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Wireless Modbus-to-Modbus bridge

Wireless Modbus-to-Modbus bridge

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

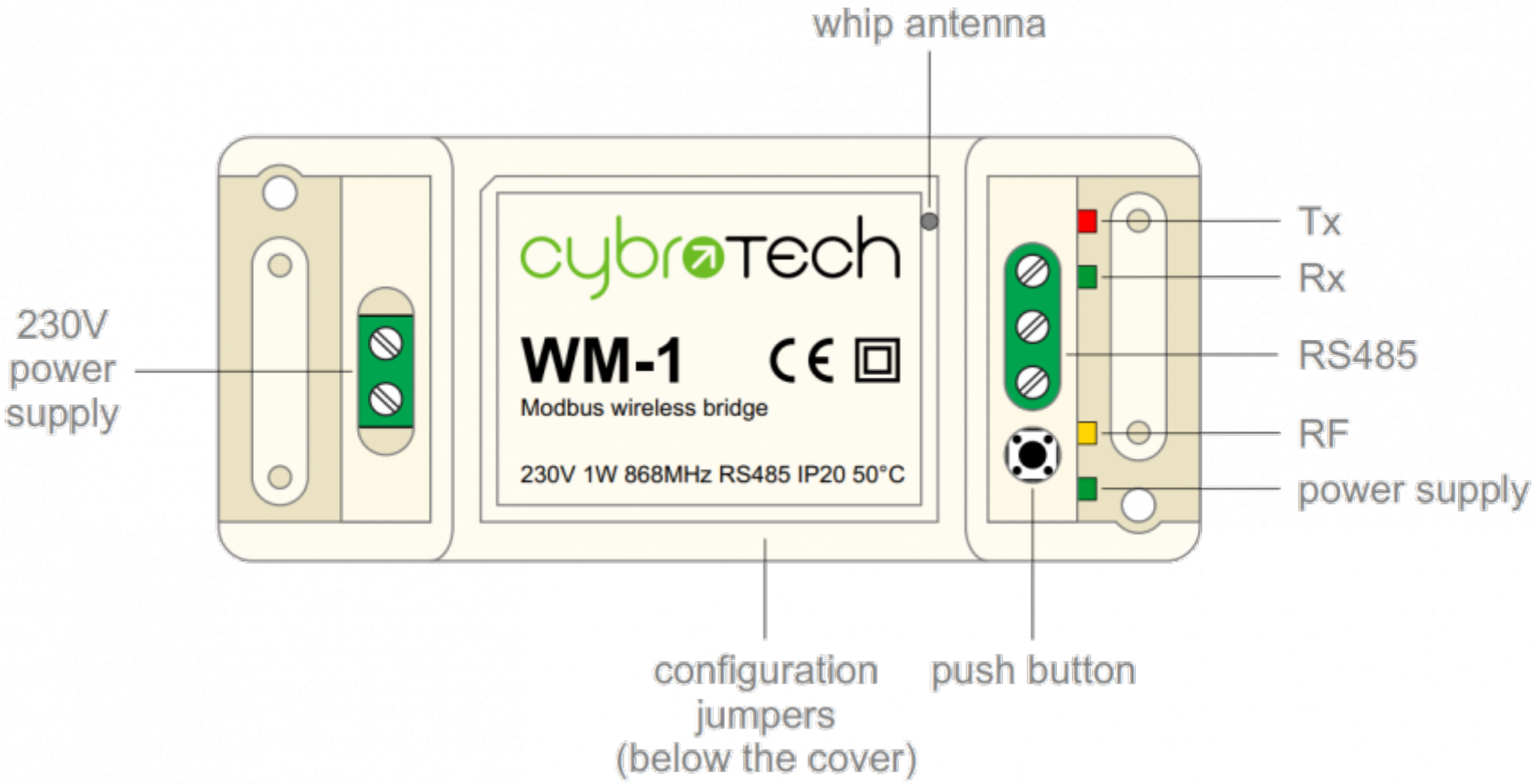
Applications

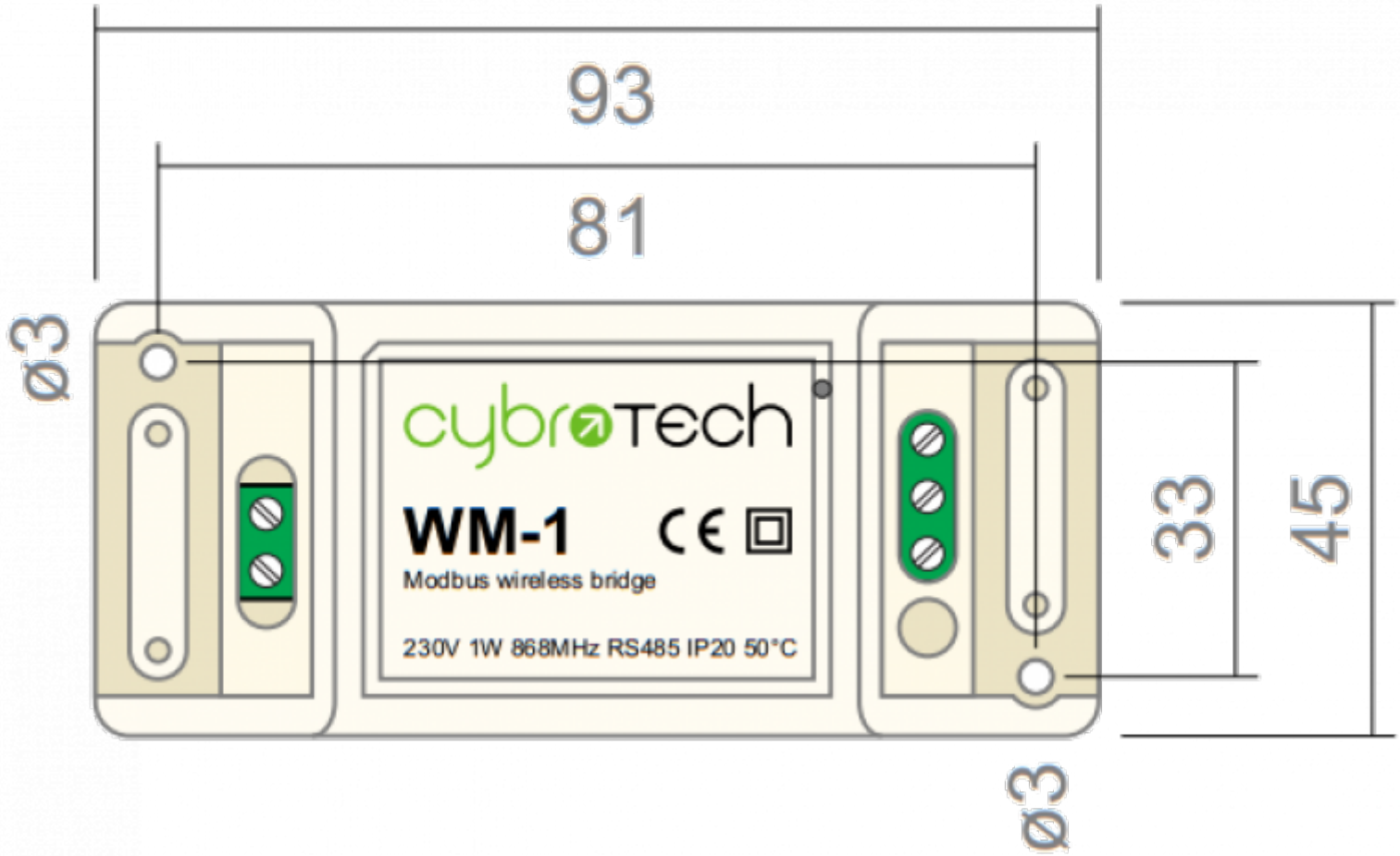
- Replacement for RS485 wiring solution with wireless. Optimal for long range Modbus RTU serial communications with half duplex configuration.

Installation and mounting

- Carefully open WM-1 module and configure serial communication with jumpers. (Default configuration is 9600bps, 8N1 with normal timeout)

- Place WM-1 module at least 10cm from other objects. Installation is not recommended inside metal cabinets.
- Connect RS485 terminals to WM-1 RS485 terminals
  - A - A
  - B - B
  - C - GND
- Connect to 230V power supply
- Bind modules to wireless network


whip antenna
230V
power
supply
cybroTech
WM-1
Modbus wireless bridge
230V 1W 868MHz RS485 IP20 50°C
Tx
Rx
RS485
RF
power supply
configuration
jumpers
(below the cover)
push button


93
81
ø3
cybroTech
WM-1
Modbus wireless bridge
230V 1W 868MHz RS485 IP20 50°C
33
45
ø3

Features

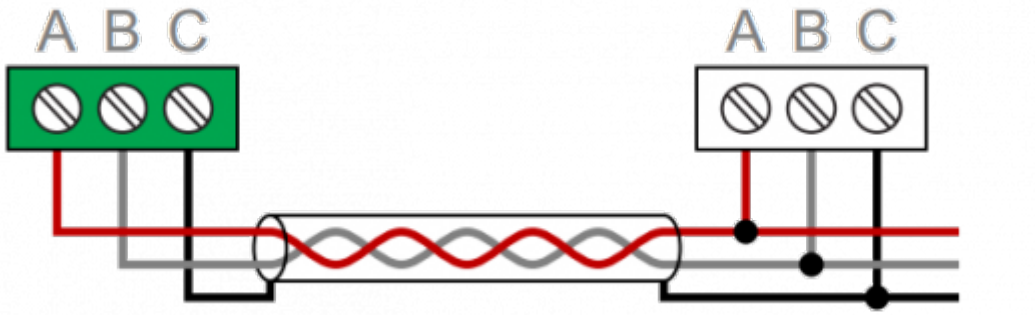
- replacement for RS485 wiring
- Modbus RTU serial protocol
- wired/wireless combinations
- very long range, no hopping
- protected private connection
- multiple slaves per device
- multiple addressable groups

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

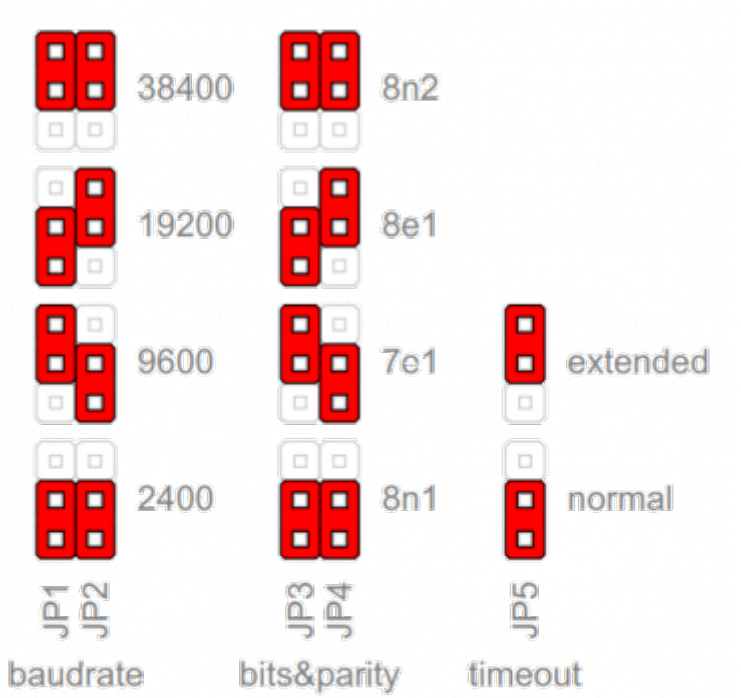
Terminals and wiring

To power sensor	**A**	RS485 bus
	B	
	C	
To power supply	**L**	230V AC
	N	


A B C
A B C

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



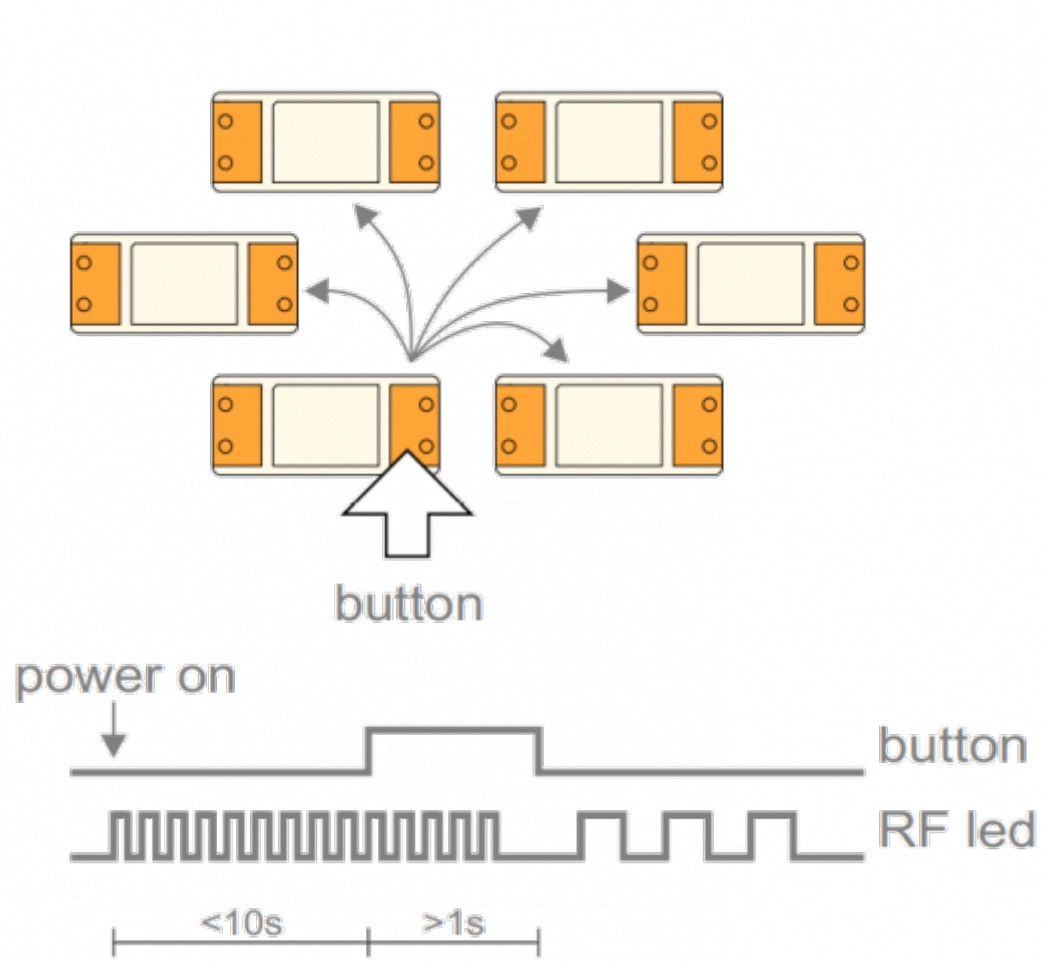
	normal	extended
2400	25ms	200ms
9600	10ms	100ms
19200	5ms	100ms
38400	5ms	100ms

Wireless binding

Create new secure group

```
* turn on all devices at the same time
* within 10 seconds, while RF LED is blinking, press and hold button on one of the devices
```

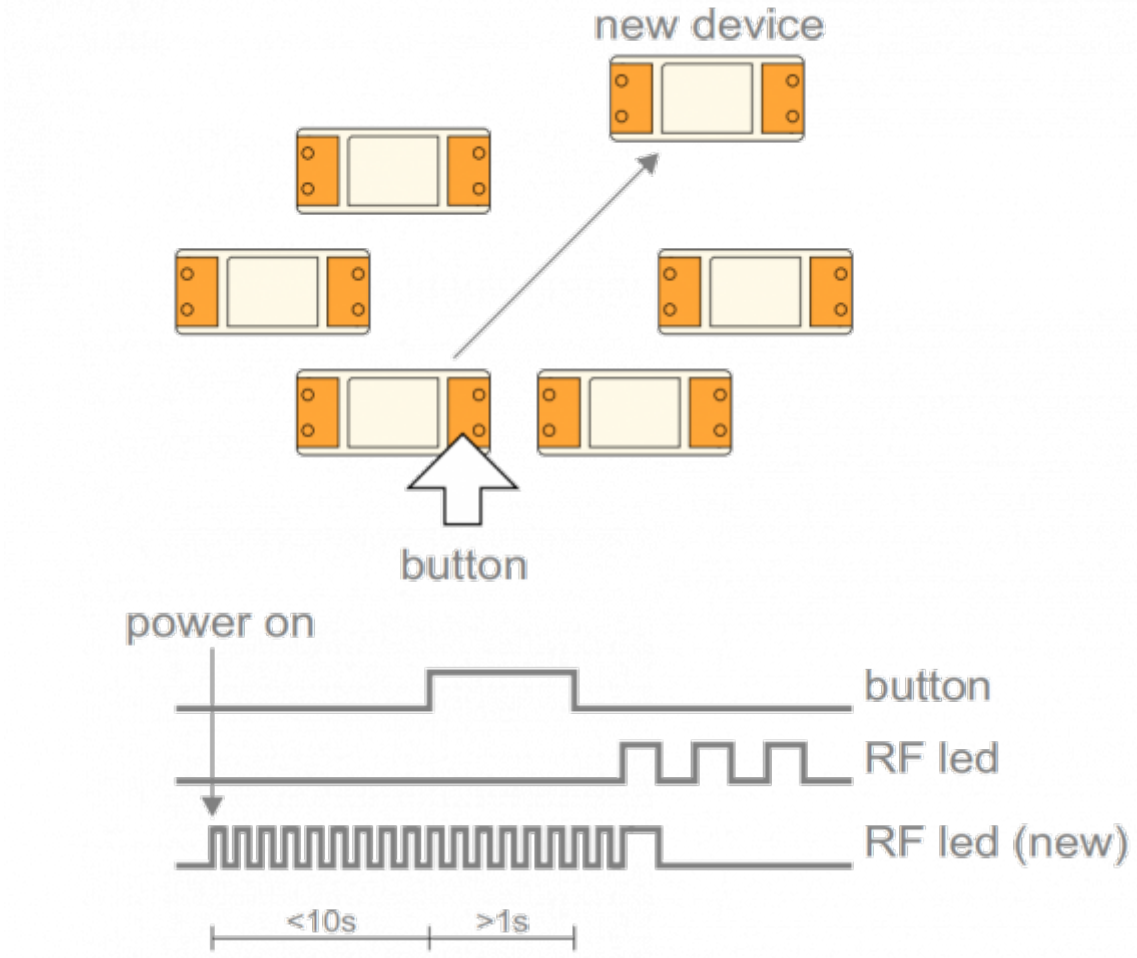
```
* after a second, the new address is randomly generated and sent to all devices. RF LED will blink 3 times to confirm the new address.
```



Add new device to the group

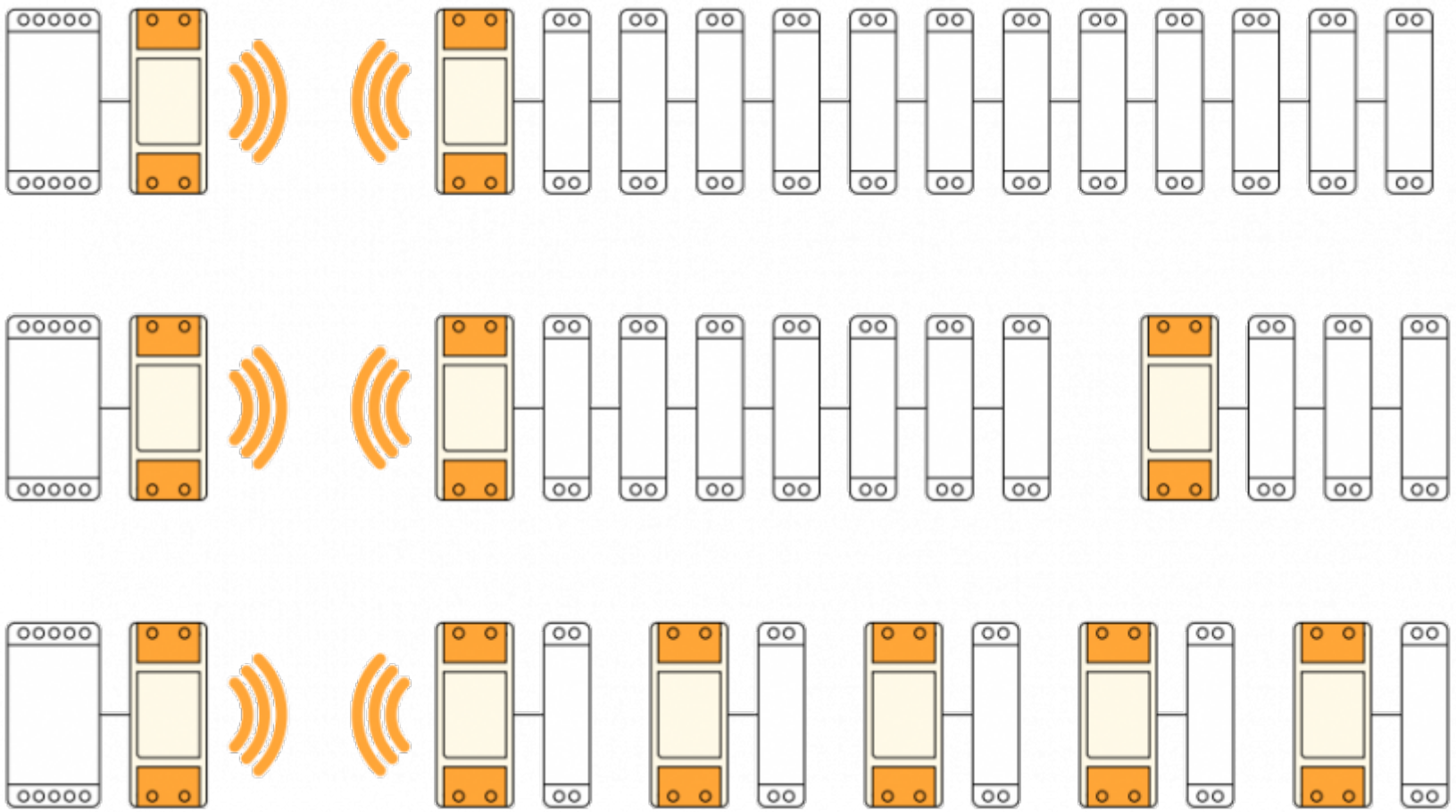
```
* turn on the device
```

```
* 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.
```



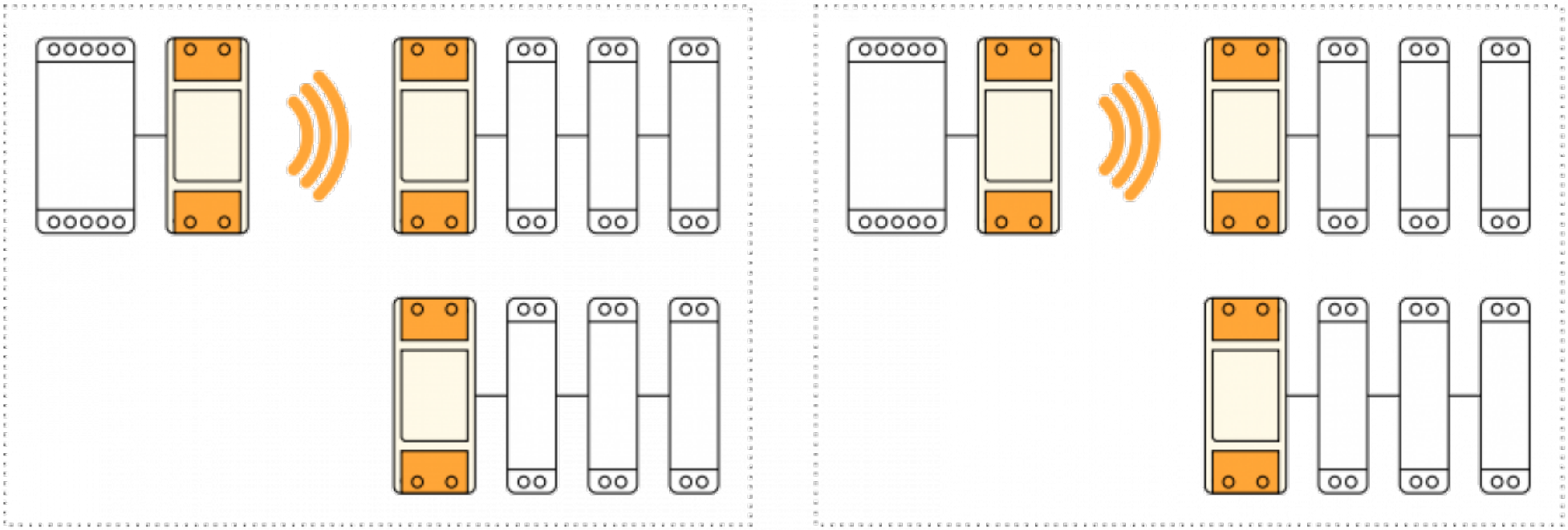
Topology examples

```
* 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.