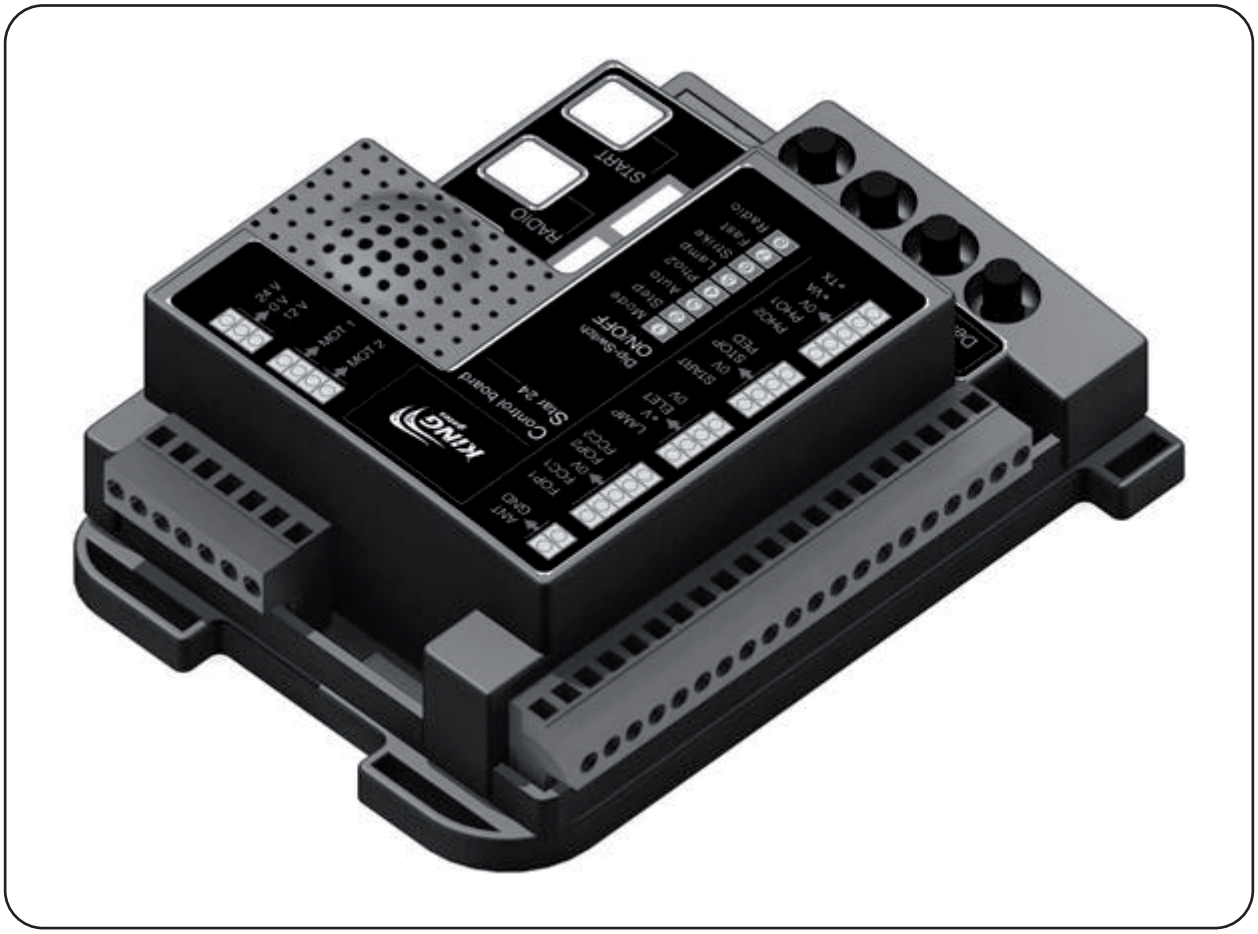
Star MM 224
MiniModus

KINGGATES

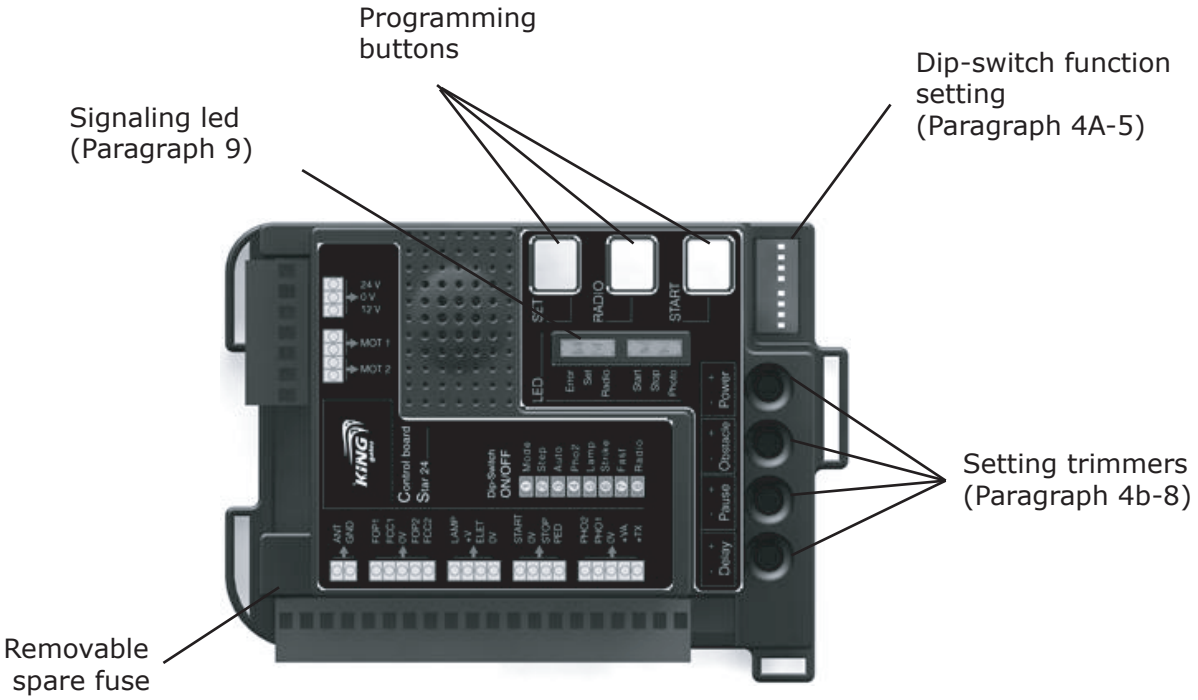


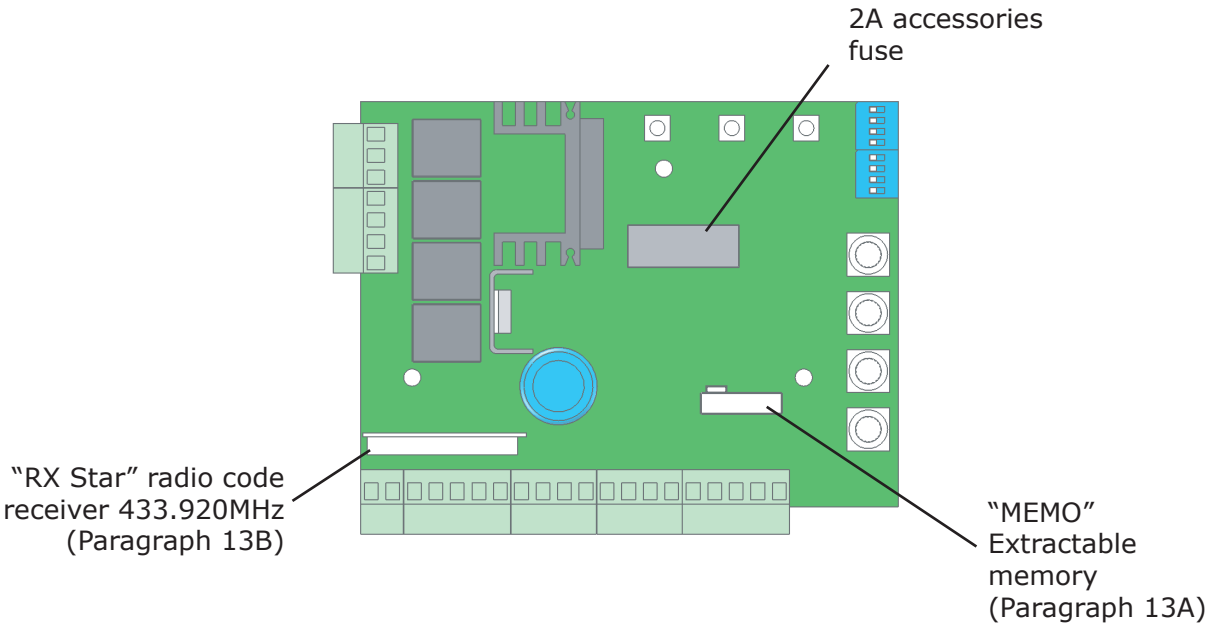
EN **INSTRUCTION MANUAL**

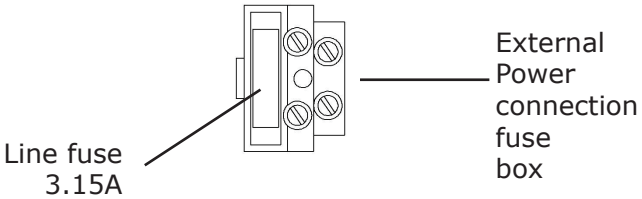
CE

1- PRODUCT DESCRIPTION

1A - GENERAL DESCRIPTION







1B - STARTING MODALITY

The control unit has been designed to manage Minimodus
To start the system it is necessary to:
1- Connect the power supply, the motors, and the accessories as indicated in the 2nd paragraph
2- Set the dip-switches (paragraph 4A) and the trimmers (paragraph 4B) depending on the wanted functioning and on the conditions of the system.
3- Perform the standard programming procedure (paragraph 6B) or the professional programming procedure (paragraph 6D), to recognize the starting point and the end point of the travel.
4- Perform the checks reported on paragraph 6C (warning before starting).

ⓘ If the control unit keeps on having problems after these steps, see paragraph 9 "Signaling led", to identify possible anomalies, and paragraph 14 "inconvenient and remedy" to try to eliminate them.

1C - MAIN FEATURES

- Management and control for Minimodus.
- Double opening-closing limit switch inputs (terminals 3,4,5,6,7).
- 433.920MHz rolling code built-in receiver (code: "RX STAR", see paragraph 1A – 13B).
- Removable memory (code: "MEMO") containing up to 180 memorized radio codes (paragraph 1A - 13A).
- 6 signaling led (paragraph 1A – 9).
- Predisposition for the 12 Vdc card for electric lock control connection (max 15W, optional) (see paragraph 12D).
- Predisposition for the battery charge card and the 24Vdc batteries up to 7Ah (optional) (see paragraph 12E).
- Predisposition for the 230 Vac card for courtesy light control connection (max 500W, optional) (see paragraph 12F).
- Customizable and differentiable slow down in opening and closing thanks to the professional learning procedure (see paragraph 6D).
- The control unit "Star MM 224" has got a "backjump" (an impulse to the motor at the end of opening and closing, in order to loosen the mechanism, and make the manual release easier.
- Built-in lamp intermittent manager (see paragraph 12A).
- Customizable pedestrian opening by pedestrian programming procedure (see paragraph 7).
- Customizable delay between the wings in closing from 0 to 15 sec. by trimmer (see paragraph 4B).
- Pause time before automatic reclosing customizable from 0 to 90 sec. by trimmer (see paragraph 4B).
- Sensibility of the intervention adjustable from 0.1 to 3 sec. by trimmer (see paragraph 4B).
- Power/speed adjustable from 50% to 100% by trimmer (see paragraph 4B).
- Input for control-by-wire to manage start, stop and pedestrian opening.
- Double safety inputs: closing (terminal 16) and opening and closing (terminal 17).
- Input for warning light to signal the wings position (see paragraph 12C).

1D - TECHNICAL DATA

Control unit supply	230 Vac
Primary transformer	230 Vac
Secondary 1 transformer	12 Vdc
Secondary 2 transformer	24 Vdc
Transformer power	150Va
Photocells output	12 Vdc, max 15W, protected by fuse
Flashing lamp output (Terminals 8,9)	24 Vdc, max 15W, protected by fuse
Open gate warning light output (Terminals 18,20)	12 Vdc, max 3W, protected by fuse
Working temperature	-20 ÷ +55

1E - PRESETS

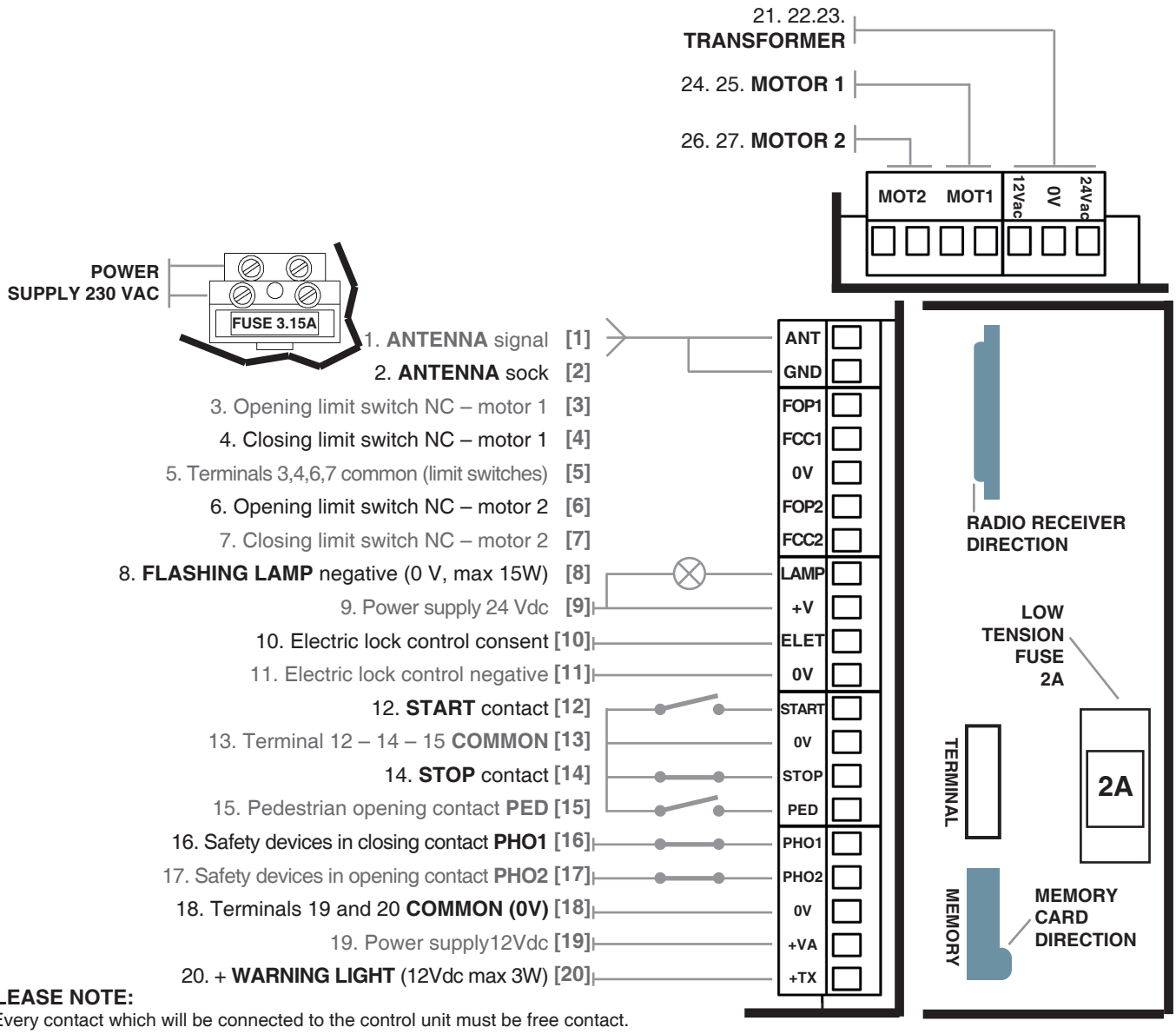
If you perform the standard programming procedure (see paragraph 6B), and there are no modifications on the trimmer regulation (see paragraph 4B) and on dip switches (see paragraph 4A), the control unit will act as follows:
- The safety devices in closing, connected to "PHO1" contact (terminal 16), will intervene only in closing, inverting the motion.
- The safety devices in opening, connected to "PHO2" contact (terminal 17), will intervene both in closing and in opening, keeping on the motion when the device has been cleared (setting by the dip 4 "PHO2").
- Activation of electric limit switches management (terminals 3,4,5,6,7) only if they are connected. If there are no electric limit switches, the terminals must be free.
- Pause time before automatic reclosing equal to 45 seconds.
- Operating mode set for fast working (modality settable by "MODE" dip).
- Pedestrian opening procedure controlled by cable and by transmittter (if the transmitter has been programmed by the procedure as per paragraph 3b) and with total wing opening operated by MOT1 (terminals 24, 25).
- The slowdowns are set to the final 15% of the travel.

2 - ELECTRIC CONNECTIONS

2A - CABLES SECTION

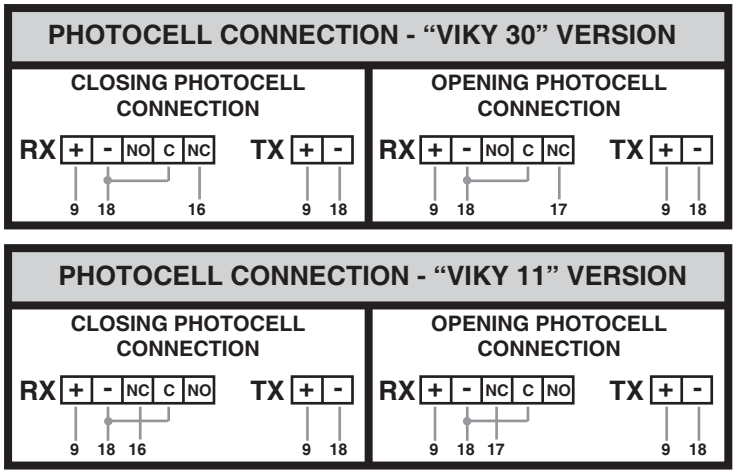
- The control unit must be powered (by its external fuse box terminal), through a cable which must be at least 3x1.5 mm² wide. If the distance between the control unit and the grounding system is more than 30m it is necessary to install an electric discharger near to the control unit.
- The cables which will be used for the low-tension must be at least 0.25 mm² wide.
- If the length between the control unit and the grounding system is more than 30 m, it is necessary to use screen cables. If the distance increases, it is necessary to increase also the section of the wires, to avoid current loss.
- Do not link the cables in underground box, or in inside the pipes.
- Use only RG58 wires to connect external antennas (it can be provided as accessory with included power cables).

2B - CONNECTION DRAWING



PLEASE NOTE:

- Every contact which will be connected to the control unit must be free contact.
- The limit switches (terminals 3,4,5,6,7), if not used, have to be free (not bridged). The control unit activate the contact only if it receive signals from connected contacts.
- If there are no connected devices on the terminal 16 (normally closed input "**PHO1**"), terminal 17 (normally closed input "**PHO2**") and/or terminal 14 ("**STOP**"), the concerning inputs must be bridged.
- If there are connected devices on the terminal 16 (normally closed input "**PHO1**"), terminal 17 (normally closed input "**PHO2**") and/or terminal 14 ("**STOP**"), the concerning inputs must not be bridged.
- If the first wing beat on the other one, "**MOT1**" (terminal 24,25) must start first. Then, it will be necessary to regulate the delay between the wings through the trimmer "**DEL**" (see paragraph 4B).
- If there is only 1 motor connected, it must be connected on "**MOT1**" (terminals 24,25), and the "**DEL**" trimmer (paragraph 4B) must be set at minimum.
- If there are more than 1 device connected to the normally closed input "**PHO1**" (terminal 16), "**PHO2**" (terminal 17) and "**STOP**" (terminal 14), they must be connected in series (see paragraphs 10C, 11A and 11B).
- If there are more than 1 device connected to the normally open input "**STR**" (terminal 12) and "**PED**" (terminal 15), they must be connected in parallel (see paragraphs 10A and 10B).
- If an external antenna is connected, the built-in wire in the terminal 1 must be removed.



3A - START CHANNEL PROGRAMMING PROCEDURE

Power the control unit and set **Dip 8** (RADIO) to **ON**.

Press button **RADIO** for **2 seconds**. (the red LED comes on).

Make a transmission pressing the desired key on the transmitter.

During entry, the red LED flashes and then remains steady on once the code is stored.

Memorize all the transmitters making a transmission with the desired key.

At the end of the operation, press button **RADIO** again to exit the procedure. (red LED goes off)

The programming procedures are exited automatically in any case 10 seconds after the last transmission.

3B - PEDESTRIAN OPENING START CHANNEL PROGRAMMING PROCEDURE

Power the control unit and set **Dip 8** (RADIO) to **OFF**.

Press button **RADIO** for **2 seconds**. (the red LED comes on).

Make a transmission pressing the desired key on the transmitter (different from the START button).

During entry, the red LED flashes and then remains steady on once the code is stored.

Memorize all the transmitters making a transmission with the desired key.

At the end of the operation, press button **RADIO** again to exit the procedure. (red LED goes off)

Any pressing of the previously programmed button for the START, substitute the use of the channel.

The programming procedures are exited automatically in any case 10 seconds after the last transmission.

3C - DELETING ALL THE CODES

Using this procedure the installer can delete all the previously programmed radio remote controls from the memory.

Hold down button **RADIO** for **3 seconds** (the red LED begins to flash rapidly).

Press button **RADIO** again within 6 seconds to confirm the cancellation (cancellation is confirmed by the flashing becoming faster)

4 - CONTROL UNIT SETTINGS

4A - DIP-SWITCHES SETTINGS

⓵ A change of the DIP 1 "MODE" needs the repetition of the programming procedure.

DIP	DESCRIPTION	DIP STATUS	FUNCTIONING
1	MODE	**ON**	Standard backjump
		OFF	Short backjump
2	STEP	**ON**	Opening / Stop / Closing / Stop modality (step by step)
		OFF	Opening / Pause / Closing (it accepts only opening commands)
3	AUTO	**ON**	Yes automatic reclosing (set by "PAU" trimmer)
		OFF	No automatic reclosing
4	PHO 2	**ON**	Stop and it keeps on opening after clearing in opening (PHO2 , working as photocell)
		OFF	Stop and it recloses for 2 seconds in opening (PHO2, working as pneumatic edge)
5	LAMP	**ON**	Flashing light
		OFF	Steady light
6	STRIKE	**ON**	Kick-back enabled
		OFF	Kick-back disabled
7	FAST	**ON**	Yes rapid automatic reclosing
		OFF	No rapid automatic reclosing
8	RADIO	**ON**	START radio channel programming procedure (see paragraph 3A)
		OFF	Pedestrian opening radio channel programming procedure (see paragraph 3B)

4B - TRIMMER SETTINGS

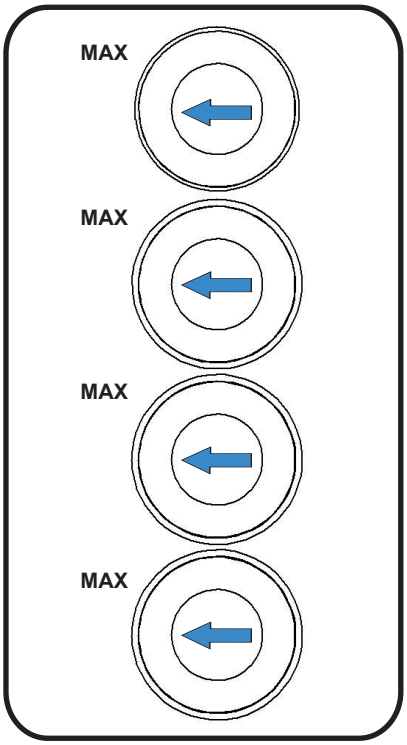
⓵ A variation on the setting of "FOR" trimmer (power/speed) requires the repetition of the learning procedure (point 2), because of the change of the manoeuvre time. The slowdowns are automatically set in the last 15% of the travel.

Power/Speed (POWER):
Regulation from 50% to 100% of the power to the motors. This parameter will also weigh on the manoeuvre speed.

Obstacle sensitivity (OBSTACLE):
Regulation of intervention time from 0.1 to 3 seconds. The lower the trimmer is regulated, earlier the central will stop the automation in case of impact of the wing against an obstacle.

Pause time (PAUSE):
Regulation of pause time at the end of the manoeuvre, before the automatic reclosing from 0 to 90 seconds. The "**AUTO**" dip switch must be ON.

Delay between the wings in closing (DELAY)
Regulation of the wings during the closing adjustable from 0 to 15 seconds.



5 - DIP-SWITCHES DESCRIPTION

5A - DIP-SWITCH 1 - MODE

If the dip-switch "**MODE**" is set to **ON**, the control unit manages the gate's back jump (standard) near mechanical stops.

On the contrary, if the dip-switch "**MODE**" is set to **OFF**, the control unit generates a smaller back jump compared to the standard one.
It is recommended to pay attention to the value of dip-switch "MODE," because incorrect back jump values, in some situations, may affect the mechanical parts of the automation.

5B - DIP-SWITCH 2 - STEP

If the "**STEP**" dip-switch is set to **ON**, the step-by-step function is enabled. Every time the control unit receives an input signal, it perform an action. When the automation is stationary, it starts the motor, and when the automation is moving, it stops the motor.

If the "**STEP**" dip-switch is set to **OFF**, the modality OPEN/STOP/CLOSING is enabled. The control unit accepts only commands (by wire or by transmitter) in opening. So, when the gate is closed, it opens. When the gate is opening, it keeps opening, and when the gate is closing, it opens completely.
The reclosing takes place with the time set by the "**PAU**" trimmer, if the "**AUTO**" dip is set to **ON**.
Otherwise, it is necessary to give a START command (by wire or by transmitter).

5C - DIP-SWITCH 3 - AUTO

If the "**AUTO**" dip-switch is set to **ON**, the automatic reclosing function is enabled. The control unit automatically closes the wings after the time set by the "**PAU**" trimmer (see paragraph 4B).

If the "**AUTO**" dip-switch is set to **OFF**, the automatic reclosing function is disabled. It is necessary to supply a command (by wire or by transmitter) to close the wings.

5D - DIP-SWITCH 4 - PHO2 (see also paragraph 11B)

If the "**PHO2**" dip-switch is set to **ON**, the safety devices in opening, when they intervene, stop the motion of the wings, which will open again as soon as cleared (typical functioning of the photocell).

If the "**PHO2**" dip-switch is set to **OFF**, the safety devices in opening, when they intervene, invert the motion for 2 seconds, and then they stop the automation. So, it is necessary to supply a command (by wire or by transmitter) to finish the travel, and close the wings (typical functioning of the safety edge). With this setting these safety devices in closing do not intervene.

5E - DIP-SWITCH 5 - LAMP (see also paragraph 12A)

If the "**LAMP**" dip-switch is set to **ON**, the power supply given to the lamp (terminals 8,9) is intermittent (see paragraph 12A).

If the "**LAMP**" dip-switch is set to **OFF**, the power supply given to the lamp (terminals 8,9) is direct (see paragraph 12A).

5F - DIP-SWITCH 6 - STRIKE (see also paragraph 12D)

If the "**STRIKE**" dip-switch is set to **ON**, the kick-back is enabled (see paragraph 12D). In this way, the control unit will supply a voltage swing at the beginning of the opening cycle, and at the end of the closing cycle.

If the "**STRIKE**" dip-switch is set to **OFF**, the kick-back is disabled.

5G - DIP-SWITCH 7 - FAST

If the "**FAST**" dip-switch is set to **ON**, the rapid reclosing is enabled. This modality enables to reclose the gate as soon as the control unit notices that the photocell range have been occupied and cleared. So, going through the passage, the automatic reclosing of the automation will be enabled, without waiting the pause time.

If the "**FAST**" dip-switch is set to **OFF**, the automatic reclosing is disabled

5H - DIP-SWITCH 8 - RADIO

If the "**RADIO**" dip-switch is set to **ON**, the START channel is memorized during the programming of the radio transmitter (see paragraph 3).

If the "**RADIO**" dip-switch is set to **OFF**, the pedestrian opening channel is memorized during the programming of the radio transmitter (see paragraph 3).

6 - TRAVEL PROGRAMMING PROCEDURE

It is necessary to perform the learning procedure to program the travel (see paragraph 6B for the standard procedure, or paragraph 6D for the professional procedure). There is also a learning procedure for the pedestrian opening (see paragraph 6E; it is not indispensable).
The control unit is programmed by the buttons, and the control unit status is shown during the programming procedure by the yellow led “SET”. When the control unit begins the programming procedure, the yellow led “SET” switches on. It stays on until the end of the programming procedure, or until an anticipated quit (by pushing SET and RADIO simultaneously), which stops the programming procedure and the motors.

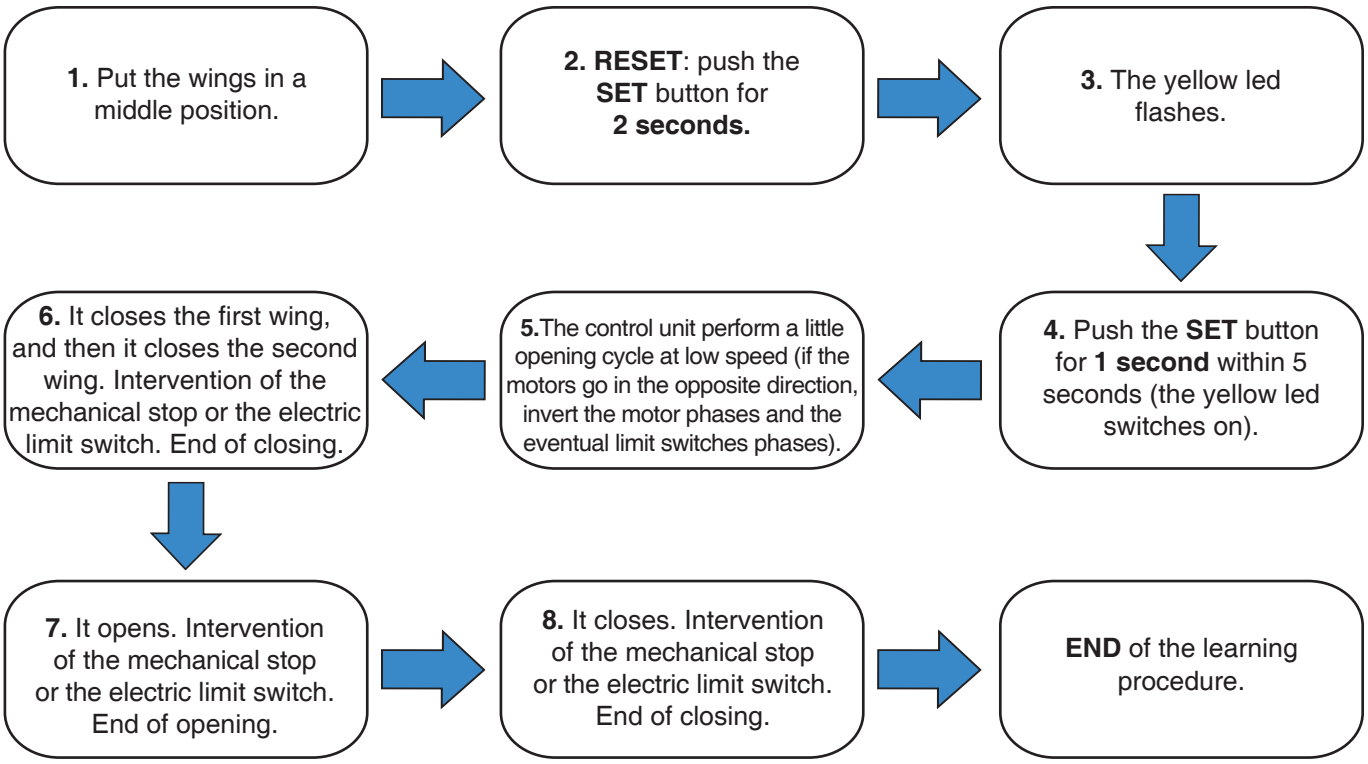
6A - PROGRAMMING WARNINGS

- In the absence of electric limit switches, or to having a better travel regulation, it could be necessary to intervene during the programming procedure, at the end of opening and closing cycles (points 6, 7, 8 for the standard programming procedure, and points 6, 9B, 12B for the professional programming procedure), by pushing the SET button for the wing 1, and RADIO for the wing 2, to stop them at the end of the opening/closing.
- In case of 1 motor only, it must be connected to “MOT1” (terminals 24-25), and the delay between the wings (trimmer “**DEL**”) must be set to 0.

ⓘ During the programming procedure, every safety device is disabled, to let the installer moving through their range.

6B - STANDARD LEARNING PROCEDURE

The installer set the manoeuvre time and the workforce of the motors by this procedure



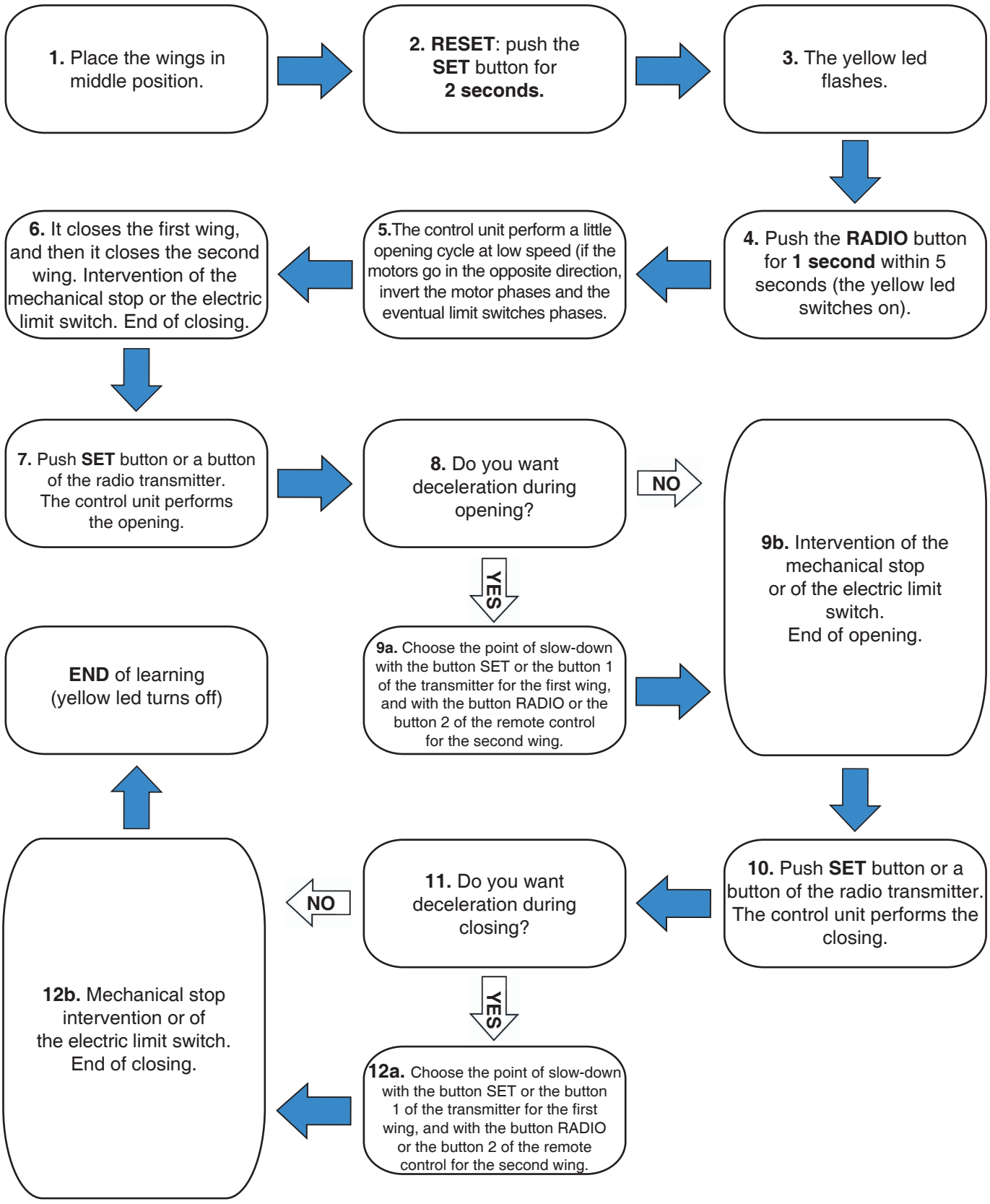
6C - WARNINGS BEFORE STARTING

After the programming procedure verify that:
- The motors shut down a few seconds after the end of the programming procedure.
- The control unit respond to the inputs received by wire: “**START**” (terminal 12), pedestrian opening (terminal 15), and “**STOP**” (terminal 14).
- The control unit respond to the inputs received by transmitter.
- The safety devices connected to “**PHO1**” (terminal 16) intervene while the gate is closing and prevent the closing when the gate is opened.
- The safety devices connected to “**PHO2**” (terminal 17) intervene while the gate is open and that they prevent the opening when the gate is closed. If the DIP “PHO2” is set to ON, to intervene while the gate is closing and prevent the closing when the gate is opened.

6D - PROFESSIONAL LEARNING PROCEDURE

The installer can set the beginning point of the slowdown through this procedure. The beginning point is customizable in opening and closing.

On steps 9a and 12a of the programming procedure, the first wing is the one which opens as first and closes as second (connected to terminals 24, 25 "MOT1").
The second wing, instead, is the one which opens as second and closes as first (connected to terminals 26, 27 "MOT2").



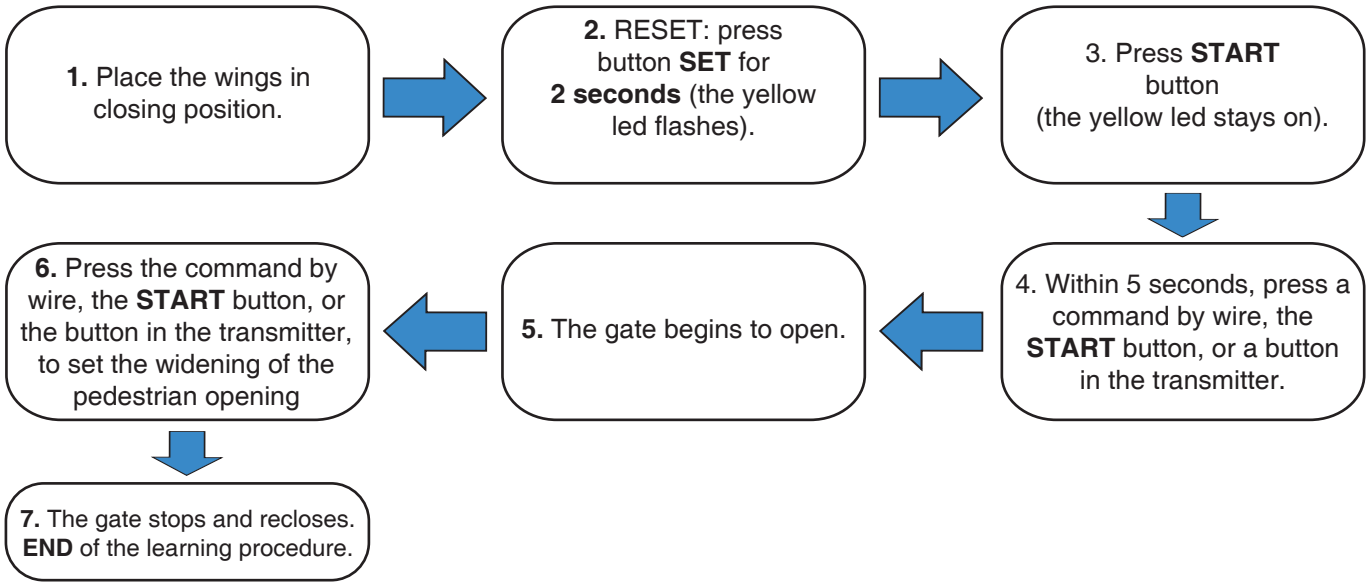
After the programming procedure, see also paragraph 6C for the starting.

7 - PARTIAL OPENING LEARNING PROCEDURE

The pedestrian opening is a partial opening (or total opening, if the installer wants it) of the wing opened by "**MOT1**" (terminals 24, 25). To manage the pedestrian opening, it is necessary to program a button of the radio transmitter (see paragraph 3B), or connect a command by wire on the terminals 14,15 (see paragraph 10B).

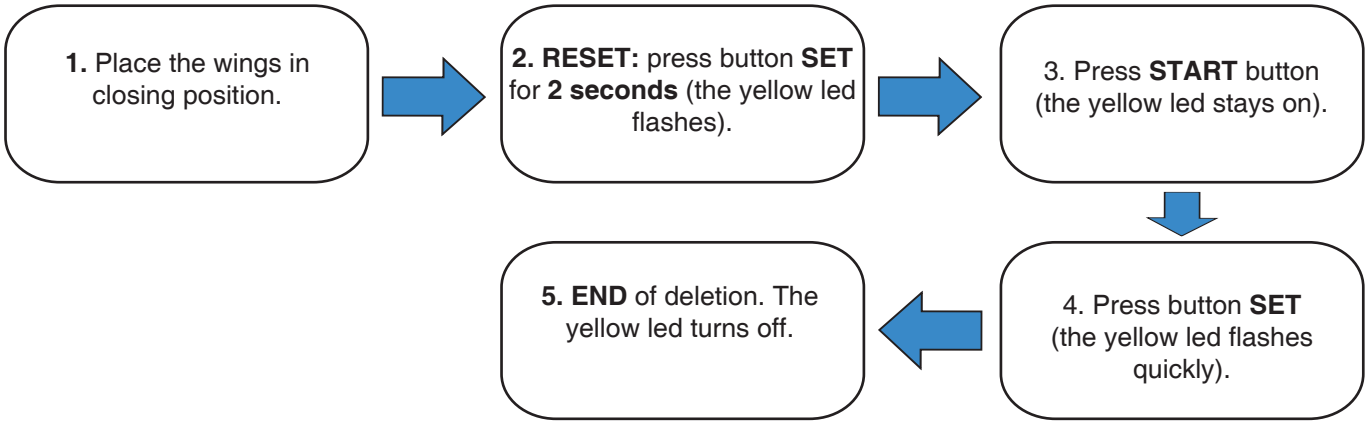
7A - LEARNING PROCEDURE FOR THE PEDESTRIAN OPENING

The installer can set the pedestrian opening through this procedure.



7B - DELETING THE PEDESTRIAN OPENING

The installer can delete the pedestrian opening procedure through this procedure.



After the deletion, it will be possible to activate the pedestrian opening only by wire, and the size of the opening will be total on the wing opened by MOT1 (terminals 24,25)

8 - TRIMMER

8A - Trimmer “FOR” – Power / speed of the motor

Use the “**FOR**” trimmer to adjust the voltage with which the motor is powered during operation, thus adjusting its speed.

⚠ A variation of the “FOR” trimmer requires the repetition of the learning procedure since the operation times, and thus the moments in which to start the slow-down, vary.

8B - Trimmer “PAU” - Pause time

The “**PAU**” trimmer is used to set the pause time of the control unit if the automatic closing is enabled by means of **DIP 3 “AUTO”**. The pause time is settable between 3 and 90 seconds and can be increased by turning the trimmer clockwise. Thus if the trimmer is set at the minimum then the pause time is equal to about 3 seconds, if adjusted to an intermediate position it is equal to about 28 seconds, while at the maximum the pause time will be about 90 seconds.

8C - Trimmer “OBS” - Obstacle sensitivity

The “**OBS**” trimmer is used to adjust both the intervention delay after detection of an obstruction and the opposing force to be used by the automation. This function is useful to overcome any critical points of the automation where, for a brief time interval, there is greater power absorption by the motor. Both the intervention delay and the opposing force can be increased by turning the trimmer clockwise. The intervention delay can be set between 0.1 and 3 seconds. Thus if the trimmer is set at the minimum then the intervention time is equal to about 0.1 seconds, if adjusted to an intermediate position it is equal to about 1.5 seconds, while at the maximum the intervention time will be about 3 seconds. See also paragraph 11D.

8B - Trimmer “DEL” – Delay between wings

The “**DEL**” trimmer is used to adjust the delay between the start of the motors both in opening and in closing. If the trimmer is set at the minimum, there is no delay, and the wings will open and close simultaneously. In the other positions, the delay in opening is set to 3 seconds, and the delay in closing can be set between 0 and 15 seconds, depending on the trimmer position.

9 - LED

The leds show the state of the control unit and of some of the connected accessories. Normally, when the control unit is powered and working, the red PH led and the red ST led should be on. Otherwise, verify the connected accessories, or the bridges which substitute them.

9A - WARNING LED

YELLOW LED “SET”:
- flashes for 5 seconds when turned on to indicate that it is possible to enter the professional, simplified, or pedestrian learning modes
- lights up with a fixed light while professional or simplified learning are carried out.
- is switched off when the control unit functions normally

RED LED “RAD”:
- flashes briefly when a 433 MHz Multipass radio code is received
- is fixed on when radio codes are being memorized
- flashes rapidly when the control unit is switched on and the radio code memory is defective
- flashes rapidly during the cancellation of radio codes
- flashes slowly in case of attempt to insert codes with the memory full
- is switched off when the control unit is functioning normally and waiting to receive a command via radio.

RED LED “PH”:
-is switched on when the photocell is properly installed
-is switched off when the photocell does not work (interrupted or not aligned)

GREEN LED “START”
–is switched on when the step-by-step contact (STR) is closed (the control unit receives the signal)
- is switched off when the step-by-step contact (STR) is opened (the control unit does not receive the signal)

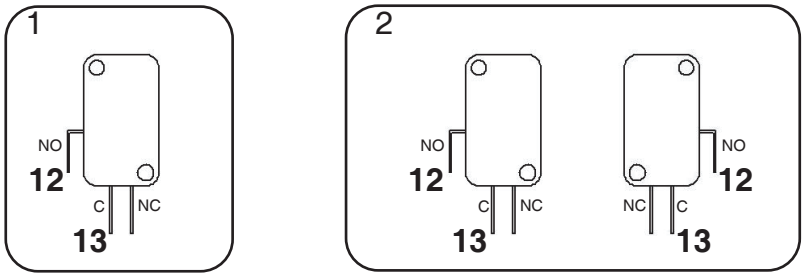
RED LED “ST”:
- is switched on when the STOP input (STP) is closed
- is switched off when the STOP input (STOP) is opened

RED LED “ER”:
- is switched off when the control unit functions normally
- is switched on in case of failure of safety test (see paragraph 11C)
- is switched on in case of anomalies on the control unit (try to program the control unit again)

10 - CABLE COMMANDS CONNECTABLE

10A - STARTING COMMAND CONNECTION

In the "**START**" input (terminals 12, 13) it is possible to connect a normally open contact (for example, key selectors, or switches) to manage the automation. The commands can be set by dip switches 2, 3 and 7 (see paragraph 4A, 5). There are 2 micro switches in the selectors; each one has its own function.
Picture 1 shows the terminals in which is possible to connect a micro switch for the starting command.
A selector can also issue a starting command with both the contacts connected in parallel (see picture 2).

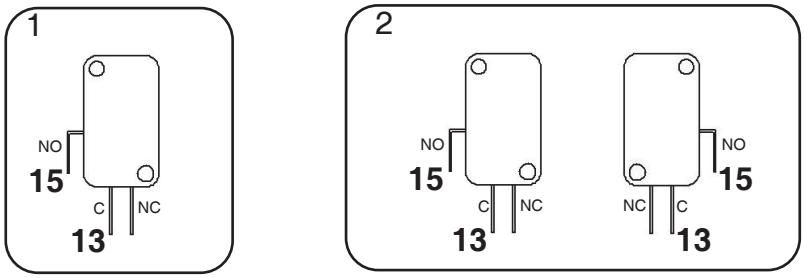


⚠ If there is more than one opening contact, they must be connected in parallel (see picture 2).
⚠ Keeping the opening contact closed ("STR" terminal, for example with a relay), the control unit perform the opening, and the automation doesn't accept closing commands (neither automatic, nor by wire), as long as the contact will be opened again.

10B - PEDESTRIAN OPENING COMMAND CONNECTION

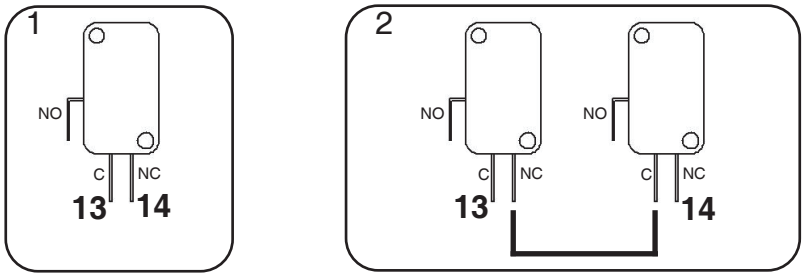
The pedestrian opening is a partial opening (or total opening, if the installer wants it) of the wing opened by "**MOT1**" (terminals 24, 25). To activate the pedestrian opening function, it is necessary to make the pedestrian opening programming procedure (see paragraph 7). The pedestrian opening can be managed by a channel of the transmitter (see paragraph 3B) and/or by wire, connecting a normally open contact to "**PED**" input (terminals 13,15).
Picture 1 shows the terminals in which it is possible to connect a micro switch for the pedestrian opening command.

⚠ If there is more than one pedestrian opening contact, they must be connected in parallel (see picture 2).



10C - STOP COMMAND CONNECTION

In the "**STOP**" input (terminals 13, 14), it is possible to connect a normally closed contact, to perform the immediate stop of every function. Picture 1 shows the terminals in which it is possible to connect a stop button. To restart the functions, it is necessary to deactivate the stop command.

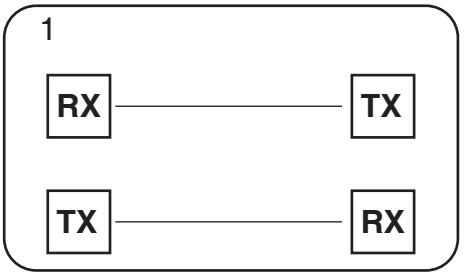


⚠ If there is more than one stop contact, they must be connected in series (see picture 2).

11 - OPERATION OF THE SAFETY DEVICES

11A - CLOSING SAFETY DEVICES

It is possible to connect normally closed contact devices to the "**PHO1**" input (terminal 16,18). These devices operate during the closing cycle.
In particular:
- in closing phase, an immediate inversion of the motion.
- in opening phase, they have no effect.
- if the access is closed, they have no effect.
- if the access is open, they inhibit the closing commands.



⚠ If there is more than one device on this contact (PHO1), they must be connected in series.

⚠ If there is more than one photocell, the receivers and the transmitters must be alternated (see picture 1).

11B - OPENING SAFETY DEVICES

It is possible to connect normally close contact devices to the "**PHO2**" input (terminal 17,18). These devices operate during opening and closing cycles depending on the setting of **DIP4 "PHO2"** (see paragraph 4A)

DIP4 SET TO ON (Internal photocell):
- in **closing phase** they continue the movement as soon the device has been cleared
- in **opening phase** they continue the movement as soon the device has been cleared
- if the **access is closed** they inhibit the opening commands.
- if the **access is open** they inhibit the closing commands.

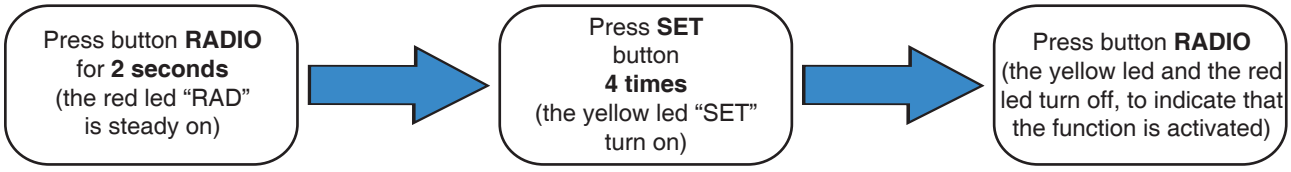
DIP4 IN OFF (safety edge in opening):
- in **closing phase** they have no effect
- in **opening phase** an immediate inversion of the motion for 2 seconds
- if the **access is closed** they inhibit the opening commands.
- if the **access is open** they have no effect

⚠ If there is more than one device on this contact (PHO2), they must be connected in series.
⚠ If there is more than one photocell, the receivers must be alternated (see picture 1)

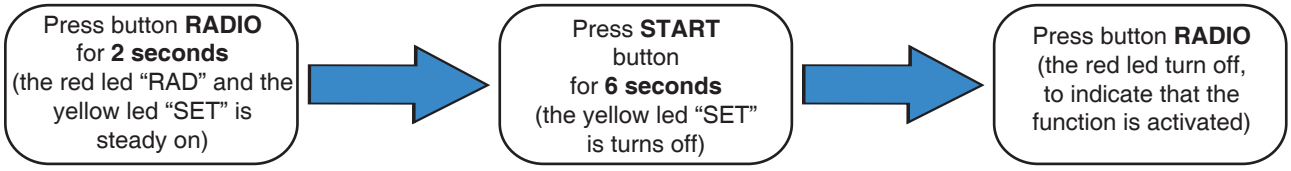
11C - SAFETY AUTO TEST (only with 12Vdc photocells)

The control unit has a self-test function of the safeties connected to the "**PHO1**" and "**PHO2**" input. It switches off the transmitter to check the commutation of the corresponding receiver contact before the execution of each manoeuvre. To activate this self-test function proceed as follows:
- connect the positive of the photocell transmitter power to the terminal "**+TX**" (terminal 20) instead of the terminal "**+VA**" (terminal 19).
- make the programming procedure, as follows.

ACTIVATION



DEACTIVATION



⚠ The activation of the self-test, without having properly connected the photocells to the control unit, will cause a malfunctioning of the system.
⚠ Press button P2/RAD for 2 seconds to know the state of self-test (activated or deactivated): if the red led "RAD" turns on, it means that the self-test is disabled; if the red led "RAD" and the yellow led "SET" turn on, it means that the self-test is active.

11D - OBSTACLE DETECTION BY POWER ABSORPTION

Depending on the regulation of trimmer "**OBS**" (see paragraphs 4B, 8), the control unit could be more sensitive (and invert the motion more easily) in case of impact of a wing against an obstacle. However, a too sensitive regulation of the trimmer, together with a worsening of the condition of the system caused by the passage of time, could cause unexpected interventions in the points where the motors absorb more current.

12 - OTHER CONNECTABLE ACCESSORIES

12A - FLASHING LAMP

It is possible to connect flashing light devices to the “LAMP” input (terminals 8,9). These devices turn on a second before the manoeuvre. If the dip 5 “LAMP” is ON position, the power supplied is intermittent. Therefore, a normal lamp can be connected. If the dip 5 “LAMP” is OFF position, the power supplied is direct. Therefore the terminals must be connected to a flashing light with a built-in oscillating circuit.

ⓘ The lamp must be 24 Vdc, and power rating must not be greater than 15W.

12B - ANTENNA

It is possible to connect a radio frequency antenna to the “ANT” input (terminals 1,2). The control unit is provided with a pre-connected cable. In particular environmental conditions, it can be useful to connect an external antenna, to increase the transmitter range.

ⓘ In case of connection of external antennas, it is necessary to remove the pre-connected cable.

12C - OPENED GATE WARNING LIGHT

If the safety device self-test is not used (see paragraph 11C), the output “+TX” (terminal 20) acts as a gate open warning light. The status of the lamp is as follows:
- If the access is closed the light is switched off
- If the access is open is alight with a fixed light
- If the access is opening the lamp flashes.
- If the access is closing the lamp flashes quickly.

ⓘ The warning light must be 12 Vdc and it can’t be more than 3W.

12D - ELECTRO LOCK (OPTIONAL CARD)

It is possible to manage an electro lock (maximum power 15W) using an accessory card

ⓘ If the electro lock is connected, it could be necessary to set the dip 6 “Strike” to ON position, to have a stroke reversing pulse at the beginning of the opening, and at the end of the closing.

12E - BUFFER BATTERIES (OPTIONAL CARD)

It is possible to connect two 12Vdc batteries in series (or one 24Vdc battery), max 7Ah, using a battery charge card

ⓘ The quantity of cycles achievable with batteries depends on the power of the motors, and on the Ah of the batteries.

12F - COURTESY LIGHT (OPTIONAL CARD)

Thanks to an optional card (“Selc 12”), it is possible to manage a courtesy light (230Vac, max 500W). The output contact is free, and it is provided before every manoeuvre for a customizable time from 0 to 120 seconds.

13 - BUILT-IN MODULES

13A - “MEMO” MODULE

“MEMO 200” module is a memory card (see paragraph 1A) which stores the radio transmitters codes (see paragraph 3A and/or 3B).

13B - “RX STAR” MODULE

The “RX STAR” module is necessary to receive the radio transmitters frequencies (433.920 MHz). It doesn’t contain the radio codes.

14 - INCONVENIENTS AND REMEDIES

14A - THE AUTOMATION DOESN'T START

- Check the presence of voltage in the terminals of the external fuse box.
- Check the fuse (see paragraph 1A).
- STOP contact open (red led "ST" is off): check for possible STOP commands connected (terminal 14). If absent, connect the input with terminal 14.

14B - THE AUTOMATION PERFORMS ONLY THE OPENING CYCLE

-The photocell is obstructed (red led "PHO" is off): check the correct positioning of the photocells and their range.
-The photocell is absent (red led "PHO" is off): if there are no devices connected on terminal 16, jumper the input.
-A normally closed contact, or a defective contact, is connected on "STAR" input (terminal 12 – the green led "START" is steady on).

14C - THE AUTOMATION WORKS ONLY BY WIRE

- The radio transmitter hasn't been correctly programmed (see paragraph 3).
- The battery of the transmitter are exhaust. Change them.

14D - THE AUTOMATIONS CLOSES WITHOUT EXTERNAL COMMANDS

- The automatic reclosing dip "AUTO" is ON. Put the dip in OFF (see paragraph 4A).
- The rapid reclosing dip "FAST" is ON. Put the dip in OFF (see paragraph 4A)

14E - THE AUTOMATION STARTS BUT, AT A CERTAIN POINT, IT INVERTS THE TRAVEL

- Too low obstacle sensitivity. Increase the "OBS" trimmer (see paragraph 4B).
- Check the motors: they should turn off some seconds after the beat. In case, lower the OBS trimmer (see paragraph 4B), and perform the programming procedure again.
- Intervention of safety devices. If there are two pairs of photocells, they could see each other. Invert a receiver with its transmitter (see paragraph 11A).

14F - THE AUTOMATION STARTS BUT, AT A CERTAIN POINT, IT STOPS

- Not enough power. Set "FOR" trimmer at maximum level, and program the automation again (see paragraph 4B). Perform a professional programming procedure (paragraph 5D) and reduce at minimum (or remove) the slowdowns.

14G - LIMITED SEGNAL RECEPTION

- An external antenna has been connected, but the standard cable mounted in the control unit hasn't been removed. Remove the cable.
- The battery of the transmitter are exhaust. Change them.
- There are external interferences. Install an external antenna.

14H - THE WINGS, IN CLOSING POSITION, ARE NOT BLOCKED ENOUGH

- Increase the "OBS" trimmer, in order to push more the wings against the mechanical stop and perform the programming procedure again.

14I - THE MANUAL RELEASE IS TOO HARD

- The mechanism is too stressed in closing position. Decrease the "OBS" trimmer, and perform the programming procedure again.

14L - THE RED LED "ERR" TURNS ON, AND THE CONTROL UNIT DOES NOT ACCEPT INPUT

- Perform a programming procedure (see paragraph 6B or 6D). Then try again.

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