Wireless Modbus Relay

Wireless Modbus Relay

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. Up to 8 releays 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
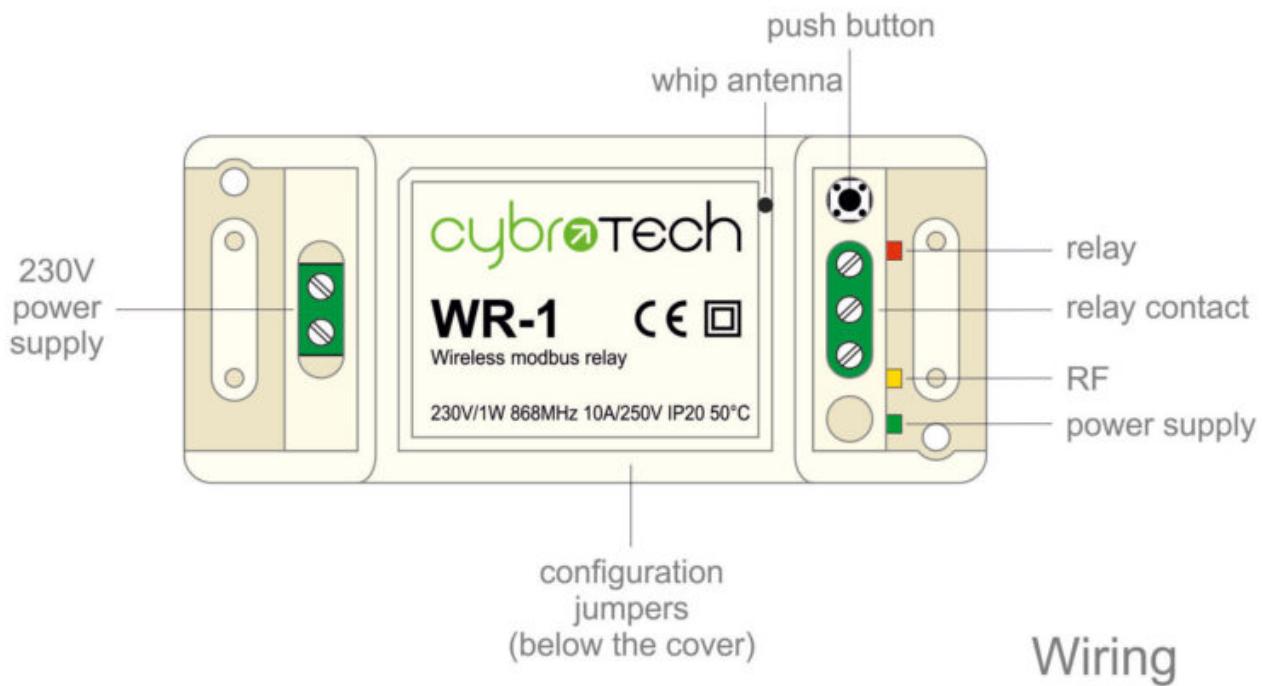
Wiring
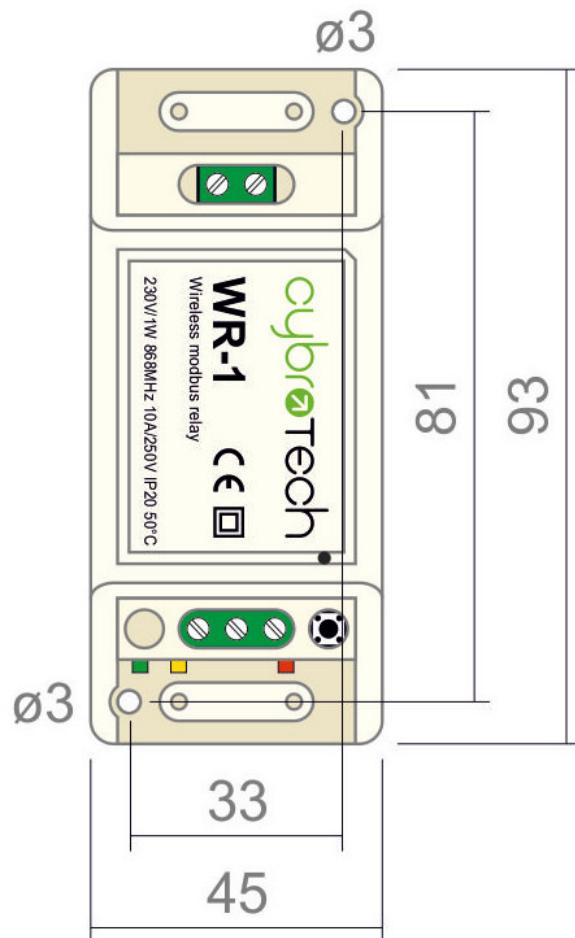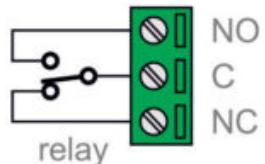
Features

- 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** **B** **C**	RS485 bus
To power supply	**L** **N**	230V AC
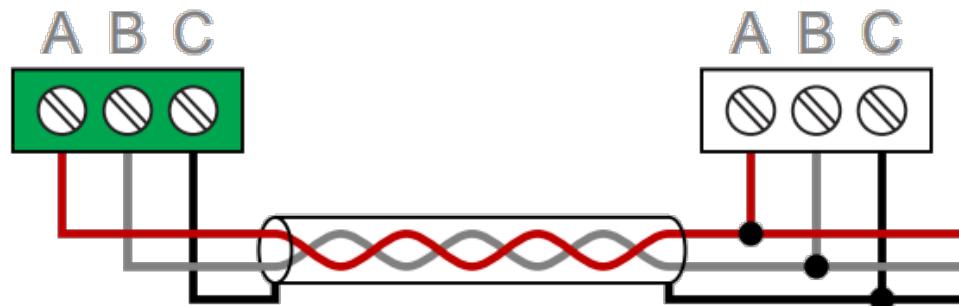
Serial configuration and timeout

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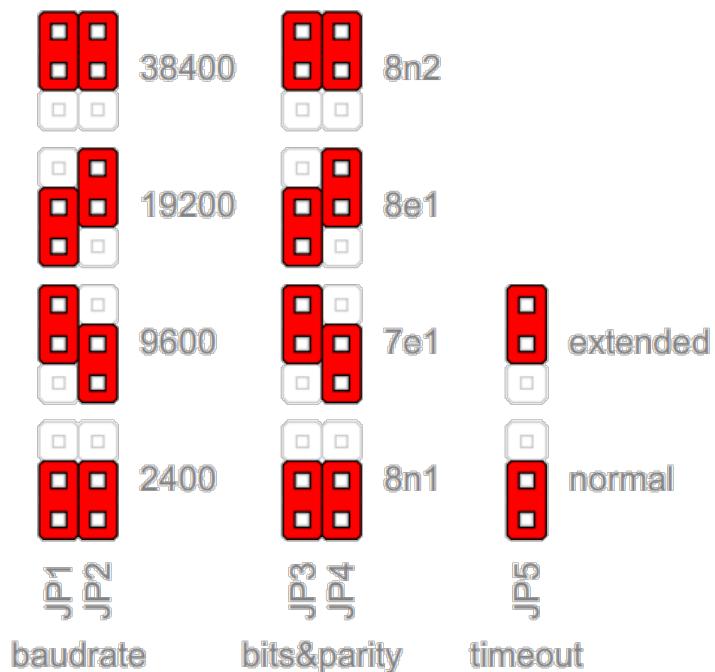
	normal	extended
2400	25ms	200ms
9600	10ms	100ms
19200	5ms	100ms
38400	5ms	100ms

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.
```
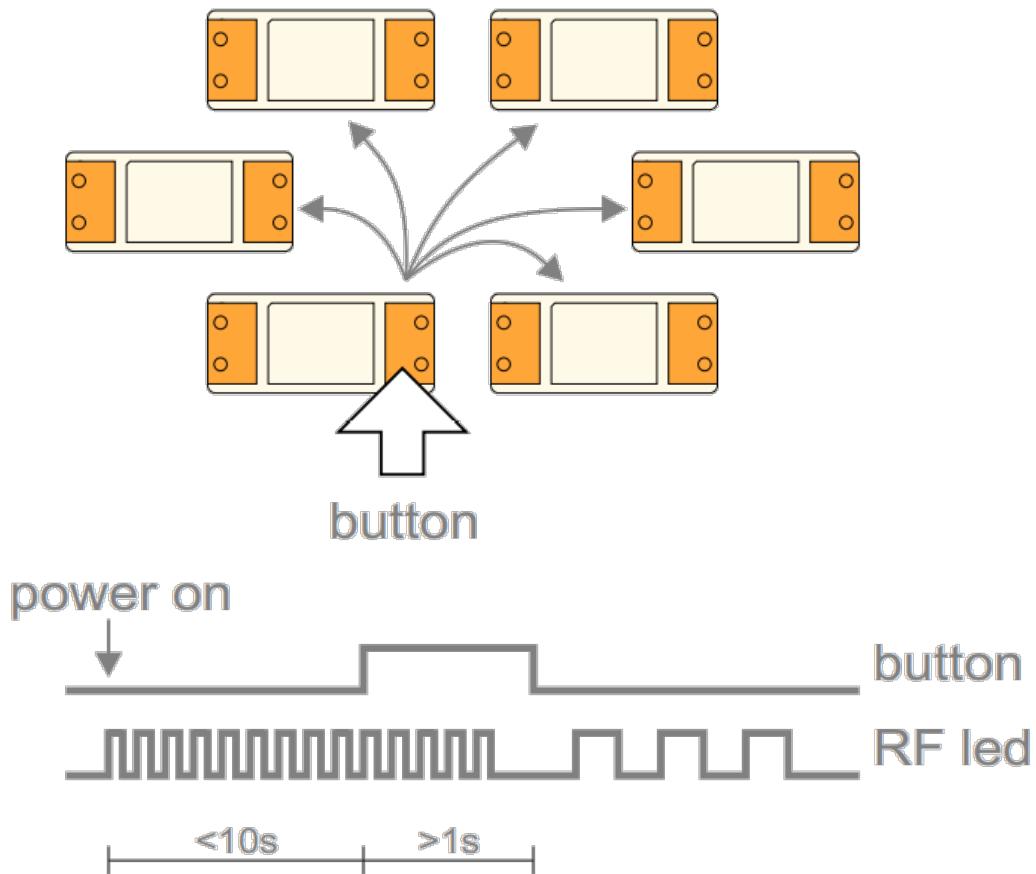
Add new device to the group

```
* 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.
```
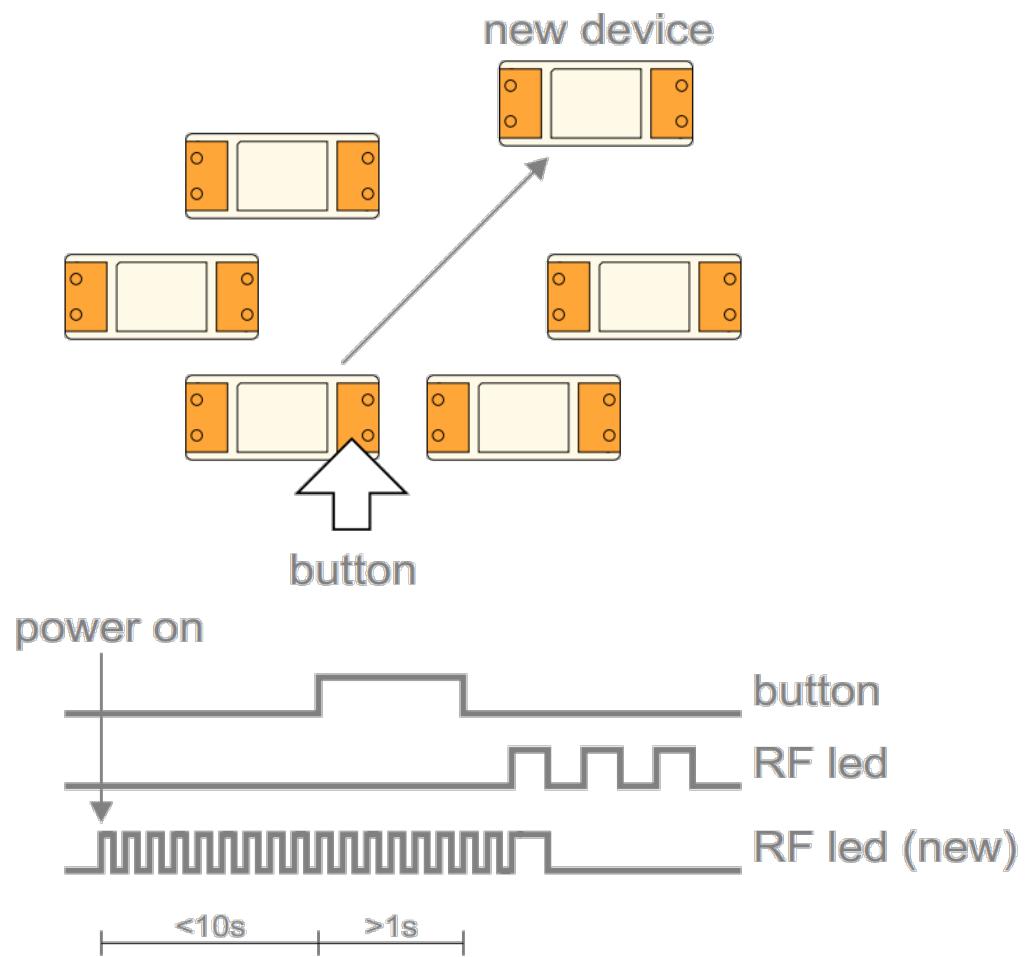
Topology examples

```
* 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
```
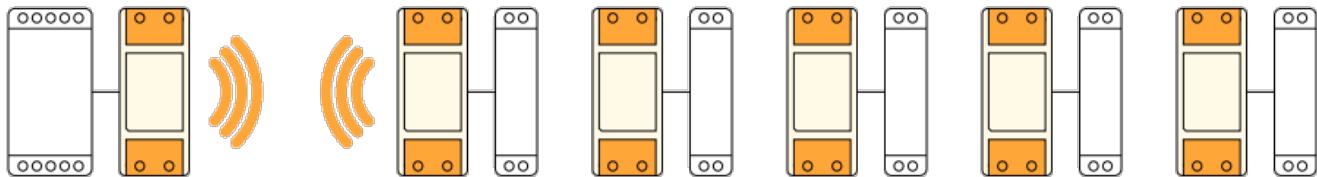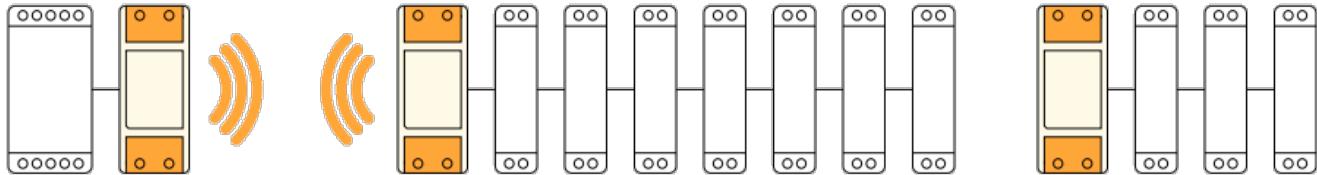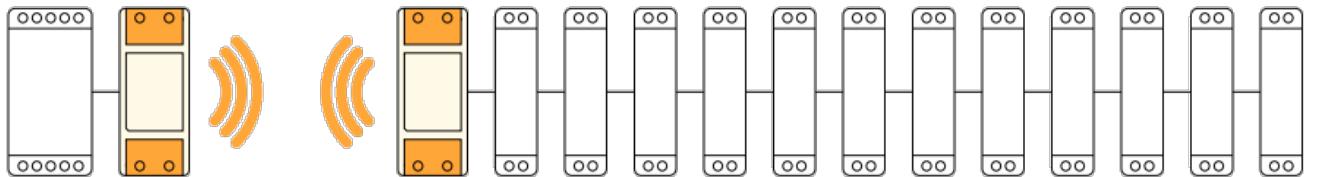
Multiple groups

* 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.
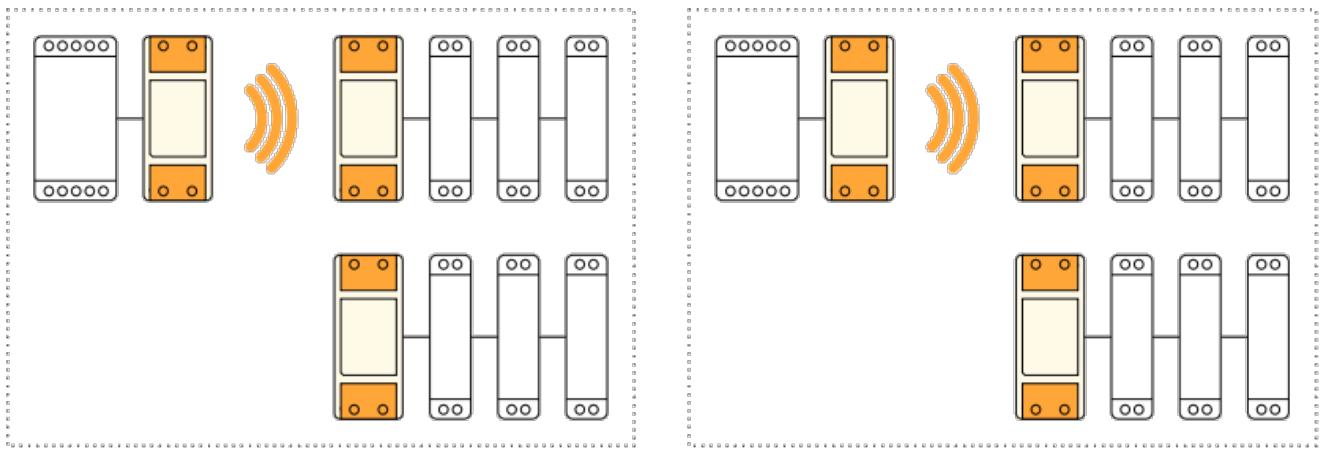
Connection check

- 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.