

CE DECLARATION OF CONFORMITY

Manufacturer: FAAC S.p.A.

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

Declares that: 455 D control board,

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

73/23/CEE and subsequent amendment 93/68/CEE.


89/336/CEE and subsequent amendment 92/31/CEE and 93/68/CEE

Additional note:

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

Bologna, 01 January 2001

The Managing Director
A. Bassi



INSTALLATION WARNINGS

GENERAL SAFETY OBLIGATIONS

- 1) **CAUTION! It is important for personal safety to follow all the instructions carefully. Incorrect installation or misuse of the product may cause people serious harm.**
- 2) Read the instructions carefully before starting to install the product.
- 3) Packaging material (plastic, polystyrene, etc.) must not be left within reach of children as it is a potential source of danger.
- 4) Keep the instructions in a safe place for future reference.
- 5) This product was designed and manufactured strictly for the use indicated in this documentation. Any other not expressly indicated use may damage the product and/or be a source of danger.
- 6) FAAC accepts no responsibility due to improper use of the automated system or use other than that intended.
- 7) Do not install the equipment in an area subject to explosion hazard: inflammable gases or fumes are a serious safety hazard.
- 8) Mechanical construction elements must meet the provisions of UNI8612, EN 12604 and EN 12605 Standards.
To obtain an adequate level of safety in non EU countries, the above mentioned Standards must be observed in addition to national Standards.
- 9) FAAC will not accept responsibility if the principles of Good Workmanship are disregarded in constructing the closing elements to be motorised, and if any deformation occurs during use of the said elements.
- 10) Installation must meet the following Standards: UNI8612, EN 12453 and EN 12445.
- 11) Before carrying out any work on the system, switch off the power supply.
- 12) The mains power supply of the automated system must be fitted with a all-pole switch with contact opening distance of 3mm or greater. Use of a 6A thermal breaker with all-pole circuit break is recommended.
- 13) Make sure there is a differential switch with 0.03A threshold upstream of the system.
- 14) Check that the earthing system is correctly made and connect the closure metal parts to it. Also connect the Yellow/Green wire of the automated system to the earthing system.
- 15) The automated system includes an intrinsic anti-crushing device consisting of a torque control which, however, must be installed together with other safety devices.
- 16) The safety devices (EN 12978 Standard) protect any dangerous areas against **Mechanical movement risks**, such as crushing, dragging, and shearing.
- 17) Use of at least one indicator-light (e.g. FAAC LAMP MINILAMP, etc.) is recommended for every system, as well as a warning sign adequately fixed to the frame structure, in addition to the devices mentioned at point "16".
- 18) FAAC accepts no responsibility regarding safety and correct operation of the automated system, should components made by manufacturers other than FAAC be used in the system.
- 19) Use only FAAC original spare parts for maintenance.
- 20) Do not make any alterations to the components of the automated system.
- 21) The installer must supply full information regarding manual operation of the system in case of an emergency and hand to the user of the system the "User's Guide" included with the product.
- 22) Do not allow children or other persons to stand near the product while in operation.
- 23) Keep remote controls or any other pulse generator well away from children, to prevent the automated system from being activated accidentally.
- 24) The user must refrain from attempting to repair or adjust the system personally and should contact qualified personnel only.
- 25) **Anything not expressly provided for in these instructions is not permitted.**

CONTROL BOARD 455 D

1. WARNINGS

Important: Before attempting any work on the control board (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 appropriate terminal on the J3 connector of the equipment (see fig.2).
- Always separate power cables from control and safety cables (push-button, receiver, photocells, etc.). To avoid any electric noise, use separate sheaths or a shielded cable (with earthed shield).

2. TECHNICAL SPECIFICATIONS

Powersupply	230V~(+6% -10%)-50Hz
Absorbedpower	10W
Motormax.load	800W
Accessoriesmax.load	0,5A
Electriclockmax.load	15VA
Operatingambienttemperature	-20°C +55°C
Protectionfuses	2(see fig. 1)
Functionlogics	Automatic /Semi-automatic /Safety devices / Semi-automatic B /Dead-man C /"Stepped" semi-automatic
Opening/closingtime	Programmable (from 0 to 120s)
Pausetime	Programmable (from 0 to 4min.)
Closingleafdelay	Programmable (from 0 to 4min.)
Openingleafdelay	2s (can be excluded)
Thrustforce	Adjustable on 50 levels for each motor
Terminalboardinputs	Open /Open free leaf /Stop /Limit-switch Opening safety devices /Closing safety devices /Power supply + Earth
Terminalboardoutputs	Flashing lamp - Motors -24Vdc accessories powersupply -24Vdc indicator-light -Failsafe -12 Vac electric lock powersupply
Programmablefunctions	Logic -Pause time -Thrust Force -Torque at initial thrust Opening and closing leaf delay -Reversing stroke -Over-pushing stroke -indicator-light - Pre-flashing - Electric lock - Failsafe - Safety devices logic
Learningfunction	Simple or complete work time learning, with or without Limit-switch and/or Gatecoder

3. LAYOUT AND COMPONENTS OF 455 D

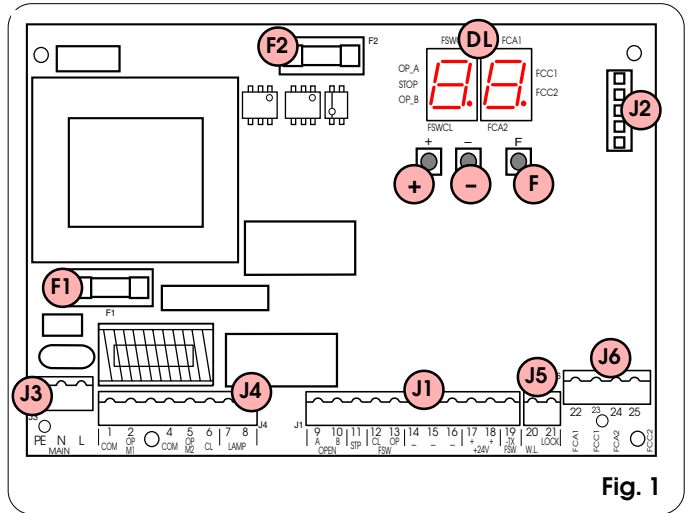


Fig. 1

DL	SIGNALLING AND PROGRAMMING DISPLAY
J1	LOW VOLTAGE TERMINAL BOARD
J2	CONNECTOR FOR DECODER/MINIDEC/RP RECEIVER
J3	230 VAC POWER SUPPLY TERMINAL BOARD
J4	MOTORS AND FLASHING LAMP CONNECTION TERMINAL BOARD
J5	INDICATOR LIGHT AND ELECTRIC LOCK TERMINAL BOARD
J6	LIMIT-SWITCH AND GATE CODER TERMINAL BOARD
F1	MOTORS AND TRANSFORMER PRIMARY WINDING FUSE (F-5A)
F2	LOW VOLTAGE AND ACCESSORIES FUSE (T 800mA)
F	"F" PROGRAMMING PUSH-BUTTON
-	"-" PROGRAMMING PUSH-BUTTON
+	"+" PROGRAMMING PUSH-BUTTON

4. ELECTRIC CONNECTIONS

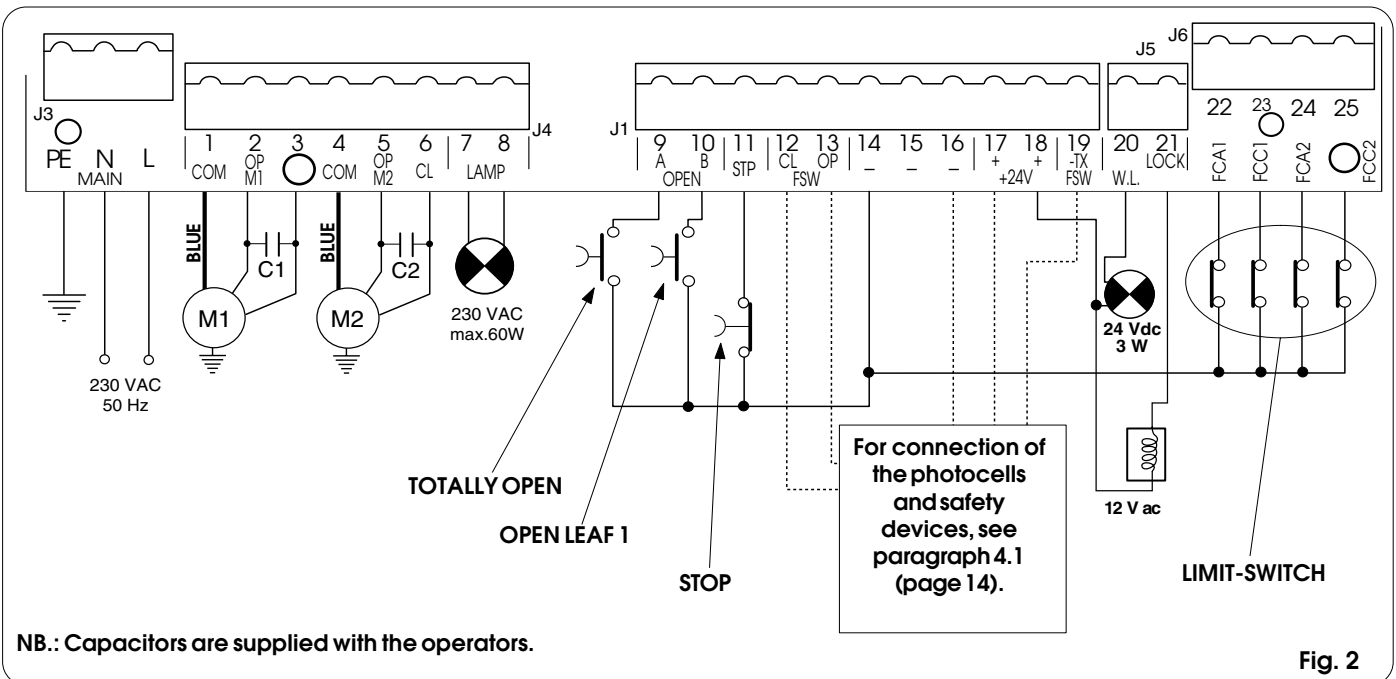


Fig. 2

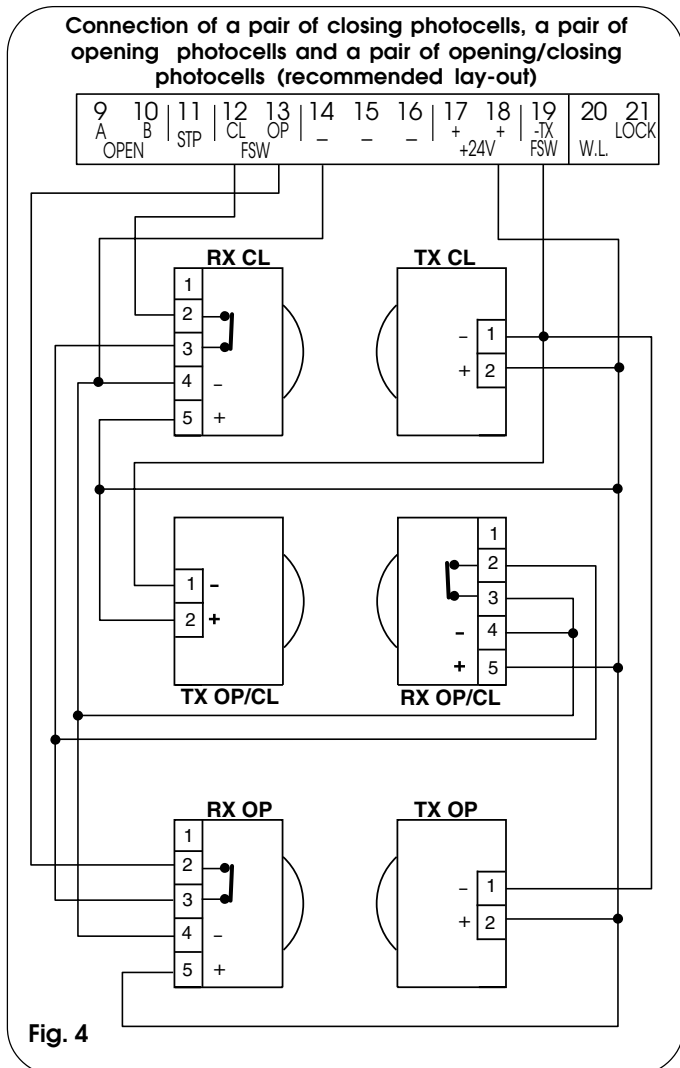
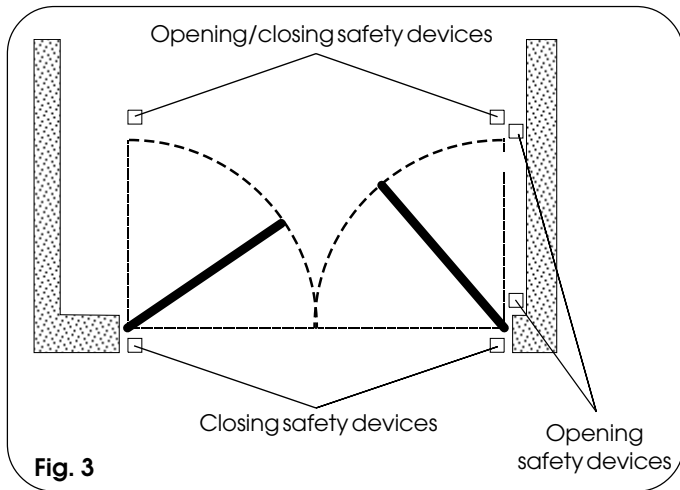
NB.: Capacitors are supplied with the operators.

4.1. Connection of photocells and safety devices

Before connecting the photocells (or other devices) we advise you to select the type of operation according to the movement area they have to protect (see fig.3):

Opening safety devices: they operate only during the gate opening movement and, therefore, they are suitable for protecting the area between the opening leaves and fixed obstacles (walls, etc) against the risk of impact and crushing.

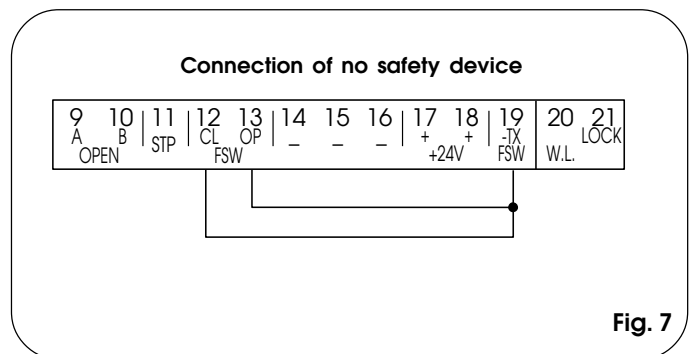
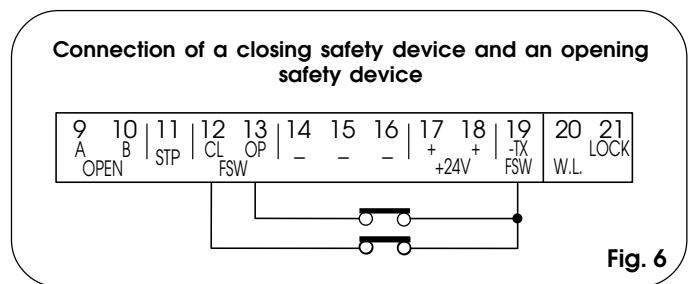
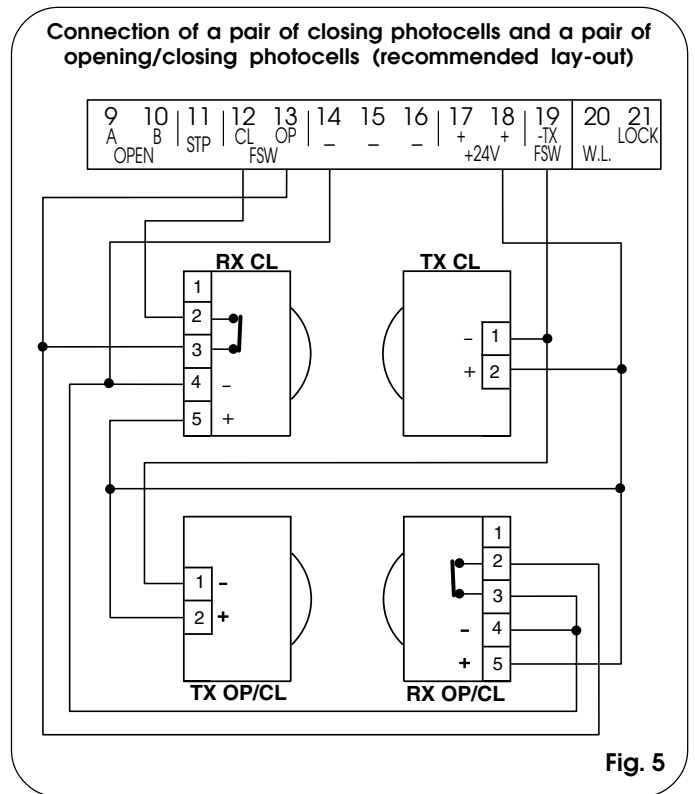
Closing safety devices: they operate only during the gate closing movement and, therefore, they are suitable for protecting the closing area against the risk of impact.

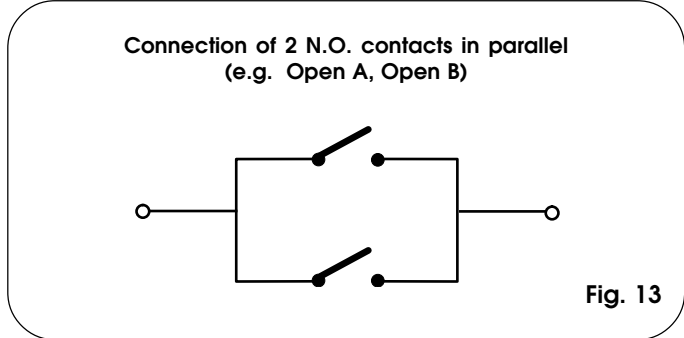
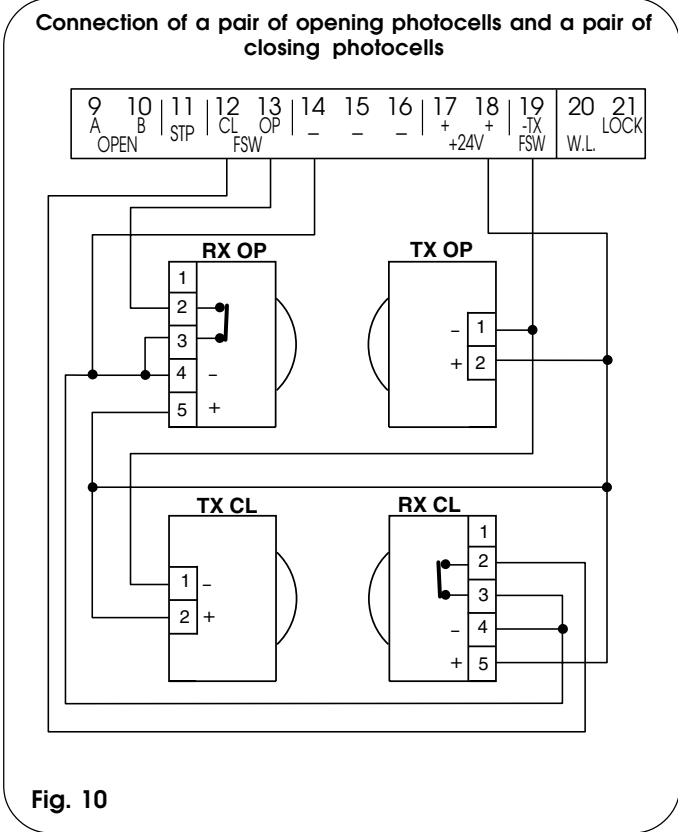
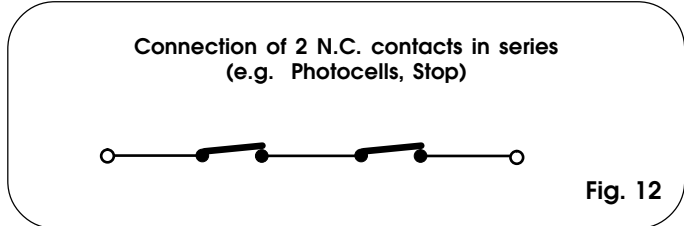
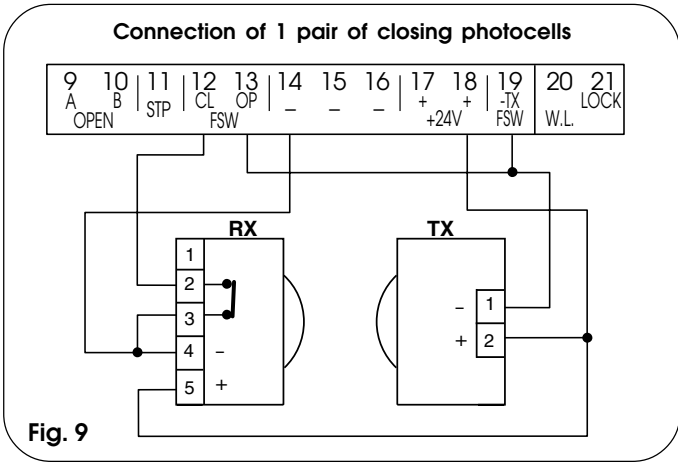
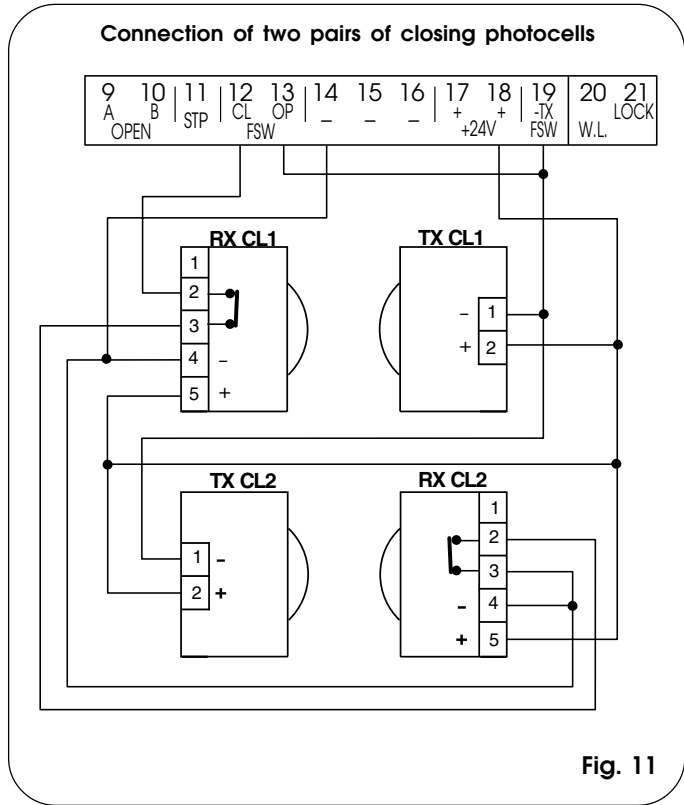
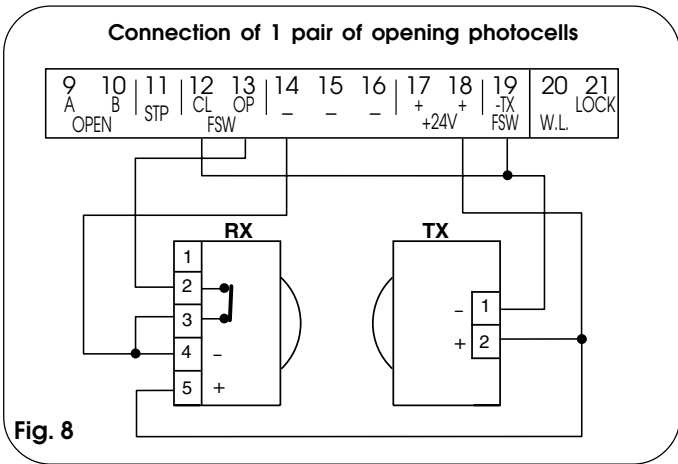


Opening/closing safety devices: they operate during the gate opening and closing movements and, therefore, they are suitable for the opening and closing areas against the risk of impact.

FAAC recommends use of the lay-out in fig. 4 (in the event of fixed obstacles at opening) or in fig. 5 (no fixed obstacles).

N.B. If two or more devices have the same function (opening or closing), they should be connected to each other in series (see fig. 12). N.C. contacts must be used.





4.2. Terminal board J3 - Power supply (fig. 2)

- PE: Earth connection
- N : 230 V~ power supply (Neutral)
- L : 230 V~ power supply (Line)

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

4.3. Terminal board J4 - Motors and flashing lamp (fig. 2)

- M1 : COM / OP / CL: Connection to Motor 1
Can be used in the single-leaf application
- M2 : COM / OP / CL: Connection to Motor 2
Cannot be used in the single-leaf application
- LAMP : Flashing lamp output (230 V ~)

4.4. Terminal board J1 - Accessories (fig. 2)

OPENA - "Total Opening" command (N.O.): any pulse generator (push-button, detector, etc.) which, by closing a contact, commands opening and/or closing of both gate leaves.

To install several full opening pulse generators, connect the N.O. contacts in parallel.

OPEN B - "Partial Opening" command (N.O.) / Closing: any pulse generator (push-button, detector, etc.) which, by closing a contact, commands opening and/or closing of the leaf driven by motor M1. In the B and C logics, it always commands closing of both leaves.

To install several partial opening pulse generators, connect the N.O. contacts in parallel.

STP - STOP contact (N.C.): any device (e.g. a push-button) which, by opening a contact, is able to stop gate movement.

To install several STOP devices, connect the N.C. contacts in series.

NB.: If STOP devices are not connected, jumper connect the STP terminals and -.

CLFSW - Closing safety devices contact (N.C.): The purpose of the closing safety devices is to protect the leaf movement area during closing. During closing, in the **A-S-E-EP** logics, the safety devices reverse the movement of the gate leaves, or stop and reverse the movement when they are released (see advanced programming in Chapter 5.2.). During the closing cycle in logics **B** and **C**, they interrupt movement. They never operate during the opening cycle. If the **closing safety devices** operate when the gate is open, they prevent the leaf closing movement.

NB.: If no closing safety devices are connected, jumper connect terminals CL and -TX FSW (fig. 7).

OPFSW - Opening safety devices contact (N.C.): The purpose of the opening safety devices is to protect the leaf movement area during opening. During opening, in the **A-S-E-EP** logics, the safety devices stop the movement of the gate leaves and reverse the movement when they are released. During the opening cycle in logics **B** and **C**, they interrupt movement. They never operate during the closing cycle.

If the **opening safety devices** operate when the gate is closed, they prevent the leaf opening movement.

NB.: If no opening safety devices are connected, jumper connect inputs OP and -TX FSW (fig. 7).

- - Negative for power supply to accessories

+ - 24 Vdc - Positive for power supply to accessories

Important: Accessories max. load is 500 mA. To calculate absorption values, refer to the instructions for individual accessories.

-TX FSW - Negative for power supply to photocell transmitters.

If you use this terminal for connecting the negative for supplying power to the photocell transmitters, you may, if necessary, also use the FAIL SAFE function (see advanced programming in Chapter 5.2.).

If this function is enabled, the equipment checks operation of the photocells before every opening or closing cycle.

4.5. Terminal board J5 - Indicator-light and Electric lock (fig.2)

W.L. - Power supply to indicator-light

Connect a 24Vdc - 3 W max. indicator-light, if necessary, between this terminal and the +24V supply. To avoid compromising correct operation of the system, **do not exceed** the indicated power.

LOCK - Power supply to electric lock

If necessary, connect a 12 V ac electric lock between this terminal and the +24V supply.

4.6. Connector J2 - Rapid connection to Minidec, Decoder and RP

This is used for rapid connection of Minidec, Decoder and RP receivers (see fig. 14, 15, 16 and 17). Connect the accessory, with the components side facing the inside of the card. Insert and remove after cutting power.

Fig. 14

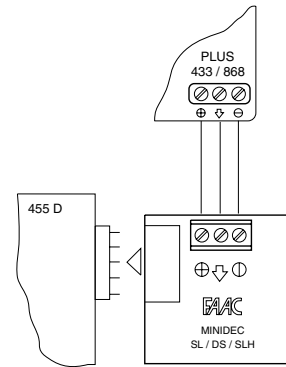
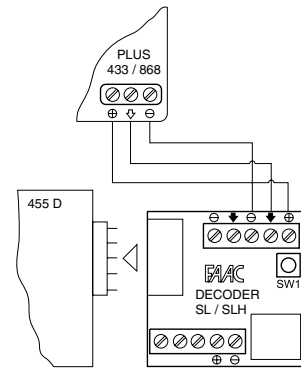


Fig. 15



N.B.: Never put two accessories (Plus 433 or 868, Digicard, Digikey) in parallel on the same decoder, but use a decoder for every accessory.

Fig. 16

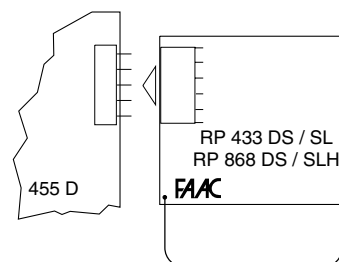
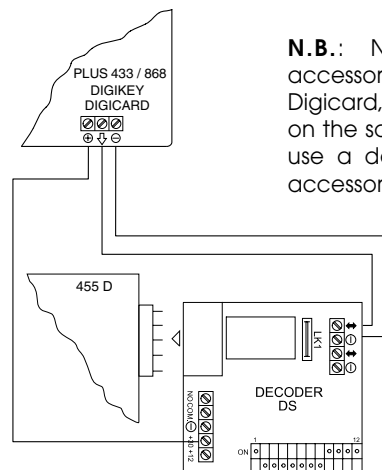


Fig. 17

4.7. Terminalboard J6 - Limit-switches and/or Gatecoder (fig.2)

These inputs are designed for connection of opening and closing limit-switches which, according to type of programming - can command either leaf stop or start of deceleration. Unconnected limit-switches must be jumper connected (if none are connected, this is not necessary).

Gatecoders can also be used to detect the leaf's angular position and to thus obtain deceleration and stop positions independent of work time.

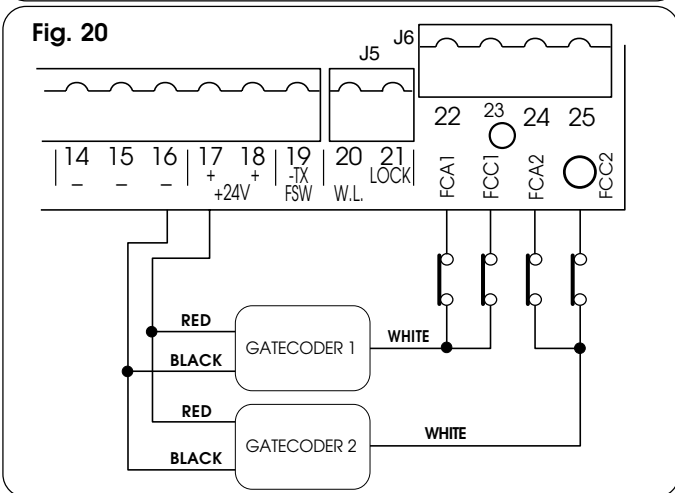
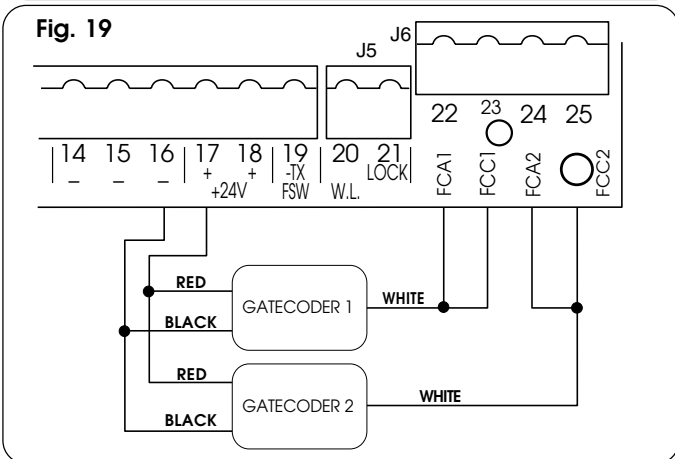
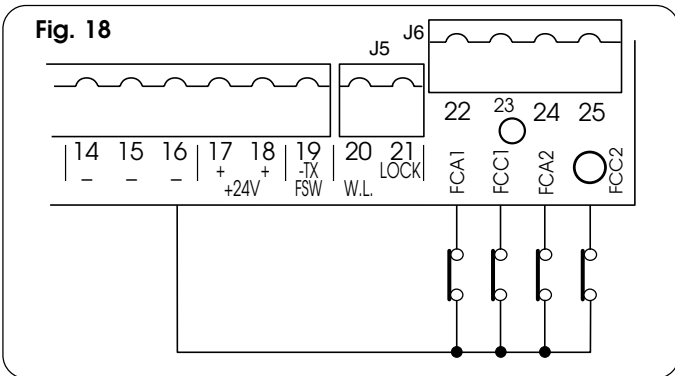
Limit-switches and Gatecoders can also be used in combination to stop movement before the mechanical stop limit is reached. To wire, see fig. 18, 19 and 20.

FCA1 - Leaf 1 opening limit-switch

FCC1 - Leaf 1 closing limit-switch

FCA2 - Leaf 2 opening limit-switch

FCC2 - Leaf 2 closing limit-switch



N.B.: Maximum configurations are shown on the drawings. All intermediate configurations are allowed, using only some elements (only 1 Gatecoder, only 1 limit-switch, 2 Gatecoders and 2 limit-switches etc.).

5. PROGRAMMING

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

Programming is split into two parts: *BASIC* and *ADVANCED*.

5.1. BASIC PROGRAMMING

To access BASIC PROGRAMMING, press key **F**:

- if you press it (and hold it down), the display shows the name of the first function.
- if you release the key, the display shows the value of the function that can be modified 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 **F** to exit the program, and the display resumes showing the status of the inputs.

The following table shows the sequence of functions accessible in BASIC PROGRAMMING:



BASIC PROGRAMMING		
Display	Function	Default
LO	FUNCTION LOGICS (see tab. 3/a - f): <i>A</i> = Automatic <i>E</i> = Semi-automatic <i>S</i> = "Safety" Automatic <i>EP</i> = "Stepped" Semi-automatic <i>b</i> = "B" Semi-automatic <i>C</i> = Dead-man	E
PA	PAUSE TIME: This has effect only if the automatic logic was selected. Adjustable from 0 to 59 sec. in one-second steps. Subsequently, display changes to minutes and tens of seconds (separated by a point) 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 , pause time is 2 min. and 50 sec.	0
F 1	LEAF 1 FORCE: Adjusts thrust of Motor 1. <i>1</i> = minimum force 50 = maximum force (hydraulic)	25
F 2	LEAF 2 FORCE: Adjusts thrust of Motor 2. <i>1</i> = minimum force 50 = maximum force (hydraulic)	25
cd	LEAF 1 CLOSING DELAY: Delays closing start of leaf 1 with respect to leaf 2. Adjustable from 0 to 4.1 minutes (see Pause Time).	0
EL	TIME LEARNING (see Chapter 6.3.): Enables the selection between "simple" (automatic) learning and "complete" (manual choice of deceleration and stop points) learning. Simple learning: ≈ 1 s. Complete learning: > 3 s.	
In	Exit from programming and return to display of inputs status.	

5.2. ADVANCED PROGRAMMING

To access ADVANCED PROGRAMMING, press key **F** and, as you hold it down, press key **+**:

- if you release key **+**, the display indicates the name of the first function.
- if you release key **F** too, the display shows the value of the function that can be modified with keys **+** and **-**.
- if you press key **F** (and hold it down), the display shows the name of the next function, and if you release it, the value that can be modified with keys **+** and **-** is shown.
- when you reach the last function, press **F** to exit the program, and the display resumes showing the status of the inputs.

The following table shows the sequence of functions accessible in ADVANCED PROGRAMMING:

ADVANCED PROGRAMMING  		
Display	Function	Default
bo	MAXIMUM TORQUE AT INITIAL THRUST: The motors operate at maximum torque (ignoring the torque setting) at start of movement. Useful for heavy leaves. 4 = Active no = Disabled	no
cs	LAST STROKE AT CLOSING: The motors are activated at full speed for 1 s to facilitate locking of the electric lock. 4 = Active no = Disabled	no
rs	REVERSING STROKE: Before opening, while the gate is closed, the motors thrust to close for 2 s thus facilitating release of the electric lock. 4 = Active no = Disabled	no
od	LEAF 2 OPENING DELAY (2 s): Enables delayed start (at opening) of leaf 2, avoiding interference between leaves. 4 = Active no = Disabled	no
fs	FAIL SAFE: If this function is activated, it enables a function test of the photocells before any gate movement. If the test fails (photocells not serviceable), the gate does not start the movement. 4 = Active no = Disabled	no
pf	PRE-FLASHING (5 s): Activates the flashing lamp for 5 s before start of movement. 4 = Active no = Disabled	no

Display	Function	Default
EL	ELECTRIC LOCK ON LEAF 2: For using the electric lock on leaf 2 instead of on leaf 1. 4 = Active no = Disabled	no
SP	INDICATOR-LIGHT: If 0 is selected, the output functions as a standard indicator-light (lighted at opening and pause, flashing at closing, and off when gate closed). Different figures correspond to timed activation of the output, which can be used (via a relay) to power a courtesy lamp. Time can be adjusted from 0 to 59 s in 1 s steps, and from 10 to 4.1 min. in 10 s steps. 0 = Standard indicator-light from 1 to 4.1 = Timed output	0
Ph	CLOSING PHOTOCELLS REVERSE AT RELEASE: Enable this function if you want the closing photocells to stop movement and reverse it at release. Default setting is immediate reverse. 4 = Active no = Disabled	no
Ad	A.D.M.A.P. function: If this function is enabled, the safety devices operate in compliance with French standard NFP 25/362. 4 = Active no = Disabled	no
AS	ASSISTANCE REQUEST (combined with next function): If activated, at the end of countdown (settable with the next function i.e. "Cycle programming") it effects 8 s of pre-flashing at every Open pulse (job request). Can be useful for setting scheduled maintenance jobs. 4 = Active no = Disabled	no
nc	CYCLE PROGRAMMING: For setting countdown of system operation cycles. Settable (in thousands) from 0 to 99 thousand cycles. The displayed value is updated as cycles proceed. This function can be used to check use of the board or to exploit the "Assistance request".	0
ln	Exit from programming and return to display of inputs status.	

6. START-UP

6.1. LED CHECK

The board has a two-digit display. If out of the "PROGRAMMING" mode, this display is used to indicate status of inputs. Fig. 16 shows how the segments (we'll call these LEDs from now on) of the display exactly correspond to the inputs.

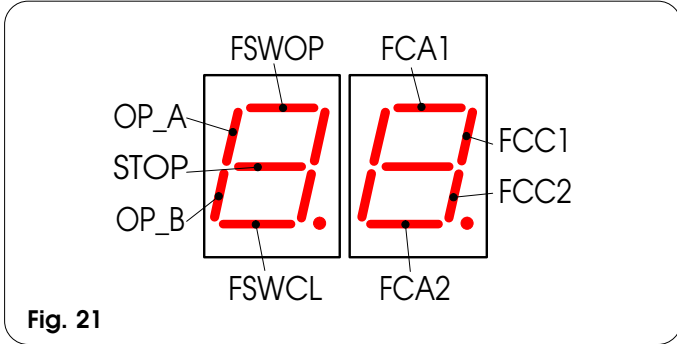


Fig. 21

The table below shows the status of the LEDs in relation to the status of the inputs.

Note the following: **LED LIGHTED** = closed contact
LED OFF = open contact

Check the state of the LEDs as per Table.

Operation of the status signalling LEDs

LEDs	LIGHTED	OFF
OP_A	Command activated	Comando inattivo
OP_B	Command activated	Comando inattivo
STOP	Command inactive	Command activated
FSWCL	Safety devices disengaged	Safety devices engaged
FSWOP	Safety devices disengaged	Safety devices engaged
FCA1 (if used)	Limit-switch free	Limit-switch engaged
FCC1 (if used)	Limit-switch free	Limit-switch engaged
FCC2 (if used)	Limit-switch free	Limit-switch engaged
FCA2 (if used)	Limit-switch free	Limit-switch engaged

NB.: The status of the LEDs while the gate is closed at rest are shown in bold.

6.2. ROTATION DIRECTION AND FORCE CHECK

- 1) Program the functions of the 455 D control board according to need, as shown in Chapter 5.
- 2) Cut power to the electronic control equipment.
- 3) Release the operators and manually move the gate to the mid-point of the opening angle.
- 4) Re-lock the operators.
- 5) Restore power.
- 6) Send an opening command on the OPEN A input (fig.2) and check if the gate leaves are being commanded to open.

NB.: If the first OPEN A pulse commands a closing, cut power and change over the phases of the electric motor (brown and black wires) on the 455 D terminal board.

- 7) Check power setting of the motors and, if necessary, modify it (see Chapter 5.1).

NB.: If using hydraulic operators, force should be programmed to maximum level (50)

- 8) Stop leaf movement with a STOP command.
- 9) Release the operators, close the leaves and re-lock the operators.

6.3. LEARNING OF OPERATING TIMES

WARNING: during the learning procedure, the safety devices are disabled! Therefore any transit must be avoided in the leaf movement area when this operation is carried out.

Opening/closing time is established by a learning procedure which varies slightly according to whether you are using limit-switches and/or Gatecoders.

6.3.1. LEARNING OF NORMAL TIMES

Normal learning (i.e. without limit-switches and Gatecoders) can be done in two different ways:

- SIMPLE LEARNING:

Check if the leaves are closed, enter "BASIC PROGRAMMING", select the TIME LEARNING function and press the + push-button for 1 second: the display begins flashing and the leaves begin the opening movement.

Wait for the leaves to reach the opening stop limit and then supply an OPEN A pulse (by key push-button or radio control) to stop the movement: the leaves stop and the display stops flashing.

The procedure has ended and the gate is ready to operate.

- COMPLETE LEARNING:

Check if the leaves are closed, enter "BASIC PROGRAMMING", select the TIME LEARNING function and press the + push-button for more than 3 seconds: the display begins flashing and leaf 1 begins the opening movement. The following functions can be commanded by the OPEN A pulses (by key push-button or radio control):

- 1° OPEN - Deceleration at opening of leaf 1
- 2° OPEN - Leaf 1 stops at opening and leaf 2 begins its opening movement
- 3° OPEN - Deceleration at opening of leaf 2
- 4° OPEN - Leaf 2 stops at opening and immediately begins its closing movement
- 5° OPEN - Deceleration at closing of leaf 2
- 6° OPEN - Leaf 2 stops at closing and leaf 1 begins its closing movement
- 7° OPEN - Deceleration at closing of leaf 1
- 8° OPEN - Leaf 1 stops at closing

The display stops flashing and the gate is ready for normal operation.

Notes: • If you wish to eliminate deceleration in certain stages, wait for the leaf to reach its stop-limit and supply 2 consecutive Open pulses (by 1 second).

• If only one leaf is present, the entire sequence must nevertheless be effected. When the leaf has finished opening, supply 5 Open pulses until the leaf begins to close, and then resume normal operation.

6.3.2. LEARNING WITH LIMIT-SWITCHES

Learning with limit-switches can be done in two different ways:

- SIMPLE LEARNING:

Check if the leaves are closed, enter "BASIC PROGRAMMING", select the TIME LEARNING function and press the + push-button for 1 second: the display begins flashing and the leaves begin the opening movement.

The motors stop automatically when the opening limit-switches are reached, but an OPEN A pulse must be given (by radio control or key push-button) to end the cycle; the leaves stop and the display stops flashing.

The procedure has ended and the gate is ready to operate.

- COMPLETE LEARNING:

Check if the leaves are closed, enter "BASIC PROGRAMMING", select the TIME LEARNING function and press the + push-button for more than 3 seconds: the display begins flashing and leaf 1 begins the opening movement. The leaves automatically decelerate when they reach the limit-switches, and therefore, it is sufficient to inform the equipment that the stop limits have been reached by means of OPEN A pulses (by radio control or key push-button):

- FCA1 - Deceleration at opening of leaf 1
- 1° OPEN - Leaf 1 stops at opening and leaf 2 begins its opening movement
- FCA2 - Deceleration at opening of leaf 2
- 2° OPEN - Leaf 2 stops at opening and immediately begins its closing movement
- FCC2 - Deceleration at closing of leaf 2
- 3° OPEN - Leaf 2 stops at closing and leaf 1 begins its closing movement
- FCC1 - Deceleration at closing of leaf 1
- 4° OPEN - Leaf 1 stops at closing

the display stops flashing and the gate is ready for normal operation

- Notes:**
- If you wish to eliminate deceleration in some stages, you must supply an Open pulse within 1 second of reaching the limit-switch.
 - If some limit-switches are not installed, start the corresponding deceleration by supplying an Open pulse (which replaces the limit-switch).
 - If only one leaf is present, the entire sequence must nevertheless be effected. When the leaf has finished opening, supply 5 Open pulses until the leaf begins to close, and then resume normal operation.

6.3.3. LEARNING TIMES WITH GATECODER

Learning with the Gatecoder can be done in two different ways:

- SIMPLE LEARNING:

Check if the leaves are closed, enter "BASIC PROGRAMMING", select the TIME LEARNING function and press the + push-button for 1 second: the display begins flashing and the leaves begin the opening movement.

The movement stops automatically when the opening stop limit is reached and the display stops flashing.

The procedure has ended and the gate is ready to operate, using fixed deceleration.

- COMPLETE LEARNING:

Check if the leaves are closed, enter "BASIC PROGRAMMING", select the TIME LEARNING function and press the + push-button for more than 3 seconds: the display begins flashing and leaf 1 begins the opening movement. The following functions can be commanded by the OPEN A pulses (by radio control or key push-button):

- 1° OPEN - Leaf 1 Decelerates at opening (it stops automatically on reaching the stop limit)
- 2° OPEN - Leaf 2 opening movement begins
- 3° OPEN - Leaf 2 Decelerates at opening (it stops automatically on reaching the stop limit)
- 4° OPEN - Leaf 2 closing movement begins
- 5° OPEN - Leaf 2 decelerates at closing (it stops automatically on reaching the stop limit)
- 6° OPEN - Leaf 1 closing movement begins
- 7° OPEN - Leaf 1 Decelerates at closing (it stops automatically on reaching the stop limit)

The display stops flashing and the gate is ready for normal operation.

Notes:

- The deceleration pulse should be supplied a little earlier with respect to the stop limit to prevent the leaf reaching it at full speed (it would be taken for an obstacle).
- If only one leaf is present, the entire sequence must nevertheless be effected. When the leaf has finished opening, supply 5 Open pulses until the leaf begins to close, and then resume normal operation.

6.3.4. LEARNING TIMES WITH GATECODER + LIMIT-SWITCHES

Learning with the Gatecoder + Limit-switches can be done in two different ways:

- SIMPLE LEARNING:

Carry out the same procedure as for limit-switch learning. The Gatecoder is used only as an obstacle sensor.

- COMPLETE LEARNING:

Carry out the same procedure as for limit-switch learning. The Gatecoder is used only as an obstacle sensor.

Note:

- If some limit-switches are not installed, start the corresponding deceleration by supplying an Open pulse (which replaces the limit-switch).
- If only one leaf is present, the entire sequence must nevertheless be effected. When the leaf has finished opening, supply 5 Open pulses until the leaf begins to close, and then resume normal operation.

7. AUTOMATED SYSTEM TEST

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

Most important of all, check if the force is adequately adjusted and if the safety devices are operating correctly.

Table 3/a

LOGIC "A" PULSES							
GATE STATUS	OPEN-A	OPEN-B	STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	W.L
CLOSED	Opens leaves and closes them after pause time (1)	Opens the free leaf and closes after pause time (1)	No effect	No effect (OPEN disabled)	No effect	No effect (OPEN disabled)	OFF
OPEN on PAUSE	Reloads pause time (1)	Reloads pause time (1)	Stops operation	No effect	Freezes pause until release (2) (OPEN disabled)	Loads and, on release, reverses at opening	lighted
AT CLOSING	Re-opens the leaves immediately (1)	Re-opens the leaf immediately (1)		No effect (saves OPEN)	see paragraph 5.2.		
AT OPENING	No effect (1)			Reverses at closing	No effect	Loads and, on release, continues opening	lighted
LOCKED	Closes the leaf/leaves		No effect (OPEN disabled)	No effect	No effect (OPEN disabled)		lighted

Table 3/b

LOGIC "S" PULSES							
GATE STATUS	OPEN-A	OPEN-B	STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	W.L
CLOSED	Opens leaves and closes them after pause time	Opens the free leaf and closes after pause time	No effect	No effect (OPEN disabled)	No effect	No effect (OPEN disabled)	OFF
OPEN on PAUSE	Re-closes the leaves immediately	Re-closes the leaf immediately	Stops operation	No effect	Closes after 5" (OPEN disabled)	Loads and, on release, reverses at opening	lighted
AT CLOSING	Re-opens the leaves immediately	Re-opens the leaf immediately		No effect (saves OPEN)	see paragraph 5.2.		
AT OPENING	Re-closes the leaves immediately	Re-closes the leaf immediately		Reverses at closing	No effect	Loads and, on release, continues opening	lighted
LOCKED	Closes the leaf/leaves		No effect (OPEN disabled)	No effect	No effect (OPEN disabled)		lighted

Table 3/c

LOGIC "E" PULSES							
GATE STATUS	OPEN-A	OPEN-B	STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	W.L
CLOSED	Opens the leaves	Opens the free leaf	No effect	No effect (OPEN disabled)	No effect	No effect (OPEN disabled)	OFF
OPEN	Re-closes the leaves immediately	Re-closes the leaf immediately	Stops operation	No effect	No effect (OPEN disabled)	Loads and, on release, reverses at opening	lighted
AT CLOSING	Re-opens the leaves immediately	Re-opens the leaf immediately (1)		No effect (saves OPEN)	see paragraph 5.2.		
AT OPENING	Stops operation			Reverses at closing	No effect	Loads and, on release, continues opening	lighted
LOCKED	Closes the leaf/leaves (with CLOSING SAFETY DEVICES active, opens at 2nd pulse)		No effect (OPEN disabled)	No effect	No effect (OPEN disabled)		lighted

Table 3/d

PULSES								
LOGIC "EP"	GATE STATUS	OPEN-A	OPEN-B	STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	W.L.
	CLOSED	Opens the leaves	Opens the free leaf	No effect (OPEN disabled)	No effect (OPEN disabled)	No effect	No effect (OPEN disabled)	OFF
	OPEN	Re-closes the leaf/leaves immediately		Stops operation	No effect (OPEN disabled)	No effect (OPEN disabled)	Locks and, on release, reverses at opening	lighted
	AT CLOSING	Stops operation			No effect (saves OPEN)	see paragraph 5.2.		
	AT OPENING	Stops operation	Stops operation		Reverses at closing	No effect	Locks stand, on release, continues opening	lighted
	LOCKED	Restarts moving in reverse direction (always closes after a Stop)		No effect (OPEN disabled)	No effect (if it must open, it disables OPEN)	No effect (if it must close, it disables OPEN)	No effect (OPEN disabled)	lighted

Table 3/e

PULSES								
LOGIC "B"	GATE STATUS	OPEN-A	OPEN-B	STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	W.L.
	CLOSED	Opens the leaf or leaves	No effect	No effect (OPEN-A disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	OFF
	OPEN	No effect	Closes the leaves or leaf	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-B disabled)	lighted
	AT CLOSING	Reverses at opening	No effect	Stops operation	No effect	Stops operation (OPEN-A/B disabled)	Stops operation (OPEN-A/B disabled)	flashing
	AT OPENING	No effect	No effect	Stops operation	No effect (OPEN-A disabled)	No effect	Stops operation (OPEN-A/B disabled)	lighted
	LOCKED	Opens the leaf or leaves	Closes the leaves or leaf	No effect (OPEN-A/B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A/B disabled)	lighted

Table 3/f

PULSES								
COMMANDS ALWAYS PRESSED								
LOGIC "C"	GATE STATUS	OPEN-A	OPEN-B	STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	W.L.
	CLOSED	Opens the leaf or leaves	No effect	No effect (OPEN-A disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	OFF
	OPEN	No effect	Closes the leaves or leaf	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-B disabled)	lighted
	AT CLOSING	Stops operation		Stops operation	No effect	Stops operation (OPEN-B disabled)	Stops operation (OPEN-A/B disabled)	flashing
	AT OPENING		Stops operation	Stops operation	Stops operation (OPEN-A disabled)	No effect	Stops operation (OPEN-A/B disabled)	lighted

(1) If maintained, it prolongs the pause until disabled by the command (timer function)

(2) If remaining pause time is shorter than 5 sec., when safety devices are released, it closes after 5 sec.

NB.: Effects on other active pulse inputs in brackets.