

## Long-life battery powered cellular IoT DCU for smart metering

Robust, ultra low-power cellular IoT pulse counter and data concentrator (DCU), 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 water meter with a pulse or Mbus 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 3 meters or sensors through its inputs. It counts the pulses and collects M-Bus data of connected meters and sensors, then it transfers all data to the server or HES at predetermined intervals to Microsoft Azure Cloud IoT platform with TLS encryption via the LTE Cat.M / NB-IoT network.

The easily installable device was designed for long-term, maintenance-free operation, the WM-i 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
- Connections: 2pcs independent Pulse inputs / M-Bus input / USB-C port (for local configuration and installation) / SMA antenna connector (50Ω)
- Tamper protection (security alarm if cover is tampered) – optional
- 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
- Automatic / configurable mobile operator, bands, access technology
- Automatic data transmission at preconfigured intervals to Microsoft® Azure platform
- Optional protocol support: LWM2M, MQTT, etc. (in case of PoC)
- Transfer of meter data (identifier, GPS 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)

### APPLICATION

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





## ACCESSORIES

- High-capacity battery (19 000 mAh)
- Universal input cables (for Pulse and / or MBus connection) for tests, POCs, pilots
- 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 <sup>®</sup>		LTE Cat.M / Cat.NB	
<b>Power</b>	Nominal	• 3.6V DC voltage (powered from an internal battery)	
<b>Performance</b>	System	• Cortex-M33 ultra-low powered processor / 2MB Flash / 768Kbyte memory	
	Cellular module	• Quectel BC95-M2	• Quectel BC95-M4
<b>Communication Module</b>	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.M1: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B31/B66/B72/B73/B85
	Speed (DL/UL)	• LTE Cat.M1: 588Kbps (DL) / 118Kbps (UL) • LTE Cat.NB2: 127Kbps (DL) / 158 Kbps (UL) • LTE Cat.NB1: 32Kbps (DL) / 70Kbps (UL)	• LTE Cat.M1: 588Kbps (DL) / 118Kbps (UL) • LTE Cat.NB2: 127Kbps (DL) / 158 Kbps (UL) • LTE Cat.NB1: 32Kbps (DL) / 70Kbps (UL)
<b>SIM card</b>	SIM slot	• Nano SIM card slot (optional eSIM)	
<b>Connectivity</b>	Antenna	• SMA (50 Ohm) external antenna connector	
	Interfaces	• 2 independent Pulse inputs (dry contact) for energy meters / sensors • M-Bus input (for energy meter / sensor) • 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 • M-Bus input: M-Bus standard	
<b>Operation</b>	Cabling	• Multicore cable outfit for all available connections (Pulse, MBus, USB connection, wire end sleeves, internal terminal block connector to the device PCB)	
	Operation behaviour	• Automatic data transmission at predetermined intervals to the server / HES to the Microsoft Azure Cloud IoT platform with TLS encryption • Transfer of meter data (identifier, GPS location, GNSS option) • "Deployment mode" that supports local installation (status checking)	
	Battery	• High-capacity battery with up to 10 years battery lifetime (depending on settings): D-size (type ER34615, Lithium Thionyl Chloride, 19 000mAh capacity, 3.6V voltage) • Alarm thresholds (min/max consumption) • Cold start (supporting the installation) • Device displacement sensor – activable for PoC	
<b>Security</b>	Security features	• 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	
	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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