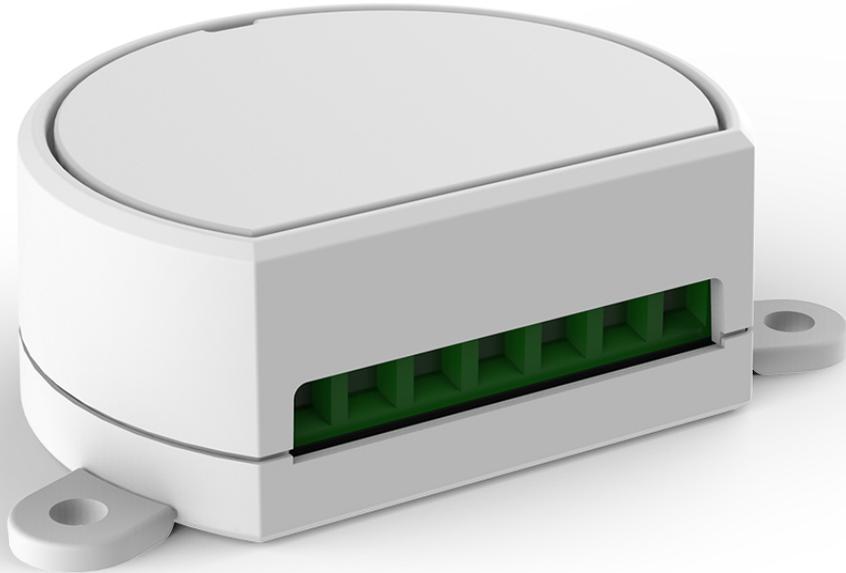


# MCU-SIM1

*Control unit for 1 device with max power 1000W.  
110/240 VAC power supply, integrated RX 433.92 MHZ ISM,  
wired input settable with button or switch.  
Presence simulation function, On/Off, timer ON.*

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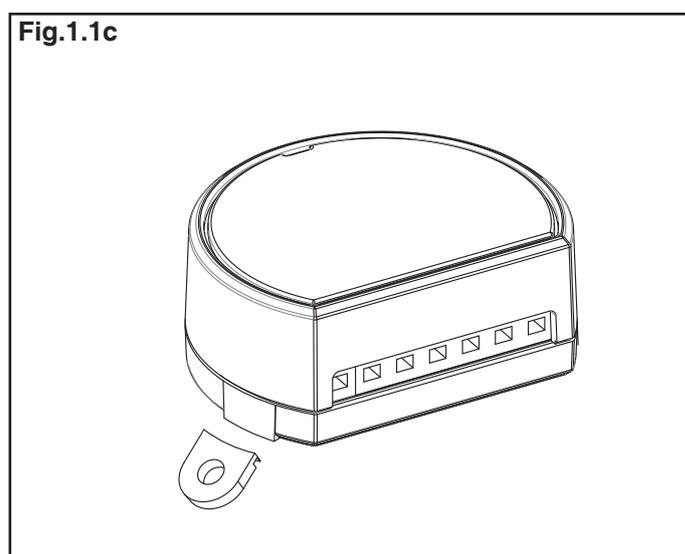
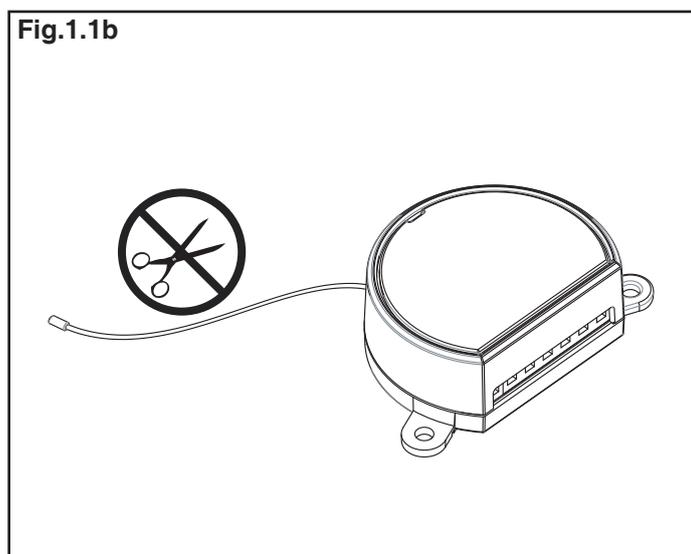
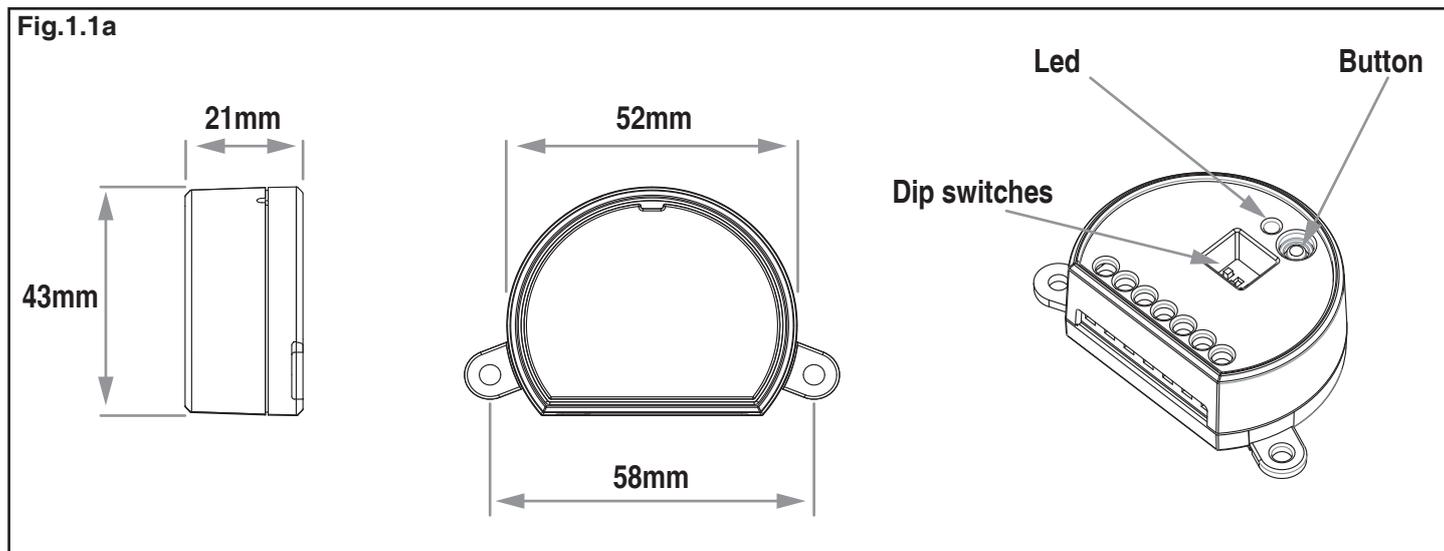
# WARNINGS

- Installation must be carried out only by qualified technicians in compliance with the electrical and safety standards in force.
- All connections must be made with the power turned off.
- Use suitable cables.
- Do not cut through the aerial (see figure 1.1b)
- A suitably sized disconnection device must be set up on the electric power line that supplies the product.
- Disposal of waste materials must fully respect local standards.

## 1 PRODUCT FEATURES

### 1.1 TECHNICAL DATA

|                                     |  |
|-------------------------------------|--|
| Power supply                        | Mains 120-240 VAC                            |
| Outputs                             | 1 contact: 230 V max 1000 W, 110 V max 500 W |
| Number of programmable transmitters | 100  |
| Radio frequency                     | 433.920MHz ISM                               |
| Protection rating                   | IP20   |
| Operating temperature               | -20 +55 °C                                   |
| Dimensions                          | 52x43x21 mm                                  |



## 1.2 DESCRIPTION

MCU-SIM1 is a miniaturised electronic control unit for managing a device via radio and wire, with a button or switch. Flexible applications thanks to the fact that the load can be controlled in monostable, bistable or timer (from 1 second to 60 hours) mode.

The presence simulation function consists in a random activation of the lights that can be activated with a wired button or a dedicated radio command, ideal for discouraging intruders while away from home.

The ISM (industrial, scientific and medical) radio frequency band guarantees a long range, even through walls and ceilings. Simple programming with dip-switch, reduced dimensions with breakable tabs for fixing with screws or for insertion into interconnection boxes with 55 mm diameter.

Fig.1.2a

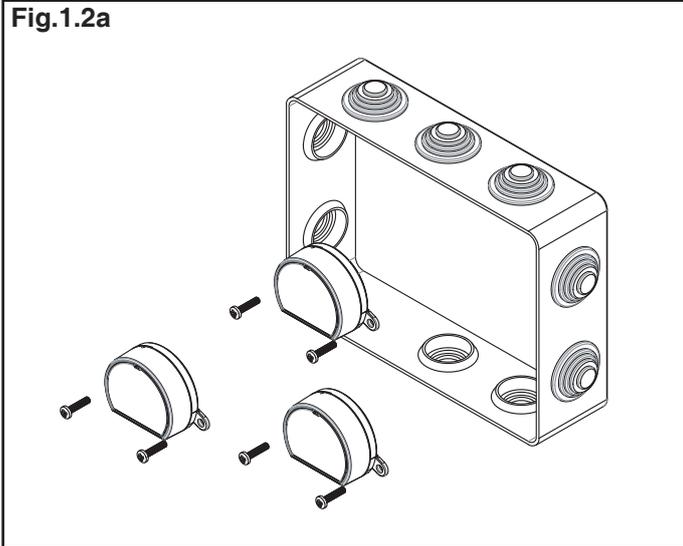


Fig.1.2b

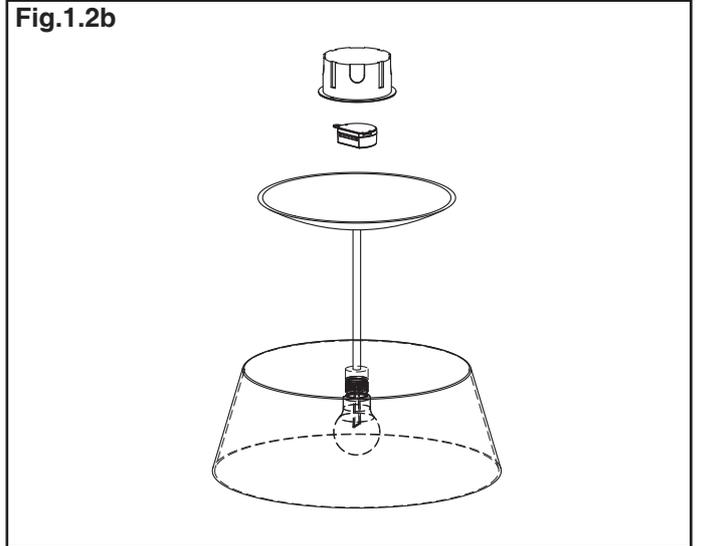


Fig.1.2c

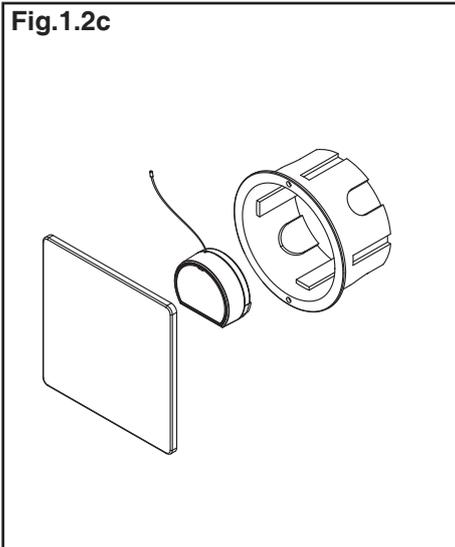


Fig.1.2d

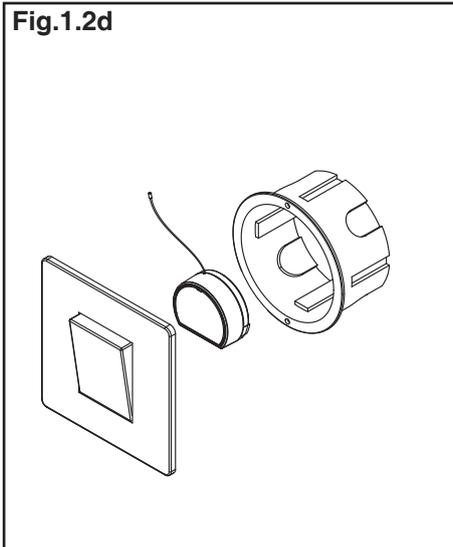


Fig.1.2e

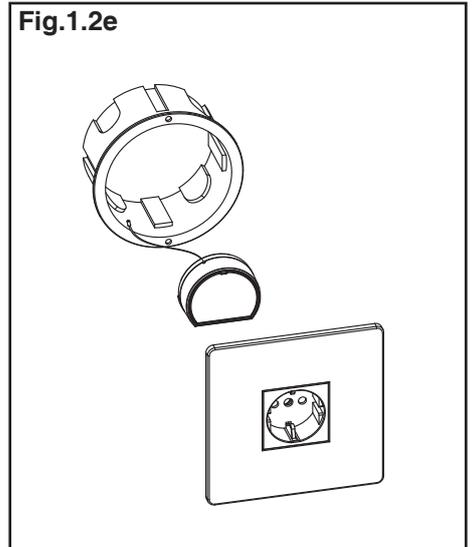
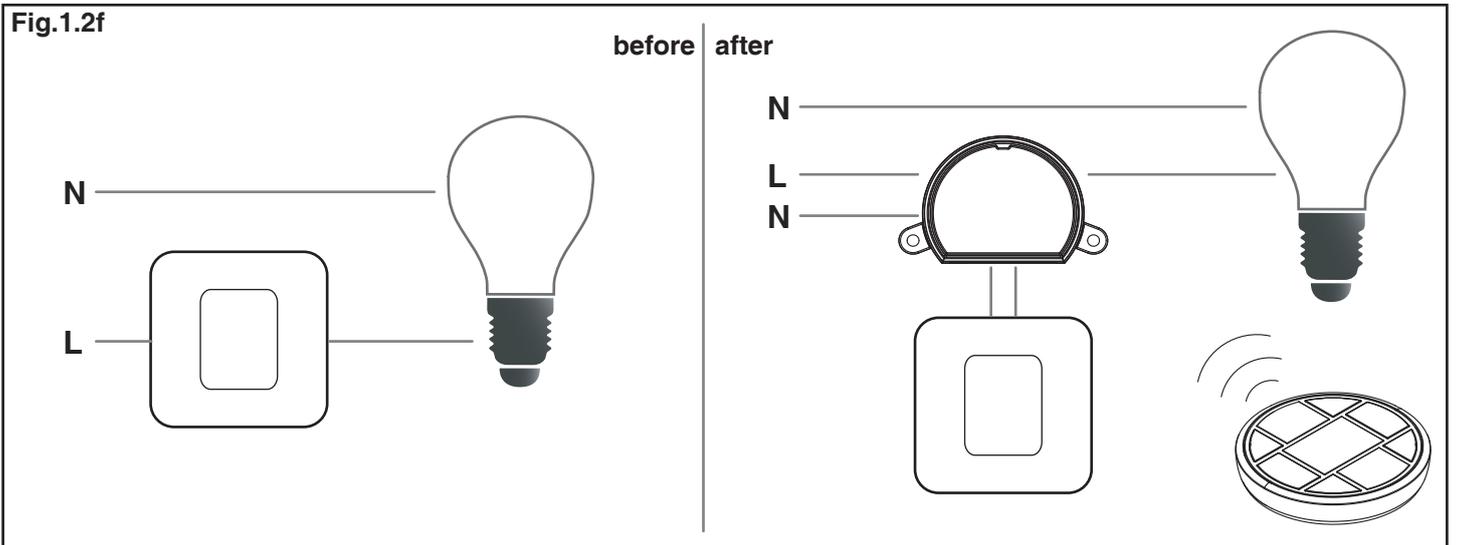


Fig.1.2f



## 2 ELECTRICAL CONNECTIONS

This control unit comes set up for different types of connection that allow greater flexibility regarding the behaviour of the outputs and the types of inputs to adapt to various system configurations.

### BEHAVIOUR OF OUTPUTS

Depending on the type of load that you want to control, connections can be made that let you

- control a load powered by grid voltage (230 V max 1000 W, 110 V max 500 W per output), paragraph 2.1.
- have two potential-free output contacts; paragraph 2.2.

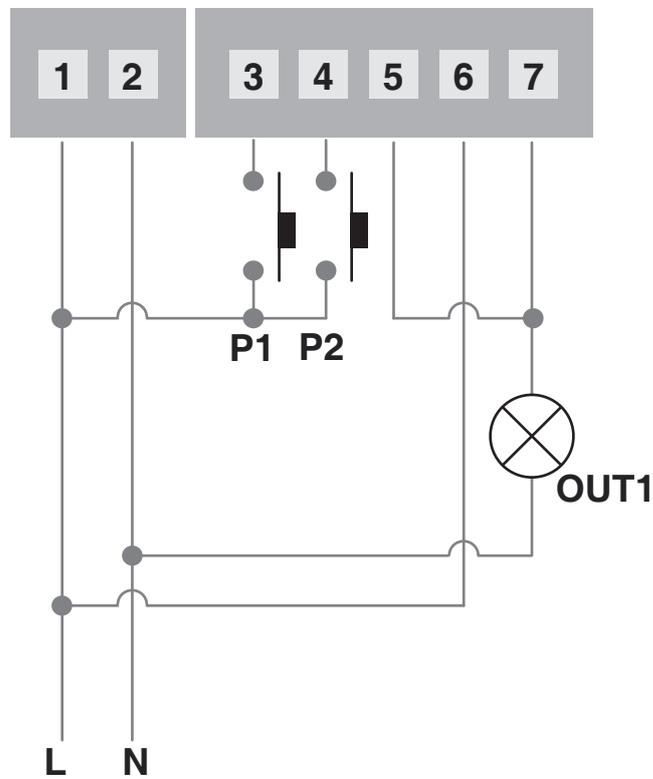
### INPUT TYPE

Thanks to the programming described in paragraphs 4.3 and 4.4, you can select whether the wired command is given by a button or a switch.

## 2.1 CONNECTIONS FOR LOADS POWERED BY THE GRID (230 V MAX 500 W, 110V MAX 250 W PER OUTPUT)

The following connection lets you control the loads, powered by grid voltage, via radio and/or wire.

Fig.2.1



**P1:** Command of load

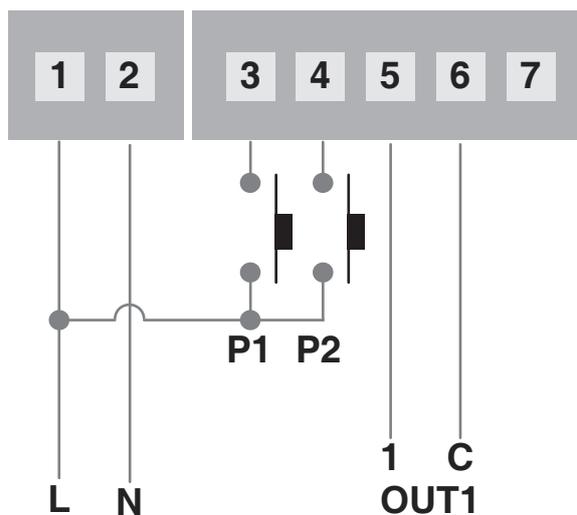
**P2:** Presence simulator activation

**WARNING:** More loads can be connected by using parallel cabling.  
Multiple buttons can be connected to the same input by using parallel cabling

## 2.2 CONNECTION BETWEEN TWO CLEAN OUTPUT CONTACTS

The following connection lets you control a potential-free contact via radio and/or wire.

Fig.2.2



**P1:** Command of load  
**P2:** Presence simulator activation

**WARNING:** Multiple buttons can be connected to the same input by using parallel cabling.

# 3 USE OF THE CONTROL UNIT

## 3.1 USE VIA RADIO

To control the loads via radio you must have compatible transmitters and therefore must carry out the association procedure, see paragraph 5.

The transmitter's command modes depend on the output setting (see paragraph 4.1) and the model of transmitter used. If the transmitter is of a generic type, its operation depends on the way it is programmed (see paragraph 5, table 5.2b). If the transmitter is multifunctional, refer to the transmitter manual, to the paragraph entitled "commands sent by the transmitter", bearing in mind that:

Output set as monostable (see paragraph 4.1) = monostable device

Output set as bistable (see paragraph 4.1) = on/off device

Output set as timer (see paragraph 4.1) = timer device

---

## 3.2 USE VIA WIRE

The device is set up to accept commands via wire from the button in terminals 3 and 4.

Should you want to control the load only via radio, it is not necessary to connect these devices for the control unit to work properly.

The behaviour of the inputs depends on the output setting (see paragraph 4.1).

The following table shows the behaviours of the various keys:

|           | <b>MONOSTABLE RELAY</b>                          | <b>BISTABLE RELAY</b>                            | <b>TIMER RELAY</b>                                   | <b>DEACTIOVATED RELAY</b> |
|-----------|--|--|--|---------------------------|
| Input P1= | Close and reopen contact 1                       | Change status of contact 1 (closed, open...)     | Close contact 1 for the time set (see paragraph 4.2) | No action                 |
| Input P2= | Presence simulator activation (see paragraph 6)* | Presence simulator activation (see paragraph 6)* | Presence simulator activation (see paragraph 6)*     | No action                 |

\* irrespective of the output setting (see paragraph 4.1), if the presence simulator function is activated (see paragraph 6), the control unit will control the connected load according to a random sequence of activations and deactivations.

# 4 CONTROL UNIT SETTINGS

## 4.1 SETTING "OUT1" OUTPUT

This process is used to configure the behaviour of the OUT1 output contact (table 4.1a).

Tab. 4.1a

| SETTING "OUT1" OUTPUT   |                       |
|---|-----------------------|
| DIP 1 - 2   | MODE                  |
| ON - ON    | Monostable (pulse)    |
| ON - OFF   | Bistable (On/Off)     |
| OFF - ON   | Timer (see para. 4.2) |
| OFF - OFF  | Disabled              |

## 4.2 SETTING "OUT1" TIMING

Default: 3 minutes

This process is used to set the time for which the "OUT1" contact stays closed if it is set on a timer.



### PROCEDURE:

- 1- Position DIPs 1 and 2 to OFF-ON.
- 2- Position DIPs 3 and 4 according to the unit of measurement desired for the count (see table 4.2 at the side)
- 3- Press the button on the receiver for a short time. The LED comes on and stays on.
- 4- Press the button on the receiver for a short time
- 5- The LED on the receiver starts to flash (max. 60 flashes): each flash corresponds to a unit of time
- 6- Press the button for a short time while it is flashing to end the count

Tab. 4.2

| DIP 3 -4  | UNIT OF TIME |
|---|--------------|
| ON - ON    | 1 second     |
| ON - OFF   | 30 seconds   |
| OFF - ON   | 15 minutes   |
| OFF - OFF  | 1 hour       |

EXAMPLE: I want to time OUT1 to 90s, I set Dips 1 and 2 to OFF and ON, Dips 3 and 4 to ON and OFF and I count three flashes.

**WARNING::** after programming, reposition the dip switches to the desired operation of the contact (see paragraph 4.1)

## 4.3 SETTING TYPE OF INPUTS VIA WIRE "P1"

Default: Button

This procedure lets you choose the type of wired devices to command load 1 (connected on terminal 3, input P1). The devices can be set as buttons or switches.



### PROCEDURE

1- Position DIPs 1, 2, 3 and 4 to OFF-OFF-ON-ON.

2- Press the button on the receiver for a short time. The LED comes on and stays on

3- Press the button on the receiver for a short time, count the number of flashes emitted by the LED:

3 flashes = control with buttons

6 flashes = control with switches

**WARNING:** to change the setting, repeat the procedure from point 1; the control unit will alternate between 3 and 6 flashes.

**WARNING: after programming, reposition the dip switches to the desired operation of the contacts (see paragraph 4.1)**

# 5 - RADIO PROGRAMMING

## 5.1 RADIO PROGRAMMING MULTIFUNCTIONAL TRANSMITTERS

This procedure can be used only to programme compatible multifunctional transmitters; see table 5.1. The transmitter's command modes depend on the model used and the setting of the outputs (see paragraph 4.1). Refer to the transmitter manual, to the paragraph entitled "commands sent by the transmitter", bearing in mind that:

Output set as monostable = monostable device.

Output set as bistable = on/off device.

Output set as timer = timer device.



### PROCEDURE:

1- Position DIPs 1, 2, 3 and 4 to ON-ON-ON-ON.

2- Press the button on the receiver for a short time. The LED comes on and stays on.

3- Make a transmission with the remote control to be saved (see transmitter manual, the paragraph entitled "transmitter programming"). The LED on the receiver flashes 3 times to signal that it has been received.

4- The control unit listens for 30 seconds (to immediately exit the procedure press the button on the receiver).

Tab. 5.1

| COMPATIBLE<br>TRANSMITTERS  |
|-----------------------------|
| <i>HB70-8L, HB70-8LP</i>    |
| <i>HB70-20D, HB70-8LP,</i>  |
| <i>HB80-30D, HB80-2L</i>    |
| <i>HB80-4L, HB80-30RGBW</i> |
| <i>HB90-12</i>              |

**WARNING: after programming, reposition the dip switches to the desired operation of the contact (see paragraph 4.1)**

## 5.2 RADIO PROGRAMMING OF GENERIC TRANSMITTERS

This procedure lets you programme only compatible generic transmitters; see table 5.2a.

The transmitter control modes depend on the function associated with the key (see table 5.2b) and the output setting (see paragraph 4.1 and table 5.2c).

Tab. 5.2a

| COMPATIBLE TRANSMITTERS |
|-------------------------|
| MCU-TX4                 |
| HB-6G                   |

### PROCEDURE:

1- Positions DIPs 1, 2, 3 and 4 according to the function you want to associate with the remote control key (see table 5.2b at the side). →

2- Press the button on the receiver for a short time.

The LED comes on and stays on.

3- Make a transmission with the remote control to be saved

(see transmitter manual, the paragraph entitled "transmitter programming"). The LED on the receiver flashes 3 times to signal that it has been received.

4- The control unit listens for 30 seconds

(to immediately exit the procedure press the button).

Tab. 5.2b

| DIP1 | DIP2 | DIP3 | DIP4 | Function associated with the key |
|------|------|------|------|----------------------------------|
| On   | On   | On   | On   | On/Off OUT1                      |
| Off  | Off  | Off  | On   | On OUT1                          |
| Off  | Off  | On   | Off  | Off OUT1                         |

**WARNING: after programming, reposition the dip switches to the desired operation of the contact (see paragraph 4.1).**

### BEHAVIOUR OF OUTPUTS BASED ON THE FUNCTION ASSOCIATED WITH THE KEY

The column on the left shows the commands that can be programmed on the generic transmitter (see table 5.2b), and the top row the output setting (see paragraph 4.1).

Tab. 5.2c

| FUNCTION OF KEY | OUTPUT SETTING |                          |  |
|-----------------|----------------|--------------------------|--|
|                 | MONOSTABLE     | BISTABLE                 | TIMER  |
| ON / OFF        | Pulse          | Change of status of load | Close contact for the time set (see paragraph 4.2) |
| ON              | Pulse          | Close contact            | Close contact for the time set (see paragraph 4.2) |
| OFF             | Pulse          | Open contact             | Open contact                                       |

## 5.3 DELETION OF TRANSMITTERS

These procedures let you delete from the memory transmitters that have already been programmed.

### DELETION OF SINGLE TRANSMITTER:

1- Hold the receiver button down for 8 seconds. The LED begins to flash.

2- Make a transmission with the transmitter that you want to delete. The LED flashes quickly and turns off.

### DELETION OF ALL THE SAVED TRANSMITTERS:

1- Hold the receiver button down for 8 seconds. The LED begins to flash.

2- Press the button on the receiver for a short time. The LED starts flashing quickly and turns off.

## 6 PRESENCE SIMULATOR

This function makes it possible to activate the load (usually a light) in order to simulate the presence of people in the house. The number of switch-ons and how long they last in the hour can be set following the procedure in paragraph 6.2. The number and duration of the presence simulator cycle can be set following the procedure in paragraph 6.3. Transmitters for remotely activating the "presence simulator" function and therefore also for creating systems can be programmed following the procedure in paragraph 6.4 (see picture 6.1).

**WARNING:** the presence simulator function is repeated every day at the same time until it is deactivated with a command by radio or wire.

See paragraph 6.1 "use of presence simulator".

### 6.1 USE OF PRESENCE SIMULATOR

**ACTIVATION:** The presence simulator cycle is activated by pressing wired key P2 or sending a radio command with a transmitter programmed according to the procedure in paragraph 6.4.

When the cycle is activated, all the lights involved give two rapid flashes and come on for 2 minutes (to signal activation and to make leaving the house easier). Thereafter they will switch off and a series of random switch-ons will begin, based on the settings in paragraph 6.2.

This cycle will last for the number of hours set in paragraph 6.3.

At the end of the cycle set, this will pause to then start up again the following day at the same time.

**DELAY:** Activation of the cycle can be delayed (from 1 to 24 hours) with the following procedure:

1- hold down wired key P2 for 5 seconds

2- the load will flash. Each flash corresponds to one hour's delay of the activation

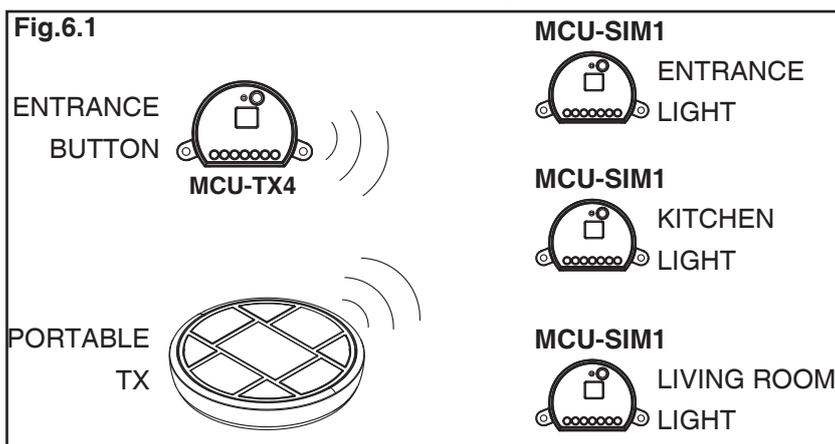
3- release the key during the flash that corresponds to the desired delay

**EXAMPLE:** I want to delay activation by 10 hours. I hold down key P2 until the light concerned makes 10 flashes (so on the tenth flash I release the key).

**DEACTIVATION:** To interrupt the cycle it is necessary to give a command to the control unit by radio or wire (not necessarily the command to start presence simulation cycle). The interruption of the cycle will be signalled by two slow flashes of all the loads concerned.

#### SIMULATION SYSTEM:

Thanks to radio activation (if the same transmitter is programmed on multiple controllers with this function), it will be possible to create a system in which the lights in multiple rooms come on in a random sequence.



### 6.2 SETTING RANDOM SWITCH-ONS

Default: 3 x 2-minute switch-ons in an hour

This procedure is used to set the number of switch-ons and how long they last for in an hour.

The control unit will then change the time of the switch-ons every hour to create random events.



#### PROCEDURE:

1- Position DIPs 1, 2, 3 and 4 to ON-ON-ON-OFF

2- Press the button on the receiver for a short time.  
The LED comes on and stays on.

3- Press the button on the receiver for a short time.

4- The LED on the receiver flashes.

Each flash corresponds to a setting →

5- Press the button for a short time during the desired flash

**WARNING:** to change the setting, repeat the procedure from point 1

| FLASHES   | TYPE OF SWITCH-ON PROGRAMMED        |
|-----------|-------------------------------------|
| 1 flash   | 1 x 5-minute switch-on every hour   |
| 2 flashes | 1 x 20-minute switch-on every hour  |
| 3 flashes | 2 x 5-minute switch-ons every hour  |
| 4 flashes | 2 x 10-minute switch-ons every hour |
| 5 flashes | 3 x 1-minute switch-ons every hour  |
| 6 flashes | 3 x 10-minute switch-ons every hour |
| 7 flashes | 5 x 30-second switch-ons every hour |
| 8 flashes | 5 x 2-minute switch-ons every hour  |

**WARNING:** after programming, reposition the dip switches to the desired operation of the contacts (see paragraph 4.1)

## 6.3 SETTING THE DURATION OF THE PRESENCE SIMULATOR

Default: duration 4 hours, pause 20 hours

This procedure is used to set the duration of the presence simulator.

**WARNING:** the presence simulator function is repeated every day at the same time until it is deactivated with a command by radio or wire (see paragraph 6.1).



### PROCEDURE

- 1- Position DIPs 1, 2, 3 and 4 to ON-ON-OFF-OFF
- 2- Press the button on the receiver for a short time. The LED comes on and stays on
- 3- Press the button on the receiver for a short time.
- 4- The LED on the receiver flashes.

Each flash corresponds to a setting →

- 5- Press the button for a short time during the desired flash

| FLASHES   | TYPE OF SWITCH-ON PROGRAMMED                    |
|-----------|---|
| 1 flash   | Duration of 4 hours, followed by 20 hour pause  |
| 2 flashes | Duration of 8 hours, followed by 16 hour pause  |
| 3 flashes | Duration of 12 hours, followed by 12 hour pause |
| 4 flashes | Continuous presence simulator cycle             |

**WARNING:** to change the setting, repeat the procedure from point 1

**WARNING: after programming, reposition the dip switches to the desired operation of the contacts (see paragraph 4.1)**

## 6.4 RADIO PROGRAMMING OF TRANSMITTERS MATCHED TO THE ACTIVATION OF THE PRESENCE SIMULATOR CYCLE

This process makes it possible to programme only compatible transmitters; see table 6.4.

It will be possible to activate and deactivate the presence simulator cycle with a transmission from the programmed transmitter. By programming the same channel of a transmitter on multiple receivers with this function it will be possible to create a system in which the lights in multiple rooms will turn on in a random sequence (see paragraph 6.1).

Tab. 6.4

### COMPATIBLE TRANSMITTERS

*HB70-8L, HB70-8LPHB70-20D, HB70-8LP, HB80-30D, HB80-2L, HB80-4L, HB80-30RGBW, HB80-6G, HB90-12, MCU-TX4HB-6G*



### PROCEDURE:

- 1- Position DIPs 1, 2, 3 and 4 to OFF-OFF-OFF-OFF
- 2- Press the button on the receiver for a short time. The LED comes on and stays on.
- 3- Make a transmission with the remote control to be saved (see transmitter manual, the paragraph entitled "transmitter programming"). The LED on the receiver flashes 3 times to signal that it has been received.
- 4- The control unit listens for 30 seconds (to immediately exit the procedure press the button on the receiver).

**WARNING: after programming, reposition the dip switches to the desired operation of the contacts (see paragraph 4.1)**

If the transmitter is a multifunctional one, the key dedicated to activation will be the "square" one. To delete programmed transmitters from the memory, see paragraph 5.4.



MNLMCU-SIM1ENV1.0

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