SOFREL LT-Radar

OVERFLOW CONTROL AND FLOW MONITORING BY RADAR SENSOR

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

- **US / RADAR simultaneous measurement**
- **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*

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SOFREL LT-Radar IoT DATA LOGGER

TECHNICAL CHARACTERISTICS

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)	2 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)	1 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
R-S485	MODBUS link for interfacing with "Endress Hauser FMR20" radar sensor Precision : +/- 2mm - Distance : 20 meters Acquisition of status information and radar diagnostic
US (Ultrasound probe)	Possibility to use Ultrasonic sensor for level measurement, 0-3 meters
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	Uponchange 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
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:	
Radar measurements (1 communication/day)	1 year (1 archive / 15 min then every minutes during overflow periods)
Radar+US measurements (1 communication/day)	2,5 years (1 archive US / 15 min then every minutes by the radar during overflow periods)

** Only Flex version*

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