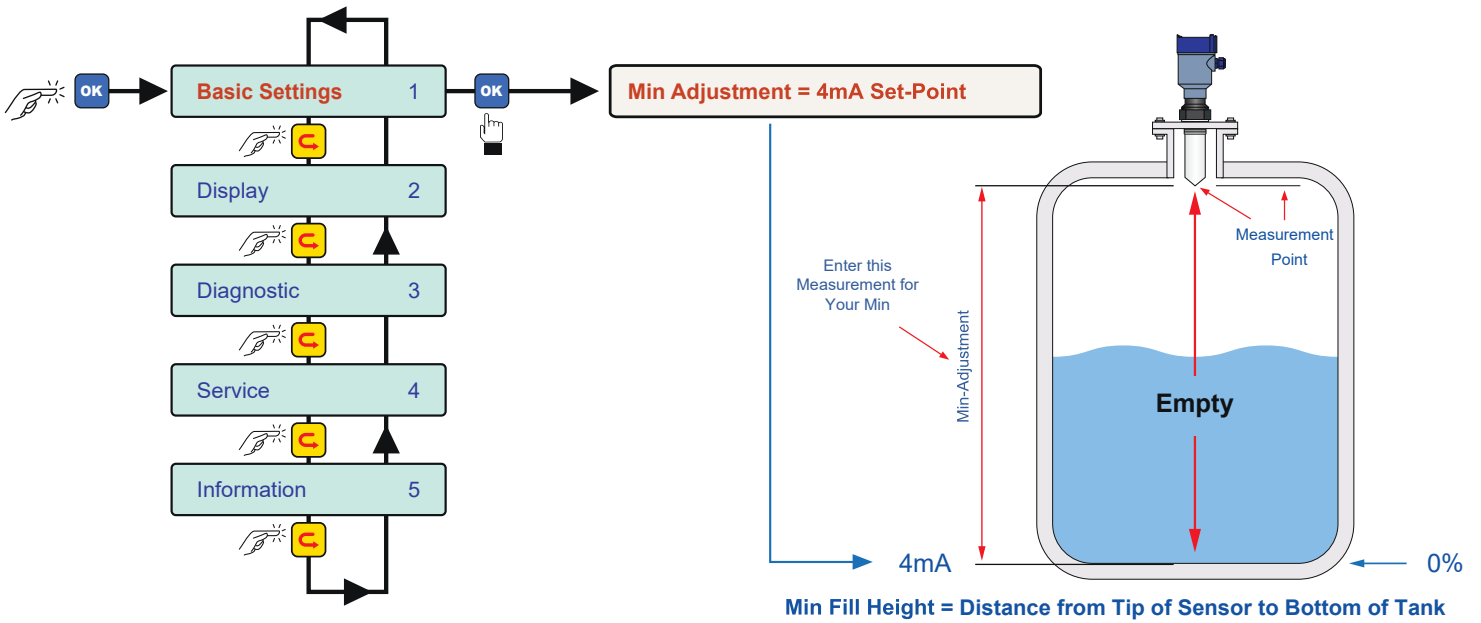
6. Arrow to change the setting between feet [ft (d)] and meters [m (d)].

7. When the units are correct, to save the setting.

8. When done, to return to the Main Menu,
and a second time to return to the Main Screen.



Program Low or Empty } 4mA



1. From the Main Screen, to advance into the Main Menu

2. to advance into the **Basic } Sub- Programming } Min Adjustment Menu**

3. to Enter the Range of the Sensor } Distance from Tip of Sensor to Bottom of the Tank

4. again to switch to the distance (d) setting.

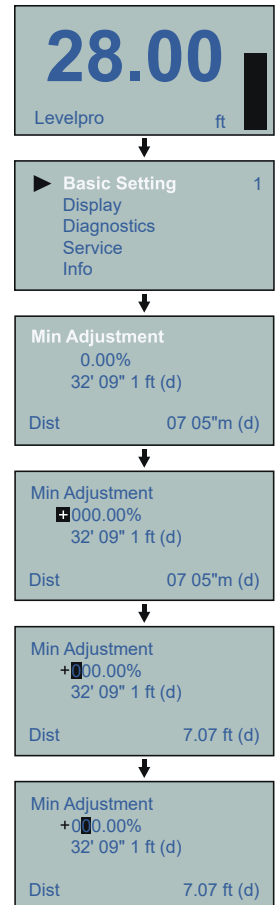
5. to move one segment to the right. will scroll left to right and then back to the first segment.

6. to increase the value of the number highlighted. will scroll from 0 to 9 and back again.

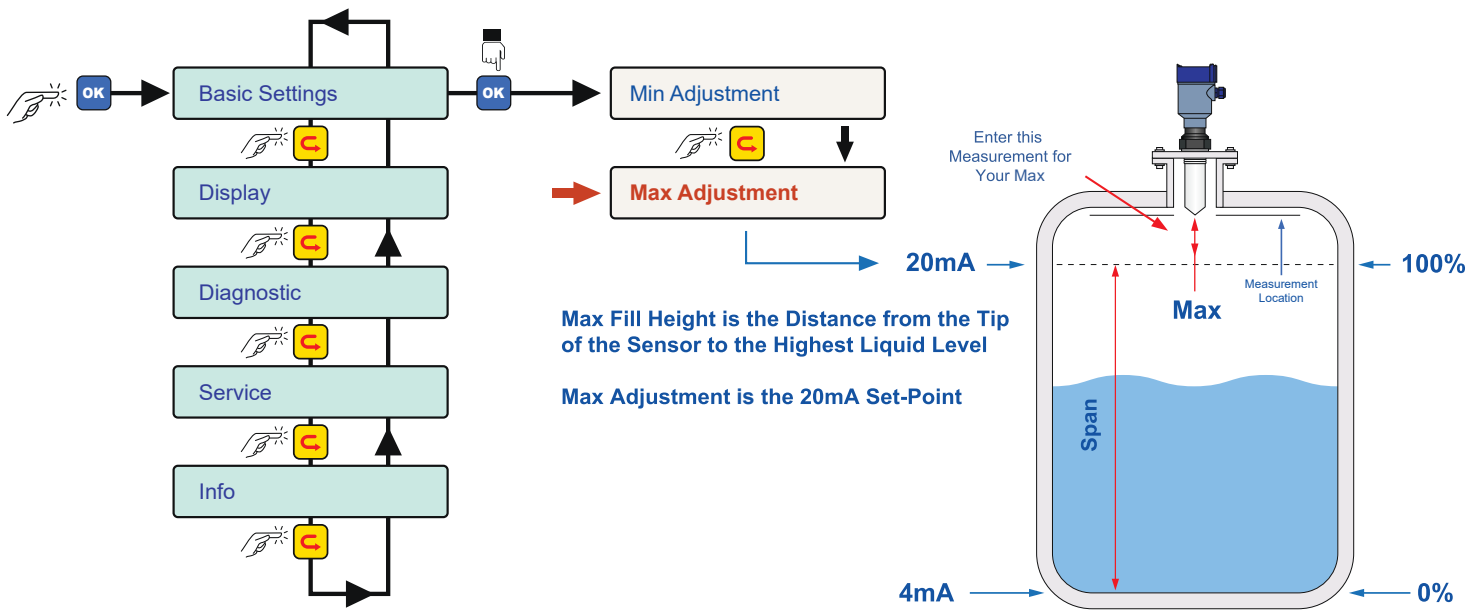
7. When the value is correct, to save the setting.

8. When done, to return to the Main Menu, and a second time to return to the Main Screen;

if you want to advance directly into Full Configuration



Program Max Fill Height } 20mA



1. From the Main Screen to advance into the Main Menu

2. to advance into the **Basic - Sub- Programming - Min Adjustment Menu.**

3. to Enter into Sub Menu.

4. to advance into Max. Adjustment. The first percentage segment will be highlighted.

5. again to switch to the distance (d) setting.

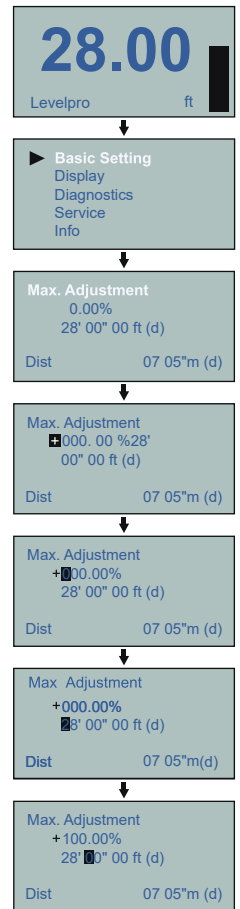
6. to move one segment to the right. will scroll left to right and then back to the first segment.

7. to increase the value of the number highlighted. will scroll from 0 to 9 and back again.

8. When the value is correct to save the setting.

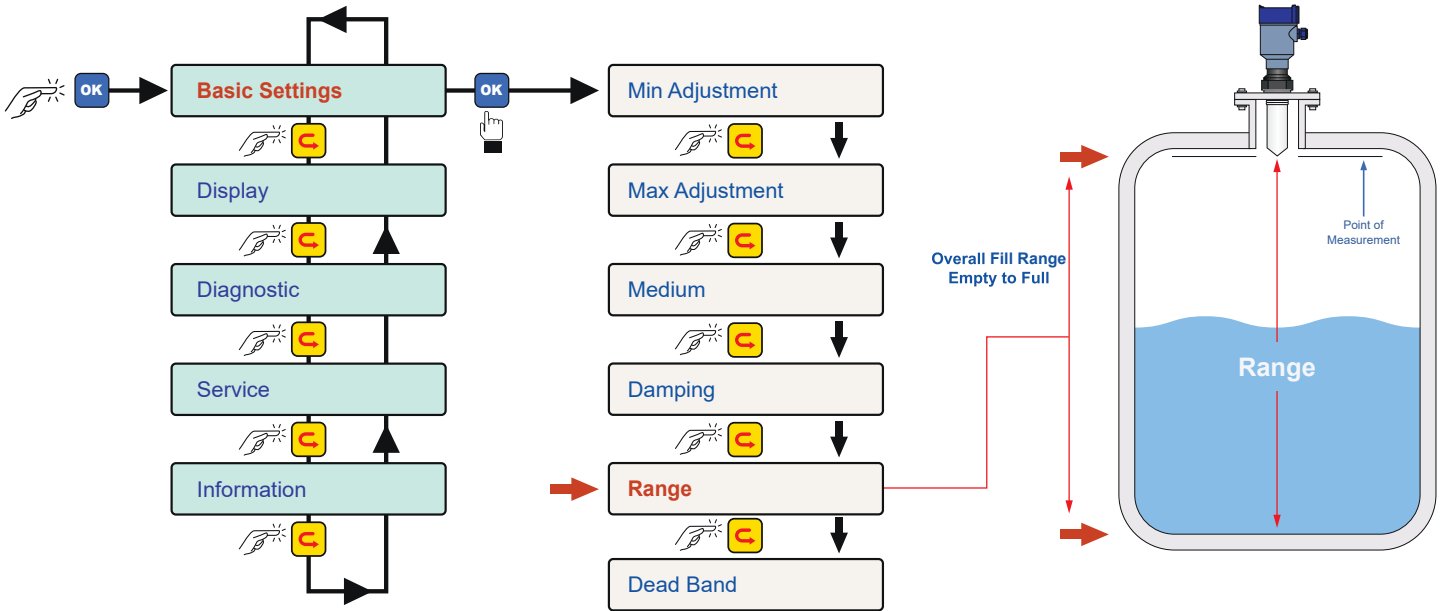
9. When done to return to the Main Menu, and a second time to return to the Main Screen

if you want to advance directly into Full Configuration



Program Max Range

This function sets the Maximum Operational Range for the sensor.
 This setting defines the maximum distance that the sensor will detect valid echo returns.



1. From the Main Screen, to advance into the Main Menu.

2. to advance into the Programming Menu.

3. 4X until the menu shows Range.

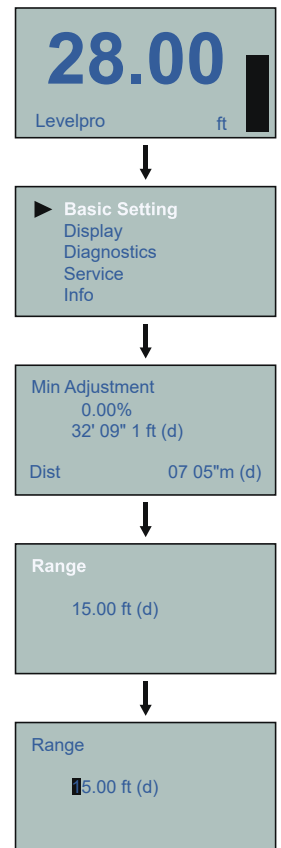
4. to edit Range value. The first segment will be highlighted.

5. to move one segment to the right. will scroll left to right and then back to the first segment.

6. to increase the value of the number highlighted. will scroll from 0 to 9 and back again.

7. When the value is correct, to save the setting.

8. When done, to return to the Main Menu, and a second time to return to the Main Screen or;
 if you want to advance directly into Dead Band, repeatedly until Dead Band* appears.

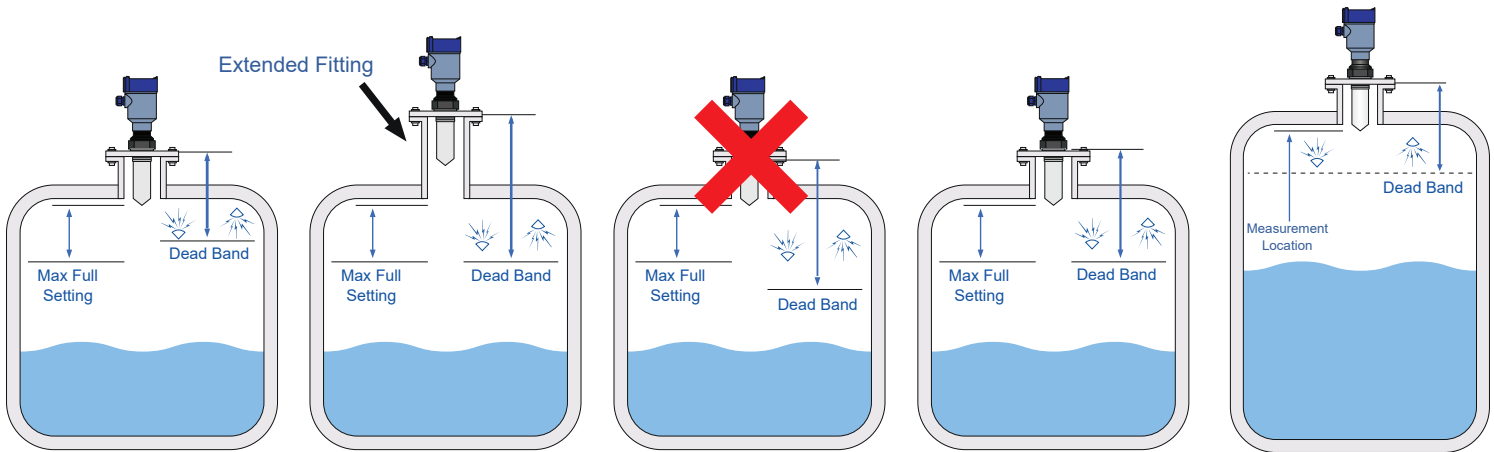


Dead Band = Near Blanking

Programming Dead Band

This setting defines the minimum distance that the sensor will detect valid echo returns.

Note : If the Dead Band* setting is placed below the "Max Full Setting" setting, then the sensor will not measure above the Dead Band.



1. From the Main Screen **OK** to advance into the Main Menu.

2. **OK** to advance into the Programming Menu.

3. **C** 5X until menu shows Dead Band*

*Dead Band = Near Blanking

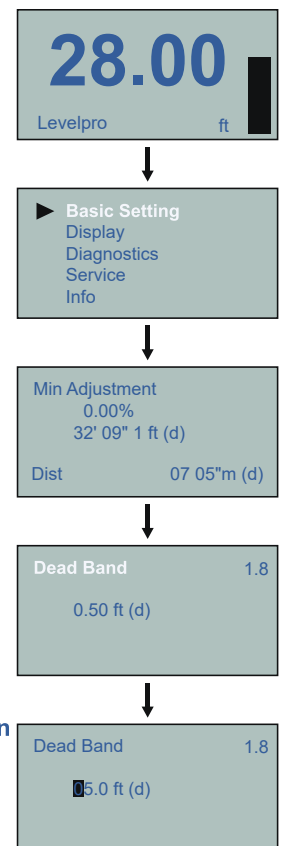
4. **OK** to edit Dead Band value | Highlighted Segment

5. **C** to move one segment to the right. **C** scroll to right, then back to the first digit

6. **▲** to increase the value of the number highlighted **▲** scroll from 0 to 9 and back again

7. When the value is correct **OK** to save the setting

8. When done **BK** to return to the Main Menu Press **BK** a second time to return to the Main Screen

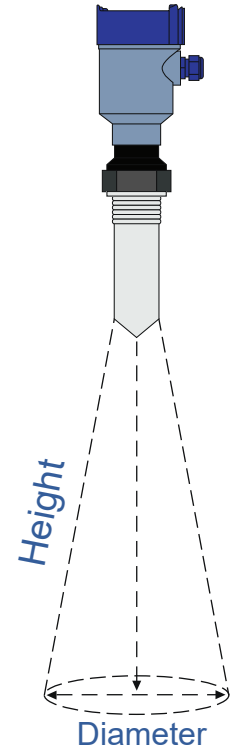


Installing Sensor

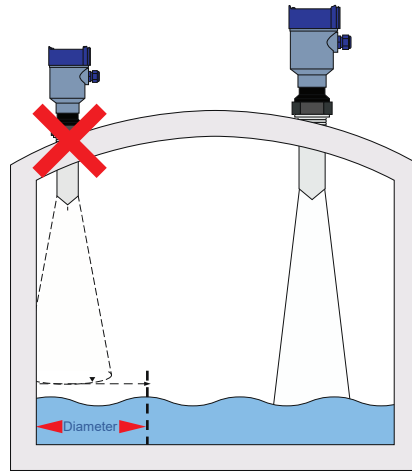


Beam Angle	22°
Height	Dia.
10'	3.89'
20'	7.78'
30'	11.66'

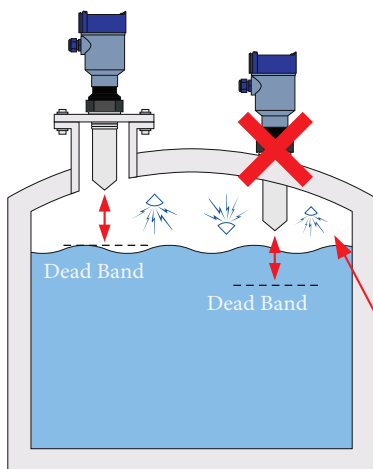
Beam Angle	22°
Height	Dia.
5m	1.94m
10m	3.89m



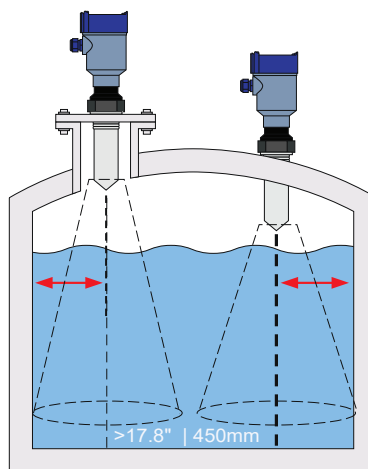
1. The sensor must be installed with the antenna perpendicular to the surface of the liquid.
2. The sensor must be installed with a distance $> 17.8''$ | 450mm from the side wall of the tank.
3. The liquid level must not be allowed to enter into the Dead Band of the sensor.
4. The sensor installation must be done in accordance with relevant local or federal safety regulations.
5. The sensor must be connected to electrical ground.
6. Do not use the external housing to rotate the sensor into the installation fitting
7. Make sure that all parts of the sensor exposed to the application, specifically any portion installed within the tank, are suitable for the process.
8. Consider any effects from the application temperature, pressure or media.



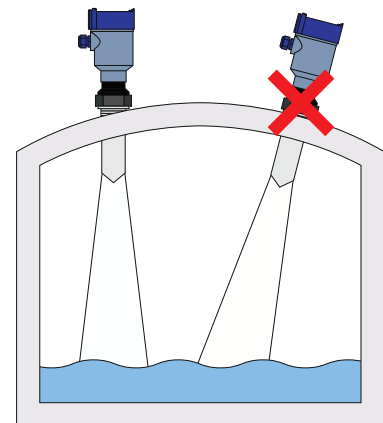
$>17.8''$ (450 mm)



Noise



$>17.8''$ | 450mm

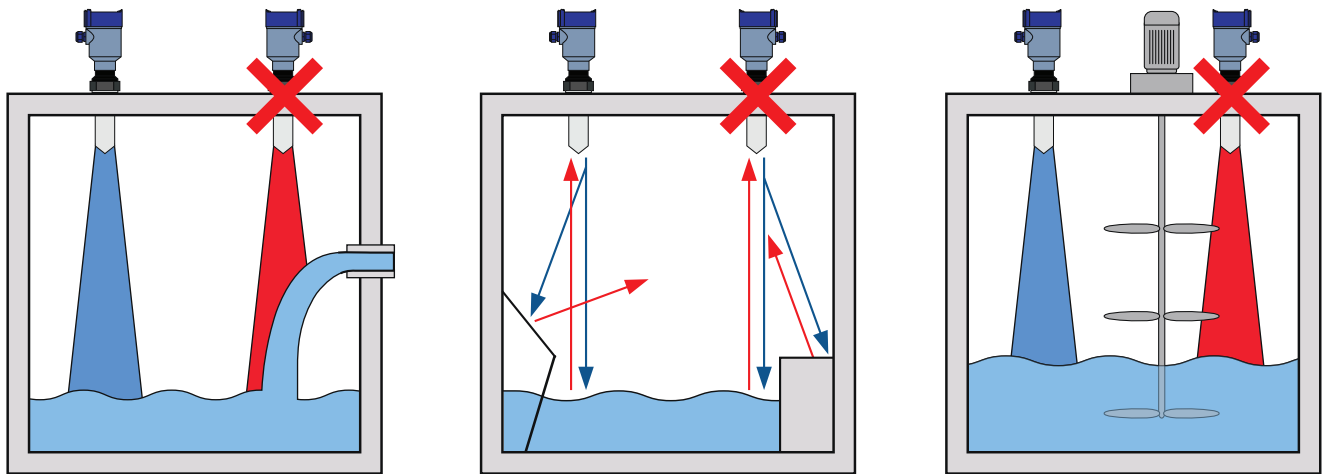


Installing Sensor

ProScan® measures the distance between the bottom of sensor face and the liquid surface requirements:

Ensure that there are no protrusions or obstructions between the tip of the Sensors Antenna and the Liquid Surface below.

Note: The ProScan® should have a clear unobstructed path to the liquid level. The ProScan® is subject to Incorrect or unreliable readings if ladders, pipes, mixers, pumps, floats or irregular shapes walls are present.

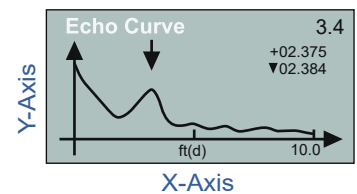


Note: Additionally, when the sensor transmits a microwave pulse, the RF signal spreads in a conical shape (determined by its beam angle) over distance. Refer to the Beam Angle Chart to determine, what if any, additional measurement space is required to be free of such obstacles. If such items are present, then a False Echo Curve configuration must be done.

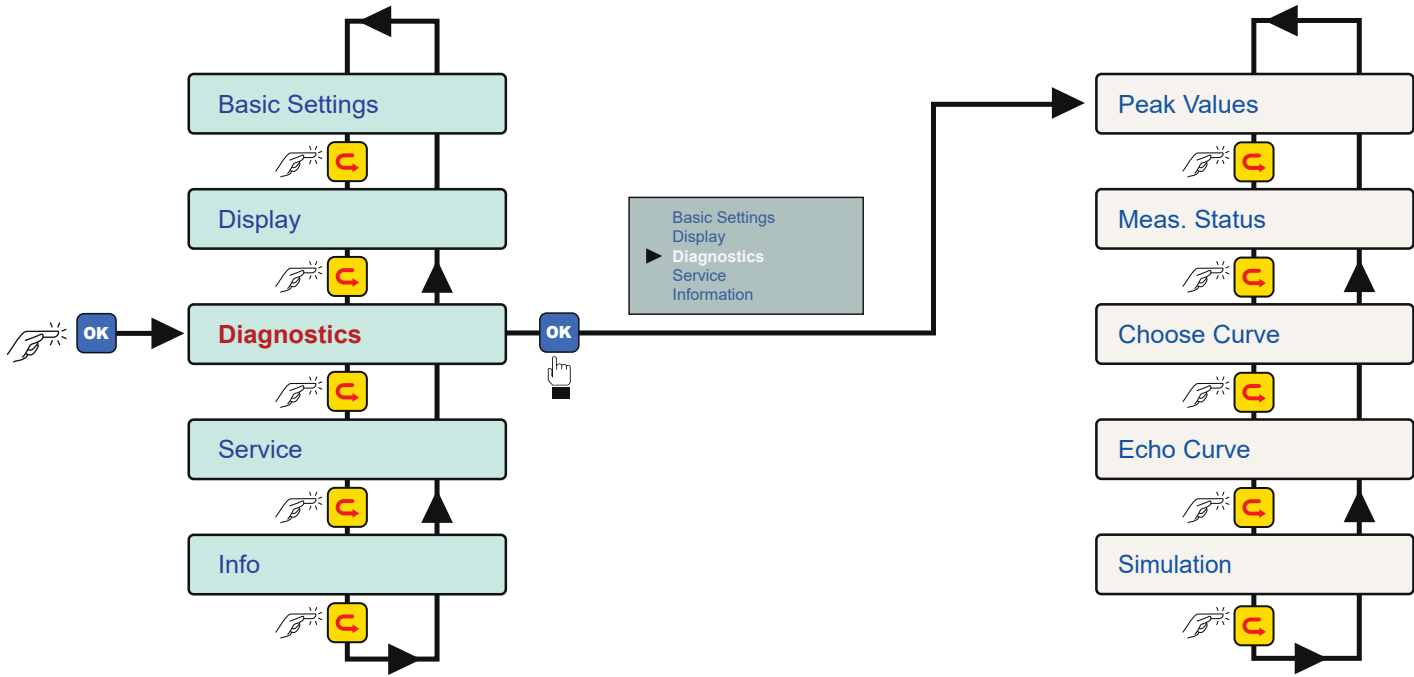
Echo Curve

The Echo Curve is a diagnostic tool that is employed to review situations where the ProScan® requires filters or modification to the current installation

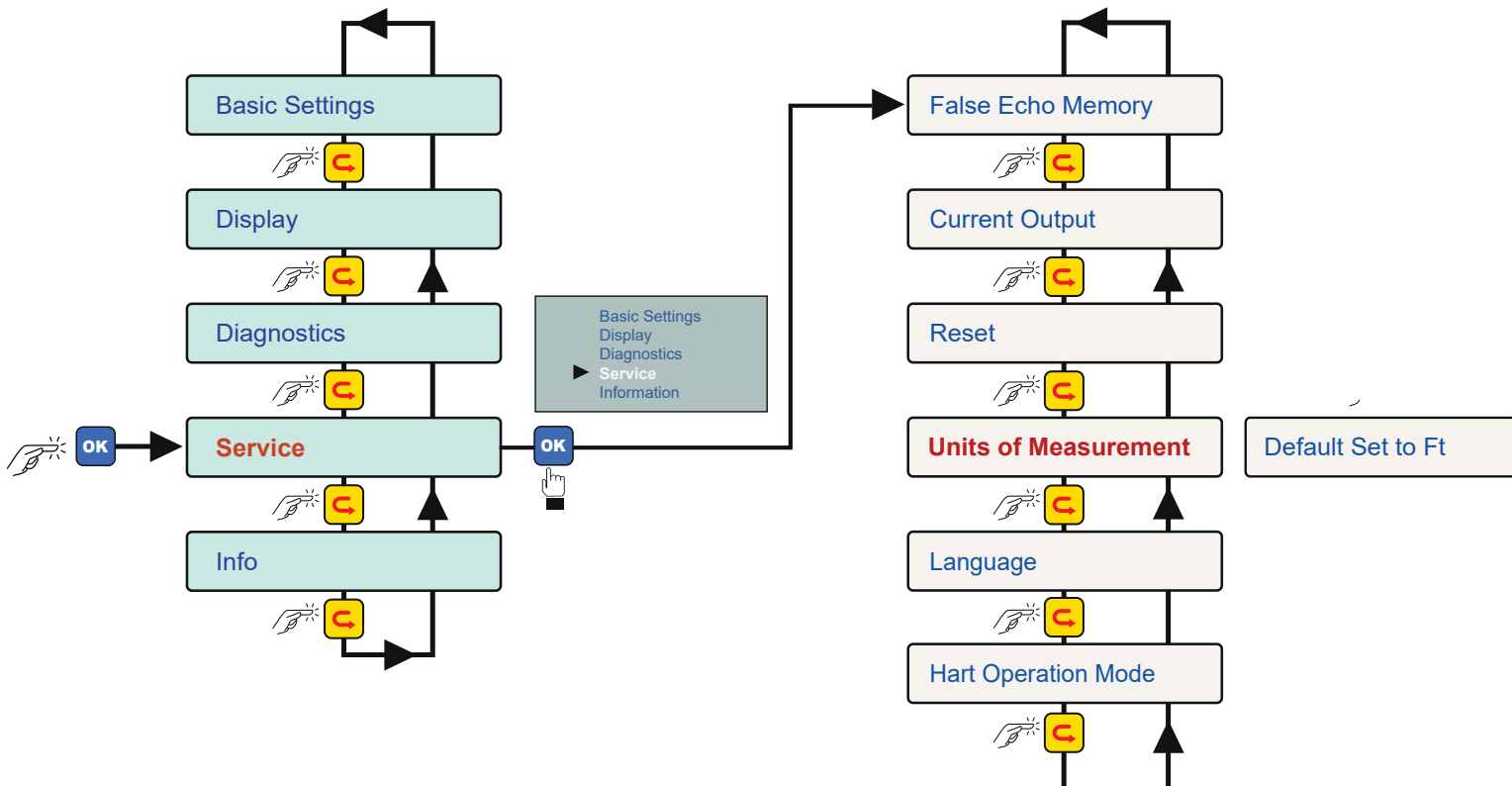
Contact Technical Support for On-Line Assistance with the Echo Curve



Diagnostics Menu } Sub Menus

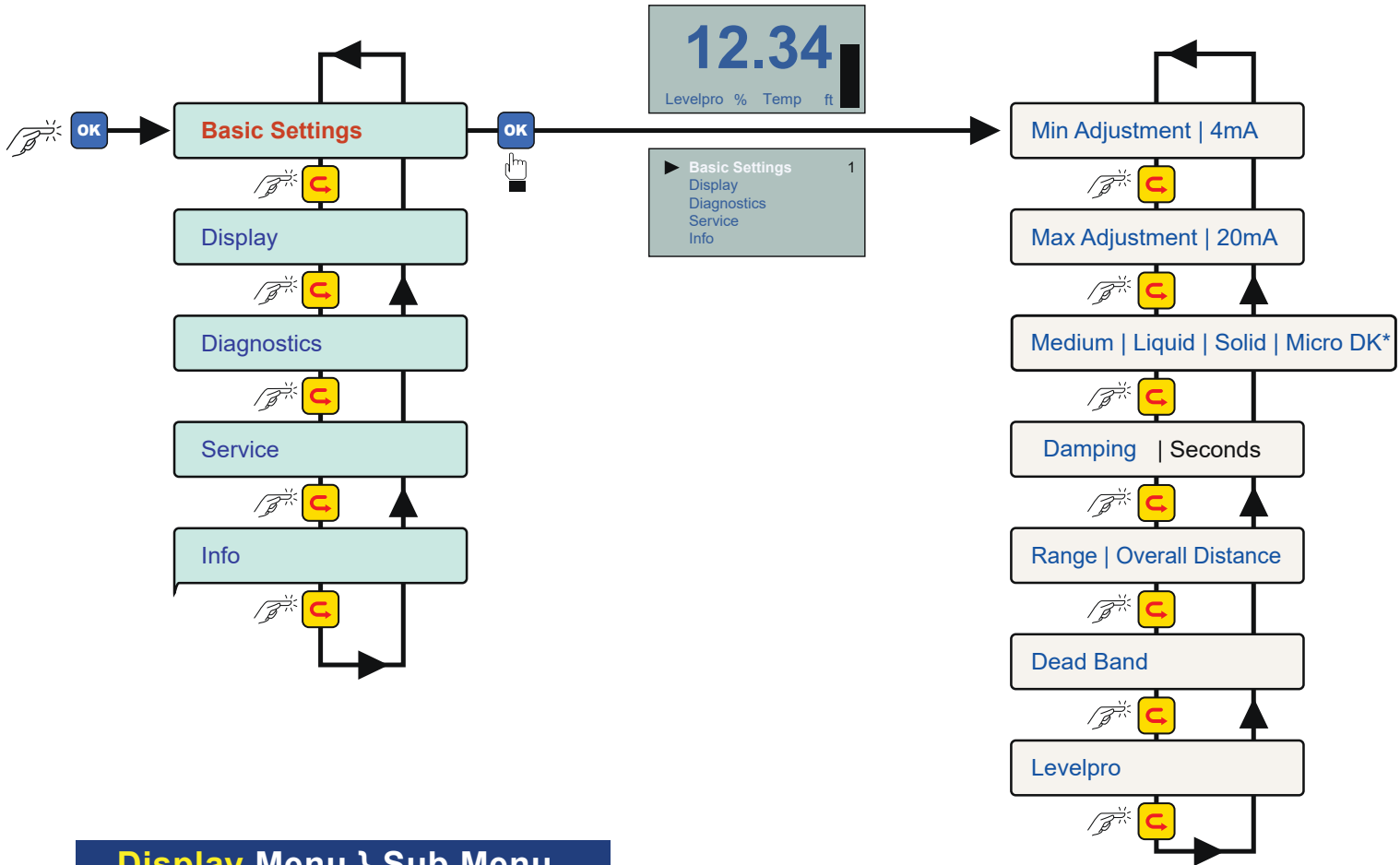


Service Menu } Sub Menus

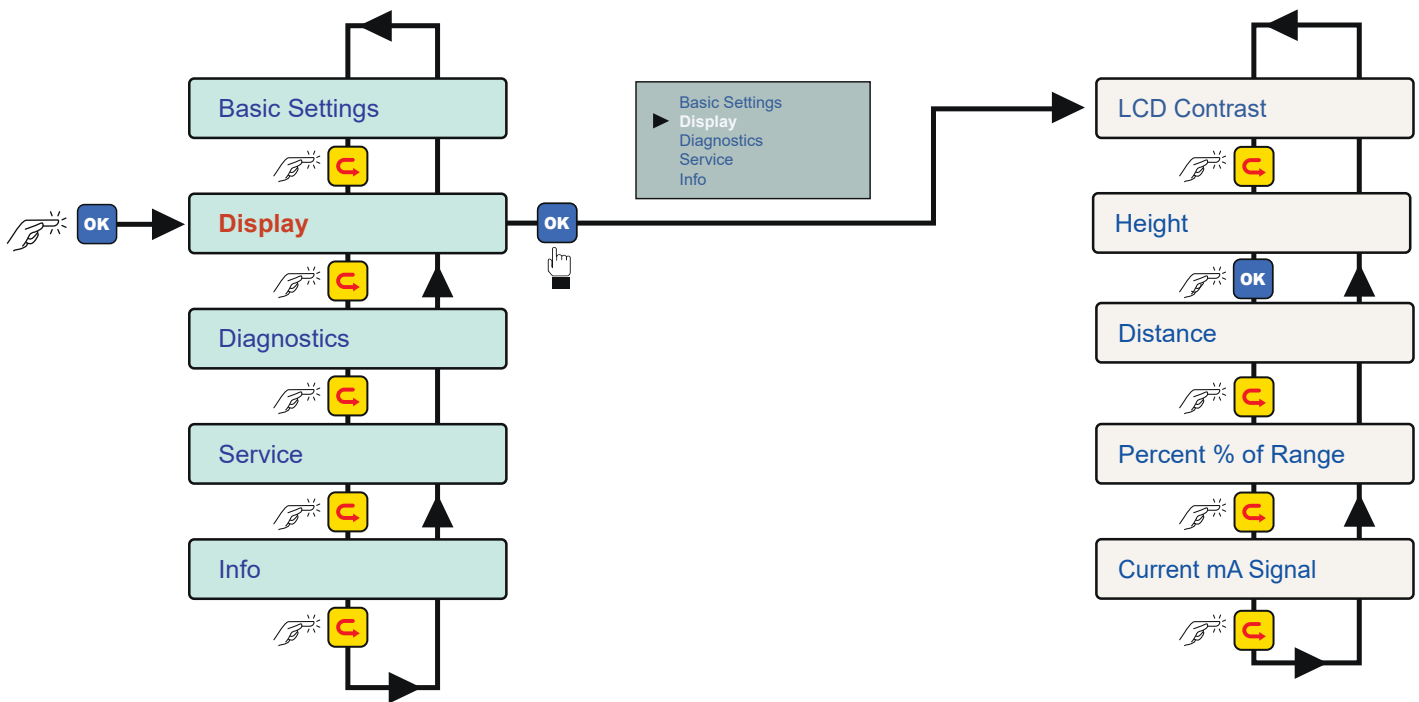


Continued On Page 15

Basic Settings } Sub Menus

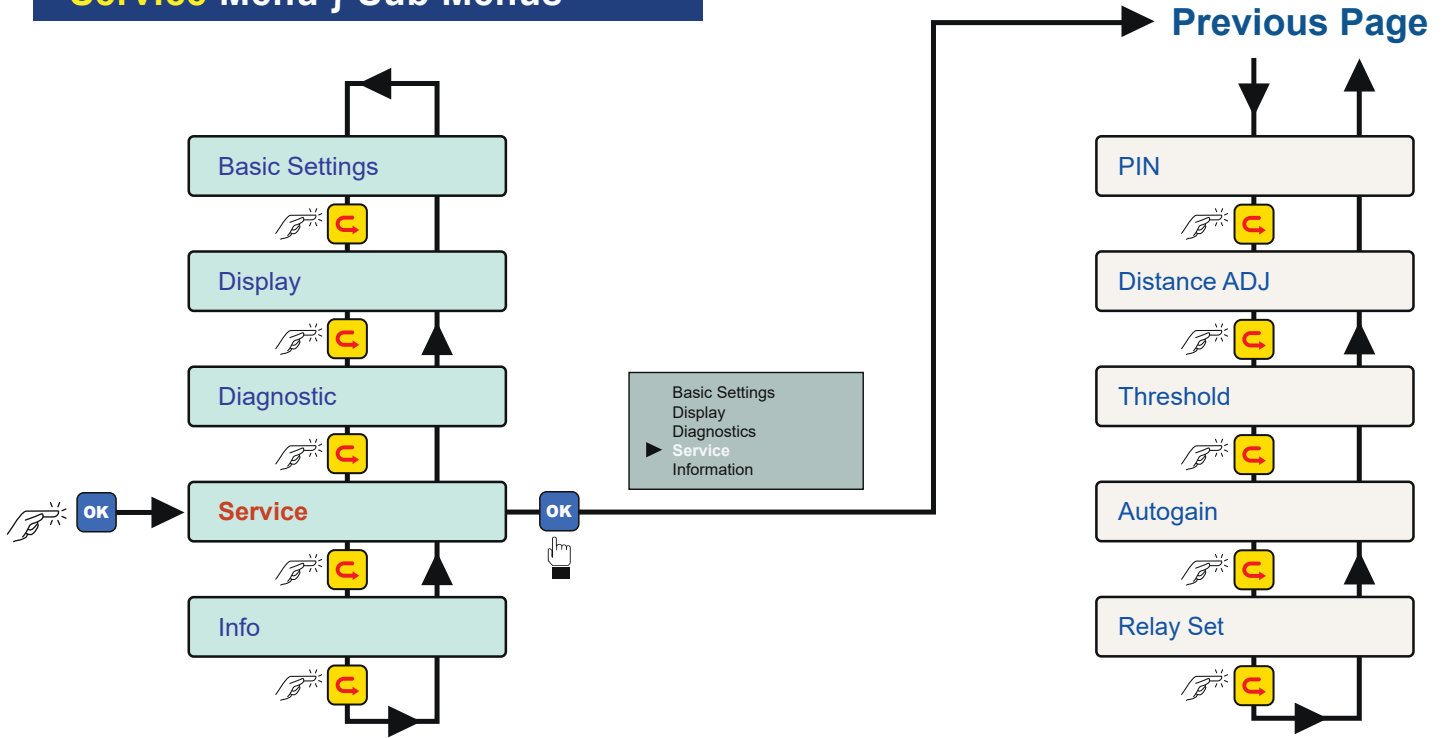


Display Menu } Sub Menu

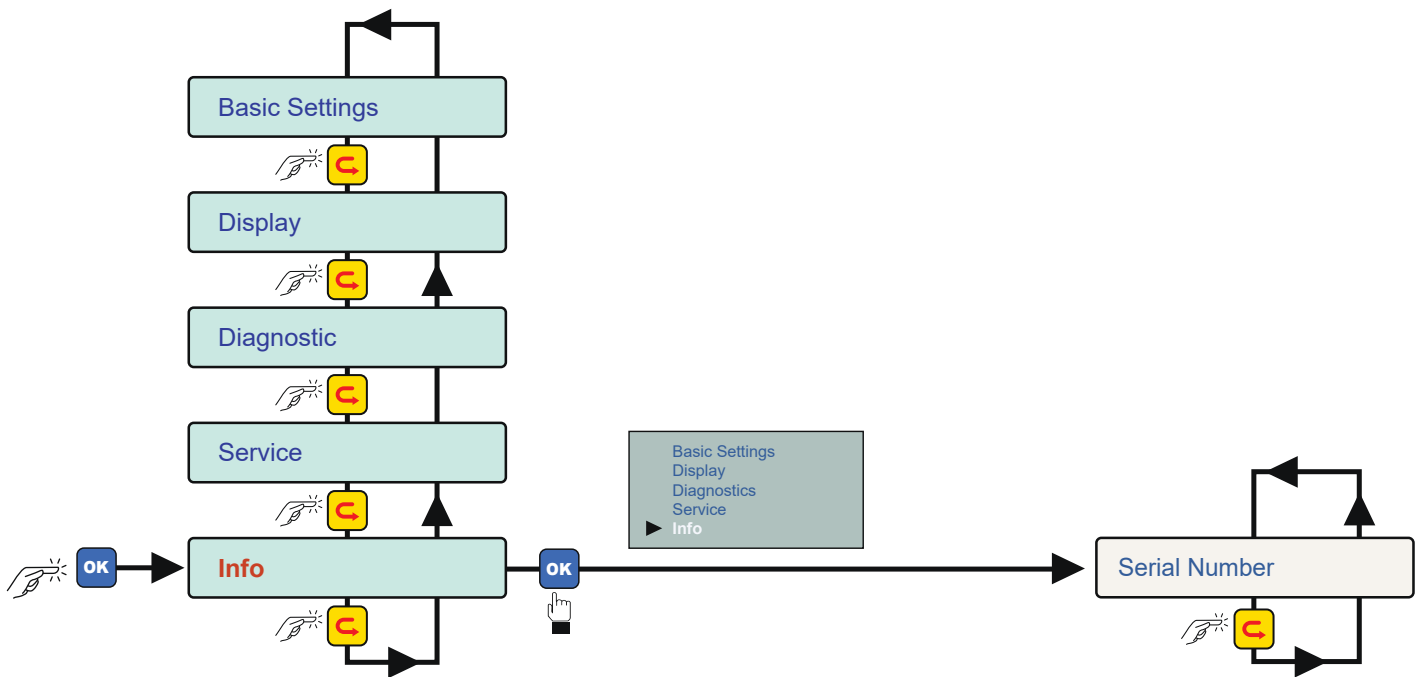


Micro DK= Low Dielectric Properties

Service Menu } Sub Menus



Info Menu } Sub Menus



Warranty | Returns | Limitations

Icon Process Controls warrants to the original purchaser of its products that such products will be free from defects in materials and workmanship under normal use and service in accordance with instructions furnished by **Icon Process Controls** for a period of one year from the date of sale of such products. **Icon Process Controls** obligation under this warranty is solely and exclusively limited to the repair or replacement, at Icon's option, of the products or components, which Icon examination determines to its satisfaction to be defective in material or workmanship within the warranty period. Icon Process Controls must be notified within thirty (30) days pursuant to the instructions below of any claims of lack of conformity under this warranty. 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 full 1 year from the date of sale.

Returns

Products cannot be returned to **Icon Process Controls** without Icon's prior authorization. To return a product that is thought to be defective please submit a customer return (MRA) request form and follow the instructions therein. All warranty and non-warranty product returns to **Icon Process Controls** must be shipped prepaid and insured. Icon 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 have attempted to repair;
5. Have been involved in accidents or natural disasters; or
6. Are damaged during return shipment to Icon.

Icon Process Controls Reserves the Right to Unilaterally Waive this Warranty and Dispose of Any Product Returned to Where

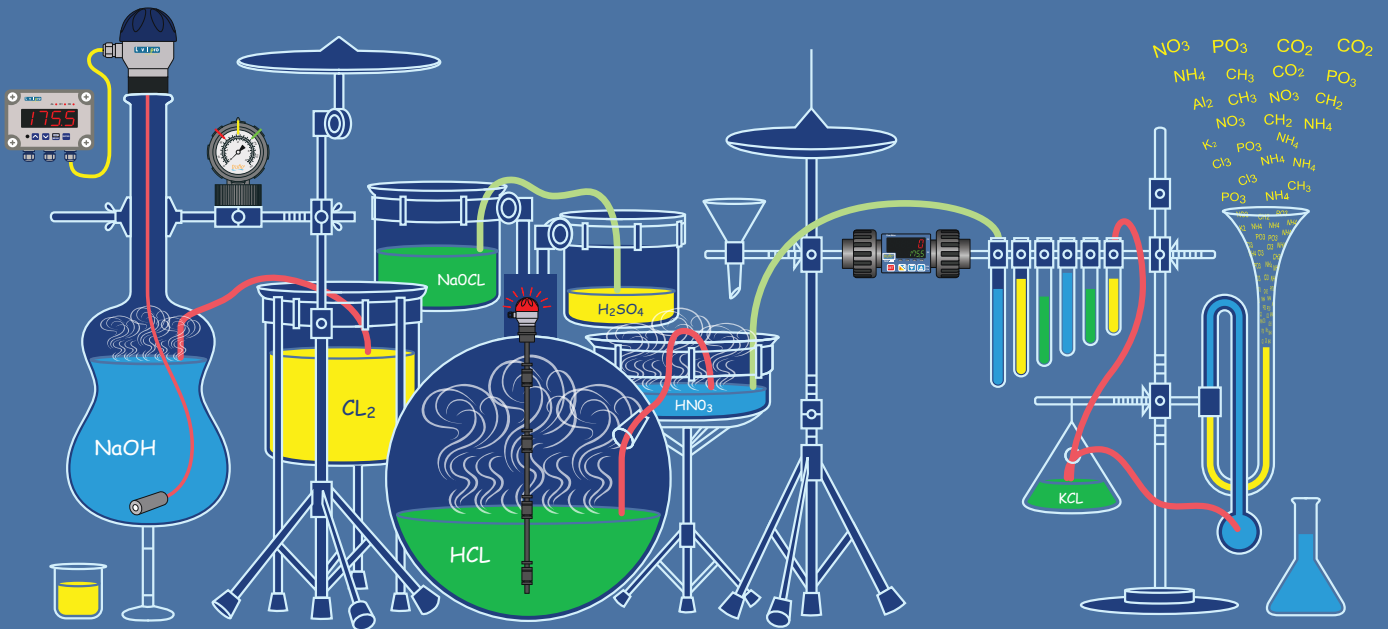
- 1) There is evidence of a potentially hazardous material present with the product; or
- 2) The product has remained unclaimed at Icon Process Controls for more than 30 days after Icon Process Controls

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 LEVELPRO BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING PERSONAL OR REAL PROPERTY 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.



Corrosion-Free
Instrumentation Equipment

CORROSION



We Measure & Control
All Kinds of Corrosive Liquid S#*%

*'Industry's Most Extensive Line of
Corrosion-Free Instrumentation' Equipment'*



Corrosion-Free
Instrumentation Equipment