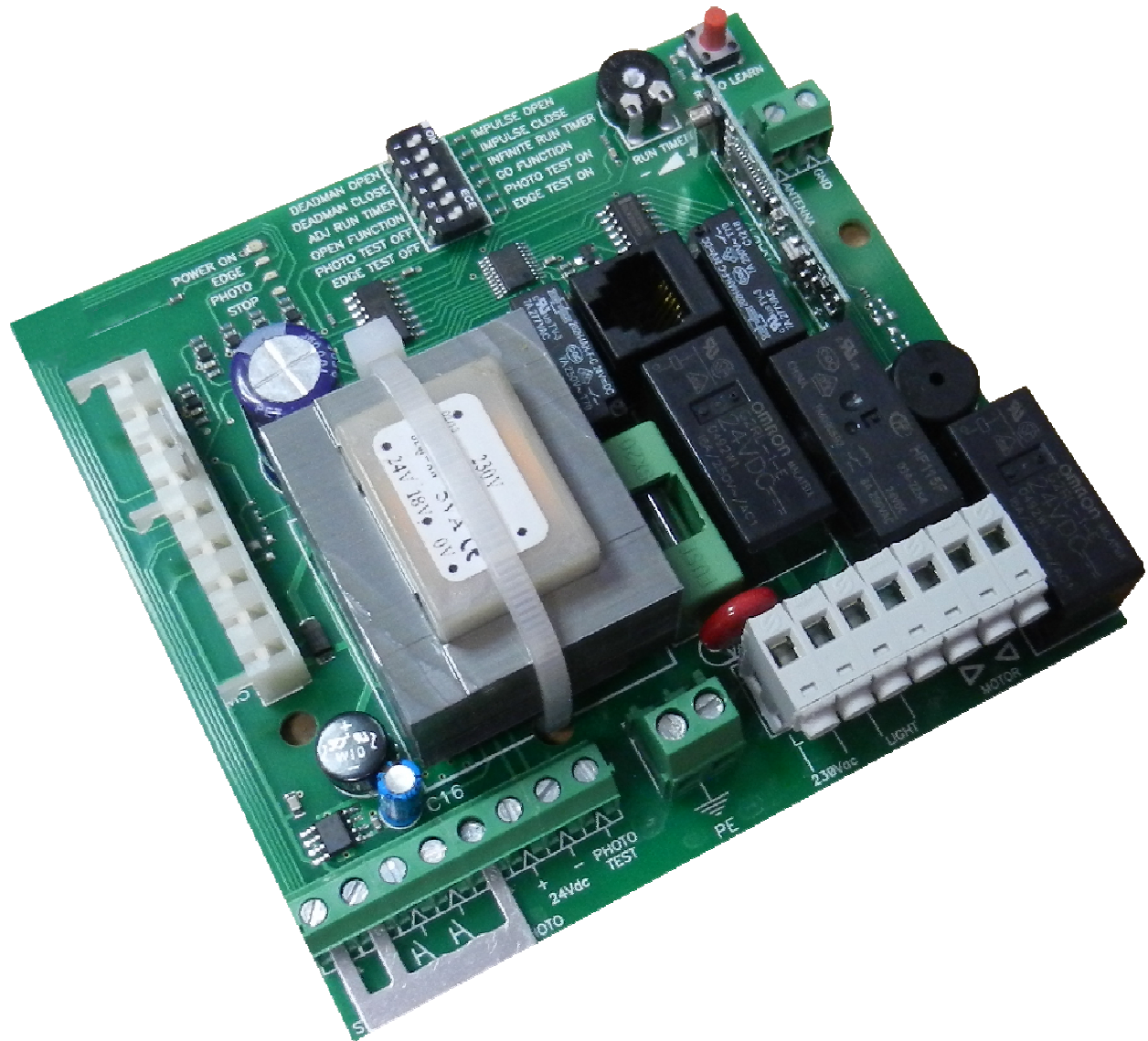


# CONTROL UNIT BAX900L

Programmable control unit for rolling shutters



Installation guide



# Control unit BAX900L

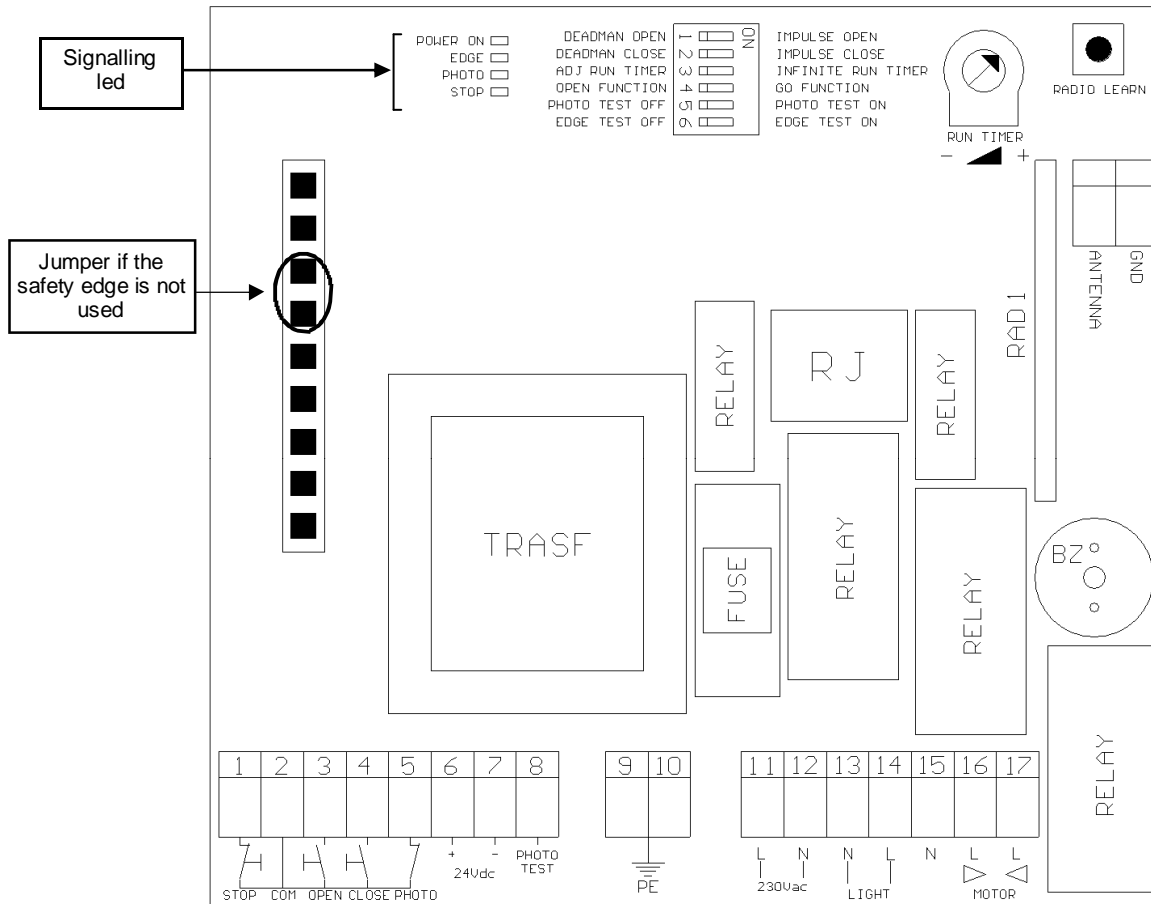
## Programmable control unit for rolling shutters

### 1. Introduction

The control unit mod. BAX900L is a board developed to control rolling shutters in a easy and intuitive way. This product controls 230 Vac motors up to 1000W. It is supplied with a courtesy light output. The product is compliant with the transmitters B.ro with 2 or 3 buttons. It is equipped with a photocells input and an input through molex connector for safety edge receiver.

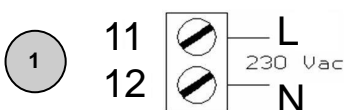
**WARNING : DO NOT INSTALL THE CONTROL UNIT WITHOUT READING THE INSTRUCTIONS FIRST !!!**

### 2. Setting



### 3. Electric connections

The control unit is supplied with all the inputs normally closed and jumpered to the common. Before connecting a device to the control unit remove the jumper corresponding to the device that you want to connect leaving the others unchanged.



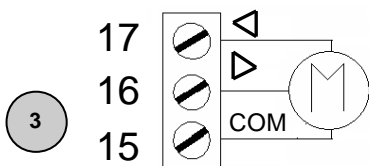
Connect the power supply cable between the clamps 11 and 12 of the control unit.

Power supply 230 Vac 50Hz  
Do not connect the card directly to the electric network. Put a device which can ensure the disconnection of each pole from the power supply of the control unit.



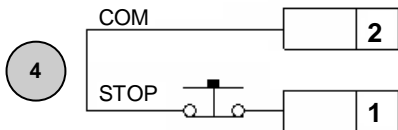
Connect an eventual courtesy light between the clamps 15 and 16 of the control unit.

Connecting a charge of 230Vac 500W MAX it is possible to light up the operating zone of the automation during each motion. The turning off is timed with a period of **3 minutes**. The counting is reset at each impulse of up or down.



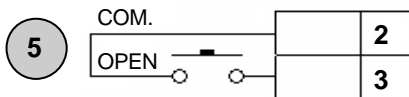
- Connect the neutral of the motor to the clamp 15 of the control unit.
- Connect the phase “1” of the motor to the clamp 16 of the control unit.
- Connect the phase “2” of the motor to the clamp 17 of the control unit.

Check that the motor wiring is compliant with the installation. To do this, follow the procedure of the **preliminary checks**



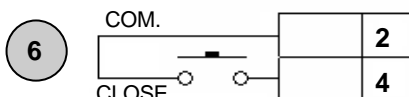
Connect the contact **NORMALLY CLOSED** contact of the STOP between the clamp 1 and 2 of the terminal board.  
**WARNING: jumper the input 1 to the input 2 if not used.**

If the STOP input is open, then this causes the immediate stop of the automation.



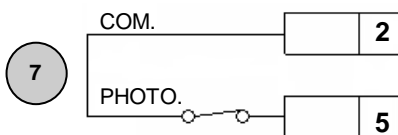
Connect the button OPEN between the clamp 2 and 3 of the terminal board. **Leave it open if not used.**

The activation of the OPEN button gives an opening impulse to the automation.



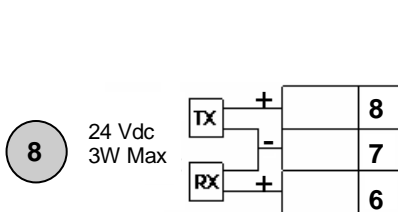
Connect the button CLOSE between the clamp 2 and 4 of the control unit. **Leave it open if not used.**

The activation of the CLOSE button gives a closing impulse to the automation.



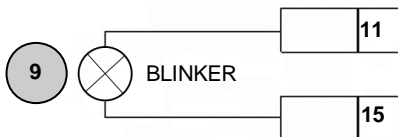
Connect the **NORMALLY CLOSED** contact of the photocell (PHOTO) between the clamp 2 and 5 of the terminal board.  
**WARNING: jumper the input 2 to the input 5 if not used.**

The PHOTOCELL (PHOTO) can cause the STOP of the automation or the motion inversion . See chap.9



- Connect the **clamp 8** of the control unit to the **clamp “ + ”** of the power supply of the transmitter of the photocells.
- Connect the **clamp 7** of the control unit to the **clamp “ - ”** of the power supply of the receiver and transmitter of the photocells.
- Connect the **clamp 6** of the control unit to the **clamp “ + ”** of the power supply of the photocells receiver.

**WARNINGS:** the control unit gives a voltage of 24 Vdc.



Connect an eventual blinker with self-blinking circuit between clamps L 11 (line in) and N 15 (common of the motor).

The output activates at the same time of the motor. Use a blinker with self-blinking circuit.

#### 4. Signalling led

“Power On”: lighted when the control unit is powered.

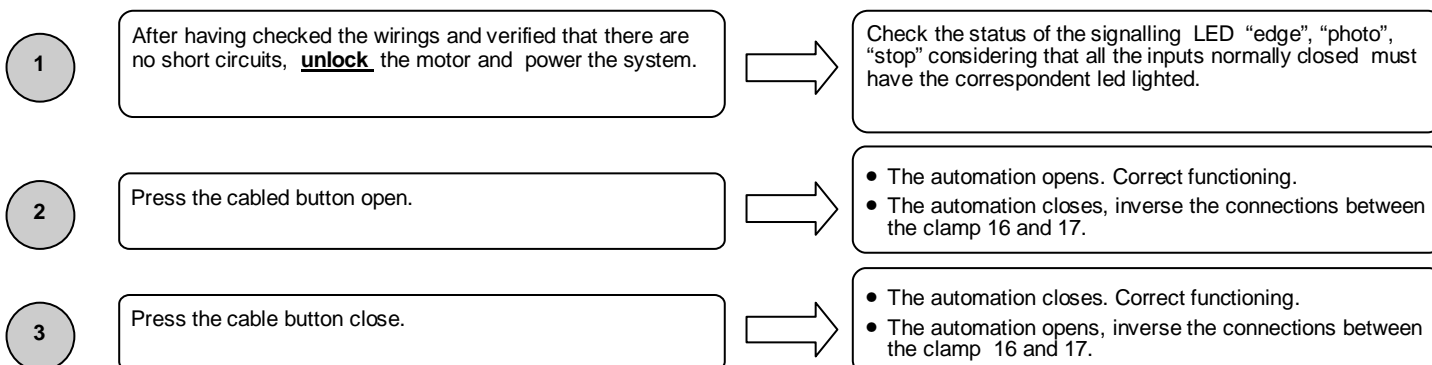
“Photo”: lighted if the photocell contact is closed.

“Edge”: lighted if the safety edge contact is closed.

“Stop”: lighted if the stop contact is closed.

#### 5. Preliminary checks

Preliminary checks must be executed by qualified personnel only, paying the maximum attention . The correct wiring of the motor is very important for a correct functioning of the automation.



## 6. Learnings

### 6.1 Learning a transmitter through the "RADIO LEARN" key of the control unit



Button "UP"



Button "DOWN"



Button "UP"

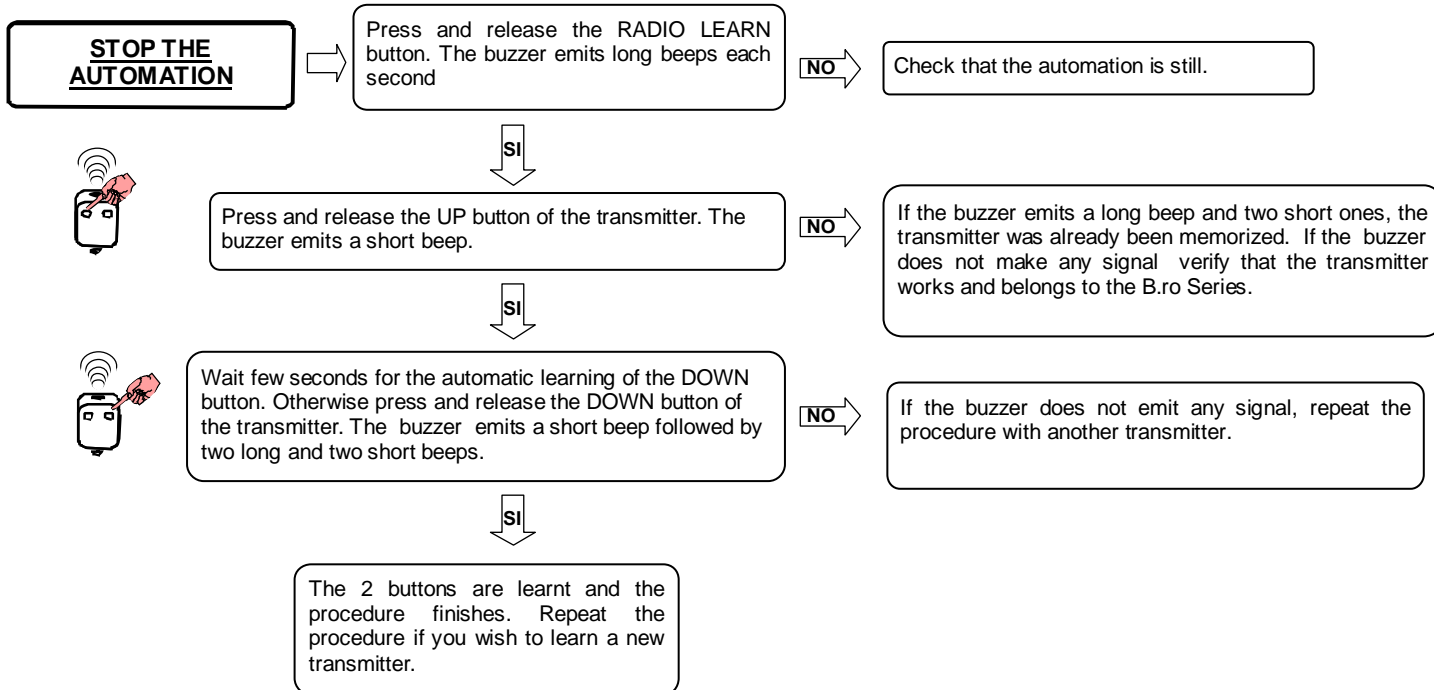


Button "STOP"

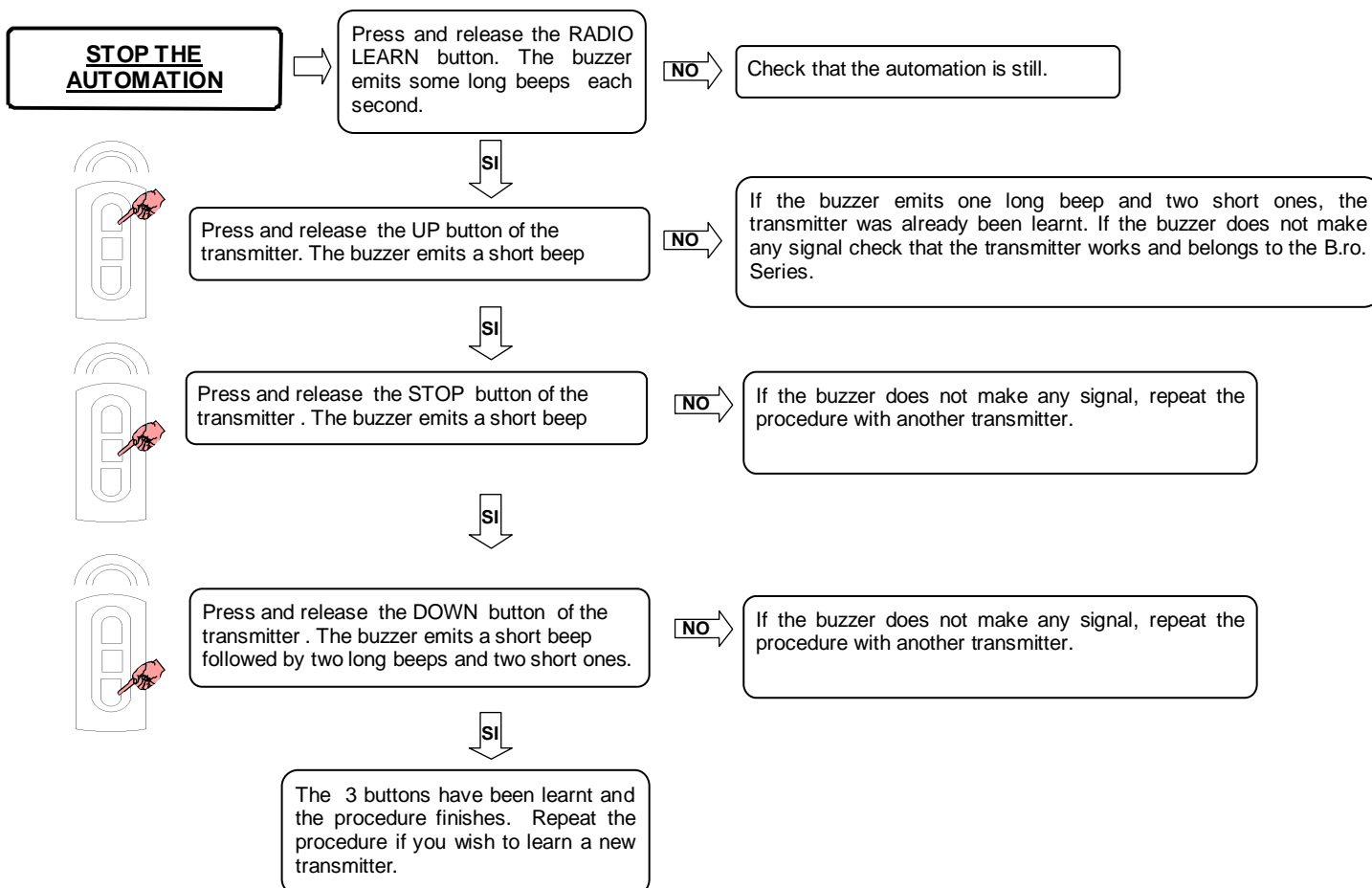


Button "DOWN"

#### 6.1.1 Learning of a two buttons transmitter



#### 6.1.2 Learning of a three buttons transmitter



## 6.2 With the hidden key of a transmitter already learnt.

Always when the automation is still, press with the help of a clip the hidden key of a transmitter already learnt. The beginning of the learning procedure is indicated by some long beeps at each second. Once entered into the learning stage follow the procedure mentioned at point 6.1.1 in case you need to learn a two buttons transmitter or follow the procedure at point 6.1.2 in case you wish to learn a three buttons transmitter.

## 7. Selectable functions through dip-switch



**It is important to change the configuration of the dip-switch only when the unit is turned off!!! Turn off the power supply during the change of configuration.**

### Default settings

The control board is supplied with the dip-switches set as indicated in the Pict. 1. In the table are sum up the functions that can be selected through these dip-switches.

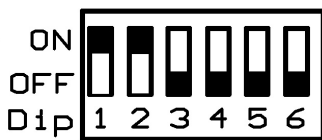


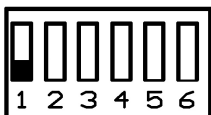
Fig.1: factory setting of the dip

dip	Function	Dip OFF	Dip ON
1	Function on opening	Dead man	Pulse on opening
2	Function on closing	Dead man	Pulse on closing
3	Working time	Programmable	Infinite
4	Pulse functioning	Open — close	Step by step ( GO function )
5	Photocells test	Disabled	Enabled
6	Safety edge test	Disabled	Enabled

Dip-switch function table

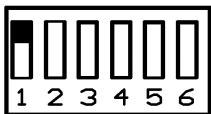
### 7.1 Operating on opening/closing

This function enables to select the method of opening / closing of the automation.



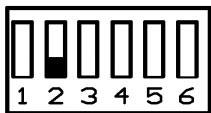
ON  
OFF

The automation works under dead man mode on opening.



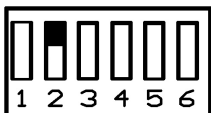
ON  
OFF

The automation works under pulse mode on opening.



ON  
OFF

The automation works under dead man mode on closing.



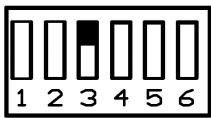
ON  
OFF

The automation works under pulse mode on closing.

The functioning mode with "pulse functioning" activated can be selected by dip 4.

## 7.2 Working time

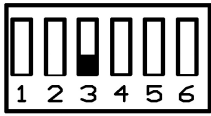
The setting of this dip enables to choose between a working time manually set through a trimmer or an infinite working time.



ON

An infinite working time is set, the output remains activated till the reception of a stop or an opposite motion impulse.

OFF



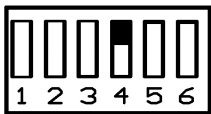
ON

The working time is manually set through the "Run Timer" trimmer adjustment (see paragraph 6).

OFF

## 7.3 Pulse operation

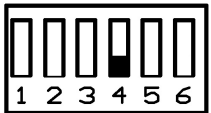
The setting of this dip configures the operating mode, when the dip 1 and the dip 2 are set on ON (pulse operation).



ON

The "Go functioning" is activated. The automation works under "step by step" mode with one button. The UP button makes the sequence open -stop-close. While the stop can be obtained pressing the button DOWN (or STOP in case of a 3 buttons transmitter).

OFF



ON

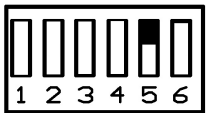
The open- close function with two buttons is activated . Pressing the button UP the automation closes a further closing impulse ( or stop) stops the automation, pressing the button DOWN the automation starts closing.

OFF

The "GO" function is automatically excluded with the dip 1 and/or the dip 2 set on ON.

## 7.4 Photocells test

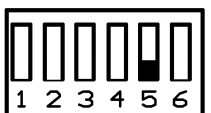
This control unit is equipped with a system that enables to perform a control on the functioning of the photocells before each closing movement of the motor. In this way we have the possibility to increase the safety of the system in case of damage of the photo device ( for example output relay stuck) or an undesired short-circuit on the photocells input. This checking is performed after that the control unit has received a closing impulse but before giving power to the motor.



ON

Photocell test activated

OFF



ON

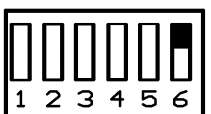
Photocell test deactivated

OFF

**Note: the test of the photocell, if activated , causes a delay of the motor operation of about one second from the moment of the impulse reception.**

## 7.5 Edge test

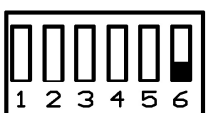
This control unit is equipped with a system that enables to execute a control on the functioning of the safety edge before each closing operation of the motor. There is the possibility to increase the safety of the system in case of damage of the device or of an undesired short-circuit on the safety edge input. This checking is performed after that the control unit has received a closing impulse but before powering the motor.



ON

Safety edge test activated

OFF



ON

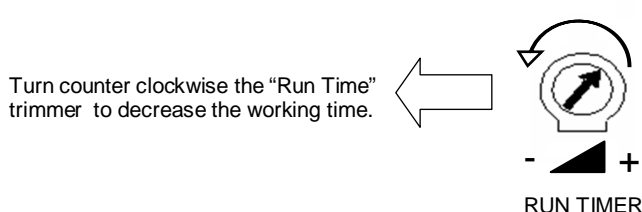
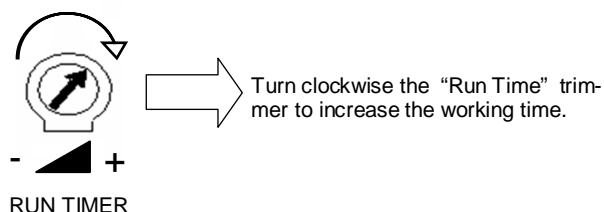
Safety edge test deactivated

OFF

**Note: the safety edge test, if activated, causes a delay of the motor operation of around one second from the moment of the impulse reception.**

## 8. Working time adjustment

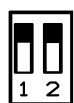
It enables to set the operation time of the automation. The time can be set for values between 1,5 seconds and 90 seconds. The working time is excluded in case that the dead man function is activated.



## 9. Safety devices intervention

The intervention of the safety devices changes accordingly the function setting of the control unit. In particular:

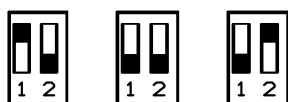
POSITION DIP:



Automation on opening: the intervention of the photocell/safety edge is ignored.

Automation on closing: the intervention of the photocell/safety edge stops and inverses the movement of the automation.

POSITION DIP:



Automation on opening: the intervention of the photocell/safety edge is ignored.

Automation on closing: the intervention of the photocell/safety edge stops the movement of the automation.

## 10. Setting Tx/Rx safety edge

For a correct functioning of the safety edge it will be necessary to set the dip of the Rx and of the Tx in the following way:

Rx: Test polarity → ON  
Buzzer → OFF

Tx: Safety type → OFF  
Low Power → OFF

The frequency dips have to be set in the same way in the TX and in the RX.

The power supply jumper of the Rx has to be set on 24V, while both the jumpers for the selection of the safety edge type have to be set on "mechanical safety edge".

## 11. Memory reset

With this control unit there is the possibility to erase a sole transmitter or all the learnt transmitters:

In order to cancel all the transmitters from the memory it will be enough to follow this procedure:

1. Take off the power supply from the control unit.
2. Press and keep pressed the "Radio Learn" button.
3. Power the control unit.
4. The control unit emits a long beep followed by two short beeps.
5. At this stage release the "Radio Learn" button, after few seconds the control unit emits two short beeps. At this stage the memory has been cancelled.

To cancel a single transmitter from the memory it will be enough to follow this procedure:

1. Press the "Radio Learn" button, the control unit begins to emit a long beep at each second.
2. Press at the same time for some seconds the hidden key and the up button of the transmitter to cancel.
3. The control unit emits a slow beep and then 4 fast beeps, one second pause and then other two fast beeps.
4. The reset operation of the transmitter has been completed.

## WARNINGS AND ADVICES

Avoid putting the connection cables of buttons, security devices and inputs close to those of the power supply of the control unit and of the motor. Some parts of the control unit are subject to dangerous voltage. The control unit must be installed and programmed only by qualified professionals. Always use a device that ensures the disconnection of all poles of the control unit's power supply.

This device can be:

a switch (connected directly to the power supply terminals) with a contact's minimum distance of 3 mm for each pole, or it can be a device connected to the power network;

For connecting the card and the motors we recommend to use cables with double isolation as imposed by the laws in force; the minimum cross section of the single conductor must not be less than 1mm<sup>2</sup> and not more than 2.5mm<sup>2</sup>.

The presence of a dampness or metal parts in the walls nearby may negatively influence the capacity the system; it is therefore important to carefully put the aerial and the transmitters away from walls and/or metal structures, away from the ground and not on the ground.

A tuned aerial is needed to maximize the performances in terms of the range; the range would only be a few meters without it.

If the cable supplied is too short, then do not join an extension to it, but replace the whole cable with one of the right length whose impedance is 50 Ohm (RG 58 type). The cable should never be longer than 10 meters. This control unit has a photocells test circuit.

## 12. Troubleshooting guide

PROBLEM	CAUSES	SOLUTIONS
1) The green led "power on" does not lights on.	<ul style="list-style-type: none"> <li>The control unit is not powered.</li> <li>The fuse is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>Check the wiring and power the control unit.</li> <li>Check the functioning of the fuse with a tester and replace with another one with the same features (6.3A 250V).</li> </ul>
2) the buttons of the transmitters do not have any effect on the control unit.	<ul style="list-style-type: none"> <li>The transmitter has not been learnt.</li> <li>The transmitter is not compliant with the control unit.</li> <li>The battery of the transmitter is flat.</li> </ul>	<ul style="list-style-type: none"> <li>Execute the learning of the transmitter (see chap.6).</li> <li>Check that the transmitter is a B.ro 433Mhz.</li> <li>Replace the battery of the transmitter.</li> </ul>
3) Pressing the UP button of the transmitter the automation closes.	<ul style="list-style-type: none"> <li>The motor wiring has been performed in a wrong way.</li> </ul>	<ul style="list-style-type: none"> <li>Wire again the motor inverting the clamps 18 and 19.</li> </ul>
4) Pressing the DOWN button of the transmitter the automation closes.	<ul style="list-style-type: none"> <li>The motor wiring has been performed in a wrong way.</li> </ul>	<ul style="list-style-type: none"> <li>Wire again the motor inverting the clamps 18 and 19.</li> </ul>
5) The leds "photo" and "edge" are not lit.	<ul style="list-style-type: none"> <li>The photocell/ safety edge is under alarm because of an obstacle.</li> <li>The inputs photo/ safety edge have not been jumpered.</li> </ul>	<ul style="list-style-type: none"> <li>Take off the obstacle..</li> <li>Jumper the inputs 2 and 5 if the photocell is not used. Jumper the inputs 3 and 4 ( starting from the top) of the molex in case that the photocell is not used ( see picture pg.1).</li> </ul>
6) The led "stop" is turned off.	<ul style="list-style-type: none"> <li>The button used for the stop is a normally open contact.</li> <li>The input is not jumpered in case the stop button is not used.</li> </ul>	<ul style="list-style-type: none"> <li>Check the button type and in case replace it.</li> <li>Jumper the inputs 1 and 2 in case that the stop button is not used.</li> </ul>
7) It is not possible to enter into the learning phase.	<ul style="list-style-type: none"> <li>The automation is not still.</li> </ul>	<ul style="list-style-type: none"> <li>Give a stop impulse and try again.</li> </ul>
7) When a "close" impulse is given the control unit emits 5 short beeps and does not move.	<ul style="list-style-type: none"> <li>Test photocell/safety edge negative.</li> <li>Test photocell/ safety edge activated without having installed one photocell/safety edge.</li> </ul>	<ul style="list-style-type: none"> <li>Check that there are no obstacles in front of the photocell/safety edge and the correct functioning of the devices.</li> <li>Chec that the dip 5 and the dip 6 are set on OFF</li> <li>Check that the connections of the photocells are correct see Chap. 3 point 8</li> </ul>

### TECHNICAL SPECIFICATIONS BAX900L

Power supply (clamps13, 14)	230 Vac +15%, -15% ; 50Hz
Absorption	5W MAX
Photocells power supply (clamps 6, 7, 8)	24 Vdc 3W MAX
Motor output (clamps 17,18, 19)	230Vac 1000W MAX
Courtesy light output (clamps 15, 16)	230Vac 500W MAX
Operating temperature	-10°C ... +55°C
Courtesy light time	3 minutes
Available reception	Rolling code a 433.92 MHz
Maximum range (with tuned aerial and under optimal conditions)	40 - 60 m (433 MHz)
Number of codes	18 billions of billions (ROLLING CODE reception)
Recordable transmitters	1000 (ROLLING CODE )

**GUARANTEE** - In compliance with legislation, the manufacturer's guarantee is valid from the date stamped on the product and is restricted to the repair or free replacement of the parts accepted by the manufacturer as being defective due to poor quality materials or manufacturing defects. The guarantee does not cover damage or defects caused by external agents, faulty maintenance, overloading, natural wear and tear, choice of incorrect product, assembly errors, or any other cause not imputable to the manufacturer. Products that have been misused will not be guaranteed or repaired. Printed specifications are only indicative. The manufacturer does not accept any responsibility for range reductions or malfunctions caused by environmental interference. The manufacturer's responsibility for damage caused to persons resulting from accidents of any nature caused by our defective products, are only those responsibilities that come under Italian law.