

# 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 05 - write single coil 15 - write multiple coils

### Relay output

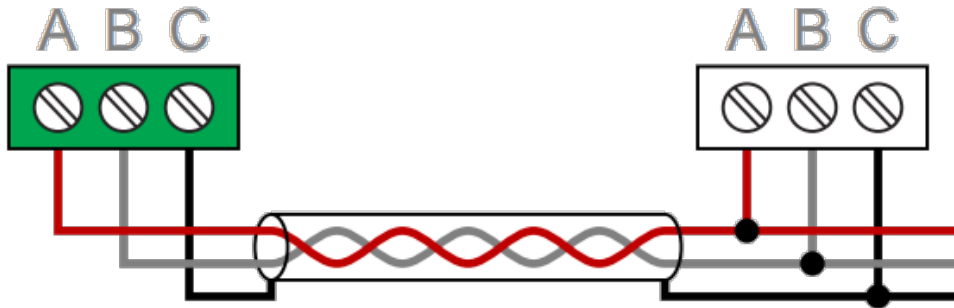
Nominal rating	10A 250Vac (NO), 3A 250Vac (NC)
(resistive)	5A 30Vdc (NO), 3A 30Vdc (NC)

### 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

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>	
	<b>N</b>	

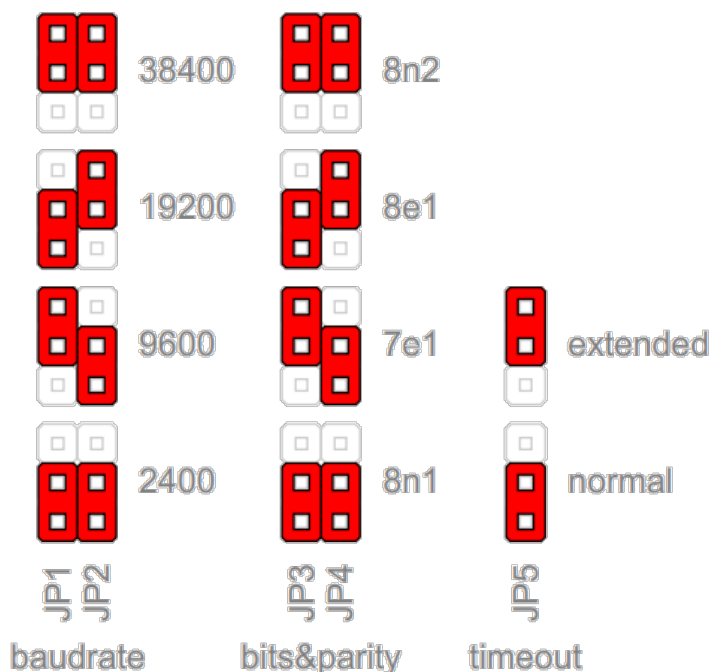


# Serial configuration and timeout

- 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

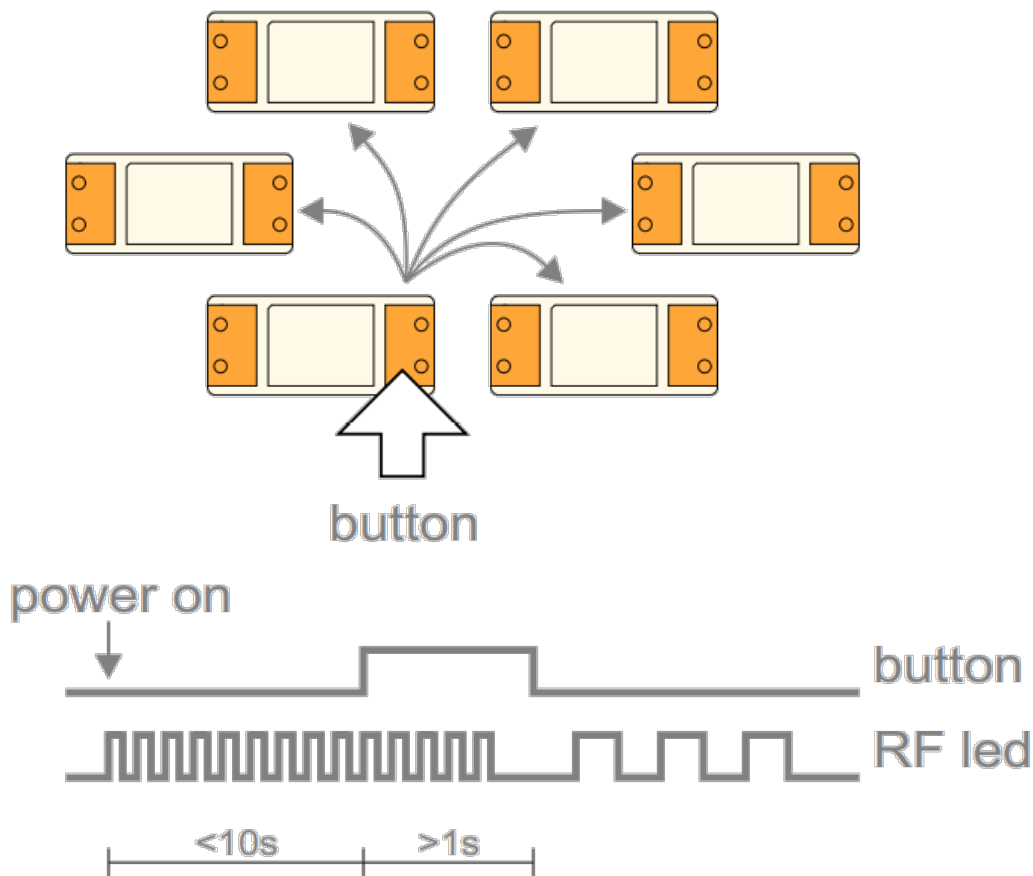


	normal	extended
2400	25ms	200ms
9600	10ms	100ms
19200	5ms	100ms
38400	5ms	100ms

## Radio pairing configuration

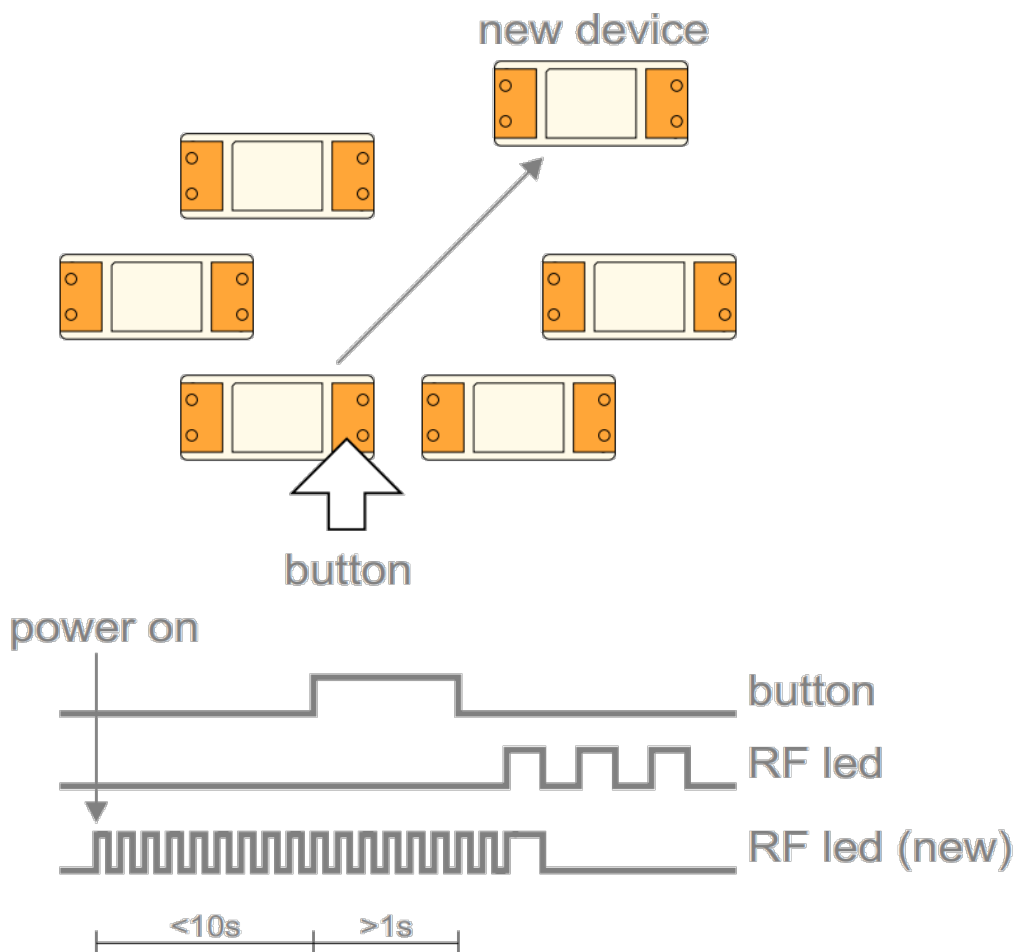
### Create new secure group

- \* turn on all devices 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.

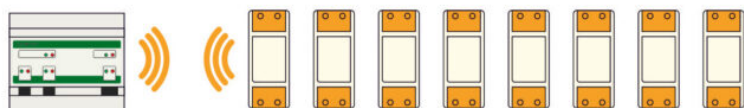


### Add new device to the group

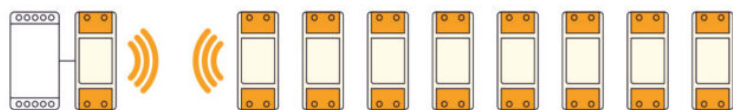
- \* turn on the device
- \* within 10 seconds, press and hold button on one of the existing devices
- \* after a second, the existing group address is sent to the new device. RF LED will blink 3 times to confirm the address is sent.



### 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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