

WM-E LCB[®]

Load Control Box

Installation Guide

v1.20



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Document specifications

This document was made for the **WM-E LCB® Load Control Box** device and it contains all relevant installation steps of the device.

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Chapter 1. Device installation

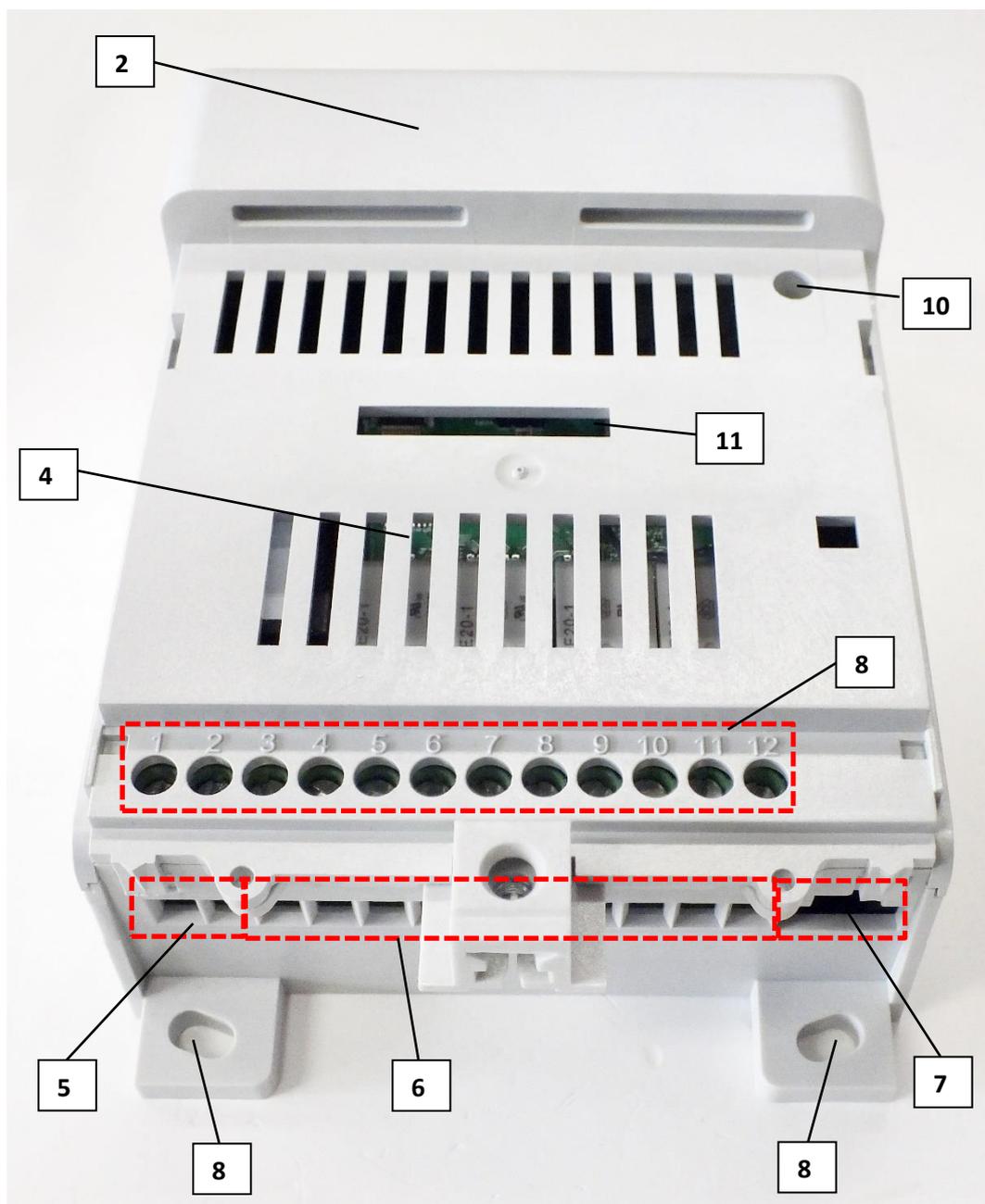
1.1 Device - External view

- 1 – Device terminal enclosure (plastic transparent cover) - can be removed
- 2 – Enclosure base (white ABS plastic part, which contains the PCB)
- 3 – Top cover fixation screw



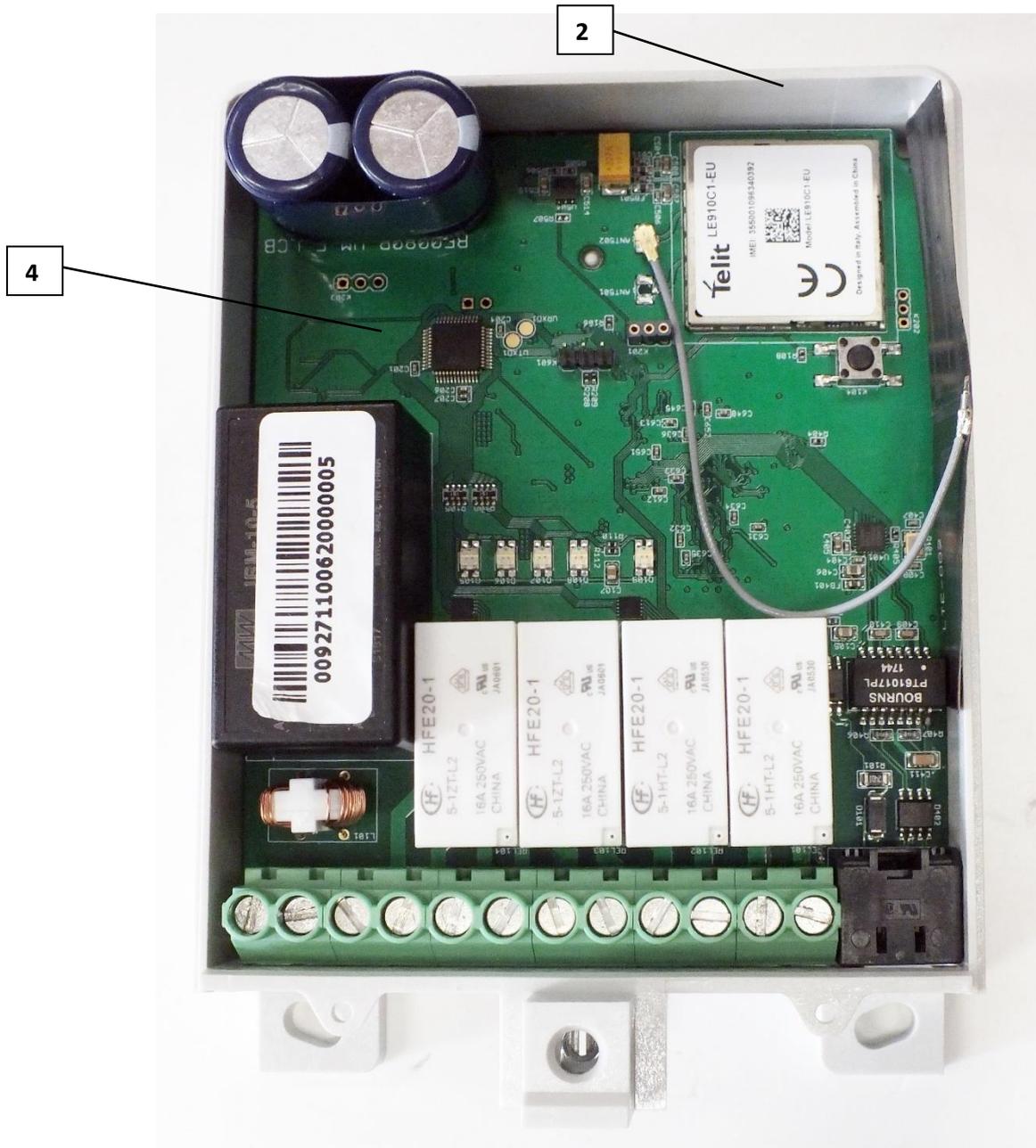
1.2 Device – Internal view (enclosure under the top cover)

- 4 – PCB (assembled inside of the terminal enclosure)
- 5 – Power input (from left-to-right: the first 2-pins on the terminal block, for wires)
- 6 – Relay outputs (further pins on the terminal block for wires of the relay switch)
- 7 – RJ45 port (Ethernet / RS485 / P1 interface compatible), for special UTP cable
- 8 – Fixation of the input/output wires of the terminal block (by screws)
- 9 – Enclosure fixation points (mount to wall)
- 10 – Control button (programmable)



1.3 PCB internal view (in the enclosure base)

IMPORTANT! IT IS OBLIGATORY TO READ THE CHAPTER 1.4 BEFORE OPEN THE ENCLOSURE!



1.4 Safety declaration

The device must be used and operated according to the related user manual.

The installation can be carrying out only by a responsible, instructed and skilled person by the service team, who has enough experience and knowledge about carrying out the wiring and installing the device.

The users / product using persons are not allowed to open the product enclosure's internal block (also not allowed to access the PCB)!

CAUTION! It is prohibited to open the device enclosure for anyone during its operation or when the device is under AC power connection!

A certified expert (technical team member during installation) or the manufacturer is allowed only to open the product enclosure!

Note that the the device has supercapacitor components, which are charged during the operation and these are still having power voltage after taking / removing the power from the device. The exhausting of the supercapacitors takes about ~20-60 seconds while the device will be completely stopped / shutdown. Always check the LEDs that they are not having any activity further (not lighting or blinking), which all means that the device is not under power voltage anymore. Only in this case its safe to open the internal parts of the enclosure or touch the PCB for the expert / technical team member.



By general the device is using AC mains. 100-240V AC, 50Hz, electric shock hazard inside the enclosure! DO NOT open the enclosure and DO NOT touch the PCB. Consumption: Min. 3W / Average: 5W / Max: 7W (0.25A)

The relays are able to switch max. 16A at 250VAC voltage!

Its prohibited to touch or modify the wiring or the installation by the user.

It is also prohibited to remove or modify the device PCB. The device and it's parts must not be changed by other items or devices.

Any modification and repairation is not allowed without the permission of the manufacturer. It all causes the loss of product warranty.

The immunity protection of the device enclosure will be effective only in case of under normal usage and operation conditions with unharmed hardware conditions by using the device in the provided enclosure/chassis.

Deliberate damage or occing casualty of the device means the loss of product warranty.

To ensure general safety, please follow the following guideline!

- Keep the chassis area clear and dust-free during and after installation.
- Keep tools and chassis components away from walk areas.
- Do not wear loose clothing that could get caught in the chassis. Fasten your tie or scarf and

roll up your sleeves.

- Wear safety glasses when working under conditions that might be hazardous to your eyes.
- Do not perform any action that creates a hazard to people or makes the equipment unsafe.

Safety with Electricity

Follow this guideline when working on equipment powered by electricity.

- Read all the warnings in Safety Warnings.
- Locate the emergency power-off switch for your installation location. If an electrical accident occurs, you can quickly turn off the power.
- Disconnect all power before:
 - Installing or removing a chassis
 - Working near power supplies
 - Insertion / removal of a SIM card
- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, frayed power cords, and missing safety grounds.
- Do not work alone if hazardous conditions exist.
- Never assume that power is disconnected from a circuit. Always check.
- Never open the enclosure of the device's internal power supply.
- If an electrical accident occurs, proceed as follows:
 - Use caution; do not become a victim yourself.
 - Turn off power to the device.
 - If possible, send another person to get medical aid. Otherwise, assess the victim's condition and then call for help.
 - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. It may occur if electronic printed circuit cards are improperly handled and may cause complete or intermittent failures. Always follow ESD prevention procedures when removing and replacing modules:

■ Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to channel unwanted ESD voltages safely to ground. To guard against ESD damage and shocks, the wrist strap and cord must operate effectively.

■ If no wrist strap is available, ground yourself by touching a metal part of the chassis.

Caution: For the safety of your equipment, periodically check the resistance value of the antistatic strap. It should be between 1 and 10 megohms (Mohm).

IMPORTANT SAFETY INSTRUCTIONS



This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

Warning: Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals. Statement 43

Warning: In order to comply with FCC radio frequency (RF) exposure limits, antennas should be located at a minimum of 7.9 inches (20 cm) or more from the body of all persons. Statement 332

Warning: Do not work on the system or connect or disconnect cables during periods of lightning activity. Statement 1001

Warning: Before performing any of the following procedures, ensure that power is removed from the circuit. Statement 1003

Warning: Read the installation instructions before you connect the system to its power source. Statement 1004

Warning: This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 20A. Statement 1005

Warning: This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. Statement 1017

Warning: The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device. Statement 1019

Warning: This unit might have a power supply connection. All connections must be removed to de-energize the unit. Statement 1028

Warning: Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

Warning: Ultimate disposal of this product should be handled according to all national laws and regulations. Statement 1040

Warning: To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: Statement 1047

Warning: Installation of the equipment must comply with local and national electrical codes.

Warning: To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 3 inches (7.6 cm). Statement 1076

Warning: Hot surface. Statement 1079

Caution: This device can only be accessed by service personnel or by users who have been instructed about the reasons for the restrictions applied to the location. Access is through the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.

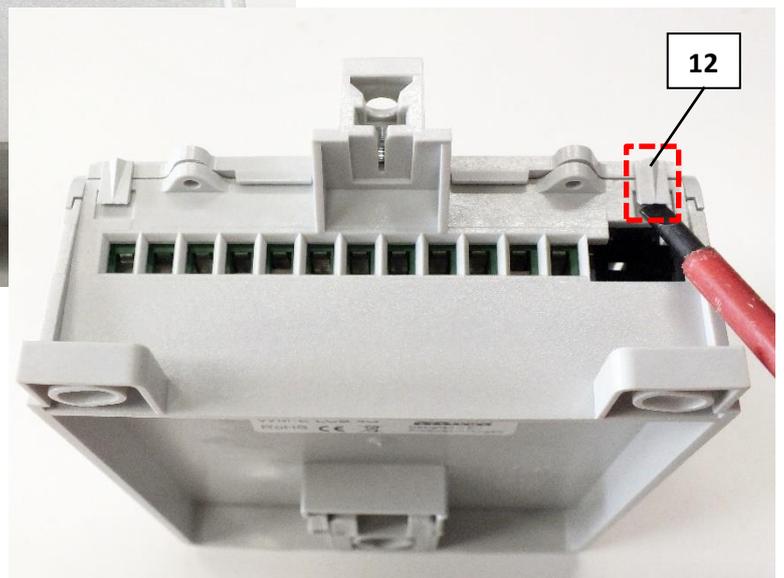
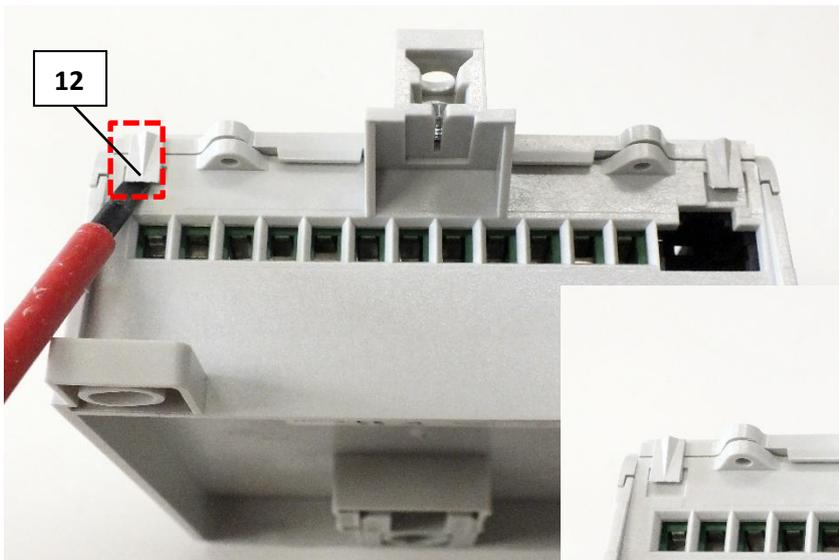
Caution: Be aware of the size and weight of the metering device when mounting. Ensure that the mounting location has a stable flat surface and can safely support the weight of the device.

1.5 Preparing the device – ONLY FOR CERTIFIED EXPERTS!

1. **Remove the plastic, transparent top cover – port protector** - (No. 1) by releasing the screw (No. 3) from the top of the enclosure.
2. Slide up the plastic part (No.1) carefully at the bottom side No.2) of the base (No.2), then remove the top cover (No. 1).

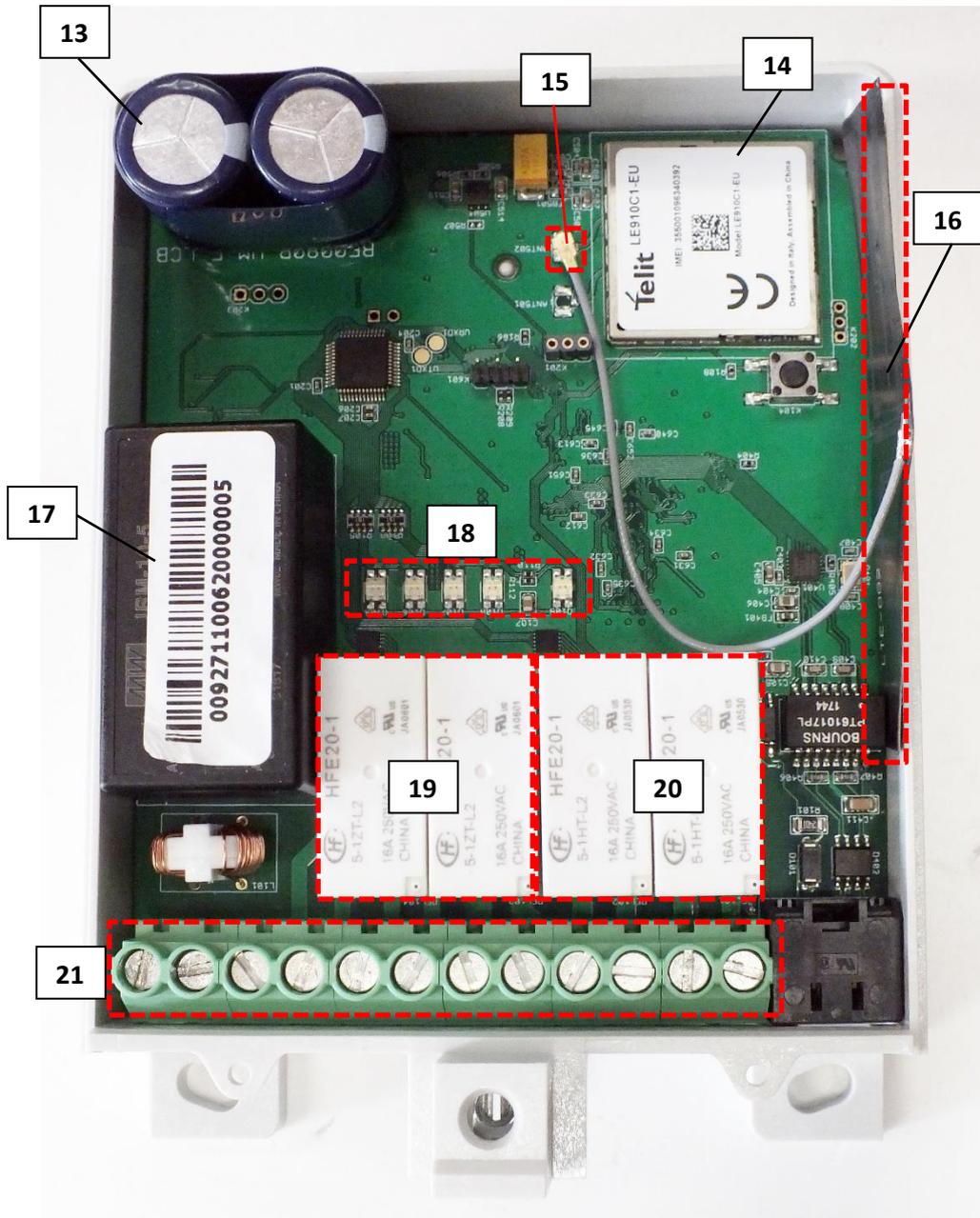


3. Now you can free to connect wires and cables to the ports and interfaces.
4. Carefully open up the plastic hooks (No. 12) of the base enclosure (No. 2) by a screwdriver.



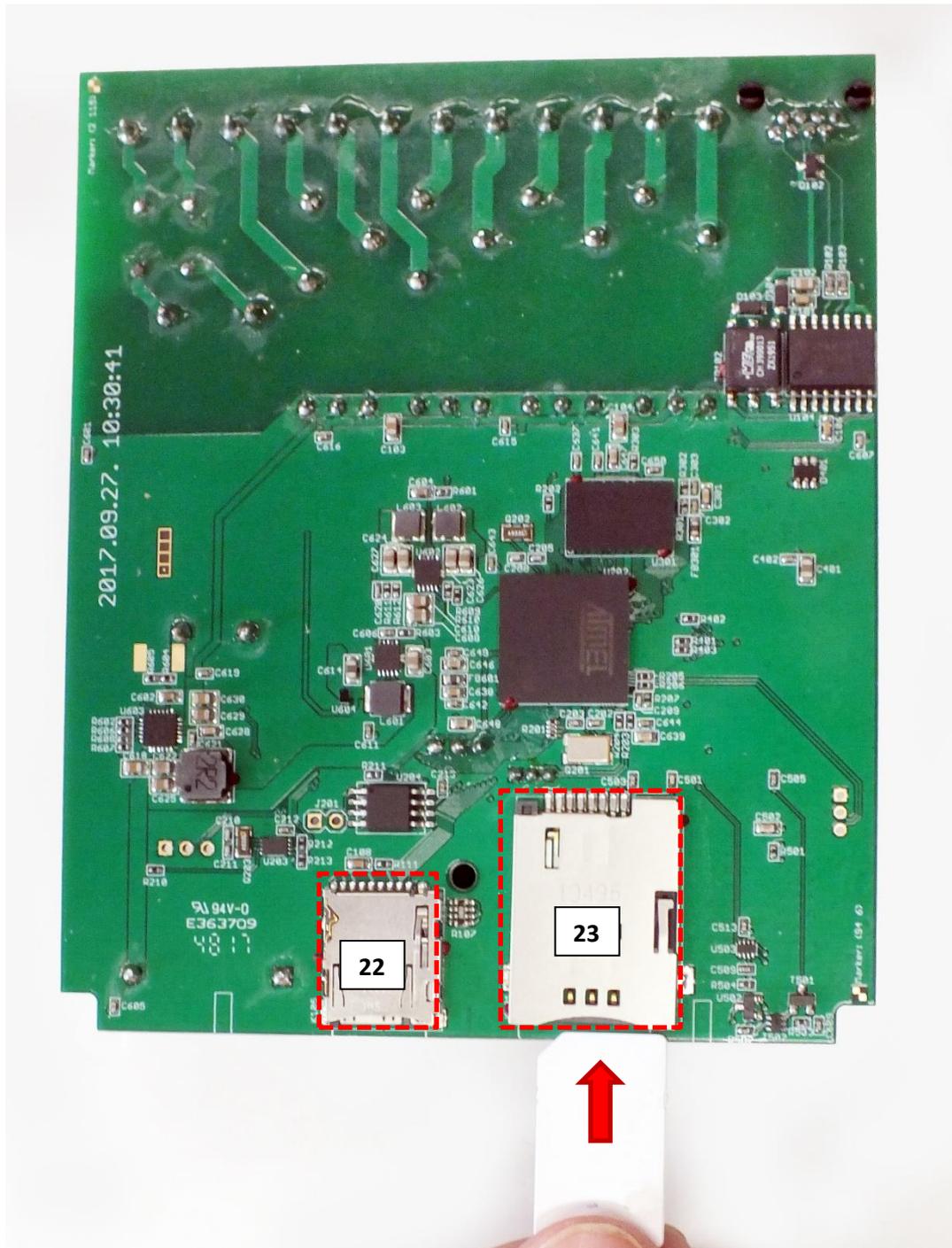
5. Now the plastic base can be seen with the assembled PCB (No. 4) inside.

IMPORTANT! Based on the Chapter 1.4, ensure that the PCB is not connected to the power source and that the supercapacitors are exhausted before touch the PCB!



- 13 – Supercapacitors
- 14 – Cellular LTE module
- 15 – Antenna RF connector
- 16 – Antenna internal cable with the adhesive surface LTE/3G/2G antenna (black, flexible)
- 17 – Internal power converter
- 18 – LEDs (for Relays, Network connection)
- 19 – 2pcs Latching relays (supports the NO, NC, COM connection and 2-way switching mode)
- 20 – 2pcs Latching relays (supports the NC, COM connection and switching)
- 21 – Input/output terminal block and fixation part for mounting of wires

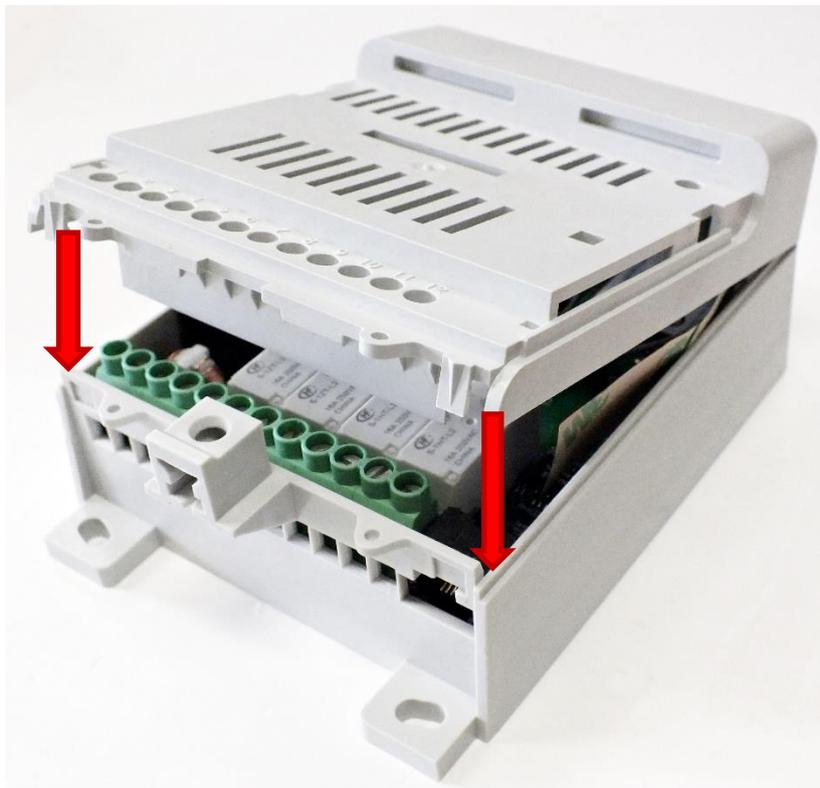
6. Pull up the PCB (No.4) and remove from plastic base (No.2), and turn the PCB upside down.
7. Now you can see the bottom side of the PCB (No.4).



- 22 – Micro-SD card holder (optional to use, for data storage)
- 23 – SIM card holder (for 2FF type mini SIM)

8. Insert a mini SIM card (activated with APN and usable on LTE, 3G, 2G network) into the the SIM holder (No. 23). Check the figure: the SIM's cutted edge must be oriented to the PCB and the SIM chip looks down. Insert and push the SIM until it will be fastened (you will hear a click sound). (If you need to remove the SIM, just push again, until it will be released.)

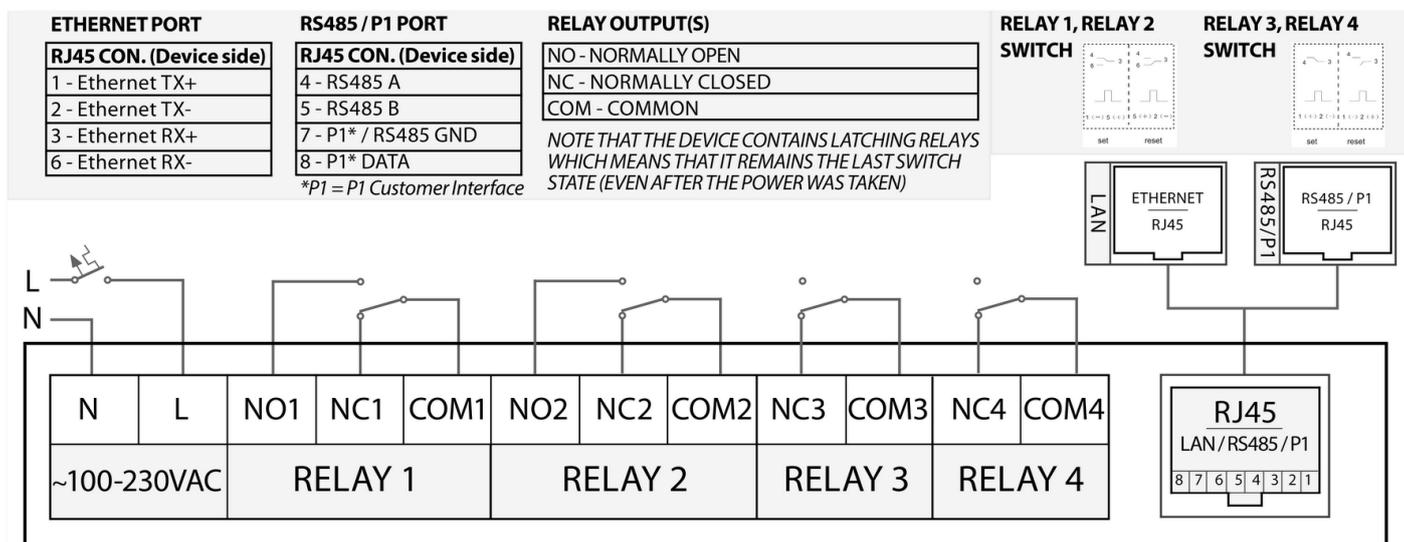
9. You can use a micro-SD card if you want (optional). Then insert the memory card into the mini-SD card slot (No. 22) and push until it will be fastened securely.
10. Now turn back the PCB and place back into the enclosure base (2).
11. Check on the PCB (No. 4) that the LTE antenna cable (16) is connected to the Antenna RF connector (15).



12. Place back the removable white ABS plastic top part to the enclosure base – and check that the hooks (No.12) are closing properly.
13. Do the wiring according to the needs.

1.6 Preparing the cables / wiring

Schematic figure of interfaces, pinout

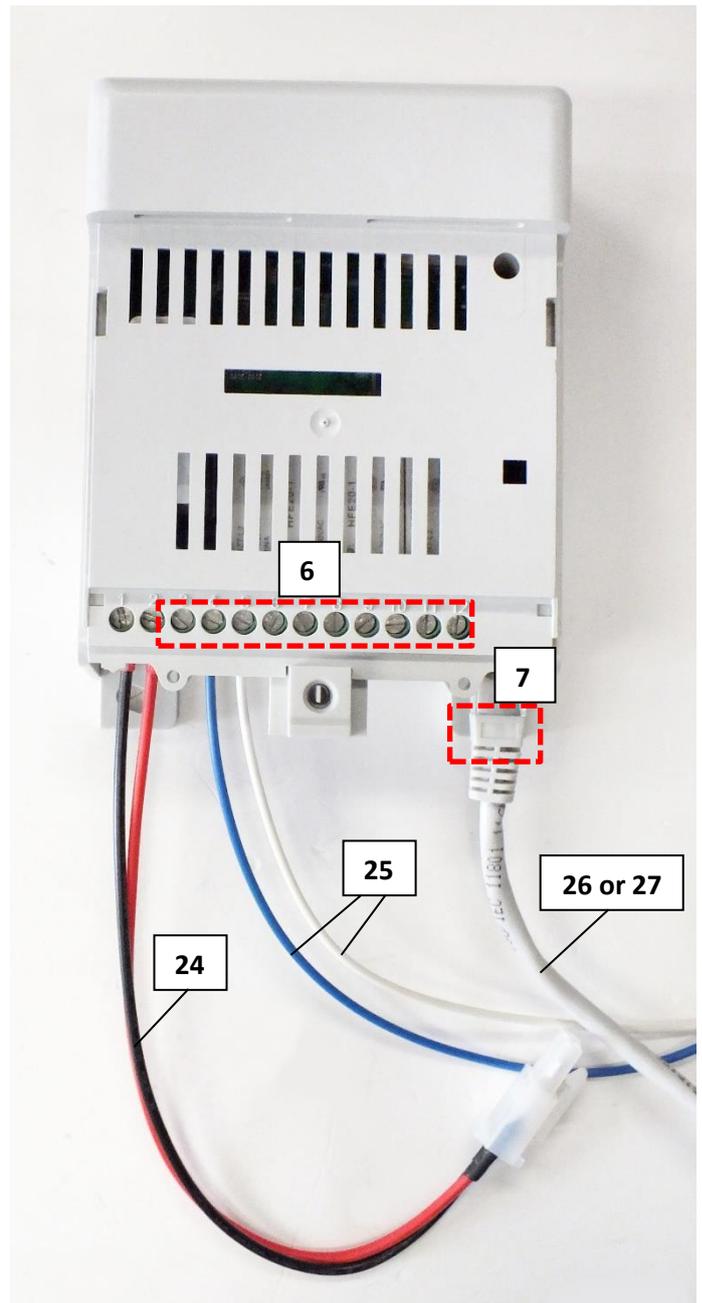
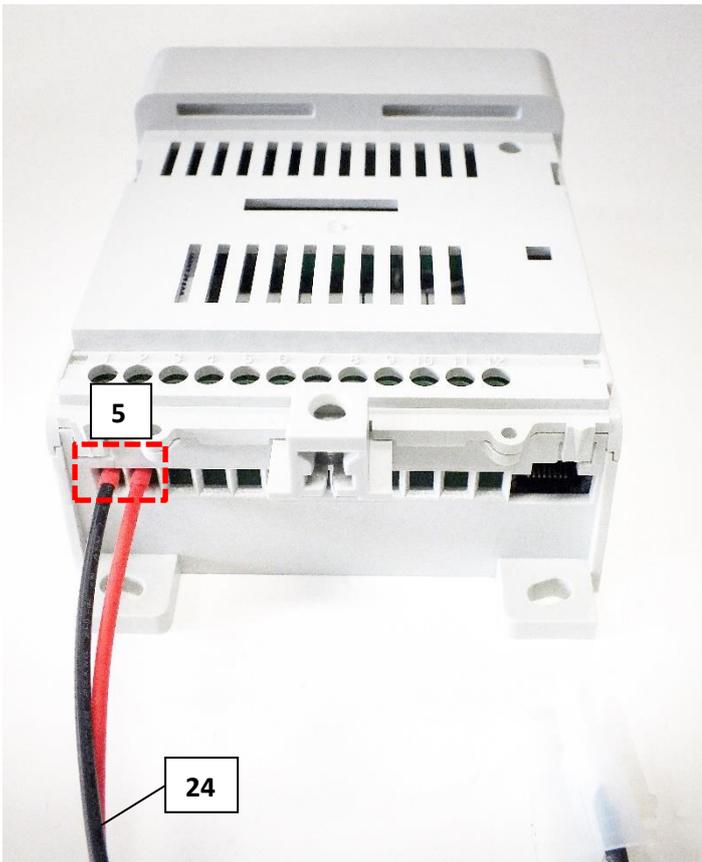


1. Connect the 25cm long AC power chord (AC pigtailed connector) wires (No. 24 on the next figure) to the first two pins (No. 5) of the device (from left to right): **black** to N (neutric), **red** to L (line).

IMPORTANT! DO NOT CONNECT the pigtail connector to the 100-240V AC power source until you not finished with the wiring.

2. Connect the lighting unit relay wires (25) - of the street light cabinet box - to the required relay outputs (No. 6).

Note that the RELAY 1, 2 are latching relays, which allows the NO, NC, COM two-way switching, while the RELAY 3 and RELAY 4 having only NC, COM connection and switching.

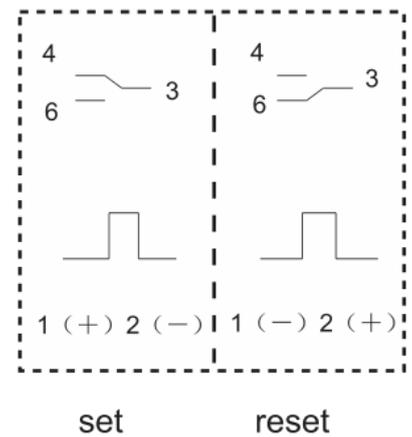


Relays (RELAY 1, RELAY 2):

Its important to understand the operation of these latching relays (which are having NO, NC and COM pins). They are remaining the last switch status, even if the power source will be taken. (There is no need to having the power after the last switching, to keep the relay status, therefore the relays will be retracted further).

At the bi-stable latching relays, you can switch the relay via the OSLP compatible software by the SET command. With the RESET command it can be switched back to the default status.

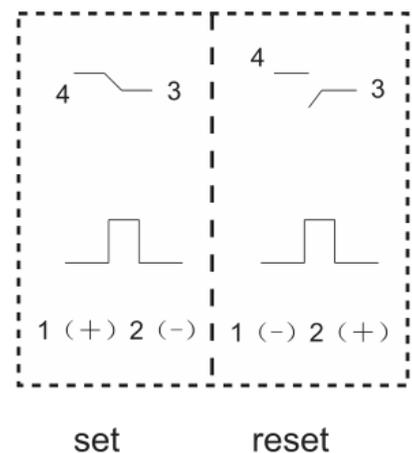
By default the relay COM and NC pins are connected, the COM and NO pins are not. When it will be switched, that will be operating reverse.



Relays (RELAY 3, RELAY 4):

These latching relays having only COM and NC pins are connected (ON) or not (OFF) – don't have a RESET, only have the SET.

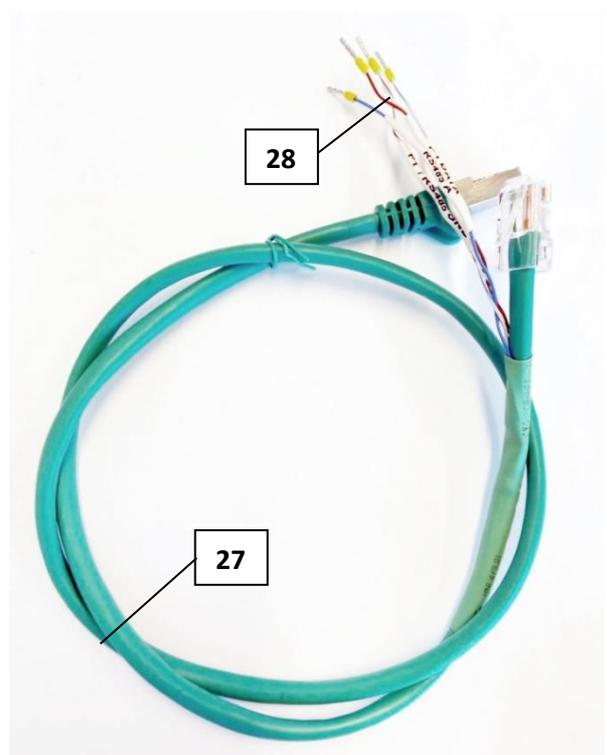
The relays are also remaining the last switch status, even if the power source will be taken. (There is no need to having the power after the last switching, to keep the relay status, therefore the relays will be retracted further).



- Then connect the Y-shaped UTP cable (27) - Ethernet / RS485+P1 - or a direct UTP Cat.5 cable (26) - Ethernet only - to the RJ45 connector (No. 7) – according to the needs. The other side of the Ethernet cable should be connected to your PC or the external device you want to connect.

Note, that the RS485 / P1 interface wires are standalone sleeve swing wires (No. 28 at the figure). Connect the RS485 wires to the external device.

Connect the P1 interface is to an electricity meter / smart metering device (optional to use).



4. Place back the plastic transparent terminal top cover (No. 1) to the base (No. 2) – check that it is properly closing (use the fixation screw (3)).



5. Plug the 100-240V AC power supply to the pigtail connector of the AC power cable (No. 24) and to the external power source / electricity plug.

Note that the device has a pre-installed system, which starts immediately to operate, which will be signed by the operation LEDs.

1.7 Cables

The following cables are accessories and part of the delivered package.

AC cable:

The power cable 25 cm, 2 x 1.5 mm², voltage insulation min. 500 V, maintaining colors (**black** – Neutric, **red** – Line) sealed wire ends.

It enables the ~100-240V AC power supply connection for the device.

Connector (device side): 2x wires

Connector (power source side): 2-pins pigtail AC power connector

Pins must be wired for usage (from left-to-right):

- pin no.1: N (neutric)
- pin no.2: L (line)



Special Y-shaped UTP cable with connector (Ethernet/RS485/P1):

Type: 8-Wire patch cable

Connector type: RJ45

Function: Ethernet (LAN) + RS485 + P1 (P1 customer interface for IEC1107 or DLMS/COSEM protocol compatible utility meters).

It enables separate conversion for an Ethernet connector (UTP, Cat5, RJ45) and an RS485/P1 connector (RJ45).

Connector pinout (WM-E LCB side):

- pins 1-3,6: Ethernet
- pins 4-7: RS485
- pins 7-8: P1 interface



Normal Cat5 type UTP cable (Ethernet only) – is not in the pack:

Type: 6-Wire patch cable

Connector type: RJ45

Function: Ethernet (LAN)

Connector pinout (WM-E LCB side): pins 1-3,6: Ethernet

1.8 Mounting, fixation

The device enclosure (unit) contains a two-type of fixation, which are to be intended to mount to rail or using a 3-point fixation by screws, or using the hook (in hanging position). You can also mount the enclosure to wall, place into the street light cabinet box.

The unit must be mounted in vertical orientation.

Please note that close metal parts, the cabinet metal material and the industrial conditions as the usage of high rate power or other external gained radio frequency signals can cause radio signal disturbance and could cause weak cellular network signal at reception, which could cause less effective / stable signal strength during data transmission, which all could mean weak cellular fidelity. In any of these, we recommend you to test the wireless signal reception and quality and if it is necessary a different external, magnetic mount antenna which is leaded outside of the cabinet and placed onto the cabinet's surface – to ensure enough reception. In this case ask our sales!

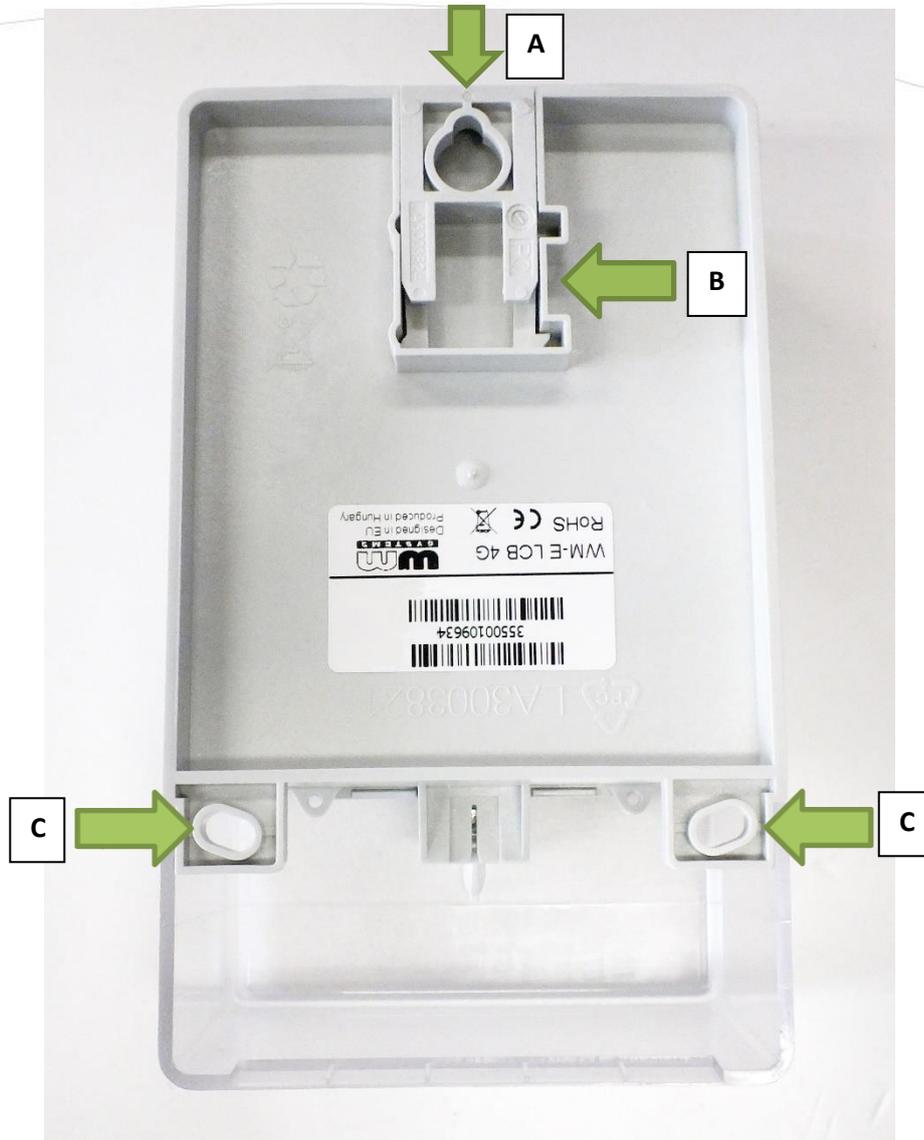


Figure of bottom side of the unit enclosure

- A – Hook for fixation to wall/mount
- B – Rail sleede for fixation
- C – Additional hooks for fixation to wall/mount

1.9 Important notes

- By default, the device has an installed OpenWRT® operating system which is ready to use and configure to your SIM card APN and for you usage requirements.
- The device has 4G LTE wireless transmission capabilities and 2G/3G fallback in case of the unavailability of the 4G network. In this case, the device will operating on the 3G or 2G

network. When the 4G network will be available again, the device will switch back to the 4G network. This feature is configurable for the **WAN** interface of the device.

- You can check the current cellular signal reception and wireless availability in the *OpenWRT® / LuCI® system's Overview* menu.
- The available APN settings will be assured by the SIM card provider mobile operator or your mobile internet service provider. Ask them about **APN**, password, **SIM PIN** and further necessary information for the configuration.
- The DHCP is active on **Ethernet** port by default.
- The **IPv6 protocol** is disabled for the LAN interface by default, change it if you want to use it instead of the IPv4 protocol. Use the **Network / Interfaces** menu **LAN** interface and the IPv6 relevant fields.
- The **RS485** port should be configured before usage, which can be found in the **Services / Ser2net** menu.
- Note that the device is not detecting the relay connections, it is just signaling the relay switch by the **REL.1..4** LEDs.
- Note that all relays are latching relays, which means the device remains the last switching status (even if the power was taken). The **Relay 1** and **Relay 2** having NC, NO, COM pins, while the **Relay 3** and **Relay 4** having only NC and COM pins.
- The device has supercapacitor component inside, which protects the device against possible shorter power outages. Therefore, in case of a power outage, it has enough spare power capacity to provide a safe disconnection and shutdown (before the supercaps would be exhausted). This component can be exhausted after an outage or if you store the device for months without connecting power source or using. Therefore it should be charged before usage! When powering on the device, the recharge of the supercapacitor will be started automatically. The device's system will be started only after the end of the charge process.

1.10 Understanding the LED signals

The device has 5pcs LEDs to assign the current switch status of 4pcs relays and to sign the network communication status (WAN (cellular) and LAN (Ethernet)).

- **REL.1** – LED of latching relay 1 (modes: NO, NC, COM) – set, reset are supported
- **REL.2** – LED of latching relay 2 (modes: NO, NC, COM) – set, reset are supported
- **REL.3** – LED of latching relay 3 (modes: NC, COM) – no reset pin, set is negated
- **REL.4** – LED of latching relay 4 (modes: NC, COM) – no reset pin, set is negated



- Each relay LED is belongs to the connecting / corresponding relay (e.g. LED1 → REL.1 Relay).
 - If there the wires are disconnected from the relay, the LED(s) **REL.1..4** are lighting by **red**.
 - When LED(s) **REL.1..4** are lighting by **red**, there the relay is switched OFF (the COM and NC are not connected). In case of RELAY 1, 2 type the COM and NO are connected if its **red**.
 - When LED(s) **REL.1..4** are lighting by **green**, that means the current relay is switched **ON**.
-
- **WAN** – LED for network connection (**LAN/WAN** activity)

- If there is no activity on **WAN** LED, that means the **Ethernet** and **WAN** (cellular) network are currently not used and not connected.
- If the LED is lighting / flashing by **red** only, that means the **Ethernet** port (**LAN**) has activity (it has network traffic through the UTP cable).
- When the LED is lighting by **green** only, that means the **WAN** (cellular module) has been registered on the cellular network. When it is flashing by **green**, that signs that the device has wireless network activity (has network traffic).
- When it is lighting by **red AND green** in the same time (which can be identified as **yellow**), that means the **LAN** and the **WAN** (cellular module) are active on the wired and the wireless network. If some of these logical interfaces are blinking/flashing that means the current (signed) interface has network activity / traffic.

Example:



- **REL.1** LED is **red**: switched OFF
- **REL.2** LED is **green**: switched ON
- **REL.3** LED is **green**: switched ON
- **REL.4** LED is **green**: switched ON
- **WAN** LED is **yellow** (**red** (LAN) + **green** (WAN) are active in the same time): **Ethernet/LAN** is configured and connected, **WAN/cellular** APN is connected, active.

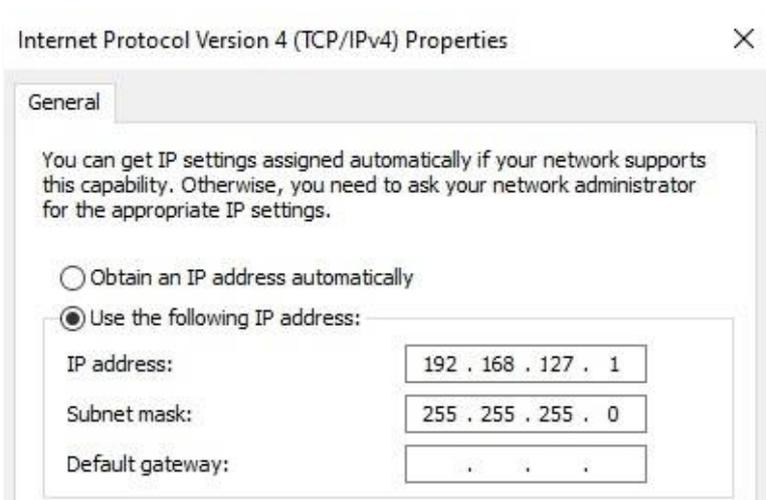
Chapter 2. Starting the device

2.1 The first startup

The device has supercapacitor component inside, which provides safe shutdown in case of power outage. In case of a power outage - due to the supercapacitors – has enough power to provide a safe disconnection and shutdown (before the supercaps would be exhausted).

Therefore, this supercapacitor component can be exhausted after an outage or if you store the device for months without connecting power source or using and it must be charged before usage. When powering on the device, the recharge of the supercapacitor will be started automatically. The device will be started only after the end of the charge process.

1. Connect the Ethernet (UTP) cable between the device's **RJ45** interface or its Y-shaped adapter's Ethernet cable between the device and your PC's Ethernet port.
2. Configure the **Ethernet** interface's on your PC for TCP/IPv4 protocol for setup the **IP address: 192.168.127.100** and **subnet mask: 255.255.255.0**



3. Start the device by the adding the AC power to the power input (No. 5). All the four LEDs will be blank for a few seconds – its normal.



That's why when the device was not used since long time, the supercapacitors must be charged before the microcontroller could start the device.

4. After a few seconds only the **WAN** LED will be lighting continuously by **red** until the supercapacitors will be charged (the device still not started). It could take about 1-4 minutes – depending on the level of the current voltage of the supercapacitors.



5. When the charge has been finished, the device will be started. It will be signed by **red** lighting of all the relay LEDs (**REL.1..4**) for 3 seconds and by the **WAN** LED which is lighting by **green** shortly. This means that the device has been started.



6. Very soon, when the **WAN** LED will be *blank* and all the relay LEDs (**REL.1..4**) will be continuously lighting by **red***, that means the device is currently booting. It takes about 1-2 minutes.



Remember, if you already connected a relay, that will sign the switch status of the relay by its right status (red** means switched OFF, **green** means switched ON).*

7. At the end of the boot process the device can be reached on its network interfaces (LAN and WAN) if they were already configured. If the current network interface is available, it is signed by the **WAN** LED – see the next chapter.

2.2 Normal startup

After adding the power source to the device (when the supercapacitor is already charged), you have to configure the settings of the device's SIM card parameters (for WAN connection) for the successful cellular network access.

1. When the device will be started, it will be signed by **red** lighting of all the relay LEDs (**REL.1..4**) for 3 seconds and by the **WAN** LED which is lighting by **green** shortly. This means that the device has been started.



2. Very soon, when the **WAN** LED will be *blank* and all the relay LEDs (**REL.1..4**) will be continuously lighting by **red***, that means the device is currently booting. It takes about 1-2 minutes.



Remember, if you already connected a relay, that will sign the current status of the relay by its right status (red** means **switched OFF**, **green** means **switched ON**).*

3. When the device is accessible on the configured LAN interface, the **WAN** LED will be lighting continuously by **green**. (If it is flashing fastly, it signs network activity on the interface.)



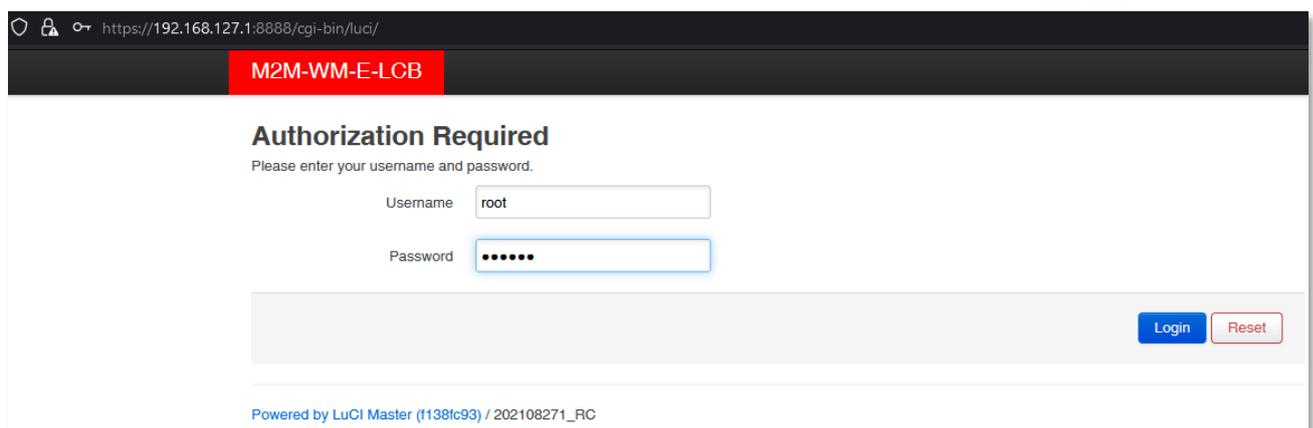
*Note, if the **WAN** interface was already configured, and APN is connected, the **WAN** LED will be lighting by **red**. (If it is flashing fastly, it signs network activity on the interface.)*



*If the **LAN** and also the **WAN** interfaces are accessible, the **WAN** LED will be active by bi-color (**red** AND **green** at the same time), which can be identified as **yellow**. If it is flashing fastly, it signs network activity on the interface.*



4. Now open the device's local website in the **Mozilla Firefox** browser, where the default web user interface (LuCi) address on **Ethernet** port is: <https://192.168.127.1:8888>
Login with the **Username: root**, **Password: wmrpwd** and push to the **Login** button.



5. The web user interface is starting with the device status (**Status / Overview** menu). Here you can check the current operation details (*System, Memory, Modem and Network*).

The screenshot displays the 'Status' page of the M2M-WM-E-LCB device. The page is divided into four main sections: System, Memory, and Modem. The System section lists various hardware and software details. The Memory section uses progress bars to show usage. The Modem section provides details about the cellular modem.

System	
Hostname	M2M-WM-E-LCB
Model	WM-E_LCB
Firmware Version	202108271_RC
Architecture	ARM926EJ-S rev 5 (v5l)
Build Date	2021-08-27 16:09:09.062586533+00:00
Kernel Version	4.9.184
STM32 Firmware	201709141
Local Time	Sat Jan 1 00:06:03 2000
Uptime	0h 5m 59s
Load Average	0.36, 0.38, 0.20

Memory	
Total Available	89.88 MB / 122.18 MB (73%)
Free	85.71 MB / 122.18 MB (70%)
Buffered	4.17 MB / 122.18 MB (3%)

Modem	
Modem Model	LE910C1-EU
Firmware Version	MOF.220006
MEID	355001096340392
SIM ID	8936200003250172672

6. Before using the cellular network access you need to configure the SIM card's APN settings. Therefore choose the **Network / Interfaces** menu, **WAN** interface, **Edit** button.

The screenshot shows the 'Network / Interfaces' configuration page. It features two tabs: 'LAN' and 'WAN'. The 'LAN' interface (eth0) is currently selected and shows static IP configuration. The 'WAN' interface (4g-wan) is shown below it with PPP-4G protocol settings. At the bottom, there are buttons for 'Save & Apply', 'Save', and 'Reset'.

Interface	Protocol	Uptime	MAC	RX	TX	IPv4	Buttons
LAN (eth0)	Static address	0h 10m 51s	6E:F4:13:82:82:38	331.01 KB (3171 Pkts.)	730.41 KB (3234 Pkts.)	192.168.127.1/24	Restart, Stop, Edit, Delete
WAN (4g-wan)	PPP-4G			0 B (0 Pkts.)	0 B (0 Pkts.)	Information: Not started on boot	Edit, Delete

[Add new interface...](#)

[Save & Apply](#) [Save](#) [Reset](#)

- Fill the **SIM #1 APN** field with APN setting of your SIM card

M2M-WM-E-LCB Status System Router Services Network Logout AUTO REFRESH ON

LAN WAN

Interfaces - WAN

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation INTERFACE.VLANNR (e.g.: eth0.1).

Common Configuration

General Setup Advanced Settings Firewall Settings

Status **Device:** 4g-wan
Uptime: 0h 1m 51s
MAC: 00:00:00:00:00:00
RX: 666 B (20 Pkts.)
TX: 398 B (13 Pkts.)
IPv4: 37.234.210.244/32

Protocol: PPP-4G

Disable modem:

Wireless network: No Change

NB:

Mobile country code:

Mobile network code:

Dual SIM:

SIM #1 APN: **net**

SIM #1 PIN:

SIM #1 PAPER/CHAP username:

SIM #1 PAPER/CHAP password:

WAN->LAN port forwarding:
 hostip1:port1,hostip2:port2,...

Dial number: *99***1#

Back to Overview **Save & Apply** Save Reset

- If you have **PIN** code on the SIM card that you are using, add the right PIN here. (Ask your Mobile Operator about the SIM info.)
- If that is necessary to use *username* (**SIM #1 PAPER/CHAP username**) or *password* (**SIM #1 PAPER/CHAP password**) for the wireless network access, consult with your mobile provider and change the settings here, please.
- In case of roaming change the **Mobile country code** (MCC) settings to the related country code please. If you are attempting to use a dedicated cellular network, configure the MNC field (**Mobile network code**) please, according the needs. You will found the currently useable MCC / MNC settings here: <https://mcc-mnc-list.com/list>

Click to the **Save & Apply** button to store the settings and configuring the cellular module of device.

7. Soon (~10-60 seconds) the cellular module will be configured regarding the new settings. Now the device will try to connect and register the SIM card to the cellular network. The availability of the mobile network will be signed by the **WAN** LED (lighting / flashing by **green** – together with the **Ethernet** LED, which is apparently **yellow** (**red**+ **green** activity at the same time).
8. When the module has been successfully registered to the APN, it will be having data traffic on the **WAN** interface. *Rx/Tx* values will be continuously growing/changing for the **Interface status** at the **Interfaces / Interface Overview** part for the **WAN** interface.

The screenshot displays the 'Interfaces' section of the M2M-WM-E-LCB web interface. The interface is divided into two tabs: LAN and WAN. The LAN interface (eth0) is shown with a green header and details: Protocol: Static address, Uptime: 0h 17m 11s, MAC: 6E:F4:13:82:82:38, RX: 474.26 KB (4571 Pkts.), TX: 1.04 MB (4668 Pkts.), and IPv4: 192.168.127.1/24. The WAN interface (4g-wan) is shown with a red header and details: Protocol: PPP-4G, Uptime: 0h 0m 4s, MAC: 00:00:00:00:00:00, RX: 118 B (7 Pkts.), TX: 114 B (6 Pkts.), and IPv4: 84.224.86.231/32. The RX and TX values for the WAN interface are highlighted with a red dashed box. At the bottom of the interface, there are buttons for 'Save & Apply', 'Save', and 'Reset'. The top navigation bar includes 'M2M-WM-E-LCB', 'Status', 'System', 'Router', 'Services', 'Network', and 'Logout', along with an 'AUTO REFRESH ON' indicator.

This means that the wireless Internet connection (**WAN** interface) is already active.

You can also check the **Status / Overview** menu, **Network** part for more details of the cellular connection.

Modem	
Modem Model	LE910C1-EU
Firmware Version	M0F.220006
MEID	355001096340392
SIM ID	8936200003250172672
Modem RSSI	11
Modem SQ	1
CREG	2,1,"1204","FB8D7F",2
COPS	1,0,"Telenor HU",2

Network	
IPv4 Upstream	
Protocol:	PPP-4G
Address:	84.224.86.231
Netmask:	255.255.255.255
Gateway:	10.64.64.64
DNS 1:	217.79.129.76
DNS 2:	217.79.128.40
Connected:	0h 5m 36s
Device:	Tunnel Interface: "4g-wan"

9. You also should configure the RS485 settings or further things, please read the User manual of the device, which can be found on the product website, at **Downloads** tab:

<https://m2mserver.com/en/product/wme-lcb/>

2.3 SSH access

The device can be accessed through SSH connection, when it is available on its IP address – by a terminal utility (e.g. the *putty* tool).

Putty is a free tool which can be downloaded from the following URL:

<https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>

The device can be accessed on SSH at the **192.168.127.1:22** (port nr. 22 - on **USB** interface).

Allow to access the device, ignore the security breach message in your computer in the pop-up window.

Choose Accept (Yes) at the Putty or other SSH terminal's Security Alert of the RSA2 key of the device to allow and trust the connection – by security reasons.

Then the device will be restarted, and after ~1-2 minutes the network interfaces will be available again, which will be signed by the active **WAN** LED.

2.5 Turn off the device

The device can be turned off by removing the power wire (No. 5) from the AC plug. The device will be turned off safely. It will disconnect the **LAN** and **WAN** network interfaces, which will be signed after 5-10 seconds by the blank **WAN** LED.



After ~10 seconds all the four LEDs will be blank, which is signing that the device is not powered by the AC voltage further.



IMPORTANT!

THE AC POWER INPUT WIRES ARE STILL CONNECTED TO THE DEVICE. THEREFORE DO NOT OPEN THE DEVICE ENCLOSURE! YOU HAVE TO REMOVE THE AC POWER FROM THE AC PIGTAIL / PLUG AND AFTER DISCONNECT THE AC WIRES FROM THE DEVICE POWER INPUT!

The device can be started anytime again by adding the power source for the device (connect the AC power plug to the electricity network). The device will be operating as it is written in the Chapter 2.2.

Chapter 3. Troubleshooting

SIM-card is not detected

Turn off the device by removing the power plug (~100-240V AC) connection.

Check that a SIM card was inserted to the **SIM** holder and the proper orientation of the card. Insert and push the SIM card to the holder. Start the device by reconnecting the AC power to the device. If the problem is still occurring, ask you Mobile Operator about the SIM card is healthness and activation, APN.

SIM/APN failure

Always check the **Status / Overview** menu first at the **SIM ID** field for the current status of the SIM card. In normal case you have to see the SIM identifier there. But, in case of a problem, the SIM error message will be shown, as:

- **No SIM or SIM error** – means: there is no SIM card presented, insert an active SIM card, not inserted properly or the SIM card is wrong. Check the SIM and the insertion again.
- **Not enough RSSI value** – means: Check if the antenna RF cable is connected to the mainboard.
- **No NW registration** – means: APN name for the SIM card is not configured well or the setting is wrong. Consult with your mobile operator and reconfigure the SIM APN, username and password on the LuCi® web user interface.
- **Check RSSI** – antenna is not presented and/or the SIM card is not configured or wrong, Check antenna RF cable connection and SIM card insertion again.

WAN LED is inactive

If during the operation, when the **WAN** LED is not lighting for long, then the device cannot be registered to the cellular network or the cellular module was not initiated properly. This could also caused by a wrong APN setting.

Re-configure the APN and SIM settings on its local web user interface.

If the problem is still occurring, ask you Mobile Operator about the SIM card is condition and activation status, correct APN name and configure the device with the new SIM and SIM info.

Cannot access the device on SSH / LuCi web interface

Ensure that the device uses a SIM card and it's **APN** is already configured on the web user interface and the **WAN** LED is active or not.

You tried a wrong IP address or you cannot connected to the device properly.

Check the IP address, ping the device.

If still not working, reconfigure the IP address on you PC (IP: 192.168.127.100 / Subnet mask: 255.255.255.0).

For accessing the device's web user interface we offer the Mozilla Firefox web browser only.

Try to access the device on its LAN interface (Ethernet port) by your browser:

<https://192.168.127.1:8888>

Login information:

- Username: **root** / Password: **wmrpwdM2M**
- Push to the **Login** button to access the web UI.

Chapter 4. Support

4.1 Contact support

If you have any questions concerning the usage of the device, contact us at the following contact:

E-mail: iotsupport@wmsystems.hu

Phone: +36 20 3331111

Online product support can be required here at our website:

<https://www.m2mserver.com/en/support/>

For the proper identification of your device, use device sticker and its information, which contains important information for the call center.

Due to the support questions, the product identifier is important for resolve your problem. Please, when you are attempting to tell us an incident, please send us the IMEI and SN (serial number) information from the product warranty sticker (located on the front face of the product housing).

The documentation and software release for this product can be accessed via the following link:

<https://m2mserver.com/en/product/wme-lcb/>

4.2 GNU/Linux license and open source code

The device operating system and OpenWrt®/Luci open source code is available on our website at the product site. The software of the device is under GNU/Linux licensing.

5. Legal notice

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Warning

Any errors occurring during the program update process may result in failure of the device.