



LEV'O+ Liquid Level probe for TORAN'O



The **LEV'O+ Liquid Level** solution is used to determine the level of a tank, cistern or cavity, to accurately monitor variations in the level of the liquid and does not require knowledge of its geometric dimensions. By measuring the relative pressure of the liquid (water, fuel, oil, fertiliser, etc.), **LEV'O+** transmits the data over a public or private LoRaWAN® radio network, thus enabling the application to establish the relationship between the analog value and the height of the liquid.

APPLICATIONS

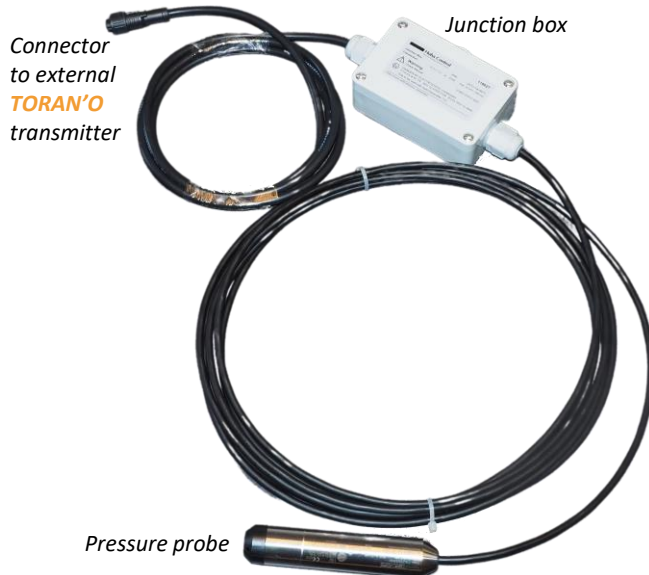
- In explosive atmospheres, remote reading of fuel oil, lubricant, liquid fertiliser, milk or water levels in a container: underground, overhead, mobile, indoor and outdoor tanks.
- Remote reading of water level variations; piezometer.
- Optimisation of fuel distribution logistics.

BENEFITS & KEY FEATURES

- Easy to deploy and use
- **Plug & play with TORAN'O device (not supplied)**
- Probe power supplied by TORAN'O for the duration of the measurement
- Usable in AtEx zone 1 area when it's connected to TORAN'O
- Remote level measurement probe on 5m cable:
 - Pressure range: 0...0.3 bar
 - Accuracy: +/- 0.8% of full scale
 - Resolution: 0.1% of full scale
 - Relative sensor 4-20mA
 - Suitable for fitting in 1-inch pipe

QUALITY & RELIABILITY

- RED, RoHS
- AtEx zone 1 area when it's connected to TORAN'O



LEV'O+ liquid Level has to be connected to the TORAN'O device to offer a full solution to monitor the level of liquid in a tank.

The probe is connected via a junction box to the TORAN'O analog transmitter sensor: regularly, after powering up and stabilising, the sensor takes the measurement and then returns the probe to standby. The sensor periodically transmits the relative pressure measured in mA over the LoRaWAN® network.

A low threshold and a high threshold can be configured on the 4-20mA analog value; this makes it possible, for example, to achieve:

- One measurement every 10 minutes; if this is exceeded, an alert is sent; otherwise nothing happens.
- Every 60 minutes, the sensor transmits a batch with the last 6 measurements. This configuration extends the life of the lithium battery, which is estimated to be around 6 to 7 years.

In standard mode, with one measurement per day and one transmission per day, the life span of the complete solution is estimated to be over 12 years.

For liquid height measurement, the probe is factory calibrated for a specific height, in this case around 3 metres (other heights on request):

- The 4mA value corresponds to a zero level.
- The 20mA value corresponds to the maximum level.

The measurements in the range of 4 to 20mA are transmitted to the application which must establish the relationship between the analog value and the liquid level.

The probe is connected to the sensor using a junction box which ensures the venting of the capillary tube included in the probe cable, the offset of the sensor in an area under the best network coverage.

THE LARGEST IOT PRODUCTS RANGE FOR YOUR PROJECT

WATTECO is a European leader in the design and manufacture of smart IoT devices to suit all remote reading and data collection solutions.

WATTECO is a LoRa Alliance® member.



LEV'O+ Liquid Level probe for TORAN'O



TECHNICAL DATA

LEVEL SENSING RELATIVE PRESSURE TRANSMITTER	
Pressure mode	Relative thanks to the IP55 connection box
Pressure range	0.0 ... 0.3 bar
Max. deviation at 25°C	± 0.8% of full scale
Resolution	0.1% of full scale
Sealing material	Fluoro-elastomer (not suitable for drinking water)
Output / Power supply	4 ... 20mA / 10 ... 30 VDC
Electrical connection	2 metres after the junction box <i>Other lengths available on request (from 2 to 30 metres)</i>
Output interface	4-pin Amphenol– Plug & Play with TORAN'O device
Ex-protection	AtEx zone 1 area when it's connected to TORAN'O
IP Rating	IP68
OPERATING CONDITIONS	
Medium	Fuel oil, ultra-light Fuel oil, heavy Diesel oil Benzine <i>Drinking water on request</i>
only in AtEx zone 1 or 2 areas	
Temperature	Medium and ambient : -20 ... +80°C (non-congealing media)
Overload	3x fs; max. 3 bar at 0.3 bar version
DIRECTIVES & STANDARD	
EMC 2014/30/EU, RoHS	  

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LEV'O+ LPG gauge for TORAN'O



The **LEV'O+ LPG Level** solution enables remote reading of LPG gas tank levels. The tank level is measured and transmitted periodically over the LoRaWAN® network to the remote application. The unit is composed of the TORAN'O AtEx zone 1 sensor and a Rochester Gauge.

APPLICATIONS

- In a Hazardous Area, remote reading of LPG tank level.
- Optimisation of LPG distribution logistics.

BENEFITS & KEY FEATURES

- Easy to deploy and use
- **Plug & play with TORAN'O device (not supplied)**
- Probe power supplied by TORAN'O for the duration of the measurement
- Usable in AtEx zone 1 area when it's connected to TORAN'O
- Remote level measurement probe on 2m cable:
 - Output voltage: ratiometric 10-90%
 - Accuracy: +/- 4% of full scale.
 - Horizontal LPG tank (vertical on demand)

QUALITY & RELIABILITY

- RED, RoHS
- AtEx zone 1 area when it's connected to TORAN'O

Connector to external
TORAN'O transmitter

Rochester Gauges



LEV'O+ LPG has to be connected to the **TORAN'O** device to offer a full solution to monitor the level of LPG in a tank.

The Hall Effect Transmitter is based on the transformation of the magnetic field from the specific pointer to an electrical signal proportional to the volume (in %) of the liquid inside the horizontal tank and this which is the dial size (Junior, Senior).

The transmitters work as Voltage divider ($V_{out} = \%V_{in}$).

The Hall Effect transmitter is a magnetically-driven, Hall Effect, voltage output sender with potted wires and cable.

Senders are utilized where direct reading plus an electrical signal to a remote level indication are required.

Hall Effect is a solid-state technology with no contacts.

It counts on the fact that a magnet bends the path of electrons moving through a semiconductor. This bending is detected and converted into a ratiometric voltage output.

Many existing domestic storage tanks are equipped with weak drive magnets suited for low friction direct-indicating dial assemblies. As the Hall Effect Twinsite is a contactless sensor it can be utilized for a retrofit on these vessels to provide an electrical output which can be used for remote indication of tank levels.

The Hall Effect provide the easiest to read local indication by using a dial face divided into percentage units.

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LEV'O+ LPG for TORAN'O

TECHNICAL DATA

HALL EFFECT TRANSMITTER	
Accuracy	± 4%
Hysteresys	Less than 3% typical
Repeatability	± 2%
Resolution	Infinite
Operating Voltage range	5VDC ±0.5
Output voltage	Ratiometric 10-90% of input voltage @ 10-90% volume Ratiometric means that the output signal voltage is proportional to the input voltage (Vin) Under 5VDC, "Empty" is 0.5V (or 10% of input voltage) 90% is 4.5V (or 90% of input voltage)
Output interface	6-pin Amphenol– Plug & Play with TORAN'O device
OPERATING CONDITIONS	
Temperature	-20°C ... +65°C
DIRECTIVES & STANDARD	
European Directives Low Voltage 2006/95/EC, EMC 2004/108/EC, RoHS	
  	

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