Quick Start

TankPro® Series Level Sensor + LED Display

PATENT PENDING

Designed by Icon Process Controls

Tankpro®

Level Sensor + LCD Display

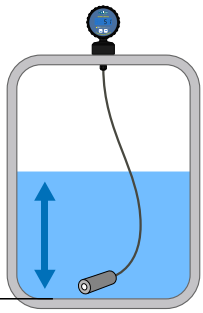
Level pro®

Programming Display

Quick Start

STEPS	DISPLAY	ACTION
Main Display Press HOLD 1.	000.0	1st. Step Press and Hold Both
Low Level Value Press 1x 2.	SE-1 Low Value - 4mA = 0	2nd. Step Default Preset = 000.0 No need to change Press.
Press 2 sec 4.	SE-2	4th Step In this screen press and hold for 2 sec
High Level Value Enter High Level Value 5.	100.0 Enter Max Tank Value	5th Step Move cursor Change number to desired value (Note:This value is your max tank level) Inches | Gallons | Liters
Press 2 sec to SAVE 6.	100.0	6th Step Press 2 sec to SAVE
Return to Main Display Press HOLD	SE-3	7th Step Press & Hold Return to Main Display
	88.0 Current Level Value	Finished Current Tank Level

SE-1
Default Set to

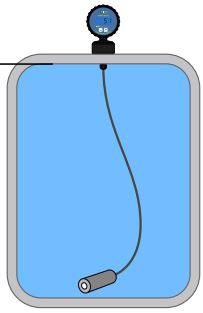


4mA Empty

SE-2
Set High Liquid Level Value

Value = Max
Fill Height

Inches | Gal



Continuous Level Transmitter + LED Display

- Suitable For Foam | Vapor | Turbulence | Condensate
- Exceptional Chemical Resistance
- PTFE Teflon Jacketed Cable

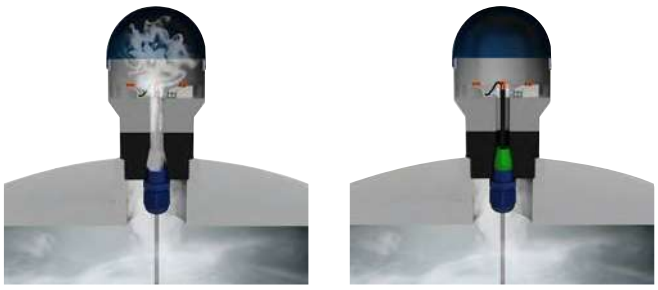
PVC | PP | PVDF | PTFE | 316SS

Seals: FFKM | FPM | EPDM

PATENT PENDING

The Solution to Tough Applications Where Ultrasonic Sensors Simply **DO NOT WORK!**

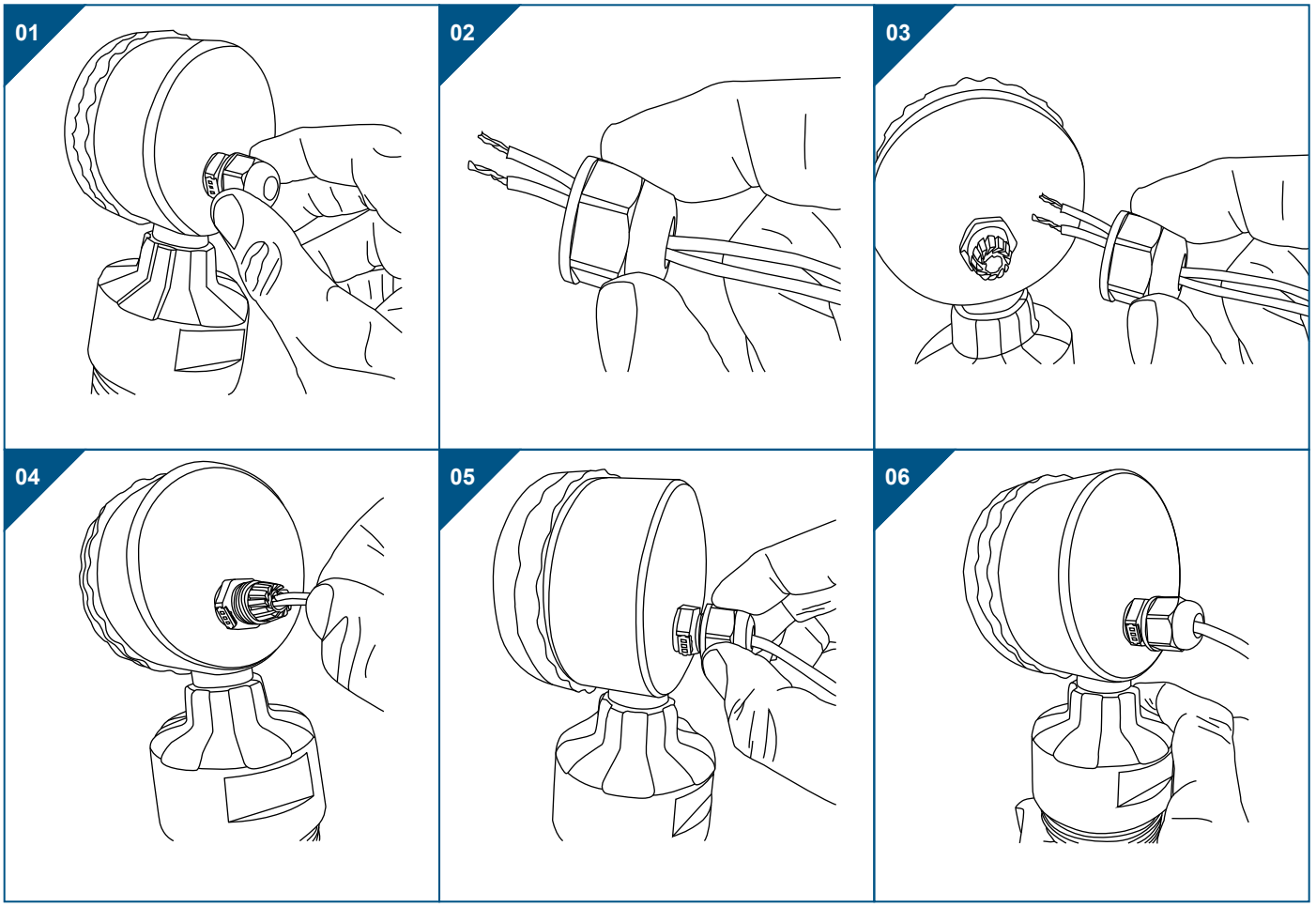
100 Series Submersible Sensor



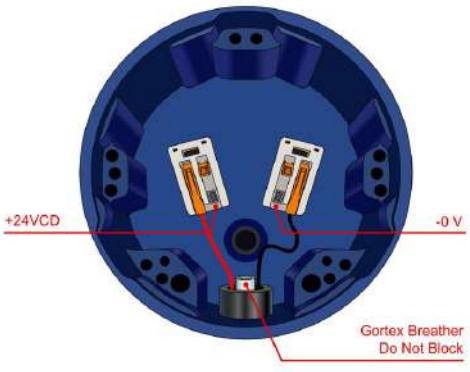
Before | After

Continuous Level Transmitter + LED Display

Wiring



Power Supply | 24 VDC
Connector 1 | 24VDC
Connector 2 | OV



Tankpro® Series

Continuous Level Transmitter + LED Display

Level pro

Understanding Level Measurement

Submersible Sensors

All Submersible Sensors have a Calibrated Range that is Based on H_2O that has a Specific Gravity or Density = 1

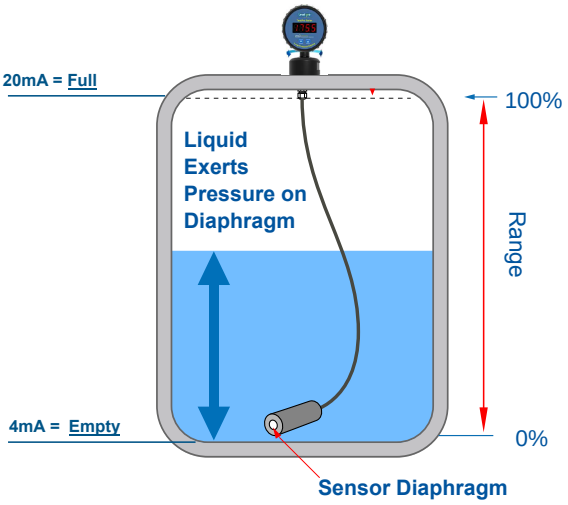
1. **Range Value |** The Overall Measuring Distance that the Sensor has been calibrated to by the Factory - The Range will be Located on the Sensor Body

2. **Empty :** The Pressure being exerted on from the sensor diaphragm at **Lowest Point** Normally this is when the Tank is Empty within the Tank

   Empty = 4mA setting.

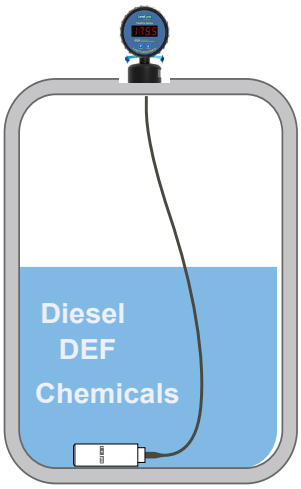
3. **Full |** The Pressure being exerted on the sensor's diaphragm at the highest point **Liquid Level** within the Tank

   Full = 20mA setting.



Application Details

- **Chemical** _____
- **Concentration** _____
- **Specific Gravity** _____
- **Temperature** _____
- **Solids** Yes ☐ No ☐
- **Out-gassing or Vapors** Yes ☐ No ☐

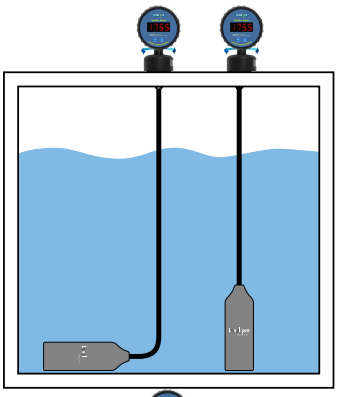


- **Tank Dimensions W x H inches**

  W = ____ **H =** _____

- **Vertical** ☐ **Horizontal** ☐
- **Flat Bottom** ☐ **Conical Bottom** ☐

Getting Started



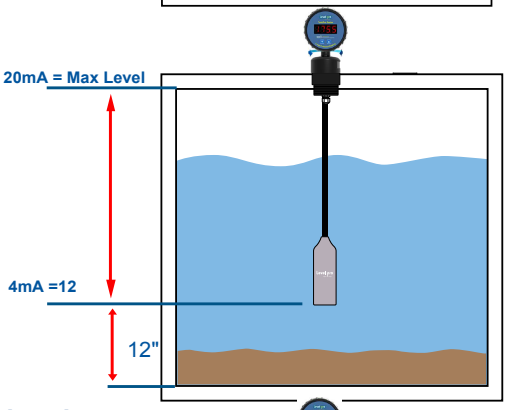
- Submersible Pressure Sensors are designed to be completely submersed within the liquid. The transmitters can rest along the bottom of the tank or be suspended at any desired level within the tank.

- Please note that the physical location of the level transmitter will indicate the lowest level of measurement within the tank.

  ex: Positioning the transmitter 12" from the bottom of the tank, then the lowest reading of liquid will be 12" from the bottom.

When the Liquid To Be Measured is Not H_2O the New Range of the Sensor Needs to be Determined.

To Achieve this Simply Divide the Range of the Sensor Body by the Specific Gravity of the Liquid



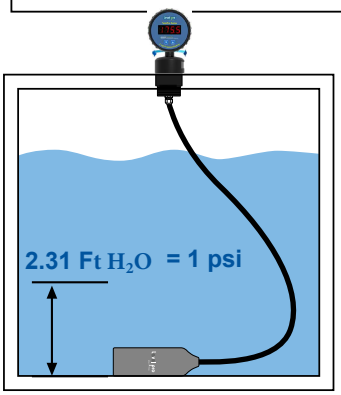
SENSOR RANGE / S.G = NEW RANGE

The Importance of the Liquids Specified Gravity

The S.G of a Liquid has a Direct Effect on the Sensors Output when Measuring the Height of the Liquid

Liquids with a SG < 1.0 are Lighter than H_2O i.e. Oil

Liquids with a SG > 1.0 are Heavier than H_2O i.e. Sulfuric Acid

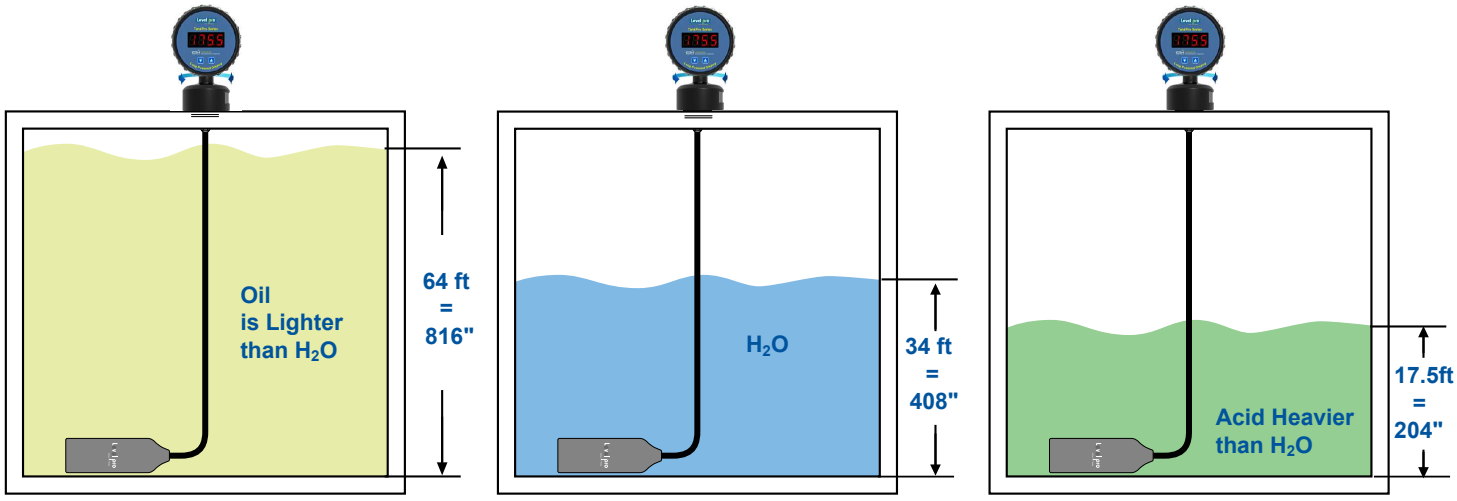


H_2O has a SG = 1.0.

S.G <1.0 Requires More Liquid to Equal the Same Pressure or Height as with H_2O.

S.G >1.0 Requires Less Liquid to Equal the Same Pressure or Height as with H_2O.

Here are some examples of how the submersible sensor range changes when submersed into liquids with different Specific Gravities



Specific Gravity = 0.5 — Tank # 1

Specific Gravity = 1 — Tank # 2

Specific Gravity = 2 — Tank # 2

Calculating Max Range of Sensor

Lets assume a the calibrated range of the submersible sensor is 34' or 408. The range is always referenced H_2O which has a specific gravity S.G or (Density) equal to 1

Calibrated Range/S.G = Liquid Level Measurement Range 34/1 = 34' or 408/1 = Liquid Level Range = 408"

Example 1.

The liquid in Tank # 1 has a S.G =0.5 which is lighter thank that of H_20

To determine the New Range of the sensor simply divide the H_20 Range (34') by the S.G of the liquid that is going to be in the tank. S.G =0.5

34/.5 = 64 feet or 816 inches

Since the oil is a lighter fluid than H_20 the new measuring range of the sensor has increased and is now 64' or 816"

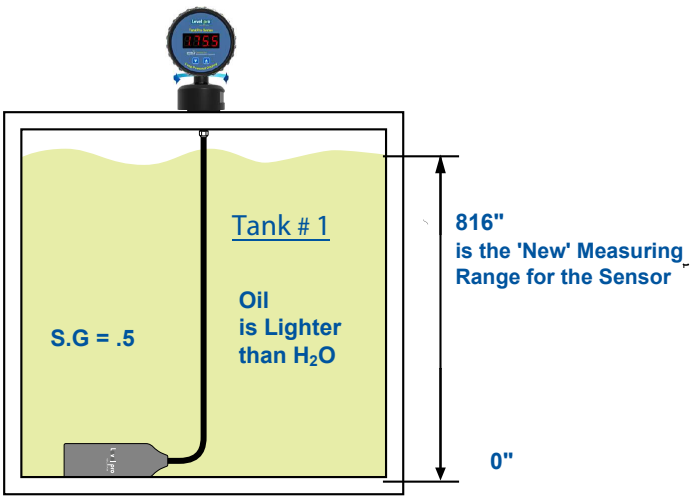
Example 2.

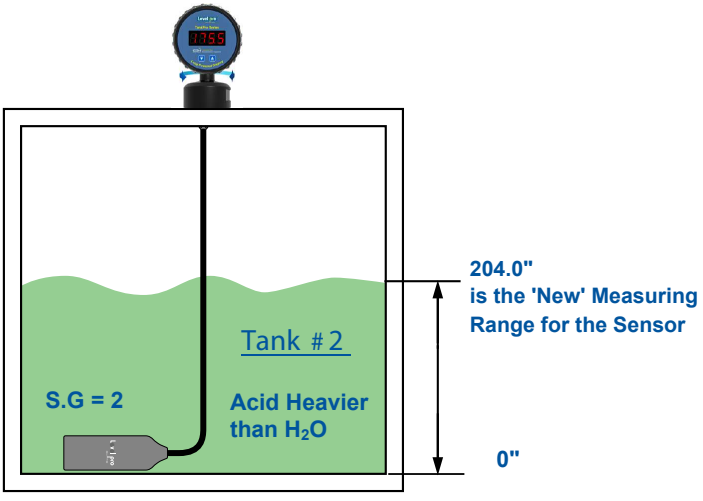
The liquid in Tank # 3 has a S.G. =2 which is 2X heavier than H_20

The 34' sensor is now going to be installed into a tank to measure a liquid with a S.G = 2

Range /S.G = New Range of the Sensor

34/2 = 17.5 feet or 204"





Oil S.G = 0.5	Sensor Signal	Display Reading
Tank 1 | Empty	4.0mA	0"
Tank 1 | Full	20.0mA	816"
Acid S.G = 2.0	**Sensor Signal**	**Display Reading**
Tank 2 | Empty	4.0mA	0"
Tank 2 | Full	20.0mA	204"

Installation

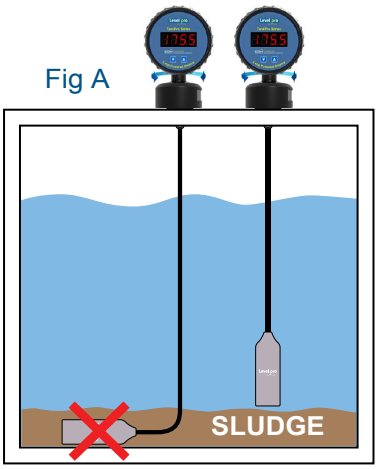
The Submersible Level Sensor is designed to operate while immersed in liquid.

- **Avoid** : Installing the level transmitter along the bottom of the tank if materials such as sludge will build up and coat/cover the transmitter.

  This also includes any debris that will settle along the bottom of the tank.

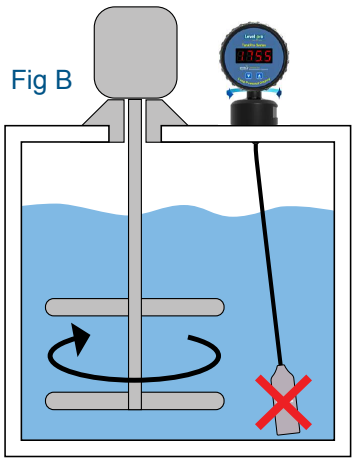
  In these applications, it is best to suspend the transmitter above the highest level of sludge/debris that will occur. **See Fig A.**

Fig A



- **Location** : Select a location where the temperature of the transmitter will be within the specification of the sensor.

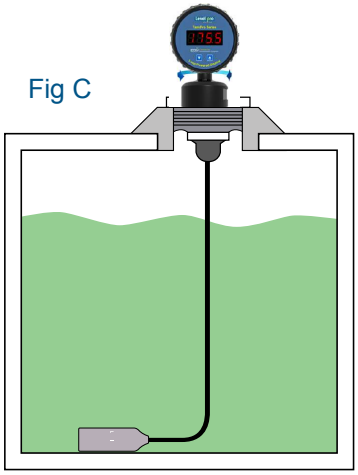
Fig B



Installations where other tank requirements will cause the transmitter to move or swing.

- A mixer blade could cause the level transmitter to whip around within the tank. An alternative would be to move the transmitter to a more stable section of the tank or to install the Transmitter inside a still-well/drop tube. This will minimize the effects created by the mixer.

Fig C



- **Position : The transmitter is not position sensitive.**

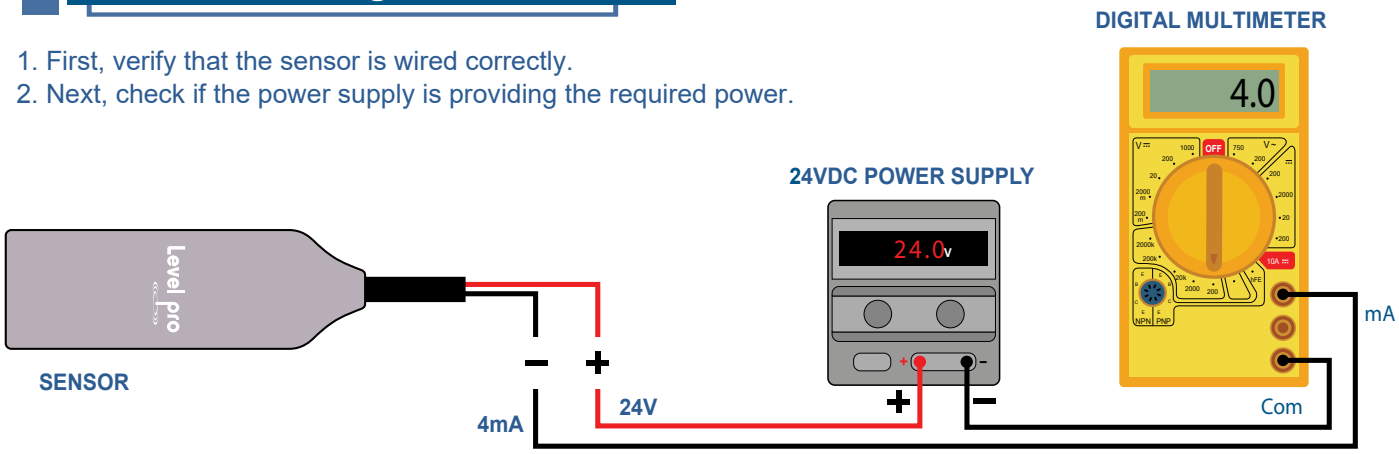
- **Mounting :** The transmitter can be mounted via several methods. It can be suspended from the cable, it can be placed resting on the bottom of the tank in either horizontal or vertical orientation, or it can be attached to a pipe or hardwired using the LP100 conduit box on the top of the housing.

Tankpro® Level Transmitter + LCD Display

Level pro

Trouble Shooting the Sensor

1. First, verify that the sensor is wired correctly.
2. Next, check if the power supply is providing the required power.



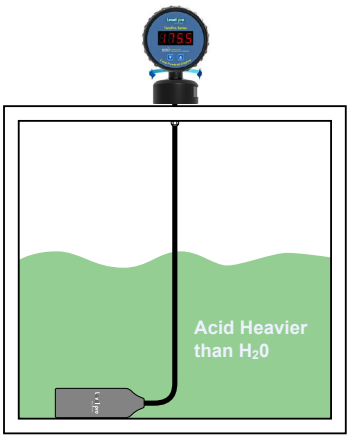
If transmitter is not functioning properly, isolate the transmitter from the system and wire as shown above. The Multi-Meter should read 4mA when the sensor is not submersed in Liquid.

Display Not Turning On

- Check Wiring
- Check Power Supply

Display Indicates LL

- Check Power Supply
- Check Wiring



Determine 20mA Value to Program d IH on Display

Example : S.G of the Liquid is Heavier than H_2O

The Submersible Sensor Range is 34' is now going to be installed into a tank of Acid S.G = 2

S.G = 2 : Sensor Range = 0 - 34'

To calculate the New Range of the Sensor = Range/S.G | 34/2 = 17.5 ft or **204** inches

The liquid is Heavier than H_2O so the Overall Sensor Range Has been reduced to 17.5 ft or 204 inches **The 204 is Entered**

20mA = Full Level Value
Default = 100 | Refer to Reference Picture

20mA = the High Tank Level Value of the sensor. Inches | Feet | Gallons

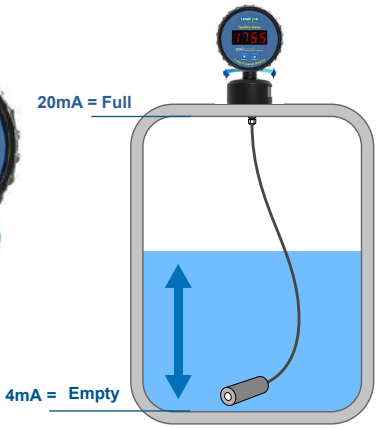
*** This number is determined by dividing the max range of the sensor by the Specific Gravity**

Display Inches

Range/S.G = 34'/S.G = New Full Range of Sensor | 20mA

Display Gallons

Range / S.G x Gal/Inch = Gallons



Incorrect Display Reading

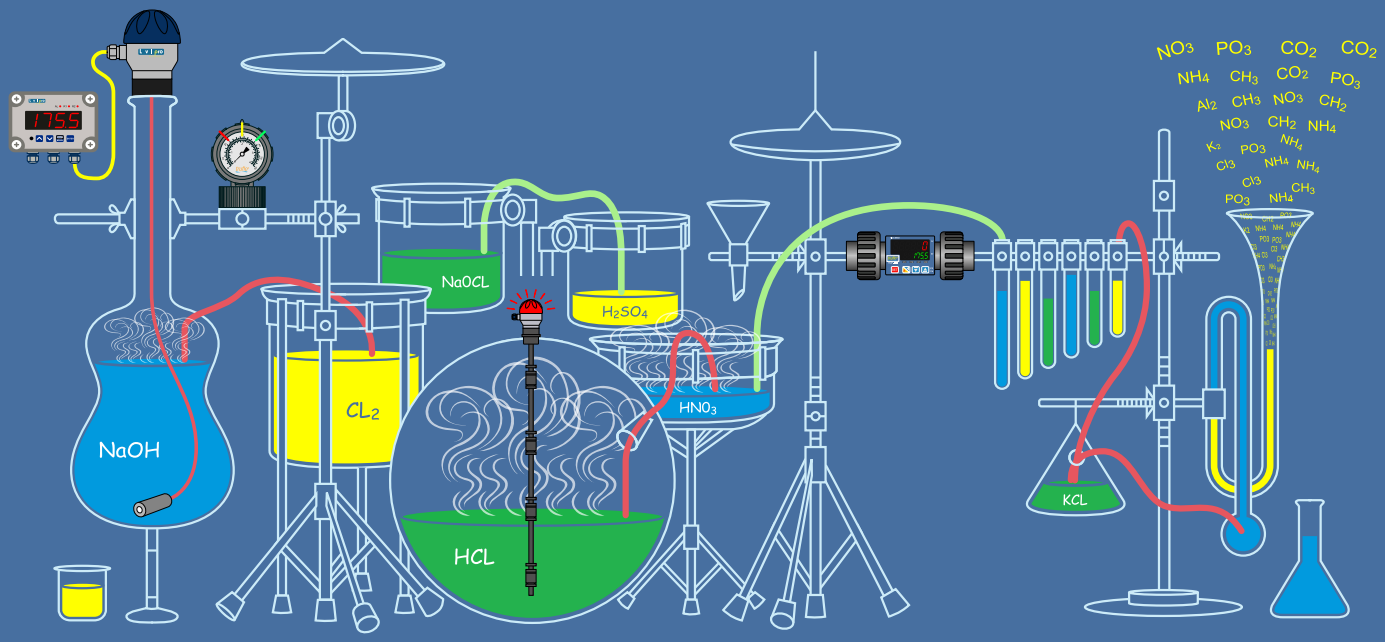
- The reference or capillary tube is fitted with a Gortex® Filter - this must remain attached in order to prevent moisture , particulate or insects from entering. Do Not Remove.

  Avoid blocking or bending the ventilation tube.
- The LP100 Installation Junction Box is fitted with a Gortex® Breather to allow air to pass but not water. Please Ensure this Not Blocked
- Always keep the cable termination clean, dry and free of moisture and prevent liquid from entering the vent tube

  Confirm Programming Input for for 20mA (d IH on Display) is Correct

  Confirm Specific Gravity of Liquid is Correct.

~~CORROSION~~



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