M/L-Bar

M3BAR
M5BAR
M7BAR
L9BAR

Electromechanical road barrier

EN - Instructions and warnings for installation and use

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ENGLISH

Translation of the original instructions in full

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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.

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

In order to avoid any danger from inadvertent 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.

WARNING! Please abide by the following warnings:

- Before commencing the installation, check the "Product technical specifications", in particular whether this product is suitable for automating your guided part. Should it not be suitable, do NOT proceed with the installation.
- The product cannot be used before it has been commissioned as specified in the "Testing and commissioning" chapter.
- Before proceeding with the product's installation, check that all the materials are in good working order and suited to the intended applications.
- The product is not intended for use by persons (including children) with reduced physical, sensory or mental capacities, nor by anyone lacking sufficient experience or familiarity with the product.
- Children must not play with the appliance.
- Do not allow children to play with the product's control devices. Keep the remote controls out of reach of children.
- The system's power supply network must include a disconnection device (not supplied) with a contact opening gap permitting complete disconnection under the conditions envisaged by Overvoltage Category III.
- 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.

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- 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.
- 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

1.2 INSTALLATION WARNINGS

- Prior to installing the drive motor, check that all mechanical components are in good working order and properly balanced, and that the automation can be manoeuvred correctly.
- 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.

2 PRODUCT DESCRIPTION AND INTENDED USE

M-BAR and **L-BAR** are electromechanical boom gates for residential and industrial use, which control the opening and closing of a driveway.
These barriers are equipped with an electromechanical gearmotor with a 24 V motor, an electric limit switch system and a warning light incorporated in the cover (optional accessory). These two models can be installed as counterposed barriers in the “Master-Slave” mode, to cover the surface of a driveway exceeding 8 metres (see paragraph “***Gearmotor in SLAVE mode***").
The control unit is configured for being connected to the various devices belonging to the **Nice** Opera System and to the “Solemyo” solar power system (see paragraph “***Connecting the Solemyo solar energy system***").
The barriers work on electricity and in case of a power outage (blackout), the boom can be unlocked manually and moved by hand. Alternatively, it is possible to use the back-up battery (model PS224 - optional accessory) which ensures that certain manoeuvres can be carried out in the first few hours of a power outage. To prolong this period or increase the number of allowed manoeuvres, it is necessary to activate the “Stand-by” function (see “***Table 6***").
The barriers must be combined with the available booms, individually or in pairs, to reach the desired length. Various optional accessories are available, depending on the chosen boom, as shown in the table.

Table 1

INSTALLABLE ACCESSORIES					
Cubicle	**Boom**	**Rubber**	**Lights**	**Aluminium skirt**	**Mobile support**
M3BAR	3 m	yes	yes	-	-
M5BAR	4 m	yes	yes	yes (1 piece)	yes
	5 m	yes	yes	yes (1 piece)	yes
M7BAR	5 m	yes	yes	yes (2 pieces)	yes
	3+3 m	yes	yes	yes (2 pieces)	yes
	3+4 m	yes	yes	-	yes
L9BAR	3+4 m	yes	yes	yes (3 pieces)	yes
	4+4 m	yes	yes	yes (3 pieces)	yes
	4+5 m	yes	yes	-	-

Important notes for using the manual:
- throughout this manual, the term “boom gate” refers to the two products “**M-BAR**” and “**L9BAR**”
- the accessories mentioned in the manual are optional.

CAUTION! – Any use other than that specified herein or in environmental conditions other than those stated in this manual is to be considered improper and is strictly forbidden!

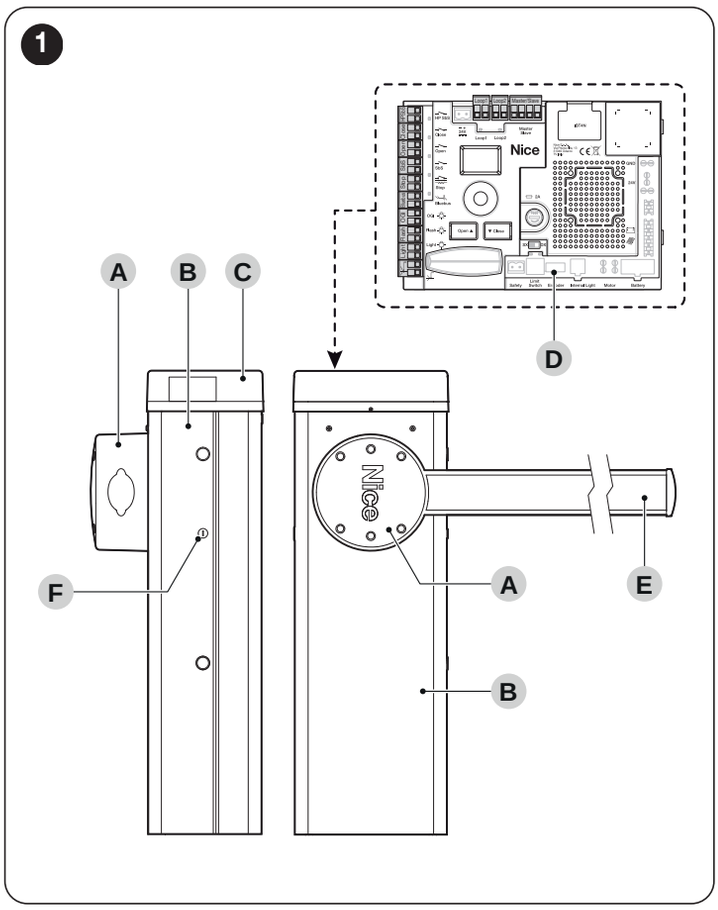
2.1 PRODUCT COMPLIANCE WITH THE STANDBY REGULATION

The criteria of the Standby Regulation have not been applied to this product because this product is not intended for ‘domestic or office’ use.

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2.2 LIST OF CONSTITUENT PARTS

"***Figure 1***" shows the main parts making up the **M/L-BAR**.



A Boom support
B Gearmotor containment box
C Cover
D Electronic control and command unit
E Boom
F Locking/unlocking key

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 suited to the intended use
- check whether it is possible to observe the operating limits specified in the paragraph "***Product usage limits***"
- check that the installation location is compatible with the overall clearance of the product (see "***Figure 3***")
- check that the surface chosen for installing the boom gate is solid and can ensure stable anchorage
- make sure that the installation area is not subject to flooding; if necessary, the product must be installed appropriately raised above ground level
- check that the space surrounding the boom gate allows for executing the manual manoeuvres easily and safely
- check that there are no obstacles along the boom's path capable of hampering the opening and closing manoeuvres
- check that each device to be installed lies in a position that is protected against the risk of accidental impact.
- verify that the mounting positions of the various devices are protected against impacts and that the mounting surfaces are sufficiently sturdy
- prevent any parts of the automation from being 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

3.2 PRODUCT USAGE LIMITS

Before proceeding with the product's installation, it is necessary to:
- check that all the values appearing in the "***TECHNICAL SPECIFICATIONS***" chapter are compatible with the intended use
- check that the estimated durability (refer to the paragraph "***Product durability***") is compatible with the intended use
- check that all limitations, conditions and warnings appearing in this manual can be fully observed.

3.2.1 PRODUCT DURABILITY

The product's durability is its average economic life value and is strongly influenced by the degree of severity of the manoeuvres: in other words, the sum of all factors that contribute to product wear.
To estimate the durability of your automated device, proceed as follows:

1. add the values of the items in "***Table 2***" relative to the system's conditions

2. in the graph shown in "***Figure 2***", from the value obtained above, trace a vertical line until it intersects the curve; from this point trace a horizontal line until it intersects the line of the "manoeuvre cycles". The value obtained is the estimated lifetime of your product.

The durability values shown in the graph can only be obtained if the maintenance schedule is strictly observed – see the "***PRODUCT MAINTENANCE***" chapter. The average product life is an estimated and purely indicative value, calculated on the basis of rigorous in-house testing and taking into account standard conditions of use, correct installation and maintenance in accordance with the **Nice S.p.A.** technical manual. This figure can be influenced by variable factors, such as climatic and environmental conditions, which can significantly affect performance. It is important to note that the average lifetime is not equivalent to the product warranty.

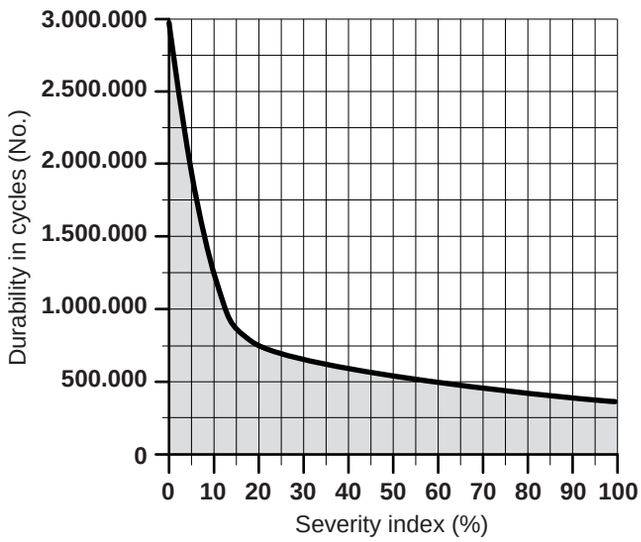
Example of durability calculation: M5BAR with mobile support, speed level 3
"***Table 2***" shows the "severity indices" for this type of installation: 10% ("Mobile support"), 10% ("speed level 3").
These indicators must be added together to obtain the overall severity index, which in this case is 20%. With the value calculated (20%), identify along the graph's horizontal axis ("severity index") the value corresponding to the number of "manoeuvre cycles" that the product can perform throughout its lifetime = roughly 750.000 cycles.

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Table 2

PRODUCT DURABILITY				
	Severity index			
	M3BAR	M5BAR	M7BAR	L9BAR
Joint for boom (XBA11)	20	15	-	-
Speed level 4	15	10	15	15
Level 3 speed	0	0	10	10
Manoeuvre interrupted by photocell > 10%	15	10	15	15
Manoeuvre interrupted by Stop > 10%	10	10	15	15
Mobile support (WA12)	-	10	10	10
Force equal to 5 or 6	10	10	10	10
Force equal to 4 or 5	5	5	5	5
Presence of salinity	10	10	10	10
Presence of dust and sand	5	5	5	5
Aluminium skirt	-	5	5	5
Ambient temperature above 40°C and below 0°C	5	5	5	5

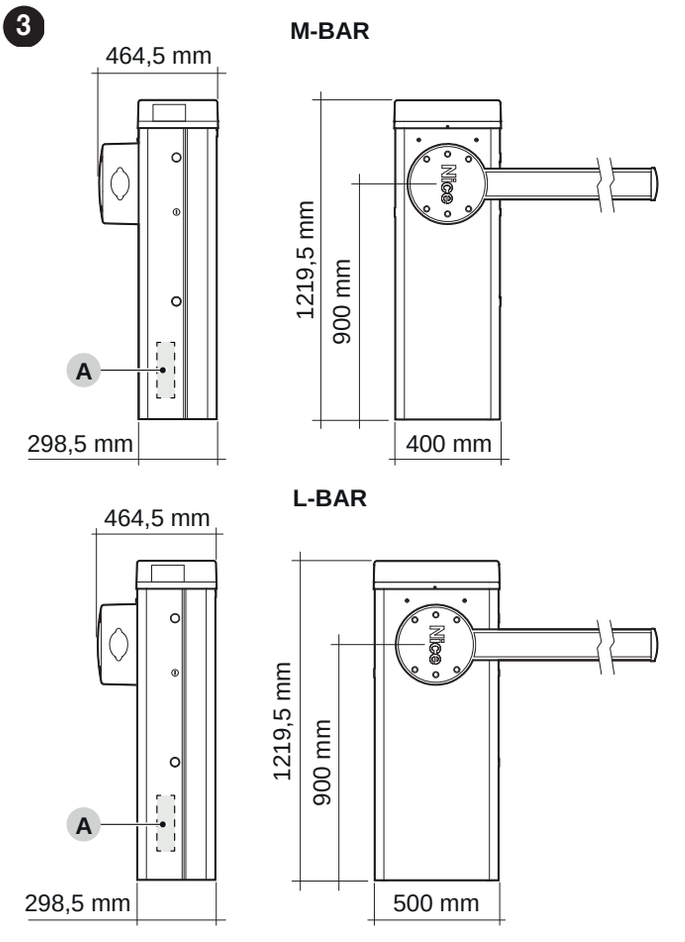
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3.3 PRODUCT IDENTIFICATION AND OVERALL DIMENSIONS

The overall dimensions and the label (**A**), which allows for identifying the product, are shown in "***Figure 3***".

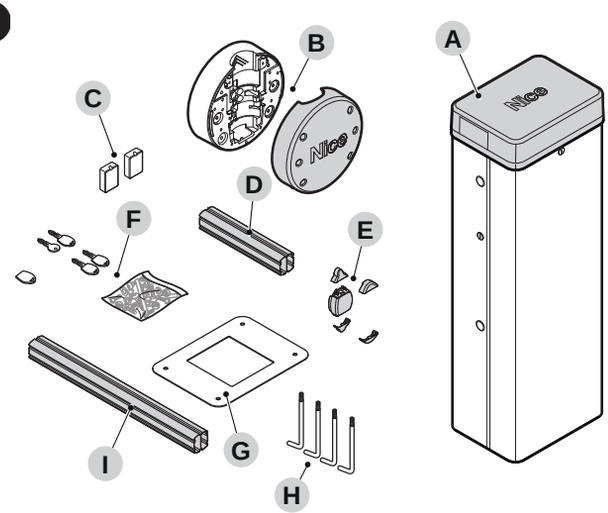
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3.4 RECEIPT OF THE PRODUCT

All the components contained in the product's packaging are illustrated and listed below.

4

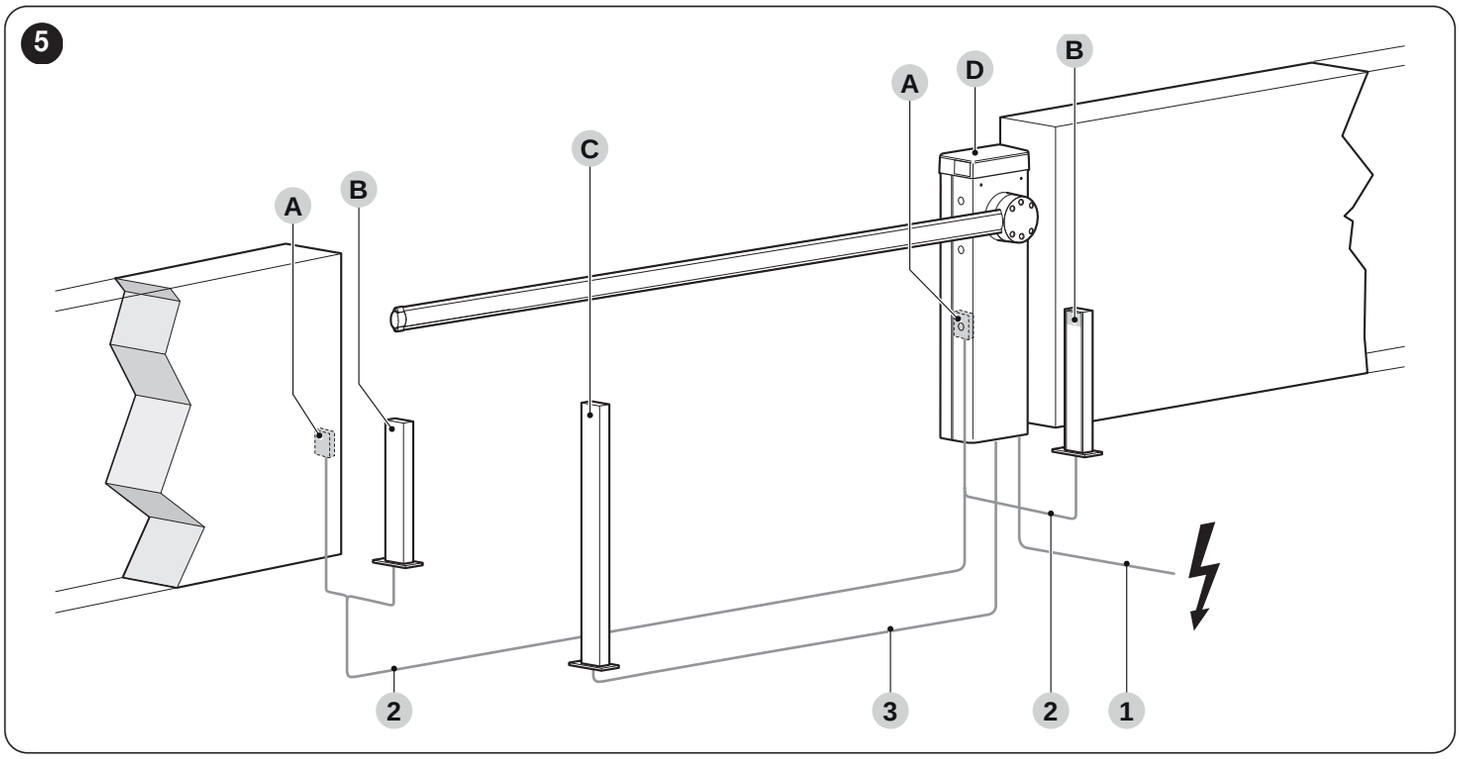


A Boom gate with integrated control unit
B Boom cover and support
C 2 photocell boxes
D Aluminium connector 300 mm long (found only on **M3BAR**, **M5BAR**, **M7BAR**)
E Fixed boom cap; 2 connectors for rubber impact protectors; 2 connectors without rubber impact protectors
F Keys for manually locking and unlocking the boom; key for the cover lock; metal smallware (screws, washers, etc.)
G Foundation plate
H 4 anchor bolts
I Aluminium connector 700 mm long (only present on **L9BAR**)

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3.5 PRE-INSTALLATION WORKS

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



A Photocells
B Photocells on column
C Key selector
D Boom gate cubicle

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	BLUEBUS cable 1 cable 2 x 0.5 mm² Maximum length 20 m [**note 2**]
3	KEY SELECTOR cable 2 cables 2 x 0.25 mm² [**note 3**] Maximum length 30 m
Other cables	OPEN INPUT cable 1 cable 2 x 0.25 mm² Maximum length 30 m
	CLOSE INPUT cable 2 x 0.25 mm² Maximum length 30 m
	WARNING LIGHT cable [**note 4**] 1 cable 2 x 0.5 mm² Maximum length 30 m
	ANTENNA cable 1 x RG58-type shielded cable Maximum length 15 m; recommended < 5 m
	OPEN BOOM INDICATOR cable [**note 4**] 1 cable 2 x 0.5 mm² Maximum length 30 m
	BOOM LIGHTS cable [**note 4**]
	MASTER/SLAVE cable 1 cable 2 x 1 mm² Maximum length 20 m

These above-mentioned components are positioned according to a typical standard layout. Using the layout in "***Figure 5***" as a reference, define the approximate position in which each component of the system will be installed.

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

Note 2 If the BlueBus cable is longer then 20 m, up to maximum 40 m, it is necessary to use a cable with a greater cross-sectional area (2 x 1 mm²).

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

Note 4 Before making the connection, verify that the output is programmed on the basis of the device to be connected (refer to the chapter "***PROGRAMMING***").

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, prepare the required electrical cables by referring to "*Figure 5*" and to that stated in the "*TECHNICAL SPECIFICATIONS*" chapter.

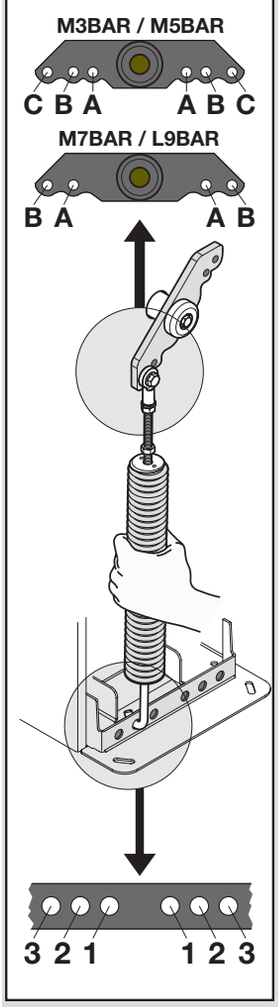
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3.6 ADJUSTING THE BOOM GATE

The boom gate is factory-set in the following way:
- balancing spring fastened to the right, installation selector on the right, anchored through non-permanent holes
- closing manoeuvre of the boom towards the left.

These are random settings, therefore the following checks must be carried out to understand whether they must be changed:
- **if a single accessory will be installed:** identify in box **"A"** in "***Figure 6***" your boom gate version, the length of the boom and, lastly, the accessory you intend mounting on the boom; with this data, read the corresponding letter and the number relative to the holes to be chosen to attach the spring
- **if multiple accessories will be installed:** identify in box **"B"** in "***Figure 6***" your boom gate version, the length of the boom and, lastly, the type and number of accessories you wish to mount on the boom; add the numbers in brackets linked to the accessories and use the result of the addition to read, in the lower part of box **"B"**, the letter and the number relative to the holes to be chosen to attach the spring
- **if the boom must close tot he right of the motor:** the spring's attachment must be shifted to one of the holes located on the other arm of the balancing lever.

6



A	M3BAR		M5BAR			M7BAR	L9BAR
?	2,65 m XBA15 (3,15m) – 0,50m	3,15 m XBA15 (3,15m)	3,50 m XBA14 (4,15m) – 0,65m	4,15 m XBA14 (4,15m)	5,15 m XBA5 (5,15m)	7,33 m XBA15 + XBA14	9,33 m XBA14 + XBA5
XBA13 / XBA13T	A 1	A 3	B 2	B 3	C 2	B 2	B 1
XBA13 / XBA13T XBA4 / XBA6 / XBA18 XBA40 / XBA60 / XBA80	A 1	A 3	B 2	B 3	C 2	B 2	B 1
XBA11	B 3	B 3	C 1	C 3			

B	M5BAR			M7BAR				L9BAR	
?	3,50 m XBA14 (4,15m) – 0,65m	4,15 m XBA14 (4,15m)	5,15 m XBA5 (5,15m)	5,15 m XBA5 (5,15m)	5,00 m XBA15+XBA15 (6,30m) – 1,30m	6,33 m XBA15 + XBA15	7,33 m XBA15 + XBA14	7,33 m XBA15 + XBA14	8,33 m XBA14 + XBA14
XBA13 / XBA13T	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
XBA13 / XBA13T XBA4 / XBA6 / XBA18 XBA40 / XBA60 / XBA80	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
WA13	(1)	(1)	-	(2)	(1)	(1)	-	(2)	(2)
WA12	(5)	(4)	(4)	(4)	(3)	(3)	(3)	(3)	(3)
	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇
	0÷1= B 2	0÷1= B 3	4÷5= C 2	0÷2= A 2	0÷2= B 1	0÷2= B 1	3÷4= B 3	0÷2= A 1	0÷2= A 3
	2÷7= B 3	2÷4= C 1		3÷5= A 2	3÷5= B 2	3÷5= B 2		3÷4= A 2	3÷6= B 1
		5÷6= C 2		6÷7= A 3				5÷6= A 3	

1. Add the numbers between brackets, present in the column, choosing only among those linked to the installed accessories.

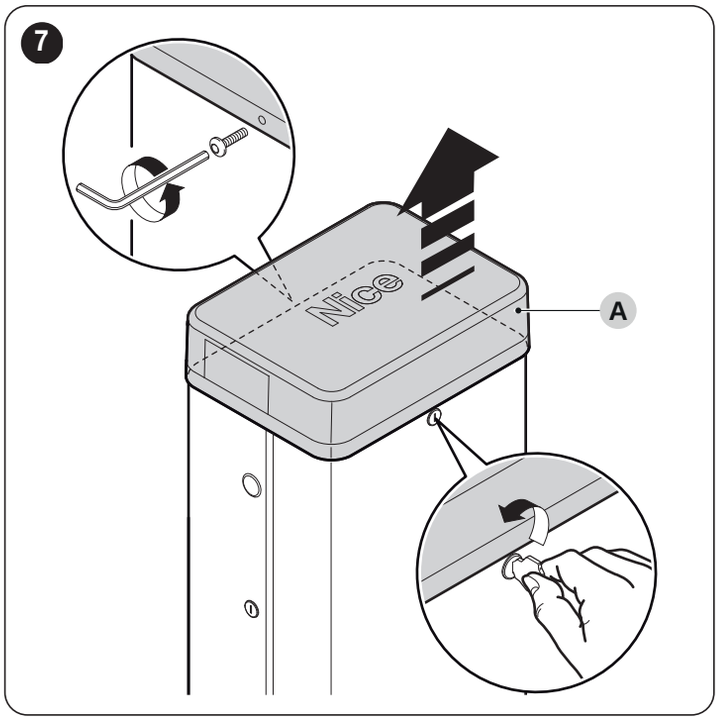
2. Use the result of the addition to determine the number of holes required to attach the spring.

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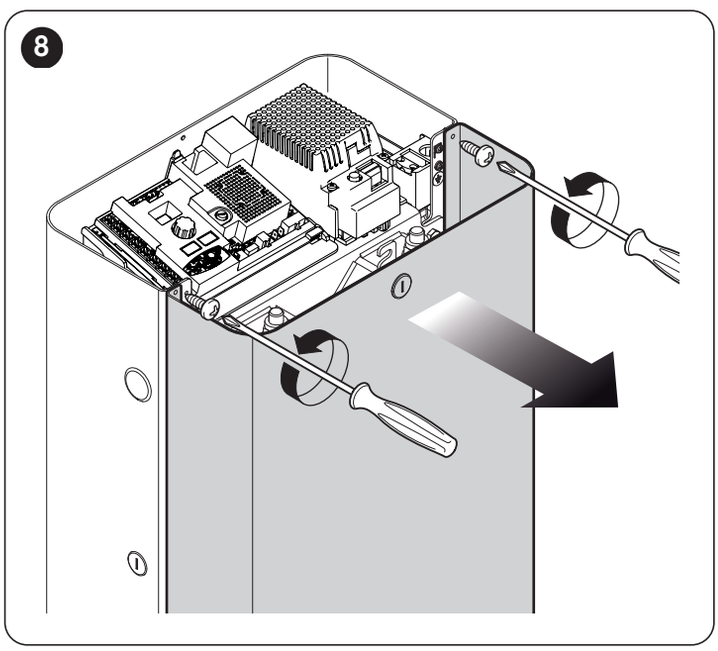
3.6.1 SPRING DISPLACEMENT OR REPLACEMENT

To shift the spring's attachment to different holes with respect to the factory setting, proceed as explained below:

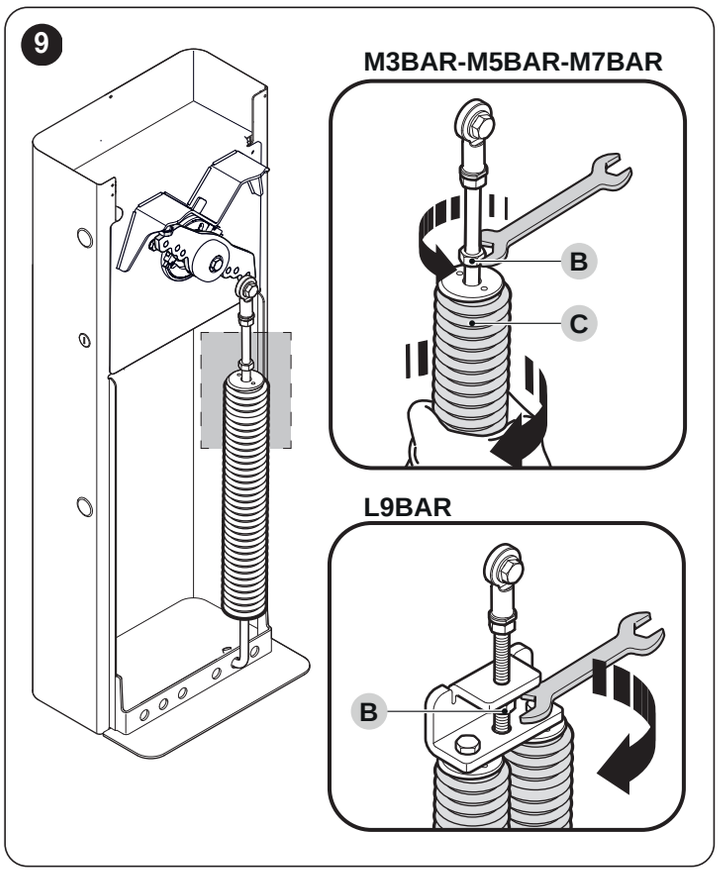
1. remove the upper cover (**A**) of the boom gate cubicle



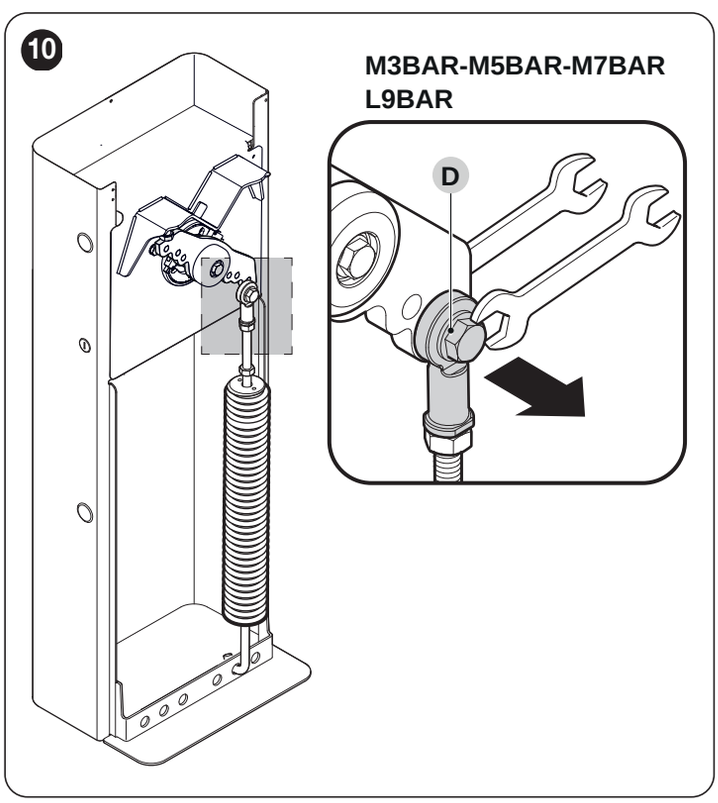
2. loosen the two screws fastening the cubicle panel



3. to loosen the tension of the balancing spring:
- for **M-BAR** loosen the nut (**B**) and manually turn the spring (**C**) clockwise
- for **L-BAR** turn nut (**B**) clockwise

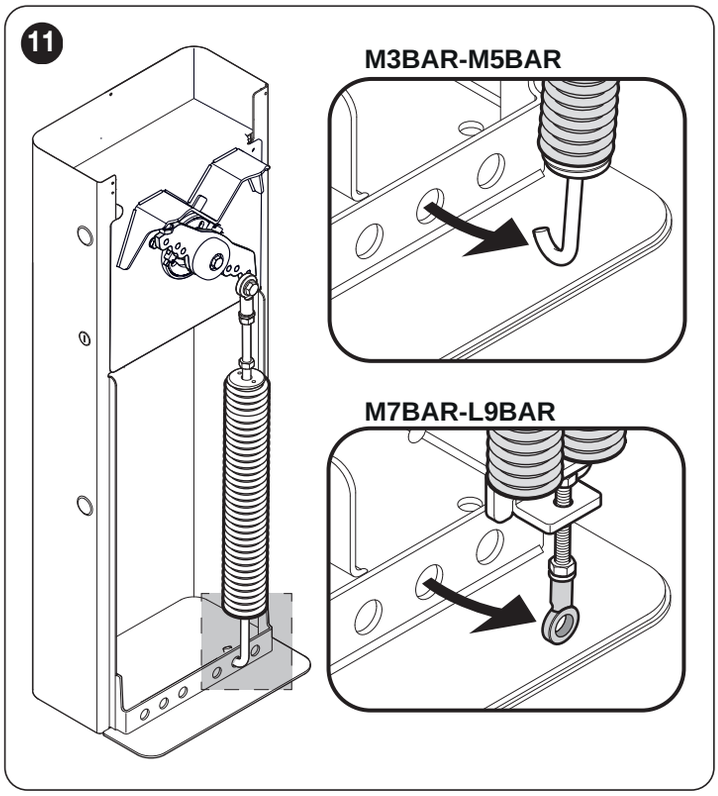


4. loosen the bolt (**D**) fastening the spring to the balancing lever

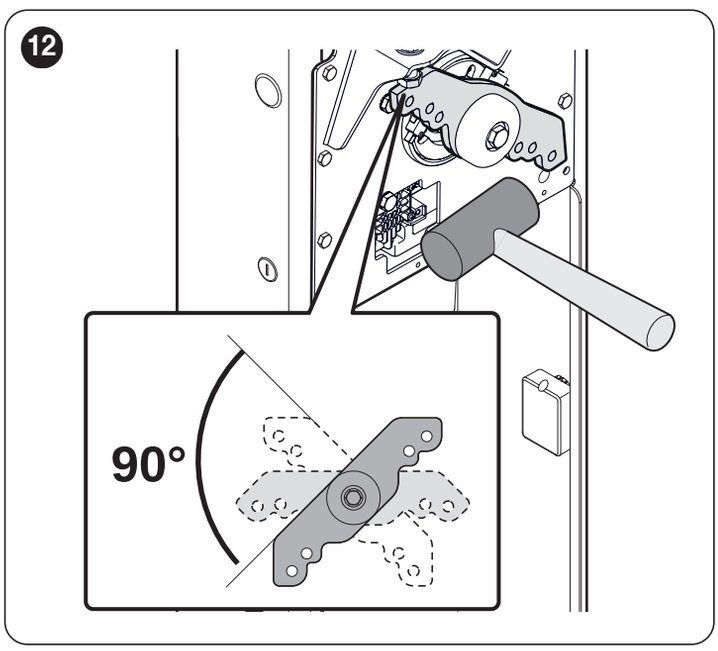


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5. remove the spring from the drilled plate, located at the base of the cubicle

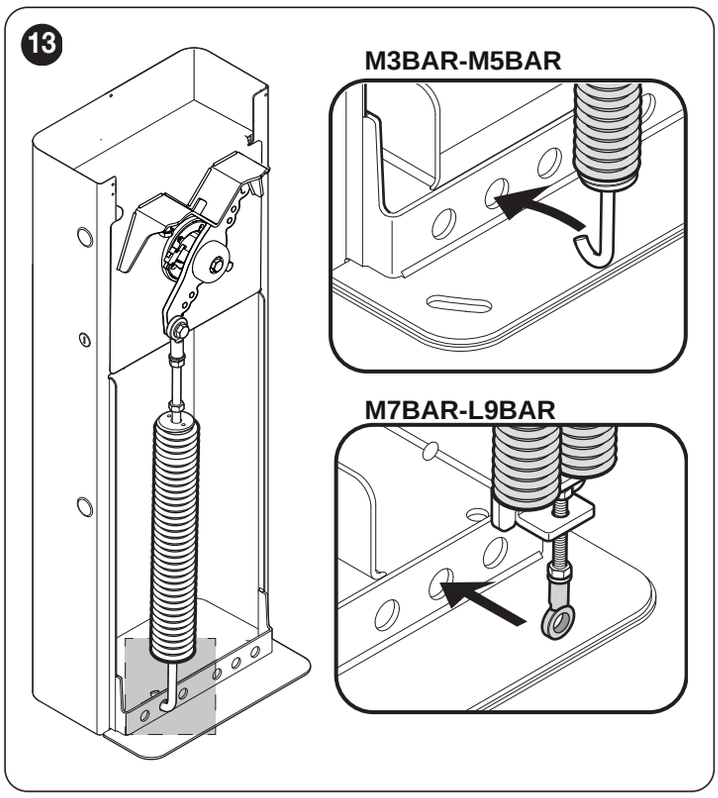


6. to set the boom's closing manoeuvre on the right of the cubicle, unlock the gearmotor (refer to the "***Manually unlocking and locking the gearmotor***" paragraph) and turn the balancing lever by 90°

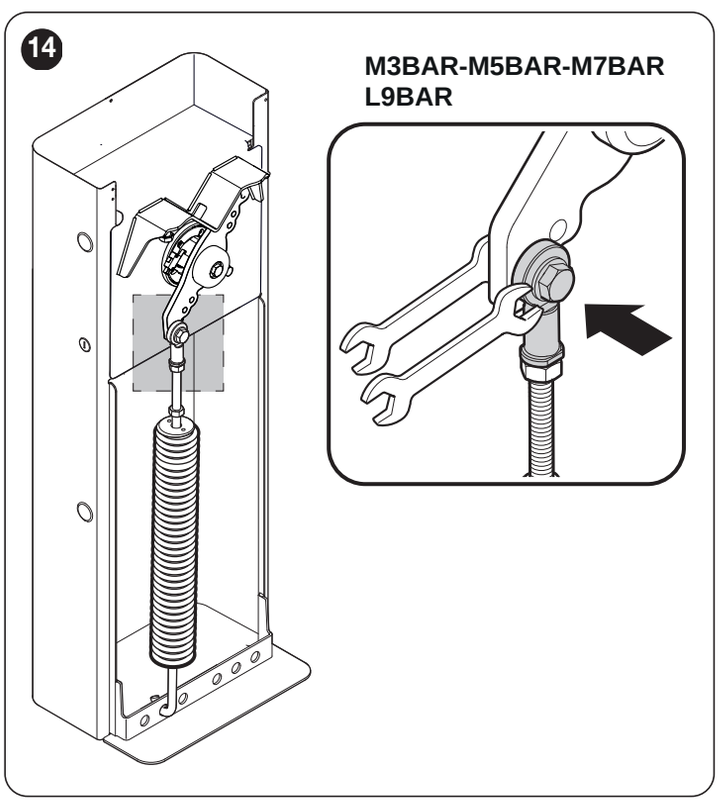


7. with the help of "***Figure 6***", identify the new holes to which to attach the two ends of the spring

8. fasten the spring to the drilled plate, located at the base of the cubicle



9. fasten the spring's eyelet to the balancing lever, tightening the bolt vigorously



10. if the gearmotor was previously unlocked, lock it again.

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3.7 INSTALLING THE GEARMOTOR

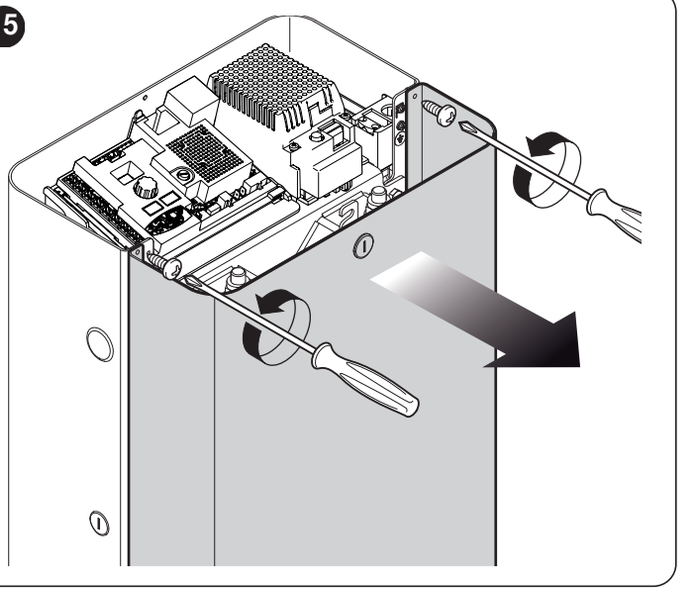
Incorrect installation may cause serious physical injury to the person working on the system or to its future users.

Before starting to assemble the automation, complete the preliminary checks described in the "*Pre-installation checks*" paragraph (page 4) and the "*Product usage limits*" paragraph (page 4).

If there is a support surface:

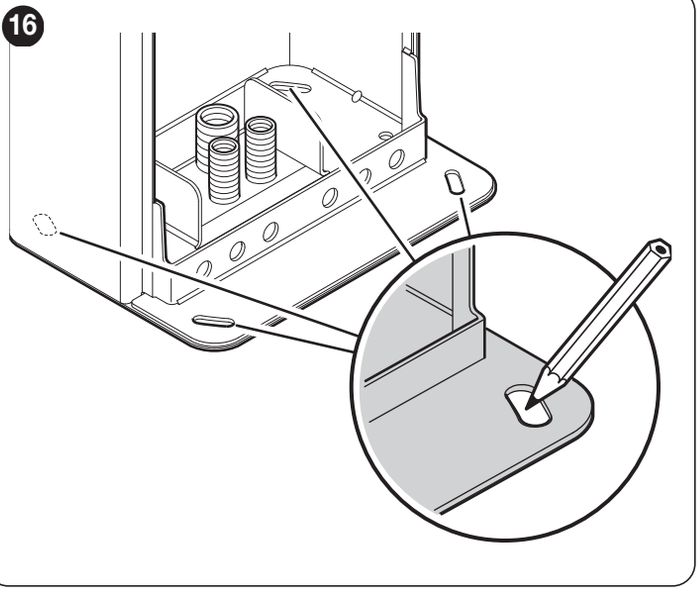
1. open the cubicle panel

15



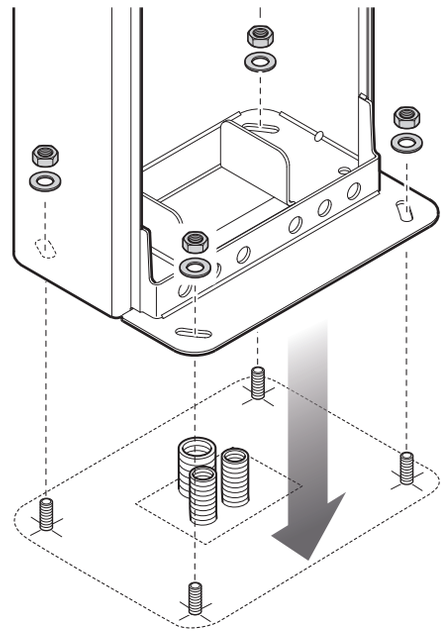
2. place the cubicle on the anchoring surface and mark the points corresponding to the slots

16



3. move the cubicle and drill the surface through the marked points
4. insert 4 expansion bolts (not supplied)
5. arrange the cubicle properly and secure it with the appropriate nuts and washers (not supplied).

17



If there is no support surface:

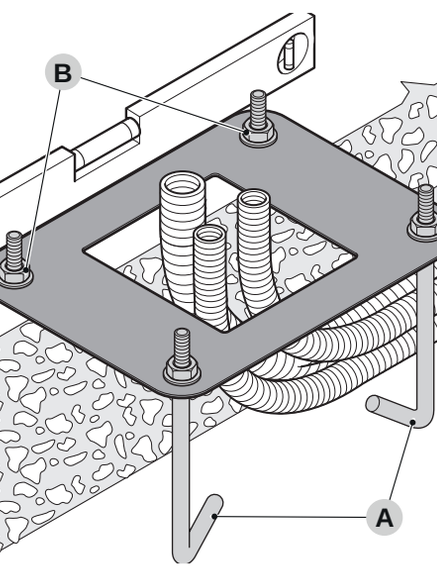
1. dig the hole to insert the foundation plate

Note The anchoring surface must be completely flat and smooth. If the surface is made of concrete, the latter must be at least 0,15 m thick and must be suitably reinforced with iron cages. The concrete must have a volume above 0.2 m^3 (a 0.25 m thickness corresponds to 0.8 m^2, that is, equal to a square base with sides each measuring roughly 0.9 m). The plate can be anchored to the concrete using the 4 expansion bolts, equipped with 12 MA screws capable of withstanding a tensile load of at least 400 kg. If the anchoring surface is made of a different material, it is necessary to verify its consistency and whether the four anchoring points can withstand a load of at least 1,000 kg. Use the 12 MA screws to fasten the plate.

2. arrange the pipes for routing the electrical cables
3. fasten the four anchor bolts (**A**) to the foundation plate, inserting a nut and washer (supplied) on each, on the upper and lower sides of the plate

The lower nut must be screwed up to the end of the thread.

18



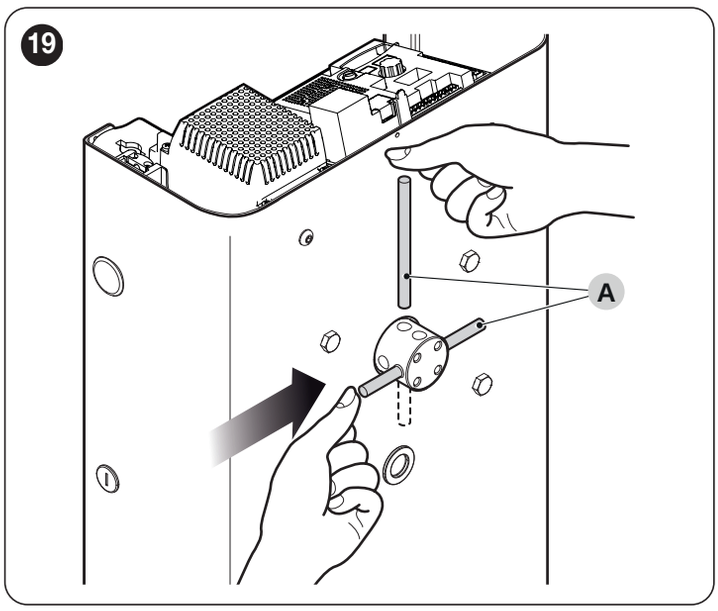
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4. pour the concrete and, before it starts to set, place the foundation plate flush with the surface, parallel to the boom and perfectly level
5. wait for the concrete to set completely, which generally takes two weeks
6. remove the four upper nuts and washers (**B**) from the anchor bolts
7. open the cubicle panel ("***Figure 8***")
8. arrange the cubicle properly and secure it with the appropriate nuts and washers removed previously ("***Figure 17***").

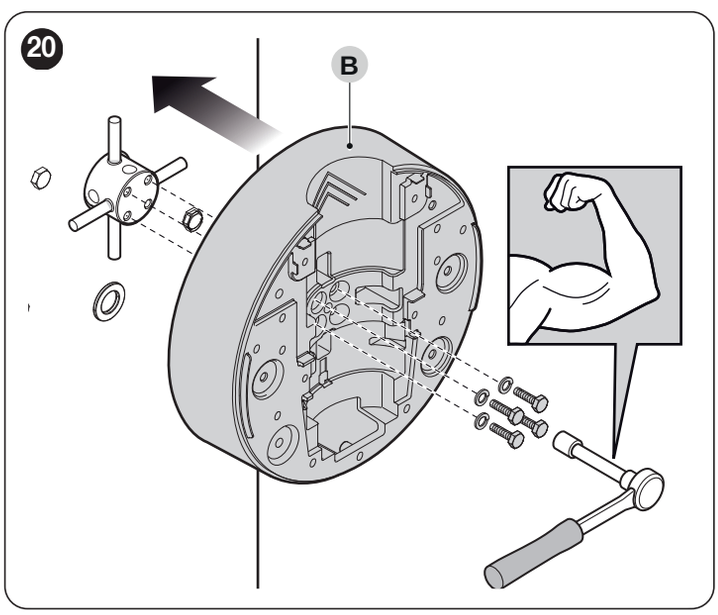
3.8 INSTALLING THE BOOM

Proceed as follows to mount the boom of the gate:

1. insert the two pins (**A**) through the appropriate housings on the exit motor shaft

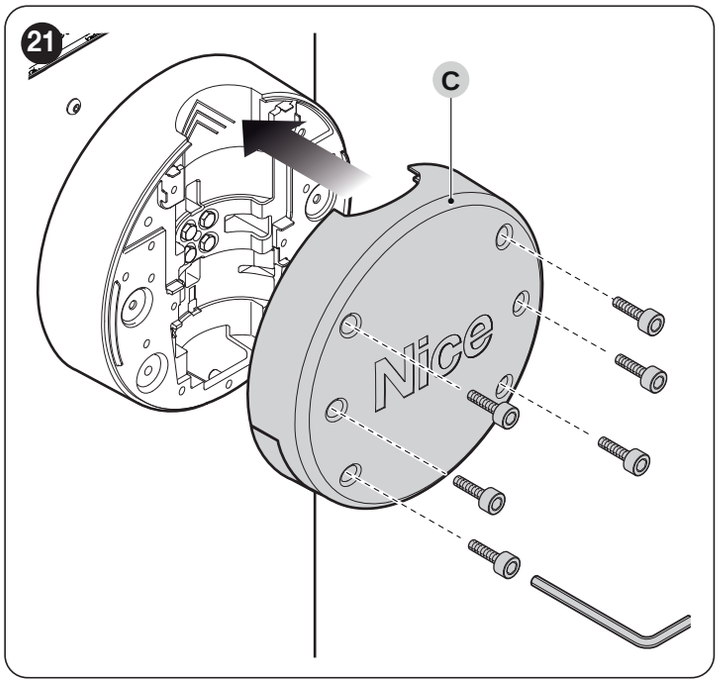


2. place the support (**B**) on the exit motor shaft, orienting it in the "vertical boom" position
3. fasten it with the appropriate screws and open Grower washers; tighten vigorously

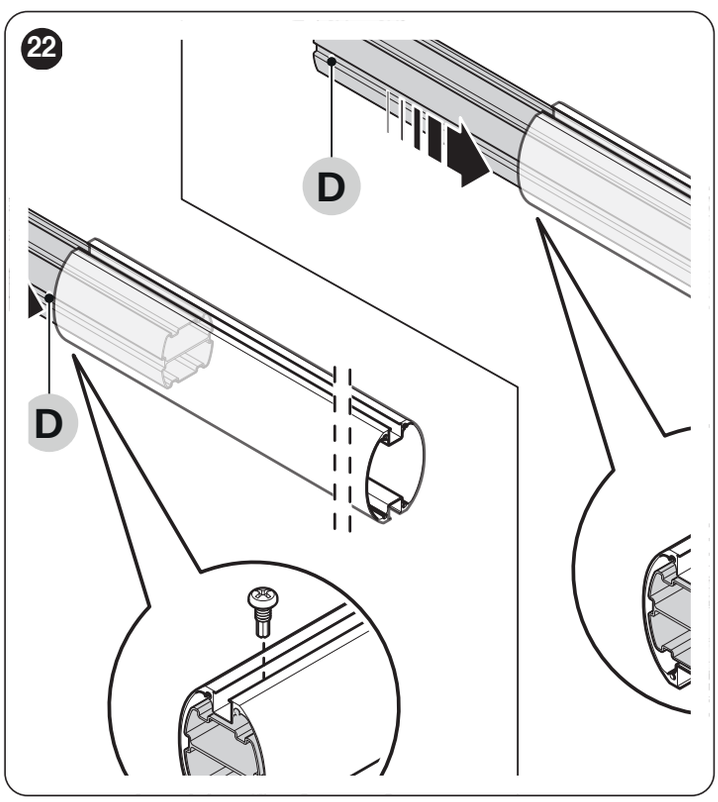


With booms consisting of two pieces, the shorter piece must be fastened to the cubicle.

4. position the cover (**C**) of the support and fasten it with the 6 screws provided; leave the screws loose

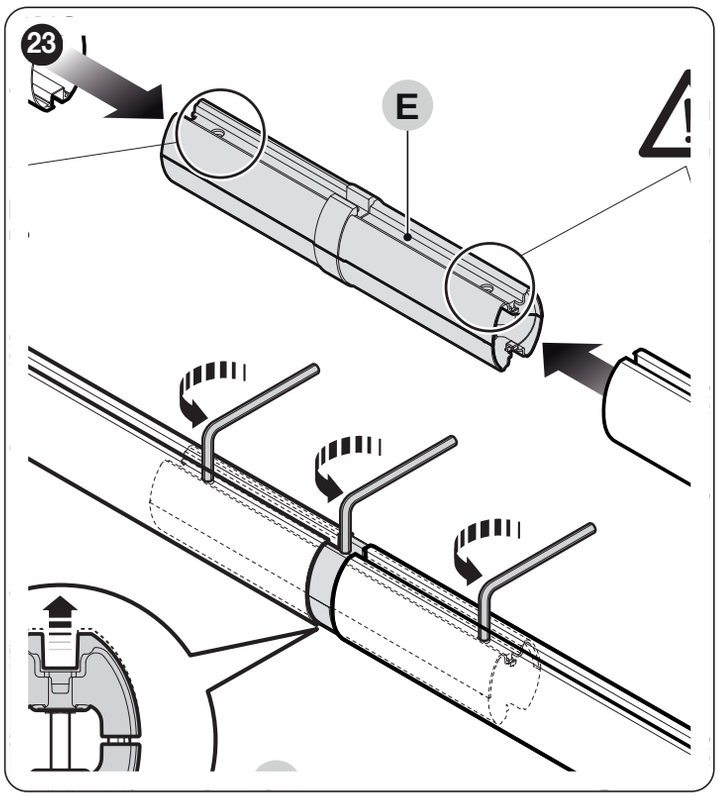


5. insert the aluminium connector (**D**) into one end of the shortest boom and lock it with the screw provided

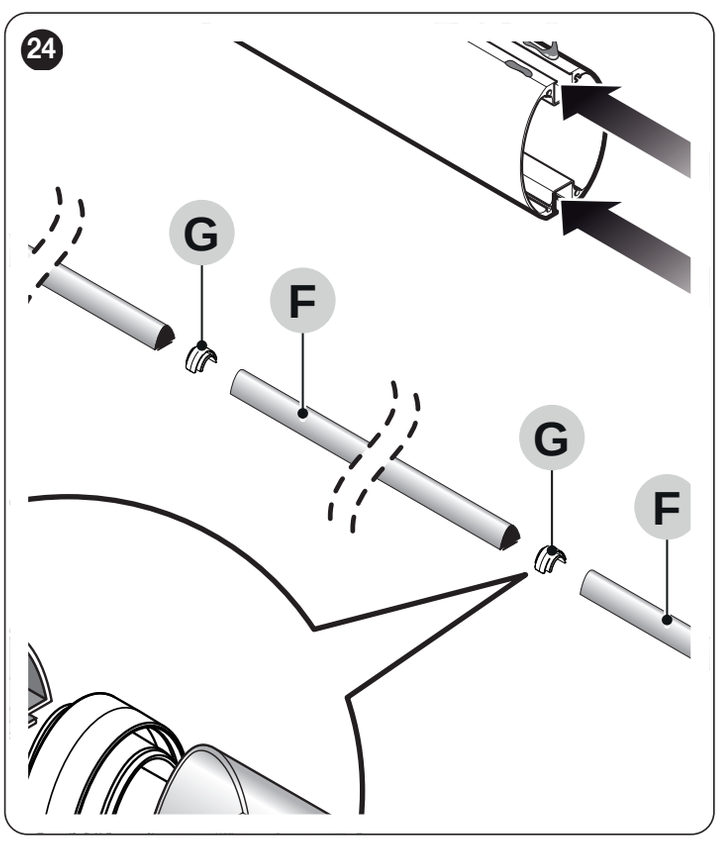


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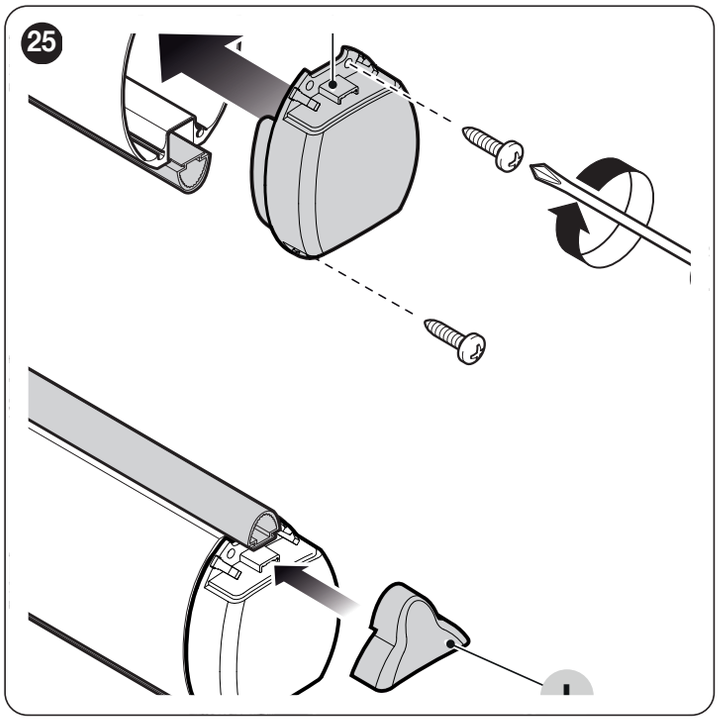
6. **only for booms made up of two pieces:** connect the universal joint (**E**) into the free ends of the two booms, aligning the holes correctly; loosen the three screws of the joint equally so that the latter can be fastened inside the booms



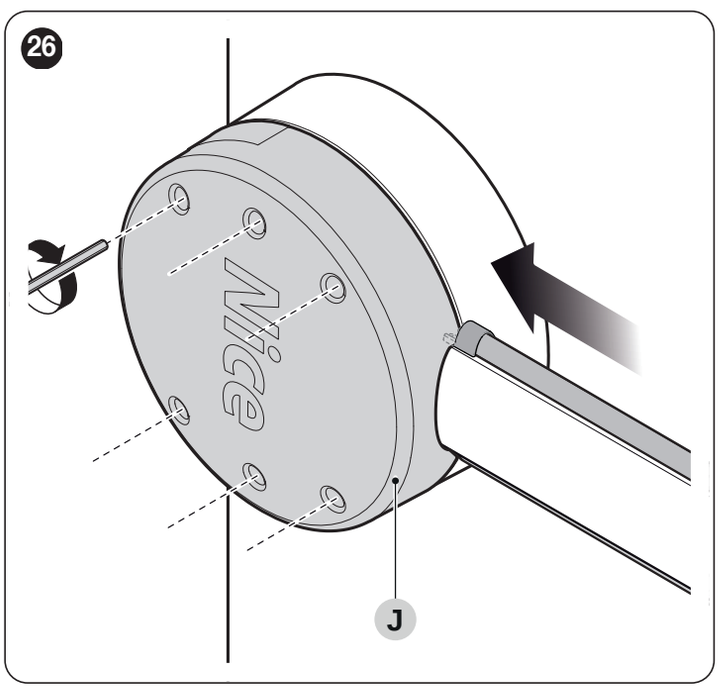
7. lightly oil the aluminium rail on both sides
8. along the entire length of the boom, insert the rubber impact protectors through the slots (**F**) alternating them with the relevant joints (**G**); the rubber protector can protrude roughly 1 cm from the end of the boom



9. put on the boom cap (**H**) and secure it with the two screws
10. position and fit together the two rubber protector caps (**I**)



11. insert the complete boom into the shell (**J**) of the support all the way to the end
12. vigorously tighten the 6 screws of the support inserted previously.



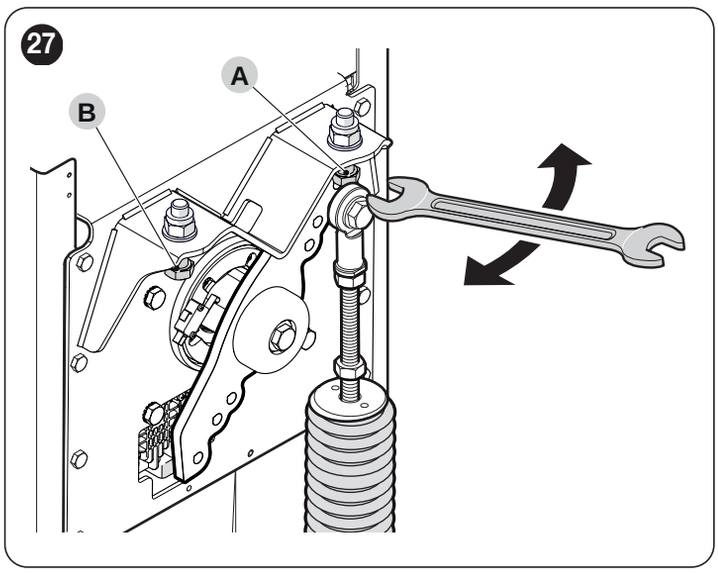
After installing the boom and the rubber impact protector, before proceeding further, the other accessories – if relevant – must be installed on the boom. To install them, refer to the respective instruction manuals.

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3.9 ADJUSTING THE MECHANICAL LIMIT SWITCHES

To adjust the limit switches, proceed as follows:

1. unlock the gearmotor with the relevant key provided (refer to the "***Manually unlocking and locking the gearmotor***" paragraph)
2. manually move the boom so that it completes a full opening and closing manoeuvre
3. turn the screws of the mechanical stops (**A - B**) to adjust the boom's horizontal position, when it is closed, and its vertical position, when it is open



4. after making the adjustments, tighten the nuts vigorously.

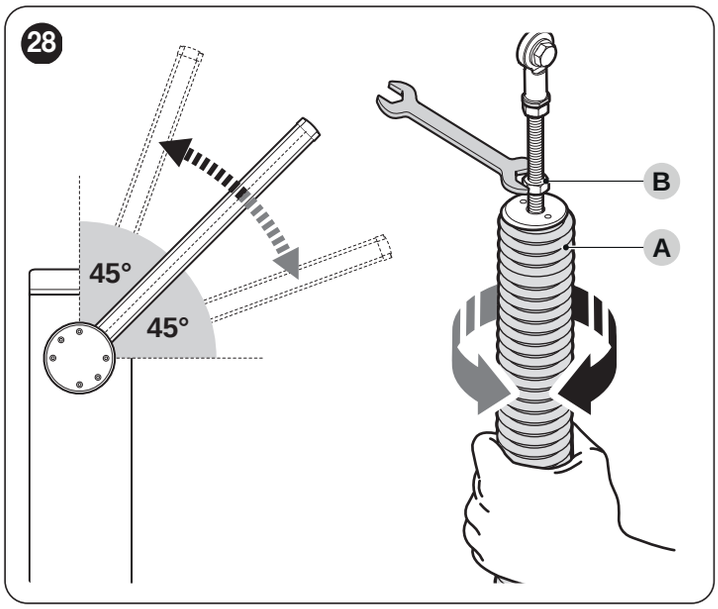
3.10 BOOM BALANCING

The boom balancing operation is used to find the best balance between the overall weight of the boom, inclusive of the installed accessories, and the force opposed by the tension of the balancing spring.
To verify the spring tension, proceed as explained below.

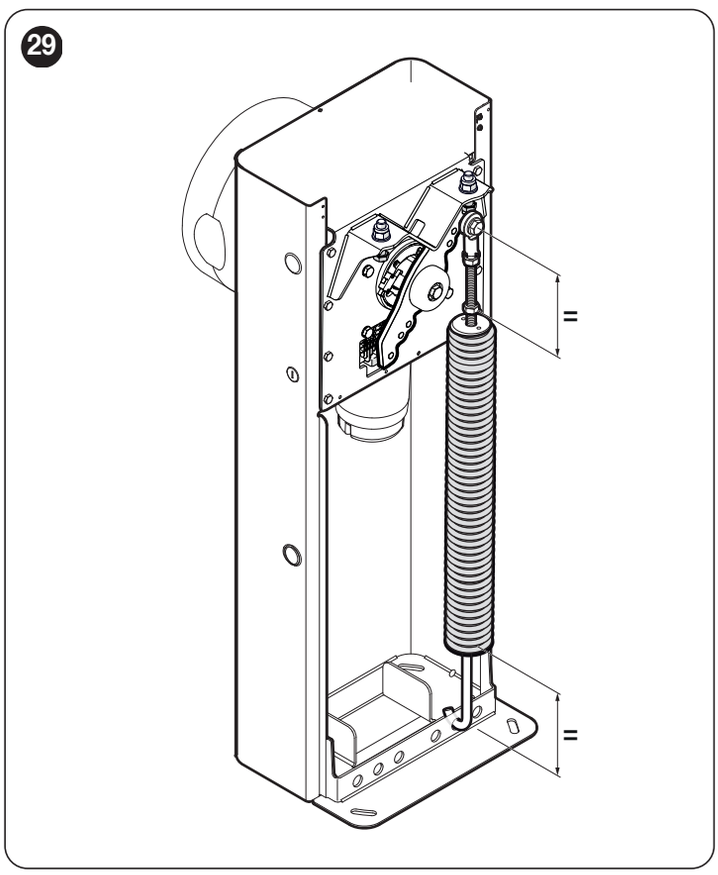
For models M-BAR ("*Figure 28*")

1. unlock the gearmotor with the relevant key provided (refer to the "***Manually unlocking and locking the gearmotor***" paragraph)
2. manually move the boom to about half-way (45°) and leave it stationary
3. if the boom tends to rise, reduce the tension of the spring (**A**) by manually turning the latter clockwise. On the other hand, if the boom tends to fall, increase the tension by manually turning the spring anti-clockwise.

Note The imbalance is acceptable when the force required to move the boom during the opening and closing manoeuvres and in all other positions is less than or equal to half the nominal value. The force required is therefore equal to roughly 1.5 kg for M3; 3.5 kg for M5; 4.5 kg for M7. The force is measured perpendicularly to the boom at 1 m from the rotation axis.



4. repeat the operation by positioning the boom also at roughly 20° and 70°. If the boom remains stationary in its position, it means that it is correctly balanced; a slight imbalance is allowed, but the boom must never move substantially



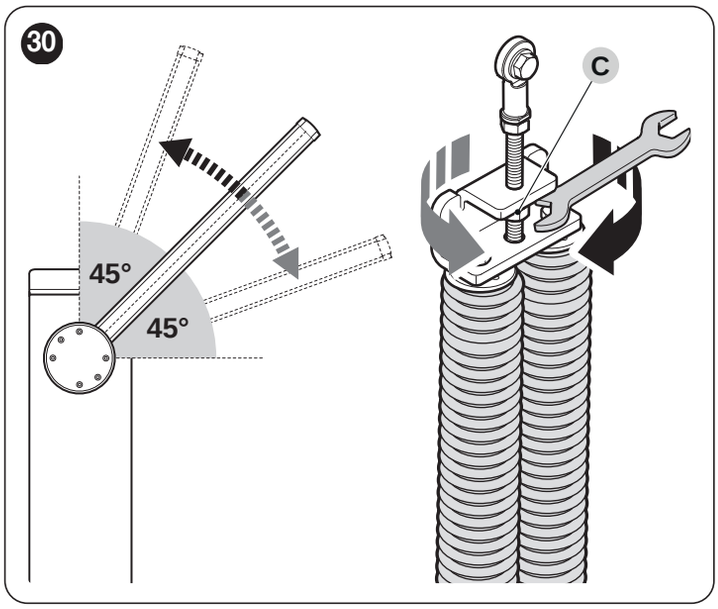
Note Check that the spring is equidistant from the two fixing points.

5. loosen the nut (**B**) to block the balancing spring
6. lock the gearmotor.

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For models L-BAR (“*Figure 30*”)

1. unlock the gearmotor with the relevant key provided (refer to the “***Manually unlocking and locking the gearmotor***” paragraph)
2. manually move the boom to about half-way (45°) and leave it stationary
3. if the boom tends to rise, reduce the tension of the spring by turning the nut (**C**) clockwise. On the other hand, if the boom tends to fall, increase the spring tension by manually turning the nut (**C**) anti-clockwise.



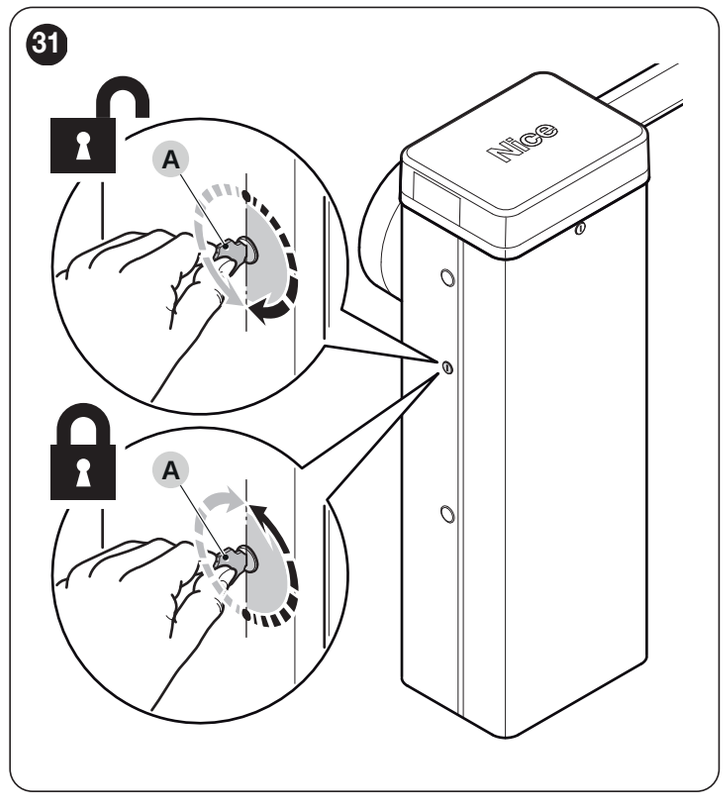
Note The imbalance is acceptable when the force required to move the boom during the opening and closing manoeuvres and in all other positions is less than or equal to half the nominal value. The force required is therefore equal to roughly 6.5 kg. The force is measured perpendicularly to the boom at 1 m from the rotation axis.

4. repeat the operation by positioning the boom also at roughly 20° and 70°. If the boom remains stationary in its position, it means that it is correctly balanced; a slight imbalance is allowed, but the boom must never move substantially
5. lock the gearmotor.

3.11 MANUALLY UNLOCKING AND LOCKING THE GEARMOTOR

The gearmotor is equipped with a mechanical unlocking system that allows for opening and closing the boom 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. insert the key (**A**) and turn it by 180° towards the left or right



2. the gate leaf can now be moved manually to the desired position.

To lock the device:

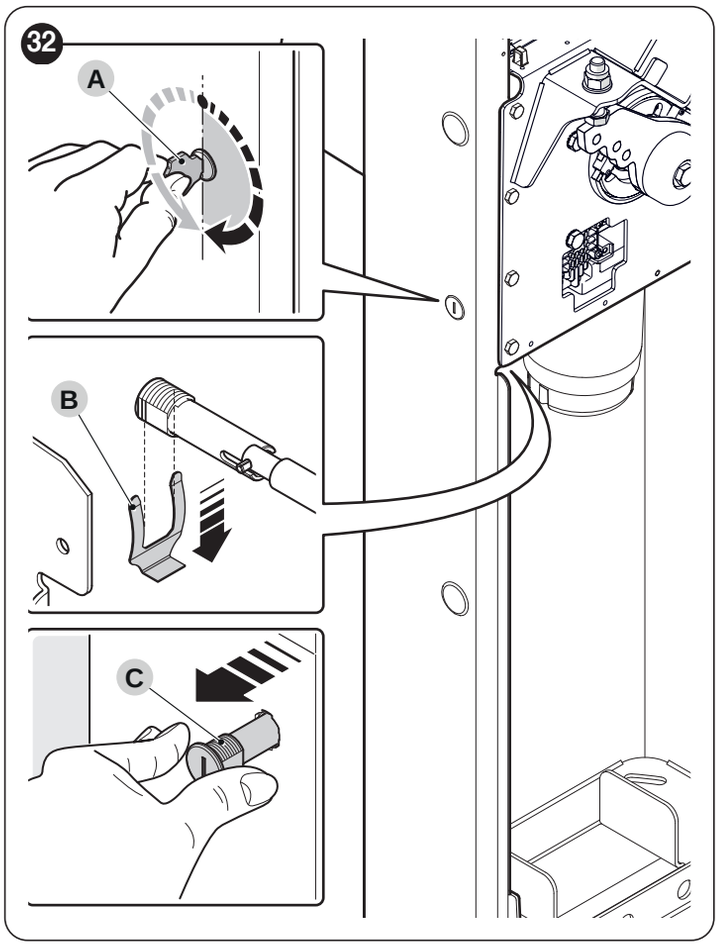
1. turn the key (**A**) back to its initial position
2. remove the key.

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To shift the lock cylinder to the opposite side of the gearmotor:

1. insert the key (**A**) and turn it by 180° clockwise
2. from inside the cubicle, pull downwards the U-shaped spring (**B**) that locks the lock cylinder
3. remove the cylinder (**C**) from the cubicle by pulling it outwards

32

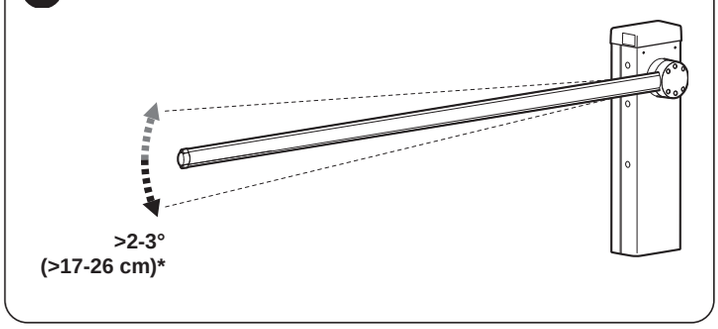


4. remove the rubber cap on the opposite side of the cubicle and insert the lock cylinder through the hole
5. from inside the cubicle, insert from bottom to top the U-shaped spring to lock the lock cylinder
6. turn the key (**A**) back to its initial position
7. remove the key.

3.12 DETECTION AND ADJUSTMENT OF ROD PLAY

If you notice a sway when closing/opening of more than 2-3° degrees (17-26 cm), the adjustment screw must be adjusted.

33

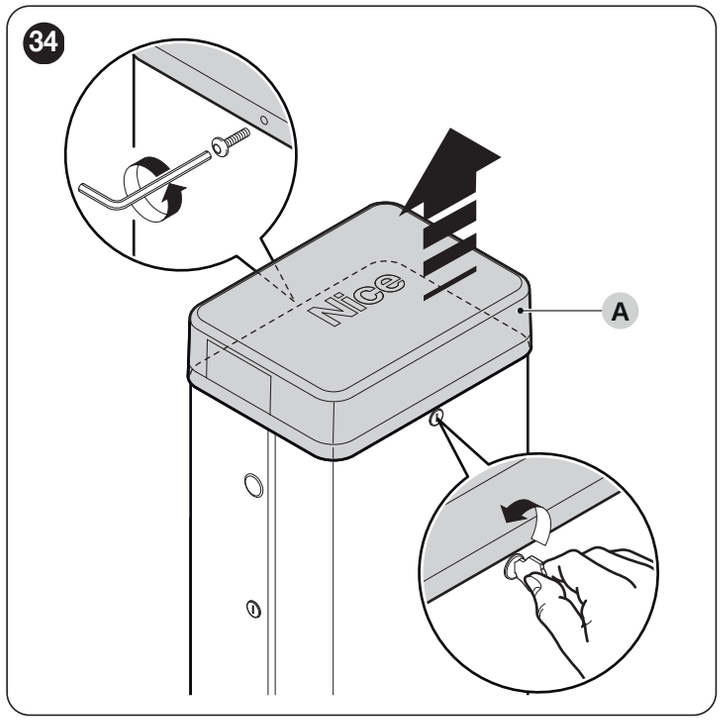


(*) Example for rod length 5 metres.

To make the adjustment proceed as follows:

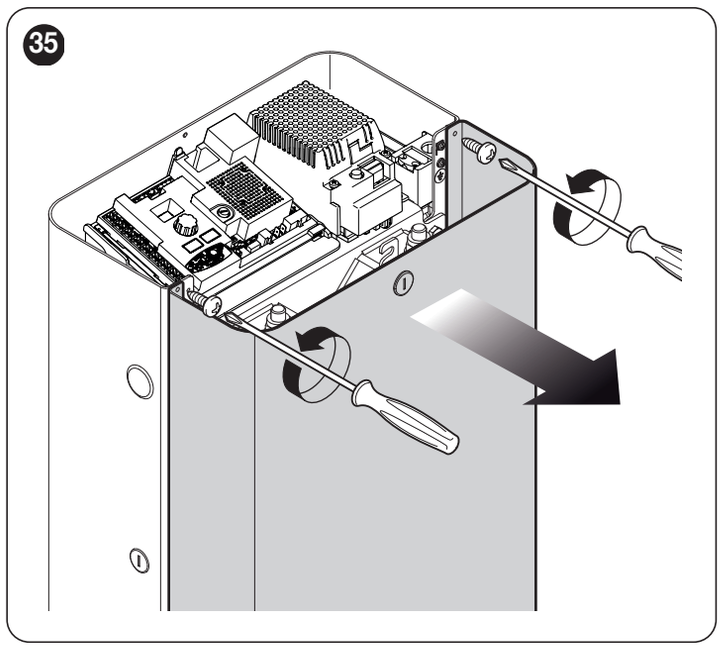
1. remove the upper cover (**A**) of the boom gate cubicle

34



2. loosen the two screws fastening the cubicle panel

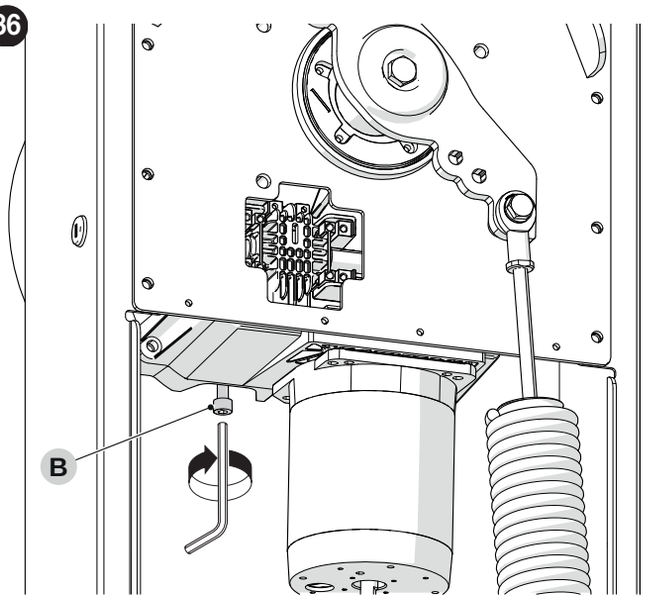
35



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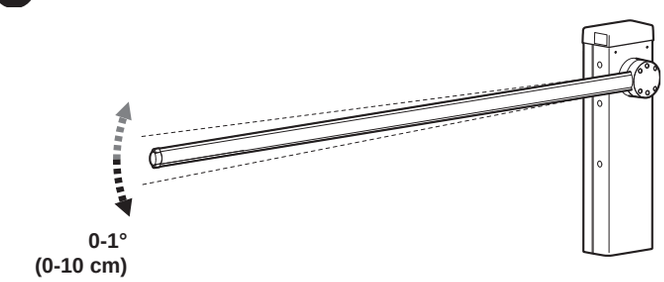
3. turn the screw 90° anticlockwise by (**B**).

36



Once the adjustment has been made, the swing range should be within 0-1° (0-10 cm) maximum.

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4 ELECTRICAL CONNECTIONS

4.1 PRELIMINARY CHECKS

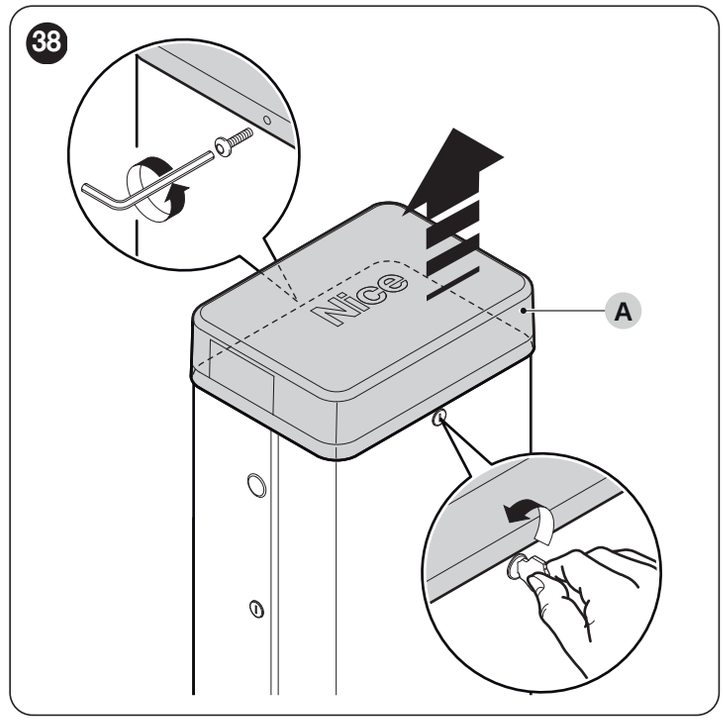
All electrical connections must be made with the system disconnected from the mains electricity and with the emergency power supply (if present in the automation) disconnected.

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

To make the electrical connections:

1. remove the upper cover (**A**) of the boom gate cubicle

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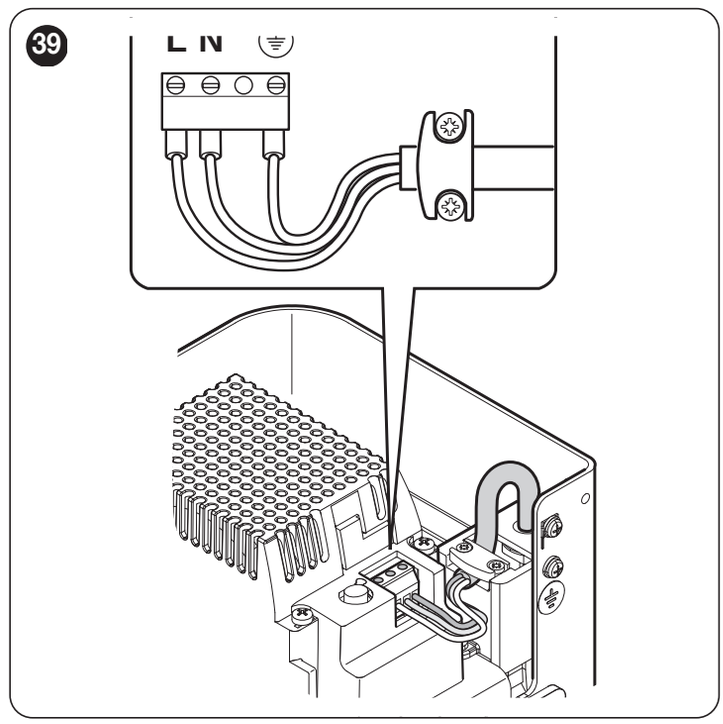


2. feed the electrical cables inside the cubicle towards the left, starting from the base and moving towards the control unit

3. feed the power supply cable through the cable clamp and connect it to the 3-contact terminal with fuse

4. tighten the screw of the cable clamp

39

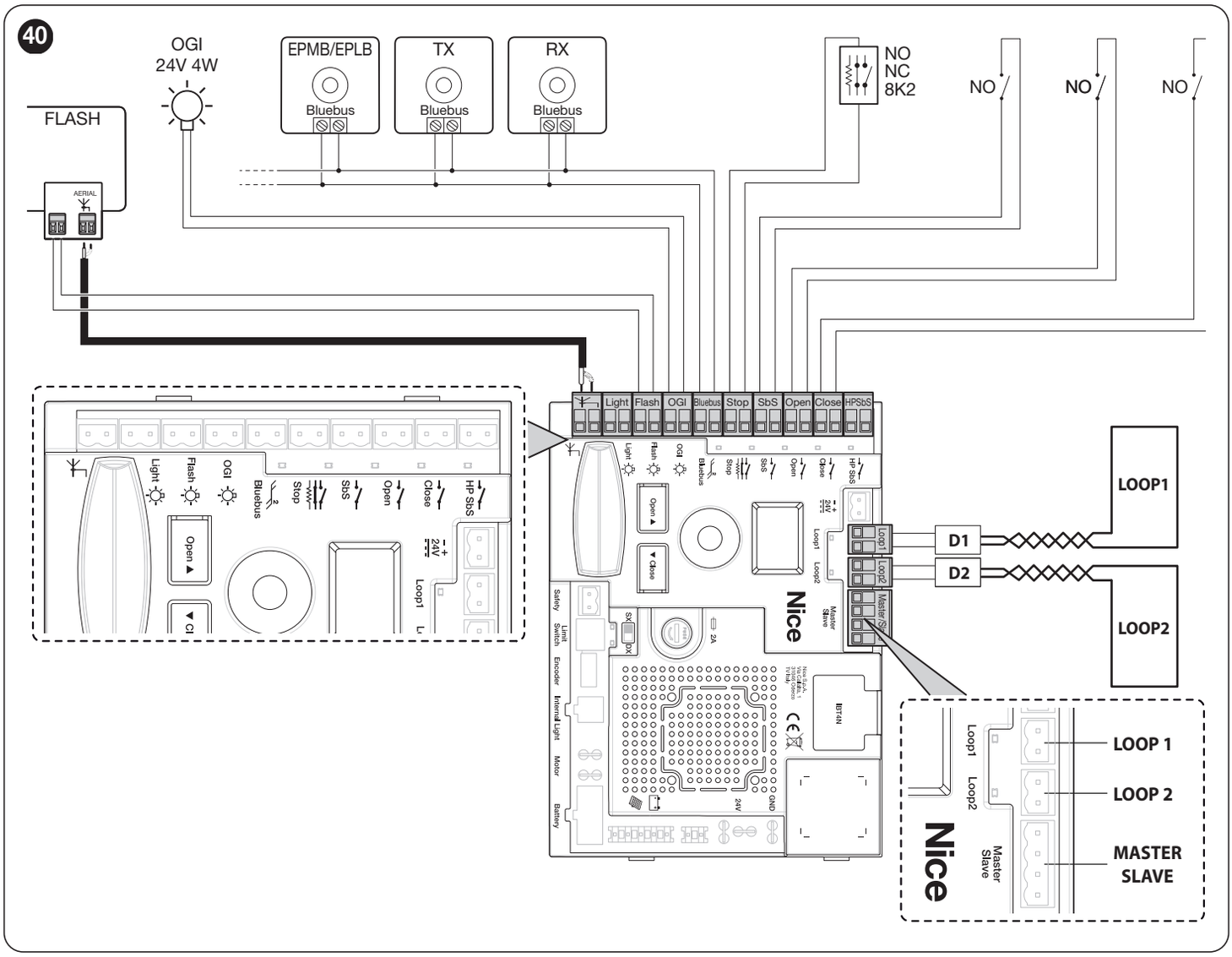


5. connect the remaining cables, by consulting the wiring diagram in "***Figure 40***". For greater convenience, the terminals are removable.

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4.2 WIRING DIAGRAM AND DESCRIPTION OF CONNECTIONS

4.2.1 WIRING DIAGRAM



4.2.2 DESCRIPTION OF CONNECTIONS

Table 4

ELECTRICAL CONNECTIONS	
Terminals	**Description**
LIGHT	output for “Boom Lights” warning light; it is possible to connect 24 V maximum 10 W warning devices. It can also be programmed for other functions (refer to the “***PROGRAMMING***” chapter) or reconfigured through the Oview programmer. LED strips R+G XBA40, XBA60, XBA80 can be connected by changing the programming.
FLASH	Output for warning light; it is possible to connect 12 V max 21 W lamps or a **Nice LUCY B**, **MLB** or **MLBT** warning light. It can also be programmed for other functions (refer to the “***PROGRAMMING***” chapter) or reconfigured through the Oview programmer.
OGI	“Open Gate Indicator” output; it is possible to connect a 24 V (maximum 10 W) signalling light. It can also be programmed for other functions (refer to the “***PROGRAMMING***” chapter) or reconfigured through the Oview programmer. LED strips R+G XBA40, XBA60, XBA80 can be connected by changing the programming.
BLUEBUS	This terminal can be used to connect compatible devices, which are all connected in parallel with only two wires carrying both the electric power and communication signals. For further information on the BlueBUS, refer to the “***BlueBUS***” paragraph.
STOP	Input for devices that through their intervention trigger the immediate stoppage of the current manoeuvre followed by a brief reversal. “Normally Closed” and “Normally Open” contacts, as well as constant resistance devices, can be connected using special procedures on the input. For further information on the STOP function, refer to the “***STOP input***” paragraph.
SbS	Input for devices that control the movement in Step-by-Step mode; it is possible to connect “Normally Open” contacts.

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ELECTRICAL CONNECTIONS	
Terminals	**Description**
OPEN	Input for devices that control the opening movement only; it is possible to connect “Normally Open” contacts.
CLOSE	Input for devices that control the closing movement only; it is possible to connect “Normally Open” contacts.
HP Sbs	input for devices that control the movement in the high-priority Step-by-Step mode and move the automation even if when it is in the stalled status; it is possible to connect “Normally Open”-type contacts.
ANTENNA	input for connecting the radio receiver antenna; the antenna is incorporated in **Nice LUCY B, MLB and MLBT** warning lights.
INTERNAL LIGHT	Output used to connect the LED warning light board (XBA7) or the LED traffic light board (XBA8). Moreover, the diagnostics flashes are carried out. It can be programmed, refer to the “***PROGRAMMING***” chapter.
LOOP1	“Normally Open” contact to connect a metal detector D1. The operating modes associated with this input can be modified through the control unit programmer (refer to the “***Loop detector***” paragraph).
LOOP2	“Normally Open” contact to connect a metal detector D2. The operating modes associated with this input can be modified through the control unit programmer (refer to the “***Loop detector***” paragraph).
MASTER-SLAVE	Input for connecting two barriers in Master-Slave mode (refer to the “***Gearmotor in SLAVE mode***” paragraph).
SAFETY	“Normally Closed” contact for connecting the “Pivoting boom” contact (optional accessory).

If the programming of the outputs is modified, check that the connected device matches the type of voltage chosen.

5 FINAL CHECKS AND START-UP

5.1 BARRIER TYPE SELECTION

The controller has a set of dip-switches (**A**) in the OXI receiver slot, allowing to identify the type of barrier. The dip-switches are factory set: their meanings are given in the following table.

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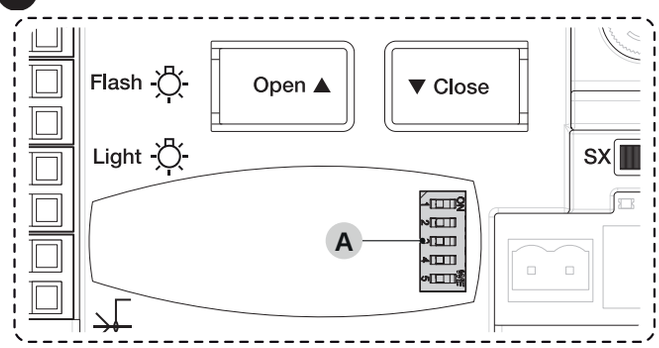


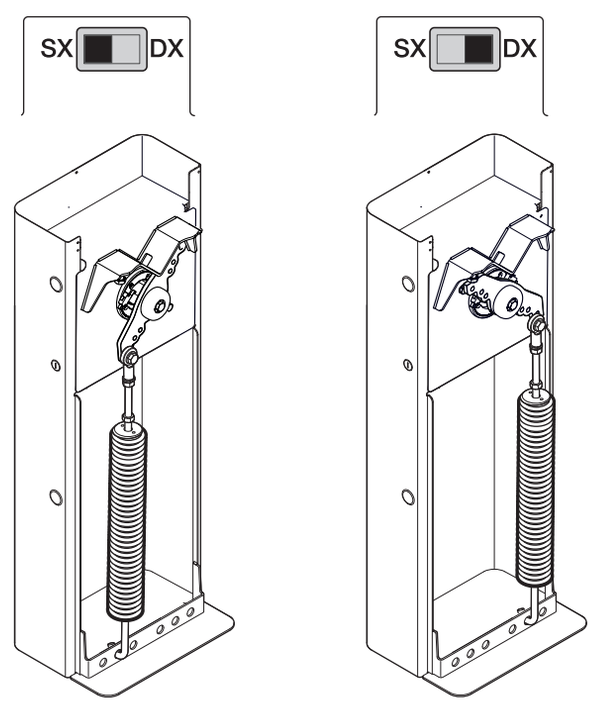
Table 5

BARRIER TYPE SELECTION					
Meaning of configuration	**Configuration**				
	Dip 1	**Dip 2**	**Dip 3**	**Dip 4**	**Dip 5**
Configuration not allowed	OFF	OFF	OFF	OFF	OFF
Installation M3BAR	ON	OFF	OFF	OFF	OFF
Installation M5BAR	OFF	ON	OFF	OFF	OFF
Installation M7BAR	OFF	OFF	ON	OFF	OFF
Installation L9BAR	OFF	OFF	OFF	ON	OFF
Configuration not allowed	OFF	OFF	OFF	OFF	OFF

5.2 CHOOSING THE DIRECTION

Choose the direction of the opening manoeuvre on the basis of the gearmotor’s position.
Set the switching device as follows:
- set it to the RH if the spring is attached to the right-hand side of the balancing lever (factory setting)
- set it to the LH if the spring is attached to the left-hand side of the balancing lever

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5.3 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.

Connect the control unit to a power line equipped with a safety earthing system. Install a circuit breaker with a contact gap that ensures full disconnection in the Category III overvoltage conditions, or mount a plug and socket system.
As soon as the product is powered, a few simple checks should be carried out:

1. check that the display switches on.
2. make sure that the LEDs on the photocells (both the TX and RX) also flash; the type of flashing is irrelevant, since it depends on other factors.
3. check that the device connected to the FLASH output or the LED warning light XBA7 is switched off (with factory setting).

If the above conditions are not satisfied, immediately switch off the power supply to the control unit and carefully check the electrical connections.
Further useful information on fault search and diagnosis is included in the "***Troubleshooting***" paragraph (page 30).

5.4 DEVICE LEARNING

After connecting the power supply, the control unit must learn the devices connected to the "**BlueBUS**" and "**STOP**" inputs.

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

Start the procedure by activating parameter **Set 1** (refer to the chapter "***PROGRAMMING***").
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.

5.5 LEARNING OF THE MECHANICAL STOP POSITIONS

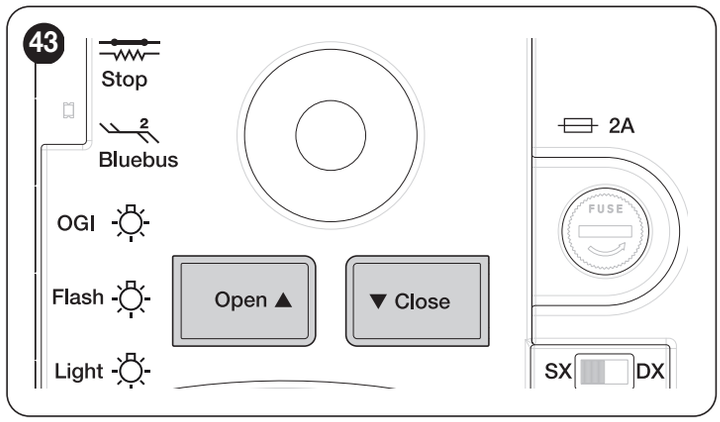
Once the connected devices have been learned, the mechanical stop positions must be learned (maximum opening and maximum closing).
To do this:

1. unlock the gearmotor with the relevant key provided (refer to the "***Manually unlocking and locking the gearmotor***" paragraph)
2. manually move the boom to about half-way (45°) and leave it stationary
3. lock the gearmotor
4. start the level search procedure by activating parameter **Set 2** (refer to the chapter "***PROGRAMMING***")
5. while the manoeuvres are being executed, make sure that the boom's balancing lever strikes the mechanical stops of the limit switch. If this does not occur, stop the procedure by pressing encoder (**A**), adjust the mechanical stops of the limit switch and repeat the procedure from the beginning

Do not interrupt the execution of the manoeuvres: if this occurs, the entire procedure must be repeated from the beginning.

5.6 CHECKING THE BOOM'S MOVEMENT

Once the learning stage is complete, it is advisable to carry out a few manoeuvres in order to verify that the boom gate moves properly.

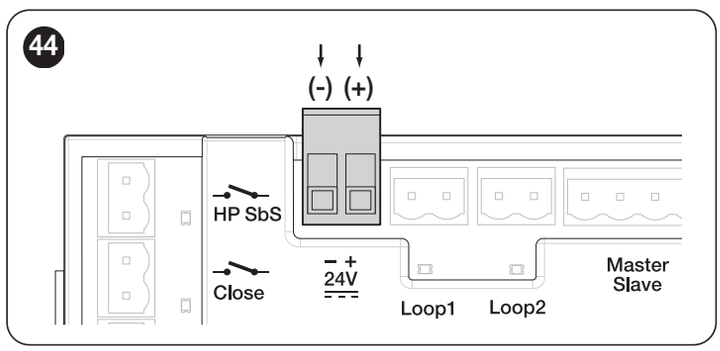


To do this:

1. press the **[Open ▲]** button to command an "Open" manoeuvre; check that the boom starts slowing down before reaching the open position
2. press the **[Close ▼]** button to command a "Close" manoeuvre; check that the boom starts slowing down before reaching the closed position
3. during the manoeuvre, check that the LED warning light, if present, flashes alternatively on and off every 0.5 seconds
4. open and close the gate several times to make sure that there are no points of excessive friction and that there are no defects in the assembly or adjustments.

5.7 CONNECTING OTHER DEVICES

If the user needs to power external devices, such as a radio receiver or the light of the key selector switch, power can be tapped as shown in the figure.
The power supply voltage is 24V⎓ -30% ÷ +10% with a maximum available current of 500mA.



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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 12445 standard, which defines the test methods for checking gate automations.

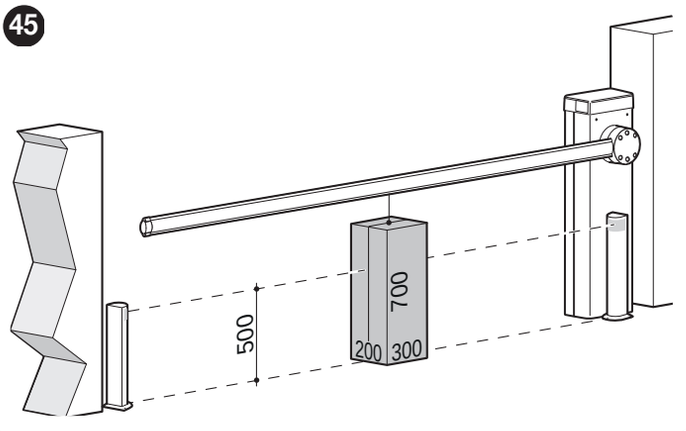
The additional devices must undergo specific testing, both in terms of their functions and their proper interaction with the control unit. Refer to the instruction manuals of the individual devices.

6.1 TESTING

To run the test:

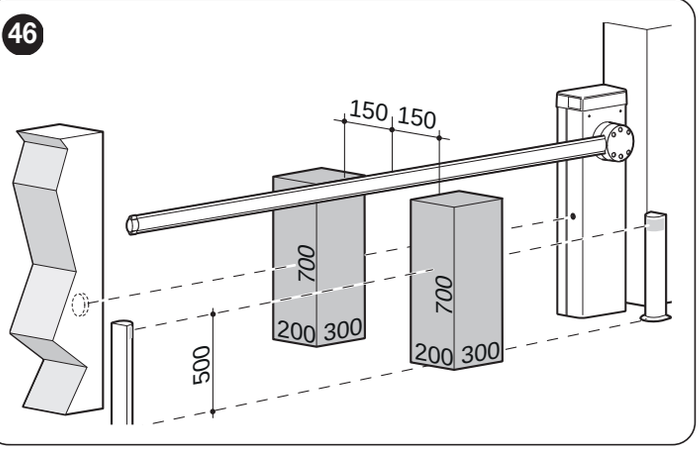
1. verify that all the instructions stated in the "***GENERAL SAFETY WARNINGS AND PRECAUTIONS***" chapter (page 2) have been strictly observed
2. check that the boom is correctly balanced (see paragraph "***Boom balancing***")
3. check that the manual unlocking device works properly (see paragraph "***Manually unlocking and locking the gearmotor***")
4. using the control devices (transmitter, control push-button, key selector, etc.), test the boom opening, closing and stopping phases, ensuring that the movement matches the specifications. Several tests should be conducted to assess the boom's movement and to check for any assembly or adjustment defects or any particular points of friction
5. verify the correct operation of all the safety devices present, one-by-one (photocells, sensitive edges, etc.)
6. verify the correct operation of the photocells in the following way:
   - depending on whether one or two pairs of photocells have been installed, one or two blocks of rigid material (e.g. wooden panels) are required, measuring 70x30x20 cm. Each block must have three sides of reflective material (e.g. mirror or glossy white paint), one for each dimension, and three sides of opaque material (e.g. matt black paint). To test the photocells positioned 50 cm above the ground, the block must be placed on the ground, or raised to 50 cm when testing photocells positioned 1 m above the ground
   - if the test is on **a pair of photocells**, the testing block must be placed directly under the centre of the boom with the 20 cm sides facing the photocells and moved along the entire length of the boom

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   - if the test is on **two pairs of photocells**, the test must first be performed individually for each pair of photocells using one testing block and then repeated using two testing blocks; each testing block must be positioned laterally in relation to the centre of the boom, at a distance of 15 cm and then moved along the entire length of the boom

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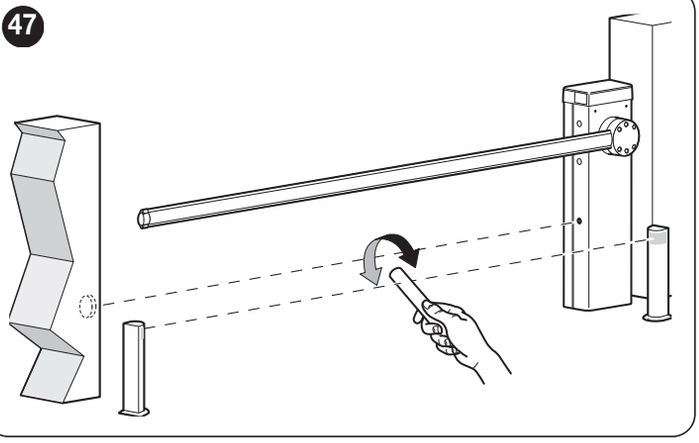


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– during these tests, the testing block must be detected by the photocells in any position it lies along the entire length of the boom

7. check that there are no interferences between the photocells and other devices:
– block the line of sight between the pair of photocells with a cylinder (diameter 5 cm, length 30 cm), by moving it close to the TX photocell first then next to the RX photocell and then at the mid-point between the two

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– check that the device intervenes in all cases, switching from the active to the alarm status and vice-versa
– check that it triggers the intended action in the control unit (e.g. a reversal of the movement during the closing manoeuvre)

8. **check on the safeguard against the lifting hazard**: in automations with vertical movement it is necessary to verify that there is no lifting hazard. This test can be carried out in the following way:
– hang a 20 kg load (e.g. a sand bag) midway along the boom's length
– send an opening command and check that during the manoeuvre the boom does not exceed a height of 50 cm above its closed position
– if the boom exceeds this height, the motor force must be reduced (refer to the chapter "***PROGRAMMING***")

9. if potentially dangerous situations due to the boom's movement have been prevented by limiting the impact force, the latter must be measured according to the EN 12445 standard and, if the "motor force" control is used to aid the system in reducing the impact force, it is necessary to test various adjustments to find the one that gives the best results

10. **checking the efficiency of the unlocking system**:
– put the boom in the closed position and manually unlock it (see paragraph "***Manually unlocking and locking the gearmotor***")
– verify that this occurs smoothly
– verify that the manual force to move the boom during the opening phase does not exceed 200 N (roughly 20 kg)
– the force is measured perpendicularly to the boom at 1 m from the rotation axis

11. **verification of the power supply disconnection system:** operate the power disconnection device and disconnect any available back-up batteries; check that all the LEDs on the control unit are OFF and that the boom remains stationary when a command is sent. Check the efficiency of the locking system to prevent any unintentional or unauthorised connection.

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.

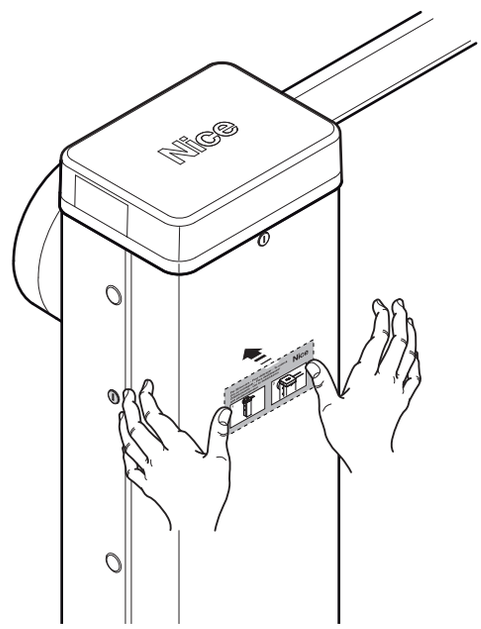
The gate cannot be commissioned partially or under "temporary" conditions.

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 on the cubicle specifying the operations for unlocking the gate and manoeuvring it manually "***Figure 48***"

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3. affix a data plate to the cubicle 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.

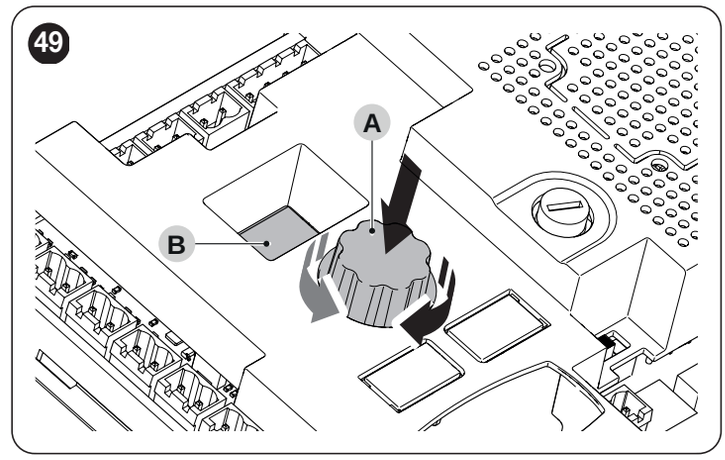
For all the above-mentioned documentation, Nice – through its technical assistance service – provides the following: instruction manuals and guides.

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7 PROGRAMMING

The control unit can be programmed by rotating the incremental encoder (**A**), pressing the same encoder vertically and using the display (**B**).

Refer to "*Table 6*" for the complete list of parameters and the relative selectable values.



7.1 PROGRAMMING THE CONTROL UNIT

Turning clockwise or anti-clockwise the encoder (**A**) allows for scrolling on the display (**B**) the parameters shown in "***Table 6***", which identify the Level 1 menu.
After identifying the desired Level 1 parameter, on the basis of the required programming, press and release the encoder (**A**) to move to Level 2, where the value appears of the memorised or default parameter (fixed display) appears referred to the Level 1 parameter just selected.
Turning the encoder (**A**) causes the Level 2 values to scroll (flashing display). After selecting the value by pressing the encoder (**A**), the selected value is memorised and the system returns to Level 1.
Among the optional values that can be displayed there are "ESC" and "---": after selecting "ESC" by pressing and releasing the encoder (**A**), the system returns to the Level 1 parameters without modifying the programming, while the value "---" identifies the programming made through the Oview external programmer. This value cannot be selected as a mere Level 2 parameter.

Table 6

PROGRAMMING PARAMETERS			
Meaning	**Level I parameters**	**Level II parameters**	**Effect after pressing the encoder (A)**
Quick set-up	8.8.8.	-	Starts learning of the Bluebus, Stop and level learning devices in sequence, one after another
Installation	SEt	1	Learning of devices connected to the Bluebus and Stop terminals
		2	Learning of the opening and closing positions: the boom stroke value is measured, from the closing mechanical stop to the opening mechanical stop
Programme	Prn	000	**Base default firmware**
		001	Firmware 1 (Personalisation of the base firmware, not used)
		002	Firmware 2 (Personalisation of the base firmware, not used)
		003	Firmware 3 (Personalisation of the base firmware, not used)
Type of operation	F01	oFF	**Semi-automatic operation**
		on	Automatic operation: following an opening manoeuvre, once the pause time has elapsed, a closing manoeuvre starts automatically
Close after photo Allows for keeping the boom in the opening position for the time strictly necessary for the transit of people or vehicles; an intervention of the safety devices automatically triggers a closing manoeuvre after the "Close after photocell time" has elapsed	F02	oFF	**Function excluded**
		1	Function active in the "Open until disengage" mode: the intervention of a safety device causes the boom to stop; when the device is disengaged, counting of the "Close after photocell" counter starts, after which a closing manoeuvre starts automatically
		2	Function active in the "Open all" mode: the intervention of a safety device causes the boom to reverse up to the "Open" position, where counting of the "Close after photocell time" counter starts, after which a closing manoeuvre starts automatically. Note: a command triggering an opening manoeuvre during the "Close after photocell time" prevents the gate from closing again.
		3	Function active with the "Close all 2" mode: behaviour similar to the "Open all" mode but, in this case, a command triggering the opening manoeuvre does not prevent the gate from re-closing
Safety device for "Close after photocell" Allows for selecting which safety device triggers the re-closing of the gate after the intervention of the photocells	F03	1	**Photocells and loop (configured as photocells)**
		2	Photocells only
		3	Loop only (configured as photocells)

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PROGRAMMING PARAMETERS			
Meaning	**Level I parameters**	**Level II parameters**	**Effect after pressing the encoder (A)**
Always Close	F04	oFF	**“Close always” excluded**
		1	Standard: when the power supply is restored after a blackout, if the boom is not closed, a closing manoeuvre starts immediately, preceded by a pre-flashing period equal to the “Close always” time
		2	Save automatic closing: when the power supply is restored after a blackout, while the pause time was running, automatic closing is restored with a set time
Stand-by At the end of a manoeuvre and after the stand-by time, the control unit switches off the devices selected in the Level 2 programming in order to reduce consumption. When it receives a command, the control unit restores the automation’s normal operation	F05	oFF	**Not active**
		1	Stand-by all: the display, Bluebus output, the outputs and certain internal circuits all switch off
		2	Stand-by Bluebus: the Bluebus output switches off
		4	Stand-by Automatic: if powered by a battery, the control unit enters the “Stand-by all” mode
Peak	F06	oFF	**Not active**
		on	Peak active: at the start of a manoeuvre with the boom either open or closed, peak power is given to overcome any static friction
Emergency function	F07	oFF	**Deactivated**
		on	When there is no mains voltage and if the battery is present, the boom opens automatically
Slave selection	F09	oFF	**Master barrier**
		on	Slave barrier
Burglarproofing	F 10	oFF	**Deactivated**
		on	When the boom is closed, if the control unit detects that the boom is being forced open, a closing manoeuvre will be performed. NOTE: if the closing manoeuvre to protect against forcing times out, the control unit cancels the setting until the next manoeuvre
Times	t01	0-250	Pause time (s): programmes the desired pause time that elapses between the end of an opening manoeuvre and the start of an automatic closing manoeuvre. Only works if the automatic operating mode is enabled Default: 20
	t02	0-5.0	Open pre-flashing (s): programmes the flashing time that elapses between activation of the warning light and the start of an opening manoeuvre Default: 0
	t03	0-5.0	Close pre-flashing (s): programmes the flashing time that elapses between activation of the warning light and the start of a closing manoeuvre Default: 0
	t04	0-60	Stand-by time (s): programmes the time that elapses between the end of a manoeuvre and the start of the “Stand-by” function, if the latter is enabled Default: 60
	t06	0-3.0	Suction cup delay time (s): programmes in the control unit the time that elapses between the end of a closing manoeuvre and the start of an opening manoeuvre, when the suction cup is detached. Default: 0,2
	t07	0-250	Courtesy light time (s): programmes the time during which the courtesy light remains lit in the various outputs Default: 60
	t09	0-20	Close always time (s) Default: 5
	t 10	0-250	Close after photocell time (s): programmes the time for the “Close after photocell” function Default: 5
Opening manoeuvre speed	SPo	1	Speed level 1 (min)
		2	Speed level 2
		3	Speed level 3
		4	**Speed level 4 (max)**
Closing manoeuvre speed	SPc	1	Speed level 1 (min)
		2	Speed level 2
		3	Speed level 3
		4	**Speed level 4 (max)**

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PROGRAMMING PARAMETERS			
Meaning	**Level I parameters**	**Level II parameters**	**Effect after pressing the encoder (A)**
Opening manoeuvre slowdown speed	SLo	1	1 (min)
		2	**2 (med)**
		3	3 (max)
Closing manoeuvre slowdown speed	SLc	1	1 (min)
		2	**2 (med)**
		3	3 (max)
Opening slowdown position Difference between the opening position and the point in which the boom starts slowing down	PLo	1	**0°**
		2	roughly 10°
		3	roughly 20°
Closing slowdown position Difference between the closing position and the point in which the boom starts slowing down	PLc	1	**0°**
		2	roughly 10°
		3	roughly 20°
Opening force	Fro	1	Force level 1 (min)
		2	Force level 2
		3	**Force level 3 (med)**
		4	Force level 4
		5	Force level 5
		6	Force level 6 (max)
Closing force	Frc	1	Force level 1 (min)
		2	Force level 2
		3	**Force level 3 (med)**
		4	Force level 4
		5	Force level 5
		6	Force level 6 (max)
Force time Adjusts the intervention time when the set force level is exceeded. It is expressed in multiples of 30 ms and can be set to between 3 (=90 ms) and 32 (= 960 ms). Increasing this value increases the intervention time of the amperometric obstacle detection function	tF	3-32	x 30 ms Default: 3
SbS input	in1	0	No command
		1	**Step-by-step**
		3	Open
		4	Close
		6	High-priority Step-by-Step: it moves the automation even if it is locked by a lock command
		7	Opens and locks the automation
		8	Closes and locks the automation
		11	Courtesy light timer: causes the courtesy light to switch on, which then switches off once the courtesy light time has elapsed
		12	Courtesy light on/off: activates or deactivates the courtesy light, which then switches off once the courtesy light time has elapsed
		16	Photo
		19	Unlocks and opens the automation
		20	Unlocks and closes the automation
		21	Activates opening from Bluebus photocells
		22	Deactivates opening from Bluebus photocells
		25	Master and slave barrier Step-by-Step
		26	Master and slave barrier open
		27	Master and slave barrier close
		28	Slave barrier Step-by-Step
		29	Slave barrier open
		30	Slave barrier close

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PROGRAMMING PARAMETERS			
Meaning	**Level I parameters**	**Level II parameters**	**Effect after pressing the encoder (A)**
Open input	in2	0	No command
		1	Step-by-step
		3	**Open**
		4	Close
		6	High-priority Step-by-Step: it moves the automation even if it is locked by a lock command
		7	Opens and locks the automation
		8	Closes and locks the automation
		11	Courtesy light timer: causes the courtesy light to switch on, which then switches off once the courtesy light time has elapsed
		12	Courtesy light on/off: activates or deactivates the courtesy light, which then switches off once the courtesy light time has elapsed
		16	Photo
		19	Unlocks and opens the automation
		20	Unlocks and closes the automation
		21	Activates opening from Bluebus photocells
		22	Deactivates opening from Bluebus photocells
		25	Master barrier Step-by-Step
		26	Master and slave barrier open
		27	Master and slave barrier close
		28	Slave barrier Step-by-Step
		29	Slave barrier open
		30	Slave barrier close
Close input	in3	0	No command
		1	Step-by-step
		3	Open
		4	**Close**
		6	High-priority Step-by-Step: it moves the automation even if it is locked by a lock command
		7	Opens and locks the automation
		8	Closes and locks the automation
		11	Courtesy light timer: causes the courtesy light to switch on, which then switches off once the courtesy light time has elapsed
		12	Courtesy light on/off: activates or deactivates the courtesy light, which then switches off once the courtesy light time has elapsed
		16	Photo
		19	Unlock and Open
		20	Unlock and Close
		21	Activates opening from Bluebus photocells
		22	Deactivates opening from Bluebus photocells
		25	Master and slave barrier Step-by-Step
		26	Master and slave barrier open
		27	Master and slave barrier close
		28	Slave barrier Step-by-Step
		29	Slave barrier open
		30	Slave barrier close

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PROGRAMMING PARAMETERS			
Meaning	**Level I parameters**	**Level II parameters**	**Effect after pressing the encoder (A)**
HP SbS input	in4	0	No command
		1	Step-by-step
		3	Open
		4	Close
		6	**High-priority Step-by-Step: it moves the automation even if it is locked by a lock command**
		7	Opens and locks the automation
		8	Closes and locks the automation
		11	Courtesy light timer: causes the courtesy light to switch on, which then switches off once the courtesy light time has elapsed
		12	Courtesy light on/off: activates or deactivates the courtesy light, which then switches off once the courtesy light time has elapsed
		16	Photo
		19	Unlock and Open
		20	Unlock and Close
		21	Activates opening from Bluebus photocells
		22	Deactivates opening from Bluebus photocells
		25	Master and slave barrier Step-by-Step
		26	Master and slave barrier open
		27	Master and slave barrier close
		28	Slave barrier Step-by-Step
		29	Slave barrier open
		30	Slave barrier close
Sequence of commands associated with the Step-by-Step inputs	SE1	1	"Industrial" mode: opening in semi-automatic mode, closing in hold-to-run mode
		2	Open - Stop - Close - Stop
		3	Open - Stop - Close - Open
		5	**Condominium 1 Step-by-Step**
		6	Hold-to-run
Sequence of commands associated with the Open input	SE3	1	Open - Stop - Open
		2	**Condominium 1**
		3	Hold-to-run open
Sequence of commands associated with the Close input	SE4	1	Close - Stop - Close
		2	**Condominium 1 close**
		3	Hold-to-run close
BlueBus photocell and photo input operating mode	SE5	1	**Stop and reversal: the intervention of a photocell during the closing manoeuvre stops the manoeuvre and reverses the motion**
		4	Temporary stop: the intervention of a photocell during the closing manoeuvre stops the manoeuvre; when the photocell is disengaged, the boom opens again
		5	Temporary stop 2: the intervention of a photocell during the closing manoeuvre stops the manoeuvre; when the photocell is disengaged, the boom closes again
Stop during opening input function	SE6	1	Stop: instantly stops the current manoeuvre
		2	**Stop and brief reversal: instantly stops the current manoeuvre and carries out a brief reversal during the closing phase**
Stop during closing input function	SE7	1	Stop: instantly stops the current manoeuvre
		2	**Stop and brief reversal: instantly stops the current manoeuvre and carries out a brief reversal during the opening phase**
Detect obstacle during opening function	SE8	2	**Stop and brief reversal: instantly stops the current manoeuvre and carries out a brief reversal during the closing phase**
		3	Stop and reversal: instantly stops the current manoeuvre and carries out a full reversal during the closing phase
Detect obstacle during closing function	SE9	2	Stop and brief reversal: instantly stops the current manoeuvre and carries out a brief reversal during the opening phase
		3	**Stop and reversal: instantly stops the current manoeuvre and carries out a full reversal during the opening phase**
Loop 1 input function	Lo1	1	**Opens, with open-open sequence (normally open – NA – input)**
		2	Closes, with close-close sequence (normally open – NA – input)
		4	Photo (normally closed – NC – input)

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PROGRAMMING PARAMETERS			
Meaning	**Level I parameters**	**Level II parameters**	**Effect after pressing the encoder (A)**
Loop 2 input function	Lo2	1	Opens, with open-open sequence (normally open – NA – input)
		2	**Closes, with close-close sequence (normally open – NA – input)**
		4	Photo (normally closed – NC – input)
Light output function Consult "***Table 7***" for information on the single parameters	ou1	0	24 V warning light
		1	OGI
		2	Boom closed
		3	Boom open
		4	**Boom light warning light**
		5	Maintenance indicator
		6	Courtesy light
		7	Red one-way traffic light
		8	Red traffic light
		9	Green traffic light
		10	Radio channel no. 1
		11	Radio channel no. 2
		12	Radio channel no. 3
		13	Radio channel no. 4
		14	Suction cup
Flash output function Consult "***Table 7***" for information on the single parameters	ou2	0	24 V warning light
		1	**12 V warning light**
		2	OGI
		3	Boom closed
		4	Boom open
		5	Boom light warning light
		6	Maintenance indicator
		7	Courtesy light
		9	Red traffic light
		10	Green traffic light
		11	Radio channel no. 1
		12	Radio channel no. 2
		13	Radio channel no. 3
		14	Radio channel no. 4
		15	Suction cup
OGI output function Consult "***Table 7***" for information on the single parameters	ou3	0	24 V warning light
		1	**OGI**
		2	Boom closed
		3	Boom open
		4	Boom light warning light
		5	Maintenance indicator
		6	Courtesy light
		7	Green one-way traffic Light
		8	Red traffic light
		9	Green traffic light
		10	Radio channel no. 1
		11	Radio channel no. 2
		12	Radio channel no. 3
		13	Radio channel no. 4
		14	Suction cup

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PROGRAMMING PARAMETERS			
Meaning	**Level I parameters**	**Level II parameters**	**Effect after pressing the encoder (A)**
Internal Light output function Consult "***Table 7***" for information on the single parameters	ou4	0	**24 V warning light**
		1	OGI
		2	Boom closed
		3	Boom open
		4	Courtesy light
		5	Red traffic light
		6	Green traffic light
		7	Unidirectional traffic light
		8	Alternate Unidirectional traffic light
		9	Pedestrian traffic light
Displays the number of programmed manoeuvres	nnP	A b c	"a"= one, "b"= thousands, "c"= millions (press the encoder (**A**) to scroll the single values)
Displays the number of manoeuvres completed	nnE	t u U	"t"= one, "u"= thousands, "v"= millions (press the encoder (**A**) to scroll the single values)
Data deletion	ErS	1	Deletes Bluebus devices
		2	Deletes Levels
		3	Deletes function values and restores default values
		5	Delete all
Displays the firmware version	Fir	nn	"n", "m"= board firmware version, in 3-number sequences [press the encoder (**A**) twice] Example: first number "HE0", second number "2b"
Displays the hardware version	hdr	P q r	"p", "q", "r"= board hardware version, in 3-number sequences [press the encoder (**A**) 3 times] Example: first number "626", second number "-Ar", third number "00"
Diagnostics	din		Refer to the "***Display diagnostics***" paragraph

Table 7

ADDENDUM - PARAMETER LEGEND	
Parameter	**Description**
Parameters of outputs OU1, OU2, OU3	
24 V warning light	Flashing of the lamp (0.5 seconds on, 0.5 seconds off) indicates that a manoeuvre is under way Output active 24 V DC / max 10 W
12 V warning light	Flashing of the lamp (0.5 seconds on, 0.5 seconds off) indicates that a manoeuvre is under way Output active 12 V DC / max 21 W
OGI	Indicator off: boom closed Slow flashing: opening manoeuvre Fast flashing: closing manoeuvre Indicator steady lit: boom open Output active 24 V DC / max 10 W
Boom closed	Indicator lit: boom closed Indicator off: boom in other positions Output active 24 V DC / max 10 W
Boom open	Indicator lit: boom open Indicator off: application in other positions Output active 24 V DC / max 10 W
Boom light warning light	The lamp flashes (0.5 seconds on, 0.5 seconds off) both when a manoeuvre is under way and when the boom is stationary Output active 24 V DC / max 10 W
Maintenance indicator	Indicates counting of the manoeuvres completed Indicator lit for 2 seconds at the start of opening manoeuvre: number of manoeuvres less than 80% Indicator flashing during the entire manoeuvre: number of manoeuvres between 80% and 100% Indicator always flashing: number of manoeuvres over 100%
Courtesy light	Light lit for the entire duration of the manoeuvre; after the manoeuvre, it remains lit for a duration corresponding to the courtesy light time
Red traffic light	Slow flashing: closing manoeuvre Steady light: boom closed Light off: boom in other positions Output active 24 V DC / max 10 W
Pedestrian traffic light	Boom closed: green light inside, red light outside Boom open: red light inside, green light outside Boom in other positions: red light inside and outside

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ADDENDUM - PARAMETER LEGEND	
Parameter	**Description**
Radio channel 1	Activates the output when command 1 is sent with the transmitter, the command sent to the control unit is ignored Output active 24 V DC / max 10 W
Radio channel 2	Activates the output when command 2 is sent with the transmitter, the command sent to the control unit is ignored Output active 24 V DC / max 10 W
Radio channel 3	Activates the output when command 3 is sent with the transmitter, the command sent to the control unit is ignored Output active 24 V DC / max 10 W
Radio channel 4	Activates the output when command 4 is sent with the transmitter, the command sent to the control unit is ignored Output active 24 V DC / max 10 W
Suction cup	Activates when the boom is closed: at the start of an opening manoeuvre, the output deactivates and opening starts after the “Suction cup time” has elapsed Output active 24 V DC / max 10 W
Parameters of output OU4 (with accessory xba7)	
24 V warning light	Light flashing during the manoeuvre (0.5 seconds on, 0.5 seconds off)
OGI	Light off: boom closed Slow flashing: opening manoeuvre Fast flashing: closing manoeuvre Light on: boom open
Boom closed	Light on: boom closed Light off: boom in other positions
Boom open	Light on: boom open Light off: boom in other positions
Courtesy light	Light lit for the entire duration of the manoeuvre; after the manoeuvre, it remains lit for a duration corresponding to the courtesy light time
Parameters of output OU4 (with accessory xba8)	
Red traffic light	Slow flashing: closing manoeuvre Steady red light: boom closed Light off: application in other positions
Green traffic light	Slow flashing: opening manoeuvre Steady green light: boom open Light off: application in other positions
Unidirectional traffic light	Green light: boom open Red light: all other cases
Alternate Unidirectional traffic light	For the system to operate in this mode, the commands must be sent to the control unit as follows: Commands for inside: Input 2 or Loop 1 configured as open Commands for outside: Input 3 or Loop 2 configured as open Operation: an open command sent from inside activates the green light inside and the red light outside, giving priority to the person inside an open command sent from outside activates the green light outside and the red light inside, giving priority to the person outside When the boom is closed or closing, the light is red on both sides
Pedestrian traffic light	Boom closed: green light inside, red light outside Boom open: red light inside, green light outside Boom in other positions: red light inside and outside

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7.2 SPECIAL FUNCTIONS

7.2.1 "MOVE ANYWAY" FUNCTION

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

1. send a command to move the gate, using a transmitter or key selector, etc. If everything works properly, the boom will move normally, otherwise proceed with point 2
2. within 3 seconds, press the control again and hold it down
3. after roughly 2 seconds, the boom 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 flash a few times to signal the type of problem. To verify the type of anomaly, consult the "*Signalling through warning light*" chapter (page 34).

7.2.2 "MAINTENANCE NOTICE" FUNCTION

This function warns the user when the automation requires a maintenance check.
The "Maintenance notice" parameter can be adjusted using the **Oview** programmer.
The maintenance request signal is given through the Flash warning light or by the maintenance indicator, depending on the type of programming chosen.

The "Flash" warning light and the maintenance indicator give the signals indicated in "*Table 8*" based on the number of manoeuvres completed with respect to the set limit.

Table 8

MAINTENANCE NOTICE THROUGH FLASH AND MAINTENANCE INDICATOR		
Number of manoeuvres	**Signal on "Flash"**	**Maintenance indicator signal**
Below 80% of the limit	Normal (0.5 sec on, 0.5 sec off)	Lit for 2 seconds at the start of the opening manoeuvre
Between 81% and 100% of the limit	Remains lit for 2 seconds at the start of the manoeuvre	Flashes for the entire duration of the manoeuvre
Exceeding 100% of the limit	Remains lit for 2 seconds at the start and end of the manoeuvre then carries on normally	Flashes always

7.2.3 VERIFYING THE NUMBER OF MANOEUVRES COMPLETED

The number of manoeuvres completed can be checked through the control unit (refer to "***Table 6***") or with the **Oview** programmer, under "Maintenance".

7.2.4 MANOEUVRE COUNTER RESETTING

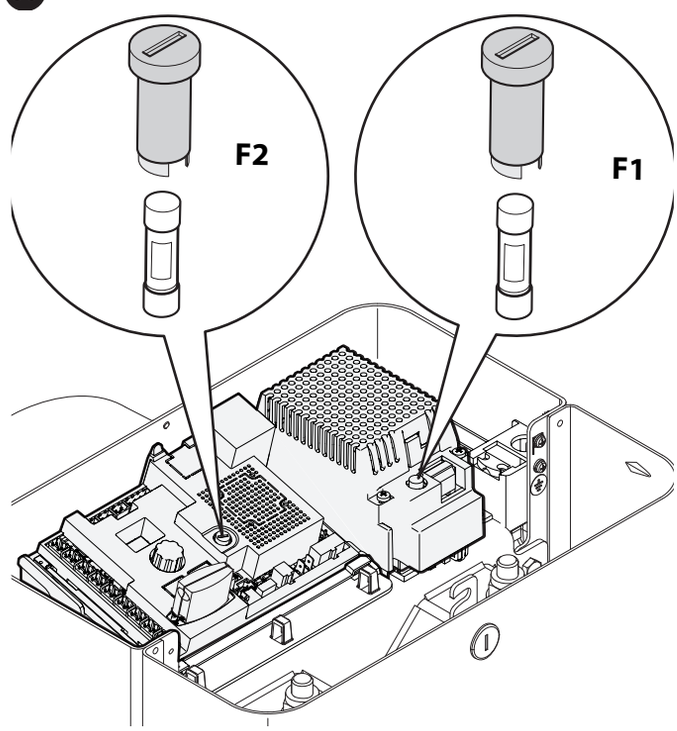
Once maintenance has been performed on the system, the manoeuvre counter must be reset.
Resetting can only be done through the **Oview** programmer.

8 TROUBLESHOOTING GUIDE

8.1 TROUBLESHOOTING

The table below contains useful instructions to resolve any malfunctions or errors that may occur during installation or in case of a fault.

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Table 9

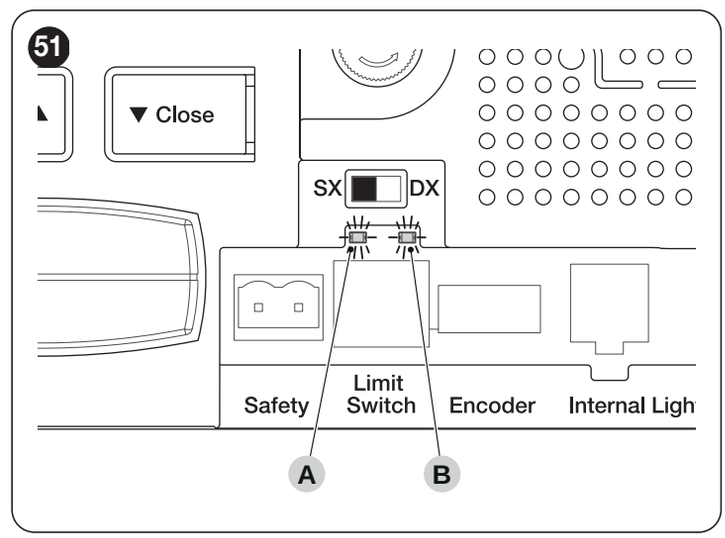
TROUBLESHOOTING	
Problems	**Recommended checks**
The radio transmitter does not control the gate and the LED on the transmitter does not light up	Check whether the transmitter batteries are exhausted and replace them if necessary.
The radio transmitter does not control the gate but the LED on the transmitter lights up	Check whether the transmitter has been memorised correctly in the radio receiver.
No manoeuvre is commanded	Check that the gearmotor is being powered with the mains voltage Check whether fuses **F1** and **F2** are blown; if they are, identify the cause of the failure 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 corresponding "**SbS**" LED must light up; if instead the radio transmitter is used, the "**BlueBUS**" LED must emit two quick flashes.
No manoeuvre starts and the warning light flashes a few times	Count the number of flashes and check the corresponding value in "***Table 15***".
The manoeuvre starts but is immediately followed by a reverse run	The selected force could be too low for this type of boom. Verify that the boom is correctly balanced and select a higher force, if necessary.
The manoeuvre is carried out at slow speed	The manoeuvre does not start from one of the limit switches or the control unit does not learn the limit switch. Check the electrical connection of the limit switch.
The Slave barrier does not complete the manoeuvres	Check that the "Master-Slave" learning phase was carried out on both barriers.
The manoeuvre is carried out in the opposite direction	Check that the installation selector is in the correct position (see paragraph "***Choosing the direction***").

8.2 DIAGNOSTICS

The control unit contains the following diagnostics functions:
- signalling on the control unit through LED
- diagnostics through the display
- error signalling through the display
- warning light signals.

8.3 SIGNALS ON THE CONTROL UNIT

The LEDs near the control unit's terminals issue special signals to indicate both normal operation and any anomalies.
The following table describes the causes and solutions for each type of signal.



A FC1 limit switch LED
B FC2 limit switch LED

Table 10

TERMINAL LEDS ON THE CONTROL UNIT		
Status	**Meaning**	**Possible solution**
STOP LED		
OFF	Intervention of the STOP input	Check the devices connected to the STOP input.
On	Everything normal	STOP input active.
SbS LED		
OFF	Everything normal	SbS input not active.
On	Intervention of the SbS input	This is normal if the device connected to the SbS input is actually active.
OPEN LED		
OFF	Everything normal	OPEN input not active.
On	Intervention of the OPEN input	This is normal if the device connected to the OPEN input is actually active

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TERMINAL LEDS ON THE CONTROL UNIT		
Status	**Meaning**	**Possible solution**
CLOSE LED		
OFF	Everything normal	CLOSE input not active.
On	Intervention of the CLOSE input	This is normal if the device connected to the CLOSE input is actually active.
HP SbS LED		
OFF	Everything normal	Hp SbS input not active.
On	Intervention of the HP SbS input	Normal if the device connected to the HP SbS input is active.
FC1 limit switch LED		
OFF	Intervention of the limit switch	**With "RH" right-hand installation:** the boom is in the closed position. **With "LH" left-hand installation:** the boom is in the open position.
On	No intervention of the limit switch	**With "RH" right-hand installation:** the boom is in a position other that the closed position. **With "LH" left-hand installation:** the boom is in a position other that the open position.
FC2 limit switch LED		
OFF	Intervention of the limit switch	**With "RH" right-hand installation:** the boom is in the open position. **With "LH" left-hand installation:** the boom is in the closed position.
On	No intervention of the limit switch	**With "RH" right-hand installation:** the boom is in a position other that the open position. **With "LH" left-hand installation:** the boom is in a position other that the closed position.

8.3.1 DISPLAY DIAGNOSTICS

Selecting with the encoder the "din" diagnostics mode and confirming the choice, the display will show with its 3 digits the status of the inputs (***Table 11***, ***Table 12*** and ***Table 13***); each lit segment of the display signals that the corresponding input is active.

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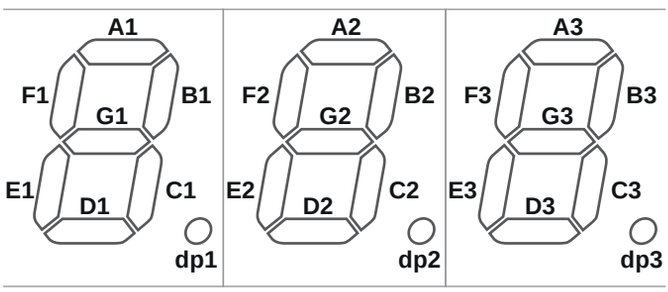


Table 11

DISPLAY DIAGNOSTICS	
Segment	**Input**
A1	Loop 1
B1	Close
C1	HP SbS
D1	Loop 2
E1	Open
F1	Sbs
G1	Free
dp1	one flash each second, signals the operation of the board

Table 12

DISPLAY DIAGNOSTICS	
Segment	**Input**
A2	FC1 OPEN limit switch
B2	Close button
C2	RH direction selector
D2	Battery-powered operation
E2	LH direction selector
F2	Open button
G2	FC2 CLOSE limit switch
dp2	Encoder A input [**Note 1**]

Table 13

DISPLAY DIAGNOSTICS	
Segment	**Input**
A3	FA1 opening photocell
B3	ON when PHOTO is active
C3	ON when PHOTO II is active
D3	FA2 opening photocell
E3	ON when PHOTO 1 is active
F3	ON when PHOTO 1 II is active
G3	ON Master control unit has acquired the slave
dp3	Encoder B input [**Note 1**]

Note 1 Dp2 and dp3 can be switched on or off, depending on the position of the magnet when the motor stops; the LEDs flash when the motor moves

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8.3.2 SIGNALS WITH THE DISPLAY

In case of anomalies, the display can visualise an error code both during the boom's movement and when the manoeuvre stops.
The following table shows the error codes that can be displayed.

Table 14

SIGNALS WITH THE DISPLAY			
Error code	**Description**	**Cause**	**Action**
E01	Memory of the BlueBus or Stop devices	There has been a change in the devices connected to the BlueBus or Stop terminals, the learning stage was not performed, or the connected devices are not compatible with the control unit	Please disconnect any non-compatible devices and run the learning stage for the connected devices (see paragraph "***Device learning***")
E02	Level memory or the positions were never learned	Learning of the positions was probably never done	The boom's opening and closing positions must be learned (refer to the "***Learning of the mechanical stop positions***" paragraph)
E03	Limit switches inverted		
E04	Encoder signal	Lack of communication between the sensor present in the motor and the control unit	Check that the encoder cable is connected and in good condition
E05	Master-Slave communication	The Master and Slave control unit are not communicating correctly between one another	Check that the cable connecting the Master and Slave control units is connected and that the pole markings are observed Check that the Slave control unit has been selected and the Master learning phase has been completed (refer to the "***Gearmotor in SLAVE mode***" paragraph).
E06	Parameter memory reading	Error in the internal parameters of the control unit	Disconnect and reconnect the power supply. If the error persists, delete the memory entirely as described in the "***Full deletion of the control unit's memory***" paragraph and redo the installation If the condition persists, there's a fault or the electronic circuit board must be repeated
E07	Internal checks and Class B tests	Error in the internal electric circuits	Disconnect all the power supply circuits; after a few seconds, reconnect the power supply circuits and try sending a command If the condition persists, there's a fault or the electronic circuit board must be repeated
E08	Dip-switch configuration	Probable tampering or failure of the barrier selection dip-switch	Check that the dip-switch settings match the factory settings
E09	Lock automation	The automation was stopped by a Lock command	Send the "Unlock automation" command or command the control unit with **HP SbS**
E10	Lack of safety input (NC) or limit switch	There is no NC safety input or at least a limit switch	Check the cable connected to the "Safety" input and the operation of the limit switches
E11	Short-circuit at the Bluebus output	One or more devices connected to the Bluebus output have short-circuited	Try sending a command and wait 40 seconds
E13	Prevailing command	There is one input always active that prevents movement	Check all inputs
E14	The working time has expired	The duration of the manoeuvre has exceeded the maximum working time	Check that the barrier is not unlocked
E15	Generic error on the Slave control unit	In the master - slave system, the master control unit reports an error which appears on the slave control unit	Check the diagnostics of the Slave control unit
E16	Photo test failed	The manoeuvre does not begin because the test at the start of the manoeuvre on the photocells has failed	Check photocell alignment
E90 ÷ E94	Internal checks and Class B tests	Error in the internal electric circuits	Disconnect all power circuits; after a few seconds reconnect the power circuits and try to send a command. If the status remains, there is a fault and the circuit board must be replaced
I02	Intervention of a photocell	At the start of a manoeuvre or during the movement, one or more photocells do not give the enable signal	Check for any obstacles
I03	Intervention of the motor force limiter	During the movement, the boom experienced excessive friction	Verify the cause or increase the force level
I04	Intervention of the devices connected to the Stop input	At the start of the manoeuvre or during the movement itself, the devices connected to the STOP input intervened	Identify the cause
I05 (*)	FTA sensitive edge input trip	At the beginning of the manoeuvre or during the movement there was a trip of the FTA sensitive edge	Check the devices connected to FTA

(*) Available from firmware version HE03h and higher.

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8.4 SIGNALLING THROUGH WARNING LIGHT

If a warning light (or a LED warning light is used – optional accessory) is connected to the control unit's FLASH output, it will flash once a second during manoeuvres. If any anomalies occur, the warning light will emit shorter flashes which are repeated twice with a 1-second pause between each pair. The same signals are also emitted by the LED warning light (optional accessory).

Table 15

FLASH WARNING LIGHT SIGNALS		
Fast flashes	**Cause**	**ACTION**
1 flash 1-second pause 1 flash	BlueBus system error	At the start of the manoeuvre, the test to verify the devices connected to the BLUEBUS does not provide the same devices memorised during the learning phase. There may be defective devices: check and replace them if necessary; if changes have been made, the learning procedure must be repeated.
2 flashes 1-second pause 2 flashes	Intervention of a photocell	At the start of the manoeuvre, one or more photocells are blocking the movement; check whether there are any obstacles. During the manoeuvre, this is normal if an obstacle is present.
3 flashes 1-second pause 3 flashes	Intervention of the "Motor Force" limiter	During the gate's movement, the motors encountered more resistance; verify the cause and increase the motor force if necessary.
4 flashes 1-second pause 4 flashes	Intervention of the STOP input	At the start of the manoeuvre or during the movement, the STOP input intervened; identify the cause.
5 flashes 1-second pause 5 flashes	Error in the internal parameters of the control unit	Disconnect and reconnect the power supply. If the error persists, delete the entire memory (refer to the "***Full deletion of the control unit's memory***" paragraph) and redo the installation. If the condition persists, there may be a serious fault or the electronic circuit board needs to be replaced.
6 flashes 1-second pause 6 flashes	Dip-Switch combination invalid or changed after installation	Check dip-switch combination.
7 flashes 1-second pause 7 flashes	Error in the internal electric circuits	Disconnect all the power supply circuits for a few seconds and then try giving a command again; if the condition persists, it means that there is a serious fault on the electronic circuit board or on the motor's cabling. Carry out checks and replace parts, if required.
8 flashes 1-second pause 8 flashes	Not used	
9 flashes 1-second pause 9 flashes	The automation was stopped by a "Stop automation" command	Unlock the automation by giving the "Unlock automation" command or command the manoeuvre with "High-Priority Step-by-Step".
11 flashes 1-second pause 11 flashes	The Master and Slave control unit are not communicating correctly between one another	Check if the communication link cable between the Master and Slave entrances is connected and the polarity of the connection check that the Slave control unit has been selected and that the Master acquisition phase has been carried out (see paragraph '***Gearmotor in SLAVE mode***').
12 flashes 1-second pause 12 flashes	Master control unit reports an error on the slave control unit	Check the diagnostics on the slave unit.
13 flashes 1-second pause 13 flashes	An input is always active and prevents movement	Check all inputs.

9 FURTHER DETAILS (Accessories)

9.1 FULL DELETION OF THE CONTROL UNIT'S MEMORY

All the data memorised in the control unit can be deleted and the latter can be restored to its initial factory values.
To do this, go to the "ER5" programming parameter (refer to the chapter "***PROGRAMMING***").

With this procedure it is possible to also delete any errors left in the memory.

This procedure does not delete the number of manoeuvres completed.

9.2 ADDING OR REMOVING DEVICES

Once the automation has been assembled, it is possible to add or remove devices at any time. In particular, various types of devices can be connected to the "**BlueBUS**" and "**STOP**" inputs, as described in the following paragraphs.

After having added or removed devices, these must be learned as described in the "*Learning of other devices*" paragraph.

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9.2.1 BLUEBUS

BlueBUS is a technology that allows the connections of compatible devices to be made with only two conductors over which both power supply and communication signals pass. All devices are connected in parallel on the same 2 BlueBUS conductors and without the need to respect any polarity; each device is recognised individually as it is assigned a unique address during installation.
The following devices can be connected to the BlueBUS: photocells, safety devices, control buttons, signalling lights, etc. The control unit recognises all the connected devices individually through an appropriate learning phase, and can detect all possible anomalies with absolute precision.
For this reason, whenever a device is connected to or removed from BlueBUS, the learning phase must be carried out on the control unit, as described in the "***Learning of other devices***" paragraph.

9.2.2 STOP INPUT

STOP is the input that causes immediate stoppage of the manoeuvre followed by its brief reversal. Devices with output featuring normally open "NO" and normally closed "NC" contacts, as well as devices with 8.2 kΩ fixed resistor output, such as sensitive edges, can be connected to this input.
As with the BlueBUS, the control unit recognises the type of device connected to the STOP input during the learning phase (see the "***Learning of other devices***" paragraph); subsequently the control unit gives a STOP command when it detects a variation with respect to the recognised status.
Multiple devices, even of different types, can be connected to the STOP input if suitable arrangements are made:
- Any number of NO devices can be connected to each other in parallel.
- Any number of NC devices can be connected to each other in series.
- Two devices with 8.2 kΩ fixed resistor output can be connected in parallel; if there are more than 2 devices then they must all be connected in cascade, with a single 8.2 kΩ terminating resistor.
- It is possible to combine two NO and NC contacts by placing them in parallel, while also mounting a 8.2 kΩ resistor in series with the NC contact (this also allows for combining 3 devices: NA, NC and 8.2 kΩ).

If the STOP input is used to connect devices with safety functions, only those devices with 8.2 kΩ fixed resistor guarantee Category 3 safety against faults in accordance with the EN 13849-1 standard.

9.2.3 PHOTOCELLS

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

It is possible to connect two photocells to the "Bluebus" input with the "FA1 open" and "FA2 open" command function (jumper A on the back of the TX and RX boards must be cut). When these photocells intervene, the control unit commands an opening manoeuvre. For further information, refer to the instruction manual for the photocells.

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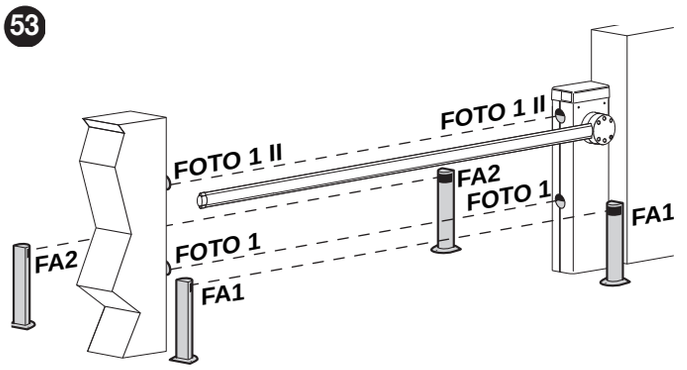
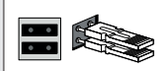
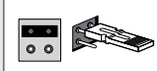
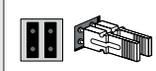
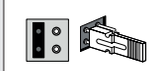
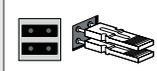
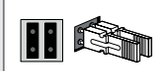


Table 16

PHOTOCELL ADDRESSES	
Photocell	**Position of the jumpers**
FOTO (PHOTO) **Photocell h = 50 activated during the closing phase (stops and reverses the gate's movement)**	
FOTO II (PHOTO II) **Photocell h = 100 activated during the closing phase (stops and reverses the gate's movement)**	
FOTO 1 (PHOTO 1) **External photocell h = 50 activated during the closing phase (stops and reverses the gate's movement)**	
FOTO 1 II (PHOTO 1 II) **External photocell h = 100 activated during the closing phase (stops and reverses the gate's movement)**	
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 photocells or other devices have been removed, it is necessary to complete the learning procedure (see the "*Device learning*" paragraph).

9.2.4 EDSP DIGITAL SELECTOR AND PROXIMITY READER FOR ETPB TRANSPONDER CARDS

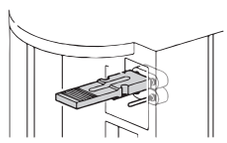
The "**Bluebus**" system allows for connecting up to four EDSP digital selectors or four ETPB transponder card readers.
With EDSP it is possible to command the automation by entering on the keyboard one of the memorised numerical combinations.
With ETPB it is possible to command the automation by simply moving the memorised transponder card close to the sensor.
These devices are equipped with a unique code that it learned and memorised by the control unit during the learning phase of all the connected devices (see paragraph "***Device learning***").
This prevents any fraudulent attempt to replace a device and any unauthorised person from commanding the automation. For further information, consult the EDSP and ETPB instruction manual.

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9.2.5 OPTICAL DEVICE FOR SENSITIVE EDGE

The control unit's BlueBus terminal can also be used to hook up an addressed working device FT210B using the operating logic given in "***Table 17***"
For further information, please refer to the instruction manual for the device FT210B.

Table 17

OPTICAL DEVICE FOR SENSITIVE EDGE		
Photo of the device	**Functions**	**Jumpers**
FTA	Sensitive edge tripped, behaviour similar to the control unit's STOP terminal; as per factory setting, tripping the edge when opening or closing will stop the manoeuvre and then reverse it briefly.	
	Infrared beam blocked, behaviour similar to the control unit's BlueBus photocells; as per factory setting, tripping the photocells during closing will reverse the movement, with no effect during opening.	

9.2.6 LEARNING OF OTHER DEVICES

Normally the learning of devices connected to "**BlueBUS**" and the "**STOP**" input takes place during the installation stage; however, if new devices are added or old ones removed, the learning process can be redone.
Start the procedure by activating parameter **Set 1** (refer to the chapter "***PROGRAMMING***").

After having added or removed devices, the automation test must be carried out again as specified in the "*Testing*" paragraph.

9.3 GEARMOTOR IN SLAVE MODE

When properly programmed and connected, the motor can function in the SLAVE mode; this operating mode is used when two counterposed barriers must be automated and the barriers must move in a synchronised manner. In this mode, one motor functions as a MASTER and commands the manoeuvres, while the second motor functions as a SLAVE, executing the commands transmitted by the MASTER (all motors devices are MASTERS by default).
The connection between the SLAVE and the MASTER is made by connecting terminals 1-2 of the MASTER to terminals 1-2 of the SLAVE using two cables.

It is not important which motor functions as MASTER or SLAVE; the choice must take into account the ease of the connections and the fact that the "Step-by-Step", "Open" and "Close" commands on the SLAVE device allow for commanding the SLAVE barrier only.

Perform the following operations to install two motors in MASTER and SLAVE mode:

1. install the two motors
2. connect the two motors as shown in "***Figure 54***"
3. select the direction of the opening manoeuvre of the two motors (see paragraph "***Choosing the direction***")
4. make the other electrical connections (refer to the chapter "***ELECTRICAL CONNECTIONS***")
5. power the two motors (see paragraph "***Power supply connection***")
6. in the SLAVE barrier:
   - perform learning of the connected devices (see paragraph "***Device learning***")
   - perform learning of the opening and closing positions (see paragraph "***Learning of the mechanical stop positions***")
   - adjust the force and speed
   - activate the "**SLAVE mode**" parameter (refer to the chapter "***PROGRAMMING***")
   - error "E5" will appear to signal a Master-Slave communication error, because the MASTER barrier has not yet been paired with the SLAVE barrier

Bear in mind that during operation all the settings made on the SLAVE barrier are ignored, since those made on the MASTER barrier prevail, with the exception of the speed, slowdown speed, slowdown position and force settings, which have an impact on the SLAVE barrier only.

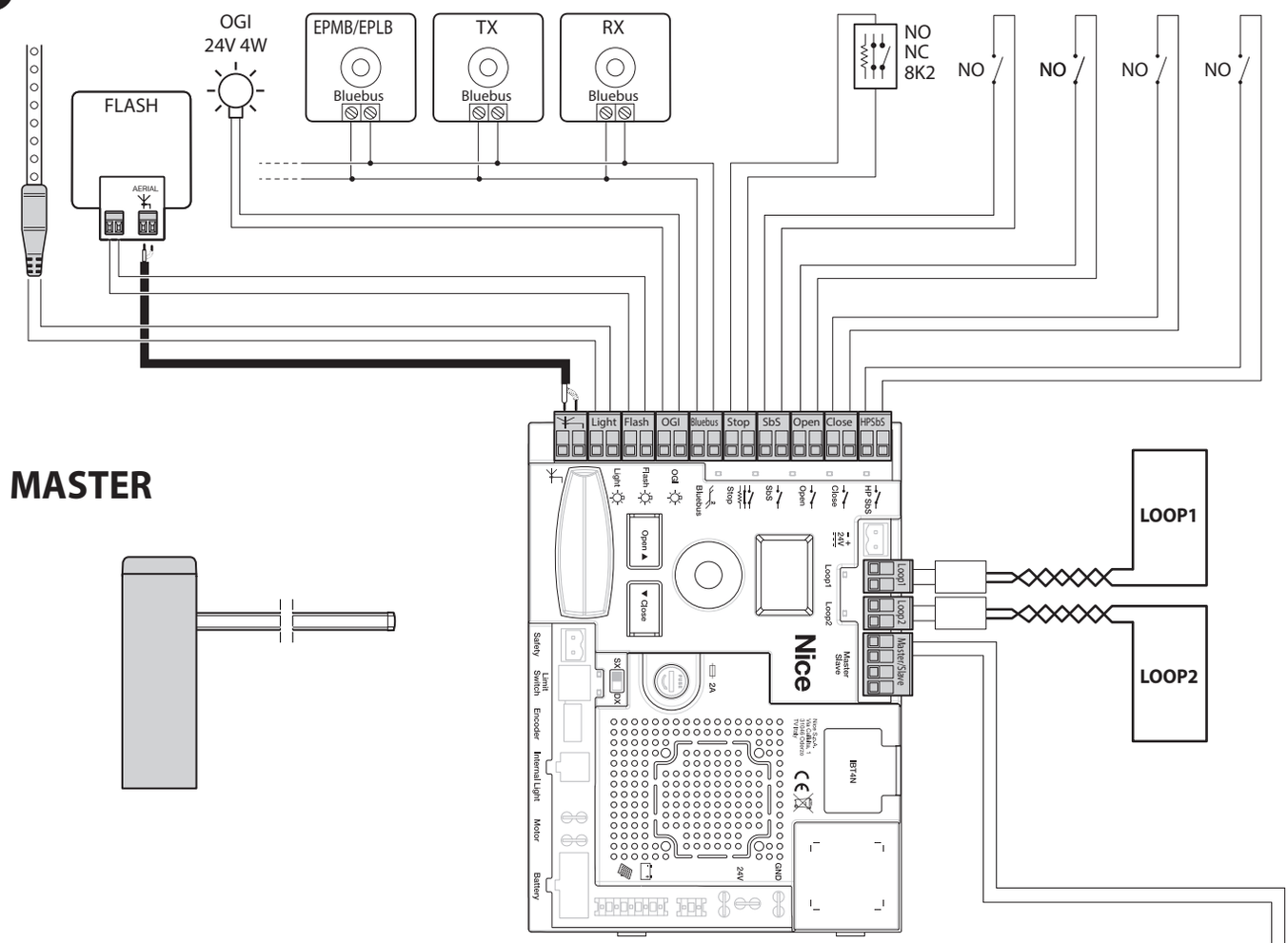
7. in the MASTER barrier:
   - perform learning of the connected devices (see paragraph "***Device learning***")
   - perform learning of the opening and closing positions (see paragraph "***Learning of the mechanical stop positions***")
8. send a command from the MASTER control unit to complete a manoeuvre and verify that it is carried out also by the SLAVE barrier.

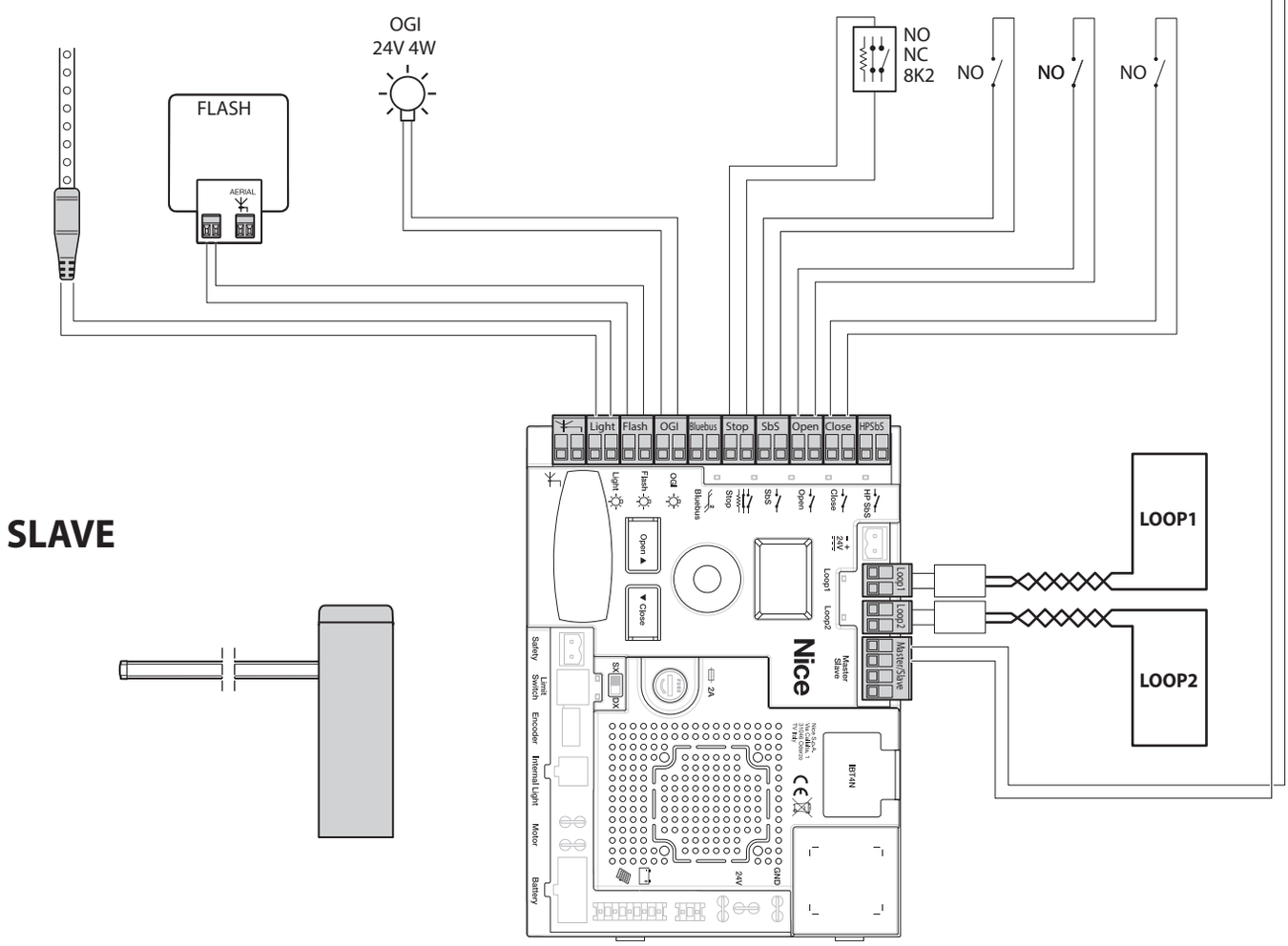
In connecting the two motors in SLAVE-MASTER mode, verify that:
- all BlueBus devices are connected on the MASTER motor (as in '***Figure 54***') including the radio receiver
- when using back-up batteries, each motor must have its own battery

In the SLAVE motor it is possible to connect:
- an own warning light (Flash)
- an own Open Gate Indicator (OGI)
- boom lights
- an own sensitive edge (Stop)
- own control devices (SbS, Open and Close) that command the SLAVE barrier only
- the Loop1 and Loop2 inputs programmed with the "Open" and "Close" modes.

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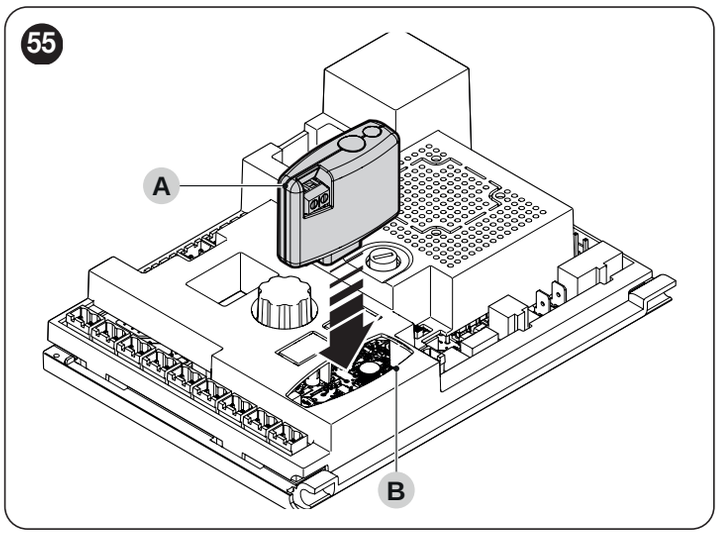
9.4 CONNECTING AN SM-TYPE RADIO RECEIVER

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

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

To install a receiver ("***Figure 55***"):

1. insert the receiver (**A**) in the appropriate slot (**B**) on the control unit's electronic board.



The association between the radio receiver output and the command executed by the motor is shown in "***Table 18***":

Table 18

SMXI / SMXIS OR OXI / OXIFM / OXIT / OXITFM IN MODE 1 OR MODE 2	
Receiver output	**Command**
Output No. 1	"Step-by-Step"
Output No. 2	"Timer-controlled switching on of the courtesy light"
Output No. 3	"Open"
Output No. 4	"Close"

If the OXI radio receiver used in "EXTENDED MODE" is installed, it may send the commands shown in "***Table 19***".

Table 19

OXI / OXIFM /OXIT / OXITFM IN MODE 2 EXTENDED		
No.	**Command**	**Description**
1	**Step-by-Step**	"SbS" (Step-by-Step) command
2	**Timer-controlled switching on of the courtesy light**	"Timer-controlled switching on of the courtesy light" command
3	**Open**	"Open" command
4	**Close**	"Close" command
5	**Stop**	Stops the manoeuvre
6	**Condominium Step-by-Step**	Command in condominium mode
7	**High priority Step-by-Step**	Commands also with the automation locked or the commands enabled
8	**Unlock and Open**	Unlocks the locked automation and carries out an opening manoeuvre
9	**Unlock and Close**	Unlocks the locked automation and carries out a closing manoeuvre
10	**Opens and locks the automation**	Triggers an opening manoeuvre and, once this terminates, locks the automation; the control unit will not accept any command other than "High priority Step-by-Step" and automation "Unlock", or (only from Oview) the following commands: "Unlock and close" and "Unlock and open"
11	**Closes and locks the automation**	Triggers a closing manoeuvre and, once this terminates, locks the automation; the control unit will not accept any command other than "High priority Step-by-Step" and automation "Unlock", or (only from Oview) the following commands: "Unlock and close" and "Unlock and open"
12	**Lock automation**	Triggers the stoppage of the manoeuvre and locks the automation; the control unit will not accept any command other than "High priority Step-by-Step" and automation "Unlock", or (only from Oview) the following commands: "Unlock and close" and "Unlock and open"
13	**Release automation**	Triggers unlocking of the automation and restores normal operation
14	**MASTER barrier Step-by-Step**	"SbS" (Step-by-Step) command for the MASTER barrier
15	**SLAVE barrier Step-by-Step**	"SbS" (Step-by-Step) command for the SLAVE barrier

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

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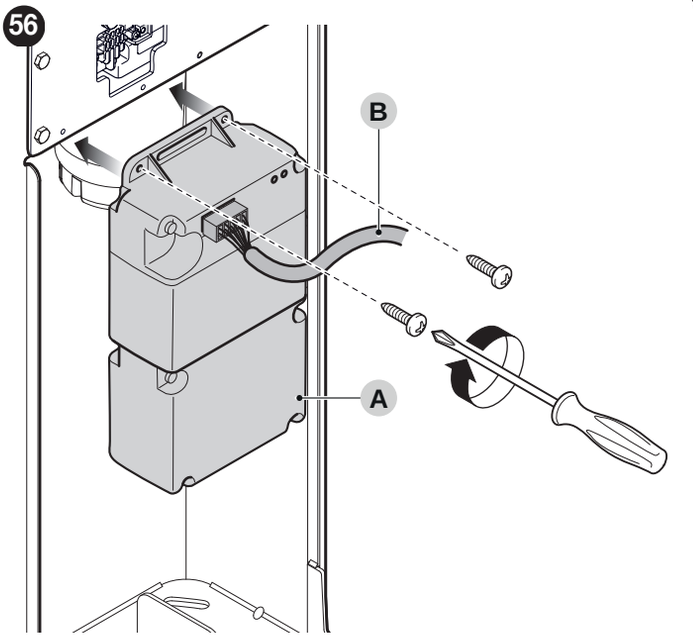
9.5 CONNECTING AND INSTALLING THE EMERGENCY POWER SUPPLY

The electrical connection of the battery to the control unit must be made only after completing all the installation and programming stages, as the battery is an emergency power supply.

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

To install and connect the battery:
1. position the back-up battery
2. connect the appropriate cable to the back-up battery connector
3. activate the mains power supply.

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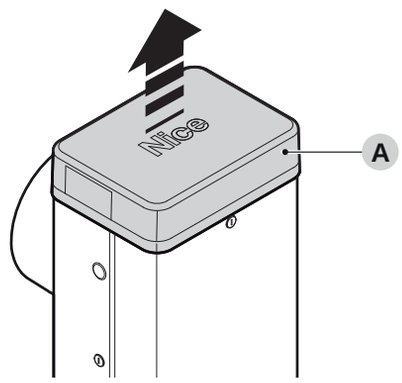
9.6 CONNECTING THE OVIEW PROGRAMMER

The "**Oview**" programming unit can be connected to the control unit.
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 these units, it is possible to view on the display all the networked control units (up to a maximum 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.

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

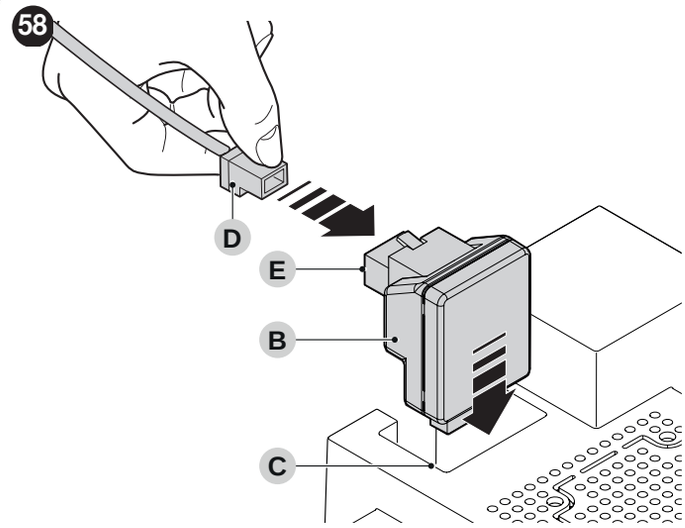
To install the interface:
1. remove the cover (**A**)

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

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

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

9.7 LOOP DETECTOR

The control unit has two dedicated inputs for the connection of inductive loop metal detectors (for example Lp21, Lp22). The operation of these inputs can be programmed with the control unit itself (refer to the chapter "***PROGRAMMING***").

9.7.1 INDUCTIVE LOOPS

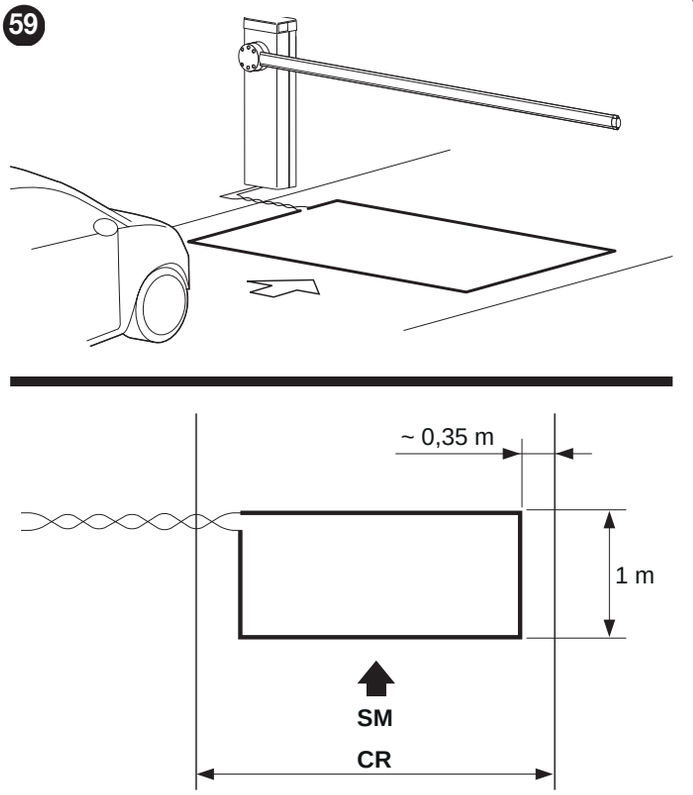
Observe the following instructions and precautions relating to inductive loops connected to the detector. In any case, it is always advisable to refer to the instruction manual for the inductive loop detector.

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Precautions for making the loops:

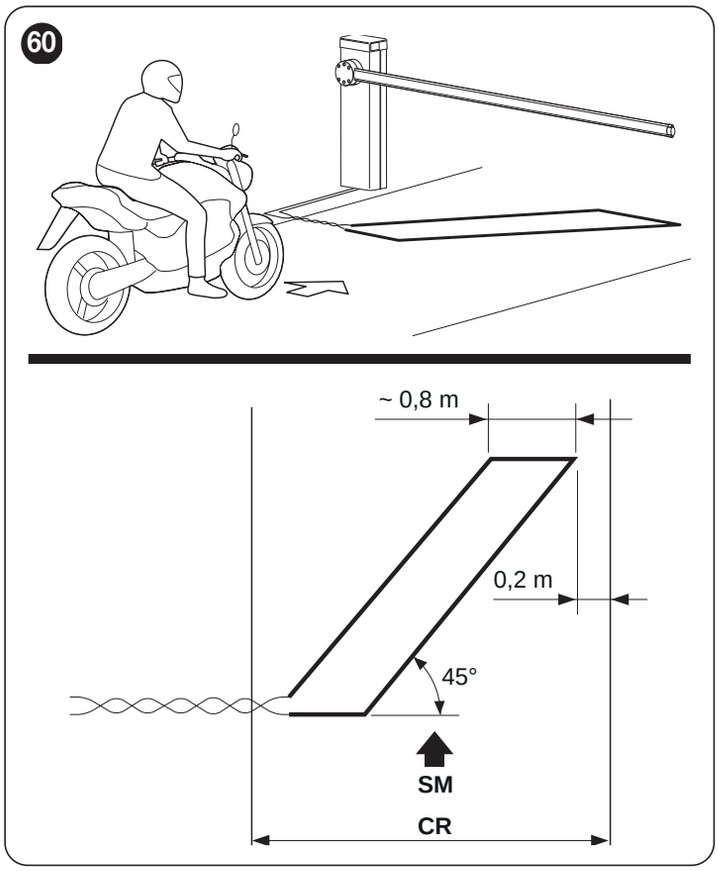
- install the loop close to the boom gate
- the inductive loop's electric cables must be routed separately from the other cables in the boom gate circuit (power, accessories, etc.)
- if the inductive loops are connected to different boom gates, they must be located at least 1 m apart from each other
- the inductive loop must be installed in such a way as to be unable to move, since any movement due to an unstable surface can cause false positives (undesired tripping)
- the size of the loops must be defined based on the application, bearing in mind that they must be located at least 20 cm away from any fixed metal objects and 1 m away from any moving metal objects ("***Figure 59***"). To achieve the best result, we recommend using a loop size no greater than that of the object to be detected by the system
- loops used to detect the passage of cars or trucks are generally rectangular, and they must be located at 45° with respect to the bicycle/motorcycle lane ("***Figure 60***"). We recommend cutting the corners of the floor trace at 45° to avoid breaking the cable
- to prevent interference, the loop cables must be crossed at least 20 times per metre, and they should not have joints; if you need to extend a cable, solder the wires and seal them with heat-shrink sheathing
- the twisted cable should be no longer than 20 m.

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SM Direction of travel
CR Traffic lane

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SM Direction of travel
CR Traffic lane

Instructions for making the loops

Once you have defined the size of the loop:

1. cut a trench in the floor; the trench should be 8 mm wide and 30-50 mm deep ("***Figure 61***")
2. clean the trench and insert the coil, pushing it thoroughly down so that it cannot move
3. complete the number of turns of the loop required by the perimeter as shown in "***Table 20***", using an isolated single-pole copper wire with a cross-section of 1.5 mm^2 ("***Figure 61***")
4. cover the loop with sand to protect it and then seal the trench with tar or outdoors flooring resin ("***Figure 61***")

Warning! – The sealant temperature may not exceed the maximum temperature allowed for the cable sheathing, otherwise the cable might not be grounded correctly.

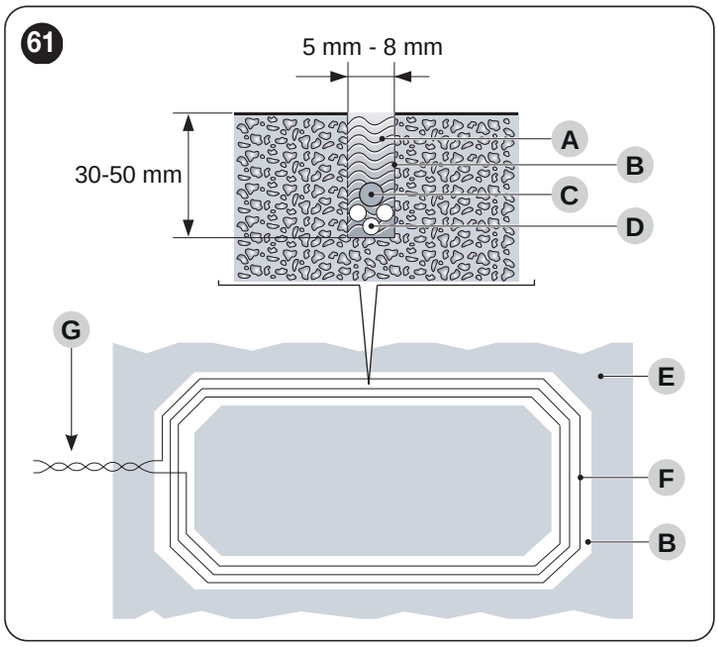
5. first, connect the cables to the metal detector, and then connect them from the metal detector to the Loop1 and Loop2 terminals.

Table 20

POSITIONING THE LOOP	
Perimeter of the loop	**Number of turns**
2 – 4 m	6
4 – 7 m	5
7 – 12 m	4
Greater than 12 m	3

Note If there is any metal reinforcing bar under the floor, loop induction is reduced. If so, run the loop twice more around the perimeter.

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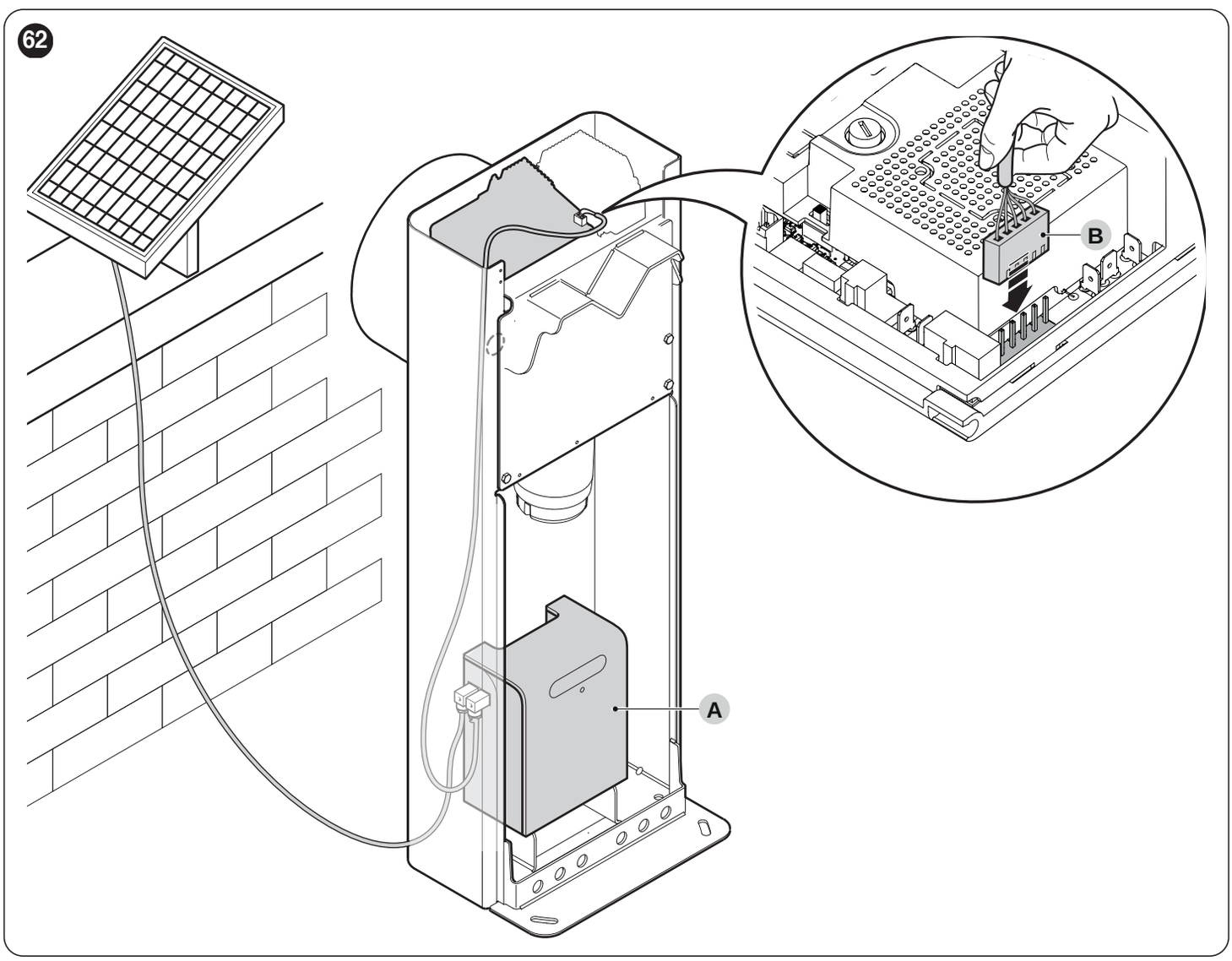
A Sealant
B Trench (5-8 mm)
C String
D Wound cable
E Earth
F Loop (the cable must be inserted into the trench)
G Connection (twisted cable)

9.8 CONNECTING THE SOLEMYO SOLAR ENERGY SYSTEM

When the automation is powered by the "Solemyo" system, IT MUST NOT BE POWERED by the electricity grid at the same time.

For information on the "Solemyo" system, consult the relevant instruction manual.

To connect the "**Solemyo**" system:
1. connect the system to the back-up battery (**A**)
2. insert the relative connector (**B**) on the control unit.



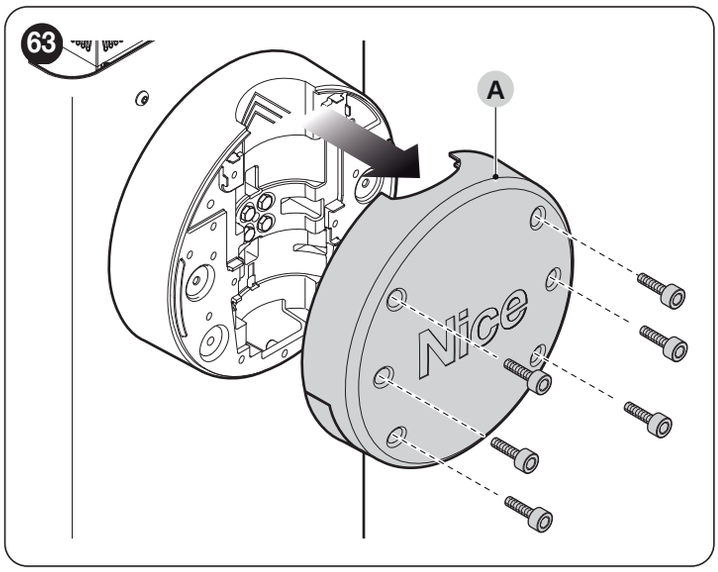
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9.9 CONNECTING THE BOOM LIGHTS (OPTIONAL ACCESSORY)

To perform the installation:

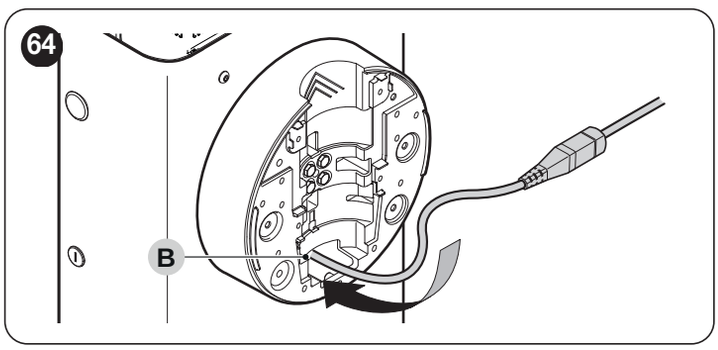
1. put the boom in the vertical position

2. loosen the 6 screws that fasten the boom cover (**A**)

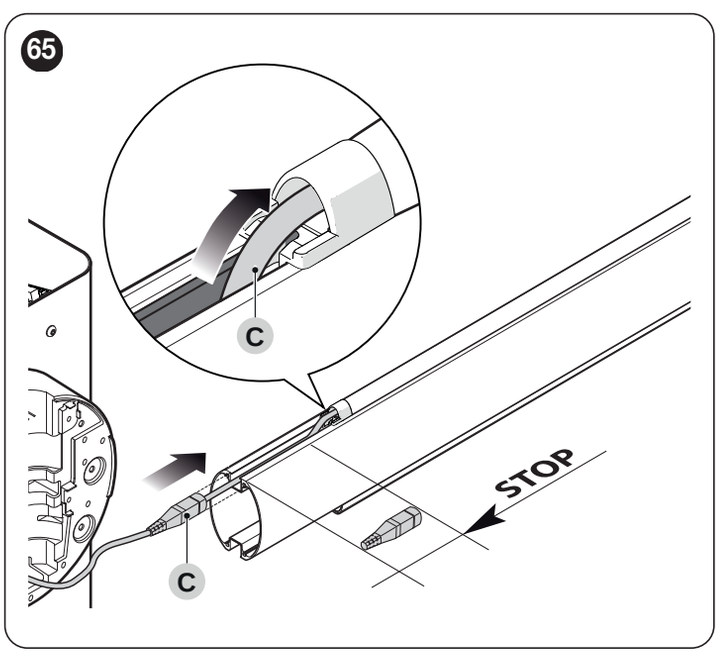


3. remove the boom temporarily

4. insert the cable grommet through the specially configured hole (**B**)



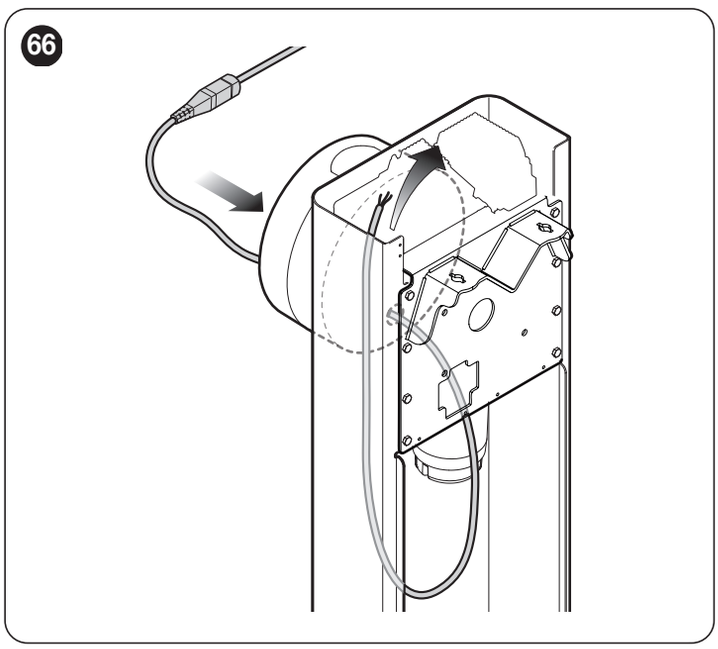
5. feed the lights cable (**C**) through the rubber impact protector and, if necessary, use a fish tape to facilitate the operation



6. if necessary, shorten the lights cable by cutting it only in one of the points indicated by an appropriate mark. After cutting the cable, the cap of the cut end must be shifted to close the new end

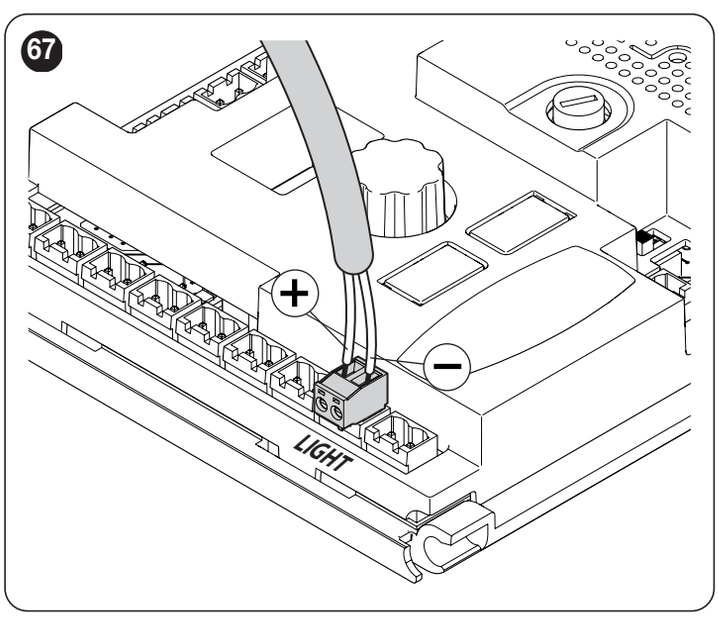
7. insert the wiring cable first through the hole on the boom support then through the hole in the cubicle. LED strips can also be connected to the bottom of the rod. The modalities are mirrored in the illustration ('***Figure 65***') while maintaining the same modalities and warnings.

leave a bit of cable inside the boom support, so that the boom can be rotated without causing any tension along the cable.



8. There are two types of LED strips:

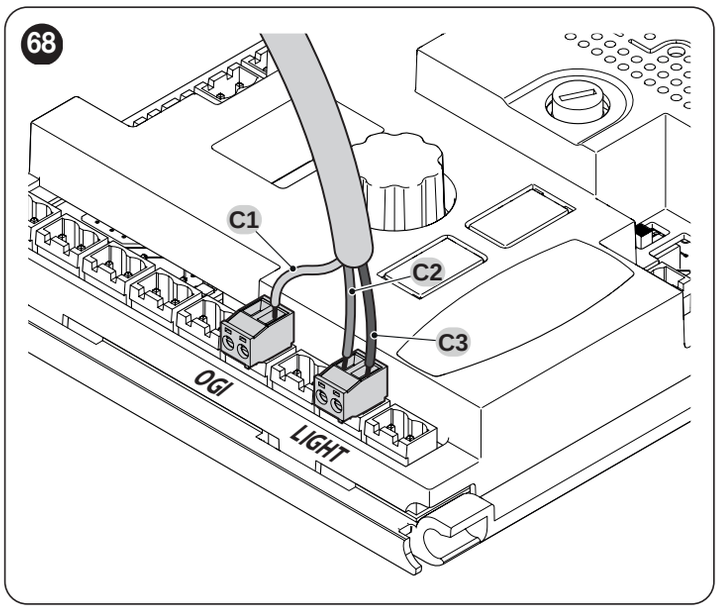
– XBA4, XBA6, XBA18 red light only to be connected to the light output as per ***Figure 67***.



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– The XBA40, XBA60 and XBA80 strips have red and green lights and must be connected to the LIGHT and OGI outputs as per ***Figure 68***. These strips have a three-wire connection; if you want to use them only as red lights, you can connect only the BLACK and WHITE wires in the LIGHT connector, cutting or insulating the YELLOW wire. After making the connection, configure the outputs **ou1** and **ou3** both in 7 mode to have traffic light operation.

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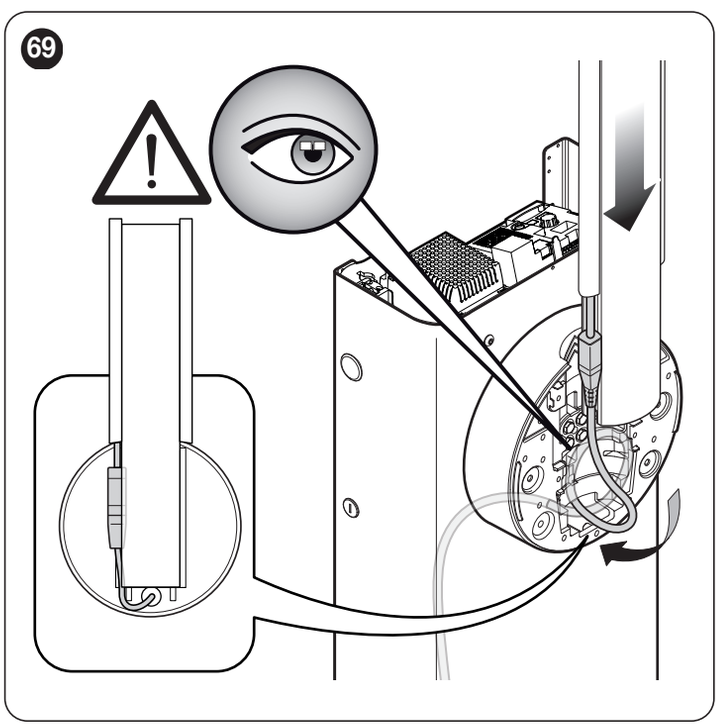


C1 Yellow cable (green lights)
C2 Black cable (+24V=)
C3 White cable (red lights)

The traffic light function for outputs ou1 and ou3 is only available from firmware version HE03i and later.

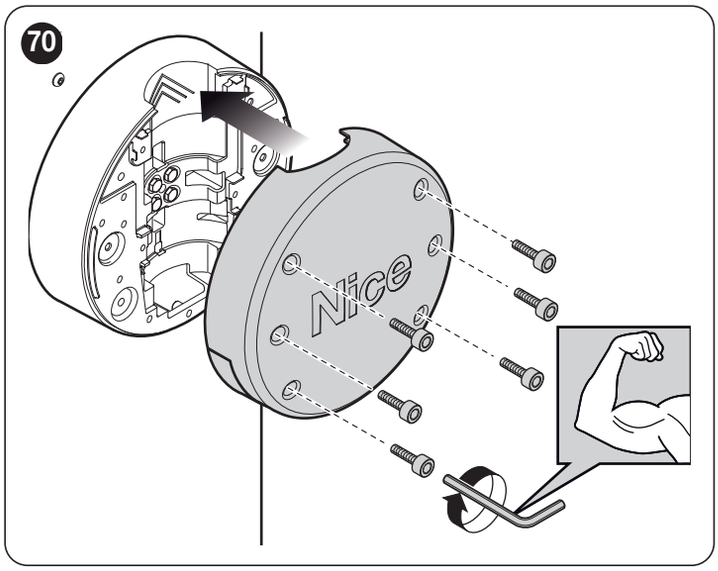
9. position and lock the connector inside the slot on the boom

69



10. insert the boom and lock it with its cover, by vigorously tightening the 6 screws and being careful not to pinch the cable.

70



9.10 CONNECTING THE WARNING LIGHT OR TRAFFIC LIGHT

On the boom cover it is possible to insert a LED warning light model XBA7 or a traffic light with red and green LEDs model XBA8.
The operating modes of these warning lights can be modified through the **Oview** programmer or by suitably programming the control unit.
For further information, consult the instruction manuals of the two products

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10 PRODUCT MAINTENANCE

The automation must be subjected to regular maintenance to keep its safety level constant and guarantee long-lasting operation; to this aim, **M/L-BAR** has a manoeuvre counter and maintenance warning system; refer to the "***"Maintenance notice" function***" paragraph.

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.

Note For proper operation please follow the maintenance schedule stated in '***Table 21***'

Table 21

SCHEDULED MAINTENANCE							
Description	**Thousands of cycles**						
	50	**100**	**150**	**200**	**250**	**300**	**500**
Backlash detection on rod (see paragraph '*Detection and adjustment of rod play*')		•		•		•	
Spring tension (see paragraph '*Boom balancing*')		•		•		•	
Tightening spring screws (see paragraph '*Boom balancing*')		•		•		•	
Replacing spring (see paragraph '*Spring displacement or replacement*')							•
Rod joints (M7-L9) (see paragraph '*Installing the boom*')		•		•		•	
Unlocking Efficiency (see paragraph '*Manually unlocking and locking the gearmotor*')			•			•	

11 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.



WARNING

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

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12 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.

The total sum of the consumption of the accessories connected to the various outputs must not exceed the maximum 60W, above which, F2 will intervene forcing replacement. Below is the '*Table 22*' for the consumption of common accessories.

Table 22

CONSUMPTION OF ACCESSORIES			
Description	**Technical specification**		
	XBA40	**XBA60**	**XBA80**
Maximum power consumption (W)	20	30	40

Table 23

TECHNICAL SPECIFICATIONS				
Description	**Technical specification**			
	M3BAR	**M5BAR**	**M7BAR**	**L9BAR**
Product type	Boom gate for residential use inclusive of electronic control unit			
Clear opening (m)	2,32 ÷ 2,82	3,17 ÷ 4,82	5 ÷ 7	7 ÷ 9
Start peak torque (Nm)	100	200	300	400
Nominal torque (Nm)	30	70	90	130
Manoeuvre time (adjustable in sec)	1,5 - 4	3 - 6	6 - 10	11 - 18
Maximum frequency of operating cycles/ hour at nominal torque (the control unit limits the cycles to the maximum shown in Table T3)	500 continuous use	350 continuous use	200	150
Durability	Refer to the "***Product durability***" paragraph			
Power supply	230V≂ 50/60Hz			
Power supply voltage /V1	120V≂ 50/60Hz			
Maximum power draw at peak (W)	150	110	110	160
Maximum power at nominal torque (W)	40	50	40	50
Insulation class	1			
Emergency power supply	With optional accessory PS224			
Photovoltaic power supply	With optional accessory SYKCE30			
FLASH output	for 1 LUCYB, MLB or MLBT warning light (12 V – 21 W)			
LIGHT output	for optional accessory 'rod lights' XBA4, XBA6, XBA18 or XBA40, XBA60, XBA80 red light			
OGI output	for signal lamp 24V (max 10W) or XBA40, XBA60, XBA80 green light			
Output for warning light / traffic light on cover	with XBA7 LED warning light or XBA8 LED traffic light optional accessories			
BLUEBUS output	1 output with a maximum load of 11 BlueBus units (maximum 4 pairs of photocells, e.g. EPMB or EPLB + 2 pairs of photocells addressed as opening devices + maximum 4 EDSB or ETPB control devices + 1 FT210B device with FTA address)			
STOP input	For normally closed or normally open contacts or for 8.2 kΩ fixed resistor contacts with self-learning (any variation from the memorised status triggers the STOP command)			
SbS input	For normally open contacts			
OPEN input	For normally open contacts			
CLOSE input	For normally open contacts			
HP SbS input	For normally open contacts			
Radio connector	SM connector for SMXI or OXI receivers			
Radio ANTENNA input	50 Ω for RG58-type cable or similar			
Inputs for metal detectors	2			
Programmable functions	Refer to the "***PROGRAMMING***" chapter and additional settings via the Oview Programming and Control Unit			
Self-learning functions	Self-learning of the devices connected to the BlueBus output Self-learning of the type of "STOP" device (Normally Open, Normally Closed contact or 8.2 kΩ resistor) Learning of the door opening and closing positions			
Operating temperature	-20°C ÷ 55°C			
Use in highly acid, saline or potentially explosive atmosphere	No			
Protection rating	IP54			
Dimensions and weight	400x299x1215h mm; 80 kg	400x299x1215h mm; 80 kg	400x299x1215h mm; 85 kg	500x299x1215h mm; 98 kg

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13 DECLARATION OF CONFORMITY

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'.

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NOTES

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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 the boom is moving
- the photocells are not a safety device but only an auxiliary aid to safety. They are built using highly reliable technology but, in extreme conditions, may malfunction or even become defective. In certain cases, the defect may not be clearly evident. For these reasons, it is important to follow all the instructions given in this manual when using the automation
- periodically check that the photocells work properly.

IT IS STRICTLY FORBIDDEN to transit while the boom is moving! Transit is allowed only if the boom 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 boom 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 back-up batteries, the automation can nonetheless be used by manually unlocking the motor (consult the instructions at the end of the chapter) and moving the boom 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 gate can be operated in the "**Hold-to-run**" mode in the following way:

1. send a command to operate the boom using a transmitter or key selector, etc. If everything works normally, the boom 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 boom 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 boom's movement (consult 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.

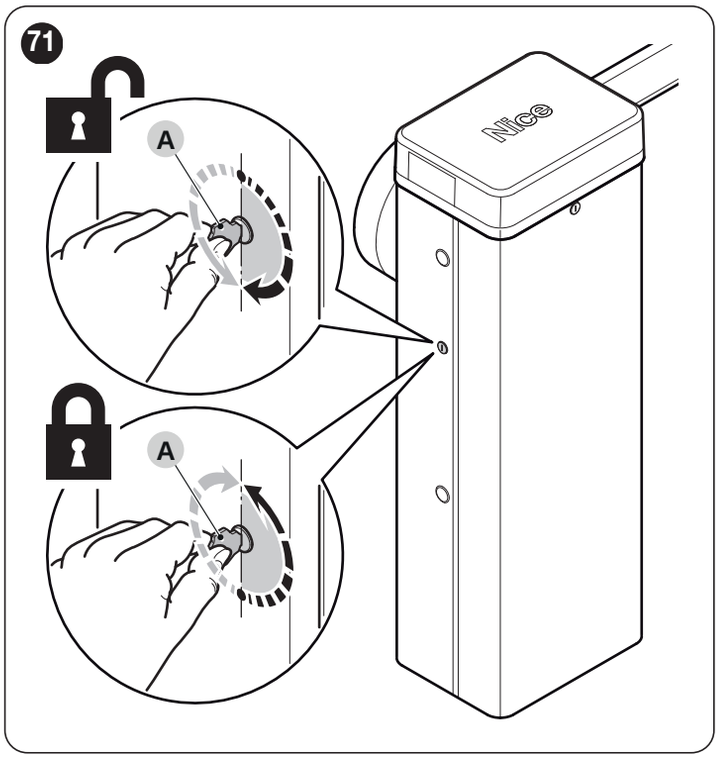
Replacing the remote control battery: if your remote control appears to be working poorly after some time, or stops working altogether, it may simply depend on flat batteries (depending on how much the device is used, the batteries may last from several months to over a year). You will notice this by 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.

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Unlocking and manual movement

To unlock the device:

1. insert the key (**A**) and turn it by 180° towards the left or right



2. the gate leaf can now be moved manually to the desired position.

To lock the device:

1. turn the key (**A**) back to its initial position
2. remove the key.
3. remove the rubber cap on the opposite side of the cubicle and insert the lock cylinder through the hole
4. from inside the cubicle, insert from bottom to top the U-shaped spring to lock the lock cylinder
5. turn the key (**A**) back to its initial position
6. remove the key.

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MAINTENANCE SCHEDULE (to be handed to the end user)

This maintenance register must be passed on to the new owner of the automation, after having filled in the relevant sections.

This register must contain a list of all the maintenance activities, repair work and alterations to the automation. The register must be updated every time work is carried out and must be stored carefully so that it is available for any inspections that may be required by the relative authorities.

This "Maintenance register" refers to the following automation:

model: **M-BAR** and **L9BAR** - serial no. ..... - installed on ..... - at .....

The following attached documents are part of the Maintenance Register:

1) - Maintenance schedule
2) - .....
3) - .....
4) - .....
5) - .....
6) - .....

SCHEDULED MAINTENANCE PLAN

Warning! – All maintenance work on this system must be carried out by qualified technical personnel, in full compliance with the safety standards provided for by the laws in force and the safety instructions specified in the "*GENERAL SAFETY WARNINGS AND PRECAUTIONS*" chapter, at the beginning of this manual.

For maintenance of devices added to the boom gate mechanism, follow the provisions laid down in the respective maintenance schedules.
Bear in mind that should the spring break, the boom gate will nonetheless conform to the requirement set out in section 4.3.4 of the EN 12604:2000 standard.

Table 24

SCHEDULED MAINTENANCE							
Description	**Thousands of cycles**						
	50	**100**	**150**	**200**	**250**	**300**	**500**
Backlash detection on rod (see paragraph '*Detection and adjustment of rod play*')		•		•		•	
Spring tension (see paragraph '*Boom balancing*')		•		•		•	
Tightening spring screws (see paragraph '*Boom balancing*')		•		•		•	
Replacing spring (see paragraph '*Spring displacement or replacement*')							•
Rod joints (M7-L9) (see paragraph '*Installing the boom*')		•		•		•	
Unlocking Efficiency (see paragraph '*Manually unlocking and locking the gearmotor*')			•			•	

Attention! Before each scheduled service, carry out these checks:

1. disconnect all power supplies
2. check for any deterioration of the components which form the barrier mechanism, paying particular attention to corrosion or oxidation of the structural parts; replace any parts that are below the required standard
3. check that the screw connections are properly tightened (especially those of the balancing spring and the crankcase screws)
4. check that there is no clearance between the balancing lever and the exit shaft. If necessary, fully tighten the central screw
5. in **M7BAR** and **L9BAR** versions, check the perfect locking between the two rod segments. If necessary, adjust the expansion screws.
6. place the boom in the vertical position and verify that the pitch between the coils of the balancing spring is constant without any deformation
7. unlock and check the correct balancing of the boom and for any obstacles during manual opening and closing
8. relock the boom and run the testing procedure.
9. **Verification of the safeguard against the risk of lifting:** on automations with vertical movement, it is necessary to check that there is no lifting danger. This test can be carried out as follows: hang a 20 kg load (e.g. a sand bag) halfway along the length of the boom then command an opening manoeuvre and check that during the manoeuvre the boom does not exceed a height of 50 cm above its closed position. If the boom exceeds this height, the motor force must be reduced (refer to the "***Programming the control unit***" paragraph).
10. If potentially dangerous situations due to the boom's movement have been prevented by limiting the impact force, the latter must be measured according to the EN 12445 standard and, if the "motor force" control is used to aid the system in reducing the impact force, it is necessary to test various adjustments to find the one that gives the best results.
11. **Check the power supply disconnection system:** operate the power disconnection device and disconnect any available back-up batteries; check that all the LEDs on the control unit are OFF and that the boom remains stationary when a command is sent. Check the efficiency of the locking system to prevent any unintentional or unauthorised connection.

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Table 25

TABLE ON INTERVENTIONS			
Date	**Description of intervention performed (Description of checks, adjustments, repairs, modifications, etc.)**	**Signature of Technician**	**Signature of Owner**
	All the phases envisaged in the maintenance schedule have been carried out ___YES ___NO		

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