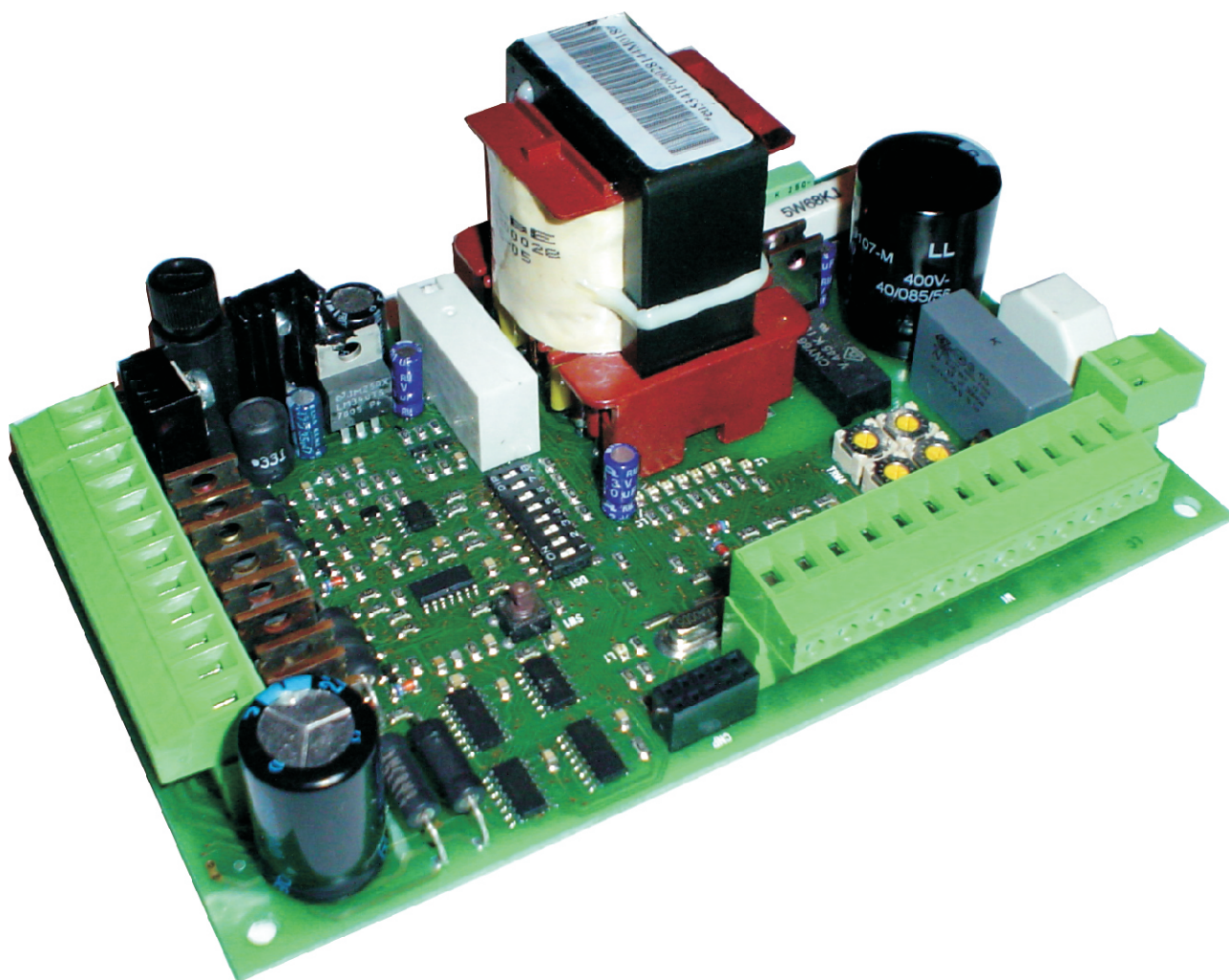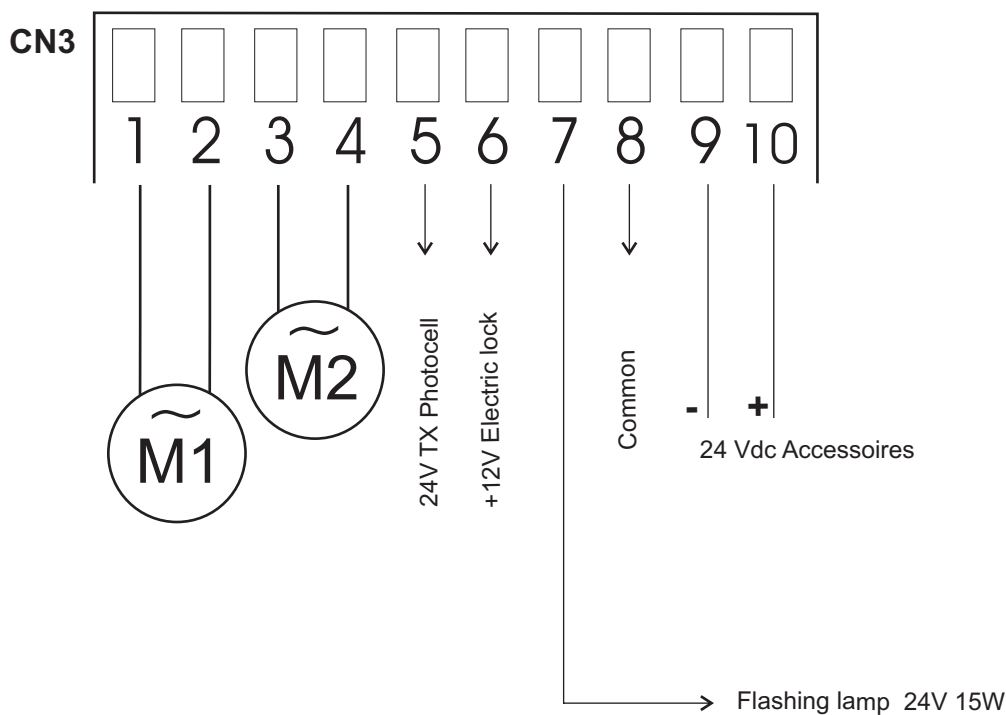# GATE 2 - 24V PLUS

23001135

ELECTRONIC CONTROL UNIT FOR SWING OPERATORS 24 V D.C.

CONNECTIONS

CN1

1	2	3	4	5	6	7	8	9	10	11	12

- START
- STOP
- START Ped.
- GND
- PHOTOCELL
- LIMIT SWITCH Op1
- LIMIT SWITCH Cl1
- LIMIT SWITCH Op2
- LIMIT SWITCH Op2
- GND
- AERIAL
- GND

CN2

1	2

- POWER SUPPLY
- 230V AC INCOMING

CN3

1	2	3	4	5	6	7	8	9	10

- M1
- M2
- 24V TX Photocell
- +12V Electric lock
- Common
- − / + 24 Vdc Accessoires

Flashing lamp 24V 15W

CN4

1	2

+ −

Battery 24Vdc
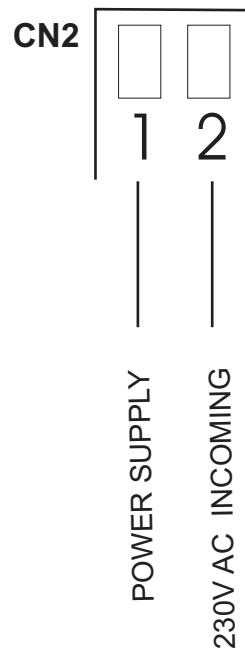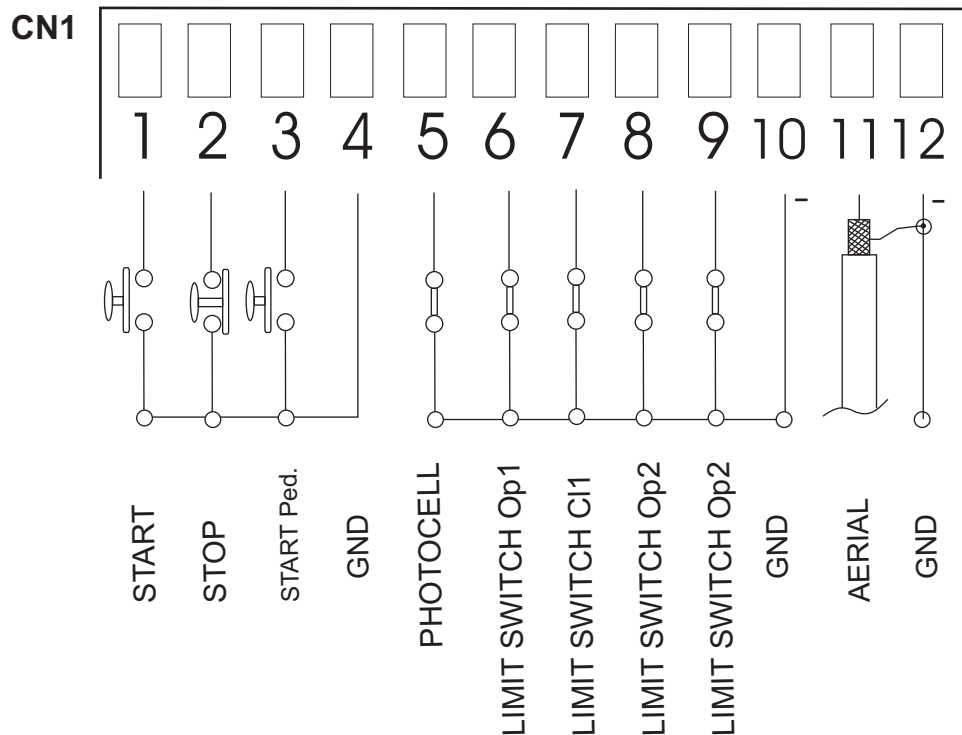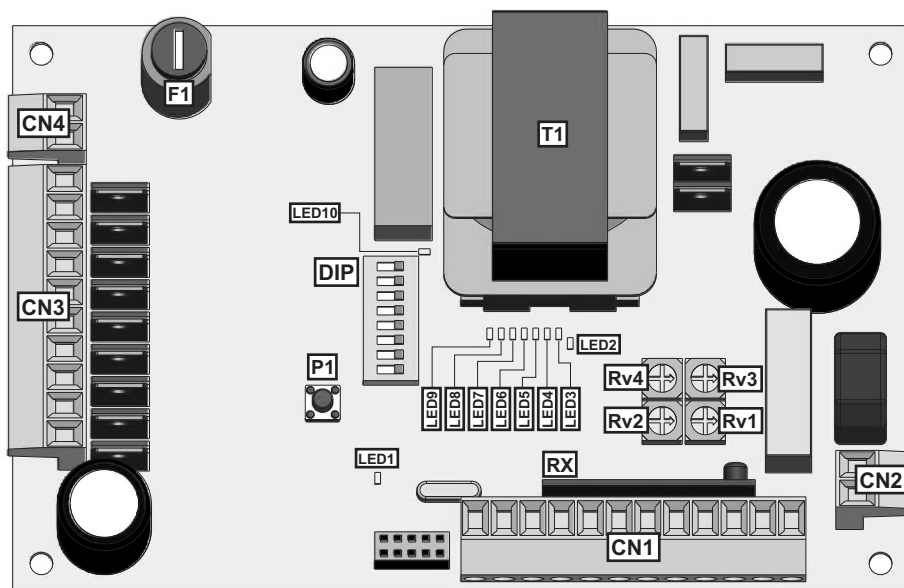
DESCRIPTION OF THE COMPONENTS

GB **LED1** = Programming Tx/selflearning / **LED2** = Photocell / **LED3** = Start / **LED4** = Stop / **LED5** = Start pedestrian / **LED6** = Limit switch opening motor 2 / **LED7** = Limit switch closing motor 2 / **LED8** = Limit switch opening motor 1/ **LED9** = Limit switch closing motor 1 / **LED10** = Power supply / **F1** = Fuse battery charge 250mA / **RX** = 433 Mhz receiver module CN**1** = Connector for entries / **CN2** = 230V power supply connector / **CN3** = Connector for exits / **CN4** = Battery connector / **Rv1** = Anti crush sensitivity adjustment / **Rv2** = Speed adjustment of leaves/ **Rv3** = Leaf delay adjustment in closing /**Rv4** = Pause time adjustment/ **P1** = Push button for working time and radio transmitter memorization / **DIP** = Dip-switch / **T1** = Transformer

INDEX

GENERAL INFORMATION

GENERAL CHARACTERISTICS

The GATE 2 24V control unit has been designed to manage one or two low voltage swing gate operators with or without electronic limit switches.

Its dimensions are very small and as well as the classic functions refered to by the dip-switch it has several other features such as motor speed adjustment, amperometric sensitivity for anti crush, adjustment of leaf delay in closing and alteration of pause time .

The self- learning of working tims is done automatically.

TECHNICAL CHARACTERISTICS

Control unit power supply	230V ~ (+6 -10%) - 50/60 Hz
Absorbt power	10 W
Max. motor charge	70 W x 2
Max. accessories charge	24Vdc 200mA
Max. Flash light charge	24Vdc 15W max.
Environment temperature	-20°C +50°C
Protection fuse (24V accessories)	1 (250mA)
Function logic	Automatic / Manual / Security / Dead man
Opening/closing time	In selflearning in programming phase
Time of pause	Adjustable with trimmer
Thrust	Adjustable with trimmer
Slow down	In selflearning in programming phase
Entries on connecting terminal	Battery power supply / Total opening /pedestrian opening / Security / Stop / limit switch opening and closing
Exit on connecting terminal	Power supply accessories 24Vdc / Motors 24Vdc / Flashing lamp 24Vdc / Electric lock 12Vdc / Power supply TX photocell
Board dimensions	156 x 100 mm
Characteristics optional batteries	12V - 4 Ah / dimensions 90 x 70 x 108 mm
Characteristics of external enclosure	305 x 225 x 125 mm - Ip55

ARRANGEMENTS

For Health and Safety reasons it is important to carefully follow all advice and instructions in this manual. An incorrect installation or a wrong use of the product can cause injury to persons.
Make sure that the installation has an adequate differential switch as prescribed by the law in force and local isolation at the control panel.
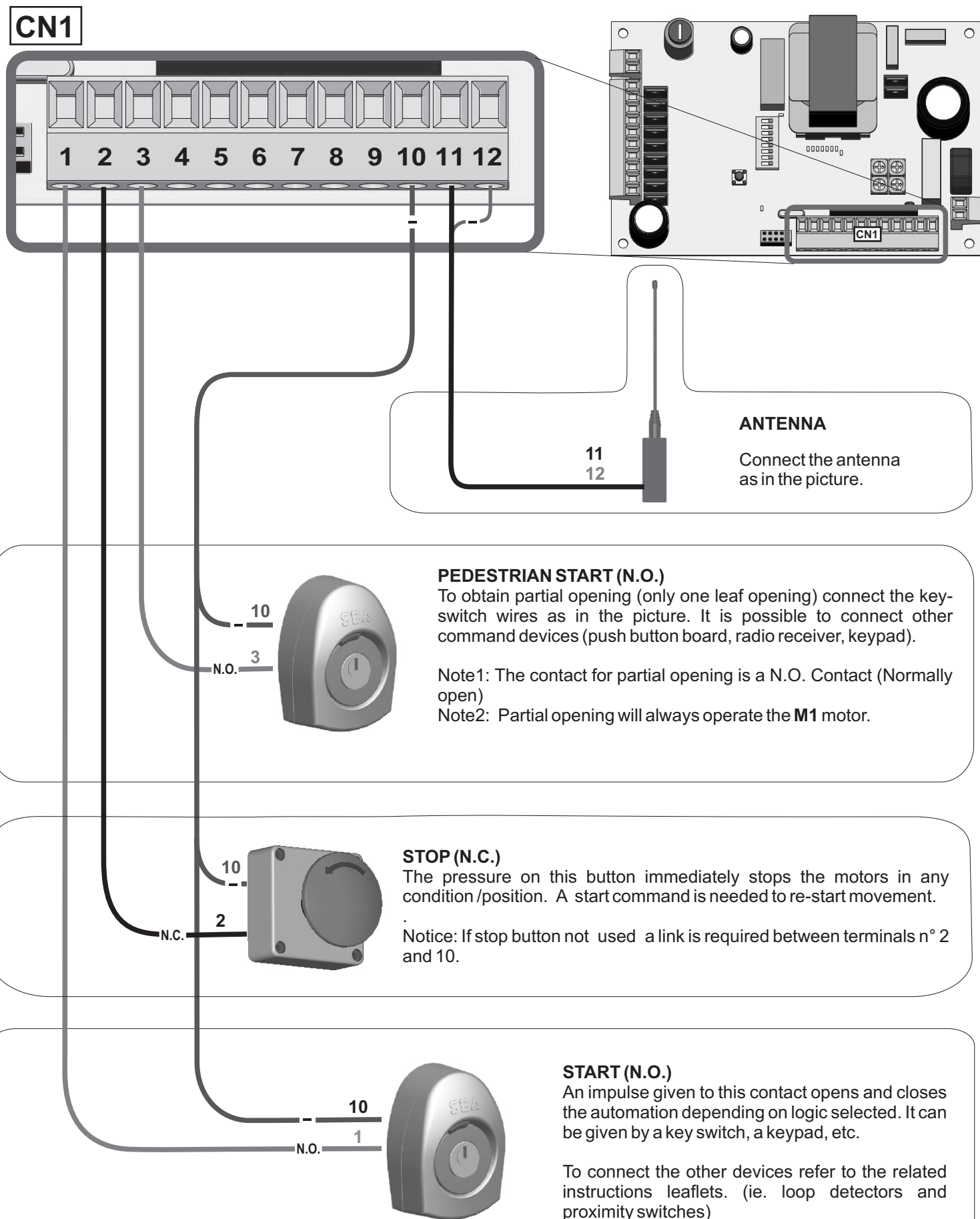For the installation of the electric cables use adequate rigid and/or flexible ducts.

Always separate the connection cables of low voltage accessoires from those of 115/230V~ power supply. To avoid any interference use separate casings.
Max. length of the power supply cable between control unit and motors is 10m, using cables with 2,5 mm^2 section.
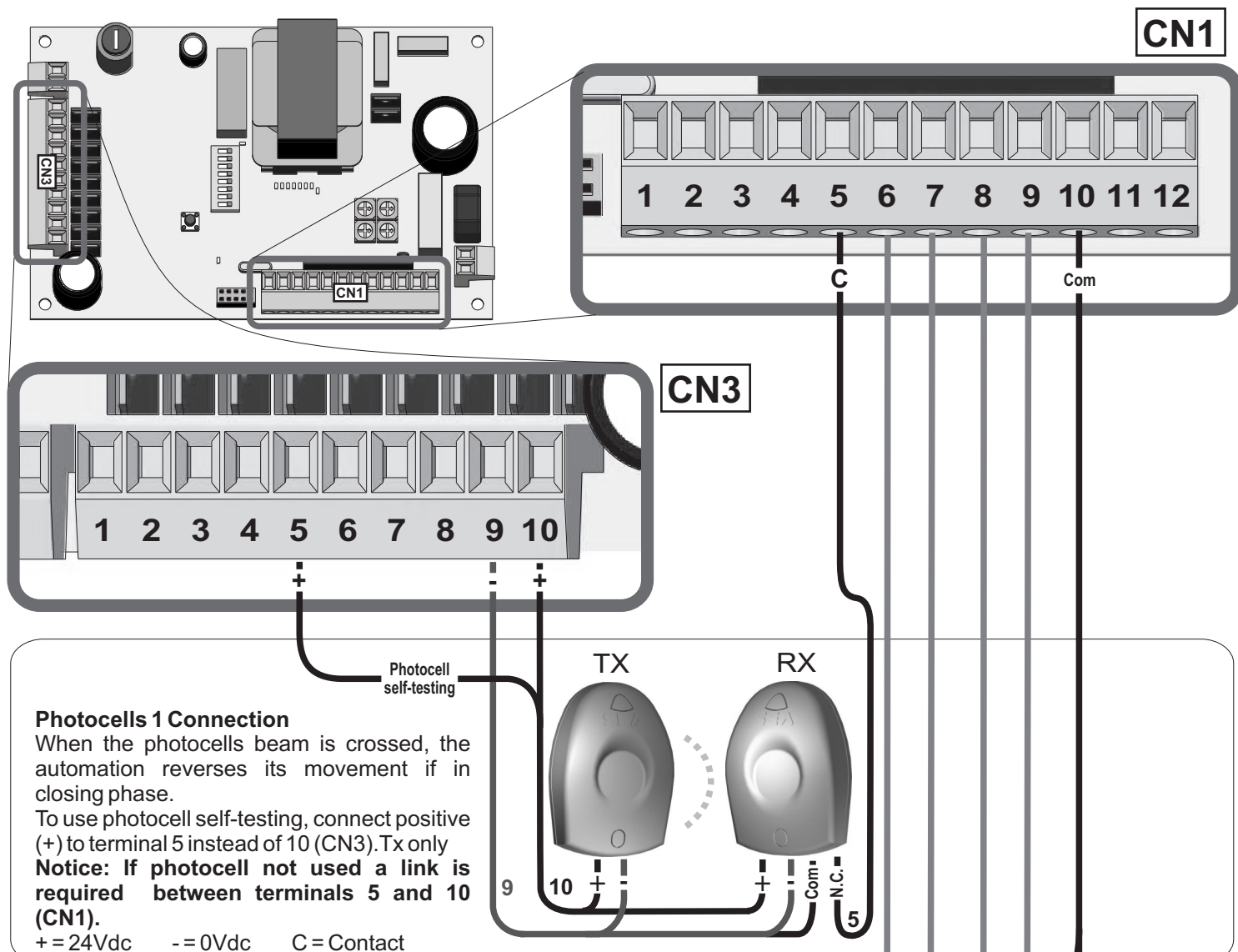
START - STOP - PEDESTRIAN START - ANTENNA

CN1

ANTENNA

11
12

Connect the antenna as in the picture.

PEDESTRIAN START (N.O.)

10

3

N.O.

To obtain partial opening (only one leaf opening) connect the key-switch wires as in the picture. It is possible to connect other command devices (push button board, radio receiver, keypad).

Note1: The contact for partial opening is a N.O. Contact (Normally open)
Note2: Partial opening will always operate the **M1** motor.

STOP (N.C.)

10

2

N.C.

The pressure on this button immediately stops the motors in any condition /position. A start command is needed to re-start movement.
.
Notice: If stop button not used a link is required between terminals n° 2 and 10.

START (N.O.)

10

1

N.O.

An impulse given to this contact opens and closes the automation depending on logic selected. It can be given by a key switch, a keypad, etc.

To connect the other devices refer to the related instructions leaflets. (ie. loop detectors and proximity switches)

SEA Automazione Porte e Cancelli

PHOTOCELLS/LIMIT SWITCH

CN1

CN3

Photocells 1 Connection
When the photocells beam is crossed, the automation reverses its movement if in closing phase.
To use photocell self-testing, connect positive (+) to terminal 5 instead of 10 (CN3).Tx only
Notice: If photocell not used a link is required between terminals 5 and 10 (CN1).
+ = 24Vdc   - = 0Vdc   C = Contact

Photocell self-testing

TX   RX

Limit Switches
They can be of different types:
- inductive limit switch
- mechanical limit switch with lever
- limit switch with spring
- limit switch for motor-reducer with chain.

All these limit switches must be manufactured by SEA for compatibility with the connectors
Com = Common
N.B. If limits not used a link is required between terminal 6 to 10.

Limit Switch 1 M1
Limit Switch 2 M1
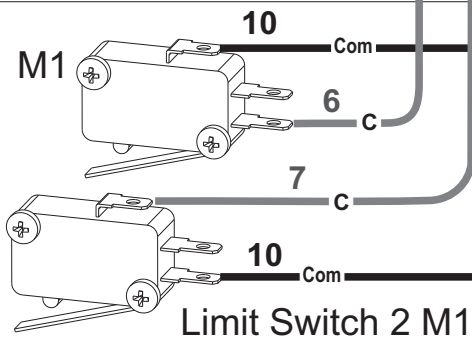
Limit Switches
They can be of different types:
- inductive limit switch
- mechanical limit switch with lever
- limit switch with spring
- limit switch for motor-reducer with chain.

All these limit switches must be manufactured by SEA for compatibility with the connectors
Com = Common
N.B. If limits not used a link is required between terminal 8 to 10.

Limit Switch 1 M2
Limit Switch 2 M2
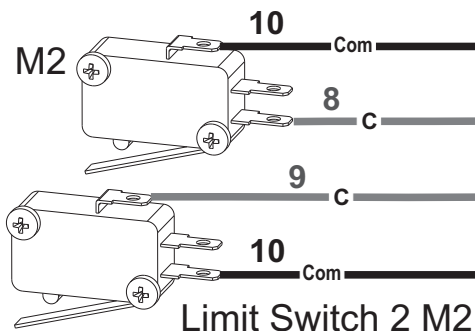
ELECTRIC LOCK/FLASHING LAMP/ RECEIVER

CN3

1 2 3 4 5 6 7 8 9 10
+ + - - +
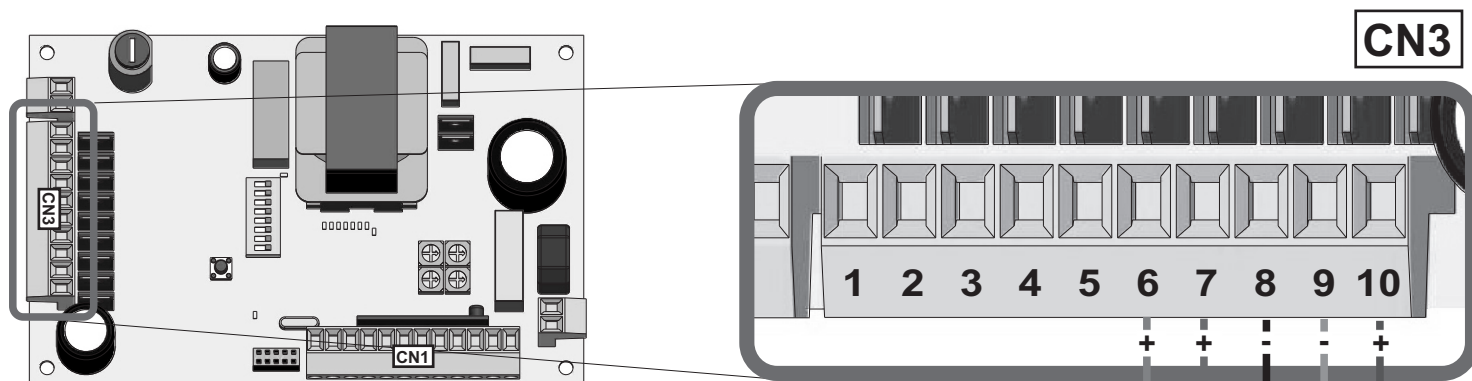
Electric lock exit

An electric lock of 12Vdc 15W max can be connected .
The electric lock activates at every opening cycle for about 1,5 sec.

6 +

8 -
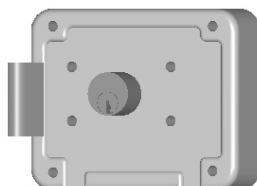
Flashing Lamp 24V 15W

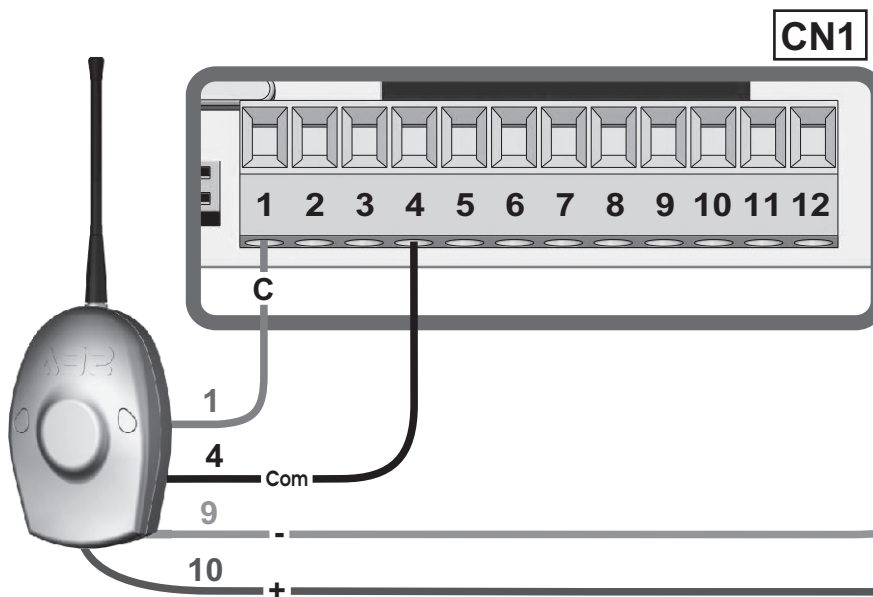The flashing lamp gives warning that the gate is moving. To connect, wire the flashing lamp as in the picture.

It is possible to activate a pre-flashing of 3 seconds (Dip 8 to ON position).

8 + 7

-

CN1

Connection of a radio receiver

This connection allows full opening/closing of the automation. For the receiver connection make reference to the related instruction manual.
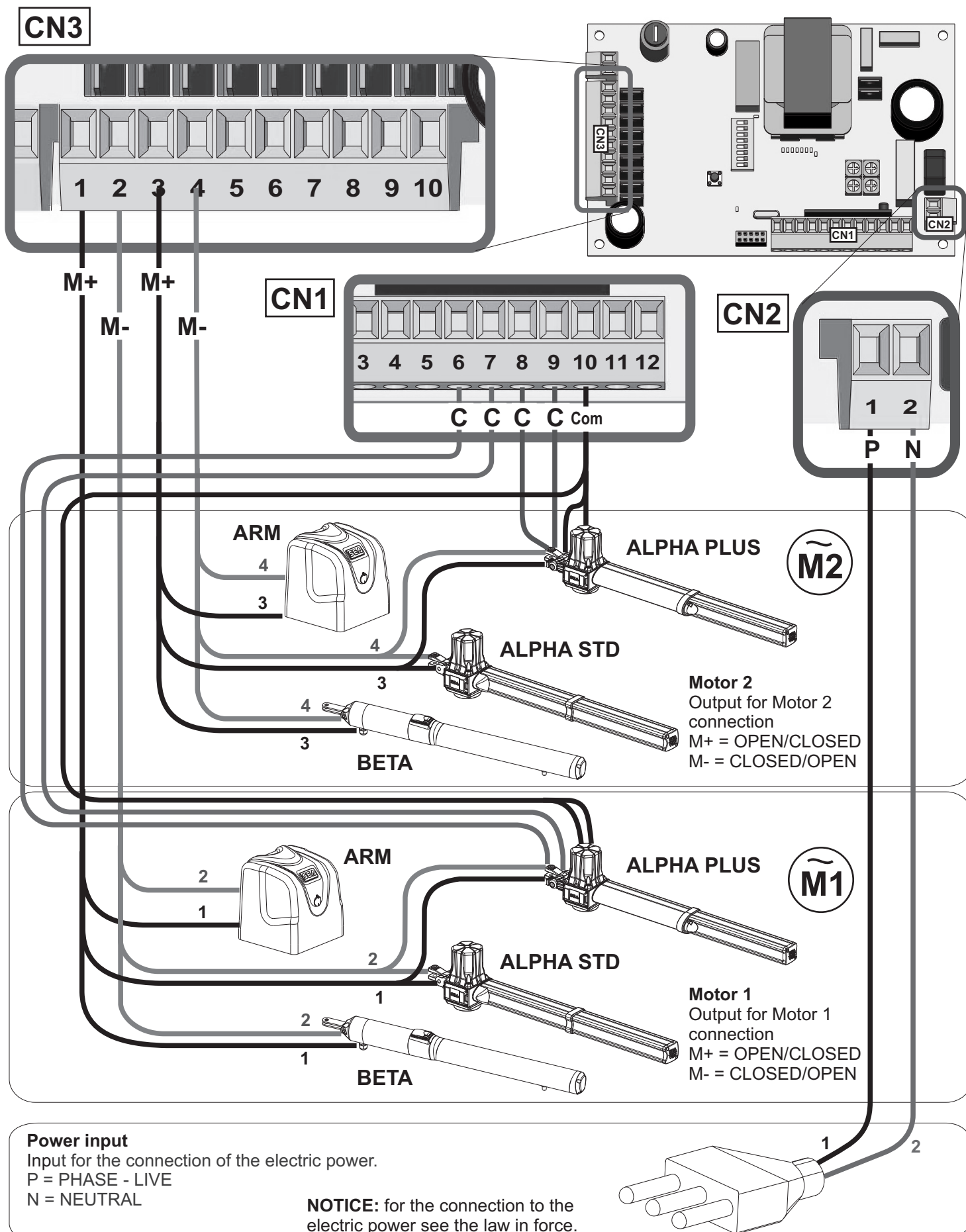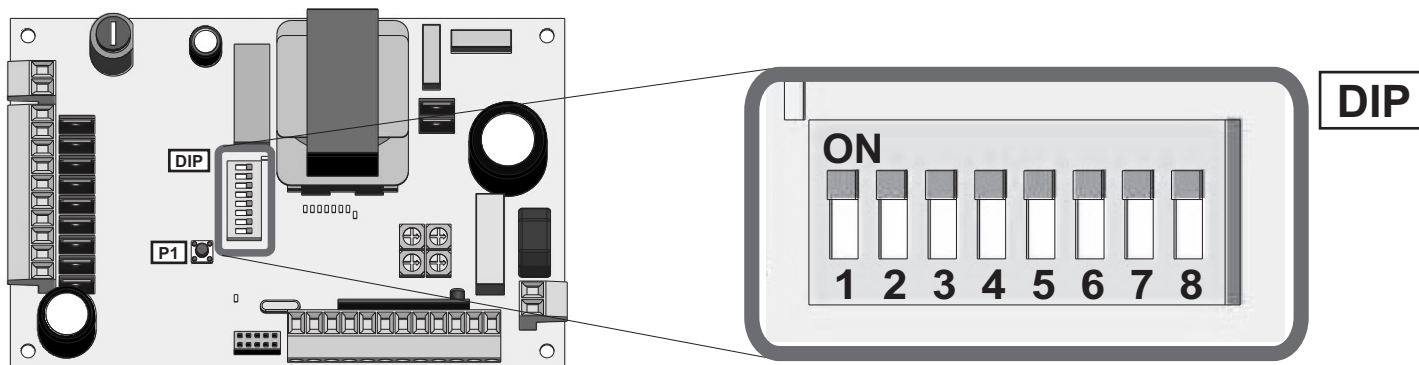+ = 24Vdc,
- = 0Vdc,
C = Contact NO
Com = Common

1 2 3 4 5 6 7 8 9 10 11 12

C

1

4 Com

9 -

10 +

SEA
Automazione
Porte e Cancelli

POWER SUPPLY - MOTORS ARM-ALPHA-BETA

CN3

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

M+   M+

M-   M-

CN1

| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

C   C   C   C   Com

CN2

| 1 | 2 |

P   N

ARM
4
3

4

ALPHA PLUS   (M2)

ALPHA STD
3

4

3

BETA

Motor 2
Output for Motor 2
connection
M+ = OPEN/CLOSED
M- = CLOSED/OPEN

ARM
2
1

2

ALPHA PLUS   (M1)

ALPHA STD
1

2

1

BETA

Motor 1
Output for Motor 1
connection
M+ = OPEN/CLOSED
M- = CLOSED/OPEN

Power input
Input for the connection of the electric power.
P = PHASE - LIVE
N = NEUTRAL

1   2

NOTICE: for the connection to the
electric power see the law in force.

DIP-SWITCH (TYPE OF RADIO TRANSMITTER)

DIP	POSITION	SETTING DIP1 AND DIP2 ACCORDING TO THE TYP OF RADIO TRANSMITTER USED
1 / 2	**OFF / OFF**	Radio transmitter **SMART Dip-switch** and/or radio transmitter **HEAD Dip-switch**
1 / 2	**ON / OFF**	Radio transmitter **SMART Fixed code** and/or radio transmitter **HEAD Rolling code**
2	**ON**	Radio transmitter **HEAD e-copy**
1 / 2	**ON / ON**	Erase the radio transmitter*

* Modality to erase learned radio transmitter.
Set the Dip 1 and 2 on ON.
Press and keep pressed P1 of the control unit for 10 seconds, the LED will switch on to confirm the executed cancellation.
Bring back the dip-switches into the position regarding the type of transmitter to be memorised.

DIP-SWITCH (OPERATION MODE)

⚠ **1. ATTENTION! <u>With power switched off,</u> choose the type of gates (one or two motors) and if limit switches are fitted, select the operation mode using DIP 6 and 7 and program as below.   W<u>hen set proceed with self-learning.</u>**

	DIP	*POSITION*	SETTING OF DIP6 AND DIP7 RESPECTIVELY THE DESIRED WORKING MODE
	6 / 7	**OFF / OFF**	Position to select the operational mode: two motors with limit switch
	6 / 7	**ON / OFF**	Position to select the operational mode: **only one leaf with limit switch (M1)**
	6 / 7	**OFF / ON**	Position to select the operational mode: **two leaves without limit switch (see note)**
	6 / 7	**ON / ON**	Position to select the operational mode: **one leaf without limit switch (M1) (see note)**

2. Switch on the power keeping push button P1 on the board pressed continuously.

3. The LED blinks slowly to confirm the memorisation of the operational mode.

4. Switch off the board and reset Dip 6 and 7 to OFF position. Now start self learning mode as explained on the next page.

Note:
**To use the board without limit switch it is neccessary to bridge the limit switch inputs in closing to common
 (Terminals 6 to 10 for single leaf operation and terminals 6 and 8 to 10 for paired operation).**

DIP-SWITCH (FUNCTION LOGIC)

DIP
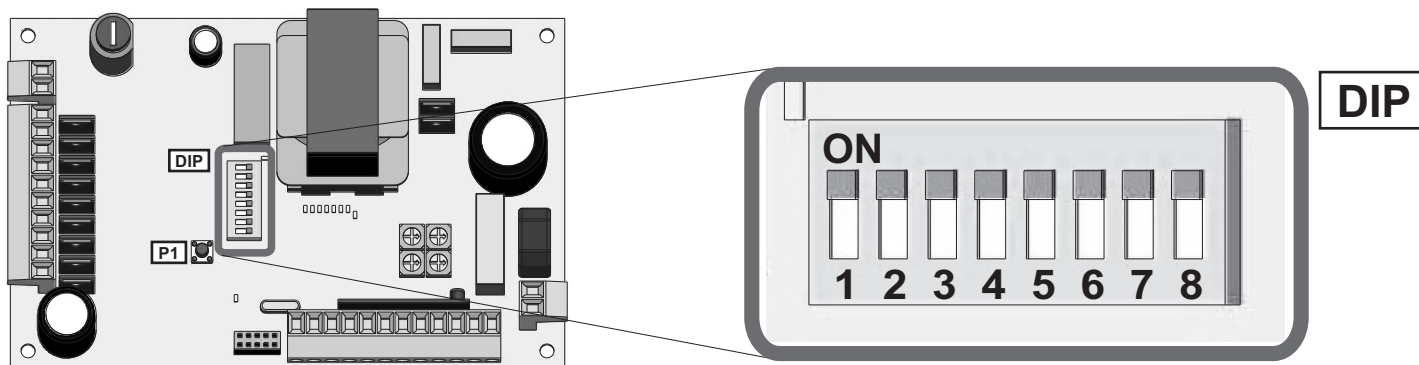
MANUAL LOGIC
A start impulse opens the gate. A second impulse during opening stops the movement. A start impulse during closing stops the movement.

SECURITY LOGIC
A start impulse opens the gate. A second impulse during opening reverses the movement. A start impulse during closing reverses the movement.

DEAD MAN LOGIC
The gate opens when the push button for opening is pressed and held (connectors 1 and 4 of CN1); releasing it stops the gate. The gate closes when the push button for closing is pressed and held(connectors 3 and 4 of CN1); releasing it stops the gate. To execute complete opening and/or closing cycles it is necessary to keep the relative push buttons constantly pressed.

AUTOMATIC LOGIC
A start impulse opens the gate. A second impluse during opening will not be accepted. An impulse during the pause closes the gate immediately. An impulse during closing reverses the movement.

DIP	POSIZIONE	SETTING OF DIP6 AND DIP7 TO SELECT THE FUNCTION LOGIC
6 / 7	ON / ON	Position to select the function logic: **MANUAL**
6 / 7	ON / OFF	Position to select the function logic: **SECURITY**
6 / 7	OFF / ON	Position to select the function logic: **DEAD MAN**
6 / 7	OFF / OFF	Position to select the function logic: **AUTOMATIC**

DIP-SWITCH (OTHER FUNCTIONS)

| DIP		PROGRAMMING OF OTHER DIPS FOR OTHER FUNCTIONS
3	ON	**INVERSION STROKE** This function should only be used on swing gates, and is designed to assist the release of the electric lock. At the start impulse the motors are powered closed for 1 sec, before starting the opening cycle.
4	ON	**CONTROL OF PHOTOCELL IN OPENING** The interruption of the photocell circuit stops movement, re- opening immediately on reinstatement.
5	ON	**PHOTOCELL SELFTEST** If you activate this function it will start a test on the photocells before the gate begins to move. In order to use this function the photocells transmitters must be connected to the terminals No. 5 and No. 8 (Negative) of Cn3 connector.
8	ON	**PREFLASHING** If you activate this function the flash and the pilot light start flashing approximately 5 seconds before motor starting up; both in closing and in opening.

TRIMMER ADJUSTMENT
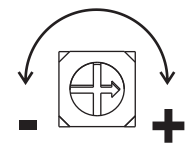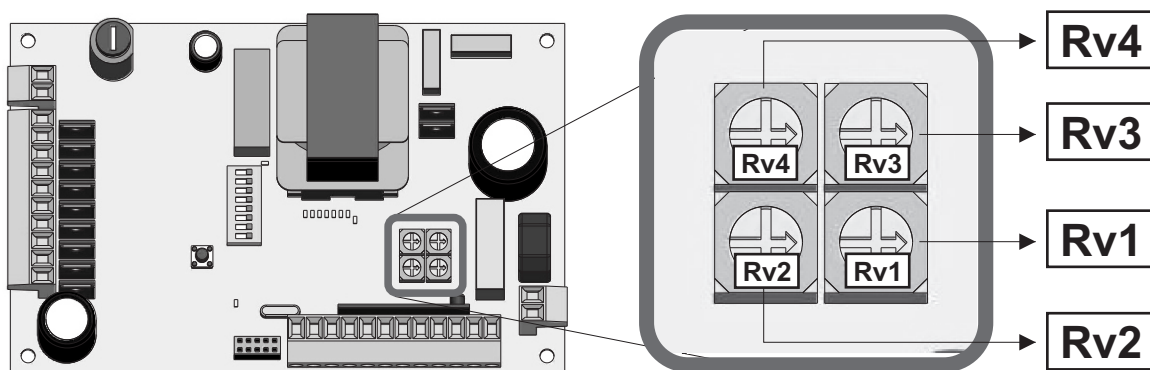
NOTE:
TURNE THE I TRIMMER CLOCKWISE TIMES / VALUES INCREASE

Rv1 *SENSITIVITY ADJUSTMENT OF THE AMMETRIC SENSOR (anti crush)*
This adjustment must be made so to avoid the danger of crushing persons or objects and must respect the laws in force.

Rv2 *MOTOR SPEED ADJUSTMENT*
This trimmer allows to adjust the motor speed.
This adjustment must be made to avoid the danger of crushing persons or objects and must respect the laws in force.

Rv3 *ADJUSTMENT OF LEAF DELAY IN CLOSING*
This trimmer allows to adjust the dephasing of the leaves in closing from 0 to 112 sec.

Rv4 *TIME OF PAUSE ADJUSTMENT*
This trimmer allows the linear adjustment of the time of pause from 0 to 120 sec.
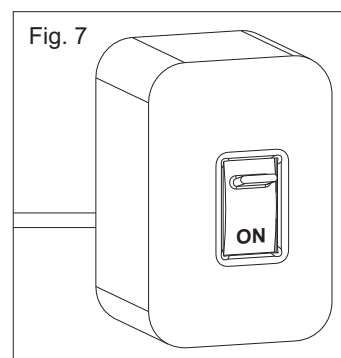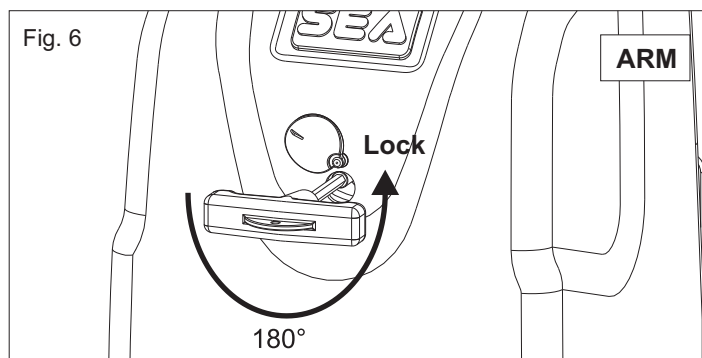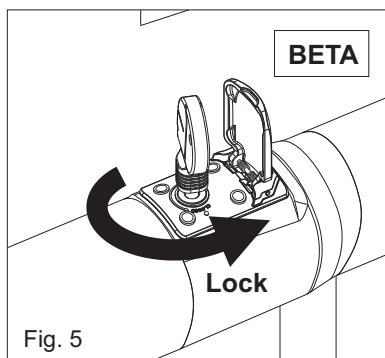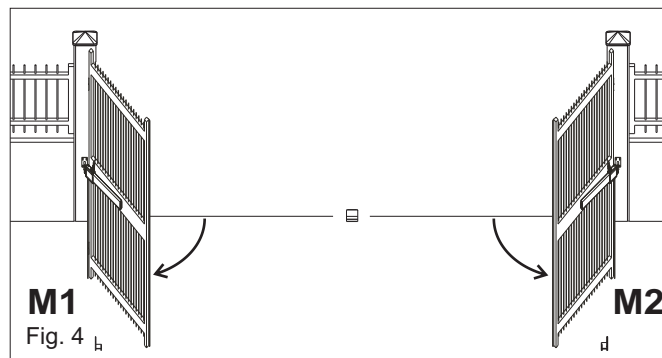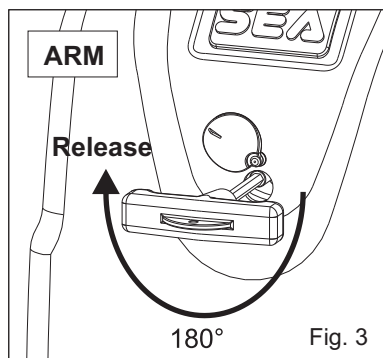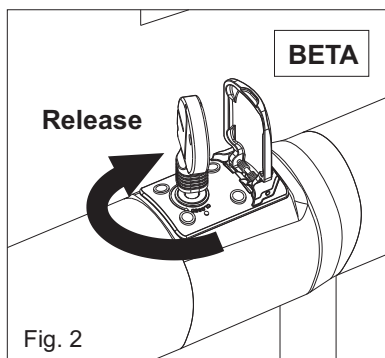
LED DESCRIPTION
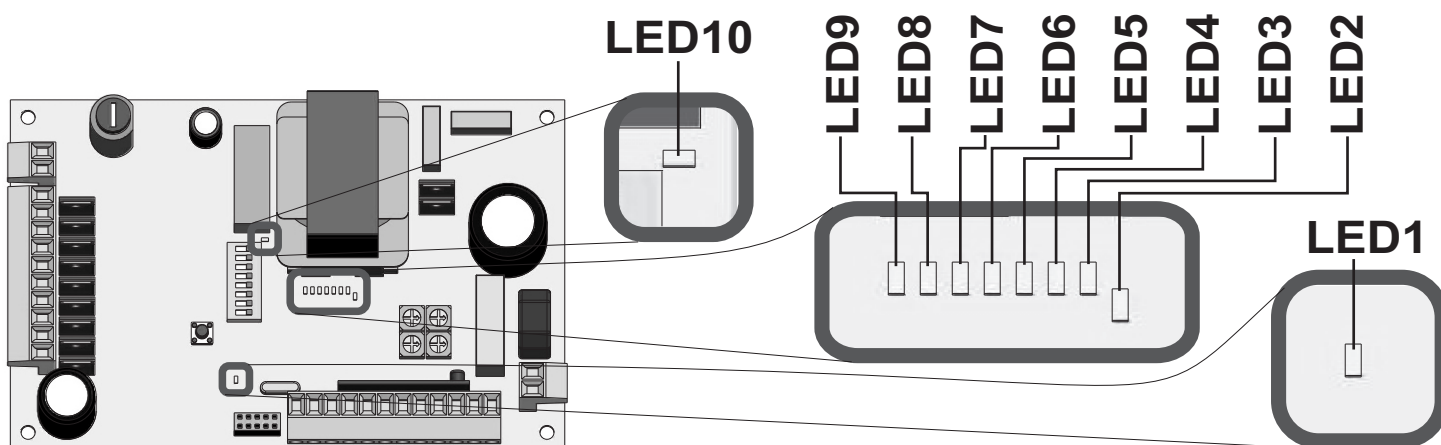
LED1: Transmitter programming and self learning. Illuminates during transmitter programming and during the self learning working times system. It also signals the motors irregular absorption or the Mosfet breaking.
LED2: Photocell. Normally illuminated, switching off when the photocell is obscured.
LED3: *Start.* Normally switched off, illuminating when you give an opening impulse.
LED4: *Stop.* Normally illuminated, switching off when you give a stop impulse.
LED5: Pedestrian*start.* Normally switched off, illuminating when you give a pedestrian opening impulse.
LED6 and LED7: Motor 1 opening and closing limit switch. Normally illuminated, switching off when the motor 1 limit switches are activated.
LED8 and LED9: Motor 2 opening and closing limit switch. Normally illuminated, switching off when the motor 2 limit switches are activated.
LED10: Power supply. Illuminated when power is connected to the control panel.

WORKING TIMES SELF LEARNING

1 Check that each accessory (photocells, push buttons, and so on) work properly and adjust the leaf delay if necessary.
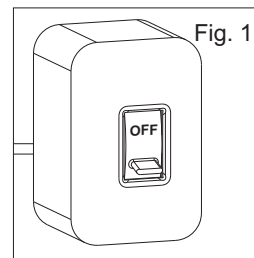
Fig. 1

2 Disconnect the power supply (Fig. 1), release the motors (Fig. 2-3) and put the leaves manually near the stop in closing (Fig. 4).
Reset the mechanical lock (Fig. 5-6)

BETA

Release

Fig. 2

ARM

Release

180°   Fig. 3

M1   **M2**

Fig. 4

BETA

Lock

Fig. 5

Fig. 6

ARM

Lock

180°

Fig. 7

ON

3
A)Put all the dip switches to OFF position.
B)Connect the control board to the power supply.
C)Press and hold the button P1 for 5 seconds. LED1 switches on.
D) Both the leaves will start closing at lowered speed. Release button P1
E) When the leaves reach the stop they will automatically go through an opening cycle at lowered speed.

P1

LED1

A

P1

5 seconds

LED1

B

M1   **M2**

C

M1   **M2**
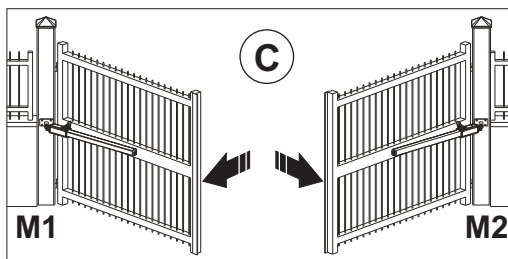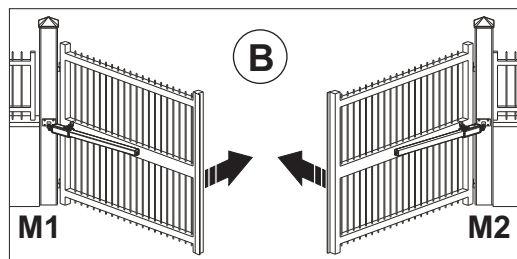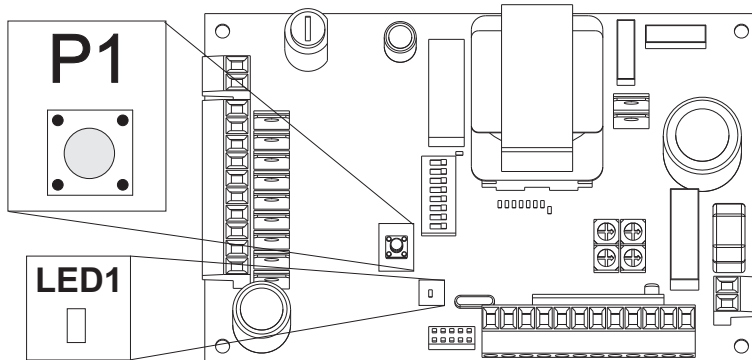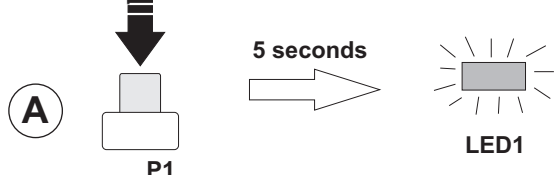
F) Wait until the leaves reach fully open.
Led 1 switches off.

F   **LED1**

Self learning has finished.

G)Wait until the pause time finishes for the leaves to reclose.
Note: Self learning can only be undertaken in automatic logic.
H)Select the desired operation logic following the instructions on the next page.

RADIO TRANSMITTER SELF LEARNING

⚠️ **WARNING: make the radio transmitters programming before you connect the antenna.**

1. Push and release P1 button, theLED 1 will flash in order to signal waiting for a code to be associated to the total opening.
2. Push the desired button on the radio transmitter, the LED will stay illuminated to signal the information has been saved.
3. Push and release P1 button, the LED1 will flash in order to signal waiting for a code to be associated with pedestrian opening.
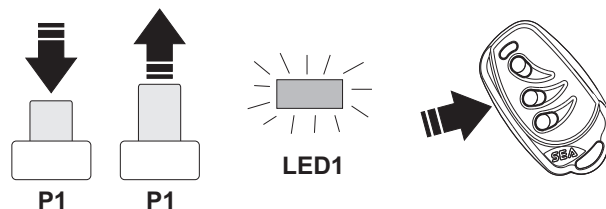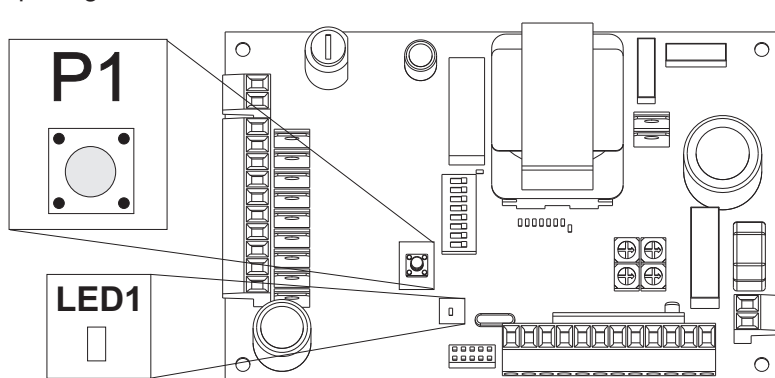
4. At this point you can push the radio transmitter button and the LED will switch off to signal learning end, or push P1 again and release if you don't want to match a button with the pedestrian function.

Notes:
- Enter radio transmitters learning only when the working cycle stops and the gate is closed.
- It's possible to memorise up to 10 codes (buttons).
- If you have already memorised all the possible codes, the next transmitter will overwrite the next to the last one (button No. 9 in order of receipt) for full opening or (button No. 10) if the received code is associated with the pedestrian function.
- If the board receives a code which was already associated to another function it will be updated with the new function.

ALARMS INDICATIONS

Flashing sequence, spaced with a pause of 2 seconds, is shown both on the flash (for 45 seconds approximately) and on the pilot light (until a new START).

| Flashings Number	Kind of alarm	Flashings Numberi	Kind of alarm
2	Photocell	4	Photocell Selftest
3	Photocell in opening	5	Stop

ALARM SIGNALS

1. Motors irregular current absorption or Mosfet breaking (ie. it fails the anticrushing safety).
LED L1 flashes quickly. In order to reset the board function you will need to disconnect the power supply.
In the case of failure due to Mosfet breaking and it is not possible to cancel the alarm you must replace the board.

2. Photocell self test alarm. To clear push the STOP button. If the alarm keeps activating check or, if necessary, replace the photocells.

MAINTENANCE

Depending on the number of working cycles and the type of gate, it may be necessary to reprogram the panel, the gate may have a higher resistance to movement, this may result in inconsistent in operation.
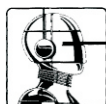
TROUBLE SHOOTING

Advises
Make sure all Safety LED's are turned ON **All not-used N.C. contacts must have jumpers**

Problem Found	Possibile Cause	Solution
Motor doesn't respond to any START impulse	**a)** Links missing on one of the N.C. contacts **b)** Burnt fuse	**a)** Check connections or links on contacts 2/10 on the CN2, 5/10 on the CN1 Cn1 **b)** Replace burnt fuse on the board
Gate doesn't move while the motor is running	**a)** The motor is in the released position **b)** The electronic clutches are not set **c)** There is an obstacle	**a)** Re-lock the motor **b)** Adjust electronic clutch using trimmer Rv1 and Rv2 **c)** Remove obstacle
Gate doesn't reach the complete Open / Closed position	**a)** Wrong setting of the limit switches **b)** Error on programming (page 13) **c)** Gate is stopped by an obstacle **d)** The fitting geometry is inadequate	**a)** Set limit switches **b)** Repeat programming as on page 13 **c)** Remove obstacle **d)** Check fitting geometry following the operator installation manual
The gate opens but doesn't close	**a)** The photocell contacts 2/10 and 5/10 are not closed	**a)** Check LED and links
The gate doesn't close automatically	**a)** Pause time set to high	**a)** Adjust pause time using trimmer Rv4

N.B.
Every time an adjustment is made reset the board turning OFF the power for 10 seconds and then turn it back ON.

WARNINGS AND WARRANTY

WARNINGS

The electric installation and the functioning logic choice must agree with the laws in force. In any case you must foresee a 16A and threshold 0.030A differential switch. Keep the power cables (motors, power supply) separate from the command cables (push buttons, photocells and so on). In order to avoid any interference it's preferable to use two separate cables and ducts.

REPLACEMENTS

Any request for spare parts must be sent to:

SEA s.r.l. - Zona Ind.le, 64020 S.ATTO - Teramo - Italia or SEA UK Limited Tel : 0121 706 9629

PRODUCT USAGE

The electronic equipment 23001135 has been designed to be used exclusively as management equipment for sliding gates automation, swing gates, sectional doors, overhead doors, barriers.

SAFETY AND ENVIRONMENTAL COMPATIBILITY

Disposal of the packaging materials of products and/or circuits should take place in an approved disposal facility.

REGULAR PRODUCT DISPOSAL (electric and electronic waste)

(It's applicable in EU countries and in those ones provided with a differential rubbish collection)

The brand that you find on the product or on documentation signals that the product must not be disposed off together with other domestic rubbish at the end of life cycle. In order to avoid any possible environmental or health damage because of the irregular waste disposal, we ask you to separate this product from other forms of rubbish and to recycle it in a responsible way in order to provide the sustainable re-use of material resources. Domestic users are invited to contact the retailer where the product has been purchased or the local office in charge of all the information related to differential collection and recycling of this kind of product.

STORING

WAREHOUSING TEMPERATURES			
T_{min}	T_{Max}	Dampness $_{min}$	Dampness $_{Max}$
- 40°C	+ 85°C	5% *Not condensing*	90% *Not condensing*

Materials handling must be made with appropriate vehicles..

REPLACEMENT AND MAINTENANCE

The replacement and/or putting out of service and/or maintenance of the electronic equipment 23001135 must be made only and exclusively by authorised and qualified staff.

WARRANTY LIMITS

The warranty form of the electronic equipment 23001135 is valid for 24 months starting from the printed date on the product. The mentioned product will be considered under warranty if it doesn't show any damage caused by an irregular use or by any modification or breaking. The warranty is valid only for the original buyer.

NOTE:THE MANUFACTURER IS NOT CONSIDERED RESPONSIBLE FOR ANY DAMAGE CAUSED BY IRREGULAR, WRONG OR UNREASONABLE USE.

SEA reserves the right to make any required modification or change to the products and/or to this manual without any advanced notice obligation.