

EC MACHINE DIRECTIVE COMPLIANCE DECLARATION

(DIRECTIVE 89/392 EEC, APPENDIX II, PART B)

Manufacturer: FAAC S.p.A.

Address: Via Benini, 1
40069 - Zola Predosa
BOLOGNA - ITALY

Hereby declares that: the 620, 640, 642 automation system

- is intended to be incorporated into machinery, or to be assembled with other machinery to constitute machinery in compliance with the requirements of Directive 89/392 EEC, and subsequent amendments 91/368 EEC, 93/44 EEC and 93/68 EEC;
- complies with the essential safety requirements in the following EEC Directives:

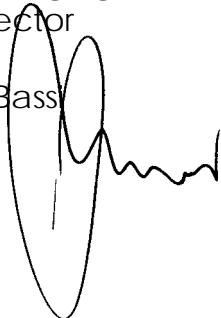
73/23 EEC and subsequent amendment 93/68 EEC.
89/336 EEC and subsequent amendments 92/31 EEC and 93/68 EEC.

and furthermore declares that unit must not be put into service until the machinery into which it is incorporated or of which it is a component has been identified and declared to be in conformity with the provisions of Directive 89/392 EEC and subsequent amendments enacted by the national implementing legislation.

Bologna, 1 January 1997

Managing
Director

A. Bassi

A handwritten signature in black ink, appearing to be 'A. Bassi', written over the printed name. The signature is stylized with a large loop at the beginning and a wavy tail.

IMPORTANT NOTICE FOR THE INSTALLER

GENERAL SAFETY REGULATIONS

- 1) **WARNING! FAAC strongly recommends to follow these instructions literally for the safety of persons. Improper installation or misuse of the product will cause very serious damages to persons.**
- 2) Packaging material (plastic, polystyrene etc.) is a potential hazard and must be kept out of reach of children.
- 3) Read the instructions carefully before installing the product.
- 4) Keep these instructions for future reference.
- 5) This product has been designed and manufactured only for the use stated in this manual. Any other use not expressly set forth will affect the reliability of the product and/or could be source of hazard.
- 6) FAAC S.p.A. cannot be held responsible for any damage caused by improper use or different from the use for which the automation system is destined to.
- 7) Do not use this device in areas subject to explosion: the presence of flammable gas or fumes is a serious hazard.
- 8) Mechanical constructive elements must comply with UNI8612, CEN pr EN 12604 and CEN pr EN 12605 standards.
Countries outside the EC shall follow the regulations above besides their national normative references in order to offer the utmost safety.
- 9) FAAC cannot be held responsible for failure to observe technical standards in the construction of gates and doors, or for any deformation of the gates which may occur during use.
- 10) Installation must comply with UNI8612, CEN pr 12453 and CEN pr EN 12635.
The degree of safety of the automation must be C + E.
- 11) Before carrying out any operations, turn off the system's main switch.
- 12) An omnipower switch shall be provided for the installation with an opening distance of the contacts of 3 mm or more. Alternatively, use a 6A thermomagnetic breaker with multi-pole switching.
- 13) Ensure that there is a differential switch up-line of the electrical system, with a trip threshold of 0.03A.
- 14) Check that the earthing plant is in perfect condition and connect it to the metallic parts. Also earth the yellow/green wire of the operator.
- 15) The automation is fitted with an anti-crush safety system that is a torque control device. In any case, further safety devices shall be installed.
- 16) The safety devices (e.g. photocells, safety edges, etc.) protect areas wherethere is a mechanical movement hazard, e.g. crushing, entrapment and cutting.
- 17) Each installation must be fitted with at least one flashing light (e.g. FAAC LAMP, MINILAMP etc) as well as a warning plate suitably fixed to the gate, besides the safety devices as per point 16. above.
- 18) FAAC cannot be held responsible regarding safety and correct functioning of the automation in the event that parts other than FAAC original parts are used.
- 19) Use only FAAC original spare parts for maintenance operations.
- 20) Do not carry out any modifications to automation components.
- 21) The installer must supply all information regarding manual operation of the system in the event of an emergency and provide the end-user with the leaflet attached to the product.
- 22) Keep out of persons when the product is in operation.
- 23) Keep out of reach of children the remote radio controls and any control devices. The automation could be operated unintentionally.
- 24) The end-user must avoid any attempt to repair or adjust the automation personally. These operations must be carried out exclusively by qualified personnel.
- 25) **What is not explicitly stated in these instructions is not permitted.**

AUTOMATION SYSTEMS 620 - 640 - 642 & 624 MPS

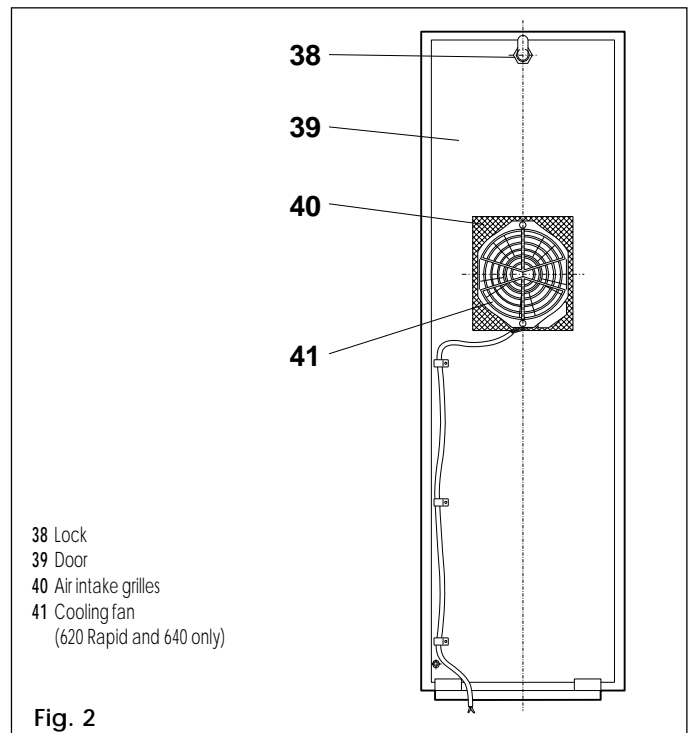
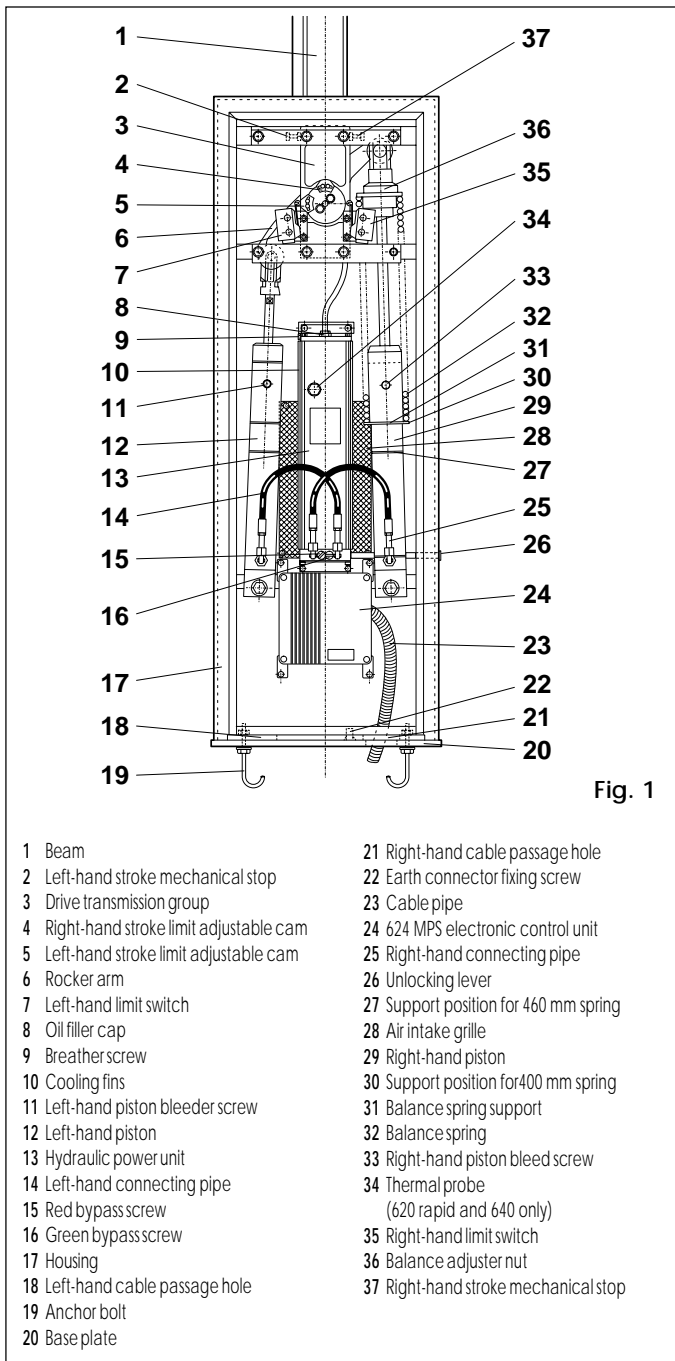
The automation system consists of a white aluminium beam with red reflectors and of a cathaphoresis treated steel housing with polyester finish.

The housing contains the operator, which consists of a hydraulic power unit and two pistons. The latter actuate the rotation of the beam by means of a rocker arm.

A spring mounted on one of the pistons balances the beam. The housing also contains the electronic control unit, which is fitted in a watertight container.

The system has an adjustable anti-crushing safety system, a device that stops and locks the beam in any position, and a convenient manual release device to be used in the event of a power failure or malfunction.

Automation systems 620, 640 and 642 & 624 MPS have been designed and manufactured to control the access of vehicles. No other use is allowed.



1. DESCRIPTION AND TECHNICAL CHARACTERISTICS

Tab. 1 Technical characteristics of barriers

BARRIER MODEL	620/642 RAPID		620/642 STANDARD		640/642 STANDARD		
Max. beam length (m)	2 2.5 3	4	2 2.5 3	4	4 5	6	7
Max. opening time (s) (braking excluded)	<2	<3	3,5	4,5	4	5,5	8
Angular velocity (r.p.m.)	7,5	5	4,2	3,3	3,7	2,7	1,8
Pump flow rate (l/min)	2	1,5	1	0,75	2	1,5	1
Max. torque (Nm)	90	110	150	200	210 250	340-370	
Types of beams	Rigid/Skirt/Articulated						
Duty cycle	100%		70%		100%		
Power supply	230 V- (+6 -10 %) 50 Hz						
Absorbed power (W)	220						
Oil type	FAAC XD 220						
Oil quantity (l)	2						
Motor winding thermal cutout	120° C						
Anti-crushing system	bypass valves fitted as standard						
Temperature range	-20 to +55 °C						
Casing protective treatment	cataphoresis						
Casing finish	RAL 2004 polyester						
Housing protection	IP 54						
Weight (kg)	73				84		
Housing dimension WxHxD (mm)	see Figures 4 and 5						
Technical characteristic of electric motor							
Speed (Rpm)	2,800			1,400			
Power (W)	200			200			
Current drawn (A)	1			1,2			
Power supply	230V- (+6 -10 %) 50 Hz						

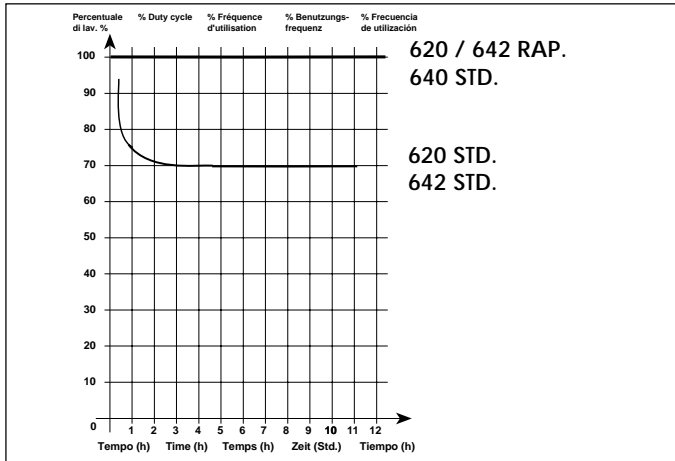
1.1. MAXIMUM DUTY CYCLE CURVE

The curve allows the maximum working time (T) to be obtained as a function of duty cycle (F).

E.g.: The 620 rapid, 640, 642 R/40 and 642/70 operators can work continuously with a 100% duty cycle, because they are equipped with a cooling fan. The 620 standard and 642 std/40 models can work continuously with a 70% duty cycle.

To ensure good operation, keep to the field of operation lying below the curve.

Diagram of duty cycle



Important: The curve refers to a temperature of 24°C. Exposure to direct sunlight can result in a reduction in duty cycle to as low as 20%.

Calculating duty cycle

The duty cycle is the percentage of effective working time (opening + closing) with respect to the total cycle time (opening + closing + pause times).

It is calculated using the following formula:

$$\%F = \frac{Ta + Tc}{Ta + Tc + Tp + Ti} \times 100$$

where:

- Ta = opening time
- Tc = closing time
- Tp = pause time
- Ti = interval between a complete cycle and the next.

2. STANDARD INSTALLATION LAYOUT

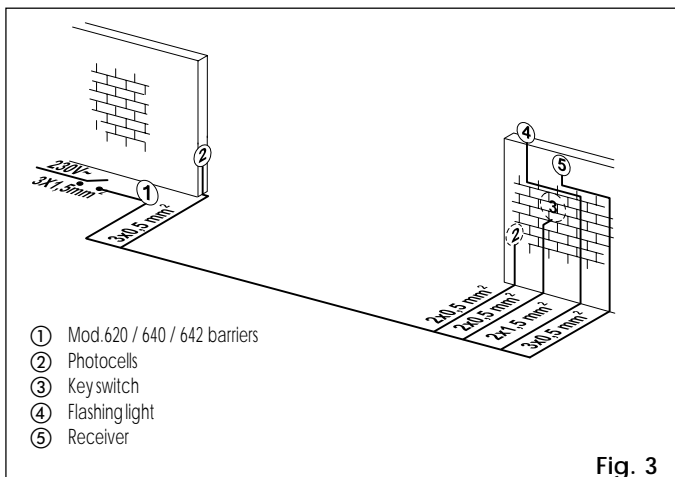
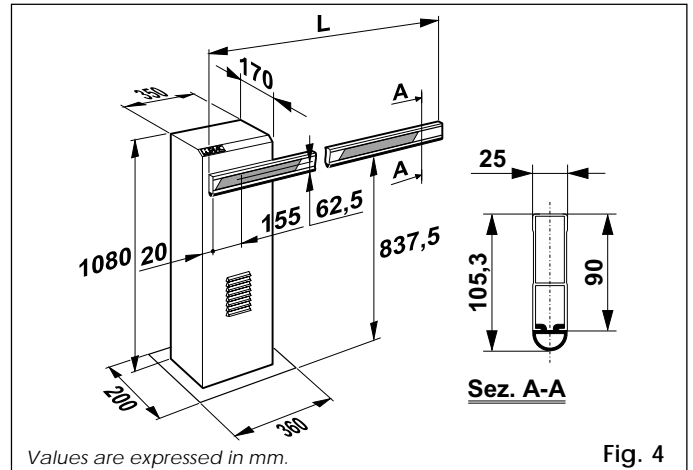


Fig. 3

Notes:

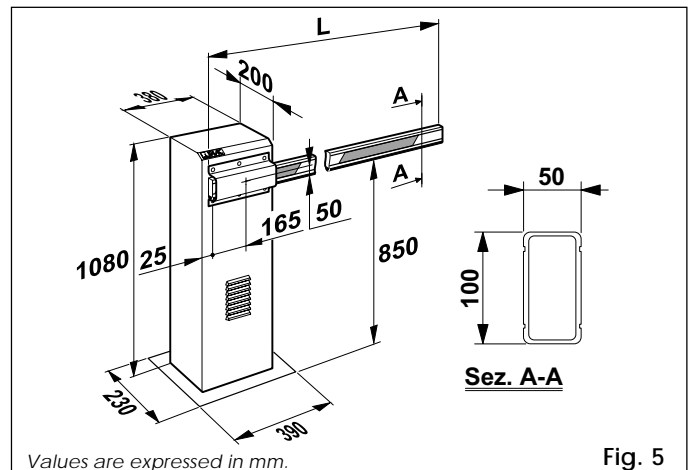
- 1) Use suitable rigid and/or flexible conduits for installation of the electrical cables.
- 2) Always route the low voltage accessory connection cables separately from the 230V- power supply cables. Use separate sheaths to avoid any interference.

3. DIMENSIONS



Values are expressed in mm.

Fig. 4



Values are expressed in mm.

Fig. 5

4. INSTALLATING THE SYSTEM

4.1. PRELIMINARY CHECKS

For safe, correct operation of the automation system, make sure that the following requirements are met:

- During its movement the beam does not strike against obstacles or overhead power cables.
- The characteristics of the ground must ensure sufficient support for the foundation plinth.
- There must be no pipes or electrical cables in the area to be dug for installing the foundation plinth.
- If the housing is located in a vehicle transit area, it is a good idea to provide protection against accidental collisions.
- Check that the housing is provided with an efficient earth connection.

4.2. INSTALLING THE BASE PLATE

- 1) Assemble the base plate, as shown in Figure. 6.
- 2) Prepare a foundation plinth as shown in Fig. 7 (for soft ground).

- 3) Install the base plate as shown in Figure 4, providing one or more conduits for electrical cables. Use a level to check that the plate is perfectly horizontal and wait for the cement to set.

4.3. MECHANICAL INSTALLATION

- 1) Fix the housing to the base plate using the four nuts provided, as shown in Figure 8. The housing should normally be installed with the door on the premises side.
- 2) Set up the operator for manual operation as described in section 6.

- 3) **Remove the two breather screws as shown in Figure 9 and keep them in a safe place.**
- 4) Assemble the beam, using the screws supplied, as shown in Figures 10 and 10 b. Apply the cap to the hole (620 only). The rubber-edged side of the beam must be in the closing direction.
- 5) Adjust the mechanical stops for opening and closing strokes, as shown in Figure 11. Check the beam balancing, as indicated in paragraph 4.4.

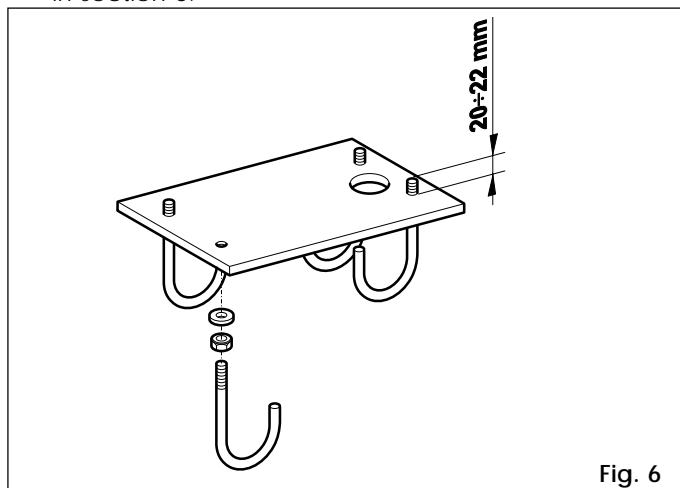


Fig. 6

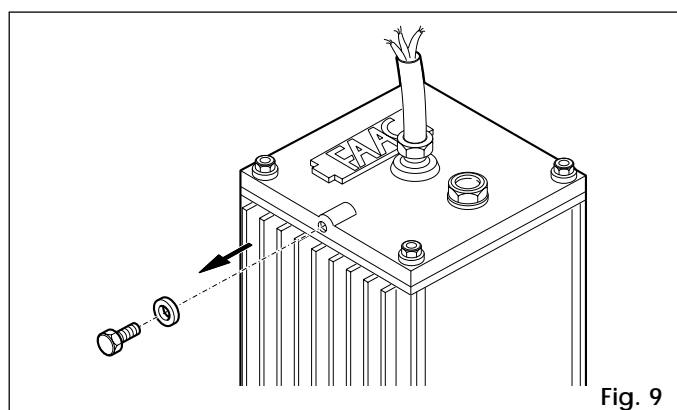


Fig. 9

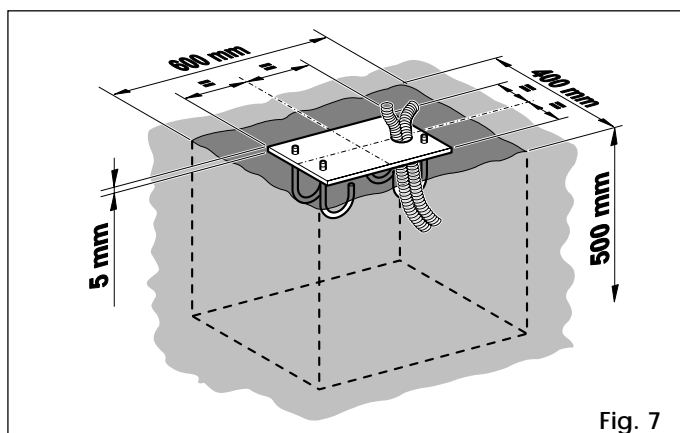


Fig. 7

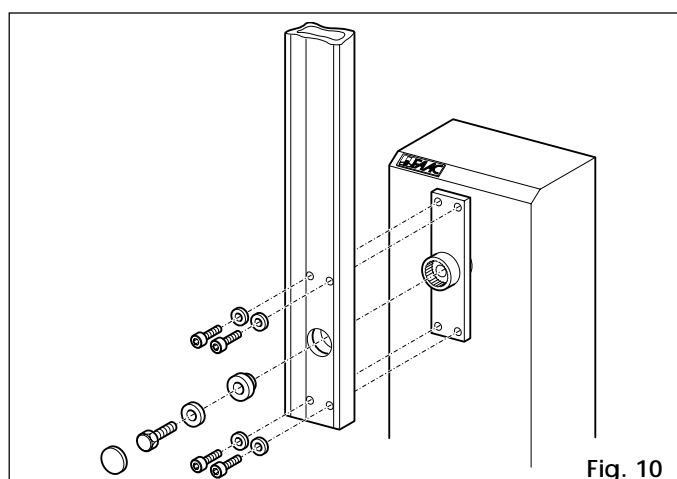


Fig. 10

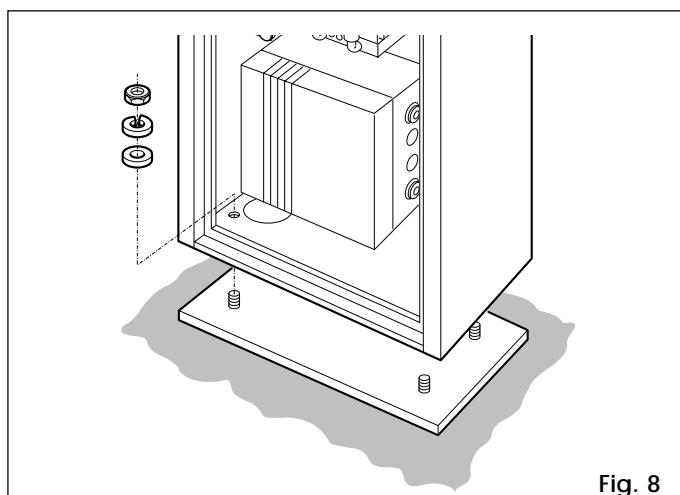


Fig. 8

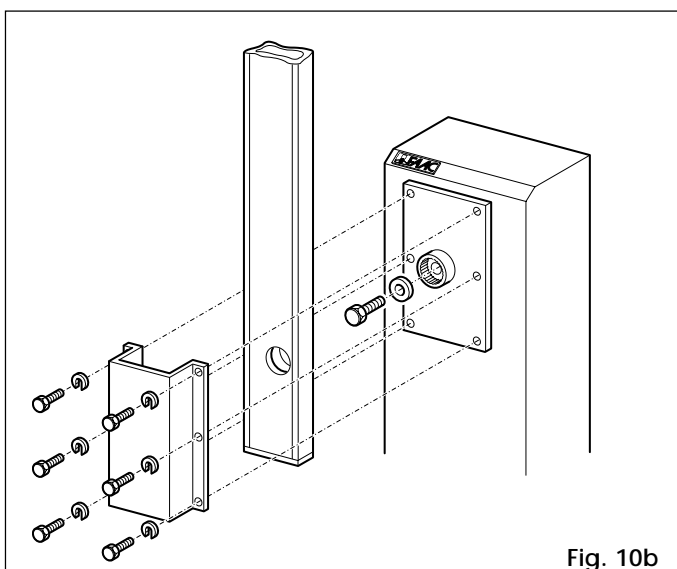


Fig. 10b

4.4. ADJUSTING THE BALANCE SPRING

IMPORTANT!: The barrier is supplied already balanced for the exact beam length specified in the order (see the Barrier Order Specifications, in the price list, and TAB. 2 - 3)

Should a fine adjustment of the beam balance be needed, proceed as follows:

- 1) Unlock the operator, as indicated in paragraph 6 .

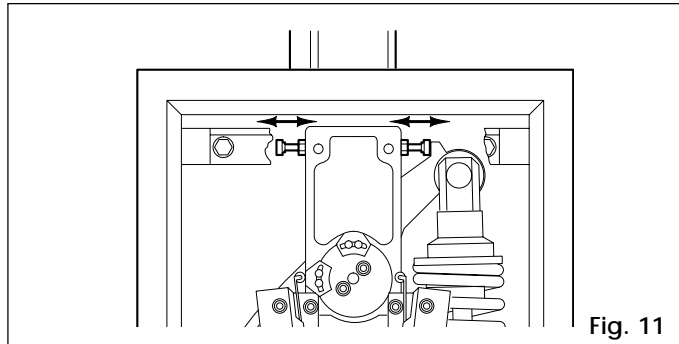


Fig. 11

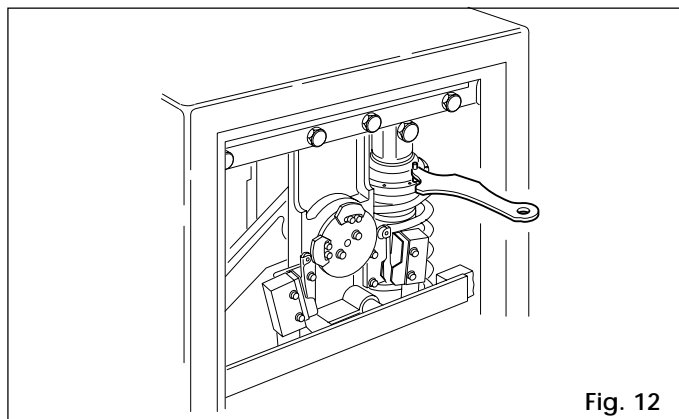


Fig. 12

TAB. 2

BALANCE SPRING FOR RIGID BEAMS				
BARRIER MODEL	BEAM LENGTH (m)	DIAMETER OF SPRING WIRE (mm)	SPRING LENGTH (mm)	SPRING CODE
620 STANDARD 620 RAPID	1.50 - 2.24	4.50	400	721085
	2.25 - 2.74	5.50	400	721069
	2.75 - 3.24	6.00	400	721070
	3.25 - 4.00	7.30	400	721072
640 STANDARD	3.75 - 4.24	7.00	400	721073
	4.25 - 5.24	8.00	400	721074
	5.25 - 6.74	9.00	400	721075
	6.75 - 7.00	10.50	460	721080

TAB. 3

BALANCE SPRING FOR BEAMS WITH SKIRT				
BARRIER MODEL	BEAM LENGTH (m)	DIAMETER OF SPRING WIRE (mm)	SPRING LENGTH (mm)	SPRING CODE
620 STANDARD	2.00 - 2.99	5.50	400	721069
	3.00 - 3.74	6.50	400	721071
	3.75 - 4.00	7.00	400	721073
	3.75 - 4.74	8.00	400	721074
640 STANDARD	4.75 - 5.24	10.00	460	721079
	5.25 - 5.74	10.50	460	721080
	5.75 - 6.74	11.00	460	721081
	6.75 - 7.00	12.00	460	721082

- 2) Adjust the pre-loading ring nut, using the spanner supplied, as shown in Figure 12.
The beam is correctly balanced when it remains steady in the 0° e 90° positions.
If the beam tends to close, turn the ring nut clockwise.
If it tends to open, turn the ring nut counterclockwise.

5. START-UP

5.1. CONNECTING THE ELECTRONIC UNIT

Important! Disconnect the power supply before you perform any type of operation (connections, programming or maintenance) on the electronic unit.

Warning: When terminal strip J2 is disconnected, the power supply outputs of the motor, fan and flashing lamp are still connected to electric power.

Follow points 10, 11, 12, 13 and 14 of the GENERAL SAFETY REGULATIONS.

Position the pipes, as shown in Figure 3, and connect the 624 MPS electronic unit to the accessories.

Keep the power supply cables separate from the control and safety signal ones (photocells, receiver, pushbutton, etc.). To prevent electric interference, use separate pipes.

TAB. 4 TECHNICAL CHARACTERISTICS OF 624 MPS

POWER SUPPLY	230 V (+6 -10 %) 50 Hz
MAX. MOTOR LOAD	300 W
MAX. ACCESSORY LOAD	500 mA
MAX. WARNING LIGHT POWER	5 W (24 Vac)
TEMPERATURE RANGE	- 20°C to 55°C

TAB. 5 OPERATION OF STATUS LEDS

LED	ON (contact closed)	OFF (contact open)
FCC	closing limit switch not engaged	closing limit switch engaged
FCA	opening limit switch not engaged	opening limit switch engaged
OPEN	activated	deactivated
CLOSED/FSW	activated (*)/saf. disengaged(**)	deactivated (*)/saf. engaged(**)
STOP	deactivated	activated
ALARM	beam moving	beam stationary
WARN. LIGHT	see warn. light operation	see warn. light operation
POWER	motor power on	motor power off

(*) P logic operation

(**) A / E logic operation

TAB 6 CURRENT DRAWN BY ACCESSORIES

ACCESSORY	NOMINAL CONSUMPTION
R 31	50 mA
PLUS 433 E	20 mA
MINIDEC SL / DS	6 mA
DECODER SL / DS	20 mA / 55 mA
RP 433 ESL / EDS	12 mA / 6 mA
DIGICARD	15 mA
METALDIGIKEY	15 mA
FOTOSWITCH	90 mA
DETECTOR F4 / PS6	50 mA
MINIBEAM	70 mA

624 MPS CONTROL UNIT

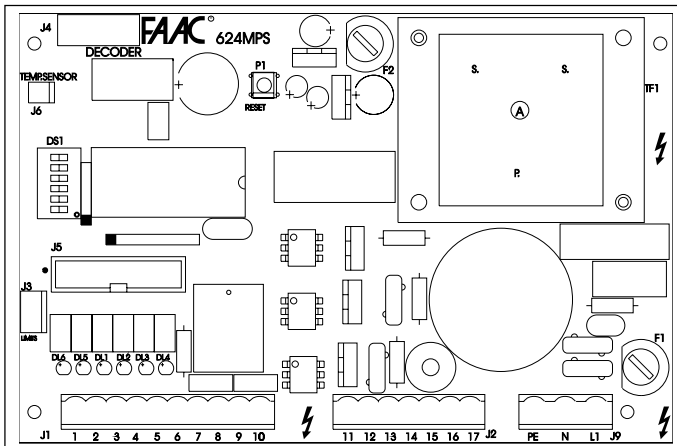


Fig. 13

- TF1 TRANSFORMER.
- J1 REMOVABLE LOW-VOLTAGE TERMINAL STRIP
- J2 REMOVABLE POWER TERMINAL STRIP
- J3 LIMIT SWITCH CONNECTOR
- J4 DECODER CONNECTOR
- J5 CONNECTOR FOR FSW, SLAVE, RELAY BOARDS
- J6 CONNECTOR FOR NTC PROBE
- J9 REMOVABLE TERMINAL STRIP NETWORK POWER SUPPLY
- P1 RESET PUSHBUTTON.
- F1 F5A FUSE (MOTOR).
- F2 T1.6 FUSE (ACCESSORIES).
- DL1 OPEN IMPULSE LED (A/E/P LOG.)
- DL2 CLOSE IMPULSE LED (P LOG.) SAFETY CONTACT (A LOG.)
- DL3 STOP IMPULSE LED
- DL4 ALARM LED (PANIC)
- DL5 OPENING LIMIT SWITCH LED
- DL6 CLOSING LIMIT SWITCH LED

A / E LOGICS CONNECTIONS

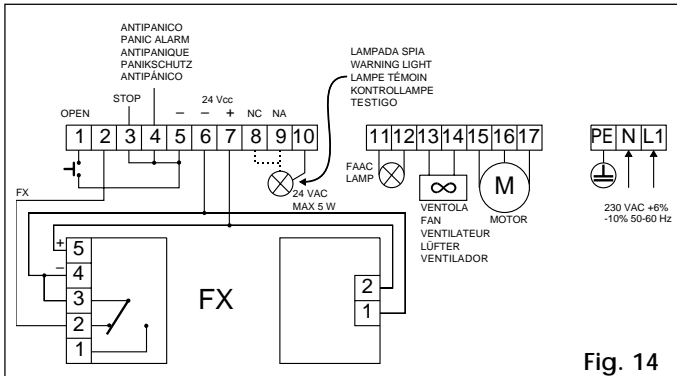


Fig. 14

P LOGIC CONNECTIONS

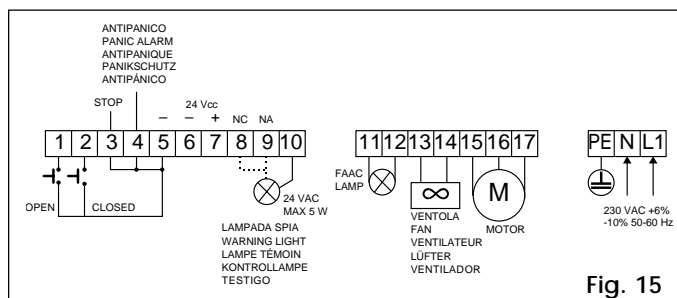


Fig. 15

DESCRIPTION OF TERMINAL STRIP

OPEN

This word indicates any activating device with normally open contact, whose activation causes the beam to perform an opening movement. In automatic and semi-automatic logics, it controls both opening and closing movements.

CLOSE

This word indicates any activating device with normally open contact, whose activation causes the beam to perform a closing movement. (Present only in P logic).

STOP

This word indicates a activating device with normally closed contact, whose activation suspends the current status of the beam (opening, pause or closing), until another pulse is sent.

SAFETY

This word indicates all devices (photocells, sensitive pneumatic safety edges, magnetic coils) with normally closed contact, which interrupt the movement of the beam whenever there is an obstacle within their range.

PANIC

This word indicates a activating device with normally closed contact, which is activated in an emergency and causes the beam to open, suspending its current status (open) until the RESET pushbutton is pressed.

PROGRAMMING THE MICROSWITCHES

NOTE: WHENEVER YOU CHANGE THE MICROSWITCH PROGRAMMING, PRESS THE RESET PUSHBUTTON AFTERWARDS.

1	2	3	4	5	6	Deceleration	SW6	Pausetime (sec)	SW3	SW4	SW5
						short	OFF				
						long	ON	∅	OFF	OFF	OFF
								5	ON	OFF	OFF
								10	OFF	ON	OFF
								20	ON	ON	OFF
								10	OFF	OFF	ON
								20	ON	OFF	ON
								30	OFF	ON	ON
								40	ON	ON	ON

Logic SW1 SW2

A	ON	ON
E	OFF	ON
P	ON	OFF
R(*)	OFF	OFF

With 5 sec. pre-flashing

(*) **IMPORTANT!**: The R logic (remote) must be selected only if there are two opposing barriers that work simultaneously. (See paragraph "624 SLAVE CARD", below.)

OPERATION OF SAFETY DEVICES

In the A or E logics, it is possible to obtain two different types of safety device operation, depending on the pause times that are selected:

- PAUSE TIMES WITH LAMP PRE-FLASHING (10-20-30-40 sec): the closing movement is stopped, then reversed on disengagement.
- PAUSE TIMES WITHOUT LAMP PRE-FLASHING: (0-5-10-20 sec): the closing movement is reversed at once.

ALARM CONDITION

It arises in the following cases:

- 1) Enabling of anti-panic input.
- 2) Activation of safety TIME-OUT device, which interrupts the operation of the system when operating time exceeds 30 sec.
- 3) Simultaneous triggering of the two limit switches.
- 4) Microprocessor reading anomaly (syncro).

The alarm condition is indicated by the quick flashing (0.25 sec) of the Warning Light LED and of the warning light (if connected).

In this condition, all the functions of the system are disabled. Normal operation is restored only after the cause of the alarm has been eliminated and the RESET pushbutton has been pressed.

OPERATION WITH THE DIFFERENT CONTROL LOGICS

TAB. 7 A LOGIC (AUTOMATIC)

impulse beam status	OPEN	STOP	SAFETY	PANIC
closed	opens, recloses after pause time	no effect	no effect	Beam opens and/or remains open. Alarm condition is activated (see relevant paragraph).
open	recloses at once (*)	stops counting	freezes pause time up to disengagement	
closing	reverses movement	stops	see relevant paragraph	
opening	no effect	stops	no effect	
stopped	recloses at once (*)	no effect	no effect	

(*) If pre-flashing has been selected, the barrier closes after 5 sec.

TAB.8 E LOGIC (SEMI-AUTOMATIC)

impulse beam status	OPEN	STOP	SAFETY	PANIC
closed	opens	no effect	no effect	Beam opens and/or remains open. Alarm condition is activated (see relevant paragraph).
open	recloses (*)	stops	no effect	
closing	reverses movement	stops	see relevant paragraph	
opening	stops	stops	no effect	
stopped	recloses (*)	no effect	no effect	

(*) If pre-flashing has been selected, the barrier closes after 5 sec.

TAB. 9 P LOGIC (PARKING: this logic does not allow pre-flashing)

impulse beam status	OPEN	CLOSED	STOP	PANIC
closed	opens	no effect	no effect	Beam opens and/or remains open. Alarm condition is activated (see relevant paragraph).
open	no effect	recloses	no effect	
closing	reverses movement	no effect	stops movement	
opening	no effect	opens, recloses at once	stops movement	
stopped	opens	recloses	no effect	

TAB. 10 OPERATION OF WARNING LIGHT

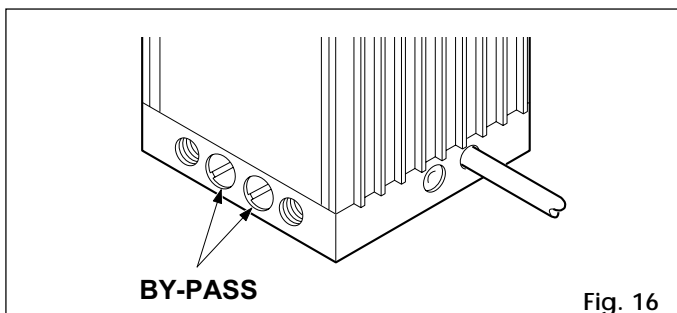
BEAM STATUS	N.A. CONTACT (*)	N.C. CONTACT (**)
closed	off	on
opening or open	on	off
pre-flashing (if selected) and/or closing	flashing	

(*) Warning light connected between terminals 8 and 10.
 (**) Warning light connected between terminals 9 and 10.

5.2. ADJUSTMENT OF TRANSMITTED TORQUE

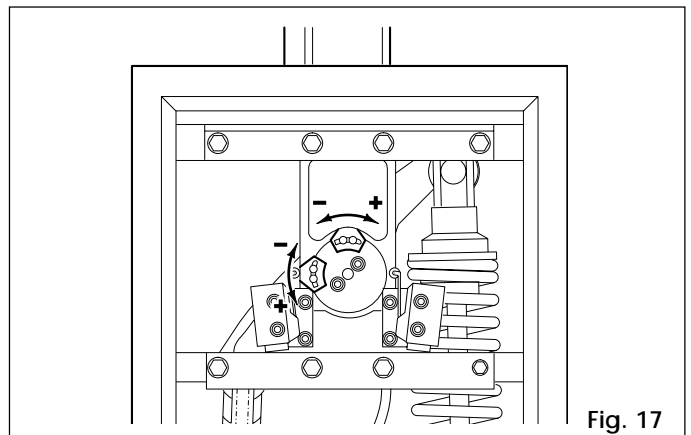
Use the two by-pass screws (fig. 8) to regulate the hydraulic transmitted torque adjustment system.

The red screw adjusts torque during closure.
 The green screw adjusts torque during opening.
 Turn the screws clockwise to increase torque.
 Turn the screws anticlockwise to reduce torque.



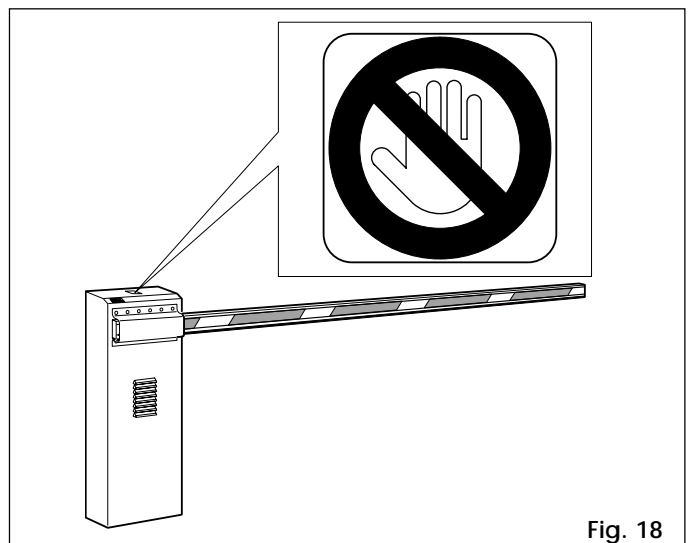
5.3. ADJUSTMENT OF STROKE END DECELERATION

- 1) Position microswitch SW6 according to the amount of deceleration required:
 OFF: SHORT (1.5 sec).
 ON: LONG (2.5 sec).
 For beams up to 4 m long, a short deceleration is recommended. For beams from 4 to 7 m, a long deceleration is recommended.
- 2) Adjust the stroke limit cams by loosening the two Allen screws, as shown in Figure 17. To increase the deceleration angle, move the cam toward the limit switch. To decrease the deceleration angle, move the cam away from the limit switch.
- 3) Re-lock the system (see paragraph 6), and carry out a few test cycles, in order to check whether the positioning of the limit switches, the balancing of the spring, and the transmitted torque are correct.



5.4 TESTING THE AUTOMATION SYSTEM

Once installation is complete, affix the danger warning adhesive on the top of the housing (Fig. 18). Carry out a thorough functional check of the barrier unit and all accessories connected to it. Give the page entitled "End-user guide" to the customer and demonstrate how to operate the barrier correctly, drawing the customer's attention to the points of potential danger.



6. MANUAL OPERATION

If the barrier needs to be operated manually as a result of a power failure or malfunction, use the unlock device as follows.

The key provided can be triangular (standard) or personalised (optional).

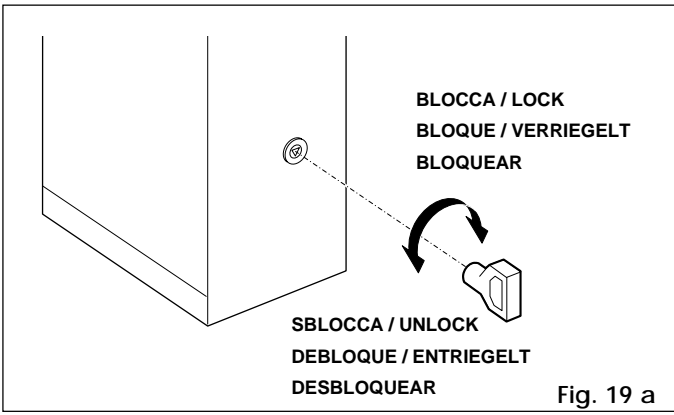


Fig. 19 a

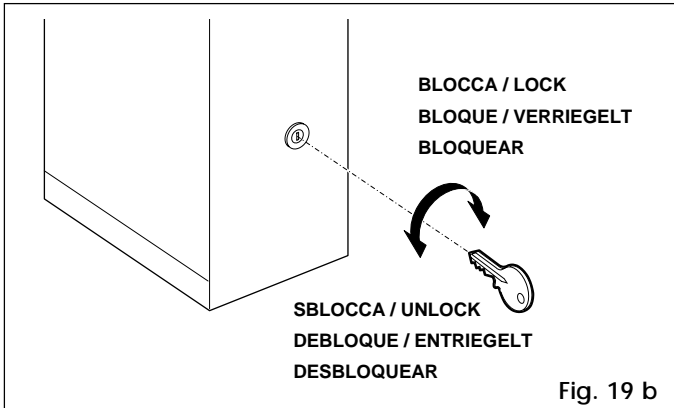


Fig. 19 b

- Insert the standard key (Figures 19 a) or the personalised key (Figures 19 b) in the lock and **turn anticlockwise** by one revolution.
- Open or close the barrier manually.

7. RETURNING TO NORMAL OPERATION

To prevent an accidental impulse from activating the barrier, turn off the system's electrical power supply before returning to normal operation.

triangular key (standard):

- turn the key **clockwise** until it stops, then remove it (Fig. 19a).

personalised key (optional):

- turn the key **clockwise** until it stops.
- turn the key **anticlockwise** very slowly to the point where it can be removed (Fig. 19 b).

8. MAINTENANCE

When performing maintenance always check that the by-pass screws are set correctly, that the system is balanced and that the safety devices operate correctly.

8.1. TOPPING UP WITH OIL

Check periodically the quantity of oil inside the tank. For medium/low duty cycles a yearly check is sufficient; for more severe operation it is advisable to check every 6 months.

The level must not fall below the level mark on the inspection window (Fig. 20).

To top up, unscrew the filler cap (Fig. 20) and pour in oil up to the correct level.

Use exclusively FAAC XD 220 oil.

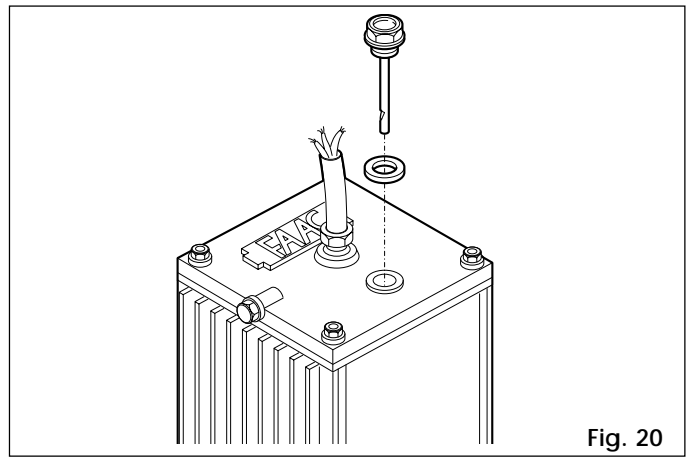


Fig. 20

8.2. BLEEDING AIR FROM THE HYDRAULIC CIRCUIT

If the beam moves in an irregular manner, this may be due to the presence of air in the hydraulic circuit:

- 1) Remove the breather screw (Fig. 9).
- 2) Actuate the beam electrically:
 - while the beam is opening, slightly loosen the bleed screw on the piston with balance spring, then retighten it (Fig. 1, pos. 33);
 - while the beam is closing, slightly loosen the bleed screw on the piston without balance spring, then retighten it (Fig. 1, pos. 11).

If necessary, repeat this operation, until you obtain a smooth beam movement.

9. REPAIRS

For repairs, contact an authorised FAAC Service Centre.

10. ACCESSORIES

OPTIONAL ELECTRONIC BOARDS

The three boards - SLAVE, FSW and RELAY - provide supplementary functions for the 624MPS unit, and may be used simultaneously.

Carefully read the instructions supplied with each product.

624 FSW board (Fig. 21)

The 624 FSW board manages the operation of photocells in P logic (Parking).

To prevent trespassing, the closing safety device causes the beam to stop, then to close again on disengagement.

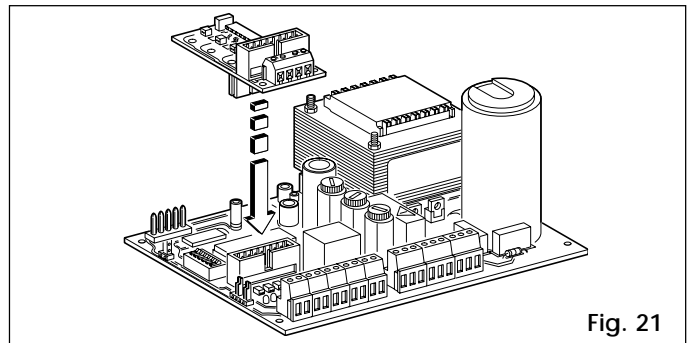


Fig. 21

624 SLAVE BOARD (Fig. 21)

The SLAVE board manages the simultaneous operation of two opposing barriers.

One of the two barriers is identified as MASTER, the other one as SLAVE.

All the signals sent (open, safety) are controlled by the MASTER barrier; the SLAVE barrier carries out the same movements.

RELAY BOARD (Fig. 22)

The RELAY board provides the possibility to control auxiliary services through contacts that are available on the terminal strip and are relevant to the various barrier statuses.

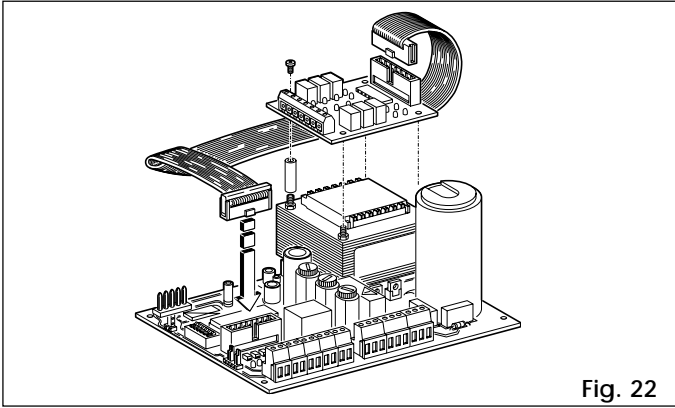


Fig. 22

AUTOMATIC EMERGENCY RELEASE (Fig. 23a)

This device makes it possible, in case of a power failure, to raise the beam manually without having to gain access to the unlocking lever of the hydraulic power unit. A hydraulic system ensures that the beam remains locked in open position.

ANTI-VANDALISM VALVE (Fig. 23b)

This device safeguards the integrity of the hydraulic system if the beam is broken open.

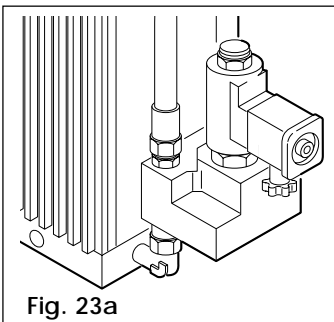


Fig. 23a

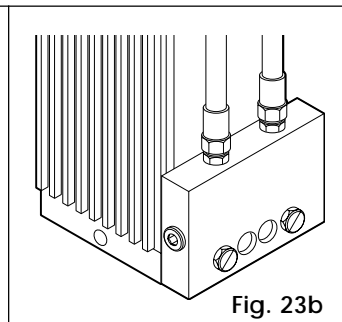


Fig. 23b

SKIRT KIT (Fig. 24)

The skirt increases the visibility of the beam. It is available in 2 m and 3 m lengths.

IMPORTANT! If the skirt kit is fitted, the balance spring must be adjusted.

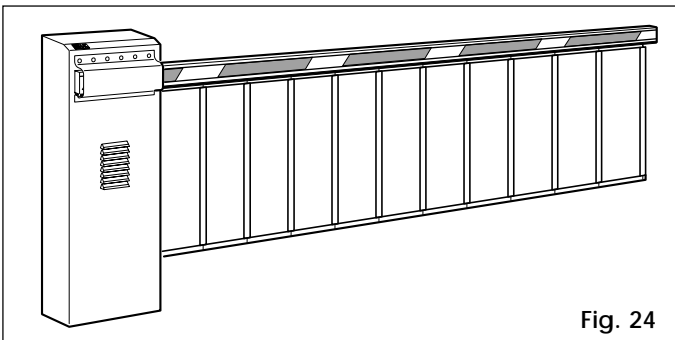


Fig. 24

ARTICULATION KIT (Fig. 25, mod. 620 only)

The articulation kit makes it possible to articulate the rigid beam to a maximum ceiling height of 3 m.

IMPORTANT! If the articulation kit is fitted, the balance spring must be adjusted.

END FOOT (Fig. 26)

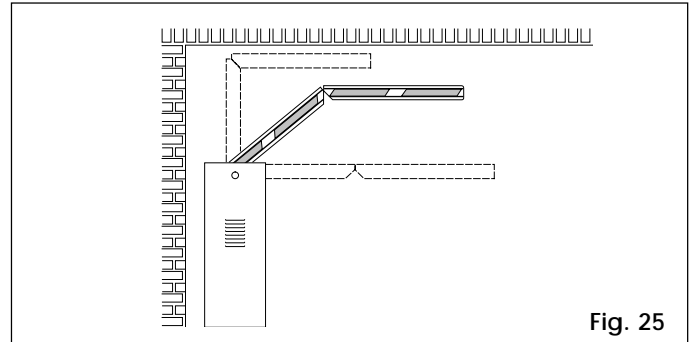


Fig. 25

The end foot supports the beam in closed position and prevents it from bending downwards.

IMPORTANT! If the end foot is installed, the balance spring must be adjusted.

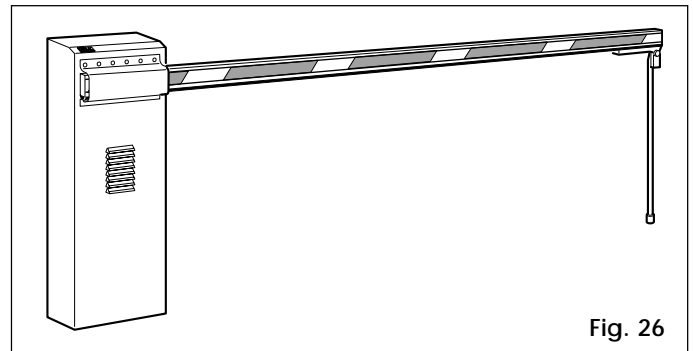


Fig. 26

SUPPORT FORK (Fig. 27)

The support fork has two functions:

- it prevents the beam from bending or breaking if force is applied to its end;
- it acts as a rest for the closed beam and prevents it from bending downwards.

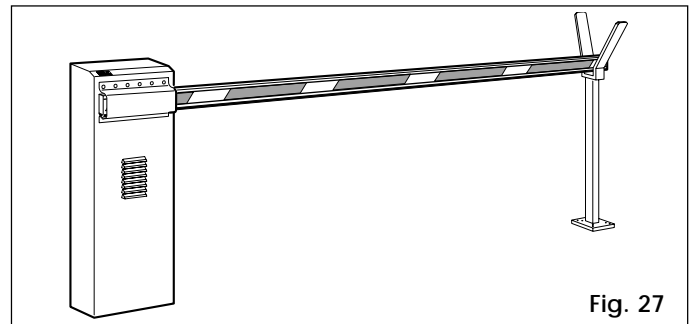
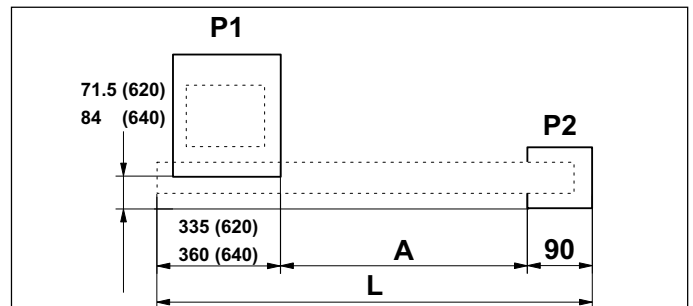


Fig. 27

POSITIONING THE BASE PLATE FOR THE SUPPORT FORK



Note: Dimensions are expressed in mm.

Fig. 28

Figure 28 shows the positioning of the base plate for the support fork.

- P1 = base plate for barrier
- P2 = base plate for support fork
- L = beam length (in mm)
- A = L-425 mm (620) L- 450 mm (640)

END-USER GUIDE

620 - 640 - 642 Automation Systems

Read the end user guide carefully before using the product and keep it in a safe place for future reference.

GENERAL SAFETY REGULATIONS

When correctly installed and used, the 620, 640 and 642 automation systems ensure a high degree of safety. A few simple rules should be followed to prevent accidental problems.

- Do not linger under the beam.
- Do not linger near the automation system; do not allow children or adults to linger near it; and do not leave objects near it.
- Keep wireless control devices, or other activating devices that might accidentally actuate the beam, out of the reach of children.
- Do not allow children to play with the automation system.
- Do not impede the movement of the beam.
- Do not allow branches or bushes to interfere with the movement of the beam.
- Ensure that the warning lamps are in always in working order and visible.
- Do not attempt to actuate the beam manually without having first unlocked it.
- In case of a malfunction, unlock the beam to allow vehicles to pass, and call a qualified technician.
- If you have set the manual mode, before restoring normal operation, disconnect the power supply.
- Do not modify the components of the automation system.
- Do not attempt to repair the automation system or to perform any operation on it. Call qualified FAAC technicians only.
- At least once every 6 months, have qualified personnel check that the automation system, safety devices and earth connection are in working order.

DESCRIPTION

The 620, 640 and 642 automation systems are ideal barriers for controlling the access of vehicles to a passageway that is up to 7 m wide and has a medium-to-high frequency of transit.

The housing contains the operator, that consists of a hydraulic power unit and two pistons. The latter actuate the rotation of the beam by means of a rocker arm. A spring mounted on one of the pistons balances the beam.

The beam consists of a white painted aluminium bar with red reflectors to ensure good visibility even in the dark.

Barrier operation is controlled by an electronic control unit mounted in an enclosure which assures adequate protection against atmospheric agents and can be fitted inside the housing.

The normal position of the beam is closed in a horizontal position. When the electronic control unit receives an opening command from the remote radio control or any other control device, it activates the hydraulic system and causes the beam to rotate upwards by 90° to the vertical position and thereby allow access. If automatic operation has been selected, the beam closes automatically after the selected pause time.

If semiautomatic operation has been selected, a second impulse must be sent to close the beam.

An open command given while the beam is closing causes the beam to reverse direction of movement.

A stop command (if available) stops movement at any time.

For detailed information on barrier operation in the various operating modes, contact the installation technician.

The barrier units have safety devices (photocells) that prevent the beam from closing when they are darkened by an obstacle. The 630 barrier unit is fitted as standard with an anti-crushing safety device that limits the torque transmitted to the beam.

The hydraulic system ensures that the beam can be locked in any position.

The beam can then be opened manually only by using the unlocking device.

The light flashes while the beam is moving.

MANUAL OPERATION

If the barrier has to be operated manually due to a power failure or malfunction, use the unlocking device as follows. The key provided can be triangular (standard) or personalised (optional).

- Insert the standard key (fig. 1) or the personalised key (fig. 2) in the lock and **turn anticlockwise** by one revolution.
- Open or close the barrier manually.

RETURNING TO NORMAL OPERATION

To prevent an accidental impulse from activating the barrier, turn off the system's electrical power supply before returning to normal operation.

triangular key (standard):

- turn the key **clockwise** until it stops, then remove it.

personalised key (optional):

- turn the key **clockwise** until it stops.
- turn the key **anticlockwise** very slowly to the point where it can be removed.

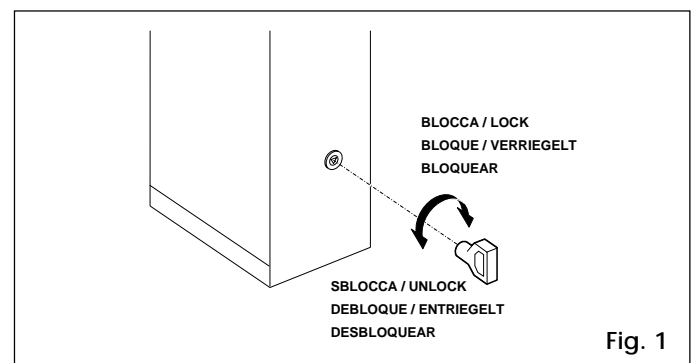


Fig. 1

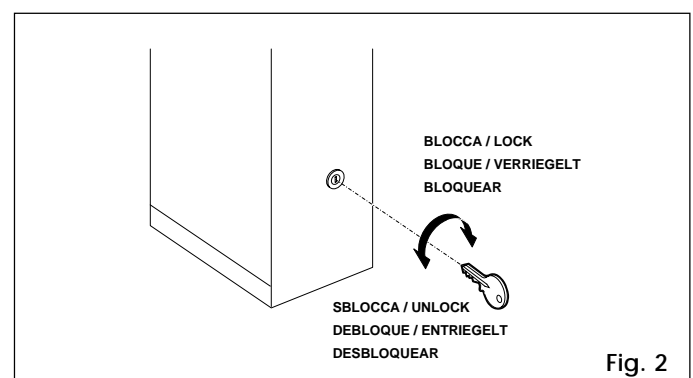


Fig. 2

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EC DECLARATION OF CONFORMITY

Manufacturer: FAAC S.p.A.
Address: Via Benini, 1 - 40069 Zola Predosa BOLOGNA - ITALY
Declares that: 624BLD control board

- conforms to the essential safety requirements of the following directives:

73/23/EEC and subsequent amendment 93/68/EEC.
 89/336/EEC and subsequent amendment 92/31/EEC and 93/68/EEC

Additional note:

This product underwent tests in a typical uniform configuration
 (all products manufactured by FAAC S.p.A.).

Bologna, 01 January 2006

The Managing Director
 A. Bassi



WARNINGS FOR THE INSTALLER

GENERAL SAFETY OBLIGATIONS

- ATTENTION! To ensure the safety of people, it is important that you read all the following instructions. Incorrect installation or incorrect use of the product could cause serious harm to people.**
- Carefully read the instructions before beginning to install the product.
- Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger.
- Store these instructions for future reference.
- This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition/operation of the product and/or be a source of danger.
- FAAC declines all liability caused by improper use or use other than that for which the automated system was intended.
- Do not install the equipment in an explosive atmosphere: the presence of inflammable gas or fumes is a serious danger to safety.
- The mechanical parts must conform to the provisions of Standards EN 12604 and EN 12605.
For non-EU countries, to obtain an adequate level of safety, the Standards mentioned above must be observed, in addition to national legal regulations.
- FAAC is not responsible for failure to observe Good Technique in the construction of the closing elements to be motorised, or for any deformation that may occur during use.
- The installation must conform to Standards EN 12453 and EN 12445.
For non-EU countries, to obtain an adequate level of safety, the Standards mentioned above must be observed, in addition to national legal regulations.
- Before attempting any job on the system, cut out electrical power.
- The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3mm or greater. Use of a 6A thermal breaker with all-pole circuit break is recommended.
- Make sure that a differential switch with threshold of 0.03 A is fitted upstream of the system.
- Make sure that the earthing system is perfectly constructed, and connect metal parts of the means of the closure to it.
- The safety devices (EN 12978 standard) protect any danger areas against **mechanical movement Risks**, such as crushing, dragging, and shearing.
- Use of at least one indicator-light (e.g. FAACLIGHT) is recommended for every system, as well as a warning sign adequately secured to the frame structure, in addition to the devices mentioned at point "15".
- FAAC declines all liability as concerns safety and efficient operation of the automated system, if system components not produced by FAAC are used.
- For maintenance, strictly use original parts by FAAC.
- Do not in any way modify the components of the automated system.
- The installer shall supply all information concerning manual operation of the system in case of an emergency, and shall hand over to the user the warnings handbook supplied with the product.
- Do not allow children or adults to stay near the product while it is operating.
- Keep radio controls or other pulse generators away from children, to prevent the automated system from being activated involuntarily.
- Transit is permitted only when the automated system is idle.
- The user must not attempt any kind of repair or direct action whatever and contact qualified personnel only.
- Maintenance: check at least every 6 months the efficiency of the system, particularly the efficiency of the safety devices (including, where foreseen, the operator thrust force) and of the release devices.
- Anything not expressly specified in these instructions is not permitted.**

CONTROL UNIT 624 BLD

1. WARNINGS

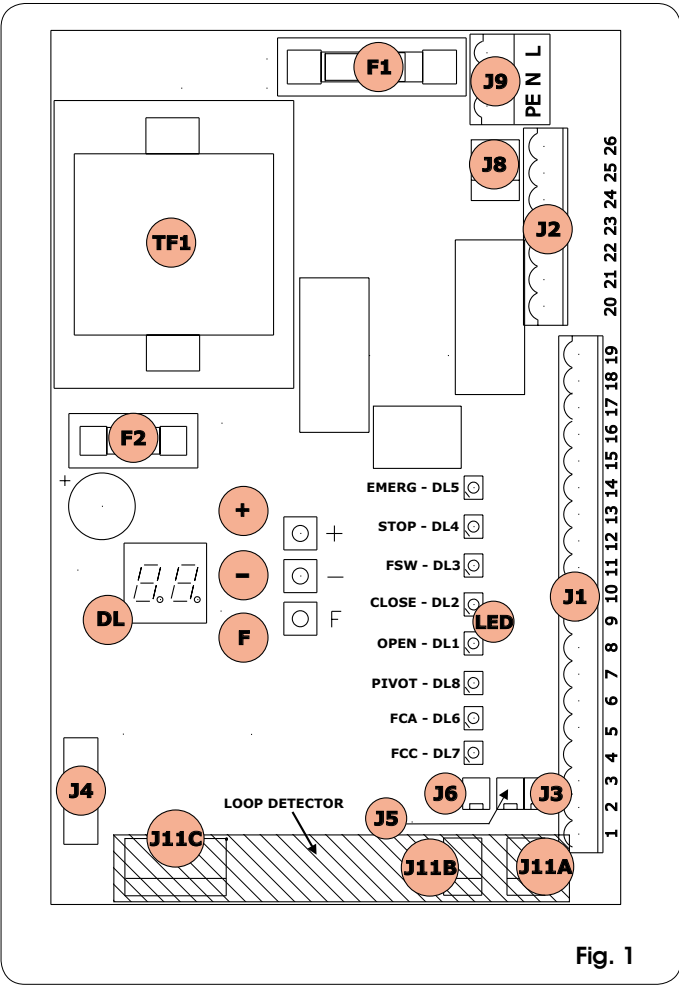
Attention: Before attempting any work on the control unit (connections, maintenance), always turn off power.

- Install, upstream of the system, a differential thermal breaker with adequate tripping threshold.
- Connect the earth cable to the terminal on the J9 connector of the unit (see fig.2).
- Always separate power cables from control and safety cables (push-button, receiver, photocells, etc.). To avoid any electrical noise, use separate sheaths or a screened cable (with the screen earthed).

2. TECHNICAL SPECIFICATIONS

Power supply voltage	230 Vac (+6% -10%) - 50 Hz
Absorbed power	7 W
Motor max. load	300 W
Power supply for accessories	24 Vdc
Accessories max. current	500 mA
Operating ambient temperature	-20°C - +55°C
Fuses	F1 = F 5A - 250V F2 = T 0.8A - 250V
Function logics	Automatic, Automatic 1, Semiautomatic, Parking, Parking-Automatic, Condo, Condo-automatic FAAC-CITY, Dead-man, Remote, Custom
Work time	Programmable (from 0 to 4 minutes)
Pause time	Programmable (from 0 to 4 minutes)
Motor power	Programmable on 50 levels
Terminal board inputs	Loop1, Loop2, Open, Close, Closing safety devices, Stop, Emergency, Power supply 230Vac + Earth
Connector inputs	Opening and closing limit-switch, Detector Motor capacitor, Beam detachment sensor
Terminal board outputs	Flashing light, Fan, Motor, Power supply 24 Vdc, Fail-safe, Status output, Indicator light 24 Vdc, BUS
Rapid connector	5-pin Minidec board coupling, Decoder, Receiver RP/RP2
Programming	No. 3 keys (+, -, F) and display
Programmable functions	Logics, Pause Time, Power, Loop 1 and 2, Thrust torque, Pre-flashing, Slow closure, Deceleration time, Work time, Indicator light output, Fail-safe output, Status output, BUS output, Assistance request

3. LAYOUT AND COMPONENTS OF 624 BLD



3.1 DESCRIPTION OF COMPONENTS

DL	SIGNALS AND PROGRAMMING DISPLAY
LED	INPUT STATUS CONTROL LEDs
J1	LOW-VOLTAGE TERMINAL BOARD
J2	TERMINAL BOARD FOR CONNECTION OF MOTOR, FLASHING LIGHT AND FAN
J3	OPENING LIMIT-SWITCH CONNECTOR
J4	CONNECTOR: DECODER MINIDEC / RP RECEIVER
J5	CLOSING LIMIT-SWITCH CONNECTOR
J6	CONNECTOR FOR ROD BREAKING SENSOR
J8	CONNECTOR FOR MOTOR THRUST CAPACITOR
J9	TERMINAL-BOARD FOR 230 VAC POWER SUPPLY
J11	CONNECTOR FOR EXTERNAL LOOP DETECTOR
F1	FUSE FOR MOTORS AND TRANSFORMER PRIMARY WINDING (F 5A)
F2	FUSE FOR LOW VOLTAGE AND ACCESSORIES (T 800mA)
F	PROGRAMMING PUSH-BUTTON "F"
+	PROGRAMMING PUSH-BUTTON "+"
-	PROGRAMMING PUSH-BUTTON "-"
TF1	TRANSFORMER

ENGLISH

4. ELECTRICAL CONNECTIONS

ENGLISH

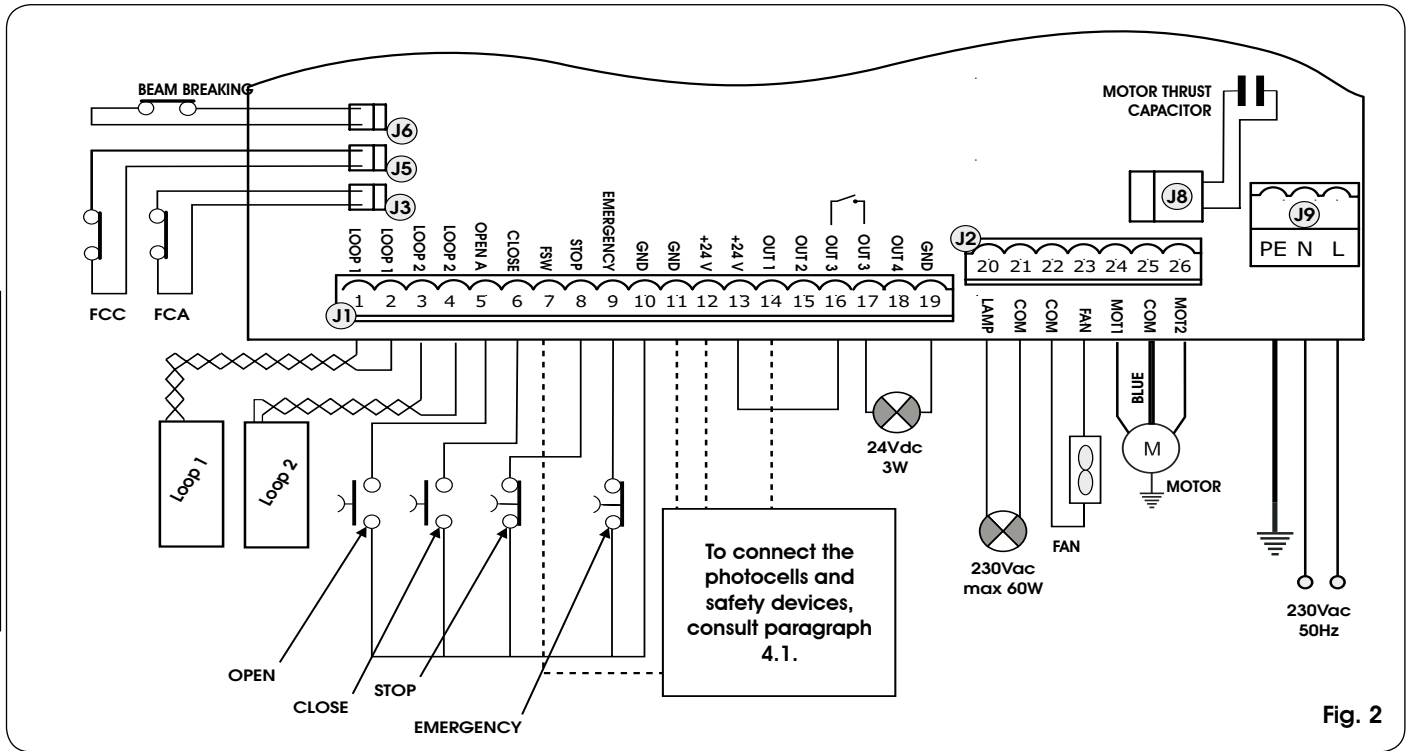


Fig. 2

4.1 CONNECTION OF PHOTOCELLS AND SAFETY DEVICES

Before you connect the photocells (or other devices) we advise you to select the type of operation according to the movement zone they have to protect.

Closing safety devices: they are tripped only during the barrier closing movement, and, therefore, are suitable for protecting the closing zone against the risk of impact.

! If two or more safety devices (NC contacts) have to be connected, put them in series with each other (see fig.3).

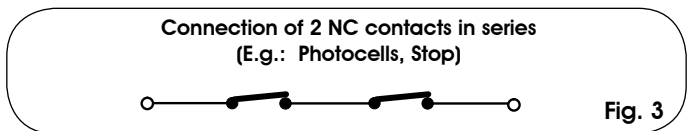


Fig. 3

! If two or more safety devices with N.O. contacts have to be connected, put them in parallel with each other (see fig.4).

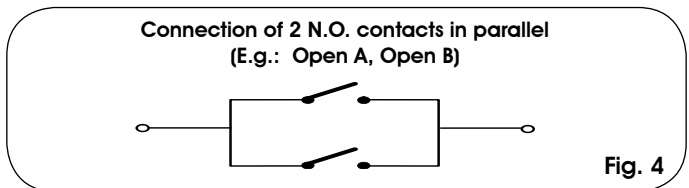


Fig. 4

Connection of 1 pair of closure photocells with FAIL SAFE facility.

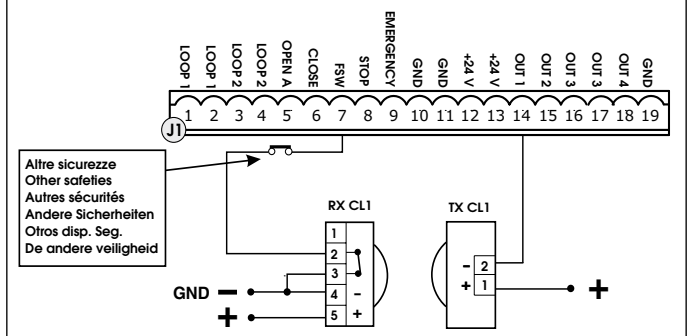


Fig. 5

Connection of two pairs of closure photocells

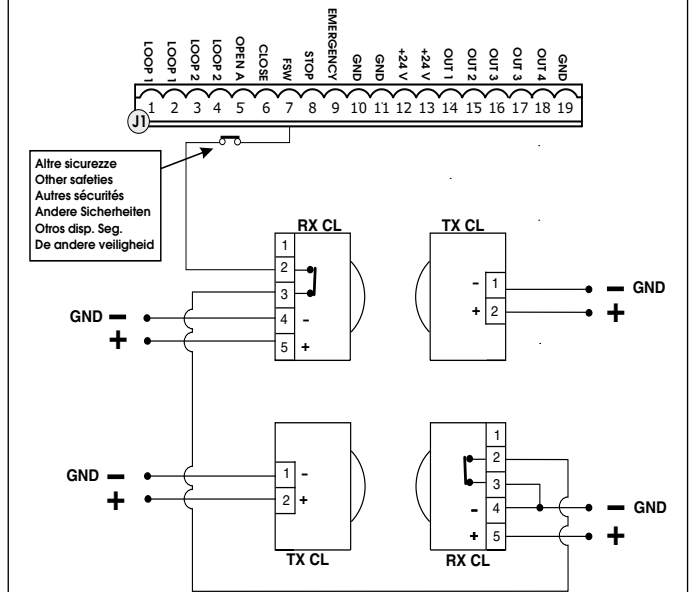


Fig. 6a

Connection of 1 pair of closure photocells

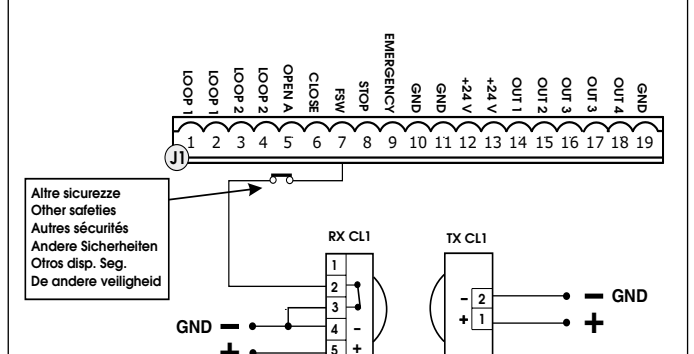


Fig. 6b

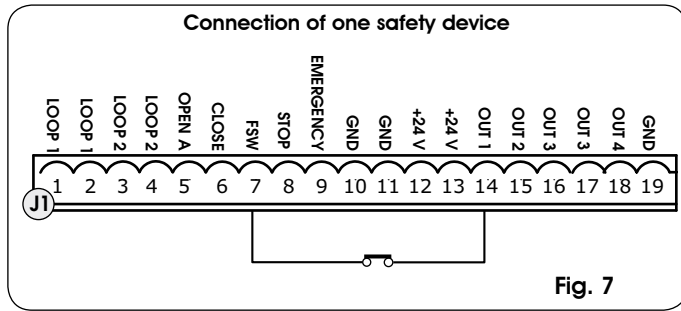


Fig. 7

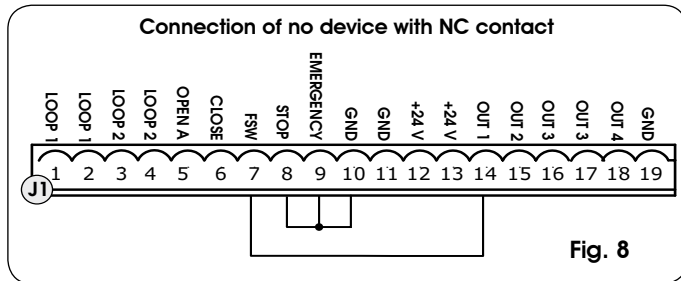


Fig. 8

4.2. J1 TERMINAL-BOARD - ACCESSORIES (FIG.2)

LOOP 1 - Power supply to loop1 (OPEN - terminals 1-2): use these terminals to connect the loop you wish to use as an OPEN pulse generator.

LOOP 2 - Power supply to loop2 (SAFETY/CLOSE - terminals 3-4): connect between these terminals the loop you wish to use as a SAFETY/CLOSE pulse generator.

OPEN - "Opening" Command (N.O. - terminal 5): this refers to any pulse generator (e.g.: push-button) which, by closing a contact, commands the barrier to open and/or close.

To install several total opening pulse generators, connect the N.O. contacts in parallel (see fig. 4).

CLOSE - "Closing" Command (N.O. - terminal 6): this refers to any pulse generator (e.g.: push-button) which, by closing a contact, commands the barrier to close.

To install several total opening pulse generators, connect the N.O. contacts in parallel (see fig. 4).

FSW - Closing safety-devices contact (N.C. - terminal 7) The purpose of the closing safety devices is to protect the barrier movement area during closure, by reversing motion. They are never tripped during the opening cycle. If the **closing safety devices** are engaged when the automated system is in open status, they prevent the closing movement.

To install several closing safety devices, connect the N.C. contacts in series (fig. 3).

If closing safety devices are not connected, jumper connect the FSW and OUT1 terminals (fig. 8).

STOP - STOP contact (N.C. - terminal 8): this refers to any device (e.g.: push-button) which, by opening a contact, can stop the motion of the automated system.

To install several STOP devices, connect the N.C. contacts in series (fig. 3).

If stop safety devices are not connected, jumper connect the STOP and GND terminals (fig. 8).

EMERGENCY - EMERGENCY contact (N.C. - terminal 9) this refers to any switch which, by being activated in emergency state, opens the barrier and stops its movement until the contact is restored.

If emergency safety devices are not connected, jumper connect the EMERGENCY and GND terminals (fig. 8).

GND_ (terminals 10-11-19) - Negative contact for feeding accessories

24 Vdc (terminals 12-13) - Positive contact for feeding accessories

Max. load of accessories: 500 mA. To calculate absorption values, refer to the instructions for individual accessories.

OUT 1 - Outout 1 (terminal 14):The output can be set in one of the functions described in 2nd level programming (see par.5.2.). Default value is FAILSAFE.

Maximum applicable load: 24 Vdc with 100 mA.

OUT 2 - Output 2 (terminal 15): The output can be set in one of the functions described in 2nd level programming (see par.5.2.). Default value is CLOSED beam.

Maximum applicable load: 24 Vdc with 100 mA.

OUT 3 - Output 3 (terminal 16-17): The output can be set in one of the functions described in 2nd level programming (see par.5.2.). Default value is INDICATOR LIGHT.

Connect a 24 Vdc - 3 W max. indicator light, if any, to these terminals, following the instructions in fig. 2.

Maximum applicable load: 24 Vdc or Vac with 500 mA.

To avoid endangering correct operation of the system, do not exceed the indicated power.

OUT 4 - Output 4 (terminal 18): The output can be set in one of the functions described in 2nd level programming (see par.5.2.). Default value is BEAM LIGHTING.

Maximum applicable load: 24 Vdc with 100 mA.

4.3. J2 TERMINAL-BOARD - MOTOR - FLASHING LIGHT AND FAN (FIG.2)

M (COM-MOT1-MOT2): Motor connection

LAMP (LAMP-COM): Flashing light output (230 V ~)

FAN (FAN-COM): Fan output (230 V ~)

4.4. J8 CONNECTOR - MOTOR CAPACITOR (FIG.2)

Rapid connector for connecting the motor thrust capacitor.

4.5. J9 TERMINAL-BOARD - POWER SUPPLY (FIG.2)

PE : Earth connection

N : Power supply 230 V~ (Neutral)

L : Power supply 230 V~ (Line)

To ensure correct operation, the board must be connected to the earth conductor in the system. Install an adequate differential thermal breaker upstream of the system.

4.6. J3, J5 RAPID CONNECTORS - FOR OPENING AND CLOSING LIMIT-SWITCHES (FIG.2)

Quick-fit connector for connection of the opening (J3) and closing (J5) limit-switches.

4.7 J6 CONNECTOR - BEAM BREAKING SENSOR (FIG. 2)

Quick-fit connector for connecting the beam breaking sensor (where present). If this sensor is absent, leave the supplied jumper in place.

4.8. J11A,B,C CONNECTOR - QUICK-FIT CONNECTOR FOR EXTERNAL LOOP DETECTOR (FIG.2)

Quick-fit connector for connecting the external loop-detector. For adjustment and programming consult the relevant instruction.


4.9 J4 QUICK FIT CONNECTOR - FOR MINIDEC, DECODER AND RP

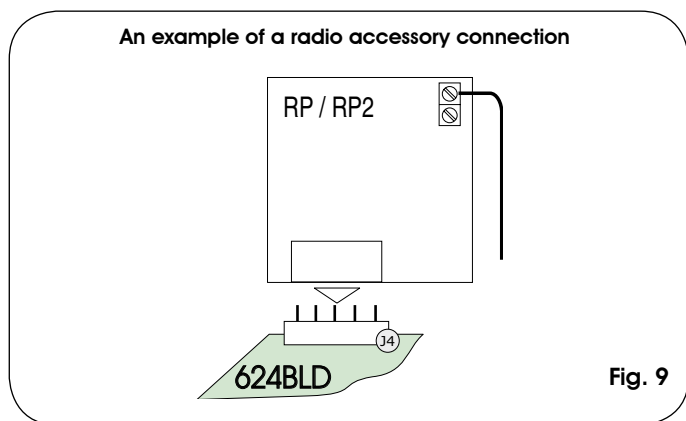
It is used for rapid connection of Minidec, Decoder and RP/RP2 Receivers.

If you are using an RP2 twin-channel receiver, you will be able to directly command the automated system's OPEN and CLOSE from a twin-channel radio control.

If using a single-channel RP type receiver, only OPEN can be commanded.

Fit the accessory with the components side directed toward the board interior.


 **Insert and remove the boards ONLY after cutting power.**





5. PROGRAMMING

To program the operation of the automated system, you must access the "PROGRAMMING" mode.

Programming is in three parts: *1st LEVEL, 2nd LEVEL and 3rd LEVEL.*

 modification of the programming parameters is immediately effective, whereas definitive memory-storage occurs only on exiting programming and returning to the view of the automation status. If you cut power to the unit before returning to view the status, all the modifications made will be lost.

 You can return to viewing the status from any point of programming at any level, by pressing keys **F** and **-** simultaneously.

 To restore the programming default settings, simultaneously press keys **+**, **-** and **F** and hold them down for 5 seconds.


5.1. 1ST LEVEL PROGRAMMING

To access 1ST LEVEL PROGRAMMING, use push-button **F**:

- if you press it (and hold it down), the display shows the name of the first function.
- if you release the push-button, the display shows the value of the function, which can be changed with keys **+** and **-**.

- if you press **F** again (and hold it down), the display shows the name of the next function, etc.
- when you reach the last function, press the **F** push-button to exit programming, and the display resumes showing the inputs status.

The following table indicates the sequence of functions accessible in 1ST LEVEL PROGRAMMING:

1 ST LEVEL PROGRAMMING 		Default
Display	Function	Default
df	LOADING PARAMETERS: 00 Neutral condition 01 Default FAAC 1 loaded 02 Default FAAC 2 loaded 03 Default FAAC CITY loaded 04 Default FAAC CITY K loaded For an explanation of the df parameter, refer to page 10 chapter 5.5.	00
LO	FUNCTION LOGICS: A Automatic AI Automatic 1 E Semi-automatic P Parking PA Parking Automatic CA Condo CA Condo Automatic rb Faac-City (traffic bollard logic) C Dead-man r Remote Cu Custom	E
PA	PAUSE TIME: This operates only if an automatic logic was selected. Can be adjusted from 0 to 59 in one second steps. Next, the viewing changes in minutes and tenths of a second (separated by a dot) and time is adjusted in 10 second steps, up to the maximum value of 4.1 minutes. E.g. if the display shows 2.5 , the pause time will be 2 min and 50 sec.	20
FO	POWER: adjusts motor power. 01 = minimum power 50 = maximum power	50
L1	LOOP 1: If this function is activated, the loop connected to the Loop1 input will have the OPEN function. Y = loop1 active no = loop1 not active Attention: if the function is not activated, loop1 status will nevertheless be available on one of the outputs, if appropriately set (see second level programming).	no

Display	Function	Default
L2	LOOP 2: If you activate this function, the loop connected to Loop2 input will have the SAFETY /CLOSE function, i.e. it will operate as SAFETY during the closing stage, and will command CLOSE to the board at release. y = loop2 active no = loop2 not active Attention: if the function is not activated, loop2 status will nevertheless be available on one of the outputs, if appropriately set.	no
S1	NO EFFECT	05
S2	NO EFFECT	05
St	AUTOMATED SYSTEM STATUS: Exit from programming, storage of set data and return to automated system status view. 00 Closed 01 Opening pre-flashing 02 Opening 03 Open 04 On pause 05 Closing pre-flashing 06 Closing 07 Stopped ready to close 08 Stopped ready to open 09 Emergency opening 10 Closing safety device in operation	

5.2. 2nd LEVEL PROGRAMMING

To access 2ND LEVEL PROGRAMMING, press push-button **F** and, while holding it down, press push-button **+**.

- if you release the push-button **+**, the display shows the name of the first function.
- if you also release the **F** push-button, the display shows the value of the function, which can be changed with keys **+** and **-**.
- if you press the **F** key (and hold it down), the display shows the name of the next function; if you release it, the value is shown and can be modified with keys **+** and **-**.
- when you reach the last function, press the **F** push-button to exit programming, and the display resumes showing the inputs status.

The following table indicates the sequence of functions accessible in 2nd LEVEL PROGRAMMING:

2 nd LEVEL PROGRAMMING		
Display	Function	Default
bo	MAXIMUM TORQUE AT THRUST: the motor works at maximum torque (ignoring the torque adjustment) during the initial time of the movement. y = Active no = Excluded	y
PF	PRE-FLASHING: to activate the flashing light for 5 sec before the start of the movement no excluded OC before every movement PA at end of pause only CL before closing	no

Display	Function	Default
SC	SLOW CLOSING: for setting the entire closing stage at slow speed. y = Active no = Excluded	no
tr	DECELERATION TIME AFTER LIMIT-SWITCHES: for setting deceleration time (in seconds) after the opening and closing limit-switches have operated. Can be adjusted from 0 to 10 sec. in one second steps. 00 = deceleration excluded 10 = maximum deceleration	03
t	WORK TIME (time-out): We advise you to set a value from 5 to 10 seconds longer than the required by the automated system to move from the closing to the opening position and vice versa. Can be adjusted from 0 to 59 sec. in one second steps. Next, the viewing changes in minutes and tenths of a second (separated by a dot) and time is adjusted in 10 second steps, up to the maximum value of 41 minutes.	20
FS	FAIL SAFE: If this function is activated, it enables a function test of the photocells before any automated system movement, independently from the output used . If the test fails , the automated system does not start the movement. y = Active no = Excluded	no
o1	OUTPUT 1: The output can be set to one of the following functions: 00 FAILSAFE 01 INDICATOR LIGHT (lighted at opening and pause, flashing at closing, and off when automated system closed) 02 BEAMLIGHTING (output active with beam closed and on pause, inactive with beam open, flashing during movement) 03 Beam CLOSED 04 Beam OPEN or in PAUSE, it goes OFF during closing pre-flashing. 05 Beam MOVING AT OPENING, pre-flashing included. 06 Beam MOVING AT CLOSING, pre-flashing included. 07 Beam STILL 08 Beam in EMERGENCY status 09 LOOP1 engaged 10 LOOP2 engaged 11 OPEN for 624 SLAVE 12 CLOSE for 624 SLAVE 13 Beam DETACHED 14 FAAC - CITY lights 15 FAAC - CITY buzzer 16 FCA engaged 17 FCC engaged 18 interlock	00
P1	OUTPUT 1 POLARITY: for configuring the output polarity status. y = N.C. polarity no = N.O. polarity Note: if the output is set to FAIL-SAFE (00) leave the default value.	no
o2	OUTPUT 2: See output 1	03
P2	OUTPUT 2 POLARITY: See output 1 polarity	no
o3	OUTPUT 3: See output 1	01
P3	OUTPUT 3 POLARITY: See output 1 polarity	no



Display	Function	Default
04	OUTPUT 4: See output 1, except to functions 00, 11, 12 that in this case have not effect.	02
P4	OUTPUT 4 POLARITY: for configuring the output polarity status. y = N.C. polarity no = N.O. polarity	no
AS	ASSISTANCE REQUEST (coupled to the next two functions): If activated at the end of the count-down (settable with the next two functions under "Cycle programming"), it activates LAMP output for 4 sec every 30 sec. (assistance request). Can be useful for setting scheduled maintenance y = Active no = Excluded	no
nC	CYCLE PROGRAMMING IN THOUSANDS: For setting a count-down of the system operating cycles. Settable value from 0 to 99 (thousands of cycles). The displayed value is reset as the cycles progress, interacting with the nC value (99 nC decrementing steps correspond to one nC decrement). The function can be used combined with nC, to check the use of the system and to make use of the "Assistance request".	00
nC	CYCLE PROGRAMMING IN HUNDREDS OF THOUSANDS: For setting a count-down of the system operating cycles. Settable value from 0 to 99 (hundreds of thousands of cycles). The displayed value is reset as the cycles progress, interacting with the nC value (1 decrement of nC corresponds to 99 decrements of nC). The function can be used combined with nC to check the use of the system and to make use of the "Assistance request".	01
h1	NO EFFECT	00
h2	NO EFFECT	00
St	AUTOMATED SYSTEM STATUS: Exit from programming, storage of data and return to gate status view (see par. 5.1.).	

5.3. 3rd LEVEL PROGRAMMING

To access 3rd LEVEL PROGRAMMING, press push-button **F** and, while holding it down, press push-button **+** for about 10 seconds:

- if you release the push-button **+**, the display shows the name of the first function.
- if you also release the push-button **F**, the display shows the value of the function, which can be changed with keys **+** and **-**.
- if you press the push-button **F** (and hold it down), the display shows the name of the next function; if you release it, the values is shown and can be modified with keys **+** and **-**.
- when you reach the last function, press the push-button **F** to exit programming, and the display resumes showing the inputs status.

The following table indicates the sequence of functions accessible in 3rd LEVEL PROGRAMMING:

3 rd LEVEL PROGRAMMING  +  10sec		
Display	Function	Default / setting
01	If you enable this function, automatic closure occurs after pause time..	y = automatic closure no = disables
02	If you enable this function, operation is with two different inputs: OPEN for opening and CLOSE for closing	y = operation on two inputs no = disables
03	Activation of recognition of input levels OPEN and CLOSE (command maintained), i.e. the board recognises the level (e.g. with OPEN maintained and STOP pressed, when the latter is released, the automated system continues to open). If 03 is disabled, the board commands a manoeuvre only if the input is varied.	y = recognition of input level no = recognition of input variation
04	Activation of DEAD MAN opening (command always pressed). If the OPEN command is released, operation is stopped.	y = enables no = disables
05	If you enable this function, an OPEN command during opening stops the movement. If parameter 06 is no the system is ready for opening If parameter 06 is y the system is ready for closing	y = OPEN at opening stops movement no = disables
06	If you enable this function, an OPEN command during opening reverses movement. If parameters 05 and 06 are no, OPEN has no effect during opening	y = OPEN at opening reverses no = disables
07	If you enable this function, an OPEN command during the pause stops operation If parameters 07 and 08 are no, OPEN recharges pause time	y = OPEN during pause stops movement no = disables
08	If you enable this function, an OPEN command during the pause causes closure If parameters 07 and 08 are no, OPEN recharges pause time.	y = OPEN in pause closes no = disables
09	If you enable this function, an OPEN command during closure, stops operation, otherwise it reverses movement.	y = stops movement no = reverses
10	DEAD MAN closing enabled (command always pressed). If you release the CLOSE command, operation is stopped.	y = enables no = disables
11	If you enable this function, a CLOSE command has priority over OPEN, otherwise OPEN has priority over CLOSE.	y = enables no = disables
12	If you enable this function, a CLOSE command commands closure when it is released. Until CLOSE is enabled, the unit remains in closure pre-flashing.	y = CLOSE closes when released no = CLOSE closes at once
13	If you enable this function, a CLOSE command during opening stops operation, otherwise the CLOSE command commands reversing immediately or at end of opening (also see parameter 14)	y = CLOSE stops movement no = CLOSE reverses
14	If you enable this function, and if parameter 13 is no, the CLOSE command commands immediate closure at end of opening cycle (memory stores CLOSE) If parameters 13 and 14 are no, CLOSE commands immediate closure.	y = immediate closure at end of opening no = immediate closure
15	If you enable this function, when the system is stopped by a STOP a subsequent OPEN command moves in the opposite direction. If parameter 15 is no it always closes.	y = OPEN moves in opposite direction no = OPEN always closes
16	If you enable this function, during closing, the CLOSING SAFETY DEVICES stop movement and allow resumption of movement when disengaged, otherwise they immediately reverse at opening.	y = closure at disengagement no = immediate reversing

Display	Function	Default / setting
17	If you enable this function, the CLOSING SAFETY DEVICES command closure when disengaged (also see parameter 18).	y = closure when FSW disengaged no = disables
18	If you enable this function, and if parameter 17 is y, the unit waits for the opening cycle to end before executing the closing command supplied by the CLOSING SAFETY DEVICES.	y = closing at end of opening no = disables
19	If you enable this function, during closing, LOOP2 stops movement and allows it to resume at disengagement, otherwise it immediately reverses at opening.	y = closure at disengagement no = immediate reversing
20	If you enable this function, LOOP2 commands closing when disengaged (also see parameter 21).	y = closure when LOOP2 disengaged no = disables
21	If you enable this function, and if parameter 20 is y, the unit waits for the opening cycle to end before executing the closing command supplied by LOOP2.	y = closure at end of opening no = disables
22	NOT USED	/
23	LOOP 1 commands opening and, at end of opening, closes if released (useful if a vehicle reverses with consecutive loops). If disabled at release of LOOP 1, no closure is performed.	y = closure at release of LOOP1 no = disables
24	NOT USED	/
25	A.D.M.A.P. function If you enable this function, the safety devices operate according to French standards: in closed status, the CLOSING SAFETY DEVICES prevent opening. The unit memory stores OPEN and opens when the CLOSING SAFETY DEVICES are disengaged.	y = enables no = disables
26	If you enable this function, during closure, the CLOSING SAFETY DEVICES stop movement and, when disengaged, reverse movement, otherwise they reverse immediately.	y = stops movement and reverses when disengaged no = reverses immediately
27	NO EFFECT	/
A1	PRE-FLASHING Used for adjusting - in 1 sec steps - the duration of required pre-flashing, from a minimum of 0 to a maximum of 10 seconds	05
A2	TIMEOUT FOR REVERSING AT CLOSURE: If you enable this function, during closing, you can decide whether to reverse or stop the movement when time out elapses (closing stroke limit not reached). y = reversing no = stop	no
A3	OPENING AT POWER UP In case of a power cut, when power is restored, an opening operation can be commanded by enabling this function (only if the automated system is not closed, FCC free). y = opening no = stays still	no
A4	CLOSING SAFETY DEVICES ENABLEMENT TIME: The time after which the unit ignores enablement of the CLOSING SAFETY DEVICES, continuing to close (useful for use with the pressure switch of FAAC CITY). Can be adjusted from 0 to 59 sec. in 1 second steps. Subsequently, the display changes to show minutes and tenths of a second (separated by a dot), up to a maximum value of 4.1 minutes.	4.0
A5	DISABLING CLOSING SAFETY DEVICES AT START OF MOVEMENT: The CLOSING SAFETY DEVICES can be disabled at start of the closing operation (useful for use with the FAAC CITY pressure switch).	no
A6	FAAC CITY SOLENOID VALVE CONTROL: y = FAAC CITY K no = FAAC CITY standard	no

Display	Function	Default / setting
A7	POLARITY OF OPENING TRAVEL-LIMIT STOP: Configuration of the travel-limit stop contact y = polarity NO no = polarity NC	no
A8	POLARITY OF CLOSING TRAVEL-LIMIT STOP: Configuration of the travel-limit stop contact y = polarity NO no = polarity NC	no
A9	FAAC CITY PRESSURE SWITCH ENABLED: Recognition of PRESSURE SWITCH contact as a safety device and travel-limit stop for FAAC CITY: y = Operation for FAAC CITY no = Standard operation	no
b1	SAFETY ONLY PRESSURE SWITCH FOR FAAC CITY: Recognition of PHOTOCELL contact as a safety PRESSURE SWITCH but not as TL for FAAC CITY y = Operation with dedicated mechanical travel-limit stop and safety only pressure switch. no = Standard operation	no
b2	DO NOT MODIFY	30
St	AUTOMATED SYSTEM STATUS: Exit from programming, memory storage of data and return to gate status display (see par.5.1.).	

5.4. MODIFICATION OF FUNCTION LOGIC

Procedure for implementing the modification of one or more 3rd level programming parameters,

1. Select one of the basic logics most suitable for your requirements.
2. Enter the 3rd programming level and modify the required parameters.
3. Exit the 3rd programming level, memory storing the modifications and, from the 1st level select logic Cu.

The Cu logic enables you to maintain all the settings you had made in 1st and 2nd level programming and enables the modifications made at 3rd level.

The following table contains the default parameters affecting the function logics.

Step	A	A1	E	P	PA	Cn	CA	rb	C
01	Y	Y	N	N	Y	N	Y	Y	N
02	N	N	N	Y	Y	Y	Y	Y	Y
03	N	N	N	N	N	N	N	Y	N
04	N	N	N	N	N	N	N	N	Y
05	N	N	Y	N	N	N	N	N	N
06	N	N	Y	N	N	N	N	N	N
07	N	N	N	N	N	N	N	N	N
08	N	N	N	N	N	N	N	N	N
09	N	N	N	N	N	N	N	N	N
10	N	N	N	N	N	N	N	N	Y
11	N	N	N	N	N	N	N	N	N
12	N	N	N	Y	Y	N	N	N	N
13	N	N	N	N	N	N	N	N	N
14	N	N	N	Y	Y	Y	Y	N	N
15	N	N	N	N	N	N	N	N	N
16	N	N	N	Y	Y	N	N	N	N
17	N	Y	N	N	N	N	N	N	N
18	N	Y	N	N	N	N	N	N	N
19	N	N	N	Y	Y	N	N	N	N
20	N	Y	N	Y	Y	Y	Y	N	N
21	N	Y	N	Y	Y	Y	Y	N	N
22	N	N	N	N	N	Y	Y	N	N
23	N	N	N	Y	Y	N	N	N	N
24	N	N	N	N	N	N	N	N	N

5.5. MODIFICATION OF PRE-SETTING OF LOGICAL PARAMETERS

The modification of **df** parameter enables to automatically load 4 different configurations modifying **all programming values on every level** with preset values.

This possibility is a starting point for subsequent 'fine tuning' of other parameters depending on the application and its context.

For example, if you choose **01** and exiting from 1st level programming, all the FAAC default values which can be found in tables of 1st, 2nd and 3rd level in the "Default" column are loaded.

In this way, all the parameters in the memory are returned to a known standard condition (see table under).

To implement the loading of the values of one of the 4 pre-settings, select the required number and exit 1st level programming.

If you do not wish to load or modify a pre-setting, leave the **df step on value **00**.**

The table below shows the main default values which are loaded on selecting each of the 4 pre-settings:

	Parameters	df=01	df=02	df=03	df=04
1st level	L ₀ logic	E	A1	rb	rb
	PA pause	20		30	30
	DF force	50			
	L1 loop 1	no			
	L2 loop 2	no			
	S1 not used	5			
	S2 not used	5			
	b ₀ boost	4			
2nd level	PF pre-flashing	no	CL		
	SC slow closing	no			
	tr slow-down	3			
	t time out	20		12	12
	F5 fail safe	no			
	o1 output 1	00	16	15	15
	P1 polarity 1	no			
	o2 output 2	03	17	14	14
	P2 polarity 2	no			
	o3 output 3	01	01		
	P3 polarity 3	no			
	o4 output 4	02			
	P4 polarity 4	no			
	AS assistance	no			
	nc cycles 1.	00			
	nc cycles 2.	01			
	h1 not used	no			
	h2 not used	no			
3rd level	25	no			
	26	no			
	27	no			
	A1	5	4		
	A2	no			
	A3	no			
	A4	4		4	4
	A5	no		4	4
	A6	no			4
	A7	no			
	A8	no			
A9	no		4	4	
b1	no				
b2	30				



Attention: The selection of a default and subsequent exit from 1st level programming entails the deletion of all the modifications made previously.

Make sure that you carry out the required default loading and exit 1st level programming BEFORE modifying other steps.

6. START-UP

6.1. LEDS CHECK

The following table shows the status of the LEDs in relation to the status of the inputs (the closed at rest automated system condition is shown in **bold**).

Check the status of the signalling LEDs as per table below:

Note that:

LED ON = closed contact

LED OFF = open contact

Operation of status signalling LEDs

LED	Description	ON (closed contact)	OFF (Open contact)
DL1	OPEN	Command enabled	Command disabled
DL2	CLOSE	Command enabled	Command disabled
DL3	FSW	Safety devices released	Safety devices engaged
DL4	STOP	Command disabled	Command enabled
DL5	EMERGENCY	Command disabled	Command enabled
DL6	FCA	Opening limit switch free	Opening limit switch engaged
DL7	FCC	Closing limit switch free	Closing limit switch engaged
DL8	PIVOT	Beam attached	Beam detached

7. AUTOMATED SYSTEM TEST

When you have finished programming, check if the system is operating correctly.

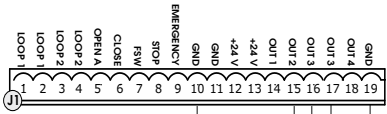
Above all, check if power is adequately adjusted and if the safety devices operate correctly.

Fig. 10

8. MASTER-SLAVE

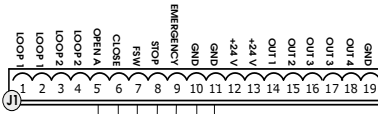
ENGLISH

624BLD
MASTER



OUT2: a2 = 11 P2 = no
OUT3: a3 = 12 P3 = no

624BLD
SLAVE

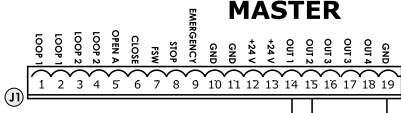


Logica
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Nur Logik
Lógica
De logica

LO = C

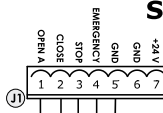
per il resto lasciare il default
for the rest leave the default
pour le reste laisser par défaut
programmieren die anderen werkeinstellungen lassen
por lo demas dejar el default
voor de rest default laten

624 BLD
MASTER



OUT2: a1 = 11 P1 = 4
OUT3: a2 = 12 P2 = 4

624 MPS
SLAVE

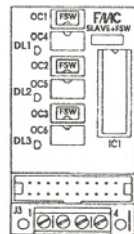
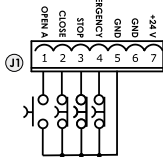


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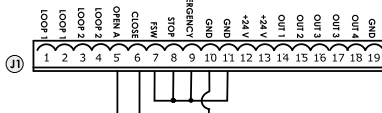
R

per il resto lasciare il default
for the rest leave the default
pour le reste laisser par défaut
programmieren die anderen werkeinstellungen lassen
por lo demas dejar el default
voor de rest default laten

624 MPS
MASTER



624 BLD
SLAVE



Logica
Logic
Logique
Nur Logik
Lógica
De logica

LO = R

per il resto lasciare il default
for the rest leave the default
pour le reste laisser par défaut
programmieren die anderen werkeinstellungen lassen
por lo demas dejar el default
voor de rest default laten

Fig. 10

LOGIC "A"	PULSES					
AUTOMATED SYSTEM STATUS	OPEN A	CLOSE	STOP	FSW	LOOP 1	LOOP 2
CLOSED	opens and closes after pause time	no effect	no effect (opening disabled)	no effect	opens and closes after pause time	no effect
OPENING	no effect	reverses immediately at closing	stops operation	no effect	no effect	no effect
OPEN IN PAUSE	recharges pause time	closes	stops operation	recharges pause time (closing disabled)	recharges pause time	recharges pause time (closing disabled)
CLOSING	reverses immediately at opening	no effect	stops operation	reverses immediately at opening	reverses immediately at opening	reverses immediately at opening
STOPPED	closes	closes	no effect (opening and closing disabled)	no effect (closing disabled)	opens and closes after pause time	no effect (closing disabled)

Tab. 1/b

LOGIC "A1"	PULSES					
AUTOMATED SYSTEM STATUS	OPEN A	CLOSE	STOP	FSW	LOOP 1	LOOP 2
CLOSED	opens and closes after pause time	no effect	no effect (opening disabled)	no effect	opens and closes after pause time	no effect
OPENING	no effect	reverses immediately at closing	stops operation	closes immediately at end of opening	no effect	closes immediately at end of opening
OPEN IN PAUSE	recharges pause time	closes	stops operation	closes	recharges pause time	closes
CLOSING	reverses immediately at opening	no effect	stops operation	reverses immediately at opening	reverses immediately at opening	reverses immediately at opening, closes when opening finished
STOPPED	closes	closes	no effect (opening and closing disabled)	no effect (closing disabled)	opens and closes after pause time	no effect (closing disabled)

Tab. 1/c

LOGIC "E"	PULSES					
AUTOMATED SYSTEM STATUS	OPEN A	CLOSE	STOP	FSW	LOOP 1	LOOP 2
CLOSED	opens	no effect	no effect (opening disabled)	no effect	opens	no effect
OPENING	stops operation	reverses immediately at closing	stops operation	no effect	no effect	no effect
OPEN	closes	closes	no effect (closing disabled)	no effect (closing disabled)	closes	no effect (closing disabled)
CLOSING	reverses immediately at opening	no effect	stops operation	reverses immediately at opening	reverses immediately at opening	reverses immediately at opening
STOPPED	closes	closes	no effect (opening and closing disabled)	no effect (closing disabled)	opens	no effect (closing disabled)

↻ In brackets: effects on the other inputs when pulse active

LOGIC "P"	PULSES					
AUTOMATED SYSTEM STATUS	OPEN A	CLOSE	STOP	FSW	LOOP 1	LOOP 2
CLOSED	opens	no effect	no effect (opening disabled)	no effect	opens and at end of opening closes if disengaged	no effect
OPENING	no effect	closes immediately at end of opening	stops operation	no effect	no effect	closes immediately at end of opening
OPEN	no effect (closing disabled)	closes	no effect (closing disabled)	no effect (closing disabled)	no effect	closes
CLOSING	reverses immediately at opening	no effect	stops operation	stops and continues to close on release	reverses immediately at opening and closes at end of opening if disengaged	stops and continues to close on release
STOPPED	opens	closes	no effect (opening and closing disabled)	no effect (closing disabled)	opens and at end of opening closes if disengaged	no effect (closing disabled)

Tab. 1/e

LOGIC "PA"	PULSES					
AUTOMATED SYSTEM STATUS	OPEN A	CLOSE	STOP	FSW	LOOP 1	LOOP 2
CLOSED	opens and closes after pause time	no effect	no effect (opening disabled)	no effect	opens and at end of opening closes if disengaged	no effect
OPENING	no effect	closes immediately at end of opening	stops operation	no effect	no effect	closes immediately at end of opening
OPEN IN PAUSE	recharges pause time	closes	stops operation	recharges pause time (closing disabled)	recharges pause time	closes
CLOSING	reverses immediately at opening	no effect	stops operation	stops and continues to close on release	reverses immediately at opening and closes at end of opening if disengaged	stops and continues to close on release
STOPPED	opens and closes after pause time	closes	no effect (opening and closing disabled)	no effect (closing disabled)	opens and at end of opening closes if disengaged	no effect (closing disabled)

Tab. 1/f

LOGIC "Cn"	PULSES					
AUTOMATED SYSTEM STATUS	OPEN A	CLOSE	STOP	FSW	LOOP 1	LOOP 2
CLOSED	opens	no effect	no effect (opening disabled)	no effect	opens	no effect
OPENING	no effect	closes immediately at end of opening	stops operation	no effect	no effect	closes immediately at end of opening
OPEN	no effect (closing disabled)	closes	no effect (closing disabled)	no effect (closing disabled)	no effect	closes
CLOSING	reverses immediately at opening	no effect	stops operation	reverses immediately at opening	reverses immediately at opening	reverses immediately at opening
STOPPED	opens	closes	no effect (opening and closing disabled)	no effect (closing disabled)	opens	no effect (closing disabled)

↻ In brackets: effects on the other inputs when pulse active

Tab. 1/g

LOGIC "CA"	PULSES					
AUTOMATED SYSTEM STATUS	OPEN A	CLOSE	STOP	FSW	LOOP 1	LOOP 2
CLOSED	opens and closes after pause time	no effect	no effect (opening disabled)	no effect	opens and closes after pause time	no effect
OPENING	no effect	closes immediately at end of opening	stops operation	no effect	no effect	closes immediately at end of opening
OPEN IN PAUSE	recharges pause time	closes	stops operation	recharges pause time (closing disabled)	recharges pause time	closes
CLOSING	reverses immediately at opening	no effect	stops operation	reverses immediately at opening	reverses immediately at opening	reverses immediately at opening
STOPPED	opens and closes after pause time	closes	no effect (opening and closing disabled)	no effect (closing disabled)	opens and closes after pause time	no effect (closing disabled)

Tab. 1/h

LOGIC "tb"	PULSES					
AUTOMATED SYSTEM STATUS	OPEN A	CLOSE	STOP	FSW	LOOP 1	LOOP 2
CLOSED	opens and closes after pause time	no effect	no effect (opening disabled)	no effect	opens and closes after pause time	no effect
OPENING	no effect	reverses immediately at closing	stops operation	no effect	no effect	no effect
OPEN IN PAUSE	recharges pause time	closes	stops operation	recharges pause time (closing disabled)	recharges pause time	recharges pause time (closing disabled)
CLOSING	reverses immediately at opening	no effect	stops operation	reverses immediately at opening	reverses immediately at opening	reverses immediately at opening
STOPPED	opens and closes after pause time	closes	no effect (opening and closing disabled)	no effect (closing disabled)	opens	no effect (closing disabled)

Tab. 1/i

LOGIC "C"	MAINTAINED COMMANDS		PULSES			
AUTOMATED SYSTEM STATUS	OPEN A	CLOSE	STOP	FSW	LOOP 1	LOOP 2
CLOSED	opens	no effect	no effect (opening disabled)	no effect	no effect	no effect
OPENING	/	no effect	stops operation	no effect	no effect	no effect
OPEN	no effect (closing disabled)	closes	stops operation	no effect	no effect (closing disabled)	no effect (closing disabled)
CLOSING	reverses immediately at opening	/	stops operation	Stops operation	stops operation	stops operation
STOPPED	opens	closes	no effect (opening and closing disabled)	no effect (closing disabled)	no effect (closing inhibited)	no effect (closing disabled)

↻ In brackets: effects on the other inputs when pulse active