# Wireless Modbus-to-Modbus bridge

**Wireless Modbus-to-Modbus bridge**




| | |
|---|---|
| Model number: | **WM-1** |
| Frequency: | ISM 868MHz (EU) |
| Dimensions: | 93x45x27 mm |

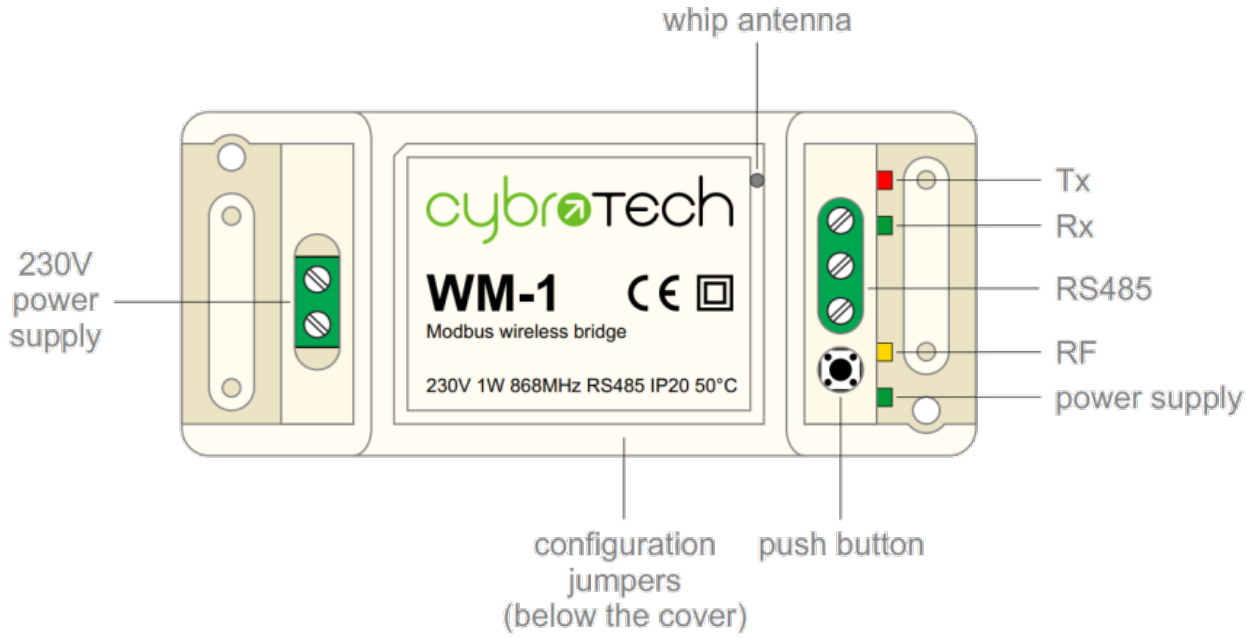
## Applications

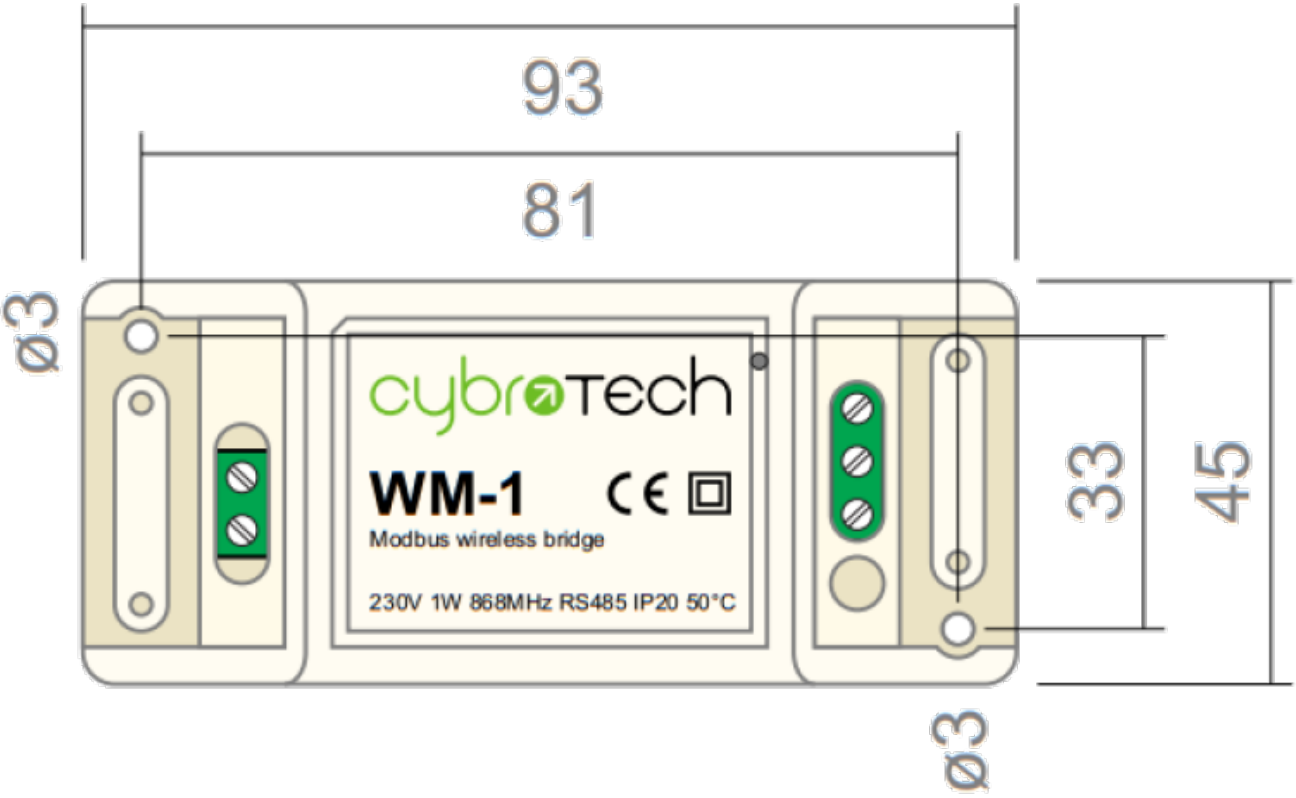
- Replacement for RS485 wiring solution with wireless. Optimal for long range Modbus RTU serial communications with half duplex configuration.

## Installation and mounting

- Carefully open WM-1 module and configure serial communication with jumpers. (Default configuration is 9600bps, 8N1 with normal timeout)

- Place WM-1 module at least 10cm from other objects. Installation is not recommended inside metal cabinets.
- Connect RS485 terminals to WM-1 RS485 terminals
  - A - A
  - B - B
  - C - GND
- Connect to 230V power supply
- Configure radio pairing



# Features

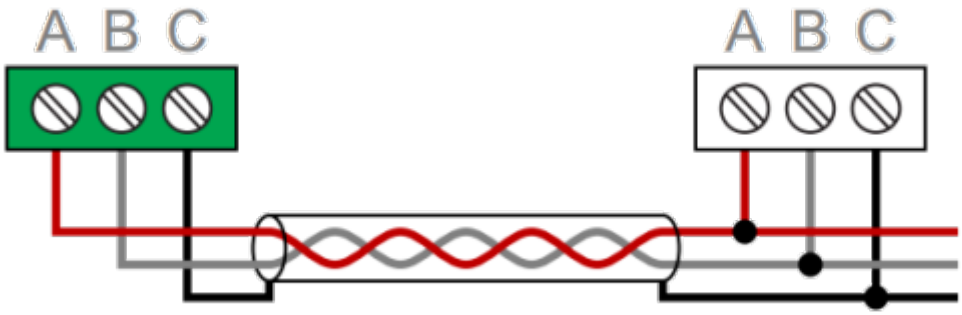
- replacement for RS485 wiring
- Modbus RTU serial protocol
- wired/wireless combinations
- very long range, no hopping
- protected private connection
- multiple slaves per device
- multiple addressable groups

# 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 |

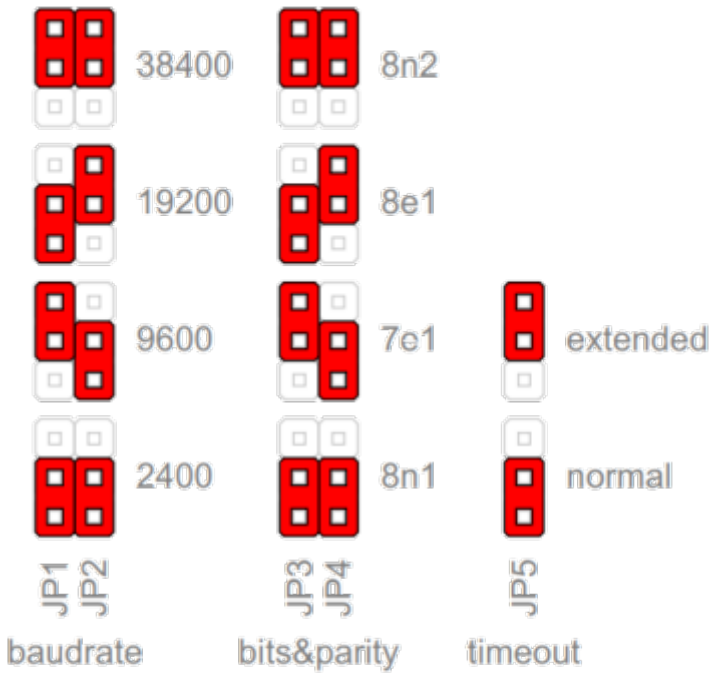
# Terminals and wiring

| | | |
|---|---|---|
| To power sensor | **A** | RS485 bus |
| | **B** | |
| | **C** | |
| To power supply | **L** | 230V AC |
| | **N** | |




# Serial configuration and timeout

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

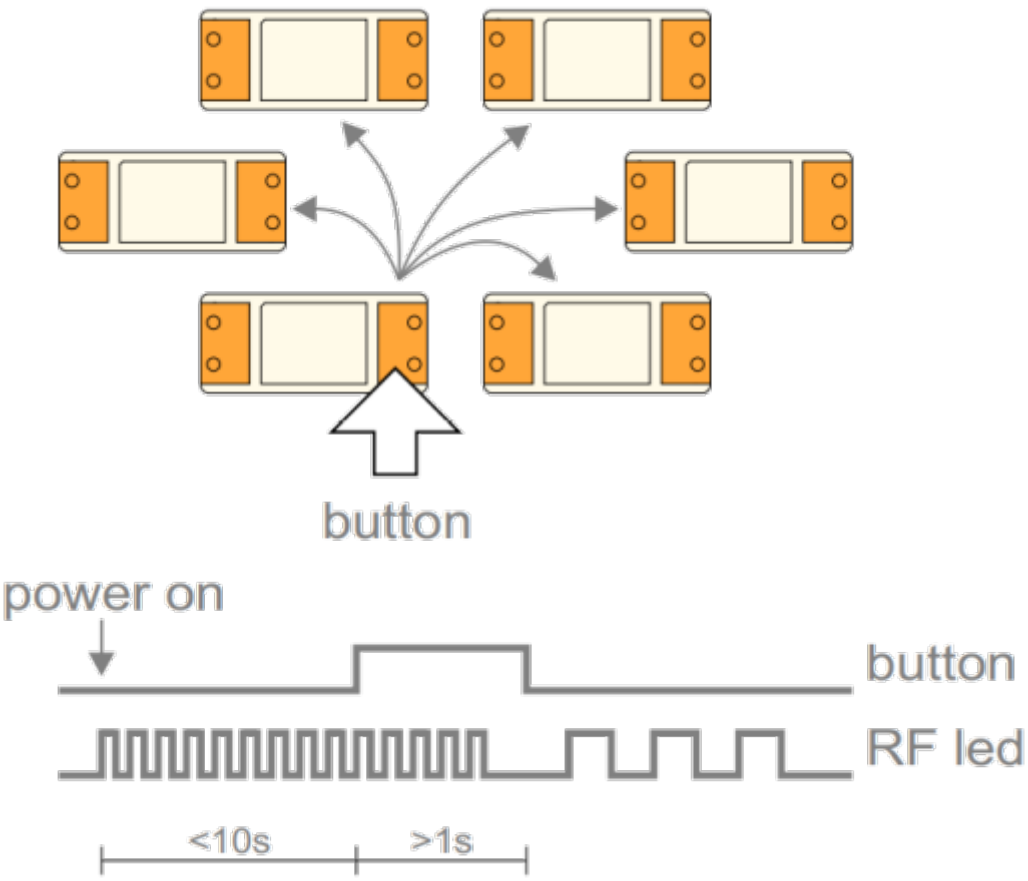



| | normal | extended |
|---|---|---|
| 2400 | 25ms | 200ms |
| 9600 | 10ms | 100ms |
| 19200 | 5ms | 100ms |
| 38400 | 5ms | 100ms |

# Radio pairing configuration

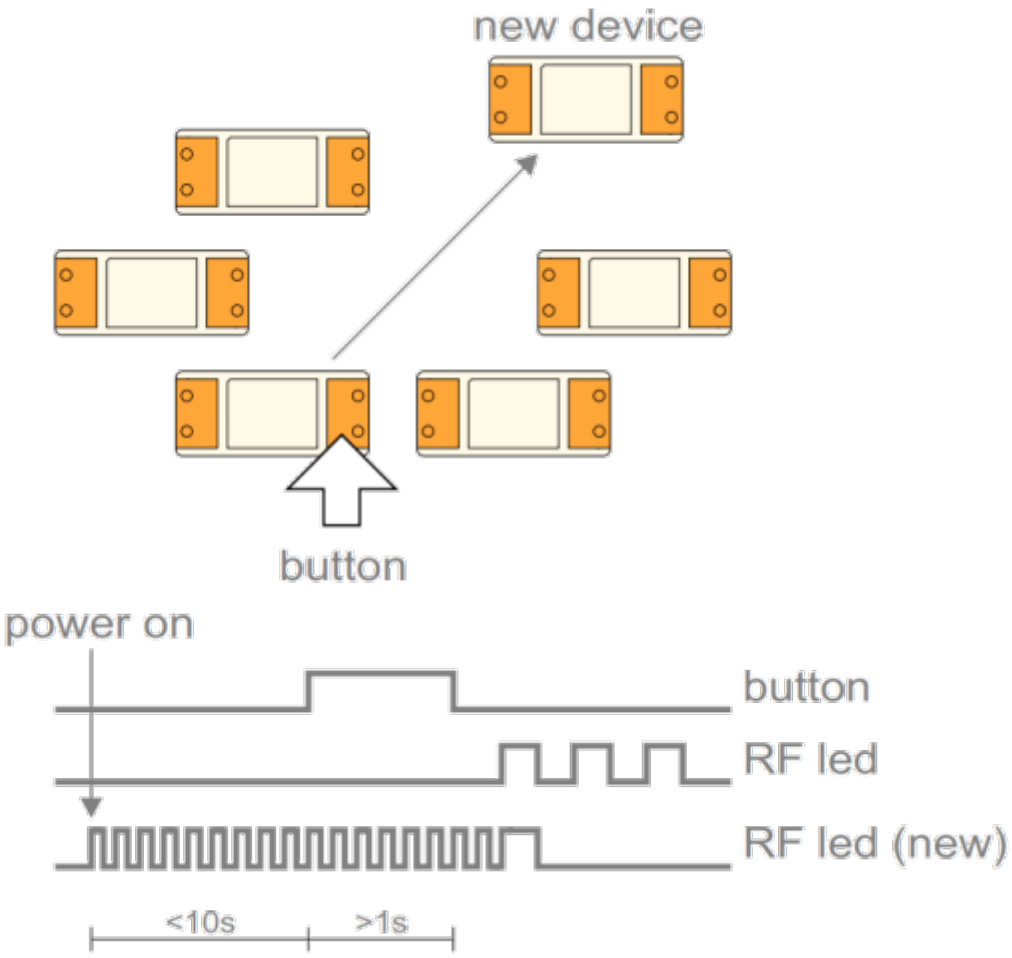
## Create new secure group

```
* turn on all devices as 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.
```



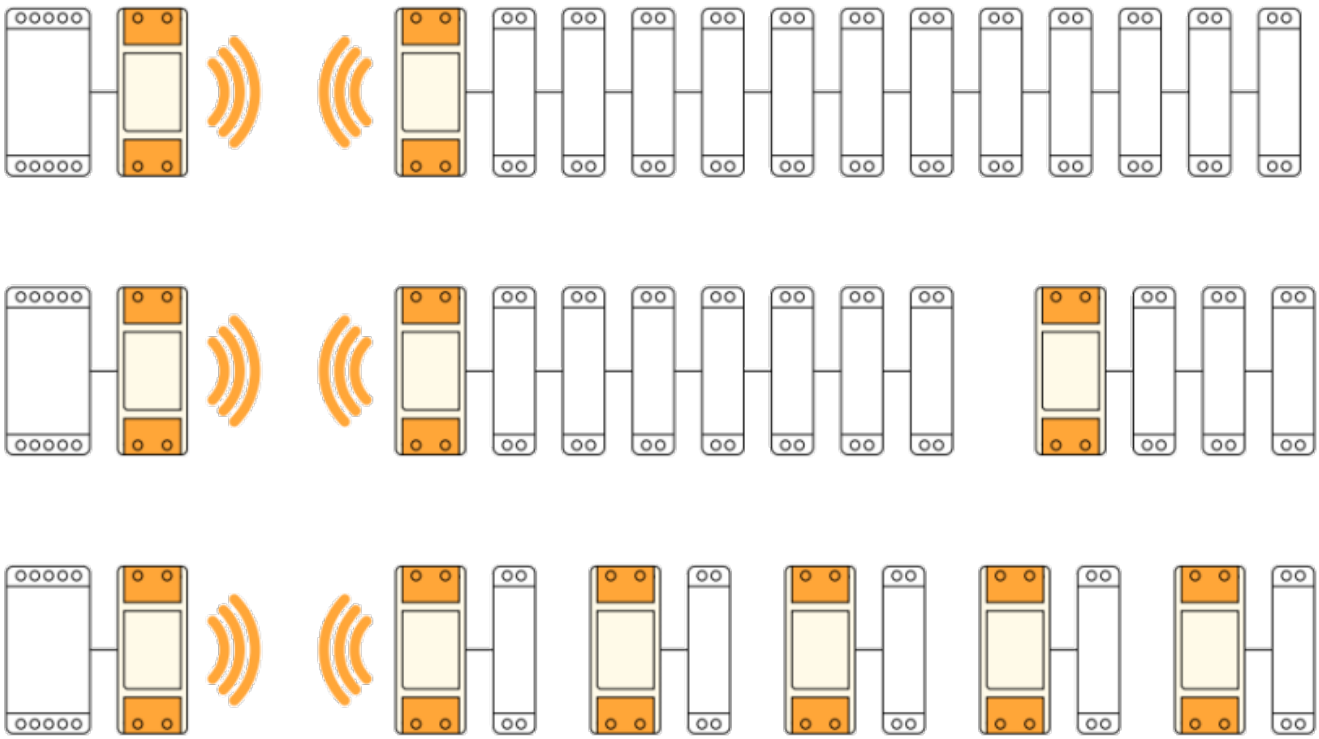

## Add new device to the group

```
* 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.
```



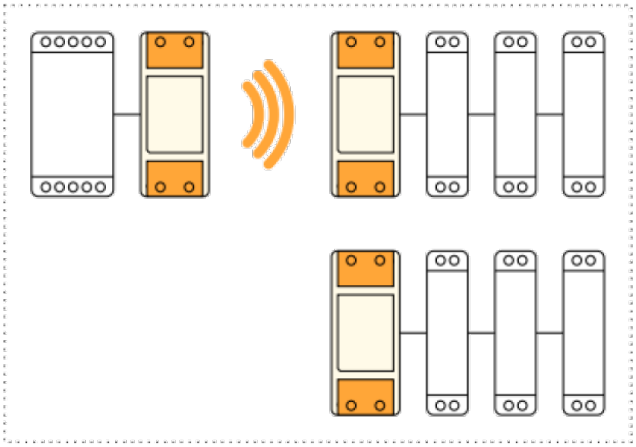

## Topology examples

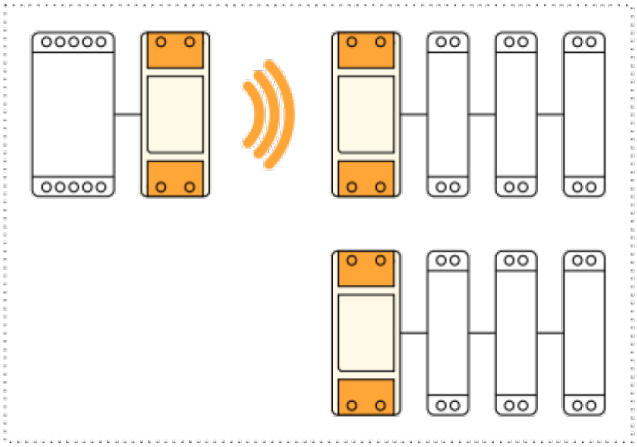
```
* Modbus master, connected to 12 slaves using a pair of WM-1 devices
* Modbus master, connected to 10 slaves, organized in two groups
* Modbus master, connected to 5 slaves, each one having local WM-1 device
```



### 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

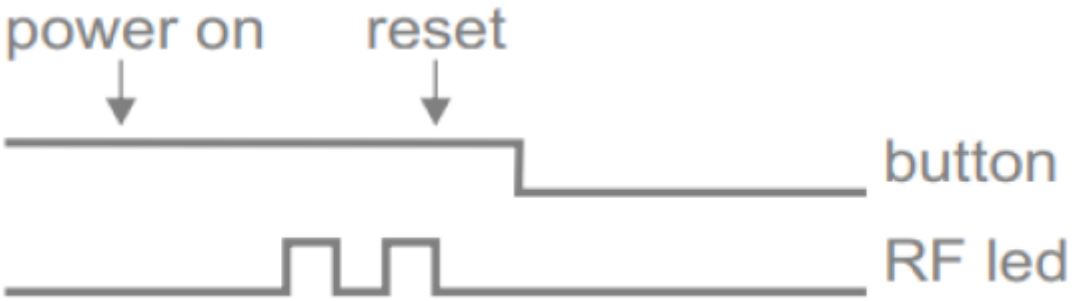
- Press button shortly
- RF LED will blink shortly on each connected device

- 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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