Smart Metering Smart Building Smart Industry

LoRaWAN™ LEV'O

The LEV'O SENSOR measures the filling level of tanks, cisterns and cavities when the geometry is known. It transmits the absolute pressure of a liquid (water, fuel, oil, fertilizer, etc.) whether it is in a buried or aboveground tank as well as in a mobile tank truck. The Lev'O Sensor reports the data used to evaluate the level of filling on a public or private LoRaWAN™ radio network.

APPLICATIONS

- Remote reading of fuel oil, lubricant, liquid fertilizer or milk in a container:
  - Buried, aerial, indoor or outdoor tank (according to the nature of the liquid)
  - Tank truck with possible macro geolocation (according to the performance of the public network)
- Optimization of the distribution channel
- Estimated consumption for intermediate billing

BENEFITS & CHARACTERISTICS

- LoRaWAN™, Class A
- Autonomous Sensor & Probe set
- Easy to install and use
- Remote level measuring probe:
  - Accuracy: 3% between 2 and 4m
  - Probe (only) AtEx Zone 2
  - Small diameter body with easy insertion
  - Measure at regular intervals
- More than 10 years of autonomy depending on configuration
- IP65 sensor and permanent immersion proof probe

CERTIFICATIONS

- CE, RoHS, LoRa Alliance™

The LEV'O SENSOR includes a level probe set up in the container to be measured. The probe is connected to an analog case Sensor: frequently, after the start-up and stabilization, the sensor carries out the measure then puts the probe in standby. The Sensor periodically transmits the absolute pressure detected from a LoRaWAN™ public or private communication network.

The remote application can calculate the filling level from the atmospheric pressure within the tank (value available on the Web), an abacus associated with the geometry of the container and the density of the liquid.
In a fleet of tanks, the LEV'O SENSOR rationalizes the supply flow and optimizes the filling frequencies.

Associated with the LEV'O SENSOR, the remote application becomes a predictive analysis tool which guarantees a higher quality of service by avoiding a breakdown in supplying.

The regular monitoring of levels also makes it possible to offer an intermediate billing thanks to a regular record of the consumption.
Installing and commissioning is fast and easy. The Lev'O Sensor is equipped with:

- A level probe to be place in the tank and to be maintained above the bottom in order to avoid any residue. The probe is deported on a waterproof cable which allows to place the sensor in an area without any AtEx requirements and with the best network coverage
- A NFC identification tag (product number, serial number, production batch)
- A magnetic switch and a buzzer that allow the installer to easily enable / disable the Sensor.

The sensor is powered by a 3.6Volt lithium battery. The calculated autonomy is more than 12 years for a configuration performing one measure a day and one radiofrequency transmission a day.

NKE WATTECO, YOUR PARTNER IN SMART SENSORS & ACTUATORS

We are a European leader in designing and manufacturing highly reliable and low power consumption smart sensors, actuators and multiprotocol remote data solutions.

nke Watteco is a member of the LoRa® Alliance

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TECHNICAL FEATURES

RADIOFREQUENCY	
Frequency(MHz)	863-870
Transmit Power (dBm)	+14
Receiver Sensibility (dBm)	-140
FIRMWARE CONFIGURATION	
Protocol	LoRaWAN™, Class A
Configuration	Measure Transmission: from 1 minute to 48 hours (by default 24 hours) Radio transmission period : from 1 minute to 48 hours (by default 24 hours) Changeable configuration through distant server via downlink
Activation method	Activation by Personalization (ABP) and Over-The-Air Activation (OTAA)
Data encryption	AES128 – no data compression
Applicative layer	ZCL open source (by the end of 2018) to be decoded with the distant server
LEVEL PROBE	
Piezoelectric probe	Type 712 from Huba Control Deported on a 10m sheathed cable - connection to the sensor through a waterproof cable gland
Absolute pressure range	0.8 ... 1.4 - 3.0 bar
Accuracy	< 3% between 2 and 4m < 6% to 1m
Explosion protection	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 IP68 - Stainless steel 1.4404 / AISI316L - suitable for drinking water Suitable for mounting in 1 inch diameter tubes
POWER	
Power supply	3,6V / 3600mAh – lithium battery
Autonomy in a range from +10°C to +25°C	Calulated Autonomy> 12 years: 1 measure / day- 1 transmission / day
INTERFACE	
Tag NFC	Product number, serial number, batch number
Buzzer	Network pairing & configuration
Magnetic switch	Commissioning / Network Pairing - Disassociation / Shutdown for Storage
ALERTS	
Battery voltage	Transmission according to configurable periodicity
ANALOG BOX	
Dimension (mm)	84 x 82 x 55 - wall-mounted with 2 screws and dowels (not included)
Classe IP	IP65
Inflammability	Fireproof UL94-V2
ENVIRONMENT	
Operating temperature(°C)	-20 / +55
Storage : Temperature (°C)	-10 / +30 – Humidity < 75% RH
DIRECTIVES & STANDARDS	
EMC Directive 2014/30 / EU, BT 2014/35 / EU, RED 2014/53 / EU, CE marking, RoHS	

PRODUCT REFERENCE

REFERENCE	DESCRIPTION
50-70-089	LoRaWAN™ LEV'O

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