

Lev'O+



The Lev'O+ sensor allows you to know the level of tanks or cavities in percentage, to accurately monitor variations of the liquid level, and does not require knowledge of its geometric dimensions. By measuring the relative pressure of the liquid (water, fuel, oil, fertiliser, etc.), the Lev'O+ sensor transmits the data to a public or private LoRaWAN® radio network, enabling the application to establish the relationship between the analog value and the liquid level.

APPLICATIONS

- Remote reading of gas, oil, lubricant, fertiliser, milk or water levels in a underground, overhead, mobile, indoor or outdoor tank.
- Remote reading of water level variations; piezometer.
- Optimisation of fuels distribution logistics.

BENEFITS & FEATURES

- LoRaWAN®, Class A.
- Ready to install bundle with probe and transmitter.
- Easy to install and use.
- Remote level measurement probe with 5m cable:
 - Pressure range: 0...0.3 bar (level to 3 m).
 - Accuracy: +/- 0.8% of full scale.
 - Resolution: 0.2 of full scale.
 - Relative sensor 4-20mA; AtEx Ex ia IIC T4 Ga.
 - Small diameter body for easy installation.
- Measurement at regular intervals.
- More than 10 years of autonomy depending on configuration.
- IP65 sensor and soak-proof probe.
- Analog to digital conversion: 12 bits (4096 points).

CERTIFICATION

- CE, RoHS, LoRa Alliance®.



The Lev'O+ sensor consists of a level probe installed at the bottom of the tank to be measured. The probe is connected via a junction box to the analog transmitter sensor: regularly, after powering up and stabilising, the sensor do the measure and then returns to standby. The sensor periodically transmits the measured relative pressure via a public or private LoRaWAN® communication network.

It is possible to configure low/high thresholds on the 4-20mA interface. For instance you can setup:

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

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

- The value 4 mA corresponds to a zero level.
 - The value 20mA corresponds to a level of 3 meters.
- The measurements in the range 4 to 20mA are transmitted to the application which has to establish the relation between the analog value and the liquid level.
- The probe is connected to the sensor from a junction box which ensures that the capillary tube included in the probe cable is vented, the sensor is offset to an area without AtEx requirements and/or under the best network coverage.
- The sensor supplies power to the 4-20mA probe for just the duration of the measurement.
- The battery is mounted on a holder for easy replacement.

THE LARGEST IOT PRODUCTS RANGE FOR YOUR PROJECT

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

nke WATTECO is a LoRa Alliance® member.

TECHNICAL CHARACTERISTICS

RADIOFREQUENCY	
Frequency (MHz)	EU: 863-870
Transmitted power (dBm)	+14
Sensitivity (dBm)	-140
FIRMWARE CONFIGURATION	
Protocol	LoRaWAN®, Class A
Configuration	Measurement interval: from 1 minute to 48 hours (default 24 hours) Radio transmission period: from 10 minutes to 48 hours (default 24 hours) Configuration can be modified by the remote server via the downlink
Activation method	ABP or OTAA
Data encryption	AES128 - no compression, data
Application layer	Open source ZCL (2018)
LEVEL PROBE	
Piezoelectric sensor	Type 712 from Huba Control Remote on a 5 metre sheathed cable with capillary tube for atmospheric pressure - connection to the transmitter sensor via a junction box and waterproof cable gland.
Relative pressure range	0.0 ... 0.3 bar (also available in 0.0 ... 1.0 bar)
Accuracy	+/- 0.8% of full scale
Resolution	<0.2% of full scale
Protection against explosion	IECEX SEV 12.006 - Exia IIC T4 Ga SEV 12 ATEX 0138 - II 1 G Ex ia IIC T4Ga
Probe body	ext 23,4mm - Height: 116mm - weight without cable 200g IP68 - Stainless steel 1.4404 / AISI316L - suitable for drinking water, oil. Suitable for mounting in 1 inch diameter pipes
POWER SUPPLY	
Voltage	3.6V / 3600mAh - lithium battery
Autonomy in a range of +10°C to +25°C	12 years with SF12, 1 measurement/day and 1 transmission/day
INTERFACES	
NFC tag	Product number, serial number, batch number
Buzzer	Configuration and association on the network
Magnetic switch	Commissioning / network pairing - De-pairing / shutdown for storage
ALERTS	
Battery voltage	Transmission according to configurable periodicity
CASING	
Dimension (mm)	84 x 82 x 55 - to be fixed to the wall with 2 screws and plugs (not supplied)
IP class	IP65
Flammability	Non-flammable UL94-V2
ENVIRONMENT	
Operating temperature (°C)	-20 / +55
Storage: Temperature (°C)	-10 / +30 - Humidity < 75% RH
STANDARDS & REGULATIONS	
EMC 2014/30/EU, LV 2014/35/EU, RED 2014/53/EU, CE marking, RoHS	



PRODUCT NUMBER

REFERENCE	DESCRIPTION
50-70-196	LEV'O+ WITH RELATIVE PRESSURE SENSOR + CABLE + SENSOR +JUNCTION BOX