WM-13

Low power mobile data logger, pulse signal counter, M-Bus data collector and Cat.M / NB transmitter for smart water metering

Our 3rd generation low-power cellular pulse counter and data logger with a built-in cellular modem for smart water and gas metering. Automated water meter readings with customizable breakdowns, leak detection and prevention. Detection of water leakages to avoid flooding, non-revenue water for more accurate billing, optimization of operating costs, and improvement of water supply reliability.

Remote data collection via the pulse output (S0) or M-bus. Data is sent through NB-IoT cellular networks (LTE Cat.M / Cat.NB / Cat.M 450MHz) to a central server or HES.

This smart water metering device has a standalone and intermittent operation. The device reads and counts the consumption data (pulse signals or M-Bus data) of connected meters in „sleep mode" and saves the data to local storage. Then it wakes up at pre-configured intervals to transmit the stored data using MQTT or LwM2M protocol, plain TCP/IP packets or JSON, XML format.

The device has an IP67 waterproof housing. The installation is easy, which is supported by operation LED lights to indicate proper functioning. Optionally, add-on boards can be attached to the mainboard to extend the capabilities (e.g. more inputs, M-Bus connection, etc).
The modem has a special internal battery which provides energy for more than 5-10 years.

With the over-the-air (OTA) protocol, the device can be configured and the firmware can be updated remotely without the need to send experts to the field.

MAIN FEATURES

- LTE Cat.M / Cat.NB / 450MHz cellular module
- IP67 waterproof design
- Operation LEDs for installation
- Add-on boards (order option)
- Internal battery for more than 5 years of lifetime
- Safe local storage of consumption data (AES-256 encryption)
- Continuous pulse signal counting / M-Bus data collection
- Scheduled data sending
- Data sending: protocol /format can be selected (MQTT, LwM2M, TCP / JSON, XML) - with optional TLS protocol usage
- Security alerts for detecting: top cover removal, motion, leak or excessive flow, battery capacity
- WM-E Term® configuration software

APPLICATION

- UTILITY COMPANIES
- ENERGY PROVIDERS
- SMART WATER/GAS/HEAT METERING
- SMART CITIES

WM-I3

DESIGN AND OUTFIT

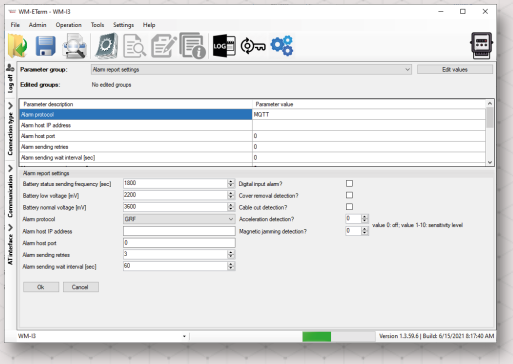
- IP67 protected enclosure with fasteners
- Optional add-on board (for the best meter manufacturer compatibility)
- Optional external flash (for data storage / max. 128MByte)

CONNECTIONS

- Universal connection for energy meters, sensors for pulse signal capable meters (with S0-type pulse output)
- Wired M-Bus meters (optional hardware add-on)
- Internal serial connection (for local configuration)
- DC powered internal battery (optional external DC power usage)
- External antenna (SMA connection, coaxial cable, gained)
- Internal micro SIM (3FF type)

OPERATION

- Autonomous, automated and intermittent operation
- Safe local storage of consumption data (SHA-256 security hash algorythm)
- Data storage and sending intervals can be pre-configured
- Message can be sent using MQTT or LwM2M protocols, plain TCP/IP packets or JSON, XML format
- Safety features: battery status, alert notification of tamper switch, acceleration sensor (optional), AES-256, TLS



WM-I3®		LTE Cat.M / Cat.NB
Power	Nominal	· Internal battery: 3.6V DC · External power source (optional): 9-12V DC
	Consumption	· Stand-by current: 1.3uA@3.6VDC · Min. current: 37uA (during pulse counting) @3.6VDC · Average current: 400mA (during Cat.NB data sending) @3.6VDC · Max. current : 700mA (during Cat.M data sending) @ 3.6VDC
Performance	System	· Cortex-M0+ Giant Gecko processor, 32MBit flash memory · External flash for data storage (up to 128MByte as hardware option)
	Expansion(s)	· Add-on board (order option) for meter compatibility (dedicated manufacturer selection)
Communication Module	Cellular module	· Telit ME310G1-W2
	Mobile technology	· LTE Cat.M / Cat.NB / 450MHz
	Band / Frequency (MHz)	· LTE Cat.M/Cat.NB: B1(2100) / B3(1800) / B5(850) / B8(900) / B20(800) / B28(700) / B31(450) / B72(450)
	Speed (DL/UL)	· LTE Cat.M: 588kbps (DL) / 1Mbps (UL) · LTE Cat.NB: 120kbps (DL) / 160kbps (UL)
SIM card	SIM slot	· micro SIM card (type 3FF)
Antenna	Connection	· SMA (50 Ohm) antenna outfit with special external antenna (on the coaxial cable)
Connection	Data cables	· Cable strip for pulse signal input of connected meters (1pc S0-type input) · M-Bus wire expansion (order option) · Internal serial link (for local configuration)
Operation	Operation behaviour	· Autonomous, automated and intermittent operation · Data acquisition (pulse signal reception and counting of the connected utility meter/sensor) / optional M-Bus data reception · Adjustable data storage cycle of incoming consumption signals (safe storage in the non-volatile memory) · Configurable interval for data transfering the consumption values · Automatic wake up and data transmission after exceeding the expected consumption value (adjustable limits)
	Data sending	· "Push" data transmission · MQTT or LwM2M protocol, plain TCP/IP packets or JSON, XML format
	Battery	· Internal battery power supply (>5 years of expected operation lifetime or approx. 4 000 data sendings)
Safety	Safety features	· Tamper switch (top cover removal detection and notification) · Acceleration & motion detection · Battery capacity monitoring · Leak detection, excessive flow/consumption detection · AES-256 encryption (data storage) · TLS
User interface	Configuration	· WM E-Term® software: configuration / firmware refresh locally / remotely through LwM2M/MQTT protocol (via TCP connection) - configuration from server
Environment	Operating / Storage	· -25'C to +55'C at 0 to 95 rel. humidity · -40'C to +80'C at 0 to 95 rel. humidity
Design	Enclosure	· Plastic ABS case with transparent top cover, mount to wall · IP67 protection
	Dimensions / Weight	· 130 x 70 x 40mm (casing bottom side with pedestal mount) / 105 x 70 x 40mm (casing top cover) · Weight: 190 gr (without battery) / 245 gr (with battery)

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