

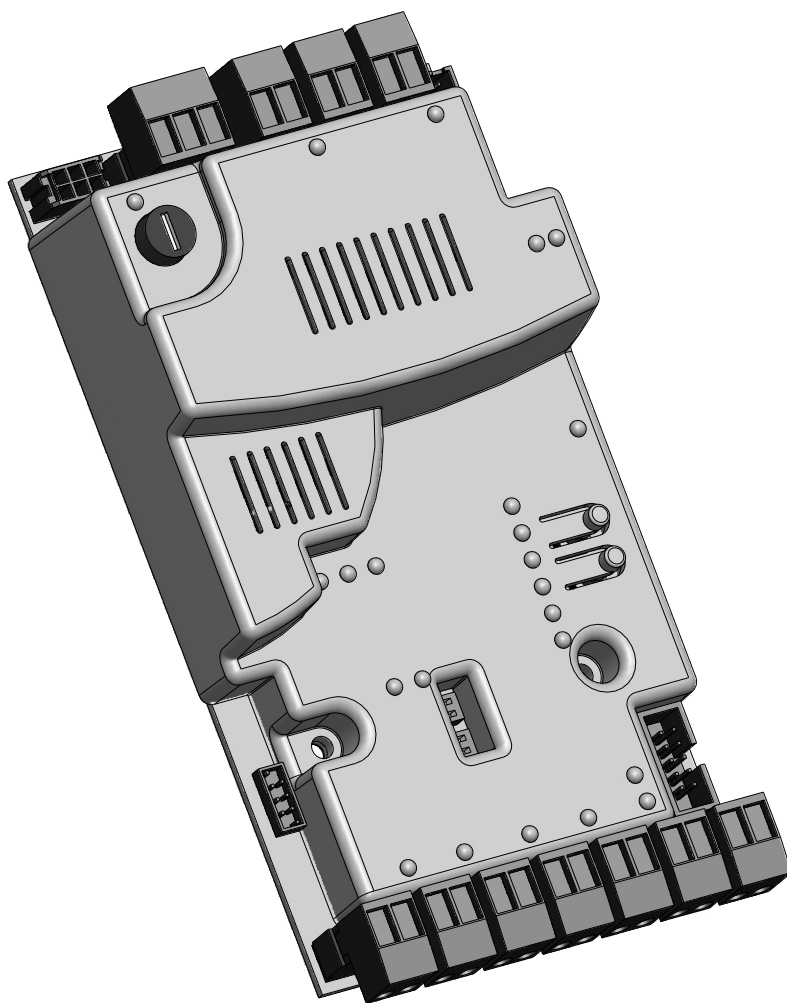


SEA[®] USA
ELECTRONIC
OPENING
SYSTEMS
International registered trademark n. 2.777.971

USER 1 - 24V

2300A24

24V=== ELECTRONIC CONTROL UNIT FOR SLIDING GATES AND BARRIERS



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GENERAL SAFETY REGULATIONS FOR THE INSTALLER

- The installer has to read and understand the functioning of this operator system, its safety features and knowing the manual function in case of emergency.
- Do not modify in any way the automated system's components. SEA USA Inc. declines all liability concerning the automated system's security and efficiency if the used components are not produced by SEA USA Inc. For maintenance, strictly use original SEA USA Inc. spare parts.
- The installer shall supply the user with all information concerning the proper operation of the product, the system's manual functioning in case of emergency and shall hand over to the user the warnings handbook supplied with the product.
- SEA USA Inc. recommends the system to have reversing sensor (encoder) on the drive shaft of the motor. In case of swing/linear/in-ground hydraulic operators/barriers, SEA USA Inc. recommends to install the SAFETY GATE as an additional reversing sensor. Reversing devices are required to prevent the system from closing on vehicular traffic and/or help to prevent injuries to pedestrians.
- It is recommended to use indicator-lights as well as warning signs for every system. Both should be visible on each side of the gate and well fixed on the frame structure.
- Do not leave packing materials (plastic, polystyrene, etc.) within children's reach, as they are potential sources of danger.
- For products having an emergency release, it is recommended to use it only when the gate/barrier is closed.
- Remove all locks connected to the gates before installing the operator.
- Where possible, install the opener control 7 feet or more above the floor. For products having an emergency release, mount the emergency release 6 feet above the floor.
- Locate the control button: (a) within sight of door, (b) at minimum height of 5 feet so that small children are not able to reach it, and (c) away from all moving parts of the door.
- Install entrapment Warning Label next to the control button in a prominent location. Attach marking next to the emergency release.
- Do not employ for any reason automatic closing devices (such as timer, loop sensors, or similar), and do not connect any other activation devices.

GENERAL SAFETY REGULATION FOR THE USER

- Sea strongly recommends to follow these instructions literally to prevent very serious damages to persons. This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition/operation of the product and/or be a source of danger. SEA USA Inc. declines all liability caused by improper use or different use in respect to the intended one.
- Only qualified personnel can install, repair and periodically check this equipment.
- The User must not attempt to repair or to take direct action on the system and must solely contact qualified SEA personnel or SEA service centres. User can apply only the emergency manual function.
- The system has been designed for the control of vehicular traffic only. Pedestrians or bicycles must have a separate access opening.
- Do not allow children or adults to stay near the product while it is operating. The application cannot be used by children, by people with reduced physical, mental or sensorial capacity, or by people without experience or necessary training. Keep remote controls or other pulse generators away from children to prevent involuntary activation of the system.
- Transit through the leaves or barrier is allowed only when the gate/barrier is fully open. Operate system only if it is fully visible, and free of obstructions.
- For products having an emergency release use it only when the door/barrier is closed.

ELECTRICAL CONNECTIONS - SAFETY INSTRUCTIONS

- Disconnect the battery back up, if included, before disconnecting main power supply.
- Always disconnect power supply during installation or servicing of the product.
- All electrical connections from the control panel's to the operator's must be made in a waterproof junction box.
- The system requires a separate power supply circuit. Check that the main power supply circuit breakers are separated, intended solely for this equipment and rated for 15AMPS. Visually check that the circuit breakers are in OFF position and mark the circuit breakers USED prior to installation.
- Permanent wiring must be used and installed to the operator as required by local electrical codes and It is recommended to do by a licensed electrician. It is also recommended to check the local building code requirements before making any type of wiring to be sure that all wirings comply with them. Local building codes will take precedence. It is recommended to use different colours for all wirings' codes.
- Distance for low voltage control wires, i.e., open input, single leaf, open input and stop input, can run up to 3000 feet with 18 AWG wire. Low voltage controls and communication wirings must all be separated by a minimum of 1 foot from high voltage power wiring and in a separate conduit.

GROUNDING

- Good grounding and proper surge suppression are an integral part of proper installation for all operator systems. One or all of the followings may require surge suppressors: high voltage power lines, low voltage power lines, telephone lines, data lines, low voltage control lines and loops. Quantity of surge suppression requires depends on susceptibility of the area to lightning and power surges. Good grounding is essential to realize maximum protection.
- If the circuit breaker box is located close to the gate/barrier operator system, for example, in a guardhouse, then the ground from that circuit can be used to ground the gate operator system. Eliminate all 90° bends in ground wires and keep a minimum distance of three feet between the surge suppressor and the equipment to protect.
- If the power source or circuit breaker box is not located close to the operator system, an Isolated Ground Zone (IGZ) must be created. An IGZ is an imaginary circle drawn around the operator system. An IGZ can also be created, if the circuit breaker box is located close to the operator system. The operator system not only includes the operator and control panel, but all accessories and devices associated with it at that controlled entry point. This includes loop detectors, card readers, digital entries, telephone entries, any device that has or requires grounding and all the surge suppressors. The ground bus is a common ground point called Single Point Ground (SPG). It is used to bond all the equipments and devices grounded in the IGZ together. The SPG is very important because it helps to eliminate different ground potentials that can be present on the equipment and that could cause damages even with surge suppressors.
- Do not use or connect the ground wire coming from the circuit breaker box. By using an Isolated Ground Zone, you have to separate the operator system from the house or building ground. This eliminates ground potentials. It is recommended the ground bus to be located in a separate NEMA type enclosure. All grounds will be tied to this ground bus.
- Equipment ground wire should be of minimum 12 AWG. The main ground wire from the bus bar to the ground rod should be an 8 or 6 AWG copper wire. Ground rod should be minimum 10 feet in length, (length depends on local soil conditions).
- For more information, regarding good grounding practices check: National Electric Code art. 250; IEEE Emerald Book, standard 100; International Association of Electric Inspectors.



INSTALLATION WARNINGS

- For gate operators: install only when
 - A. The operator is appropriate for the gate's construction and usage Class.
 - B. All opening spaces on the wall of the horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 4 feet (1m) above the ground so that it could be possible to keep on the entire surface of the wall a minimum distance of 2-1/4 (57,15mm) inches from the gate and the wall on which the gate runs.
 - C. All exposed pinch points are eliminated or guarded
 - D. Guarding is supplied for exposed rollers.
 - E. Check if the gate works freely in both directions before installing the gate operator system. Any necessary repair to the gate must be done before installing the equipment. Swinging gate shall not open into public access areas.
- The operator systems must be installed in a proper place to prevent contacts with adjacent structures in opening and closing. Watch out to install the system so that users could have full view of the area.
- For operators using non-contact sensors:
 - A. See instructions on the placement of non-contact sensors for each Type of application.
 - B. Watch out to reduce the risk of nuisance tripping of the sensor.
 - C. One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.
- For operators utilizing contact sensors:
 - A. One or more contact sensors must be located where the risk of entrapment or obstruction exists, such as the operators' edges. They should be installed both inside and outside the operator's edge.
 - B. A hardwired contact sensor must be installed, watching out to arrange its wiring so that the communication between the sensor and the operator should not be subjected to mechanical damage.
 - C. A wireless contact sensor such as a radio frequency (RF) signal transmitter must be located where the signal's transmission cannot be obstructed by structures or natural landscaping.
- Controls should be far enough from the gate or barrier so that the user is prevented from coming in contact with them while operating the controls. Controls are intended to be used to reset an operator after 2 sequential activations of the entrapment protection device and must be located in the line-of-sight of the outdoor. Install a security feature if controls are easily accessible, to prevent unauthorized use.

AFTER INSTALLATION

- Check that: the open and close force are properly adjusted; the piston does not bottom out in either direction, the breather screws have been removed, the positive stops used are sufficient for stopping the gate properly, all the pinch points and potential entrapment areas are reduced.
- Check and test all reversing devices.
- The installer should instruct user on the operator system's proper operation. They should together review the basic functions of the reversing devices and how to periodically test them. Reversing devices include one or more of the followings: reversing loops, photocells, reversing edges, etc. The installer has to instruct user on how to remove the operator system from service, on shutting power off on the service panel and how to use the operator system manually.

GENERAL ENTRAPMENT PROVISIONS

A vehicular operator must be installed with one independent primary and one independent secondary means at least to protect against entrapment (see Table A):

TABLE A	OPERATOR CATEGORY			
	Horizontal slide, vertical life and vertical pivot		Swing and vertical barrier	
USAGE CLASS	Primary Type	Secondary Type	Primary Type	Secondary Type
Vehicular I and II	A	B1 B2 D	A C	A B1 C D
Vehicular III	A B1 B2	A B1 B2 D E	A B1 C	A B1 C D E
Vehicular IV	A B1 B2 D	A B1 B2 D E	A B1 C D	A B1 C D E

Note: The same type of device shall not be utilized for both the primary and secondary entrapment protection means. The use of a single device to cover both the opening and closing directions is in accordance with the requirements; however, a single device is not required to cover both directions. A combination of one Type B1 for one direction and one Type B2 for the other direction is the equivalent of one device, for the purpose of complying with the requirements of either the primary or secondary entrapment protection means.

Entrapment protection types

- Type A: Inherent entrapment sensing system.
- Type B1: Provision for connection of a non-contact sensor (photoelectric or equivalent).
- Type B2: Provision for connection of a contact sensor (edge device or equivalent).
- Type C: Inherent adjustable clutch or pressure relief device.
- Type D: Provision for connection of an actuating device requiring continuous pressure to maintain opening or closing motion of the gate.
- Type E: An inherent audio alarm.

CLASS OF OPERATORS

RESIDENTIAL VEHICULAR GATE OPERATOR - CLASS I - A vehicular operator (or system) intended for use in a home of one-to four, single-family dwelling, or a garage or parking area associated therewith.

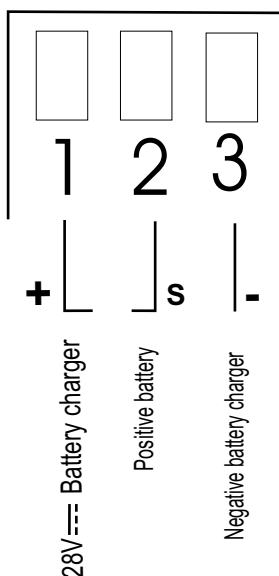
COMMERCIAL/GENERAL ACCESS VEHICULAR OPERATOR - CLASS II - A vehicular operator (or system) intended for use in a commercial location or building such as multi-family housing unit (five or more single family units), hotel, garage, retail store, or other building servicing the public.

INDUSTRIAL/LIMITED ACCESS VEHICULAR OPERATOR - CLASS III - A vehicular operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not intended to service the public, in which unauthorized access is prevented via supervision by security personnel.



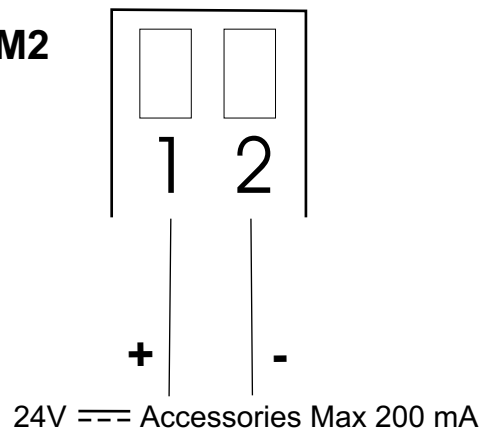
CONNECTIONS

M1

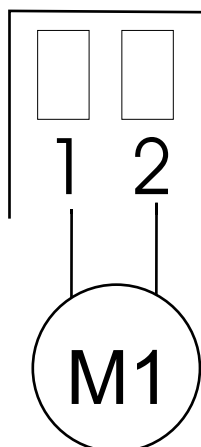


Only with battery charger
card
(Cod.23101105)

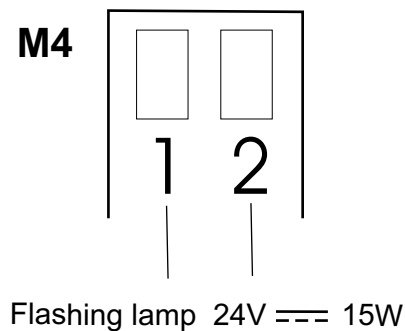
M2



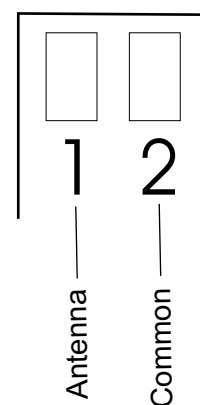
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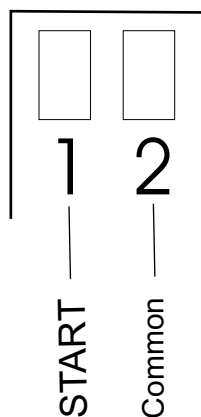
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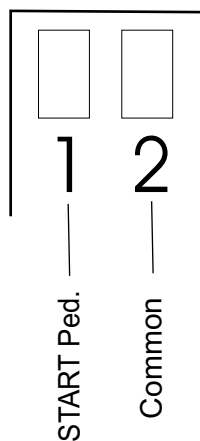
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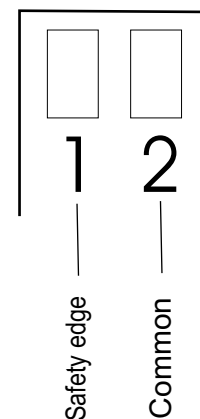
M6



M7

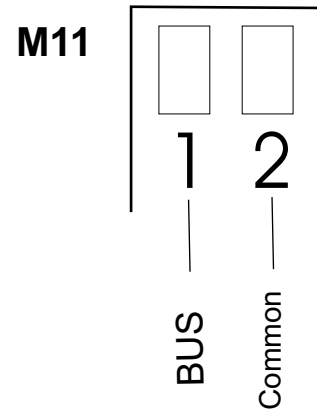
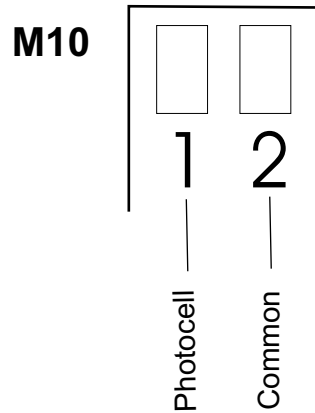
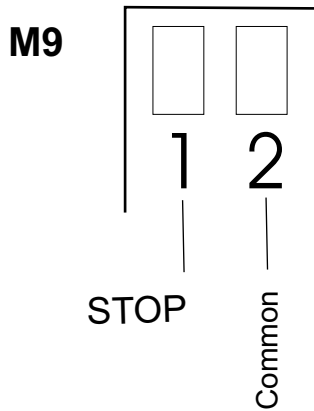


M8

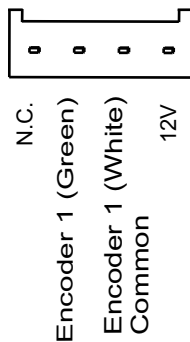




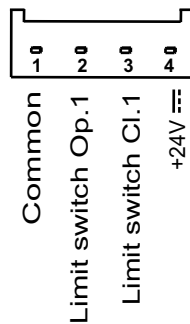
CONNECTIONS



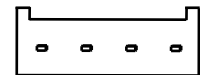
ENCODER



LIMIT SWITCH

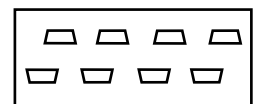


PROGR RX



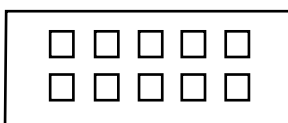
Connector programmer OPEN

RADIO MODULE



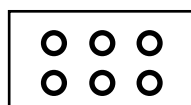
Receiver module connector

JOLLY



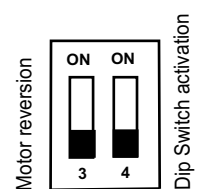
Connector Programmer Jolly

POWER



24V === feed connector

DIP SWITCH



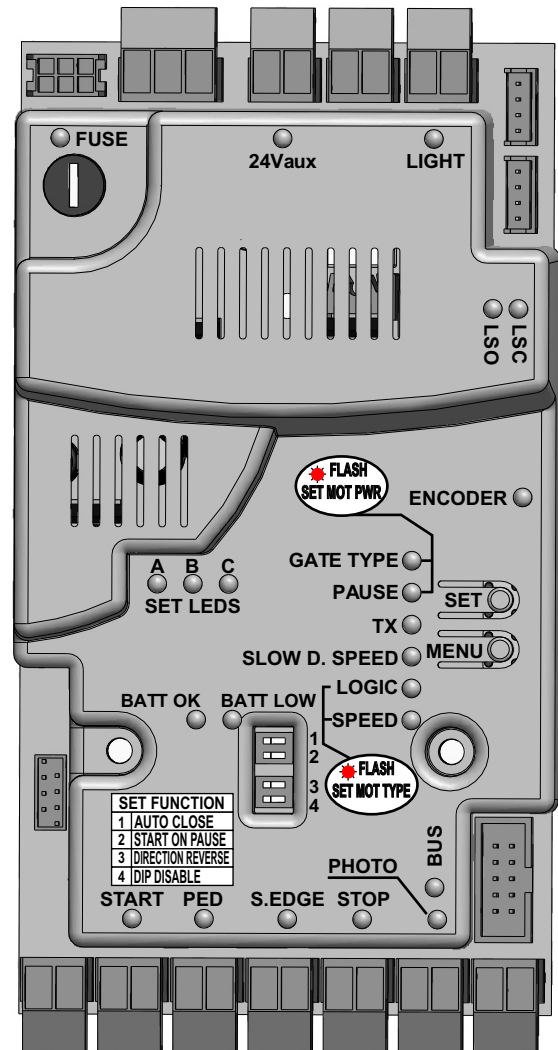
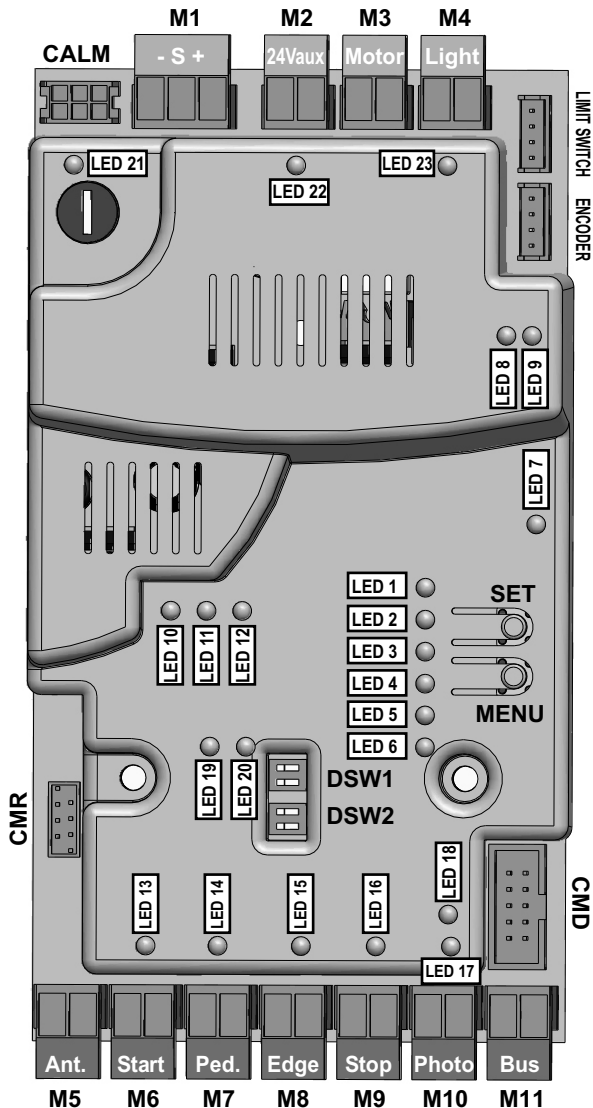


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DESCRIPTION OF THE COMPONENTS



LED1 = Encoder ON - Encoder OFF
LED2 = Pause adjustment
LED3 = TX Programming
LED4 = Slowdown speed adjustment
LED5 = Functioning logics
LED6 = Motors speed
LED7 = Encoder
LED8 = Limit switch in opening
LED9 = Limit switch in closing
LED10 A = Led for SET
LED11 B = Led for SET
LED12 C = Led for SET
LED13 = Start
LED14 = Pedestrian Start
LED15 = Security edge
LED16 = Stop
LED17 = Photo
LED18 = Indicator BUS
LED19 = Battery Ok
LED20 = Unloaded Battery
LED21 = Broken fuse
LED22 = 24Vaux condition
LED23 = Warning lamp condition
SET = Setting
MENU = Selection

M1 = Connection to battery charger
M2 = 24Vaux exit ===
M3 = Motor power supply
M4 = Warning lamp 24V === 15W
M5 = Antenna
M6 = Start
M7 = Pedestrian start
M8 = Security edge
M9 = Stop
M10 = Photocell
M11 = BUS
CNE = Encoder connector
CNF = Limit switch connector
CMD = Jolly programmer connector
CMR = Receiver module connector
CALM = 24V===power supply connector
CPO = Programmer connector OPEN
CRC = Control unit reprogramming connector
µC = Micro-controller
DSW1 = Automatic closing/Start in pause
DSW2 = Opening direction/Dip Switch activation



GENERAL INFORMATION

The information in this section of the manual are only for technicians or for qualified or authorized installers.

GENERAL CHARACTERISTICS

The USER 1 24V control unit has been designed to manage one low voltage motor with or without electronic limit switches.

It is of very small dimensions and besides the possibility to adjust motor speed, amperemetric anti squeezing sensitivity, leaf delay in closing, pausing time, it is also possible to manage a display, through which it is possible to control a lot of management functions and the maintenance of the control unit. The most important change however concerns the presence of a BUS connector with two wires, through which it is possible to connect accessories as photocells, flashing lamp, key switch and so on,... connecting only two cables with the control unit. The self-learning of working time can be done automatically.

TECHNICAL SPECIFICATIONS

Control unit power supply	24 V ===
Absorption in stand by	90 mA
Max. motor charge	90 W x 2
Max. accessories charge	24V=== 250mA
Max. Flash light charge	24V=== 15W max.
Environment temperature	-4°F ↕ +131°F ↕
Protection fuse (24V accessories)	F1 (2A)
Function logic	Automatic/Step by Step 1/S. By Step 2/Sec./Dead man
Opening/closing time	In selflearning in programming phase
Time of pause	Adjustable
Thrust	Adjustable Opening and Closing
Slow down	Adjustable
Input on connecting terminal	Battery power supply / Total opening / Pedestrian opening adjustable / Edge/ Stop / Limit switch opening and closing / Encoder/ BUS accessories
Output on connecting terminal	Power supply accessories 24V===/ Motors 24V===/ Flashing lamp 24V=== / BUS
Board dimensions	156 x 100 mm
Specifications of optional batteries	24V Pb 2Ah min.
Specifications of external enclosure	305 x 225 x 125 mm - Ip55
Special accessories	Battery charger card (cod.23101105), Relay card for courtesy light or bolt lock (cod.23101106), Programmer JOLLY (cod.23105276), Programmer OPEN (cod.23105290), Photocell SUNSET BUS (cod.23102075)



START - STOP - PEDESTRIAN START - ANTENNA - PHOTOCELL

Photocell 1 Connection

When the ray of the photocell is crossed, and the automation is in phase of closing it reverses its movement.

Note: If the photocell is not connected, put a jumper between the clamps 1 and 2 of (M10).

+ = 24V --- - = 0V --- C = Connection Com = Common

The photocell is also usable in connection with BUS photocells.



JOLLY OPTIONS

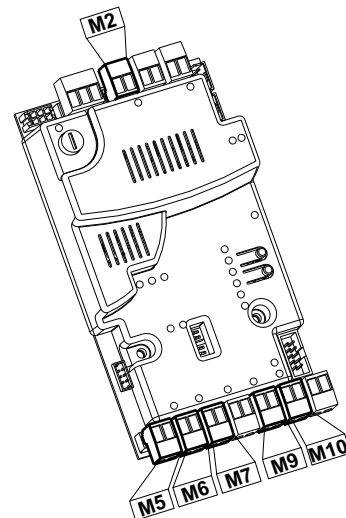
FOTOCLOSE activation: If activated when the photocell is crossed during the pause, the gate interrupts the pause and immediately closes again.

TIMER activation: If the entry is activated it turns into a N.O. entry with TIMER function (see TIMER).

Fotoopen activation: If activated the photocell blocks the movement as long as it's busy, when released it opens.

FOTO PARK activation: in opening it is not active; when during the pause "closing with photo" and "automatic closing" are activated it commands the closing when released, otherwise it's not active; in closing it stops the movement as long as it is busy, when released the closing continues.

FOTO STOP activation: When activated before the opening the photocell blocks the automation as long as it is busy, during the opening it will be ignored. In closing the intervention of the photocell causes the reopening.

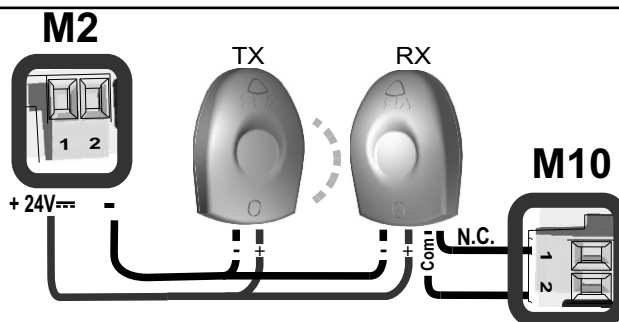


24Vaux --- max 200 mA



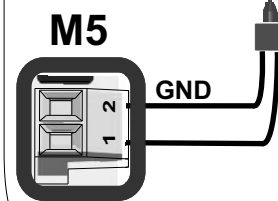
JOLLY OPTION

Through the Jolly programmer it is possible to choose when having tension on the 24Vaux output. The options are: always, only during opening, only during cycle, only before opening or only during pause.

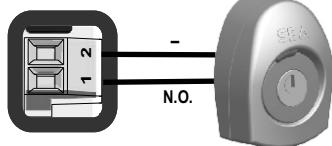


ANTENNA

Connect the antenna as in the figure.



M7



PEDESTRIAN START (N.O.)

To obtain a partial opening connect the key-button wires as in the figure. 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)

Nota2: In manual logic it is necessary to keep pressed the Start Ped. To re-close the automation.

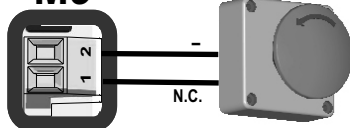


JOLLY OPTIONS

Activation TIMER: this entry can be transformed into TIMER (See TIMER)

Pedestrian opening space : Linearly adjustable from 30% to 100%.

M9



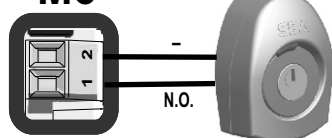
STOP (N.C.)

The pressure on this button immediately stops the motor in any condition/position. A start command is needed to re-start the movement.

After a stop the motor always re-starts in closing.

Notice: If the stop button is not used it is not necessary to close the N.C. contact between the clamps 1 and 2 of M9 as the absence of the stop is revealed during the selflearning phase of the times.

M6



START (N.O.)

An impulse given to this contact opens and closes the automation depending on the selected logic. 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)

Note1: In DEAD MAN logic it is necessary to keep pressed the Start for the opening of the automation.



JOLLY OPTION

Can be activated through the Jolly programmer or modifying either the PHOTO entry or the PEDESTRIAN entry. In both cases it's a N.O. contact which provokes the opening of the automation keeping it open until it is activated. When it's released, the gate attends the set pausing time and executes the reclosing.

Note2: When activated on the pedestrian entry, the pedestrian will be disabled also on the radio transmitter.

Note3: In case of intervention of a security device during the timer (Stop, Ammeter, Edge), to restore the movement it will be necessary to give a start impulse.

Note4: In case of no power supply with open gate and active Timer the control unit will restore its use, otherwise if during restore of the power supply the TIMER is not activated it will be necessary to give a start impulse for the reclosing.

TIMER





ENCODER - LIMIT SWITCH

Encoder / Ammeter sensor

The encoder is a device that allows to reveal possible obstacles during the opening and the closing of the gate. When this device intervenes in opening it causes the inversion of the movement for around a second, if it intervenes in closing it causes the total reopening.

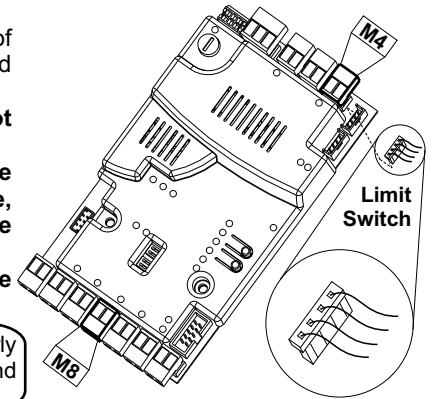
Note 1: Such function is active through an ammeter sensor on the control board. It is not necessary to mount any external devices for the respect of legislation.

Note2: The ammeter sensitivity is adjustable both in opening and in closing through the JOLLY terminal. On the control unit the torque can be adjusted in 4 steps: low, middle, middle high, high and will be the same in opening and closing. With high torque the gate reverses after 5 seconds.

Attention: after each intervention of the ammeter sensor it is necessary to give a start impulse to restore the movement.



JOLLY functions: With the JOLLY programmer the torque parameters can be adjusted linearly from 10% to 100% on each single motor. Furthermore, they are differentiable between opening and closing.



Limit switch

For the functioning the presence of both limit switches in closing and in opening is necessary.

For the right functioning of the limit switch, the movement direction of the motor and the respective busy limit switches must correspond. Through DIP3 it is possible to exchange contemporarily the direction of the motor and of the limit switches.

Note: if during programming phase the motor and limit switch times should not be in phase between them, the gate will start in closing, it stops and will not complete the selflearning of the times, at this point it will be necessary to switch off the tension and to invert the cables of the motor and to eventually exchange the motor direction on DIP 3. The first movement in selflearning must always be executed in closing.

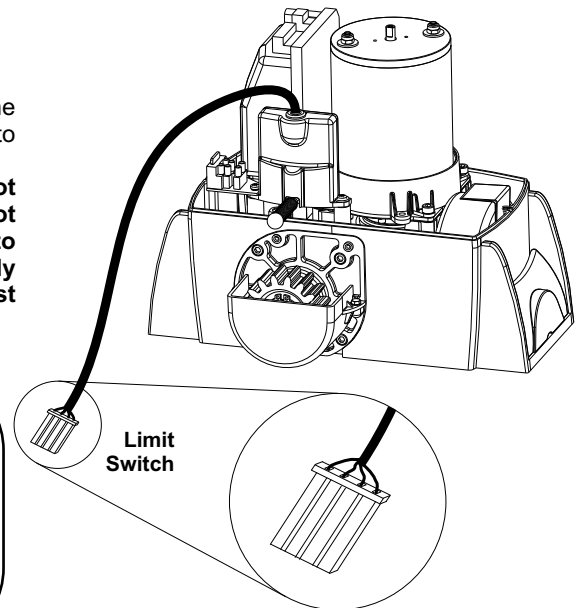
Com = Common

C = Contact

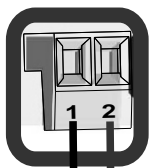


JOLLY functions:

- 1) With the Jolly programmer such function is tied up to the presence of at least one limit switch and it's possible to activate the function anti-intrusion. When the limit switch is free it forces the motor to re-close.
- 2) With the Jolly programmer it is possible to exchange the motor and the limit switch without setting DIP3 of the control unit.



SECURITY EDGE AND WARNING LAMP



It is possible to connect an active safety edge on the terminal M8. If this device is pressed it opens the contact causing a partial inversion of the movement both in opening and in closing. If not used bridge the contacts 1 and 2 of M8. Note: contact N.C.

M8

Costa di sicurezza



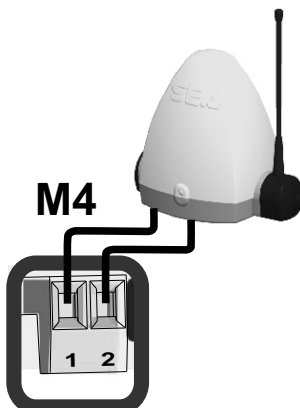
JOLLY FUNCTIONS:

It is possible to activate the balanced edge 8K2, in this case the edge contact will be controlled by a specific value of resistance revealing the eventual unintentional short circuit of the device. In case of an unbalance of the device the corresponding led of the terminal board M8 will flash quickly.

Flashing Lamp 24V --- 15W (Warning lamp)

The warning lamp advises that the automatic gate is moving with 1 flash /second in opening and 2 flashes / second in closing. During pause it remains fixed on.

Connect the cables of the warning lamp as shown in the figure. The pre-flashing function can be activated with the Jolly terminal or with Led 4 of the menu through the SET and MENU buttons.



JOLLY functions:

It is possible to activate a pre-flashing of 3 seconds before activating the automation, on setting pre-flashing on ON, through the Jolly programmer. Furthermore from the flashing lamp it is possible to verify some alarm signals. See alarms indications.

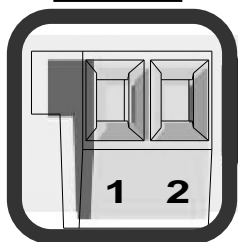
Through the Jolly programmer it is possible to set this exit with fixed flashing also when the gate is not moving or it is possible to change this exit into control lamp. In such case all the indications of alarm remain on the warning lamp as long as they are active.



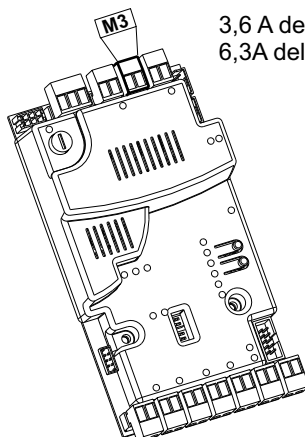
MOTOR POWER SUPPLY

M3

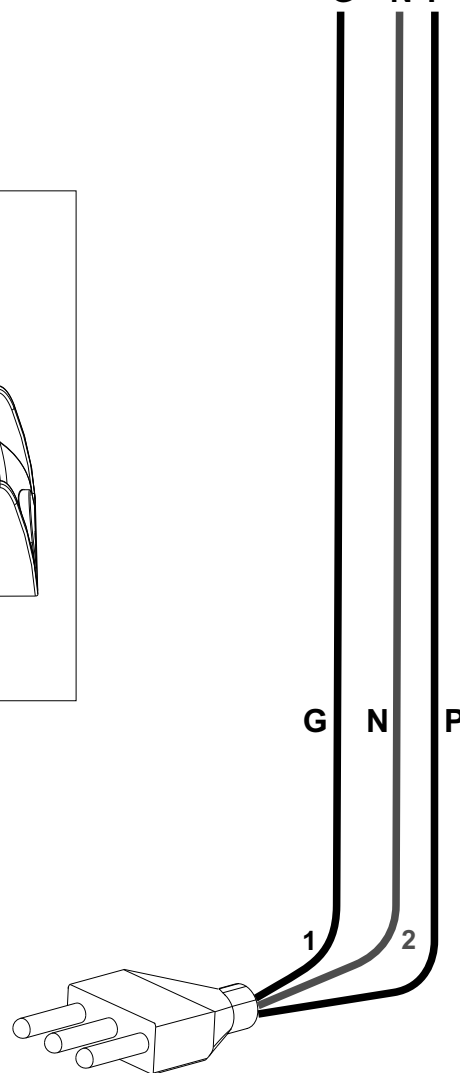
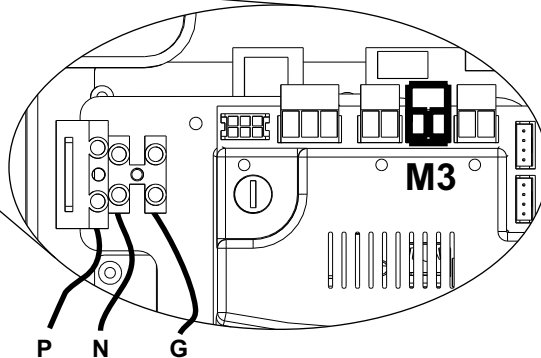
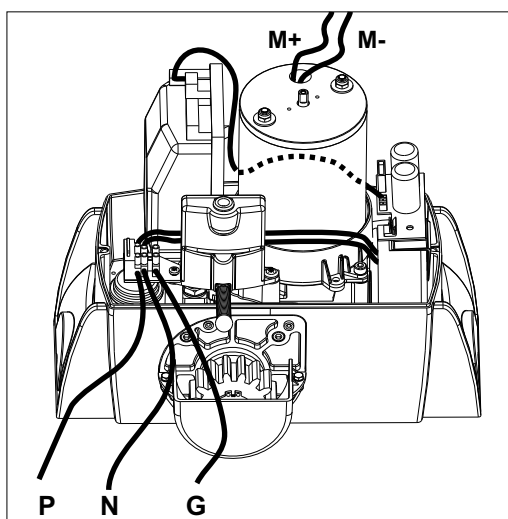
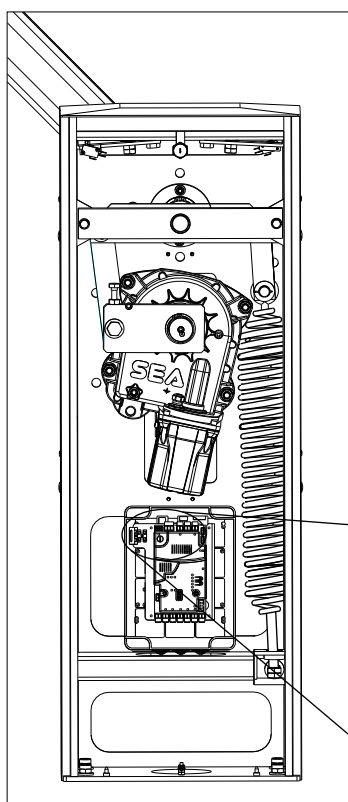
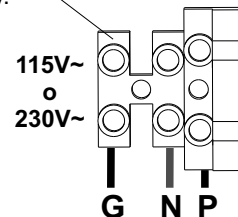
Motor
connection



M+M-



3,6 A delayed fuse on 230V ~ power supply .
6,3A delayed fuse on 115V ~ power supply.



CONFIGURATION FOR VERG

For the application on the VERG it is recommended to use the speed levels indicated on the following board:

LED 10A GREEN	5 m
LED 11B YELLOW	4 m
LED 12C RED	3 m

Power input

Input for the connection of the electric power.

P = PHASE - LIVE

N = NEUTRAL

G = GROUND

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

SELFLEARNING WITH DEFAULT PARAMETERS

The control unit is pre-set with the default settings, to learn the working times it is sufficient to press the Menu button once and to hold pressed the SET button until the motors start in closing. The settings of **DEFAULT** are: **AUTOMATIC LOGIC, ENCODER OFF, SPEED 80% , PRE-FLASHING OFF, PAUSE 10S., TORQUE 75%, SLOWDOWN SPEED 40%, LEARNING SPEED 80%, ACCELERATION 70%, DECELERATION 30%, LEAF STROKE OFF, ANTI-INTRUSION OFF, SELFTEST OFF, PEDESTRIAN 30%, PHOTO OPENING OFF, MAX CYCLES 100000, SLIDING MOTOR TYPE, WARNING LAMP NORMAL, PHOTO/TIMER OFF, PEDESTRIAN/TIMER OFF, CLOS.FOTO OFF, BALANCED EDGE OFF, 24Vaux ALWAYS, START IN PAUSE OFF, AUTOMATIC CLOSING OFF. IF YOU WANT TO RESTORE THE DEFAULT SETTINGS JUST SWITCH ON THE CONTROL UNIT KEEPING PRESSED THE BOUTONS MENU AND SET CONTEMPORARILY.**



WORKING TIMES SELF LEARNING

Note1: it is not necessary to put a jumper between the STOP, PHOTOCELL contacts if they are not used. If they are used during selflearning phase they must stay (N.C.).

Note2: If accessories are connected on the BUS, align the photocells before programming, as shown in the description of the BUS system.

1) Make sure that each accessory (photocells, push buttons, and so on) works properly.

2) If necessary adjust the self-learning speed through the palm user.

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

4) Connect the control board to the power supply (Fig.6).

5) Select the desired type of motor; use as shown on pag. 28 or through JOLLY programmer.

6) Press the button "SET" until the led of the color corresponding to the type of application (Encoder ON, Encoder OFF) switches on.

7) Hold pressed the button "SET" until the motor starts in closing and then release the button.

Note: If FOTOBUS are present, check their alignment and give a new impulse on SET to start the programming.

Note: If the motor starts in opening, switch of the power supply and set DIP 3 on ON or if you have a Jolly terminal, activate the motor and limit switch exchange function. If the motor starts in closing and stops, switch off the power supply and invert the cable of the motor, afterwards repeat the procedure starting from step 4.

Note: If you do not have a Jolly terminal the functions of the DIPs on board of the control unit can be activated setting DIP4 on ON. If DIP4 is activated the functions which can be activated through DIP cannot be changed through the Jolly terminal.

8) The motor will close with the set speed.

9) After having reached the limit switch of closing it automatically will execute an opening cycle (Fig.7). After having reached the limit switch in opening it will automatically execute a closing cycle.

10) Wait for the end of the closing of the leaf (Fig.8). The self-learning is done.

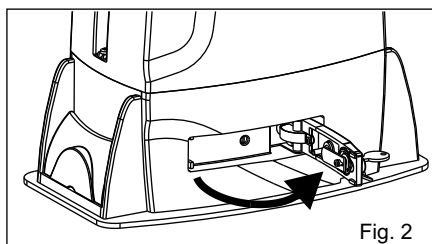
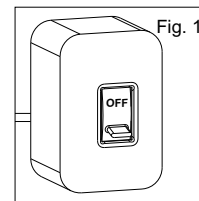


Fig. 2

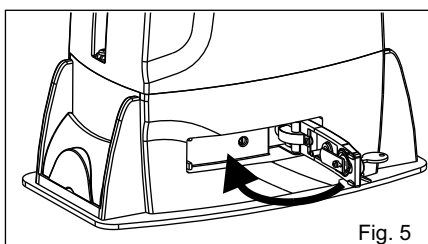


Fig. 5

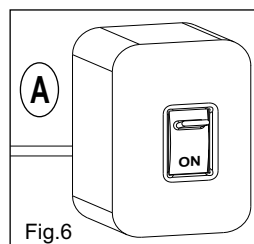


Fig.6

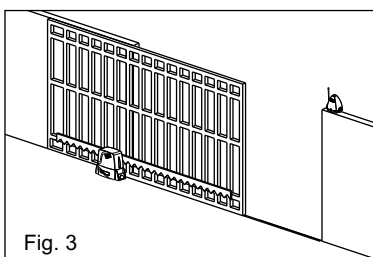


Fig. 3

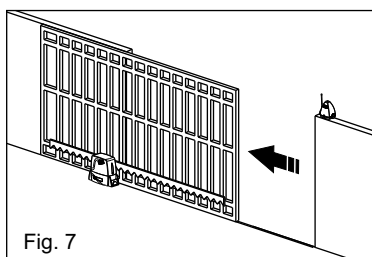


Fig. 7

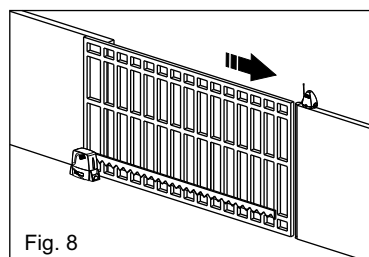


Fig. 8

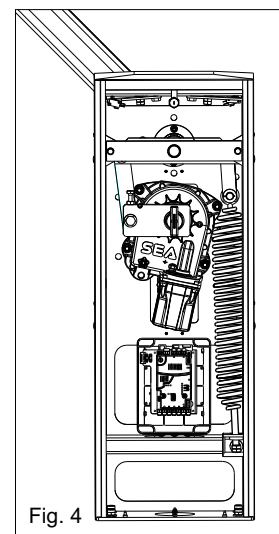


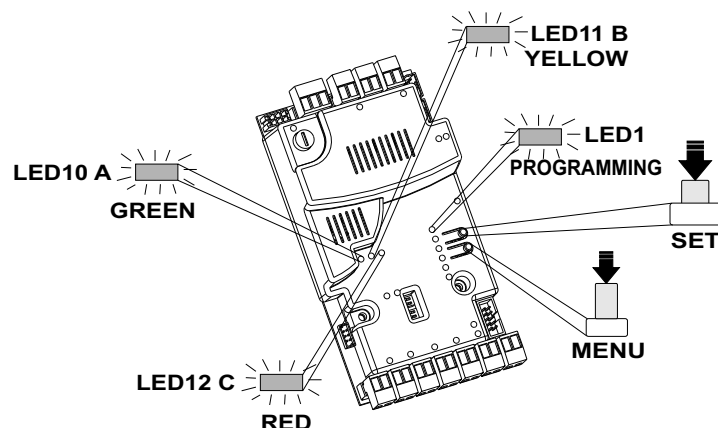
Fig. 4

A) Select LED 1 of the self-learning through the MENU button, with LED 1 turned on press button SET to choose the function modality:

-Led L10 A green on = Encoder ON

-Led L11 B yellow ON = Encoder OFF

B) Once the functioning modality has been chosen, always with Led10 A switched on, hold pressed SET up to the departure of the motors in closing and then release the button.



A) Press the "Menu" button so that to turn on the LED1

B) Press the "IMP" button till the Led of the colour which corresponds to the type of installation (Encoder ON or Encoder OFF) turns on.

Keep pressed the button "SET" till the departure of the motor in closing and then release the button.



JOLLY functions:

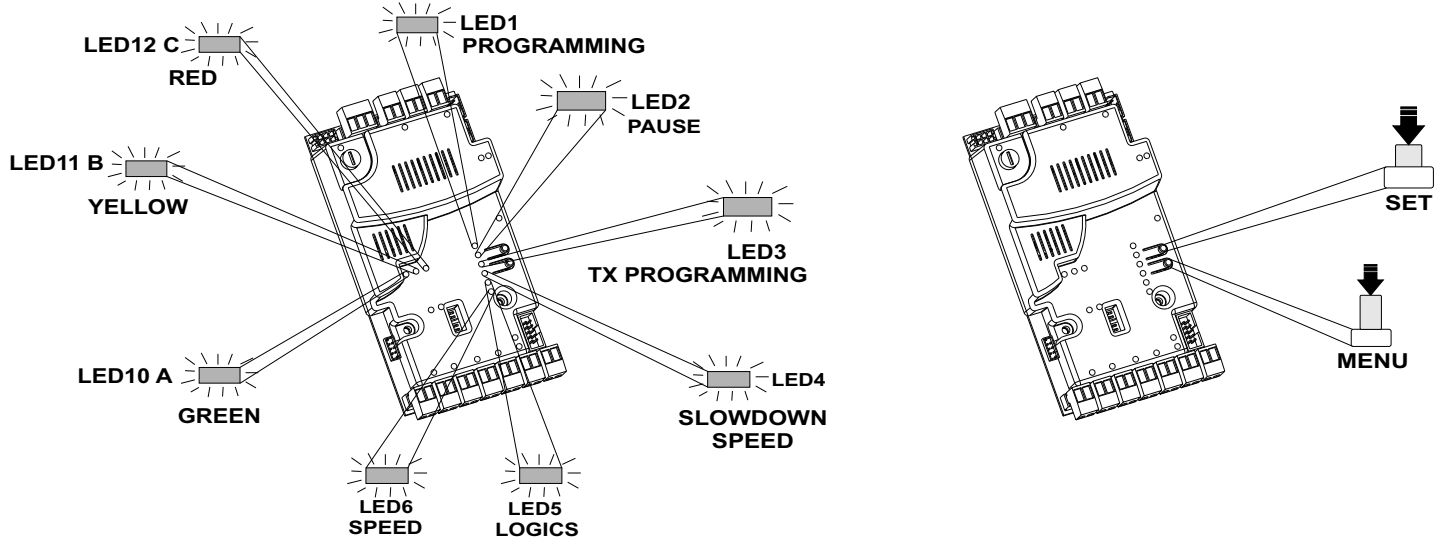
1) With the JOLLY programmer it is possible to start the programming without using the MENU and SET button.

2) With the JOLLY programmer it is possible to choose the type of motor and the type of application without using the MENU and SET buttons.



SELECTION OF THE SETTINGS

The adjustments of the control unit are executed through the buttons "MENU" and "SET". Pressing the "MENU" button you select the Leds corresponding to the various functions to be set, pressing the "SET" button you select the leds corresponding to the desired values inside every single function.



Selecting **LED 2** with the "MENU" button you enter into pausing time regulation, with **LED 2** turned on, hold pressed the selected button "SET" for the desired time of pause. According to the colour that the leds 10 A, 11 B and 12 C will assume it will be possible to have an order of the length of the set time of pause. If the button is released and pressed again the time of pause will be annulled.

Led L10 A green turned on Time of pause <15 S.

Led L11 B yellow turned on Time of pause <45 S.

Led L12 C red turned on Time of break >45 S. up to 180 S.



JOLLY function: With the JOLLY programmer it is possible to adjust linearly this parameter without using the MENU and SET buttons.

Selecting **LED 4** with the "MENU" button you enter into the slowdown speed adjustment, with **LED 4** turned on, press the button "SET" till to select the desired leaf delay, observing the colours of the leds 10 A, 11 B and 12 C.

Led L10 A green slowdown speed 30%

Led L11 B yellow slowdown speed 35%

Led L10 A - Led L11 B Green-yellow slowdown speed 45%

Led L10 A - Led L12 C Green-red slowdown speed 50%



JOLLY function: With the JOLLY programmer it is possible to change this parameter without using the MENU and SET buttons.

Selecting **LED 5** with the "MENU" button you enter into the choice of the functioning logics, with **LED 5** turned on, press the button "SET" till to select the desired logic, observing the colours of the Leds 10 A, 11 B and 12 C.

Led L10 A green on dead man logic

Led L11 B yellow turned on automatic logic

Led L12 C red turned on security logic

Led L10 A green and L11 B yellow step by step type 1 logic

Led L11 B yellow and L12 C red Step by step type 2 logic

Led L10 A green and Led L12 C red switched on 2 pushbutton logic



JOLLY function: With the JOLLY programmer it is possible to select the logic without using the MENU and SET buttons on the control unit.

Selecting **LED 5** with the "MENU" button you enter into the choice of the motors' speed, with **LED 5** turned on, press the button "SET" till to select the desired speed, observing the colours of the leds 10 A, 11 B and 12 C.

Led L10 A green turned on slow speed

Led L11 B yellow turned on middle speed

Led L12 C red turned on high speed

Hold pressed "SET" for more then 5 seconds to annul the executed number of cycles



JOLLY function: With the JOLLY programmer it is possible to select the speed without using the MENU and SET buttons on the control unit.

Selecting **LED 1** and **LED 2** (with alternate flashing) with the "MENU" button you enter into the motor torque adjustment. With **LED 1** and **LED 2** flashing alternatively keep pressed the button "SET" while selecting the desired torque, observing the color of the LEDS 10 A, 11 B, 12 C.

Led L10 A green turned on, torque = Low

Led L11 B yellow turned on, torque = Middle

Led L12 C red turned on, torque = Middle high

Led L10 A, L11 B and L12 C turned on, torque = High



JOLLY function: With the Jolly programmer this parameter is adjustable linearly and differentiable for single opening direction without using the SET and MENU buttons on the control unit.

Selecting **LEDS 5 and 6** (with alternate flashing) with the "MENU" button you enter into the choice of the type of motor that you are using.

Note: In default the control unit is set on sliding motor.

Led L10 A green sliding

Led L11 B yellow barrier

Led L12 C red VERG

Led L10 A green, Led L11 B yellow JOINT



JOLLY function: With the Jolly programmer it is possible to select the motor type without using the SET and MENU button on the control unit.

Selecting with the pusbutton "MENU" **LEDS 3 and 4** with alternated flashing, you enter into the choice of setting the control unit as MASTER or as SLAVE.

Led L10 A, L11 B, L12 C turned on MASTER

Led L10 A, L11 B, L12 C turned off SLAVE



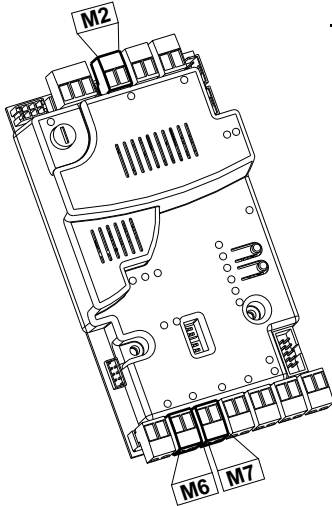
JOLLY function: with the Jolly programmer it is possible to select the card as MASTER or SLAVE without using the SET and MENU buttons on board of the card.

After 5 seconds without having pressed any button, the parameters' adjustment function will be automatically left.

If the control unit turns on when holding pressed the buttons "MENU" and "SET" contemporarily, the control unit will start with the DEFAULT parameter (see preceding page).

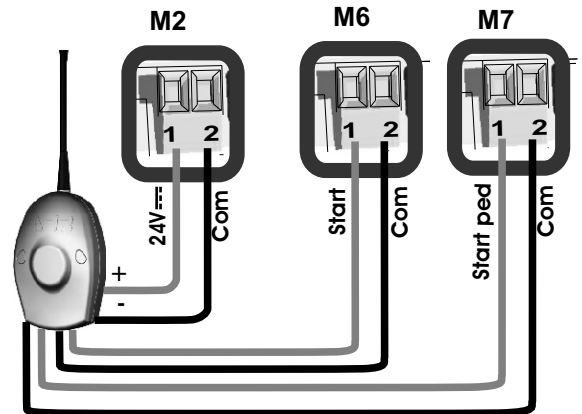


EXTERNAL RECEIVER



Example: Connection of a radio receiver

For the connection of the receiver refer to the relative instructions manual.



RADIO TRANSMITTER SELF LEARNING WITH RECEIVER ON BOARD OF CONTROL UNIT

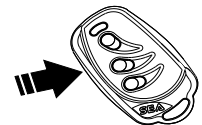
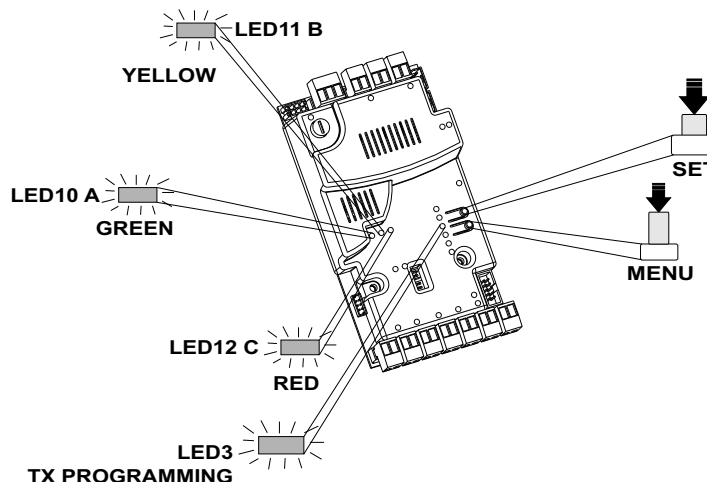
⚠ WARNING: Make the radio transmitters programming before you connect the antenna and insert the receiver into the special CMR connector (if available) with turned off control unit. (The control unit automatically recognizes if the receiver is a RF or RF Roll module)

Note: With a RF module it will be possible to use only 12 bit radio transmitters, that are Coccinella Dip and Copy and Smart Dual. With RF Roll module it will be possible to use only Coccinella Roll radio transmitters.

1. Select LED 3 with the MENU push button, at this point press the button "SET" and the LED 3 will flash together with the LED 10 A (green) to signal that it waits for a code to be associated to the total opening;
2. Press the desired button of the radio transmitter, the LED 10 A (green) will turn off to signal the memorisation of the data; now it returns to flash for 5 seconds waiting for other codes.
3. If it is desired to also associate a command to the pedestrian start, press **SET** again, the LED 11 B (yellow) will flash for signalling that it is waiting for a code to be associated to the **pedestrian opening**;
4. Press the desired button of the radio transmitter, LED 11 B will turn off to signal the memorisation of the data; now it will turn to flash waiting for other codes to be associated to the pedestrian start. If no other buttons are pressed within 5 seconds the programming will be left.
5. At this point it is possible to press the desired button of the radio transmitter and the LEDs 10 A, 11 B, 12 C (green, yellow, red) will show the available memory, LED 10 A (green) shows the occupied memory, less than 50%, LED 11 B (yellow) shows the occupied memory, more than 50%, LED 12 C (red) full memory.
6. To delete all memorized codes keep pressed for more than 5 seconds the adjusted button until the LEDs yellow B, red C and green A will flash contemporarily to confirm the cancellation.



JOLLY functions: It is possible to monitor the state of occupation of the of the radio transmitter memory.



Notes:

- Enter radio transmitters learning only when the working cycle stops and the gate is closed.
- It's possible to memorize up to 800 codes (buttons).
- If all available codes have already been memorized and you try to memorize a further code, the led 12 C (red) will flash for signalling the error.
- If the board receives a code which was already associated to another function it will be updated with the new function.



FUNCTION LOGIC

AUTOMATIC LOGIC

A start impulse opens the gate. A second impulse during the opening will not be accepted.
A start impulse during closing reverses the movement.
To activate the automatic re-closing put DIP1 and DIP4 on ON.
With DIP2 and DIP4 on ON start in pause is activated

SECURITY LOGIC

A start impulse opens the gate. A second impulse during opening reverses the movement.
A start impulse during closing reverses the movement.
To activate the automatic re-closing put DIP1 and DIP4 on ON.
With DIP2 and DIP4 on ON start in pause is activated.

STEP BY STEP TYPE 1 LOGIC

The start impulse follows the OPEN-STOP-CLOSE-STOP-OPEN logic.
To activate the automatic re-closing put DIP1 on ON.
With DIP2 it is possible to choose whether to make accept the start in pause or not.

STEP BY STEP TYPE 2 LOGIC

The start impulse follows the OPEN-STOP-CLOSE-OPEN logic.
To activate the automatic re-closing put DIP1 on ON.
With DIP2 it is possible to choose whether to make accept the start in pause or not.

DEAD MAN LOGIC

The gate opens as long as the START button of opening is pressed; releasing it the gate stops. The gate closes as long as the button connected to the PEDESTRIAN START is pressed; releasing it the gate stops. To execute complete opening and/or closing cycles the related pushbuttons must be constantly pressed.

2 PUSHBUTTONS LOGIC

One start opens, one pedestrian start closes. In opening the closing will not be accepted. In closing a start command reopens, a pedestrian start command (closes) will be ignored.



JOLLY function: With the JOLLY programmer it is possible to select the logic without using the SET and MENU buttons on the control unit.



Jolly option:

If you dispose of a Jolly programmer it is possible to activate the automatic reclosing and the start in pause from the programmer without accessing the control unit.

DESCRIPTION OF THE BUS SYSTEM

The BUS is a connecting system through which it is possible to connect different accessories among which: photocells, key switches, warning lamps, numerical keyboards and key selectors, all in parallel on the same entry and all through two only threads. This system therefore allows to eliminate the two threads of the power supply for the accessories, therefore every accessory will be equipped with only two threads. Every accessory is equipped with a rotating changer, which allows to join the various devices according to a numerical sequence which defines the particular function assigned to that accessory.

Photocells' alignment

If photocells are connected on the BUS it is necessary to line up the same before programming. To do the alignment it is necessary to start a self-learning cycle of the times. At this point, the gate will stand still, as long as the photocells are not lined up. Once the photocells have been lined up, push the SET button to restart the self-learning of the times.

Photocells BUS addressing

Rotating Changer on TX and RX on 0 or 1 = photocell active only in opening Rotating Changer on TX and RX on 2 or 3 = photocell active only in closing Rotating changer on TX and RX on 4 = photocell both in opening and in closing.

The positions from 6 to 9 are interpreted as active photocells both in closing and in opening.

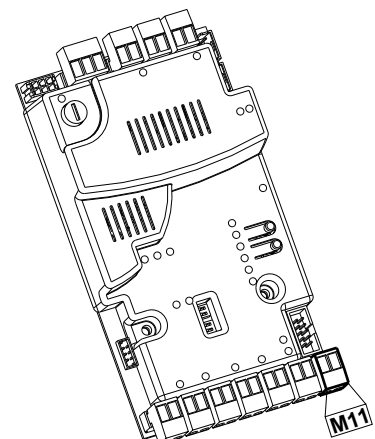
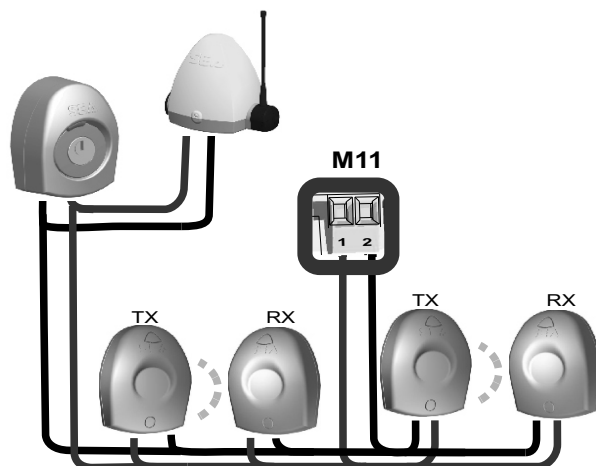
Note: Two couples of photocells with the same function have to have a different number. For ex. on two couples in closing TX and RX of the first one will have the number 2, TX and RX of the second couple will have the number 3.

Initialization BUS

Connect all the devices in parallel on the clamp M11 or in parallel between them.

At the lighting of the control unit make sure that the LED13 (red) performs some fast flashes, at this point, if the red led remains turned on this means that there is an error on the BUS, signalled from the display or by 8 flashes on the warning lamp, but if the red led will keep on flashing slowly the BUS is perfectly working.

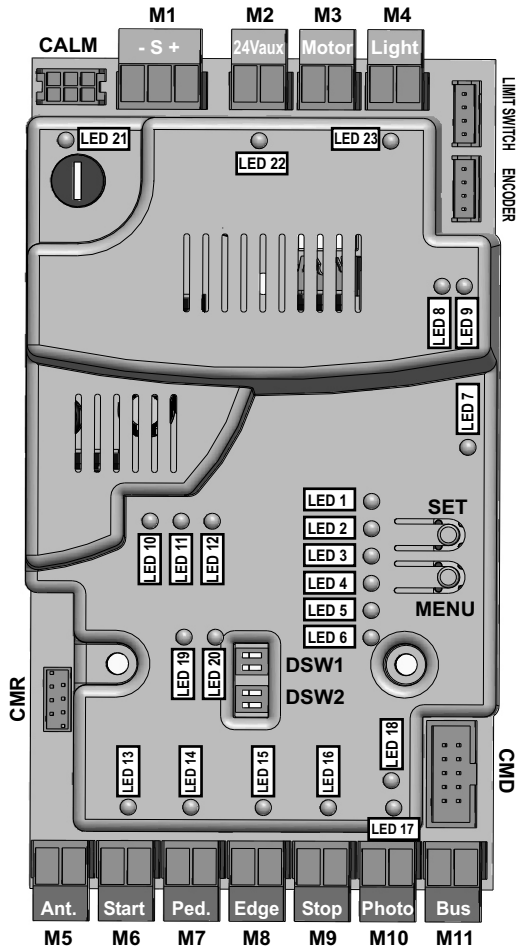
NOTE: To repeat the search of the peripheral BUS in case of BUS error, press contemporarily the buttons + and - of the display, or press the button until LED 11 B turns on. At this point keep pressed SET as long as LED 11 B does not turn off and LED 10 A turns on.



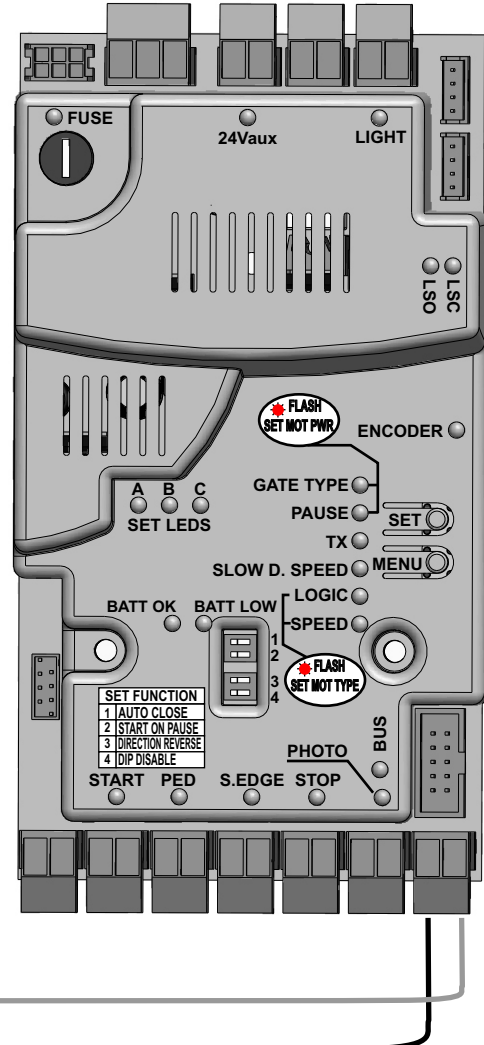


MASTER-SLAVE FUNCTION

MASTER



SLAVE



To set an installation with two motors in **MASTER-SLAVE** function it is recommended to do as follows:

1) Set the two motors as if they were two independent installations, make sure that the individual motor works properly and that the limit switches (when present) are read properly.

2) Once sure of the correct functioning connect the control unit MASTER to the control unit SLAVE through the BUS with two cables paying especially attention to keep the polarity of the cables.

3) Now set the control unit, which has to manage the commands and motor 1 (photocell, keyswitch, STOP, safety edge etc.) as MASTER and the other one which will move motor 2 as SLAVE.

To set the MASTER, scroll through the menu until you have found the two central LEDs (TX and SLOW DOWN SPEED) so that the LEDs blink alternately, and set the SET led (10 A, 11 B and 12 C) so that all three leds are off. Execute the same operation on the SLAVE control unit, setting the SET led (10 A, 11 B and 12 C) so that all three leds stay on. If you have a PALM USER (JOLLY) it is sufficient to choose MASTER or SLAVE in the functions list.

4) Now search the BUS devices as described in the note on the preceding page.

5) Follow up the selflearning of the times of the MASTER control unit.

Note 1: All these operations can also be managed through the PALM USER (JOLLY).

Note 2: On the SLAVE it is possible to set the following functions only: torque, speed, motor type, slowdown speed, acceleration, deceleration, position recovery, 24V aux and motor inversion. All other parameters will be set only by the MASTER control unit.

PROGRAMMER JOLLY PARAMETERS ADJUSTMENT

The JOLLY programmer allows to keep under control and to change all parameters of the control unit without need to use the SET and MENU buttons of the control unit. Furthermore, it is essential for the initial setting of some parameters which are not settable directly on the control unit which are: selftest photocell, photocell in opening, anti-intrusion, separate regulation of the motor torque in opening and closing, slow-down speed, learning speed, acceleration, deceleration, leaf stroke, number of cycles, pedestrian opening, foto/timer, ped/Timer, 24Vaux, control lamp, balanced edge, closing with photocell.

Note: Through the JOLLY programmer it is also possible to start the selflearning of the working times.

Screen 1	
Language: Italian	With buttons + and - it is possible to modify the language ←

← The arrow shows that the parameter is modifiable with the buttons + and -

Screen 2	
Cycle	Automat./Secur./Step by step1/Step by step2/Dead man/ 2 boutons ←
Encoder	on/off (function with encoder, not implemented) ←
Time of pause	[0÷120]s (time of pause in seconds) ←

→ Shows the working logic adjusted on board of the control unit.

Screen 3	
Learning	on alignment/off (signalling of the execution of the learning) ←
Modality	Master/Slave ←
Cicli exec.	[0÷2 ³²] (number of executed cycles)
Mem. free	[0÷100]% (percentage of available memory for the learning of remote controls)

Note: The alignment appears only if photocells are present on the BUS.

Screen 4	
Motor	(Sliding) (Barrier) ←
Speed	[30÷100] adjusts the motors' speed ←
Sl. speed	[30÷100] adjusts the slow down speed ←
Lear. Speed.	[30÷100] adjusts the learning speed ←

→ Indicates the type of motor set

Screen 5	
Photocell Tx1	[OK-NP] (peripheral reveal - not present)
Photocell Tx2	[OK-NP] (peripheral reveal - not present)
Photocell TX3	[OK-NP] (peripheral reveal - not present)

The screens 4, 5, 6, 7, 8 and 9 show the type of accessory on the BUS.

Screen 6	
Photocell TX4	[OK-NP] (peripheral reveal - not present)
Photocell TX5	[OK-NP] (peripheral reveal - not present)

Screen 7	
Photocell Rx1	[OK-NP] (peripheral reveal - not present)
Photocell RX2	[OK-NP] (peripheral reveal - not present)
Photocell Rx3	[OK-NP] (peripheral reveal - not present)

Screen 8	
Photocell RX4	[OK-NP] (peripheral reveal - not present)
Photocell RX5	[OK-NP] (peripheral reveal - not present)

Screen 9	
Interface relay	[OK-NP] (peripheral reveal - not present)
Flashing lamp	[OK-NP] (peripheral reveal - not present)
Slave	[OK-NP] (peripheral reveal - not present)



PROGRAMMER JOLLY PARAMETERS ADJUSTMENT

NOTE: For the respect of the valid European rules on the safety of the electric gates, it is recommended to not adjust the parameters **torque Max 1** and **torque Max 2** on the value 100%.

Screen 10		
Accelerat.	[0÷100]% (inclination of the ramp of acceleration)	←
Decelerat.	[0÷100]% (inclination of the ramp of acceleration)	←
Pedestrian op.	[30,50,100]% (percentage pedestrian opening)	←

It allows to regulate the duration of the acceleration of the motors on the start. If on 100% the gate will immediately depart at the max. adjusted speed

It allows to regulate the duration of the deceleration of the motor at the end of opening and closing. If on 0% the gate won't effect the phase of deceleration.

Screen 11		
Torque op. M1	[10÷100]% (max. current of the motors)	←
Torque clo. M1	[10÷100]% (max. current of the motors)	←

Allows to regulate and to visualize the sensitivity of the anti-squeezing for single opening direction. With value 100% the gate in presence of obstacle will reverse the movement after 5 seconds.

Screen 12		
Anti-intrusion	on/off (in ON it implicates the presence of a contact N.C. On the limit switch that, if freed, forces the motors in closing)	←
Pre- flashing	on/off (activation of the pre-flashing)	←
Autotest photo.	on/off (activates autotest photocell)	←
Max cycle	0÷100000 (indicates the number of cycles after which it is necessary to follow up the maintenance)	←

Normal:
1 Flash/s in opening
2 Flash/s in closing
On in pause

Control lamp: the alarm signals remain until they are eliminated

Continuous: flashes always also when gate is not in movement

Screen 13		
Warning lamp	Normal/Control/Continuous	←
Foto	closing/opening/stop/park	←
Reverse stroke	on/off (Disabled)	←
Posit. recover	0% 100%	←

For the functions Fotoopen, Fotostop, Fotopark, see page 9.

Screen 14		
Photo/Timer	ON/OFF On ON the PHOTO entry becomes TIMER	←
Ped/Timer	ON/OFF On ON the PED entry becomes TIMER	←
Clos. Photo	ON/OFF On ON if the photocell is occupied the gate recloses interrupting the pause	←
Balanced edge	on/off (In ON it is necessary to insert in series to the edge contact a 8K2 Ohm resistance)	←

Allows to optimize the point of slowdown beginning in case of inversion of the motion and in function of the weight of the gate

Screen 15		
24V aux	During cycle/in opening/in closing/in Pause/Always	←
Autom. clos.	ON/OFF If on ON at the end of the set pause the gate re-closes automatically	←
Start on pause	ON/OFF If on ON with autom. Clos. on ON a start impulse provokes the immediate re-closing of the autom.	←
Mot. rev.	ON/OFF Allows to exchange contemporarily the limit switch and the motor rotation direction without disconnecting the wires	←

Allows to decide when having power supplied the exit 24V Aux.

Note: After this operation it is necessary to switch off the power supply of the motors and to repeat the selflearning of the times. If the motor is not synchronized with the limit switch, during selflearning the automation stops on the first limit switch it recognizes without completing the selflearning of the times. In that case it will be necessary to switch off the power supply again, to manually exchange the wires of the motor and to repeat the selflearning.

Screen 16		
List of events	Shows the last 10 events on the control unit	
N°10		←
N°9		
N°8		

Diagnostic 10 last events



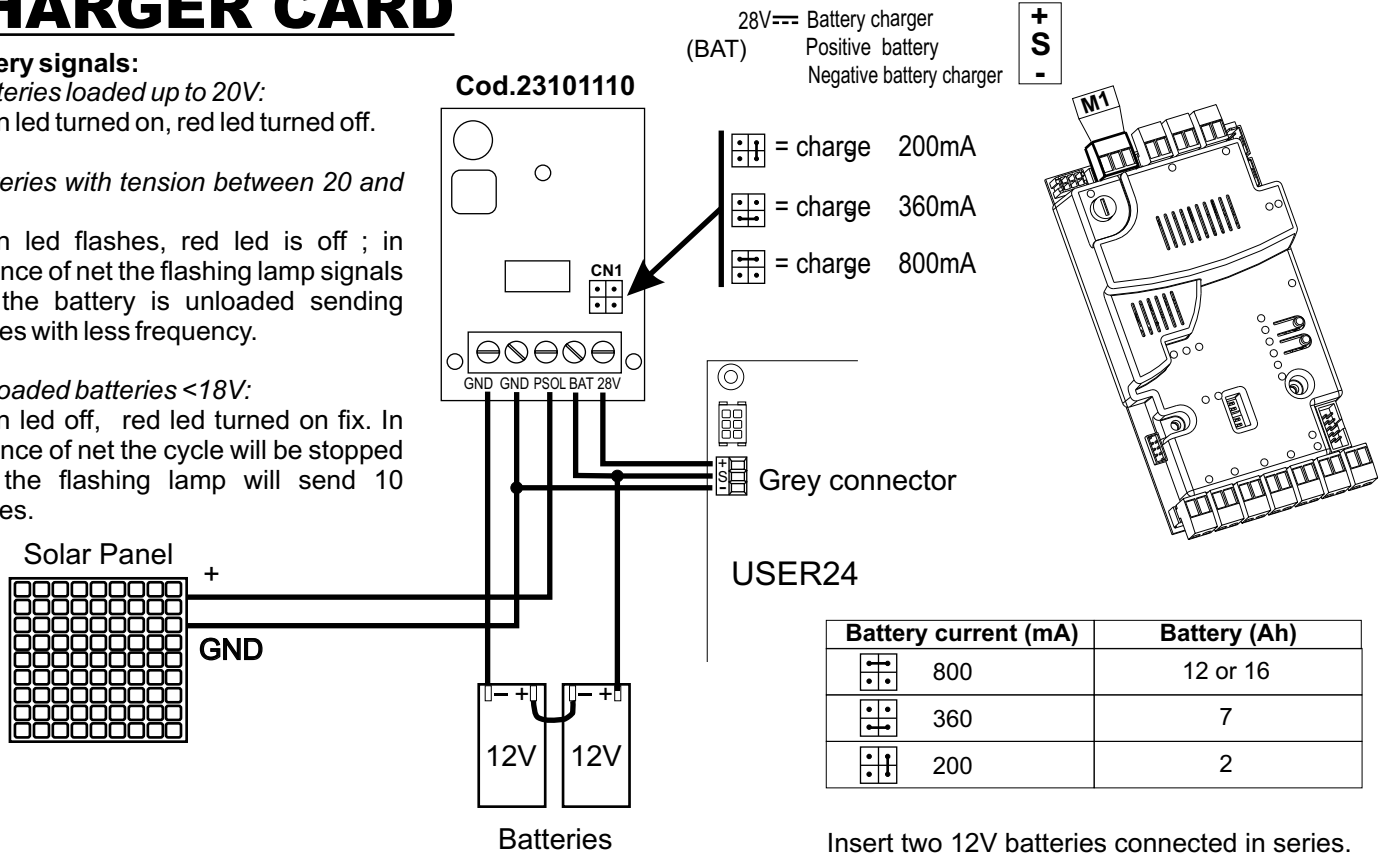
CONNECTION OF BATTERIES TO BATTERY CHARGER CARD

Battery signals:

- *Batteries loaded up to 20V:*
green led turned on, red led turned off.

- *Batteries with tension between 20 and 18V:*
green led flashes, red led is off ; in absence of net the flashing lamp signals that the battery is unloaded sending flashes with less frequency.

- *Unloaded batteries <18V:*
green led off, red led turned on fix. In absence of net the cycle will be stopped and the flashing lamp will send 10 flashes.



ALARMS INDICATIONS

The flashing sequence is signalled at every opening and closing of the automation on the warning lamp. The warning lamp will send a flashing every second in opening and two flashings in closing, while it will remain turned on fixed in pause.

Flashings Number	Kind of alarm
2	Photocell
3	Photocell in opening
4	Safety edge
5	Stop

Flashings Number	Kind of alarm
6	Collision on obstacle
7	Reached maximum cycles
8	Alarm BUS
9	Motor failure
10	Alarm battery unloaded

ALARM SIGNALS

The damages with 2,3, 4 and 5 flashings, refer to normally closed contacts, therefore verify if such are the connections and/or the correct working of the photocells, of the Stop button and/or of the safety edge.

2. The failure with 6 flashes refers to a collision with an obstacle which has been revealed by the ammeter sensor, therefore it is necessary either to repalce the motor or to verify the conditions of the connections.

3. Periodically, in relation to the number of manoeuvre and the type of gate, it is recommended to execute, if the gate has modified the attritions and it doesn't work, **the re-programming of the times of learning on the electronic board.**

The damage with 7 flashes refers to the attainment of the established maximum cycles for the maintenance of the control unit, therefore it is necessary to perform the maintenance and to put on zero the number of cycles, according to the following procedure: Through the button **SEL** select the **LED 6 of the motor's speed**, keep pressed the chosen button for more than 5 seconds.

4. The damage with 8 flashes indicates a generic error on the BUS, this means that there is a short circuit on one of the connected devices to the BUS, and it it necessary to verify the connections and the functionality of the connected devices or the connected devices are not correctly connected between them (see paragraph on the BUS management)

5. The damage with 9 flashes refers to the exceeding of the max. shreshold of suppliable current from the central, therefore it is necessary to make sure that there is no short cut on the devices (f.ex. On the motor)



TROUBLE SHOOTING

Advices

Make sure all Safety LED 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	<p>a.) Jumper missing on one of the N.C. Contacts</p> <p>b.) Burnt fuse</p>	<p>a.) Check the connections or the jumpers on the connections of the safety edge, of the stop and of the photocell</p> <p>b.) Replace the burned fuse on the control unit led 1 turned on.</p>
Gate doesn't move while the motor is running	<p>a.) The motor is in the released position</p> <p>b.) There is an obstacle</p>	<p>a.) Re-lock the motor</p> <p>b.) Remove obstacle</p>
Gate doesn't reach the complete Open / Closed position	<p>a.) Wrong setting of the limit switches</p> <p>b.) Error on programming</p> <p>c.) Gate is stopped by an obstacle</p> <p>d.) Torque or speed too low</p>	<p>a.) Set limit switches</p> <p>b.) Repeat programming</p> <p>c.) Remove obstacle</p> <p>d.) Check fitting geometry following the operator installation manual</p> <p>e.) Increase torque parameter</p>
The gate opens but doesn't close	<p>a.) The photocell contacts are not closed</p> <p>b.) Ammeter alarm</p>	<p>a.) Check the LED or the jumpers or the signals indicated on the warning lamp</p> <p>b.) Check if the ammeter alarm has intervened and eventually increase the torque parameter.</p>
The gate doesn't close automatically	<p>a.) Pause time set to high</p> <p>b.) Control unit in semi-autom. logic</p>	<p>a.) Adjust pause time</p> <p>b.) Set DIP1 on ON or set "autom. closing" on the JOLLY programmer on ON.</p>



SALES CONDITIONS

GENERAL WARNING: Installation must be realized using parts and accessories approved by SEA. SEA is not responsible for incorrect installations and/or non-compliance with safety standards according to the law in-force. SEA is in no way liable for any damages and/or malfunctioning due to using parts and accessories non-compliant with the UL325 safety standards.

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QUOTATION: Quotation and special offers with a non-specified duration expires automatically after 30 days.

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COMPLAINS: Complaints and/or claims must be notified to SEA within 7 business days after receiving the products. Claims and complains must be supported by original documents. Customer must contact the factory for instructions and authorization. Merchandise returned for credit must be current, uninstalled and unused and returned in its original packaging. Freight must be pre-paid on all authorized returns.

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Hydraulic and oil-bath motors: 36 months warranty from the date of invoice on manufacturing, assembling and workmanship defects.

Electro-mechanic motors and electronic control systems: 24 months warranty from the date of invoice on manufacturing, assembling and workmanship defects.

Lepus and Full Tank Standard model: 60 months warranty from the date of invoice on manufacturing, assembling and workmanship defects.

No warranty will be recognized for damages due to incorrect installation and/or improper use for which the product was intended. SEA warranty obligations shall be limited to repair or replace the defective product/parts at SEA option, upon examination of the products by SEA technical Staff. All replaced parts must remain property of SEA. The warranty status of the product remains an unquestionable assessment of SEA. Buyer must ship pre-paid defective products. Products under warranty will be returned pre-paid by SEA. Recognized defects, whatever their nature, will not produce any responsibility and/or damage claims to SEA USA Inc and SEA s.r.l. Warranty shall not cover any required labor activities. Warranty will in no case be recognized if alterations and any other changes will be found on products. Warranty will not cover damages caused by carriers, expendable materials and faults due to improper use with the products specifications. No indemnities are recognized during repairing and/or replacing of the products under warranty. SEA USA Inc. and SEA s.r.l. decline any responsibility for damages to person and objects deriving from non-compliance with safety standards, installation instructions or use of the products sold. It is intended that warranty will be recognized only on products bought through the SEA authorized network. Products must be installed by professionals. No warranty will be recognized if products are installed directly by the final user. Warranty does not apply in case of unexpected events such as fire, flood, electrical power surge, lightning, vandalism and others.

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