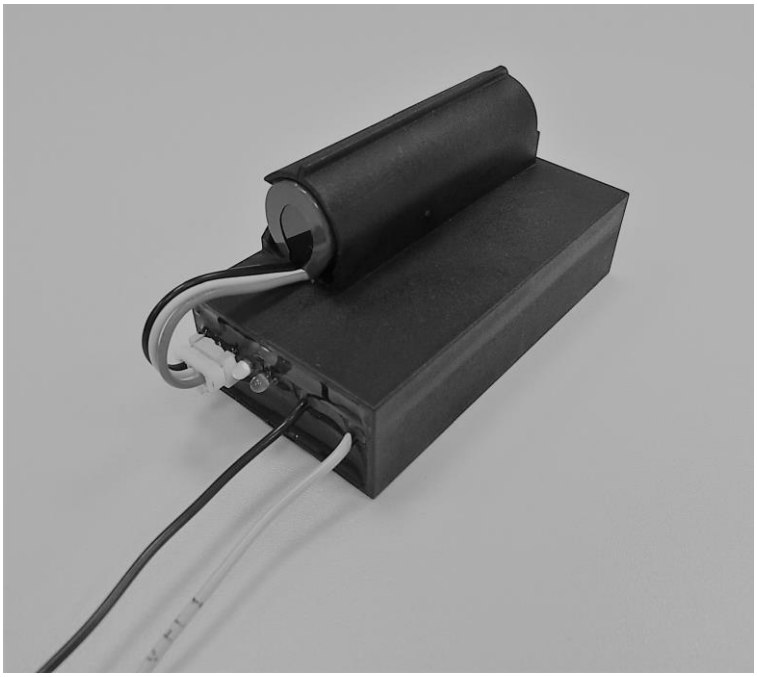
Rosenberger

MI2C001-001-US

Operating Instructions

Please Keep Safe for Future Reference



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Contents

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1 Revision History

Date of this revision: 01.02.2019	Date of next revision

Revision Number / Date	Author	Summary of Changes	Changes Marked
V2.0 / 01/10/2019	Herbert Kozel	First draft	N
V2.1 / 02/01/2019	S. Lachenwitzer	Added warnings at chapter 3 Changed product declarations from EU to US	N

2 Symbols and What They Mean

You may encounter the following symbols on the device and in these operating instructions. The meanings of these are provided below.

	These operating instructions contain important information and so must be read with care.
	Important warning. Failure to observe the warning: • Puts people and the environment at risk! • Can damage the device • May stop the device from functioning correctly
	Symbol according to WEEE Annex IV You must observe the requirements governing the sale, return, and environmentally sound disposal of electrical and electronic equipment.
	Do not dispose of Li-ion batteries via the municipal waste disposal facilities. Instead, separate them from other categories of waste and take them to the designated collection points.
	Useful information, important tips, etc.

3 Warnings

This device complies with Part 15 of the FCC Rules and with Industry Canada licence-exempt RSS standard(s).
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.**

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'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.**

NOTE: This equipment 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.**

The user manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

4 Safety Information

In principle, the device is safe to operate provided that you observe the information in these operating instructions and on the device itself.

- The inside of the device contains hazardous electrical circuits that can be lethal if touched. The device is only to be opened and/or repaired by authorized personnel. Never open the device and never attempt to carry out any repairs yourself. Instead, please contact your Customer Service team. For the contact details, please see the "Service and Maintenance" section.

- The MI2C001-001-US device is intended for installation inside a type GSH27 jackhammer. Within the context of this end-use application, the requirements concerning
  - protection against operator contact,
  - fire protection,
  - air gaps and creepage distances,
  - and the general requirements

  must all be observed – while also taking account of the specific usage scenario and the associated recognized standards of good practice for ensuring safety and proper functioning.

- As a component of the GSH27 end-use application, the device is only safe if used in accordance with the installation and operating instructions provided in this technical manual.

- The module does not feature a supply circuit disconnect. A suitable disconnect switch must be integrated into the supply circuit when installing the device.

- Before switching on the device, you must make absolutely sure that the line voltage matches the device supply voltage. For the device specifications, please refer to the device rating plate or the technical data.
  - The device rating plate can be found on the device itself.
  - The technical data for the device can be found in the "Technical Data" section.

- Avoid prolonged exposure to high humidity and condensation. Protect the device against moisture and chemicals.

- Only use the spare parts and accessories included with delivery or spare parts and accessories that have been officially approved by us. Using non-approved spare parts and accessories can significantly impair the function of the device and compromise your safety. For details of which parts have been included with delivery, please see the "Scope of Delivery" section; for details of original accessories, please see "Spare Parts and Accessories".

- The device is no longer safe to operate if:
  - The housing has been damaged by excessive mechanical stress
  - Water has got inside the device
  - Smoke is emerging from inside the device
  - The supply cable is damaged

  In the event of any of the faults described above, switch the device off immediately and disconnect it from the power supply. Contact your Customer Service team right away. For further details, see the "Service and Maintenance" section.

- Do not drop the device or allow it to fall!

- Users are not permitted to modify the product in any way. Any consequences resulting from product modifications will not be covered by Customer Service or by the contractual warranty terms.

- Your attention is expressly drawn to the fact that no product liability and warranty claims can be asserted if the device has not been operated in accordance with the information provided in these operating instructions and the information on the device, or if it has been used other than intended!

	• The device features a lithium battery. • Attention! Risk of explosion if battery is incorrectly replaced • The procedure for replacing the battery safely is described in the "Replacing the Battery" section of the operating instructions.

5 Device Description and Usage / Installation Instructions

- The MI2C001-001-US is a telematics unit that is solely intended for installation in a GSH27 jackhammer. Therefore, please also observe the information in the "Safety Information" section.

When installing the MI2C001-001-US component, special care must be taken to ensure that the requirements concerning the following are met: protection against operator contact, fire protection, and air gaps and creepage distances.

DANGER: ***To ensure this, it is vital to install the device in the jackhammer grip because this has been designed as a double-insulated housing.***
Any other form of installation is incorrect and protection CANNOT be ensured.
The level of protection supported by the device will also be compromised if the device is used other than stipulated by the manufacturer.

Connecting the Device to the Power Supply:
Only authorized specialist personnel are permitted to carry out installation work. For this, the jackhammer must be disconnected from the line voltage by pulling out the power plug. Before installing the unit, make sure that it is safe to do so by following the five electrical safety rules.

Install the device in the jackhammer grip as follows:

1. Remove the four screws from the cover of the jackhammer grip as marked in Figure 1.

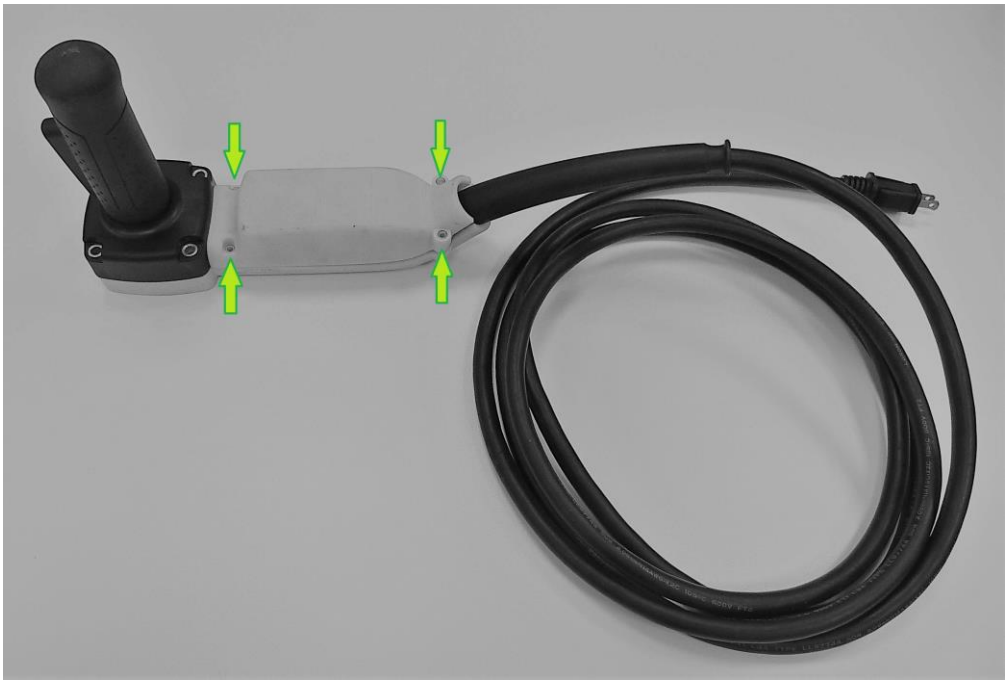

Figure 1: Removing the cover

2. Remove the cover of the jackhammer grip. Get the MI2C001-001-US telematics unit ready for installation with the battery installed and connected (see Figure 2).

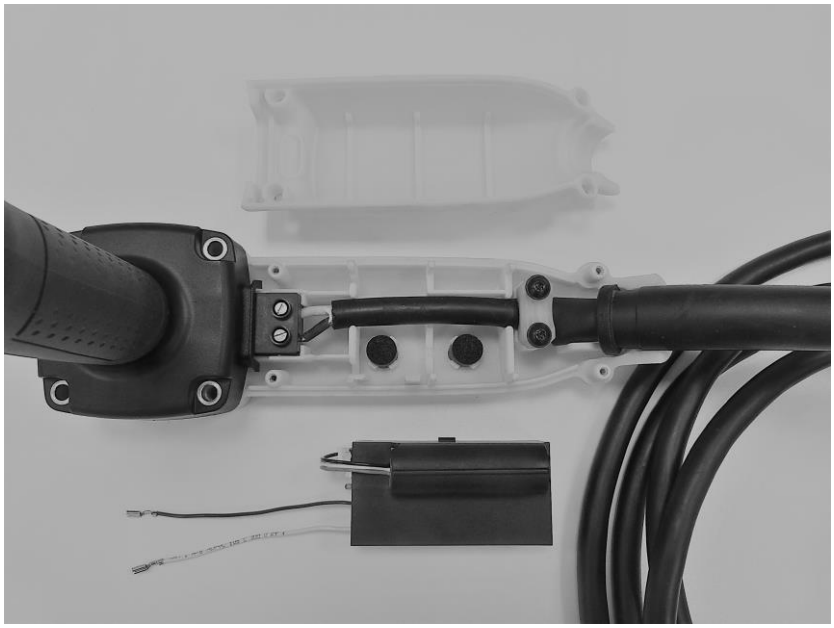

Figure 2: Unit prepared for installation

3. Connect the line voltage supply leads of the telematics unit to the flat-contact connectors below the power supply connection for the jackhammer (Figure 3). The connection leads of the telematics unit must be routed so that they run above the jackhammer power cable (on the side pointing away from the battery connector) in the direction of the unit.

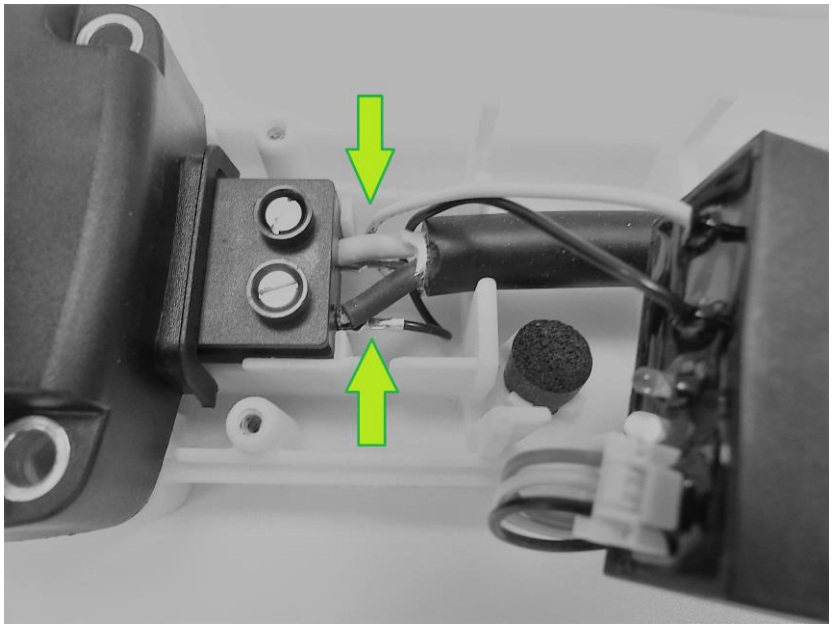

Figure 3: Connecting the line voltage supply leads

4. Place the unit in the shell of the jackhammer grip exactly as shown in Figure 4 so that the unit housing rests on two foam cushions. Gently press the unit against the foam cushions until the tab (identified by an arrow in the image) clicks into place, thereby securing the unit.

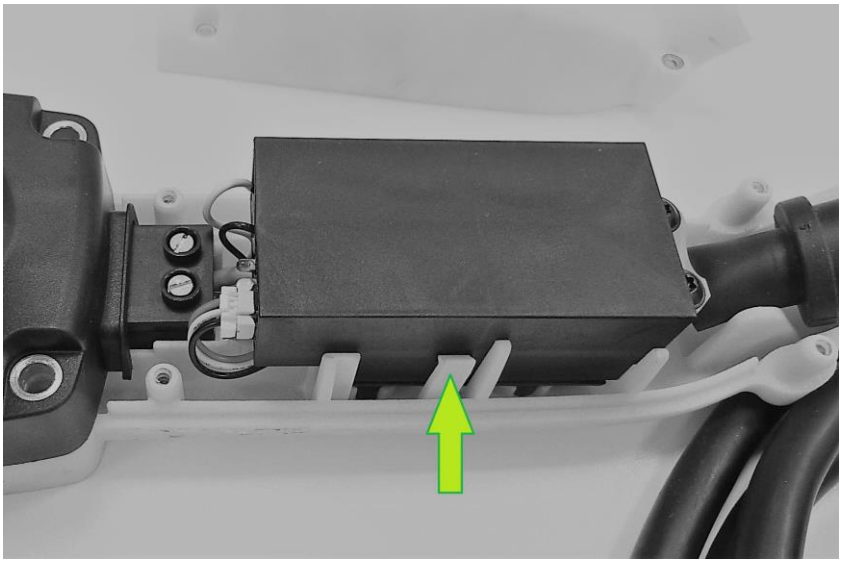

Figure 4: Mounting the telematics unit

5. Finally, carry out another check to ensure that the power leads and battery cable have been arranged separately from one another on opposite sides of the unit (see Figure 4).

6. Attach the cover of the jackhammer grip housing and secure it with four screws at the points marked in Figure 5.

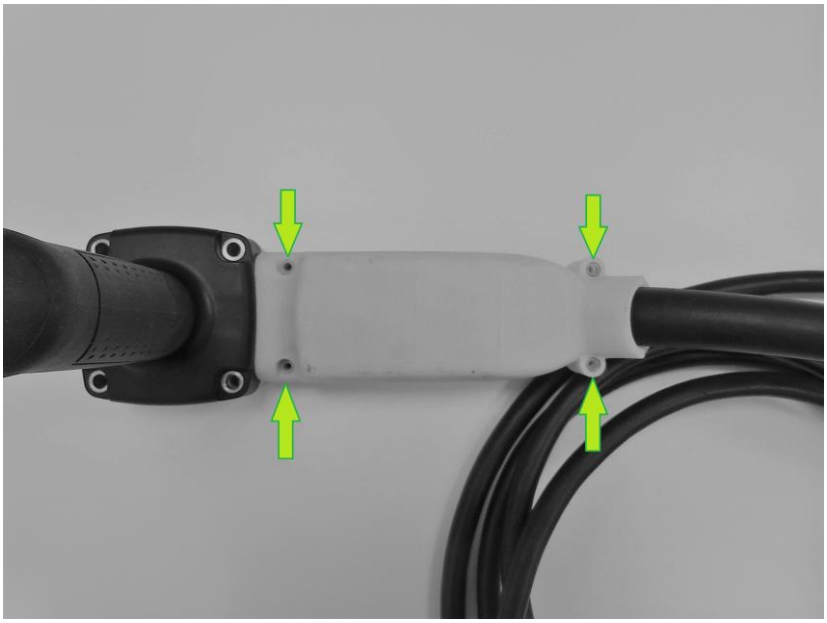

Figure 5: Sealing the housing shut

☞	To verify that the device is functioning correctly, you have the option of carrying out a visual check. For further details, see "Commissioning".

6 Scope of Delivery

☞	After unpacking the device, immediately check that everything is present and in good condition. If an item is missing or damaged, please let us know right away. For details of your Customer Service team, please see the "Service and Maintenance" section.

Parts included with delivery:

- **1x telematics unit** **MI2C001-001-US**
- **1x Li-ion battery** **ABI-L18650-1S1P-DR / 356549**

7 Controlling Elements and Connections

The device does not have any operating controls. It features the following connections:

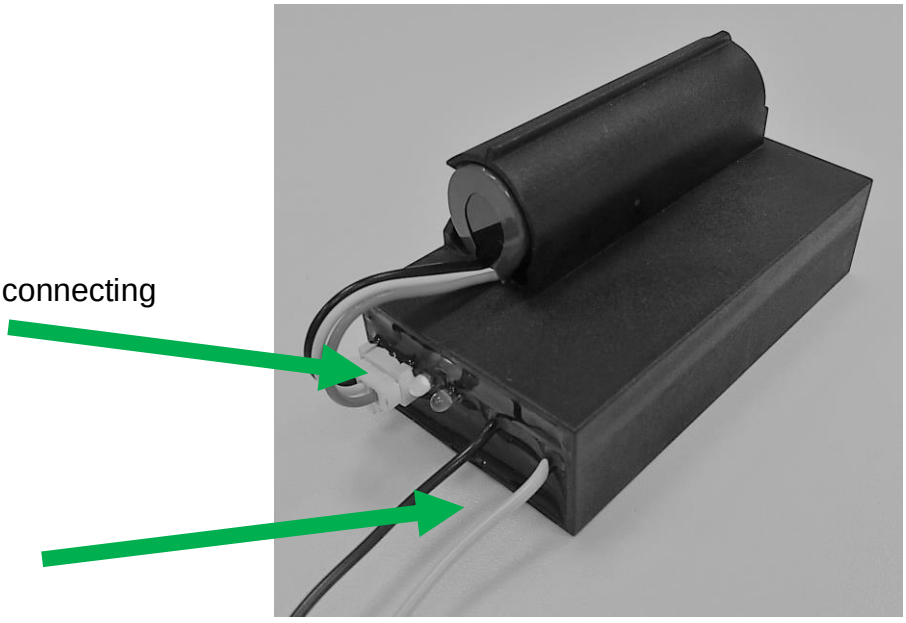

Figure 6: Connections

There are also two green LEDs. These can be referred to during service to determine whether the unit is functioning correctly.

8 Commissioning

The device must **NEVER** be commissioned by the operator (end customer/non-specialist) of the GSH27 jackhammer.
There is no way that the jackhammer operator can inadvertently come into contact with the device, which can only be accessed with a tool. The telematics unit functions independently without the need for a specific commissioning process.

8.1 Functional Check

A functional check can be carried out when installing or servicing the device. Only authorized specialist personnel are permitted to carry out a functional check.

- The functional check involves accessing the telematics unit directly. Consequently, ***there is no protection in terms of electrical safety***.
- Please familiarize yourself thoroughly with the "Safety Information" section before carrying out the functional
- check.
  The line voltage specifications must match those of the
- device.
- Only authorized specialist personnel are permitted to carry out functional checks.

ATTENTION: DANGER TO LIFE
Exposed conductors (line voltage supply leads) are live and dangerous!

A visual check can be performed during device installation or servicing to ensure that the power supplies are functioning correctly. The battery used for this purpose must not be flat:

1. Disconnect the device from the line voltage.
2. Disconnect the device from the battery (disconnect the battery connector).
3. Wait ten seconds.
4. Connect the battery to the device. => Green LED no. 1 lights up.
5. Connect the line voltage. => Green LED no. 2 lights up.
6. Both LEDs go out after approx. ten seconds.

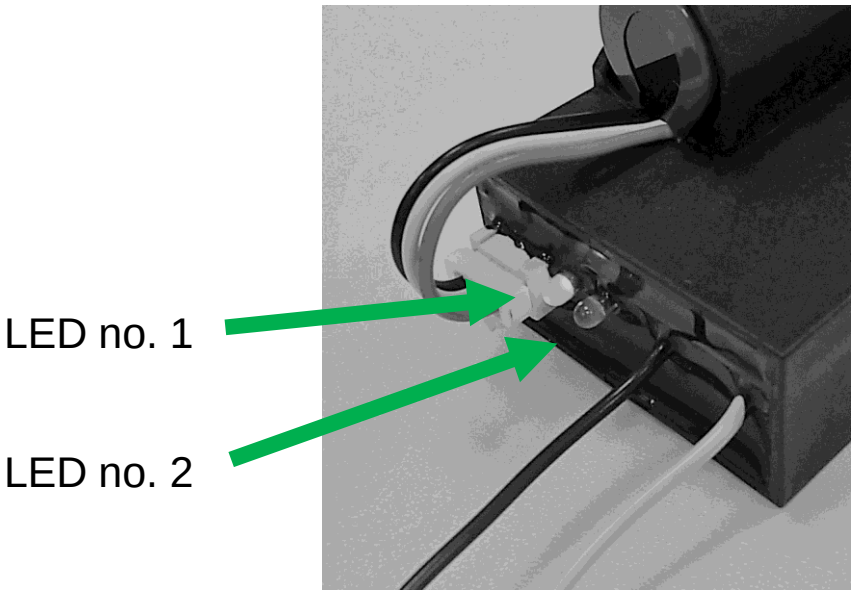

Figure 7: Identification of LEDs

9 Function of the Device

The MI2C001-001-US device is a telematics unit that is intended for installation in a type GSH27 jackhammer. The unit functions independently without the need for a specific commissioning process.

Whenever the jackhammer is connected to the line voltage, the Li-ion battery starts recharging regardless of its current state of charge.
When the jackhammer is disconnected from the line supply, the Li-ion battery supplies the device with power.

The telematics unit automatically connects to an Internet application via a cellular connection in order to log various events. For this purpose, the telematics unit features – among other things – a GPS receiver, an acceleration sensor, and a temperature sensor.

10 Replacing the Battery

	• Please familiarize yourself thoroughly with the "Safety Information" section before replacing the battery. • Only authorized specialist personnel are permitted to • replace the battery. Batteries are classed as hazardous waste. They must not be disposed of together with your general/household garbage. Dispose of batteries in accordance with the applicable state and local guidelines. Please also follow the disposal instructions provided by the

The battery is only to be replaced with a battery of the type specified in the "Technical Data" section.

The Li-ion battery can be found inside a battery holder on the outside of the device's plastic housing. The battery will have been securely inserted into this battery holder:

To replace the battery, carefully disconnect the battery cable from the battery connector.

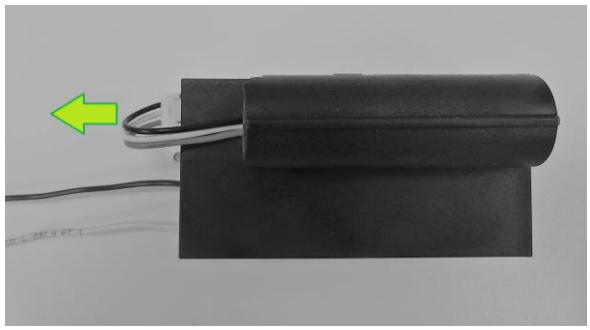

Figure 8: Disconnecting the battery connector

Then pull the battery out of the battery holder shaft.

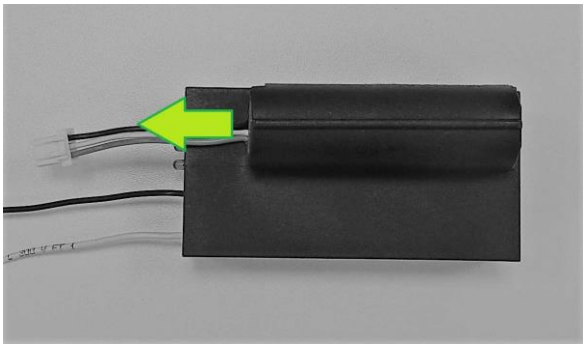

Figure 9: Removing the battery from its holder

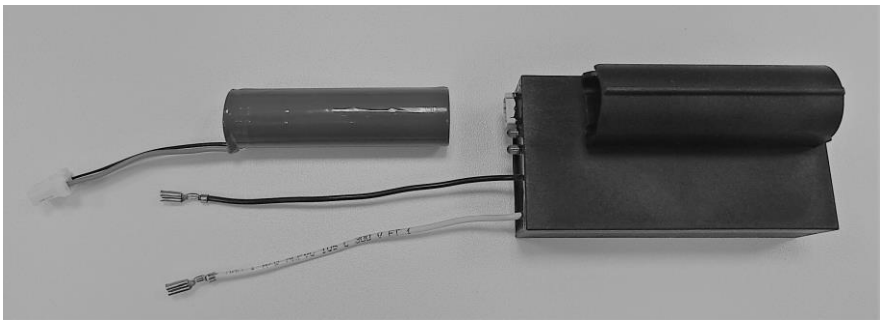

Figure 10: Old battery removed

Next, insert the new battery into the holder shaft and carefully connect the battery cable to the connector. The mechanically coded connector prevents the battery from being connected with reverse polarity.

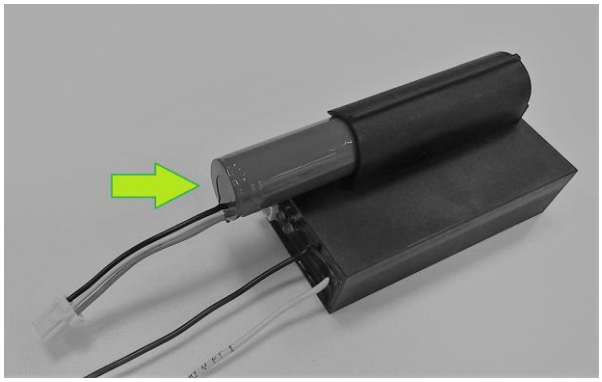

Figure 11: Inserting the new battery

Figure 12: Connecting the battery connector

Attention: Intentionally installing a battery with reverse polarity can damage the device beyond repair and compromise the safety of the operator.

11 Cleaning the Device

- It is essential to disconnect the device from the line supply before cleaning it. To do this, unplug the supply cable from the power receptacle. Do not immerse the device in water
- under any circumstances. Only use the cleaning agents
- approved by the manufacturer. For further details, see the information below.

The device does not require cleaning to function correctly. Periodic cleaning at regular intervals is not necessary.

If you nevertheless wish to clean the device (e.g., if the LEDs are obscured), please carry out the cleaning process described below:

- Remove the battery (see section titled "Replacing the Battery").
- Clean the device by using a dry microfiber cloth to remove the dirt. The interior of the battery connector can be blown out with compressed air. Caution: Wear eye protection!
  Do not use any cleaning agents.
- Reinstall the battery at the end of the process.

12 Spare Parts and Accessories

The only way to ensure safe and reliable device operation is to use the spare parts and accessories listed below. Therefore, only ever use the spare parts and accessories that have been officially approved by us. If alternative parts are used, we will assume no liability in the event of product damage, physical damage, or personal injury.

Part	Item number	Specifications
Li-ion battery	356549	ABI-L18650-1S1P-DR

13 Troubleshooting

- Only authorized specialists are permitted to carry out troubleshooting by identifying and remedying faults.

Fault description	Possible causes and remedy
Internet application is not receiving any data from device	No power being supplied to device - Line voltage supply leads defective/not connected - Battery not connected / Connection defective - Battery defective Remedy: - Check that leads are connected correctly - Purchase new battery - Replace device if defective

If your device cannot be successfully put into operation after using the fault scenarios described above to identify and subsequently remedy the fault, please send the device to your Customer Service team for repair. For details of your Customer Service team, please see the "Service and Maintenance" section.

14 Service and Maintenance / Customer Service

The MI2C001-001-US component does not normally require any maintenance or servicing. However, in the event of problems or if your device is defective, please contact our Customer Service department. The device, or any parts thereof, may only be examined and/or replaced by us.

Rosenberger

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15 Technical Data

Model:	MI2C001-001-US	
Line voltage connection:	100–240 V AC	
Rated frequency:	50/60 Hz	
Rated power:	6 W	
Protection class:	Must be installed double-insulated	
Battery connector:	3.0–4.2 V DC	
Charging current at battery connector:	Max. 500 mA	
Ambient conditions:	Ambient temperature	-20–60°C
	Humidity	Max. 93±3%
	Altitude	Max. 3,000 m
	Overvoltage category	II
Dimensions:	Length x width x height = (91.5 x 46.2 x 46.9) mm (excluding cables)	
Weight:	220 g (incl. Li-ion battery)	
Device fuse:	1.25 A fuse – irreparable once blown	
Device battery:	Li-ion battery, ABI-L18650-1S1P-DR	
Battery voltage:	3.6 V	
Battery capacity:	2500 mAh	
Cellular radio technology:	LTE Cat M1 / NB1	
Band:	2 / 4 / 5 / 12	
Output power:	Class 3 (23 dBm)	
GPS sensitivity:	-148 dBm	

16 Disposing of the Device

	The device has been developed and manufactured using high-quality materials and components that can be recycled and reused. As stipulated by Directive WEEE2 2012/19/EU and the German Electrical and Electronic Equipment Act (ElektroG), the device must not be disposed of together with general/household garbage *.
	Do not dispose of Li-ion batteries via the municipal waste disposal facilities. Instead, separate them from other categories of waste and take them to the designated collection points.

Environmental protection information:
On reaching the end of its useful life, this product must not be disposed of with normal household garbage. Instead, it must be taken to a recycling collection point for electrical and electronic equipment. The materials can be recycled as per their labels. By reusing or recycling waste electrical equipment, you can make a significant contribution to the protection of our environment. Please contact your municipal authority for details of your responsible waste disposal center.

* EU Directive WEEE 2002/96/EC was implemented in German law by the Electrical and Electronic Equipment Act (ElektroG).

17 Contractual Warranty Terms and Product Liability

- The contractual warranty terms and any product liability claims – including during the statutory warranty period – will be rendered null and void if the device is not operated in accordance with the information provided in these operating instructions and on the device itself.
- The contractual warranty terms and any product liability claims – including during the statutory warranty period – will be rendered null and void if the device is opened or operated improperly.
- Due to their limited useful life, any parts that are particularly subject to wear are excluded from the statutory warranty. These include batteries, etc.