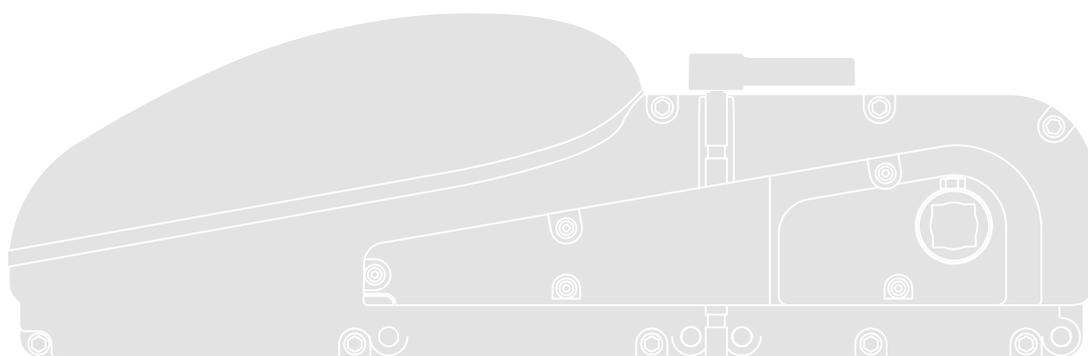


Nice

CE
EAC

TN2010L
TN2020L



Garage door opener

EN - Instructions and warnings for installation and use

Nice

CONTENTS

1	PRODUCT DESCRIPTION AND INTENDED USE	2
2	LIMITS OF USE	3
	2.1 - Product description	3
3	INSTALLATION	4
	3.1 Preliminary checks	4
	3.2 Operating limits	4
	3.3 Identification and overall dimensions	4
	3.4 Product component check	4
	3.5 Typical system	5
	3.6 Installation of the control unit	5
4	ELECTRICAL CONNECTIONS	6
	4.1 Power connections	6
	4.1.1 Description of electrical connections	6
	4.1.2 Connection operations	6
	4.2. Connecting other devices to the control unit	7
	4.3 Addressing of devices connected with the BlueBus system	7
	4.4 Second motor electrical connection	7
	4.5 Initial start-up and electrical connections test	7
	4.6 Recognition of connected devices	8
	4.7 Learning the door opening and closing positions	8
5	TESTING AND COMMISSIONING	9
	5.1 Testing	9
	5.2 Commissioning	9
6	PROGRAMMING	10
	6.1 Programming keys	10
	6.2 Level 1 programming (ON-OFF functions)	10
	6.2.1 Procedure for programming the Level 1 functions	10
	6.3 Level 2 programming (adjustable parameters)	11
	6.3.1 Procedure for programming the Level 2 functions	11
	6.4 Special functions	12
	6.4.1 "Always open" function	13
	6.4.2 "Move anyway" function	13
	6.4.3 Maintenance notification	13
	6.5 Deleting the entire memory	13
	6.6 Programming the direction of motor rotation	14
	6.7 Resetting the encoder position	14
	6.8 Check of number of manoeuvres performed	14
	6.9 Manoeuvre counter reset	14
7	FURTHER INFORMATION	14
	7.1 Modifying the configuration of the stop input	14
	7.2 Remote programming unit	15
	7.3 Radio receiver	15
	7.4 Buffer battery	15
	7.5 Pre-assembly for OTA11	16
	7.6 Accessories	16
	7.7 Product durability	16
8	TROUBLESHOOTING... (Troubleshooting guide)	17
	8.1 Troubleshooting	19
	8.2 Fault log list	19
9	MAINTENANCE	20
10	PRODUCT DISPOSAL	20
11	TECHNICAL SPECIFICATIONS	21
	EU Declaration of Conformity	22
	USER GUIDE (to be delivered to the end user)	23



Warning! Important safety instructions. Follow all instructions as improper installation may cause serious damage.



Warning! Important safety instructions. It is important to comply with these instructions to ensure personal safety. Keep these instructions.

- Before commencing the installation, check the "Product technical specifications", in particular whether this product is suitable for automating your guided part. If not suitable, do NOT proceed with installation.
- The product cannot be used before it has been commissioned as specified in the chapter on "Testing and commissioning".



Warning! According to the most recent European legislation, the implementation of an automation system must comply with the harmonised standards set forth in the Machinery Directive in force, which allow for declaring the presumed conformity of the automation. On account of this, all operations regarding connection to the mains electricity, as well as product testing, commissioning and maintenance, must be performed exclusively by a qualified and skilled technician!

- Before proceeding with the installation of the product, check that all the materials are in good working order and suited to the intended applications.

• EUR: 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 control devices of the product. Keep the remote controls away from children.



Warning! 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.

• Provide a disconnection device (not supplied) in the plant's power supply grid, with a contact opening distance permitting complete disconnection under the conditions dictated by overvoltage category III.

• Handle the product with care during installation, taking care to avoid crushing, knocks, falls or contact with liquids of any kind.

Keep the product away from sources of heat and open flames. Failure to observe the above can damage the product and increase the risk of danger or malfunctions. Should this happen, stop installation immediately and contact Customer Service.

• The manufacturer assumes no liability for damage to property, items or persons resulting from non-compliance with the assembly instructions. In such cases the warranty for material defects is excluded.

• The weighted sound pressure level of the emission A is lower than 70 dB(A).

• Cleaning and maintenance to be carried out by the user must not be carried out by unsupervised children.

• Before working on the system (maintenance, cleaning), always disconnect the product from the mains power supply.

• Check the system periodically, in particular all cables, springs and supports to detect possible imbalances, signs of wear or damage. Do not use if repairs or adjustments are necessary, because a failure with the installation or an incorrectly balanced automated system may lead to injury.

• The packing materials of the product must be disposed of in compliance with local regulations.

• The product must not be installed outdoors.

• Keep an eye on moving doors and do not let anyone go near them until they have opened or closed fully.

• Be careful when activating the manual release device (manual manoeuvre), as an open door may fall suddenly due to weak or broken springs, or if it is unbalanced.

• Every month, check that the drive motor reverses when the door encounters a 50 mm-high object placed on the ground. If necessary, re-adjust the door and check it again, as incorrect adjustment is potentially dangerous (for drive motors incorporating a trapping safety system that intervenes when the door's lower edge encounters an obstacle).

• 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.

Installation precautions

- 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 motor, remove all superfluous ropes and chains and deactivate any equipment not required for motorised operation, such as locking equipment.
- Check that there are no points where people could get trapped or crushed against fixed parts when the door is fully open or closed; if there are, arrange adequate protective measures for these parts.
- Install the manoeuvring assembly for manual release (manual manoeuvre) at a height below 1.8 m.

NOTE: if removable, the manoeuvring assembly must be kept close to the door.

- Make sure that the controls are kept at a safe distance from moving parts, while allowing a good view of these.

The manoeuvring assembly of a switch kept manually closed must be located in a position that is visible from the guided part but far from moving parts. It must be installed at a minimum height of 1.5 m.

- Permanently attach the trapping hazard warning labels in a highly

visible location or near the fixed control devices (if present).

- Permanently attach the manual release (manual manoeuvre) label close to the manoeuvring element.
- After installation, make sure that the motor prevents or stops opening of the door when the latter is loaded with a 20-kg weight secured to the centre of its bottom edge (for drive motors that can be used with doors having opening widths exceeding 50 mm).
- After installation, make sure that the mechanism is properly adjusted and that the motor reverses when the door collides with a 50 mm-tall object placed on the ground (for drive motors incorporating a trapping safety system that intervenes when the bottom edge of the door encounters an obstacle).

Following installation, check and ensure that no door parts obstruct public roadways or pavements.

2 PRODUCT DESCRIPTION AND INTENDED USE

TEN is a gearmotor for the automation of counterweight up-and-over doors, spring up-and-over doors, projecting, nonprojecting, and articulated. TEN is fitted with an electronic limit switch system with absolute encoder to enable constant detection of the motor position, even when the door is released for manual manoeuvres. It is able to reach the travel limit (opening and closing) through a deceleration phase.

It also ensures constant control of the force required during manoeuvres, detecting any anomalies, such as a sudden obstacle that blocks leaf movement; in this case the automation executes a stop with brief inversion of movement.

The TEN line includes the products listed in **Table 1**.

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

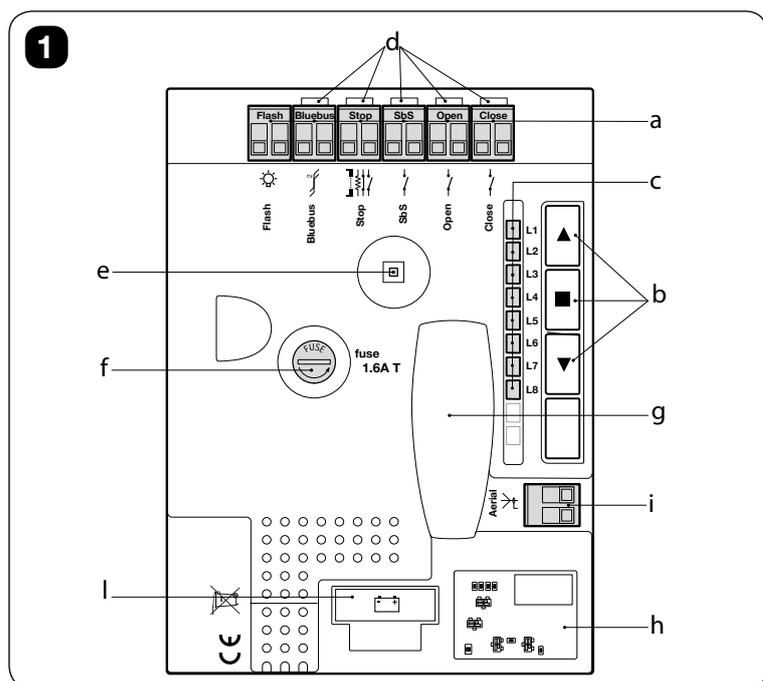
Table 1 - Description of TEN composition

Model	Description
TN2010LR10	Irreversible gearmotor, control unit, electronic limit switch via absolute encoder and courtesy light.
TN2020LR10*	Irreversible gearmotor and courtesy light. To be used as "Slave" of TN2010L or TN2020L

* If used in other configurations, ensure that the power supply is from a very low voltage safety system in which voltages never exceed the established low voltage safety limits.

2.1 PRODUCT DESCRIPTION

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 Control unit terminals
- b Buttons for Commanding manoeuvres and programming
- c Led functions L1 → L8
- d Led BlueBus, Stop, Sbs, Open, Close
- e Courtesy lamp
- f F2 fuse
- g Radio slot connector
- h BusT4 connector
- i External antenna terminal
- l Battery connector

3.1 PRELIMINARY CHECKS



Prior to installing the gearmotor, consult paragraphs 3.3 and 3.4, the contents of the package to verify the materials, and the overall dimensions of the gearmotor.



The garage door must be able to move with ease. Limit to be complied with (according to EN12604):

- private use = maximum 150 N
- industrial/commercial use = maximum 260 N



Ten must be installed exclusively by qualified personnel in observance of current legislation, standards and regulations, as well as all instructions in this manual.

- Prior to installing the gearmotor verify the overall dimensions of the gearmotor (**Fig. 2**).
- Depending on the type of door (protruding, non-protruding or articulated), verify whether it is possible to secure the gearmotor at the heights shown in **Table 2**.
- Should the space between the supporting arm and the fixed part of the door be insufficient, it is necessary to use the “curved arms” accessory (to prevent interferences).

3.2 PRODUCT LIMITS OF USE

Data related to the performance of TEN are provided in chapter “11 Technical specifications” and are the only values that enable correct evaluation of the suitability of application. In general TEN can automate up-and-over doors within the limits stated in **Table 2**.

Table 2 - Limits of use for TEN gearmotors

Door type	Power operated with 1 motor		Power operated with 2 motors	
	Max. height 2.6m	Max. length 3m	Max. height 2.6m	Max. length 5.4m
Projecting up-and-over door	Max. height 2.6m	Max. length 3m	Max. height 2.6m	Max. length 5.4m
Non-projecting up-and-over door	Max. height 2.6m	Max. length 3m	Max. height 2.6m	Max. length 5.4m

The measurements in **Table 2** are guideline only for general estimate purposes. The effective suitability of TEN for automation of a specific door depends on the degree of leaf balancing, friction on tracks and other factors, also occasional, such as wind pressure or the presence of ice, which may obstruct leaf movement.

To ensure feasibility, it is absolutely indispensable to measure the force required to move the door throughout travel and to check that this never exceeds the “nominal torque” as specified in Chapter “11 Technical specifications”; it is also important to establish the number of cycles per hour and consecutive cycles admissible, with reference to **Table 3** and **Table 4**.

Table 3 - Limits in relation to the force required to move the leaf with 1 TN2010L

Force required to move leaf (N)	Maximum cycles per hour	Maximum no. consecutive cycles
until 120	20	35
120÷180	18	33
180÷220	15	30

Table 4 - Limits in relation to the force required to move the leaf with 1 TN2010L + 1 TN2020L

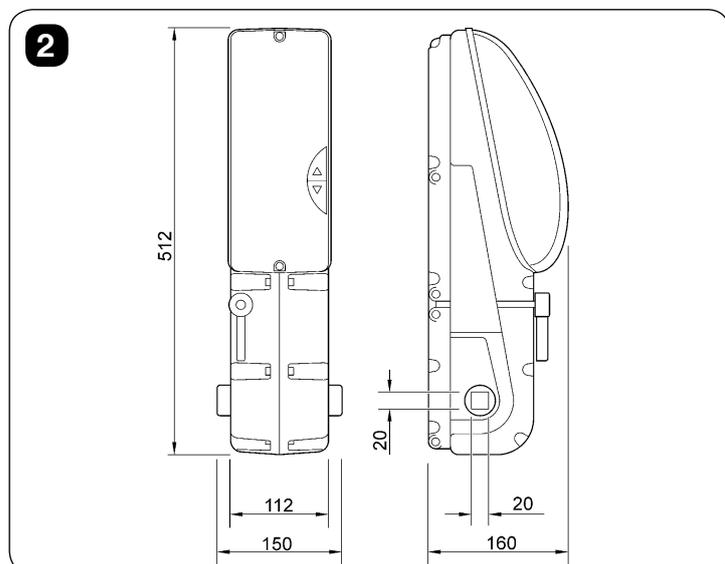
Force required to move leaf (N)	Maximum cycles per hour	Maximum no. consecutive cycles
until 150	30	19
150÷250	28	16
250÷350	25	14



To avoid overheating, the control unit is equipped with a limiter based on the force and duration of the cycles, intervening when the maximum limit is exceeded.

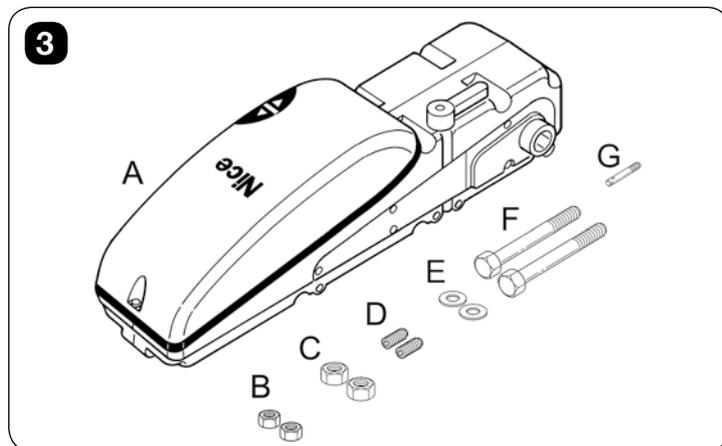
3.3 IDENTIFICATION AND OVERALL DIMENSIONS

The overall dimensions are shown in “**Figure 2**”



3.4 PRODUCT COMPONENT CHECK

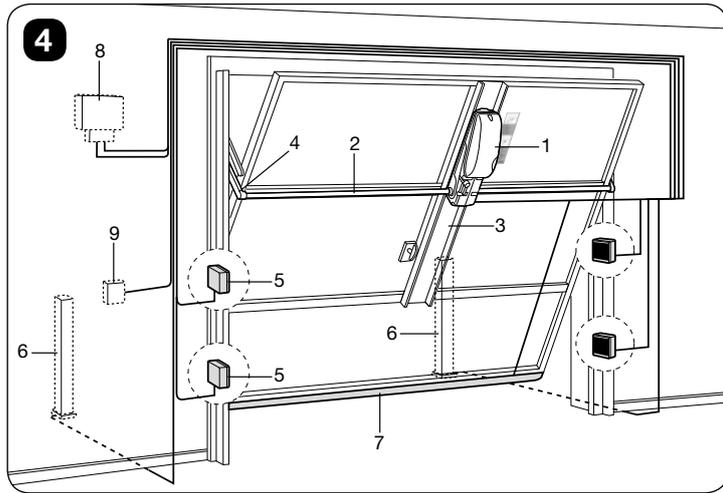
- Check the condition of the packaging;
- **Unpack the product and ensure presence of (Figure 3):**



- A - TEN Gearmotor
- B - M6 nuts
- C - M8 nuts
- D - Threaded stud bolts M6x14
- E - Ø8 washers
- F - M8x110 screws
- G - Release rod

3.5 TYPICAL INSTALLATION

"Figure 4" shows an example of an automation system, produced using Nice components.



- 1 - TEN
- 2 - Square tube 20x20
- 3 - Support bracket
- 4 - Telescopic arm
- 5 - Photocells
- 6 - Photocells on post
- 7 - Sensitive edge
- 8 - 12 V Flashing light with incorporated aerial
- 9 - Key-operated selector switch

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

Before proceeding with the installation, prepare the electrical cables required for the system by referring to "Figure 5" and to the technical specifications of the electrical cables shown in "Table 5".

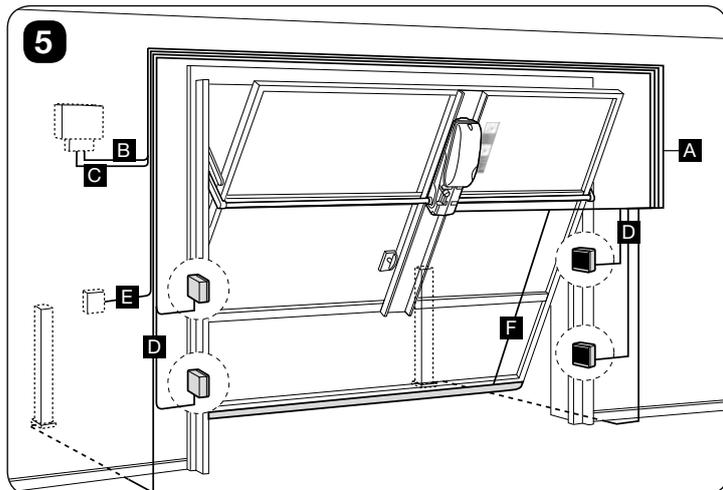


Table 5 - Electrical cable technical specifications

Identification no.	Characteristics of the cable
A	ELECTRIC POWER LINE cable n°1 cable (3x1.5mm ²) Max length 30 m [Note 1]
B	12V FLASHING LIGHT cable n°1 cable (2x1mm ²) Max length 20 m
C	AERIAL cable n°1 shielded cable (type RG58) Max length 20 m; recommended < 5 m
D	PHOTOCELLS cable n°1 cable (2x0.5mm ²) Max length 20 m
E	KEY-OPERATED SELECTOR SWITCH cable n°2 cables (4x0.25mm ²) Max length 20 m [Note 2]
F	SENSITIVE EDGE cable n°1 cable (2x0.25mm ²) Max length 20 m

Nota 1 if the power cable is longer than 30 m, a cable with a larger section is required, (e.g. 3 x 2,5 mm²) and safety earthing is necessary in the vicinity of the automation.

Nota 2 These 2 cables may be replaced by a single 4 x 0.5 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 or condensate in the connection ducts. The presence of water and dampness may damage the product's electronic circuits.

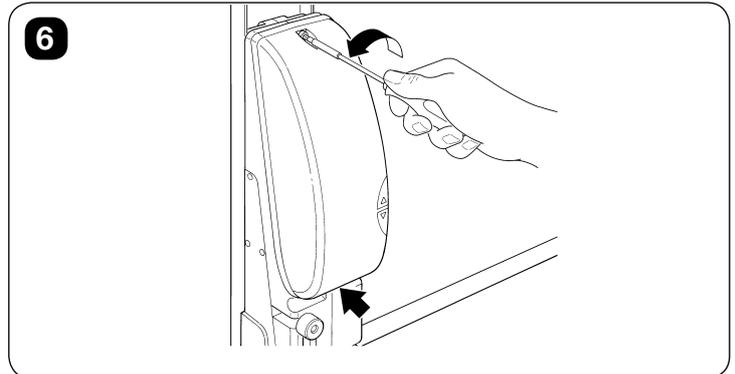
3.6 INSTALLATION OF THE CONTROL UNIT

Proceed as follows when installing the control unit ("Figures 6, 7 and 8"):

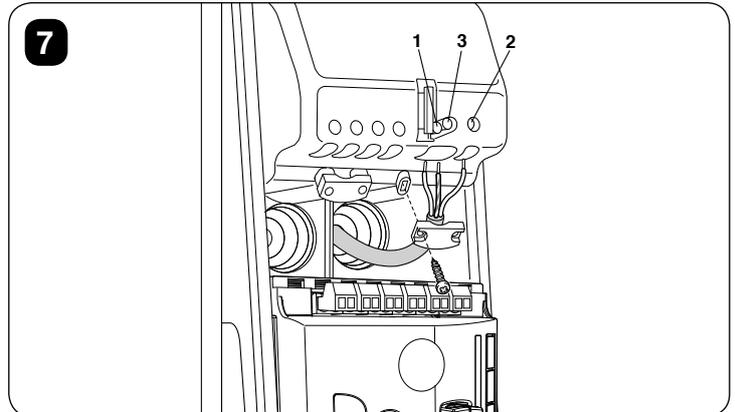
1. loosen the screws and remove the control unit's cover
2. identify the pre-cut elements located along the lower side of the box and perforate the ones through which to pass the electrical cables



If necessary, use the side cable entry point. In such case, suitable tube fittings must be used.



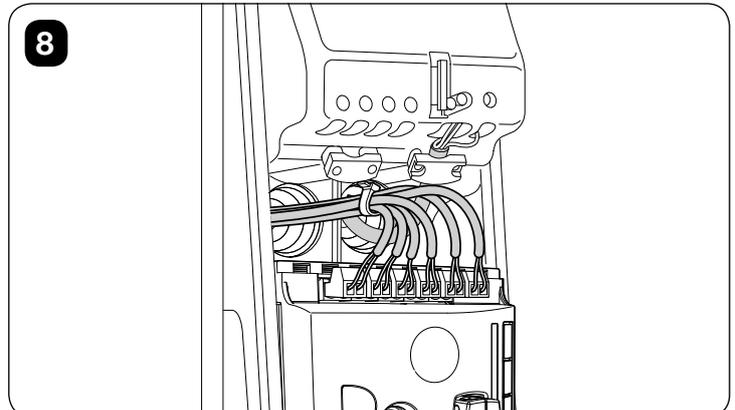
3. drill the door structure by observing the measurements indicated in the figure and arrange the relevant wall plugs (not supplied)
4. position the box and fasten it with the screws (not supplied)
5. arrange the cable glands for passing the cables



6. make the electrical connections as described in Chapter 4 "Electrical connections".



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



7. after completing the electrical connections, put the cover back on and tighten the screws.

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 the instructions provided below.



All electrical connections must be made with the system disconnected from the power supply. Incorrect connections can cause damage to the equipment and injury to people.



The cables used for connecting the various devices must be suitable for the type of installation: For example a cable type H03VV-F is recommended if located indoors.



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

– The disconnection device must have the contacts with a sufficient gap to ensure complete disconnection, under the Category III overvoltage conditions, in conformity to the installation instructions. If necessary, this device guarantees quick and safe disconnection from the power supply and must therefore be positioned in view of the automation. If placed in a non-visible location, it must be equipped with a system capable of stopping any accidental or unauthorised re-connection of the power supply, in order to prevent dangerous situations.

4.1 POWER CONNECTIONS

4.1.1 Description of electrical connections

The meaning of the codes stamped on the electronic board near the relative terminal is described below.

Flash

this output is programmable to connect one of the following devices:

• Flashing light

If programmed as “flashing light” the “FLASH” output can be connected to a NICE “LUCY B” MLB or MLBT flashing light with a 12V 21W car type lamp. During the manoeuvre the light flashes at an interval 0.5s on and 0.5s off

• Door open indicator

Function: “door open indicator”, “active if door closed” or “active if door open”

“Door open indicator” function

Off: door closed

Slow flashing: Door opening

Quick flashing: Door closing

On: Door open (not closed)

“Active if door closed” function

On: door closed

Off: All other cases

“Active if door open” function

On: Door open

Off: All other cases

It may also be programmed for other functions; in the case refer to paragraph “6.3 Level 2 functions (adjustable parameters)”

• Suction Cup*

If programmed as “suction cup” the “FLASH” output can be connected to a 24V max 10W suction cup (versions with electromagnet only, without electronic devices).

When the door is closed, the suction cup is activated to lock the door in place. During the opening and closing manoeuvre it is deactivated.

• Electric Block*

If programmed as “electric block” the “FLASH” output can be connected to a max. 24V electric lock with latch (versions with electromagnet only, without electronic devices).

During the opening manoeuvre, the electric lock is activated and remains active to free the door and perform the manoeuvre. In the closing manoeuvre ensure that the electric block re-engages mechanically.

• Electric Lock*

If programmed as “electric lock” the “FLASH” output can be connected to a 24V max 10W electric lock with latch (versions with electromagnet only, without electronic devices).

During the opening manoeuvre, the electric lock is activated for a brief interval to free the door and perform the manoeuvre.

In the closing manoeuvre ensure that the electric block re-engages mechanically.

Bluebus

This terminal enables the connection of compatible devices; all are connected in parallel with just two wires conveying the electric power and communication signals. More information on BlueBUS is available in paragraph 4.3.

Stop

Input for devices that block or shut down the manoeuvre in progress; by setting the input accordingly, it is possible to connect Normally Closed type contacts, Normally Open contacts, constant resistance or optical devices. More information on STOP is available in paragraph 4.3.

SbS

Input for devices that control movement in Step-Step mode, enabling the connection of Normally Open contacts.

Open

Input for devices that control opening movement only, enabling the connection of Normally Open contacts.

Close

Input for devices that control closing movement only, enabling the connection of Normally Open contacts.

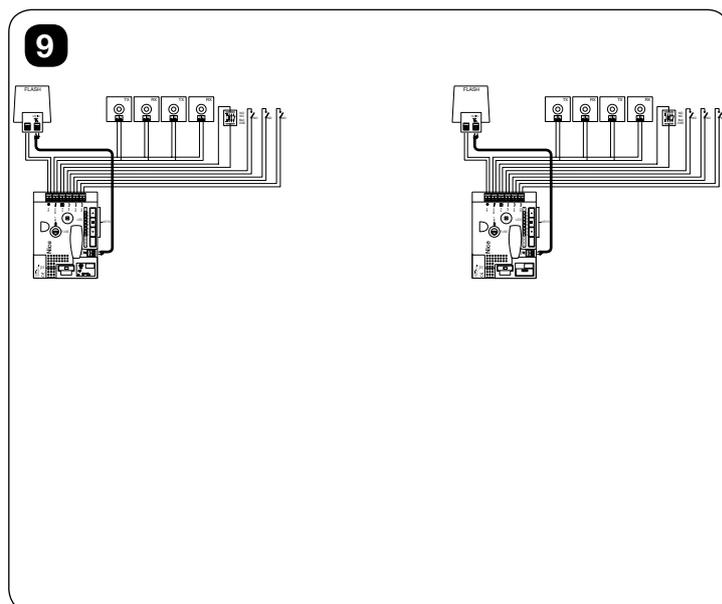
Aerial

Input for connection of the aerial for the radio receiver (the aerial is incorporated on LUCY B)

4.1.2 Connection operations

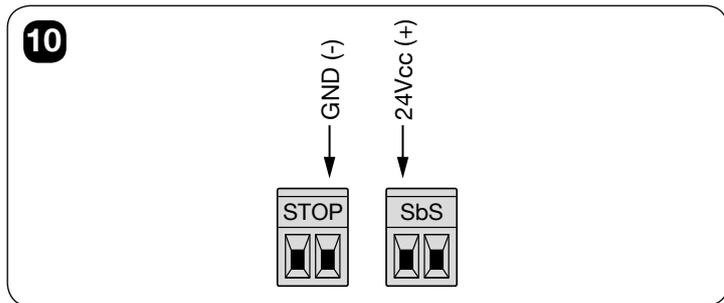
To make the electrical connections (“Figure 9”):

1. to proceed with electrical connections, loosen the screws of the cover.
2. disconnect the power supply
3. remove the two rubber membranes closing off the two cable routing holes. Cut a hole in the membrane and insert the power cable through the membrane and right-hand hole. Cut a hole in the membrane and pass the other cables to the various devices through the membrane and left-hand hole. Leave a cable length of 20÷30 cm longer than necessary. See **Table 5** for the cable types.
4. connect the mains power cable directly to terminals 1(phase) and 2 (neutral), and 3 (earth); secure the cable with the collar.
5. make connections of the other cables as shown in the diagram. The terminals are removable to facilitate these operations.
6. on completion of connection, collect and secure the cables by means of clips.
7. restore power to the device
8. after programming the device, close the cover.



4.2 CONNECTING OTHER DEVICES

If external devices need to be powered, such as a proximity reader for transponder badges or the lighting of a key-operated selector switch, power can be supplied. The supply voltage is $24V_{DC} \pm 30\% \div +50\%$ with maximum available current of 100mA.

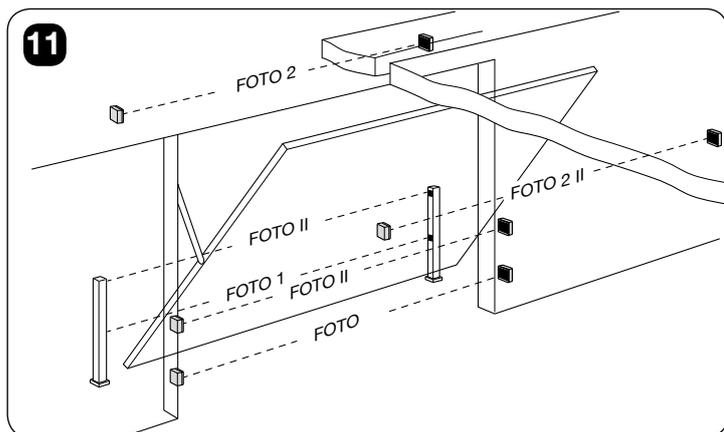


The voltage available at the “SbS” and “Stop” terminals remains even when the “Stand-by” function is enabled on the board.

4.3 ADDRESSING OF DEVICES CONNECTED WITH THE BLUEBUS SYSTEM

The “BlueBUS” system enables, by means of address assignment using the specific jumpers, recognition of the photocells by the control unit and assignment of the correct detection function. The address assignment procedure is performed both on the TX and RX (setting the jumpers in the same way) and ensuring that there are no other pairs of photocells with the same address.

In an automation for up-and-over doors with TEN photocells can be installed as shown in Figure below. After installing or removing photocells the learning phase must be repeated on the control unit as described in the paragraph 4.6 Recognition of connected devices.



Jumpers	Photocell
	PHOTO Photocell h = 50 With activation on closure
	PHOTO II Photocell h = 100 With activation on closure
	PHOTO 1 Photocell h = 50 With activation on closure and opening
	PHOTO 1 II Photocell h = 100 With activation on closure and opening
	PHOTO 2 Photocell With activation on opening
	PHOTO 2 II Photocell With activation on opening
	PHOTO 3 Single photocell covering the entire automation
	FA1 Photocell for opening command (cut jumper A on the back of the TX and RX boards)
	FA2 Photocell for opening command (cut jumper A on the back of the TX and RX boards)



At the end of the installation procedure, or after the photocells or other devices have been removed, it is necessary to run the “learning of connected devices” procedure (refer to Paragraph 4.6).

4.4 SECOND MOTOR ELECTRICAL CONNECTION

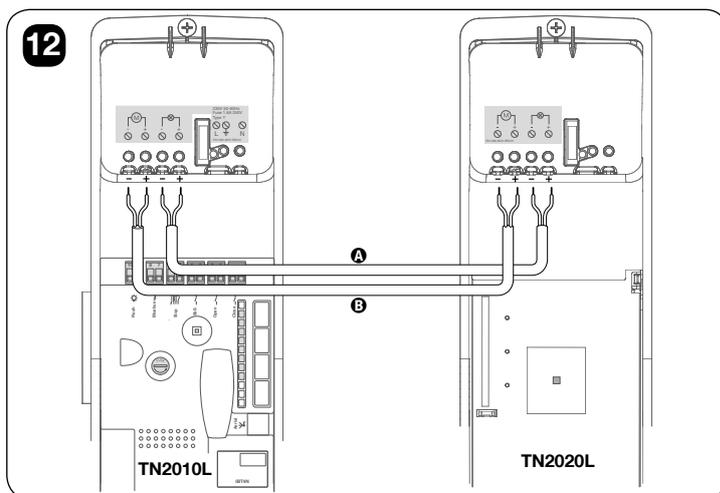
When the installation involves the use of 2 motors, a TN2010L and a TN2020L, the electrical connection to the second motor must be made as described below.

1. Make the same connections to gearmotor TN2010L as those required for single-motor installation.
2. Connect the “second motor” and “second motor courtesy light” cables between the control unit of the TN2010L and the terminal block of TN2020L, as illustrated in Figure, while ensuring that the pole markings match up.

Set the selector on the control unit on the basis of whether the system has 1 or 2 motors by activating management for 1 or 2 motors.

- If the system has 1 motor, disable L8 (L8 = OFF).
- If the system has 2 motors, enable L8 (L8 = ON).

WARNING= Do not enable the mode for 2 motors when only 1 motor is installed; it would not work properly and the motor could get damaged.

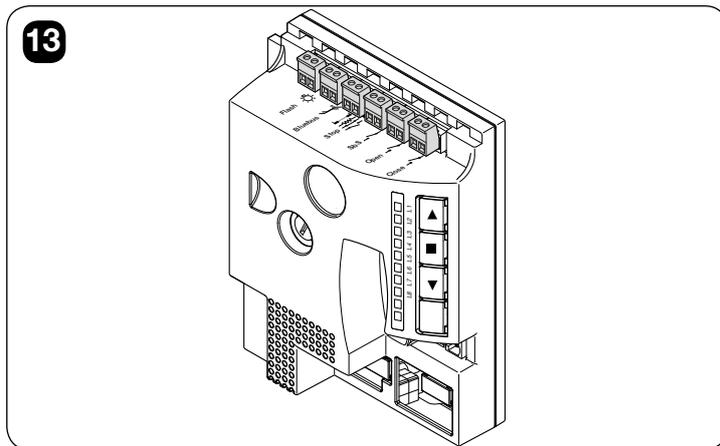


For further details, consult the manual contained in the TN2020L box.

4.5 INITIAL START-UP AND ELECTRICAL CONNECTIONS TEST



TEN must be connected to the power supply by skilled and qualified personnel in possession of the requisites as specified and in full compliance with legislation, standards and regulations.



As soon as TEN is powered up, a number of checks are recommended:

1. Check that the BLUEBus led flashes quickly for a few seconds and then regularly with one flash per second
2. If photocells are present, check that the leds on the latter also flash (both on TX and RX elements); the type of flash is not significant as this depends on other factors.
3. Check that the device connected to the FLASH output is off
4. Ensure that the courtesy light is switched off.

17. Press ■ for 2 seconds to confirm position FCC. Led **L8** remains lit.
18. On release of ■ all leds turn off.
19. The courtesy light will start flashing once every second to signal the need to run the mandatory "Automatic Force Search" procedure
20. Impart a movement command (for example: through the SbS or OPEN inputs) to start the Automatic Force Search procedure: 2 complete cycles will be performed.

REDUCED PROCEDURE

1. Press ■ and ▼ for 3 seconds to enter position memorisation mode. Led **L1** flashes: Position FCA programming
2. Release the ■ and ▼ keys
3. Use keys ▲ or ▼ to move the door to the opening position.
4. Press ■ for 5 seconds to confirm position FCA, wait for led **L8** to start flashing.
5. Release the key ■
6. Use keys ▲ or ▼ to move the door to the closing position.
8. Press ■ for 2 seconds to confirm position FCC. Led **L8** remains lit.
9. On release of ■ leds **L1** and **L8** turn off.
10. The courtesy light will start flashing once every second to signal the need to run the mandatory "Automatic Force Search" procedure
11. Impart a movement command (for example: through the SbS or OPEN inputs) to start the Automatic Force Search procedure: 2 complete cycles will be performed.

AUTOMATIC FORCE SEARCH

If the "Automatic Force Search" procedure – initiated by the full or reduced procedure (see above chapters) – is interrupted, it can be restarted by imparting a movement command.

During these manoeuvres, the control unit memorises the force required for the opening and closing movements.



It is important that the "Automatic Force Search" procedure is not interrupted, e.g. by a STOP command.



The procedure must terminate correctly and autonomously, that is, without any interruptions: the procedure will remain pending even after a blackout.

If the "positions", "motor opening speed", "motor closing speed" and "motor rotation direction" parameters vary, the "Automatic Force Search" procedure will be automatically re-proposed by the control unit.



During the "Automatic Force Search" procedure, check that there are no assembly and adjustment defects, or other anomalies, for example points of excessive friction.

5 TESTING AND COMMISSIONING

These are the most important phases in the automation's arrangement to ensure maximum system safety.

They must be carried out by a qualified and expert technician who must define the necessary tests to verify the solutions adopted to counter any risks present, and check compliance with the laws, regulations and standards: in particular, with all the requirements of the EN 13241-1, EN 12445 and EN 12453 standards.

5.1 TESTING

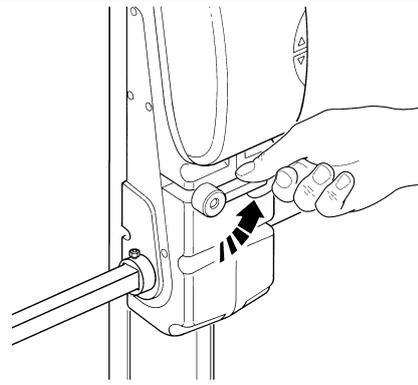
The procedure must only be carried out after acquiring the positions (see Paragraph 4.7).

Each component of the automation, such as the sensitive edges, photocells, emergency stop, etc., requires a specific testing phase; for these devices the specific procedures in the respective instruction manuals must be performed.

To test TEN, follow the procedure below:

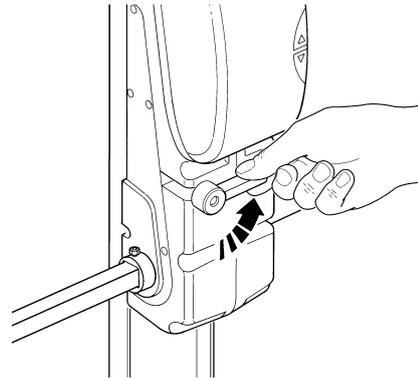
1. Ensure that all specifications in this manual have been observed, with special reference to the chapter "1 Warnings";
2. Release the door by rotating each motor release handle anticlockwise (**Figure 16**); ensure that the door can be moved manually in the opening and closing directions with a force of maximum 225N at the point envisaged for manual movement.

16



3. Lock the motors to the door by rotating the release handle clockwise

17



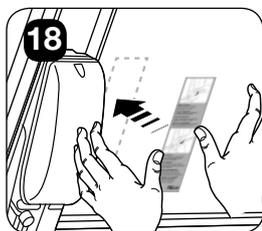
4. Using the envisaged control and stop devices (key-operated selector switch, control pushbuttons or radio transmitters), perform tests of opening, closing and stopping the door and ensure that operations correspond to specifications.
5. Test several times to assess smooth operation of the door and check for any defects in assembly or adjustment and any possible points of friction.
6. Check operation of all system safety devices one at a time (photocells, sensitive edges, emergency stop, etc.); in particular, each time a device is activated the "OK" led on the control unit must flash rapidly twice to confirm acknowledgement of the event.
7. To check the photocells, and to ensure there is no interference with other devices, pass a cylinder with diameter of 5cm and length 30cm on the optical axis, first close to the TX, then close to the RX and lastly at the centre between the two and ensure that in all cases the device engages, changing from the active status to alarm status and vice versa. Lastly ensure that the envisaged action is generated on the control unit, for example: in the closing manoeuvre it inverts movement.
8. If hazardous situations generated by the moving barrier are protected by means of impact force limitation, measure the force as specified in the standard EN 12445. If speed and motor force controls are used as auxiliary functions with the system for reduction of impact force, test and identify the setting that obtains the best results.

5.2 COMMISSIONING

Commissioning can only take place once all the testing phases have terminated successfully in accordance with the EN 12453 and EN 12445 standards. Partial or "makeshift" commissioning is forbidden.

1. The prepared automation technical documentation should be conserved for at least ten years and must contain at least the following: overall drawing of the automation, electrical wiring diagram, risk assessment and relative solutions adopted, manufacturer's declaration of conformity for all devices used (in the case of TEN, use the EC declaration of conformity enclosed); copy of the operation instruction manual and maintenance schedule for the automation.
2. Affix a dataplate on the door, specifying at least the following data: type of automation, name and address of manufacturer (responsible for commissioning), serial number, year of construction and CE mark.

3. Permanently affix a label or plate in the vicinity of the door, indicating the operations for door release and manual manoeuvres.



4. Permanently affix a label or plate on the door, bearing this image (min. height 60 mm).



5. Prepare and provide the owner with the declaration of conformity of the automation.
6. Prepare and provide the owner with the manual "Automation operation instructions and warnings".
7. Prepare and provide the owner with the automation maintenance schedule (containing all prescriptions for maintenance of individual devices)
8. Before commissioning the automation, ensure that the owner is adequately informed in writing (such as in the automation instruction and warning manual) of all associated risks and hazards.



For all the above-mentioned documentation, Nice provides the following through its technical assistance service: instruction manuals, guides and filled out forms. See also: www.nice-service.com.

6 PROGRAMMING

The TEN control unit is equipped with a number of programmable functions; these functions are factory-set to a configuration that should satisfy most automations. However, the functions can be modified at any time through the procedures described below. Function settings are entered by means of the 3 keys on the control unit: ▲, ■, ▼ and are displayed by means of 8 leds: L1....L8.

The programmable functions available on TEN are divided into 2 levels:

Level 1: functions settable in ON-OFF mode (enabled or disabled); in this case each led L1....L8 indicates a function, if lit the function is enabled, if off the function is disabled; see **Table 8**.

Level 2: parameters settable on a scale of values (from 1 to 8); in this case each led L1....L8 indicates a set value from the possible 8; see **Table 9**.

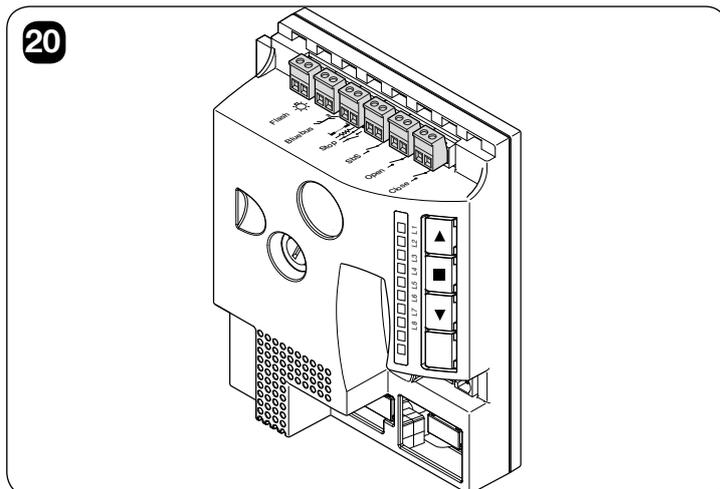
6.1 PROGRAMMING KEYS

The TEN control unit is fitted with 3 keys which can be used both for the control of the unit during testing and the programming procedure.

- ▲ The "▲" key enables the user to open the door or scroll up through the programming steps.
- The "■" key stops the manoeuvre; If pressed for more than 5 seconds, it enables entry to programming mode.
- ▼ The "▼" key enables the user to close the door or scroll down through the programming steps



During the manoeuvre, whether opening or closing, all keys execute the STOP function to shut down motor movement.



6.2 PROGRAMMING THE LEVEL 1 FUNCTIONS (ON-OFF)

By default level 1 function are all set to **OFF**, but can be modified at any time as described below. Take care during modification procedures, as there is a maximum time interval of 10 seconds between pressing one key and another; otherwise the system exits the procedure automatically memorising the changes made up to that time.

6.2.1 Procedure for changing the Level 1 functions



IMPORTANT

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

To effect Level 1 programming:

1. Press and hold ■ for approx. 3s
2. Release the key ■ when led L1 starts to flash
3. Press keys ▲ or ▼ to move the flashing led to the led associated with the function to be modified
4. These functions are factory-set to a configuration that should satisfy most automations. However, the functions can be modified at any time through the procedures described below. Press ■ to change the status of the function
 - short flash = **OFF**
 - long flash = **ON**
5. Wait 10s to exit the programming mode automatically after the maximum time interval



Note: points 3 and 4 can be repeated during the same programming phase to set other functions to ON or OFF

Table 8 - List of programmable functions: Level 1

Led	Function	Description
L1	Automatic closure	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	Re-close After Photo	Function ENABLED: the behaviour changes depending on whether the “Automatic Closing” function is enabled or not. <u>When “Automatic closing” is not active:</u> The door always reaches the fully open position (even if Photo is disengaged beforehand). When Photo is disengaged, automatic closure is activated with a 5-second pause. <u>When “Automatic Closing” is enabled:</u> the opening manoeuvre stops immediately after the photocells have disengaged. After 5 seconds, the gate will start closing automatically. <u>The “Close After Photo” function is always disabled in manoeuvres interrupted by a Stop command.</u> Function DISABLED: the pause time is that which has been programmed or automatic re-closing will not take place if the function is disabled.
L3	Always Close	Function ENABLED: in the event of a blackout, even of short duration, if the control unit detects that the gate is open once the electricity is restored, it automatically starts a closing manoeuvre, preceded by a 3-second pre-flashing sequence. Function NOT ENABLED: once the electricity is restored, the gate remains where it was.
L4	Stand-By	Function ENABLED: 1 minute after the manoeuvre is completed, the control unit turns off the BlueBUS output (and therefore all devices) and all LEDs, with the exception of the BlueBUS LED, which flashes at a slower speed. When the control unit receives a command, it restores full operation. Function DISABLED: there will be no reduction in consumption. This function is useful, in particular, during operation with the back-up battery.
L5	Long inversion	Function ENABLED: once the STOP device or the force limiter intervene, the movement is reversed up to the maximum opening or closing position Function DISABLED: the reversal is short (roughly 15 cm).
L6	Pre-flash	Function ENABLED: a 3-second pause can be added between the switching on of the warning light and the start of the manoeuvre, to warn the user in advance of a potentially dangerous situation. Function DISABLED: the signalling of the warning light coincides with the start of the manoeuvre.
L7	Sensitivity	Function ENABLED: allows for considerably increasing the motor’s sensitivity in detecting obstacles. If used to aid impact force detection, the “Speed” and “Motor force” parameters in the Level 2 menu must also be adjusted. Function DISABLED: reduces the control unit’s sensitivity in detecting obstacles
L8	2 motors	This function allows for managing the movement with a single or double motor: Function ENABLED: must be activated when the installation requires the use of 2 motors (TN2010L + TN2020L) Function DISABLED: must be used when the installation requires the use of a single motor

During normal operation of TEN, i.e. when no manoeuvre is in progress, leds **L1...L8** are lit or off depending on the status of the associated function, for example **L1** is lit if the function “Automatic closure” is enabled.

During the manoeuvre, leds **L1...L8** flash, indicating the force required to move the door at that time. If **L1** flashes, the force required is minimal, and so on through to **L8** which indicates the maximum force level.

Note that there is no relation between the force level indicated by the leds during movement (an absolute value) and the level indicated by the leds during force programming (a relative value). See **L5** and **L6** in **Table 9**.

6.3 LEVEL 2 PROGRAMMING (ADJUSTABLE PARAMETERS)

All the Level 2 parameters are set by default as shown under “grey” in “**Table 9**” and can be modified at any time. The parameters can be adjusted to a value between 1 and 8. To verify the value corresponding to each LED, refer to “**Table 9**”

6.3.1 Procedure for changing the Level 2 functions



IMPORTANT

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

To effect Level 2 programming:

1. Press and hold **■** for approx. 3s
2. Release the key **■** when led **L1** starts to flash
3. Press keys **▲** or **▼** to move the flashing led to the “input led” associated with the parameter to be modified
4. Press and hold **■** during steps 5 and 6
5. Wait approx. 3s after which the led associated with the current level of the parameter to be modified will light up.
6. Press keys **▲** or **▼** to move the led associated with the parameter value
7. Release **■**
8. Wait 10s to exit the programming mode automatically after the maximum time interval



Note: Points 3 to 7 can be repeated during the same programming phase to modify other parameters.

Table 9 - List of programmable functions: Level 2

Entry Led	Parameter	Led (level))	Value	Description
L1 *	Pause Time	L1	10 seconds	Adjusts the pause time, i.e. time before automatic closure. Is effective only if automatic closure is enabled
		L2	20 seconds	
		L3	40 seconds	
		L4	60 seconds	
		L5	80 seconds	
		L6	120 seconds	
		L7	160 seconds	
		L8	200 seconds	
L2	Sbs function	L1	Open - Stop - Close - Stop	Adjusts the sequence of commands associated with the SbS input or the radio command.
		L2	Open - Stop - Close - Open	
		L3	Open - Close - Open - Close	
		L4	Apartment block	
		L5	Apartment block 2 (more than 2" causes stop)	
		L6	Step-by-Step 2 (less than 2" causes partial open)	
		L7	Hold-to-run	
		L8	Opening in "semiautomatic", closure in "hold-to-run" mode	
L3 *	Motor speed	L1	Speed 1 (30% - low)	Sets the motor speed during normal travel.
		L2	Speed 2 (44%)	
		L3	Speed 3 (58%)	
		L4	Speed 4 (72%)	
		L5	Speed 5 (86%)	
		L6	Speed 6 (100% - high)	
		L7	Open V4, close V2	
		L8	Open V6, close V4	
L4	FLASH Output	L1	Door open indicator function	Selects the device connected to the FLASH output. Before changing settings, take care to ensure that the device connected to the FLASH terminal is as described in paragraph 4.1.1 "Descrizione dei collegamenti".
		L2	Active if door closed	
		L3	Active if door open	
		L4	Flashing light	
		L5	Electric block	
		L6	Electric lock	
		L7	Suction cup	
		L8	Maintenance indicator	
L5 *	Motor force on opening	L1	Force 1 (low)	Sets the motor force control system to adapt it to the weight of the door during the opening manoeuvre and consequently the obstacle detection sensitivity.
		L2	Force 2	
		L3	Force 3	
		L4	Force 4	
		L5	Force 5	
		L6	Force 6	
		L7	Force 7	
		L8	Force 8 (high)	
L6 *	Motor force on closure	L1	Force 1 (low)	Sets the motor force control system to adapt it to the weight of the door during the closing manoeuvre and consequently the obstacle detection sensitivity.
		L2	Force 2	
		L3	Force 3	
		L4	Force 4	
		L5	Force 5	
		L6	Force 6	
		L7	Force 7	
		L8	Force 8 (high)	
L7 *	Maintenance notification	L1	Automatic (based on the gravity of the manoeuvres)	Sets the number of manoeuvres after which the maintenance request signal can be enabled (see paragraph "6.4.3 Maintenance notification").
		L2	1.000	
		L3	2.000	
		L4	4.000	
		L5	6.000	
		L6	8.000	
		L7	10.000	
		L8	12.000	

L8	Fault log list	L1	Result of 1 st manoeuvre (the most recent)	Allows for viewing the type of faults occurring in the last 8 manoeuvres (see Paragraph "8.2 Fault log list"). (This is a read-only parameter, which means that its values cannot be modified directly)
		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	



The default settings are highlighted in grey.

All parameters can be adjusted as required without any contraindications, only the "Motor force on opening" and "Motor force in closing" may require special attention:

- Use of high force values are not recommended to compensate for the fact that the leaf has anomalous points of friction; excessive force may impair the safety system and damage the leaf.
- If the "Motor force control" is used in support of the system for impact force reduction, after each adjustment the force measurement procedure must be performed, as envisaged by standard EN 12445.
- Wear and atmospheric conditions influence movement of the gate; force settings should be checked periodically.

*** For parameters L1, L3, L5, L6 and L7:**

- If the value of a parameter falls between two adjacent values, the control unit will switch on intermittently the two LEDs identifying the value itself. If necessary, the values can be rounded off by pressing the ▲ or ▼ button to round off respectively to the lower or higher value among the two values highlighted by the control unit.

For example: Maintenance warning = 7000 manoeuvres - LEDs L5 and L6 flash. Pressing button ▲ rounds off to value L5 (6000), while pressing button ▼ rounds off to value L6 (8000).

- If the value of a parameter is below the minimum value or above the maximum value among those listed in the table, the control unit will switch on intermittently LEDs L1 or L8 respectively. If necessary, the values can be rounded off by pressing the ▲ or ▼ button to round off to the nearest value.

For example: Pause Time = 5 seconds - L1 flashes. Pressing button ▼ rounds off to value L1 (10 s) and L1 will no longer flash because the parameter will have been rounded off to a known value.

For parameters L2 and L4:

if the configuration has not been not learned, when LEVEL2 of the MENU opens up, the control unit will propose the default configuration.

6.4 SPECIAL FUNCTIONS

6.4.1 "Always open" function

The "always open" function is a feature of the control unit that enables continuous activation of an opening manoeuvre when the "Step-by-Step" command lasts more than 3 seconds; this can be useful for example to connect the SbS terminal with the contact of a programme clock to keep the gate open during a specific time band. This feature is valid regardless of the setting of the input SbS (see "Function SbS" in **Table 9**).

6.4.2 "Move anyway" function

This function allows for operating the automation also when one or more safety devices fail to work properly or are out of order. The automation can be controlled in "hold-to-run" mode in the following way:

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, activate the control again and keep it pressed; 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

When the safety devices fail to work, the flashing indicator will emit a few flashes to signal the type of problem. To verify the type of anomaly, refer to the "TROUBLESHOOTING" chapter.

6.4.3 Maintenance notification

TEN enables the user to be notified when a maintenance check needs to be performed on the automation.

The number of manoeuvres after which the signal can be enabled is selectable from 8 levels, by means of the modifiable parameter "Maintenance notification" (see **Table 9).**

Adjustment level 1 is "automatic" and takes into account manoeuvre stress, i.e. force and duration of the manoeuvre, while the other adjustments are set on the basis on the number of manoeuvres. The maintenance requirement notification is via the flashing light or the maintenance indicator, depending on the relative settings (see **Table 9**). On the basis of the number of manoeuvres performed with respect to the programmed limit, the Flash flashing light and maintenance indicator activate the signals as described in **Table 10**.

Table 10 - The "Flash" and "Maintenance indicator" signals

Number of manoeuvre	Signalling on Flash	Signalling on maintenance indicator
Below 80% of limit	Normal (0.5s on, 0.5s off)	On for 2s at start of opening
Between 81 and 100% of limit	Remains lit for 2s at start of manoeuvre then proceeds normally	Flashes throughout manoeuvre
Over 100% of limit	Remains lit for 2s at start and end of manoeuvre then proceeds normally	Always flashes.



To programme the limit value of the maintenance manoeuvres, refer to Paragraph 6.3.1 "Level 2 programming procedure".

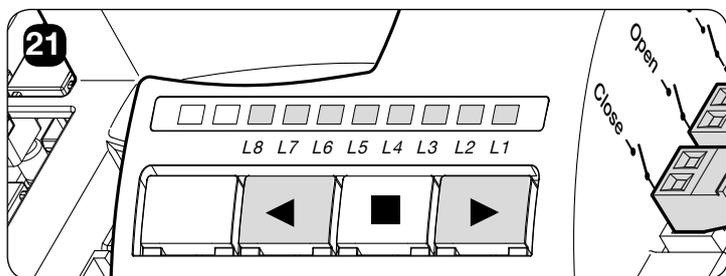
6.5 DELETING THE ENTIRE MEMORY

When total deletion is required, to restore factory settings, proceed as follows with the motor stationary.

1. Press and hold the ▲ and ▼ buttons until the programming LEDs "L1→L8" light up (after roughly 3 seconds).
2. Release the keys.
3. If the operation was successful, all the programming LEDs "L1→ L8" will flash quickly for 3 seconds
4. The control unit runs a FW restart procedure by loading all the default parameters.
After this, the current position of the encoder will be displayed.
5. LEDs "L1" and "L2" will start flashing at the end of the procedure.



This procedure does not modify the parameter for the direction of Ten rotation or the encoder position.



6.6 PROGRAMMING THE DIRECTION OF MOTOR ROTATION

Ten is factory set to execute the opening manoeuvre as shown in **Figure 4**. The direction of rotation can be inverted by programming the opening manoeuvre as shown below:

1. Press and hold ■ for approx. 3s
2. Release ■ when led **L1** starts flashing
3. Press keys ▲ and ▼ at the same time to modify the motor direction
4. Release keys ▲ and ▼
 - If the courtesy light is lit, the inverted direction of motor rotation has been programmed
 - If the courtesy light is off, the standard direction of motor rotation has been programmed
5. Wait 10s to exit programming mode in timeout.



Note: Points 3 and 4 can be repeated during the same programming phase to change the direction of motor rotation.



When the direction of motor rotation is changed, the “Position memorisation” procedure must be repeated.

To check the set direction of motor rotation, proceed as follows:

1. Disconnect Ten from the power supply (removing the plug or fuse)
2. Power up Ten
3. After the initial flash of leds **L1** to **L8** a single led illuminates to indicate the encoder position.
4. On the signal indicating the encoder position, check the courtesy light:
 - If the courtesy light is lit, the inverted direction of motor rotation has been programmed
 - If the courtesy light is off, the standard direction of motor rotation has been programmed

6.7 RESETTING THE ENCODER POSITION

This procedure enables return of the encoder to the factory-set position to enable the assembly of Ten with the door closed.

At the same time, it will reset the factory settings in the memory: all the parameters and the settings chosen by the user will be restored.

If the direction of motor rotation needs to be changed, first complete the “Programming the direction of motor rotation” procedure and then “Resetting the encoder position”.



WARNING! THE PROCEDURE DESCRIBED BELOW MUST BE PERFORMED EXCLUSIVELY ON A WORKBENCH.

NEVER PERFORM THIS PROCEDURE WITH THE MOTOR INSTALLED ON THE DOOR.

1. Press and hold keys ▲ and ▼ until all leds from **L1** to **L8** illuminate.
2. Release buttons ▲ and ▼ when only one lights up again (from **L1** to **L8**) to signal the current position of the encoder.
3. Press and hold ■ until the motor starts up.
Release the key as ten as the motor starts up.
The control unit activates motor movement to bring the encoder position to led **L6**.
4. After the motor has stopped, all leds turn on and then off, after which check that the led that lights up again is **L6**. If this does not occur, repeat the procedure from point 1.
5. At the end of the sequence leds **L1** and **L2** continue to flash.

6.8 CHECK OF NUMBER OF MANOEUVRES PERFORMED

The function “Maintenance notification” enables the user to check the number of manoeuvres performed as a percentage of the set limit.

To check, proceed as follows:

1. Press and hold ■ for approx. 3s
2. Release the key ■ when led **L1** starts to flash
3. Press keys ▲ or ▼ to move the flashing led to **L7**, i.e. the “input led” associated with the parameter “Maintenance notification”
4. Press and hold ■ (button ■ must be kept pressed during steps 5, 6 and 7)
5. Wait approx. 3s after which the led associated with the current level of the parameter “Maintenance notification” will light up.
6. Briefly press keys ▲ and ▼
7. The led corresponding to the selected level flashes a few times. The number of flashes indicates the percentage of manoeuvres performed (in multiples of 10%) with respect to the set limit. For example: when the maintenance notification is set on **L7** i.e. 10000, 10% corresponds to 1000 manoeuvres; if the indicator led flashes 4 times, this means that 40% of the maximum number of manoeuvres has been reached (i.e. between 4000 and 4999 manoeuvres). If 10% has not yet been reached, the led does not flash at all.
8. Release ■.

6.9 MANOEUVRE COUNTER RESET

After performing system maintenance the manoeuvre counter must be reset.

Proceed as described below:

1. Press and hold ■ for approx. 3s
2. Release the key ■ when led **L1** starts to flash
3. Press keys ▲ or ▼ to move the flashing led to **L7**, i.e. the “input led” associated with the parameter “Maintenance notification”
4. Press and hold ■ (button ■ must be kept pressed during steps 5 and 6)
5. Wait approx. 3s after which the led associated with the current level of the parameter “Maintenance notification” will light up.
6. Press and hold keys ▲ and ▼, or at least 5 seconds, then release.
The led corresponding to the selected level shows a series of quick flashes to indicate that the manoeuvre counter has been reset.
7. Release ■.

7

FURTHER INFORMATION

7.1 MODIFYING THE CONFIGURATION OF THE STOP INPUT

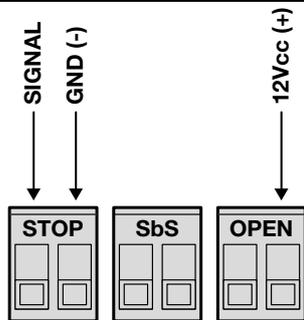
The Stop input causes the immediate stoppage of the manoeuvre, followed by a brief reversal. Devices with Normally open (NO) and normally closed (NC) contacts, optical devices (“Opto Sensors”) or devices with 8.2 kΩ fixed resistor (such as sensitive edges) can be connected to this input.

During the device learning phase, the control unit recognises the type of device connected to the Stop input and later, during normal use of the automation, the control unit commands a Stop when it senses a change with respect to the acquired situation.

Multiple devices, even of different types, can be connected to the STOP input if suitable arrangements are made:

- Multiple NO devices can be connected to each other in parallel without any quantity limit.
- Multiple NC devices can be connected to each other in series without any quantity limit.
- If there are more than 2 devices, all must be connected “in cascade” with a single 8.2 kΩ termination resistor.
- NO and NC combinations are possible by placing the 2 contacts in parallel, taking care to place a 8.2 kΩ resistor in series with the NC contact (this allows for combining 3 devices: NO, NC and 8.2 kΩ). To connect an optical device, refer to the indications in **Fig. 22**. The maximum current supplied on the 12 V line is 40 mA.

22



Warning! - To guarantee Category 3 safety against faults, in accordance with the EN 13849-1 standard, it is necessary to use "Opto Sensor" devices only, or devices with 8.2 kΩ fixed resistor outputs.

After having added or removed devices, these must be learned as described below.

Normally the devices connected to the BlueBus and the STOP input are learned during the installation phase. However, if new devices are added or old ones removed, the learning process can be repeated by proceeding as explained in Paragraph 4.6 "Learning of connected devices".

Warning! After having added or removed a device, the automation test must be carried out again as specified in Paragraph 5.1 "Testing".

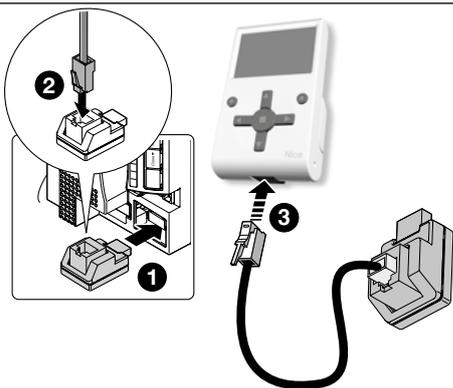
7.2 REMOTE PROGRAMMING UNIT

In the specific case of connector BusT4 the OView remote programming unit can be connected, to enable a comprehensive and rapid management of the installation, maintenance and fault-finding procedures. To access this connector, remove the membrane as shown in Figure 23 and connect the connector in the relative seat. The remote programming unit can be set at a distance from the control unit, up to 100 m of cable; it can be connected simultaneously to several control units. Up to a maximum of 16, and can remain connected also during normal operating of TEN; in this case a special "user menu" enables delivery of commands to the control unit.

If an OXI type radio receiver is inserted in the control unit, the remote programming unit enables access to parameters of memorised transmitters.

These functions require a 4-core connection cable (BusT4) which also enables updates to the TEN control unit firmware. Further information is provided in the Oview programmer instruction manual; or in the web-site www.niceforyou.com.

23



7.3 RADIO RECEIVER

The control unit is equipped with an SM connector for optional SMXI, SMXIS or OXI radio receivers to enable the user to control TEN remotely. To insert the radio receiver, switch off the power supply to TEN and perform the operation (see below). The association between the SMXI and SMXIS radio receiver output and the command to be executed by TEN is described in Table 11:

Table 11 - Commands with receiver SMXI, SMXIS

Output N°1	"SbS" command (Step-by-Step)
Output N°2	"Partial open" command
Output N°3	"Open" command
Output N°4	"Close" command

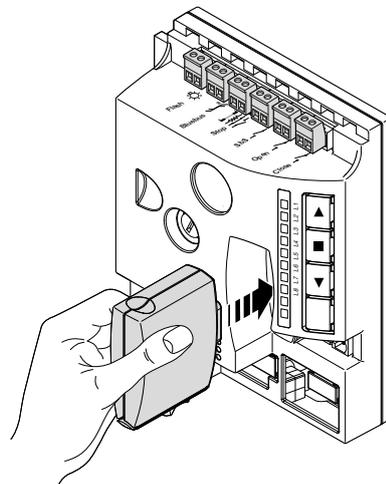
If the radio receiver OXI of the NiceOpera range is used, EXTENDED MODE II enables the receiver to send the following commands:

Table 12 - Commands with receiver OXI

Command n°1	Step-by-Step
Command n°2	Partial opening 1
Command n°3	Open
Command n°4	Close
Command n°5	Stop
Command n°6	Apartment block Step-by-Step
Command n°7	Step-by-Step high priority
Command n°8	Partial opening 2
Command n°9	Partial opening 3
Command n°10	Open and block automation
Command n°11	Close and block automation
Command n°12	Block automation
Command n°13	Release automation
Command n°14	Courtesy Light On Timer
Command n°15	Courtesy Light On-Off

To add the functions of the radio receiver, switch off the power supply to TEN and insert the radio receiver as shown in Figure 24. After inserting it, restore the power supply to TEN (one of the following radio receivers can be connected to the SM connector: SMXI, SMXIS or OXI).

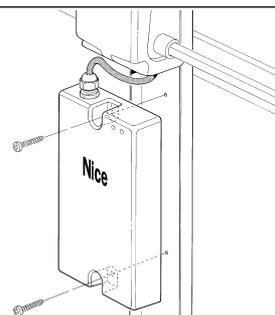
24



7.4 - BUFFER BATTERY

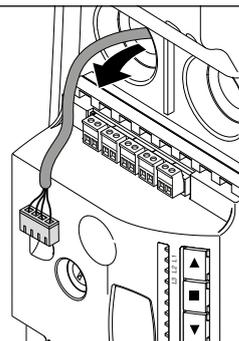
1. Fit the PS334 below the TN2010L

25

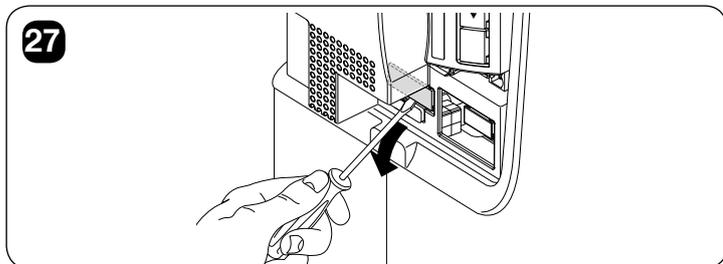


2. Pass the battery cable through the TEN cable inlet.

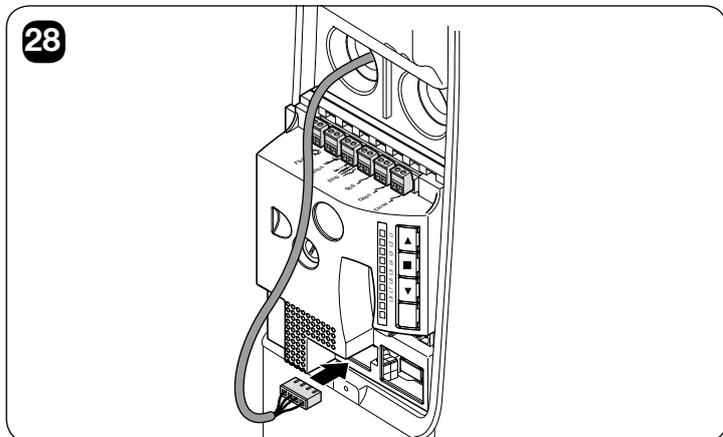
26



3. Remove the membrane on the control unit box



4. Connect the cable to the battery connector



7.5 - PRE-ASSEMBLY FOR OTA11

1. Loosen the screws and remove the lateral covers
2. Loosen the screws and remove the sleeve
3. Tighten the pin supplied, taking care to ensure the correct position with respect to the handle
4. Insert the cord and spring, as shown
5. Fix the spring with the 4.2x13 screw supplied, re-tighten the sleeve and insert the sheath.
6. Pierce the pre-cut element on the cover and re-close the assembly, taking care not to crush the seal

7.6 ACCESSORIES

The following accessories are available with TEN. Refer to the Nice S.p.A. product catalogue for a complete and updated list of the accessories.

SMXI / SMXIS Radio receiver, 433.92MHz with digital Rolling Code

OXI Radio receiver 433.92MHz with digital Rolling Code; equipped with extended Mode II to send 15 types of command to control unit

OView Remote control and programming unit with graphic display

TNA2 Spare control unit for TN2010L

OTA2 Support bracket for motor length 1250mm

OTA3 Support bracket for motor length 2000mm

TNA4 Pair of transmission shaft lengths 1500mm

TNA5 Pair of standard straight telescopic arms

TNA6 Pair of standard curved telescopic arms

TNA8 Pair of transmission shaft lengths 200 mm

OTA11 Kit for external release by means of metal cord

OTA12 Kit for external release by means key operated catch

TNA38 Gear device for 1 pair of transmission shafts

TS Warning sign table

PS324 Buffer battery

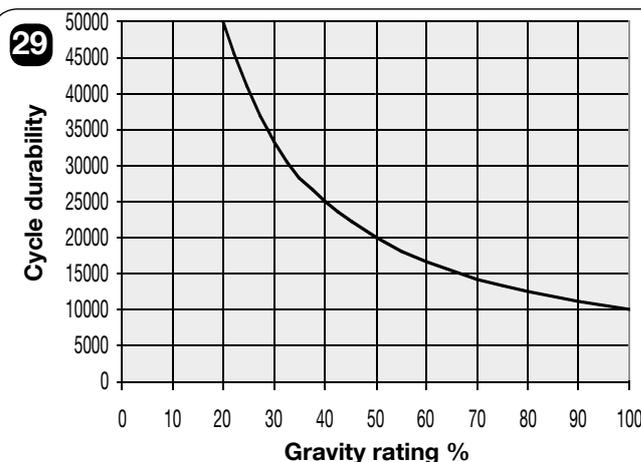
7.7 - PRODUCT DURABILITY

Chapter 11 "Technical specifications" also provides an estimate of "durability" i.e. average product lifetime. The value is strongly influenced by the stress factors involved in the manoeuvre, i.e. all factors that contribute to wear. To make this estimate, the total of all the gravity ratings in **Table 13** must be calculated, for subsequent verification of the estimated feasibility in the graph. For example, TN2010L on a door of 130 Kg, which requires a force of 180Nm to move the leaf, equipped with photocells and no other factors of fatigue, obtains a gravity rating of 60% (30+20+10). The estimated durability on the graph is therefore 18,000 cycles.

Note that the estimate of durability is conducted on the basis of design calculations and results of tests performed on prototypes; as this is an estimate it does not constitute any form of guarantee on the effective lifetime of the product.

Table 13 - Estimate of durability in relation to the manoeuvre gravity rating

Gravity rating %	TN2010LR10	TN2010LR10 + TN2020LR10
Leaf weight kg		
Up to 100	20	10
100 ÷ 180	30	20
180 ÷ 230	40	30
Over 230	60	50
Force required to move leaf N		
Up to 160	10	5
160 ÷ 240	20	15
240 ÷ 290	40	30
290 ÷ 350	-	50
Other factors of fatigue (to be considered if the probability of occurrence exceeds 10%)		
Ambient temperature over 40°C or below 0°C or humidity over 80%	10	10
Presence of dust or sand	15	15
Presence of salt water	20	20
Interruption of manoeuvre by Photo	10	10
Interruption of manoeuvre by Stop	20	20
Speed over "L4 high"	15	15
Total gravity rating (see Figure 29):		



STOP led (red)	Cause	ACTION
Off	STOP input activation	Check the devices connected to the STOP input
On	All OK	STOP input active
SbS led	Cause	ACTION
Off	All OK	SbS input not active
On	SbS input activation	Normal if the device connected to the SbS input is effectively active.
OPEN led	Cause	ACTION
Off	All OK	OPEN input not active
On	OPEN input activation	Normal if the device connected to the OPEN input is effectively active.
CLOSE led	Cause	ACTION
Off	All OK	CLOSE input not active
On	CLOSE input activation	Normal if the device connected to the CLOSE input is effectively active.

Table 16 - Control unit courtesy light

	Description
Off	Automation Stopped
Steady Lit	Manoeuvre in progress
3s On	Automation Lock Command Executed
Flashing	<ul style="list-style-type: none"> The control unit must run the automatic Force search procedure (see Paragraph 4.7). If the courtesy light flashes also during the manoeuvre, it means that a procedure is under way to detect the critical points of the manoeuvre. If it flashes synchronously with the warning light, it means that there is an anomaly (see Table: Signals on the FLASH Warning Light).

Table 17 - Leds on control unit keys

L1 led	Description
Off	During normal operation, indicates "Automatic closure" not active.
On	During normal operation, indicates "Automatic closure" active.
Flashing	<ul style="list-style-type: none"> Function programming in progress With the motor stationary, if it flashes individually it means that the encoder is in the High Overrun position (position above or equal to 95%). Adjust the position then rerun the position search procedure If this flashes together with L2 this indicates that the device learning phase must be performed (see paragraph "4.6 Learning devices").
L2 led	Description
Off	During normal operation, indicates "Re-close after photo" not active.
On	During normal operation, indicates "Re-close after photo" active.
Flashing	<ul style="list-style-type: none"> Function programming in progress If this flashes together with L1 this indicates that the device learning phase must be performed (see paragraph "4.6 Learning devices").
L3 led	Description
Off	During normal operation, indicates "Always close" not active.
On	During normal operation, indicates "Always close" active.
Flashing	<ul style="list-style-type: none"> Function programming in progress If flashing together with L4, indicates that the door opening and closing acquisition procedure must be performed (see paragraph "4.7 - Learning the door opening and closing positions").
L4 led	Description
Off	During normal operation, indicates "Stand-By" not active.
On	During normal operation, indicates "Stand-By" active.
Flashing	<ul style="list-style-type: none"> Function programming in progress If flashing together with L3, indicates that the door opening and closing acquisition procedure must be performed (see paragraph "4.7 - Learning the door opening and closing positions").
L5 led	Description
Off	During normal operation, indicates "Long inversion" not active.
On	During normal operation, indicates "Long inversion" active.
Flashing	<ul style="list-style-type: none"> Function programming in progress
L6 led	Description
Off	During normal operation, indicates "Pre-flash" not active.
On	During normal operation, indicates "Pre-flash" active.
Flashing	<ul style="list-style-type: none"> Function programming in progress
L7 led	Description
Off	During normal operation, indicates "Current sensitivity control" not active.
On	During normal operation, indicates "Current sensitivity control" active.
Flashing	<ul style="list-style-type: none"> Function programming in progress

L8 led	Description
Off	During normal operation indicates that the installation is with 1 motor.
On	During normal operation indicates that the installation is with 2 motors.
Flashing	<ul style="list-style-type: none"> • Function programming in progress • With the motor stationary, if it flashes individually it means that the encoder is in the Low Overrun position (position below or equal to 5%). Adjust the position then rerun the position search procedure

8.1 TROUBLESHOOTING

Table 18 provides some useful information to deal with any malfunctions that may occur during installation, or in the event of faults.

Table 18 - Search of failures	
Symptom	Probable cause and possible remedy
The radio transmitter does not control the door and the transmitter led does not illuminate	Check that the transmitter batteries are not discharged; replace if necessary.
The radio transmitter does not control the door but transmitter led illuminates	Check that the transmitter is correctly memorised on the radio receiver. Ensure correct emission of the radio signal of the transmitter with the following empirical test: Press a key and place the led against the aerial of a standard radio (the cheaper the better) switched on and tuned to FM at the frequency of 108.5Mhz or as close to this value as possible; a slight noise with a scratching pulse noise should be heard.
...no manoeuvre is activated and the OK led does not flash	Ensure that TEN is powered from a 230V mains. Check that fuses F1 and F2 are not blown; in this case, identify the cause of the fault and then replace with versions of the same current value and specifications (Figure 31).
...no manoeuvre is activated and the flashing light is off	Check that the command is effectively received. If the command reaches the SbS input and the led OK emits a double flash to indicate that the command has been received.
...the manoeuvre does not start and the courtesy light flashes a few times	Count the number of flashes and check with reference to the data in Table 14 .
The manoeuvre starts but immediately afterwards a brief inversion is activated	The selected force may be too low to move the door. Check whether there are any obstacles, and if necessary select a higher force

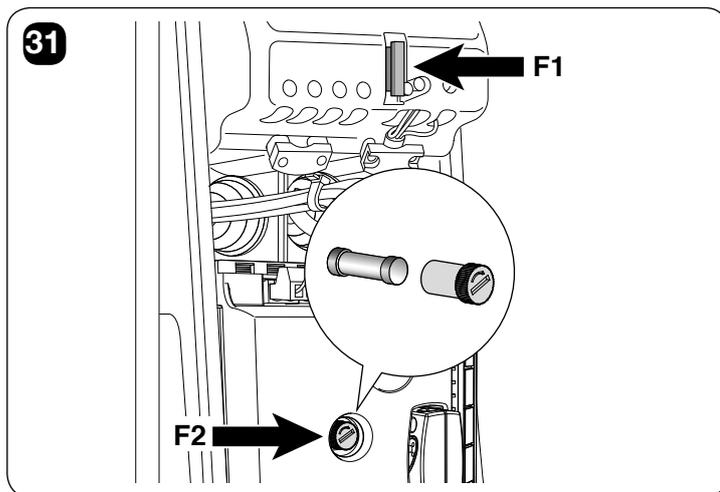


Table 19 - Characteristics of fuses F1 and F2	
F1	Mains Power Supply Fuse = 1.6A
F2	Control Unit Fuse = 1.6 Delayed

8.2 - Fault log list

TEN enables the display of any faults that have occurred in the last 8 manoeuvres, for example interruption of a manoeuvre due to activation of a photocell or sensitive edge. To check the fault list, proceed as described below:

1. Press and hold **■** for approx. 3s
2. Release the key **■** when led **L1** starts to flash
3. Press keys **▲** or **▼** to move the flashing led to **L8**, i.e. the "input led" associated with the parameter "Fault log"
4. Press and hold **■** (button **■** must be kept pressed during steps 5 and 6)
5. Wait approx. 3s after which the leds corresponding to the manoeuvres subject to faults will light up. Led **L1** indicates the result of the most recent manoeuvre, while led **L8** indicates the result of the eighth manoeuvre. If the led is lit this means that faults have occurred during the manoeuvre; if off this means that the manoeuvre was completed without faults.
6. Press and hold **▲** and **▼** to select the required manoeuvre: The corresponding led emits a number of flashes equal to those normally emitted by the flashing light after a fault (see **Table 14**).
7. Release **■**.

9 MAINTENANCE

To ensure constant safety levels a long service life, the system must be serviced regularly.

⚠ Maintenance operations must be performed in strict compliance with the safety precautions provided in this manual and according to the applicable laws and regulations.

For the other devices besides TEN, observe the procedures set forth in the respective maintenance schedules.

For TEN maintenance must be performed within 6 months or 4.000 duty cycles since the previous maintenance operation.

1. Disconnect the power supply.
2. Check for any deterioration in automation system components, paying special attention to erosion or oxidation of the structural parts. Replace any parts that are below the required standard.
3. Check the state of wear of moving parts: telescopic arms, counterweight cables and all door components; if necessary replace them.
4. Connect the electric power sources again and run all the tests and checks described in Paragraph "5.1 Testing".

10 PRODUCT DISPOSAL



This product constitutes an integral part of the automation and, therefore, must be disposed of together with it.

Similarly to the installation phase, once the product reaches the end of its useful life, the disassembly and scrapping operations must be performed by qualified personnel.

This product is made of various types of materials, some of which can be recycled while others must be scrapped. Seek information on the recycling and disposal systems envisaged by local regulations in your area for this product category..



Warning!

Some parts of the product may contain polluting or hazardous substances which, if released into the environment, constitute serious environmental and health risks.



As indicated by the adjacent symbol, the product may not be disposed of together with domestic waste. Sort the materials for disposal, according to the methods envisaged by current legislation in your area, or return the product to the retailer when purchasing an equivalent product.



Warning!

Local regulations may envisage the application of heavy fines in the event of improper disposal of this product.

11 TECHNICAL SPECIFICATIONS

For purposes of product improvements, Nice S.p.a. reserves the right to apply modifications to technical specifications at any time when deemed necessary, while maintaining the same functionalities and intended use.

All technical specifications stated in this section refer to an ambient temperature of 20°C (± 5°C).

Technical specifications: TEN			
Model	TN2020LR10	TN2010LR10	TN2010LR10+TN2020LR10
Type	/	Electromechanical gearmotor for the automatic movement of projecting and non-projecting up-and-over doors for residential use, complete with electronic control unit	
Maximum start-up torque	320Nm	350Nm	500Nm
Nominal torque	220Nm	240Nm	330Nm
Speed under no-load	1.4 rpm (24V===)	1.7rpm; the control unit enables programming of 6 speeds	
Speed at nominal torque	0.9 rpm (24V===)	1.2rpm	
Maximum operating cycle frequency at nominal torque (the control unit restricts the maximum number of cycles as specified in tables 3 and 4) *	25 cycles per hour	15 cycles per hour	25 cycles per hour
Maximum continuous operating time at nominal torque (the control unit restricts the maximum number of cycles as specified in tables 3 and 4) **	14 minutes	22 minutes	14 minutes
Limits of use	In general TEN is able to automate balanced doors with surface areas up to 8m ² with 1 motor and up to 14 m ² with 2 motors, within the limits specified in Table 2 .		
Durability	Estimated at between 10000 and 50000 cycles, according to the conditions specified in Table 13		
TEN Power supply	24 V=== (-30% +50%)	230V~ (-10% +15%) 50/60Hz.	
TEN/V1 Power supply		120V~ (-10% +15%) 50/60Hz.	
Maximum power absorbed on start-up [corresponding to Amperes]	130 W (5.5A)	240 W (1A) [2A version V1]	350 W (1.4A) [3A version V1]
Insulation class	III	I	I
Emergency Power supply	/	Yes	
Courtesy light	Internal LED light		
Flashing light Output	/	For 1 flashing light model LUCYB; MLB or MLBT (lamp 12V, 21W)	/
BlueBUS Output	/	An output with maximum load of 12 BlueBUS units	/
STOP input	/	For normally closed and normally open contacts or with constant resistance of 8,2KΩ; in self-learning mode (a status variation generates the "STOP" command)	/
SbS input	/	For normally open contacts (closure of the contact generates the SbS command)	/
OPEN input	/	For normally open contacts (closure of the contact generates the OPEN command)	/
CLOSE input	/	For normally open contacts (closure of the contact generates the CLOSE command)	/
Radio AERIAL input	/	52Ω for cable type RG58 or similar	/
Radio connection	/	SM connector for receiver types SMXI, SMXIS or OXI	/
Programmable functions	/	8 ON-OFF type functions and 8 adjustable functions (see Tables 8 and 9)	/
Functions in self-learning mode	/	Self-learning of devices connected to BlueBUS output. Self-learning of "STOP" type devices (contacts NO, NC or 8,2KΩ resistance) Learning of door opening and closing positions and calculation of the points of deceleration and partial opening.	/
Operating temperature	-20°C ... +50°C		
Use in particularly acid, saline or potentially explosive environments	Not		
Protection rating	IP 44		
Dimensions	512 x 150 x h158 mm		
Weight	7.2 kg	10 kg	
Notes	TN2020LR10	TN2010LR10	TN2010LR10+TN2020LR10
* At 50°C the maximum operating frequency is (cycles/hour)	4	6	4
** At 50°C the maximum continuous operating time is (minutes)	12	6	7

EU Declaration of Conformity (N. 258/TN) and declaration of incorporation of “partly completed machinery”

Note - The contents of this declaration correspond to that stated in the official document filed in the offices of Nice S.p.A. and, in particular, the latest version thereof available prior to the printing of 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) Italy.

Revision: **6**

Language: **EN**

Manufacturer's Name: NICE S.p.A.
Address:: Via Pezza Alta N°13, 31046 Rustignè di Oderzo (TV) Italy
Authorized Person to constitute the technical documentation: NICE S.p.A.
Address:: Via Pezza Alta N°13, 31046 Rustignè di Oderzo (TV) Italy
Type of product: Electromechanical gear motor with incorporated control unit
Model/Type: TN2010L, TN2020L
Model/Type: 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/UE (EMC) 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

Place and Date: Oderzo, 05/09/2017

Ing. **Roberto Griffa** (Chief Executive Officer)



Instructions and warnings for TEN gearmotor users

Important safety instructions

Warning: for personal safety it is important to observe these instructions

Keep these instructions in a safe place

These instructions can integrate the "Automation use instructions and warnings" to be delivered by the installer to the automation owner, and in any event must be integrated with this document.

Congratulations on your purchase of a Nice automation. Nice S.p.a. produces components for the automation of gates, doors, shutters, rolling shutters and sun awnings: gearmotors, control units, radio controls, flashing lights, photocells and accessories. Nice uses exclusively top quality materials and processes, and by vocation researches into the most innovative solutions to ensure the utmost simplicity of equipment use, with special attention to technical solutions, aesthetics and ergonomics: given the vast range of Nice products, your installer will certainly find the ideal product for your requirements. However, Nice is not the manufacturer of your automation, which is the result of careful analysis, assessment, choice of materials and the set-up of a system by your entrusted installer. Each automation is unique, and only your installer has the experience and professional skills needed to obtain the system that meets your requirements, is safe and reliable over time, and is above all to professional standards, i.e. compliant with all relevant current standards. An automated system is a real commodity, as well as a valid safety system and, with just a little attention, can last for years. Even if the automation in your possession meets the safety levels established by standards, this does not exclude possible residual risks, i.e. the possibility that hazardous situations may be generated, usually due to inadvertent or incorrect use, and for this reason we provide some advice on procedures to avoid any inconvenience.

- **Before using the automation for the first time**, ensure that the installer explains the sources of residual risks, and take care to read the **instruction manual and safety warnings for the user** provided by the installer. Keep the manual for consultation when in doubt and ensure supply to new owners of the automation.

- **Photocells do not constitute actual safety devices, but safety aids.** 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 are not immediately evident.

For this reason, it is good practice to observe the following:

- Transit is admitted only if the gate or door is completely open with the leaves stationary
- Transit while the gate or door is closing is **STRICTLY PROHIBITED!**

Periodically check correct operation of the photocells and perform the scheduled maintenance at least every six months.

- **Your automation is a machine that performs commands imparted by the user;** negligent or improper use may constitute a hazard: never activate automation controls if persons, animals or objects are present in the operating range

- **Children:** an automation system guarantees a high level of safety, using special detection devices to prevent movement in the presence of persons or objects, thereby guaranteeing constant foreseeable and safe activation. However, it is advisable to ensure that children do not play in the vicinity of the automation to avoid inadvertent activation, and remote controls should always be kept out of reach. **It is not a toy!**

- **Check the system frequently**, in particular all cables, springs and supports to detect possible imbalance, signs of wear or damage. Check monthly that the drive motor inverts when the door touches an object with a height of 50 mm from the ground. Do not use the automation if repairs or adjustments are required; any fault with the installation or an incorrectly balanced door may lead to physical injury.

- **Malfunctions:** If any anomalous condition is noted on the automation, disconnect the power supply from the system immediately and activate the manual release. Never attempt to repair the automation alone; contact your local installer for assistance: in the meantime the system can be used in manual mode, after releasing the gearmotor as described below.

- **Maintenance:** As with all machinery, the automation requires periodic maintenance to ensure optimal operation, extended lifetime and complete safety. Arrange with your local installer to draw up a periodic maintenance schedule; Nice recommends maintenance every 6 months in the case of normal domestic use, but this interval may vary according to the intensity of use. Checks, maintenance and repairs must be performed exclusively by qualified personnel.

- Even if you possess the skills, never modify the system or automation programming and adjustment parameters: your installer is exclusively responsible for these operations.

- Testing, periodic maintenance and any repairs must be documented by the person performing the operations and the relative documents must be kept by the system owner.

The only operations that can be performed by the user, and recommended by the manufacturer, are cleaning of the photocell lenses and removal of any leaves or stones that may obstruct the automation. To prevent persons from activating the door, before proceeding, remember to **release the automation** (as described below), **disconnect all power sources** (including the buffer batteries if fitted) and use exclusively a cloth slightly dampened with water for cleaning

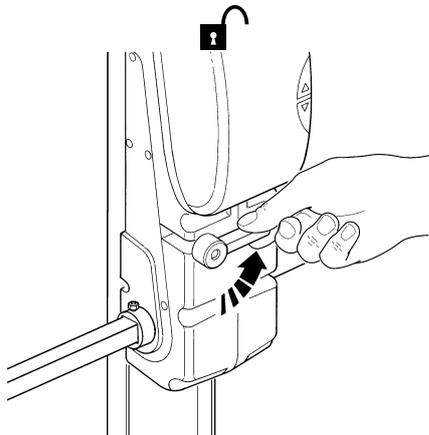
- **Disposal:** At the end of the automation's lifetime, ensure that it is disposed by qualified personnel and that the materials are recycled or scrapped according to current standards in the place of use.

- **In the event of breakage or power supply failure:** While awaiting arrival of your installer, or the return of power, the automation can be activated like a normal manual door. To enable this, the manual release must be operated: this operation has been specifically researched by Nice to ensure optimal and simple use at all times, without the need for special tools or physical strength.

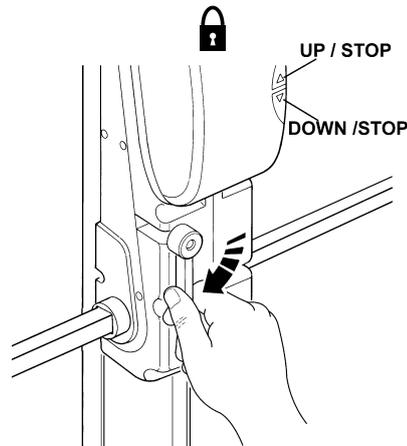
Unlocking and locking the gearmotor (manual operation)

Before carrying out this operation, bear in mind that the gearmotor can only be released once the door has come to a standstill. The gearmotor is equipped with a mechanical system that allows for manually opening and closing the door. Manual operation must be performed in the case of a power outage or in the event of anomalies affecting the system. In the event of a gearmotor fault, it is still possible to try release the motor to check whether the fault lies in the release mechanism.

To release, rotate the handle anti-clockwise and manually move the leaf



To lock, return the handle to the vertical position by turning it clockwise, and manually move the leaf until it engages



Control with safety devices disabled: in the event of a malfunction of the safety devices on the door, movement is still possible.

- Activate the door command (by means of the remote control, key-operated selector switch, etc.); if all is in working order the door opens and closes normally; otherwise the flashing light flashes several times and the manoeuvre is disabled (the number of flashes depends on the reason for which the manoeuvre is inhibited).
- In this case, press and hold the command again within three seconds.
- After approx. 2s door movement is started in "hold-torun" mode, i.e. as long as the command is pressed the door continues to move; and stops immediately on release of the control.

In the event of safety device malfunction, arrange for repairs to the automation immediately.

Remote control battery replacement: after a certain period of time, if you notice a deterioration in performance of the remote control, or if it stops working completely, it may simply be due to a flat battery (depending on the use, the battery can last from several months to over a year). This is indicated by the fact that the transmission indicator does not light up, is faded, or only lights up briefly. Before contacting the installer, change the battery with one from another operative transmitter: if this is the cause of the fault, simply replace the battery with one of the same type.

Warning: Batteries contain pollutant substances: never dispose of in common waste disposal units, and observe all local regulations for the procedures required.

Satisfied? Should you wish to add a new automation system to your home, contact both your local installer and Nice to guarantee specialist consultancy and state-of-the-art products on the market, for optimal operation and maximum compatibility of automations. Thank you for reading this information. We wish you total satisfaction with your system. For all present and future requirements contact your local installer.





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