LoRa Alarm Unit (Battery)

MTC-XX-AU02 / MTC-XX-AU04

Quick Start Guide

Thank you for choosing Mutelcor GmbH.
We are proud to be part of your project.

1. Need Help?

For any other query related to our product, please contact the local distributor or Mutelcor at support@mutelcor.com

2. Manufacturer

Mutelcor GmbH: An der Bastei 42a, 47259 Duisburg, Germany

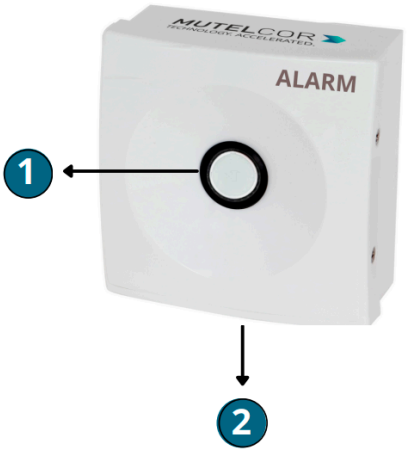
Office: +49 203 72996070, Fax: +49 203 72996071, Web: www.mutelcor.com

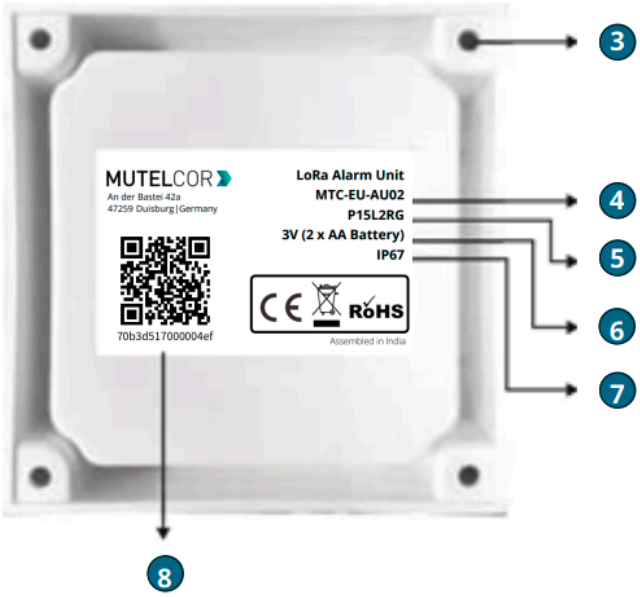
3. Safety

Read the instructions carefully before device installation, operation and maintenance

1	Maintenance and repair must be carried out by qualified personnel authorized by reseller
2	Keep the device away from any hot surface

4. Product Description





At a Glance

No.	Description		No.	Description
1	Button / Multi-color LED		6	Power supply
2	Enclosure		7	Ingress Protection
3	Holes for Wall Mount		8	DevEUI with QR code
4	Model Name		9	Device info Access Sticker (optional)
5	Module ID			

5. Opening and Closing the Device

	• Always wear gloves or keep your hands dry while handling the PCB • Do not touch the circuitry part of the PCB with bare hands • Be careful not to break the button slots when de-attaching the PCB

For reset or replacing the batteries, opening of the enclosure is needed.

Fig 5.1

For opening the enclosure please follow the steps described below:

1. Unscrew the four screws on the two sides of the device
2. Gently separate the top and bottom case
3. Carefully de-attach the PCB from the top case of the enclosure by gently pulling it out from the button slots. PCB should be moved back and forth carefully, so that it detaches from the button slots. Be careful not to break button slots. See Fig 5.1.
4. After performing the tasks, gently and carefully attach the PCB back to the button slots
5. Gently close the top and bottom of the enclosure together and tighten all the four screws

6. Insertion and Replacement of Batteries

	• Open the device for replacing the batteries • Always wear gloves or keep your hands dry while handling the PCB • Do not touch the circuitry part of the PCB with bare hands • Do not use sharp objects to remove the batteries

For replacing the battery please follow the steps described below:

1. Open the device (for details please refer to section 5, “Opening and Closing the Device”)
2. Carefully de-attach the PCB from the top case of the enclosure by gently pulling it out from the button slots. PCB should be moved back and forth carefully, so that it detaches from the button slots. Be careful not to break button slots. See Fig 5.1.
3. To insert the batteries, **lift up two white battery caps** from battery holders of PCB , as shown in **Fig. 6.1**
4. White Battery Caps are provided to secure batteries in the battery holders to avoid battery pop-out and disconnection.
5. Insert 2 AA-Alkaline Batteries and make sure the positive (+) and negative (-) ends of batteries are facing in the correct terminals.
6. Once the batteries are inserted, close the top & bottom cases of enclosure as described in the instructions in section 5 “Opening and Closing the Device”
7. To replace the batteries: Follow step 1 and 2 of section 6 “Insertion and Replacement of Batteries”. Hold the LoRa PCB and carefully remove the batteries from the holders and follow step 5 and 6 of Section 6 “Insertion and Replacement of Batteries”.

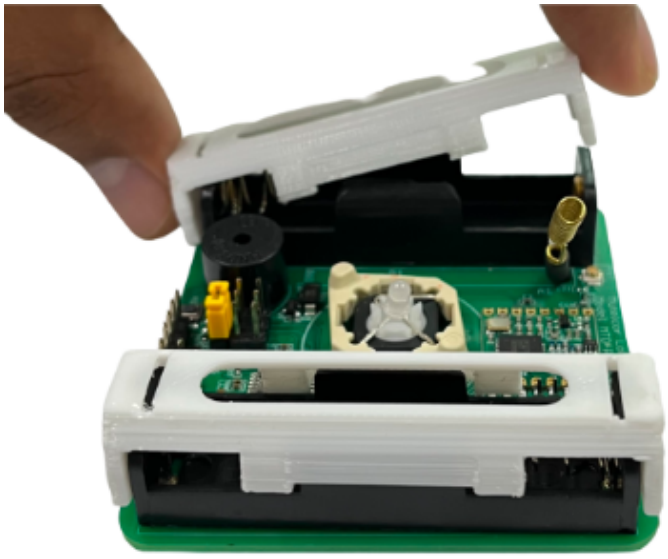


Fig. 6.1

The replacement of the batteries will trigger the device to register to the LoRaWAN network. When inserting the batteries, the LED shortly flashes once. The device confirms a successful registration on the LoRa Network by rapidly flashing the LED 3 times. This implies that the device is activated in a LoRa network successfully and will send heartbeats and alarms via LoRa.

Note: If rejoining of the device fails, one can manually reset the device as described in section 9 "Resetting the Device"

7. Activating the Device

- Provision the device first into a LoRa network before activation. Otherwise it will constantly try to connect which results in decreased battery life.

The LoRa Alarm Unit is a Class A Device and can be triggered by a LoRa downlink message. For this, the device sends heartbeats at frequent intervals (fully configurable via OTA commands) in order to listen and receive downlink messages over LoRaWAN from any backend Application.

The downlink messages sent by an application are called Trigger Alerts and the LoRa Alarm Unit supports upto 4 different types of Trigger Alerts. Each Trigger Alert type results in the LoRa Alarm Unit to respond in a certain configured way. The response behavior for each Trigger Alert Type on the device is defined by the following configurable parameters on the device:

- LED Color (GREEN, YELLOW, RED)
- LED Behavior (OFF, ON, Flashing)
- Time duration of LED
- Buzzer Sound (OFF, ON, Beep)
- Buzzer duration (Time with number of beeps)

The above parameters and the behavior of each Alert Type are fully configurable via OTA commands.

The Trigger Alert message sent by a backend Application can also optionally include the time duration for the specific Trigger Alert to be active on the Alarm Unit. This allows the backend Application to fully control the Alerts and their duration on the device. Furthermore, pressing the Button on the Alarm units stops the alarm locally and also sends a LoRa message to the backend application connected to the device.

For all details on changing parameters via OTA Commands, examples of Trigger Alert Messages etc. please refer to the OTA Configurator and Payload documentation or contact your local distributor or Mutelcor GmbH at support@mutelcor.com

LoRa Alarm Unit in combination with Mutelcor LoRa Products

Here are a few examples of the different settings of the LoRa Alarm Unit when used with other Mutelcor LoRa products and Mutelcor Backend Application. All the below settings are fully configurable.

For Mutelcor LoRa Products

- Smart CO2 LoRa Sensor
- LoRa Air Quality Sensor

LoRa Alarm Unit for Status Indication of Thresholds: Constant Green LED when powered ON

Alert Type	LED Color	LED Indication	LED Duration	Buzzer Sound	Buzzer Duration	Beep Interval	Action Required
Alert Type 1 (Device ON)	**-**	**OFF**	**-**	**OFF**	**-**	**-**	**None**
Alert Type 2 (Lower Threshold)	**GREEN / ORANGE**	**Flashing**	**10 min**	**ON**	**1 Beep**	**1 second**	**Press the button (LED turns OFF)**
Alert Type 3 (Upper Threshold)	**RED**	**Flashing**	**10min**	**ON**	**2 Beeps**	**1 second**	**Press the button (LED turns OFF)**

For Mutelcor LoRa Products

- LoRa Panic Button with Confirmation
- LoRa Service Call Button
- LoRa Manhole Sensor

LoRa Alarm Unit Status Indication of Alarms raised: Constant Green LED when powered ON

Alert Type	LED Color	LED Indication	LED Duration	Buzzer Sound	Buzzer Duration	Beep Interval	Action Required
Alert Type 1 (Device ON)	**-**	**OFF**	**-**	**OFF**	**-**	**-**	**None**
Alert Type 4 (Alarm)	**RED**	**Blinking**	**10 min**	**ON**	**3 Beeps**	**1 second**	**Press the button (LED turns GREEN)**

Note: If the buzzer in the device continuously beeps at every 8-second interval, then there is a software error. When this happens the device must be returned for repair. Please immediately contact your reseller.

8. Mounting

- The Device should be mounted on clean non flammable solid surface
- The Device must only be used in an indoor environment.

To ensure best product performance and prevent malfunctioning, avoid the following :

- Areas that are susceptible to vibration
- Areas near the high-voltage cables

The device may be mounted on the wall. Four screws (not included) are needed. Mounting information is depicted in the following Fig 8.1.

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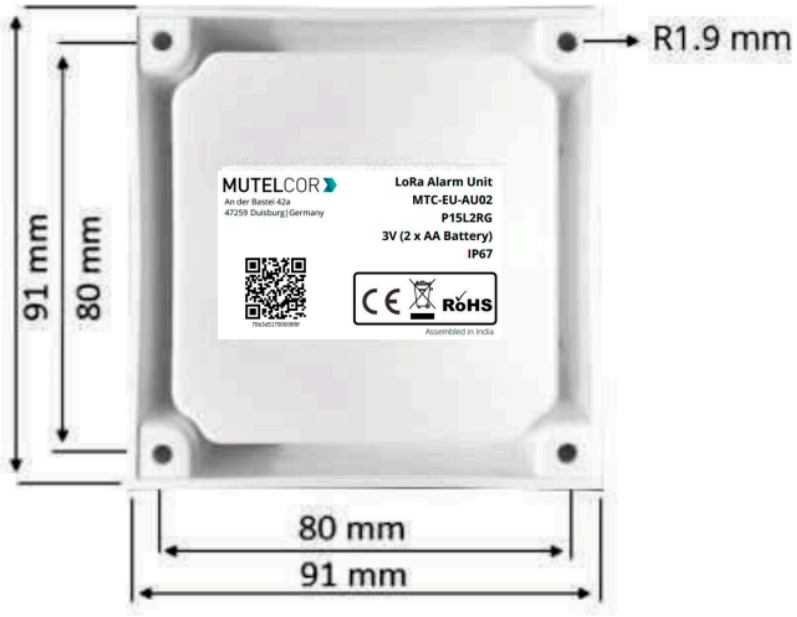

Fig 8.1

9. Resetting the Device

	• Open the device for resetting • Always wear gloves or keep your hands dry while handling the PCB • Do not touch the circuitry part of the PCB with bare hands • Do not use sharp objects to press the reset button

Resetting the device may be needed, e.g. to re-register the device into the LoRa network.
For resetting please follow the steps described below.

1. Open the device. For details please refer to section 5 “Opening and Closing the Device”
2. Position and hold the PCB as shown in fig 9.1.
3. **Ensure** 2 AA-Alkaline Batteries are inserted in the battery holders.
4. On the PCB, carefully observe a small reset button as shown in fig 9.1
5. Press (do not hold) the button shortly for a second

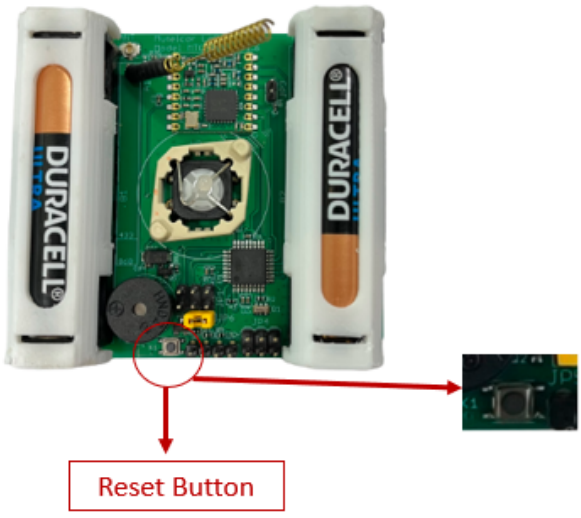

Fig 9.1

The reset will trigger the device to re-register to a LoRaWAN network. The device confirms a successful registration on the LoRa Network by rapidly flashing the LED 3 times. This implies that the device is activated in a LoRa network and will send heartbeats via LoRa.

10. Technical Specifications

Model Name	LoRa Alarm Unit		**Enclosure Size**	95 x 95 x 40 mm
Module ID	P15L2RG		**Net Weight**	190 g
Model No	MTC-XX-AU-02 (Red Lens with 2-color LED) MTC-XX-AU-04 (Transparent Lens with 3-color LED)		**Voltage**	3V (2 x AA-Lithium Battery)
Model No. (XX) LoRa Frequency	EU: EU 863-870 IN: IN865-867 US: US 902-928 AU: AU915-928 AS: AS923-1 KR: KR920-923 IL: AS923-4 OTAA and ADR supported		**Operating Temperature**	-18°C to +55°C
			Transmission Power	Max 25mW (14 dBm)
LoRaWAN Version	MAC V1.0.3		**Ingress Protection**	IP40

11. Declaration of Conformity

Hereby, Mutelcor GmbH, declares that the Product is in conformity with the essential requirements of Article 3.1 (a) the protection of the health, 3.1 (b) an adequate level of electromagnetic compatibility and 3.2 effective use of the spectrum of 2014/53/EU

The CE mark appears due to the issued declaration of conformity under responsibility of Mutelcor GmbH as manufacturer, who declares that the used radio equipment is in compliance with relevant EC Directives. For any further information, please contact Mutelcor GmbH at support@mutelcor.com

In Europe, the Sensor also complies with EN62479 and ERC requirements regarding duty cycle and maximum EIRP

12. Product complies and Directives

RoHS CE ETA **Equipment Type Approval (INDIA)**
Issue by Wireless Planning and Coordination (WPC)
DEPARTMENT OF TELECOMMUNICATIONS

13. Disposal / Recycling

- Do not dispose of the product with household waste. For proper disposal, contact a waste disposal company
- Discharge batteries store in a plastic or cardboard container that doesn't conduct electricity in case there is a spark
- Search the area for recycling centers that accept single-use batteries using Earth911's Recycling Search.
- **WEEE-Reg.-Nr.: DE71445608**

14. Warranty

Contact your reseller for warranty

LoRa Alarm Button is not warranted by Mutelcor GmbH in case the enclosure is opened, modified, broken, painted, branded out, outlined for any reason

The forgoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Mutelcor GmbH be liable for any consequential, special or incidental damages.

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We stay at your disposal for any help on your project.

Mutelcor GmbH Team