

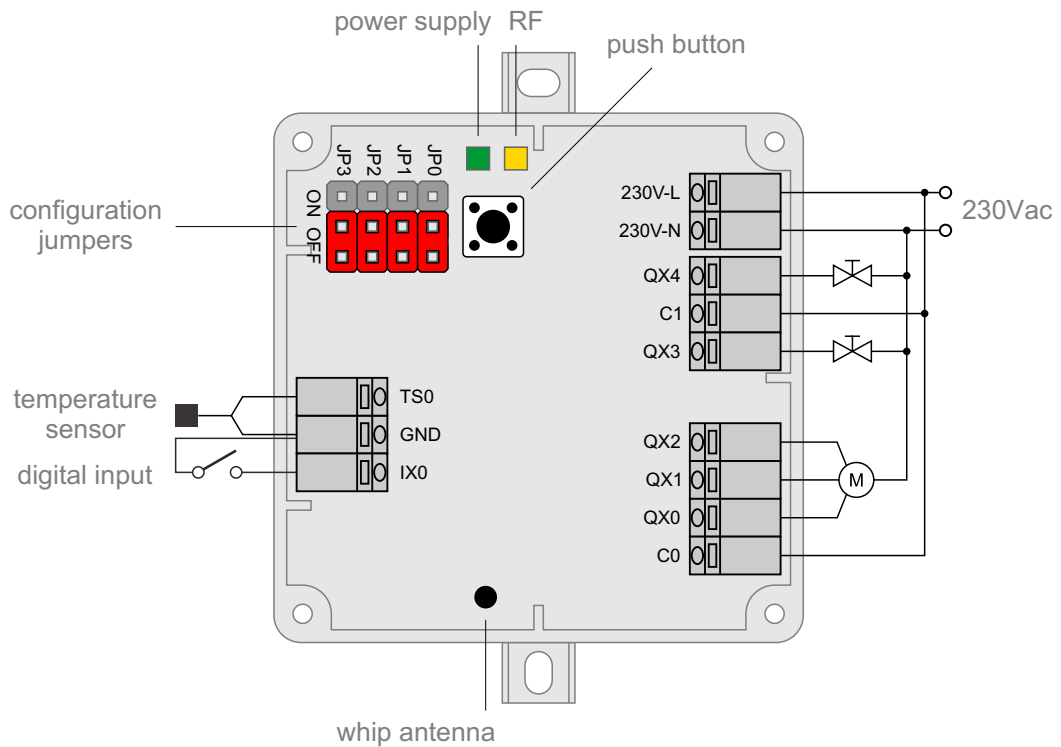
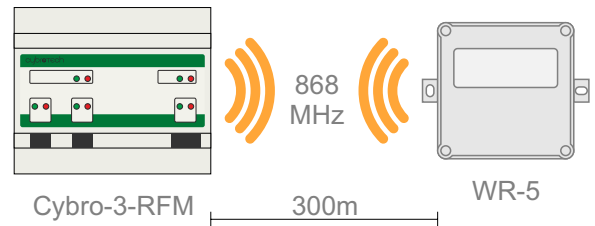
# WR-5

Wireless fan-coil controller



## Features

- 5 remote controlled relays
- 1 temperature sensor input
- 1 digital input, dry contact
- modbus RTU slave protocol
- very long range, no hopping
- up to 16 devices per group
- multiple addressable groups
- protected private connection



## Examples



Cybro-3-RFM, as modbus master, can directly control WR-5 devices.



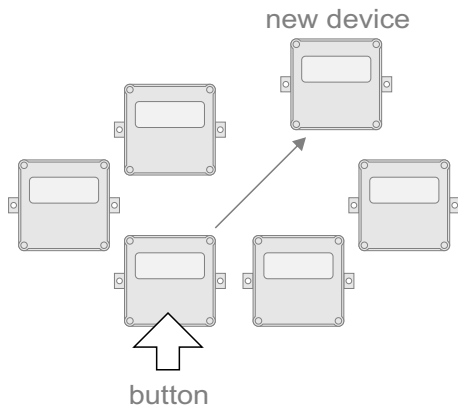
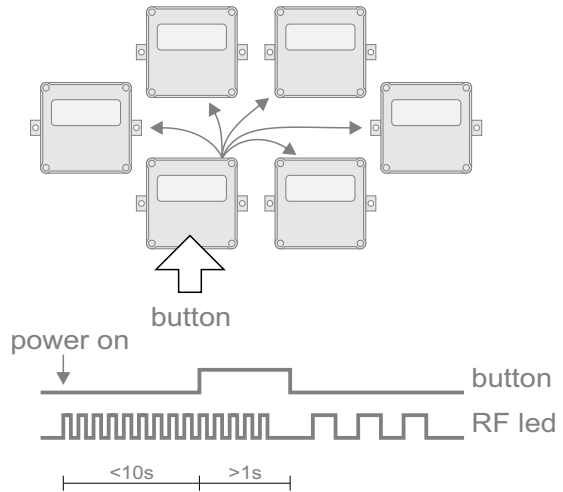
Any modbus master, using WM-1 bridge, can control WR-5 devices.

# Radio configuration

## Create a 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

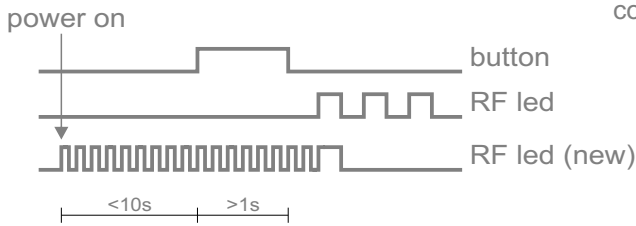
After a second, the new address is randomly generated and sent to all devices. RF led will blink 3 times, to confirm the new address.



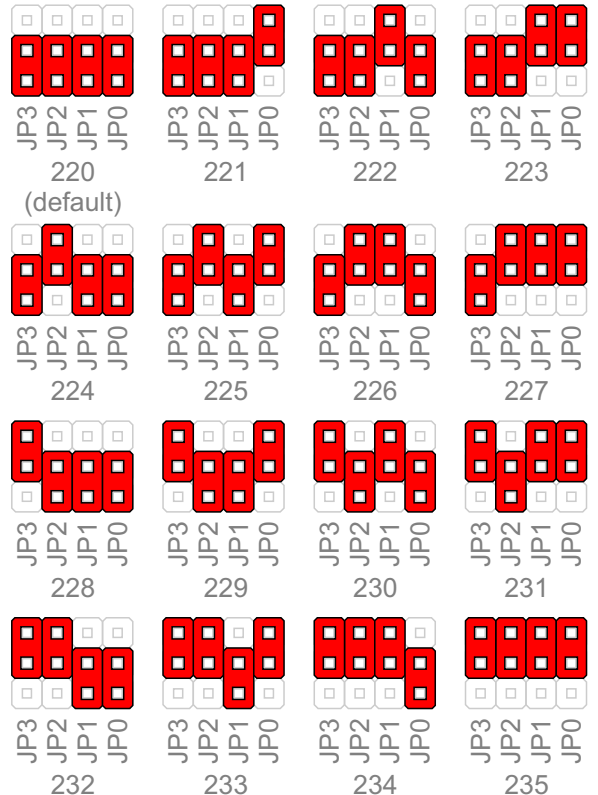
## Add new device to the group

- turn on new 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 that the address is sent.



## Modbus address

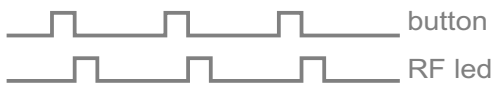


Change is applied right away, no reset is needed.

## Connection check

- press the button shortly

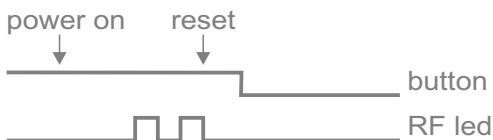
RF will blink shortly on each connected device. Relays are not affected.



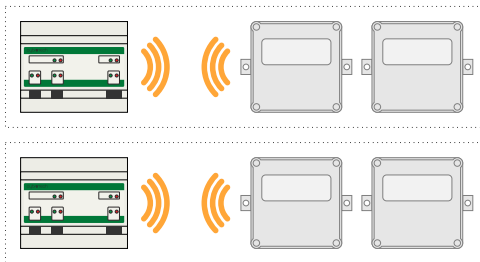
## Factory reset

- hold the button and turn device on

RF led will blink twice. Group address is now reset to default. Other devices are not affected.



## Secure group



By default, all devices are in the same group, they listen to each other. To separate your devices, create a new secure group for each modbus master. Once the group is created, no other device can listen or interfere with your data.

Groups share the same bandwidth. To avoid collisions, keep the traffic low or synchronize requests so that messages don't overlap.

## Modbus registers

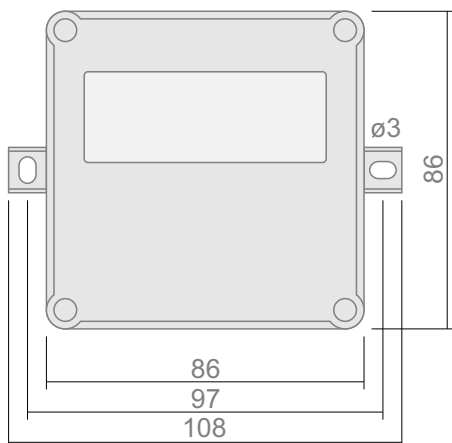
modbus	device	label	read	write
coil 1	relay 1	QX0	0-off, 1-on	0-off, 1-on
coil 2	relay 2	QX1	0-off, 1-on	0-off, 1-on
coil 3	relay 3	QX2	0-off, 1-on	0-off, 1-on
coil 4	relay 4	QX3	0-off, 1-on	0-off, 1-on
coil 5	relay 5	QX4	0-off, 1-on	0-off, 1-on
input register 1	ES sensor	TS0	0.1°C	-
input register 2	digital input	IX0	0-open, 1-closed	-

## Message example

Write multiple coils (Re1 on, Re2..Re4 off)  
 DC 0F 00 00 00 05 01 01 62 53 (request)  
 DC 0F 00 00 00 05 87 45 (response)

Read input registers  
 DC 04 00 00 00 02 63 46 (request)  
 DC 04 04 TS TS IX IX \*\* \*\* (response)

## Mounting



Device should not be installed inside the metal cabinet. Distance from antenna to the nearest object should be at least 10cm.

## Technical specifications

### Modbus

Address range	220..235
Data bits & parity	8n1
Supported functions	01 - read coils 04 - read input registers 05 - write single coil 15 - write multiple coils

### Relay output

Nominal rating	5A 250VAC resistive
Timeout	24h (reset if no messages)

### Temperature sensor

Input type	ES digital sensor DS18B20
Connection protocol	1-wire digital thermometer
Sensor error	-1000: missing, -1001: short
Measuring range	-50..+125°C
Accuracy	±0.5°C (-10°C to +85°C)
Cable length	50m, UTP 0.25..0.5mm2

### Radio

Frequency band	ISM 868MHz (EU)
Subband	L 866.8MHz, 1% utilization
Modulation	FSK, 160kHz bandwidth
Listen before talk	yes, delay up to 20ms
Group address	32-bit, automatically generated
Startup time	10s power-on to network ready
Message delay	5ms from tx start to relay on
Output power	25mW
Operating range	300m with optical visibility

### General

Power supply	230V, 50..60Hz, 3.5W
Terminals	0.25..2.5mm2
Operating conditions	-20..+50°C, 0..85% rh nc
Storage temperature	-40..+85°C
Dimensions	108x86x46mm
Weight	220g
Degree of protection	IP20
Standards	EN 60730-1, EN 300 220-2, EN 301 489-1, EN 301 489-3