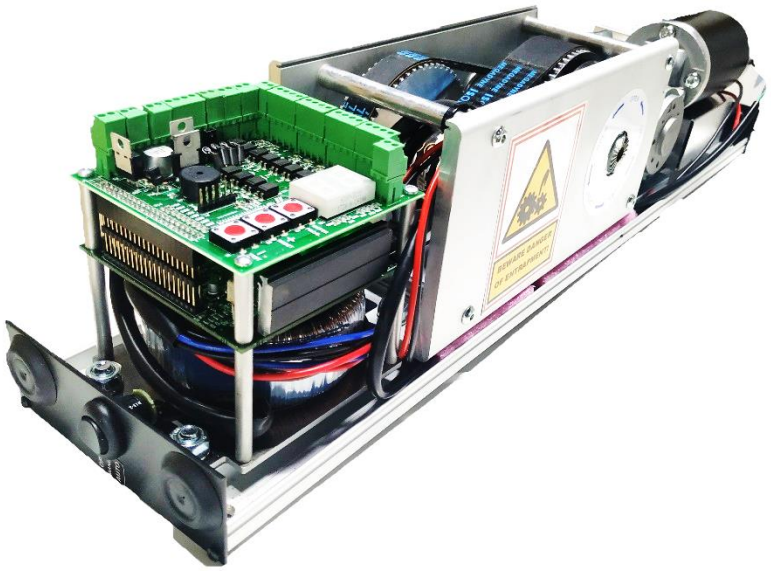
MI-SW and MI-SWSP
Automatic operator for swing doors



INSTALLATION MANUAL

Original

Update log

EDITION	DATE	CHANGES	ACCOMPLISHED	REVIEWED	APPROVED
33a	17/10/2019	The default value of parameters 37 and 38 has been changed. The value of parameter 8 has been limited to 2. Parameters 34, 35 and 39 have been added. The section "RECOMMENDED ADJUSTMENTS IN HERMETIC DOORS" has been added	Quality and Environment	Management	D.A./F.
33b	26/11/2019	New parameter added: 6 "Open brake adjustment". Correction of a bug in manual mode for double doors without spring	Quality and Environment	Management	D.A./F.
34a	16/01/2020	Chapters 1.2, 2.3 y 2.4 modified due to new transmission block design. Chapter 8 updated.	Quality and Environment	Management	D.A./F.

INDEX

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IMPORTANT NOTICE

Carefully read the instructions before installing this operator. We hold no responsibility for loss or damages caused if the following precautions are not observed.

When performing maintenance and installation tasks, the machine must be disconnected from the electricity supply.

Use the correct electrical supply (See section "1.1.-Technical Specifications").

Ensure that the operator is earthed. The operator covering is made of a metal material which conducts electricity.

The operator covering is not totally sealed and therefore one should understand that dampness could destroy the electronic components found in the interior.

Do not remove the screws or bolts to the control unit's internal structure. Do not attempt to open, repair or alter any part of the control unit. Non-compliance with this warning will invalidate the guarantee.

Installation and maintenance of this product should only be carried out by specialist staff.

Before connecting the electrical supply, ensure no object is obstructing the passage of the automatic door panels.

Follow all instructions, incorrect installation can cause serious injury or/and damage.

It is important for security reasons that all persons follow these instructions. Please keep these instructions.

Power cables (230V) and accessory cables (photocell, selector, radar, motor, etc. 110V) must be kept apart in the installation. In the event that this is not possible, the accessory cables must be shielded and earthed at one end.

IMPORTANT SAFETY NOTICE

When the door starts up for the **first time**, it will **automatically open and close**.

Please keep in mind that during this operation a series of calculations are performed and the **security elements are disabled**. Therefore, it is **important** that **nobody uses the door at this time** and **all obstacles have been removed from the door's passage**. It is advisable to **restrict the area** with warning signs. **Do not interfere with the door during this learning operation**.

IMPORTANT INFORMATION ABOUT LAYING OF CABLES:

The cables belonging to mode selectors for the automatic door, as well as those of radars and sensors (if extended), must always be twisted, and shielded. The mode selector cable must also be earthed at one end.

It is essential that all low voltage cables are kept separate from the main power cables (230V – 110V) to avoid electrical interference. Installing these cables in the same tubes or together inside the operator itself can cause the microprocessor to malfunction, or break irreversibly.

Always keep small signal cables (photocell, selector, radar, motor, etc.) at least 10cm away from the main power supply (230V or 110V).

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SAFETY NOTES FOR INSTALLATION:

To avoid accidents, the installer must ensure the following before starting the installation:

- Wear safety boots, helmet, gloves and goggles if the job requires it.
- Verify that the tools to be used are in good condition and make proper use of ladders, vehicles and other devices that should be used during transport, loading, unloading and installation.
- Follow the installation instructions in the manual.
- The power cable must not be connected until the installation is completed and the installer and any part of the body is outside the movement zone of the belt, rail and doors.

OPERATOR POWER SUPPLY:

The MI-SW operator incorporates an internal power cable connector that allows the installer to connect and disconnect the main power supply when the operator cover is not mounted. To comply with current construction regulations, a disconnection system from the main poles must be incorporated into the fixed wiring.

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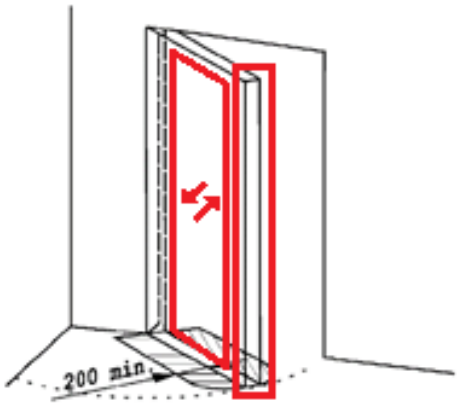
0. IDENTIFICATION OF HAZARDOUS POINTS, PROTECTIVE DEVICES AND RESIDUAL RISKS

Activation sensors

When the swing door opens towards the user, the limit of the radar detection zone must be at least 1 metre from the leading edge of the door leaf when in their fully open position.

In the case that automatic doors used in evacuation routes without breakout system, the detection area in the direction of evacuation should not be less than 1.5 metres.

The presence detection sensors must be activated at a minimum distance of 200mm from the side of the sheet to be protected.



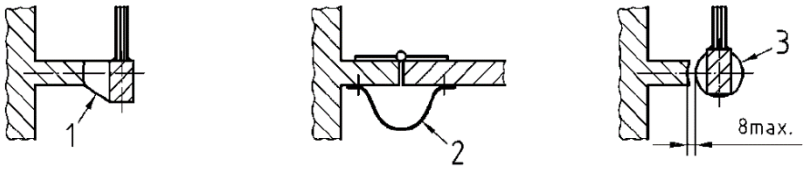
Dangerous points

On the closing side, the risk of collision on both faces of the door are identified, as well as entrapment and collision with the edge. On the secondary closing side between the leaf and the frame, the danger of finger entrapment has been identified in the space between the leaf and the frame on the axis of the hinges or connecting element.

They must be avoided in a structural way or by an appropriate electronic protection device according to section 4.6.8 of EN 16005, or by other protections provided as indicated in the following figure.

Legend

1. Rubber protection
2. Rubber or textile protection
3. Profile



IMPORTANT NOTE: In the case of pedestrian doors where a large proportion of the users are elderly, disabled or young children, no contact is accepted between the door and the user, electronic safety devices and /or barriers or guards must be installed to avoid any contact.

IMPORTANT NOTE: It is mandatory to read the installation documentation of your radar or safety sensor to be able to configure it correctly with respect to the EN 16005 standard. This and the corresponding connection diagram are attached in the package of your order. Ask your supplier if you cannot find them.

Materials and leaf shape according to UNE EN 16005

There should be no sharp edges on the door leaf that could cause cut or shear wounds. In case of breakage, the glazing must not form sharp fragments. The glass installed in the sheet must meet the requirements according to section 4.4.2 of the UNE EN 16005 standard. Tempered glass conforming to EN 12150-1 and laminated glass conforming to EN ISO 12543-1 and EN ISO 12543-2 are examples of suitable glass. Float flat glass (silicate base) and reinforced glass are not suitable for this use due to the risk of serious injury in case of breakage.

Transparent sheets or sheet surfaces must be clearly recognizable by permanent signage, appropriate labels or using coloured materials. Precautions must be taken to avoid accidental disassembly of components or hard parts during use. The deformation of the door leaves or other parts due to forces or pressures that occur during normal use or foreseeable misuse, should not cause permanent deformation or cause the door to leave its guides.

Shape of the leaf:

There should be no sharp edges on the door leaf that could cause cut or shear wounds. Overhanging parts or devices such as mailboxes incorporated into the sheet must not cause potential hazards (e.g. entrapment, shear).

If the glass of the automatic door is not fully framed (for example, that the glass is supported only in its upper and lower parts), during the operation of the door there should be no contact between the glass and hard materials.

1. INTRODUCTION

This instruction manual contains all the information needed to carry out the installation, maintenance and service of the MI-SW and MI-SWSP operators.

These operators are used to automate swing doors of either one or two panels, both for inside and outside, immaterial of whether they open inwards or outwards.

Even if the mechanism incorporates an opening limit in the inside, it is recommended to install another stopper on the floor or wall in order to increase the life cycle of the system.

The difference between the MI-SW and MI-SWSP operators is that the SWSP closes using the power of a spring while the SW uses the motor to close the door.

OPERATOR TYPES

MI-SW – Motor closure / MI-SWSP – Spring closure.

1.0 EMERGENCY EXIT DOORS

In cases where installation of the door is in a route used as an emergency exit, the indications of the following extract of the EN 16005 standard must be followed, without prejudice to other regulations applicable to this type of doors:

4.7.2.4 Powered hinged and swing doors

Powered hinged and swing doors shall be capable of manual operation in the direction of escape and need not open automatically in case mains power goes off or in an emergency situation.

The force required to manually open a door without a break-out function shall not exceed 150 N. The force shall be measured in a static way at the leading edge at right angles to the door leaf and at a height of (1 000 ± 10) mm.

In addition, certified presence sensors with performance level “d” according to EN ISO 13849-1, as indicated in section 4.4.1 of the UNE-EN 16005 standard must be installed.

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1.1 TECHNICAL SPECIFICATIONS

	MI-SW	MI-SWSP
Spring closure	NO	YES
Arm system	Sliding or articulated	
Push & Go	YES (adjustable)	
Power supply	AC230/110V, 50/60Hz, 2A	
Opening speed	15-75 °/s	
Operator weight	9 Kg.	
Control system	Microprocessor	
Brake regulation	Automatic	
Opening time	0 – 60 seconds (10 positions)	
Gap elimination force	A small force can be applied in order to keep the door open or closed. Force 0 to 8 Kg. (In 5 positions)	
Safety features	When opening, if an obstacle is in the path of the door, it will close at low speed and an alarm will sound.	
	When closing, if an obstacle is in the path of the door, it will open at low speed and an alarm will sound	
Error detection	Warning and indication of error type by means of an acoustic signal and written display	
Number of cycles	Continuous service	
Lock type	Electric lock 12/24Vdc (optional)	
Operating temperature and humidity	Ambient temperature: -20 ° C to + 50 ° C (without condensation or freezing). Ambient humidity from 30% to 85% (there must be no hazardous materials in the environment)	
Maximum opening angle	110°C (adjustable)	
Maximum weight	250 Kg.	
Measurements	120 x 130 x 570 (Height x depth x length)	
Weighted sound power level A	LpA ≤ 70dB(A)	
Type of use	For indoor use, should not be used outdoors unless it is mounted with an enclosure that guarantees a minimum IPX4 grade. The manufacturer is not responsible for outdoor installation.	

1.2 COMPONENTS

1.2.1 Parts

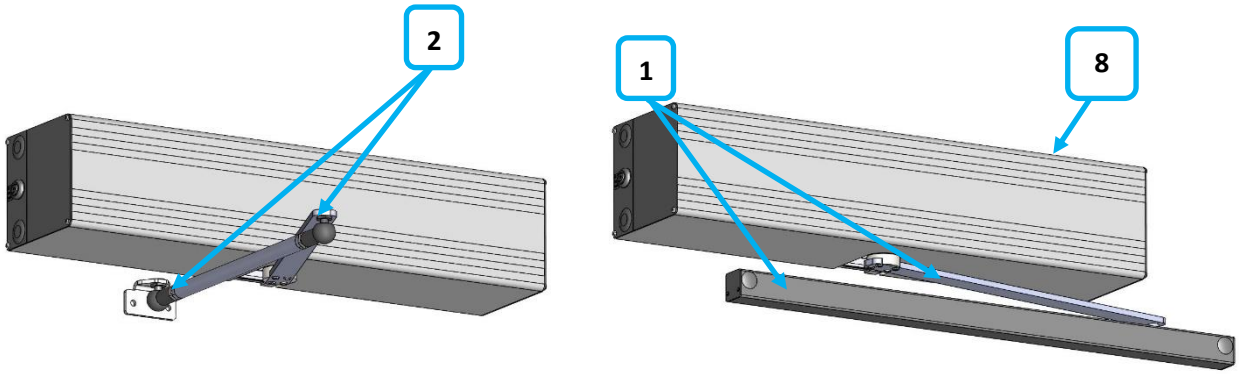

Illustration 1-1 Exterior views of the operator

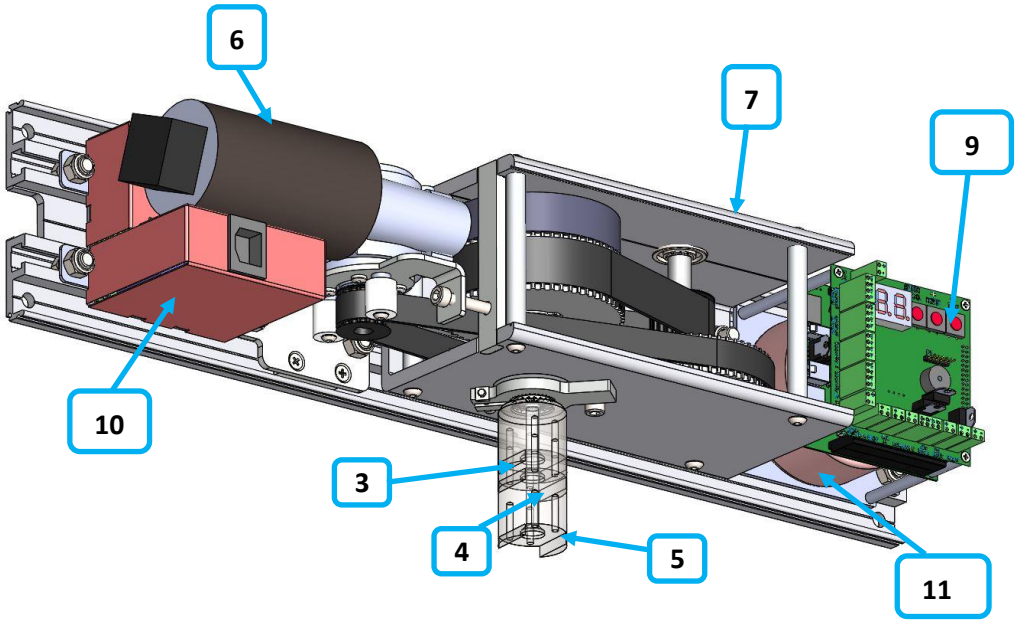

Illustration 1-2 Interior view of the operator

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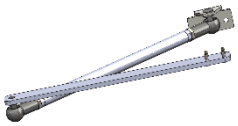
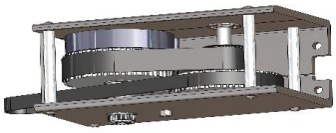
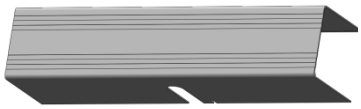
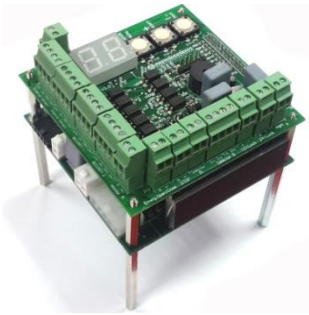
1.2.2 Identification of the components

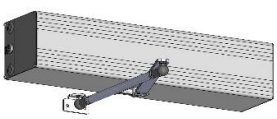
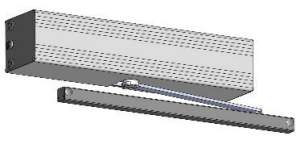
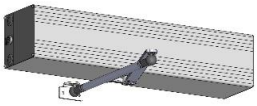
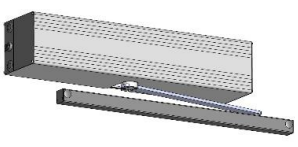
1.- Sliding arm (pull) MIP000167-01a 	**2.- Articulated arm(push)** MIP000166-01a 	**3.- 20mm Separator (optional)** MIC000386-01a 	**4.- 30mm Separator (optional)** MIC000387-01a 

5.- 60mm Separator (optional) MIC000388-01a 	**6.- Motor** MIP000339-01b 	**7.- Transmission block** MIP000837-01a sin muelle MIP000838-01a con muelle 

9.- Front cover MIM000540-01a MIM000992-01a 	**10.- Control Unit** MIP000322-01a 	**11.- Power supply** MIP000257-01a 	**12.- Transformer** MIE000096-01a 

13.- Access control card ST-500 (optional) MIC000256-01a 	**14.- Digital Selector SWD-5 (optional)** MIP000441-01a 	**14.- Cable de alimentación** MIE000104-01a 

1.2.3 Identification of operators

A1.- MI-SW-Push **OP0000012-01a** **OP0000126-01a** 	**A2.- MI-SW-Pull** **OP0000011-01a** **OP0000124-01ª** 	**A3.- MI-SWSP-Push** **OP0000014-01a** **OP0000127-01a** 	**A4.- MI-SWSP-Pull** **OP0000013-01a** **OP0000125-01ª** 

1.2.4 List of components and operator

Nº	Components	Reference	Description
01	**Sliding arm (pull)** For MI-SW-Pull	**MIP000167-01a**	Transmits the force of the mechanism to the door. Normally this is used when the door opens inwards
02	**Articulated arm (push)** For MI-SW-Push	**MIP000166-01a**	Transmits the force of the mechanism to the door. Normally this is used when the door opens outwards
03	**Separator for MI-SW of 20mm** (optional)	**MIC000386-01a**	This allows the height of the mechanism to be increased by 20 mm
04	**Separator for MI-SW of 30mm** (optional)	**MIC000387-01a**	This allows the height of the mechanism to be increased by 30 mm
05	**Separator for MI-SW of 60mm** (optional)	**MIC000388-01a**	This allows the height of the mechanism to be increased by 60 mm
06	**Motor-reducer for MI-SW**	**MIP000339-01b**	Continuous current motor
07	**Transmission block MI-SW / MI-SWSP**	**MIP000837-01a** **MIP000838-01a**	Motor power transmission block
08	**Front cover for MI-SW**	**MIM000540-01a** **MIM000992-01a**	Extruded aluminium
09	**Control unit for MI-SW**	**MIP000322-01a**	Processes and controls all signals in order to operate the movement of the motor
10	**Feed source for MI-SW**	**MIP000257-01a**	Filters and rectifies the network signal
11	**Transformer for MI-SW**	**MIE000096-01a**	Transforms the network signal into values that are apt for working with a small signal
12	**Access control card ST-500**	**MIC000256-01a**	To open the door by means a radio transmitter, proximity key, tag, etc..
13	**Digital selector SWD-5**	**MIP000441-01a**	Digital selector
14	**Power cable**	**MIE000104-01a**	Cable for connexion to mains 100 – 230 VAC

Nº	Components	Reference	Description
A1	**MI-SW-Push**	**OP0000012-01a** **OP0000126-01a**	Operator for swing doors with articulated arm
A2	**MI-SW-Pull**	**OP0000011-01a** **OP0000124-01a**	Operator for swing doors with sliding arm
A3	**MI-SWSP-Push**	**OP0000014-01a** **OP0000127-01a**	Operator for swing doors with articulated arm and incorporated closing spring
A4	**MI-SWSP-Pull**	**OP0000013-01a** **OP0000125-01a**	Operator for swing doors with sliding arm and incorporated closing spring

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2. INSTALLATION OF THE OPERATOR

Before installing the operator, the correct condition of the door and its fixing and locking elements, such as hinges, stops or locks, must be verified. Check and ensure that it is balanced, and if necessary greased and that it opens and closes correctly.

If the operator is to be mounted at a height greater than 2.5m, it must also ensure that the means of prevention of additional risks associated with working at height are in place, as well as requesting the help of a second installer.

After finishing the installation as indicated in this manual, it must be ensured that the operator is properly regulated and that the protection systems are also functioning correctly.

If it is necessary to deactivate the operator, there is a three-position switch in which the central position activates manual mode. In manual mode, all motor activations are cancelled, but the spring action on operators where it is installed will continue to function.

2.1 REQUIRED TOOLS

Allen key. Sizes:
- 2’5
- 3
- 5

Spanner. Sizes:
- 13
- 14

Phillips screwdriver. Sizes:
- #0
- #1

Slotted screwdriver. Sizes:
- 2

Masonry drill bit. Sizes:
- 8
- 6

Metal drill bit. Sizes:
- 5
- 4

Threaded plug tap:
- M6

Drill

Chemical plug

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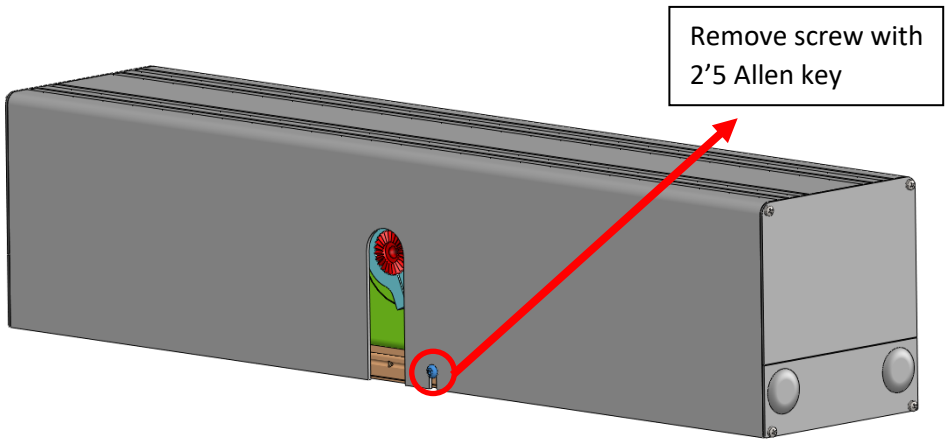
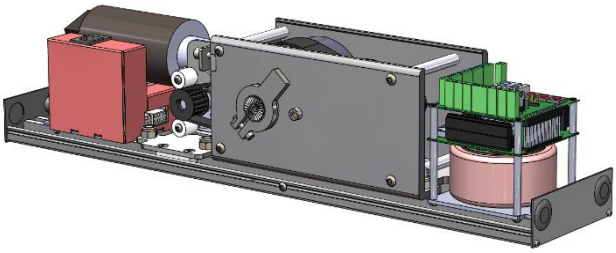
2.2 PREPARING OPERATOR

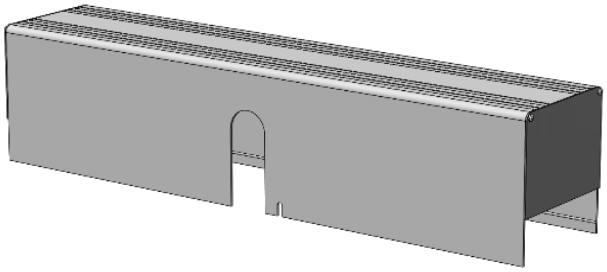
1. Unpack the operator with care.

2. Remove the central screw from the front cover.

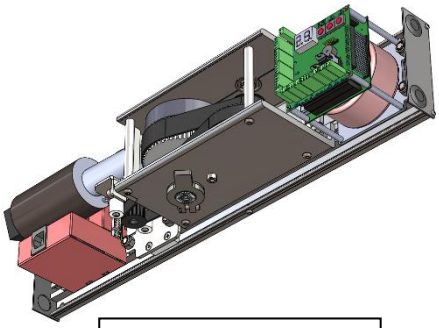


3. Remove the front cover with care.

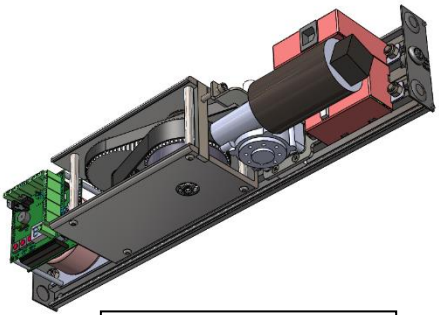




4. Orientate the operator. Before fixing the operator to the door frame or wall, we should decide the orientation of it, which can be: Normal or Reversed.



Normal orientation



Reversed orientation

The orientation of the operator depends on the following factors:

- Opening direction
- placement (this can be on the framework or on the door panel)

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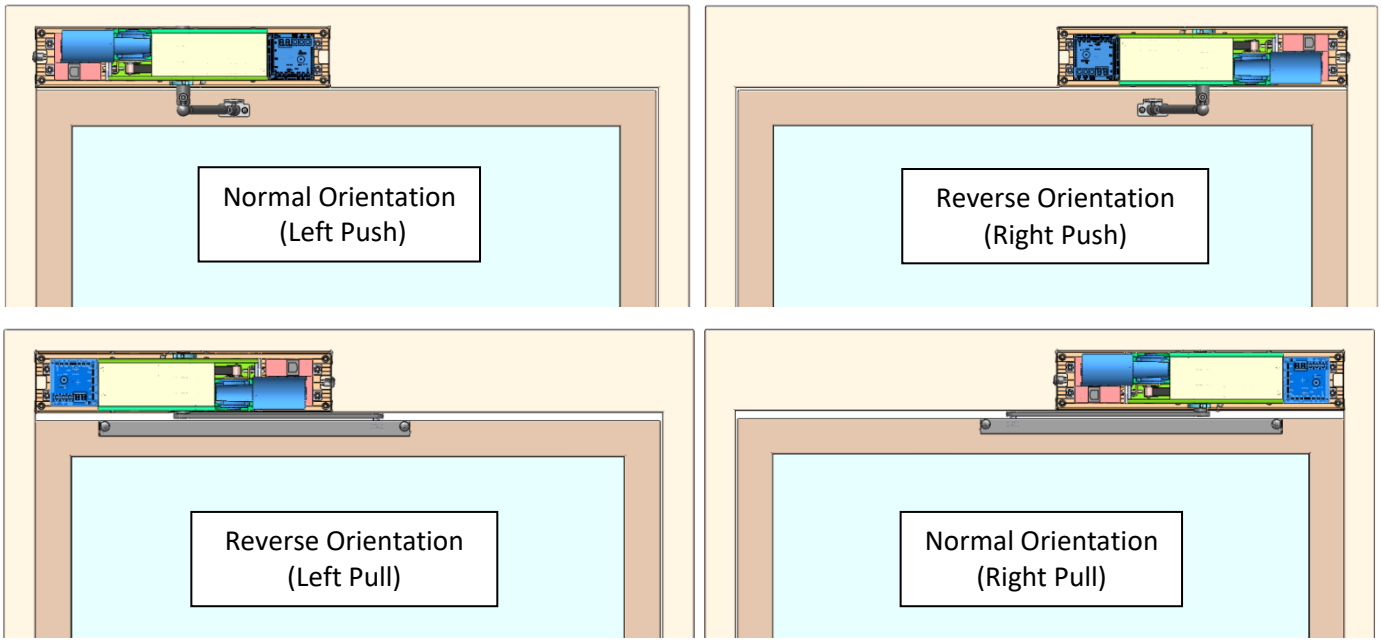
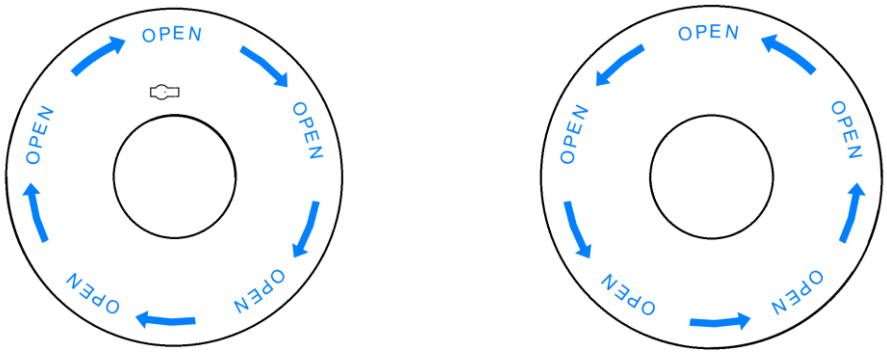
- situation of the door (right or left)

Installation examples:



The operator is totally reversible and therefore can be adapted to any of these positions without any need to change either the mechanics or the programming. The operator can be simply turned around to achieve the desired direction of movement.

It is also possible to orientate the operator following the indications of opening direction. Both in its lower and upper part, the operator has signs that indicate the direction of rotation of the motor during the opening.



In order to fix the operator to the door frame, a template is provided to indication where to make the holes. There are 6 holes in total (4 to fix the operator to the frame, and 2 to fix the operator arm to the panel). These 6 holes are the minimum required that must be used to fix the mechanism in the correct fashion.

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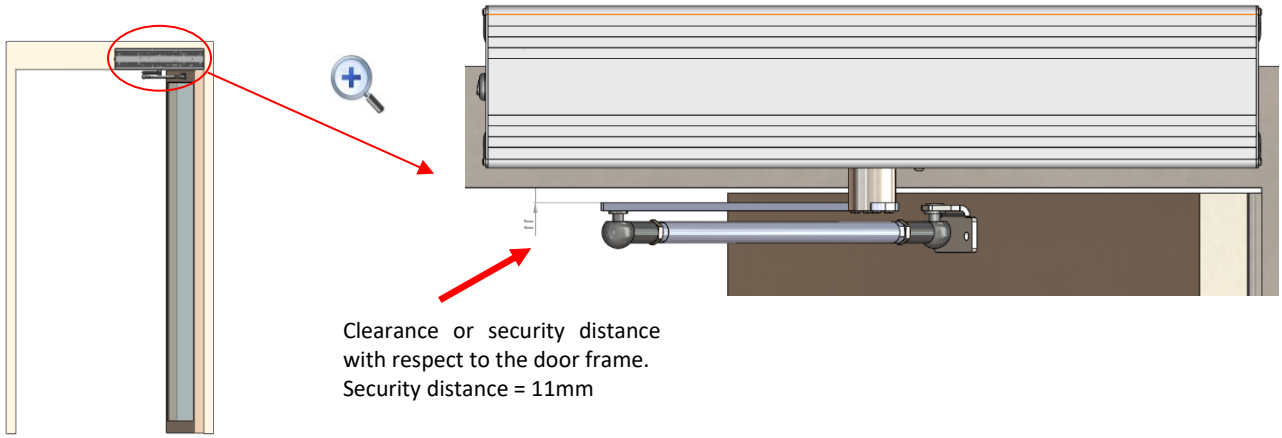
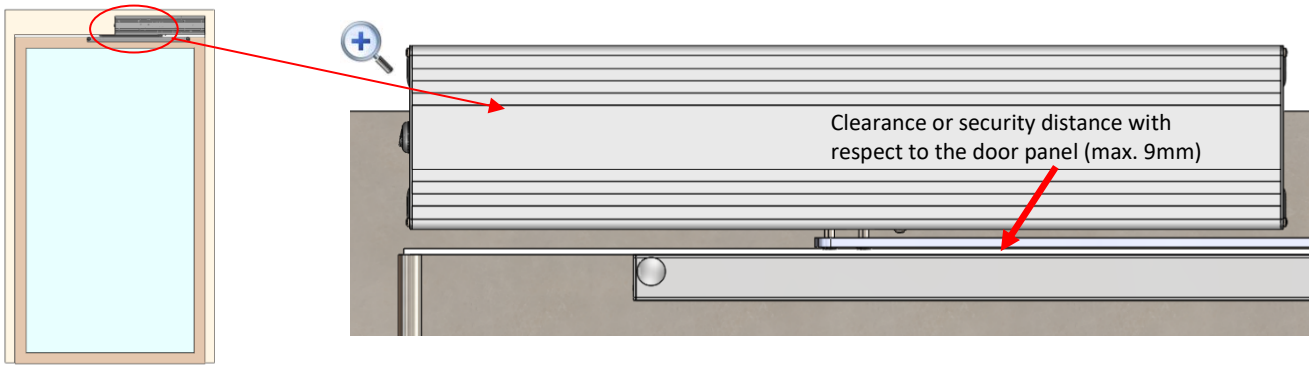
Before proceeding to fix the operator, we recommend taking the following advice into consideration:

- If the operator is fixed to a thin metal surface (less than 10mm) it is strongly advised to use threaded M6 screws (metric) instead of self-tapping screws.
- If the operator is fixed to hollow brick, use a chemical plug and threaded M6 tap (metric).
- If the operator has an articulated arm (Push), a small gap must be left so that the arm doesn't hit the door frame.



- If the operator has a sliding arm (pull), a small gap must be left so that the arm doesn't hit the door panel.



Important notice: If fewer fixing points are used than stated in these instructions, or the previous advice is not followed, there is a high-risk of the mechanism coming unfixed and falling. This could cause serious injury and/or damage.

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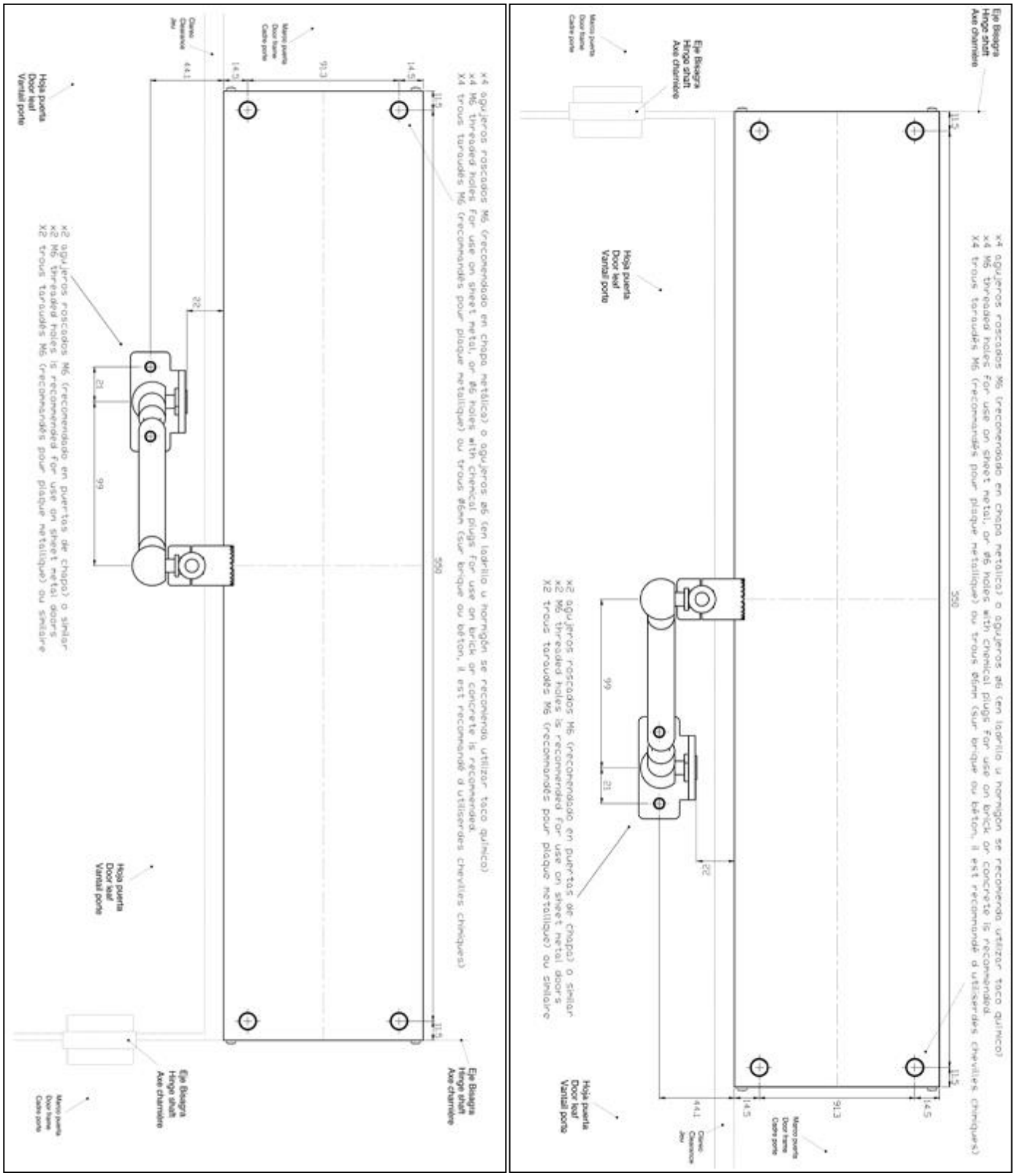
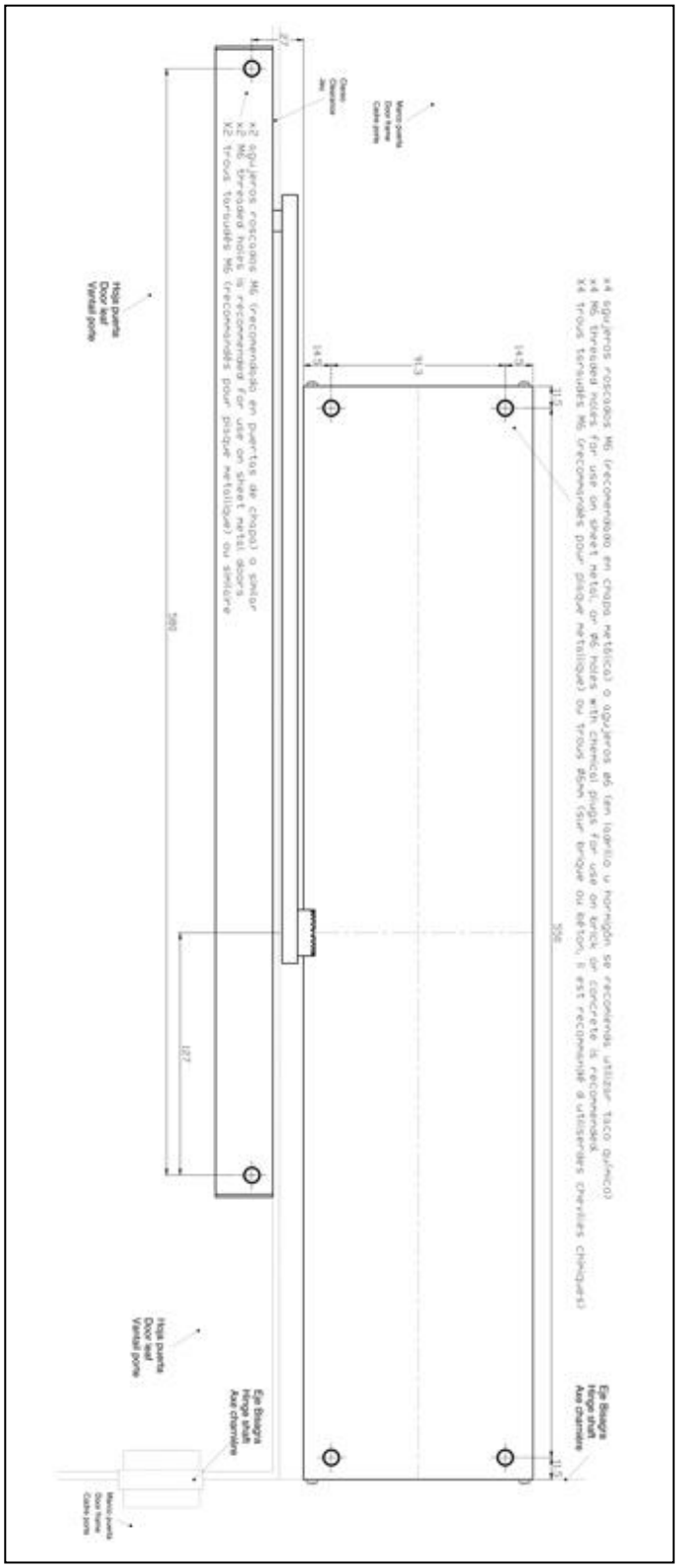
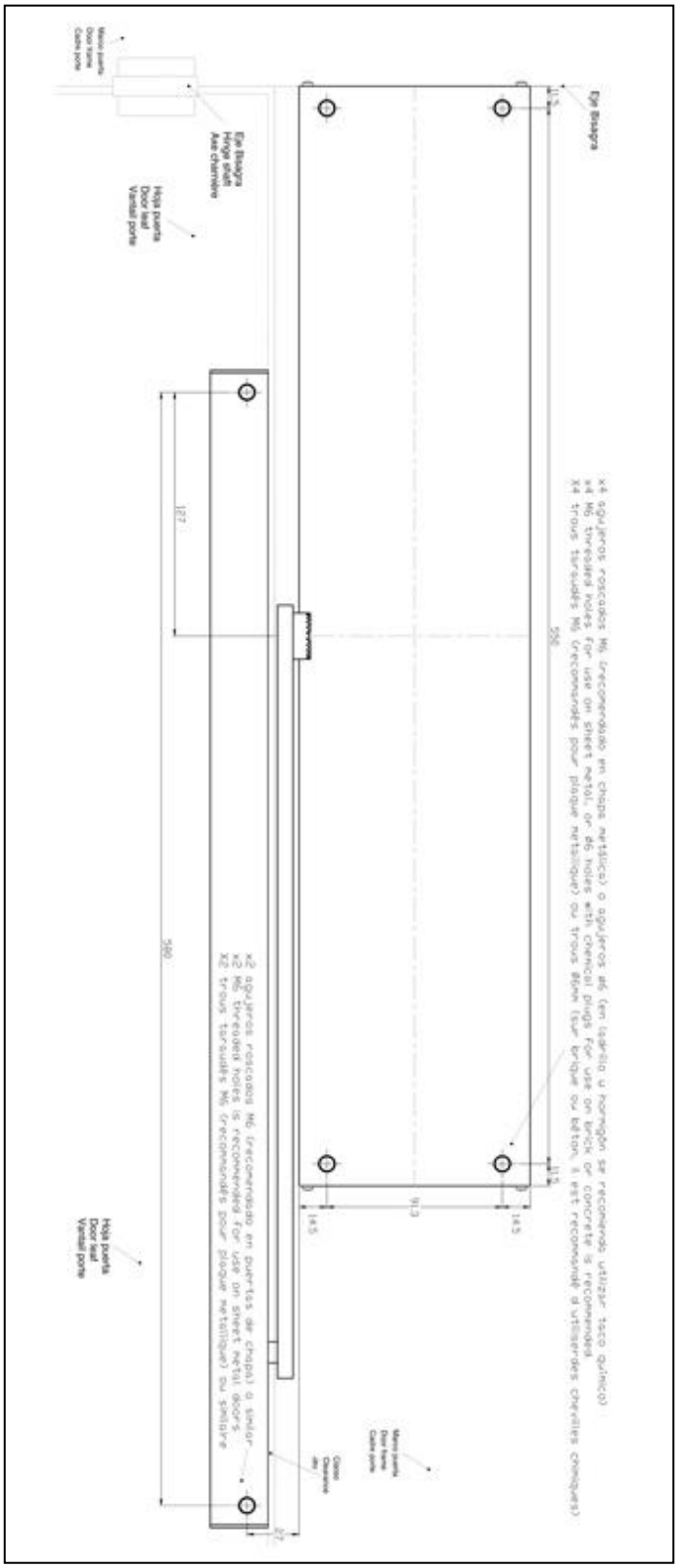
2.2.1 Operator Assembly plans

(1:1 scale plans are included with operator)







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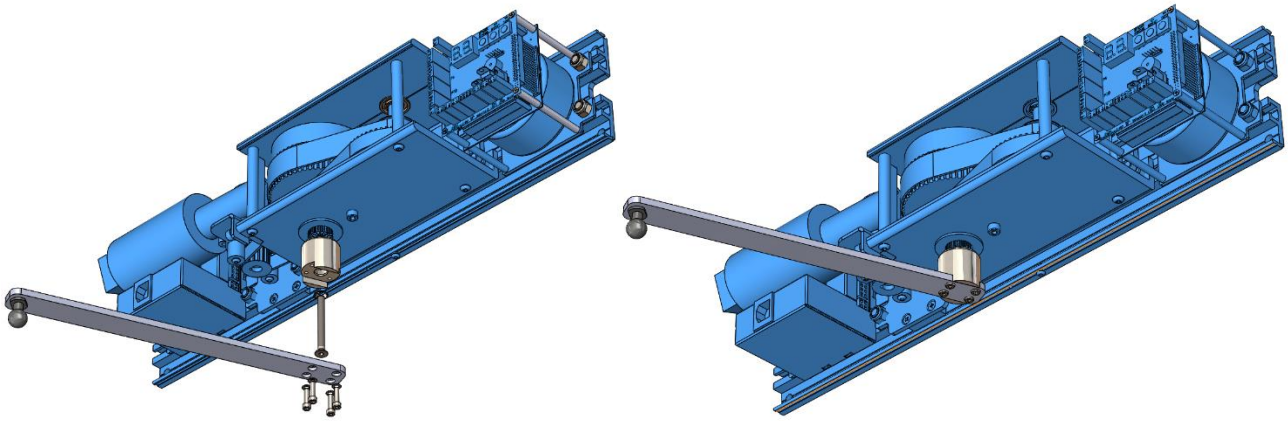
2.3 FIX AND ADJUST THE ARTICULATED ARM (PUSH)

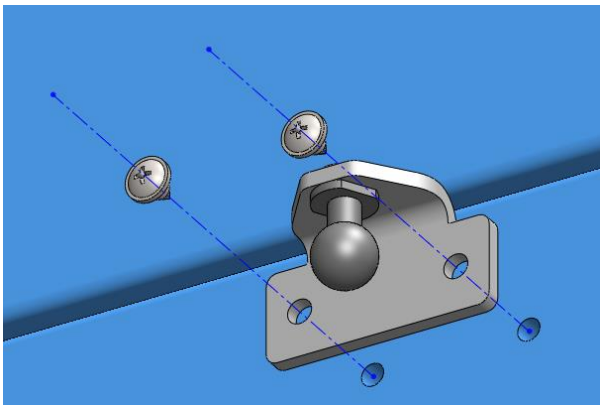
In order to fix and adjust the articulated arm, follow these steps:

1. Separate the two parts of the arm joints. In order to separate them, remove circlip.

2. Atornillar la parte superior del brazo (sin instalar tope).



3. Make two holes in the door panel by following the indications on the plans under section "2.2.1 Operator Assembly plans".



4. Introduce joint 1 socket into joint 1 plug (see the following figure).

5. Screw "Part A" into "Part B" (see following figure).

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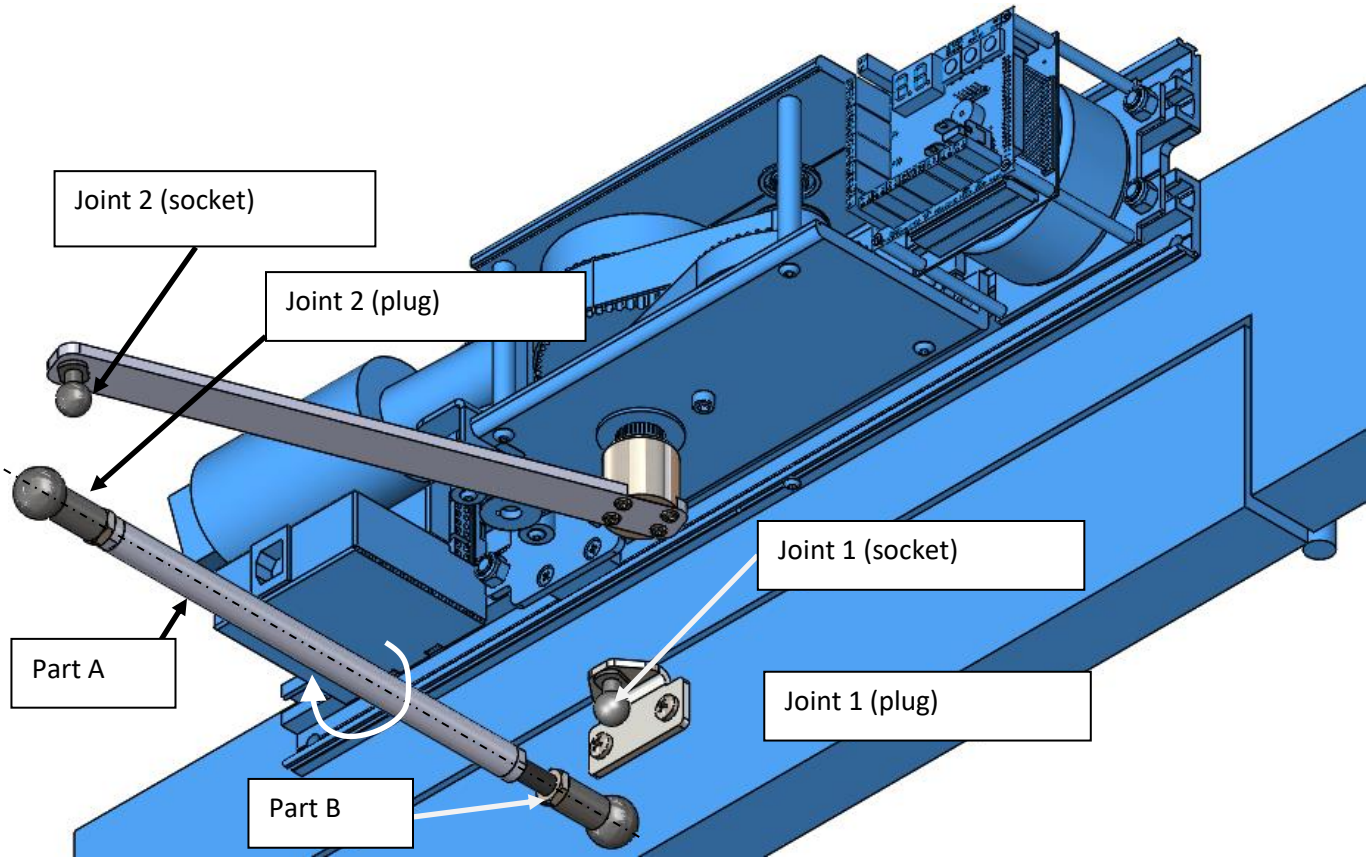
6. Keep door closed while installing the arm.

7. Screw or unscrew “Part A” to lengthen or shorten the length of the arm. Adjust “Part A” until joint 1 socket lines up with joint 2 plug (see the following figure).



8. Replace each circlip into its joint.

9. Open and close the door to check movement of arm is correct.

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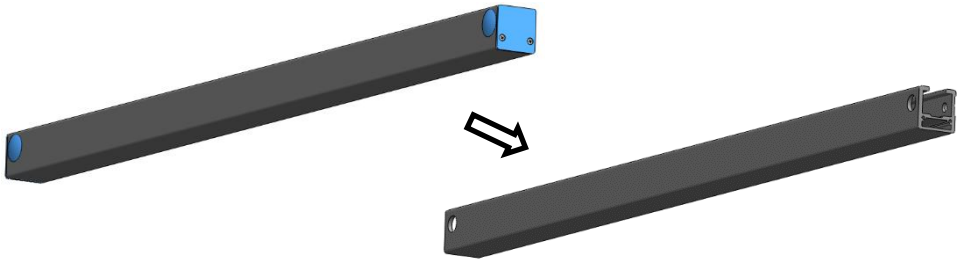
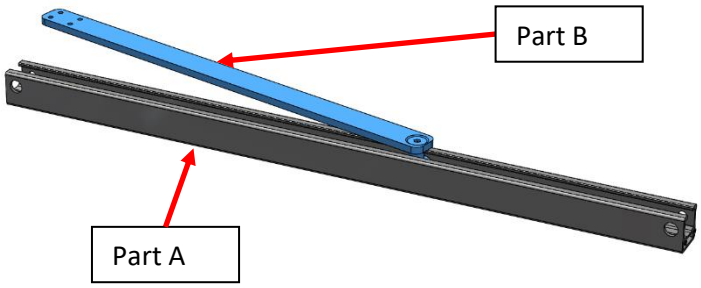
2.4 FIX SLIDING ARM (PULL)

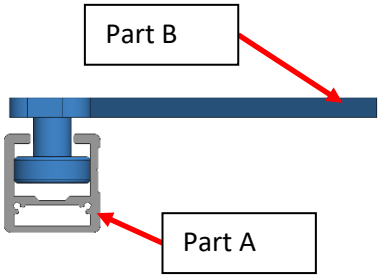
In order to fix and adjust the sliding arm follow these steps:

1. Remove cover.

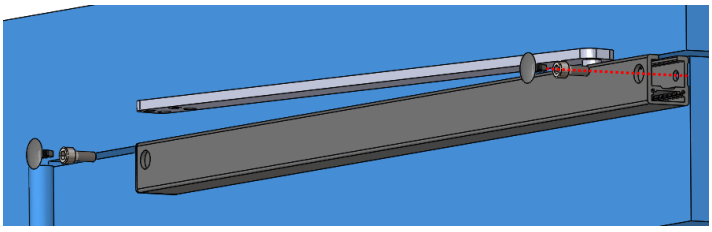


2. Slide Part B into one end of Part A.

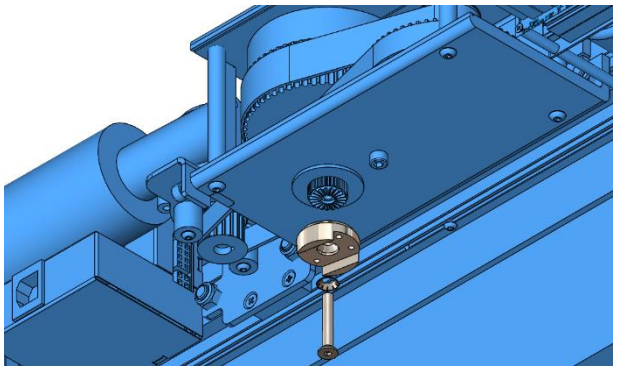




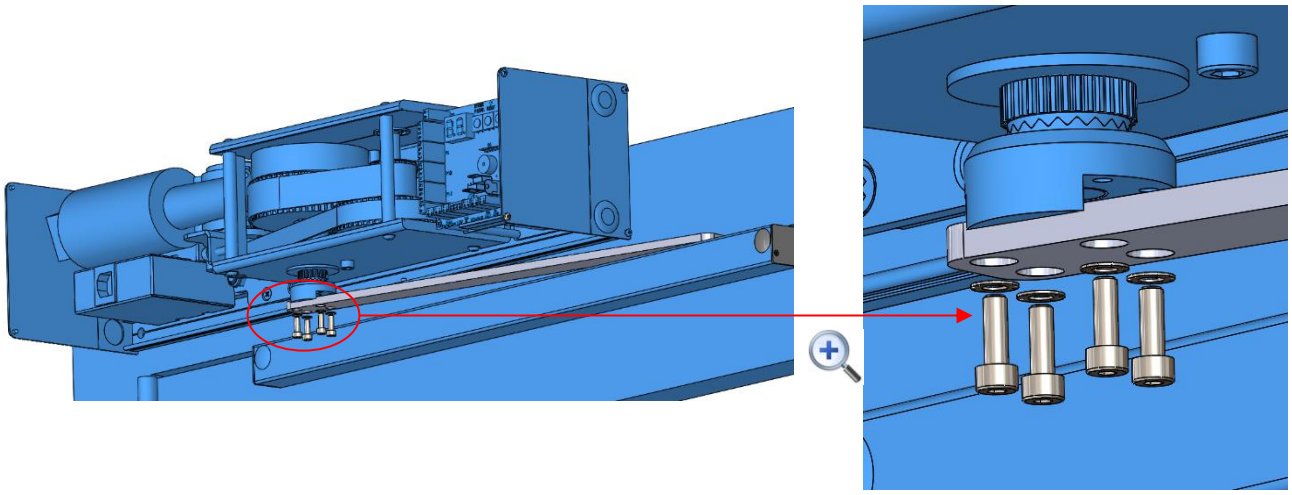
3. Make two holes in the door panel following the instructions of the plans under section "2.2.1 Operator Assembly plans". and then fix the arm to the door panel.



4. Screw the transmission pivot part to the main axis. Do not forget to include the lock washer.



5. Turn the door panel until it is in the closed position and then fix Part B of the arm to the motor pivot.



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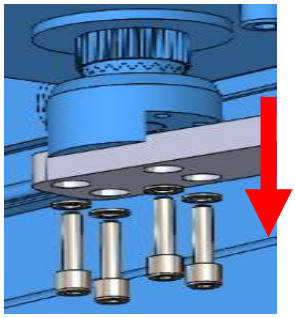
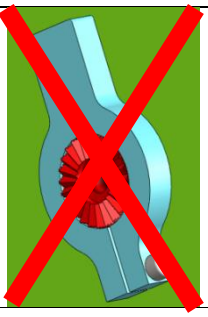
2.5 SET UP

Once the operator and the arm have been correctly fixed, the operator can be set up.

The MI-SWSP operator model has a door-closing system which works by internal spring action. This spring must be correctly loaded. The load can be higher or lower depending upon the size/weight of the door panel or the client's requirements. To load the spring, follow these steps:

If your operator model is **MI-SW**, start at **step 11**.

If your operator model is **MI-SWSP**, start at **step 1**.

1		Make sure the operator is disconnected and isolated from the electrical supply.
2		Change the selector position to "manual" (0).
3		Remove the arm from the operator.
4		Make sure the stop cam is not installed as this will stop the shaft from rotating correctly to load the spring.
5	 	Reconnect power supply. Important: If the power cable is damaged, it must be replaced by the manufacturer or similar qualified personnel in order to avoid danger.

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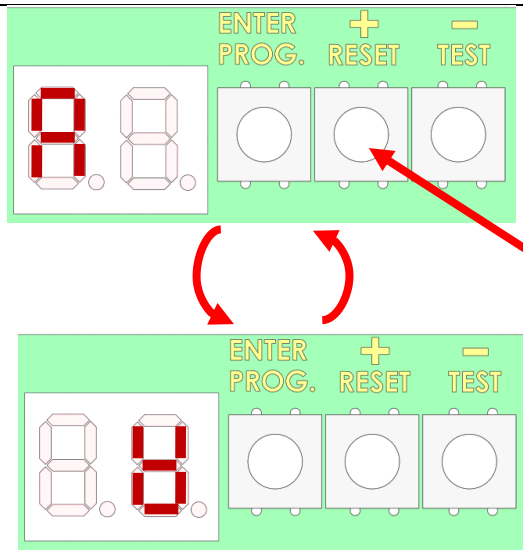
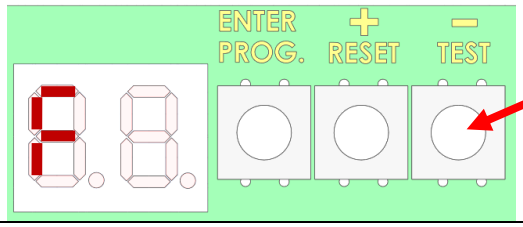
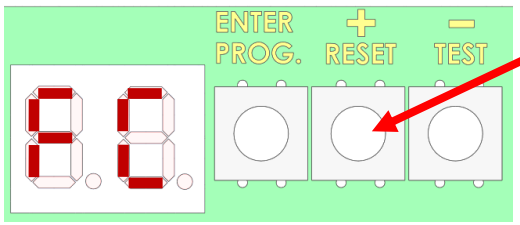
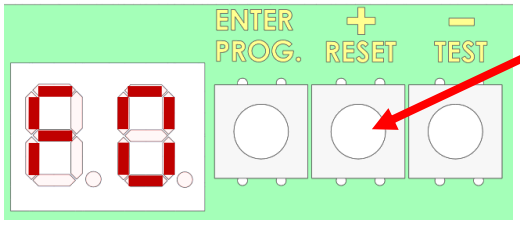
6		The first time the MI-SW / SWSP operator is turned on, the letter "A" and a set of lights will appear. If the "A" appears upside down, press the "+ RESET" button to change the orientation. If this process is not performed, all the menu options will appear reversed.
7		Press the "-TEST" button. If the operator is in manual mode, the letter F should appear on the display, indicating that the operator is in the "spring load menu" waiting for a value to be indicated.
8		Once in the "spring loading menu" you can adjust the spring force. During the installation process, the spring must always be adjusted for the first time. To calibrate the spring, press the + RESET button. The display will show "FC" during the calibration process (which will be approximately 15 seconds).
9	 * The values shown in the table are approximate	The letter F followed by the number 0, will appear on the display. This number represents the power the spring is loaded; Value 0 is the minimum. Press + RESET to rotate the motor and increase the load on the spring. See table for Values and door weights.

Value "F"	Recommendation
0	Not recommended
1	Doors up to 40Kg
2	Doors from 40 Kg to 120Kg
3	Doors from 120Kg to 180Kg
4	Doors over 180Kg

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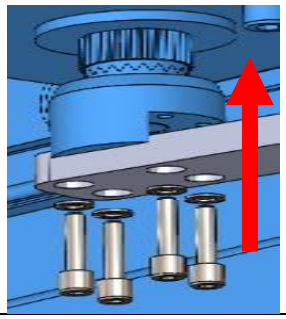
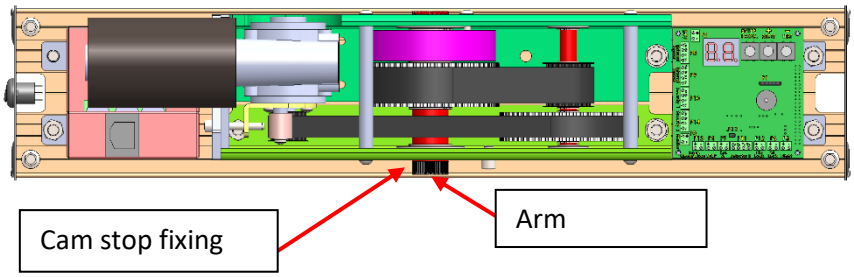
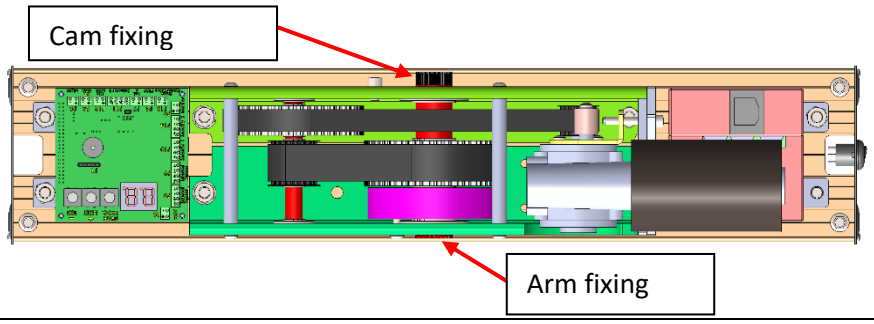
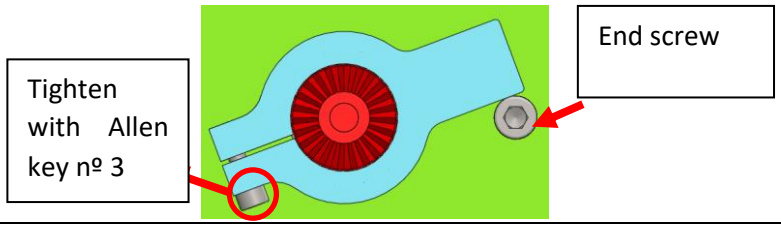
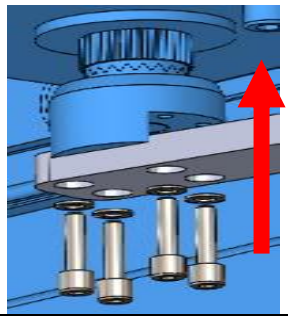
10		Once the motor has stopped turning and the correct loaded has been set for the door, replace the arm to the motor shaft. The door must be in the closed position when this is done.
11	**Normal**  **Reversed**  	Open the door to the maximum distance desired. If the orientation of the operator is normal, remove the arm to install the cam stop. If the orientation is reversed, do not remove the arm as the cam stop will be placed on the opposite side.
12	 	Fix the cam stop to the motor shaft so that it touches the end screw. Tighten the screw on the cam to hold it tight.
13		Connect the arm if it is not already installed. This must be done while the door is in the open position and with the cam stop touching the end screw.

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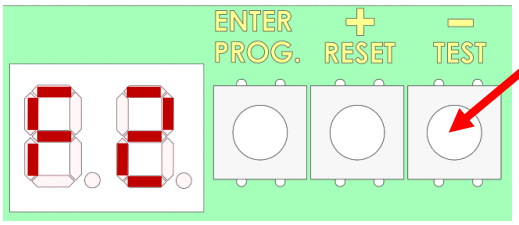
14	 Press -TEST to finish the spring adjustment	If the model is **MI-SW**, go to the next step. For model **MI-SWSP**, and with the door open, press the -TEST button to save the changes. You must ensure that the door closes with the force of the spring, if it does not finish closing, you must restart the process from step 1 and increase the value in step 9.
15		Once the operator is installed together with the arm and the stop. It is recommended to disconnect the power before going on to start-up. It is advisable to leave the door closed.

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3. OPERATION OF THE MI-SW/MI-SWSP SYSTEM

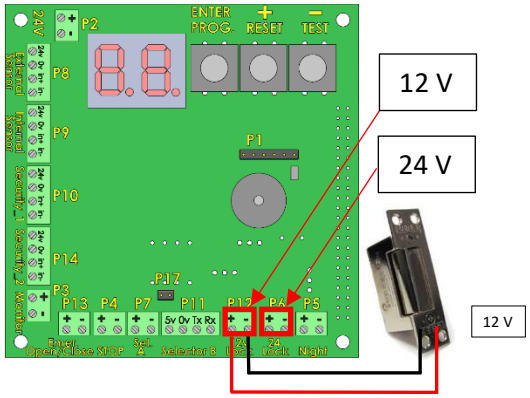
3.1 START UP and SELF LEARNING

IMPORTANT NOTICE:

When the MI-SW/MI-SWSP system starts up for the first time, the self-learning process will start for the system. This process involves the door opening and closing to calculate the length of the door run.

It is very important that the door is allowed to carry out the movements freely, i.e. with no obstacles in the path of the door and nothing hindering the doors natural movements. It is highly recommended that no-one is near the door during this operation. If the door is obstructed during this process, the entire process will need to be reinitiated via the RESET on the control unit (see section 5.2.5 Reset of the programming " for more information).

To initiate the self-learning process, follow these steps:

1		Make sure that the selector is in the manual position (0).
2		If the door has a locking system (such as a latch), make sure it is connected before continuing with the next step. P12 -> 12V P6 -> 24V The default configuration is normally closed (NC), if your blocking system works with logic normally open (NO), you must change the parameter as explained in section 5.3 PROGRAMMING PARAMETERS.
3		Connect the operator to the electrical supply **with the door closed**.

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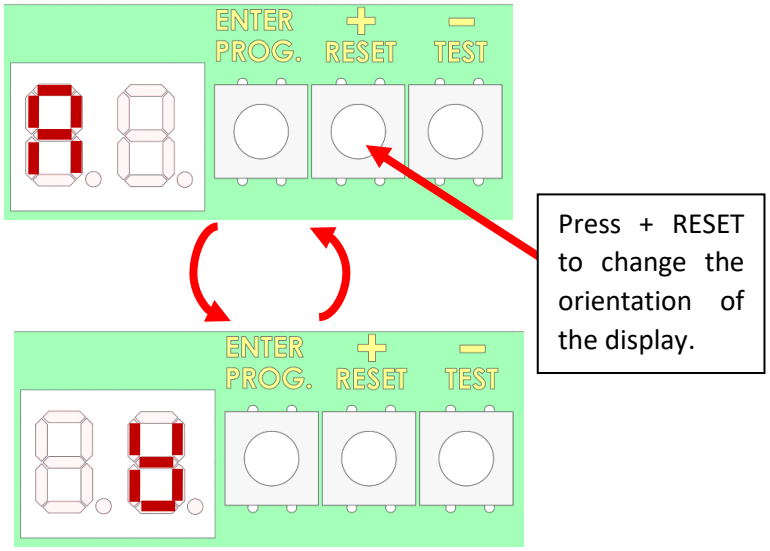
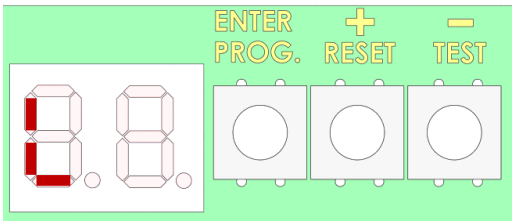
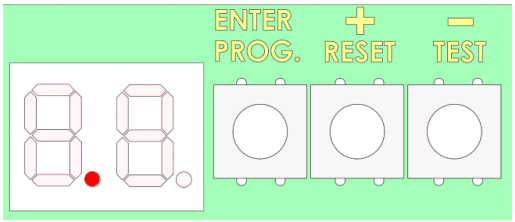
4		The first time the MI-SW / SWSP operator is turned on, the letter "A" and a set of lights will appear. If the "A" appears upside down, press the "+ RESET" button to change the orientation. If this process is not performed, all the menu options will appear reversed.
5		Change the selector position to automatic (II)
6		The operator will show an "L" on the display, indicating that self-learning has started. During this process, do not intervene in the movements of the door, otherwise the learning process will need to be restarted. The door will open at slow speed until it finds the stopping point, it will then close at slow speed (with the force of the spring in the case of the MI-SWSP model) until it finds the closing point.
7		Once the self-learning has finished, only the point indicating that the operator is running will light up. Then the other components must be installed (see 4.3 CONNECTIONS OF OTHER COMPONENTS). If 2 connecting doors are to be installed, see 4.4 CONNECTIONS double door.

Once the Auto-learning process has finished, the door will save the configuration in its memory.

This process is only done the first time the automatic door is installed and again each time a "RESET" is done (see 5.2.5 Programming RESET).

If for any reason the Self-learning process is unable to be carried out correctly, the process must be started again through “RESET” on the Control Unit.

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Every time that important changes are made to the automatic door a “RESET” must be done in order for the Control Unit to adapt to the changes. Examples: change of position of the stoppers, change to the size of the panels, change to the weight of the panels etc.

After carrying out a “RESET” on the Control Unit, the operator will return to its factory settings. The number of cycles and function time will remain stored in the memory even after a RESET.

3.1.1 Forced self-learning

In the case that the operator shows **Error 0**, indicating that it was not able to finish the self-learning process or that the door is not able to open completely due to components installed (for example a hydraulic spring), a forced learning will need to be performed.

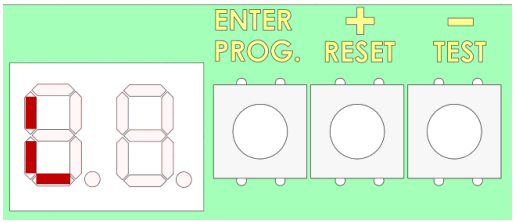
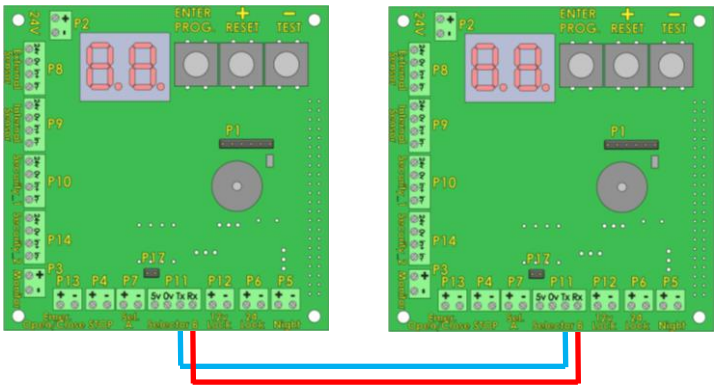
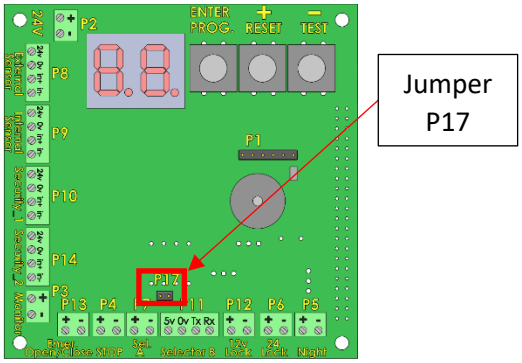
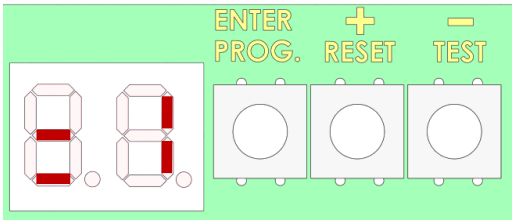
Press "-TEST" button or bridge connector P13 "Emerg. Open / Close" while the door is opening during self-learning. Once the door reaches its final opening position, release the "-TEST" button or remove the bridge from P13 connector "Emerg. Open / Close ".

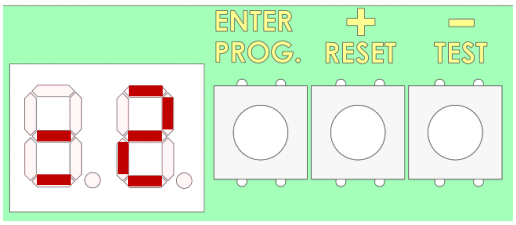
Attention

During the process of forced self-learning, the operator increases the opening force without established limits, this process can cause damage to the motor and the electrical components of the operator.

Use only if necessary

3.2 DOUBLE DOOR INTALATION

1		Perform the Self-learning process with each door separately if has not already been done (see 3.1 START-UP, SELF-LEARNING). It is recommended to begin the Self-learning process on the door that will open first (Master), place it in the "open" position and then start the Self-learning on the second door (Slave).
2		Change the selector position on both operators to 0 (manual) and close the doors.
3		Connect the TX signal of connector P11 of operator 1 with the TX signal of connector P11 of operator 2. Connect the RX signal of connector P11 of operator 1 with the RX signal of connector P11 of operator 2.
4		Ensure the bridge P17 on each control unit is in place (factory fitted). If a digital selector is connected to the same TX-RX line, one of the bridges must be removed, either from P17 or the bridge from the digital selector. To check that the bus is working correctly, the resistive value (Ω) that appears between TX and RX can be measured with a multimeter. If everything is fine, a value between 55 and 65 Ω is obtained.
5		In the Master operator (The door that opens first and where the radars are connected). Enter the programming menu (see 5.2 PROGRAMMING MENU) and change parameter 36 - Operation Double Doors to value 1 (see 5.3 PROGRAMMING PARAMETERS).

6		In the **Slave** operator. Enter the programming menu (see 5.2 PROGRAMMING MENU) and change **parameter 36** to **value 2** (see 5.3 PROGRAMMING PARAMETERS).
7		Once the operators have been configured for operation with double doors, change the **Master** operator switch to II (automatic). The Slave operator selector is disabled.

If the operation of the doors needs to be adjusted, the following parameters can be changed to configure its operation:

- Parameter 37: Offset when opening.
- Parameter 38: Offset when closing.
- Parameter 01: Opening speed.
- Parameter 03: Closing speed.
- Parameter 45: Delay in unlocking.
- Parameter 46: Automatic closing timer.
-

* The parameters are independent for each operator.

3.3 LOW ENERGY MODE SETUP (LOW ENERGY)

Low Energy mode is a mode of operation with limited kinetic energy. The low energy movement of the door, in general, is not protected by additional protective devices because the levels of kinetic energy are not dangerous according to EN 16005 "Pedestrian doors - Safety of use - Requirements and test methods". However, the use of low-energy door movement should only be considered when the risk assessment has taken into account users who are elderly, people with reduced mobility and people with disabilities and indicate that the risk to these users is minimum.

To activate the configuration of the **Low Energy mode** use **parameters [31] and [32],** the weight and width of the leaf must be entered, parameters [1], [2], [3] and [4] will then self-configure reducing the speed and strength of the operator (see 5.3 PROGRAMMING PARAMETERS). Once activated, it is necessary to ensure that the installation complies with all the points that define the low energy mode of operation.

In order for an installation to comply with the low energy mode, it must meet the following requirements:

- The resting door must be able to open and close with a force not exceeding 67N.
- In the event of a power outage, the door must be able to open with a force not exceeding 67N to release the lock and 90N to open the door.
- The kinetic energy of the moving door must not exceed 1.69 J. The following table indicates the speed parameters for different masses and door widths required to obtain the results according to this requirement:

Width of door leaf (mm)	Door mass (kg)				
	50	60	70	80	90
	Time (s)				
750	3,0	3,2	3,2	3,3	3,5
850	3,1	3,1	3,2	3,4	3,6
1000	3,2	3,4	3,7	4,0	4,2
1200	3,8	4,2	4,5	4,8	5,1

The minimum opening time of doors with other widths and / or masses should be calculated using the following formula:

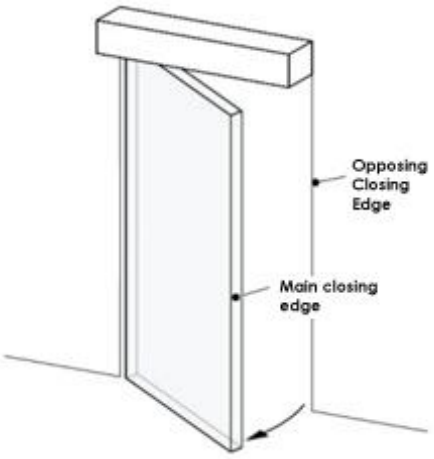
$$t = \frac{D\sqrt{m}}{2.26\sqrt{J}}$$

Where:
t = time in seconds
D = Width of the leaf in metres
m = Weight of the leaf in Kilograms
2.26 = conversion factor

These times have to be fulfilled:

- Opening: From the closed position to the brake at the opening or 80º
- Closing: From 90º until 10º and from the last 10º to the closed position must be more than 1.5 seconds.

- A static closing force of up to 150N if the clearance between the main closing side and the opposite closing side is ≤ 8 mm.



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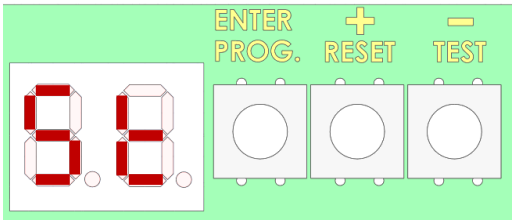
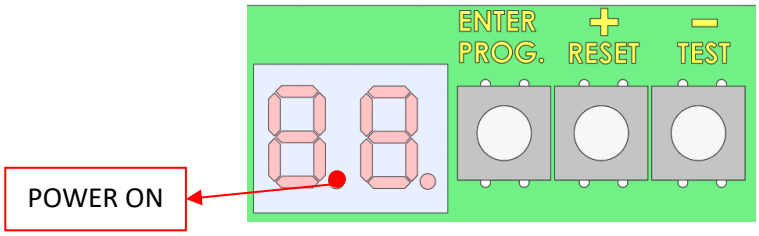
3.4 NORMAL FUNCTION

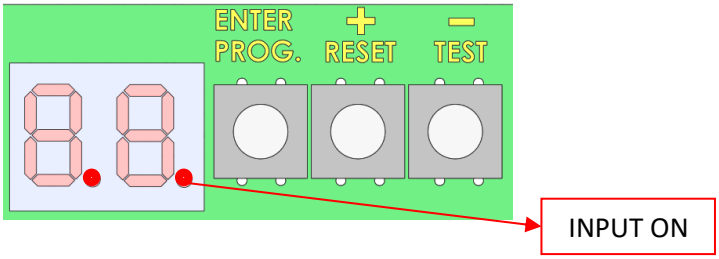
Each time the operator restarts, it checks the status of the door and closes it if open. This initialization is indicated by the letters "St" on the displays.



To make sure that the System is working correctly, check that the "POWER ON" indicator, located on the Control Unit, is always on.



When the Control Unit receives a signal to open the “INPUT” on the display screen will activate and the motor will start to turn opening the door.



When there is no order to open, the motor will turn in reverse direction until the door is fully closed.

When it receives the order to stop (by means of pressing the emergency stop button) the door will apply the brake and will remain still while the order to stop is in place.

3.5 POWER FAILURE

If the operator is not equipped with a battery system, in the event of a power failure the following will occur:

- the MI-SW model will stop working

- the MI-SWSP model will close.

3.6 ERRORS

Puede darse el caso de que el sistema haya sufrido algún problema y, por tanto, deje de funcionar correctamente, por ejemplo, cuando la puerta automática choque con un peatón.

If an error occurs, the automatic door will show an error code on the display and also an acoustic signal to indicate what error has taken place (for more information see section “6.-PROBLEM SOLVING. ERROR TABLE”).

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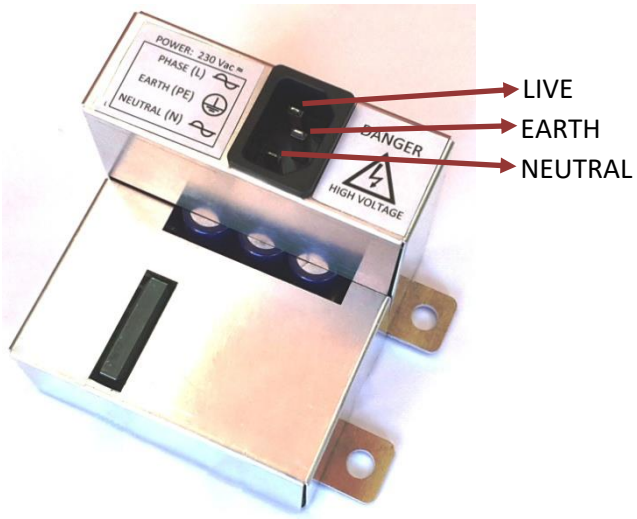
4. CONNECTIONS

4.1 CONNECTION TO THE ELECTRICITY SUPPLY NETWORK

The control unit can work at 230V or 110V, depending on client requirements. The feed power is 230V when it leaves the factory but the system can be configured to work at 110V; only a small modification has to be carried out in the inside of the feed supply (contact us for more details).

The control unit is compatible with frequencies 50Hz and 60Hz.

The power supply connection is made in the connector with 3 ways located in the upper part of the power supply (see the following image). This equipment must be connected to earth in order to avoid problems when the product and to protect users from dangerous situations.



ATTENTION!!
Be extremely careful with this connection. An error can damage the Control Unit and cause serious injury and/or death.

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4.2 INTERNAL BASIC CONNECTIONS

4.2.1 Connection from the transformer to the feed supply

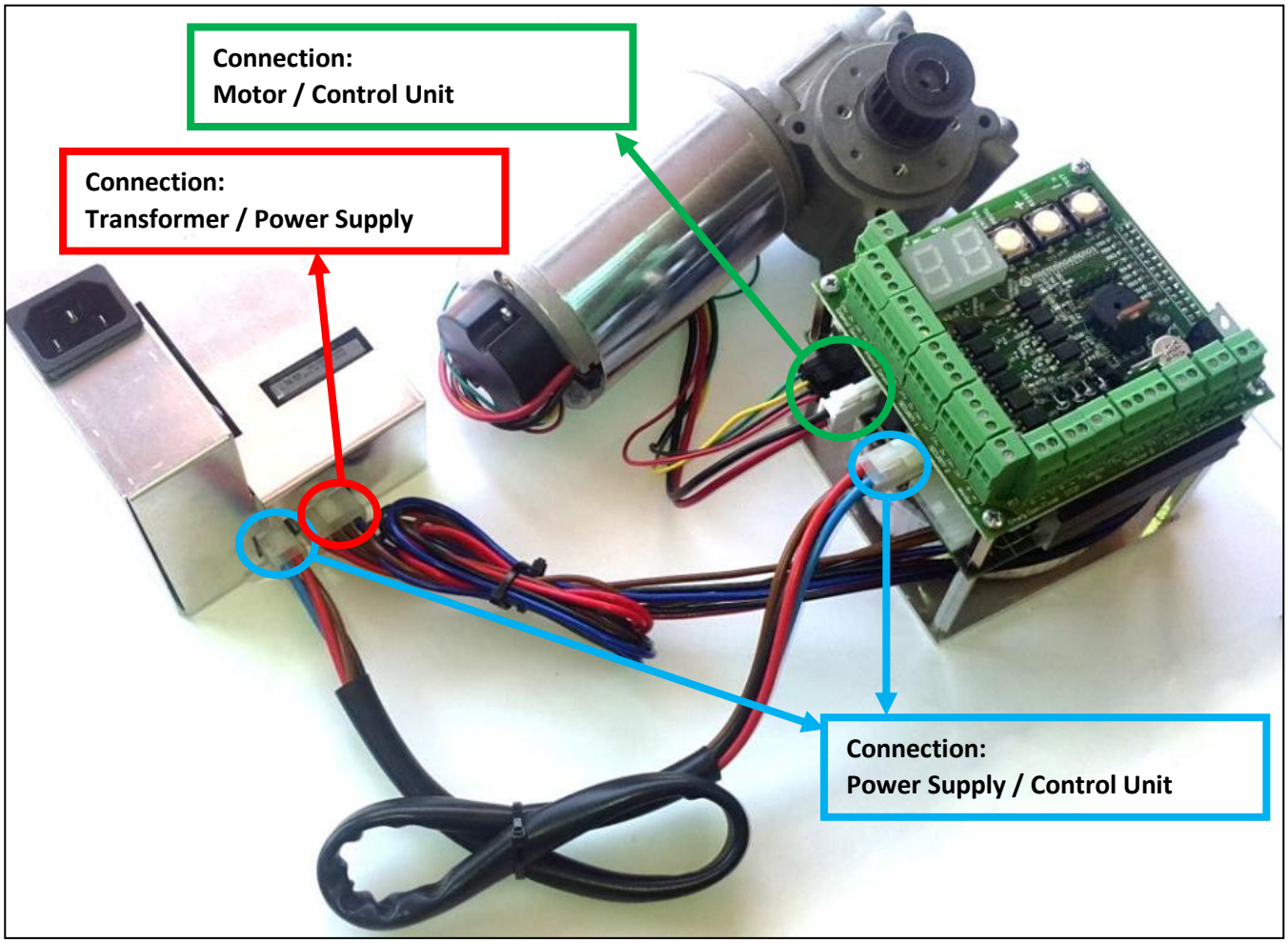
The connection from the transformer to the supply should be done with an 8-wire cable. This connection takes place in the factory and the technician should only have to do it in the event of a breakdown or when having to replace components (see the following figure for more details).

4.2.2 Connection from the supply to the control unit

The connection from the supply source to the control unit will be done with a 4-wire cable. This connection will be done in the factory and the technician should only have to do it in the event of a breakdown or when having to replace components (see the following figure for more details).

4.2.3 Connection from the motor to the Control Unit

The connection from the motor is done with two cables: one of 2 wires (feed) and the other 4 wires (position coder). This connection is done in the factory and the technician should only have to do it in the event of a breakdown or when having to replace components (see the following figure for more details).



4.3 CONNECTION OF OTHER COMPONENTS

The EMICON card provides the function of inter-connecting the Control Unit to the various out-lying components: emergency battery, sensors, emergency button, control system, selectors, etc.

The following are the connections:

P2: 24Vdc Output. 0,3A max

P8: Movement sensor (external)

P9: Movement sensor (internal)

P10: Closing safety Sensor (Security 1)

P14: Opening safety Sensor (Security 2)

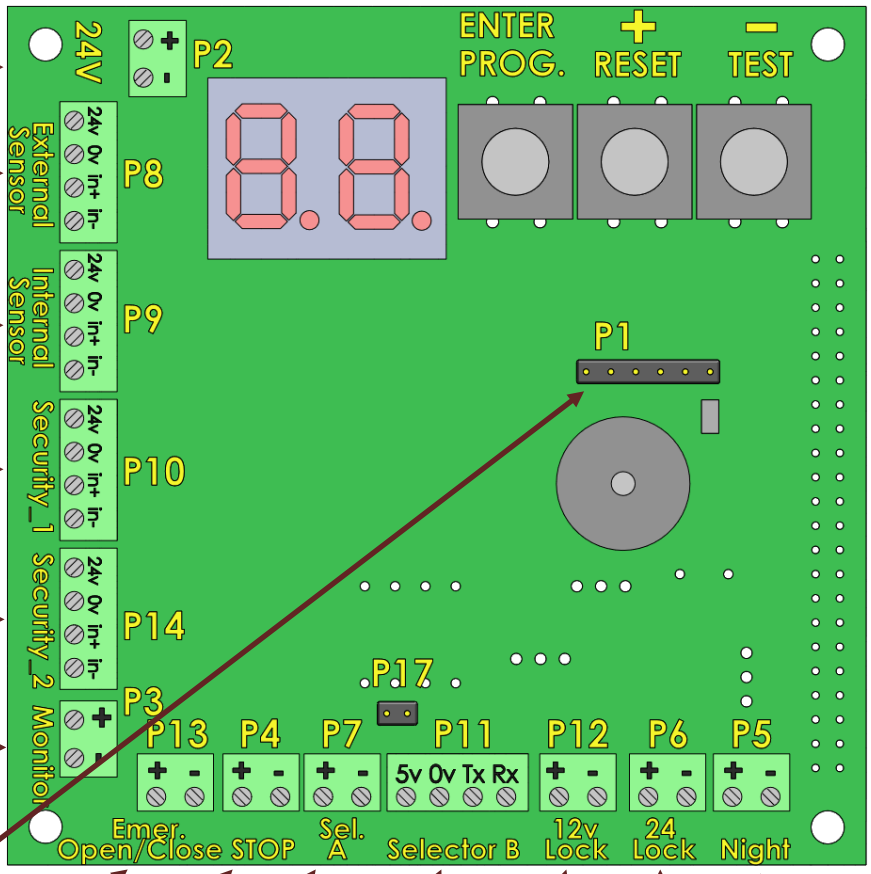
P3: Security sensor monitor

P1: Access control card

P13: Emergency Open/Close

P4: Emergency Stop

P7: Selector A (located on the side of the operator)



P11: Selector B

P12: 12Vdc bolt (Lock)

P6: 24Vdc bolt (Lock)

P5: Night Bank (Force opening)

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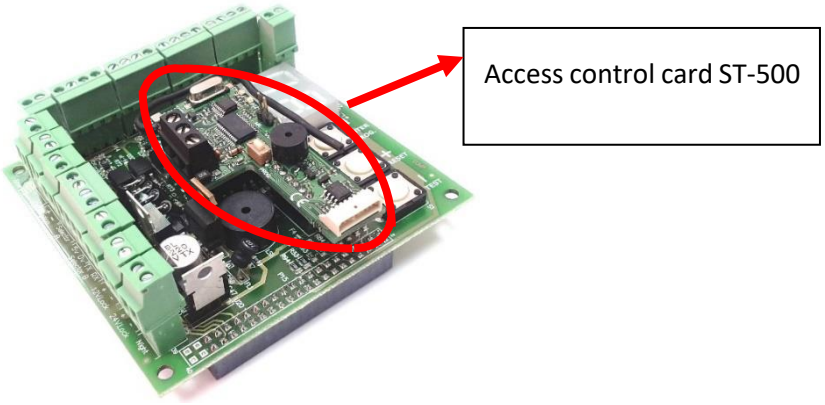
4.3.1 Connector P1. Connection of access control ST-500

The P1 connector links to the access control card, which allows control of the opening and closing of the door by means of remote controls, proximity key, tag, etc.



4.3.2 P2 connector. 24V output

The P2 connector has a power supply output of 24V. This output can be used when additional components are required to be connected to the automatic door, e.g. distance control cards, access control systems via password, etc.

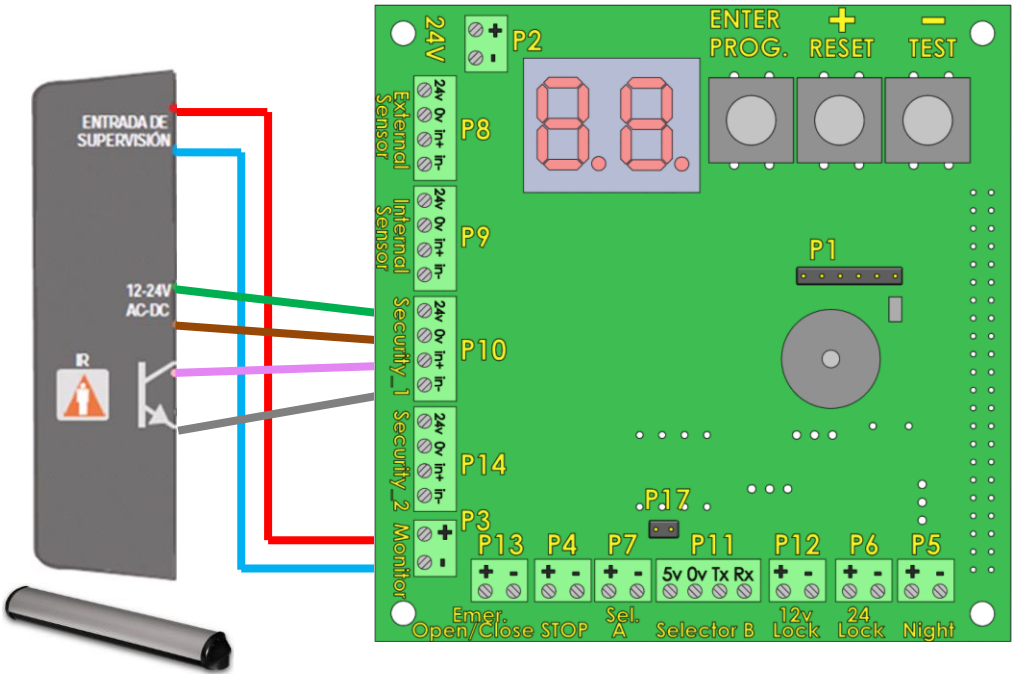
Attention must be paid to the consumption required by the component being connected as the maximum current is 300mA.

4.3.3 P3 connector. Security Sensor Monitor

The P3 connector is a communication output used by some presence detectors. The sensor can be checked to see if it is working correctly with this communication and therefore increasing the level of security for the automatic door.

This connection takes place between the P3 connector and the sensor input, which is usually called “MONITORING”, or supervision input”.

The P3 connector output is 24V and its polarity must be taken into consideration as shown in the following image:



The Control Unit does not have the Supervision function activated when it leaves the factory. In order to activate it parameters 22 and 23 need to be programmed - depending upon which sensor we want to supervise in the Control Unit (see section "5.-PROGRAMMING OF THE CONTROL UNIT"). Parameter 23 activates the Supervision of the sensors connected in P10 (safety in closing), parameter 22 activates the Supervision of the sensors connected in P14 (safety in the opening). In P3, the supervision signal of multiple sensors can be connected simultaneously, whether they are: safety in closing or safety in opening.

4.3.4 P4 connector. Emergency Stop

The P4 connector is an input used for connection to the emergency stop device. This input is programmed when leaving the factory to work with Normally Open contacts (NO) but can be programmed to work with Normally Closed contacts (NC), (see section "5.3.-PROGRAMMING PARAMETERS" – Parameter 26").

When this input is activated the door will immediately stop.

4.3.5 P5 connector. NIGHT BANK (Force Opening)

Su función es la de Abrir la puerta ante cualquier situación, como puede ser una señal de apertura por alarma externa.

Hay que tener en cuenta que esta entrada tiene prioridad frente al selector de maniobra.

Esta entrada solo funciona con contactos Normalmente Abiertos (NA).

4.3.6 P6 connector. Feed to block or automatic 24Vdc bolt (Lock)

El conector P6 es una salida de **24Vdc** empleada para la alimentación de sistemas de bloqueo (pestillos automáticos).

⚠ **WARNING!** Never exceed the maximum consumption. If so, the control unit will be damaged. The maximum consumption of the locking system is 7W (300mA). Automatic alternating current bolts must not be used; their use will cause severe damage to the control unit. Only automatic bolts that work with direct current can be connected. Special attention should be paid to the voltage value; the control unit will be damaged if used with an automatic bolt that is different from 24V.

This input has 2 working modes:

- Mode 0 = Lock with tension (NC)
- Mode 1 = Lock without tension (NO)

These functions are programmable in the Control Unit (see section "5.3.-PROGRAMMING PARAMETERS"- Parameter 12).

In the event that the latch used has polarity, the connection has to be carried out in the following manner:

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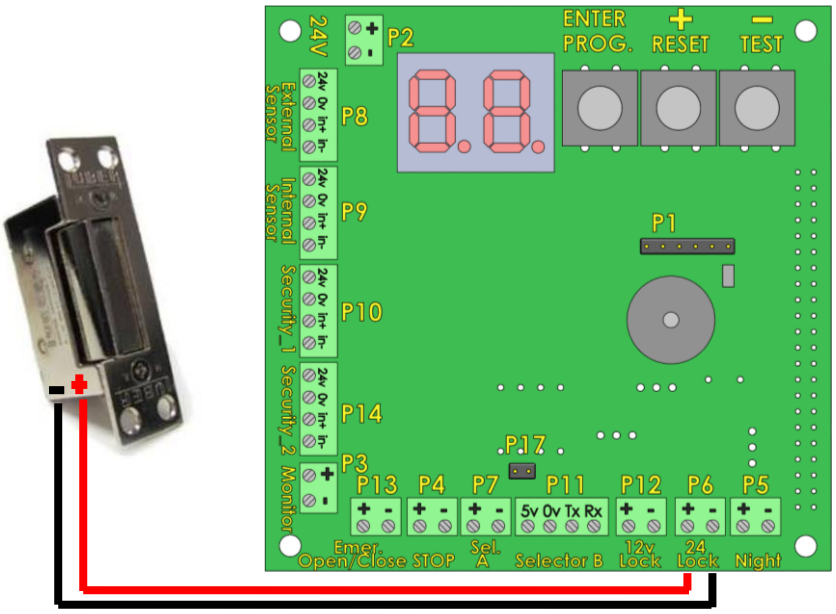


If a lock without polarity is installed, the position of the actual connections is indifferent.

4.3.7 Connector P7. Selector A (Switch 3 positions)

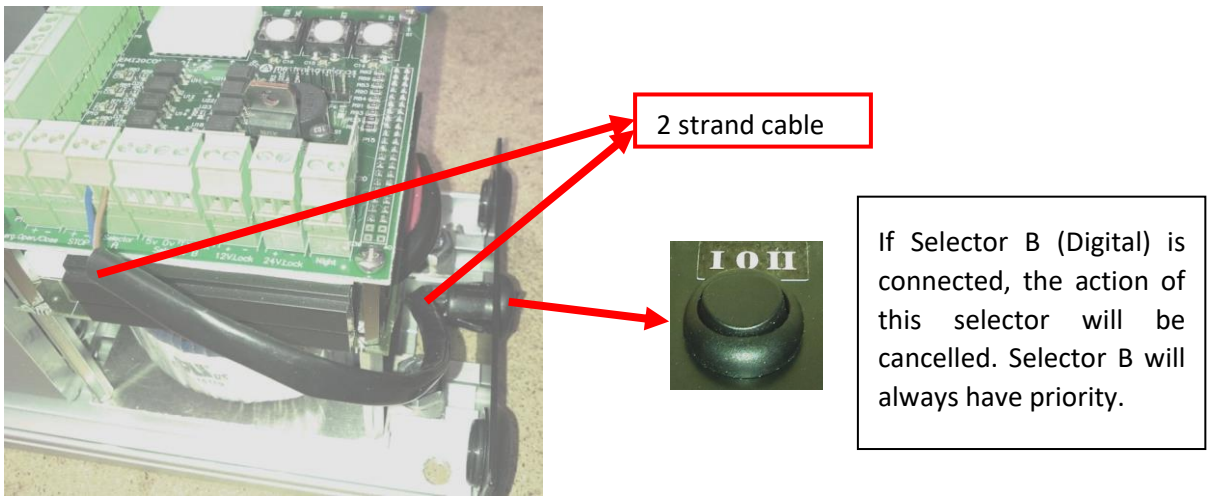
The selector located on the side of the operator is connected to P7.

This selector has three positions:

I. "Permanent Opening" Mode. This mode allows the door to be kept open.
0. "Manual" Mode.
   In this mode the operator does not act on the door and allows it to be opened or closed manually.
II. "Automatic" Mode. This mode allows entry and exit.

The connection is made by a 2-wire cable, and the order of connection is indifferent (without polarity).

This connection is made at the factory and the user only has to do it in case of failure or replacement of components (see the following figure for more details).



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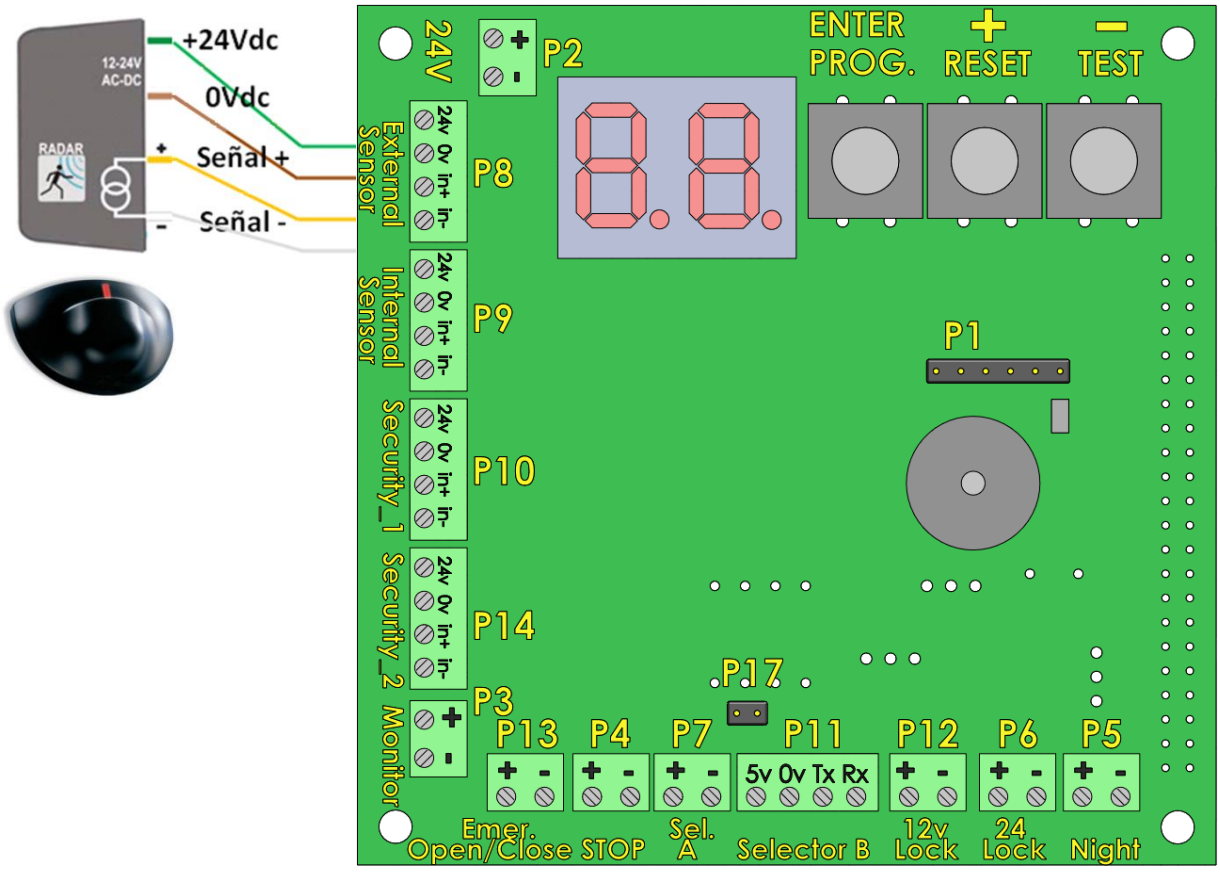
4.3.8 Connector P8. External Sensor

The connector consists of 4 poles:

1. Two poles are used to feed the sensor. The output feed is 24V DC.
2. The other two poles are the input of the sensor signal, which can be: free of voltage (relay output, no polarity) or transistor (with polarity).

The input signal is programmed from the factory to act as a Normally Open contact, although it can also be configured as a Normally Closed contact (see section "5.3.-PROGRAMMING PARAMETERS" - Parameter 17").



4.3.9 Connector P9. Internal Sensor

The P9 connector is used to connect a movement sensor.

The connector consists of 4 poles:

1. Two poles are used to supply the sensor. The feed output is 24V DC.
2. The other two poles are the input of the sensor signal, which can be: free of voltage (relay output, no polarity) or by transistor (with polarity).

The signal input is programmed at the factory to act as a Normally Open contact. It can also be configurated as Normally Closed contact (see section "5.3.-PROGRAMMING PARAMETERS" - Parameter 16).

Its connection is identical to that of the P8 connection.

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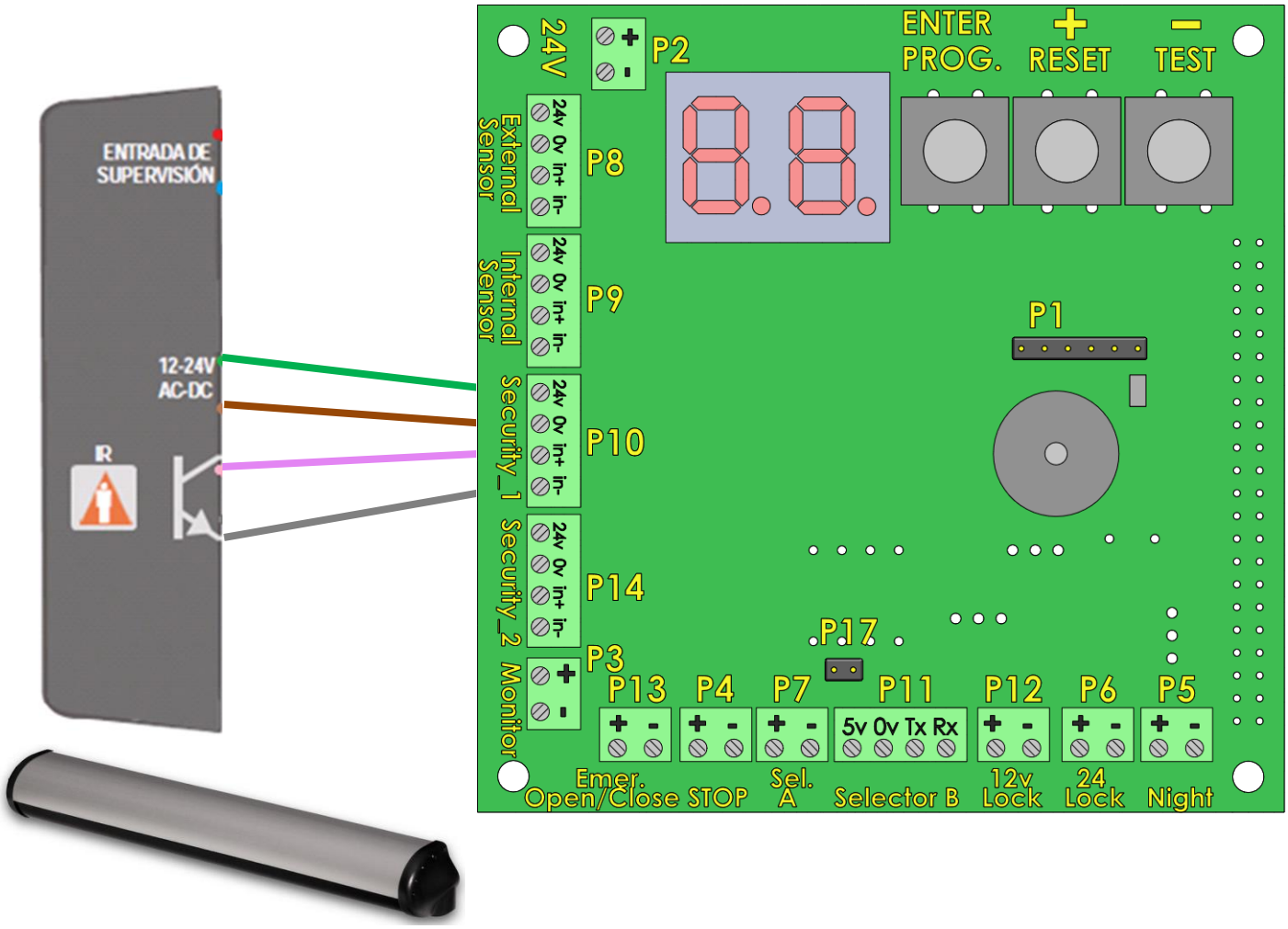
4.3.10 Connector P10: Closing safety sensor 1 (Security 1)

The P10 connector is used for the security sensor (or presence sensor) which protects the door from possible collisions while closing.

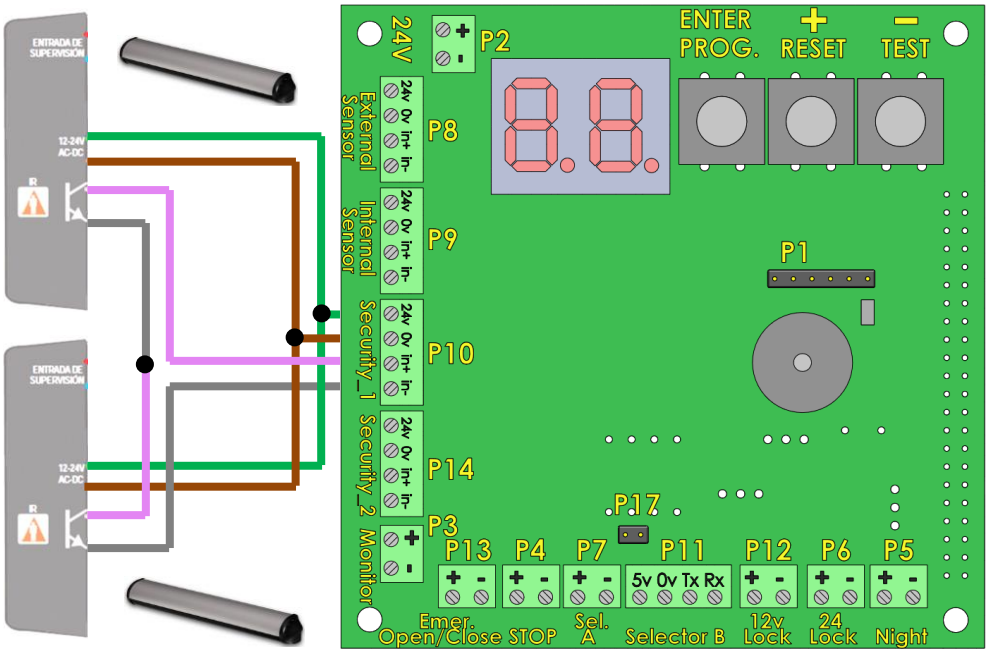
The connector consists of 4 poles:

1. Two poles are used to feed the sensor. The output feed is 24V DC.
2. The other two poles are the input to the sensor signal, which can be: free from voltage (relay output, no polarity) or by transistor (with polarity).

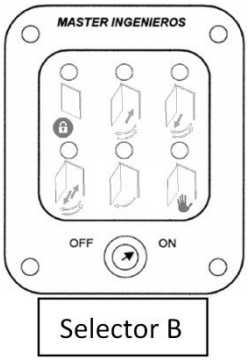
The signal input comes programmed from the factory to act as a Normally Closed contact, although it can also be configured as a Normally Open contact (see section "5.3.-PROGRAMMING PARAMETERS" - Parameter 19).



To connect more than one security sensor with NC (Normally Closed) contacts there needs to be a connection in series with the signal sensors, as seen in the following figure:



4.3.11 Connector P11. Selector B (Digital)



Selector B

The P11 connector is for a Digital Mode Selector, which allows the function mode of the automatic door to be changed and kept in its memory.

The connection is carried out by means of a 4-wire cable and care must be taken as the connection has polarity. Bridge P17 of the control unit must be connected (it already comes connected from the factory).

The voltage used is 5V.

Multiple B type selectors (Digital) can be connected to the same Control Unit.

When this selector is connected to the Control Unit, Selector A (selector in three positions) becomes deactivated and stops working.

1.- Remove the 4 internal screws to gain access to the electronic plate.

2.- Once the screws have been removed, remove “Bridge” - P5.

3.- This procedure should be carried out on all the selectors connected to the operator except for the one which is furthest away from the operator. Example: we have an operator with three connected selectors, we should remove the “bridge” from the two selectors nearest the operator; the selector which is the furthest away will not be modified.

⚠ WARNING! The digital B type selector must only be connected in the P11 connection point. Failure to adhere to this might cause irreversible damage to the selector and/or Control Unit.

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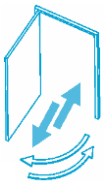
This selector has 6 buttons allowing the doors working mode to be selected. It also has 6 indicator lights that show the selected working mode.

Modes:

"Closed" mode. This mode allows us to close the door (locked if it has an electro-magnetic lock or Automatic Bolt). In this mode the emergency opening system (battery) will remain disconnected.

"Exit only" mode. This mode allows exit only.

"Entry only" mode. This mode allows entry only.



"Automatic" mode. This mode allows to entry and exit.

"Permanently open" mode.

"Manual" mode. In this mode the door can be open and closed manually and the operator does not have any effect.

Another function of the Digital Selector B is to save the door mode in the memory. If saved, it will return to this operating mode in the event of a power failure.

There are two possible programming modes:

- "NO MEMORY" mode. In this mode the state of the selector is NOT saved in the memory and in the event of a power failure will return to the "closed" working mode.

In order to activate the NO MEMORY mode, press and hold the 'closed' button for 5 seconds  .

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- "MEMORY" mode. In this programming mode, the state of the selector is saved in the memory. In the event of a power failure, the door will return to the saved setting when the power resumes.

In order to activate the MEMORY mode, press and hold the 'Automatic' button for 5 seconds. Memory mode is activated as standard in the factory. 

4.3.12 Connector P12. Power for automatic lock or latch 12Vdc

The P12 connector has the same qualities as the P6. The only difference is that the P12 connector works with 12Vdc voltages, therefore, the automatic latches connected in P12 must also be 12V DC (see 4.3.6 Connector P6).

Special attention must be paid to the working voltage value to avoid serious damage and/or injury.

4.3.13 Connector P13. Emergency Open/Close

This input is connected mainly to fire alarm or anti-panic systems, its function is to open or close the door in any situation, except when the selector is in the CLOSED or MANUAL position.

At the factory, this input is programmed to work with Normally Open (NO) contacts, and for the door to open, but it can also be programmed to work with Normally Closed (NC) contacts, or for the door to close (see 5.3 PROGRAMMING PARAMETERS - Parameter 27).

4.3.14 Connector P14. Security 2

Connector P14 is used to connect a safety sensor. This sensor protects the door from hitting objects when opening automatically.

The connector consists of 4 poles:

1. Two poles are used to feed the sensor. The power output is 24V DC.
2. The other two poles are the signal input of the sensor, which can be: potential-free (relay output, without polarity), or transistor (with polarity).

From the factory, the signal input is programmed to act as a Normally Open contact, although it can also be configured as a Normally Closed contact (see 5.3 PROGRAMMING PARAMETERS - Parameter 18).

Its connection is identical to that of connector P10, with the exception that it is made in connector P14 (see 4.3.10 Connector P10. Closing safety sensor (Security 1).

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4.4 PROBLEMS WITH INTERFERENCE

The cables belonging to mode selectors for the automatic door, as well as those of radars and sensors (if extended), must always be twisted, and shielded. The mode selector cable must also be earthed at one end.

It is essential that all low voltage cables are kept separate from the main power cables (230V – 110V) to avoid electrical interference. Installing these cables in the same tubes or together inside the operator itself can cause the microprocessor to malfunction, or break irreversibly.

Always keep small signal cables (photocell, selector, radar, motor, etc.) at least 10cm away from the main power supply (230V or 110V).

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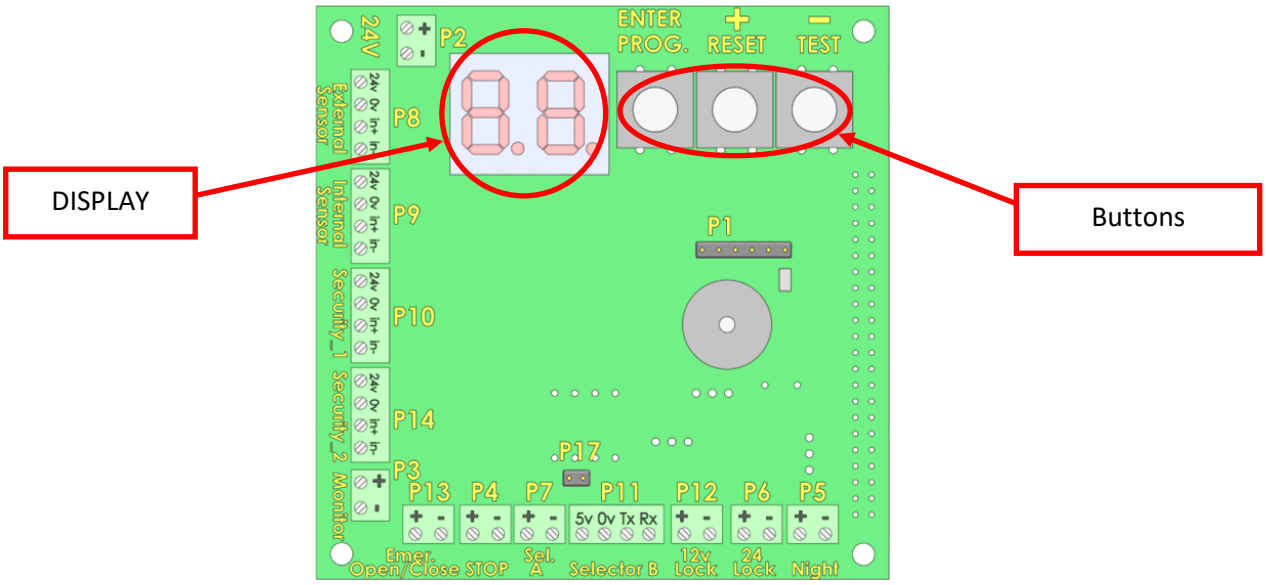
5. PROGRAMMING OF THE CONTROL UNIT

5.1 INTRODUCTION

The Control Unit has a dedicated area for programming the distinctive parameters of the automatic door, such as: speed, opening time, brake intensity, etc.

The programming of the door is carried out via the screen display and the 3 buttons, as shown in the following image.



5.2 PROGRAMMING MENU

5.2.1 Enter into the programming menu

To access the programming menu, the door must be in closed, manual or open mode. Then press and hold "ENTER PROG." for approximately 3 seconds.

To get into the programming menu, press and hold “ENTER PROG.” for approximately 3 seconds.

The Control Unit will make a sound and display a letter “P” once every second.

After 3 seconds, a “00” message will appear on the screen to indicate that the programming menu is now active.

This operation should only be carried out after the automatic door has stopped.

5.2.2 Modify the programming parameter

Once in the programming menu, the programming parameters can be modified:

- Initially the display will show two digits from “00” to “55”, which represent the parameter we wish to modify (a list of parameters is available in section 5.3 PROGRAMMING PARAMETERS). If "ENTER" is pressed, the value of the parameter is shown, which is represented by the centre point of the screen and a "=" sign (as long as it does not exceed the value number 10), followed by the number representing a said value, example "= 0". Each time "ENTER" is pressed it will alternate between the change parameter and the change parameter value.
- Use “+” and “-” to scroll through the different parameter, once a parameter has been selected, use “+” and “-” to increase or decrease the parameter value.

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5.2.3 Exit programming menu and save the modifications

In order to exit the programming menu and save all changes made, follow these steps:

- Scroll back to the “00” parameter
- Press “ENTER”

5.2.4 Programming example

The following steps show the procedure to change the Emergency Stop parameter from Normally open to Normally closed:

1. If the door is running, let it finish it cycle. Set the selector to "manual", "closed" or "open" position.
2. Press and hold "ENTER" for 3 seconds until the message "00" appears on the display.
3. Press "+" until number "26" appears on the display, this is the number allocated to Emergency Stop (for a full list of parameters see section "5.3.- Programming parameters").
4. Press "ENTER". The display will show the value "= 0" which indicates that the emergency stop is set to work as a normally open contact.
5. Press "+". The display will show the value "= 1" which indicates that the emergency stop is now configured to work as a normally closed contact.
6. Press "ENTER". The display will return to show the value "26".
7. Now exit the programming menu:
    - Press "-" until the "00" value is shown on the display.
    - Press “ENTER”.

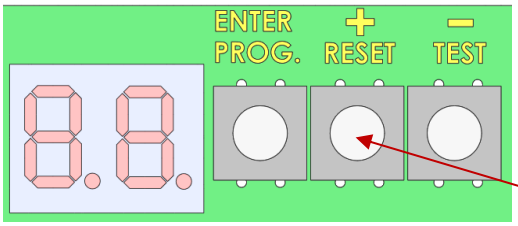
5.2.5 RESET of the programming

The control unit stores the programming parameters in its memory along with important details about the installation such as: the free passage (length of the run of the panels), parameters which limit the power consumption, brake adjustments, etc.

This data can be cleared and the operator restored to the factory settings.

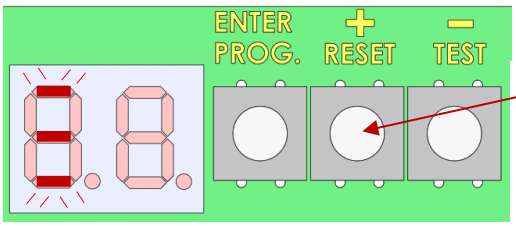
To RESET the Control Unit, follow these steps:

1. Remove the power supply from the Control Unit (if present, also remove the battery).
2. Press and hold the "RESET" button, keep it pressed while the power supply is reconnected.
3. Wait 5 seconds, until the Control Unit stops beeping.
4. Release the “RESET” button



1. Press and hold “+ RESET”

2. Turn on operator



3. If done correctly, 3 red flashing lines will appear on the display. Keep the button pressed until the bleeping stops (5 seconds approx.).

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5.3 PROGRAMMING PARAMETERS

Parameters available in the programming menu (see 5.2 PROGRAMMING MENU).

Group	Parameter	Description	Adjustable value	Default value
--	00	**Exit programming**	--	--
Movement	01	**Opening Speed** Speed of rotation of the operator's axis in the opening direction. The operator accelerates until the set speed is achieved and remains constant until it begins to brake. Value 0 = 10°/s Value 1 = 15°/s Value 2 = 25°/s Value 3 = 35°/s Value 4 = 45°/s Value 5 = 50°/s Value 6 = 55°/s Value 7 = 60°/s Value 8 = 65°/s Value 9 = 75°/s	**From 0 - 9**	**4**
	02	**Closing Speed** Speed of rotation of the operator's axis in the closing direction. The operator accelerates until the set speed is achieved and remains constant until it begins to brake. Value 0 = 5°/s Value 1 = 10°/s Value 2 = 15°/s Value 3 = 20°/s Value 4 = 25°/s Value 5 = 30°/s Value 6 = 35°/s Value 7 = 40°/s Value 8 = 45°/s Value 9 = 50°/s	**From 0 - 9**	**2**

Movement	03	**Maximum opening force** This parameter limits the maximum voltage that the motor can receive in the opening cycle so that it limits the maximum force it exerts when it is locked. This parameter can affect the speed if it is reduced. In general, this value should be equal to or greater than the opening speed value (parameter 1) Value 0 = Minimum force Value 9 = Maximum force	**From 0 - 9**	**6**
	04	**Maximum closing force** This parameter limits the maximum voltage that the motor can receive in the closing cycle so that it limits the maximum force it exerts when it is locked. This parameter can affect the speed if it is reduced. In general, this value should be equal to or greater than the opening speed value (parameter 2) Value 0 = Minimum force Value 9 = Maximum force	**From 0 - 9**	**6**
	05	**Manual closing speed (MI-SWSP model only)** The MI-SWSP model (with spring) in manual operation mode closes on its own at a speed that depends on the loading force of the spring and the brake on manual closing. Value 0 = Minimum speed Value 1 = Low speed Value 2 = Medium speed Value 3 = High speed Value 4 = Maximum speed	**From 0 - 4**	**2**
	06	**Opening brake adjustment** Allows to regulate the braking point for doors with high inertia.	**From 0 to 9**	**0**

Block	07	Hold open force Force exerted when door is open, so that it does not close. MI-SWSP operators already exert a previous force to keep the door open. Value 0 = 0 N (no extra force exerted) Value 1 = 20 N Value 2 = 30 N Value 3 = 40 N (recommended in areas with high wind speeds) Value 4 = 50 N (recommended in areas with high wind speeds) * In MI-SWSP models it is possible that the maximum value is less than 4, this value will depend on the force needed to hold open.	**From 0 - 4***	**2**
	08	**Hold closed force** Force exerted when door is closed, so that it does not open. The MI-SWSP operators already exert a previous force equivalent to the load with which the spring has been charged. Value 0 = 0 N (recommended when using the Push & Go system) Value 1 = 20 N Value 2 = 30 N	**From 0 - 2**	**1**
	09	**Closing pulse angle** The closing pulse is a small impulse that the door exerts when it is almost closed. It is usually used in areas with high weed speeds or when a bit more force is needed to close. Value 0 = No closing pulse Value 1 = 1º Value 2 = 2º Value 3 = 3º Value 4 = 4º	**From 0 - 4**	**0**
	10	**Closing pulse force** Value 0 = No closing pulse force (only spring force if any) Value 1 = Low Value 2 = Medium Value 3 = High Value 4 = Very high NOTE: Parameter 51 must not be 0.	**From 0 - 4**	**2**

Block	11	**Force to overcome obstacle** The force to overcome an obstacle exerts a small force in the direction of closure just before an opening cycle is performed. In this way, it helps with a correct opening in cases where the door presses the lock and friction prevents it from being released. Value 0 = No force to overcome the block Value 1 = 20 N Value 2 = 30 N Value 3 = 40 N (recommended in areas with high wind speeds) Value 4 = 50 N (recommended in areas with high wind speeds)	**From 0 - 4**	**0**
	12	**Type of block** Logic of the type of lock installed (latch, electro-suction cup, etc) Value 0 = Unlocks with voltage (NC) Value 1 = Unlocks without voltage (NA)	**From 0 - 1**	**0**
	13	**Opening wall detection** It deactivates the opening security for cases in which the door cannot perform its complete movement due to wall detection. Value 0 = Opening security is not deactivated Value 1 = Security is deactivated at 10º from the wall Value 2 = Security is deactivated at 20º from the wall	**From 0 - 2**	**0**
	14	**Sensitivity to knocks** It is the amount of time the operator will continue to open / close after the door has been blocked. If the door is blocked for the specified time, an error 1 or error 2 will occur depending on whether it is closing or opening. Value 1 = 0.5 seconds Value 2 = 1 second Value 3 = 1.5 seconds Value 4 = 2 seconds Value 5 = 2.5 seconds Value 6 = 3 second Value 7 = 3.5 seconds Value 8 = 4 seconds Value 9 = 4.5 seconds	**From 0 - 9**	**2**

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Sensors	16	**Internal Motion Sensor** Logic of operation of the interior radar. The sensor can also be configured in bistable mode, if the door is closed or closing closed, a pulse opens the door and remains open until another pulse is detected to close it. Value 0 = NA (Normally Open) Value 1 = NC (Normally Closed) Value 2 = Bistable mode NA (Normally Open) Value 3 = Bistable NC bistable mode (Normally Closed)	**From 0 - 3**	**0**
	17	**External Motion Sensor (External Sensor)** Logic of operation of the exterior radar. Value 0 = NA (Normally Open) Value 1 = NC (Normally Closed)	**From 0 - 1**	**0**
	18	**Security Opening Sensor** Logic of operation of the safety sensor in opening. Behavior is configured other detection; you can stop or follow its path at a safe speed. Value 0 = NA (Normally Open) If activated, the door stops. Value 1 = NC (Normally Closed) If activated, the door stops. Value 2 = NA (Normally Open) If activated, the door slowly opens. Value 3 = NC (Normally Closed) If activated, the door slowly opens. * To comply with the EN16005 standard, the value of this parameter must be 0 or 1 for the door to stop properly.	**From 0 - 3**	**1**
	19	**Security Closing Sensor** Logic of operation of the safety sensor in closing. Value 0 = NA (Normally Open) Value 1 = NC (Normally Closed)	**From 0 - 1**	**1**

Monitoring Mode	22	**Monitoring mode in Opening Security sensor** The monitoring mode (Test) checks the status of the opening safety sensors each time the operator's opening is initiated, verifying whether the sensor is in good condition or not. If the sensor verification fails, the operator performs a slow opening cycle (in safe mode) and the corresponding error is activated. Value 0 = Monitoring mode deactivated Value 1 = Monitoring mode activated	**From 0 - 1**	**0**
	23	**Monitoring mode in Closing Security sensor** The monitoring mode (Test) checks the status of the closing safety sensors each time the operator's closing is initiated, verifying whether the sensor is in good condition or not. If the sensor verification fails, the operator performs a slow Closing cycle (in safe mode) and the corresponding error is activated. Value 0 = Monitoring mode deactivated Value 1 = Monitoring mode activated	**From 0 - 1**	**0**
Emergencies	26	**Emergency Stop** Logic Emergency Stop input. If the Emergency Stop input is activated, the door stops. Once deactivated, the operator performs the closing cycle. Value 0 = NA (Normally Open) Value 1 = NC (Normally Closed)	**From 0 - 1**	**0**
	27	**Emergency Open/Close** Logic and operating mode of Emergency Open / Close input. It is possible to configure the Emergency Open / Close input to open or close after activation. Value 0 = Emergency Opening Mode NA Value 1 = Emergency Opening Mode NC Value 2 = Emergency Closing Mode NA Value 3 = Emergency Closing Mode NC	**From 0 - 3**	**0**
Operating modes	30	**Push & Go** Push & Go mode allows the door to open when pushed. If activated, the number of degrees to push the door must be indicated in order for the opening cycle to begin. When this operating mode is activated, parameter 11 (force to overcome the block) will deactivate. Value 0 = Disabled Value 1 = Activated when moving 1° Value 2 = Activated when moving 2° Value 3 = Activated when moving 3°	**From 0 - 3**	**0**

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	31	**Low Energy Operation - Weight** The operation in Low Energy is a special operation that consists in the opening / closing movements being carried out in a certain time and the static force does not exceed 67N. In this operation, the operator works in safe mode, being able to dispense with safety sensors. For the operator to operate in Low Energy mode, it is necessary to indicate the Weight and Width of the door. If either of these two values is 0, the Low Energy operation will not be active. Value [0 - 250] = Weight in Kg	**From 0 - 250**	**0**
	32	**Low Energy Operation - Width** The operation in Low Energy is a special operation that consists in the opening / closing movements being carried out in a certain time and the static force does not exceed 67N. In this operation, the operator works in safe mode, being able to dispense with safety sensors. For the operator to operate in Low Energy mode, it is necessary to indicate the Weight and Width of the door. If either of these two values is 0, the Low Energy operation will not be active. Value [0 - 200] = Distance in centimeters	**From 0 - 200**	**0**
	33	**Interlock mode** The Interlock mode requires 2 MI-SW / SWSP operators connected to each other. If the Lock mode is activated on both operators, operator number 2 will perform its opening cycle only once operator number 1 has closed. Value 0 = Disabled Value 1 = Activated	**From 0 - 1**	**0**
	34	**Brake type in MI-SWSP operators (independent for each leaf)** Value 0 = Automatic standard brake, valid for most installations Value 1 = Adjustable brake, useful in hermetic door installations. Its action point can be regulated with parameter 35 Value 2 = Constant closing speed after brake (may strike depending on the installation and loading of the spring) Value 3 = Soft closing by spring after brake, adjustable with parameter 5	**From 0 - 3**	**0**
	35	**Final brake speed adjustment in MI-SWSP operators (independent for each blade)** It allows to adjust according to the type of brake selected, the final brake speed. It only acts if parameter 34 is equal to 1	**From 0 - 250**	**50**

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Double doors	36	**Double Doors Operation** Double doors configuration. When a door has 2 leaves, an operator is installed for each sheet and they are connected to each other. The operator that first opens and where the radars, lock, RF receiver, etc. are connected. This must be set as Master. The second operator, opens later and only has securities installed must be configured as Slave. Value 0 = Disabled Value 1 = Master (Operator that opens first and where the radars are connected). Value 2 = Slave	**From 0 - 2**	**0**
	37	**Offset when opening (Double doors)** Degrees of waiting until Slave operator opens. Once the Master operator has reached the defined degrees, the Slave operator opens. Value 0 = The slave door opens at the same time as the master door. Value 1 = The slave door opens 1º after the master door. Value 2 = The slave door opens 2º after the master door. Value 3 = The slave door opens 3º after the master door. Value 4 = The slave door opens 4º after the master door. Value 5 = The slave door opens 5º after the master door. Value 6 = The slave door opens 6º after the master door. Value 7 = The slave door opens 7º after the master door. Value 8 = The slave door opens 8º after the master door. Value 9 = The slave door opens 9º after the master door.	**From 0 - 9**	**6**
	38	**Final overlap offset when closing (Double doors)** Degrees of waiting until Slave operator closes. If the Master door reaches the closing point before the Slave door, a gap must be added so that the Master door waits and the closing is executed correctly. Value 0 = No offset. Value 1 = The master door closes 5º after the slave door. Value 2 = The master door closes 10º after the slave door. Value 3 = The master door closes 15º after the slave door. Value 4 = The master door closes 20º after the slave door.	**From 0 - 4**	**4**
	39	**Final opening speed setting** It allows to vary the final opening speed. It only acts on MI-SWSP operators.	**From 0 - 200**	**0**

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Sound	40	**Acoustic warning** Activate / deactivate the acoustic messages (Errors, change of state in the selector, access to the parameters menu, etc.). Value 0 = Disables all acoustic warnings Value 1 = Active all acoustic warnings Value 2 = Only deactivates acoustic warnings of errors except 7 and 9 Value 3 = Only deactivates acoustic warnings of errors except 1 and 2	**From 0 - 3**	**2**
	41	**Sound warning before closing** If activated, a 1-second sound is emitted just before closing the door. Value 0 = Disabled Value 1 = Actived	**From 0 - 1**	**0**
	42	**Acoustic Notice of Entry** When the operator finishes an opening cycle, it emits a sound - duration adjustable. Value 0 = Disabled Value 1 = Notice of 1sg duration. Value 2 = Notice of 2sg duration. Value 3 = Notice of 3sg duration.	**From 0 - 3**	**0**

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Timers	45	**Delay in unlocking** The time between opening pulse and when the door begins to open. With the aim that if there is a locking device installed that needs more time to unlock it can work correctly. This parameter also defines the time that the force lasts in the opposite direction if parameter 11 is activated (Force to overcome the blockage) Value 0 = 0 seconds Value 1 = 0.5 seconds Value 2 = 1 second Value 3 = 1.5 seconds Value 4 = 2 seconds	**From 0 - 4**	**0**
	46	**Auto Close Timer** Time that elapses from when the door is completely open until it begins to close. Value 0 = 0 second Value 1 = 1 second Value 2 = 2 seconds Value 3 = 3 seconds Value 4 = 4 seconds Value 5 = 5 seconds Value 6 = 10 seconds Value 7 = 15 seconds Value 8 = 20 seconds Value 9 = 30 seconds	**From 0 - 9**	**1**
	47	**Digital Selector Timer** Programmable time that elapses from when “closed door” is selected in the digital selector, until it closes. This timer is usually used to exit and close, since during the waiting time (red LED flashing) the operator is set to “exit only”. Value 0 = No delay in digital selector. Value [1-90] = Time in seconds of delay.	**From 0 - 90**	**0**

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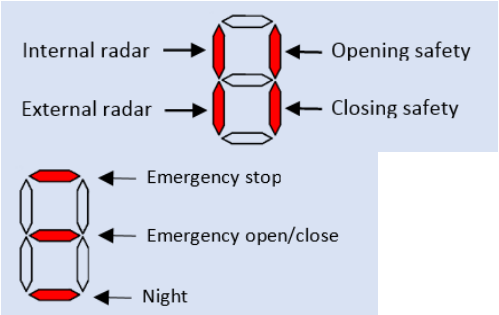
Configuration	50	**Channel 2 function of the RF receiver** In the RF control system, it is possible to change the configuration of the second channel by one of the following options. Value 0 = Close the door immediately Value 1 = Activate and Deactivate the Push & Go. Value 2 = Activate and Deactivate the Open Door Function	**From 0 - 2**	**2**
	51	**Arm type** The type of arm is automatically defined after self-learning. In some special cases where the door opens less than 80º or more than 110º, It may be the case that the configured arm is not correct. Value 1 = Sliding arm. Value 2 = Articulated arm.	**From 1 - 2**	**Auto**
	52	**Number of operators** When a double door is installed or a digital selector is connected to the operator, so that they are visible to each other, they must have the same assigned number. This parameter assigns the value of the operator number. Value [0 - 255] = Value of the operator number.	**From 0 - 255**	**0**
	53	**Battery (reserved for the future)** Value 0 = No battery. Battery activation function before power cut off. Value 1 = Battery installed Battery activation function before power cut off.	**From 0 - 1**	**0**

Tools	54	**Tools / Utilities** These tools make it easy to find possible causes of faults in the case that operator is not correct. Value 0 = No tool selected. Value 1 = It is shown by the segments of the first screen if there are active inputs. If the corresponding segment is activated, it indicates that this input is active. Useful to detect possible defective or defective sensors or inputs configured.  Value 2 = Shows the degree of opening of the door in the displays. Useful to detect possible faults in the movement of the door. Value 3 = Shows the steps read by the operator in the displays. Useful to detect possible displacement of the stopper or belt wear Value 4 = Shows a value orientated to the motor current read. Useful to detect possible faults in the movement of the motor.	**From 0 - 4**	**0**

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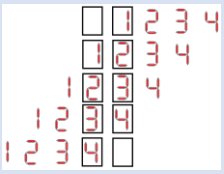
Information	55	**Technical Consultations** Information stored in the operator's memory is shown on the displays. The information shown can sometimes exceed the value 99, so the scroll or slide type value is displayed. For example, the value 1234 is shown as follows: 1, 12, 23, 34.  Value 1 = Number of cycles performed. Value 2 = Error that has occurred more times. Value 3 = Number of days of operation Value 4 = Software Version Value 5 = Type of operator (MI-SW = 1, MI-SWSP = 2) Value 6 = Force loaded on applied to spring when last tensioned Value 10 = Error counter 0 Value 11 = Error counter 1 Value 12 = Error counter 2 Value 13 = Error counter 3 Value 14 = Error counter 4 Value 15 = Error counter 5 Value 16 = Error counter 6 Value 17 = Error counter 7 Value 18 = Error counter 8 Value 19 = Error counter 9 Value 20 = Error counter 10 Value 21 = Error counter 11 Value 22 = The counter of the number of times an auto-reset is shown	--	--

6. RECOMMENDED ADJUSTMENTS FOR HERMETIC DOORS

After the installation of a MI-SW / SWSP operator for hermetic doors used in operating room, cleanroom or similar, the auto-learning of the path of the leaf must be carried out as indicated in this manual in point START UP AUTO-LEARNING.

Once the operator is ready to start, programming mode needs to be entered and the following parameters need to be configured to finish adjusting the closing brake and the final opening speed, this is highly recommended if the door in finding it hard to finish closing or opening.

It is very important to verify the movement of the leaf by hand, very slowly and without power, to detect possible friction points caused by the installation. These should be corrected as much as possible.

If the operator incorporates a spring closure (MI-SWSP model), the door must be opened without power and allowed to close by itself. If it fails to close to the point where it comes into contact with the rubber seals, any friction should be checked and corrected, and or the spring charged more. Although it is not recommended to exceed the charge value of 3.

Parameter 8 - Force maintained in closing→ Change to value 2 so that the hermetic fit is better

Parameter 14 - Sensitivity to knocks→ If the door is heavy or has any friction that cannot be eliminated but does not cause impediment to the movement of the leaf, increasing the value of this parameter a couple of points to prevent the operator from detecting knocks when opening or closing which will result in E1 or E2 errors.

Parameter 34 - Brake type in MI-SWSP operators (independent for each blade)
Value 0 = Automatic standard brake, valid for most installations→ Default value
Value 1 = Adjustable brake, useful in hermetic door installations. Its action point can be regulated with parameter 35
Value 2 = Constant closing speed after brake (may strike depending on the installation and loading of the spring)
Value 3 = Soft closing by spring after brake, adjustable with parameter 5

Parameter 35 - Final brake speed adjustment in MI-SWSP operators (independent for each leaf)
It allows to adjust according to the type of brake selected, the final brake speed. It only acts if parameter 34 is equal to 1 → Default value = 50, configurable from 0 to 250

Parameter 39 - Adjustment of final opening speed
It allows to vary the final opening speed. It only acts on MI-SWSP operators. → Default value = 0, configurable from 0 to 200

Specific for double hermetic doors:

Parameter 36 - Double Doors Operation

Double doors configuration. When a door has 2 leaves, an operator is installed for each sheet and they are connected to each other. The operator that first opens and where the radars, lock, RF receiver, etc. are connected. This must be set as Master. The second operator, opens later and only has securities installed must be configured as Slave.
Value 0 = Disabled
Value 1 = Master (Operator that opens first and where the radars are connected).
Value 2 = Slave

Parameter 37 - Offset when opening (Double doors)→ Preconfigured for optimal operation

Parameter 38 - Final overlap offset at closing (Double doors)→ Preconfigured for optimal operation

Parameter 5 - Manual closing speed (MI-SWSP model only)→ This depends on the spring load and can be increased or decreased. It is recommended that the value of the slave door be greater than the master so that it closes earlier and respects the overlap.

IMPORTANT NOTE: Perform the learning and configuration at each door before interconnecting them with the RX / TX cable. Once programmed, perform several opening cycles in each door separately to finish adjusting the opening and brake points, force maintained in closing, etc. If the slave does not respect the opening offset, turn off both operators and the restart them so that they load the newly configured parameters correctly.

Finally, interconnect both doors with a twisted, shielded cable, joining the TX-TX, RX-RX and 0V (GND) terminals of the P11 connector of both operators. See section DOUBLE DOOR INSTALLATION for more details.

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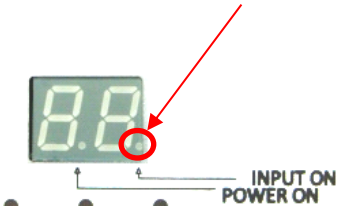
7. PROBLEM SOLVING

The following table shows the most common problems that may arise during installation:

Problem	Solution
The POWER symbol on the display does not light up. 	- There is a fault in the supply or the Control Unit to the electricity supply (110-230Vac). - Turn off the Control Unit. After some seconds have gone past, connect the Control Unit up again. - If the problem persists, replace the Control Unit by a new one.
The INPUT ON signal does not light up on the display when the sensor is activated. 	- Check that the selector is correctly connected and is working correctly. - Check that the selector is not in the position of “Door closed” or “Manual Door”. - Check that the sensors are correctly connected. It could be that one of the components connected to the control unit is creating a short circuit due to a bad connection. Check the 24Vdc in connector P2. - If the problem persists, replace the Control Unit by a new one.
The door doesn’t close or open completely and there are some centimetres required to complete the operation	- Check there in no increase friction in the movement of the leaf. - Check the arm works well throughout its travel. - If the problem persists, increase the maximum torque (see table of parameters) of closing or opening until the problem is solved. - If the problem persists, change the opening and closing speeds (see table of parameters).

The door doesn’t open and remains closed	- Check that the opening security sensor is not activated or defective.
	- Check that the mode selector is not on “close” or “manual” mode.
	- If the mode selector has a lock and key, place the key on the ON position.
	- If the problem persists, disconnect the selector and check with a Vdc voltage metre that the P7 connector has a voltage of 5V (for more information consult (See 4.3.7 Selector A (3 Switch position).
	  - If the voltage is “0V”, it is possible that the Control Unit could be broken and we therefore recommend you to disconnect and then re-connect again.
	  - If the voltage is “5V”, replace the selector with a new one.

The door doesn’t close.	- Check that the closing security sensor is not activated or is defective.
The B Selector (Digital) is not working correctly	- Check that the connections have been done correctly (for more information consult section 4.3.11 Connector P11. Selector B (Digital)). - Check that between the TX and RX Control Unit terminals there is a resistance value of 60 ohms (measure this with a digital mustimeter). If the resistance value shows 1200 ohms or higher, then more bridges than necessary have been removed. If the resistance value in 30 ohms or less, then more than one selector has been connected and not enough bridges have been removed (for more information consult section 4.3.11 Connector P11. Selector B (Digital)).
The door takes a while to react upon opening	- Check the "delay on unlocking" parameter and reduce the time.
If considerable force is required to push the door when the Push&Co option is in use	- Reduce the parameter "Maintain closed force" to value 0.

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7.1 ERROR TABLE

When the automatic door detects and error, a message will appear on the Control Unit display screen which indicates the type of error that has occurred. An acoustic signal will be heard.

It is possible to find out the type of error that has occurred from the sound signal:

__ Long sound

_ Short sound

Error	Acoustic Signal	Description	Solution
E0	— — —	**Error in self-learning** This occurs when the door has not been able to open more than 20 ° during learning, when it is detected that the door opens more than 150 ° during learning, or when the spring is tensioned in MI-SWSP operators and the position is not updated correctly	– The door is not closed, the door must be closed. – The door is locked by a device such as a latch or bolt. – The arm is not correctly connected and the pulleys of the operator rotate but the door does not move. Position the arm correctly. – The leaf travel cannot be less than 20 °. – Remove any obstacle that prevents the door leaves from moving all the way. – The weight of the door exceeds the maximum allowed. – The mechanical components of the door are not working properly, either due to the abnormal appearance of friction, unevenness or breakage. – The motor connector is in poor condition or disconnected.
E1	_ —	**Opening block** The door cannot continue to open during the opening cycle because it has been blocked	– The door has been blocked or knocked on the opening cycle. Remove any obstacles that may hinder its movement. – Remove the power and check that the door leaf moves correctly along its entire length. Check that the hinges are working correctly. If the problem is that the friction has changed since the installation date, perform a RESET to re-run the self-learning. – Increasing the opening force (parameter 3) could solve the problem. – Increasing the value of shock sensitivity (parameter 13) could solve the problem but, since the sensitivity is reduced and some friction is avoided, but a longer time will be needed to block the door.

E2	_ _ —	**Closing block** The door cannot continue closing because it has been blocked during the closing cycle	– The door has been locked or hit in the closing maneuver. Remove any obstacles that may hinder your movement. – Remove the power and check that the door leaves move correctly along its entire path, if the operator is MI-SWSP type (with spring) make sure that the door closes completely alone, if it is not capable of close by itself, the spring must be tensioned more. Check that the hinges are working correctly. If the problem is that the friction has changed since the installation date, perform a RESET to re-run the self-learning. – Increase the closing force (parameter 4) could solve the problem. – Increasing the value of shock sensitivity (parameter 13) could solve the problem but, since the sensitivity is reduced and some friction is avoided, but to block the door it will take a longer time.
E3	_ _ _ —	**Error reading memory**	– Turn off the operator and restart. – If the problem persists, perform a Factory RESET.
E4	_ _ _ _ —	Error in the supervision of the opening safety sensor	– Check that the connected safety sensor has the monitoring option activated. – Check that the safety sensor is connected correctly. – If the problem persists, replace the safety sensor.
E5	_ _ _ _ _ —	**Loss of position** The operator has lost its position, for the safety of users it has changed to manual mode. The belt or motor redactor may have broken.	**First disconnect the operator** – Check the good condition of the motor belts. If the belt is damaged, replace it. – Test the motor by turning it manually. In the event that it does not turn easily when a small force is applied to the end of the arm, replace motor with one of identical characteristics. – If everything is correct, restart the operator to see if the problem has been solved.

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E6	_ _ _ _ _ _ _ ___	Error in the supervision of the closing safety sensor.	– Check that the connected safety sensor has the monitoring option activated. – Check that the safety sensor is connected correctly. – If the problem persists, replace the safety sensor.
E8	_ _ _ _ _ _ _ _ ___	**Opening Block** Error when. The door cannot start opening because it is blocked by some type of bolt that is not deactivated correctly.	– Check that the bolt or electro-lock is correctly connected according to its voltage (12V / 24V) – Check that the automatic latch parameter has been programmed correctly (parameter 12). – Lubricate the area of movement of the latch (Caution: the electrical zone must not be greased) – If the problem persists, replace the electric latch.
E10	_ _ _ _ _ _ _ _ _ ___	**High motor current** Motor currents that are too high detected. To prevent motor damage, the operator is now configured as a manual door.	– If it happens in the “open door” position, reduce the force maintained during opening or the tension of the spring (for MI-SWSP operators) – Check that the motor is working correctly. – If the problem persists, replace motor.
E11	_ _ _ _ _ _ _ _ _ ___	**Wrong Positioning** The operator has lost its position slightly. This error may be because the door has been forced and the belt has moved or the opening stopper has moved.	– Check that the arm is well fixed and has no slack. – Check that the opening stop has not moved with respect to self-learning, if it has moved, RESET the operator and re-perform the self-learning process. – Check that the motor encoder wiring is well connected and in good condition along its entire length. – Check that the belts are tight and in good condition.

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8. MAINTENANCE

As with all electrical products, this automatic door operator requires servicing and maintenance.

It is essential to be aware of the importance in carrying out maintenance in order to enjoy a secure and trustworthy product.

Regular adjustments and services will ensure this product will continue to work safely and correctly.

Routine inspections should be carried out as indicated under the national regulations and at times deemed necessary. It is especially important when dealing with approved fire doors or doors operating as emergency exit doors.

In the event that there are no specific scheduled inspection regulations, MASTER INGENIEROS recommends that a periodic inspection every 6 month.

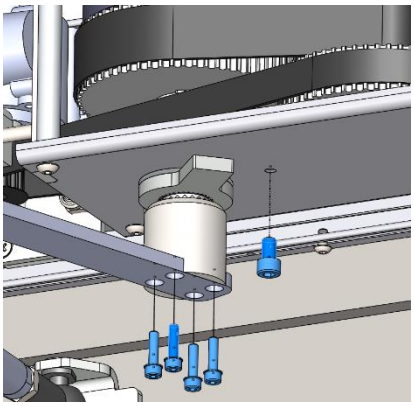
For the correct functioning of the automatic door, parts effected over time by wear and tear will need to be replaced. The following table indicates the parts which must be periodically checked (mainly belts and spring).

Part	Reference
Transmission block MI-SW	MIP000837-01a
Transmission block MI-SWSP	MIP000838-01a

Replacement of the transmission block (it includes the belts):

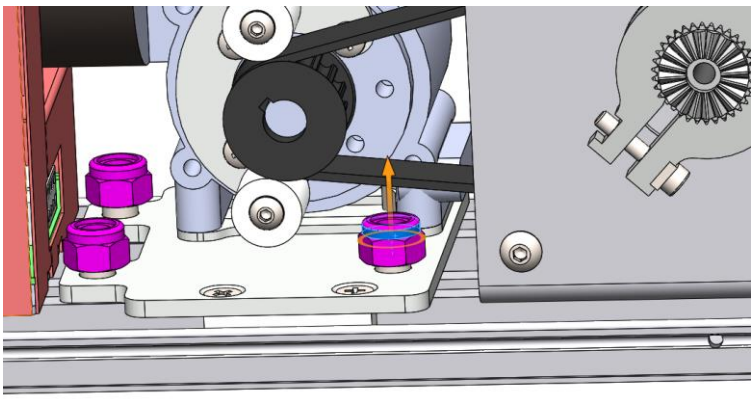
Note: please indicate to your provider if you need spring or not

For the correct function of the automatic door, it is recommended to replace the transmission block as soon as any damage or unusual wearing is observed at the belt or the spring (if installed). The procedure for performing its replacement is described below:



1. In first place, unscrew the screw that serves as end stop of the stop cam. Then unscrew the 4 screws that fix the arm to the transmission piece. If the operator is provided with a spring it will loosen slowly.

2. Loose up (not completely) the screws that fix the motor to the operator's base.



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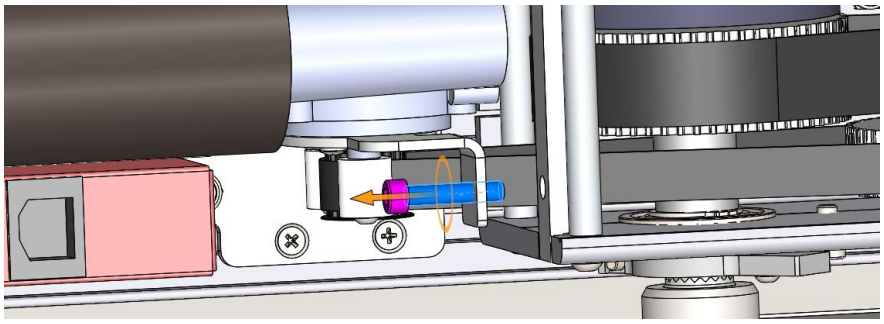
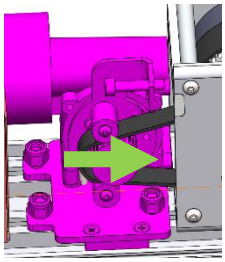
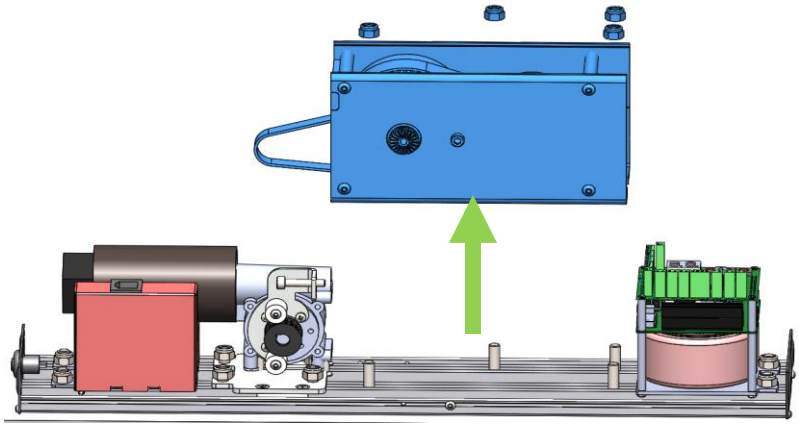


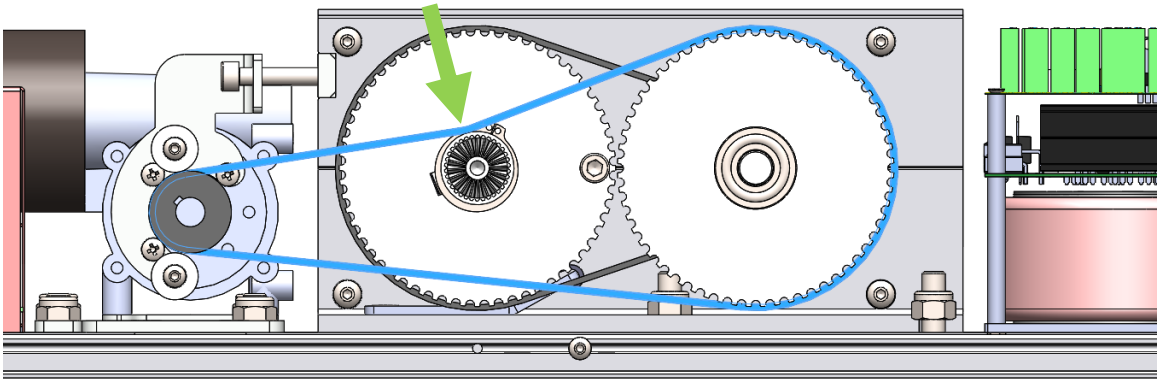


3. Slide the motor block in the direction marked, so the belt is loosen. Then retire the belt from the motor pulley.

4. Unscrew the four nuts that fix the power transmission block and once released remove it from its location as described in the illustration:



5. Install the replacement transmission block and follow the steps above in reverse order.
6. Check the thinner belt's tension. In order to get the appropriate tension, you should be able to make a slight contact with the belt against the axis by applying a manual force of around 40N.



7. Repeat the procedure indicated in chapter "2.5. SET UP"

DECLARATION OF COMPLIANCE

DECLARACION "CE" DE CONFORMIDAD

DECLARATION OF CONFORMITY "CE"

Nosotros / We:

MASTER INGENIEROS S.A.

AVENIDA DEL DESCUBRIMIENTO 168/B, ALCANTARILLA, 30820, MURCIA (ESPAÑA / SPAIN)

Tel: *968342590* **Fax:** *968 26 09 57* **Email:** *info@masteringenieros.com*

Declaramos bajo nuestra exclusiva responsabilidad, que el producto:

Declare under our sole responsibility that the type of equipment:

Modelo / Model: ***MI-SW & MI-SWSP***

Cumple con las siguientes normas:

Complies with the following statements:

Referencia / Reference	**Descripción / Description**
2014/30/UE	Directiva / Directive: EMC 2014/30/UE
EN 61000-6-3:2007	Norma. "Genérica Industria Ligera" / Light Industrial Norme
EN 61000-6-1:2007	Norma. "Genérica Industria Ligera" / Light Industrial Norme
2014/35/UE	Directiva / Directive: "Comercialización de Material Eléctrico" / Electrical Material commercialization
EN 60335-2-103:2005	Norma / Norm "Aparatos electrodomésticos y análogos. Seguridad. Parte 2" / Household and similar electrical appliances. Safety Part 2
EN 60335-1:2002	Norma / Norm "Aparatos electrodomésticos y análogos. Seguridad. Parte 1" / Household and similar electrical appliances. Safety Part 1
EN 16005 *	Norma / Norm "Puertas autómaticas peatonales Seguridad de Uso" / Power Operated Pedestrian Doorsets Safety in use
2006/42/CE	Directiva de máquinas / Machinery Directive.

*** Las pruebas de certificación han sido realizadas con los sensores de seguridad modelos OA-EDGE-T y 4SAFE, no obstante el operador cumplirá con la norma UNE EN 16005 con otro tipo de seguridades para puertas batientes siempre que en sus especificaciones se indique así mismo cumplimiento respecto a dicha norma.**

*** The certification tests have been carried out with the OA-EDGE-T and 4SAFE safety sensors, however, this operator will comply with the EN 16005 norm when used with other brands of safety sensors for swing doors, provided that these sensors also comply with the same European norm.**

Últimos dos dígitos del año en el que fue colocado el marcado CE: 17

The last two digits of the year in which the CE marking was affixed: 17

Fdo. : D. Pedro L. Alcántara Gomariz

(Gerente / Manager)

APPENDIX 1: INSTALLATION CHECKLIST
(Maintenance book included in user manual)

MAINTENANCE / INSTALLATION CHECKS FOR AUTOMATIC PEDESTRIAN DOORS.

	Complies	Does not Complies	Not applicable	Observations
01. Risk assessment				
The installation meets the parameters of the risk assessment				Only when there is a change of organization or use of the door.
02. Mechanical Elements				
Operation of belts, pinions and transmission pulleys				
Screws and leaf hinges				
Arms and leaf movement				
End of opening stops				
Bolts / Latch				
State of leaves				
03. Electrical Elements				
Motor				
Small signal shielding				
Control panels-electronics				
Fire alarm input				
Console parameters: force				
Console parameters: Speed				
Console parameters: Wait time				
Peripheral controls (function selection, key switch, remote control, night, emergency opening / closing, etc.)				
60 Ohm resistance between RX and TX (only if double door is configured or Digital B Selectors are used)				
04. Security elements				
Closing speed before an electrical cut				
Protective guards / barriers				
Safety sensor operation				
Operation of the drive systems				
05. Documentation				
Documentation regarding door				

Installation no.: _____ Part No.: _____ Firmware version Nº: V_____

Door ID Nº: _____ Number of days of operation: _____

Nº of cycles: _____ Series Nº: _____

Maintenance / Installation Date: ____/____/_____

Other Observations: _____

Name of the person performing maintenance: _____

Signature and stamp of company: Signature of the client:

Signed by: _____ Signed by: _____

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