Manuals+ — User Manuals Simplified.

ST Engineering Mirra CX1-2AS Plus LoRaWAN Meter Interface Unit Owner's Manual

Contents

ST Engineering Mirra CX1-2AS Plus LoRaWAN Meter Interface Unit

Product Using Instructions

- The product is designed to operate within specified mechanical and environmental conditions to ensure optimal performance.
- Choose a suitable location for the Mirra CX1-2AS Plus unit near the metering equipment.
- Ensure proper power supply and connectivity options are available in the installation area.
- Mount the unit securely using the provided mounting hardware.
- Once installed, follow these steps to configure the unit:
- Access the configuration interface using the provided credentials.
- Set up communication parameters as per your network requirements.
- Adjust the alarm settings based on your preferences.
- Monitor the data readings and alerts displayed on the unit interface.
- Respond to any alarms or notifications promptly to ensure system integrity.

Key Features

- Water meter interface unit
- LoRaWAN communication (AS923MHz)
- Remote scheduled data reporting
- Power saving feature
- Battery life (up to 15 years)
- Integrated pulse sensor
- Battery replacement at site
- Support Firmware-Over-The-Air upgrade
- Infrared for short range configurations
- Alarms (Backflow, Overflow, low battery voltage, anti-tampering, high temperature, Last Gasp, storage exception alarm)
- Secured data protection: AES256

Product Compliant

- Safety: EN 61010-1:2010+A1:2019
- EMC:EN IEC 61326-1:2021
- RF:EN 300220-1 EN 300220-2FCC Part15
- ENVR:EN 60068-2-30:2005, EN 60068-2-2:2007,EN 60068-2-1:2007, IEC 60068-2-38:2021
- RoHS: EN 62321
- Ingress: IEC 60529:1989+A1:1999+A2:2013
- Entrusted: IEC 62262:2002+A1:2021
- Reliability: IEC 62059-31-1
- Drop: IEC 60068-2-31:2008

Mechanical / Working Environment

- Dimensions: 121(L)x100(D)x51(H) mm
- Weight: 0.26KG
- Operating temperature: -20°C to +55°C
- Operating humidity: <95% non-condensing
- Ingress protection: IP68
- Impact rating: IK08

MIU Certifications

- FCC (USA)
- CE (Europe)
- ATEX (Ɛ) –In accordance with Directive 2014/34/EU
- Quality: STEURS ISO 9001 & ISO 14001

## Technical Specifications

Technical Specifications (V2.0)

COMMUNICATIONS / NETWORK			
Transmission Protocol	LoRaWAN V1.0.2 Class A	Data rate	0.018 -37.5 kbps
Topology	Star	Bandwidth	125/250/500 KHz configurable
Frequency band	902.3-927.7MHz	Center Frequency	Can be customized
TX Power	20 dBm max	Antenna gain	<1.0 dBi
RX SENSITIVITY	-139 dBm@SF12/125kHz	Data security	AES256 data encryption (dynamic)
Antenna type	Internal (Omi-directional)		

DATA READING

Data accuracy	Depends on the water meter	Data storage	Up to 30 days of data storage
Data reporting interval	Default 1 time/day, configurable up to 3 times/day	Data log interval	Up to 30 minutes data interval
Device/Environment status data	MIU firmware version, MIU time (real), Device temperature (°C),	Others data	Number of transmissions, Daily battery voltage level, Data timestamp, Data size
MIU identification data	MIU code (unique), devEUI, AppKey, Water meter code	Measured data	Cumulative flow, Cumulative positive flow, Cumulative reverse flow, Collection time,

ALARMS

Water backflow	Supported	High temperature report	Supported
Low battery voltage	3.3V	MIU removal (tamper)	When MIU is removed from the water meter
Last Gasp	Battery failure	Storage exception alarm	MIU internal memory failure
		Overflow alarm	Supported

CONFIGURATIONS

No. of days of lost data	Data storage up to 7 days for retrieval	Data transmission/logging interval	Max. up to 3 times/day / up to 15 minutes
Time sync	Supported	Local configuration capability	Infrared

FEATURES

Real Time Clock (RTC)	Supported	Firmware OTA upgrade	Supported
Integrated pulse sensor	Accuracy up to 99.9% Precision up to 0.1L per pulse	Last Gasp	Supported
External interfaces	Inductive pulse, Infrared	Temperature sensor	Supported

OPERATING ENVIRONMENT

Operating Temperature	-20°C to +55°C	Storage temperature	-20°C to +55°C
Operating Humidity	<95% RH Non-Condensing	Storage humidity	<99% RH non-condensing

| Ingress protection | IP68 | Entrusted protection | Impact IK08 |

POWER SUPPLY

Battery type	Lithium	Transmission inrush current	80mA
Battery life	15 years (transmission interval, by default 1 time/day), 10 years (transmission interval is 3 times/day)	MIU power consumption during transmission	Data Sampling per times: 0.30uAh Data Report per times: 15uAh
Power consumption	200mW	Battery nominal capacity	19Ah
Standby mode	100uW	Battery storage leakage	<1% per year @ +25°C

SYSTEM

Availability	On Demand	Single cast	Supported
Device trigger/activation	Magnetic sense		

COMPLIANCE

Safety	EN 61010-1:2010+A1:2019	RF radio	EN 300220-1, EN 300220-2 FCC Part15
EMC	EN IEC 61326-1:2021	Environmental	EN 60068-2-30:2005, EN 60068-2-2:2007 EN 60068-2-1:2007, IEC 60068-2-38:2021
RoHS	EN 62321	Ingress protection	IEC 60529:1989+A1:1999+A2:2013
Entrusted	IEC 62262:2002+A1:2021	Reliability	IEC 62059-31-1

CERTIFICATIONS / QUALITY

Europe	CE RED	Explosive	ATEX
STEURS ISO 9001	Design and Development	STEURS ISO 14001	Manufacture, Supply, Installation, Maintenance

MECHANICAL

Dimensions	121(L) x 100(D) x 51(H) mm	Casing material	ABS UV treated
Weight	0.26KG	Casing color	Pantone Color: Cold grey 1C

Dimension
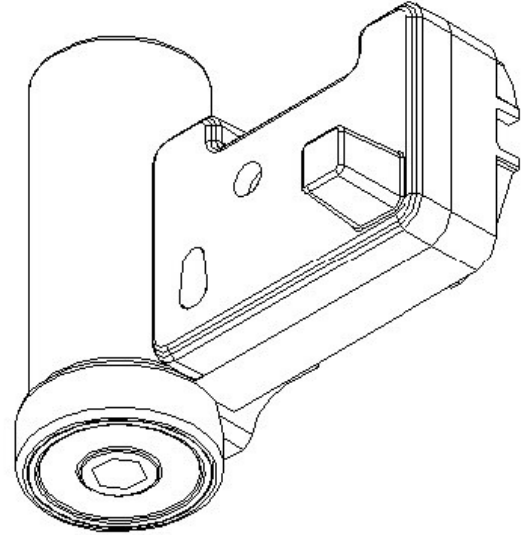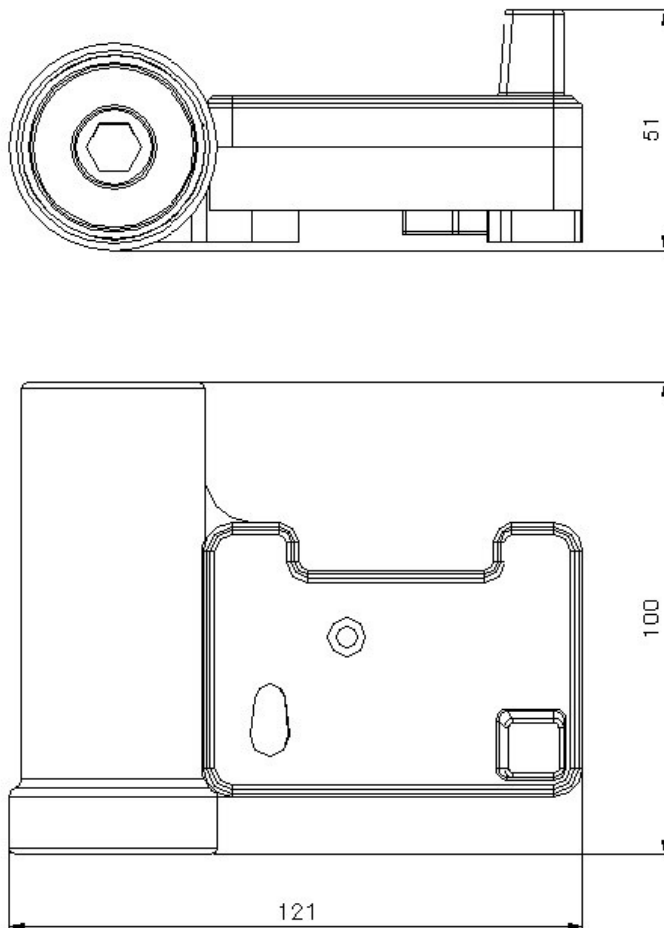
FCC Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body.

FCC Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, according 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.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CONTACT

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FAQ

- **Q: What should I do if I encounter a storage exception alarm?**
  - **A:** If you receive a storage exception alarm, check the storage capacity of the unit and ensure it is not exceeded. Clear out unnecessary data or increase storage capacity as needed.
- **Q: How do I know if tampering is detected by the unit?**
  - **A:** The unit will trigger a tampering alert indicating any unauthorized access or interference with the device. Review the tamper event log in the unit's interface for details.
- **Q: Can I adjust the temperature threshold for high temperature alerts?**
  - **A:** Yes, you can typically adjust the temperature threshold in the unit's settings to customize when high temperature alerts are triggered based on your specific requirements.

Documents / Resources

[ST Engineering Mirra CX1-2AS Plus LoRaWAN Meter Interface Unit](#) [pdf] Owner's Manual
Mirra CX1-2AS Plus, Mirra CX1-2AS Plus LoRaWAN Meter Interface Unit, LoRaWAN Meter Interface Unit, Meter Interface Unit, Interface Unit

References

- **[ST Engineering | Harnessing Technology and Innovation](#)**
- **[User Manual](#)**