

# WM-RelayBox® - Quick Guide

## PARTS OF THE DEVICE

- 1 - Terminal cover
- 2 - Top cover (upper part, which protects the PCB)
- 3 - Top cover fastening screw (sealable)
- 5 - Base part
- 6 - Bottom mounting points
- 7 - Power input (the first 2-pins on the terminal block for AC wires, pinout (from left-to-right): L (line), N (neutral))
- 8 - Relay connections (4pcs terminal block pairs (4x 2-wire), Single-Pole SPST, COM/NO)
- 9 - RJ12 interface input (RS485, RJ12, 6P6C)
- 10 - Fixation of the input/output wires - on the terminal block (by screws)
- 11 - HAN / PI interface output (Customer Interface port, RJ12, 6P6C, 2kV isolated)
- 12 - Nut for Terminal cover Fastener Screw
- 13 - Passage (cutout) - for E-Meter communication cable
- 14 - Upper mounting point
- 15 - Status LEDs
- 16 - Dust cover of HAN / PI interface

## TECHNICAL DATA

**Power voltage:** ~207-253V AC, 50Hz (230V AC +/-10%, 50Hz)

**Consumption:** 3W

**Overtoltage protection:** according to EN 62052-21

**Relays:** 4pcs independent single-pole SPST relays with COM/NO switching, to switch max. 250V AC voltage @ 50Hz, up to 5A resistive load

**RJ12 ports:**

- **RJ12 input (9):** for smart meter connection
- **HAN / PI output (11):** for connecting to the Customer Interface

**Operational / storage temperature:** between -40°C and +70°C, at 0-95% rel. humidity

**Dimensions:** 118 x 185 x 63 mm / **Weight:** 370 gr.

**Casing:** IP21-protected plastic enclosure with terminal cover

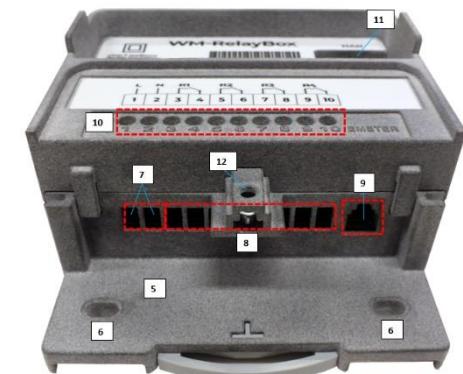
**Fastening/fixation:** Mount to wall or a DIN-rail

**ATTENTION! DO NOT CONNECT ~230V AC TO THE POWER INPUT (7) OF THE DEVICE UNTIL YOU HAVE CONNECTED THE CABLES (8)!**

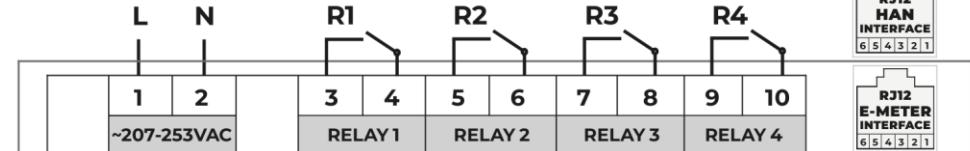
**DO NOT OPEN THE DEVICE CASING OR TOUCH THE CIRCUIT PANEL UNDER ANY CIRCUMSTANCES! DO NOT PUSH METAL OBJECTS INTO THE DEVICE! DO NOT TOUCH METAL OBJECTS WHILE THE DEVICE IS CONNECTED OR POWERED!**

## INSTALLATION STEPS

1. Make sure that the device is not under power/supply voltage!
2. Remove the **Terminal cover** (No. 1) by releasing the **Fastener Screw** (Nr.3). Use a matching VDE screwdriver for the PZ/S2 type a screw head.
3. Slide up the **Terminal Cover** part (No. 1) carefully from the **Base part** (No. 5), then remove the cover.
4. Now you can free to connect wires to the **terminal block**. Release the fastener screws (10) of the terminal block inputs and do the wiring.
- Note, that the screw heads are PZ/S1 type, so use a matching VDE screwdriver. After do the wiring, fasten the screws.**
5. Connect the RJ12 cable of the smart meter (B1) to the **E-Meter connector** (9).
6. Carry out the wiring according to the wiring diagram on the middle sticker.
7. If you want, connect the **Relay #1** wire pair (NO / COM) to the pins nr. 3, 4. The opposite side of the cable should be connected to the external device, which you want to control / switch by the relay.
8. If you want, connect the **Relay #2** wire pair (NO / COM) to the pins nr. 5, 6. The opposite side of the cable should be connected to the external device, which you want to control / switch by the relay.
9. If you want, connect the **Relay #3** wire pair (NO / COM) to the pins nr. 7, 8. The opposite side of the cable should be connected to the external device, which you want to control / switch by the relay.
10. If you want, connect the **Relay #4** wire pair (NO / COM) to the pins nr. 9, 10. The opposite side of the cable should be connected to the external device, which you want to control / switch by the relay.
11. Place back the **Terminal cover** (No. 1) to the **Base part** (No. 5). Fasten the **fixation screw** (3) and check that the **terminal cover** (1) is closing properly.
12. If the Customer wants to use the external RJ12 **HAN / PI interface output** (No. 11) then you should remove the **Dust cover** cap (16) from the **HAN RJ12 socket** (11) and you can connect the RJ12 cable (B2) to the port.
13. Fasten / mount the product housing by the requirements:
  - Mount on a 35mm DIN rail (with DIN-rail fastener on the backside).
  - 3-point fastening with the upper fixing hole (14) and with the lower fixing points (6) by screws - to a wall or into the public lighting cabinet.
14. Plug the **~207-253V AC power voltage** to the AC power wires of the terminal input (wires nr. 1, 2 - pinout: **L** (line), **N** (neutral)) e.g. to an external power source or electricity plug.



## INTERFACE DESCRIPTION



## OPERATION OF THE DEVICE

The WM-RelayBox has a pre-installed embedded system, which starts immediately to operate after adding the power source to the device.

The current operation will be signed by the status LEDs (Nr.15), according to the LED operation behaviour.

The device is listening on its RS485 bus to the incoming messages/commands of the connected device on RJ12 E-meter port. If it is getting a valid message, the device will execute the incoming command (e.g. relay switching) and forward the message to the HAN interface (RJ12 Customer Interface output).

Simultaneously, the required relay will be switched to ON due to the request. (In case of the switch OFF request, the relay will be switched to OFF).

The LED signals (No. 15) will be always inform about the current activity.

In case of the removal / disconnection of the AC power source, the relay box will be immediately turning off. After adding the power source again, the relays will be switching to their base-position, which is state OFF (not switched).

For further details read the *Installation Manual* of the product.

## SMART METER→RELAYBOX CONNECTION

The data transfer allows only one-way (unidirectional) communication from the meter to the WM-RelayBox (RJ12 e-meter connector input) and one-way communication from the WM-RelayBox to the Customer Interface output connector (isolated, external RJ12).

## SMART METER↔RELAYBOX COMMUNICATION

The device is connected to the intelligent consumption meter via a wired line on the RS-485 bus.

The WM-RelayBox contains four individually switchable relays, which are used to control the connected devices - primarily consumer devices or any other device (to switch on/off).

The WM-RelayBox is communicating and controllable with DLMS/COSEM commands, which are reaching the relay box via one-way unconfirmed communication through the connected consumption meter.

In addition to the commands intended to control the relay box, data intended for the output of the consumption meter are also transmitted via the consumption meter interface.

The WM-RelayBox contains a separate isolated and disconnected connector for the consumer output connection.

The purpose of the device is to control the customer's connected equipment.

## LED SIGNALS

**PWR (POWER):** The LED active by red in case of presence of the ~230V AC voltage. For more details see below.

**STA (STATUS):** Status LED, flash briefly once by red at startup. If the device will receive a valid message/command on RS485 bus within 5 minutes, it will sign the communication every time by red LED flashing.

**R1..R4 (RELAY #1.. RELAY #4):** The related LED is active (lighting by red), when the current relay will be switched to ON (the current RELAY LED will be also turned on - lighting continuously). In case of OFF status (switched off relay) the LED of the current RELAY LED will be blank.

Further, detailed LED operation sequence can be found and read in the *Installation Manual* of the product.

## DOCUMENTS & PRODUCT SUPPORT

Product website (documents, etc.): <https://m2mserver.com/en/product/wm-relaybox/>

In case of product support request, ask our support at the [iotsupport@m2msystems.hu](mailto:iotsupport@m2msystems.hu) email address or check our support website for the further contact opportunities please: <https://www.m2mserver.com/en/support/>

This product is marked with the CE symbol according to the European regulations.

The crossed out wheeled bin symbol means that the product at the end of its life cycle should be disposed of with general household waste within the European Union. Only discard electrical/electronic items in separate collection schemes, which cater for the recovery and recycling of materials contained within. This refers not only to the product, but also to all other accessories marked with the same symbol.

