# St Engineering MIU1USLA Meter Interface Unit User Manual



**ST Engineering Telematics Wireless Lt**
**Meter Interface Unit (MIU)**
**Model: MIU1USLA**
**User Manual**

Revision 1.0, July 6, 2020


Contents

## General description

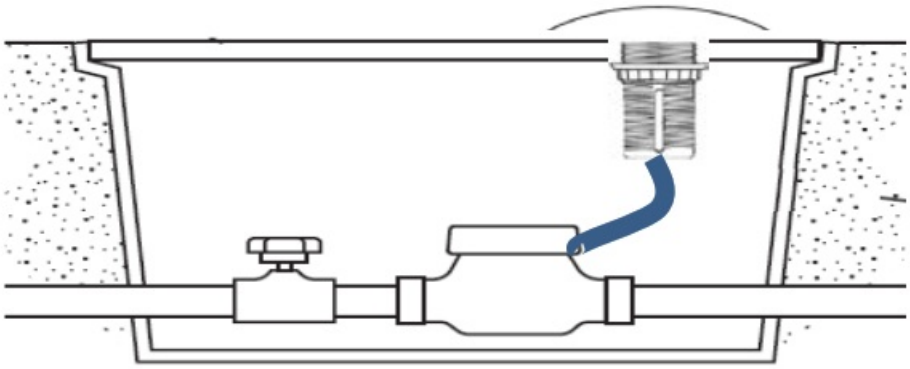
The Meter Interface Unit (MIU) is an endpoint device for use in an Advanced Water Metering Infrastructure that enables utilities to optimize operations through data collection and analytics. The MIU device is an ultra-low-power, a two-way communication device for collecting water meter readings and is designed to operate in the LoRa network. The LoRa system is based on LoRaWAN for a 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 interval (e.g. every 15 minutes, hourly, daily, etc.), stores readings records on 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 lifetime > 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

## Installing the MIU

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



## Sensor Wire Interface

The MIU has the following Interfaces:

- Water meter reading interface.
- Valve control interface.

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

## 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 |

## Certifications

Table 5: Certifications

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

## 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 numerique de la classe B est conforme a 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.

**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.
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.

ST Engineering

## Documents / Resources

| | |
|---|---|
|  | St Engineering MIU1USLA Meter Interface Unit [pdf] User Manual<br>MIU1USLA, NTAMIU1USLA, MIU1USLA Meter Interface Unit, Meter Interface Unit, Interface Unit |