

Meter Interface Unit (MIU)

User Manual

Model: MIU1USLA

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1. General description

The Meter Interface Unit (MIU) is an endpoint device for use in an Advanced Water Metering Infrastructure that enables utilities to optimize operations through data collection and analytics.

The MIU device is an ultra-low power, two-way communication device for collecting water meters readings and designed to operate in LoRa network.

The LoRa system is based on LoRaWAN for smart water meter management system. The MIU device connects either to the Mobile Data Collector or to the nearest gateway when it is in Fixed Mode network configuration.

The device fits both Pit or Wall mounted Basement installation. The MIU is wired to the meter interface and collects the meter data every configured intervals (e.g. every 15 minutes, hourly, daily, etc.), stores readings records on a non-volatile memory and transmits hourly data several times a day.

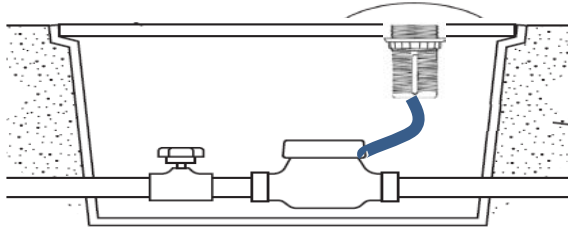
Key Features

- Two way network for sensor monitoring and remote control
- Built-in antenna
- Integrated non-rechargeable Lithium Battery 3.6V/19Ah
- Interfaces with meters Encoders or Pulser sensors
- Ultra low power consumption - Battery life time > 15 years (typical operation – 4 daily reads)
- Data logging capacity: 30 days records at 15 minutes intervals
- End-to-end information security including authentication, integrity protection, replay attack and encrypted messages
- Comply with FCC part 15 non-license



2. Installing the MIU

The MIU is mounted either in a pit or in a basement. Pit mounted is depicted in the figure below.



3. Sensor Wire Interface

The MIU has the following Interfaces:

- Water meter reading interface.
- Valve control interface.

The wired encoder is equipped with NICOR connector or bare wire.

4. Technical Data

4.1 Electrical Characteristics

Table 1: Electrical characteristics

Parameter	Value
Internal Battery Voltage	3.6VDC nominal
Internal Battery Capacity	19,000 mAh nominal

4.2 RF Radio Characteristics

Table 2: RF radio characteristics

Parameter	Value ⁽¹⁾	Unit
Operating Frequency	902...928	MHz
Modulation	LoRa	
Maximum Transmitter output power	20	dBm
Maximum Receiver Sensitivity	-125	dBm
Antenna	Internal , omni directional	

4.3 Mechanical Characteristics

Table 3: Mechanical characteristics

Feature	Specifications
Maximum Dimensions (mm)	170 x 80 x 50 mm
Housing	Solid and waterproof

4.4 Environmental Characteristics

Table 4: Environmental characteristics

Feature	Specifications
Operating Temperature	-30°C to +70°C
Storage Temperature	up to +30°C
Relative Humidity	100%
IP rating	IP68

5. Certifications

Table 5: Certifications

Standard	Category	Comment
IP 68 per IEC 60529-1	IP Rating	
47CFR FCC Part 15	EMC/Radio	

6. Regulation Information

FCC Part 15 Regulation Class B digital device notice

The digital circuit of this device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAN ICES-3 (B)/NMB-3(B)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

FCC interference Notice

This device complies with part 15 of the FCC rules.

Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Industry Canada interference Notice

This device complies with Industry Canada's license-exempt RSS standard(s).

Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage;*
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

FCC and Industry Canada Radiation Hazard Warning

WARNING! To comply with FCC and IC RF exposure compliance requirements, the device should be located at a distance of at least 20 cm from all persons during normal operation. The antennas used for this product must not be co-located or operated in conjunction with any other antenna or transmitter.

Le dispositif doit être placé à une distance d'au moins 20 cm à partir de toutes les personnes au cours de son fonctionnement normal. Les antennes utilisées pour ce produit ne doivent pas être situés ou exploités conjointement avec une autre antenne ou transmetteur.

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS-102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

WARNING! Changes or modifications to this equipment not expressly approved by the party responsible for compliance (ST Engineering Telematics Wireless Ltd.) could void the user's authority to operate the equipment.