Robo

RO1000
RO1500

Gearmotor for sliding gates

EN - Instructions and warnings for installation

ENGLISH

Translation of the original instructions in full

CONTENTS

1 GENERAL SAFETY WARNINGS AND PRECAUTIONS

1.1 GENERAL WARNINGS

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.

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.

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.

- 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.

In order to avoid any danger from inadvertent resetting 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.

- 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.
- Handle the product with care during installation, taking care to avoid crushing, denting or dropping it, or allowing contact with liquids of any kind. Keep the product away from sources of heat and naked flames. Failure to observe the above can damage the product, and increase the risk of danger or malfunction. Should this happen, stop installation immediately and contact Customer 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.
- 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.
- The packing materials of the product must be disposed of in compliance with local regulations.
- Keep persons away from the gate when it is manoeuvred using the control elements.
- When operating the gate, keep an eye on the automated mechanism and keep all bystanders at a safe distance until the movement has been completed.
- Do not operate the product if anyone is working nearby; disconnect its power supply before permitting such work to be done.
- If the power cable is damaged, it must be replaced by the manufacturer or by an appointed servicing company or similarly qualified person in order to prevent any form of risk.
- Warning! Transport the product using the relevant hand trolley and the handles on the package to ensure that the operations are conducted safely.

1.2 INSTALLATION WARNINGS

- Prior to installing the drive motor, check that the door is in good working order, correctly balanced and that it opens and closes properly.
- Before installing the drive motor, remove all unnecessary ropes or chains and deactivate any equipment not required for motorised operation, such as locking devices.
- If the gate to be automated is fitted with a pedestrian door, the system must be equipped with a control system that inhibits motor operation when the pedestrian door is open
- Install the manoeuvre device for manual unlocking at less than 1.8 m above the ground. NOTE - If removable, the manoeuvre device must be kept next to the door when removed.
- Make sure that the control elements are kept far from moving parts but nonetheless directly within sight. Unless a selector is used, the control elements must be installed at least 1.5 m above the ground and must not be accessible.

- If the opening movement is controlled by a fire-sensing system, make sure that any windows larger than 200 mm are closed using the control elements.
- Prevent and avoid any form of entrapment between the moving and fixed parts during the manoeuvres.
- Permanently affix the label concerning the manual manoeuvre near its actuating element.
- After installing the drive motor, make sure that the mechanism, protective system and all manual manoeuvres function properly.
- Doors and vertical gates require an anti-fall function or device
- For drive motors that allow for accessing unprotected moving parts once they have been installed, such parts must be installed at least 2.5 m above the floor or other surface from which they can be accessed.
- Make sure to avoid any entanglements due to the opening movement of the driven part.
- After the installation, make sure that the mechanism is correctly adjusted and that the protection system and the manual release device (if present) work properly.

Battery-operated appliances

- The appliance must be disconnected from the power supply when removing the batteries.
- The batteries must be removed from the appliance prior to its disposal.
- The batteries must be safely disposed of.
- If the batteries are not rechargeable, do not replace them with rechargeable batteries.

Appliances with LED light

- Looking at LED lights from close up and for prolonged periods can cause dazzling. It may temporarily reduce eyesight and cause accidents.
- Avoid looking at LEDs directly.

Appliances with radio device

- The manufacturer of this appliance, Nice S.p.A., hereby declares that the product complies with Directive 2014/53/EU.
- The instruction manual and the full text of the EU Declaration of Conformity are available at the following Internet address: www.niceforyou.com, under the “support” and “download” sections
- For transmitters: 433 MHz: ERP < 10 dBm - 868 MHz: ERP < 14 dBm; for receivers: 433 MHz, 868 MHz.

2 PRODUCT DESCRIPTION

ROBO 1000 and **ROBO 1500** are a range of irreversible electromechanical gearmotors designed for automating sliding gates.
They are equipped with an electronic control unit that incorporates a radio receiver 433,92 MHz with the O-CODE encoding system.
This product complies with the criteria set forth in the "Standby" regulation. The product enters Standby Mode 5 minutes (configurable) after the completion of a successfully executed operation.

ROBO operates using electricity. In the event of a power failure, it can be unlocked using a special key and moved manually.

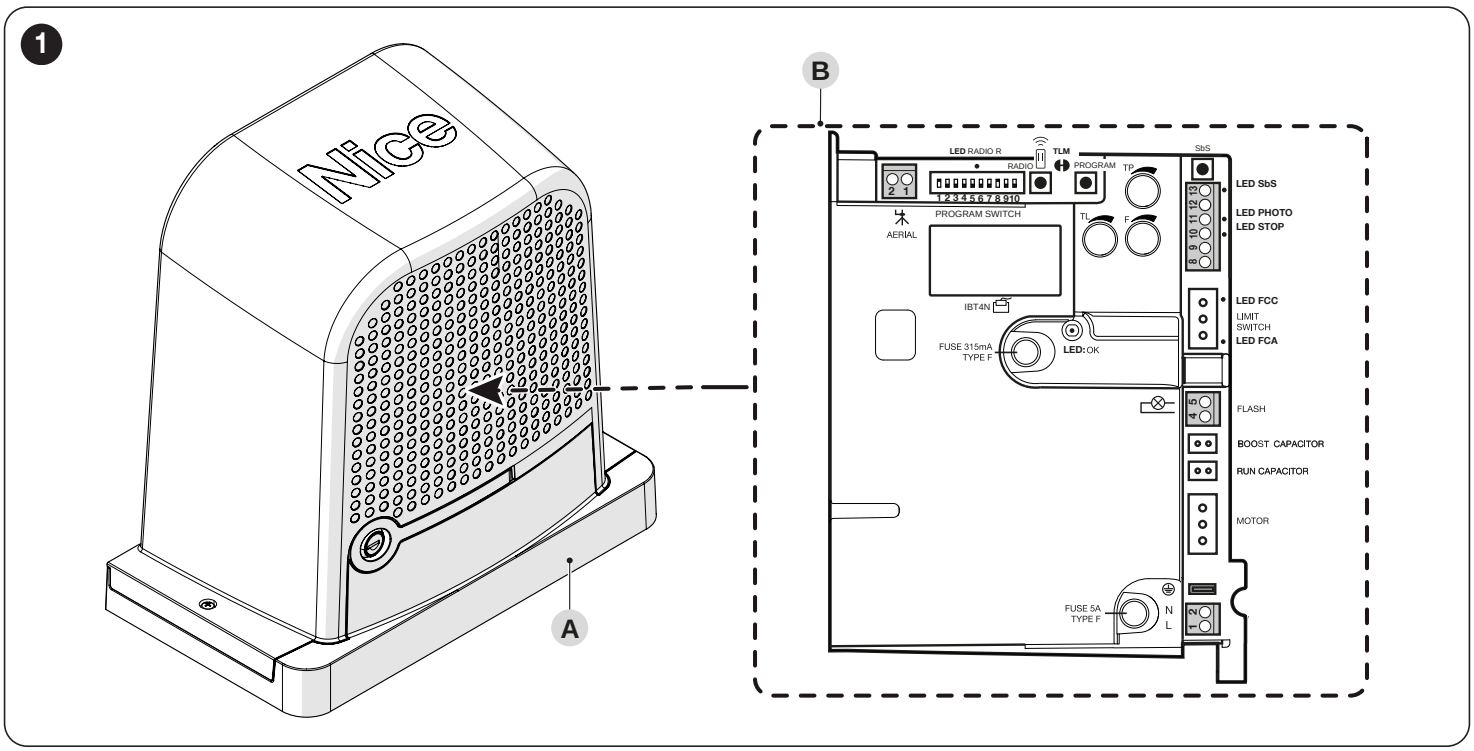
All uses other than that described herein and use in environmental conditions other than those indicated in this manual are considered improper and forbidden!

Table 1

COMPARISON OF BASIC CHARACTERISTICS OF ROBO GEARMOTORS		
	ROBO 1000	**ROBO 1500**
Gate leaf limit (m)	12	12
Weight limit (kg)	1000	1500
Power supply (V)	230 V - 50/60 Hz	
Power draw (A)	1,6	1,7
Power (W)	350	350
Speed (m/s)	0,18	0,16
Start peak torque (Nm) **corresponding to a force (N)**	20,4 680	23,4 780
Nominal torque (Nm) **corresponding to a force (N)**	9 300	12 400
Cycles (cycles/hour) **- gate leaf length up to 4 m** **- gate leaf length up to 8 m**	 16 8	 22 8
Protection rating (IP)	IP44	
Ambient operating temperature (°C)	-20°C … +55 °C	
Dimensions (mm)	363x364x238 h	
Weight (kg)	11,5	13
Control unit	ROA42	ROA43

2.1 LIST OF CONSTITUENT PARTS

"***Figure 1***" shows the main parts making up **ROBO**.



A Gearmotor body
B Control unit

3 INSTALLATION

3.1 PRE-INSTALLATION CHECKS

The installation must be carried out by qualified personnel in compliance with the current legislation, standards and regulations, and with the instructions provided in this manual.

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 suitable for the intended use
- Make sure that the structure of the sliding gate is suitable for being automated
- Make sure that the characteristics of the sliding gate fall within the operating limits specified in the "***Product usage limits***" paragraph (page 6)
- Verify that there are no points of greater friction during the opening and closing movements along the entire path of the sliding gate
- Verify that the area where the gearmotor is installed allows for unlocking the latter and manoeuvring easily and safely
- Verify that there is no risk of derailment of the leaf or that it may come off the guides
- Make sure that the overrun mechanical stops are sturdy enough and that there is no risk of the deformation even when the leaf strikes the mechanical stop vigorously
- Verify that the gate leaf is well balanced: it must not move by itself when left in any position
- Make sure that the area where the gearmotor is fixed is not subject to flooding. If necessary, mount the gearmotor raised from the ground
- Verify that the mounting points of the various devices are protected against impacts and that the mounting surfaces are sufficiently sturdy
- Components must never be immersed in water or other liquids
- Keep the product away from heat sources and open flames and acid, saline or potentially explosive atmospheres; these may damage the product and cause malfunctions or dangerous situations
- Connect the control unit to an electricity supply line equipped with a safety earthing system
- If there is an access door in the gate, or within its range of movement, make sure that it does not obstruct the gate's normal path; install an appropriate interlock system if necessary
- The power line must be protected by an adequate residual-current device
- 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. Should it be necessary, this device guarantees fast and safe disconnection from the power supply; it must therefore be positioned in view of the automation. If placed in a non-visible location, it must have a system that blocks any accidental on unauthorised reconnection of the power supply, in order to prevent dangerous situations. The disconnection device is not supplied with the product.

3.2 PRODUCT USAGE LIMITS

The data relative to the product's performances is included in the "***TECHNICAL SPECIFICATIONS***" chapter (page 34) and is the only data that allows for properly assessing whether the product is suitable for its intended use.
Check the application limits of **ROBO** and of the accessories to be installed, assessing whether their characteristics are capable of meeting the requirements of the environment and the limitations specified below:
- The weight of the sliding gate door must not exceed the limit indicated in "***Table 1***".

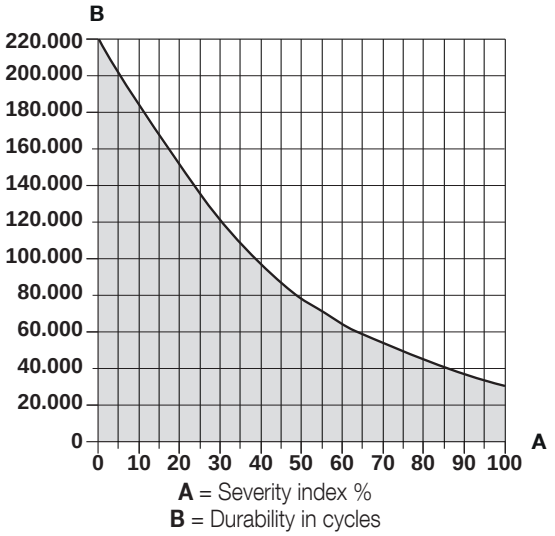
The measurements in "***Table 1***" are indicative and are only used for a rough estimate. The actual suitability of **ROBO** for automating a specific sliding gate depends on friction and other phenomena, even occasional ones, such as the presence of ice, which could hinder the movement of the door.
To determine the actual conditions, the force required to move the leaf throughout its path must be measured, to ensure that this value does not exceed half the "rated torque" specified in the "***TECHNICAL SPECIFICATIONS***" chapter (page 34).
A margin of 50% is recommended because adverse weather conditions can increase friction

"***Table 2***" (page 7) includes an estimate of the "durability", that is, the average economic life of the product. The durability value is strongly influenced by the severity of the manoeuvres, i.e. the sum of all factors that contribute to product wear. To make the estimate it is necessary to add all the severity indices of the "***Table 2***". Check the total against the estimated durability graph.
For example, **ROBO 1000** on a gate weighing 700 kg, 1 11 metres long, with no other stress factors, has a load index of 50% (30 + 20). The graph shows an estimated life of 180.000 cycles.

The control unit is equipped with a manoeuvre limiting device that prevents possible overheating; it is based on the motor load and duration of the cycles, and intervenes when the maximum limit is exceeded.

Table 2

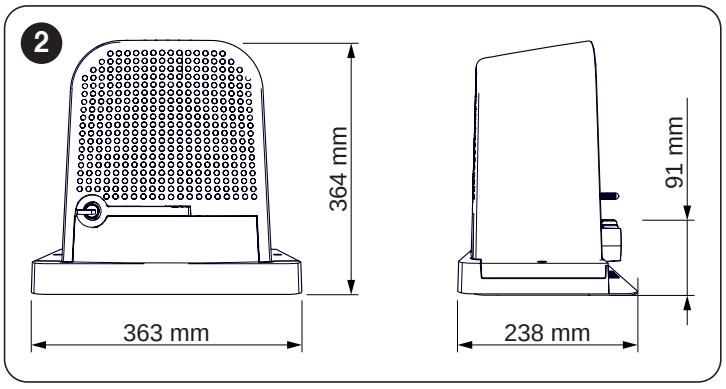
ESTIMATED DURABILITY IN RELATION TO THE MANOEUVRE SEVERITY INDEX			
Severity index %	**ROBO 1000**	**ROBO 1500**	**Durability in cycles**
Weight of the leaf (kg)			
Up to 200	5%	0%	
200 ÷ 400	10%	5%	
400 ÷ 500	20%	10%	
500 ÷ 600	30%	20%	
600 ÷ 800	50%	30%	
800 ÷ 1000	60%	40%	
1000 ÷ 1200	-	50%	
1200 ÷ 1500	-	60	
Leaf length (m)			
Up to 4	5%	5%	
4 ÷ 6	10%	10%	
6 ÷ 8	20%	20%	
8 ÷ 10	35%	35%	
10 ÷ 12	50%	50%	
Other factors contributing to fatigue (to be considered if their probability exceeds 10%)			
Ambient temperature greater than 40°C or below 0°C, or humidity greater than 80%	15%	15%	
Presence of dust and sand	15%	15%	
Presence of salinity	20%	20%	
Manoeuvre interrupted by photocell	15%	20%	
Manoeuvre interrupted by Stop	15%	20%	



Note: a severity index exceeding 100% implies that the conditions are beyond the limit of acceptability; in this case, a larger-size model is recommended.

3.3 PRODUCT IDENTIFICATION AND OVERALL DIMENSIONS

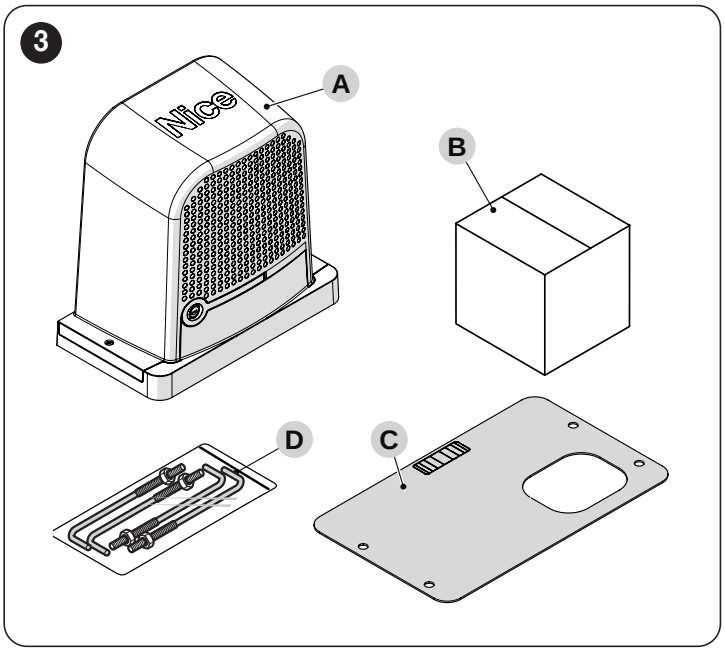
The overall dimensions of the product are shown in "***Figure 2***".



A Gearmotor
B Accessory box
C Foundation plate
D Anchor bolts

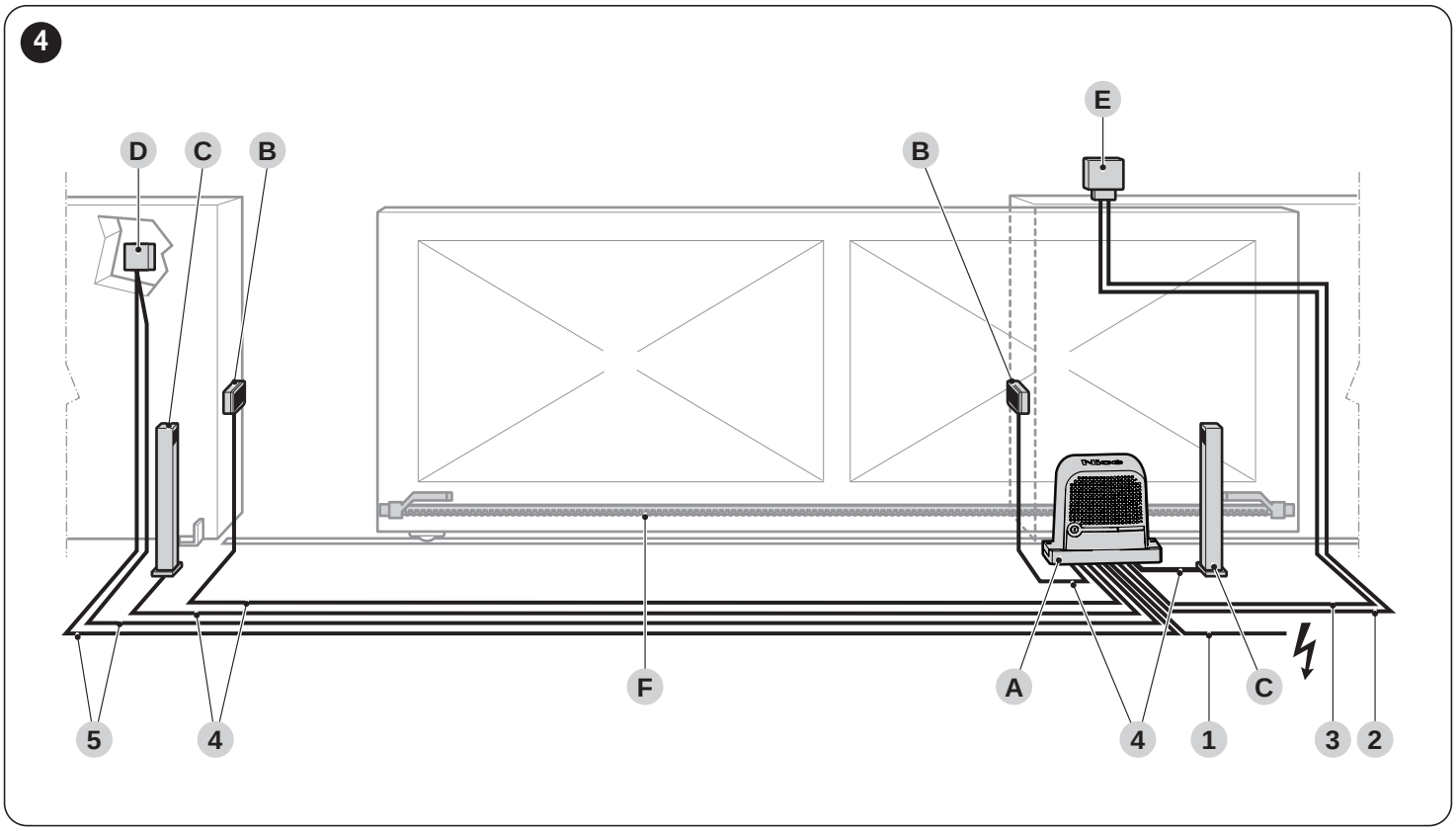
3.4 RECEIPT OF THE PRODUCT

All the components contained in the kit are illustrated and listed below.



3.5 PRE-INSTALLATION WORKS

The figure shows an example of an automation system, constructed using **Nice** components.



A Gearmotor
B Photocells
C Posts for photocells
D Key selector
E Warning light with aerial
F Rack

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

Table 3

TECHNICAL SPECIFICATIONS OF ELECTRICAL CABLES	
Identification no.	**Cable characteristics**
1	GEARMOTOR POWER SUPPLY cable 1 cable 3 x 1.5 mm² Maximum length 30 m [**note 1**]
2	Cable for WARNING LIGHT WITH AERIAL 1 x RG58-type shielded cable Maximum length 10 m; recommended < 5 m
3	Cable for WARNING LIGHT WITH AERIAL 1 cable 2 x 1.5 mm² Maximum length 10 m
4	PHOTOCELL cable 2x0.25 mm² (TX) Maximum length 30 m [**note 2**] 4x0.25 mm² (RX) Maximum length 30 m
5	KEY SELECTOR cable 2 cables 2 x 0.5 mm² [**note 3**] Maximum length 20 m [**note 2**]

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

Before proceeding with the installation, prepare the required electrical cables by referring to "*Figure 4*" and to that stated in the "*TECHNICAL SPECIFICATIONS*" chapter (page 34).

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

When laying the pipes for routing the electrical cables, take into account that any water deposits in the junction boxes may cause the connection pipes to form condensate inside the control unit, thus damaging the electronic circuits.

Before proceeding with the installation, open the stop hook (A) and remove the cover (B) by loosening the fixing screws after manually unlocking the motor using the spanner provided.

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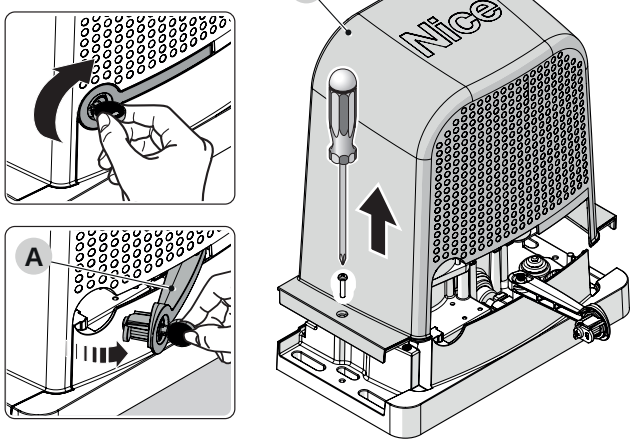

Before proceeding with the installation, verify the overall dimensions of the gearmotor by referring to "*Figure 2*" and the installation measurements in "*Figure 6*" .

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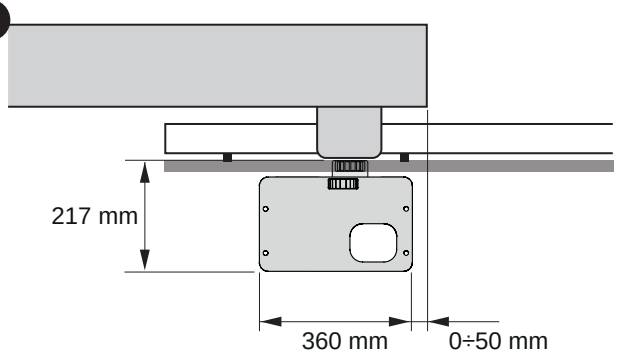


3.6 INSTALLING THE GEARMOTOR

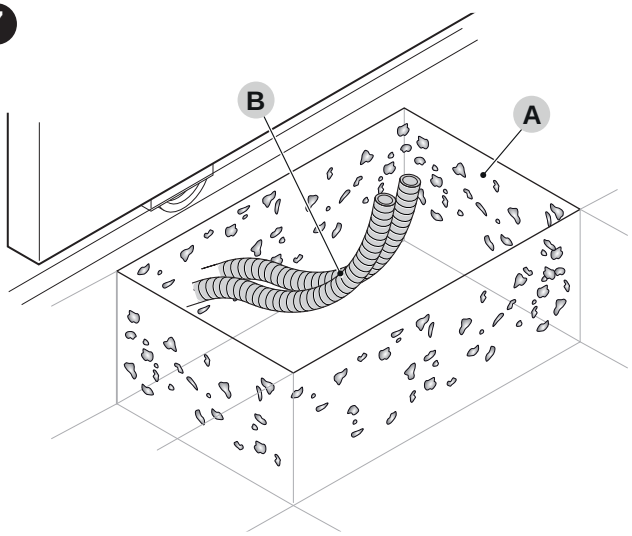
Incorrect installation may cause serious physical injury to the person working on the system or to its future users.

Before starting to assemble the automation, complete the preliminary checks described in the "*Pre-installation checks*" paragraph (page 6) and the "*Product usage limits*" paragraph (page 6).

To install **ROBO**:

1. dig the foundations (**A**) and arrange the pipes (**B**) for the wiring ("***Figure 7***")

7



2. Use the anchor bolts (**C**) supplied ("***Figure 8***")

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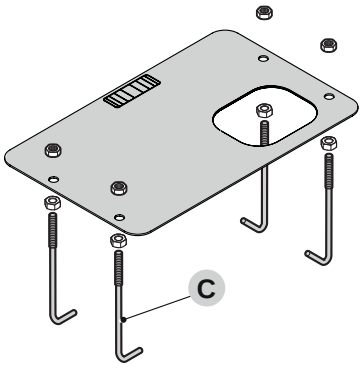

3. cast the concrete to secure the foundation plate ("***Figure 9***")

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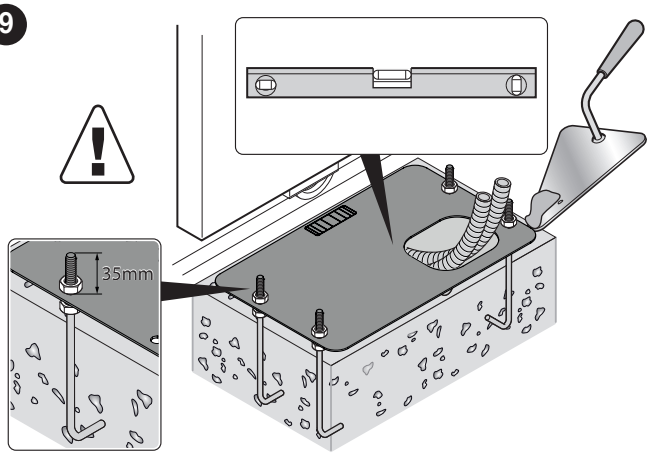

Before the concrete hardens, make sure the foundation plate is perfectly level and parallel to the gate leaf.

4. wait for the concrete to harden and then remove the nuts ("***Figure 10***")

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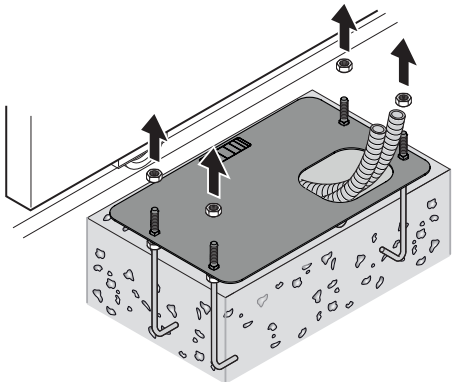
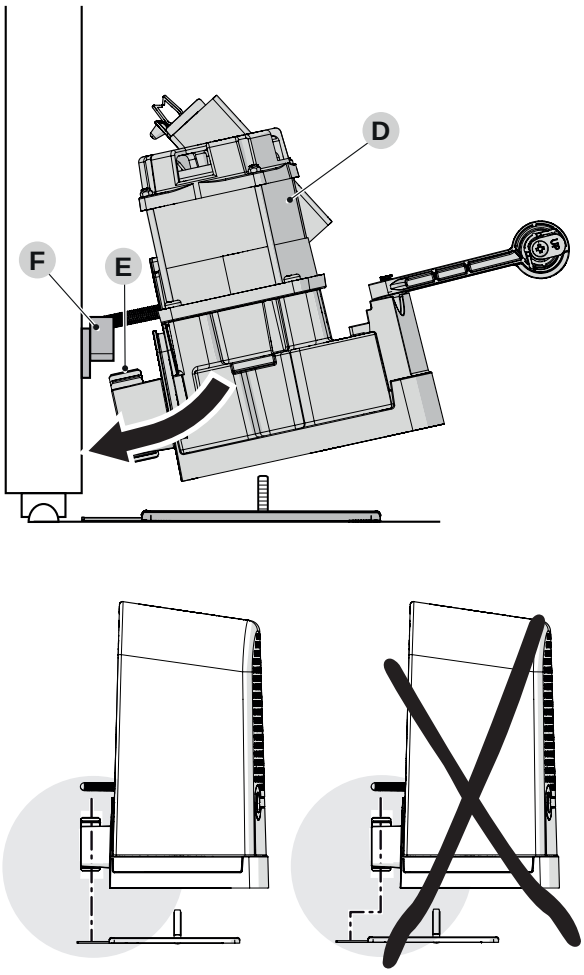


It is possible to use the foundation plate already present and compatible supplied with anchor bolts.

5. position the gearmotor (**D**) while taking care to insert the pinion (**E**) beneath the rack (**F**) ("***Figure 11***")

11



6. verify that the gearmotor lies parallel to the gate leaf ("***Figure 12***")

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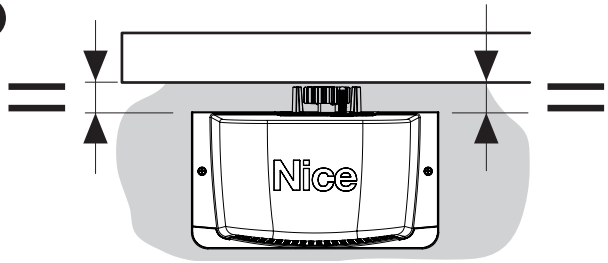

7. check that the pinion is aligned with the rack ("***Figure 13***")

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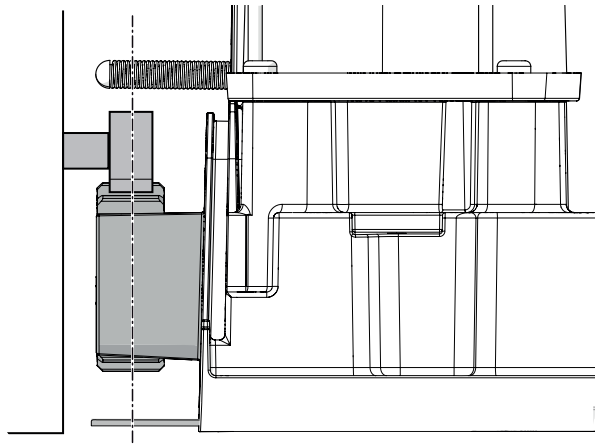
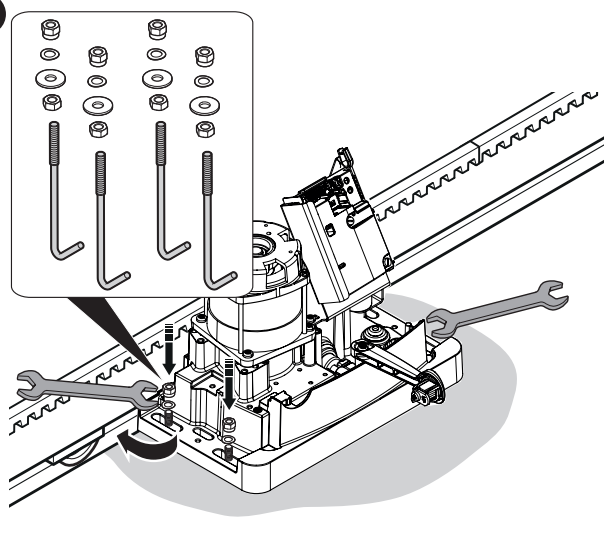


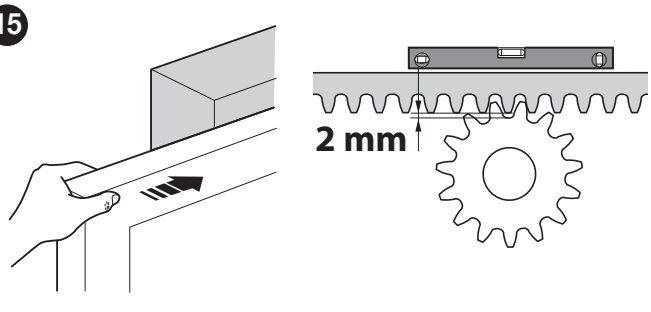
8. insert the washers and nuts provided and tighten them slightly ("***Figure 14***")

14

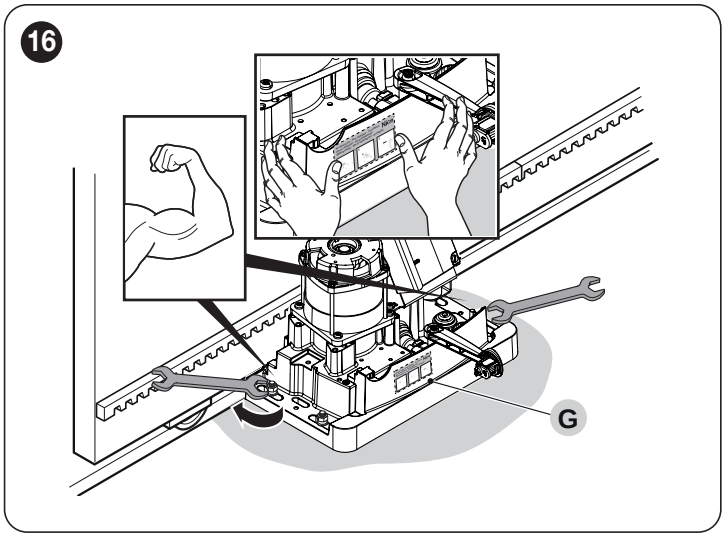


9. manually open and close the gate leaf and check that it slides smoothly. Moreover, check that the rack is always aligned with respect to the pinion ("***Figure 15***")

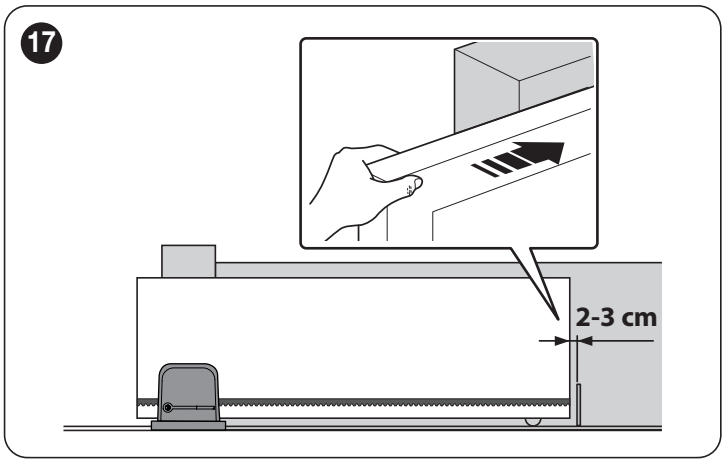
15



10. vigorously tighten the nuts to secure the gearmotor to the foundation plate and apply the sticker (**G**) relative to the unlocking instructions ("***Figure 16***")

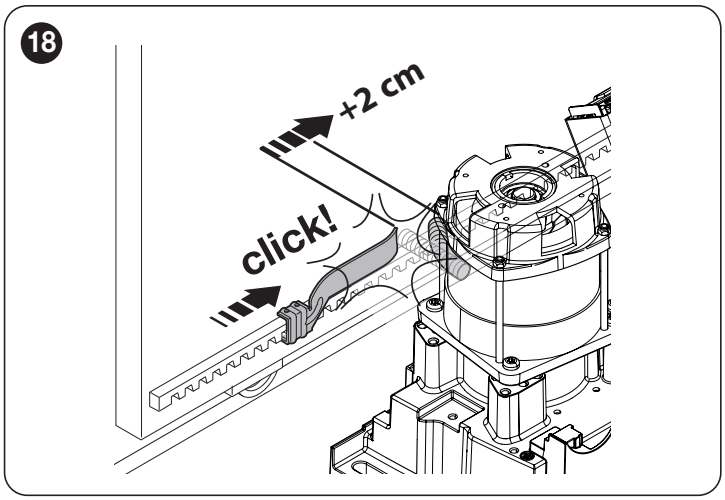


11. slide the gate leaf open by hand, stopping it 2/3 before the mechanical stop ("***Figure 17***")

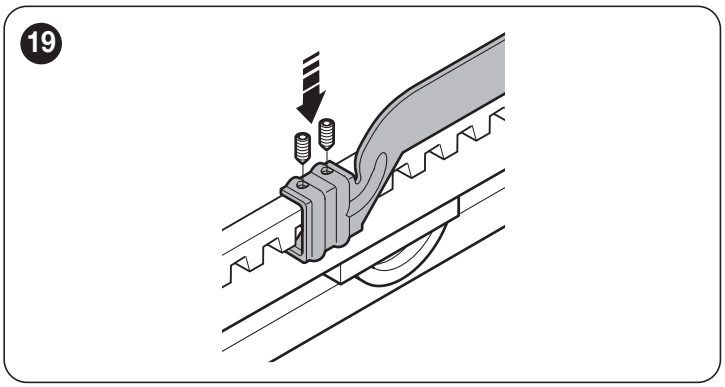


12. slide the limit switch bracket along the rack in the Open direction until the limit switch intervenes (a "click" will be heard). After the "click", shift the bracket further forward by 2 cm (minimum) ("***Figure 18***")

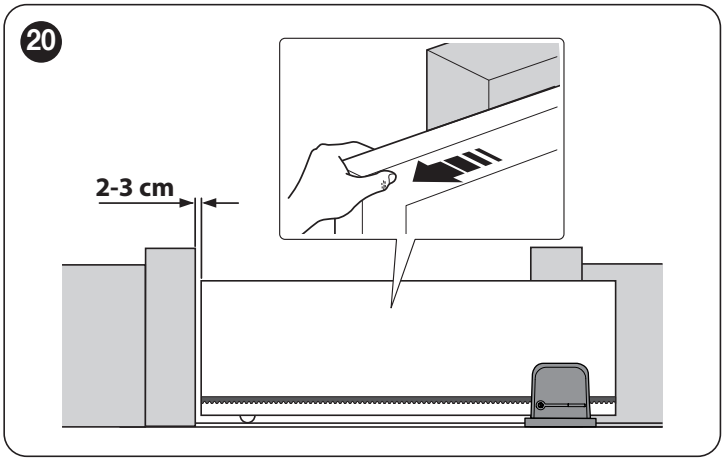
Do not apply excessive pressure while fastening the limit switch bracket.



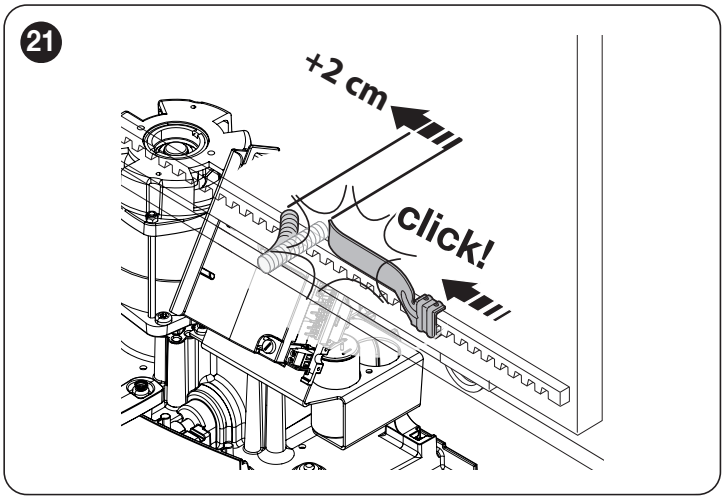
13. secure the limit switch bracket to the rack with the grub screws provided ("***Figure 19***")



14. manually close the gate leaf leaving it 2/3 cm from the mechanical stop and repeat the operations described above to fasten the limit switch bracket ("***Figure 20***")

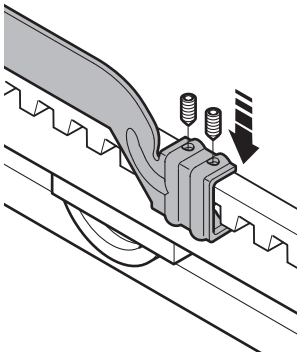


15. slide the limit switch bracket along the rack in the Close direction until the limit switch intervenes (a "click" will be heard). After the "click", shift the bracket further forward by 2 cm (minimum) ("***Figure 21***")



16. secure the limit switch bracket to the rack with the grub screws provided ("***Figure 22***")

22



17. position the cover (**H**), fasten it with the screws provided, lock it manually and remove the key supplied ("***Figure 23***")

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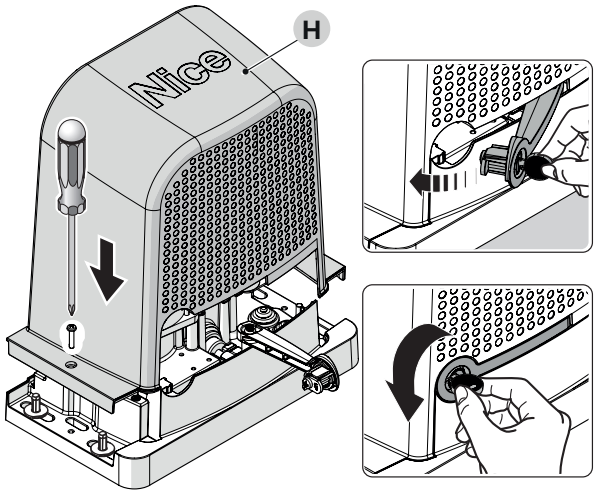
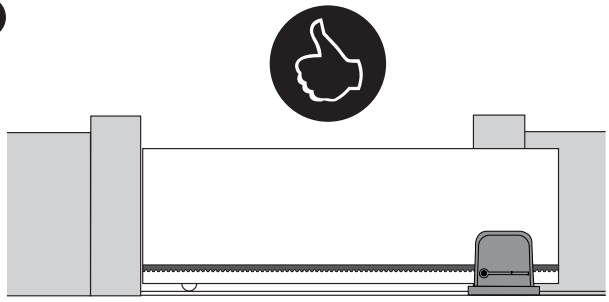


To install the devices belonging to the system, refer to the respective instruction manuals.

IMPORTANT! – The gearmotor is factory-configured for being installed on the right-hand side ("*Figure 24*") but if it must be installed on the left, perform the operations shown in Figure *25*.

24



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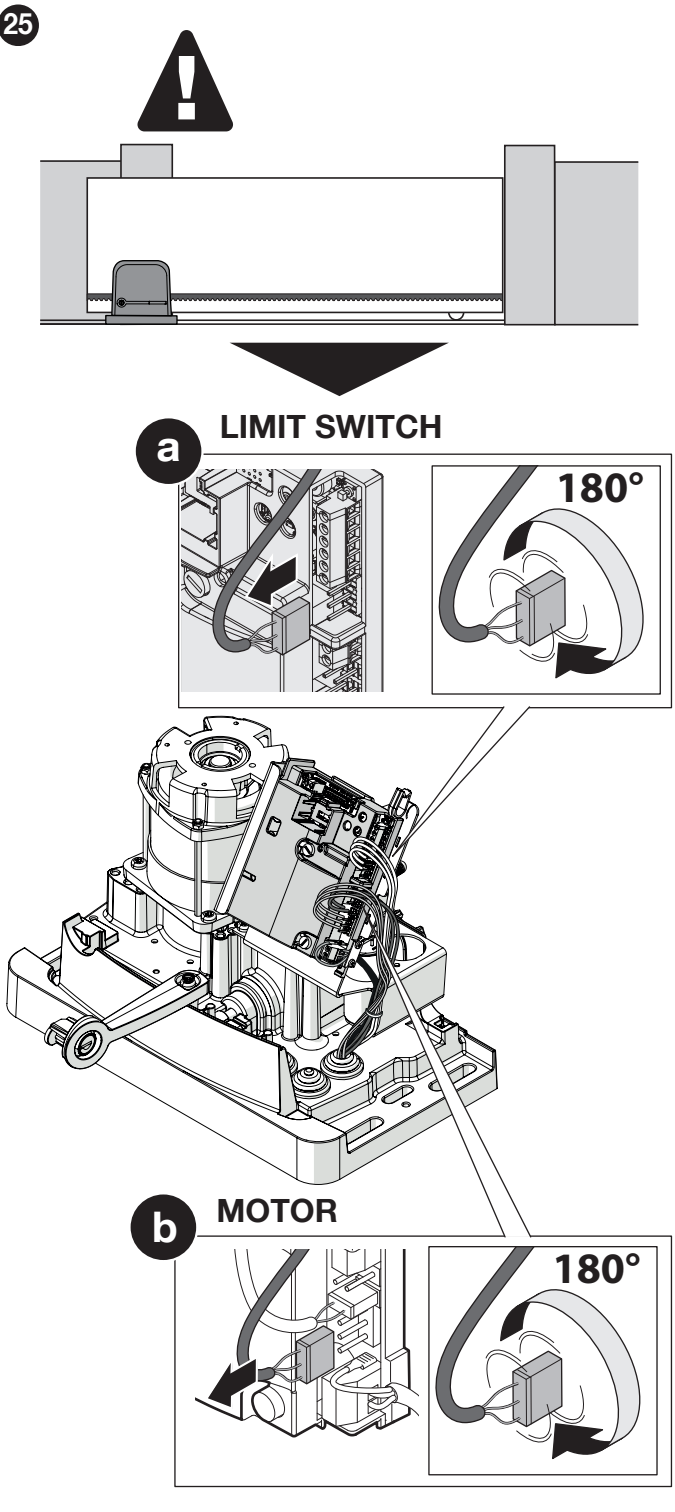
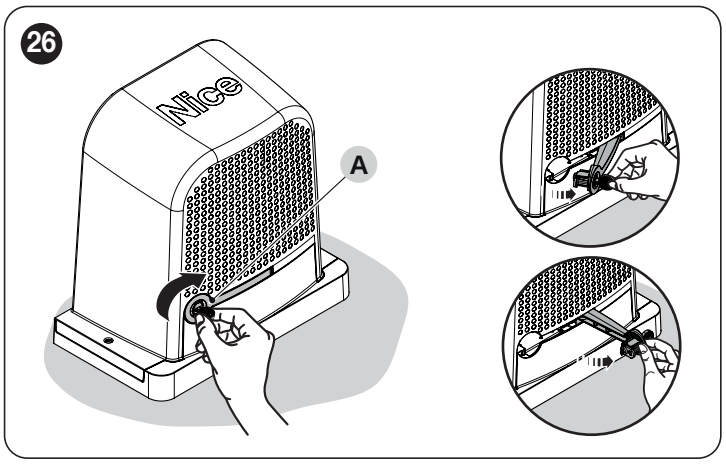


3.7 MANUALLY UNLOCKING AND LOCKING THE GEARMOTOR

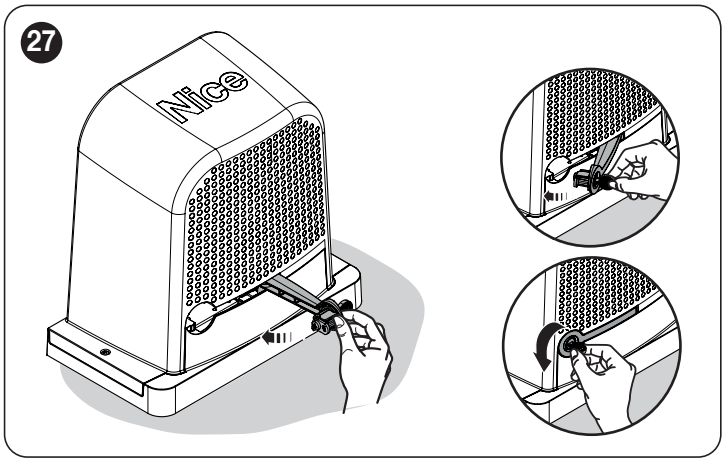
The gearmotor is equipped with a mechanical unlocking system that allows for opening and closing the gate manually.
These manual operations should only be performed in case of a power outage, malfunctions or during the installation phases.
To unlock the device:

1. Open the locking hook (**A**) using the key provided ("***Figure 26***")



2. At this point, the automation can be moved manually to the desired position.

To lock the gate, close the locking hook, turn the key anti-clockwise and remove it.



4 ELECTRICAL CONNECTIONS

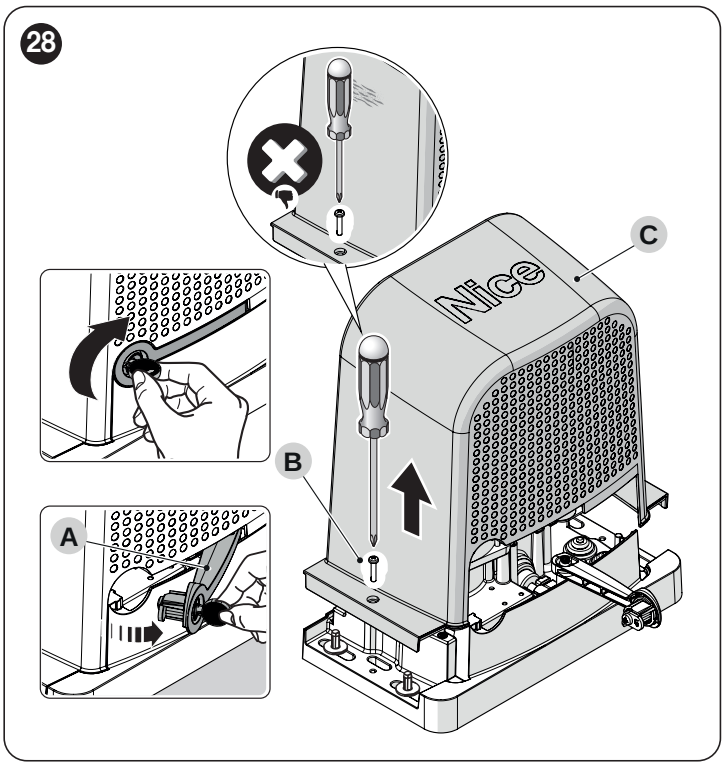
4.1 PRELIMINARY CHECKS

All electrical connections must be made with the system disconnected from the mains electricity and with the emergency power supply (if present in the automation) disconnected.

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

To make the electrical connections:

1. Open the locking hook (**A**) using the key provided
2. Remove the screws (**B**)
3. Remove the cover (**C**) ("***Figure 28***")



4. Feed the power cable through the relevant hole (leave 20/30 cm of free cable) and connect it to the relevant terminal clamp (**D**) ("***Figure 29***")
5. Lock the cable around the sheath using the cable clamp provided
6. Insert all the connecting cables into the various devices, leaving them 20–30 cm longer than necessary. Refer to "***Table 3***" for the type of cables and to "***Figure 31***" for the connections
7. Join all the cables entering the gearmotor using the appropriate cable clamp (**E**) situated behind the control unit ("***Figure 29***")

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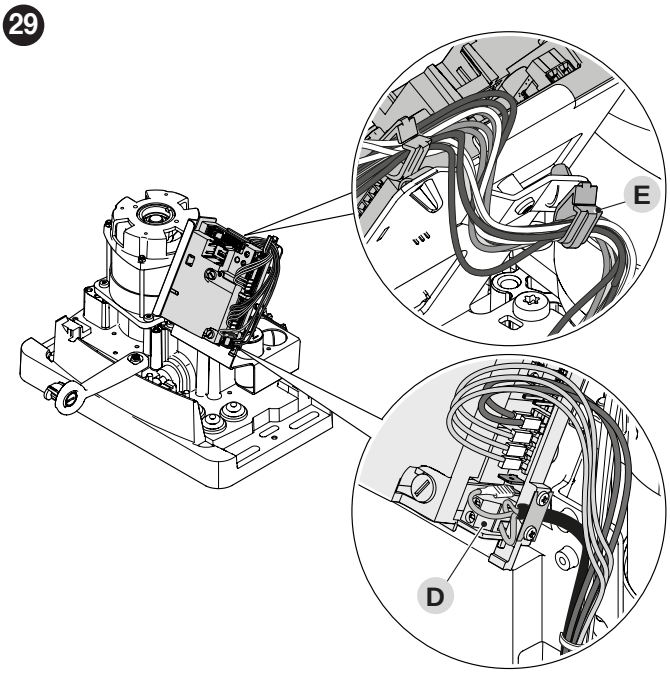

4.2 REMOVING THE CONTROL UNIT

In case of difficulties in making the electrical connections, it is possible to remove the control unit (**A**) by loosening the rear screw (**B**) ("***Figure 30***").

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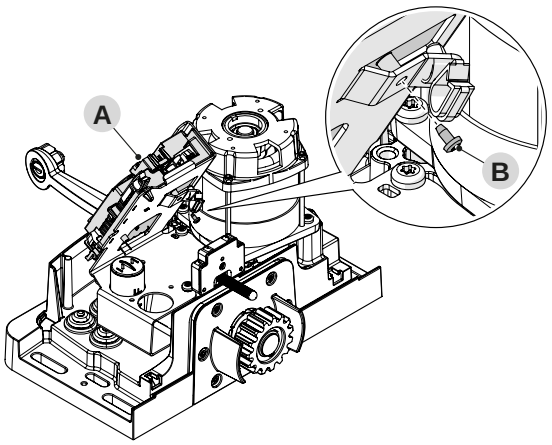
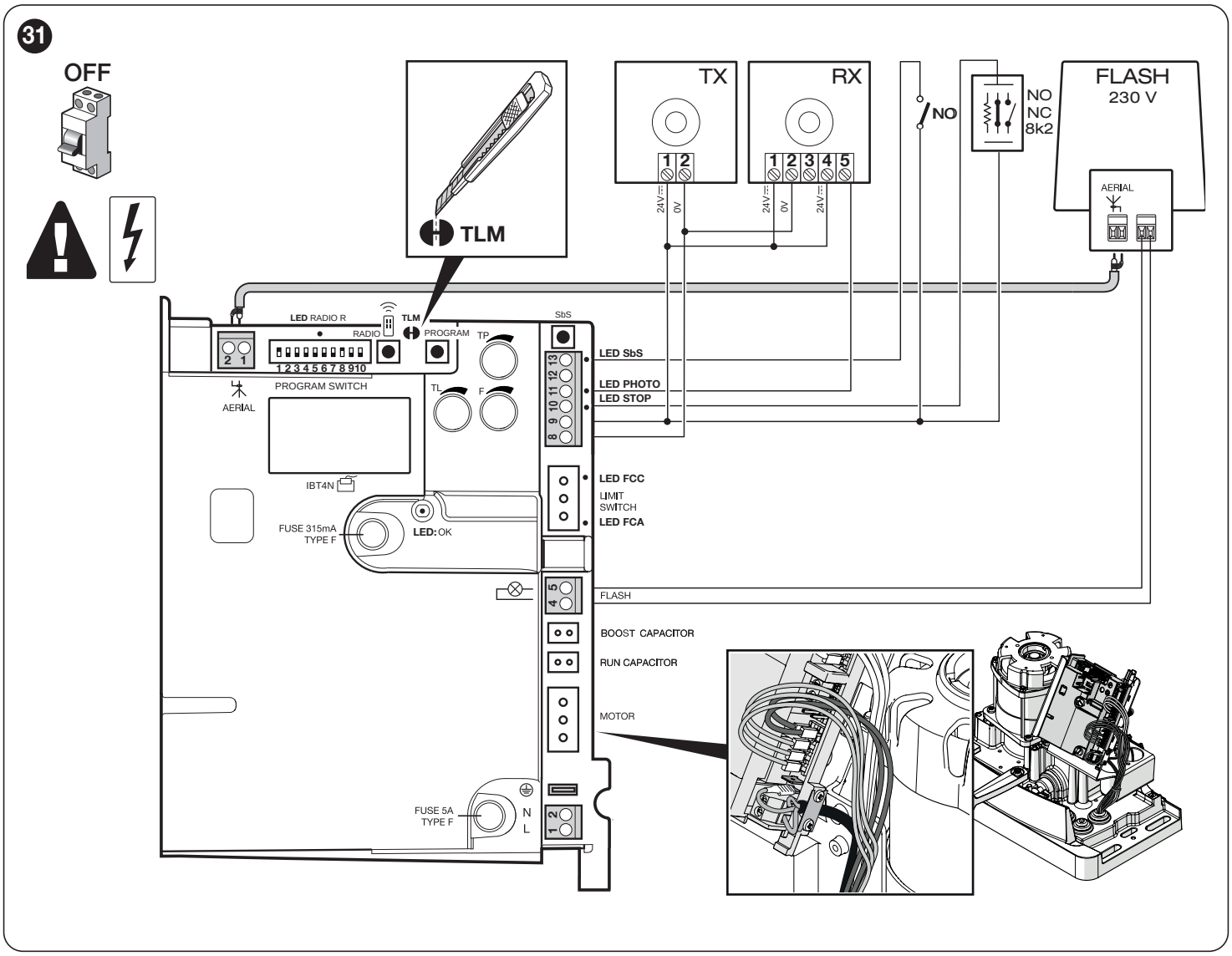


4.3 WIRING DIAGRAM AND DESCRIPTION OF CONNECTIONS

4.3.1 WIRING DIAGRAM



4.3.2 DESCRIPTION OF CONNECTIONS

Table 4

CONTROL UNIT OUTPUTS	
Exit	**Application**
AERIAL	ANTENNA
PROGRAM SWITCH	MICRO-SWITCHES
RADIO LED	RADIO LED
PHOTO LED	PHOTOCELL LED
SbS LED	STEP-BY-STEP LED
OK LED	OK LED
SbS	STEP-BY-STEP KEY
PROGRAM	PROGRAMMING KEY
LIMIT SWITCH	LIMIT SWITCH
FLASH	FLASHING LIGHT
BOOST CAPACITOR	BOOST CAPACITOR
RUN CAPACITOR	RUN CAPACITOR
MOTOR	MOTOR
FUSE	FUSE
	RADIO KEY

Table 5

ELECTRICAL CONNECTIONS		
Terminals	**Function**	**Description**
9 - 10	Stop	Input for devices that suspend or even stop the current manoeuvre; “Normally Closed” and “Normally Open” contacts or fixed resistors can be connected by suitably configuring the input. For further information on the STOP function, refer to the “***STOP input***” paragraph.
9 - 11	Photo	Input for safety devices that intervene during the closing manoeuvre by reverse the gate's direction of movement: NC (Normally Closed) contacts may be used. For further details, refer to the paragraph “***Photocells***”.
8 - 12	Phototest	Whenever a manoeuvre is begun, the efficient operation of the photocells is checked and the manoeuvre will only start if the test has a positive outcome. This can only be accomplished using a special type of connection: the “TX” photocells are powered separately with respect to the “RX” receivers. For further details, refer to the paragraph “***Photocells***”.
9 - 13	Step-by-step	Input for devices that control movements: NO (Normally Open) contacts can be connected.
4 - 5	Warning light	Output for flashing light (auto-intermittent). When active, the output supplies a voltage of 230 V~.
1 - 2	Antenna	Antenna connection input for radio receiver; the antenna is incorporated in the warning light; alternatively, an external antenna can be used.

5 FINAL CHECKS AND START-UP

5.1 POWER SUPPLY CONNECTION

The power supply connections must only be made by qualified and experienced personnel possessing the necessary requirements and in full conformity to the laws, regulations and standards in force.

Proceed as described below:

1. Manually disengage the gearmotor to move the door in the opening/closing direction (refer to the paragraph ***Manually unlocking and locking the gearmotor***).
2. Move the gate leaf to the halfway position along its path.
3. Manually lock the gearmotor (refer to the paragraph ***Manually unlocking and locking the gearmotor***).
4. Power the automation through the mains and verify:
   - that the OK LED, the photo LED and the two limit switch LEDs emit regular flashes: 1 flash per second
   - that no manoeuvres take place and that the flashing light is off

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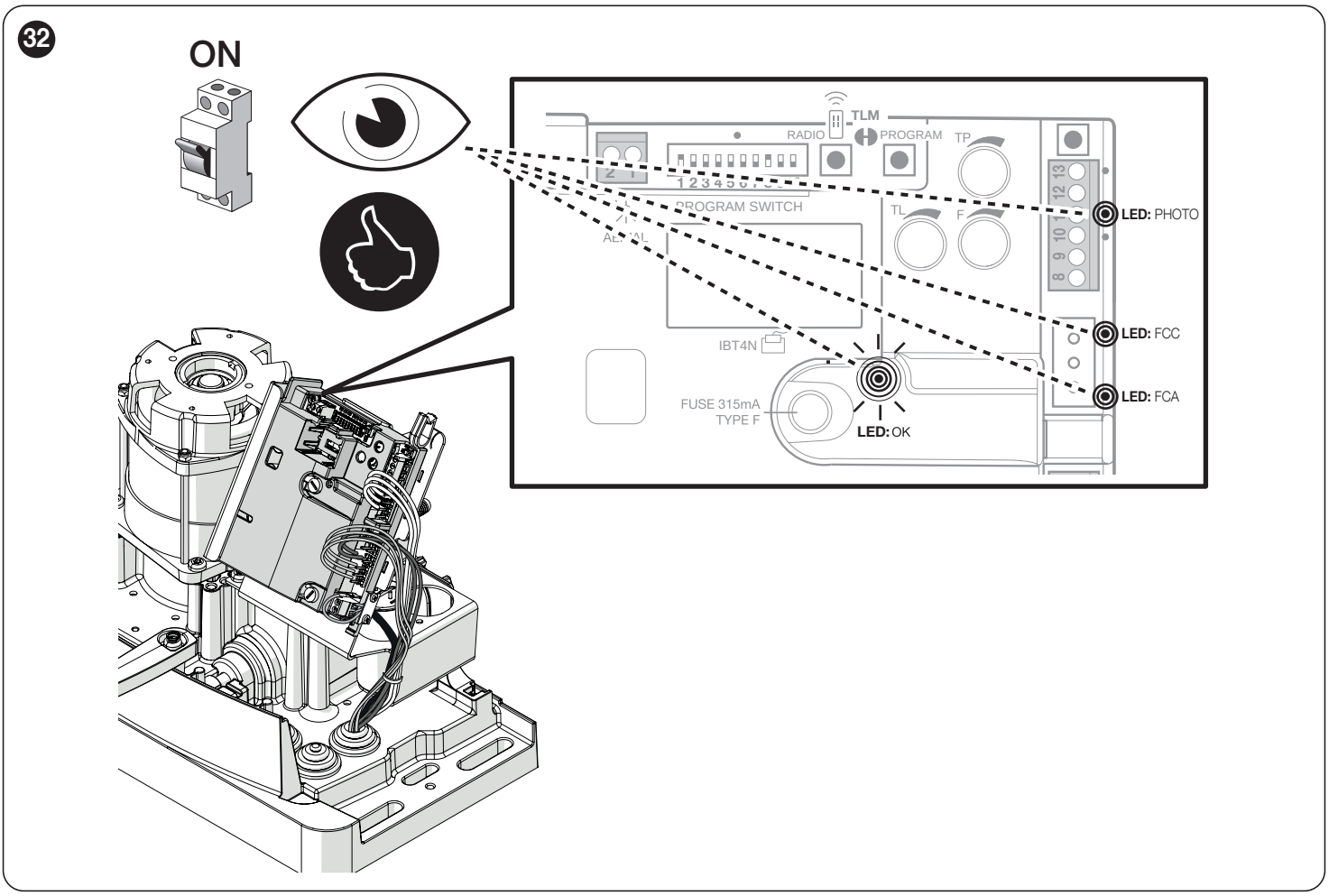

If all the above fails to occur, disconnect the automation from the mains power and check the electrical connections, photocell alignment and fuses. If necessary, verify the connection of the two limit switches: move the limit switch lever and check that the relevant switch trips and turns off the open or close limit switch LED on the control unit respectively.

5.2 DEVICE LEARNING

After connecting the power supply, the control unit must learn the devices connected to the "**STOP**" input and the configuration of the "**PHOTO**" input.

If the control unit has the factory settings or after a total reset, it will go into standby mode after 10 minutes (600 seconds). After performing the device recognition procedure, the standby time is reduced to 5 minutes (300 seconds). For more information, refer to the section *Enabling/Disabling standby*.

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

To do this:

1. press and hold the PROGRAM key
2. after approximately 3 seconds, the **"OK"** LED will start flashing rapidly. Press and hold the PROGRAM key
3. wait a few seconds until the control unit has completed the device learning phase
4. at the end of this phase, the **"STOP"** LED must be lit and the **"OK"** must be lit steady green
5. release the PROGRAM key within 10 seconds
6. the **"OK"** LED will flash green three times to confirm learning of the devices
7. the **"OK"** LED will flash red five times if the procedure is unsuccessful

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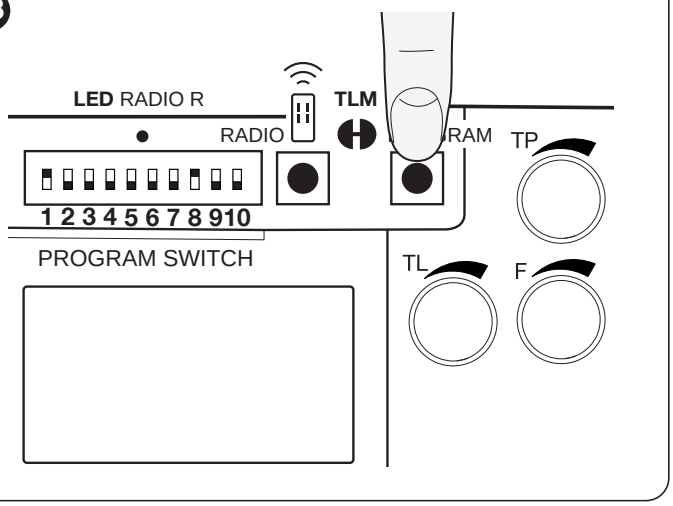


The self-learning phase of the connected devices can be repeated at any time also after the installation, for example whenever a device must be added or removed.
Once the device learning procedure has terminated, verify that the **PHOTO** and **STOP** LEDs are lit. If not, disconnect the automation from the mains power and check the electrical connections, photocell alignment and fuses.
If necessary, verify the connection of the two limit switches: move the limit switch lever and check that the relevant switch trips and turns off the open or close limit switch LED on the control unit respectively.

Once the operations have terminated, close the cover with the special screw.

If the motor's rotation direction must be reversed, the device learning procedure must be performed again. ("*Figure 25*") .

6 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 12453 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.

6.1 TESTING

The testing procedure can also be performed as a periodic check of the automation devices. Each component of the system (sensitive edges, photocells, emergency stop, etc.) requires a specific testing phase; for these devices, observe the procedures given in the respective instruction manuals.

To run the test:

1. verify that all the instructions stated in the "***GENERAL SAFETY WARNINGS AND PRECAUTIONS***" chapter (page 3) have been strictly observed
2. unlock the gearmotor as explained in the paragraph "***Manually unlocking and locking the gearmotor***" (page 13) ("***Figures 26*** and ***27***")
3. verify whether it is possible to manually move the automation in both directions (open and close) with a force no greater than the value corresponding to the usage limits shown in "***Table 1***".
4. lock the gearmotor
5. using the control devices (selector, radio transmitter, etc.), test the gate opening, closing and stoppage phases, ensuring that the movement matches the specifications. Run several tests to check that the gate moves smoothly and check for any defects in the assembly or adjustment and any possible points of friction
6. To check the operation of the photocells and ensure that there is no interference with other devices, pass a cylinder (5 cm diameter, 30 cm length) on the optical axis, first near the **"TX"** photocell then near **"RX"** photocell and, lastly, at the mid-point between the two and verify that in all these cases the device is triggered, switching from the active to the alarm status and vice-versa; make sure that it triggers the intended action in the control unit; for example, that it triggers the reversal of movement during the closing manoeuvre.
7. verify the correct operation of all the safety devices present, one by one (photocells, sensitive edges, etc.). If a device intervenes, the "**BlueBus**" LED device on the control unit will emit two quick flashes to confirm the recognition
8. 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 12453 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.

6.2 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.

The gate cannot be commissioned partially or under "temporary" conditions.

To commission the automation:

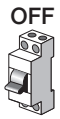
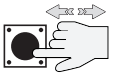
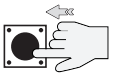
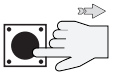
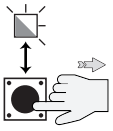
1. compile the automation's technical file, which must include the following documents: overall drawing of the automation, wiring diagram, risk assessment and relative solutions adopted, the manufacturer's declaration of conformity for all devices used and the declaration of conformity compiled by the installer
2. affix a permanent label or sign near the gate specifying the operations for unlocking the gate and manoeuvring it manually
3. 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
4. compile the declaration of conformity of the automation and hand it to the owner of the automation
5. compile the User Manual of the automation and hand it to the owner of the automation
6. 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: instruction manuals and guides.

7 PROGRAMMING

The symbols used in the various programming / deletion procedures with the internal radio module are listed in "***Table 6***".

Table 6

KEY TO THE SYMBOLS USED IN THE MANUAL	
Description	**Symbol**
LED "R" steady lit	
LED "R" off	
LED "R" flashing	
Disconnect the mains power	
Supply mains power	
Press and release the desired key on the transmitter to be memorised	
Hold down the desired key on the transmitter to be memorised	
Release the transmitter key	
Wait ...	
Observe / check	
Press and release the key	
Press and hold the key	
Release the button	
Release the key exactly when the LED behaves in the specified manner (on, flashing, off)	
Procedure correct	
Procedure NOT correct	

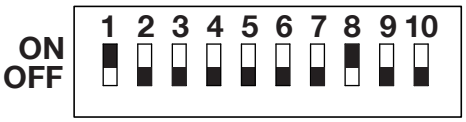
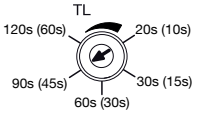
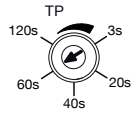
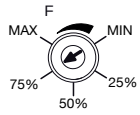
The control unit has a variety of factory settings which can be reprogrammed: this chapter describes the available functions and how to program them. Also refer to the chapter ***FURTHER INFORMATION***.

The control unit is fitted with the micro-switches, trimmers and keys described in "***Table 7***" and "***Table 8***".

Table 7

KEY TO THE CONTROL UNIT SYMBOLS		
Name	**Symbol**	**Description**
MICRO-SWITCH		Use it to activate functions
TL trimmer		Use it to adjust the "Work Time" parameters (see ***Adjustable parameters: Trimmer (TL - TP - F)***)
TP trimmer		Use it to adjust the "Pause Time" parameters (see ***Adjustable parameters: Trimmer (TL - TP - F)***)
F trimmer		Use it to adjust the "Force" parameters (see ***Adjustable parameters: Trimmer (TL - TP - F)***)
RADIO key 		Programs the radio receiver
PROGRAMME key		Use it to programme the devices

Table 8

FACTORY SETTINGS (DEFAULT)	
MICRO SWITCHES:	
Semi-automatic (1= ON - 2 = OFF) **Slowdown (8 = ON)**	
TL trimmer (Work Time)	
TP trimmer (Pause Time)	
F trimmer (Force)	

Whenever the selection of micro-switches 1 and 2 is modified, the device learning procedure must be repeated as described in the paragraph *Device learning*.

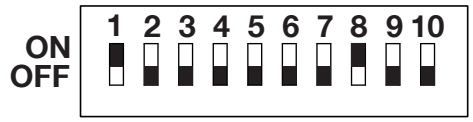
7.1 ADJUSTABLE PARAMETERS: TRIMMER (TL - TP - F)

The control unit's operating parameters can be adjusted using the three trimmers ("***Figure 31***").

TL (Work Time)

Adjusts the maximum duration of the Open or Close manoeuvres

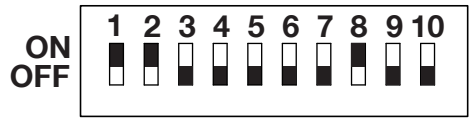
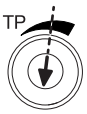
Table 9

TL (WORK TIME)	
Adjustment	
Select the "Semi-automatic" or "Automatic" mode and set micro-switch 1 to "ON"	
Run a full Open and Close cycle: check that the maximum duration setting (Open / Close) is high enough and that a margin of 2 or 3 seconds remains. Adjust trimmer TL to its maximum setting if necessary. To adjust the slowdown, refer to the description of Switch 8 (see *Programmable functions*) Note: if this time is still not sufficient, cut the TLM jumper next to the TL trimmer TL ("*Figure 31*") to obtain an "Extended Work Time" (TLM).	

TP (Pause Time)

Adjusts the time between the end of an Open manoeuvre and the start of the Close manoeuvre

Table 10

TP (PAUSE TIME)	
Adjustment	
Select the "Automatic" mode and set micro-switch 2 to "ON"	
Adjust the "TP trimmer" as desired	
To check whether the set time is correct, run a full Open manoeuvre and see how long it takes before the Close movement starts	

F (Force)

Adjusting this parameter can considerably alter the automation's level of safety: be very careful when performing this operation.

To adjust the parameter, try various settings: you must measure the force applied by the gate when moving and compare it with local regulations.

7.2 PROGRAMMABLE FUNCTIONS

The control unit has a set of micro-switches (PROGRAM SWITCH - "***Figure 5***") which activate various functions to adapt the automation to the user's needs and make it safer to use.
The micro-switches allow the user to select the various operating modes and programme the desired functions:

Table 11

ACTIVATING OR DEACTIVATING FUNCTIONS	
Micro-switches (1 ... 10)	
ACTIVATE	ON
DEACTIVATE	OFF

Table 12

PROGRAMMABLE FUNCTIONS	
Switches 1-2	**Operation**
Off-Off	Manual (hold-to-run)
On-Off	Semi-automatic
Off-On	Automatic (automatic closing)
On-On	Automatic + Always Closes
Switch 3	**Operation**
On	Condominium (not available in manual mode)
Switch 4	**Operation**
On	Pre-flashing
Switch 5	**Operation**
On	Close 5 seconds after “Photo” if set to “Automatic” or “Close after Photo” if set to “Semi-automatic”
Switch 6	**Operation**
On	Safety "Photo" also when Opening
Switch 7	**Operation**
On	Gradual start-up
Switch 8	**Operation**
On	Slowdown
Switch 9	**Operation**
On	Average braking
Switch 10	**Operation**
On	Light braking

Switches 1-2:

“Manual” operation
The manoeuvre is only executed while the control is active (key of the hold-to-run transmitter pressed).
“Semi-automatic” operation
The sending of a command causes the full manoeuvre to be completed until the “Work Time” expires or the limit switch is reached.
“Automatic” operation
After an Open manoeuvre, the system pauses and then automatically runs a Close manoeuvre.
“Always Close” operation
Follows a power outage: if, when power is restored, the control unit detects that the gate leaf is open, it automatically starts a Close manoeuvre preceded by 5 seconds of pre-flashing.

Switch 3:

“Condominium” function
When a “Step-by-Step” command is given and an Open manoeuvre starts, the latter cannot be stopped by any other “Step-by-Step” or “Open” command submitted by radio until the manoeuvre ends.
Conversely, the sending of a new “Step-by-Step” command during the Close manoeuvre causes the manoeuvre to stop and reverse.

Switch 4:

When a command is sent, the flashing light first starts flashing and, after 5 seconds (2 seconds in “Manual” mode), the manoeuvre starts.

Switch 5:

This function, if the “Automatic” mode has been set, keeps the gate leaf open only for the time required for vehicles or pedestrians to pass through it; when the “Photo” devices are cleared, the manoeuvre stops and a Close movement starts automatically after 5 seconds.
If the functions is set to “Semi-automatic” mode, when the “Photo” safety devices intervene, during the Close manoeuvre the automatic Close function is activated with the programmed “Pause Time”.

Switch 6:

The “Photo” safety function is usually active only during Close manoeuvres; if micro-switch 6 is set to “ON”, the safety device’s intervention causes the manoeuvre to stop, even if this is an Open manoeuvre. If instead the “Semi-automatic” or “Automatic” mode has been set, the Open manoeuvre will resume immediately after the safety devices have been cleared.

Switch 7:

This function activates a soft start to gate movements to prevent them moving jerkily.

Switch 8:

Ramp down, which reduces the speed to 30% of its nominal value, reduces the impact force of the gate at the end of a movement.
The gearmotor is factory set with the “slowdown” function active (Switch 8 = ON). The automation will start slowing down after a time equal to TL/2 (where TL is the set work time). By default the work time is set to 90 s (3/4 turn), which means that the slowdown will start 45 s after the start of the manoeuvre from the fully closed or the fully open position.
Depending on the span of the gate, the installer may decide that it is necessary to adjust the work time (TL) so that the slowdown phase (TL/2) can start roughly 50–70 cm before the intervention of the limit switches (**).
The slowdown function not only reduces the speed of the gate but also the torque exerted by the motor (by 70%).

In automations requiring a high motor torque, setting the slowdown function could cause the immediate stoppage of the motor.

(**) Note: if this parameter is modified, the resulting change will be visible during the first Open manoeuvre commanded after the change was made.

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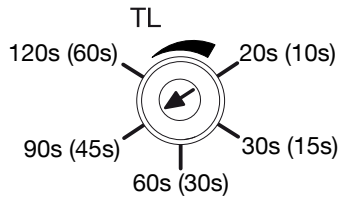


Switches 9-10:

Setting a combination of switches 9 and 10 activates the motor brake procedure; depending on the combination, the braking intensity is defined according to the following set-up:

Table 13

SWITCHES 9-10		
Description	**dip10**	**dip9**
braking off	off	off
light braking	on	off
average braking	off	on
intense braking	on	on

7.3 INTEGRATED RADIO RECEIVER

For the remote control the control unit incorporates a radio receiver with 433.92 MHz frequency and O-CODE encoding system.

7.3.1 MEMORISING THE RADIO TRANSMITTERS

Each radio transmitter is recognised by the radio receiver by means of a "code" which is different from that of any other transmitter. There are two types of memorisation: Mode 1 and Mode 2.

Mode 1
automatically assign the commands indicated in *Table 14* to the transmitter keys.
Each transmitter is memorised in a single step, with all keys programmed: it does not matter which key is pressed. (One memory section is occupied for each key).
N.B.: when memorised in Mode 1, a transmitter can control only one automation.

Table 14

MODE 1	
Transmitter key	**Command**
1	Step-by-Step
2	Pedestrian opening
3	Opening
4	Closing

Single-channel transmitters have only key 1; two-channel transmitters have keys 1 and 2

Table 15

MODE 1 MEMORISATION PROCEDURE	
Description	**Symbols used**
RADIO KEY	4s
RADIO KEY AND LED	
TRANSMITTER KEY IN QUESTION	max 1
RADIO LED	

Mode 2
freely assign a command among those listed in *Table 16*.
For each phase, only one key is memorised (the one pressed during memorisation).
Note: one memory section is occupied for each key.

Table 16

MODE 2	
Transmitter key	**Command**
1	Step-by-Step
2	Pedestrian opening
3	Opening
4	Closing
5	Stop

Table 17

MODE 2 MEMORISATION PROCEDURE				
Description	**Symbols used**			
	Closing	**Opening**	**Pedestrian opening**	**Step-by-Step**
RADIO KEY	x **4**	x **3**	x **2**	x **1**
RADIO KEY AND LED				
TRANSMITTER KEY IN QUESTION	max 1	max 1	max 1	max 1
RADIO LED				

If other transmitters must be memorised, repeat step 03 within 10 sec. The memorisation procedure terminates after 10 sec if no other operations are performed.

7.3.2 REMOTE MEMORISATION

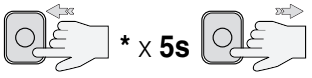
It is possible to memorise a new transmitter without having to touch the receiver key (10-20 m from the receiver).
You must have a previously memorised transmitter (old). The new transmitter will be memorised with the same characteristics as the old one.

Remote memorisation may be done on all receivers within the range of the transmitter; therefore, only the one involved in the operation should be kept switched on.

"Standard" procedure

During the procedure, if the old transmitter was memorised in:
- **Mode 1:** press any key
- **Mode 2:** press the key you wish to memorise

Table 18

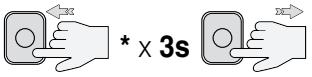
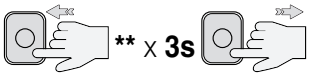
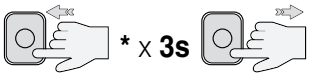
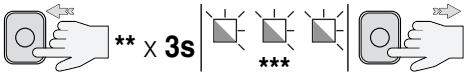
STANDARD PROCEDURE	
Description	**Symbols used**
With the motor stopped, stand close to the control unit	
NEW transmitter	
OLD transmitter already memorised	
NEW transmitter	

If the procedure terminated successfully, the new transmitter will be memorised.
*** same key on NEW transmitter.**

"Alternative" procedure

During the procedure, if the old transmitter was memorised in:
- **Mode 1:** press any key
- **Mode 2:** press the key you wish to memorise

Table 19

ALTERNATIVE PROCEDURE	
Description	**Symbols used**
With the motor stopped, stand close to the control unit	
NEW transmitter	
OLD transmitter already memorised	
NEW transmitter	
OLD transmitter already memorised	

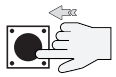
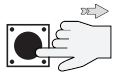
If the procedure terminated successfully, the new transmitter will be memorised.
*** same key on NEW transmitter.**
**** same key on OLD transmitter.**
***** RADIO LED not visible at a distance.**

The radio LED can also emit the following signals: 1 fast flash, if the transmitter is already memorised, 6 flashes, if the transmitter's radio encoding system is not compatible with that of the control unit's receiver, or 8 flashes, if the memory is full.

7.3.3 RADIO TRANSMITTER DELETION

This procedure can ONLY be carried out if the radio memory has been unlocked.

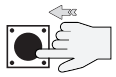
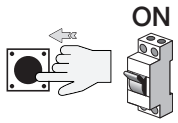
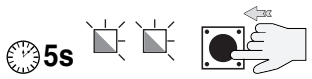
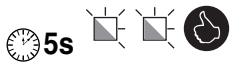
Table 20

TRANSMITTER DELETION PROCEDURE	
Description	**Symbols used**
Press and hold the button radio on the control unit up to step 02	
Wait for radio LED R to light up then wait for it to switch off and to flash 3 times	
Release the key exactly during the 3rd flash	
If the memorisation procedure was successful, radio LED R on the control unit will flash 5 times	

7.3.4 LOCKING / UNLOCKING THE RADIO MEMORY

This procedure locks the memory, thus preventing the recognition and deletion of radio transmitters.

Table 21

PROCEDURE FOR LOCKING/UNLOCKING THE RADIO MEMORY	
Description	**Symbols used**
Disconnect the control unit from the power supply	
Press the radio key on the control unit (keep the key pressed up to step 04)	
Power the control unit (continue pressing the key)	
After 5 seconds radio LED R will emit 2 slow flashes: at this point release the key	
Press and release the radio key repeatedly on the control unit (within 5 seconds) to select one of the following options: **- LED off = Deactivation of the memory lock.** **- LED on = Activation of the memory lock.**	
Five seconds after the radio key was last pressed, radio LED R will emit 2 slow flashes to signal the end of the procedure.	

7.3.5 ENABLING/DISABLING STANDBY

This procedure allows you to enable or disable standby using the control unit buttons. When standby is active, it is not possible to change the time using the control unit buttons. To change the time, you must use OView or ProView. Initially, the standby activation time is set to five minutes (300 seconds). If standby is disabled, the product's power consumption will increase.

WARNING! The standby function is enabled by default. It can only be disabled by the user, who should be aware that power consumption will increase when the product is not performing the gate movement function.

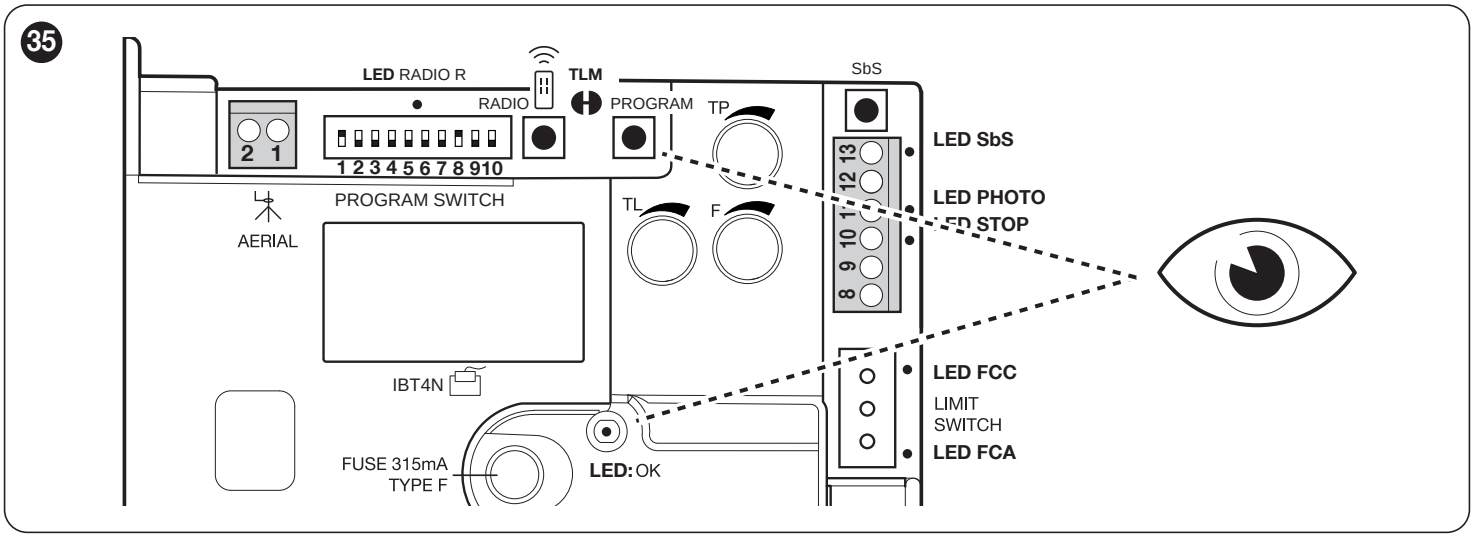


Table 22

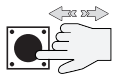
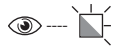
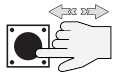
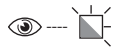
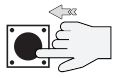
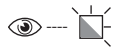
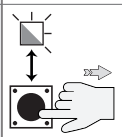
CHECKING THE STANDBY STATUS	
Description	**Symbols used**
Press and release the PROGRAM button to select one of the following operations to select one of the following options:	
- Status 1: Standby Enabled	
- Status 2: Standby disabled	

Table 23

CHANGING THE STATUS	
Description	**Symbols used**
Press and release the PROGRAM button to select one of the following operations:	
- Status 1: Standby Enabled	
- Status 2: Standby disabled	
Press and release the PROGRAM button to select one of the following operations to change the status settings:	
- Status 1: Standby Enabled	
- Status 2: Standby disabled	
To save the required status, press (for at least 5 seconds) until the OK LED lights up at normal frequency (1 Hz)	

7.4 SPECIAL FUNCTIONS

“Always open” function

This function is a control unit feature that enables the user to command an opening manoeuvre when the “Step-by-Step” command lasts longer than 3 seconds. This is useful, for example, for connecting a timer contact to the “Step-by-Step” input in order to keep the gate open during a specific time bracket. This property is not valid if the manual operating mode is active (switches 1-2 off–off - programmable functions – ***Table 12***).

“Move anyway” function

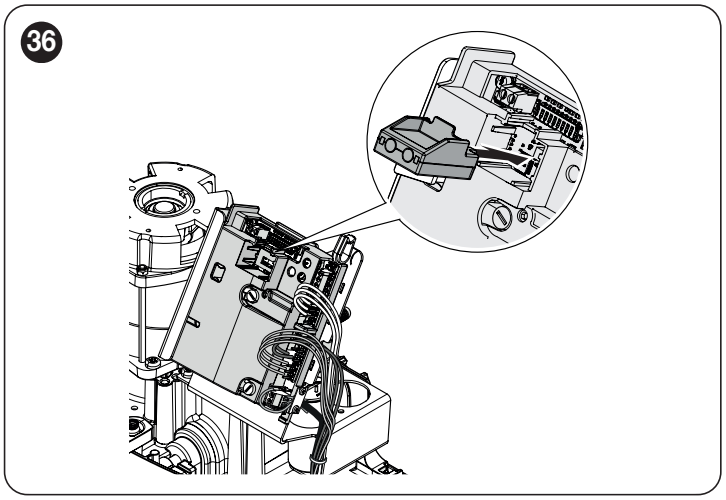
If one of the safety devices is not working properly or is out of order, it is still possible to command and move the gate in “Hold-to-run” mode. For the details refer to the programmable functions – ***Table 12***).

7.5 BIDI-WI-FI INTERFACE

To connect the BiDi-Wi-Fi interface:

1. Disconnect the power supply to the control unit and, if necessary, the emergency power supply
2. Verify that all the control unit LEDs are switched off before proceeding

Insert the BiDi-Wi-Fi interface in the BUS T4 connector of the control unit



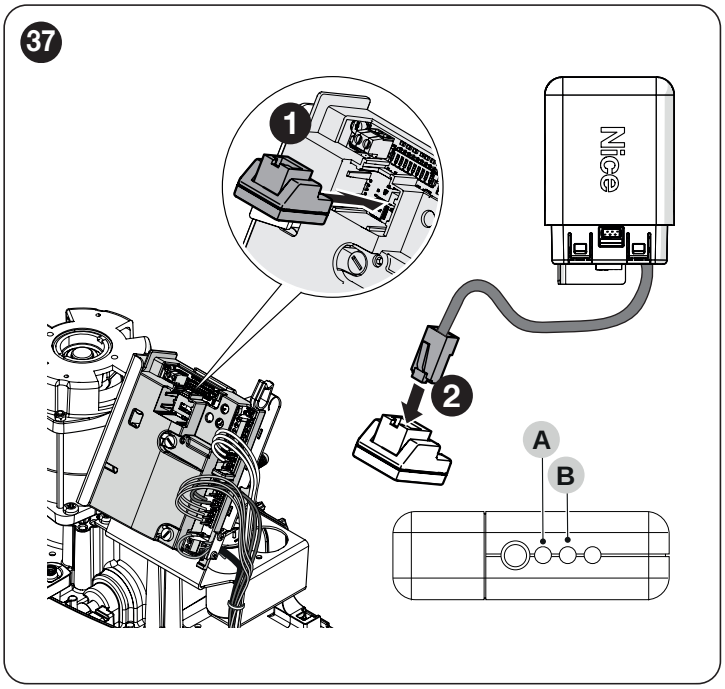
Warning! If it is not correctly inserted, the BiDi-Wi-Fi interface could get damaged or permanently damage the control unit.

3. Wait for the **Date** LED to start flashing
4. Configure the interface through the app
5. Wait until the **Date** LED switches on and the green light stays steady lit. At this point the configuration will have been completed.

For further details relative to the functions linked to the BiDi-Wi-Fi interface, consult the website www.niceforyou.com.

7.6 CONNECTING THE PRO-VIEW

The control unit has a BusT4 connector to which it is possible to connect, through the IBT4N interface, the “Pro-View” interface, which allows for fully and rapidly managing the installation, maintenance and diagnosis of the entire automation through a Wi-Fi connection and the MyNice Pro app.
Once properly powered, the ProView automatically creates a Wi-Fi network to which the user can connect.
When the ProView accessory is correctly paired, the “power status” LED (A) and the “Wi-Fi status” LED (B) are lit green.



For further details relative to the functions linked to the Pro-View interface and the MyNice Pro app, consult the website www.niceforyou.com.

7.7 Z-WAVE™

The **ROBO** motors are compatible with the Z-Wave™ protocol to enable the user to manage all the automation’s functions in an extremely simple way, through the Z-Wave™ gateway app installed at home.
In particular, the Z-Wave™ connectivity is available with the BiDi-ZWave interface which can be used to control the movement and status of the automations.

The application of the BiDi-ZWave interface to the busT4 port present on the automation must be regarded as alternative to the BiDi-Wi-Fi interface.

For further details relative to the functions linked to the BiDi-ZWave interface, consult the website www.niceforyou.com.

8 FURTHER INFORMATION

8.1 ADDING OR REMOVING DEVICES

It is possible to add or remove devices to the automation at any time; in particular, various types of devices can be connected to the STOP input, as described in the following paragraphs.

At the end of the changes made to the configuration of the stop input and to the photocells input, the device learning procedure must be repeated as described in the previous paragraph *Device learning*.

8.1.1 STOP INPUT

Input that stops movement immediately, followed by a brief reverse of the manoeuvre.
Devices with normally open (NO) and normally closed (NC) contact output, as well as fixed resistors (*), such as sensitive edges, can be connected to this input. The control unit recognises the type of device connected to the STOP input during the device learning phase (paragraph ***Device learning***).
When any change with respect to the learned status occurs, the automation stops the manoeuvre and reverses its direction briefly.

- Multiple NO devices can be connected to each other in parallel without any quantity limit.
- Any number of NC devices can be connected to each other in series.
- Multiple devices with 8.2 kΩ fixed resistor can be "cascade" connected with a single 8.2 kΩ terminating resistor.
- NO and NC combinations are possible by placing the 2 contacts in parallel, provided that a 8.2 kΩ resistor is mounted in parallel to the NC contact (so we can have a combination of 3 devices: NO, NC and 8.2 kΩ).

If the STOP input is used to connect devices with safety functions, only the devices with 8.2 kΩ fixed resistor guarantee Category III safety against faults, in accordance with the EN 13849-1 standard.

(*) Note: supports 8.2 kΩ or 4.1 kΩ double edge.

8.1.2 PHOTOCELLS

To add a pair of photocells, proceed as follows:
01. Power up the receivers (RX) directly via terminals 8 – 9 (see on "***Figure 31***").
The connection mode of the transmitters instead depends on whether or not we want the photocells to operate in the "Phototest active" mode.
The Phototest function included on the control unit improves the reliability of the safety devices, enabling the device to be classified in Category II in accordance with the EN 13849-1 standard regarding the combination of the control unit and safety photocells.
Each time a manoeuvre is started, all safety devices involved are checked and only in the case of positive results will the manoeuvre be started.
Should the test fail (photocell blinded by the sun, cables short-circuited, etc.), the fault is identified and the manoeuvre is not carried out.
To add a pair of photocells, connected them as described below.
Connection without the "Phototest" function:
Power the receivers and the transmitters directly from the devices output of the control unit (terminals 8 and 9).

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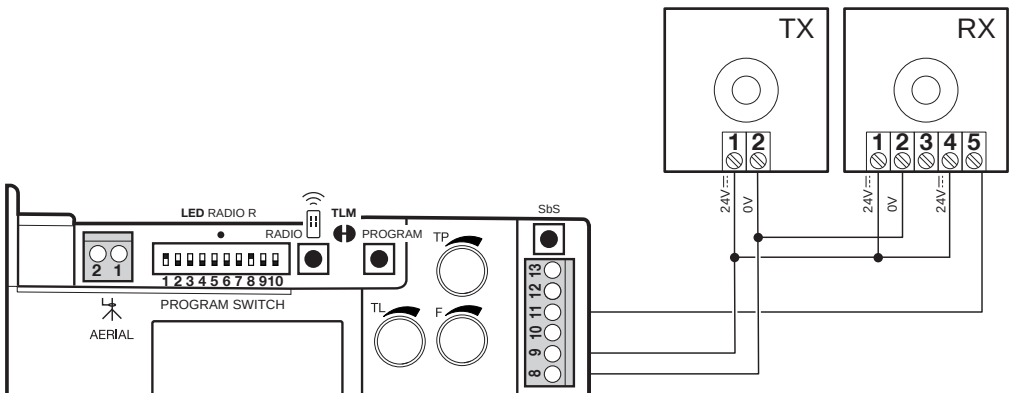

Connection with the "Phototest" function:
Power the receivers directly from the devices output of the control unit (terminals 8 and 9). The photocell transmitters are not powered from the devices output, but from the "Phototest" output between terminals 8 - 12. The maximum usable current on the "Phototest" output is 100 mA.

To use the "Phototest" function, it is necessary to activate the "synchronism" as described in the photocell instruction manual.

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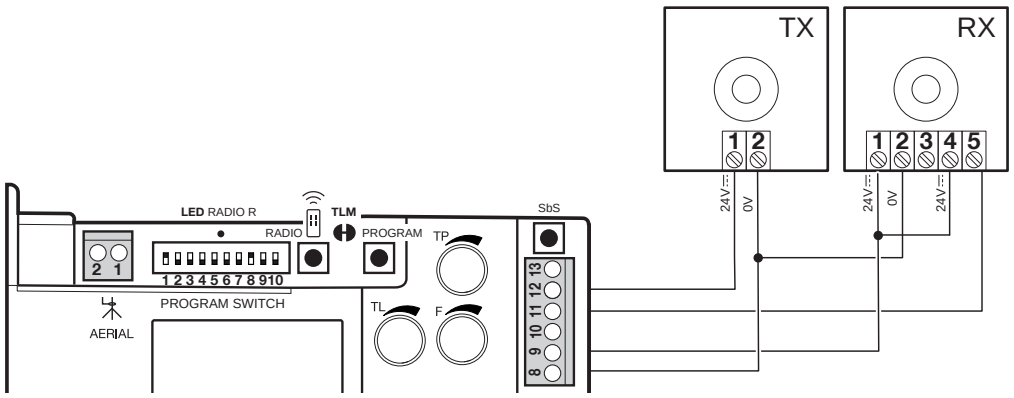
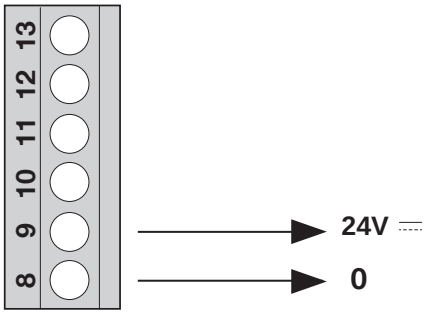


8.2 POWERING EXTERNAL DEVICES

To power external devices (transponder badge reader or backlighting for a key-operated switch), connect the device to the product's control unit as shown in the figure below.
The power supply voltage is 24 V (+/- 10%) with a maximum available current of 100 mA.

During standby, this output is not active. Connected devices will therefore be turned off. To keep the devices powered at all times, standby must be disabled, but power consumption will increase.

40



8.3 CONNECTING THE OVIEW PROGRAMMER

It is possible to connect the Oview programming unit to the control unit, via the IBT4N interface through a bus cable with 4 electrical wires inside. This unit allows for rapidly and fully programming the functions, adjusting the parameters, updating the control unit firmware, running the diagnostics to detect any malfunctions and performing routine maintenance.
The Oview allows for operating on the control unit at a maximum distance of roughly 100 m. If several control units are networked with each other in a BusT4 network, by connecting the Oview to one of them, it is possible to view on the display all the networked control units (up to a maximum of 16 units).
The Oview unit can also be left connected to the control unit during normal operation of the automation, so that the user can send commands using a specific menu.

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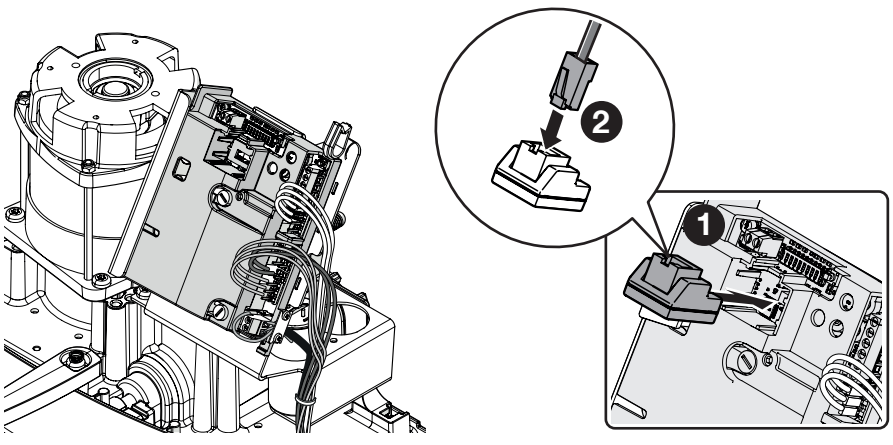


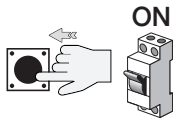
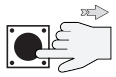
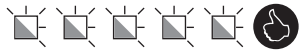
Warning! Before connecting the IBT4N interface, it is necessary to disconnect the control unit from the power supply.

8.4 TOTAL MEMORY DELETION

When the memory must be fully deleted and the default settings restored, perform the following procedure with the motor stationary.

The full deletion of the memory cancels the radio memory lock.

Table 24

PROCEDURE FOR FULLY DELETING THE MEMORY	
Description	**Symbols used**
Disconnect the control unit from the power supply	
Press and hold the PROGRAM programming key on the control unit	
Power the control unit (continue pressing the key)	
After 5 seconds radio LED R will emit 2 slow flashes: at this point release the key	
Press and release the radio key repeatedly on the control unit (within 5 seconds) to select one of the following options: **- LED off = Deactivation of the memory lock.** **- LED on = Activation of the memory lock.**	
If the procedure was successful, the OK LED on the control unit will flash 5 times	

This procedure does not cancel the transmitters.

9 DIAGNOSTICS

Some devices are equipped to display messages to identify their status and faults.

9.1 CONTROL UNIT SIGNALS

The LEDs on the control unit emit special signals to indicate both normal operation or any anomalies.
Table 25 describes the various types of signals:

Table 25

PROCEDURE FOR FULLY DELETING THE MEMORY		
OK LED	**Cause**	**Solution**
Red and green LED off	Anomaly	Make sure there is power supply; check to see whether the fuses are blown; if necessary, identify the reason for the failure then replace them with others of the same type.
Green or red LED on	Serious anomaly	Try switching off the control unit for a few seconds; if the condition persists, it means that there is a malfunction and the electronic circuit board has to be replaced.
1 green flash per second	All OK	Normal control unit operation.
1 red flash and 1-second pause 1 red flash	The device installation procedure failed or the configuration of dip-switches 1-2 was modified without repeating the device learning procedure	Verify the connections of the stop and photocell inputs (see "***Figure 31***" and paragraphs ***STOP input*** and ***Photocells***) or, if the configuration of micro-switches 1-2 was modified, run the device learning procedure (paragraph ***Device learning***).
2 quick green flashes	The status of the inputs has changed	This is normal when there is a change in one of the inputs: SbS, STOP, intervention of photocells or the radio transmitter is used.
2 red flashes and 1-second pause 2 red flashes	Intervention of a photocell	At the start of the manoeuvre, one or more photocells prevent the movement: check whether there are any obstacles. This is normal when there is an obstacle hampering the closing movement.
4 red flashes and 1-second pause 4 red flashes	Triggering of the STOP input	At the start of the manoeuvre or during the movement, the STOP input intervened; identify the cause.
5 red flashes and 1-second pause 5 red flashes	Internal parameter memorisation error	Wait at least 30 seconds during which the control unit will attempt to restore the function. If the condition persists, delete the memory and rerun the memorisation procedure.
7 red flashes and 1-second pause 7 red flashes	- Error in the internal electric circuits - Configuration of programming dip-switches 1 and 2 modified	Disconnect all the power circuits for a few seconds and then try giving a command again; if the condition persists it means there is a serious fault on the electronic board or the motor cabling: perform the necessary checks and replace components, if necessary. If the configuration of dip-switches 1 and 2 was modified, repeat the device learning procedure or restore the previous configuration.
8 red flashes and 1-second pause 8 red flashes	Command already present	Another command is already present. Remove the command present to be able to send other commands.
Led PHOTO	**Cause**	**Solution**
OFF	Photocell input activated	At the start of the manoeuvre, one or more photocells are preventing movement: check to see whether there are any obstacles or if the NC connection is correct.
On	All OK	The photocell is aligned and the manoeuvre is permitted.
STOP LED	**Cause**	**Solution**
OFF	Intervention of the STOP input	Check the devices connected to the STOP input.
On	All OK	STOP input active.
SbS LED	**Cause**	**Solution**
OFF	Step-by-step command not present.	
On	Step-by-step command present.	
FCA LED	**Cause**	**Solution**
OFF	Open limit switch input intervened.	
On	Open limit switch input closed.	
FCC LED	**Cause**	**Solution**
OFF	Close limit switch input intervened.	
On	Close limit switch input intervened.	
Radio LED R	**Cause**	**Solution**
OFF	During normal operation it indicates that a radio code not present in the memory has been received.	
On	Transmitter programming or deletion under way	

10 TROUBLESHOOTING

In case of malfunction due to problems during installation or faults, refer to ***Table 26***:

Table 26

TROUBLESHOOTING	
Problem	**Solution**
The radio transmitter does not control the gate and the LED on the transmitter does not light up	Check to see if the transmitter batteries are exhausted, if necessary replace them
The radio transmitter does not control the gate but the LED on the transmitter lights up	Check whether the transmitter has been memorised correctly in the radio receiver. Check that the emission of the transmitter radio signal is correct by means of this empirical test: push a key and rest the LED on the aerial of a normal radio (ideally an economical one) that is switched on and tuned in, as close as possible, to 108.5 MHz FM; a slight crackling sound should be heard
No manoeuvre starts and the OK LED fails to flash	Check that the product is being supplied 230 V mains power. Check that fuses F1 and F2 (see "***Figure 31***") have not blown; in this case, identify the cause of the failure and then replace the fuses with others having the same current rating and characteristics
No manoeuvre starts and the warning light is off	Check that the command is actually received: if the command reaches the Step-by-Step input, the OK LED flashes twice to indicate that the command has been received

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.

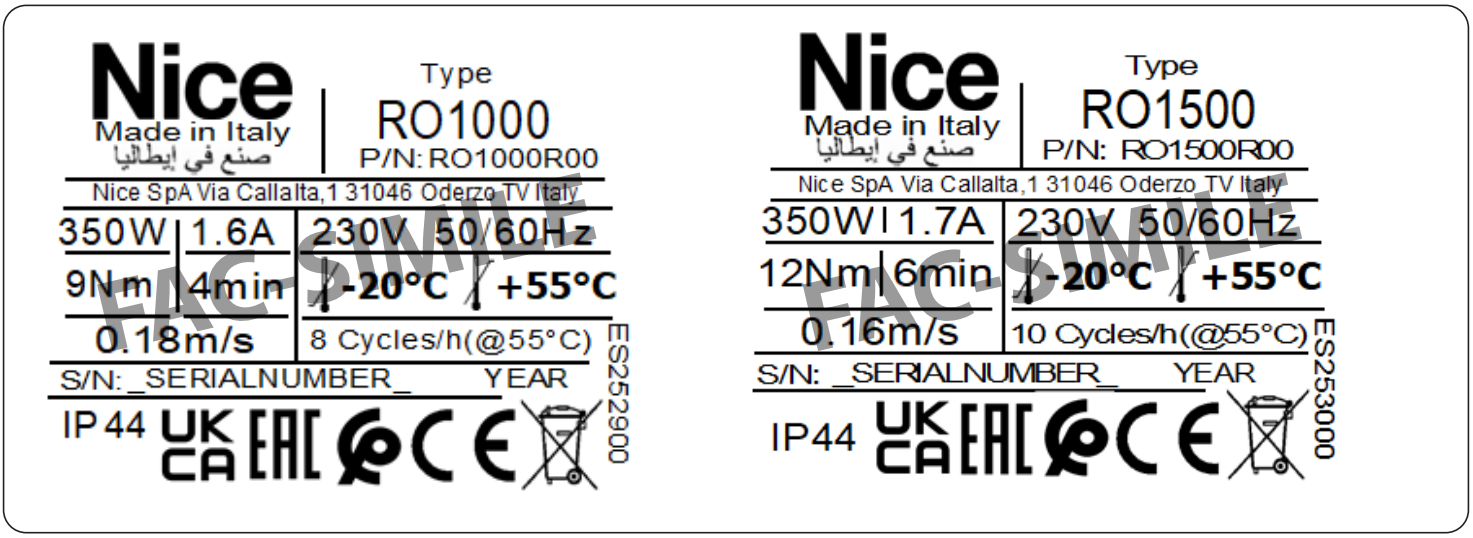
Table 27

TECHNICAL SPECIFICATIONS		
	ROBO 1000	**ROBO 1500**
Product type	Electro-mechanical gearmotor for the automatic movement of sliding gates for residential use, inclusive of electronic control unit	
Pinion Z	15; Module: 4; Pitch: 12.5; Primitive diameter: 60 mm	
Maximum inrush torque	20,4 Nm	23,4 Nm
Nominal torque	9 Nm	12 Nm
No-load speed	10,2 m/min	10,2 m/min
Nominal torque speed	9 m/min	9,5 m/min
Operating cycles	16 cycles/hour	22 cycles/hour
Maximum continuous operating time	4 minutes	6 minutes
Nominal power supply	230 V - 50/60 Hz	
Nominal power	350 W	350 W
Stand-By mode	Factory-set to automatic after 5 minutes from the end of main functions	
Standby (W)*	< 0,45	
Electrical isolation class	1 (safety grounding is required)	
Warning light output	For 1 auto-intermittent 230 V flashing light	
STOP input	For normally closed contacts (a variation with respect to the closed state triggers the STOP command)	
SbS input	For normally open contacts (closing of the contact triggers the SbS command)	
PHOTO input	For normally closed contacts (a variation with respect to the closed state triggers a change of direction during closing when the photocell is occluded)	
Radio ANTENNA input	52 ohm for RG58-type cable or similar	
Radio receiver	Incorporated	
Operating temperature	-20°C ... +55°C	
Protection rating	IP44	
Dimensions (mm)	363x364x238 h	
Weight (kg)	11,5	13
Integrated radio receiver		
Product type	4-channel receiver for incorporated radio remote control	
Frequency	433.92 MHz	
Transmitter compatibility	O-CODE encoding system	
Memorisable transmitters	Up to 100 if memorised in Mode 1	
Input impedance	52 Ω	
Sensitivity	better than 0.5 µV	
Transmitter range	From 100 to 150 m; this range can vary if there are obstacles or electromagnetic disturbances, and depends on the position of the receiving antenna	
Outputs	For commands such as those listed in Tables 8 and 9 of paragraph 7.3 - Integrated radio receiver	
Operating temperature	-20°C ... +55°C	

* In the calculation of power consumption in Standby Mode, the energy consumption of accessories has not been considered. Please refer to the respective instructions for the consumption of these accessories such as external receivers or devices connected to the power outputs, if present.

EU Declaration of Conformity and declaration of incorporation of “partly completed machinery”

Nice S.p.A. manufacturer of this equipment declares that it conforms to Directive 2014/53/EU (RED) and Directive 2006/42/EC (Machinery) according to Annex II, Part 1, Section B. The instruction manual and the complete text of the EU Declaration of Conformity can be found at: www.niceforyou.com; under ‘support’ and ‘download’.



Note: The labels shown are a copy of the product label updated as of the publication date of this manual.

13 PRODUCT MAINTENANCE

The automation must be subjected to maintenance work on a regular basis in order to guarantee it lasts.

Maintenance must be carried out strictly in compliance with the safety provisions provided in this manual and in accordance with the laws and regulations in force.

To carry out maintenance on the gearmotor:

1. schedule maintenance interventions within maximum 6 months or after maximum 2.000 manoeuvres from the previous maintenance intervention
2. disconnect all power supplies, including any back-up batteries
3. check for any deterioration in the materials making up the automation, with special emphasis on erosion or oxidation of the structural parts; replace any parts that are not to standard
4. check the state of wear of moving parts: pinion, rack and all gate leaf components; replace any worn parts
5. connect the power supplies again and run all the tests and checks described in the "***Testing***" paragraph (page 19).

14 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 been 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. If an emergency power accessory is installed in the product, it contains batteries that must be removed and disposed of according to the specific procedures for the type of battery.

WARNING

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

INSTRUCTIONS AND WARNINGS

Before using the automation system for the first time, ask the installer to explain the origin of residual risks and take a few minutes and read this instructions manual and related warnings handed to you by the installer. Keep the manual for consultation when in doubt and ensure supply to new owners of 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 it is moving
- the photocells should not be regarded as actual safety devices but only as auxiliary safety devices. They are designed using highly reliable technology, but in extreme conditions may be subject to malfunctions or potential faults, and in certain cases these faults might not be immediately evident
- periodically check that the photocells work properly.

IT IS STRICTLY FORBIDDEN to transit while the automation is closing! Transit is allowed only if the automation is fully open and stationary.

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 shows any signs of anomalous behaviour, disconnect the power supply to the system and manually unlock the motor (see instructions at the end of the chapter) to manoeuvre the automation manually. Do not attempt 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 lack of power supply: while waiting for the installer to intervene or the electricity to be restored, if the system is not equipped with emergency power supplies, the automation can nonetheless be used by manually unlocking the motor (see the instructions at the end of the chapter) and moving the automation manually.

Safety devices out of order: the automation can also be used when one or more safety devices are defective or out of order. The automation can be controlled in "**Hold-to-run**" mode in the following way:

1. send a command to operate the automation using a transmitter or key selector, etc. If everything works normally, the automation will move regularly, otherwise the warning light will flash a few times and the manoeuvre will not start (the number of flashes depends on the reason for which the manoeuvre cannot start)
2. in this case, within 3 seconds press the control again and hold it down
3. after roughly 2 seconds, the automation 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.

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.

Before carrying out any maintenance operations, the user of the automation must manually unlock the motor to prevent anyone from accidentally triggering the automation's movement (see the instructions at the end of the chapter).

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.

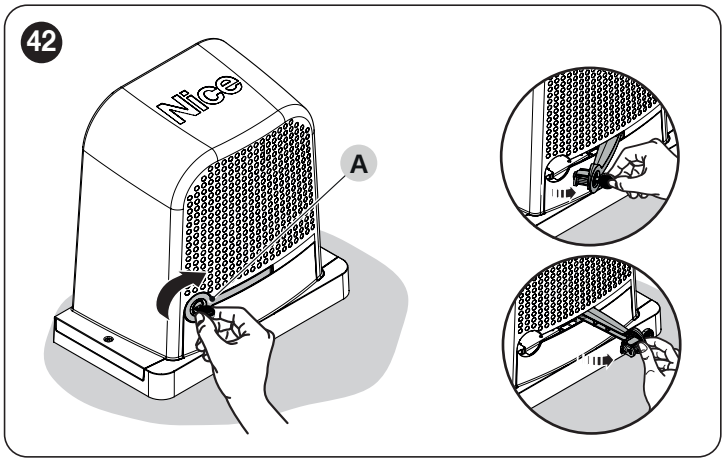
Disposal: at the end of its useful life, the automation must be dismantled by qualified personnel and the materials must be recycled or disposed of in compliance with the local regulations in force.

Replacing the remote control battery: if your remote control appears to be working poorly after some time, or stops working altogether, it may simply depend on flat batteries (depending on how much the device is used, the batteries may last from several months to over a year). You will notice this by the fact that the indicator light signalling the transmission fails to light up, is weak or lights up only for a short time. Before contacting the installer, try replacing the battery with that of another transmitter that works properly: if the anomaly is resolved, simply replace the flat battery with one of the same type.

Manually unlocking and locking the gearmotor

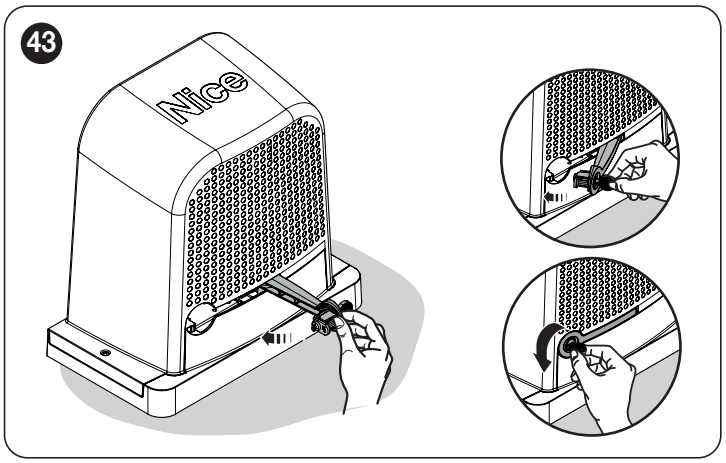
The gearmotor is equipped with a mechanical unlocking system that allows for opening and closing the gate manually.
These manual operations should only be performed in case of a power outage, malfunctions or during the installation phases.
To unlock the device:

1. Open the locking hook (**A**) using the key provided ("***Figure 42***")



2. At this point, the automation can be moved manually to the desired position.

To lock the gate, close the locking hook, turn the key anti-clockwise and remove it.



NOTES

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