Aprimatic

OVER PLUS

Automatic Operator for swinging doors

INSTALLATION INSTRUCTION

Index

Thank you for choosing this product. For best automatism performance, Aprimatic recommends you carefully read and follow the installation and use instructions found in this manual. Installation of this automatism must only be performed by the professionally qualified personnel for whom this manual is addressed. Any errors during installation may be harmful to people or things. Packaging material (wood, plastic, cardboard, etc.) should not be scattered in the environment or left within the reach of children as potential sources of danger. Every installation phase must be performed in accordance with the regulations in force and following Good Technique standards. Before beginning installation make sure that the product is integral and has not been damaged during transportation or by poor storage conditions. Before installing the product make sure that each architectural and structural element of the entrance (girder fastening surfaces, casings, guide, etc.) is appropriate and sufficiently robust to be automated. Conduct a careful risk analysis and make suitable modifications to eliminate conveyance, crushing, cutting and hazardous areas in general. Do not install the product in environments where gas, steam or inflammable fumes are present. The manufacturer is not liable for any neglect of "good technique" or specific regulations in the construction of the casing to be motorised and any collapse of the same. All automatic entrance safety and protection devices (photocells, active sensors, etc.) must be installed in accordance with the regulations and directives in force, with the completed risk analysis, system type, use, traffic, forces and inertia in play. Pay careful attention to area where the following may occur: crushing, cutting, conveyance and any other type of hazard in general applying, if necessary suitable indications. Indicate the motorised door identification information on every installation. Make sure that the upstream electrical system is correctly dimensioned and has all the opportune protections (circuit breakers and fuses). Only use original spare parts in maintenance and repairs. Do not tamper or alter devices in the automatism and all the safety devices in the control panel for any reason. The manufacturer is not liable if parts within the automatism are altered or tampered with or if safety devices other than those indicated by the manufacturer are used in the system. The automatism installer must provide the automatic entrance manager with the use manual and all the information required for correct use in automatic and manual modes (even for electronic locking) and in the event of emergency.

Pay careful attention to the messages in this manual that are marked with the hazard symbol. They can either be warnings aimed at avoided potential equipment damage or specific signals of potential hazard to the installer and others.

This device was designed to automate swinging doors. Any other use is considered contrary to the use foreseen by the manufacturer who therefore shall not be held liable.

Machine directive

The installer who motorised a door becomes the automatic door machine manufacturer according to directive 98/37/CE and must:

- Arrange the Technical Booklet with the documents indicated in attachment V of the Machine Directive and keep them for at least 10 years.
- Draft the CE declaration of conformity according to attachment II-A of the machine directive and provide the use with a copy.
- Apply the CE markings on the motorised door according to point 1.7.3 of attachment I of the machine directive.

Machine conformity directive

(Directive 98/37 CE, Attachment II, part B)

Manufacturer: **APRIMATIC S.p.a.**
Address: **V.L.da Vinci 414 - 40059**
Villafontana di Medicina - BO

Declares that the product **OVER PLUS**

- Is built to be incorporated in a machine or to be assembled with other machinery to build a machine considered by Directive 98/37 CE, as modified;
- Therefore it is not fully compliant to the dispositions of this Directive since it is not yet assembled with other components.
- It is in conformity to the following other CE directives: 89/336/CEE Electro-magnetic compatibility and further modifications 2006/95CE Low Voltage and further modifications and also declares that the machinery cannot be used until the machine it is incorporated in or is a component of has been identified and its conformity to Directive 98/37 CE conditions and national legislation declared.

Villafontana di Medicina, 09/09/2007

Dott.Alessandro Minelli
(Amministratore Delegato)

Technical specifications

Power supply	230V ac 50 Hz
Nominal power	60 W
Nominal motor torque	23 Nm
External device power	12Vdc – 6W
Emergency battery	24 V 0.8 Ah
Max opening angle	100°
Door maximum weight	Up to 200 Kg
Door dimensions	700÷1200 mm
Working temperature	Box inside from 0°C to+50°C
Anti-crushing	Automatic traction restriction in the presence of obstacles
Weight	8,6 kg
Service	Continuous (>500 cycles/day, with capacity of 300 cycles/hour for 2 hours)

Automatism installation preparation

The automatism is prepared to work in different accessory and peripheral configurations. According to the selected configuration, arrange the cables necessary for wiring all the peripherals. Fig.1 shows an example of complete installation including:

A. Entry Radar
B. Active safety sensor
C. Safety closing device
D. Logic selection selector
E. Opening button at exit

WARNING

If two single OVER PLUS automatisms are used to move a two-doors entrance, the two automatisms must be connected by a shielded cable with 4 0.22mm wires as indicated on page 26.

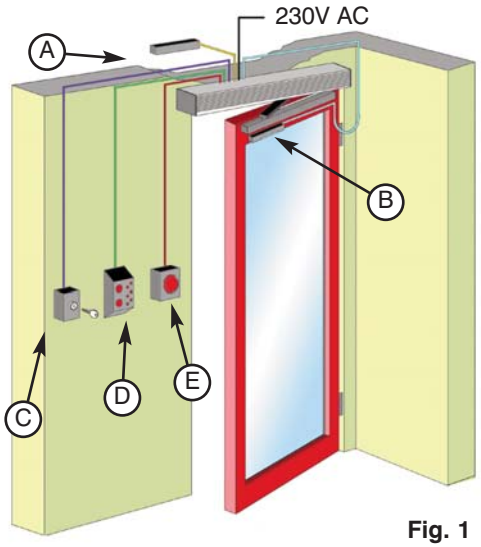


Fig. 1

Automatism description

The OVER PLUS automatism **(Fig.2)** is essentially made up of:

A. Extruded aluminium alloy fastening base
B. Extruded aluminium alloy cover
C. Flat steel end sides
D. Gear motor unit
E. OVER PLUS Electronic control panel
F. Transformer
G. Encoder unit
H. Emergency battery (24V 0,8Ah)

For a two-doors entrance, two automatisms can be ordered in a single transom box with custom length (minimum 1570 mm).

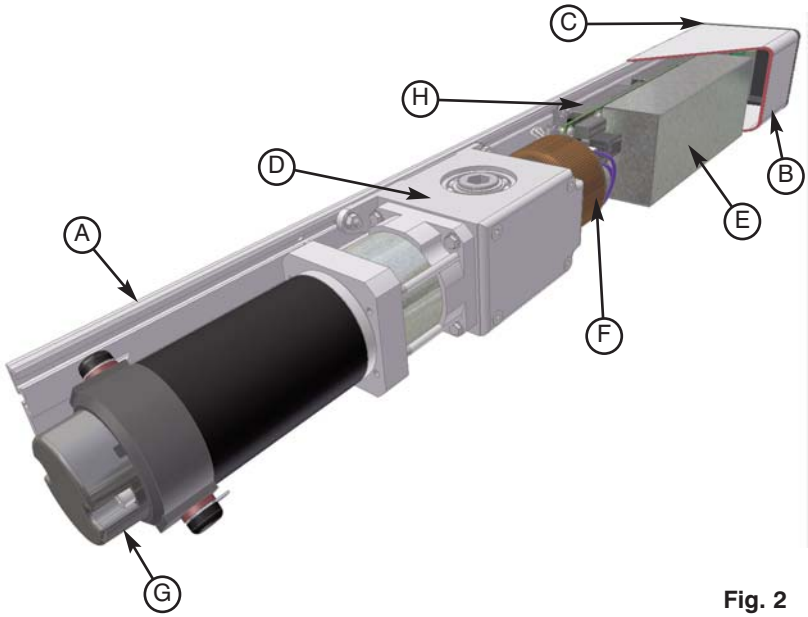


Fig. 2

Sizes and dimension

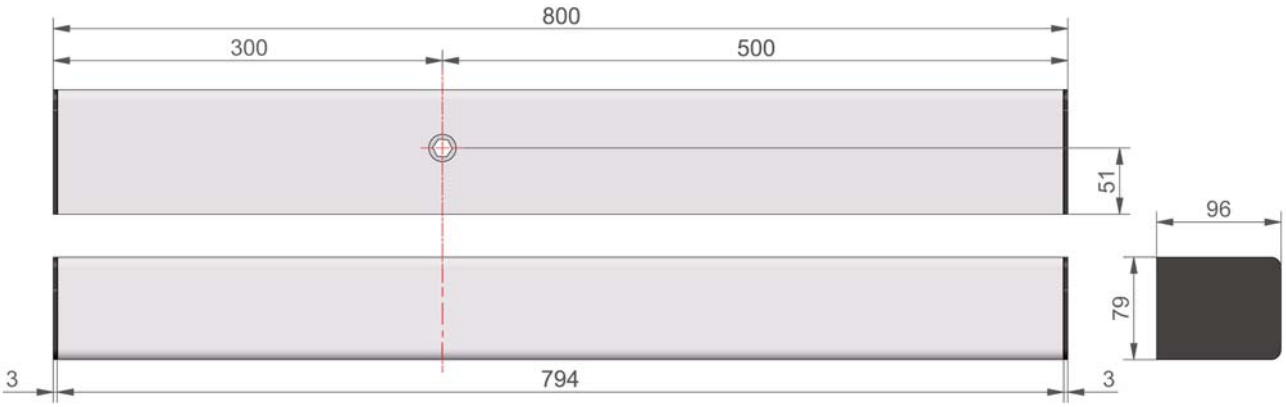


Fig. 3

Fixing Holes

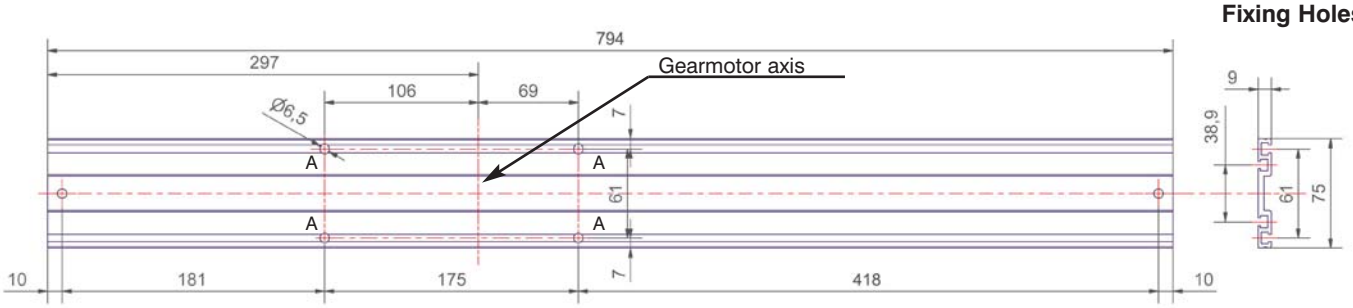


Fig. 5

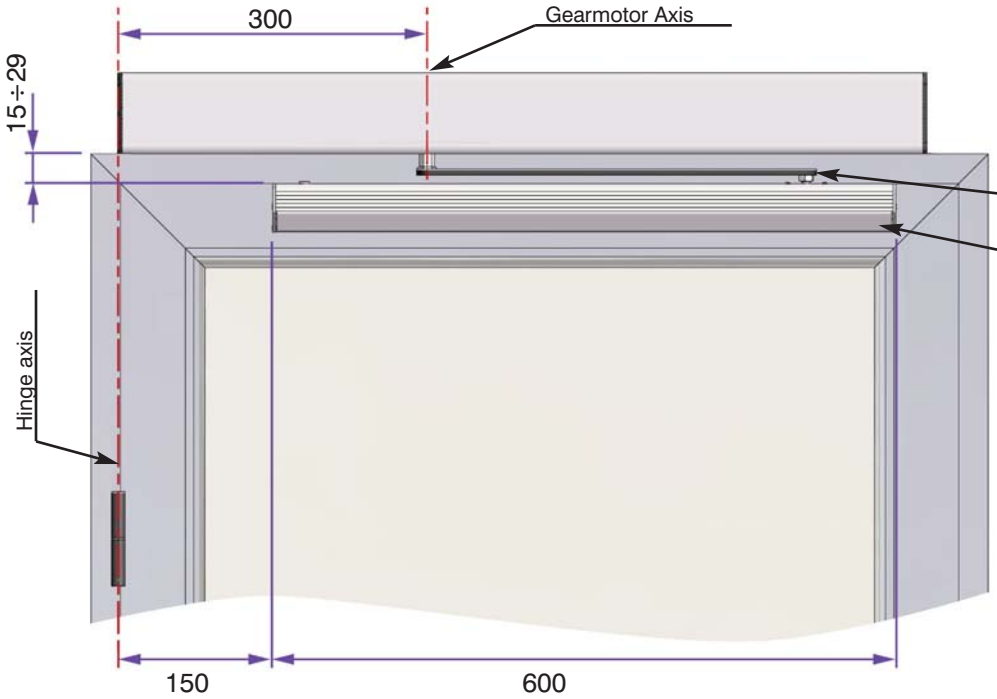
Automatism assembly

WARNING : Before proceeding with the installation, remove the cardboard component positioned underneath the motor body.

Positioning dimensions (rigid pull arm)

The rigid pull arm is used when the automatism is installed on the swing side of the door .

WARNING : For a correct positioning, always use the main axis of the door hinges and the operation axis of the gearmotor as a reference, as shown in Fig.6. Make certain that the fastening of the holes "A" (Fig. 4 and 5) is particularly secure.



OVER PLUS
fastening diagram
1 left-hand opening door
Rigid Pull Arm

The heights of the prepared fastening holes are shown in Fig. 4 and 5.

For right-hand opening doors (anticlockwise direction), the assembly of the automatism perfectly mirrors the left-hand opening assembly.

Fig. 6

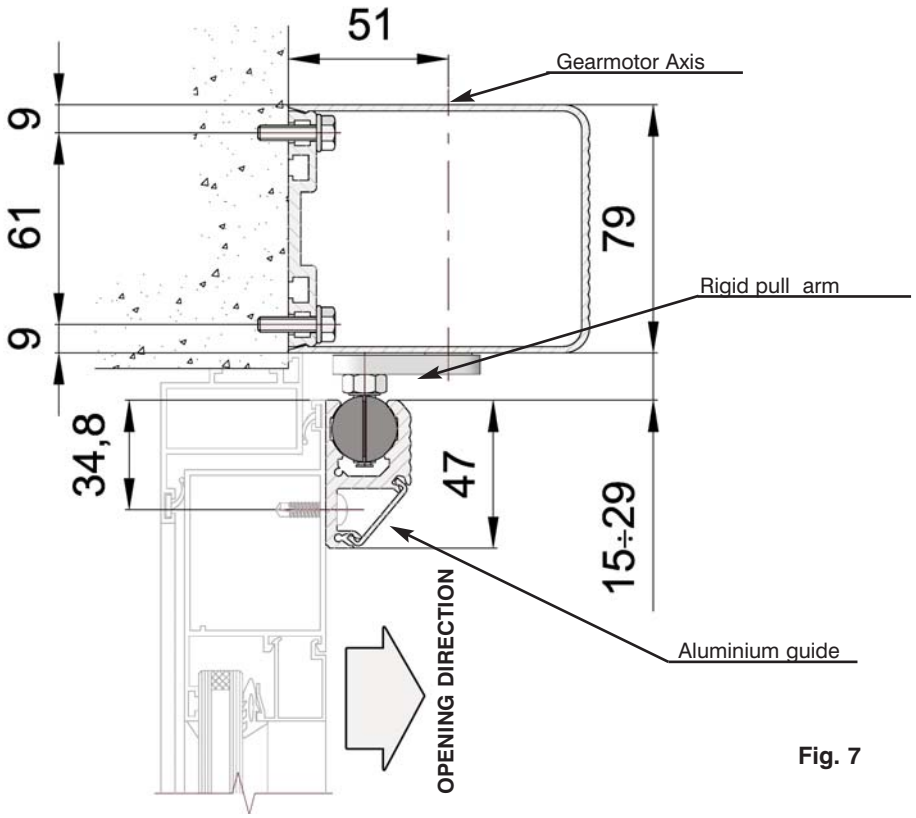


Fig. 7

WARNING

The final tightening of the screws must be performed only after having checked that the vertical positioning of the automatism guarantees a good parallelism between the hinge axis and the gearmotor axis. For this purpose, the rigid pull arm and relative guide must be installed, check that the pin coupling the arm to the cylindrical slide is not strained during operation.

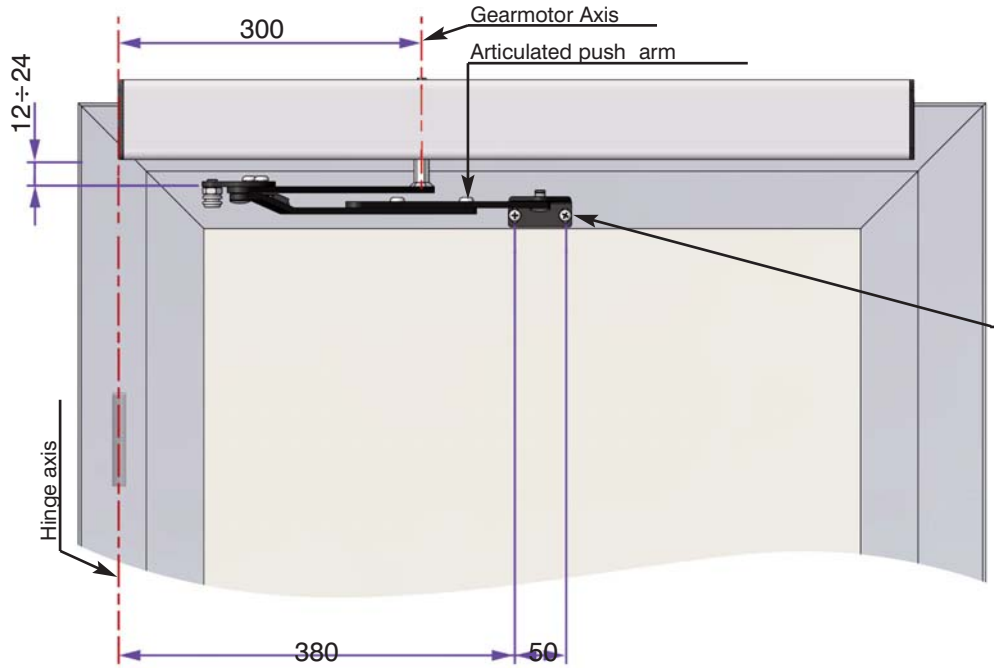
An error in the position of the automatism may, in fact, cause the pin of the rigid arm to oscillate with respect to the cylindrical slide to a degree beyond the allowed tolerance, with consequent damage to one of the automatism parts.

Positioning dimensions (articulated push arm)

The articulated push arm is used when the automatism is installed on the approach side of the door (the side opposite the swing side). For left-hand opening doors (door opening with anti-clockwise rotation) position the automation as shown in Fig. 8 (using the heights shown in Fig. 4 and 5).

WARNING

For a correct positioning, always use the main axis of the door hinges and the operation axis of the gearmotor as a reference, as shown in Fig.8. Make certain that the fastening of the holes "A" (Fig. 4 and 5) is particularly secure.

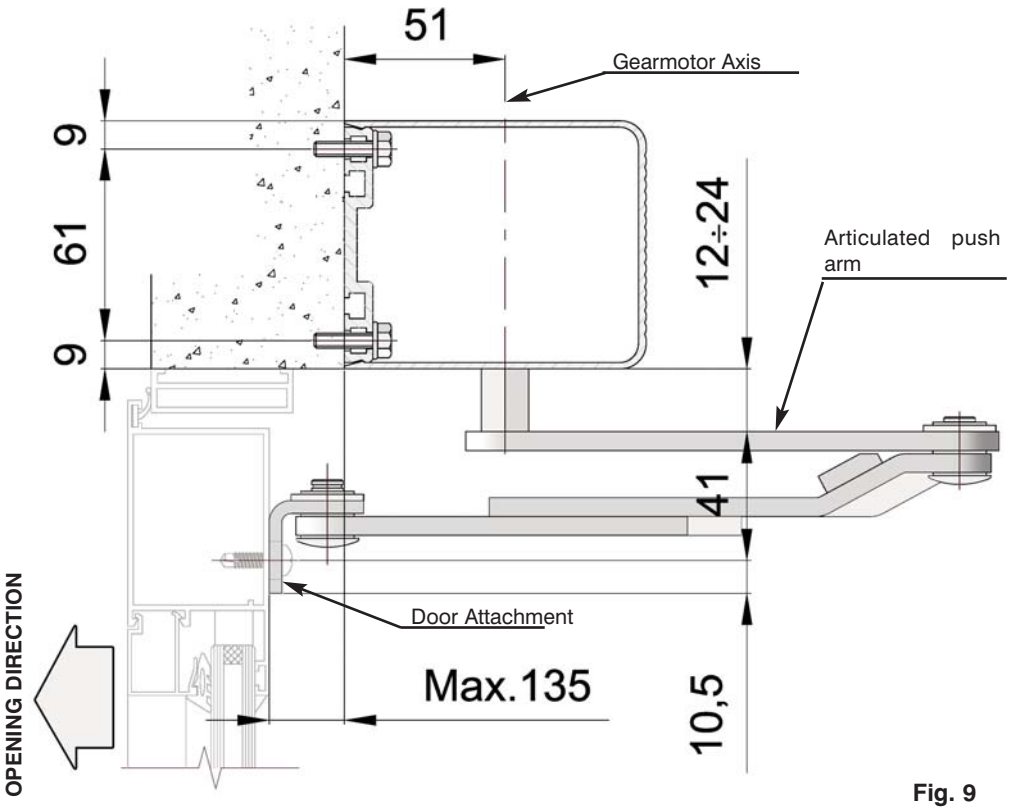


OVER PLUS
Fastening diagram
1 left-hand opening door
Articulated push arm

The heights of the prepared fastening holes are shown in Fig. 4 and 5.

For right-hand opening doors (anticlockwise direction), the assembly of the automatism perfectly mirrors the left-hand opening assembly.

Fig. 8



WARNING

The final tightening of the screws must be performed only after having checked that the positioning of the automatism and articulated arm guarantees smooth rotation of the same under the door frame, maintaining a distance of 12 to 24 mm between the top part of the articulated push arm and the lower part of the automatism cover (Fig. 9).

Fig. 9

Automatism components shift and removal

Disassemble the push arm (if present) (Fig. 10 Part A) by unscrewing the counter-sunk head screw M6 x 70 (Fig. 10 Part B). Extract the top hexagonal stop (Fig. 10 Part C). Remove the aluminium cover (Fig. 10 Part D) by pulling it outwards.

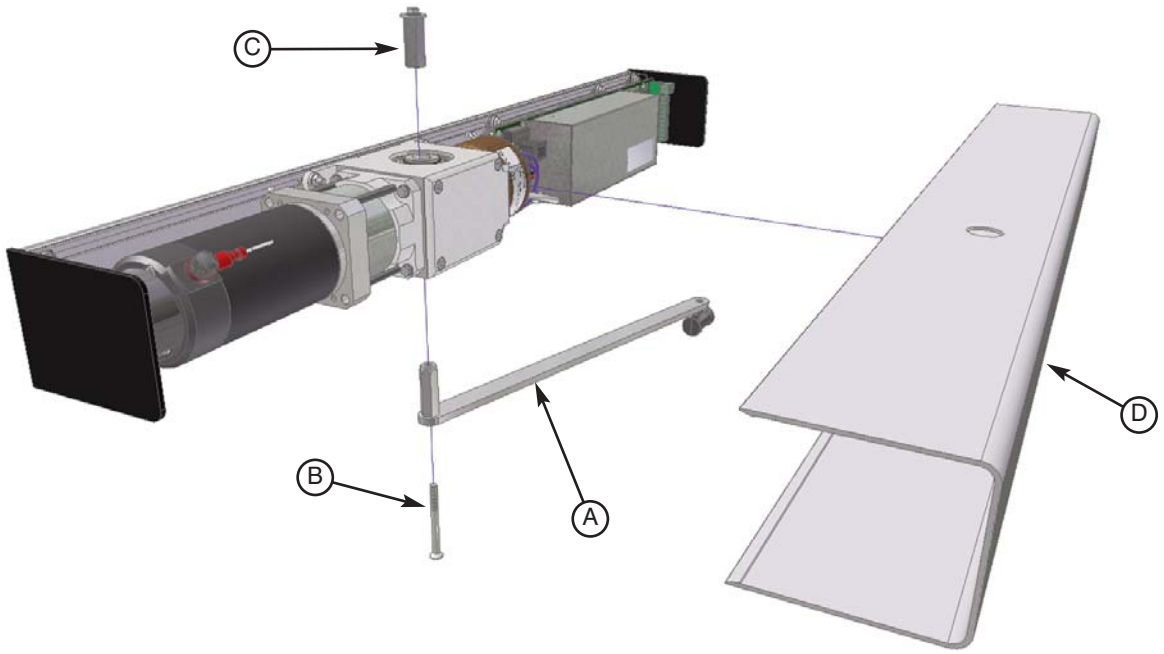


Fig. 10

To facilitate the fastening of the automatism, it is possible to remove the heads (Fig. 11 Part A) and move or remove the internal components, if necessary, by operating on the nuts fastening them to the aluminium base.

WARNING

Before loseening component lock screws to move components, measure the distance of the motor from the head or make marks on the box for correct component positioning at the end of assembly.

Fig. 11

Installation of the guide and rigid pull arm

Insert the threaded hexagon in the upper part of the hexagonal hole of the gearmotor (Fig.12 part.A). Assemble the rigid pull arm (Fig.12 part.B) to the upper hexagon with the flathead screw M6x70 supplied (Fig.12 part.C) after having interposed the washers Ø6,4x12 (Fig.12 part.D) as shown in the figure 12.

Before tightening the flathead screw, check carefully that the distance between the guide and the rigid arm is about 13 mm (Fig.13).

It is possible to achieve the right distance by varying the number of washers placed between the hexagons previously assembled (max. 8 washers) (Fig.12 part D). Once the required distance is obtained, tighten the flathead screw well.

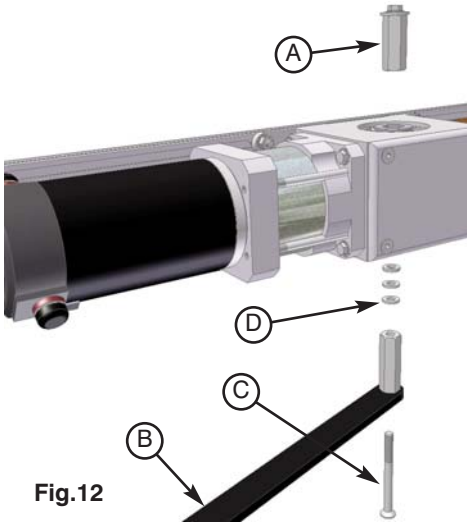


Fig.12

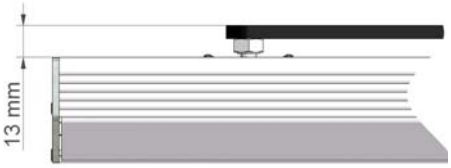


Fig.13

Installation of the articulated push arm

Insert the threaded hexagon in the upper part of the hexagonal hole of the gearmotor (Fig.14 part.A). Assemble the articulated push arm (Fig.14 part.B) to the upper hexagon with the flathead screw M6x70 supplied (Fig.14 part.C) after having interposed the washers Ø6,4x12 (Fig.14 part.D) as shown in the figure 14.

Before tightly shutting the flathead screw, carefully check that the upper part of the articulated arm easily rotates under the door frame and that the obtainable distance, by adjusting the washers (max. n. 8) (Fig.14 part.D) between the hexagons, ranges between 12 and 24 millimeters measured between the cover of the automatism and the upper part of the articulated arm (Fig.9)

Make holes in the frame of the diameters shown in fig.9 and fix to the latter the door attachment of the articulated arm with the appropriate screws. Close the door, loosen the fixing screws situated in the adjusting slots by lengthening the extendible part of the arm, adjust the geometry of the same so as to enable its correct operation over the entire arc of use. Fix the adjustment by tightening the setscrews tightly in the extendible part of the arm so using the holes furthest apart.

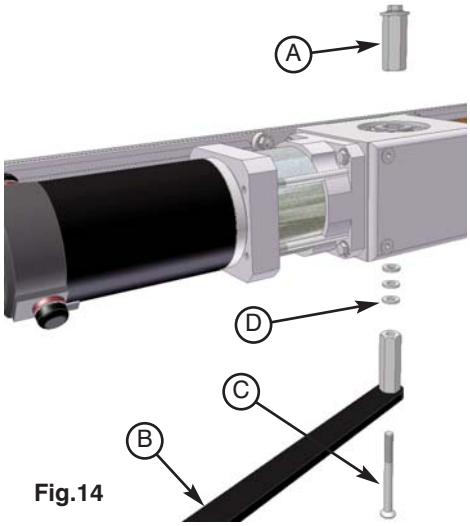


Fig.14

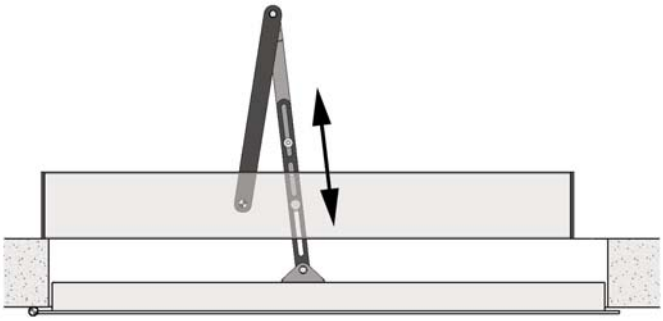


Fig.15

Installation Instruction

Installation of the guide and rigid pull arm

Reach the guide fixing box (Fig.16 part.A) taking off the S924/A cap (Fig.16 Part.B). Make at least 4 holes corresponding to the “V” shape in the guide profile.

Use these holes to fix the guide to the frame with appropriate screws. Insert the cylindrical runner (Fig.16 part.D), with the relative shaft, inside the guide and distribute a uniform layer of grease on the sliding area.
Subsequently, once the installation of the rigid arm (Fig.16 part.E) described in a previous section is finished, screw the threaded shaft, inserted in the cylindrical runner, in the special hole at the extremity of the rigid arm.
Introduce the stop pad (Fig.16 detail F) into the guide to the right or left of the slide according to whether the door hinge is on the right or left of the same.

Close the guide with the caps (Fig.16 part.G) and screws supplied (Fig.16 part.H).

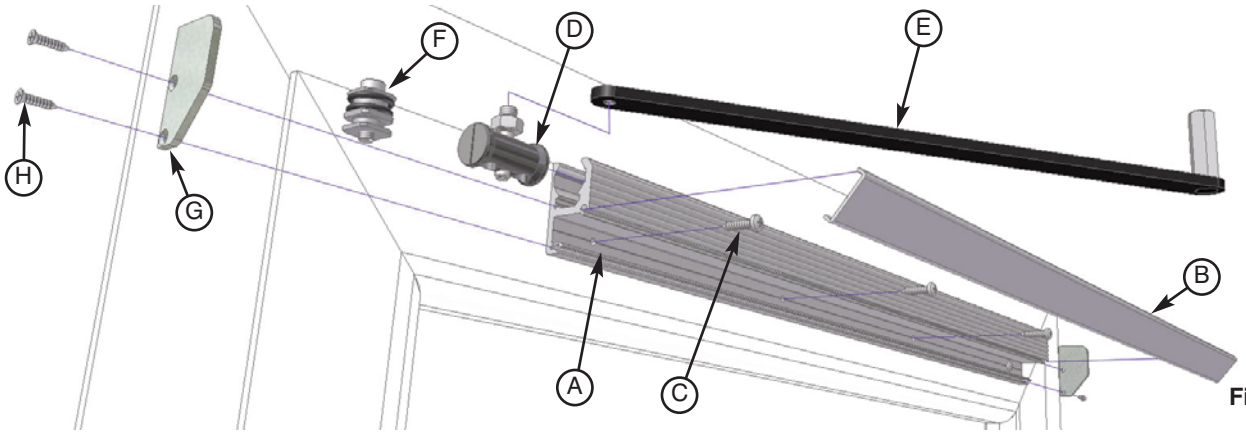
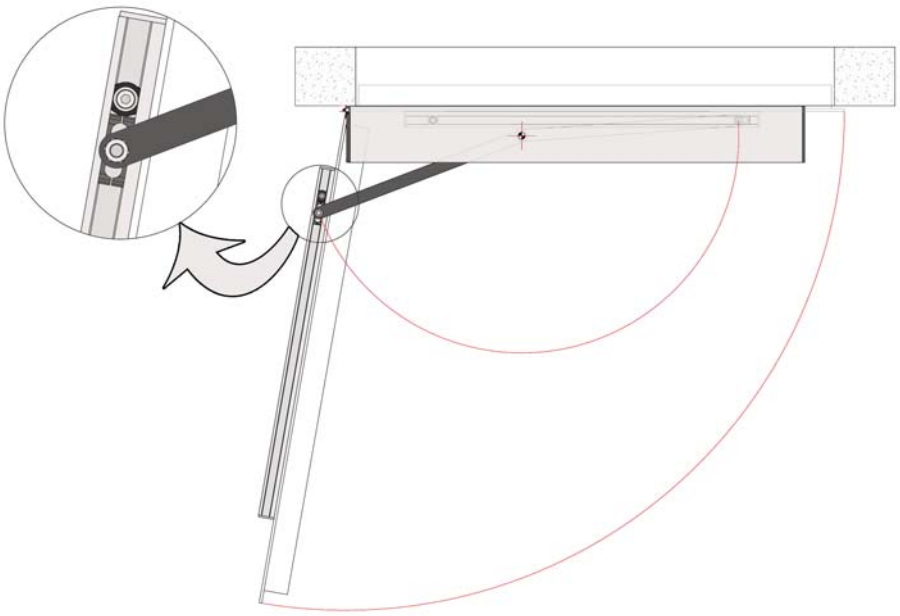


Fig. 16

Adjustment of the (optional) stopper

RIGID PULL ARM

Insert the lock (Fig.17 part A) inside the spline; according to the indications provided on page 11.



ARTICULATED PUSH ARM

Assemble the optional stop (Fig.18 Part.B) on the articulated arm (Fig.18 Part.A) using the screws supplied (Fig.18 Part.C).

WARNING

check that when the door is completely open, the opening of the arm does not exceed 140°.

If the stop does not come in contact, turn the shaped plate over and assemble the striker as shown in fig. 18.

Open the door to the desired amplitude and bring the stop in contact with the arm (part F fig.18) and tighten the fixing screws tightly.

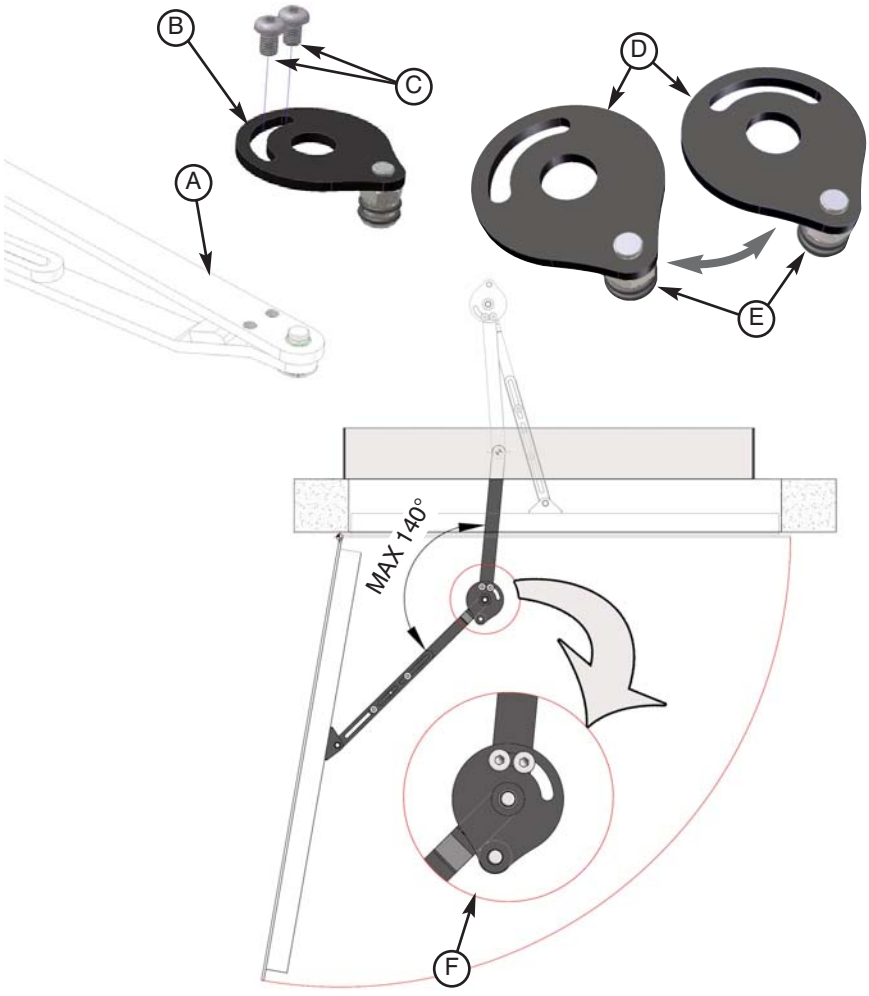


Fig. 18

WARNING

The max. allowed opening angle is 100°. In the absence of the optional stops, limit the travel of the door in any case (MAX 100°) by means of a rubber stop for example (not included in the supply).

Final operations

Before starting the automatism, check and perform the following:

- Accurately remove and dust or shavings
- Ensure the proper fixing of the automatism on the wall
- Check correct tightening
- Check that the wires are fixed and that no wire pass near the movement area.
- Check that the arm is solidly fixed to the door and that it is equipped with the appropriate stop to limit the max opening angle to 100°.

Power connections

WARNING : Before performing the following operations make sure the mains are disconnected. Before powering the equipment, perform the controls foreseen in paragraph "**Start up**".

Place the power cord in the automatism paying careful attention not to damage the cord against any metallic edges. Connect mains and grounding wires on the terminal board **(Fig. 19)**

WARNING : Never invert the power wire with the grounding wire.

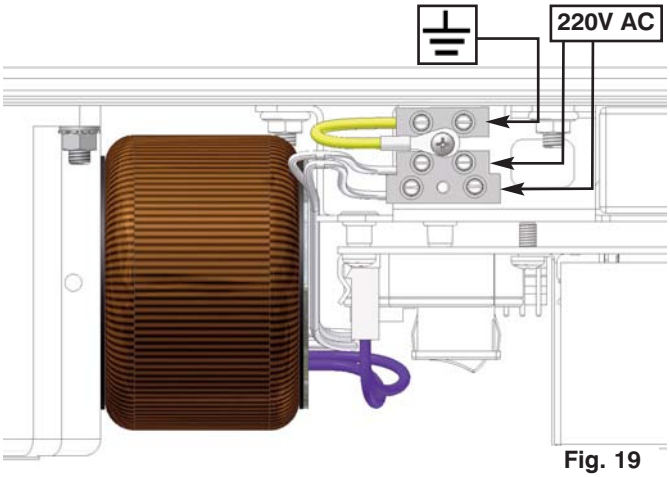


Fig. 19

Power must be isolatable from the general panel with a bi-polar switch with minimum contact opening equal to 3 mm. (not supplied).

OVER PLUS Electronic Board

The meanings of the main electronic board components are listed in **Fig. 21**:

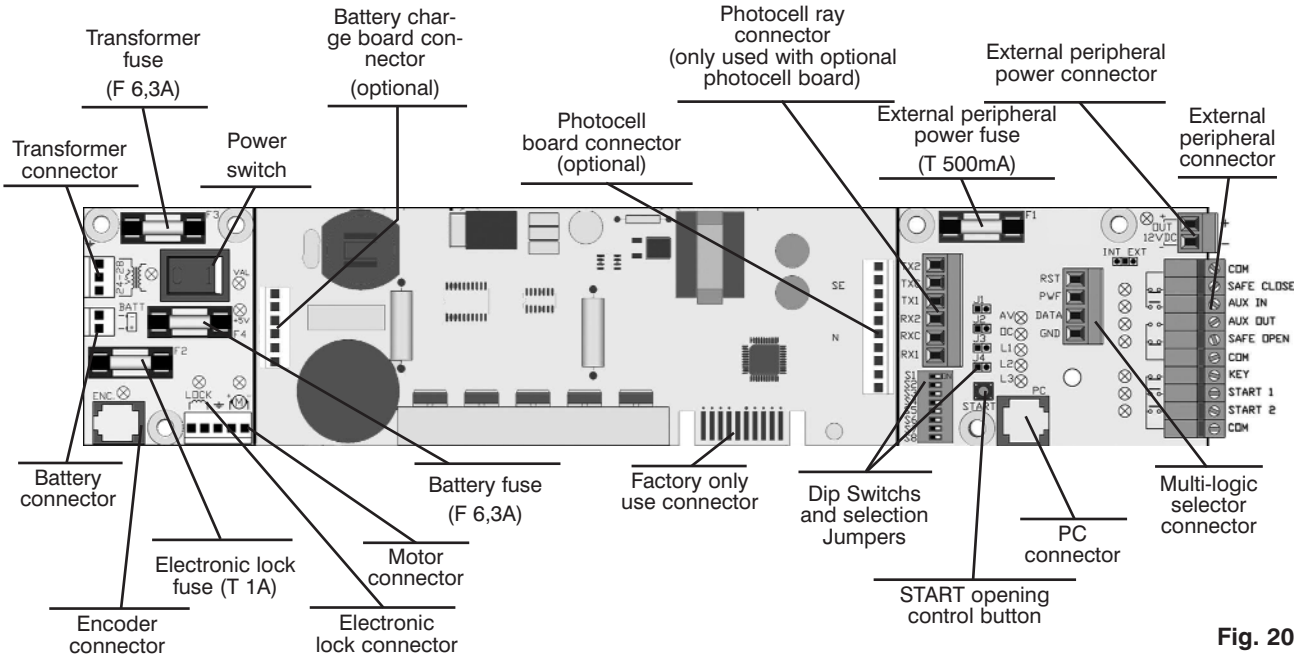


Fig. 20

Electrical connections

WARNING : All board or peripheral connections on the terminal board must be performed with the power disconnected to prevent irreparable damage to the electronic equipment.

WARNING : Any repairs or replacements must be performed by professionally qualified personnel and original spare parts must be used in repairs.

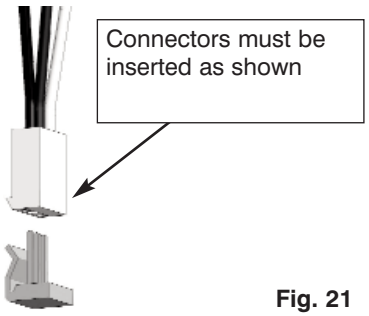


Fig. 21

Left Side Electronic Board Connections

Fig. 22 summarises terminal connections on the left side of the electronic board:

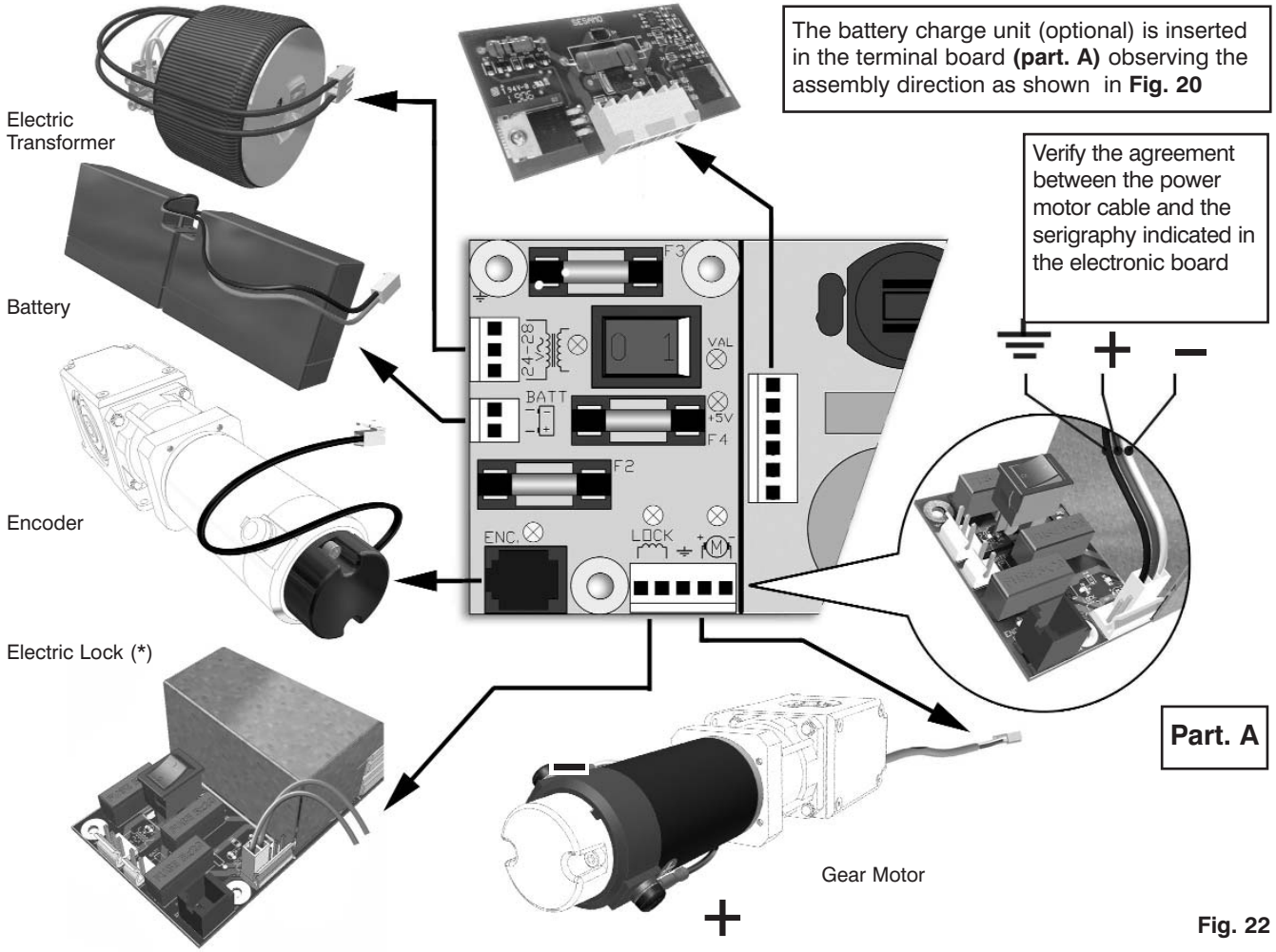


Fig. 22

(*) For the connection of the electric lock, use the wiring supplied. The compatible electric locks can have a 12V or 24V power supply and must have the "anti-repeater" function (permanent release after the electric pulse: the locking is restored after the door has been opened and closed). For the settings and the selections of the power supply voltage, see the follo-door instructions for setting the jumpers and dip switches.

Right Side Electronic Board Connections

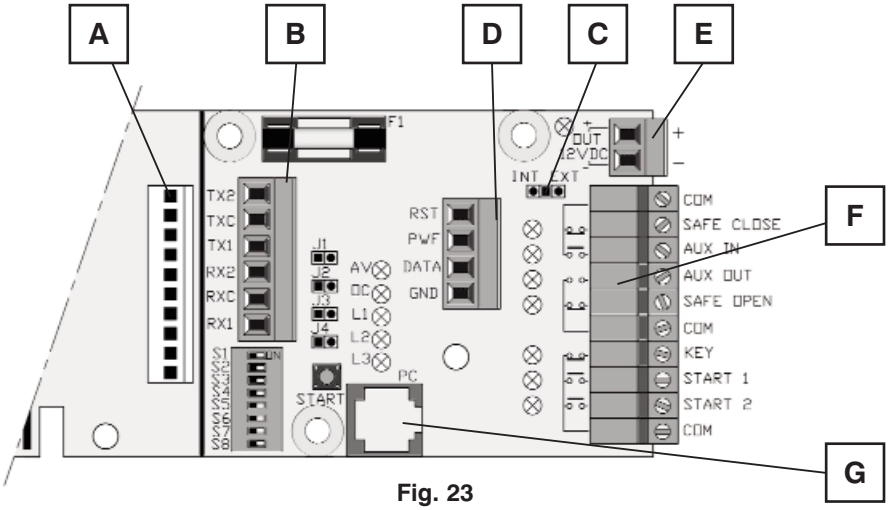


Fig. 23

A. Photocell amplifier board connector (optional)

Insert the amplifier module observing the assembly direction shown in **Fig. 20**

WARNING

Select the Jumper for single or double beam and check the red led

BEAM OFF

On

☞ Beam interrupted

Off

☞ Correct

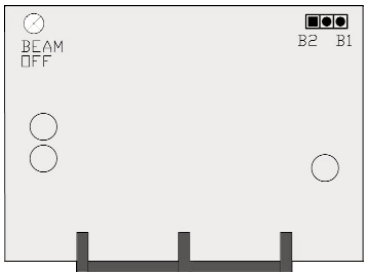


Fig. 24

JUMPER

Closed towards B2

☞ Double beam

Closed towards B1

☞ Single beam

B. Photocell beam connector
(only use if the internal photocell amplifier board module is installed)

A RED small band distinguishes the Transmitter

A WHITE small band distinguishes the Receiver

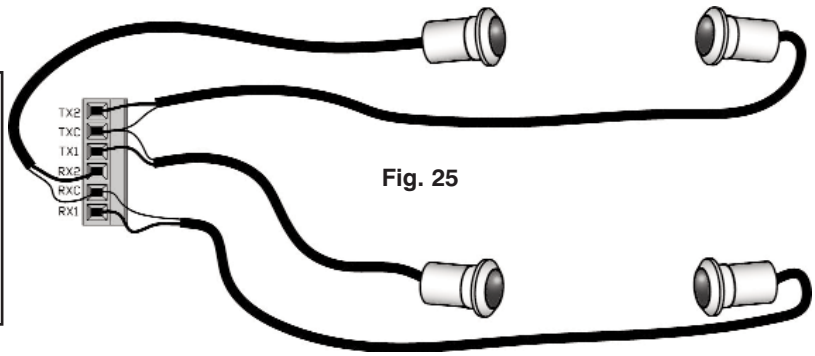


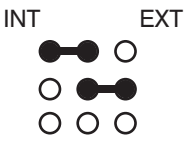
Fig. 25

Connect the photocell's beams as in **Fig. 25**

C. Selector Jumper between OVER PLUS - and external cell amplifier

The system has three selectable working models:

A	OVER PLUS amplifier only	Jumper close towards INT
B	External amplifier only	Jumper close towards EXT
C	Both OVER PLUS + External amplifier	Jumper open



D. Multi-logic selector connector

KIBO PRO SELECTOR

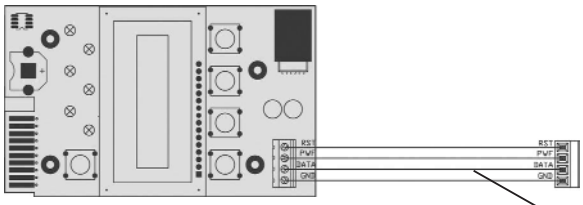


Fig. 37

Shielded cable with 4 wires 0,22 mm. (Do not connect the shield of the wire used)

KIBO SELECTOR

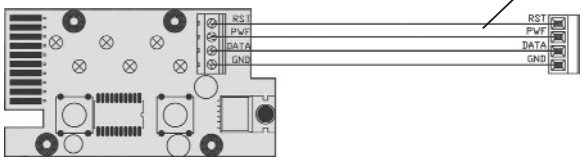


Fig. 26

Use the four conductors in the shielded wire for connections, observing the correspondences indicated by the markings on the terminal board and multi-logic selector.

Do not connect the shield of the wire used.

For further information on multi-logic selector use, see the instructions for use.

E. External peripheral power connector – 12 Vdc 6W max (500mA)

Real power value may vary from 12 Vdc to about 15 Vdc depending on the resistive load situations connected to these terminals.

WARNING

Do not invert power polarity. When the green led D39 is on it indicates normal voltage presence 12V. If off check:

- For mains and/or battery voltage
- That fuse F1 is not interrupted

F. External peripheral connector

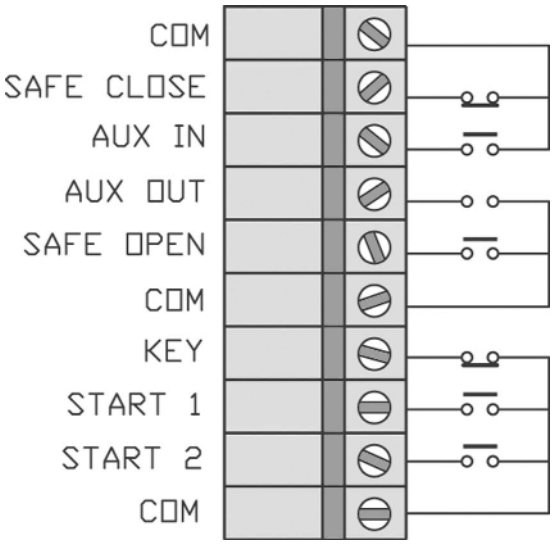


Fig. 27

SIGNAL	TYPE *	DESCRIPTION	FUNCTION
COM		Common electrical signal.	
SAFE CLOSE	NC	Signal for the connection of an external photocell or safety control device for door closing	If the door is closing and the contact opens, the unit sends and immediate motion inversion command. Closing will only recommence after the contact closes. **The signal must be short circuited with COM if not devices (internal or external) are connected.**
AUX IN	NA	Auxiliary input signal. Auxiliary devices can be connected to this signal. It is normally used for inter lock functions.	When used as an auxiliary signal the function logic can be personalised according to customer requests. When used as inter lock logic, closing this signal inhibits door functions that will not open even with open signal presence.
AUX OUT		Auxiliary output signal, PNP transistor type for particular door condition signals (reset, open, closed, etc).	According to the type chosen signal, the output becomes active (12Vdc and led on) when the door is in the set condition (Reset, open, closed, etc). See the advanced selector manual for further details.
SAFE OPEN	NA	Signal for the connection of sensors for protection during door opening.	If the door is opening and the contact closes, the unit sends an immediate movement stop command. Opening will only continue after this signal is deactivated.
KEY	NC	Lock signal. Closure devices can be connected such as electronic key, key selector, transponder, etc. The signal can be controlled in bi or mono-stabile mode with an activation time equal to about 500 msec. For mode type selection see paragraph FIRST INPUT MODE SELECTION.	If the signal opens the unit sends a complete door closure command (from any position) From this moment until the signal is closed the door stays in this position and no external peripheral is detected (including multi-logic selectors). As soon as the signal closes the door opens permitting access. **The signal must be short circuited with COM if no devices are connected.**
START 1	NA	Opening signal. Door opening devices can be connected.	Closing this signals causes the doors to open. This signal is only monitored in 2 Radar logic.
START 2	NA	Opening signal. Door opening devices can be connected.	Closing this signals causes the doors to open. This signal is monitored in both 2 Radar and 1 Radar logic.

*** NA = Normally open NC = Normally closed**

The electrical signal from external peripherals can be varied through the advanced selector or PC connection: from normally closed to normally open and vice versa. See the advanced selector used manual for further details.

G. Connector for PC - unit connections

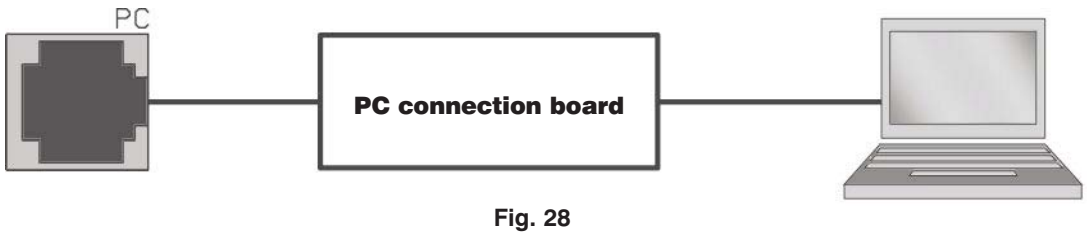


Fig. 28

A PC connection board (optional) is required to connect the OVER PLUS unit to a Personal Computer.
The following is possible with OVERWARE software:

- Advanced adjustments of some operating parameters
- Diagnostics and advanced information on unit status
- Microprocessor programming

LED Functions

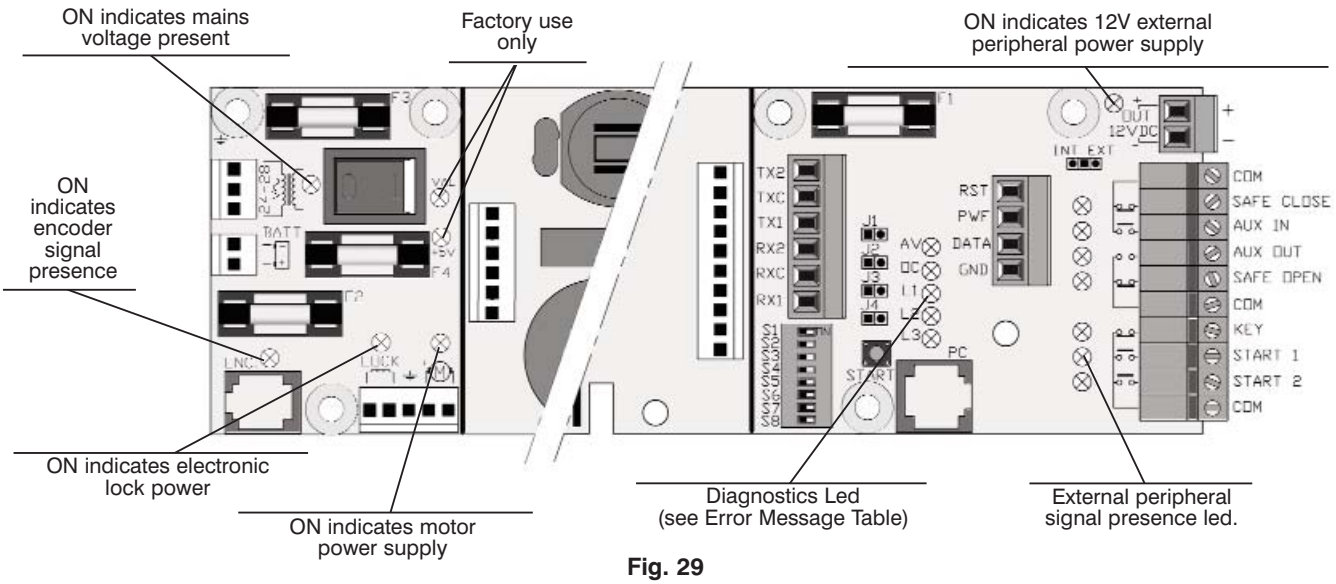
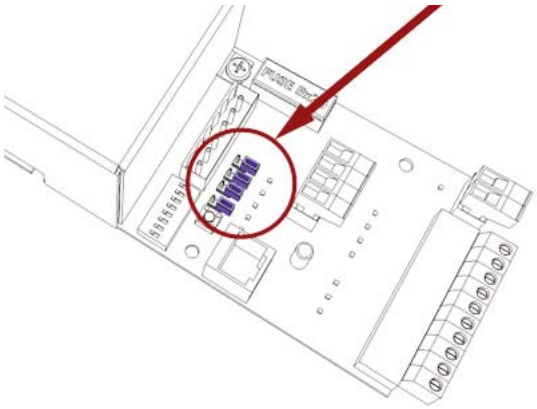


Fig. 29

Jumper Function



J1 **J1**: Selection of the electric lock power supply voltage

J2 **J2**: Selection of the door weight

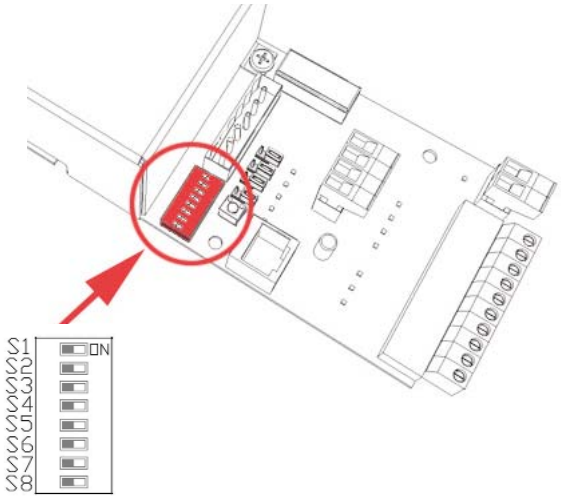
J3 **J3**: Cyclic operation (only for tests)

J4 **J4**: Not used

Jumper	ON	OFF (Default)
J1	24V	12V
J2	Door Weight > 100kg	Door Weight <100kg
J3	Cyclic Operation	Standard Operation
J4	-	-

To set the jumpers J1 and J2 correctly, see the following paragraphs.

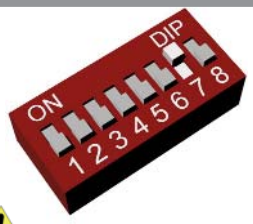
Dip-Switch Function



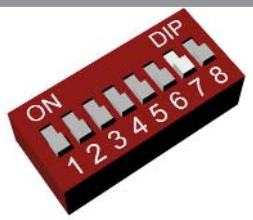
Dip-Switch	Over plus	Over plus 2 Doors
S1	Multislave Selection	Master/Slave Selection
S2	Multislave Selection	Synchronised motion
S3	Number Door Selection	
S4	“Low Power” Mode Selection	
S5	First Input Mode Selection	
S6	Battery Mode Selection	
S7	Electric Lock Operation selection	
S8	Selection of the type of arm	

To set the Dip-Switch correctly, see the following paragraphs.

Electric Lock Operation Selection



S7 ON
Electric Lock active



S7 OFF (Default)
Electric Lock disabled

WARNING

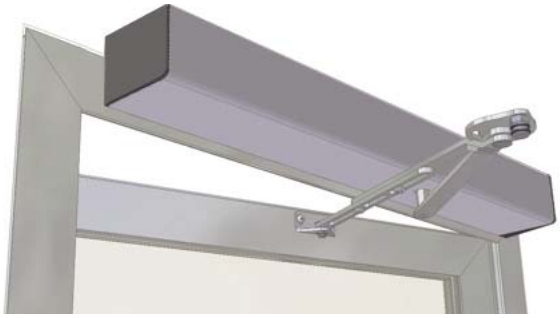
The automatism, with every opening of the door, excites the electric lock with a pulse having a duration of 120 ms (default). This duration can be adjusted up to 2000 ms using the Kibo Pro or PC connection and OverWare. Before setting a longer duration for the pulse, however, make certain that the electric lock installed is suitable for being powered in this manner in order to avoid permanent damage.
Select the power supply voltage of the electric lock by setting the jumper J1 as shown in the following diagram:

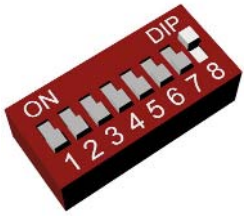
J1 OFF (DEFAULT)
Power supply voltage : 12VDC

J1 ON
Power supply voltage : 24VDC

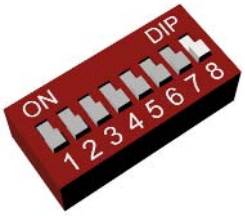
Selection of the type of arm

In order to optimize the operation of the automatism, it is necessary to set the jumper according to the following diagram:





S S8 ON
ARTICULATED PUSH ARM
(Door Left Opening or
Door Right Opening)



S8 OFF
RIGID PULL ARM
(Door Left Opening or
Door Right Opening)

Selection of the door weight

For correct automatism operation and in order to guarantee optimization of the parameters that regulate door movement, carry out the regulation of the door weights by setting the jumper according to the following diagram:

J2 OFF (DEFAULT)

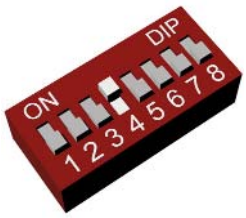
J2 ON

WARNING

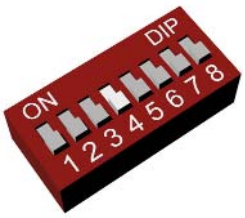
For safety reasons, doors weighing more than 100 kg (J2 ON) have a maximum opening and closing speed self-limited respectively to 50 °/s and 20 °/s.

"Low Power" mode Selection

The OVER PLUS operation can be set in "low power" mode, which provides for reduced operating speeds and accelerations.



S4 ON
"low power" mode



S4 OFF (DEFAULT)
Normal mode

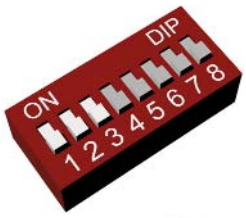
MultiSlave Selection

A single selector can be connected and extended to several OVER PLUS automatisms using two different operation logics:

- DEFAULT: the selector acts on all the automatisms connected to it without any distinction. For example, if the selector is used to set the Stop Open logic, all the automatisms connected to it will work with the Stop Open logic.
- MULTISLAVE: with this logic up to 3 automatisms can be connected, each identified with a different address to be set as indicated below. The selector can act on each of the three automatisms in a completely independent manner.

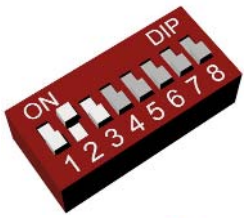
WARNING

The Multislave logic is NOT available for OVER PLUS 2 Doors.

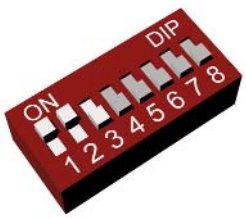


S1 OFF
S2 OFF
S3 OFF
NO **MULTISLAVE** (DEFAULT)

S1 ON
S2 OFF
S3 OFF
Single setting door **MULTISLAVE** (address 1)



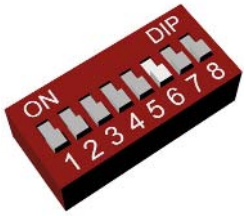
S1 OFF
S2 ON
S3 OFF
Single setting door **MULTISLAVE** (address 2)



S1 ON
S2 ON
S3 OFF
Single setting door **MULTISLAVE** (address 3)

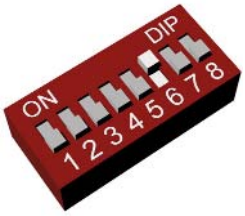
MULTISLAVE SELECTION

Battery Mode



S6 OFF - Normal Mode (Default).

In the event of power failure the equipment continues working powered by the battery.

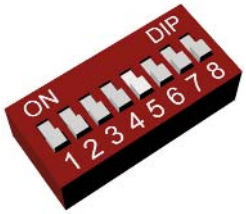


S6 ON - Antipanic Mode.

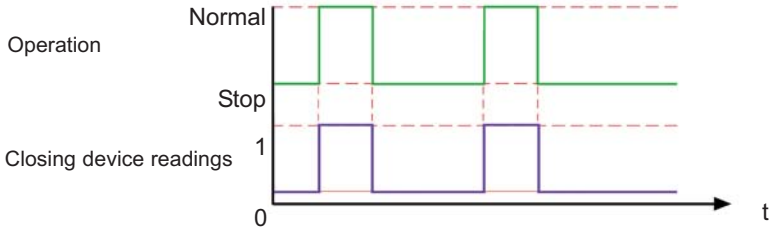
In the event of power failure, the equipment moves the doors to the "Stop open" position, and stays in this condition until power returns or a new logic is selected using the multi-logic selector.

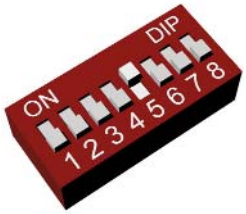
First Input Mode Selection

OVER PLUS can be connected to a closing device such as an electronic key, key selector, transponder, etc.
Using the dip switch S5, the signal can be controlled in bistable or monostable mode with an activation time of about 500msec. For the connections, see the section "Connections of the right-side electronics board".

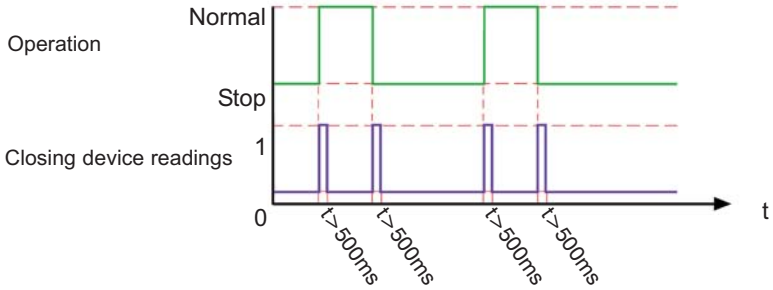


S5 OFF (DEFAULT)
First input mode
Bi-stable

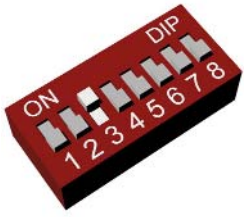




S5 ON
First input mode
Mono-stable



Number Door Selection



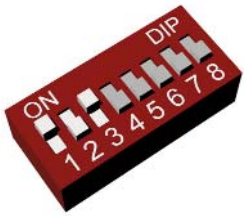
S3 ON
Double-door operation.

WARNING +This option should be selected only in the case of OVER PLUS 2 doors automatism (see following section)

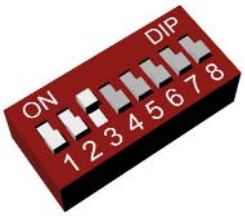
S3 OFF (DEFAULT)
Single-door operation

Master - Slave Selection (OVER PLUS 2 doors Only)

Only in the case of OVER PLUS 2 doors, after having set S3=ON, it is necessary to set a master automatism and a slave automatism.



S1 ON
S2 OFF
S3 ON
setting door Master



S1 OFF
S2 OFF
S3 ON
setting door Slave

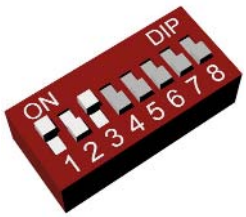
WARNING

In the OVER PLUS 2 doors, it is necessary to set a Master card and a Slave card. The two cards must NEVER be set both as Master or both as Slave.

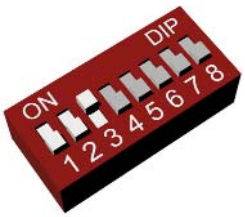
Synchronised/Indipendent Door Motion (OVER PLUS 2 doors Only)

For OVER PLUS 2 doors, the type of door movement must be determined: in the case of doors without central stops, the motion will be synchronized (the opening and closing of the same occurs simultaneously). In the case of doors equipped with a central stop, the movement will be phase-shifted: the Master door will be the first to open and the last to close.

SYNCHRONISED DOOR MOTION (DEFAULT)

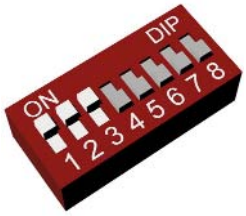


S1 ON
S2 OFF
S3 ON
Enter double Master door with synchronised door motion.

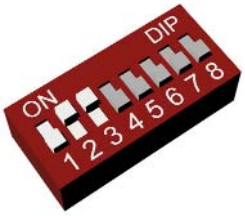


S1 OFF
S2 OFF
S3 ON
Enter double Slave door with synchronised door motion.

INDIPENDENT DOOR MOTION



S1 ON
S2 ON
S3 ON
Enter double Master door.
If indipedent it is the first to open and the last to close.



S1 OFF
S2 ON
S3 ON
Enter double Slave door.
If indipendent it is the last to open and the first to close.

WARNING

The setting of the dip switch S2, indicating the synchronization or phase-shift of the doors, will have to be identical for both the Master door and the Slave door.

Start Up

WARNING

If no optional operation lock device is installed, make sure the KEY input is short circuited with the COM input. Otherwise the equipment cannot be started.

WARNING

For correct automatism operation and in order to guarantee optimization of the parameters that regulate door movement, make certain that the dip switch S8 is set correctly.

Position door ~20 cm from total closure. Turn the power switch to 1 to power the equipment.
The automatism resets limits to reduced speed first completely opening and then closing .

WARNING

If necessary, make a dynamometric control to verify any slide friction, turn off the equipment and remove the Arm.
Eliminate friction causes and start the equipment again repeating the above-described movement.

Multi-logic selector KIBO/KIBO PRO not installed: when the equipment finishes limit reset it is ready to work in 2 RADAR logic.

Multi-logic selector KIBO/KIBO PRO installed: when the equipment finishes limit reset it is ready to work and is positioned in the "STOP CLOSED" logic.
At the end of reset the equipment is ready for use; check correct sensor operations for opening command and safety control. Also check anti-crushing sensitivity; if the value requires increasing and decreasing, see the advanced selector manual.
To test automatism operations without connections to the open command device use the START button on the unit (see **Fig. 21**)

Error Message Table

DESCRIPTION	N.	LED					WHAT TO DO
		AV	OC	L1	L2	L3	
Initialization error	1	BL	OFF	OFF	OFF	ON	An error occurred during initialisation, in particular, the measured opening quota is too low. Check the encoder, the connection between the encoder and mother boards. Make sure the transit area is free of obstacles. In the event of electronic lock, check correct operations.
Door blocked error	2	BL	OFF	OFF	ON	OFF	The door cannot open. Make sure there are no obstacles in the transit area and that there are no locks (electric or manual) that block the door.
Anti-crushing in opening error	3	BL	OFF	OFF	ON	ON	After three opening and anti-crushing detection attempts. Make sure there are no obstacles in the transit area. Make sure that the anti-crushing sensitivity in opening is not too low. Check the encoder, the connection between the encoder d mother boards.
Anti-crushing in closing error	4	BL	OFF	ON	OFF	OFF	After three closing and anti-crushing detection attempts. Make sure there are no obstacles in the transit area. Make sure that the anti-crushing sensitivity in opening is not too low. Check the encoder, the connection between the encoder and mother boards.
Inversion error	5	BL	OFF	ON	OFF	ON	An inversion error of the movement between the encoder and motor was detected. Make sure that the motor is correctly connected as shown in **Fig. 22**
Overcurrent error	6	BL	ON	ON	ON	OFF	Motor overload detected. Make sure there are no short circuits on the motor power cord. Check the motor and replace if necessary.
Encoder error	7	BL	OFF	ON	ON	ON	Encoder malfunction detected. Check the encoder, the connection between the encoder and mother boards.

BL. = Blinking

Delivery Modality

Close the automatism's cover and assemble the arm following the reverse procedure used to remove it..
Hand the guarantee and test certificate over filled according to the instructions shown in the certificate.
The certificates must be sent to APRIMATIC in 8 days from the positive test date. Hand the technical documentations over to the client .

Setting parameter

	PARAMETERS	DEFAULT VALUE	ADJUSTMENT GAP		ADJUSTMENT VIA	
					ADVANCED SELECTOR	PC
STANDARD	Opening speed (°/s)	**60 (45)**	20	60 (45)	•	•
	Closing speed (°/s)	**30 (20)**	20	40 (20)	•	•
	Pause time (sec)	**0**	0	120	•	•
	Anti-crush Opening	**9**	1	9	•	•
	Anti-crush Closing	**9**	1	9	•	•
ADVANCED	Approach speed (°/s)	**6**	5	0		•
	Reset speed (°/s)	**12**	10	20		•
	Recovery speed (°/s)	**15**	10	30		•
	Normal acceleration (°/s2)	**150**	50	200		•
	Normal deceleration (°/s2)	**40**	20	60		•
	Reset acceleration (°/s2)	**40**	20	100		•
	Reverse acceleration (°/s2)	**150**	50	200		•
	Approach Closing (°)	**25**	20	40		•
	Approach Opening (°)	**20**	15	30		•
	Anti-draught level	**1**	0	9		•
	Push & Go activation	**5**	0	9		•
	Asynchronous opening of double doors	**3**	1	9		•
	Asynchronous closing of double doors	**5**	1	9		•
	Safety exclusion opening (%)	**30**	0	100	•	•
	Last battery-operated manoeuvre	**stop open**	stop open	stop close	•	•
	Auto Reset	**yes**	yes	NO	•	•
	Logic after Reset	**stop close**	2 radar, 1 radar, stop open, stop close		•	•
	SAFE OPEN operation	**stop motion**	stop motion	slow motion	•	•
	Activation timing of the electric lock (10^{-1} sec)	**1**	0	20	•	•

The values in parentheses refer to the setting J2=ON for heavy doors.

Operating Logic

Operations	Description
⚠ **WARNING**	If no optional operation lock device is installed, make sure the KEY input is short circuited with the COM input. Otherwise the equipment cannot be started. If no safe close device is installed, make sure the SAFE CLOSE input is short circuited with the COM input. Otherwise the equipment cannot be started. In the event of a power failure, the equipment can be started or reset using the power supply provided by the battery, if present. The speed, in case of battery operation, will be reduced.
Power	Position doors ~20 cm from total closure. Turn on the power switch to power the equipment.
Reset and auto-setting of ends-of-stroke	The device is switched on and the reset phase checked. The device completely opens and completely closes the door at low speed (reset speed). If an obstacle prevents the door from completing its entire stroke, the device will signal that there is an initialization error (AV=intermittent and L3=On) if the stroke is less than a preset limit (around 70-80°) and performs another reset after 10 seconds. After the third failed reset, the device stops functioning as a malfunction. The reset continues even if the safety sensor (Safe Open) detects an obstacle. If the IR photocell sends a signal that an obstacle has been detected whilst the door is closing, the door will stop moving for the entire duration of the signal.
	Multi-logic selector not installed: when the equipment finishes limit reset it is ready to work in 2 RADAR logic.
	Multi-logic selector installed: when the equipment finishes limit reset it is ready to work and is positioned in the “STOP CLOSED” logic.

		At the end of reset the equipment is ready for use; check correct sensor operations for opening command and safety control.Also check anti-crushing sensitivity; if the value requires increasing and decreasing, see the advanced selector manual. To test automatism operations without connections to the open command device use the START button on the unit (see **Fig. 20**)
Standard manoeuvre		The device opens and closes the door accelerating and decelerating in accordance with the opening and closing speed limits, which will be reached at low speed.
Push&Go		An initial push on a closed door will cause it to open. The activation value can be adjusted using OVERWARE
Reverse function (radar 1 and 2)		If the radar detects an obstacle whilst the door is closing, it must suddenly reverse motion opening completely at normal speed and closing at normal speed.
Reverse function (IR)		After the IR detects an obstacle whilst the door is closing, it must suddenly reverse motion opening completely at normal speed and closing at normal speed.
Safety sensor function whilst opening (Safe Open)		If the safety sensor (Safe Open) detects an obstacle whilst the door is opening, it will immediately stop the motion of the door. If the sensor no longer detects an obstacle, the door will continue to open at low speed and then close at normal speed.The door complete an opening cycle at reduced speed after 30 seconds from the continuous activation of the safe open Detection of obstacles whilst the door is closing does not cause the system to react.
Safety sensor exclusion angle whilst opening (Safe Open)		If the door opens near a wall (in a corridor, for example), an value must be entered so that the sensor does not detect the wall as an obstacle (% total limit switch). Default value = 0. Parameter can be adjusted using advanced selector or OVERWARE.
Safety sensor function whilst closing (Safe Close)		If the safety sensor (Safe Close) detects an obstacle whilst the door is closing, it will immediately stop and reverse the motion of the door opening it completely at low speed and then closing it at normal speed. Detection of obstacles whilst the door is opening does not cause the system to react.
Operating logic can be entered using the Base Selector, Advanced Selector, MILLENNIUMWARE	1 radar	**Exit-only radar:** only the input START 2 of the electronic control card is monitored. A signal originating from a sensor connected to this input triggers the opening and consequent closing of the door doors. The electric locking system, if present, blocks the door doors every time that these reach the position of complete closure
	2 radar	**Entry-exit radar** : both the inputs START1 and START2 of the electronic control card are monitored. A signal originating from a sensor connected to one of these inputs triggers the opening and consequent closing of the door doors.The electric locking system, if present, never blocks the door doors.
	Stop Close	The automatism controls the complete closure of the door doors. In this logic the inputs START1 and START2 of the electronic control card are not monitored;if present, the electric locking system blocks the door doors.
	Stop Open	The automatism controls the complete opening of the door doors.In this logic the inputs START1 and START2 of the electronic control card are not monitored.
Single anti-crush safety function whilst opening		The door encounters an obstacle that stops its motion whilst it is opening. The device should stop the motion of the door for a few seconds and then open it completely at low speed and close it again at normal speed. The sensitivity value can be adjusted using the advanced selector or OVERWARE.
Single anti-crush safety function whilst closing		The door encounters an obstacle that stops its motion whilst it is closing. The device should stop the motion of the door for a few seconds and then open it completely at low speed and close it again at low speed. The sensitivity value can be adjusted using the advanced selector or OVERWARE.
Multiple anti-crush function whilst opening (with Autoreset after malfunction)		The door encounters an obstacle that stops its motion whilst it is opening. The device should stop the motion of the door for a few seconds and then open it completely at low speed and close it again at normal speed. After detecting the third obstacle without being able to complete the manoeuvre (without completely opening the door), the device signals a malfunction (AV=intermittent and L1=On), stops for a few seconds whilst closing and then performs a new reset to set the ends-of-stroke. If the object remains in the movement area it will be detected as the end-of-stroke and the device will function with two new ends-of-stroke. If the obstacle is near the door frame, the device will signal an initialization error that the door opening is too small (AV=intermittent and L3=On). If the obstacle is later cleared, the device will function without an end-of-stroke whilst opening for another two cycles, after which it will signal an error (AV=intermittent) because it cannot find the end-of-stroke and will perform a new reset to set the ends-of-stroke.
Multiple anti-crush function whilst closing (with Autoreset after malfunction)		The door encounters an obstacle that stops its motion whilst it is closing. The device should stop the motion of the door for a few seconds and then open it completely at low speed and close it again at low speed. After detecting the third obstacle without being able to complete the manoeuvre (without completely closing the door), the device signals a malfunction (AV=intermittent and L1=On), stops for a few seconds whilst closing and then performs a new reset to set the ends-of-stroke. If the object remains in the movement area it will be detected as the end-of-stroke and the device will function with two new ends-of-stroke. If the obstacle is near the door frame, the device will signal an initialization error that the door opening is too small (AV=intermittent and L3=On). If the obstacle is later cleared, the device will function without an end-of-stroke whilst opening for another two cycles, after which it will signal an error (AV=intermittent) because it cannot find the end-of-stroke and will perform a new reset to set the ends-of-stroke.

OVER PLUS 2 doors connection and use

WARNING

Define the Master door (see Set Dip-Switch paragraph) before performing the connections. It will not be possible to determine the Master or Slave door after completing the wiring.

WARNING

Both devices should be connected to the same power supply branch with no switches or fuses between them.

The SAFE CLOSE, KEY, START 1 and START 2 peripherals, if any, should be connected to the Master door.

The safety sensors (Safe Open) should be connected and controlled separately on both circuit cards.

The two terminals of the selector should be connected to ensure that both OVER PLUS circuit cards communicate with each other and that both devices function properly. **(Fig. 30)**

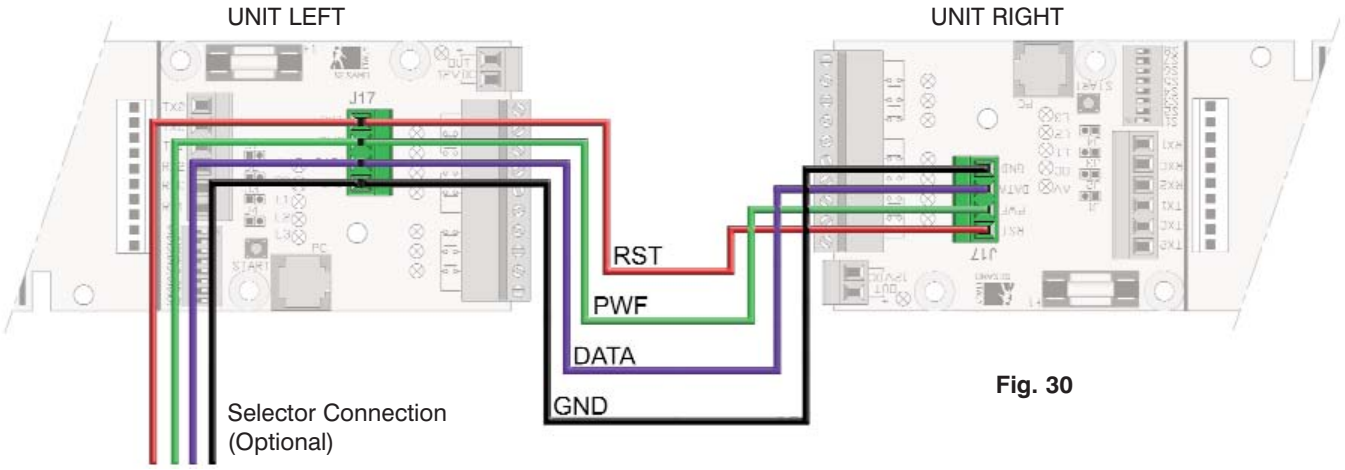


Fig. 30

The selector (optional) is connected to the Master card only, using the same terminal board J17 used to connect the two automatisms to one another. Any parameters that need to be changed will be the same for both cards.

Double doors should be moved in asynchronously (see Set Dip-Switch paragraph) if there is a central jamb between them. The default settings are 3 (opening) and 5 (closing), and can be modified using OVERWARE.

The doors will only start to close when both are wide open. If one door opens completely before the other one, it will wait until the latter is completely open.

Both doors reverse at the same time (START 1 or 2, SAFE CLOSE, anti-crush safety device, etc.).

The electric lock functions can be entered on both circuit cards in exactly the same way as with single devices by selecting Dip S7.

The Push&Go function can be activated on both devices in exactly the same way as with single devices. If it is detected that one of the devices is trying to open a door, this will cause both doors to open.

The anti-crush safety devices and obstacle detection functions are controlled separately and independently by both cards.

If one card detects an anti-crush device whilst closing, it will stop the motion of both doors and open them completely at low speed.

If one card detects an anti-crush device whilst opening, it will stop the motion of the door involved and open it completely at low speed. The other door, which will have opened completely in the meantime, will wait for the door involved before proceeding to close.

WARNING

The parameters that can be modified with OVERWARE are separate on each card. If the motion parameters are modified, the same values must be set on both cards to prevent malfunctions.

Inter lock connection and use

The OVER PLUS unit is set to work in inter lock mode through connections to an electronic unit of the same family.

In inter lock mode one door can only open if the other is not moving, that is, if not in the movement phase.

To inter lock two automatisms proceed as follows **(Fig. 30)**:

- connect the terminal AUX IN of unit A to the terminal AUX OUT of unit B
- connect the terminal AUX OUT of unit A to the terminal AUX IN of unit B
- connect terminal "-" of the 12Vdc power supply of unit A to the terminal "-" of the 12Vdc power supply of unit B.

Use 4 x 0.22 shielded wire for connections and do not connect the shield.

When open requests come from the both sensors on both doors an opening priority needs to be set; to do this, set one door as MASTER and the other as SLAVE.
When simultaneous signals occur, the MASTER door will open.

To select MASTER and SLAVE use the advanced selector.

UNIT A

UNIT B

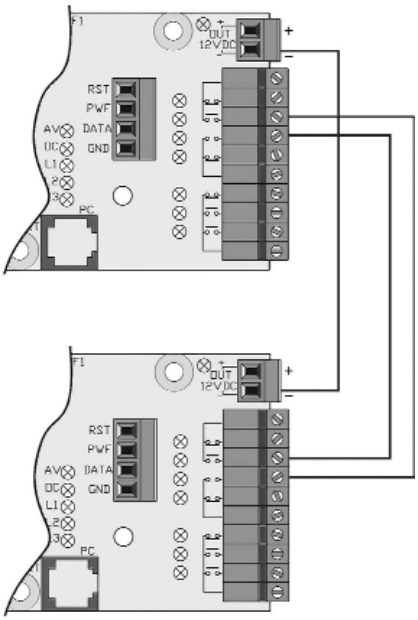


Fig. 30

OVER *PLUS*

APRIMATIC S.p.A.
Zona Industriale Fossatone
40060 Villa Fontana • Medicina • Bologna (Italy)
Tel: +39 051 6960711 • Fax: +39 051 6960722
www.aprimatic.it • E-mail: info@aprimatic.com

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