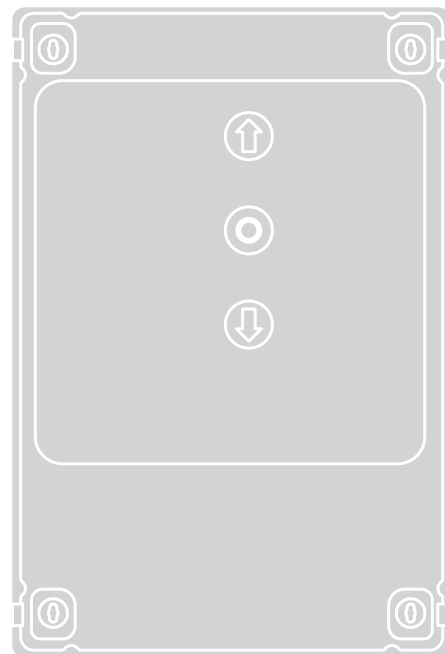


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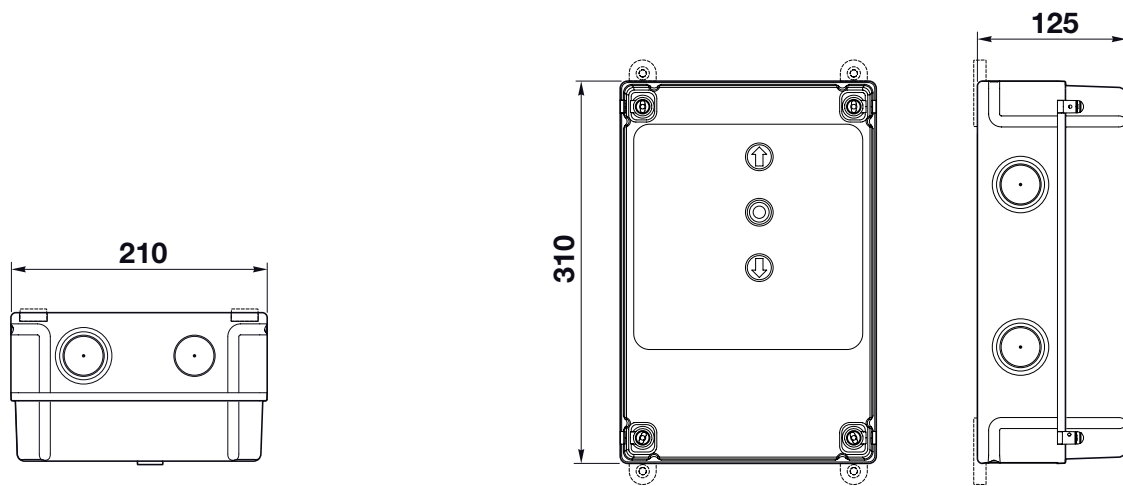
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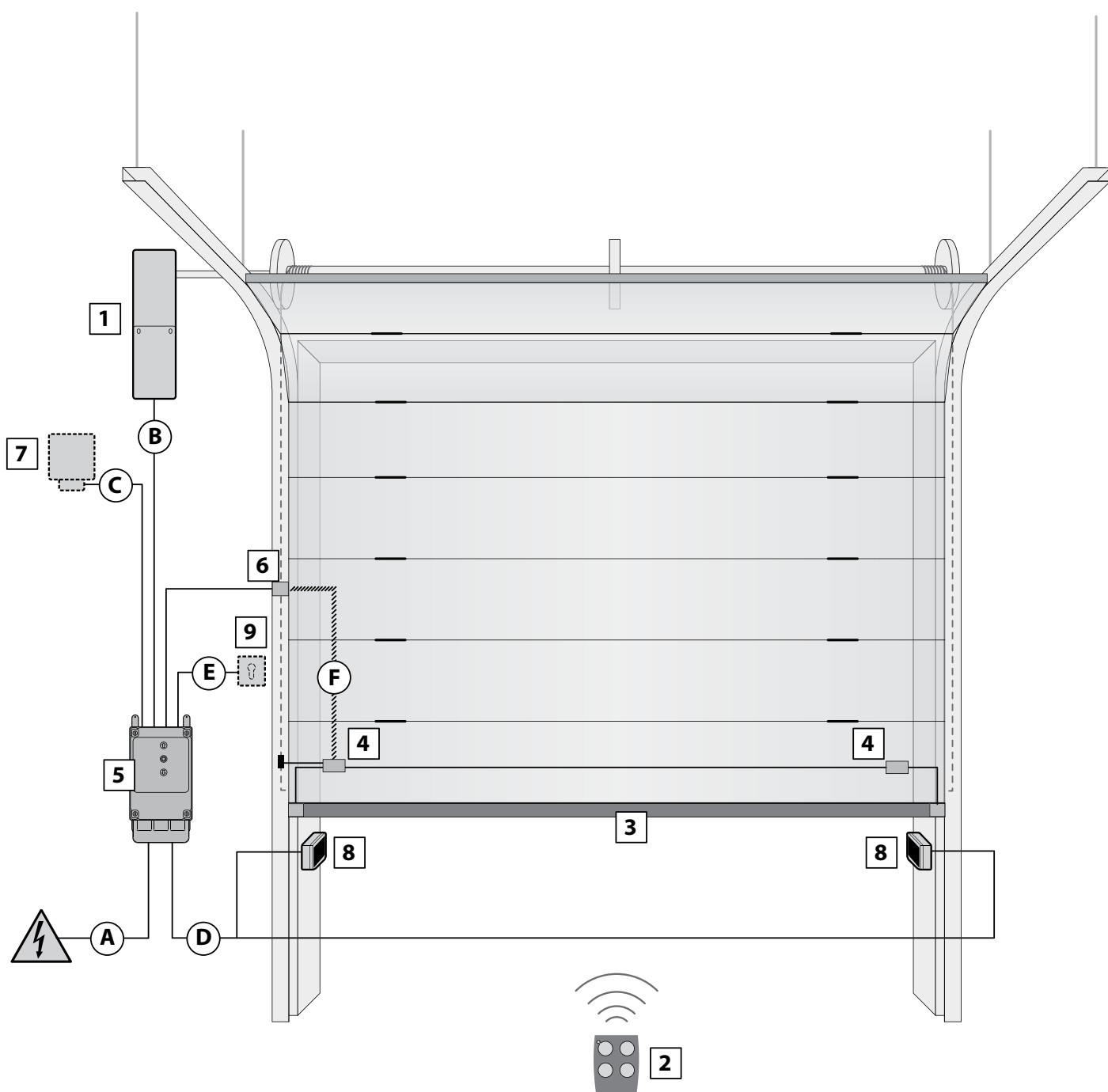
Control unit

EN - Instructions and warnings for installation and use

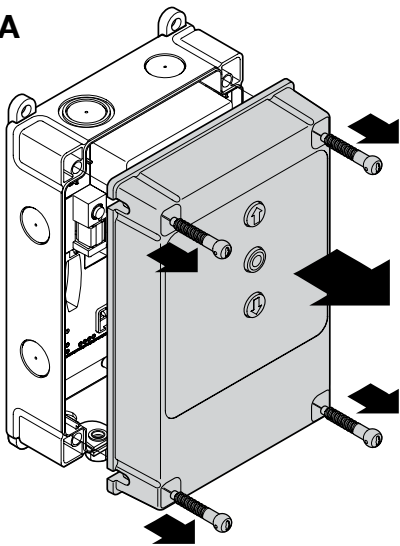
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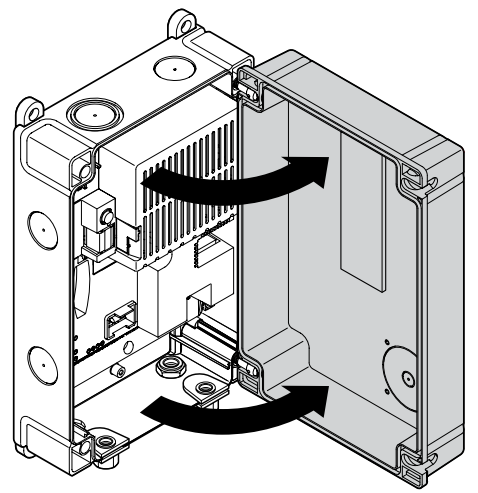
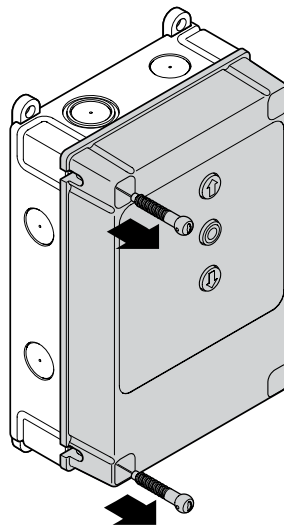
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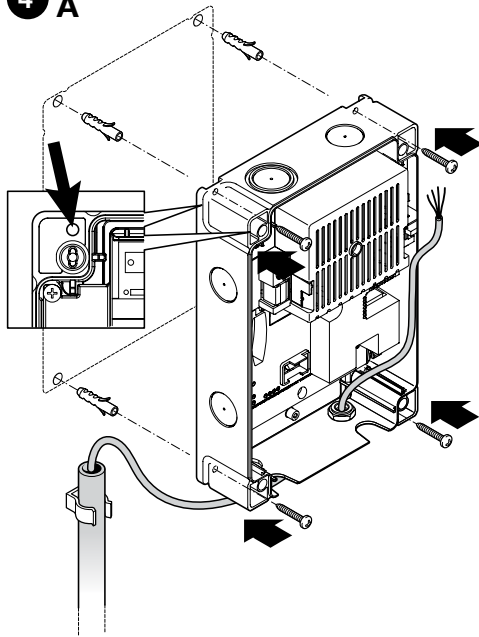
3 A



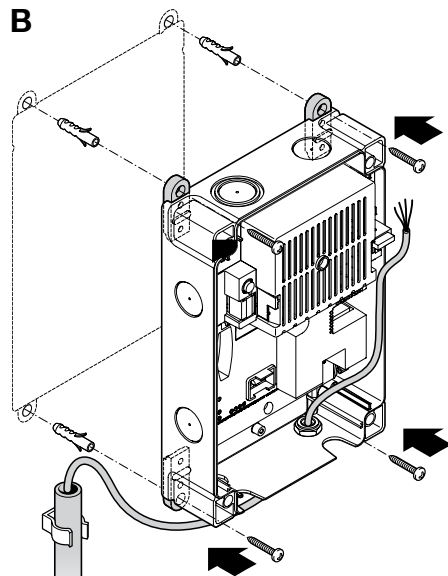
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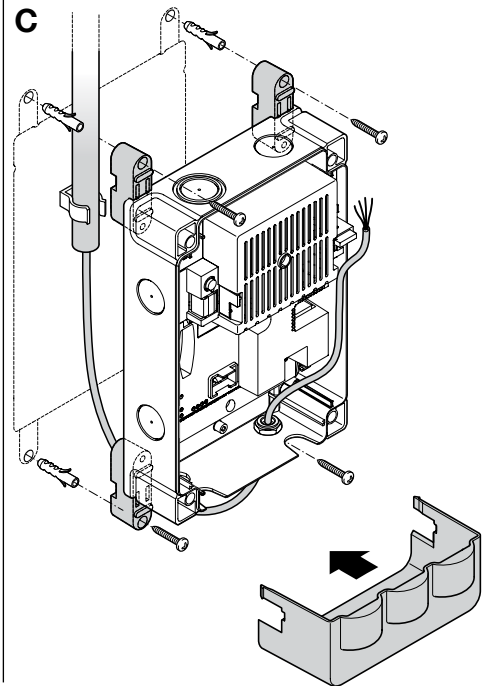
4 A



B

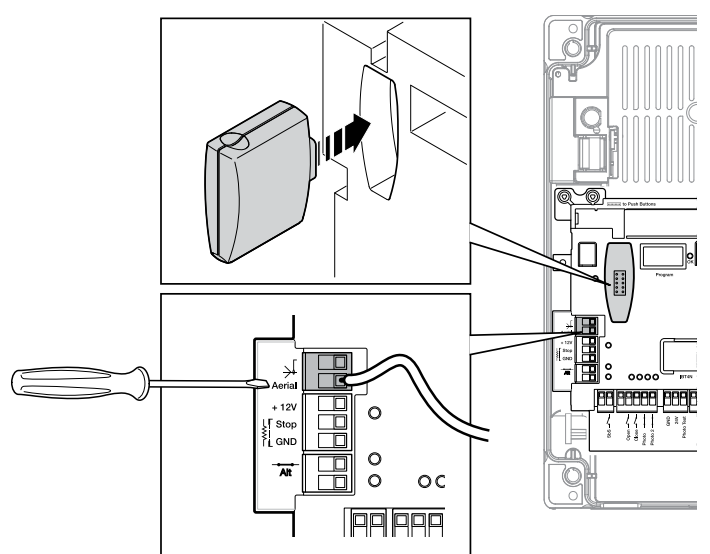
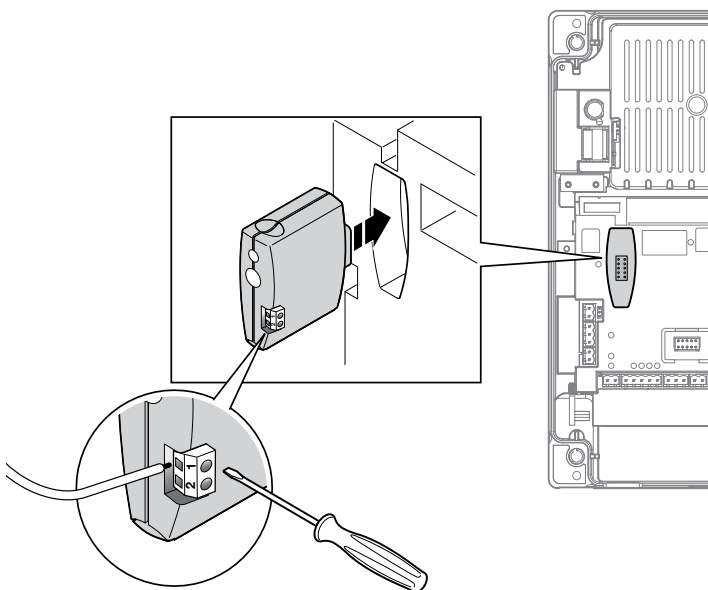


C



6 OXI New Generation

OXI/SMXI



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CAUTION CAUTION

Important safety instructions. Follow all instructions as improper installation may cause serious damage
Important safety instructions. It is important for you to comply with these instructions for your own and other people's safety. Keep these instructions

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

CAUTION

According to the most recent European legislation, the implementation of an automation system must comply with the harmonised standards provided by the Machinery Directive in force, which enables declaration of the presumed conformity of the automation. Taking this into account, all operations regarding connection to the electricity mains supply, as well as product testing, commissioning and maintenance, must be performed exclusively by a qualified and skilled technician!

- Before proceeding with the installation of the product, check that all 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 with insufficient experience or familiarity
- Children must not play with the appliance
- Do not allow children to play with the control devices of the product. Keep the remote controls out of reach of children.

CAUTION

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

- Provide a disconnection device (not supplied) in the plant's mains power supply, with a contact opening distance that permits complete disconnection under the conditions dictated 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. If this should happen, stop installation immediately and contact Customer Service.
- The manufacturer assumes no liability for damage to property, items or persons resulting from non-compliance with the assembly instructions. In such cases the warranty for material defects is excluded
- The weighted sound pressure level of the emission A is lower than 70 dB(A)
- Cleaning and maintenance to be carried out by the user must not be carried out by unsupervised children
- Before working on the system (maintenance, cleaning), always disconnect the product from the mains power supply
- Check the system periodically, in particular all cables, springs and supports to detect possible imbalances, signs of wear or damage. Do not use if repairs or adjustments are necessary, because a failure with the installation or an incorrectly balanced automated system may lead to injury
- The packing materials of the product must be disposed of in compliance with local regulations

Special warnings in relation to European directives applicable to the product

- "Construction Products" Regulation: Special warnings for this product in relation to Regulation 305/2011:
 - The full installation of this product, as described in this instruction manual and for certain types of use (e.g. excluding use solely for vehicles) may cause the product to fall within the scope of Regulation No. 305/2011 and its harmonised standard EN 13241-1.
 - It is necessary to apply all the installation criteria to ensure that the product meets the essential requirements of Regulation No. 305/2011; the installer must check and make sure that all these criteria have been scrupulously complied with.
 - The essential requirements might not be guaranteed if the product is installed and used without compliance with one or more of these criteria. It is forbidden to use the product in such circumstances until the installer has verified compliance with the Directive requirements; in this case the "ES13241-1.4870" label attached to the product must be removed immediately and the "EC Declaration of Conformity" (Annex I to this manual) cannot be used. As a result, the installer in turn becomes the manufacturer of the product and must comply with the provisions of Regulation No. 305/2011 and its harmonised standard EN 13241-1. In this case the product must be considered as "partly-completed machinery" and the "Declaration of Conformity" of Annex II can be used (for inclusion in the technical documentation).
- "Low Voltage" Directive:

Special warnings regarding the fitness of use of this product in relation to the "Low Voltage" Directive. This product meets the requirements in the "Low Voltage" Directive, if used for the use and in the configurations specified in this instruction manual and in combination with the items in the Nice S.p.a. product catalogue.

If the product is used in unspecified configurations or with other unspecified products, the requirements may not be guaranteed; the use of the product in such circumstances is prohibited until the installer has verified compliance with the specified requirements of the directive.
- "Electromagnetic compatibility" Directive:

Special warnings regarding the fitness of use of this product in relation to the "Electromagnetic compatibility" Directive.

This product has been subjected to electromagnetic compatibility tests in the most critical situations of use and in the configurations specified in this instruction manual and in combination with the items in the Nice S.p.a. product catalogue.

If the product is used in unspecified configurations or with other unspecified products, the electromagnetic compatibility may not be guaranteed; the use of the product is prohibited in such circumstances until the installer has verified compliance with the specified requirements of the directive.

Installation criteria and special warnings in connection with essential requirements

- When installed correctly, this product meets the essential requirements laid down in Regulation No. 305/2011 according to the requirements in harmonised standard EN 13241-1, as indicated in Table 1 and in the European directive on "Machinery" 2006/42/EC.
- Release of dangerous substances:

The product does not contain and/or release hazardous substances in accordance with the requirements of EN 13241-1, 4.2.9 and according to the list of substances on the website of the European Community

Special warning to ensure the continued compliance with the requirement – It is essential that the other materials used in the installation, such as electrical cables, comply with this requirement.
- Safe opening for vertically moving doors: the product does not cause uncontrolled movements.

Special warnings to ensure continued compliance of the requirements:

 - Install the product carefully following all the instructions described in Chapter "2 - Installation" and Chapter "5 - Testing and commissioning".
 - Ensure that a maintenance schedule is organised which scrupulously complies with all the provisions in the Chapter "Maintenance Schedule".

- As regards the risks of crushing and impact, the doors are protected by means of one of these three methods:
 - For operation with “hold-to-run command” (man present): as specified in EN 12453, point 5.1.1.4. In this case the command button must be placed in view of the automation and if it is accessible to the public, the command button must not be available to them, e.g. use only with a key switch.
 - For “Semi-automatic” operation: through the use of an active sensitive edge for limiting the forces as specified in EN 12453, paragraphs 5.1.1.5 and 5.1.3.
 - For “automatic” operation: through the use of an active sensitive edge for limiting the forces as specified in EN 12453, paragraphs 5.1.1.5 and 5.1.3; in this case, at least one pair of photocells must be installed as shown in **Fig. 2**.

1 PRODUCT DESCRIPTION AND INTENDED USE

DPRO924 is a control unit to be used to automate sectional balanced doors. It can control motors with an encoder or Hall effect position control system or using electromechanical limit switches.

DPRO924 is particularly suitable to be connected to Sumo motors and Opera System devices.

Available accessories: receivers with “SM” (SMXI, OXI, etc.) coupling.

⚠ CAUTION! – All uses other than the intended use described and use in environmental conditions other than those described in this manual should be considered improper and forbidden!

2 INSTALLATION

2.1 - Pre-installation checks

Before proceeding with installation, check the condition of the product components, suitability of the selected model and conditions of the intended installation environment:

- Check that all conditions of use fall within the “application limits” of the product (paragraph 2.2) and the value limits shown in the “Product technical characteristics” (chap. 9).
- Check that the installation location is compatible with the overall dimensions of the product (**Fig. 1**).
- Check that the surface chosen for installing the product is solid and can ensure stable attachment.
- Make sure that the installation area is not subject to flooding; if necessary, the product may be installed, appropriately raised above ground level.
- Check that the space around the product allows safe and easy access.
- Check that all electrical cables to be used belong to the type listed in Table 1.
- Check that the automation has mechanical stops in both the opening and closing phases.

2.2 - Product application limits

The product can be used only on sectional balanced doors with Nice motors of the Sumo family.

⚠ CAUTION! – The control unit described in this instruction manual cannot be used in areas at risk of explosion.

2.3 - Typical system

Fig. 2 provides an example of an automation system, produced using Nice components:

- | | |
|------------------|---|
| 1 Gearmotor | 6 Spiral cable |
| 2 Transmitter | 7 Flashing light |
| 3 Sensitive edge | 8 Photocell |
| 4 Junction box | 9 Digital keyboard - Transponder reader - Key selector switch - Push button panel |
| 5 Control unit | |

These parts are positioned according to a typical standard layout. With reference to **Fig. 2**, locate the approximate position for installation of each component envisaged in the system.

Important – Before installation, prepare the necessary electrical cables as per fig. 2 and Table 1.

⚠ Caution! – When laying the ducting for routing the electrical cables and for the cable entry point into the control unit housing, be aware that due to possible deposits of water in the junction wells, the connection ducts might create condensate in the control unit, with consequent damage to the electronic circuits.

2.4 - Installation of the control unit

- Open the control unit box:** unscrew the screws as shown in **Fig. 3-A** / **Fig. 3-B**;
- Prepare the holes for routing the electrical cables for the accessories providing control and/or signalling functions. For this purpose, we recommend using a special tool (e.g. hole cutter) on the marked positions at the bottom of the box, also to ensure maintaining the level of IP protection. If necessary, you can use the lateral cable entry points, but only by using suitable ducting connections;
- Secure the box:** it can be fixed in three ways:
 - directly onto the wall using the screws from inside the box (**Fig. 4-A**);
 - using the standard supports supplied (**Fig. 4-B**);
 - if the cable duct for routing the electrical cables is on the outside and you need to fix the box at a maximum distance of 2 cm away from the wall to allow the cables to be routed behind the control unit. NDA100 consists of 4 spacers and a protective cover for introducing the cables inside the control unit box. To install the unit using the (optional) accessory, see **Fig. 4-C**.
- At this point, you can make all the electrical connections: see Chapter 3.

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

TABLE 1 - Technical specifications of electrical cables (Fig. 2)

Connection	Cable type	Maximum admissible length
A: CONTROL UNIT CONNECTION cable	3 x 1.5 mm ²	30 m (note 1)
B: MOTOR cable	3 x 2.5 mm ²	10 m
C: ENCODER/LIMIT SWITCH cable	Encoder: 2 x 1 mm ² Limit switch: 4 x 0.75 mm ²	10 m 20 m

D: FLASHER cable with aerial	2 x 0.5 mm ² (for flasher 24V $\overline{\text{---}}$) RG58-type screened cable (for aerial)	20 m 10 m (5 m recommended)
E: PHOTOCELL cable	4 x 0.5 mm ²	20 m
F: KEY SWITCH cable	2 x 0.25 mm ² cables	20 m
G: COILED cable for sensitive edge		

Note 1 – If the power cable exceeds 30 m in length, a cable with a larger section (3 x 2.5 mm²) must be used and safety grounding near the automation must be installed.

Note 2 – These 2 cables can be replaced with just one 4 x 0.5 mm² cable

CAUTION! – The cables used must be suitable to the type of room where the unit is installed.

3 ELECTRICAL CONNECTIONS

⚠ CAUTION!

- Before you proceed to make any electrical connections make sure that the power supply is disconnected;
- Connections must only be carried out by qualified personnel.
- You must put a device on the electricity supply line that ensures complete disconnection of the automated mechanism from the mains supply. The disconnection device must have contacts with an opening distance large enough to permit complete disconnection under the conditions sanctioned by overvoltage category III, in accordance with installation regulations. The device ensures quick, safe disconnection from the power supply if needed, and must therefore be in a position that is visible from the automation mechanism. If, on the other hand, it is located in a position which is not visible, there must be a system for preventing accidental or unauthorised reconnection to the mains supply to prevent this risk. The disconnection device is not supplied with the product.

3.1 - Connection description

Find below the description of the meaning of the marks printed on the electronic board at the relative terminals:

PUSH BUTTONS	Input for the connections of the buttons on the box lid
24V $\sim$ Ground $\oplus$	Input for the connection of the transformer power
Battery (symbol)	Connector for the connection of the buffer battery mod. PS224
Incremental encoder	Terminal for the connection of the encoder of the Sumo- family motors - No polarity to comply with
Motor	Terminal for the connection of the electrical motor and the ground $\oplus$ Attention to polarity: connect the motor so that, when the opening command is given, the opening of the door matches it on the control unit 1: 24V $\overline{\text{---}}$ motor 2: 24V $\overline{\text{---}}$ motor 3: $\oplus$ motor
Limit Switch (function unavailable)	Connector for the electromechanical limit switch connection: Common: limit switch common Open: input of maximum opening limit switch Preclose: input of the preclosing limit switch, adjusted at about 3 cm above the closing limit switch. The detection of obstacles, or sensitive edge, between the closing and pre-closing position, stops the closing movement and the control unit considers the door in completely-closed position. Open: input of maximum closing limit switch
IBT4N	Input for the connection of the Oview programmer, with the appropriate IBT4N adapter. CAUTION! - Disconnect the power before connecting/disconnecting the programmer.
Aerial $\overline{\text{---}}$	Input for the connection of the radio receiver aerial (note: in Nice flashers Mod. ELDC, the aerial is built-in)
STOP	Input for the connection of resistive-type sensitive edges (8k2) or optical ones (OSE), as described below (fig. 5): OSE connection: - positive 12V $\overline{\text{---}}$ (+) (brown wires) - signal (S) (green wires) - negative GND (-) (white wires) Connection 8k2: - Connect the 8.2 k Ω resistance between the Signal and GND terminals
Common	24V output $\overline{\text{---}}$ (-30%; +50%) acting as common for the SbS input; when the control unit is in Standby mode (low consumption), this output is not off.
Sbs	Input for a NO (normally open) button to send commands in Step-by-Step mode; input reconfigurable using the Oview programmer.
COM SBY	24V output $\overline{\text{---}}$ (-30%; +50%) acting as common for the Open, Close, Photo and Photo2 inputs; when the control unit is in Standby mode (low consumption) this output is off
Open	Input for a NO (normally open) button to send commands in Open mode; input reconfigurable using the Oview programmer.
Close	Input for a NO (normally open) button to send commands in Close mode; input reconfigurable using the Oview programmer.
Photo	Input for Photocell-type safety devices with NC (normally closed) contact; the intervention takes place during the closing manoeuvre.
Photo2	Input for Photocell-type safety devices with NC (normally closed) contact; the intervention takes place during the closing manoeuvre.
GND	Negative GND
24V	24V output $\overline{\text{---}}$ (-30%; +50%) 200mA to power services; when the control unit is in Standby mode (low consumption), this output is not off.
Phototest	24V output $\overline{\text{---}}$ (-30%; +50%) 200mA to power photocells in phototest mode; when the control unit is in Standby mode (low consumption), this output is not off.
Out1 (Flash)	Output for flasher at 24V 25W with self-flashing (ELDC)

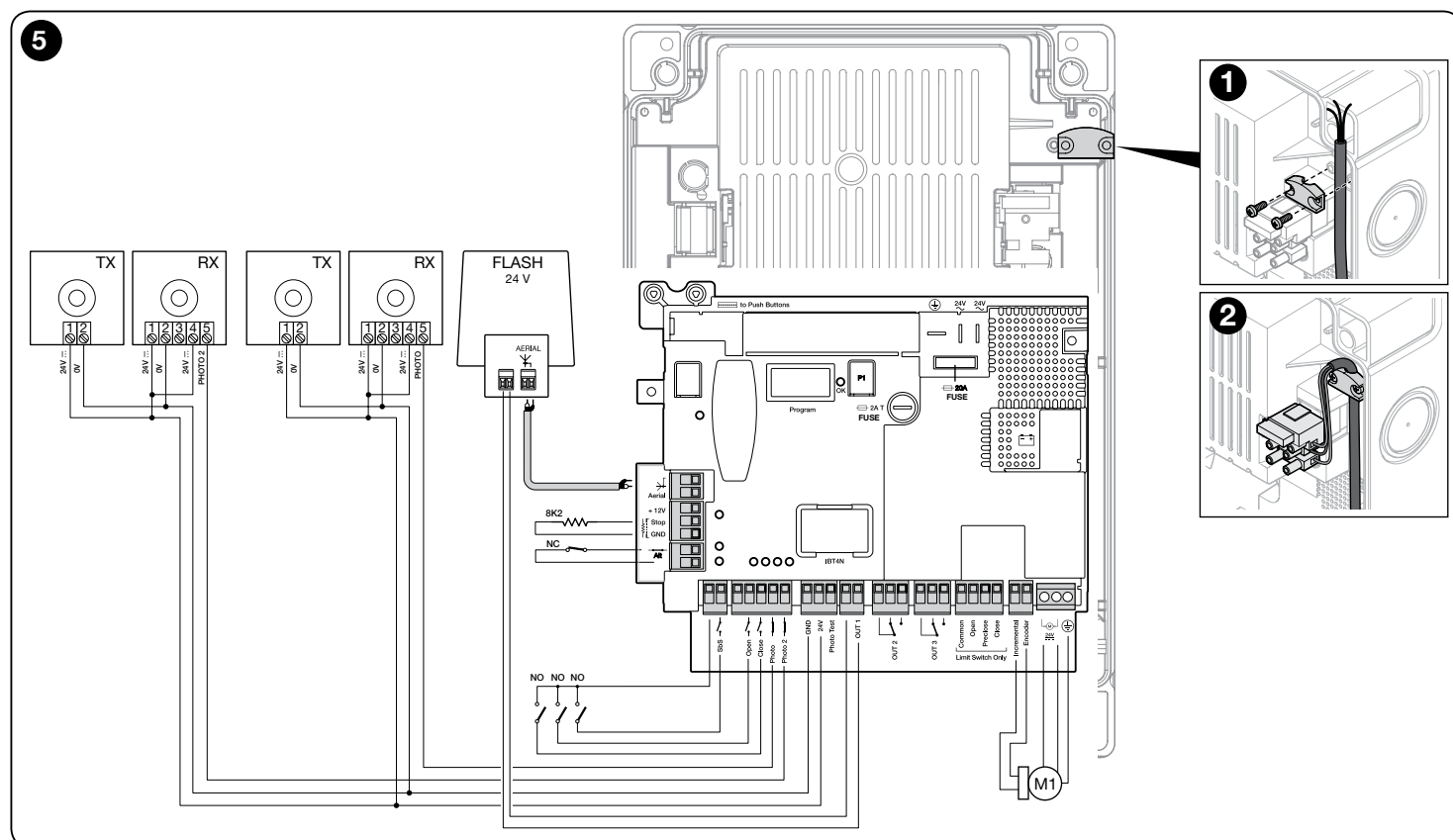
Out2	Clean contact relay output (maximum resistive load 3A)
Out3	Clean contact relay output (maximum resistive load 3A)

IMPORTANT! - We DO NOT recommend that you connect any device or accessory not mentioned in this instruction manual. The manufacturer declines all responsibility whatsoever for any damage due to improper use of the various system devices that does not comply with the instructions in this manual. For more information, please contact the Nice Customer Service.

3.2 - Collegamenti elettrici della centrale di comando (fig. 5)

⚠ CAUTION! – Before you proceed to make any electrical connections make sure that the mains power supply is disconnected and the buffer battery are disconnected.

After fixing the box of the control unit and prepared the holes for the electric cables (paragraph 2.4), make the connections as shown in **fig. 5**.



3.3 - STOP SAFETY EDGE Input

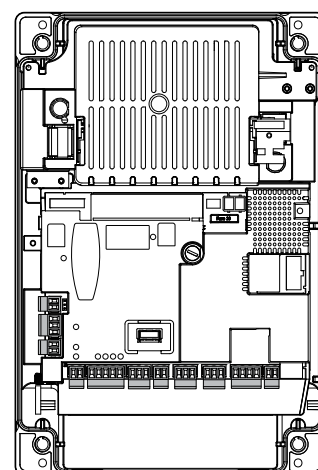
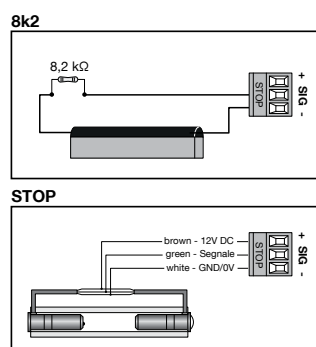
The function of the SAFETY EDGE input is to cause the immediate stop of a manoeuvre when in progress followed by a short reverse manoeuvre.

This input can be connected to devices such as optical sensitive edges (OSE) or those with 8.2 kΩ constant resistance output.

During the recognition phase, the control unit recognises the type of device connected and causes a "STOP" whenever any variation in the recognised status occurs.

Multiple devices, even of different types, can be connected to the STOP SAFETY EDGE input if appropriately organised:

- NO devices: connect the 8.2 kΩ resistor in parallel to the device;
- NC devices: connect the 8.2 kΩ resistor in series to the device;
- You can connect multiple NC devices "in series" with each other without quantity limits;
- If there are multiple devices, all must be connected "in cascade" with a single 8.2 kΩ terminal resistance;
- You can also create a combination of NO and NC types, by placing the two contacts "in parallel". In this case, you need to place a 8.2 kΩ resistance "in series" with the NC contact; this also makes it possible to put three devices together: NO, NC and 8.2 kΩ.



⚠ CAUTION! - After connecting the safety device, it is necessary to carry out the "Learning about the safety devices" phase (paragraph 4.3).

3.4 - Connecting a radio receiver

The control unit has an SM connector for connecting an SMXI, SMXIS, OXI, OXI New Generation, OXIBD or OXIT or similar radio receiver (optional accessory, not supplied).

To connect the radio receiver, you must disconnect the mains power supply from the control unit and insert the receiver as shown in **Fig. 6**.

Table 2 shows the actions performed by the control unit according to the activated outputs or the commands sent by the radio receiver.

Note - For further information, refer to the instruction manual for the receiver.

TABLE 2

SMXI, SMXIS Receiver in "Mode 1 or 2"

output	description
Output No. 1	Step-by-Step
Output No. 2	Partial open; <u>factory setting</u> : opens 1/4 of the stroke (this may be changed during the position acquisition phase or by using the Oview programmer)
Output No. 3	Open
Output No. 4	Close

OXI, OXIT receiver programmed in "extended Mode 2"

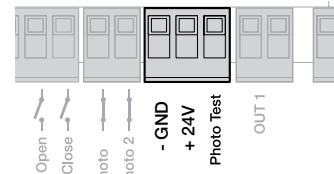
command	description
Command No. 1	Step-by-Step
Command No. 2	Partial open; <u>factory setting</u> : opens 1/4 of the stroke (this may be changed during the position acquisition phase or by using the Oview programmer)

Command No. 3	Open
Command No. 4	Close
Command No. 5	Stop
Command No. 6	Step-by-Step Condominium
Command No. 7	Step-by-Step High priority
Command No. 8	Partial open 2
Command No. 9	Partial open 3
Command No. 10	Open and Lock automation
Command No. 11	Close and Lock automation
Command No. 12	Lock automation
Command No. 13	Release automation
Command No. 14	Timed Courtesy light
Command No. 15	Courtesy light ON/OFF

3.5 - Connecting other devices to the control unit

If it is necessary to power more devices in the system (e.g. transponder card reader, light for the key selector, etc.), they can be connected to the control unit using the "GND" and "24V ===" terminals.

The power supply voltage is 24V === (-30% ÷ +50%) with 200mA maximum available current.



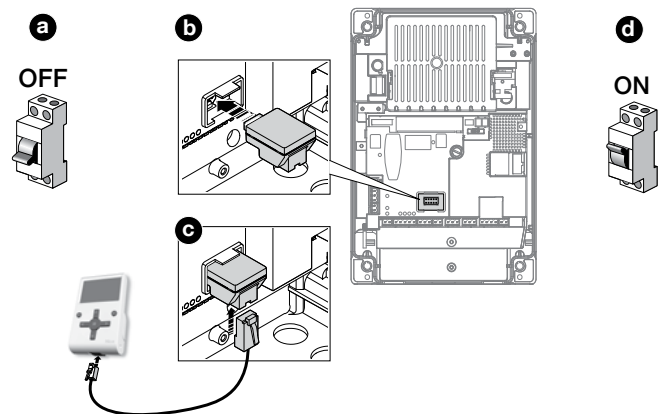
3.6 - Oview programming unit

Using the Oview programming unit allows you to manage the installation, maintenance and diagnosis of the entire automated system in a thorough and rapid manner. You can connect Oview to the control unit via the IBT4N interface using a bus cable with 4 wires inside.

To access the BusT4 connector, you need to open the control unit box, plug the IBT4N connector into the appropriate slot and then connect the Oview programmer.

Oview can be used at a maximum cable distance of 100 metres from the control unit; it can be connected simultaneously to multiple control units (up to 16) and can remain connected even during normal operation of the automated system. When working with Oview, it is very important to observe the instructions in the Oview instruction manual.

If there is an OXI radio receiver in the control unit, when you use Oview you can have access to the parameters of the transmitters memorised in the receiver. For further information, refer to the Oview instruction manual or the control unit function sheet available from the website www.niceforyou.com



⚠ CAUTION! - If the functions of Table 3 are programmed with the Oview programming unit, it is necessary to set the dip switches to OFF.

3.7 - First start-up and checking the connections

After powering the control unit, check:

- that the OK led (located near the dip switches) regularly flashes green once every second.
- if there are photocells in the system, check that their leds flash (RX); the type of flashing is not significant because it depends on other factors.
- that the leds of the ALT, Photo and Photo2 inputs are on with fixed lights (see Table 6 - paragraph 7.2).

If at least one of these checks is not as required, disconnect the control unit from the mains and check the electrical connections you made.

4.1 - Control unit buttons

8

OPEN

STOP

CLOSE

The “OPEN”, “STOP” and “CLOSE” buttons are to be used to control the automated system and for the programming phase

4.2 - Total deletion of the control unit memory

You can delete all the data stored on the control unit and restore it to its original state with the default settings.

01. Set dip switch A 1-2-3-4 to ON = the led flashes quickly with orange light

02. Keep the STOP button pressed for 3 seconds until the led is on with fixed red light

03. Release the STOP button

04. At this point the control unit does a RESET = the led flashes quickly with orange light

05. Set dip switch A 1-2-3-4 to OFF = the led flashes with green light

4.3 - Learning about the safety devices and DIP SWITCH programming

After switching on for the first time (paragraph 3.7) and before setting the door Opening and Closing positions, the control unit must recognize the:

- safety devices connected to the “STOP Safety Edge” input
- photocell connection in standard or phototest mode
- settings of dip switches A and B.

NOTE: when dip switch A or B is modified, the OK led flashes alternatively green and red to highlight that the device learning phase must be carried out again.

CAUTION! - During the learning phase, at least one safety device must be connected to the control unit.

01. Set dip switch A-1 to ON = the led flashes quickly with green light

02. Keep the STOP button pressed for 3 seconds until the led is on with fixed red light (after about 3 seconds)

03. Release the STOP button

04. Set all dip switches to OFF = the green led flashes slowly or as per previous programming

This procedure must be repeated when a change to the “STOP Safety Edge” terminal (e.g. after connecting a device to the control unit) or the phototest connection or dip switches A or B is made.

After learning about the safety devices in the automation, the control unit must recognize the door Opening and Closing positions.

CAUTION! - The procedures to learn about the safety devices and the door Opening and Closing positions must be carried out one after the other and without interruptions. They cannot be performed at different times.

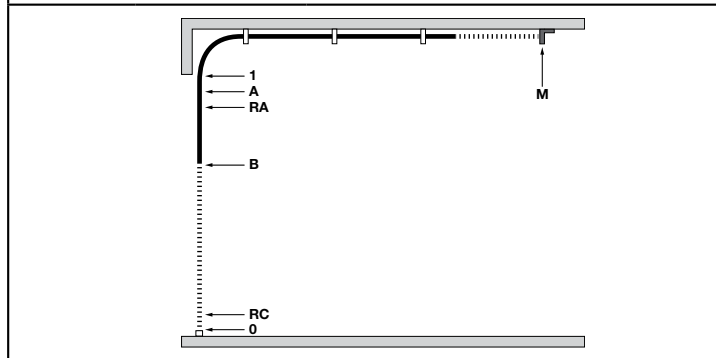
CAUTION! - Procedure for motors with incremental encoders: after performing the Opening and Closing position learning procedure, the control unit must perform a self-learning procedure of the forces (5 cycles of complete manoeuvres, the door stops in the Closing position).

4.4 - Learning the Opening and Closing positions with an incremental encoder

3 positions can be programmed, as described below:

Position	Action	Meaning
0	Close	Maximum closing value. When the door reaches this position, it stops; this matches the mechanical stop (generally the floor). It can be programmed with the electronic board or Oview programmer.
1	Opening stop	Door maximum opening position, corresponding to the opening mechanical stops (M in the picture below). The opening value must be smaller than this point.
A	Open	Door stop desired position during opening (does not match the opening mechanical stops). It can be programmed with the electronic board or Oview programmer.
B	Partial opening	Door stop desired position during partial opening. It can be programmed with the electronic board or Oview programmer.
RA	Slow down Open	Door desired position for slow down start during opening. It can be programmed only with the Oview programmer.
RB	Slow down Close	Door desired position for slow down start during closing. It can be programmed only with the Oview programmer.

Note: positions **B**, **RA** and **RB** are calculated automatically by the control unit; to change them, the Oview programmer must be used (accessory).



These manoeuvres are carried out at low speed. If the door is in the closing position, it must be positioned manually at about 50 cm from the ground, using the emergency system (see the motor instruction manual) in order to prevent, if the rotation is reversed, the track ropes from coming out of their housing (sectional doors) or the excessive winding of the shutters (rolling shutters).

Important - Unlocking with Nice SUMO motor: when the SUMO motor is unlocked, if the DPRO924 control unit is on, it stores the command. To synchronize the encoder position again, closing as far as the maximum closing position must be performed. The opening manoeuvre must be carried out in

'hold-to-run' mode, until synchronization of the encoder position is completed.

To perform this procedure, follow the following instructions:

01.	Select the type of motor, setting dip switches B-2 and B-3 to OFF	
02.	Set dip switch A-1 to ON (A-2, A-3 and A-4 are OFF)	
03.	Keep the STOP button pressed until the led is on with fixed red light (after about 3 seconds)	
04.	Release the STOP button	
05.	Press the OPEN button to bring the door to the desired open position	
Caution! - if the sense of rotation does not match the set direction (OPEN button = opening direction, it is necessary to swap the positive and negative poles of the motor cables and repeat the learning procedures from the start		
06.	Keep the STOP button pressed for 3 seconds until the led flashes once with red light	
07.	Press the CLOSE button to bring the door to the maximum closing position	
08.	Keep the STOP button pressed for 3 seconds until the led flashes twice with red light	
09.	If you do not wish to set the "partial opening" value, set dip switch A-1 or B-1 to OFF and go to step 12 of this procedure	
10.	Press the OPEN button to bring the door to the desired partial opening position (e.g. half stroke)	
11.	Keep the STOP button pressed for 3 seconds until the led flashes three times with red light	
12.	Set dip switch A-1 to OFF	
13.	Set dip switches A-3 and A-4 as per Table 3 for the desired operating mode and confirm the setting of the dip switch with the P1 button on the control unit	

CAUTION! – The recognition phases must not be interrupted. If there is an interruption, you must repeat the entire recognition process.

Once the position learning phase has been completed, it is necessary to carry out learning about the handling forces: carry out 4 complete manoeuvres; if the manoeuvre is not completed (e.g. for amp meter intervention or stop or photo intervention) it is not counted. Until this phase is complete, the OK led is flashing with red and green light during the manoeuvre, THAT IS CARRIED OUT AT MAXIMUM FORCE.

Note: if the speed or slow down positions are modified or if the sensitivity is activated, the force learning phase must be repeated.

4.5 - Operating modes

CAUTION! - If the functions of Table 3 are programmed with the Oview programming unit, it is necessary to set the dip switches to OFF.

TABLE 3: DIP SWITCH A				
DIP1	DIP2	DIP3	DIP4	Function
OFF	OFF	OFF	OFF	Hold-to-run movement
ON	X	OFF	OFF	Acquisition of positions and status of the ALT input
OFF	ON	OFF	OFF	Rotation direction of the encoder reversed (only for absolute encoder)
OFF	X	OFF	ON	Industrial mode (semi-automatic opening – hold-to-run closing), if positions recognised
OFF	X	ON	OFF	Semi-automatic mode, if positions recognised
OFF	X	ON	ON	Automatic mode with adjustable pause time, if positions recognised (see para. 4.5.1 "Setting the automatic closing pause time")

TABLE 4: DIP SWITCH B			
DIP1	DIP2	DIP3	Function
OFF	X		Sensitivity disabled
ON	X		Sensitivity enabled*
X	X	OFF	Motor with encoder
X	X	ON	Motor with electromechanical limit switch

* Note: the sensitivity parameter allows reducing the door strength of intervention against an obstacle considerably.

During the "Learning about the safety devices" procedure, the control unit stores the status of dip switches A and B. At the end of this procedure, a variation in the dip switches causes the OK led to flash quickly with red and green light alternately to highlight the change in configuration; in this phase the control unit allows no commands to be executed. It is necessary to carry out a new "Learning about the safety devices" procedure (paragraph 4.3) or press the P1 button for 2 seconds.

Once the positions have been acquired, it is necessary to perform 4 complete manoeuvres to get the control unit to store the force required to move the door; the manoeuvres are represented by the OK led flashing slowly with red and green light alternately.

The "force and sensitivity" parameters can be adjusted with the Oview programmer (accessory).

4.5.1 - Setting the automatic closing pause time

01.	Set dip switches A-3 and A-4 to ON	
02.	Press the P1 button for 2 seconds (the OK led flashes with green light)	
03.	Send an opening command to bring the door to the maximum opening position	
04.	Once this position is reached, wait for a time equal to the desired automatic closing pause time and send a closing command. The automatic closing pause time is now stored	

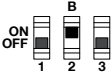
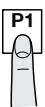
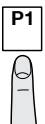
4.5.2 - Modifying the pause time value

01.	Set dip switch A-4 to OFF and confirm with the P1 button for 2 seconds	
02.	Set dip switch A-4 to ON and confirm with the P1 button for 2 seconds At this point the opening, pause time and closing sequence must be repeated.	

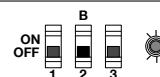
CAUTION! - When dip switch A-4 is set to OFF, the pause time is cancelled.

4.5.3 - Modifying the speed value

It is possible to modify the opening, opening slowdown, closing and closing slowdown speed using the Oview accessory or the board keys.

01.	Set dip switch 2-B to ON = the OK led flashes quickly with orange light.	
02.	Hold down the P1 key until the end of step 04	
03.	Send an opening or closing command with the "OPEN" or "CLOSE" keys according to the speed you wish to change = the door starts to move	
04.	• To increase the speed: press the OPEN key repeatedly = each pressure corresponds to an increase of 5% - Or • To increase the speed: press the OPEN key repeatedly = each pressure corresponds to an increase of 5%	
05.	Release the P1 key. To order a new manoeuvre, repeat the procedure from step 02	

06. Set dip switch 2-B to OFF = the OK led flashes regularly with green light.



Notes

* With key P1 pressed:

- the OK led signals the position of the door:

- OK led green: on a normal stroke
- OK led red: slowing down

- the control unit excludes the amp meter control.

• At the end of the procedure, the control unit must go through the procedure about self-learning the forces (5 complete cycles; the door stops in the closing position. During the manoeuvres, the OK led flashes red and green alternately).

• With dip switch 2-B, it is possible to control the manoeuvres only as described in Table 9.

5 TESTING AND COMMISSIONING

The testing and commissioning phases are the most important when creating an automated system in order to ensure maximum safety. The testing procedure can also be performed as a periodic check of the automation devices.

These phases must be performed by qualified and experienced personnel who must take charge of establishing the tests necessary to verify the solutions adopted in respect of risks and verify the compliance of the system with applicable standards, legislation and regulations, in particular all requirements of the standard EN 12445 which establishes the test methods for checking automated systems for gates and doors. The additional devices must undergo specific testing, both in terms of their functions and in terms of their interaction with the control unit; therefore, you need to refer to the instruction manuals for the individual devices.

The sequence of steps to perform for testing, described below, refers to a typical system (**Fig. 2**):

1 Check that all the instructions in the "Installation warnings" chapter have been rigorously complied with.

2 Release the motor. Check that the door can be manually manoeuvred with a force no greater than 225N.

3 Lock the motor.

4 Using the control devices (transmitter, push button, key switch, etc.), test the Opening, Closing and Stopping of the door, ensuring that the movement of the door leaves corresponds to specifications. Test several times to assess the movement of the door and check for any defects in assembly or adjustment and for any particular points of friction.

5 Check, one by one, that all the safety devices featured in the system (photocells, sensitive edges, etc.) work properly.

6 If the dangerous situations caused by the movement of the door leaves have been safeguarded against by limiting the impact force, the impact force must be measured according to the EN 12445 standard.

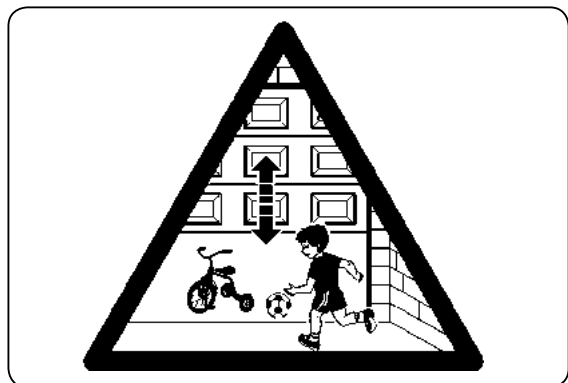
Commissioning can only be performed after obtaining positive results in all the test phases run on the control unit and the other devices (paragraph 5.1). **It is not permissible to execute partial commissioning or to enable use of the system in "makeshift" conditions.**

1 Prepare and store the technical documentation for the automated system for at least 10 years. This must include at least: an assembly drawing of the automated system, a wiring diagram, an analysis of hazards and solutions adopted, a manufacturer's declaration of conformity of all the devices installed (for the control unit, use the annexed CE declaration of conformity); a copy of the automation system instruction manual and maintenance schedule.

2 Post a label on the door providing at least the following data: type of automated system, name and address of manufacturer (person responsible for the "commissioning"), serial number, year of manufacture and "CE" marking.

3 Post a permanent label or sign near the door detailing the operations for releasing the system and its manual operation

4 Post a permanent label or sign on the door containing this picture (min. height 60 mm).



5 Prepare the declaration of conformity for the automation system and hand it to the owner.

6 Prepare the "Instructions and warnings for the use of the automation system" and hand it to the owner.

7 Prepare the maintenance schedule for the automation system and hand it to the owner; it must include all the instructions regarding maintenance of the individual devices.

6.1 - Connecting photocells and accessories in standby mode

The “Total stand by” function is used to reduce consumption and is useful when there is a buffer battery because it allows prolonging the battery charge, it can be activated using the Oview programmer.

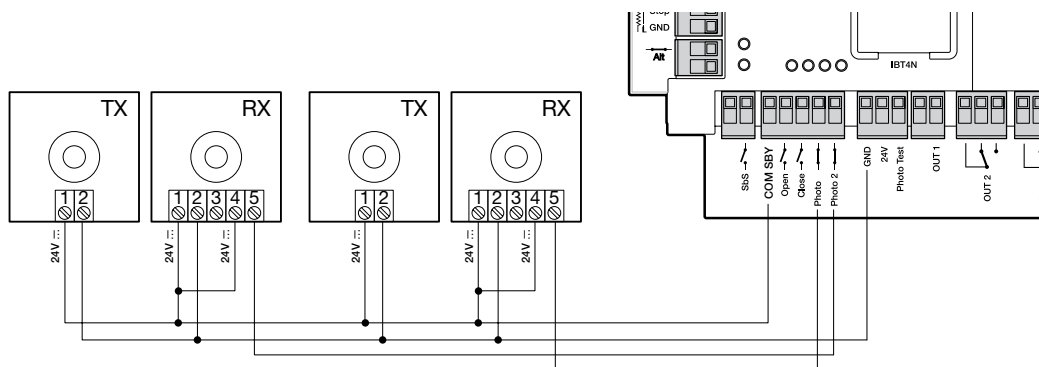
Once the “Stand by Time” from the end of a manoeuvre has elapsed (default: 1 minute), the control unit goes into “Total stand by” mode, and switches all inputs and outputs off to reduce consumption. The state is highlighted by the OK led starting to flash more slowly.

To reduce consumption, it is necessary to connect the photocells and any external devices as shown on the side.

The supply of both transmitters and receivers must be connected to the COM SBY output: in this mode, no Phototest is performed.

WARNING - With the “Stand by” mode active, the control unit can be reactivated by sending a command to the OXI radio receiver or SbS input using the opening and closing buttons on the box lid.

CAUTION! - If the Photo or Photo2 photocells are not used, jumper the input with the COM SBY output.



6.2 - Connecting photocells in “Phototest” mode

The “Phototest” function increases the reliability of the safety devices, allowing reaching “category II” in compliance with the EN 13849-1 standard (set of the control unit and safety photocells).

When a manoeuvre starts, the safety devices involved in the manoeuvre are checked and the manoeuvre starts only if everything is OK. If the test result is negative (e.g. photocell blinded by the sun, cables shortcircuited, etc.), the fault is identified and the manoeuvre is not performed.

After the connection in “Phototest” mode, it is necessary to carry out the “Learning about the safety devices and dip switch programming” procedure (paragraph 4.3).

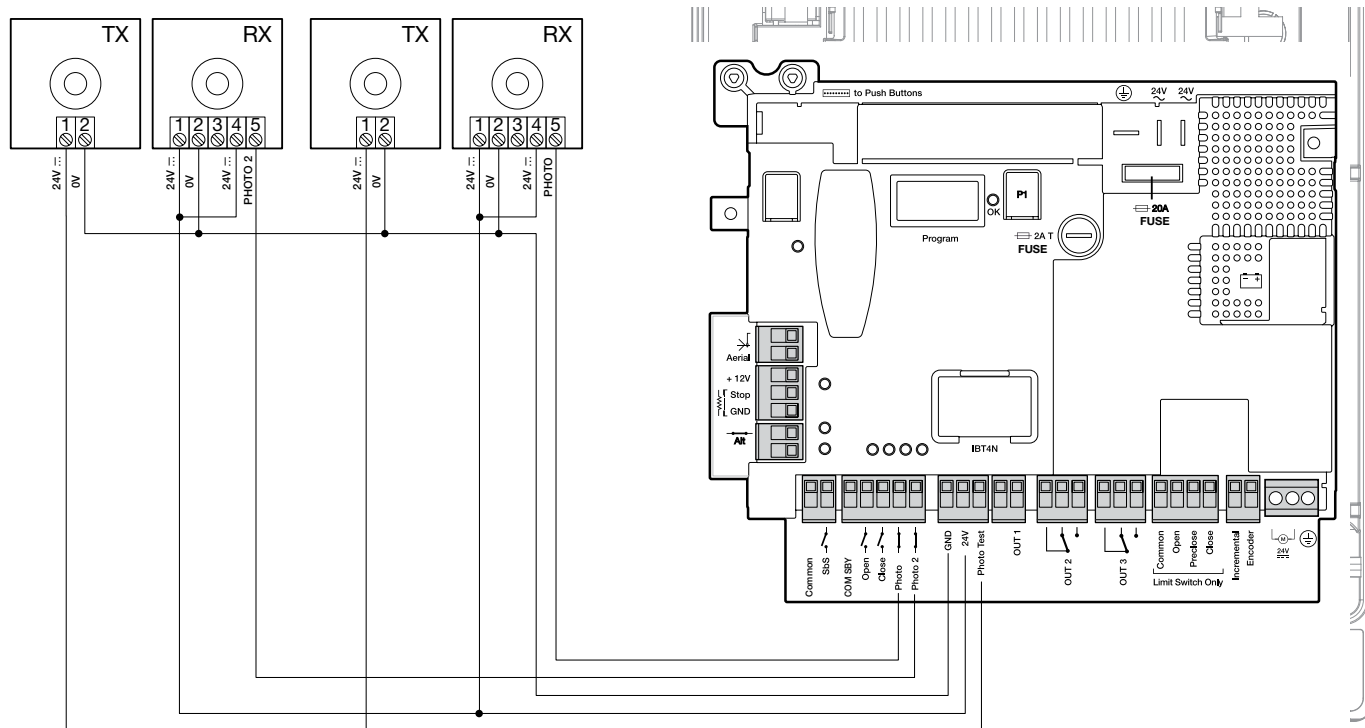
To add a pair of photocells, connect them as follows:

The supply of the receivers is taken directly from the service outputs (terminals GND (1) - 24V, (2)), while the transmitters are supplied from the “Phototest” output (terminals GND (1) - Phototest (3)). The maximum usable power on the “Phototest” output is 200mA.

CAUTION!

- If two pairs of photocells are used and they interfere with each other, activate the “synchronisation” function as described in the photocell user manual.

- If photocells Photo or Photo2 are not used, it is necessary to jumper the input with the Phototest output.

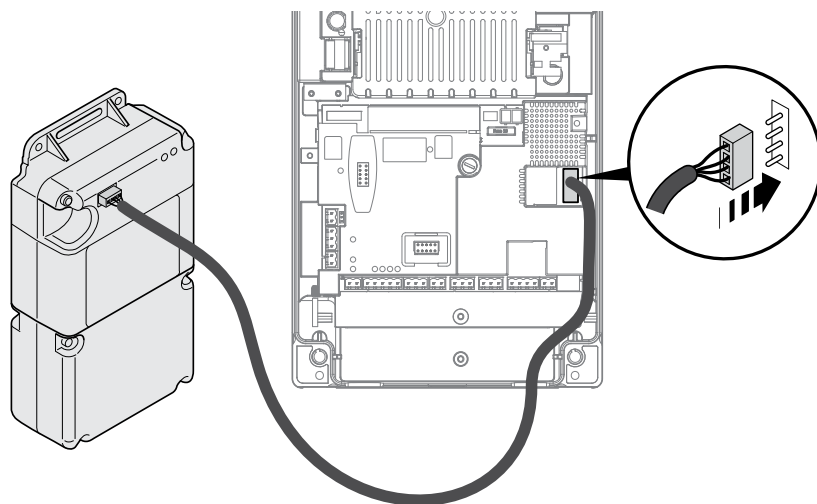


6.3 - Connecting a buffer battery

The control unit is prepared for the installation of the buffer battery mod. PS224 (optional accessory): 7.2 Ah with built-in battery charger.

To connect the buffer battery, proceed as shown on the side.

⚠ CAUTION! - The electrical connection of the buffer battery to the control unit must be done only after completing all the installation and programming phases, since the battery is an emergency supply.



6.4 - Connecting the status light and diagnostics

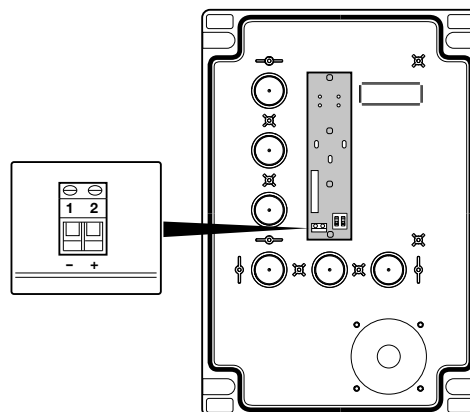
The control unit is ready for the connection of a 24 V - 5 W max warning light to the "light" terminal of the button panel board inside the box lid (picture on the side: terminal 1 - 2+).

The "light" can be installed on the same box lid making a hole or out of the control unit at a maximum distance of 2 m from it.

⚠ WARNING - The output is not protected against shortcircuits.

This "light" works as follows:

- **OFF** = when the safety chain is open (ing ALT, STOP button, red or release)
- **flashing** (0.5 s ON, 0.5 s OFF) = when it works correctly
- behaviour as the diagnostics of the OK led, red = when some components require diagnostics.



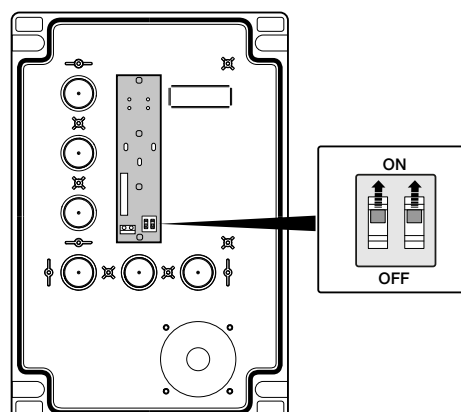
6.5 - Open and Close block (using the buttons on the box lid)

In the button panel board inside the box lid, there is a two-way dip switch that allows activating the Open and Close buttons.

- **OFF position** = the buttons are disabled.
- **ON position** = the buttons are enabled.

⚠ WARNING - The STOP button is always active.

⚠ WARNING - To perform the learning procedures, the dip switches must be activated to be able to use the buttons.



7 DIAGNOSTICS

7.1 - Messages on turning on

When the control unit is switched on, the behaviour of the OK led is significant as shown in Table 5, in particular:

- if learning the opening and closing positions is correct
- if learning the safety device (sensitive edge) is correct and what type of device has been recognized..

TABLE 5	
Signal when the control unit is switched on	Behaviour of the OK led
Clear memory (no position or safety acquired)	Quick flashing for 5 seconds - green
Positions acquired and STOP 8.2KΩ	1 slow flash - red
Positions acquired and STOP OSE	2 slow flashes - red
Motor with electromechanical limit switch	1 slow flash - green
Motor with incremental encoder	2 slow flashes - green
Motor with absolute encoder	3 slow flashes - green

After the messages shown in Table 5, the control unit shows any errors: see paragraph 7.2.

7.2 - Diagnostics

Some devices are supposed to issue warnings that allow identifying their status or any faults.

Table 6 describes the various messages with their relative causes and solutions; the warnings are based on combinations of colours, OK led flashing and a possible, suitably programmed, flasher connected to the outputs of the control unit.

TABLE 6: OK LED SIGNALS (flashing red)		
Signal	Cause	Solution
2 flashes - 1 sec. pause 2 flashes - red led	Triggering of a photocell	At the beginning of the manoeuvre, one or more photocells are preventing movement; check if there are any obstacles. During the closing movement it is normal if an obstacle is present.
3 flashes - 1 sec. pause 3 flashes - red led	Intervention of the "Driving Force" or "Sensitivity" or "Blocked Encode" limiter	While moving, the door has met with increased friction: check its cause.
4 flashes - 1 sec. pause 4 flashes - red led	Activation of the STOP input	At the start of the manoeuvre or during the movement, the STOP ALT input has been triggered or the motor release lever has been activated: check the cause.
5 flashes - 1 sec. pause 5 flashes - red led	Internal parameter memorisation error	Press the STOP button on the box lid to reset the error. Wait for at least 30 seconds to allow the control unit to reset. If the situation does not change, it is necessary to delete the memory and carry out the storing procedure again.
6 flashes - 1 sec. pause 6 flashes - red led	Maximum limit of manoeuvres per hour exceeded	Wait for a few minutes to allow the manoeuvre limiter to go back below the maximum.
7 flashes - 1 sec. pause 7 flashes - red led	Error in the internal electrical circuits	Press the STOP button on the box lid to reset the error. Disconnect all the supply circuits for a few seconds, then try and send a command again; if the situation does not change there may be a serious fault on the board or on the motor wiring: check and replace as required.
8 flashes - 1 sec. pause 8 flashes - red led	Command already present	Another command is already present. Remove the command to be able to send more.
9 flashes - 1 sec. pause 9 flashes - red led	Automation blocked	Send an automation unlocking command to reset normal operation.

Note – The diagnostic signals provided by flashing LEDs stop when the control unit is given a command.

By using an external flashing light*, the diagnostics signals continue for two sequences of flashes (e.g. "3 flashes – short pause – 3 flashes – long pause" repeated twice).

*** Configured with the Oview programmer as "Flashing Light 1"**

TABLE 7: OK LED SIGNALS (red light ON - green flashing)		
Signal	Cause	Solution
Red light on 8 flashes - 1 sec. pause 8 flashes - green led	Encoder error. No signal	Press the STOP button on the box lid to reset the error. Check if the encoder cable has detached.
Red light on 10 flashes - 1 sec. pause 10 flashes - green led	Manoeuvre timeout. The duration of the manoeuvre has exceeded the one stored during the learning phases	Press the STOP button on the box lid to reset the error. If necessary, repeat learning the positions or change the value of the manoeuvre Time, using the Oview programmer.

TABLE 8: OK LED SIGNALS (flashing red and green)		
Signal	Cause	Solution
Alternate red - green flashing	Dip switch configuration modified	Check the configuration and, if correct, confirm keeping the P1 button pressed for 2 seconds
Red and green alternate flashing during the manoeuvre	Force learning in progress	Carry out 4 complete manoeuvres to perform the learning of the forces required for handling. Caution: during this phase the control unit uses maximum force.

TABLE 9: OK LED SIGNALS (flashing orange)		
Signal	Cause	Solution
Fast orange flashing	Dip switch 2-B on ON	Modify the speed with the "OPEN" / "CLOSE" keys and set dip switch 2-B to OFF

8 DISPOSAL OF THE PRODUCT

This product is an integral part of the automation system, therefore it must be disposed of along with it.

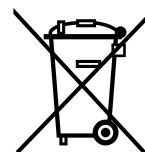
As in installation, also at the end of product lifetime, the disassembly and scrapping operations must be performed by qualified personnel.

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

Caution! – Some parts of the product may contain pollutants or hazardous substances which, if released into the environment, may cause serious damage to the environment or human health.

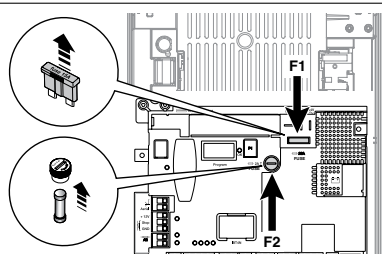
As indicated by the symbol on the left, disposal of this product in domestic waste is strictly prohibited. Separate the waste into categories for disposal, according to the methods envisaged by current legislation in your area, or return the product to the retailer when purchasing a new version.

Caution! – Local legislation may envisage serious fines in the event of abusive disposal of this product.



9 TECHNICAL SPECIFICATIONS OF THE PRODUCT

WARNINGS: • All technical specifications stated herein refer to an ambient temperature of 20° C (± 5° C). • Nice S.p.A. reserves the right to apply modifications to products at any time when deemed necessary, maintaining the same intended use and functionality.

DPRO924 supply	230V~50/60Hz	
DPRO924/V1 supply	120V~50/60Hz	
Maximum power absorbed by the network	500W	
Class of insulation	1 (a safety grounding system is required)	
Emergency supply	With accessory PS224	
Service output	24V=== -30/+50%, 200mA	
Board fuses	F2: 2A type T F1: 20A type auto	
Phototest outlet	24V===, maximum current 200mA	
OUT1 output	For 1 flasher ELDC, programmable with Oview	
OUT2 output	With clean contact (relay), programmable with Oview	
OUT3 output	With clean contact (relay), programmable with Oview	
Aerial input	52ohm for RG58-type cable or similar - for OXI New Generation use the aerial connector on the receiver	
STOP input	For contacts with 8.2 Ω constant resistance or OSE optical type; in self-learning (a variation from the stored status triggers the "STOP" command)	
ALT input	For Normally Closed (NC) contacts in the safety circuit	
SbS input	For Normally Open (NO) contacts, Programmable with Oview	
Open input	For Normally Open (NO) contacts, Programmable with Oview	
Close input	For Normally Open (NO) contacts, Programmable with Oview	
Photo input	For Normally Closed (NC) contacts	
Photo2 input	For Normally Closed (NC) contacts	
Radio coupling	SM connector for SMXI, OXI, OXI New Generation, OXIBD receivers	
IBT4N coupling	For IBT4N accessory for Oview connection or IT4WiFi	
Operating temperature	-20°C ... +55°C	
Protection class	IP55 with container undamaged	
Dimensions	310 x 210 x 125 mm	
Weight	About 4 kg	

EU Declaration of Conformity (N.635/DPRO924) and declaration of incorporation of “partly completed machinery”

Note: the contents of this declaration correspond to that stated in the official document filed in the offices of Nice S.p.A. and, in particular, the latest version thereof available prior to the printing of this manual. The text herein has been re-edited for editorial purposes. A copy of the original declaration can be requested from Nice S.p.A. (TV) Italy.

Revision: 0

Language: EN

Manufacturer's name: NICE S.p.A.

Product type: Control unit for 1 24Vdc motor

Address: via Callalta n.1, 31046 Oderzo (TV) Italy

Model / Type: DPRO924

Person authorised to compile the technical documentation:

Accessories: Refer to the catalog

NICE S.p.A.

Address: via Callalta n.1, 31046 Oderzo (TV) Italy

The undersigned, Roberto Griffa, as Chief Executive Officer, hereby declares under his own responsibility that the product identified above complies with the provisions of the following directives:

- Directive 2014/30/UE (EMC) EN 61000-6-2:2005 - EN 61000-6-3:2007+A1:2011

In addition, the product conforms to the following directive in accordance with the provisions applicable to “partly completed machinery”: (Annex II, part 1, section B):

- In addition, the product conforms to the following directive in accordance with the provisions applicable to “partly completed machinery”: Directive 2006/42/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL of May 17 2006 regarding machines and amending Directive 95/16/EC (consolidated text).

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

- The manufacturer agrees to transmit to the national authorities any pertinent information on “partly completed machinery”, in response to a motivated request, without prejudice to its intellectual property rights.

- Should the “partly completed machinery” be commissioned in a European country with an official language different to the one used in this declaration, a translation into that language accompanying this declaration must be provided by the importer.

- The “partly completed machinery” may not be commissioned until the final machinery into which it is to be incorporated has been declared to conform to the provisions of Directive 2006/42/EC, where appropriate.

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

Place and Date: Oderzo, 30/03/2018

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





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