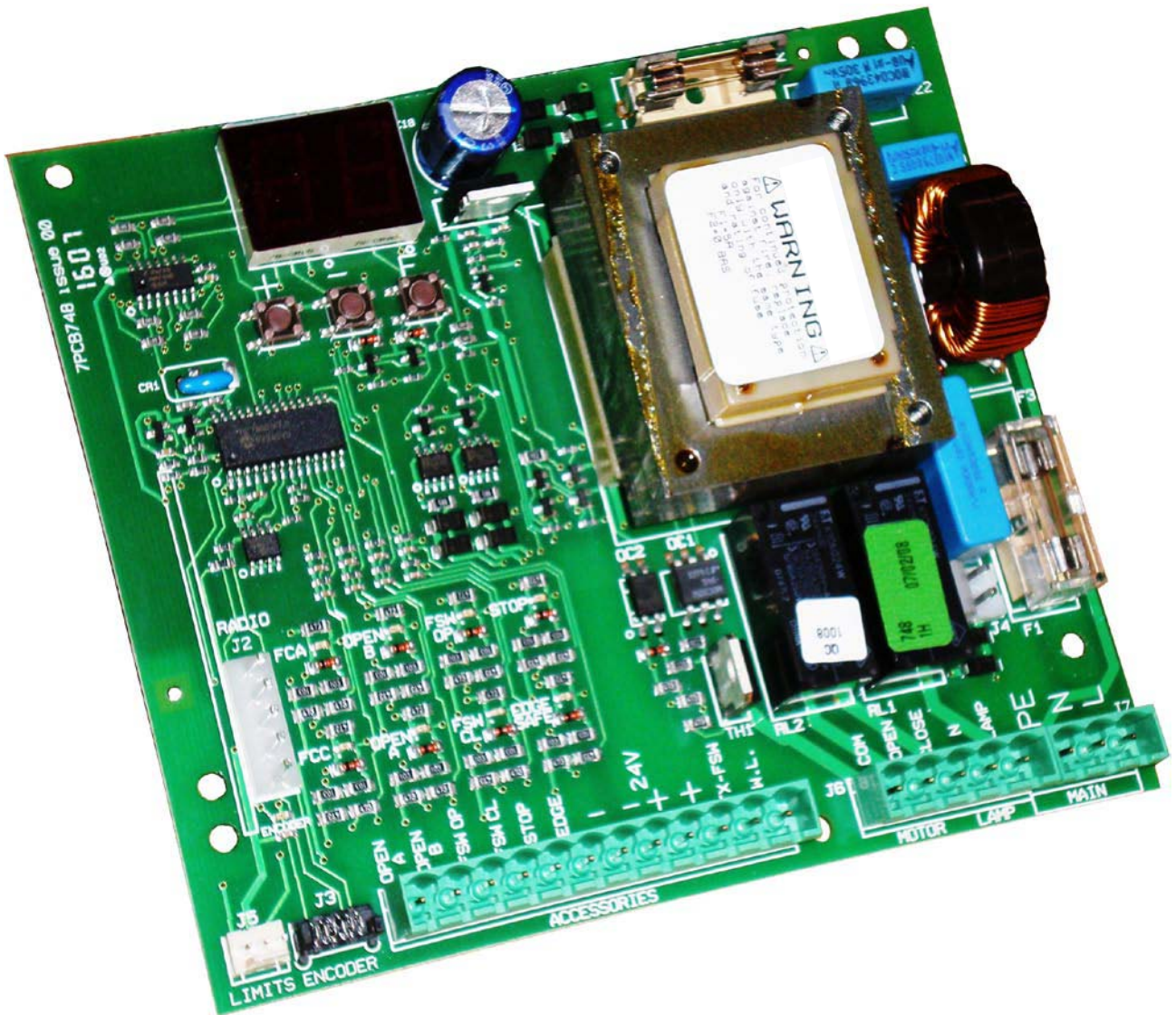


740 D



CONTROL BOARD 740 D

1. WARNINGS



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 J7 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

Power supply (+6% -10% V)	230 V - 50 Hz	(115 V - 60 Hz*)
Absorbed power	10 W	(10 W*)
Motor max. load	1000 W	(1200 W*)
Accessories max. load	0,5 A	(0.5 A*)
Operating ambient temperature	-20 °C +55 °C	
Protection fuses	2 (see fig. 1)	
Function logics	Automatic / "Stepped" automatic / Semi-automatic / Safety devices / Semi-automatic B / Dead-man C / "Stepped" semi-automatic / Mixed Log. B+C	
Work time	Programmable (from 0 to 4 min.)	
Pause time	Programmable (from 0 to 4 min.)	
Thrust force	Adjustable over 50 levels	
Terminal board inputs	Open / Partial opening / Safety devices at opng. / Safety devices at clng. / Stop / Edge / Power supply + Earth	
On-connector inputs	Opening and closing limit-switches / Encoder	
Terminal board outputs	Flashing lamp - Motor - 24 Vdc accessories power supply - 24 Vdc indicator-light / Timed output. - Fail safe	
Rapid connector	5-pin card connection for Minidec, Decoder or RP receivers	
Programming	3 keys (+, -, F) and display, "basic" or "advanced" mode	
Basic mode programmable functions	Function logic - Pause time - Thrust Force - Gate direction	
Advanced mode programmable functions	Torque at initial thrust - Braking - Fail safe - Pre-flashing - Indicator-light/Timed output - Opening and closing safety devices logic - Encoder - Decelerations - Partial opening time - Work time - Assistance request - Cycle counter	

3. LAYOUT AND COMPONENTS

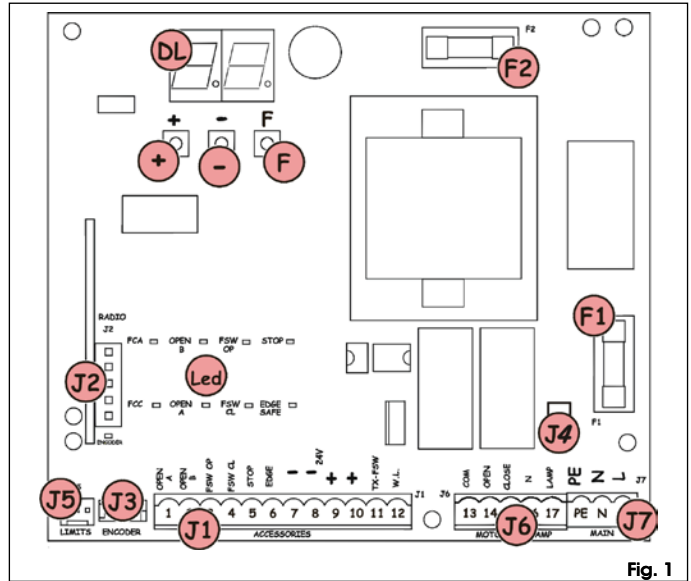


Fig. 1

DL	SIGNALLING AND PROGRAMMING DISPLAY
Led	INPUTS STATUS CONTROL LED
J1	LOW VOLTAGE TERMINAL BOARD
J2	CONNECTOR FOR DECODER/MINIDEC/RP RECEIVER
J3	ENCODER CONNECTOR
J4	CAPACITOR CONNECTOR
J5	LIMIT-SWITCH CONNECTOR
J6	MOTORS AND FLASHING LAMP CONNECTION TERMINAL BOARD
J7	POWER SUPPLY TERMINAL BOARD 230Vac (115Vac*)
F1	MOTORS AND TRANSF. PRIMARY FUSE (F 5A) (F 10A*)
F2	LOW VOLTAGE AND ACCESSORIES FUSE (T 800mA)
F	"F" PROGRAMMING PUSH-BUTTON
-	"-" PROGRAMMING PUSH-BUTTON
+	"+" PROGRAMMING PUSH-BUTTON

* 740D 115V

4. ELECTRIC CONNECTIONS

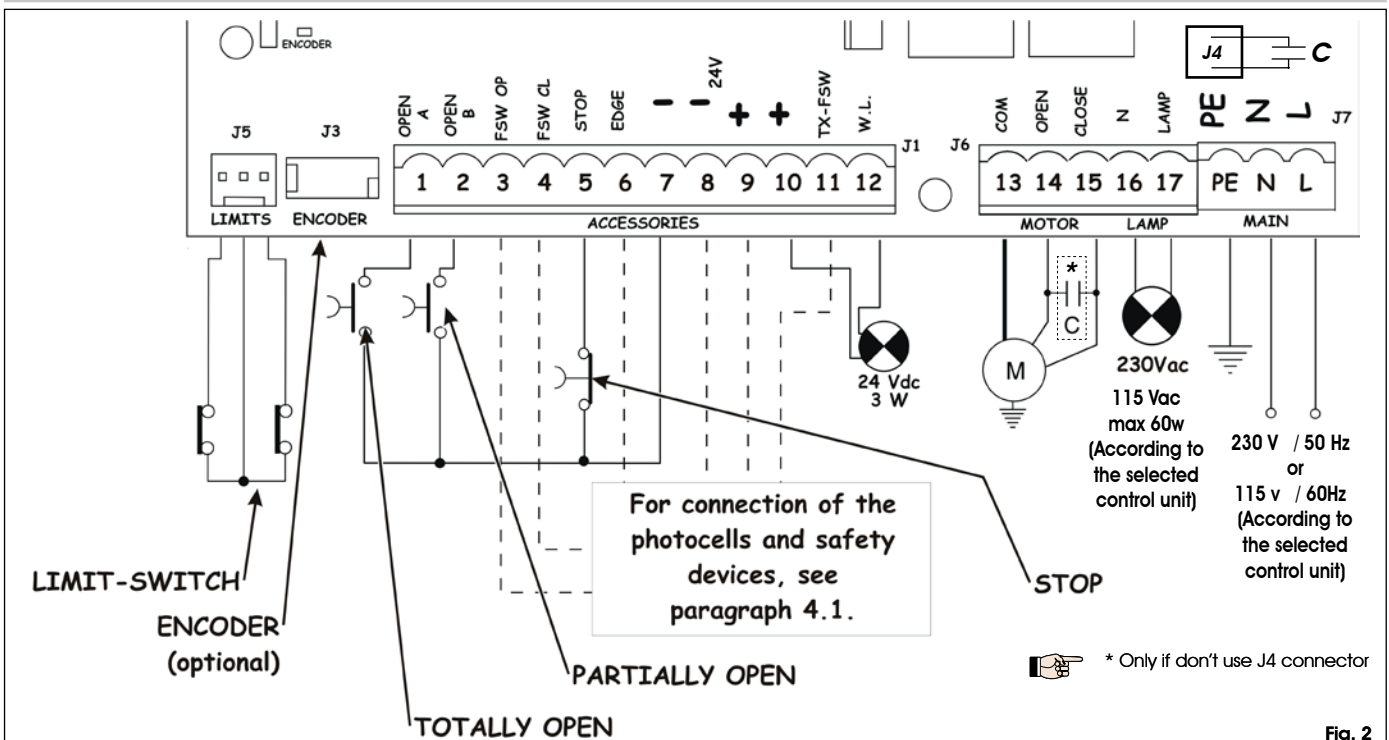


Fig. 2

ENGLISH

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):

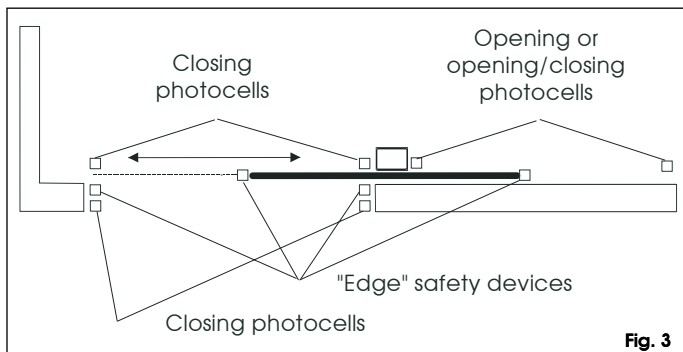


Fig. 3

- **Opening safety devices:** they operate only during the gate opening movement and, therefore, they are suitable for protecting the area between the opening leaf 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 protecting the opening and closing areas against the risk of impact.
- **"Edge" safety devices:** they operate during the gate opening and closing movements and, therefore, they are suitable for protecting the areas between the moving leaf and fixed obstacles (pillars, walls, etc) against the risk of shearing and dragging.
- **Encoder (optional):** operates during the gate opening and closing movements and, therefore, it is suitable for protecting the opening and closing area against the risk of impact, crushing, shearing and dragging.

If two or more safety devices have the same function (opening, closing, opening and closing, edge), the contacts must be connected to each other in series (fig. 4). N.C. contacts must be used.

Connection of two N.C. contacts in series (e.g. Photocells, Stop, Edge, etc.)



Fig. 4

If safety devices are not used, jumper connect the terminals as shown in fig. 5.

Connection of no safety device

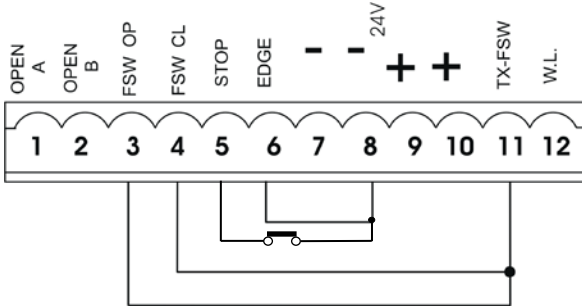


Fig. 5

The most common photocell and safety device lay-outs are shown below (from fig. 6 to fig. 13).

Connection of a closing safety device and an opening safety device

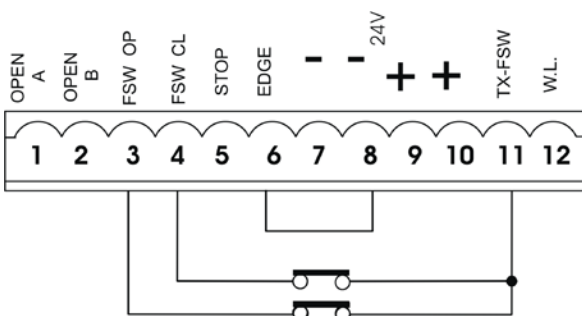


Fig. 6

Connection of an "edge" safety device

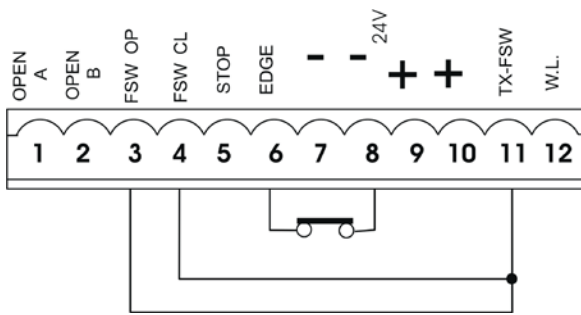


Fig. 7

Connection of a pair of photocells for opening

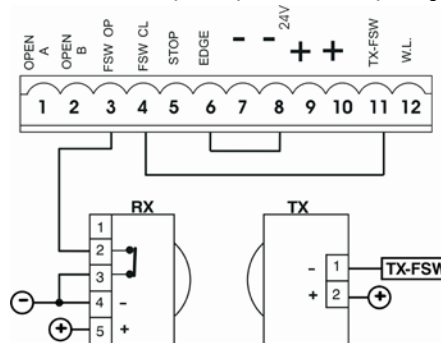


Fig. 8

Connection of a pair of closing photocells

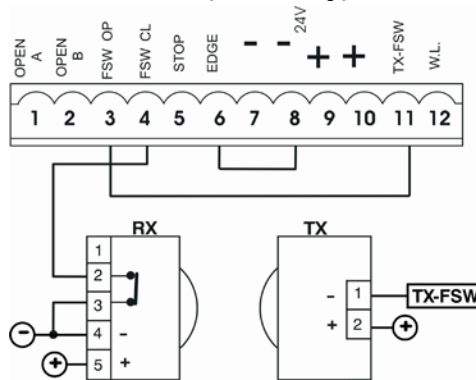


Fig. 9

Connection of a pair of opening photocells, a pair of closing photocell and an edge safety device

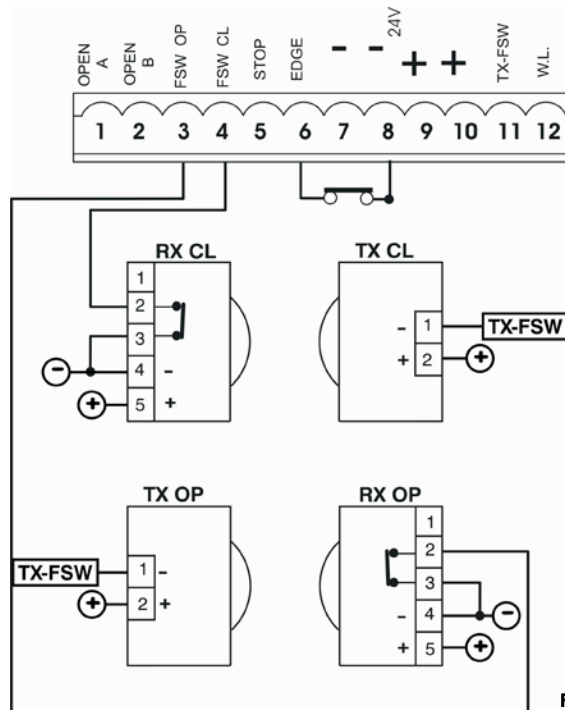


Fig. 10

Connection of two pairs of closing photocells and two edge safety devices

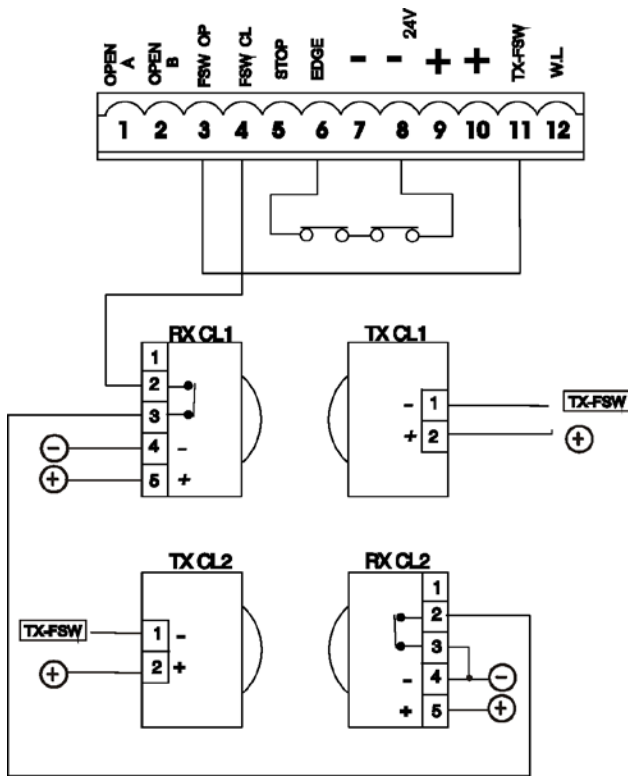


Fig. 11

Connection of a pair of closing photocells and a pair of opening/closing photocells

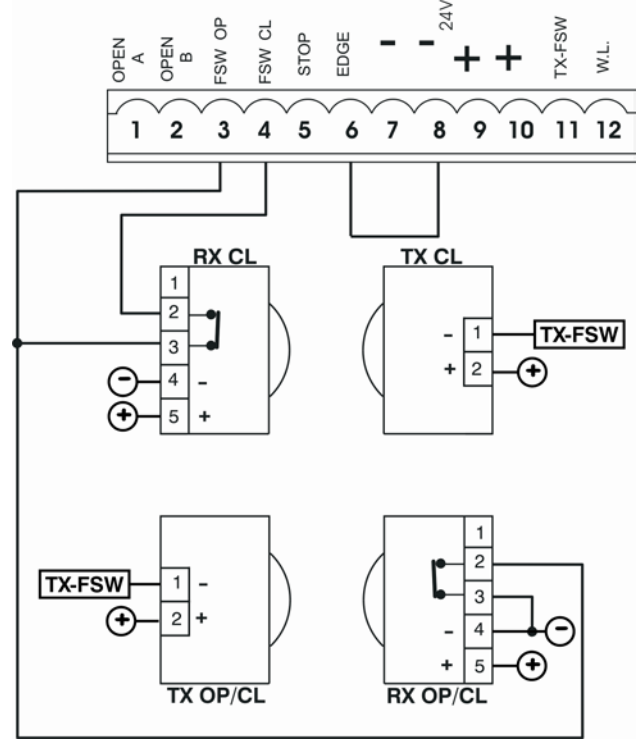


Fig. 13

Connection of a pair of closing photocells, a pair of opening photocells and a pair of opening/closing photocells

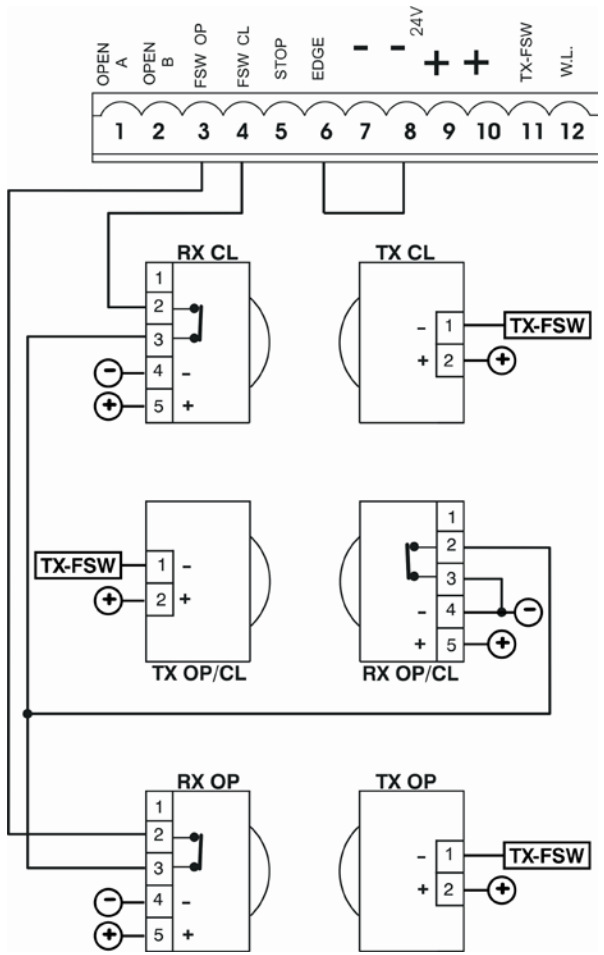


Fig. 12

Connection of two N.O. contacts in parallel (e.g. Open A, Open B)

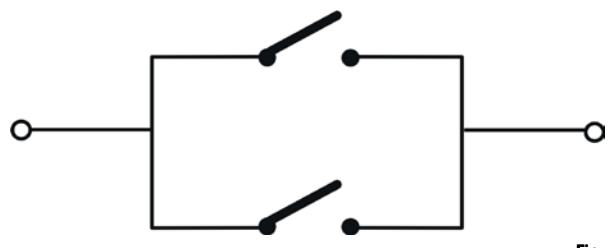


Fig. 14

4.2. J7 Terminal board - Power supply (fig. 2)

POWER SUPPLY (TERMINALS PE-N-L):

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

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. J6 Terminal board - Motors and flashing lamp (fig. 2)

- MOTOR - (terminals 13-14-15): Motor connection. In gearmotors with a built-in control unit, this connection is pre-wired standard. PFor leaf opening direction, see basic programming in Chpt 5.1.
- LAMP - (terminals 16 -17): Flashing lamp output (230 V -)

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

- OPEN A - "Total Opening" command (terminal 1): any pulse generator (push-button, detector, etc.) which, by closing a contact, commands total opening and/or closing of the gate leaf.

To install several total opening pulse generators, connect the N.O. contacts in parallel (see fig. 14).

- OPEN B - "Partial opening " or "Closing" command (terminal 2): any pulse generator (push-button, detector, etc.) which, by closing a contact, commands partial opening and/or closing of the gate leaf. In the B and C logics, it always commands gate closure.

To install several partial opening pulse generators, connect the N.O. contacts in parallel (see fig. 14).

• **FSW OP - Opening safety devices contact (terminal 3):** The purpose of the opening safety devices is to protect the leaf movement area during opening. During opening, in the A-AP-S-E-EP logics the safety devices reverse the movement of the gate leaves, or stop and restart the movement when they are released (see advanced programming in Chpt 5.2). During the opening cycle in logics B and C, they interrupt movement. They never operate during the closing cycle.

If the Opening safety devices are engaged when the gate is closed, they prevent the leaf opening movement.

To install several safety devices, connect the N.C. contacts in series (fig.4).

If no opening safety devices are connected, jumper connect inputs OP and -TX FSW (fig. 5).

• **FSW CL - Closing safety devices contact (terminal 4):** The purpose of the closing safety devices is to protect the leaf movement area during closing. During closing, in the A-AP-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 Chpt 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 are engaged when the gate is open, they prevent the leaf closing movement.

To install several safety devices, connect the N.C. contacts in series (fig.4).

If no closing safety devices are connected, jumper connect terminals CL and -TX FSW (fig. 5).

• **STOP - STOP contact (terminal 5):** 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.

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

• **EDGE - EDGE safety device contact (terminal 6):** The purpose of the "edge" safety device is to protect the leaf movement area during opening/closing against fixed obstacles (pillars, walls, etc.). In all logics, during opening and closing, the safety devices reverse gate leaf movement for 2 seconds. If the safety devices operate again during the 2-seconds reversing time, they STOP movement without any reversing.

If the Edge safety devices are engaged while the gate is closed or open, they prevent the leaves movement.

To install several safety devices, connect the N.C. contacts in series (fig.4).

If edge safety devices are not connected, jumper connect the EDGE and - inputs. (fig. 5).

• **- Negative for power supply to accessories (terminals 7 and 8)**
 • **+ 24 Vdc - Positive for power supply to accessories (terminals 9 and 10)**

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

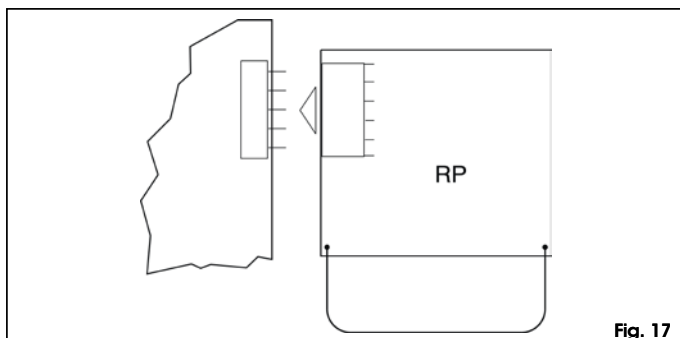
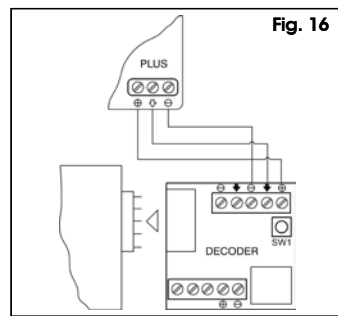
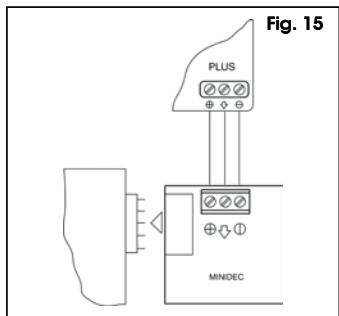
• **TX - FSW - Negative for power supply to photocell transmitters (terminal 11)**
 If you use this terminal for connecting the negative for supplying power to the photocell transmitters, you may, if necessary, also use the FAIL SAFE function (see advanced programming in Chpt 5.2). If this function is enabled, the equipment checks operation of the photocells before every opening or closing cycle.

• **W.L. - Power supply to indicator-light / timed output (terminal 12)**
 Connect a 24 Vdc - 3 W max indicator-light or timed output, if necessary, between this terminal and the +24V supply (see advanced programming in Chpt 5.2).

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

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

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



4.6. Connector J6 - Limit-switches rapid connection (fig.2)

This input is intended for rapid connection of the opening and closing limit-switches designed to stop the leaf, or for start of decelerations or for braking (see advanced programming in Chpt. 5.2.). In gearmotors with a built-in control unit, this connection is pre-wired as standard (fig. 2). For leaf opening direction, see advanced programming in Chpt 5.2.

4.7. Connector J3 - Encoder rapid connection (fig.2)

This input is designed for rapid connection of the Encoder (optional). To fit the encoder on the motor, refer to the relevant instructions. The presence of the encoder is signalled - when the gearmotor is running - by the flashing of the "Encoder" LED on the board. When the encoder is used, the control unit knows the exact position of the gate while it is moving. The encoder controls the adjustments of some of the control unit's functions in a different way (partial opening or deceleration - see advanced programming in Chpt 5.2) and as an anti-crushing device. If the gate strikes an obstacle during opening or closing, the encoder immediately reverses the gate leaf for 2 seconds. If the encoder operates again during the 2-seconds reversing time, it STOPS movement without commanding any reversing.

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 gate status.

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

BASIC PROGRAMMING (F)		
Display	Function	Default
LO	FUNCTION LOGICS (see tab. 3/a - h): A = Automatic AP = "Stepped" automatic S = "Safety" Automatic E = Semi-automatic EP = "Stepped" Semi-automatic C = Dead-man b = "B" Semi-automatic bC = Mixed Log. (b opening / C closing)	EP
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 41 minutes. E.g. if the display shows 2.5, pause time is 2 min. and 50 sec.	2.0
FO	FORCE: Adjusts Motor thrust. 01 = minimum force 50 = maximum force	50
dl	OPENING DIRECTION: Indicates the gate opening movement and makes it possible not to change the motor and limit-switch connections on the terminal board. -3 = Right-hand opening movement E- = Left-hand opening movement	-3
St	GATE STATUS: Exit from programming and return to gate status viewing. 00 = Closed 01 = Now opening 02 = Stopped 03 = Open 04 = Pause 05 = "FAIL SAFE" tripped (chpt. 5.2) 06 = Now closing 07 = Now reversing 08 = Photocells tripped	



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 gate status.

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

ADVANCED PROGRAMMING (F) + (+)		
Display	Function	Default
b0	MAXIMUM TORQUE AT INITIAL THRUST: The motor operate at maximum torque (ignoring the torque setting) at start of movement. Useful for heavy leaves. y = Active no = Disabled	y

ADVANCED PROGRAMMING (F) + (+)		
Display	Function	Default
br	FINAL BRAKING: When the gate engages the opening or closing limit-switch, a braking stroke can be selected to ensure the leaf is stopped immediately. If decelerations are selected, braking starts when they finish. At 00 value, braking is disabled. Time can be adjusted from 01 to 20 sec. in 0.1-second steps. E.g. if the display indicates 10, braking time is 1 second. 00 = Braking disabled from 01 to 20 = Timed braking	05
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 signalled by value 05 on the display), the gate does not start moving. y = Active no = Disabled	no
PF	PRE-FLASHING (5 s): Activates the flashing lamp for 5 seconds before start of movement. no = Disabled oP = Only before opening CL = Only before closing 0C = Before every movement	no
SP	INDICATOR-LIGHT: If 00 is selected, the output functions as a standard indicator-light (lighted at opening and pause, flashing at closing, and off when gate closed). Courtesy light: Different figures correspond to timed activation of the output, which can be used (by a relay) to power a courtesy lamp. Time can be adjusted from 0 to 59 sec. in 1-second steps, and from 1.0 to 41 min. in 10-second steps. Electric lock command and 'traffic lights' functions: If you press key ⊖ from the 00 setting, the command for the E1 closing electric lock is activated; If you press ⊖ again, the command for the E2 closing and opening electric lock is set; if you press the ⊖ key again, you can set the 'traffic lights' functions E3 and E4. 00 = Standard indicator-light from 01 to 41 = Timed output. E1 = electric lock command before opening movement E2 = electric lock command before opening and closing movements E3 = 'traffic lights' function: the output is active in "open" and "open on pause" status and is disabled 3 seconds before the closing manoeuvre starts.  there is 3 seconds of pre-flashing before the closing manoeuvre. E4 = 'traffic lights' function: the output is active only in "closed" status.  Do not exceed the output's maximum load (24Vdc-3W). If necessary, use a relay and a power supply source outside the equipment.	00
Ph	CLOSING PHOTOCELLS LOGIC: Select the tripping mode of the closing photocells. They operate for the closing movement only: they stop movement and reverse it when they are released, or they reverse it immediately. y = Reverse on release no = Reverse immediately when opening	no
oP	OPENING PHOTOCELLS LOGIC: Select the tripping mode of the opening photocells. They operate for the opening movement only: they stop the movement and restart it when they are released, or they reverse it immediately. y = Reverse immediately when closing no = Restart movement on release	no

ADVANCED PROGRAMMING (F) + (+)		
Display	Function	Default
EC	<p>ENCODER: If the encoder is used, you may select its presence. If the encoder is present and enabled, "decelerations" and "partial opening" are controlled by the encoder (see relevant paragraphs). The encoder operates as an anti-crushing device: If the gate strikes an obstacle during opening or closing, the encoder immediately reverses gate leaf movement for 2 seconds. If the encoder operates again during the 2-seconds reversing time, it stops movement (STOP) without commanding any reversing. If no sensor is supplied, the parameter must be set on 00. If there is the encoder, adjust the sensitivity of the anti-crushing system, by varying the parameter between 01 (maximum sensitivity) and 99 (minimum sensitivity). From 01 to 99 = Encoder active and sensitivity adjustment 00 = Encoder disabled</p>	00
rP	<p>Pre-limit switch DECELERATION: You can select gate deceleration before the opening and closing limit-switches have been tripped. Time can be adjusted from 00 to 99. If an encoder is used, the adjustment is not determined by time but by motor revs, thus obtaining greater deceleration precision. 00 = Deceleration disabled from 01 to 99 = Deceleration enabled</p>	00
rA	<p>Post-limit switch DECELERATIONS: You can select gate deceleration after the opening and closing limit-switches have been tripped. Time can be adjusted from 00 to 20 sec. in 0.04-second steps. If an encoder (optional) is used, the adjustment is not determined by time but by motor revs, thus obtaining greater deceleration precision. 00 = Deceleration disabled from 01 to 20 = Deceleration enabled</p>	05
PO	<p>PARTIAL OPENING: You can adjust the width of leaf partial opening. Time can be adjusted from 01 to 20 sec. in 0.1-second steps. If an encoder (optional) is used, the adjustment is not determined by time but by motor revs, thus obtaining greater precision of partial opening. E.g. for a gate with a sliding speed of 10 m /min, value 10 corresponds to about 1.7 metres of opening. E.g. for a gate with a sliding speed of 12 m /min, value 10 corresponds to about 2 metres of opening.</p>	05
t	<p>WORK TIME: We advise you to set a value of 5 to 10 seconds over the time taken by the gate to travel from the closing limit-switch to the opening limit-switch and vice versa. This will protect the motor against any overheating if a limit-switch fails. Adjustable from 0 to 59 sec. sec. in one-second steps. Subsequently, viewing changes to minutes and tens of seconds (separated by a point) and time is adjusted in 10 second steps, up to a maximum value of 41 minutes. E.g. if the display shows 25, work time is 2 min. and 50 sec.  the set value does not exactly match the motor's maximum operating time, because the latter is modified according to the performed deceleration spaces.</p>	41
AS	<p>ASSISTANCE REQUEST (combined with next function): If activated, at the end of countdown (settable with the next function i.e. "Cycle programming") it effects 2 sec. of pre-flashing (in addition to the value already set with the PF function) at every Open pulse (job request). Can be useful for setting scheduled maintenance jobs. y = Active no = Disabled</p>	no

ADVANCED PROGRAMMING (F) + (+)		
Display	Function	Default
nc	<p>CYCLE PROGRAMMING: For setting countdown of system operation cycles. Settable (in thousands) from 00 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".</p>	00
St	<p>GATE STATUS: Exit from programming and return to gate status viewing (see Chpt 5.1.).</p>	

Note 1: to reset the programming default settings, check if the edge input is opened (SAFE LED OFF), and simultaneously press keys +, - and F, holding them down for 5 seconds.

Note 2: modification of programming parameters comes into effect immediately, whereas definitive memory storage occurs only when you exit programming and return to gate status viewing. If the equipment is powered down before return to status viewing, all modifications will be lost.

6. START-UP

6.1. INPUTS CHECK


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 status of the LEDs as per Table.
Operation of the signalling status LEDs


dI = -3 = Right-hand opening movement

LEDS	LIGHTED	OFF
FCA	Limit-switch free	Limit-switch engaged
FCC	Limit-switch free	Limit-switch engaged
OPEN B	Command activated	Command inactive
OPEN A	Command activated	Command inactive
FSW OP	Safety devices disengaged	Safety devices engaged
FSW CL	Safety devices disengaged	Safety devices engaged
STOP	Command inactive	Command activated
EDGE	Safety devices disengaged	Safety devices engaged

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

dI = E- = Left-hand opening movement

LEDS	LIGHTED	OFF
FCA	Limit-switch free	Limit-switch engaged
FCC	Limit-switch free	Limit-switch engaged
OPEN B	Command activated	Command inactive
OPEN A	Command activated	Command inactive
FSW OP	Safety devices disengaged	Safety devices engaged
FSW CL	Safety devices disengaged	Safety devices engaged
STOP	Command inactive	Command activated
EDGE	Safety devices disengaged	Safety devices engaged

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

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.

PULSES							
LOGIC "A"	GATE STATUS		STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	EDGE SAFETY DEVICE
CLOSED	OPEN-A	Opens the leaf and closes it after pause time ①	No effect (OPEN disabled)	No effect (OPEN disabled)	No effect	No effect	No effect (OPEN disabled)
	OPEN-B	Opens leaf for the partial opening time and closes after pause time ①					
	ON PAUSE	Reloads pause time ①	Stops operation	No effect	Reloads pause time ① (OPEN disabled)	No effect (OPEN disabled)	Reverses on opening for 2" ②
	ON CLOSING	Re-opens the leaf immediately ①		No effect (saves OPEN)	see paragraph 5.2.	Stops and, on release, reverses on opening	
ON OPENING	No effect ①	see paragraph 5.2.		No effect	Stops and, on release, continues opening	Reverses on closing for 2" ②	
STOPPED	Closes the leaf	No effect (OPEN disabled)	No effect	No effect	No effect (OPEN disabled)	No effect (OPEN disabled)	

PULSES							
LOGIC "AP"	GATE STATUS		STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	EDGE SAFETY DEVICE
CLOSED	OPEN-A	Opens the leaf and closes it after pause time ①	No effect (OPEN disabled)	No effect (OPEN disabled)	No effect	No effect	No effect (OPEN disabled)
	OPEN-B	Opens leaf for the partial opening time and closes after pause time ①					
	ON PAUSE	Re-closes the leaf immediately	Stops operation	No effect	Reloads pause time ① (OPEN disabled)	No effect (OPEN disabled)	Reverses on opening for 2" ②
	ON CLOSING	Re-opens the leaf immediately ①		No effect (saves OPEN)	see paragraph 5.2.	Stops and, on release, reverses on opening	
ON OPENING	Stops operation	see paragraph 5.2.		No effect	Stops and, on release, continues opening	Reverses on closing for 2" ②	
STOPPED	Closes the leaf	No effect (OPEN disabled)	No effect	No effect	No effect (OPEN disabled)	No effect (OPEN disabled)	

PULSES							
LOGIC "S"	GATE STATUS		STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	EDGE SAFETY DEVICE
CLOSED	OPEN-A	Opens leaves and closes them after pause time ①	No effect (OPEN disabled)	No effect (OPEN disabled)	No effect	No effect (OPEN disabled)	No effect (OPEN disabled)
	OPEN-B	Opens leaf for the partial opening time and closes after pause time ①					
	ON PAUSE	Re-closes the leaf immediately	Stops operation	No effect	Closes after 5" (OPEN disabled)	No effect (OPEN disabled)	Reverses on opening for 2" ②
	ON CLOSING	Re-opens the leaf immediately		No effect (saves OPEN)	see paragraph 5.2.	Stops and, on release, reverses on opening	
ON OPENING	Re-closes the leaf immediately	see paragraph 5.2.		No effect	Stops and, on release, continues opening	Reverses on closing for 2" ②	
STOPPED	Closes the leaf	No effect (OPEN disabled)	No effect	No effect	No effect (OPEN disabled)	No effect (OPEN disabled)	

Tab. 3/d

PULSES								
LOGIC "E"	GATE STATUS		OPEN - A	OPEN - B	STOP	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	EDGE SAFETY DEVICE
CLOSED	Opens the leaf		Opens the leaf	Opens the leaf for partial opening time	No effect (OPEN disabled)	No effect	No effect	No effect (OPEN disabled)
	Re-closes the leaf immediately		Re-closes the leaf immediately		No effect	No effect	No effect (OPEN disabled)	
ON CLOSING	Re-opens the leaf immediately		Re-opens the leaf immediately		Stops operation	see paragraph 5.2.	Stops and, on release, reverses on opening	Reverses on opening for 2" ®
	Stops operation		Stops operation			No effect	Stops and, on release, continues opening	Reverses on closing for 2" ®
STOPPED	Closes the leaf (with the Closing safety devices engaged, it opens at the 2 nd pulse)				No effect (OPEN disabled)	No effect	No effect	No effect (OPEN disabled)

Tab. 3/e

PULSES								
LOGIC "EP"	GATE STATUS		OPEN - A	OPEN - B	STOP	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	EDGE SAFETY DEVICE
CLOSED	Opens the leaf		Opens the leaf	Opens the leaf for partial opening time	No effect (OPEN disabled)	No effect	No effect	No effect (OPEN disabled)
	Re-closes the leaf immediately		Re-closes the leaf immediately		No effect	No effect	No effect (OPEN disabled)	
ON CLOSING	Stops operation		Stops operation		Stops operation	see paragraph 5.2.	Stops and, on release, reverses on opening	Reverses on opening for 2" ®
	Restarts movement in reverse direction (always closes after a Stop)		Restarts movement in reverse direction (always closes after a Stop)		No effect (OPEN disabled)	No effect	Stops and, on release, continues opening	Reverses on closing for 2" ®
STOPPED					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)

Tab. 3/f

PULSES								
LOGIC "C"	GATE STATUS		OPEN - A (opening)	OPEN - B (closing)	STOP	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICE	EDGE SAFETY DEVICE
CLOSED	Opens the leaf		Opens the leaf	No effect	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-A/B disabled)
	No effect		No effect	Closes the leaf	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A/B disabled)
ON CLOSING	Stops operation		Stops operation		Stops operation	Stops operation (OPEN-B disabled)	Stops operation (OPEN-A/B disabled)	Reverses on opening for 2" ®
	Stops operation		Stops operation		Stops operation (OPEN-A disabled)	No effect	No effect	Reverses on closing for 2" ®

PULSES							
LOGIC "B"	GATE STATUS		STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICES	EDGE SAFETY DEVICE
CLOSED	OPEN - A (opening)	OPEN - B (closing)	No effect (OPEN-A disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-A/B disabled)
	Opens the leaf	No effect	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-A/B disabled)
OPEN	OPEN - A (opening)	OPEN - B (closing)	Stops operation	No effect	Stops operation (OPEN-B disabled)	Stops operation (OPEN-A/B disabled)	Reverses on opening for 2" ②
	Opens the leaf	Closes the leaf	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A/B disabled)	Reverses on closing for 2" ②
ON CLOSING	OPEN - A (opening)	OPEN - B (closing)	Stops operation	No effect	No effect	No effect (OPEN-A disabled)	No effect (OPEN-A/B disabled)
	Reverses on opening	No effect	Stops operation	Stops operation (OPEN-A disabled)	No effect	No effect (OPEN-A disabled)	No effect (OPEN-A/B disabled)
ON OPENING	OPEN - A (opening)	OPEN - B (closing)	No effect	No effect	No effect	No effect (OPEN-A disabled)	No effect (OPEN-A/B disabled)
	Opens the leaf	Closes the leaf	No effect (OPEN-A/B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-A disabled)	No effect (OPEN-A/B disabled)	No effect (OPEN-A/B disabled)
STOPPED	OPEN - A (opening)	OPEN - B (closing)	No effect	No effect	No effect	No effect (OPEN-A disabled)	No effect (OPEN-A/B disabled)
	Opens the leaf	Closes the leaf	No effect (OPEN-A/B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-A disabled)	No effect (OPEN-A/B disabled)	No effect (OPEN-A/B disabled)

PULSES							
LOGIC "BC"	OPENING PULSES / CLOSING COMMANDS ALWAYS PRESSED		STOP	OPENING SAFETY DEVICES	CLOSING SAFETY DEVICES	OP/CLOS. SAFETY DEVICES	EDGE SAFETY DEVICE
CLOSED	OPEN - A (opening)	OPEN - B (closing)	No effect (OPEN-A disabled)	No effect (OPEN-A disabled)	No effect	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)
	Opens the leaf	No effect	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	No effect	No effect (OPEN-B disabled)	No effect (OPEN-A/B disabled)
OPEN	OPEN - A (opening)	OPEN - B (closing)	Stops operation	No effect (saves OPEN A)	Stops operation (OPEN-B disabled)	Stops operation (OPEN-A/B disabled)	Reverses to open for 2" ②
	Opens the leaf	Closes the leaf	No effect (OPEN-B disabled)	No effect (OPEN-A disabled)	No effect	Stops operation (OPEN-A/B disabled)	Reverses to close for 2" ②
ON CLOSING	OPEN - A (opening)	OPEN - B (closing)	Stops operation	No effect (saves OPEN A)	Stops operation (OPEN-B disabled)	Stops operation (OPEN-A/B disabled)	Reverses to open for 2" ②
	Reverses to open	No effect	Stops operation	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A/B disabled)	Reverses to close for 2" ②
ON OPENING	OPEN - A (opening)	OPEN - B (closing)	No effect	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A/B disabled)	No effect (OPEN-A/B disabled)
	Opens the leaf	Closes the leaf	No effect (OPEN-A/B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A/B disabled)	No effect (OPEN-A/B disabled)
STOPPED	OPEN - A (opening)	OPEN - B (closing)	No effect	No effect	No effect	No effect (OPEN-A disabled)	No effect (OPEN-A/B disabled)
	Opens the leaf	Closes the leaf	No effect (OPEN-A/B disabled)	No effect (OPEN-A disabled)	No effect (OPEN-B disabled)	No effect (OPEN-A/B disabled)	No effect (OPEN-A/B disabled)

- ② If maintained, it prolongs the pause until disabled by the command (timer function)
- ② If a new pulse occurs within 2 seconds after reversing, it immediately stops operation.



Effects on other active pulse inputs in brackets.