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CE DECLARATION OF CONFORMITY

Manufacturer: FAAC S.p.A.
Address: Via Benini, 1 - 40069 Zola Predosa BOLOGNA - ITALY
Declares that: The E124 control unit

- ·conforms to the essential safety requirements of the following EEC directives

2006/95/EC Low Voltage Directive
2004/108/EC Electromagnetic Compatibility Directive

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

Bologna, 01 - 07 - 2008

The Managing Director
A.Marcellan

WARNINGS

- Important! For the safety of people, it is important that all the instructions be carefully observed.
- Incorrect installation or incorrect use of the product could cause serious harm to people.
- Carefully read the instructions before beginning to install the product and keep them for future reference.
- The symbol ⚠ indicates notes that are important for the safety of persons and for the good condition of the automated system.
- The symbol ☞ draws your attention to the notes on the characteristics and operation of the product.

E124 CONTROL UNIT

1 LAY-OUT OF ELECTRICAL BOX

⚠️ **The box contains the E124 control unit and the devices to power it. It must therefore be handled with care during all installation stages, to avoid damaging its components.**

The dimensions of the box are shown in Fig. 1:

306

225

64

130

Dimensions in mm
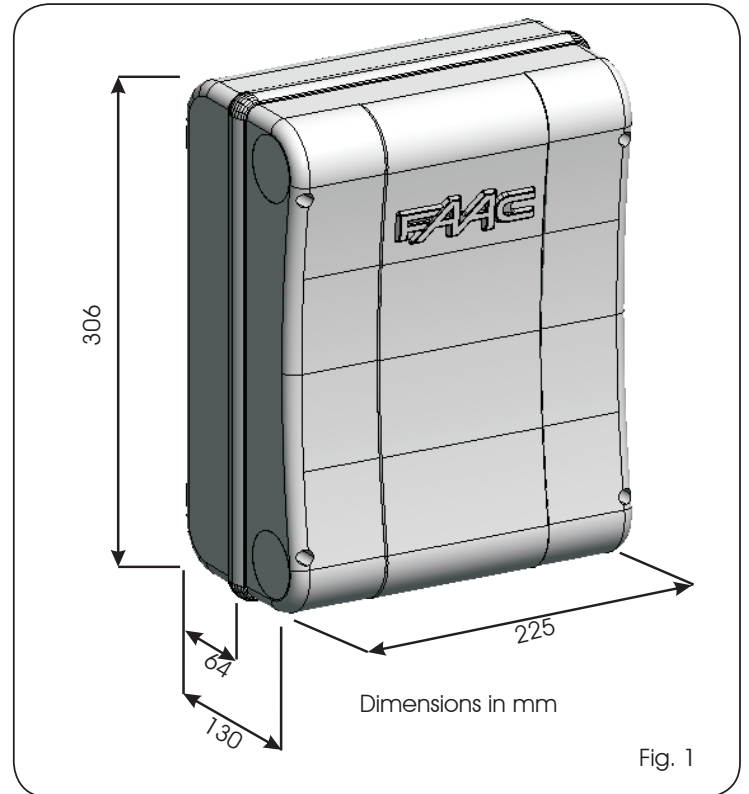
Fig. 1

Fig. 2 shows the four 5 mm diam. holes for securing the box (ref.①) to the wall, the three fittings for installing the cable grippers M16/M20/M25 (ref. ②) and the two lid hinges (ref. ③).
If it is necessary to remove and re-position the E124 control board, make sure that the spacers (ref.④) are fitted in the supports.

③ ① ③ ④ ② Fig. 2

ENGLISH
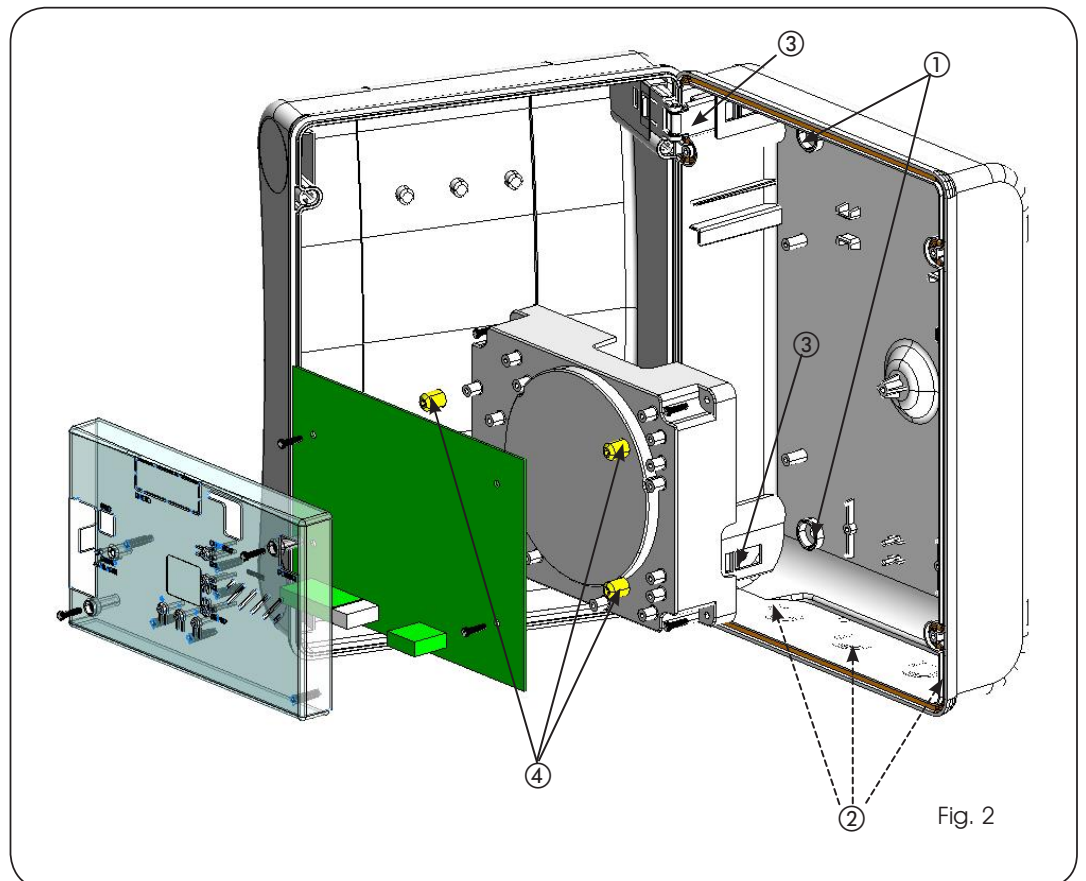
The lid hinges can be moved upward to allow opening the box housing (Fig. 3): they can also be removed and re-positioned in order to enable the lid to open to the right or left.

Connect the power cable to the switching feeder as shown in Fig.5, making sure that there is an adequate thermal breaker upstream.
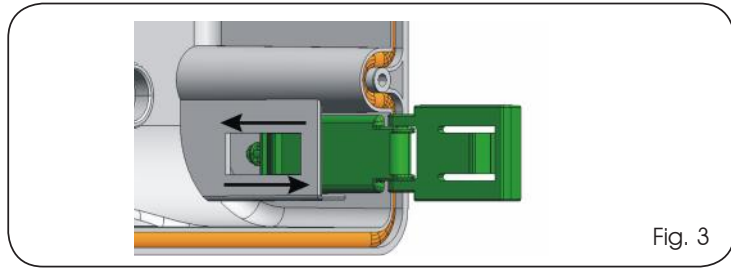
Fig. 3

When you have secured the box in the selected position, cover the securing holes (Fig. 2 ref. ①) and the screws with the supplied plugs as shown in Fig. 4.

Fig. 4

PE   L   N

Neutral

Line

Earth
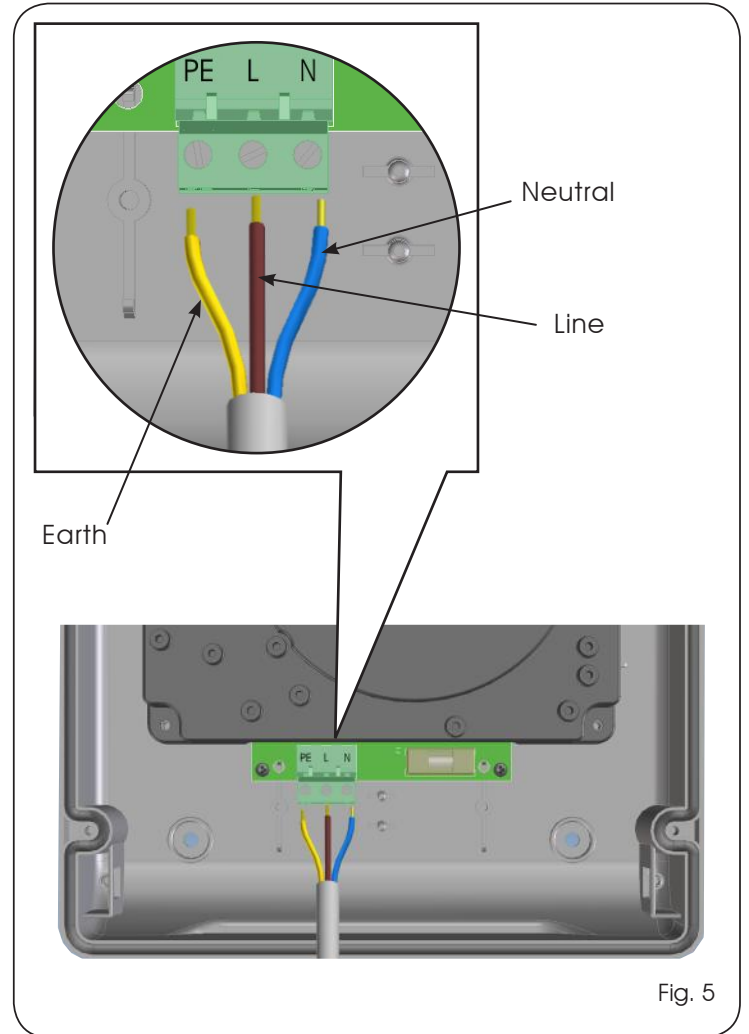
Fig. 5

Then plug the connector of the transformer to connector J1 on the board as indicated in fig.6.
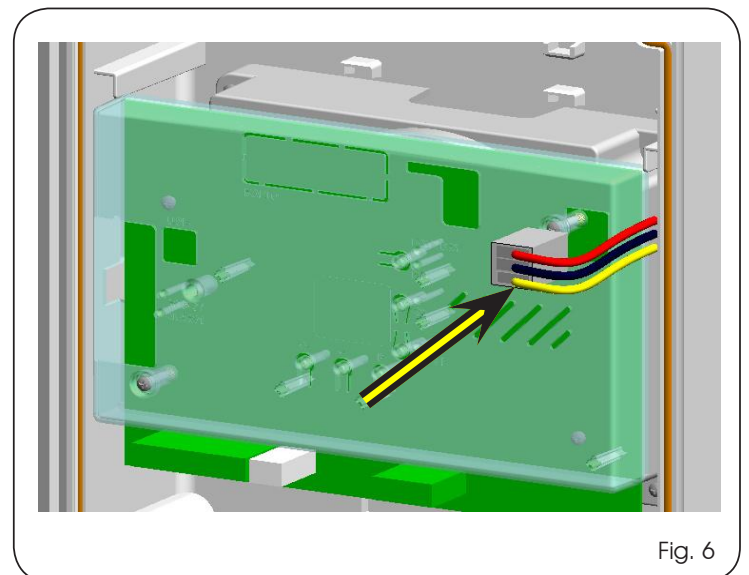
Fig. 6

2 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 relevant terminal (see fig.5).

- Always separate power cables from control and safety cables (push-button, receiver, photocells, etc.). To avoid any electrical disturbance, use separate sheaths or a screened cable (with the screen earthed).

3 LAYOUT AND COMPONENTS OF E124
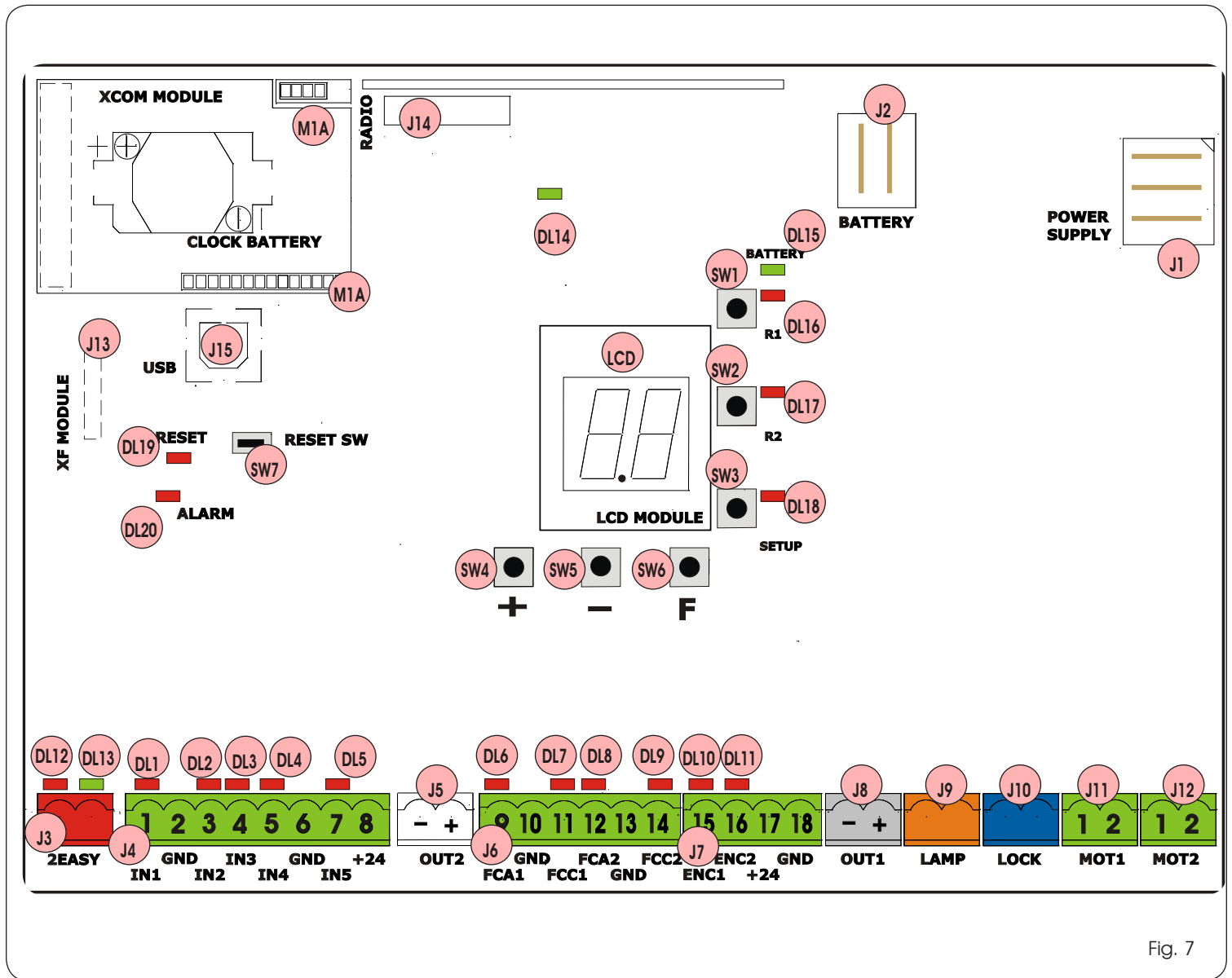
Fig. 7

3.1 INPUTS DEFAULT SETTING

Terminal-board J4

IN1	OPEN A	N.O. contact
IN2	OPEN B	N.O. contact
IN3	STOP	N.C. contact
IN4	FSW OP	N.C. contact
IN5	FSW CL	N.C. contact

Connector J13 – XF Module

Channel 1	OPEN A
Channel 2	OPEN B

Connector J14 - Radio

Channel 1	OPEN A
Channel 2	OPEN B

ENGLISH

3.2 DESCRIPTION OF COMPONENTS

LCD	SIGNALS AND PROGRAMMING DISPLAY
SW1	"**R1**" PROGRAMMING PUSH-BUTTON
SW2	"**R2**" PROGRAMMING PUSH-BUTTON
SW3	"**SETUP**" PUSH-BUTTON
SW4	"**+**" PROGRAMMING PUSH-BUTTON
SW5	"**-**" PROGRAMMING PUSH-BUTTON
SW6	"**F**" PROGRAMMING PUSH-BUTTON
SW7	"**RESET SW**" SOFTWARE RESET PUSH-BUTTON
DL1	INPUT STATUS CONTROL LED "**IN1**"
DL2	INPUT STATUS CONTROL LED "**IN2**"
DL3	INPUT STATUS CONTROL LED "**IN3**"
DL4	INPUT STATUS CONTROL LED "**IN4**"
DL5	INPUT STATUS CONTROL LED "**IN5**"
DL6	INPUT STATUS CONTROL LED "**FCA1**"
DL7	INPUT STATUS CONTROL LED "**FCC1**"
DL8	INPUT STATUS CONTROL LED "**FCA2**"
DL9	INPUT STATUS CONTROL LED "**FCC2**"
DL10	INPUT STATUS CONTROL LED "**ENC1**"
DL11	INPUT STATUS CONTROL LED "**ENC2**"
DL12	SIGNALLING LED FOR DEVICE **BUS-2EASY** ACTIVE
DL13	SIGNALLING LED FOR **BUS 2-EASY** DIAGNOSTICS
DL14	LED SIGNALLING PRIMARY POWER ON
DL15	LED SIGNALLING SECONDARY POWER ON (See chap.9)

DL16	SIGNALLING LED FOR "**SW1**" PUSH-BUTTON (**R1** PUSH-BUTTON)
DL17	SIGNALLING LED FOR "**SW2**" PUSH-BUTTON (**R2** PUSH-BUTTON)
DL18	SIGNALLING LED FOR "**SW3**" PUSH-BUTTON (**SETUP** PUSH-BUTTON)
DL19	PRESSURE SIGNALLING LED "**RESET SW**" PUSH-BUTTON
DL20	ALARM SIGNALLING LED "**ALARM**"
J1	POWER FEEDER SWITCHING CONNECTOR (PRIMARY POWER)
J2	SECONDARY POWER SELECTOR
J3	CONNECTOR FOR CONNECTION TO BUS-2EASY DEVICES
J4	CONNECTOR FOR TERMINAL BOARD INPUTS (see chap.4.1)
J5	CONNECTOR FOR OUT2 OUTPUT (see 2nd level prog.)
J6	TRAVEL LIMITS CONNECTOR
J7	CONNECTOR FOR LEAF 1 AND LEAF 2 ENCODER INPUTS
J8	CONNECTOR FOR OUT1 OUTPUT (see 2nd level prog.)
J9	FLASHING LAMP OUTPUT CONNECTOR
J10	CONNECTOR FOR ELECTRICAL LOCK OUTPUT
J11	LEAF 1 MOTOR CONNECTOR
J12	LEAF 2 MOTOR CONNECTOR
J13	CONNECTOR FOR RECEIVER MODULE XF433/XF868
J14	CONNECTOR: DECODER / MINIDEC / RP RECEIVER
J15	USB CONNECTOR FOR PROGRAMMING FROM PC
M1A	MODULE X-COM CONNECTOR

⚠️ *Flashing LED ALARM indicates alarm in progress (a situation which does not prejudice gate operation)*

⚠️ *LED ALARM on steady light indicates error in progress (a situation which blocks operation until cause of error is eliminated)*

4 TECHNICAL SPECIFICATIONS

Primary power feed from mains	with switching power feed 230/115 V~ - 50/60 Hz
Secondary power feed	24 Vdc - 16 A max. (min. 20 Vdc - max. 28 Vdc.)
Power absorbed from mains	stand-by = 4W max. ~ 400 W
Max. load for motor	7 A
Power feed for accessories	24 Vdc
Accessories max. current	24Vdc max. 500 mA BUS-2EASY max. 500 mA
Battery charge current	180 mA
Operating ambient tempeature	(-20 - +55) °C
Protective fuses	All self resetting
Function logics	Semiautomatic, Automatic, "step-by-step" Semiautomatic, Automatic with reverse during pause, Automatic step-by-step, Safety devices automatic, Safety devices step-by-step automatic, "b" Semiautomatic, mixed logic "bC", Dead-man, Automatic with timer function

Work time	Programmable (from 0 to 4 minutes)
Pause time	Programmable (from 0 to 4 minutes)
Motor power	Programmable on 50 levels
Motor speed	Programmable on 10 levels
Connector inputs	Switching feeder, Battery, Decoder/Minidec/RP, X-COM, module XF433/868, USB
Terminal board inputs	BUS-2EASY, Inputs from IN1 to IN5 (see par. 5), Travel limit device, Encoder.
Terminal board outputs	Flashing lamp, Motors, Electrical lock, OUT1, OUT2 (programmable), power feed to accessories
Programming	1st and 2° lev. with 3 keys (**+**, **-**, **F**) and **LCD** display. 3rd lev. with P.C. connected via **USB** or with **X-COM** module.

5 TERMINAL BOARDS, CONNECTORS, INPUTS AND SIGNALS

5.1 TERMINAL BOARD J3 – CONNECTION TO BUS-2EASY ACCESSORIES
Terminal for connection of BUS-2EASY accessories. see par. 6.2

5.2 TERMINAL BOARD J4 – SIGNALS INPUTS

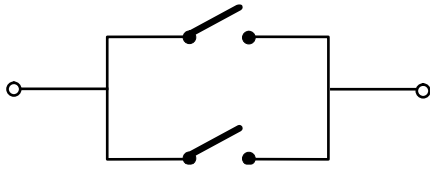Connection of 2 N.O. contacts in parallel

Fig. 8

IN1 - OPEN A - "Opening" Command (N.O. - terminal 1): this refers to any pulse generator (e.g.: push-button) which, by closing a contact, commands **TOTAL OPENING**.

☞ *To install several total opening pulse generators, connect the N.O. contacts in parallel*

☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*

IN2 - OPEN B - Partial Opening" command (N.O. - terminal 3): this refers to any pulse generator (e.g.: push-button) which, by closing a contact, commands **PARTIAL OPENING**.

☞ *In single leaf systems (leaf connected to motor 1), OPEN B commands leaf 1 to open to 50% of total opening.*

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

☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*

⚠ *If you select one of the following logics (b, bC, C) input IN2 automatically becomes CLOSE (N.O).*

Connection of 2 NC contacts in series

Fig. 9

IN3 - STOP contact command (N.C. - terminal 4): 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.

☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*

⚠ *If stop safety devices are not connected, jumper connect the STOP and GND terminals.*

IN4 - Opening safety-devices contact (N.C. - terminal 5): see paragraph 6.1.

☞ To install several opening safety devices, connect the N.C. contacts in series.

☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*

⚠ *If opening safety devices are not connected, jumper connect terminals IN4 and GND, if the FAIL-SAFE safety device is not active, otherwise jumper connect IN4 and –OUT1.*

IN5 - Closing safety-devices contact (N.C. -. terminal 7): see paragraph 6.1.

☞ To install several closing safety devices, connect the N.C. contacts in series

☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*

⚠ *If closing safety devices are not connected, jumper connect terminals IN5 and GND, if the FAIL-SAFE safety device is not active, otherwise jumper connect IN5 and –OUT1.*

GND - (terminals 2-6): Negative for powering accessories

+24 - (terminal 8): Positive to power feed accessories

⚠ *The max. load of the accessories is 500mA, subdivided among terminal boards J4 and J7. To calculate maximum absorption, refer to the instructions for individual accessories.*

5.3 TERMINAL BOARDS J5, J8 – OUT1 AND OUT2

The two outputs can be set in one of the functions described in 2nd level programming (see par.7.2.). The default value is:
OUT1 = ALWAYS ACTIVE
OUT2 = INDICATOR LIGHT.

⚠ *Maximum load applicable on every output: 24 Vdc with 100 mA.*

5.4 TERMINAL BOARD J6 – OPENING AND CLOSING TRAVEL LIMIT DEVICE

Terminal board for connection of the opening (FCA1 and FCA2) and closing (FCC1 and FCC2) travel limit device.

⚠️ *The travel limit contacts FCC1, FCA1, FCC2 and FCA2 are all NC contacts. See 2nd level programming for the various configurations applicable to the travel limit inputs.*

5.5 TERMINAL BOARDS J7 - ENCODERS

Encoders with an open collector signal referred to earth (e.g. Gatecoder) can be connected to detect the leaf's angular position. For connections, see fig. 10.

☞ *The configuration indicated in the drawing is the maximum one. Only 1 Gatecoder can be used. In this case, the unused inputs do not have to be jumper connected to earth*

☞ *The default obstacle detection and stop point times are 2 and 4 seconds respectively.*
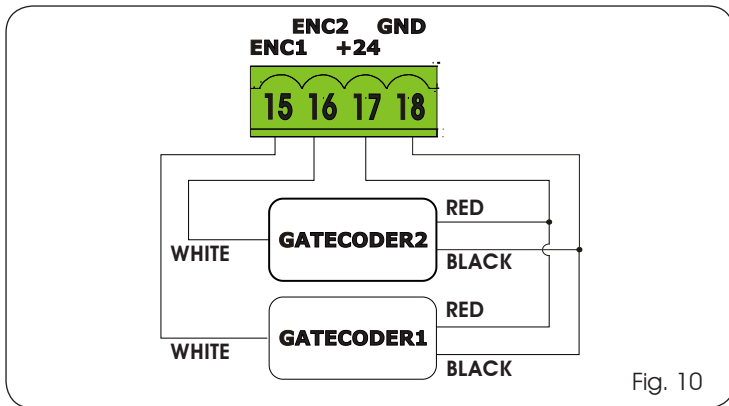
Fig. 10

5.6 TERMINAL BOARD J9 – FLASHING LAMP

Output for 24Vdc flashing lamp

⚠️ *Maximum applicable load: 24 Vdc - 15 W*

5.7 TERMINAL BOARD J10 – ELECTRIC LOCK

Output for 12Vac or 24Vac electric lock

5.8 TERMINAL BOARD J11, J12 - MOTORS

J11 (MOT1): Connection of motor connected to leaf 1, i.e. the leaf which opens first during an opening operation.

J12 (MOT2): Connection of the motor connected to leaf 2, i.e. the leaf which opens second.

⚠️ *If only one motor is connected, it must be connected to terminal J11 (MOT1).*

⚠️ *If, during the first movement of the SETUP procedure, the leaves open instead of closing, the motor connection cables must be changed over.*

5.9 CONNECTOR J1 - PRIMARY POWER FEED FROM 230/115 V MAINS

J1: Select the correct power feed, by turning the power switching selector to its correct position (Default 230 Vac.)

Fig. 11

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

ENGLISH

J2: In the absence of a primary feed from the mains, the control unit can be fed by a secondary low voltage (24Vdc) power feed. Power can be supplied by a pack of batteries, recharged by a battery charger integrated in the board, or by a stabilised power feeder. In both cases, the power supply must have the following characteristics:

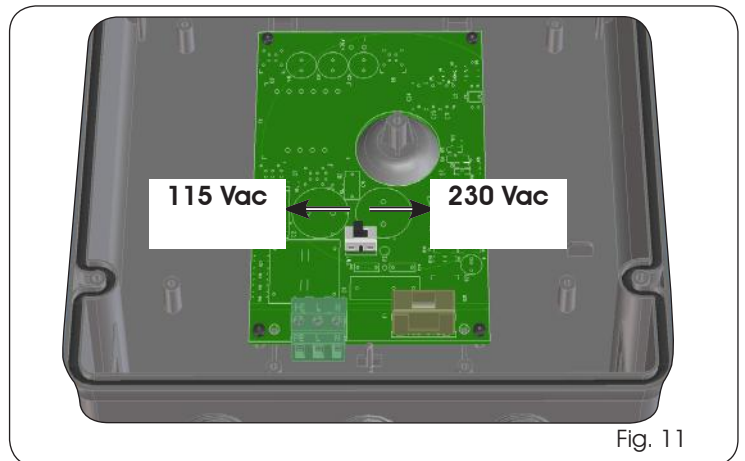> **Voltage:** **(24 ± 4) Vdc**
> **Current:** **16 A max.**

⚠️ *If you use an external stabilised feeder, you must disable the "battery charger" function via the PC (see dedicated instructions).*

The control unit has an integrated 2-channel decoding system (DS, SLH, LC/RC) named OMNIDEC. This system makes it possible to save – through an extra receiver module – F433 or XF868 (Fig.12 ref.①) – radio commands of the same frequency, but of a different type (DS, SLH, LC/RC). It is possible to save both total opening (OPEN A) and partial opening (OPEN B) of the automated system, up to a maximum of 256 channels.

☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*

☞ *To save the radio commands, refer to Chap.8.*

⚠️ *Insert and remove the boards only after cutting power.*
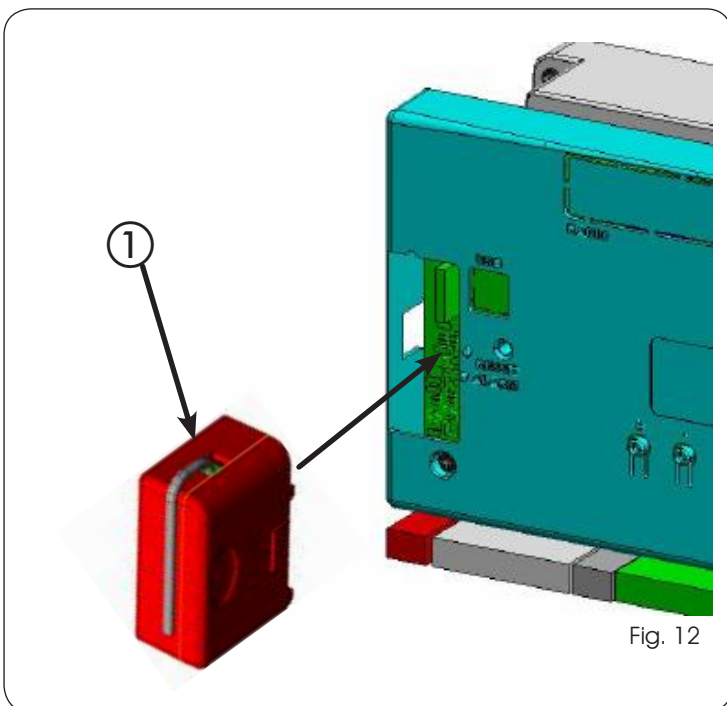
Fig. 12

It is used for rapid connection of Minidecs, Decoders and RP/RP2 Receivers.

If you are using an RP2 twin-channel receiver, you will be able to directly command two different radio channels, OPEN A and OPEN B of the automated system from a twin-channel radio control.

If using a single-channel Minidec, Decoder or RP, you can command only one radio channel, OPEN A.

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

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

☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*

An example of a radio accessory connection

E124   J14   Fig. 13
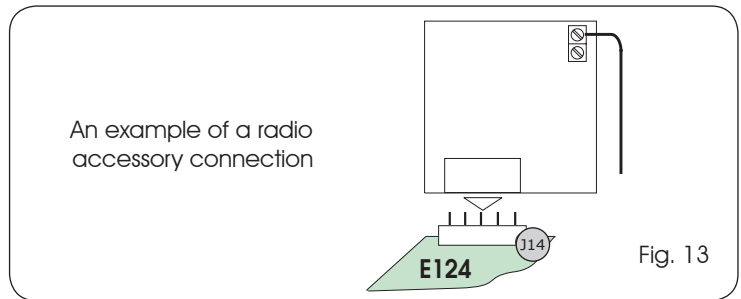
An X-COM module can be connected to this connector, used for radio communication between board and PC.

☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions.*

⚠️ *Insert and remove the module only after cutting power.*

6 ELECTRICAL CONNECTIONS

OPEN B
OPEN A
STOP
BUS

Enable in 2nd level programming

LAMP
LOCK

24Vdc
24Vdc 3W
24Vdc
24Vdc 3W
24Vdc 15W
12Vac 24Vdc

M1   M2

2EASY

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

GND   IN3   GND   +24
IN1   IN2   IN4   IN5

OUT2

| 9 | 10 | 11 | 12 | 13 | 14 |

GND   FCA2   FCC2
FCA1   FCC1   GND

| 15 | 16 | 17 | 18 |

ENC2   GND
ENC1   +24

OUT1   LAMP   LOCK

| 1 | 2 | | 1 | 2 |

MOT1   MOT2

To connect the photocells and safety devices, consult paragraph 6.1

GATECODER2
GATECODER1

Use with motors without a BUS-2EASY encoder (see par.5.5)

⁎ ⚠ Max load 24Vdc - 500mA

Fig. 14

With the E124 control unit, you can use both traditional photocells (N.C. contact with relay) and/or photocells with BUS-2EASY (open collector contact). The positioning of the photocells and their operation is schematised in Fig. 15.

6.1 TRADITIONAL PHOTOCELLS

Before you connect the photocells 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 automated system closing movement, and, therefore, are suitable for protecting the closure zone against the risk of impact.

Opening safety devices: they are tripped only during the automated system opening movement, and, therefore, are suitable for protecting the opening zone against the risk of impact.

Opening /closing safety devices: they are tripped during the automated system opening and closing movement, and, therefore, are suitable for protecting the entire movement zone against the risk of impact.

Opening /closing safety devices

Closing safety devices

Opening safety devices

Fig. 15

Connection of 1 pair of closure photocells with FAIL-SAFE **activated**

Set $oI = OI$ in the second programming level

GND   +24
IN4   IN5

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | J4

Other safety devices

RX CL   TX CL

⑥ –
⑧ +

– OUT1
+ OUT1

Connection of 1 pair of closure photocells with FAIL-SAFE and STOP **de-activated**

IN3   GND   +24
IN4   IN5

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | J4

Other safety devices

RX CL   TX CL

⑥ –
⑧ +

– ⑥
+ ⑧

Fig. 16

Connection of 2 pairs of photocells
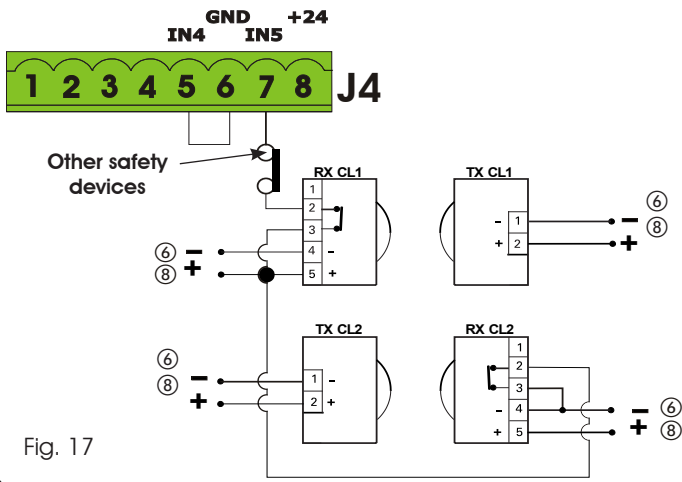
Fig. 17

Connection of 1 pair of opening photocells
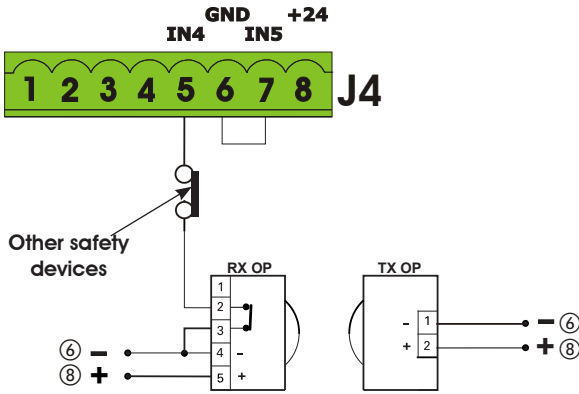
Fig. 18

Connection of one closing safety device and one opening safety device
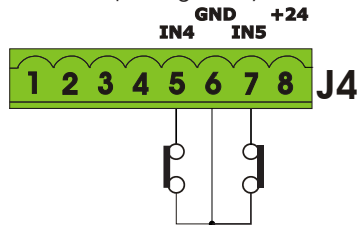
Fig. 19

Connection of no safety device and stop

Fig. 20

👉 *If you **do not** use the FAILS-SAFE device, you must connect the transmitters power feed to terminals 6 and 8 of J4.*

👉 *If you use the FAIL-SAFE device, connect the transmitters power feed to OUT1 after you have set it appropriately (see 2nd level programming and fig. 16).*

👉 *If you use the FAIL-SAFE device, the non-used safety inputs too must be jumper connected to the OUT1 negative (see Fig.16).*

Connection of a pair of closing photocells, a pair of opening photocells and a pair of opening/closing photocells
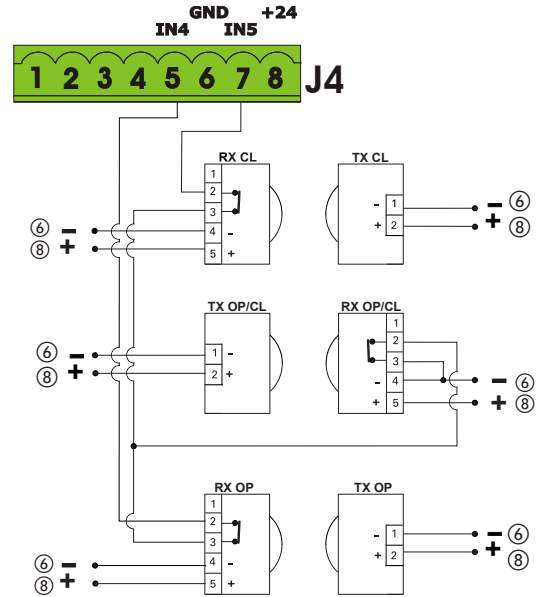
Fig. 21

Connection of a pair of opening and a pair of closing photocells
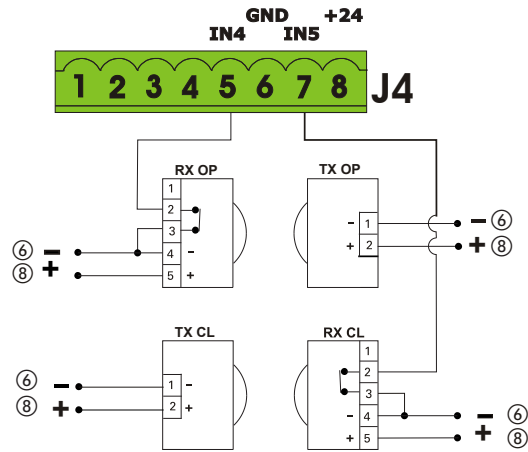
Fig. 22

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

Fig. 23

6.2 PHOTOCELLS BUS-2EASY

This board is supplied with a **BUS-2EASY** circuit enabling easy connection of a high number of BUS-2EASY safety auxiliary devices (e.g. up to 16 photocells pairs), appropriately programmed, using only two cables without polarity.

Before connecting the photocells, we advise you to select the type of operation (Fig.24) according to the movement zone they must protect and position – **both on the transmitter and receiver** - the dip-switches as shown in Tab.1:

Closing photocells: they are tripped only during the automated system closing movement, and, therefore, are suitable for protecting the closure zone against the risk of impact.

⚠️ **If you have to connect two or more BUS-2EASY closing photocells, choose different addresses for each pair used.**

Opening photocells: they are tripped only during the automated system opening movement, and, therefore, are suitable for protecting the opening zone against the risk of impact.

⚠️ **If you have to connect two or more BUS-2EASY opening photocells, choose different addresses for each pair used.**

Opening /Closing photocells: they are tripped during the automated system opening and closing movement, and, therefore, are suitable for protecting the entire movement zone against the risk of impact.
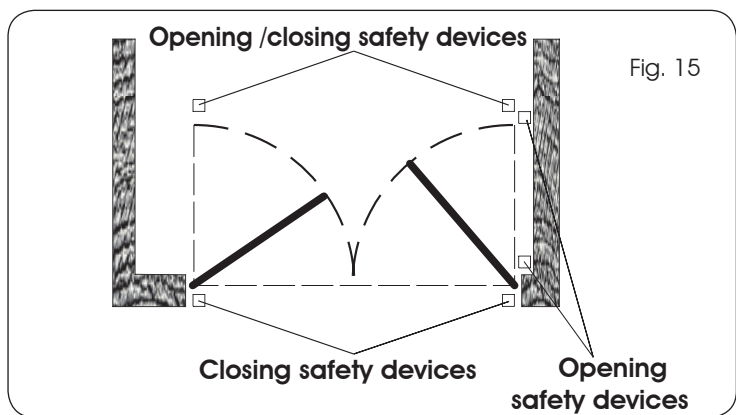
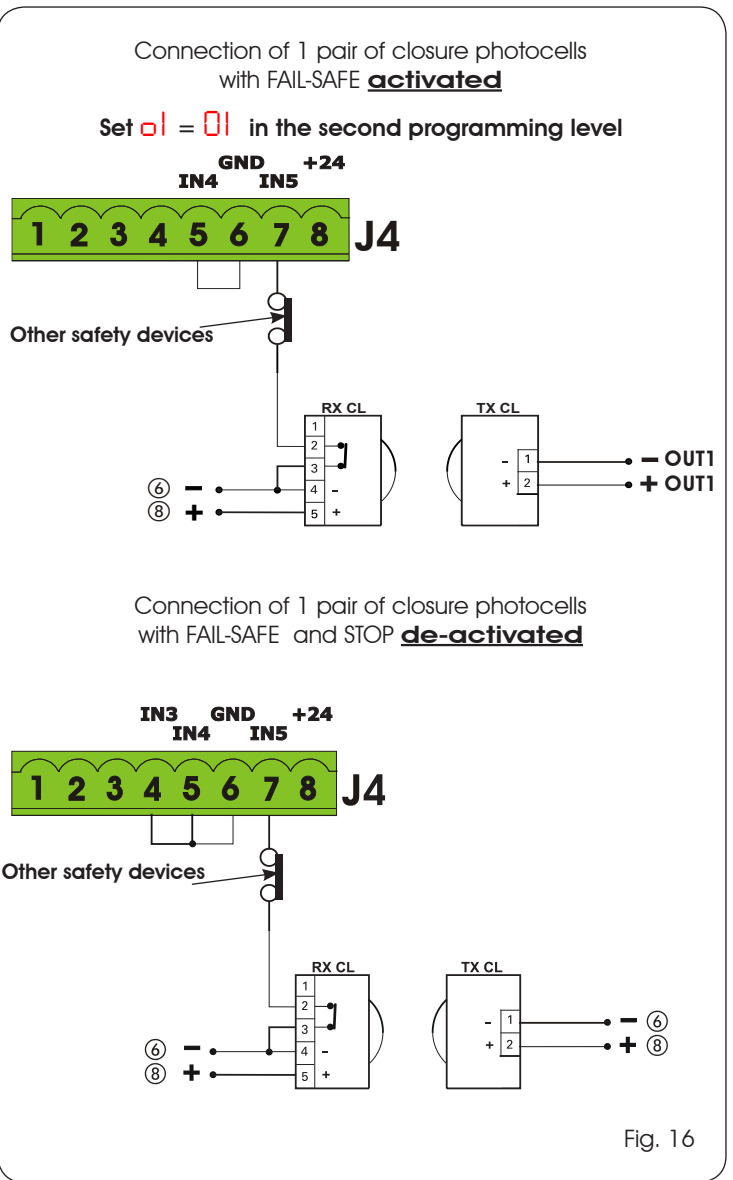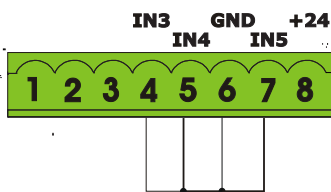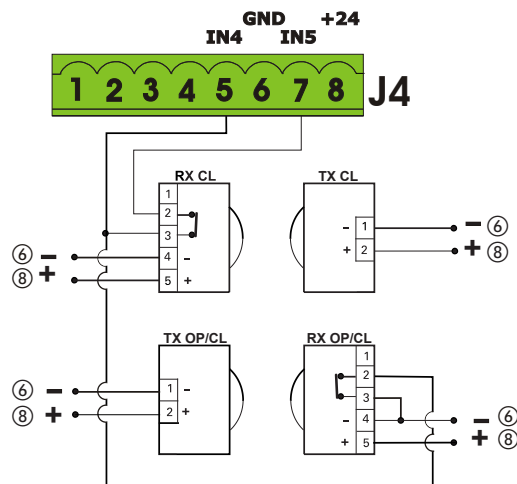⚠️ **If you have to connect two or more BUS-2EASY closing photocells, choose different codes for each pair used.**

Pulse generators: used as pulse generators to open the automated system.

A maximum of 16 pairs of BUS-2EASY photocells can be connected to the board.
The photocells are split into groups:
Opening photocells: max 6
Closing photocells: **max 7**
Opening /Closing photocells: max 2
Photocell used as an OPEN pulse: max 1
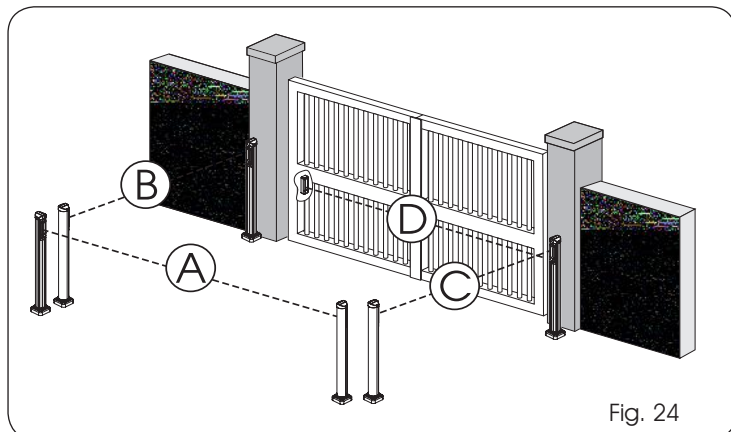
Fig. 24

Fig. 24 shows a 2-swing leaf automated system indicating the coverage beams of the photocells:
A: Photocells with OPENING and CLOSING action
B: Photocells with OPENING action
C: Photocells with OPENING action
D: Photocells with CLOSING action

6.2.1 ADDRESSING THE BUS-2EASY PHOTOCELLS

👉 *Important: the same address must be given to both transmitter and receiver.*

👉 *Make sure that there are not two or more photocell pairs with the same address*

👉 *If you are not using any BUS-2EASY accessory, leave free connector BUS-2EASY (J3- fig. 7).*

DL1 = Alignment
DL2 = BUS-2EASY/power supply status
DS1 = Programming dip-switches
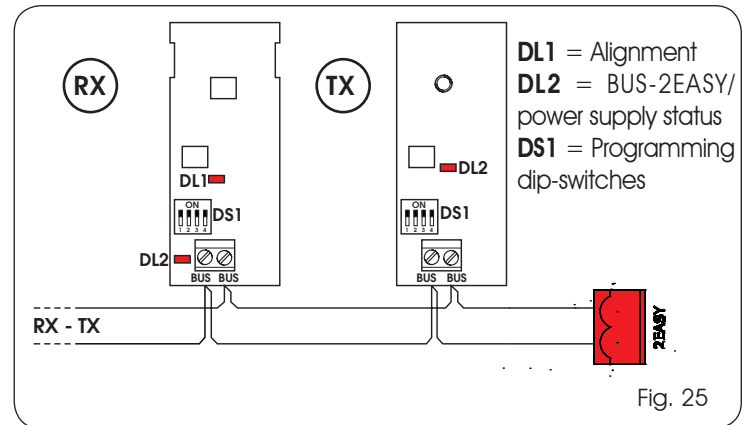
Fig. 25

Table 1 shows the programming operations of the dip-switch inside the transmitter and the BUS 2-EASY photocells receiver.

Tab. 1 - Addressing the BUS-2EASY photocells

Dip1	Dip2	Dip3	Dip4	Ref.	Type
OFF	OFF	OFF	OFF	B - C	OPENING
OFF	OFF	OFF	ON		
OFF	OFF	ON	OFF		
OFF	OFF	ON	ON		
OFF	ON	ON	OFF		
OFF	ON	ON	ON		
ON	OFF	OFF	OFF	D	CLOSING
ON	OFF	OFF	ON		
ON	OFF	ON	OFF		
ON	OFF	ON	ON		
ON	ON	OFF	OFF		
ON	ON	OFF	ON		
ON	ON	ON	OFF		
OFF	ON	OFF	OFF	A	OPENING and CLOSING
OFF	ON	OFF	ON		
ON	ON	ON	ON	/	OPEN PULSE

👉 Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).

ENGLISH

6.2.2 MEMORY STORAGE OF BUS-2EASY ACCESSORIES

You can add the BUS-2EASY photocells to the system at any time, simply by memory-storing them on the board, observing the following procedure:

1. Install and program the accessories using the required address (see parag. 6.2.1).
2. Cut power to the board.
3. Connect the two cables of the BUS-2EASY accessories to the red terminal-board J3 (any polarity will do).
4. Power the board, taking care to first connect plug J1 of the main power supply (coming from the switching feeder) and then, connector J2 of any batteries.
5. Quickly press once only the SETUP (SW3) push-button, to execute learning. Check operation of the installed BUS-2EASY devices.

The board has memory stored the BUS-2EASY accessories. Follow the instructions in the table below to check if the BUS-2EASY connection is correct.

Tab. 2 - Description of LED DL12 (RED)

ON	Safety device engaged or pulse generator active
OFF	NO safety device engaged and NO pulse generator active

Tab. 3 - Description of LED DL13 (GREEN)

Steady light	Normal activity (LED Lighted even if no photocells)
OFF	Line BUS-2EASY short circuiting (flash every 2.5 sec.)
Fast flashing	Error detected in BUS-2EASY connection error, repeat the acquisition procedure. If the error is repeated, make sure that there is not more than one accessory with the same address in the system (also see the accessories instructions).

6.2.3 ADDRESSING THE BUS-2EASY ENCODERS

Connection of the BUS-2EASY input in the control board is via the bipolar cables which come out of the encoders.

⚠️ *Unlike the case of the photocell devices, the polarity of the BUS-2EASY line connection determines whether the encoder belongs to one leaf rather than to the other.*

This is why you must pay great attention to the indications of the status LEDs on the body of each encoder (Fig. 26).
Below we list the functions of LEDs DL1, DL2, and DL3, and their statuses:

Tab. 4 - Encoder connection and LED status

LED	ON	FLASHING	OFF
DL 1	Power ON and BUS -2EASY communicating with board	Power ON but BUS-2EASY not communicating	No power to or communication with BUS-2EASY
DL 2	Leaf 1 encoder	/	Leaf 2 encoder
DL 3	Leaf not moving	Pulses read while leaf moving	Leaf not moving

- **DL 1** must always be lighted to guarantee correct connection between encoder and board.
- **DL 2** determines the leaf on which the encoder is installed. Providing the configuration is correct, the automated system will show: an encoder with DL2 lighted in leaf 1, and an encoder with DL2 OFF in leaf 2. If there is an incorrect connection, i.e. indicating two encoders with the same status of the DL2 LEDs, during the learning procedure of the BUS-2EASY accessories, the DL 1 LEDS of both encoders show a FLASHING status. In this situation, refer to the configuration in TAB.4 to define which encoder connection to rotate.
- **DL 3** indicates, on a steady flashing beam, the reading of the pulses while the leaf is moving. When the leaf is motionless, DL 3 can be either lighted or OFF.

👉 *N.B. in particular motionless leaf positions, DL3 may flutter considerably. This signal must not be considered a fault.*
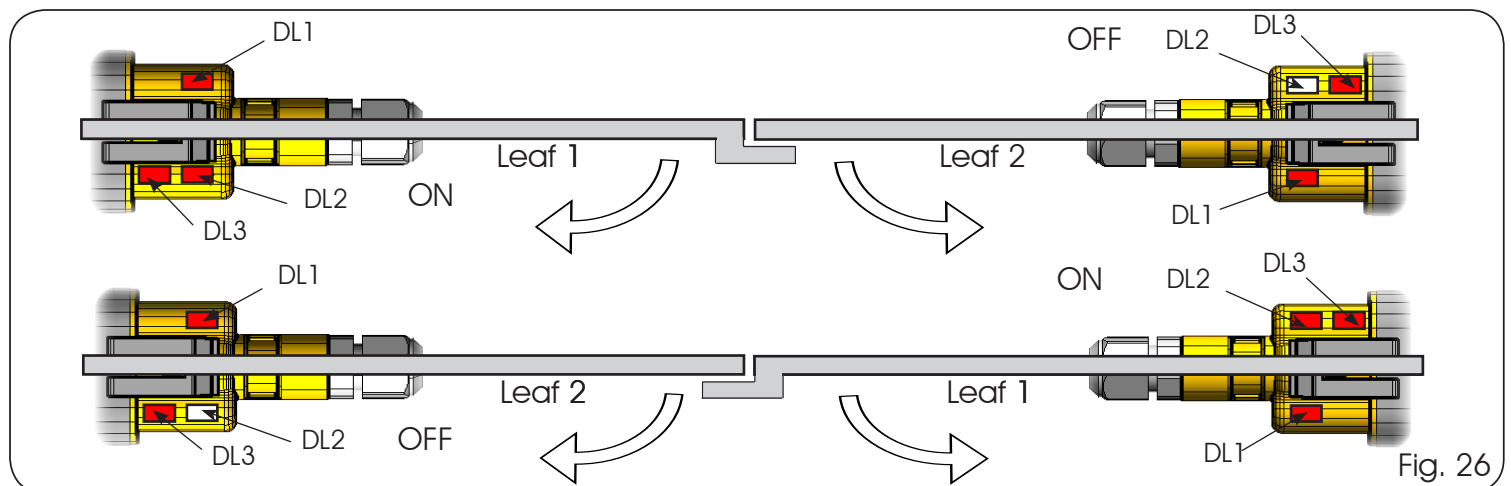

Fig. 26

7. PROGRAMMING

To program the operation of the automated system, you must access the "PROGRAMMING" mode.
Programming is in two parts: 1st LEVEL, 2nd LEVEL.

⚠️ **The status of the automated system is shown on the display. If "PC" appears on the display when the F push-button is pressed, this means that programming with the PC with a personalised protection password is loaded on the board. Programming CANNOT be modified without a PC and access password.**

⚠️ **If dF appears on the display when you press key F (and hold it down), this means that you have entered 1st level programming (see parag. 7.1).**

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

☞ *You can return to the inputs status display, and save all the parameters modified up till then, from any point of 1st and 2nd level programming by simultaneously pressing keys F and -.*

☞ *To restore the default settings, recharge the required default during the first passage of 1st level programming.*

7.1. 1ST LEVEL PROGRAMMING

If PC appears when you press any button on the display, this means that programming from the PC with a protection password is loaded on the board. Nothing can be modified without the PC and relevant protection password. Connect the PC to the USB to view and/or modify programming, using the dedicated instruction.

Press push-button **F** to access 1st level programming.

- If you press key **F** (and hold it down) the name of the function appears on the display.
- 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 have reached the last function, press key **F** to exit programming and save the parameters. The display resumes showing the automated system status.

1ST LEVEL PROGRAMMING	F				
Display	**Function**	Default 0	Default 1	Default 2	Default 3
dF	**DEFAULT:**	0	1	2	3
	0 Configures the parameters with DEFAULT values corresponding to an installation with non-FAAC operators. (see default column 0).				
	1 Configures the parameters with DEFAULT values corresponding to an installation with operators **FAAC 412, 413/415, 770, 390** (see default column 1).				
	2 Configures the parameters with DEFAULT values corresponding to an installation with operators **FAAC 391** (see default column 2).				
	3 Configures the parameters with DEFAULT values corresponding to an installation with operators **FAAC S700H** (see default column 3.				
	CU If the CU value appears when you release the **F** push-button, this means that a standard configuration modified by push-buttons and display was selected. If you wish to maintain this programming, press push-button **F** again.				
	PC If the PC value appears when you release the **F** push-button, this means that programming from the PC was effected with the default password (0000). By pressing the + and - keys, you can load a default configuration from among those listed above. If you wish to maintain programming from the PC, press push-button **F** again.				

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Display	Function	Default 0	Default 1	Default 2	Default 3
no	**TYPE OF MOTOR:** 0 non-FAAC operators. 1 operators FAAC 412, 413/415, 770, 390. 2 operators FAAC 391. 3 operators FAAC S700H.	0	1	2	3
LO	**FUNCTION LOGICS:** E Semi-automatic. A Automatic. EP Semi-automatic "Step by step". SA Automatic with in-pause reversing AP Automatic "Step-by-step". S "Safety devices" automatic. SP "Step-by-step safety devices" automatic b Semi-automatic "b". bC Mixed (OP at impulse/CL Dead-man) C Dead-man. CU Custom. At Automatic with timer function. ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*	E	E	E	E
PA	**PAUSE TIME:** Pause time is the same for TOTAL opening and PARTIAL opening. This operates only if an automatic logic was selected. Can be adjusted from 0 to 59 sec. in one second steps. Next, the viewing changes in minutes and ten seconds (separated by a dot) and time is adjusted in 10 second steps, up to the maximum value of **4.1** minuts. E.g.: if the display shows **2.5**, the pause time will be 2 min and 50 sec. ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*	20	20	20	20
F1	**MOTOR 1 POWER:** Adjusts the maximum power level of motor 1. 01 = minimum power 50 = maximum power ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).* ☞ *If the power value is changed, we advise you to execute a new SETUP (see parag.10.1)*	25	25	25	25
F2	**MOTOR 2 POWER:** Adjusts the maximum power level of motor 2. 01 = minimum power 50 = maximum power ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).* ☞ *If the power value is changed, we advise you to execute a new SETUP (see parag.10.1)*	25	25	25	25

Display	Function	Default 0	Default 1	Default 2	Default 3
SP	**SPEED:** Adjusts the motion speed of the motors. There are 10 levels. The value is relative and not absolute, because the speed value refers to the weight of the leaf measured during the SETUP cycle 01 = minimum speed 10 = maximum speed ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*	08	08	08	08
rL	**SLOW-DOWN:** Adjusts slow-down space as a percentage of the total travel of the leaves. Adjustable from 0 to 99 %. in 1% steps. 00 = no slow-down 01 = minimum slow-down 99 = maximum slow-down ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*	30	30	30	20
St	**AUTOMATED SYSTEM STATUS:** Exit from programming, storage of data and return to the automated system status view 00 = CLOSED 01 = OPEN 02 = Idle then "OPENS" 03 = Idle then "CLOSES" 04 = In "PAUSE" 05 = At opening stage 06 = At closing stage 07 = FAIL SAFE in progress 08 = verification of BUS-2EASY devices in progress 09 = Pre-flashing then "OPENS" 10 = Pre-flashing then "CLOSES" 11 = Opening in EMERGENCY status 12 = Closing in EMERGENCY status				

7.2. 2nd LEVEL PROGRAMMING

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

- if you release the **+** key, the display shows the name of the first second level function (if the dF value persists, this means that programming was effected from the PC).
- 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 values 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 automated system status.

⚠️ **If programming via the PC with personalised password was effected, you _CANNOT_ enter 2 nd level programming.**

2nd LEVEL PROGRAMMING	(F) + (+)				
Display	Function	Default 0	Default 1	Default 2	Default 3
bo	**MAXIMUM POWER AT THRUST:** The motors run at maximum power (ignoring the selected power level F1 and F2), during motion thrust. y = active no = excluded ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*	no	y	y	y

Display	Function	Default 0	Default 1	Default 2	Default 3
EL	**ELECTRIC LOCK ON LEAF 2:** The board has a terminal dedicated to the connection of an electric lock. Normally the electric lock must be connected to leaf 1. If the electric lock is located on leaf 2, adjust the parameter. Y = electric lock on leaf 2 no = electric lock on leaf 1	no	no	no	no
cd	**LEAF DELAY AT CLOSING:** Adjusts leaf delay at closing, as a percentage of the leaf's total travel. Can be adjusted from 0 to 60 sec. in 1 second steps. 00 = no delay 01 = minimum delay 60 = maximum delay	05	05	05	05
od	**LEAF DELAY AT OPENING:** Enables leaf 2 to open, delayed by 10% with respect to total opening, avoiding interference between the leaves. Y = active no = excluded	Y	Y	Y	Y
t	**WORK TIME (time-out):** We advise you to set a value longer than the time required by the gate to open and close completely. Can be adjusted from 0 to 59 sec. in 1 second steps. Next, the viewing changes in minutes and ten seconds (separated by a dot) and time is adjusted in 10 second steps, up to the maximum value of 4.1 minutes.	4.1	4.1	4.1	4.1
cS	**FINAL CLOSING THRUST:** The motors are run at maximum power to facilitate coupling with the electric lock (over pushing stroke). Y = active no = excluded ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*	no	no	no	no
rS	**REVERSING STROKE AT OPENING:** When the gate is closed before opening, the motors push to close to facilitate uncoupling the electric clock (reversing stroke). Y = active no = excluded ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*	no	no	no	no
SF	**SOFT TOUCH: (function active with FAAC operators only)** After touching the stop point, the leaves reverse and then rest gently. Y = active no = excluded ☞ *This function can be useful to respect the impact curve specified by current legal regulations.* ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*	no	no	no	no

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Display	Function	Default 0	Default 1	Default 2	Default 3
PF	**PRE-FLASHING:** Enables you to select 5 types of pre-flashings of 3 sec. duration. no = no pre-flashing. OC = pre-flashing before every movement. CL = pre-flashing before a closing motion. OP = pre-flashing before an opening motion. PA = pre-flashing at end of pause only ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*	no	no	no	no
FA	**TRAVEL-LIMIT STOP AT OPENING:** The use of travel limit stops at opening enables us to indicate the point after which the equipment search for the mechanical stop point (01, 02, 03) or to immediately stop the automated system (04, 05, 06): 00 = no travel limit device at opening for both leaves 01 = searches for stop point of leaf 1 and 2 04 = stops movement of leaf 1 and 2 02 = searches for stop point of leaf 1 05 = stops movement of leaf 1 03 = searches for stop point of leaf 2 06 = stops movement of leaf 2 ☞ *By changing limit switches setting, the letters 50 together with the SETUP (DL18) LED flash on the display, to indicate that the SETUP must be executed.*	00	00	00	00
FC	**TRAVEL-LIMIT STOP AT CLOSING:** The use of travel limit stops at closing enables us to indicate the point after which the equipment search for the mechanical stop point (01, 02, 03) or to immediately stop the automated system (04, 05, 06): 00 = no travel limit device at closing for both leaves 01 = searches for stop point of leaf 1 and 2 04 = stops movement of leaf 1 and 2 02 = searches for stop point of leaf 1 05 = stops movement of leaf 1 03 = searches for stop point of leaf 2 06 = stops movement of leaf 2 ☞ *By changing limit switches setting, the letters 50 together with the SETUP (DL18) LED flash on the display, to indicate that the SETUP must be executed.*	00	00	00	00
An	**ANTI WIND: (function only active with FAAC operators without encoder)** Adjusts intervention time of the anti-wind function, which enables the gate to operate even if there are gusts of wind. After the set time, the board commands reverse motion. Can be adjusted from 0 to 1 min. in one second steps. Next, the viewing changes in minutes and ten seconds (separated by a dot) and time is adjusted in 10 second steps, up to the maximum value of 2.0 minutes. E.g.: if the display shows 1.5, the intervention time will be 1 min and 50 sec. If the selected time is 00 the function is disabled. 00 = function disabled 2.0 = function active for maximum time	00	00	00	00

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Display	Function	Default 0	Default 1	Default 2	Default 3
EC	**ENCODER (for encoder connected both in J3-BUS-2EASY and in J7 – fig.7):** If the encoder is used, you can select its sensitivity. "Slow downs" and "partial opening" are managed by the encoder, if present. The encoder works as an anti-crushing and stop point recognition device. If, during opening or closing, the gate strikes an obstacle, the encoder causes reverse motion. The fourth obstacle detected in the same direction is recognised as a stop point and the leaf stops in that position. During slow-down, when the leaf reaches the stop point, the encoder commands the motor to stop. If using an encoder, the sensitivity (which affects both the recognition of the obstacle and the recognition of the stop point) of the anti-crush system must be adjusted, by varying parameter: 01 = minimum sensitivity 10 = maximum sensitivity ☞ *The default value is 2 seconds for obstacle recognition (at full speed), and 4 seconds for stop point recognition (on slow-down).*	07	07	07	07
Ph	**CLOSING PHOTOCELLS:** Enable this function is you want the closing photocells to stop movement or reverse it at disengagement. If this function is excluded, normally the tripping of the photocells at closure causes the leaves to reverse immediately. Y = reversal at disengagement no = immediate reversal at opening	no	no	no	no
Ad	**ADMAP FUNCTION:** This is used to activate operation according to French regulations NFP 25/362. Y = active no = excluded	no	no	no	no
o1	**OUT 1:** Used for setting the OUT1 output (open collector N.O.): 00 = Always active 01 = FAIL-SAFE 02 = INDICATOR LIGHT (off when closed, lighted during opening and open/pause, flashes during closing) 03 = COURTESY LIGHT (steady light for 90 sec.) 04 = ALARM on BATTERY operation 05 = gate OPEN or in PAUSE 06 = gate CLOSED 07 = gate MOVING 08 = gate in EMERGENCY status 09 = gate OPENING 10 = gate CLOSING 11 = ELECTRIC LOCK command before CLOSURE (you have to interface with relay 24V – 100mA) 12 = safety device ACTIVE 13 = 'TRAFFIC LIGHTS' function (activates during OPENING and when gate OPEN) ☞ *Other more detailed programming possibilities are feasible by programming with a PC (see dedicated instructions).*	00	00	00	00
o2	**OUT 2:** Used for setting output OUT2 (open collector N.O.). See OUT1 settings.	02	02	02	02

Display	Function	Default 0	Default 1	Default 2	Default 3
Ic	**RESET and X-COM RADIO MODULE ACQUISITION:** The X-COM module is used for radio communication between board and PC. Before enabling a communication, the X-COM module must be configured. If no is displayed when entering this menu, this means that the X-COM module has not yet been configured or fitted. To start the configuration procedure, fit the module in the M1A-XCOM connector on the board and hold down push-button + for 5 sec. Y will appear on the display and the flashing light will operate. The configuration procedure must then be terminated from the PC. If Y is shown when you enter this menu, this means that the X-COM module has been configured and is ready to communicate. The X-COM module can be reset by holding down the – key for 5 seconds. Y = X-COM module enabled to function. no = no X-COM module fitted or configured.	no	no	no	no
AS	**ASSISTANCE REQUEST – CYCLES COUNTER (coupled to the next two functions):** Y = When the number of cycles settable with the following nc and nd functions is reached, this facility pre-flashes for 8 sec. (in addition to the pre-flashing already set with the PF function) before every movement. ☞ *If, from the PC, an assistance request is set, with a number of cycles greater than 99.990, the next two functions nc and nd will respectively show 99 and 99.* no = the following functions nc and nd indicate how many cycles the system effected up to a maximum displayable amount of 99.990. ☞ *If the number of effected cycles is greater than 99.990, the next two functions nc and nd will respectively show 99 and 99.* This function can be useful to set routine maintenance or to check the effected work cycles.	no	no	no	no
nc	**CYCLE PROGRAMMING (THOUSANDS):** If AS = Y, the display indicates the number of the thousands of cycles after which assistance is requested (settable from 0 to 99). If AS = no, the display indicates the number of the thousands of effected cycles. The displayed value updates itself as the cycles follow, interacting with the nd values. ☞ *If AS = no by pressing keys + and – for 5 sec., the cycles counter is reset.*	00	00	00	00
nd	**CYCLE PROGRAMMING (TENS):** If AS = Y, the display indicates the number of tens of cycles after which assistance is requested (settable from 0 to 99). If AS = no, the display indicates the number of the tens of effected cycles. The displayed value updates itself as the cycles follow, interacting with the nc values. ☞ *Example: If the system has performed 11.218, nc = 11 and nd = 21 will be shown*	00	00	00	00
St	**AUTOMATED SYSTEM STATUS:** Exit from programming, storage of data and return to the automated system status view.				

00 = CLOSED
01 = OPEN
02 = Idle then "OPENS"
03 = Idle then "CLOSES"
04 = In "PAUSE"
05 = At opening stage
06 = At closing stage

07 = FAIL SAFE in progress
08 = verification of BUS-2EASY devices in progress
09 = Pre-flashing then "OPENS"
10 = Pre-flashing then "CLOSES"
11 = Opening in EMERGENCY status
12 = Closing in EMERGENCY status

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7.3. PROGRAMMING FROM PC (3ʳᵈ LEVEL)

To access PROGRAMMING FROM PC, use the X-COM module or connect the USB cable to the dedicated connector and consult the dedicated instructions.

8 SAVING THE RADIO CODE

The control unit has an integrated 2-channel decoding system (DS, SLH, LC/RC) named OMNIDEC. This system makes it possible to save both total opening (OPEN A) and partial opening OPEN B) of the automated system - this is made possible by an additional receiver module (fig.27 ref. ①) and radio controls on the same frequency.

☞ *The 3 types of radio codes (DS, LSH, LC/RC) can coexist simultaneously on the two channels. Up to 256 radio codes can be input, subdivided between OPEN A and OPEN B*

☞ *To use various coding systems on the same channel, you must finish the learning of each system and then repeat the procedure for the other.*

☞ *Other programming possibilities of the radio channels are feasible by programming with a PC (see dedicated instructions). E.G.: you can set an automatic OPEN command on the radio channel, which commands an automatic cycle (open-pause-close) irrespective of the selected logic (see dedicated PC instructions).*
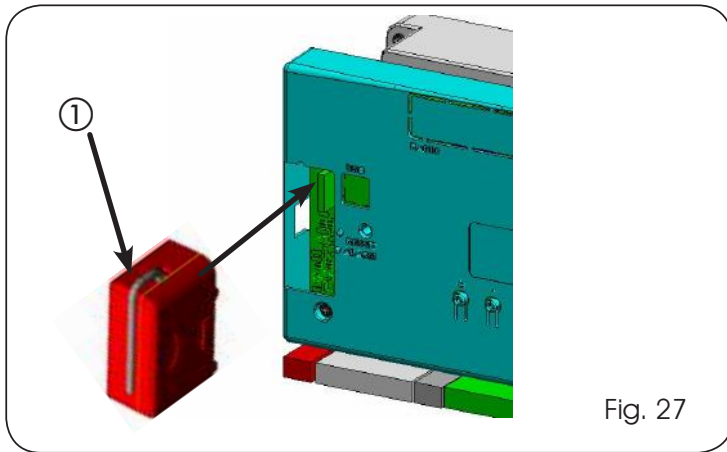

Fig. 27

8.1 SAVING DS RADIO CONTROLS

☞ *A maximum of 256 codes, subdivided between OPEN A and OPEN B can be saved.*

1. On the DS radio control, select the required ON-OFF combination for the 12 dip-switches.
2. Press push-button R1 (SW1) or (SW2) to save respectively total opening (OPEN A)or partial opening (OPEN B). The relevant LED starts to flash slowly for 5 sec.
3. Release the push-button.
4. Within these 5 sec., press the appropriate push-button on the radio control.
5. The relevant LED lights steadily for 1 second and then goes OFF, indicating that storage was executed.

6. To add other different codes, repeat the procedure from point 1.
7. To add radio controls with the same code, copy the same ON-OFF combination on the other radio controls.

8.2 SAVING SLH RADIO CONTROLS

☞ *A maximum of 256 codes, subdivided between OPEN A and OPEN B can be saved.*

1. On the SLH radio control, simultaneously press and hold down push-buttons P1 and P2.
2. The radio control LED begins to flash.
3. Release both push-buttons.
4. Press push-button R1 (SW1) or R2 (SW2) to save respectively total opening (OPEN A) or partial opening (OPEN B). The relevant LED starts to flash slowly for 5 sec.
5. Release the push-button.
6. Within these 5 sec., while the radio control LED is still flashing, press and hold down the required push-button on the radio control (the radio control LED lights up on steady beam).
7. The LED on the board lights steadily for 1 second and then goes OFF, indicating that storage was executed.
8. Release the radio control push-button.
9. Quickly press twice the push-button of the saved radio control.

⚠ **The automated system performs one opening operation. Make sure that the automated system is free of any obstacle created by persons or things.**

To enable other radio controls with the same system code, transfer the code of the memory-stored radio control push-button to the relevant push-button of the radio controls to be added, observing the following procedure:

a. On the memory stored radio control, simultaneously press and hold down push-buttons P1 and P2.
b. The radio control LED begins to flash.
c. Release both push-buttons.
d. Press the memory stored push-button and hold it down (the radio control LED lights up on steady beam).
e. Bring the radio controls near, press and hold down the push-button of the radio control to be added, releasing it only after the double flash of the radio control LED, which indicates memory storage executed.
f. Quickly press twice the push-button of the memory stored radio control.

⚠ **The automated system performs one opening operation. Make sure that the automated system is free of any obstacle created by persons or things.**

8.3 MEMORY STORAGE OF THE LC/RC RADIO CONTROLS (FOR SOME MARKETS ONLY)

☞ *A maximum of 256 codes can be saved, split between OPEN A and OPEN B.*

- Use LC/RC remote controls only with a 433 MHz receiver module.
- Press push-button R1 (SW1) or (SW2) to save respectively total opening (OPEN A)or partial opening (OPEN B). The relevant LED starts to flash slowly for 5 sec.
- Release the push-button.
- Within these 5 sec., press the appropriate push-button on the LC/RC remote control.
- The LED lights steadily for 1 second, indicating memory storage executed, and then resumes flashing for another 5 sec., during which another radio control can be memory stored.
- When the 5 sec. have elapsed, the LED goes OFF indicating the end of the procedure.
- To add other radio controls, repeat the operation at point 1.

8.3.1 REMOTE SAVING OF LC/RC RADIO CONTROLS

Other radio controls can be remotely stored with the LC/RC radio controls, i.e. without directly intervening on the board, by using a previously stored radio control.
- Obtain a radio control already stored on one of the 2 channels (OPEN A or OPEN B)
- Press and hold down push-buttons P1 and P2 simultaneously until both LEDs flash slowly for 5 sec.
- Within 5 sec. press the push-button of the radio control that had been memory stored to enable learning on the selected channel.
- The LED on the board relating to the channel being learned flashes for 5 sec., within which time the code of another radio control must be transmitted.
- The LED lights steadily for 2 seconds, indicating memory storage executed, and then resumes flashing for 5 sec., during which other radio controls can be memory stored, and then goes OFF

8.4 RADIO CONTROLS DELETION PROCEDURE

To delete **ALL** the input codes of the radio controls just press push-button R1 (SW1) and R2 (SW2) for 10 sec.
- The 2 LEDs DL16 and DL17 flash quickly for the following 10 sec.
- Both LEDs light steadily for 2 sec and then go OFF (deletion effected).
- Release both push-buttons.

⚠ *This operation is __NOT__ reversible. All codes of radio controls stored as OPEN A and OPEN B will be deleted.*

9 CONNECTION TO EMERGENCY BATTERIES (OPTIONAL)

The emergency batteries will activate the automated system also in the event of a power cut.

☞ *The batteries (**Lead 12V - 4 Ah/ 90 x 70 x 108 mm**) are normally charged by a battery charger built into the board and start operating when a mains power cut occurs.*

The emergency batteries can be inserted inside the container of the control board, laying them against a specific support.

1. Remove the container cover with a screwdriver.
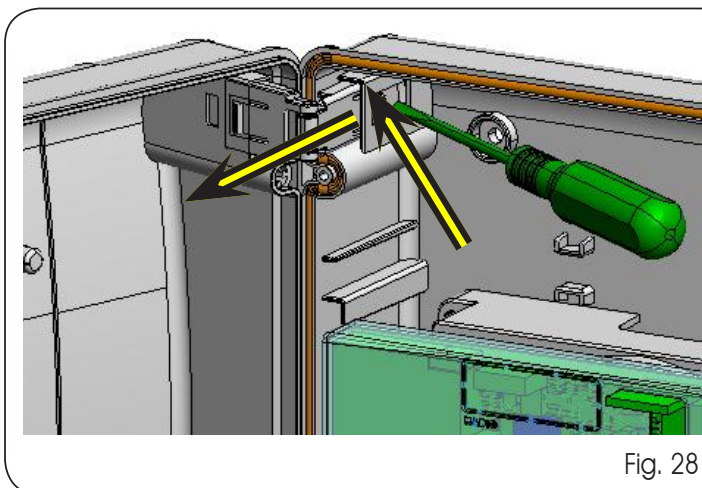
Fig. 28

2. Insert the support as shown in the figure below.
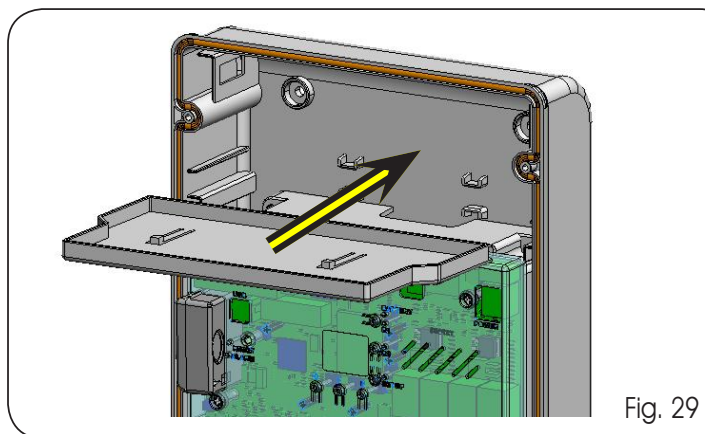
Fig. 29

3. Insert the batteries as shown in the figure below.
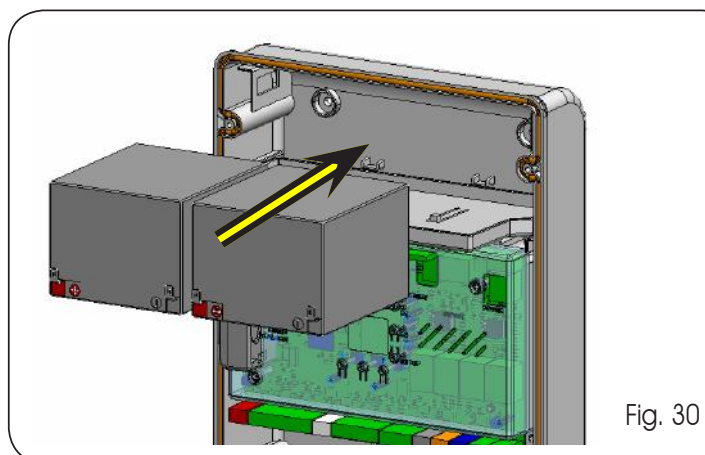
Fig. 30

4. Connect the cables to the batteries, respecting polarity, and the connector to terminal J2 of the board, as shown in the figure below.

☞ *Connect the connector to the batteries, only after you have connected the primary power supply connector to J1.*
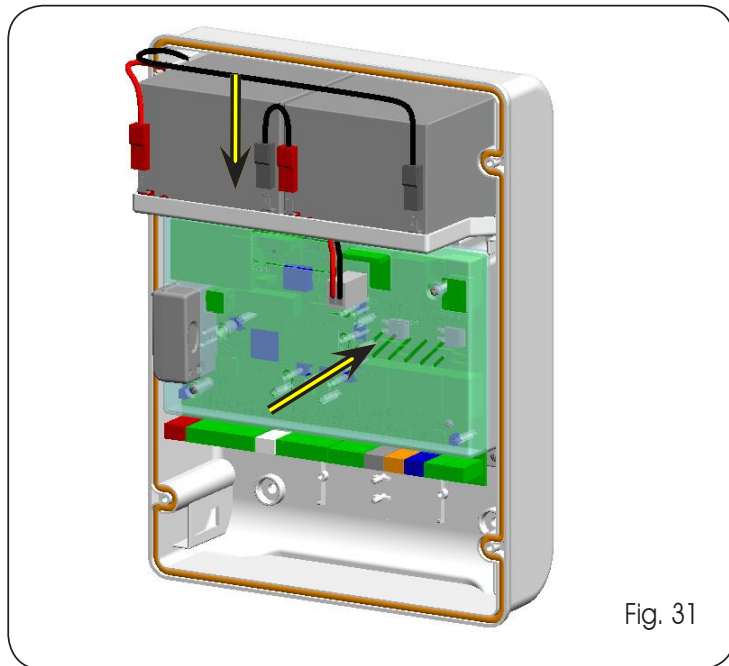
Fig. 31

5. Re-fit the cover on the container.
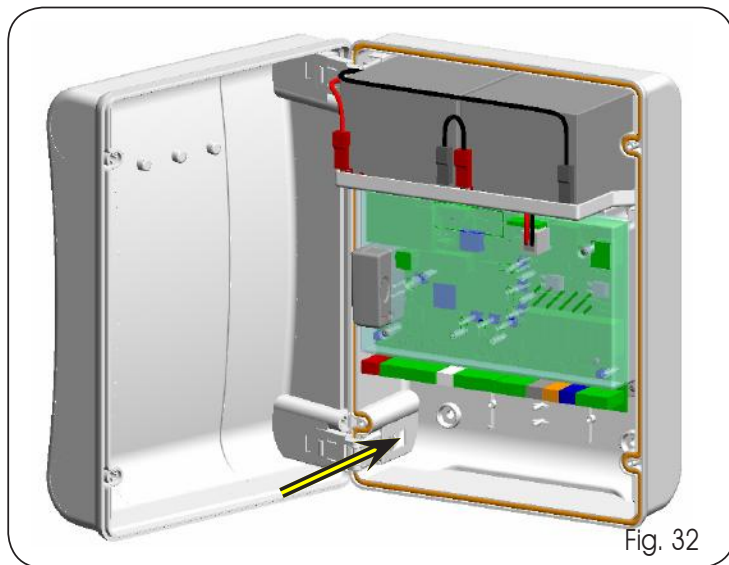
Fig. 32

☞ *At changeover to battery operation, the automated system operates normally until the minimum reserve charge is reached. This is followed by the final closing manoeuvre.*

☞ *At changeover to battery operation, the flashing light flashes faster with respect to operation on power from the mains.*

☞ *Other battery management programming possibilities are feasible by programming with a PC (see dedicated instructions).*

To check correct battery charge, control the LED referring to the secondary power supply DL15:

Tab. 5 - LED DL15 during operation on the mains supply:

LED on	Battery charged
LED flashing	Battery being recharged. The LED continues to flash until the battery has recharged sufficiently.
LED off	Battery discharged

Tab. 6 - LED DL15 during operation on the battery:

LED on	Battery charged
LED flashing	During last manoeuvre
LED off	Battery discharged

10 START-UP

10.1 LEDS CHECK

After you have made all the connections and powered up the board, check with the table below the status of the LEDs in relation to the status of the inputs (condition of automated system closed and at rest in **bold**).
Check the status of the signalling LEDs as per table below

Note that: L_{ED} ON = contact closed
                 L_{ED} OFF = contact open

Tab. 7 - Operation of status signalling LEDs with configuration

☞ *Other battery management programming possibilities are feasible by programming with a PC (see dedicated instructions).*

LED	Description	ON (contact closed)	OFF (contact open)
DL1	IN1 - OPEN A	Command enabled	**Command disabled**
DL2	IN2 - OPEN B	Command enabled	**Command disabled**
DL3	IN3- STOP	**Command disabled**	Command enabled
DL4	IN4 - FSW OP	**Safety devices disabled**	Safety devices tripped
DL5	IN5 - FSW CL	**Safety devices disabled**	Safety devices tripped
DL6	FCA1	**Opening travel-limit devices free**	Opening travel-limit devices engaged
DL7	FCC1	Closing travel-limit devices free	**Closing travel-limit devices engaged**
DL8	FCA2	**Opening travel-limit devices free**	Opening travel-limit devices engaged
DL9	FCC2	Closing travel-limit devices free	**Closing travel-limit devices engaged**
DL10	ENC1	Flashing during operation	
DL11	ENC2	Flashing during operation	

10.2 TIME LEARNING - SETUP

The opening and closing time is determined by a time learning procedure (SETUP).

☞ *This procedure is the same for all selectable defaults.*

When the encoders (J3 or J7) are connected to the relevant inputs, the board automatically recognises the presence of these accessories.

☞ *By powering up the board if a SETUP was never executed, or if the board requests it, the letters 50 together with the SETUP (DL18) LED flash on the display, to indicate that the SETUP must be executed.*

To execute time learning, follow the steps below:

1. **Take the leaves to halfway their travel (very important for a successful SETUP).**

2. Hold down the SETUP (SW3) push-button, until the SETUP (DL18) LED goes OFF and leaf 2 (if present) begins the slowed down closing movement, stopping when it reaches the mechanical stop point. At this stage, 51 flashes on the display (setup: FIRST CLOSURE LEAF 2)

3. Leaf 1 starts the slowed down closing movement, stopping when it reaches the closing mechanical stop. At this stage, 52 flashes on the display (setup: FIRST CLOSURE LEAF 1)

4. Leaf 1 begins the slowed down opening movement, followed by leaf 2 (if present) also slowed down. At this stage, 54 flashes on the display (setup: OPEN)

5. When the opening mechanical stop point is reached, both leaves stop and leaf 2 (if present) automatically restarts to close at full speed, followed by leaf 1. At this stage, 55 flashes on the display (setup: FAST CLOSE).

6. When the closing mechanical stop point is reached, both leaves stop and leaf 1 restarts to open automatically at full speed followed by leaf 2 (if present). At this stage, 56 flashes on the display (setup: FAST OPEN).

7. If an automatic logic was selected, the board counts the set pause and automatically closes the gate. Otherwise, give an OPEN pulse to close the gate.

☞ *When the SETUP procedure has been started, if the leaves at point 2 and 3 open instead of closing, the motor power supply cables must be changed over.*

11 AUTOMATED SYSTEM TEST

When you have finished installation and programming, check if the system is operating correctly. In particular check if the safety devices intervene correctly, and make sure that the system satisfies current safety regulations. Close the cover in its seat with a seal.
Next, tighten the four supplied screws to guarantee the degree of protection against external agents (Fig. 33).

Fig. 33

12 ALARM AND ERROR SIGNALS

If **alarms** (conditions not prejudicing gate operation) or **errors** (conditions preventing the gate from operating), the display shows the number referring to the condition.

☞ *These signals will disappear during the following cycle only if the cause is removed.*

12.1 ALARMS

☞ *When an ALARM occurs, LED DL20 starts to flash. If you simultaneously press keys + and – the display will show the number of the fault in progress*

All the alarms shown on the display are indicated in Tab.8.

Tab. 8 - Alarms

22	MOTOR 1 current limited
23	MOTOR 2 current limited
24	LAMP output short circuited
25	LOCK output short circuited
30	XF-module radio codes memory full
35	Timer function active
40	Cycles programmed at second programming level (nC) exhausted.
45	Battery operation

12.2 ERRORS

☞ *When an ERROR occurs, LED DL20 goes ON at steady beam. If you simultaneously press keys + and – the display will show the number of the fault in progress*

All the errors shown on the display are indicated in Tab.9.

Tab. 9 - Errors

01	Board failure
02	Thermal protection active
03	Motor 1 failure
04	Motor 2 failue
05	Last battery movement performed
10	Both motor 1 travel limit devices engaged
11	Both motor 2 travel limit devices engaged
15	Time-out elapsed
17	Motor 1 encoder failure
18	Motor 2 encoder failure

13   FUNCTION LOGICS

👉 *In brackets: effects on the other inputs when pulse active*

👉 *CLOSE command can only be active from PC*

Tab. 10/a

LOGIC "E"	PULSES						
AUTOMATED SYSTEM STATUS	**OPEN A**	**OPEN B**	**CLOSE**	**STOP**	**FSW OP**	**FSW CL**	**FSW CL/OP**
CLOSED	opens the leaves	opens released leaf	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	stops operation (1)	stops operation	recloses leaves immediately	stops operation	immediately reverses at closure	no effect	stops and opens at release (OPEN stops - saves CLOSE)
OPEN	recloses leaves immediately (1)	recloses leaves immediately	recloses leaves immediately	no effect (OPEN/CLOSE disabled)	no effect	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)
CLOSING	reopens leaves immediately	reopens leaves immediately	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.)	stops and opens at release (OPEN stops - saves CLOSE)
BLOCKED	closes leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN stops - saves CLOSE)

(1) if the cycle began with OPEN-B (released leaf), both leaves are activated at opening

Tab. 10/b

LOGIC "A"	PULSES						
AUTOMATED SYSTEM STATUS	**OPEN A**	**OPEN B**	**CLOSE**	**STOP**	**FSW OP**	**FSW CL**	**FSW CL/OP**
CLOSED	opens and closes after pause time	opens released leaf and closes after pause time	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect (1)	no effect	recloses leaves immediately	stops operation	reverses at closure	no effect	stops and opens at release (saves CLOSE)
OPEN IN PAUSE	recharges pause time (1)	recharges pause time of released leaf	recloses leaves immediately	stops operation	no effect	recharges pause time (CLOSE disabled)	recharges pause time (CLOSE disabled)
CLOSING	reopens leaves immediately	reopens leaves immediately	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.)	stops and opens at release (saves CLOSE)
BLOCKED	closes leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (released leaf), both leaves are activated at opening

Tab. 10/c

LOGIC "EP"	PULSES						
AUTOMATED SYSTEM STATUS	**OPEN A**	**OPEN B**	**CLOSE**	**STOP**	**FSW OP**	**FSW CL**	**FSW CL/OP**
CLOSED	opens the leaves	opens released leaf	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	stops operation (1)	stops operation	recloses leaves immediately	stops operation	immediately reverses at closure	no effect	stops and opens at release (OPEN stops - saves CLOSE)
OPEN	recloses leaves immediately (1)	recloses leaves immediately	recloses leaves immediately	no effect (OPEN/CLOSE disabled)	no effect	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)
CLOSING	stops operation	stops operation	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.)	stops and opens at release (OPEN stops - saves CLOSE)
BLOCKED	restarts moving in opposite direction. Always closes after STOP	restarts moving in opposite direction. Always closes after STOP	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN stops - saves CLOSE)

(1) if the cycle began with OPEN-B (released leaf), both leaves are activated at opening

Tab. 10/d

LOGIC "SA"	PULSES						
AUTOMATED SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens and closes after pause time	opens released leaf and closes after pause time	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect (1)	no effect	recloses leaves immediately	stops operation	reverses at closure	no effect	stops and opens at release (saves CLOSE)
OPEN IN PAUSE	recloses leaves immediately (1)	recloses leaves immediately	recloses leaves immediately	stops operation	no effect	recharges pause time (CLOSE disabled)	recharges pause time (CLOSE disabled)
CLOSING	reopens leaves immediately	reopens leaves immediately	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.)	stops and opens at release (saves CLOSE)
BLOCKED	closes leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (released leaf), both leaves are activated at opening

Tab. 10/e

LOGIC "AP"	PULSES						
AUTOMATED SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens and closes after pause time	opens released leaf and closes after pause time	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	stops operation (1)	stops operation	recloses leaves immediately	stops operation	reverses at closure (saves OPEN)	no effect	stops and opens at release (OPEN stops - saves CLOSE)
OPEN IN PAUSE	stops operation (1)	stops operation	recloses leaves immediately	stops operation	no effect	recharges pause time (CLOSE disabled)	recharges pause time (CLOSE disabled)
CLOSING	reopens leaves immediately	reopens leaves immediately	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.)	stops and opens at release (OPEN stops - saves CLOSE)
BLOCKED	closes leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (released leaf), both leaves are activated at opening

Tab. 10/f

LOGIC "S"	PULSES						
AUTOMATED SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens and closes after pause time	opens released leaf and closes after pause time	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect (1)	no effect	recloses leaves immediately	stops operation	reverses at closure	continues to open and recloses immediately	stops and opens at release (saves CLOSE)
OPEN IN PAUSE	recloses leaves immediately (1)	recloses leaves immediately	recloses leaves immediately	stops operation	no effect	stops and, at release, closes	stops and, at release, closes
CLOSING	reopens leaves immediately	reopens leaves immediately	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.) and closes immediately at end	stops and opens after release and closes immediately at end
BLOCKED	closes leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (released leaf), both leaves are activated at opening

Tab. 10/g

LOGIC "SP"	PULSES						
AUTOMATED SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens and closes after pause time	opens released leaf and closes after pause time	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	stops operation (1)	stops operation	recloses leaves immediately	stops operation	reverses at closure	continues to open and recloses immediately	stops and opens after release and closes immediately at end (OPEN stops - saves CLOSE)
OPEN IN PAUSE	recloses leaves immediately (1)	recloses leaves immediately	recloses leaves immediately	stops operation	no effect	stops and, at release, closes	stops and, at release, closes
CLOSING	stops operation	stops operation	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.)	stops and opens at release (saves CLOSE)
BLOCKED	restarts moving in opposite direction. Always closes after STOP	restarts moving in opposite direction. Always closes after STOP	recloses leaves immediately	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

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Tab. 10/h

LOGIC "B"	PULSES						
AUTOMATED SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens the leaves	no effect	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect	closes leaves	closes leaves	stops operation	reverses at closure	no effect	stops and, at release, closes (saves OPEN/CLOSE)
OPEN	no effect	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)
CLOSING	opens the leaves	no effect	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.)	stops and opens at release (saves OPEN/CLOSE)
BLOCKED	opens the leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (released leaf), both leaves are activated at opening

Tab. 10/i

LOGIC "bC"	PULSES AT OPENING / COMMANDS MAINTAINED AT CLOSURE			PULSES			
AUTOMATED SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens the leaves	no effect	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect	closes leaves	closes leaves	stops operation	reverses at closure	no effect	stops and, at release, closes (saves OPEN/CLOSE)
OPEN	no effect	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)
CLOSING	opens the leaves	no effect	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.)	stops and opens at release (saves OPEN/CLOSE)
BLOCKED	opens the leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (released leaf), both leaves are activated at opening

Tab. 10/l

LOGIC "C"	MAINTAINED COMMANDS			PULSES			
AUTOMATED SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens the leaves	no effect	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect	closes leaves	closes leaves	stops operation	reverses at closure	no effect	stops and, at release, closes (saves OPEN/CLOSE)
OPEN	no effect	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)
CLOSING	opens the leaves	no effect	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.)	stops and opens at release (saves OPEN/CLOSE)
BLOCKED	opens the leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (released leaf), both leaves are activated at opening

Tab. 10/m

LOGIC "At" (2)	PULSES						
AUTOMATED SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens and closes after pause time	opens released leaf and closes after pause time	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect (1)	no effect	recloses leaves immediately	stops operation	reverses at closure	no effect	stops and opens at release (saves CLOSE)
OPEN IN PAUSE	recharges pause time (1)	recharges pause time	recloses leaves immediately	stops operation	no effect	recharges pause time (CLOSE disabled)	recharges pause time (CLOSE disabled)
CLOSING	reopens leaves immediately	reopens leaves immediately	no effect	stops operation	no effect	reverses at opening (see 2nd level prog.)	stops and opens at release (saves CLOSE)
BLOCKED	closes leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(2) At power up, the board verifies the inputs, and if an OPEN A or B command is active, it opens the leaf or leaves – otherwise it closes.