

SOFREL LT-US

OVERFLOW CONTROL AND FLOW MONITORING BY ULTRASOUND PROBE



USES AND BENEFITS

- **Regulatory self-monitoring**
 - Overflows detection in Combined Services Overflows
 - Daily calculation of the number of overflows and their duration
 - Discharge volumes and flows monitoring
 - Autonomous sampler controls
- **Continuous diagnostics**
 - Ensure appropriate network sizing
 - Anticipate load development
 - Measure inputs from adjacent municipalities
 - Monitor industrial discharge into the system
 - Detect quantity of infiltration water
- **Rain gauge**
 - Calculate rainfall intensity
 - Compare rain gauge indications with the network operation
- **Water quality, Physico-chemical measurements**
 - Quality sensors management (conductivity, pH, Redox, ORP)



PRODUCT FEATURE

- Integrated ultrasound probe
- Enhanced IP68 waterproof rating
- Battery powered or external power supply*: (Photovoltaic cell, mains power, micro-turbine or battery kit)
- Integrated high performance 2G/3G antenna
- FLEX version for installing an antenna outside the manhole in case of a weak radio signal
- Automatic reception testing for best 2G/3G operator
- Access to the SIM card and battery on site
- 3-year manufacturer guarantee

EASE OF USE

- On-site communication and exploitation via Bluetooth link
- Open to supervisory control software and third-party applications of major water operators
- Specific communication protocol guaranteeing data availability
- Simplified data exploitation via the SOFREL WEB LS IoT platform

*Only flex version

GENERAL FEATURES:

Mechanical design	Screwless opening system for easy access to the SIM card and battery
Dimensions	H 261 x W 155 mm
Weight	1,1 kg
Operating temperature	-20°C to +55°C
Storage temperature	-25°C to +70°C
Watertightness	Enhanced IP68 certification (100 days under 1 meter water) performed by an independent laboratory
Power supply	Powered by an internal lithium battery or by an external source (photovoltaic cell, main power, micro turbine, or battery kit - Input voltage : 5-30VDC - Required power : 3W - Inrush current : 3A)
Connector types	Military-grade hermetic connectors

DATA LOGGER INPUTS:

DI (Digital Inputs)	4 Digital inputs for standard metering, signalling and overflow sensors Maximum frequency: 250 Hz Minimum pulse time: 2 ms Maximum polarisation voltage: 3.3 V Maximum polarisation current: 15 µA
AI (Analog Inputs)	2 analog inputs for SOFREL pressure sensors or remote powering of third-party sensors Controlling a sampler Remote powering of third-party sensors via 4-20 mA loop, 12 V or 20 V
US (Ultrasound probe)	Ultrasound probe for level measurement, 0-3 meters Dead band: 17 cm Accuracy: +/- 3 mm Resolution: 1 mm Measurement cone: 8° Cable length: 5 or 10 m

COMMUNICATION:

2G/3G quad-band chipset	Quad-band GSM/GPRS/EDGE (850 MHz, 900 MHz, 1800 MHz, 1900 MHz) Hexa-band UMTS WCDMA FDD (800 MHz (B19), 850 MHz (B5/B6), 900 MHz (B8), 1900 MHz (B2), 2100 MHz (B1))
Supported SIM cards	Mini SIM cards (Nano and Micro SIM cards can be inserted using an adapter)
Versatile antenna (FLEX version)	4-meters, IP68-certified external antenna
Data logger synchronisation	Daily synchronisation of the LT via the SCADA
Communication with 1 or 2 PCs	Periodic, programmed or event-based
Inter-sites communication to S500, S4W or AS	Periodic or event-driven (change of DI status or threshold exceedance)
Alert transmitted to mobile via SMS	Upon change in DI state, exceeded threshold, sensor fault...

CONFIGURATION AND COMMISSIONING:

Bluetooth	Data logger configuration via Bluetooth link
Assistance with commissioning	3G and 2G reception level measurement Best 3G and 2G operator test LEDs for visual diagnosis of operation and 3G/2G signal
Assistance with maintenance	Remaining battery life calculator

ARCHIVING:

Local archiving capacity	50,000 data points
Primary and secondary archiving of DI, AI and US probe data	Event-based automatic changing of the archiving period (e.g. overflow)

PROCESSING:

Self-monitoring	Includes two conversion tables for flow calculations Flow calculation based on measured height Daily calculation of volume linked to flow Calculation of the number of daily overflows
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CERTIFICATIONS:

CE Certification	2014/53/UE "Radio equipment"
Daily calculation of volume linked to flow	2014/30/UE "Electromagnetic compatibility"
Calculation of the number of daily overflows	2014/35/UE "Low voltage"
Enhanced IP68 certification	Extended immersion test (100 days under 1 meter of water) performed by an independent laboratory

STANDARD BATTERY LIFE:

Height measurement every 5 minutes	6 years (Daily communication with the SCADA)
Height measurement every 15 minutes	10 years (Daily communication with the SCADA)

* Only Flex version