

# Wireless Modbus Relay

## Wireless Modbus Relay





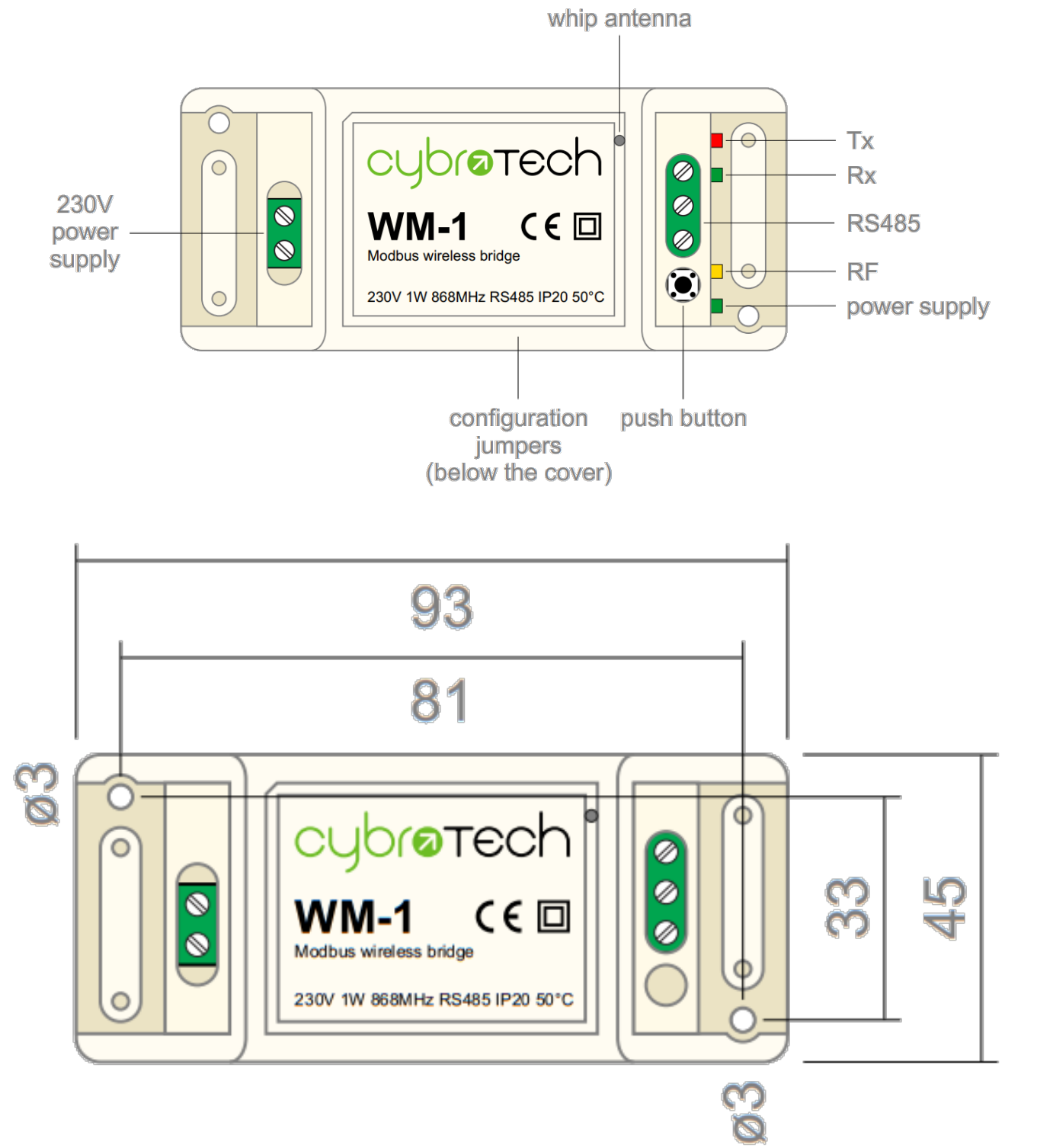
|               |                 |
|---------------|-----------------|
| Model number: | <b>WR-1</b>     |
| Frequency:    | ISM 868MHz (EU) |
| Dimensions:   | 93x45x27 mm     |

## Applications

- Remote controlled relay. Act as modbus RTU slave. Optimal for long range, no hopping. Up to 8 relays per network. Protected private connection.

## Installation and mounting

-  Carefully open WR-1 module and configure serial communication with jumpers. (Default configuration is 9600bps, 8N1 with normal timeout)
-  Place WR-1 module at least 10cm from other objects. Installation is not recommended inside metal cabinets.
- Connect RS485 terminals to WR-1 RS485 terminals
  - A - A
  - B - B
  - C - GND
- Connect to 230V power supply
- Configure radio pairing



## Features

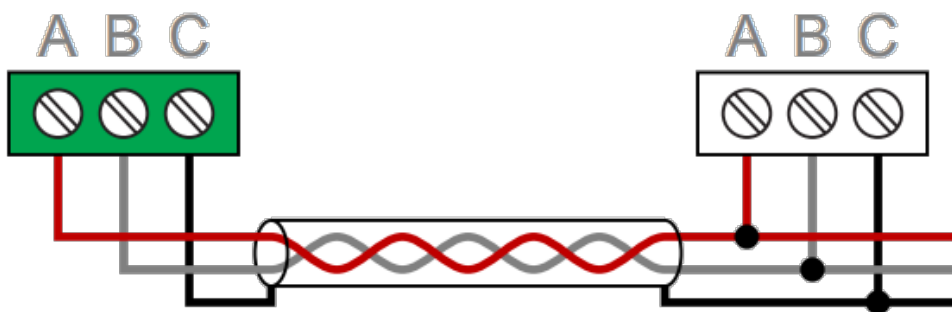
- replacement for RS485 wiring
- Modbus RTU serial protocol
- wired/wireless combinations
- very long range, no hopping
- protected private connection
- multiple slaves per device
- multiple addressable groups

## Technical specification


|                        |                   |
|------------------------|-------------------|
| Power supply:          | 230V, 50/60Hz, 1W |
| Ingress protection:    | IP20              |
| Operating temperature: | -20..50°C         |
| Storage temperature:   | -40..85°C         |
| Relative humidity:     | 0..85% n/c        |

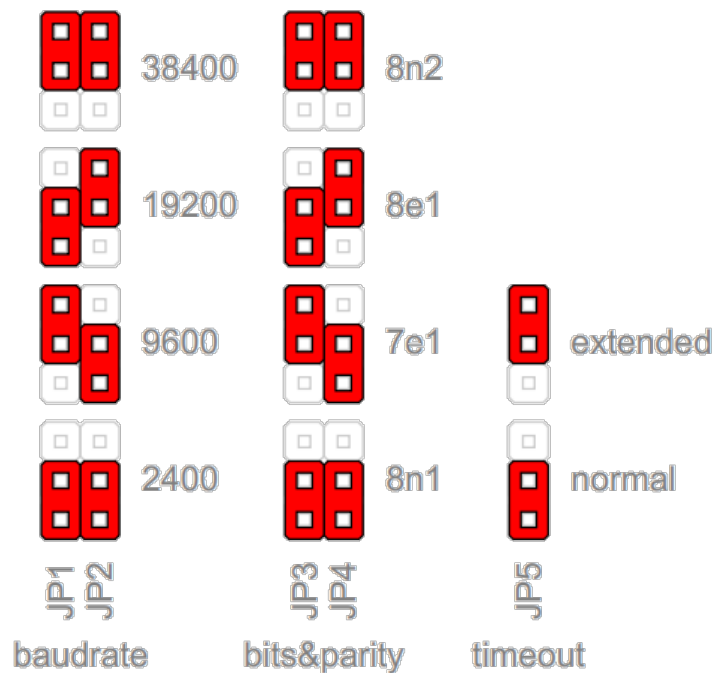
## Terminals and wiring

|                 |          |           |
|-----------------|----------|-----------|
| To power sensor | <b>A</b> | RS485 bus |
|                 | <b>B</b> |           |
|                 | <b>C</b> |           |
| To power supply | <b>L</b> | 230V AC   |
|                 | <b>N</b> |           |



## Serial configuration and timeout

- Available baudrates 2400, 9600, 19200, 38400 bps
- Data bits and parity 8N1, 7E1, 8E1, 8N2
-  Max 64 bytes per transmission
- Integrated 240 Ohm termination resistor



|       | normal | extended |
|-------|--------|----------|
| 2400  | 25ms   | 200ms    |
| 9600  | 10ms   | 100ms    |
| 19200 | 5ms    | 100ms    |
| 38400 | 5ms    | 100ms    |

## Radio pairing configuration

### Create new secure group

- \* turn on all devices at the same time
- \* within 10 seconds, while RF LED is blinking, press and hold button on one of the devices
- \* after a second, the new address is randomly generated and sent to all devices. RF LED will blink 3 times to confirm the new address.



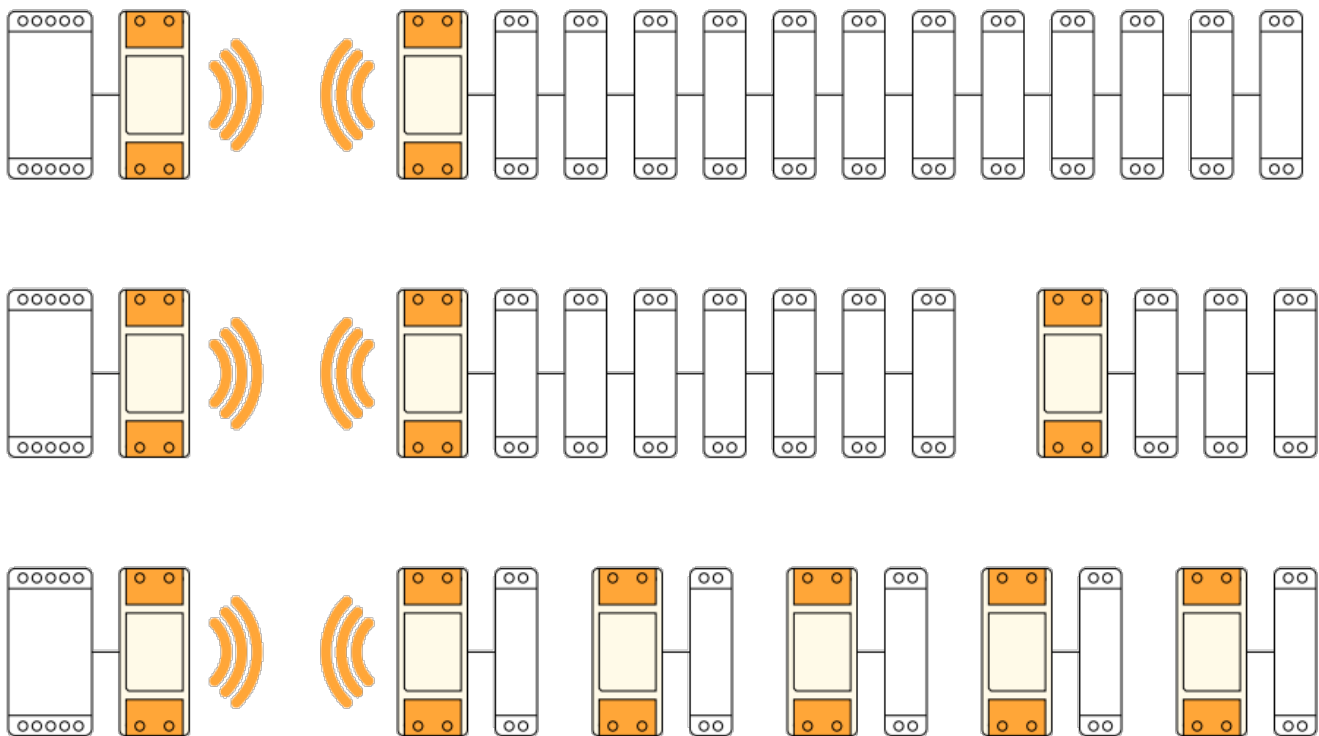
### Add new device to the group

- \* turn on the device
- \* within 10 seconds, press and hold button on one of the existing devices
- \* after a second, the existing group address is sent to the new device. RF LED will blink 3 times to confirm the address is sent.



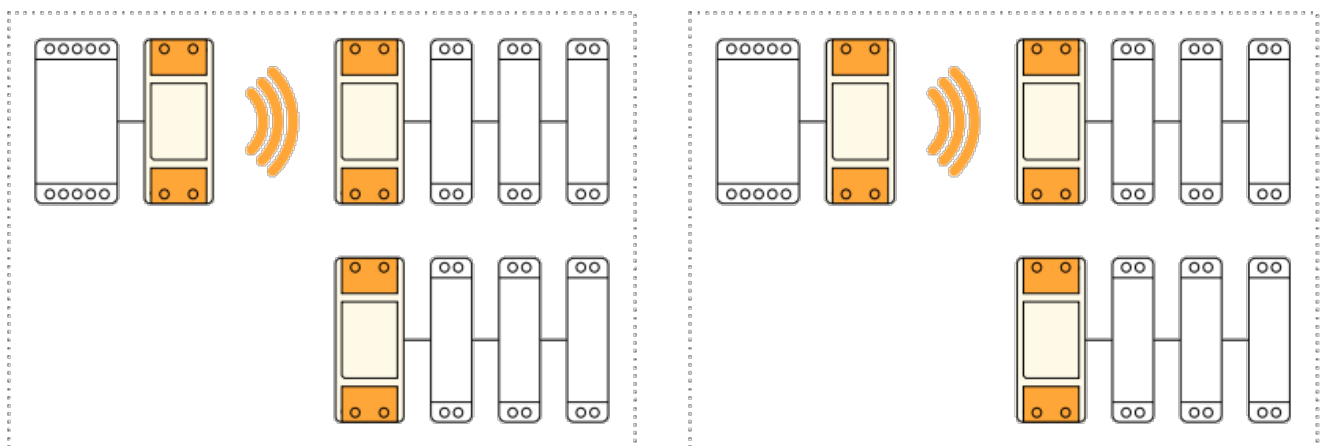
## Topology examples

- \* Modbus master, connected to 12 slaves using a pair of WM-1 devices
- \* Modbus master, connected to 10 slaves, organized in two groups
- \* Modbus master, connected to 5 slaves, each one having local WM-1 device



## Multiple groups

- \* When the system has two or more separate Modbus lines, they should be configured as separate groups.
- \* Each group has a single master and one or more slaves.
- \* Groups can't talk to each other, but they share the same bandwidth.
- \* Two masters may start transmitting at the same time causing collisions.
- \* To reduce number of missed messages, keep the traffic low.



## Connection check

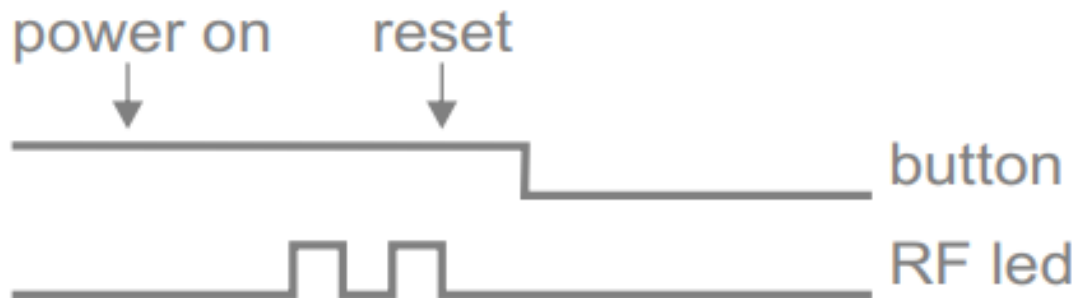
- Press button shortly
- RF LED will blink shortly on each connected device

- Serial interface is unaffected



## Factory reset

- Hold button and turn the device ON
- RF led will blink twice. Group address is now reset to default.
- Other devices will not be affected.



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