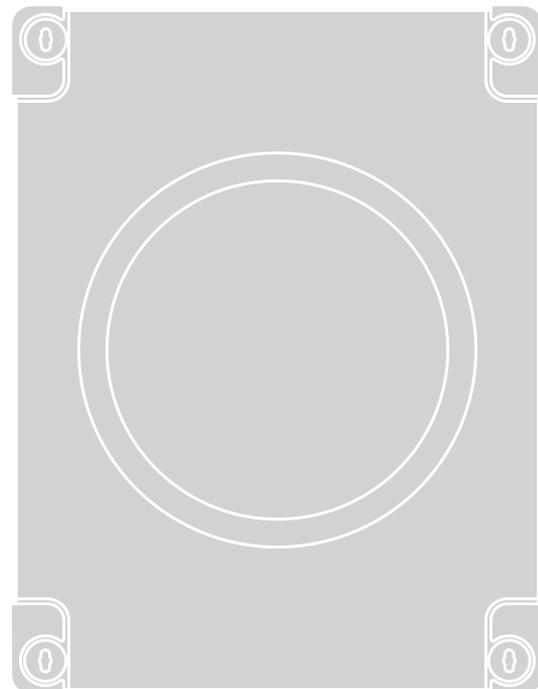


Nice

CE
EAC

MC824H



Control unit

EN - Instructions and warnings for installation and use

Nice

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1 GENERAL SAFETY WARNINGS AND PRECAUTIONS



WARNING! Important safety instructions. Observe all the instructions as improper installation may cause serious damages.



WARNING! Important safety instructions. It is important to comply with these instructions to ensure personal safety. Store these instructions carefully.



According to the latest European legislation, an automated device must be constructed in conformity to the harmonised rules specified in the current Machinery Directive, which allow for declaring the presumed conformity of the automation. Consequently, all the operations for connecting the product to the mains electricity, its commissioning and maintenance must be carried out exclusively by a qualified and expert technician.



In order to avoid any danger from inadvertent re-setting of the thermal cut-off device, this appliance must not be powered through an external switching device, such as a timer, or connected to a supply that is regularly powered or switched off by the circuit.

WARNING! Please abide by the following warnings:

- Before commencing the installation, check the "Product technical specifications", in particular whether this product is suitable for automating your guided part. Should it not be suitable, do NOT proceed with the installation.
- The product cannot be used before it has been commissioned as specified in the "Testing and commissioning" chapter.
- Before proceeding with the product's installation, check that all the materials are in good working order and suited to the intended applications.
- The product is not intended for use by persons (including children) with reduced physical, sensory or mental capacities, nor by anyone lacking sufficient experience or familiarity with the product.
- Children must not play with the appliance.
- Do not allow children to play with the product's control devices. Keep the remote controls out of reach of children.
- The system's power supply network must include a disconnection device (not supplied) with a contact opening gap permitting complete disconnection under the conditions envisaged by Overvoltage Category III.
- During the installation process, handle the product with care by avoiding crushing, impacts, falls or contact with liquids of any kind. Do not place the product near sources of heat nor expose it to open flames. All these actions can damage the product and cause it to malfunction, or lead to dangerous situations. Should this occur, immediately suspend the installation process and contact the Technical Assistance Service.
- The manufacturer declines all liability for damages to property, objects or people resulting from failure to observe the assembly instructions. In such cases, the warranty for material defects shall not apply.
- The weighted sound pressure level of the emission A is lower than 70 dB(A).

- Cleaning and maintenance reserved for the user must not be carried out by unsupervised children.
- Before intervening on the system (maintenance, cleaning), always disconnect the product from the mains power supply and from any batteries.
- The packing materials of the product must be disposed of in compliance with local regulations.

- Inspect the system frequently, in particular the cables, springs and supports to detect any imbalances and signs of wear or damage. Do not use the product if it needs to be repaired or adjusted, because defective installation or incorrect balancing of the automation can lead to injuries.

2 PRODUCT DESCRIPTION AND INTENDED USE

MC824H is an electronic control unit for automating swing gates. **MC824H** is able to command electromechanical actuators of the type indicated in "Table 4". It incorporates a system that verifies the force of the motors connected to it (amperometric function). This system allows for automatically detecting the limit switches, memorising the work time of each individual motor and detecting any obstacles during normal movement. These characteristics simplify the installation considerably, as the leaf offset and work times do not require any adjusting.

The control unit is programmed in advance for the most frequently used functions and incorporates a radio receiver for the remote controls. In addition, a straightforward procedure can be implemented to select more specific functions (see the "PROGRAMMING" chapter).

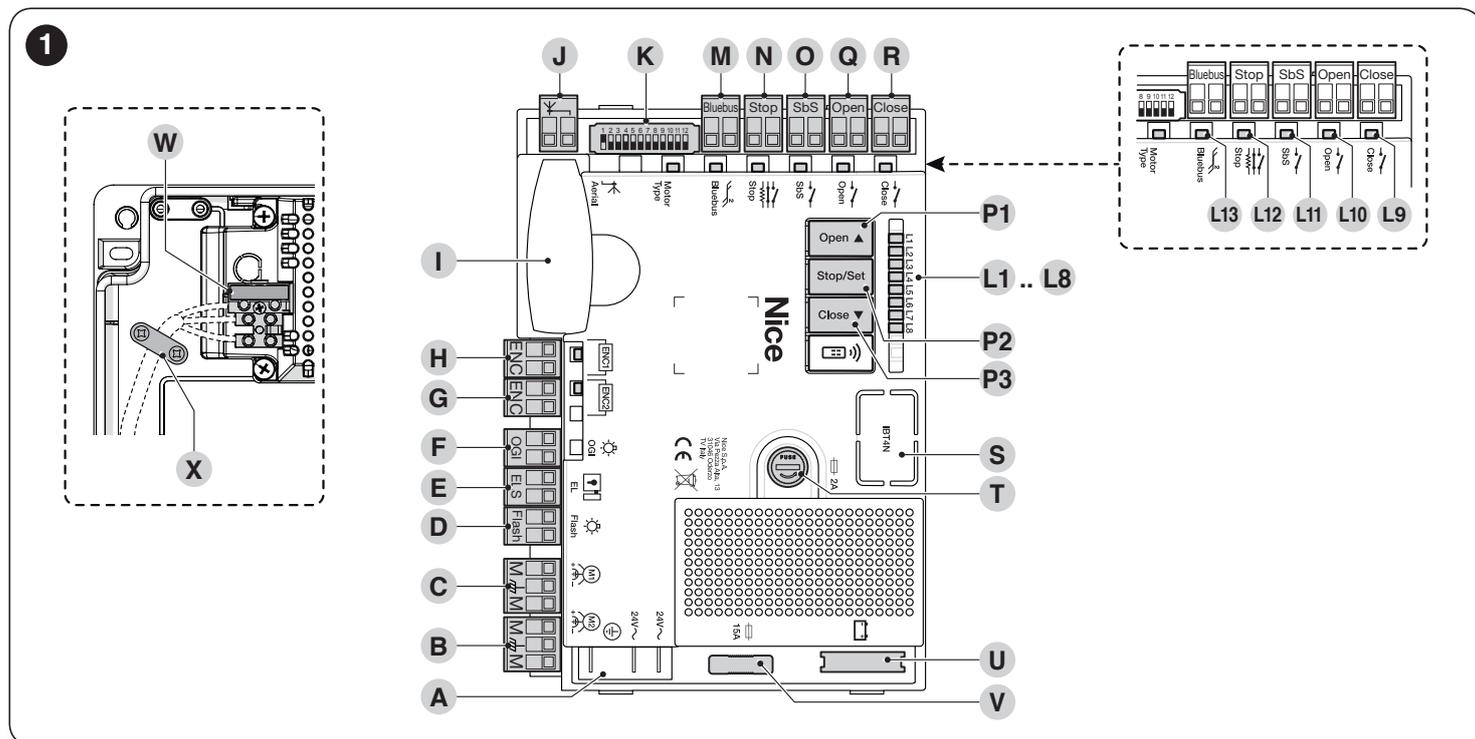
MC824H is equipped with an SM-type connector for slot-in radio receivers (see the "Connecting an SM-type radio receiver" paragraph) and an IBT4N-type connector which, through the IBT4N interface, can be used to connect BusT4 devices, such as the Oview programmer (see the "Connecting the IBT4N interface" paragraph).

The control unit is configured for being powered with PS324 back-up batteries which, in case of a power outage, function as an emergency power supply (see the "Connecting the PS324 back-up battery" paragraph). Moreover, the **MC824H** is configured for being connected to a Solemyo solar power kit (see the "Connecting the Solemyo system" paragraph).

! Any use of the product other than the intended use described is not allowed!

2.1 LIST OF CONTROL UNIT PARTS

The control unit consists of an electronic command and control board housed and protected in the box. "Figure 1" shows the main parts making up the board.



- A** 24 V~ power supply connector
- B** M2 motor terminal (starts first during the opening phase)
- C** M1 motor terminal (starts first during the closing phase)
- D** Warning light terminal
- E** Electric lock output terminal
- F** OGI (open gate indicator) output terminal
- G** Motor M2 encoder input terminal
- H** Motor M1 encoder input terminal
- I** "SM" connector for radio receiver
- J** Terminals for radio antenna
- K** Motor type selectors
- M** Bluebus input terminal
- N** Stop input terminal

- O** SbS (Step-by-Step) input terminal
- Q** Open input terminal
- R** Close input terminal
- P1..P3** Control unit programming buttons
- L1..L8** Programming LED
- L9..L13** Input LEDs
- S** Connector for IBT4N
- T** Service fuse (2 A, type F)
- U** Connector for PS324 back-up battery / Solemyo solar power kit
- V** Motor fuses (15 A)
- W** Mains power supply (L-Live; N-Neutral)
- X** Cable clamp

3 INSTALLATION

3.1 PRE-INSTALLATION CHECKS

Before proceeding with the product's installation, it is necessary to:

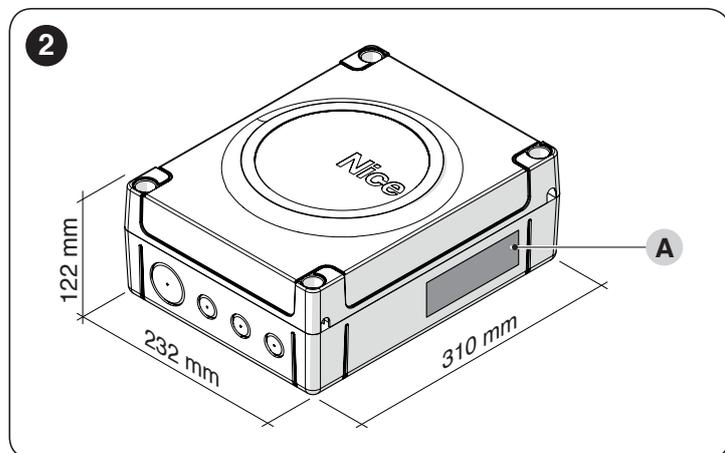
- check the integrity of the supply
- check that all the materials are in good working order and suited to the intended use
- check that all operating conditions comply with that specified in the "**Product usage limits**" paragraph and in the "**TECHNICAL SPECIFICATIONS**" chapter
- check that the chosen installation location is compatible with the product's overall dimensions (see "**Figure 2**")
- check that the surface chosen for installing the product is solid and can ensure stable attachment
- make sure that the installation area is not subject to flooding; if necessary, the product must be installed appropriately raised above ground level
- check that the space around the product allows safe and easy access
- check that all electrical cables to be used belong to the type listed in "**Table 1**"
- check that the automation has mechanical stops in both the opening and closing phases.

3.2 PRODUCT USAGE LIMITS

The product must be used exclusively with the gearmotors listed in "**Table 4**" and in accordance with the corresponding usage limits.

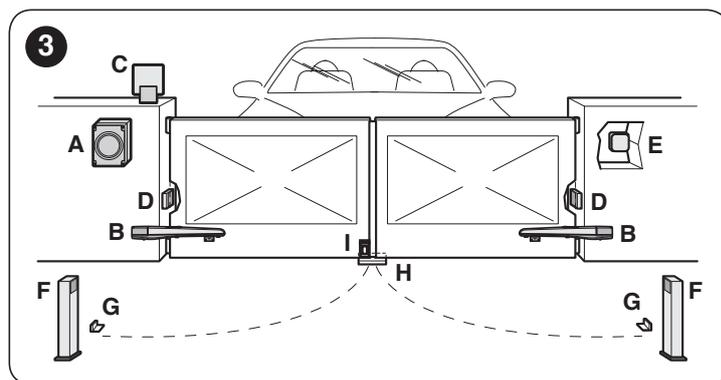
3.3 PRODUCT IDENTIFICATION AND OVERALL DIMENSIONS

The overall dimensions and label (A) that allow for identifying the product are shown in "**Figure 2**".



3.4 TYPICAL INSTALLATION

"**Figure 3**" shows an example of an automation system constructed using **Nice** components.



- A Control unit
- B Gearmotor
- C Warning light
- D Photocell
- E Digital keypad - Transponder reader - Key selector
- F Photocell column
- G Mechanical stops for the open position
- H Mechanical stop at closed position
- I Electric lock

These above-mentioned components are positioned according to a typical standard layout. Using the layout in "**Figure 4**" as a reference, define the approximate position in which each component of the system will be installed.

⚠ Before proceeding with the installation, prepare the required electrical cables by referring to "Figure 4" and to that stated in the "TECHNICAL SPECIFICATIONS" chapter.

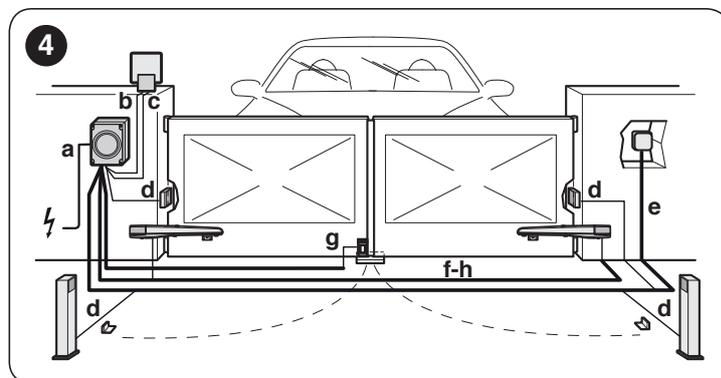


Table 1

TECHNICAL SPECIFICATIONS OF ELECTRICAL CABLES	
Identification no.	Cable characteristics
a	CONTROL UNIT POWER SUPPLY cable 1 cable 3 x 1.5 mm ² Maximum length 30 m [note 1]
b	WARNING LIGHT cable 1 cable 2 x 0.5 mm ² Maximum length 20 m
c	ANTENNA cable 1 x RG58-type shielded cable Maximum length 20 m; recommended < 5 m
d	BLUEBUS DEVICES cable 1 cable 2 x 0.5 mm ² Maximum length 20 m [note 2]
e	KEY SELECTOR cable 2 cables 2 x 0.5 mm ² Maximum length 50 m [note 3]

TECHNICAL SPECIFICATIONS OF ELECTRICAL CABLES	
Identification no.	Cable characteristics
f	MOTOR POWER SUPPLY cable 1 cable 3 x 1.5 mm ² Maximum length 10 m [note 4]
g	ELECTRIC LOCK CONNECTION cable 1 cable 2 x 1 mm ² Maximum length 10 m
h	ENCODER CONNECTION cable 1 cable 2 x 1 mm ² Maximum length 10 m [note 4]

Note 1 If the power supply cable is longer than 30 m, a cable with larger cross-sectional area (3 x 2.5 mm²) must be used and a safety earthing system must be installed near the automation.

Note 2 If the BlueBus cable is longer than 20 m, up to maximum 40 m, a cable with larger gauge (2 x 1 mm²) must be used.

Note 3 These two cables can be replaced by a single 4 x 0.5 mm² cable.

Note 4 These cables can be replaced by a single 5 x 1.5 mm² cable.

! The cables used must be suited to the type of environment of the installation site.

! When laying the ducting for routing the electrical cables and for the cable entry point into the control unit housing, check that there are no water deposits in the junction wells nor condensate in the connection ducts, as water and damp conditions could damage the product's electronic circuits.

3.5 INSTALLING THE CONTROL UNIT

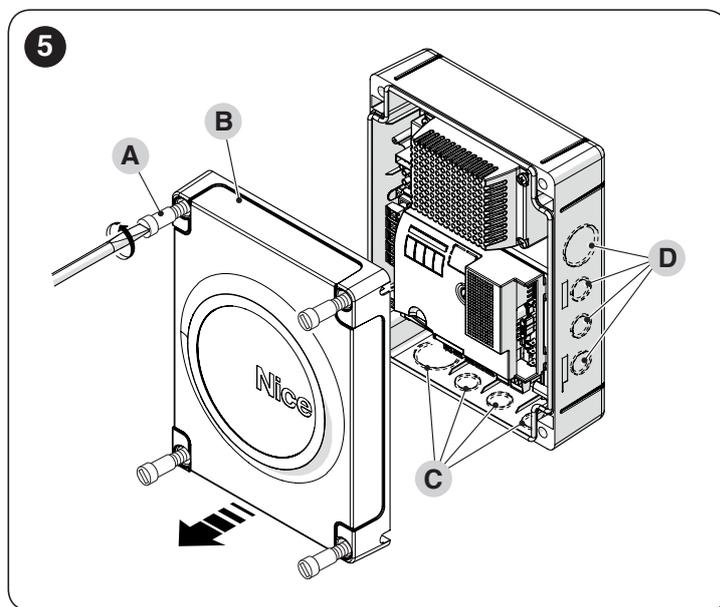
! Secure the control unit to an unmovable, vertical, flat surface adequately protected against possible impacts. The lower part of the control unit must be at least 40 cm above the ground.

! The control unit is also suitable for being installed outdoors, as it is supplied in a container that, if adequately installed, guarantees an IP54 protection rating.

To secure the control unit ("Figure 5" and "Figure 6"):

- loosen the screws (A) and remove the cover (B) of the control unit
- identify the pre-cut holes (C) located along the lower side of the box and perforate the ones used to pass the electrical cables

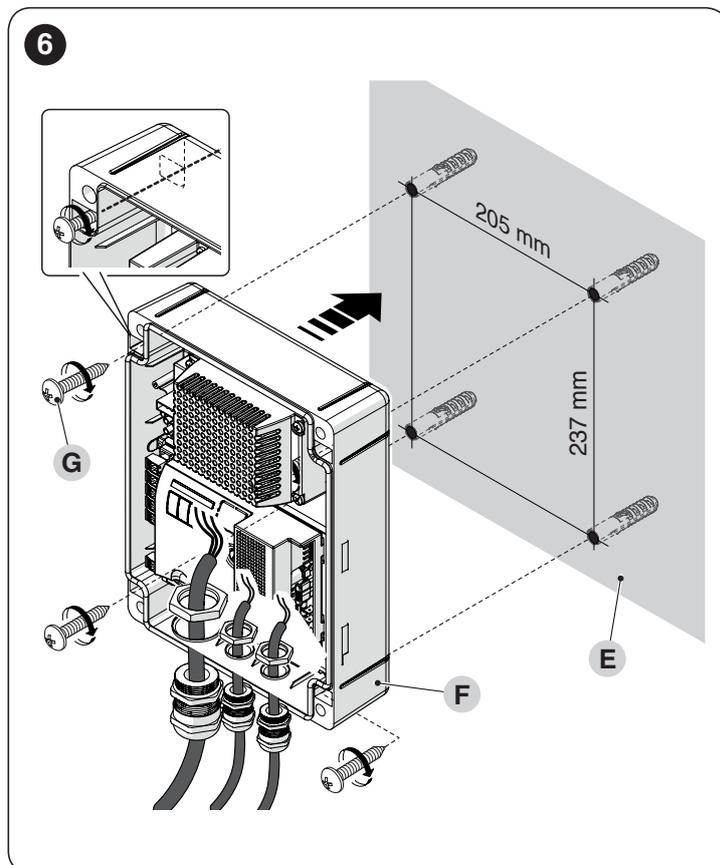
! The side cable entry (D) can only be used if the control unit is installed indoors, in a protected environment.



- drill the wall (E) by observing the measurements shown in the figure and arrange suitable wall plugs (not supplied)
- position the box (F) and fasten it with the screws (G) (not supplied)
- arrange cable glands for passing the connecting cables
- make the electrical connections by operating as described in the "ELECTRICAL CONNECTIONS" chapter.

! To install any other devices used on the automated system, refer to the respective instruction manuals.

- after making the electrical connections, put the cover (B) back on and tighten the screws (A).



4 ELECTRICAL CONNECTIONS

4.1 PRELIMINARY CHECKS

The electrical connection of the various devices present on the automation (photocells, digital keypads, transponder card readers, etc.) to the control unit must be made through the Nice "Bluebus" system. For the other connections, refer to that specified below.

 **All electrical connections must be made with the system disconnected from the mains electricity and with the back-up battery (if present) disconnected.**

 **The connection operations must only be carried out by qualified personnel.**

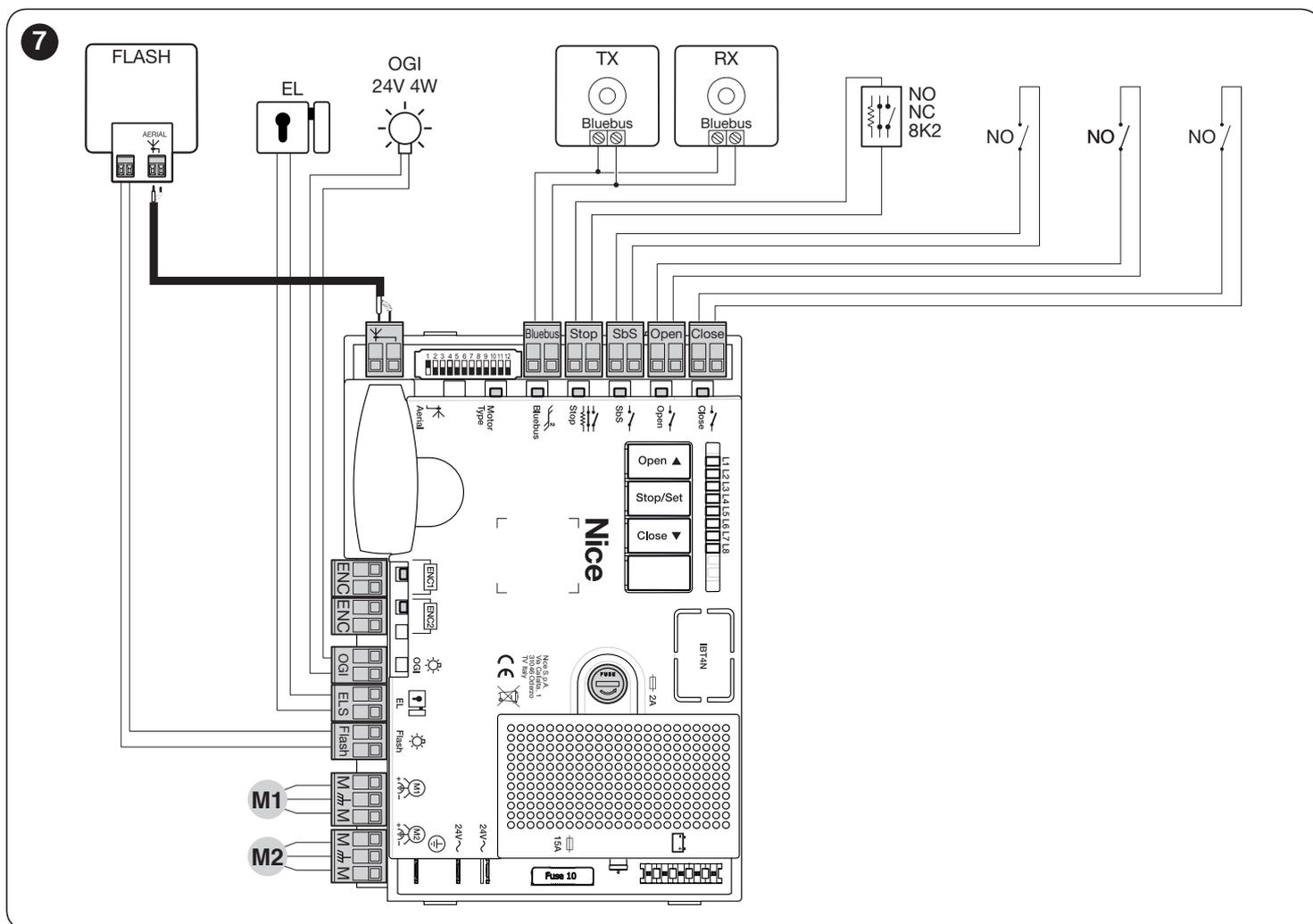


Mount a device on the electric power line that completely disconnects the automation from the grid.

- The disconnection device must have contacts with a sufficient gap to ensure complete disconnection, under the Category III overvoltage conditions, in accordance with the installation instructions. If necessary, this device guarantees quick and safe disconnection from the mains power and therefore must be positioned in sight of the automation. If located in a concealed position, it must be equipped with a system that prevents inadvertent or unauthorised reconnection of power, to avoid potential hazards.

4.2 WIRING DIAGRAM AND DESCRIPTION OF CONNECTIONS

4.2.1 Wiring diagram



4.2.2 Description of connections

The meaning of the codes/wording stamped on the electronic board near the relative terminals is described below.

Table 2

ELECTRICAL CONNECTIONS			
Terminals	Function	Description	Cable type
	Motor 1	Connection of motor M1 [note 1]	3 x 1.5 mm ²
	Motor 2	Connection of motor M2	3 x 1.5 mm ²

ELECTRICAL CONNECTIONS			
Terminals	Function	Description	Cable type
Flash	Warning light	Output for warning light mounting a 12 V (maximum 21 W) lamp. The output can be programmed (refer to the “ Level 1 programming (ON-OFF) ” paragraph).	2 x 0,5 mm ²
ELS	Electric lock	Output for 12 V~ (maximum 15 VA) electric lock. The output can be programmed (refer to the “ Level 1 programming (ON-OFF) ” paragraph).	2 x 1,0 mm ²
OGI	OGI	“Open Gate Indicator” output for 24 V maximum 4 W signalling lamp. The output can be programmed (refer to the “ Level 1 programming (ON-OFF) ” paragraph).	1 x 0.5 mm ²
ENC	Encoder 1	Motor 1 encoder input. No pole markings to observed	2 x 1,0 mm ²
ENC	Encoder 2	Motor 2 encoder input. No pole markings to observed	2 x 1,0 mm ²
	Antenna	Radio receiver antenna connection	1 x RG58-type shielded cable
Bluebus	BlueBus	Input for compatible devices (MOFB, MOFOB, MOB and MOTB). The devices must be connected in parallel through two conductors carrying both the power supply and the communication signals. It is not necessary to observe the pole markings. During the learning function, each device connected to the control unit will be individually recognised thanks to a univocal code. Whenever a device is added or eliminated, the control unit must run the learning procedure (see “ Learning of connected devices ” paragraph).	2 x 0,5 mm ²
Stop	Stop	Input for devices that through their intervention trigger the immediate stoppage of the current manoeuvre followed by a brief reversal. NO (normally open) contacts, NC (normally closed) contacts or devices with 8.2 kΩ fixed resistor output, such as sensitive edges, can be connected to this input. Each device connected to this input will be individually recognised by the control unit during the learning phase (see “ Learning of connected devices ” paragraph). During this phase, if the control unit detects any variation with respect to the learned status, it triggers a STOP. One or more devices, even different from one another, can be connected to this input: any number of NO inputs in parallel; any number of NC inputs in series; 2 devices with 8.2 kΩ fixed resistor output in parallel. If there are more than 2 devices, they must all be connected in cascade mode with a single 8.2 kΩ terminating resistor; 2 NO and NC devices in parallel, putting an 8.2 kΩ resistor in series with the NC contact (this also allows for combining 3 devices: NO, NC and 8.2 kΩ).	1 x 0.5 mm ²
SbS	Step-by-step	Input for a NO (normally open) button, for sending commands in step-by-step mode.	1 x 0.5 mm ²
Open	Open	Input for command devices that trigger the opening manoeuvre only, when they intervene. NO (normally open) contacts can be connected to this input.	1 x 0.5 mm ²
Close	Close	Input for command devices that trigger the closing manoeuvre only, when they intervene. NO (normally open) contacts can be connected to this input.	1 x 0.5 mm ²

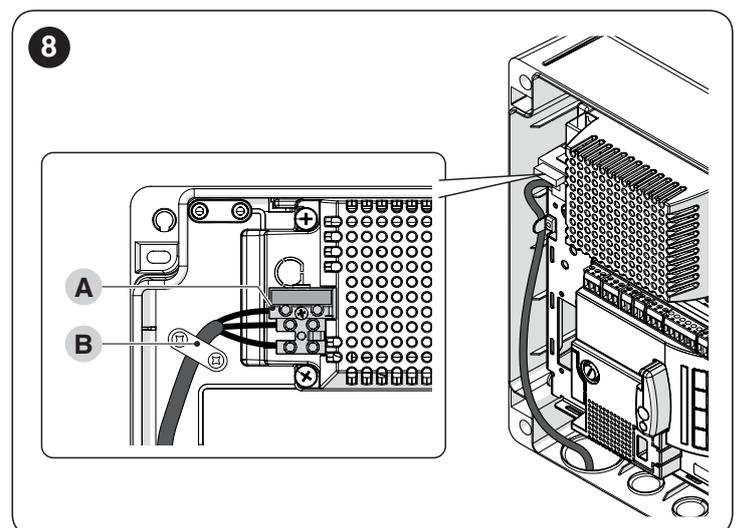
4.2.3 Operations for connection

To make the electrical connections (“**Figure 7**”):

1. remove the terminals from their housings
2. connect the various devices to the relevant terminals according to the diagram shown in “**Figure 7**”
3. put the terminals back into their housings.
4. connect the power supply cable to terminal (A) and secure it with the cable clamp (B) (“**Figure 8**”).



If the system includes a single gearmotor only, connect it to terminal M2 and leave terminal M1 free.



4.3 CONNECTING OTHER DEVICES TO THE CONTROL UNIT

In any additional devices belonging to the system (e.g. transponder card reader, light for the key selector, etc.) must be powered, they can be connected to the control unit using terminals “SbS (positive)” and “Stop (negative)” (“Figure 7”). The power supply voltage is 24 V $\overline{=}$ with a maximum available current of 200 mA.

 **The voltage available at the “SbS” and “STOP” terminals remains even when the “Stand-by” function is enabled on the board.**

4.4 ADDRESSING OF DEVICES CONNECTED WITH THE BLUEBUS SYSTEM

To allow the control unit to recognise the devices connected through the “BlueBUS” system, these devices must be addressed. This operation can be carried out by correctly positioning the electrical jumper present in each device (also refer to the instruction manual of each device). Shown below is an addressing diagram for photocells, based on their type.

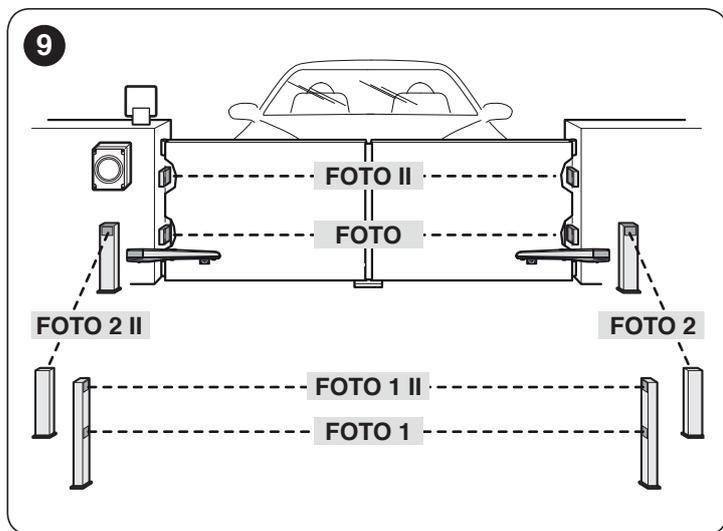


Table 3

PHOTOCELL ADDRESSES	
Photocell	Position of the jumpers
FOTO (PHOTO) External photocell h = 50 activated during the closing phase (stops and reverses the gate's movement)	
FOTO II (PHOTO II) External photocell h = 100 activated during the closing phase (stops and reverses the gate's movement)	
FOTO 1 (PHOTO 1) Internal photocell h = 50 cm with activation both during closing (stops and reverses the movement) and during opening (stops and restarts when the photocell disengages)	
FOTO 1 II (PHOTO 1 II) Internal photocell h = 100 cm with activation both during closing (stops and reverses the movement) and during opening (stops and restarts when the photocell disengages)	
FOTO 2 (PHOTO 2) Internal photocell triggered during the opening phase (stops and reverses the gate's movement)	
FOTO 2 II (PHOTO 2 II) Internal photocell triggered during the opening phase (stops and reverses the gate's movement)	
FOTO 3 (PHOTO 3) CONFIGURATION NOT ALLOWED	

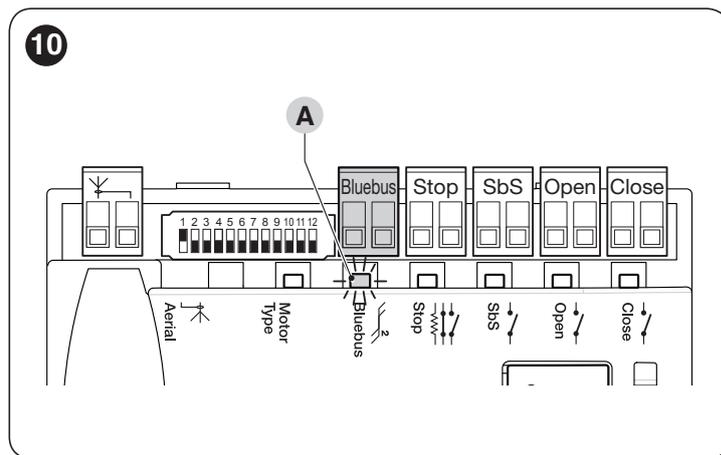


At the end of the installation procedure, or after photocells or other devices have been removed, it is necessary to complete the learning procedure (see the “Learning of connected devices” paragraph).

4.5 INITIAL START-UP AND ELECTRICAL CONNECTIONS TEST

After powering the control unit, carry out the following checks (“Figure 10”):

1. after a few seconds, check that the “Bluebus” (A) LED flashes regularly with one flash per second
2. check that the LEDs of the photocells, both TX (transmission) and RX (reception), flash. The type of flash emitted in this phase is not significant
3. check that the warning light connected to the “Flash” output is turned off.



If any one of these tests fails, disconnect the power supply to the control unit and check the various electrical connections made previously.

4.6 LEARNING OF CONNECTED DEVICES

After the initial start-up, the control unit must recognise the devices connected to the “Bluebus” and “Stop” inputs.

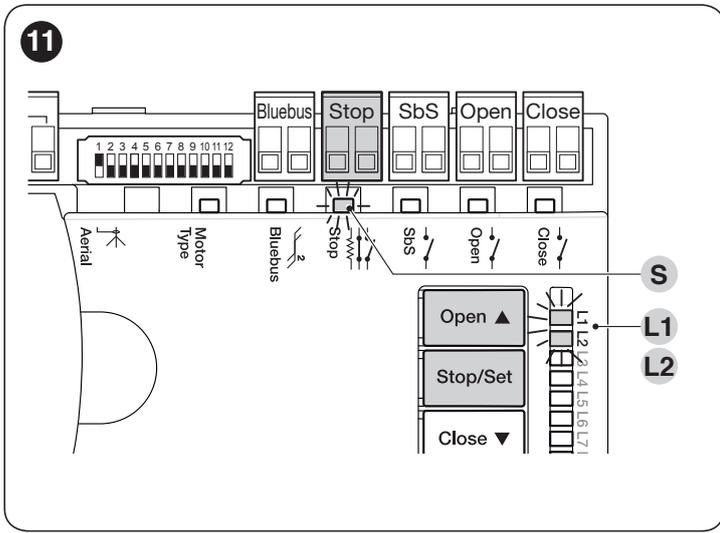


The learning phase must be carried out even if no device is connected to the control unit.

The control unit can individually recognise the various devices connected, thanks to the learning procedure, and detect possible anomalies.

For this to occur, the device learning procedure must be carried out whenever a device is added or removed.

Table 4



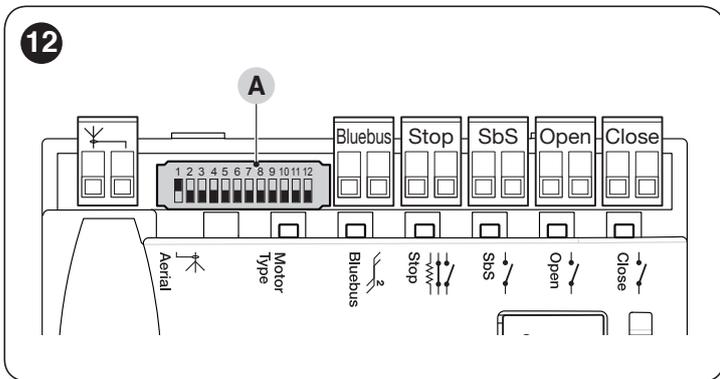
LEDs “L1” and “L2” on the control unit (“Figure 11”) emit some slow flashes to signal that the learning procedure must be carried out.

To do this:

1. simultaneously press and hold the [Open ▲] and [Stop/Set] buttons
2. release the buttons when LEDs “L1” and “L2” start flashing quickly (after roughly 3 seconds)
3. wait a few seconds until the control unit has completed the device learning phase
4. once this phase terminates, the “Stop” (S) LED must be lit and LEDs “L1” and “L2” must switch off (LEDs “L3” and “L4” could start flashing).

4.7 MOTOR SELECTOR

The control unit is equipped with a selector (A - “Figure 12”) that allows for specifying which type of motor to use (see “Table 4”).



The motor selector must be set before activating the mechanical stop learning function.

Any configuration not appearing in “Table 4” is not allowed.

SELECTING THE MOTOR TYPE		
Motor type	Motor selector	Visualisation on Oview
MB4024 - MB5024 - HY7024 - HY7124		MB4024
MFAB3024		ME3024
TO4024 - XFAB2124 - LFAB4024		TO4024
TO5024 - TO5024I		TO5024
TO7024 - TO6024HS		TO7024
BFAB5024		BM5024
METROELITE - MFAB3024HS - TO5024HS		METROE
WINGOELITE - WG3524HS - LFAB4024HS - TTN3724HS - TTN6024HS		WINGOE

4.8 LEARNING OF THE MECHANICAL STOP POSITIONS

Once the connected devices have been learned, the mechanical stop positions must be learned (maximum opening and maximum closing). This procedure can be carried out in three different ways: **automatic**, **manual** and **mixed**.

In **automatic** mode, the control unit learns the mechanical stops, calculates the most appropriate gate leaf offsets and calculates the slowdown points “SA” and “SC” (“Figure 13”).

In the **manual** mode, the positions (“Figure 13”) are programmed one by one, by shifting the leaves to the desired points. The position to be programmed can be identified when one of the eight LEDs “L1...L8” flashes (see “Table 5”).

In the **mixed** mode, it is possible to perform the automatic procedure and then, with the manual procedure, modify one or more positions with the exception of the “0” and “1” positions, which correspond to the mechanical stop positions.

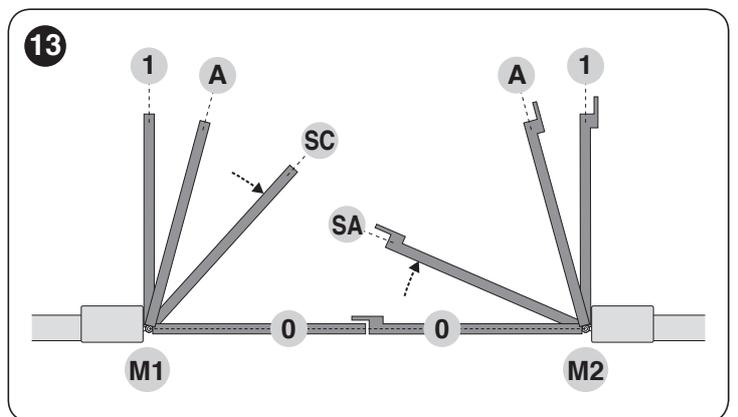
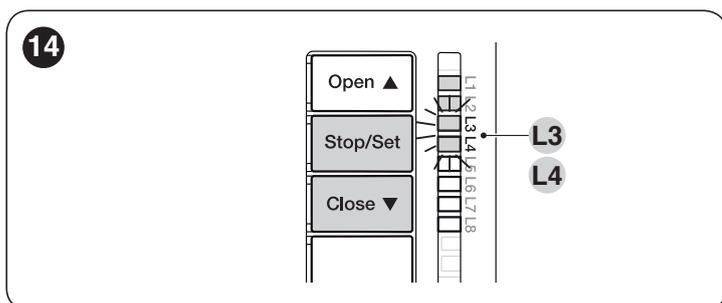


Table 5

PROGRAMMING POSITIONS		
Position	LED	Description
Position 0 (motor 1)	L1	maximum closing position: when the leaf relative to motor 1 strikes the closing mechanical stop

PROGRAMMING POSITIONS		
Position	LED	Description
Position 0 (motor 2)	L2	maximum closing position: when the leaf relative to motor 2 strikes the closing mechanical stop
Position SA (motor 2)	L3	Offset on opening: when the leaf associated with motor 2 moves beyond this position, leaf 1 will start to open
Position A (motor 1)	L4	Desired opening position: position in which the leaf associated with motor 1 must stop at the end of an opening manoeuvre. This position must not necessarily correspond to the opening mechanical stop; it can be chosen as desired between positions "0" and "1"
Position A (motor 2)	L5	Desired opening position: position in which the leaf associated with motor 2 must stop at the end of an opening manoeuvre. This position must not necessarily correspond to the opening mechanical stop; it can be chosen as desired between positions "0" and "1"
Position SC (motor 1)	L6	Offset on closing: when leaf 1 is below this position, leaf 2 will start to close
Position 1 (motor 1)	L7	Maximum opening position: when the leaf relative to motor 1 strikes the opening mechanical stop
Position 1 (motor 2)	L8	Maximum opening position: when the leaf relative to motor 2 strikes the opening mechanical stop

4.8.1 Learning in automatic mode



To effect the automatic learning procedure:

1. simultaneously press and hold the and **[Stop/Set]** buttons **[Close ▼]**
2. release the buttons when LEDs "L3" and "L4" start flashing quickly (after roughly 5 seconds)
3. check that the automation carries out the following manoeuvre sequences:
 - a. slow closing of motor M1 up to the mechanical stop
 - b. slow closing of motor M2 up to the mechanical stop
 - c. slow opening of motor M2 and of motor M1 up to the stop
 - d. fast closing of motors M1 and M2.



If the first manoeuvre (a) fails to close the leaf controlled by motor M1 but closes the one controlled by M2, press [Open ▲] or [Close ▼] to stop the learning phase. At this point, reverse the connections of motors M1 and M2 on the terminals on the control unit and those of the respective encoders. Then repeat the self-learning procedure.



If the first two manoeuvres (a and b) are not "closing" but "opening" manoeuvres, press the [Open ▲] or [Close ▼] button to stop the learning phase. At this point, invert the control wires (external positions with respect to the terminal) on the motor that executed the opening manoeuvre and repeat the self-learning procedure.

4. at the end of the closing manoeuvre (d) of the two motors, LEDs "L3" and "L4" switch off to signal that the procedure was performed correctly.



If, during the automatic learning procedure, the photocells or one of the devices connected to the "stop" input intervene, the procedure interrupts and LED L1 starts flashing. In this case, the self-learning procedure must be repeated from the beginning.

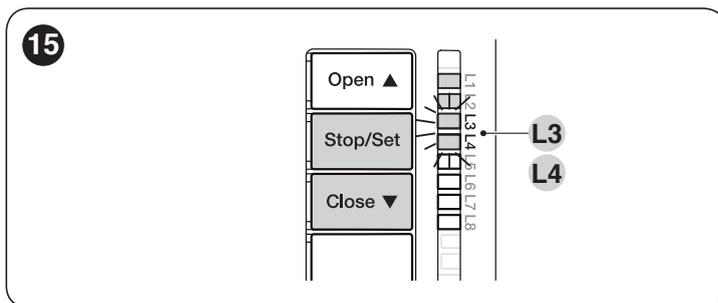


The automatic learning procedure can be run again at any time, even after the installation phase; for example, after modifying the position of the mechanical stops.

4.8.2 Learning in manual mode



The user has maximum 10 seconds to press the buttons consecutively during the learning procedure. After this time, the procedure terminates automatically and memorises the changes made up to that time.



When LEDs "L1..L8" flash, to shift between LEDs simply press the [Open ▲] or [Close ▼] button briefly (the LED will flash to signal the current position).



While LEDs "L1..L8" flash, to move the motor in any one direction, it is necessary to press and hold the [Open ▲] or [Close ▼] button.

To effect the manual learning procedure:

1. simultaneously press and hold the and **[Stop/Set]** buttons **[Close ▼]**
2. release the buttons when LED "L1" starts flashing (after roughly 3 sec)
3. LED "L1" flashes: **position 0 of M1**
 - to command and move motor 1 to **position "0"** ("Figure 13"): press and hold the **[Open ▲]** or **[Close ▼]** button. Once the position is reached, release the button to stop the manoeuvre
 - to memorise the position, press and hold the **[Stop/Set]** button for at least 3 seconds then release it (after 2 seconds LED "L1" will remain lit and after the **[Stop/Set]** button is released, LED "L2" will start flashing)

4. LED "L2" flashes: **position 0 of M2**
 - to command and move motor 2 to **position "0"** ("Figure 13"): press and hold the [Open ▲] or [Close ▼] button. Once the position is reached, release the button to stop the manoeuvre
 - to memorise the position, press and hold the [Stop/Set] button for at least 3 seconds then release it (after 2 seconds LED "L2" will remain lit and after the [Stop/Set] button is released, LED "L3" will start flashing)
5. LED "L3" flashes: **position SA of M2**
 - to command and move motor 2 to **position "SA"** ("Figure 13"): press and hold the [Open ▲] or [Close ▼] button. Once the position is reached, release the button to stop the manoeuvre
 - to memorise the position, press and hold the [Stop/Set] button for at least 3 seconds then release it (after 2 seconds LED "L3" will remain lit and after the [Stop/Set] button is released, LED "L4" will start flashing)
6. LED "L4" flashes: **position A of M1**
 - to command and move motor 1 to **position "A"** ("Figure 13"): press and hold the [Open ▲] or [Close ▼] button. Once the position is reached, release the button to stop the manoeuvre
 - to memorise the position, press and hold the [Stop/Set] button for at least 3 seconds then release it (after 2 seconds LED "L4" will remain lit and after the [Stop/Set] button is released, LED "L5" will start flashing)
7. LED "L5" flashes: **position A of M2**
 - to command and move motor 2 to **position "A"** ("Figure 13"): press and hold the [Open ▲] or [Close ▼] button. Once the position is reached, release the button to stop the manoeuvre
 - to memorise the position, press and hold the [Stop/Set] button for at least 3 seconds then release it (after 2 seconds LED "L5" will remain lit and after the [Stop/Set] button is released, LED "L6" will start flashing)
8. LED "L6" flashes: **position SC of M1**
 - to command and move motor 1 to **position "SC"** ("Figure 13"): press and hold the [Open ▲] or [Close ▼] button. Once the position is reached, release the button to stop the manoeuvre
 - to memorise the position, press and hold the [Stop/Set] button for at least 3 seconds then release it (after 2 seconds LED "L6" will remain lit and after the [Stop/Set] button is released, LED "L7" will start flashing)
9. LED "L7" flashes: **position 1 of M1**
 - to command and move motor 1 to **position "1"** ("Figure 13"): press and hold the [Open ▲] or [Close ▼] button. Once the position is reached, release the button to stop the manoeuvre
 - to memorise the position, press and hold the [Stop/Set] button for at least 3 seconds then release it (after 2 seconds LED "L7" will remain lit and after the [Stop/Set] button is released, LED "L8" will start flashing)

10. LED "L8" flashes: **position 1 of M2**
 - to command and move motor 2 to **position "1"** ("Figure 13"): press and hold the [Open ▲] or [Close ▼] button. Once the position is reached, release the button to stop the manoeuvre
 - to memorise the position, press and hold the [Stop/Set] button for at least 3 seconds then release it (after 2 seconds, LED "L8" will remain lit and after the [Stop/Set] button is released).



If the system has a single motor only:

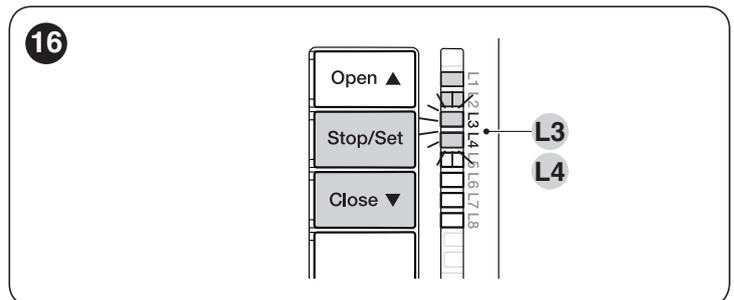
- proceed as described at points 1 and 2
- at points 3 and 9, press and hold the [Stop/Set] button for at least 3 seconds then release it
- after 2 seconds, the relative LED will remain lit until the [Stop/Set] button is released. The next LED will then start flashing.

Do not programme the positions relative to LEDs L3 (SA of M2), L4 (A of M1) and L6 (SC of M1). To shift between LEDs, simply press the [Open ▲] or [Close ▼] button briefly (the LED will flash to signal the current position).

4.8.3 Learning in mixed mode



The user has maximum 10 seconds to press the buttons consecutively during the learning procedure. After this time, the procedure terminates automatically and memorises the changes made up to that time.

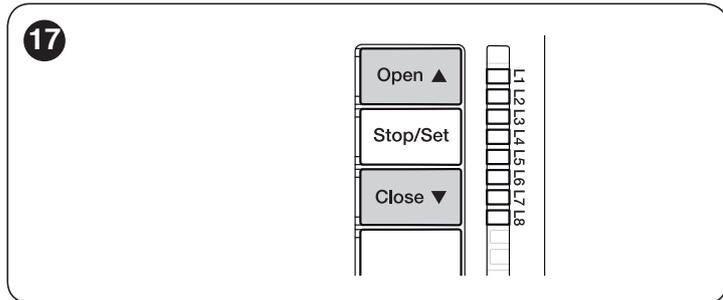


To effect the learning procedure in mixed mode:

1. run the self-learning procedure in automatic mode as described under the "**Learning in automatic mode**" paragraph
2. simultaneously press and hold the and [Stop/Set] buttons [Close ▼]
3. release the buttons when LED "L1" starts flashing
4. briefly press the [Open ▲] or [Close ▼] button to shift the flashing LED (L1...L8) to the position to be programmed
5. proceed for each individual position, as described in the "**Learning in manual mode**" paragraph
6. repeat this last operation for all the other positions to be modified.

4.9 CHECKING THE GATE MOVEMENT

At the end of the learning phase, we recommend letting the control unit run a few opening and closing manoeuvres to verify whether the gate moves correctly and if there are any assembly and adjustment defects.



1. To do this:
2. press the [Open ▲] button ("Figure 17"). Check that the acceleration, constant-speed and slowdown phases are present during the opening manoeuvre. Once the manoeuvre terminates, the gate leaves must stop a few centimetres from the opening mechanical stop
3. press the [Close ▼] button ("Figure 17") and verify that the acceleration, constant-speed and slowdown phases are present during the closing manoeuvre. Once the manoeuvre terminates, the gate leaves must be perfectly closed on the closing mechanical stop
4. check that all the previously adjusted functions have been learned by the control unit.

5 TESTING AND COMMISSIONING

These are the most important phases of the automation's construction, as they ensure maximum safety of the system. The test can also be used to periodically verify the devices making up the automation.



Testing and commissioning of the automation must be performed by skilled and qualified personnel, who are responsible for the tests required to verify the solutions adopted according to the risks present, and for ensuring that all legal provisions, standards and regulations are met, in particular all the requirements of the EN 12445 standard, which defines the test methods for checking gate automations.

The additional devices must undergo specific testing, both in terms of their functions and their proper interaction with the control unit. Refer to the instruction manuals of the individual devices.

5.1 TESTING

The sequence of steps to be performed when running the testing phase, as described below, refers to a typical system ("Figure 3").

To run the test:

1. verify that all the instructions stated in the "**GENERAL SAFETY WARNINGS AND PRECAUTIONS**" chapter have been strictly observed

2. unlock the motors for the manual manoeuvre as described in the respective instruction manual. Move the gate manually and verify whether the leaves can be opened and closed with a force below 390 N
3. lock the motors as described in the respective instruction manual
4. using the control devices (transmitter, control button, key selector, etc.), test the gate's opening, closing and stoppage movements to make sure that the leaves move as intended. Several tests should be carried out to assess the movement of the leaves and detect any defects in the installation and adjustment, besides any points of excessive friction
5. verify the proper operation of all the safety devices present, one by one (photocells, sensitive edges, etc.). If a device intervenes, the "Bluebus" (A - "Figure 10") LED on the control unit will emit two quick flashes to confirm the recognition
6. if potentially dangerous situations due to the movement of the leaves have been prevented by limiting the impact force, the latter must be measured according to the EN 12445 standard and, if the "motor force" control is used to aid the system in reducing the impact force, it is necessary to test various adjustments to find the one that gives the best results.

5.2 COMMISSIONING



Commissioning can only be performed after all testing phases have been successfully completed.



Before commissioning the automation, ensure that the owner is properly informed of all residual risks and hazards.

To commission the automation:

1. compile the automation's technical file, which must include the following documents: overall drawing of the automation, wiring diagram, risk assessment and relative solutions adopted, the manufacturer's declaration of conformity for all devices used and the declaration of conformity compiled by the installer
2. affix a data plate on the gate specifying at least the following data: type of automation, name and address of the manufacturer (responsible for commissioning), serial number, year of manufacture and CE mark
3. compile the declaration of conformity of the automation and hand it to the owner of the automation
4. compile the User Manual of the automation and hand it to the owner of the automation
5. compile and provide the owner with the automation's "Maintenance schedule", containing the maintenance instructions for all the automation's devices.

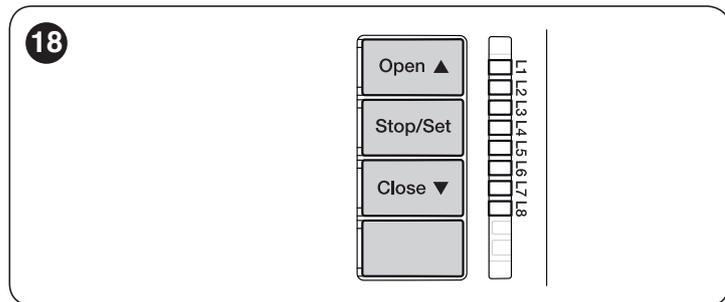


For all the above-mentioned documentation, Nice – through its technical assistance service – provides the following: pre-completed forms.

6 PROGRAMMING

There are 3 buttons on the control unit: **[Open ▲]**, **[Stop/Set]** and **[Close ▼]** (“*Figure 18*”) which can be used both to command the control unit during the testing phase and to programme the available functions.

The **[Radio ☎)]** button is not used.



The available programmable functions are grouped into **two levels** and their operating status is signalled by eight LEDs “**L1 ... L8**” located on the control unit (LED lit = function enabled; LED off = function disabled).

6.1 USING THE PROGRAMMING BUTTONS

[Open ▲] Button for commanding the gate opening
Selection button during the programming phase.

[Stop/Set] Button used to stop a manoeuvre
If pressed for more than 5 seconds, it allows for entering the programming mode.

[Close ▼] Button for commanding the gate’s closure
Selection button during the programming phase.

[Radio ☎)]
– Button not used.

6.2 LEVEL 1 PROGRAMMING (ON-OFF)

All the Level 1 functions are factory-set to “**OFF**” and can be modified at any time. To check the various functions, refer to “*Table 6*”.

6.2.1 Level 1 programming procedure



The user has maximum 10 seconds to press the buttons consecutively during the programming procedure, after which time the procedure terminates automatically and memorises the changes made up to then.

To perform Level 1 programming:

1. press and hold the **[Stop/Set]** button until LED “**L1**” starts flashing
2. release the **[Stop/Set]** button when LED “**L1**” starts flashing
3. press the **[Open ▲]** or **[Close ▼]** button to move the flashing LED to the LED associated with the function to be modified
4. press the **[Stop/Set]** button to change the status of the function:
 - short flash = **OFF**
 - long flash = **ON**
5. wait 10 seconds (maximum time) to exit the programming mode.



To set other functions to “ON” or “OFF”, while the procedure is running, repeat points 2 and 3 during the phase itself.

Table 6

LEVEL 1 FUNCTIONS (ON-OFF)		
LED	Function	Description
L1	Automatic closing	Function ENABLED: after an opening manoeuvre there is a pause (equal to the set pause time), after which the control unit automatically starts a closing manoeuvre. The pause time is set by default to 30 seconds. Function NOT ENABLED: the system works in “semi-automatic” mode.
L2	Close after photo	Function ENABLED: if the photocells intervene during the opening or closing manoeuvre, the pause time drops to 5 seconds regardless of the set “pause time”. With “automatic closing” disabled, if the photocells intervene during the opening or closing manoeuvre, the “automatic closing” activates with the set “pause time”.
L3	Always Close	Function ENABLED: in the event of a blackout, even of short duration, 10 seconds after the electricity is restored the control unit detects that the gate is open and automatically starts a closing manoeuvre, preceded by 5 seconds of pre-flashing. Function DISABLED: when the electricity is restored, the gate remains in the same position.
L4	Stand-by all	Function ENABLED: 1 minute after the manoeuvre is completed, the control unit will turn off the “Bluebus” output (connected devices) and all the LEDs, with the exception of the Bluebus LED, which will flash at a slower speed. When the control unit receives a command, it restores normal operation (with a short delay). This function is used to reduce consumption – an important aspect when the unit is powered by batteries or photovoltaic panels.

LEVEL 1 FUNCTIONS (ON-OFF)		
LED	Function	Description
L5	Warning / Courtesy light	Function ENABLED: the “electric lock” output switches its operation to “courtesy light”. Function NOT ENABLED: the output functions as an electric lock.
L6	Pre-flashing	Function ENABLED: the warning light starts flashing 3 seconds before the start of the manoeuvre to signal in advance a dangerous situation. Function NOT ENABLED: the warning light starts flashing when the manoeuvre starts.
L7	“Close” becomes “Partial Open 1”	Function ENABLED: the “Close” input of the control unit switches its operation to “Partial Open 1”.
L8	“Gate open indicator” or “Maintenance indicator”	Function ENABLED: the “gate open indicator” output of the control unit switches its operation to “maintenance indicator”. Function NOT ENABLED: the output functions as a “gate open indicator”.

6.3 LEVEL 2 PROGRAMMING (ADJUSTABLE PARAMETERS)

All the Level 2 parameters are factory-set as highlighted in “GREY” in “**Table 7**” and can be modified at any time. The parameters can be set to a scale of 1 to 8. The check the value corresponding to each LED, refer to “**Table 7**”.

6.3.1 Level 2 programming procedure



The user has maximum 10 seconds to press the buttons consecutively during the programming procedure, after which time the procedure terminates automatically and memorises the changes made up to then.

To perform Level 2 programming:

1. press and hold the **[Stop/Set]** button until LED “L1” starts flashing
2. release the **[Stop/Set]** button when LED “L1” starts flashing
3. press the **[Open ▲]** or **[Close ▼]** button to move the flashing LED to the “entry LED” associated with the parameter to be modified
4. press and hold the **[Stop/Set]** button. With the **[Stop/Set]** button pressed:
 - wait roughly 3 seconds, until the LED representing the current level of the parameter to be modified lights up
 - press the **[Open ▲]** or **[Close ▼]** button to shift the LED associated with the parameter’s value
5. release the **[Stop/Set]** button
6. wait 10 seconds (maximum time) to exit the programming mode.



To set multiple parameters during the procedure's execution, repeat the operations from point 2 to point 4 during the phase itself.



The set value highlighted in grey (“**Table 7**”) indicates that this value is the factory setting.

Table 7

LEVEL 2 FUNCTIONS (ADJUSTABLE PARAMETERS)				
Entry LED	Parameter	LED (level)	Set value	Description
L1	Pause Time	L1	5 seconds	Adjusts the pause time, in other words, the time that elapses before automatic re-closure. It is only effective if the Close function is enabled.
		L2	15 seconds	
		L3	30 seconds	
		L4	45 seconds	
		L5	60 seconds	
		L6	80 seconds	
		L7	120 seconds	
		L8	180 seconds	

LEVEL 2 FUNCTIONS (ADJUSTABLE PARAMETERS)

Entry LED	Parameter	LED (level)	Set value	Description
L2	Step-by-Step function	L1	Open - Stop - Close - Stop	Controls the sequence of commands associated with the "SbS", "Open" and "Close" inputs or the radio control. Note: setting L4 , L5 , L7 and L8 , the behaviour of the "Open" and "Close" commands also changes.
		L2	Open - Stop - Close - Open	
		L3	Open - Close - Open - Close	
		L4	CONDOMINIUM During the opening manoeuvre , the "Step-by-Step" and "Open" commands do not cause any effect; instead the "Close" command causes the movement to reverse, namely the closing of the gate leaves. During the closing manoeuvre , the "Step-by-Step" and "Open" commands cause a reversal of the movement, namely the opening of the gate leaves; instead the "Close" command does not cause any effect.	
		L5	CONDOMINIUM 2 During the opening manoeuvre , the "Step-by-Step" and "Open" commands do not cause any effect; instead the "Close" command causes the movement to reverse, namely the closing of the gate leaves. <u>If the sent command remains for more than 2 seconds</u> , a "Stop" command is executed. During the closing manoeuvre , the "Step-by-Step" and "Open" commands cause a reversal of the movement, namely the opening of the gate leaves; instead the "Close" command does not cause any effect. <u>If the sent command remains for more than 2 seconds</u> , a "Stop" command is executed.	
		L6	STEP-BY-STEP 2 (less than 2 seconds causes partial opening)	
		L7	HOLD-TO-RUN The manoeuvre is only executed if the sent command remains; if the command is interrupted, the manoeuvre stops.	
		L8	"Semi-automatic" opening, "hold-to-run" closing.	
L3	Motor speed	L1	Very slow	Adjusts the motor speed during normal travel.
		L2	Slow	
		L3	Medium	
		L4	Fast	
		L5	Very fast	
		L6	Extremely fast	
		L7	Opens "Fast"; closes "Slow"	
		L8	Opens "Extremely fast"; closes "Medium"	
L4	Motor discharge after closing	L1	No discharge	Adjusts the duration of the "brief reversal" of both motors, after completing the closing manoeuvre, to reduce the residual final thrust.
		L2	Level 1 - Minimum discharge (roughly 100 ms)	
		L3	Level 2 - ...	
		L4	Level 3 - ...	
		L5	Level 4 - ...	
		L6	Level 5 - ...	
		L7	Level 6 - ...	
		L8	Level 7 - Maximum discharge (roughly 800 ms)	
L5	Motor force	L1	Level 1 - Minimum force	Adjusts the force of both motors.
		L2	Level 2 - ...	
		L3	Level 3 - ...	
		L4	Level 4 - ...	
		L5	Level 5 - ...	
		L6	Level 6 - ...	
		L7	Level 7 - ...	
		L8	Level 8 - Maximum force	
L6	Pedestrian or partial opening	L1	Pedestrian 1 (the M2 gate leaf opens to 1/4 of the full length)	Adjusts the type of opening associated with the "partial opening 1" command. In levels L5, L6, L7 and L8, "minimum" opening refers to the smallest opening between M1 and M2; for example, if M1 opens to 90° and M2 opens to 110°, the minimum opening is 90°.
		L2	Pedestrian 2 (the M2 gate leaf opens to 1/2 of the full length)	
		L3	Pedestrian 3 (the M2 gate leaf opens to 3/4 of the full length)	
		L4	Pedestrian 4 (full opening of gate leaf 2)	
		L5	Partial 1 (the two gate leaves open to 1/4 of the "minimum" opening level)	
		L6	Partial 2 (the two gate leaves open to 1/2 of the "minimum" opening level)	
		L7	Partial 3 (the two gate leaves open to 3/4 of the "minimum" opening level)	
		L8	Partial 4 (the two gate leaves open to the "minimum" opening level)	

LEVEL 2 FUNCTIONS (ADJUSTABLE PARAMETERS)				
Entry LED	Parameter	LED (level)	Set value	Description
L7	Maintenance notification	L1	500	Adjusts the number of manoeuvres after which the automation maintenance request is triggered (see the “ Maintenance notice function ” paragraph).
		L2	1000	
		L3	1500	
		L4	2500	
		L5	5000	
		L6	10000	
		L7	15000	
		L8	20000	
L8	List of malfunctions	L1	Result of 1st manoeuvre (most recent)	Allows for verifying the type of anomaly that occurred in the last 8 manoeuvres (see “ Anomaly log ” paragraph).
		L2	Result of 2 nd manoeuvre	
		L3	Result of 3 rd manoeuvre	
		L4	Result of 4 th manoeuvre	
		L5	Result of 5 th manoeuvre	
		L6	Result of 6 th manoeuvre	
		L7	Result of 7 th manoeuvre	
		L8	Result of 8 th manoeuvre	

6.4 SPECIAL FUNCTIONS

6.4.1 “Move anyway” function

This function can be used to operate the automation even one or more safety devices fail to work properly or are out of order. The automation can be controlled in “**hold-to-run**” mode by proceeding as follows:

1. send a command to operate the gate, using a transmitter or key selector, etc. If everything functions properly, the gate will move normally, otherwise proceed with point 2
2. within 3 seconds, press the control again and hold it down
3. after roughly 2 seconds, the gate will complete the requested manoeuvre in “**hold-to-run**” mode, in other words, it will continue to move so long as the control is held down.

6.4.2 “Maintenance notice” function

This function allows for signalling to the user when the automation needs maintenance. The maintenance signal is given through a lamp connected to the “**OGI**” output, if this output is configured as a “**Maintenance indicator**”.

The configuration is only possible through the “Oview” programmer (refer to the “**Connecting the IBT4N interface**” paragraph).



The various indicator lamp signals are shown in “**Table 8**”.

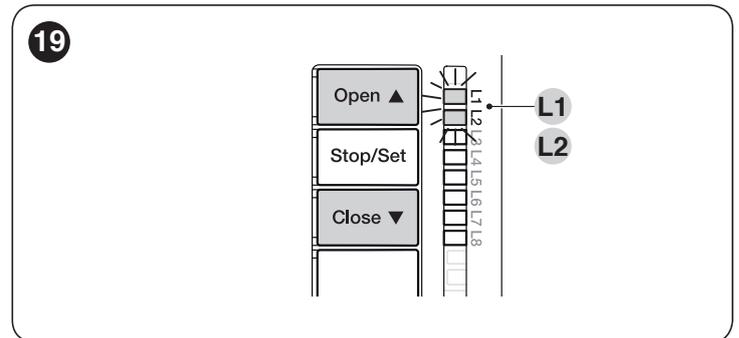
Table 8

“MAINTENANCE INDICATOR” SIGNAL	
Number of manoeuvres	Signal
Below 80% of the limit	Lamp stays lit for 2 seconds at the start of the opening manoeuvre.
Between 81% and 100% of the limit	Lamp flashes for the entire duration of the manoeuvre.
Over 100% of the limit	Lamp flashes continuously.

6.5 MEMORY DELETION



The procedure described below restores the control unit’s default settings. All the custom settings will be lost.



To delete the control unit’s memory and restore all the default settings, proceed as described below:

1. press and hold the [Open ▲] and [Close ▼] buttons until LEDs “L1” and “L2” start flashing
2. release the buttons.

7 TROUBLESHOOTING... (troubleshooting guide)

Some devices are configured for signalling the operating status or the presence of any anomalies.

7.1 SIGNALLING THROUGH WARNING LIGHT

If a warning light is connected to the FLASH output (**A**) on the control unit, the light will flash once every 1 second while the manoeuvre is being performed.

If any anomalies occur, the warning light will emit shorter flashes which are repeated twice with a 1-second pause in between. “**Table 9**” describes the cause and possible solution for each type of anomaly signalled by the warning light.

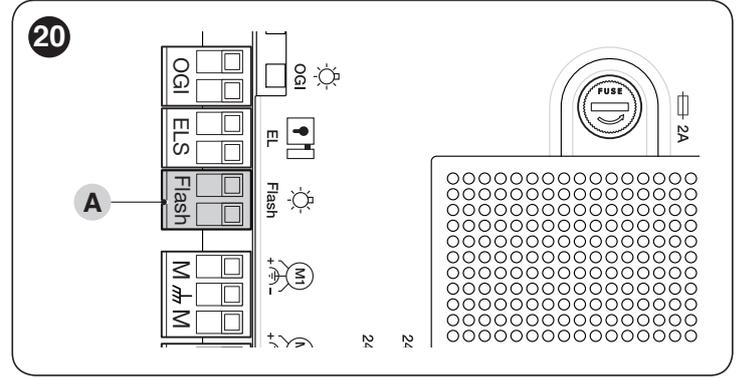


Table 9

SIGNALS OF THE WARNING LIGHT CONNECTED TO THE FLASH OUTPUT (“FIGURE 20”)		
Flashes	Anomaly	Possible solution
1 short red flash 1-second pause 1 short red flash	BlueBus system error	The check to verify the devices connected to the BlueBus system, run at the start of the manoeuvre, does not reveal the same devices memorised during learning phase. There may be some disconnected or faulty devices: check these and replace them if necessary. Some changes were made: the device learning procedure must be rerun.
2 short red flashes 1-second pause 2 short red flashes	Intervention of a photocell	One or more photocells do not consent to the movement or have caused the latter to reverse. Check for any obstacles.
3 short red flashes 1-second pause 3 short red flashes	Intervention of the “Obstacle Detection” function through the force limiter	During the gate’s movement, the motors encountered more resistance. Verify the cause and increase the motor force if necessary.
4 short red flashes 1-second pause 4 short red flashes	Intervention of the STOP input	At the start of the manoeuvre or during the movement itself, the devices connected to the STOP input intervened. Identify the cause.
5 short red flashes 1-second pause 5 short red flashes	Error in the internal parameters of the control unit	Wait at least 30 seconds then try giving a command and disconnect the power supply if necessary. If the condition persists, there may be a serious malfunction and the electronic board needs to be replaced.
6 short red flashes 1-second pause 6 short red flashes	The maximum limit for consecutive manoeuvres or manoeuvres per hour has been exceeded	Wait for a few minutes until the manoeuvre limiting device drops to under the maximum limit.
7 short red flashes 1-second pause 7 short red flashes	Electric circuit anomaly	Wait at least 30 seconds then try giving a command and disconnect the power supply if necessary. If the condition persists, there may be a serious malfunction and the electronic board needs to be replaced.
8 short red flashes 1-second pause 8 short red flashes	A command that prevents other commands from being executed is already present	Check the type of the “always present” command (for example, it could be a command from a clock on the AUX input).
9 short red flashes 1-second pause 9 short red flashes	The automation was stopped by a “Stop automation” command	Unlock the automation mechanism by giving the “Unlock automation” command.
10 short red flashes 1-second pause 10 short red flashes	Intervention of the “Obstacle Detection” function from the encoder	The motors were hampered by greater friction during their movement. Identify the cause.

7.2 SIGNALS ON THE CONTROL UNIT

The control unit has LEDs “L1-L8” on the buttons and LEDs “L9-L13” on the control unit terminals (“Figure 21”).

Each of these LEDs can emit special signals both during normal operation and in case of anomalies. “Table 10 and Table 11” describe the cause and possible solution for each type of anomaly.

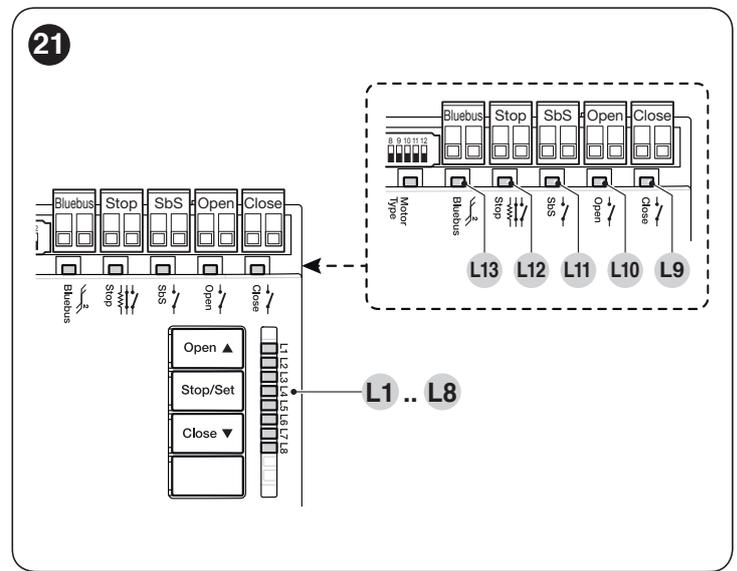


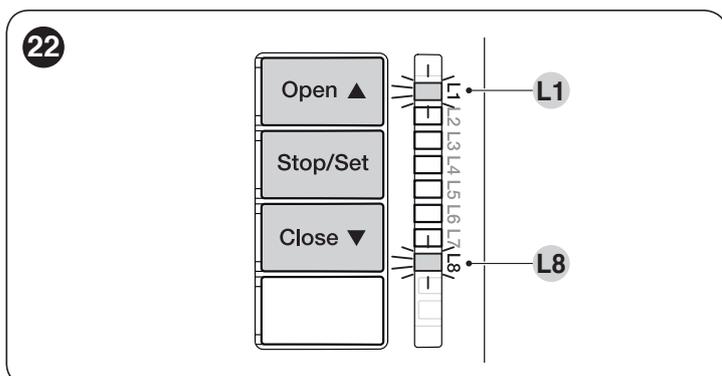
Table 10

SIGNALS OF THE LEDs ON THE CONTROL UNIT TERMINALS		
Status	Meaning	Possible solution
All LEDs		
No LED is lit	No power to the control unit	Check whether the control unit is powered. Check that the fuse (T - “Figure 1”) has not blown. If the fuse has blown, verify the cause and replace it with one having the same characteristics. If also the “BlueBus” LED is not lit or flashing, there probably is a serious fault that requires the control unit to be replaced.
BLUEBUS LED		
Green LED always off	Anomaly	Check whether the control unit is powered. Check that the fuse (T - “Figure 1”) has not blown. If the fuse has blown, verify the cause and replace it with one having the same characteristics.
Green LED always on	Serious anomaly	There is a serious problem: try disconnecting the power supply to the control unit and if the condition persists, replace the electronic board.
1 flash per second of the green LED	Everything normal	Normal control unit operation.
2 fast flashes of the green LED	Variation of the status of the inputs	This is normal if there is a change in one of the “SbS”, “Stop”, “Open” or “Close” inputs, the control photocells intervene or a command is transmitted with a transmitter.
Series of flashes of the red LED divided by a 1-second pause	Various	Refer to that shown in “Table 9”.
STOP LED		
OFF	Intervention of the “Stop” input	Check the devices connected to the “Stop” input.
On	All OK	“Stop” input active.
SbS LED		
OFF	All OK	“SbS” input not active.
On	Intervention of the “SbS” input	Normal if the device connected to the “SbS” input is active.
OPEN LED		
OFF	Everything normal	“Open” input not active.
On	Intervention of the “Open” input	This is normal if the device connected to the “Open” input is active.
CLOSE LED		
OFF	Everything normal	“Close” input not active.
On	Intervention of the “Close” input	This is normal if the device connected to the “Close” input is active.

SIGNALS OF LED (L1..L4) ("FIGURE 21")		
Status	Meaning	Possible solution
LEDs L1 - L2		
Slow flashing	Change in the number of devices connected to the "BlueBus" or learning of the device not executed.	It is necessary to run the device learning procedure (refer to the " Learning of connected devices " paragraph)
LEDs L3 - L4		
Slow flashing	The positions of the mechanical stops were never learned or after the mechanical stop learning procedure, the dip-switch configuration changed.	It is necessary to run the device learning procedure (refer to the " Learning of connected devices " paragraph)

7.3 ANOMALY LOG

The control unit can display any anomalies that have occurred in the last 8 manoeuvres (for example, the interruption of a manoeuvre due to the intervention of a photocell or sensitive edge).



To check the list of anomalies:

1. press and hold the **[Stop/Set]** button for roughly 3 seconds
2. release the **[Stop/Set]** button when the "L1" LED starts flashing
3. press and release the **[Open ▲]** or **[Close ▼]** button to shift flashing of the LED to "L8" ("Anomaly list" parameter)
4. keep the **[Stop/Set]** button pressed down (it must be kept pressed throughout phases 5 and 6)
5. wait roughly 3 seconds, after which LED "L1" – corresponding to the outcome of the last manoeuvre – will light up
6. press and hold the **[Open ▲]** or **[Close ▼]** button to select the desired manoeuvre: the corresponding LED will emit the same number of flashes as those normally emitted by the warning light after an anomaly (see "**Table 9**")
7. release the **[Stop/Set]** button.

8 FURTHER INFORMATION (Accessories)

8.1 CONNECTING AN SM-TYPE RADIO RECEIVER

The control unit has a slot for mounting radio receivers with SM connector (optional accessories), which can be used to remotely control the control unit through transmitters that intervene on the unit's inputs.

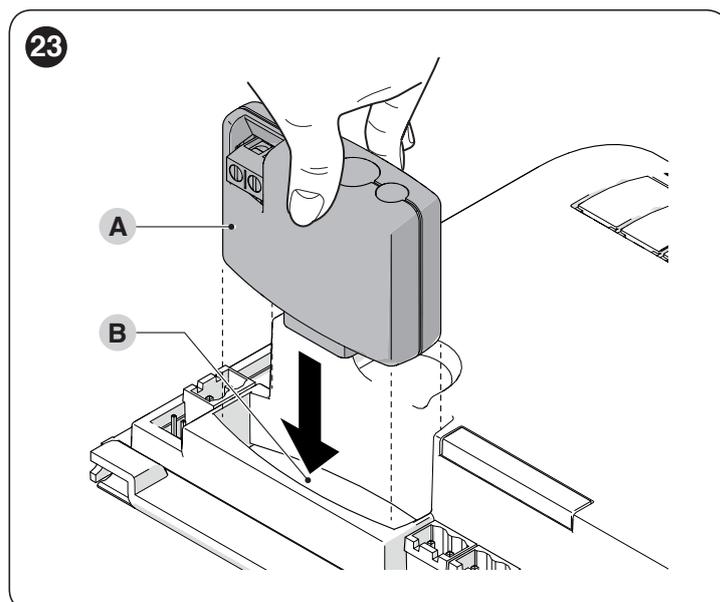


Before installing a receiver, disconnect the power supply to the control unit.

To install a receiver ("**Figure 23**"):

1. remove the cover of the control unit's containment box
2. insert the receiver (**A**) in the appropriate slot (**B**) on the control unit's electronic board
3. put the cover of the control unit's containment box back on.

At this stage, the control unit can be powered again.



“Table 12” and “Table 13” show the “Receiver outputs” and the “Control unit inputs” associated with each.

Table 12

SMXI / SMXIS OR OXI / OXIFM / OXIT / OXITFM IN MODE 1 OR MODE 2	
Receiver output	Control unit input
Output No. 1	“SbS” (Step-by-Step) command
Output No. 2	“Partial opening 1” command
Output No. 3	“Open” command
Output No. 4	“Close” command

Table 13

OXI / OXIFM / OXIT / OXITFM IN MODE 2 EXTENDED		
No.	Command	Description
1	Step-by-Step	“SbS” (Step-by-Step) command
2	Partial opening 1	“Partial opening 1” command
3	Open	“Open” command
4	Close	“Close” command
5	Stop	Stops the manoeuvre
6	Condominium Step-by-Step	Command in condominium mode
7	High priority Step-by-Step	Commands also with the automation locked or the commands enabled
8	Partial open 2	Partial opening (the M2 gate leaf opens to 1/2 the full length)
9	Partial open 3	Partial open (the two gate leaves open to 1/2 the full length)
10	Opens and locks the automation	Triggers an opening manoeuvre and, once this terminates, locks the automation; the control unit will not accept any command other than “High priority Step-by-Step” and automation “Unlock”, or (only from Oview) the following commands: “Unlock and close” and “Unlock and open”
11	Closes and locks the automation	Triggers a closing manoeuvre and, once this terminates, locks the automation; the control unit will not accept any command other than “High priority Step-by-Step” and automation “Unlock”, or (only from Oview) the following commands: “Unlock and close” and “Unlock and open”
12	Lock automation	Triggers the stoppage of the manoeuvre and locks the automation; the control unit will not accept any command other than “High priority Step-by-Step” and automation “Unlock”, or (only from Oview) the following commands: “Unlock and close” and “Unlock and open”
13	Release automation	Triggers unlocking of the automation and restores normal operation
14	On Timer Courtesy light	The courtesy light output switches on with timer-based switching off
15	On-Off Courtesy light	The courtesy light output switches on and off in Step-by-step mode

 For further information, consult the specific manual of the receiver.

8.2 CONNECTING THE IBT4N INTERFACE

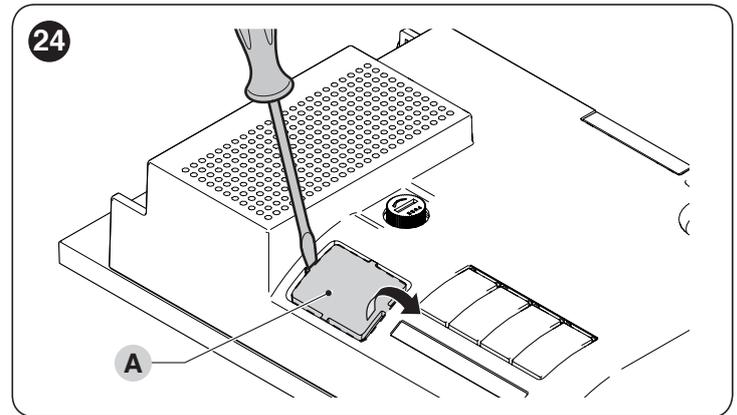
The control unit is equipped with a “IBT4N”-type connector for the IBT4N interface, which allows for connecting all devices equipped with BusT4 interface, such as, for example, Oview programmers and the IT4WIFI Wi-Fi interface.

The Oview programmer allows for comprehensively and rapidly managing the installation, maintenance and diagnosis of the entire automated system.

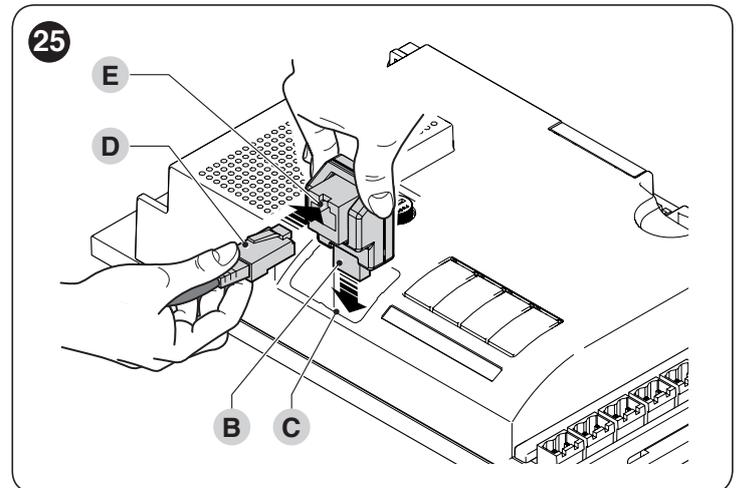
 Before connecting the interface, disconnect the power supply to the control unit.

To install the interface (“Figure 24” and “Figure 25”):

1. remove the cover of the control unit’s containment box
2. remove the plastic pre-cut element (A) and check that there are no burrs



3. place the interface (B) in the appropriate slot (C) on the control unit’s electronic board
4. insert the cable (D) in the appropriate slot (E) on the interface.



At this stage, the control unit can be powered again.

 For further information, consult the specific manuals of the connected devices.

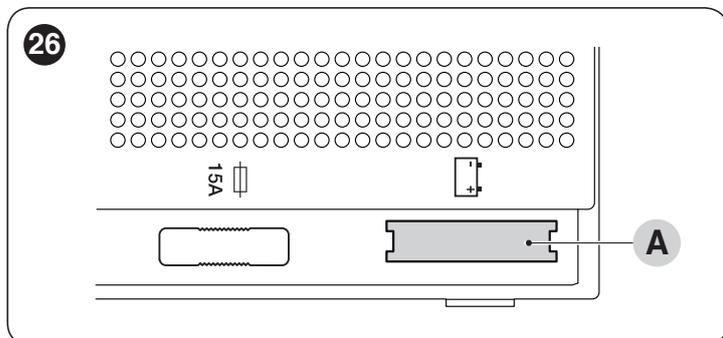
8.3 CONNECTING THE PS324 BACK-UP BATTERY

The control unit is configured for being powered with PS324 back-up batteries that intervene in case of a power outage.

 **Before installing a back-up battery, disconnect the power supply to the control unit.**

Before installing and connecting the back-up battery:

1. remove the cover of the control unit's containment box
2. insert the connector coming from the back-up battery into the slot (A) on the control unit

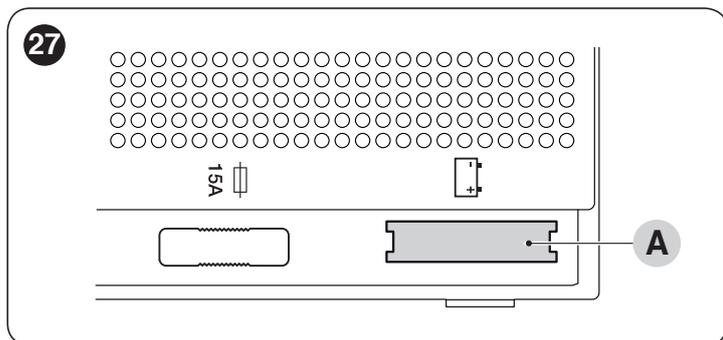


3. put the cover of the control unit's containment box back on.

At this stage, the control unit can be powered again.

8.4 CONNECTING THE SOLEMYO SYSTEM

The control unit is configured for being powered with the "Solemyo" photovoltaic power system (photovoltaic panel and 24 V battery). To connect the Solemyo battery to the control unit, use the same connector (A) normally used for the back-up battery.



 **When the automation is powered through the "Solemyo" system, IT MUST NOT BE POWERED through the mains electricity at the same time.**

 **The "Solemyo" system can only be used if the "Stand-by all" function is enabled (ON) on the control unit.**

9 PRODUCT MAINTENANCE

Being an electronic part, the control unit does not require any special maintenance. Nonetheless, the system should be regularly checked to ensure that it works efficiently at least every 6 months according to the instructions in the "**TESTING AND COMMISSIONING**" chapter.

10 PRODUCT DISPOSAL

 **This product is an integral part of the operator and must therefore be disposed of with it.**

As with the installation, only qualified personnel must dismantle the product at the end of its life.

This product is composed of different types of materials. Some of these materials can be recycled; others must be disposed of. Please enquire about the recycling or disposal systems in place in your local area for this type of product.

 **WARNING**

Some parts of the product may contain polluting or dangerous substances. If not disposed of correctly, these substances may have a damaging effect on the environment and human health.

 **As indicated by the symbol shown here, this product must not be disposed of with household waste. Separate the waste for disposal and recycling, following the methods stipulated by local regulations, or return the product to the seller when purchasing a new product.**



 **WARNING**

Local regulations may impose heavy penalties if this product is not disposed of in compliance with the law.

11 TECHNICAL SPECIFICATIONS



All technical specifications stated in this section refer to an ambient temperature of 20°C (± 5°C). Nice S.p.A. reserves the right to apply modifications to the product at any time when deemed necessary, without altering its functions and intended use.

Table 14

TECHNICAL SPECIFICATIONS	
Description	Technical specification
Mains power supply	MC824H control unit: 230 V~ ±10% 50–60 Hz MC824H/V1 control unit: 120 V~ ±10% 50–60 Hz
Nominal power absorbed by the mains grid	200 W
Power draw of the control unit battery connector in “Stand-by all” mode (including a receiver with SM-type connector)	below 100 mW
Warning light output [Note 1]	1 ELDC warning light
Electric lock output [Note 1]	1 x 12 V~ max 15 VA electric lock
Gate open indicator output [Note 1]	For 1 x 24 V maximum 4 W lamp (the output voltage may vary between –30% and +50% and can also control small relays)
BLUEBUS output	1 output with maximum load of 15 Bluebus units (maximum 6 pairs of MOFB or MOFOB photocells + 2 pairs of MOFB or MOFOB photocells addressed as opening devices + maximum 4 MOMB or MOTB control devices)
STOP input	for normally closed or normally open contacts or for 8.2 kΩ fixed resistor contacts with self-learning (any variation from the memorised status triggers the “STOP” command)
SbS input	for normally open contacts (the closing of the contact triggers the “Step-by-Step” command)
OPEN input	for normally open contacts (the closing of the contact triggers the “OPEN” command)
CLOSE input	for normally open contacts (the closing of the contact causes the “CLOSE” command)
Radio connector	SM connector for SMXI, OXI and OXFIM receivers
Radio ANTENNA input	50 Ω for RG58-type cable or similar
Programmable functions	8 ON-OFF and 8 adjustable functions
Self-learning functions	Self-learning of the devices connected to the BlueBus output; self-learning of the type of device connected to the “STOP” terminal (NO, NC contact or 8.2 kΩ fixed resistor); self-learning of the gate leaf path and automatic calculation of the slowdown and partial opening points (which vary depending on the type of installation)
Operating temperature	-20°C ... +55°C
Use in highly acid, saline or potentially explosive atmosphere	NO
Protection rating	IP 54 with container intact
Dimensions (mm)	310 x 232 x H 122
Weight (kg)	4,1

Note 1 The “Warning light”, “Electric lock” and “Gate open indicator” outputs can be programmed with other functions (see “**Table 6**” in the “**Level 1 programming (ON-OFF)**” paragraph) or through the Oview programmer (refer to the “**Connecting the IBT4N interface**” paragraph). The electrical characteristics of the output adapt to the programmed functions: warning light (12 V~, max 21 W lamp) - electric lock (12 V~, max 15 VA) - other outputs (all types: 1 x 24 V lamp or relay~, –30% to +50%, 4 Wmax).

EU Declaration of Conformity and declaration of incorporation of "partly completed machinery"

Note - The contents of this declaration correspond to declarations in the official document deposited at the registered offices of Nice S.p.a. and in particular to the last revision available before printing this manual. The text herein has been re-edited for editorial purposes. A copy of the original declaration can be requested from Nice S.p.a. (TV) I.

Number: 298/MC824H **Rev:** 12 **Language:** EN
Manufacturer's Name: Nice s.p.a.
Address: Via Callalta 1, 31046 Oderzo (TV) Italy
Authorized Person to constitute technical documentation: Nice s.p.a.
Type of product: Comand central a 2 motor 24V dc
Model/Type: MC824H
Accessories: Refer to the catalog

The undersigned Roberto Griffa, in the role of Chief Executive Officer, declares under his sole responsibility that the product described above complies with the provisions laid down in the following directives:

- Directive 2014/30/EU (EMC), according to the following harmonized standards: EN 61000-6-2:2005, EN 61000-6-3:2007+A1:2011

The product also complies with the following directives according to the requirements envisaged for "partly completed machinery" (Annex II, part 1, section B):

- Directive 2006/42/EC of the EUROPEAN PARLIAMENT AND COUNCIL of 17 May 2006 related to machinery and amending the Directive 95/16/EC (recast).

It is hereby stated that the relevant technical documentation has been compiled in accordance with annex VII B of Directive 2006/42/EC and that the following essential requirements have been fulfilled: 1.1.1 - 1.1.2 - 1.1.3 - 1.2.1 - 1.2.6 - 1.5.1 - 1.5.2 - 1.5.5 - 1.5.6 - 1.5.7- 1.5.8 - 1.5.10 - 1.5.11

The manufacturer undertakes to transmit to the national authorities, in response to a reasoned request, the relevant information on the "partly completed machinery", while maintaining full rights to the related intellectual property.

Should the "partly completed machinery" be put into service in a European country with an official language other than that used in this declaration, the importer is obliged to arrange for the relative translation to accompany this declaration.

The "partly completed machinery" must not be used until the final machine in which it is incorporated is in turn declared as compliant, if applicable, with the provisions of directive 2006/42/EC.

The product also complies with the following standards:
 EN 60335-1:2012+A11:2014, EN 62233:2008, EN 60335-2-103:2015

Ing. Roberto Griffa
 (Chief Executive Officer)



Oderzo, 12/12/2017

INSTRUCTIONS AND WARNINGS FOR THE USER

Before using the automation for the first time, ask the installer to explain the origin of any residual risks and take a few minutes to read this instruction manual and warnings for the user given to you by the installer. Store the manual for future reference and hand it to the new owner when transferring the automation.



WARNING!

Your automation is a machine that faithfully executes commands imparted by the user. Negligence and improper use may lead to dangerous situations:

- do not manoeuvre the gate if there are people, animals or objects within its range of operation
- it is strictly forbidden to touch parts of the automation while the gate or door is moving
- the photocells are not a safety device but only an auxiliary aid to safety. They are built using highly reliable technology but, in extreme conditions, may malfunction or even become defective. In certain cases, the defect may not be clearly evident. For these reasons, it is important to follow all the instructions given in this manual when using the automation
- periodically check that the photocells work properly.



IT IS STRICTLY FORBIDDEN to transit through the gate while it is closing! It is only possible to transit through the gate when it is fully open and the leaves are at a standstill.



CHILDREN

An automation system guarantees a high degree of safety. With its detection systems, it can control and guarantee the gate's movement in the presence of people or objects. It is nonetheless advisable to forbid children from playing near the automation and not to leave remote controls near them to prevent any unwanted activation of the system. The automation is not a toy!

The product is not intended for use by persons, including children, with limited physical, sensory or mental capacities, or who lack experience or knowledge, unless supervised or trained in the use of the product by a person responsible for their safety.

Anomalies: if the automation appears to behave strangely, disconnect the power supply to the automation and manually unlock the motor (consult the respective instruction manual) to manoeuvre the gate manually. Do not perform any repairs personally, but contact your trusted installer.



Do not modify the system or the programming and adjustment parameters of the control unit: your installer is exclusively responsible for these operations.

Failure or power outage: while waiting for your installer to intervene or the power supply to be restored, if the system is not equipped with back-up batteries, the automation can be used by manually unlocking the motor (consult the relative instruction manual) and manually moving the gate leaf.

Safety devices out of order: the automation can also be used when one or more safety devices are defective or out of order. The gate can be operated in the **"Person present"** mode in the following way:

1. send a command to operate the gate, with a transmitter or key selector, etc. If everything works properly, the gate will move normally, otherwise proceed as described below
2. within 3 seconds, press the control again and hold it down
3. after roughly 2 seconds, the gate will move in the **"Person present"** mode, in other words, it will continue moving so long as the control is held down.



If the safety devices are out of order, have the system repaired as soon as possible by a qualified technician.

The test, periodic maintenance and any repairs must be documented by the person carrying out the work and the documents must be stored by the owner of the automation. The only interventions the user may carry out periodically include cleaning of the photocell glass components (use a soft and slightly damp cloth) and removing any leaves or stones that may obstruct the automation.



The user of the automation must manually unlock the motor before starting any maintenance operation, to prevent other people from accidentally manoeuvring the gate (consult the respective instruction manual).

Maintenance: in order to ensure constant levels of safety and the longest useful life for the automation, routine maintenance must be carried out (at least every 6 months).



Only qualified personnel is authorised to carry out checks, maintenance operations and repairs.

Disposal: at the end of its useful life, the automation must be dismantled by qualified personnel and the materials must be recycled or disposed of in compliance with the local regulations in force.



If the automation was locked using the "Lock automation" command, the gate will not move when a command is sent and the warning light will emit 9 short flashes.

NOTES



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