

# WM-i PULSE



## Long-life battery powered, cellular IoT data logger for pulse output meters and sensors

Robust, ultra low-power cellular IoT pulse counter and data logger, which comes with a built-in LTE Cat.M, NB-IoT cellular module ensuring reliable data transfer in any environment.

The device can be connected to any meter with a pulse output (for water, gas, BTU or any sensor like temperature, optical distance measurement (lidar), etc.).

Easily upgrade existing meters to smart meters with cellular connectivity, safeguarding your investments without the need for costly replacements!

Offering a standalone operation, it performs reliable automated meter readings. The device allows connection of up to 2 meters or sensors through its inputs.

It counts the pulses of connected meters and sensors, then it transfers all data at predetermined intervals to the Microsoft® Azure Cloud IoT platform with MQTT protocol encryption via LTE Cat.M / NB-IoT network.

The easily installable device was designed for long-term, maintenance-free operation, the WM-i PULSE boasts a high-capacity battery lasting up to 10 years and an IP68 waterproof casing, making it ideal for challenging environments. Optionally, add-on extension possibilities are available to extend capabilities for PoCs, unique orders (e.g. different connections, adding sensors).



## MAIN FEATURES

- IP68-protected casing with fastening points
- LTE Cat.M / Cat.NB / 450MHz cellular module with Nano SIM slot
- Replaceable, high-capacity battery with up to 10 years lifetime
- IP68 protected connections: 2pcs independent Pulse inputs / USB-C port (for local configuration and installation) / SMA antenna connector (50 Ω)
- Tamper protection (security alarm if cover is tampered) – optional
- Cold start (supporting the installation)
- Device displacement sensor – available for PoC
- Leak detection, excessive flow/consumption detection (exceeding the normal consumption, warning of a failure) – available for PoC
- Reverse flow detection and measurement – optional, for PoC
- Automatic / configurable mobile operator, bands, access technology
- Automatic data transmission at preconfigured intervals to Microsoft® Azure platform (MQTT protocol, TLS encryption)
- Optional protocol support: LWM2M, etc. (in case of PoC)
- Transfer of meter data (identifier, location, GNSS option)
- Pre-configured settings at manufacturing
- WM-E Term® software for local configuration, FW updates
- Secure remote configuration / firmware updates via Azure (TLS)
- “Deployment mode” supports local installation (status checking)
- External battery pack for 4x life span (order option)

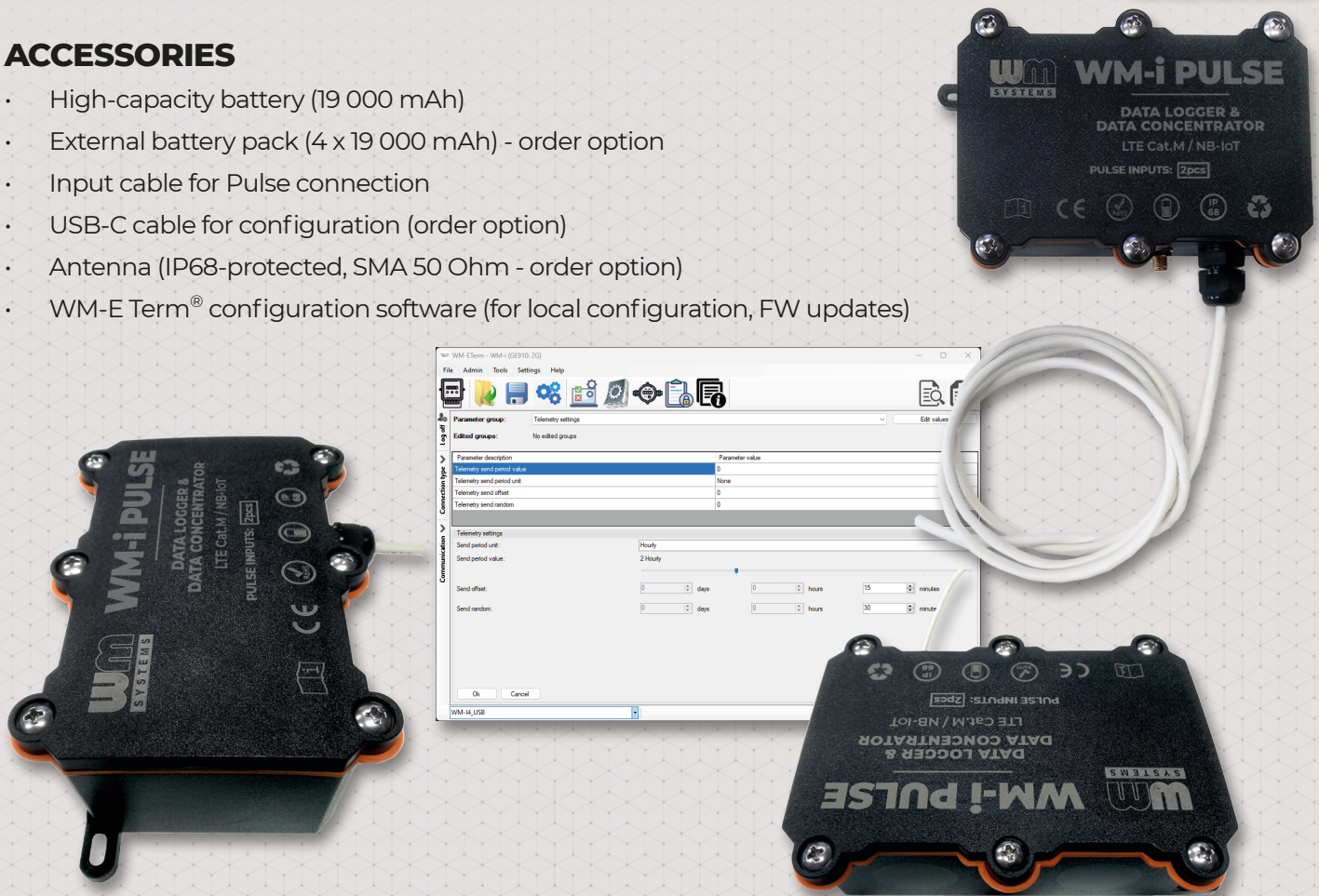
## APPLICATION

- SMART METERING (WATER, GAS, BTU, ETC.)
- SMART CITIES
- INDUSTRIAL AUTOMATION
- IoT APPLICATIONS



## ACCESSORIES

- High-capacity battery (19 000 mAh)
- External battery pack (4 x 19 000 mAh) - order option
- Input cable for Pulse connection
- USB-C cable for configuration (order option)
- Antenna (IP68-protected, SMA 50 Ohm - order option)
- WM-E Term<sup>®</sup> configuration software (for local configuration, FW updates)



WM-i PULSE <sup>®</sup>		LTE Cat.M / Cat.NB
<b>Power</b>	Nominal	• 3.6V DC voltage (powered from an internal battery) • Daily current consumption (hourly reading, data transmission every 6 hours): standby: 1.15mA / with 2 pulse input counting: 1.33mA / with data transmission: 13.4mA
<b>Performance</b>	System	• Cortex-M33 ultra-low powered processor / 2MB Flash / 768kbyte memory
<b>Communication Module</b>	Cellular module	• Quectel BC95-M2
	Mobile technology	• LTE Cat.M / Cat.NB
	Band / Frequency (MHz)	• LTE Cat.M1: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85 • LTE Cat.NB2: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85
<b>SIM card</b>	SIM slot	• LTE Cat.M1: 588Kbps (DL) / 1118Kbps (UL) • LTE Cat.NB2: 127Kbps (DL) / 158 Kbps (UL) • LTE Cat.NB1: 32Kbps (DL) / 70Kbps (UL)
		• Nano SIM card slot (optional eSIM)
<b>Connectivity</b>	Interfaces	• 2 independent Pulse inputs (dry contact) for energy meters / sensors (receives: open collector, open drain, reed contact signals) • USB-C port (for local configuration and installation)
	Specification of inputs	• Pulse inputs: Average 1 .. 2Hz, max. 100Hz / input, Low Level: 0 .. 0.5V, High Level: 1.3 .. 1.8V, I <sub>max</sub> : 8µA
	External battery connector	• IP-protected external BATTERY PACK connector outfit on the outside of the product housing
	Antenna	• SMA (50 Ohm) external antenna connector
<b>Operation</b>	Cabling	• Multicore cable outfit for all available connections (Pulse, USB connection, wire end sleeves, internal terminal block connector to the device PCB)
	Operation behaviour	• Automatic data transmission at predetermined intervals to the Microsoft Azure Cloud IoT platform with MQTT protocol, TLS encryption • Transfer of meter data (identifier, GPS location, GNSS option) • "Deployment mode" that supports local installation (status checking)
	Communication	• Microsoft <sup>®</sup> Azure Cloud platform support    • Protocols: SNMP (multiple time servers), HTTP(S) for firmware downloads • Optional protocol support: Lwm2M, etc. (in case of PoC)
<b>Security</b>	Security features	• Internal accessory: High-capacity battery, up to 5-10 years battery life (depends on configuration): D-size (ER34615 type, lithium-thionyl chloride charge, 19,000mAh capacity, 3.6V) • Order option: 4x capacity external BATTERY PACK, external IP-protected cable connection, IP68-protected housing, up to an additional 10 years battery life (depends on current configuration): 4x 19,000mAh capacity)
		• Alarm thresholds (min/max consumption)    • Cold start (supporting the installation)    • Device displacement sensor – activable for PoC • Leak detection, excessive flow/consumption detection (exceeding the normal consumption, warning of a failure) – activable for PoC • Reverse flow detection and measurement – optional, for PoC    • Secure firmware updates (via Azure)    • TLS encrypted communication
<b>Configuration</b>	Setup	• Automatic / configurable mobile operator, bands, access technology • WM E-Term <sup>®</sup> configuration software (password protected local configuration and firmware updates) • Secure remote configuration / firmware updates via Microsoft <sup>®</sup> Azure (with TLS)
<b>Environment</b>	Operating / Storage	• from -25°C to +70°C at 0 to 95 rel. humidity    • -40°C to +80°C at 0 to 95 rel. humidity
<b>Design</b>	Casing	• IP68-protected design (ABS case, cable outfit)    • Mounting with fastening points
	Dimensions / Weight	• Size (top): 120 x 88 x 50mm    • Size (bottom, required place for installation): 150 x 105 x 50mm (with pedestal mount and cable outfit)    • Weight: 315 gr



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