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# **Wireless Modbus Relay**

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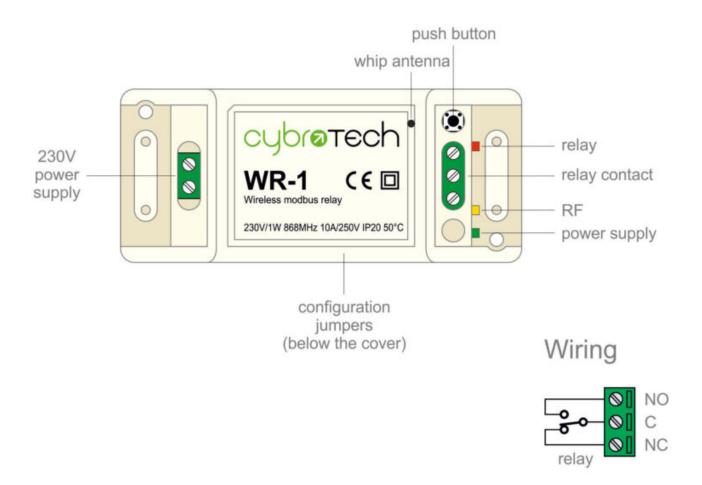
Model number:	WR-1
Frequency:	ISM 868MHz (EU)
Dimensions:	93x45x27 mm

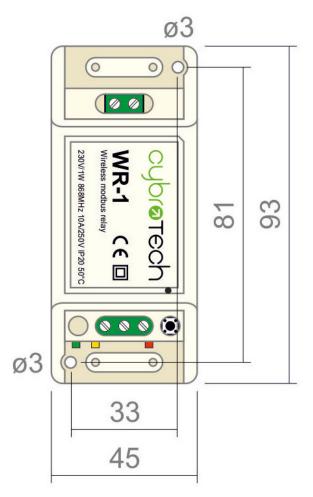
### **Applications**

 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





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#### **Features**

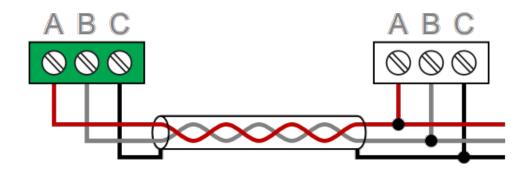
- replacement for RS485 wiring
- Modbus RTU serial protocol
- wired/wireless combinations
- very long range, no hopping
- protected private connection
- multiple slaves per device
- multiple addressable groups

# **Technical specification**

Power supply:	230V, 50/60Hz, 1W	
Ingress protection:	IP20	
Operating temperature:	-2050°C	
Storage temperature:	-4085°C	
Relative humidity:	085% n/c	

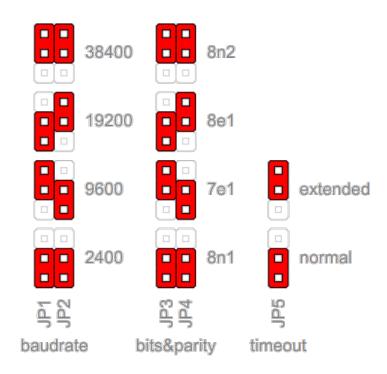
# **Terminals and wiring**

To power sensor	Α	
	В	RS485 bus
	C	
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

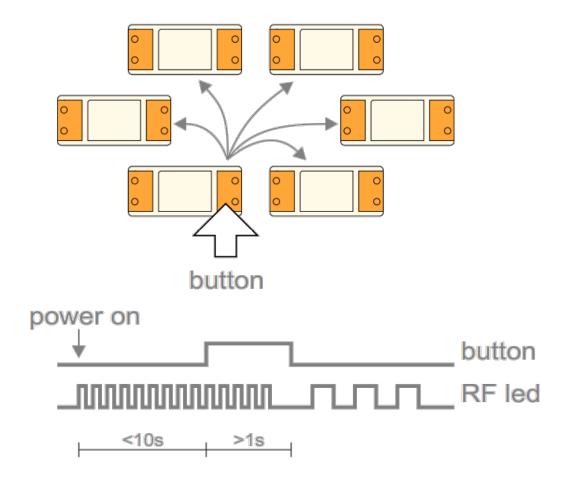
### Radio pairing configuration

#### 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.

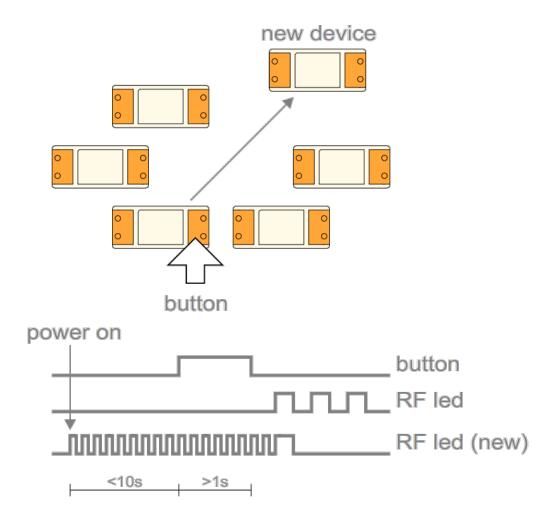
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#### Add new device to the group

- \* 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.

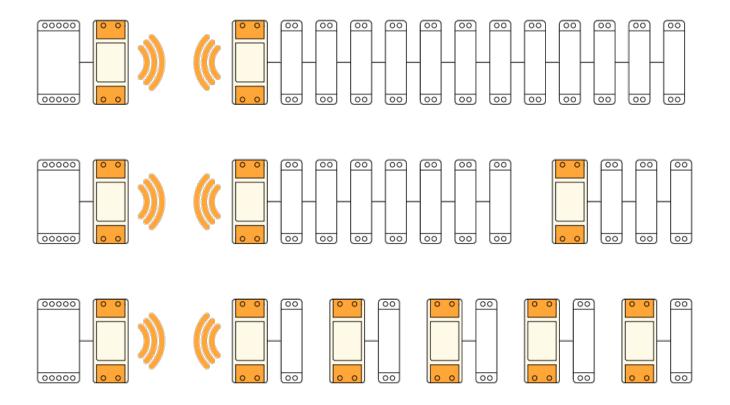


#### **Topology examples**

- \* 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

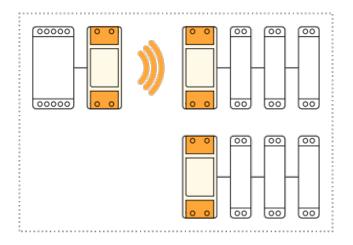
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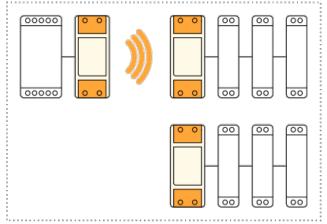
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#### **Multiple groups**

- \* 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**

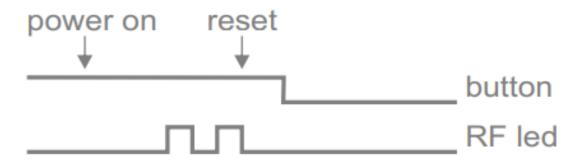
- Press button shortly
- RF LED will blink shortly on each connected device

• 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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