

# 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.

## 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

- remote controlled relay
- act as modbus RTU slave
- very long range, no hopping
- up to 8 relays per network
- protected private connection
- 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        |

### Modbus

|                     |   |
|---------------------|---|
| Address range:      | 200..207  |
| Relay mapping       | coil 1(start address 00h)   |
| Data bits & parity  | 8n1   |
| Supported functions | 01 - read coil<br>05 - write single coil<br>15 - write multiple coils |

### Relay output

|                |                                 |
|----------------|---------------------------------|
| Nominal rating | 10A 250Vac (NO), 3A 250Vac (NC) |
| (resistive)    | 5A 30Vdc (NO), 3A 30Vdc (NC)    |

### Radio

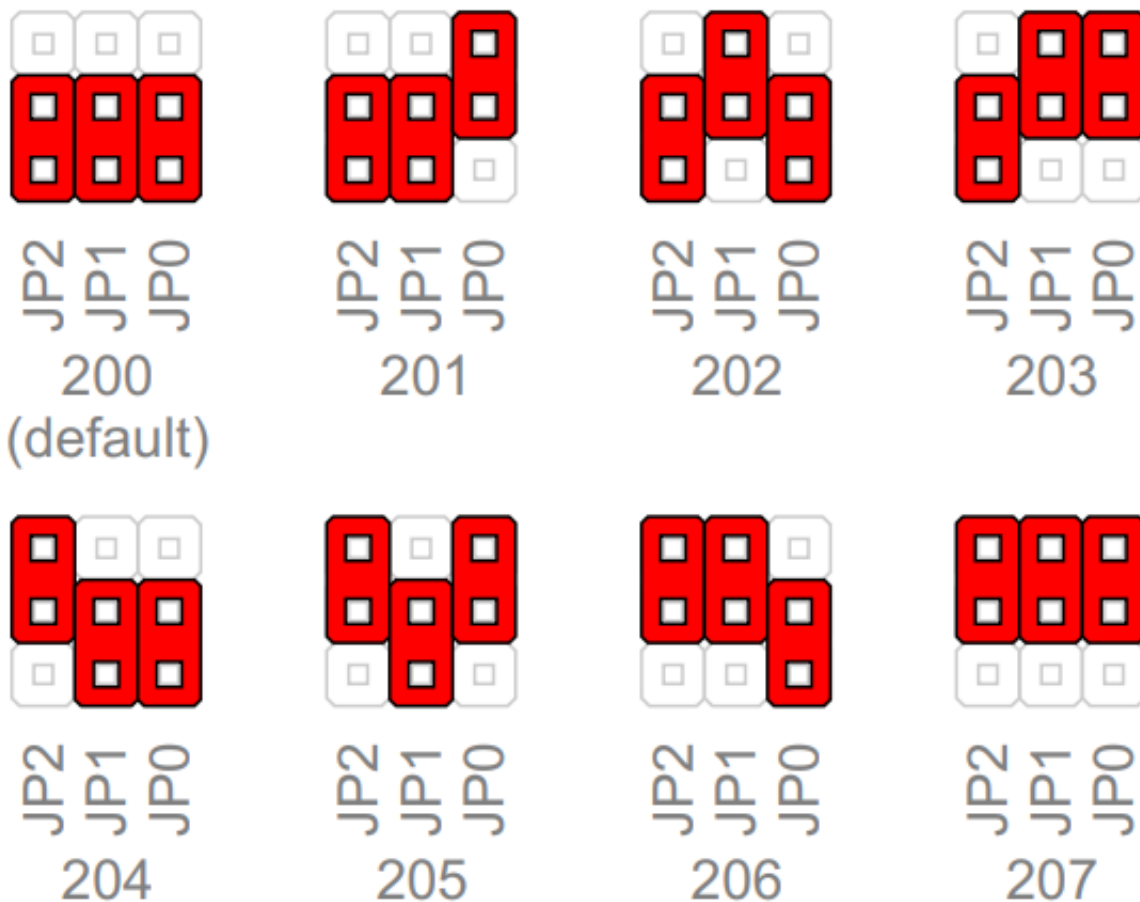
|                    |                                 |
|--------------------|---------------------------------|
| Frequency band     | ISM 868MHz (EU)                 |
| Subband            | L 866.8MHz, 25mW, 1% utility    |
| Modulation         | fSK 38.4kbps 80kHz bandwidth    |
| Listen before talk | yes, delay limited to 20ms      |
| Group address      | 32-bit, automatically generated |
| Connection time    | 10s power-on to network ready   |
| Message delay      | 5ms from tx start to relay on   |
| Output power       | 25mW                            |
| Operating range    | 3..300m with optical visibility |

## Terminals and wiring

|                 |           |
|-----------------|-----------|
| Relay           | <b>NO</b> |
|                 | <b>C</b>  |
|                 | <b>NC</b> |
| To power supply | <b>L</b>  |
|                 | <b>N</b>  |

## Modbus address setting

Change is applied right away, no reset needed.



## Radio pairing configuration

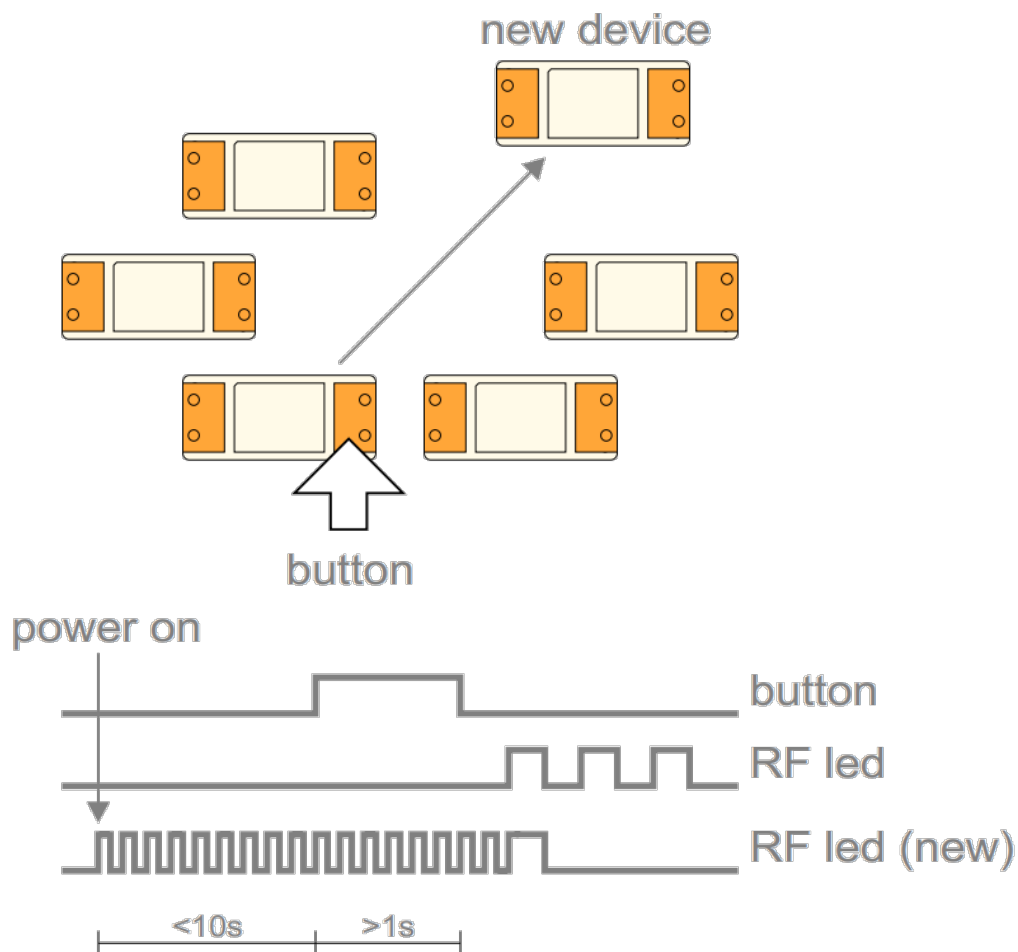
### Create new secure group

- \* 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.

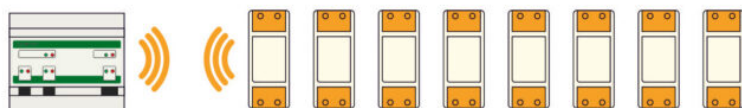


### Add new device to the group

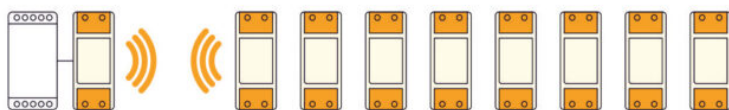
- \* turn on the device
- \* within 10 seconds, press and hold button on one of the existing devices
- \* after a second, the existing group address is sent to the new device. RF LED will blink 3 times to confirm the address is sent.



### Examples



Cybro-3-RFM, acting as modbus master, connected to 8 wireless relays (200..207).



Any modbus master, connected to 8 relays using WM-1 device as wireless adapter.

### Connection check

- press the button shortly

With each press of the button, the relay will switch on/off. Other devices are not affected.



## 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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