

Wireless Modbus Relay

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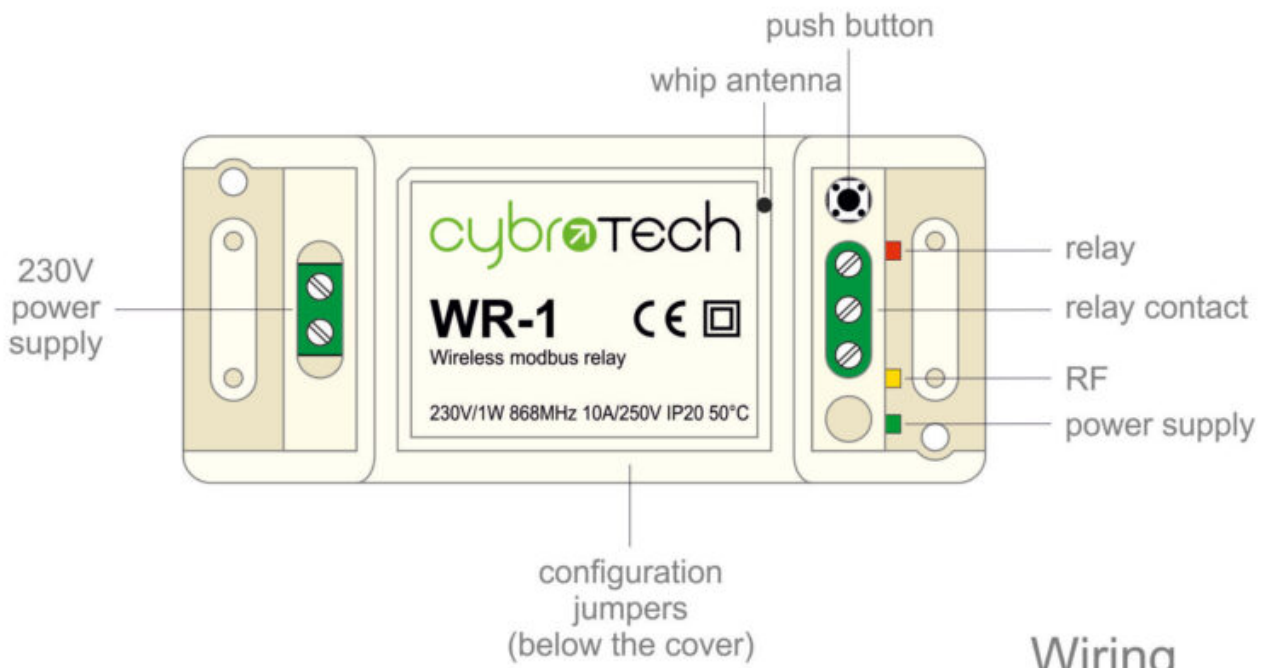
| | |
|---------------|-----------------|
| Model number: | WR-1 |
| Frequency: | ISM 868MHz (EU) |
| Dimensions: | 93x45x27 mm |

Applications

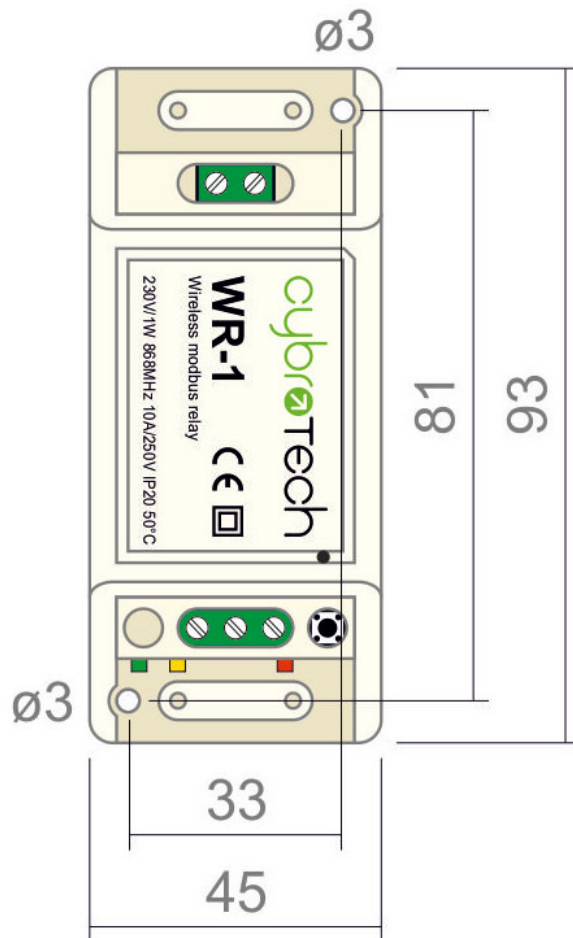
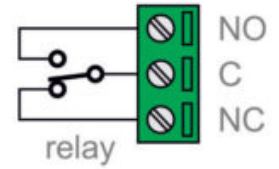
- Remote controlled relay. Act as modbus RTU slave. Optimal for long range, no hopping.

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



Wiring



Features

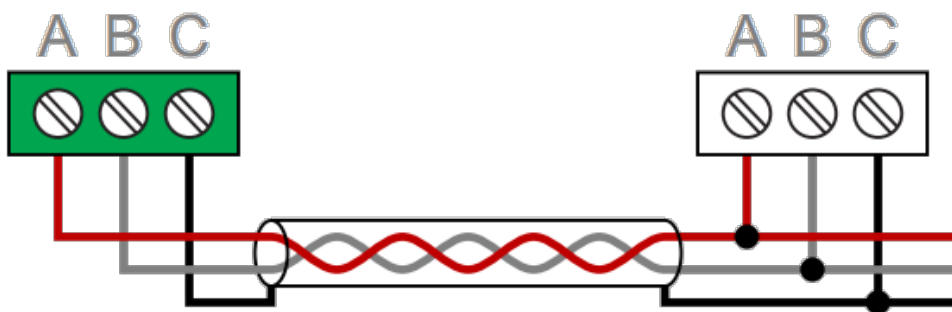
- replacement for RS485 wiring
- Modbus RTU serial protocol
- wired/wireless combinations
- very long range, no hopping
- protected private connection
- multiple slaves per device
- multiple addressable groups

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 |

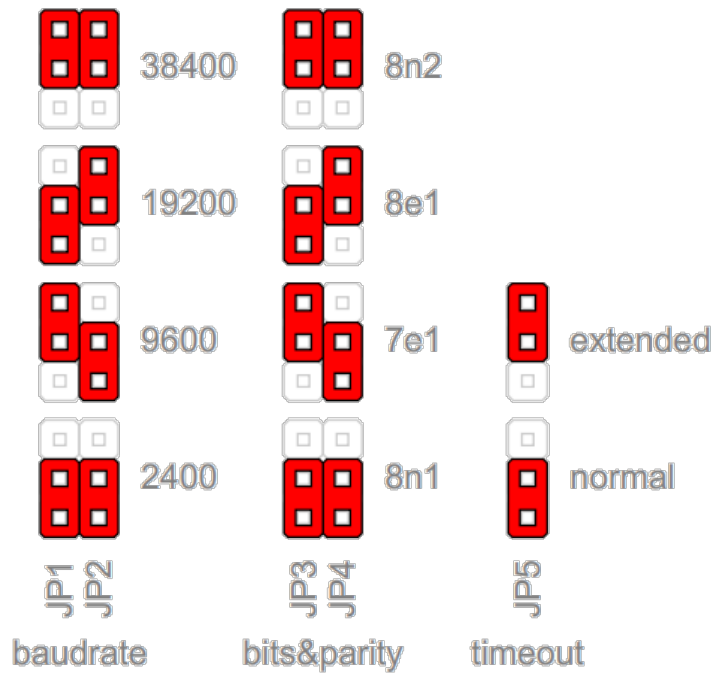
Terminals and wiring

| | | |
|-----------------|---|-----------|
| 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 transmission
- Integrated 240 Ohm termination resistor

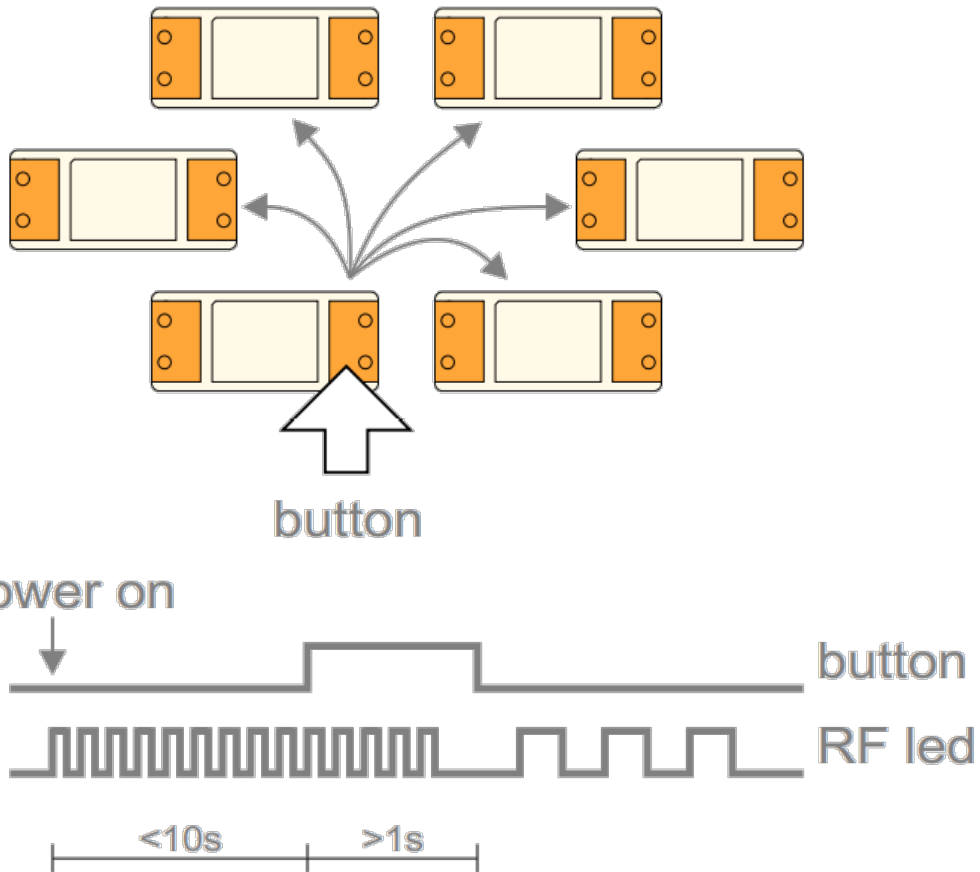


| | normal | extended |
|-------|--------|----------|
| 2400 | 25ms | 200ms |
| 9600 | 10ms | 100ms |
| 19200 | 5ms | 100ms |
| 38400 | 5ms | 100ms |

Radio pairing configuration

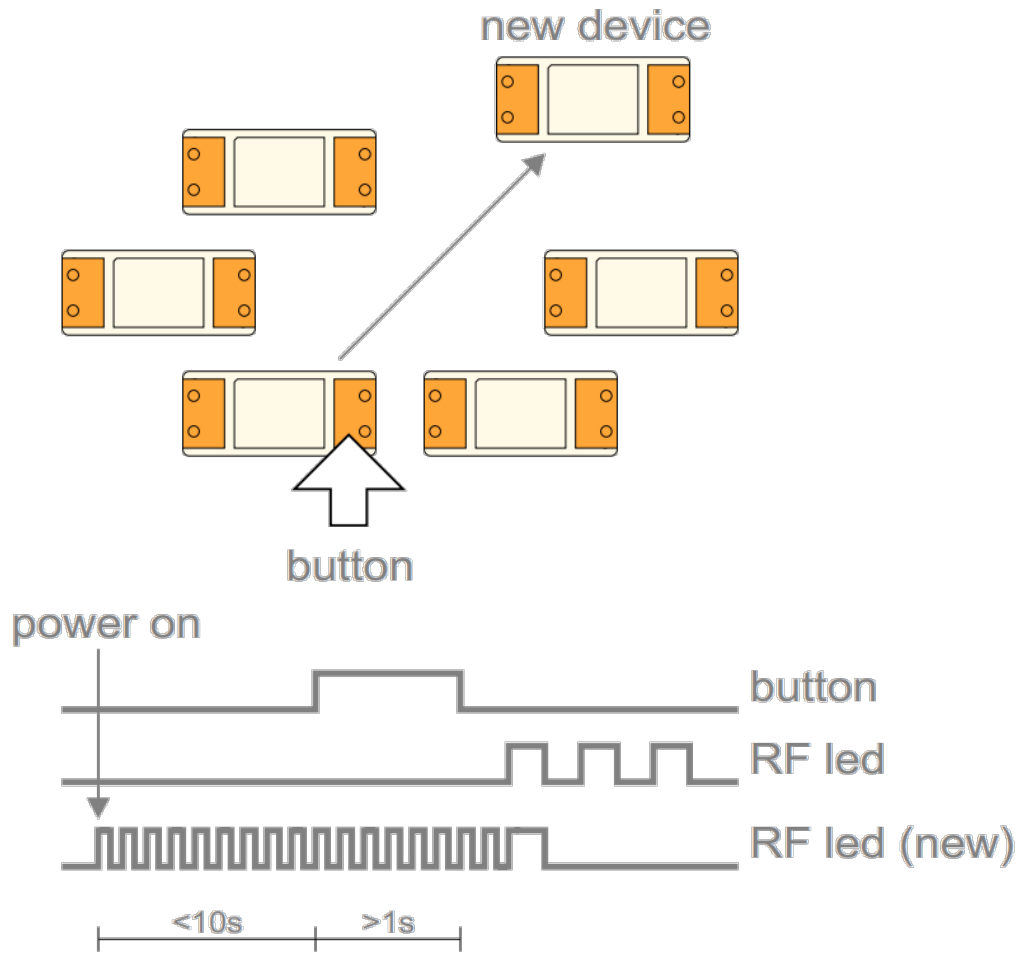
Create new secure group

- * turn on all devices 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.



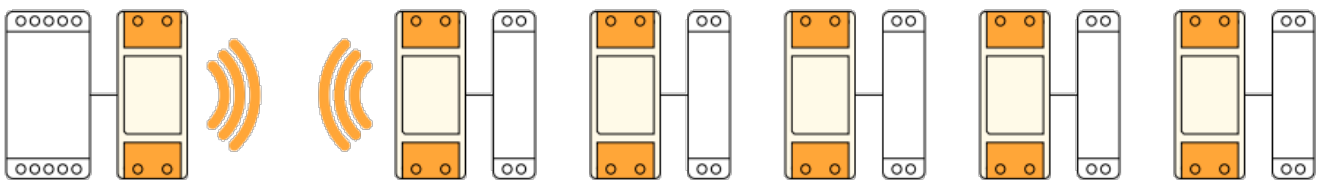
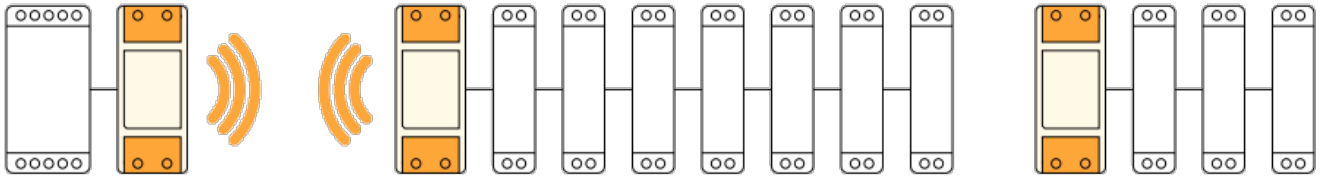
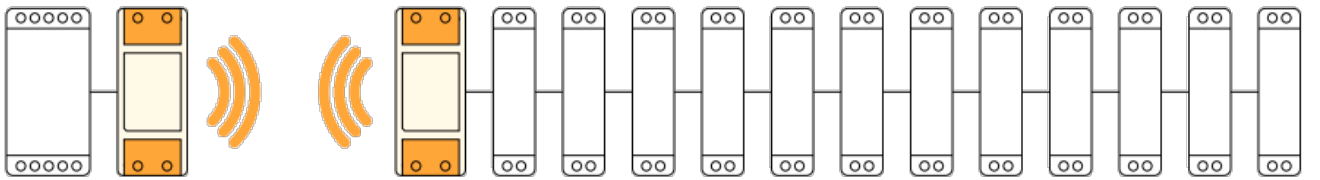
Add new device to the group

- * 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.



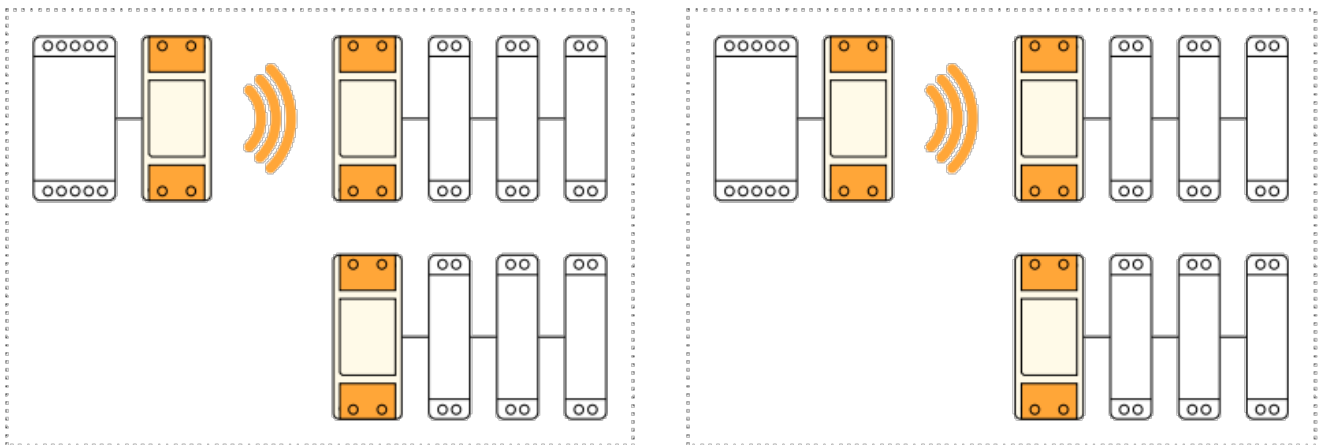
Topology examples

- * 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

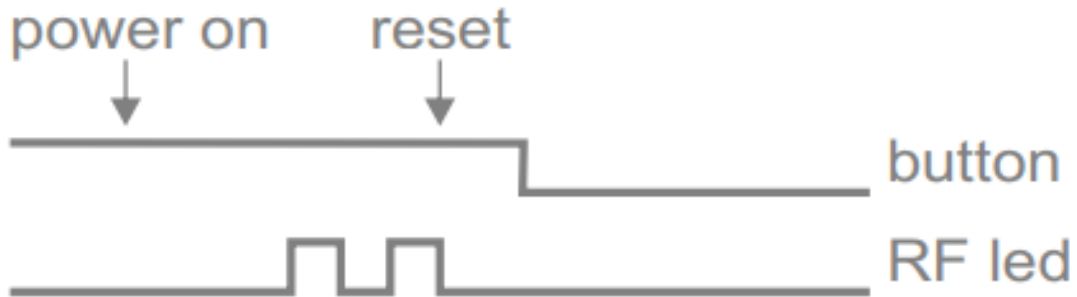
- Press button shortly
- RF LED will blink shortly on each connected device

- 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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