Automatic Gate Openers

International registered trademark n. 804888

English

GATE 2 DG INVERTER

CONTROL UNIT FOR ONE OR TWO 230V/115V OPERATORS MANAGEMENT

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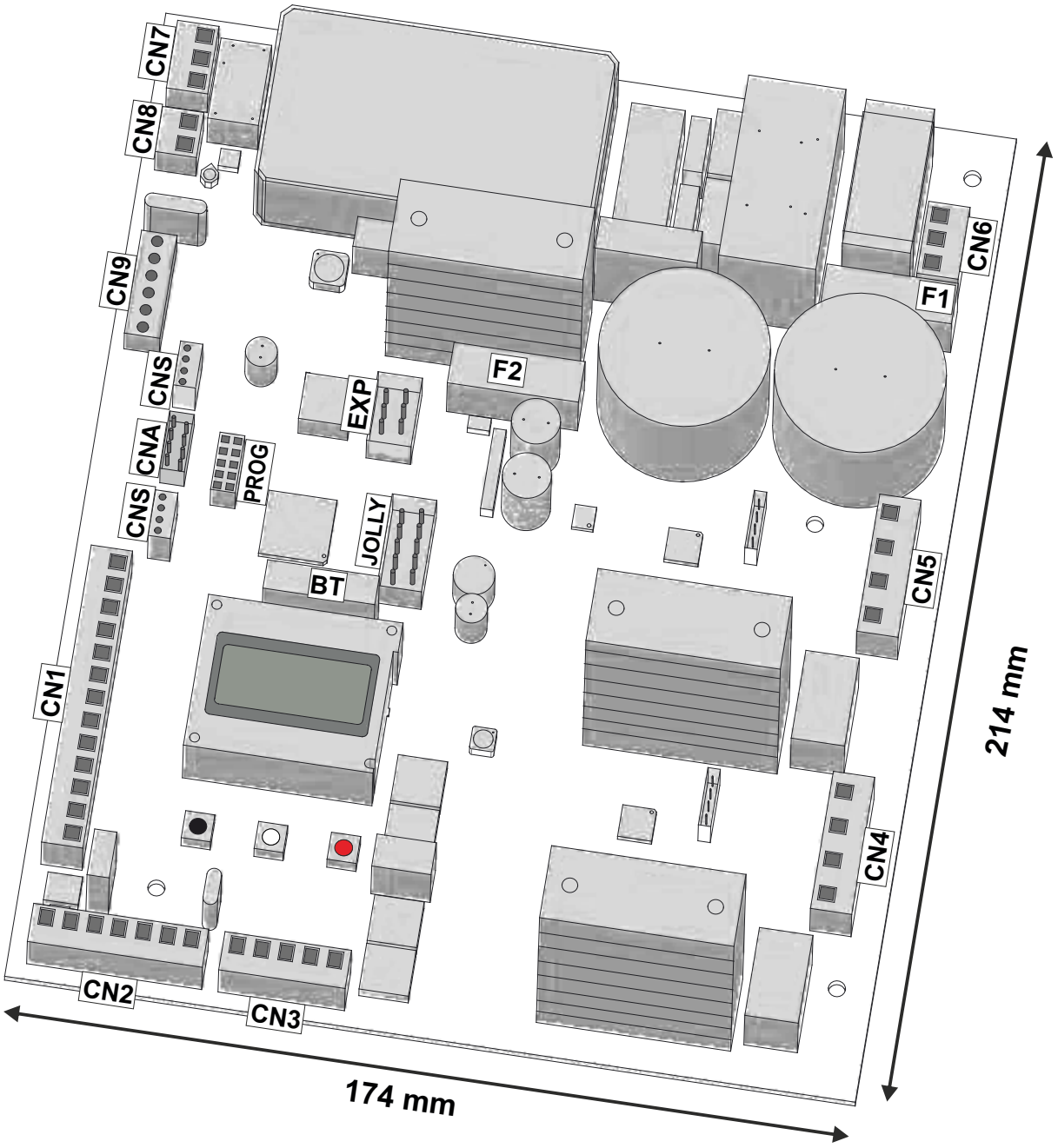
67412098 **REV. 00 - 07/2021**

COMPONENTS



TECHNICAL DATA

ALIMENTAZIONE POWER SUPPLY ALIMENTATION ALIMENTACIÓN	230 Vac 50/60 Hz 115Vac 50/60 Hz

TEMPERATURA DI ESERCIZIO WORKING TEMPERATURE TEMPERATURE DE TRAVAIL TEMPERATURA DE TRABAJO	-20°C ⅄ +50°C ⅄

ASSORBIMENTO IN STAND-BY STAND-BY ABSORPTION ABSORPTION EN STAND-BY ABSORCIÓN EN STAND-BY	30 mA

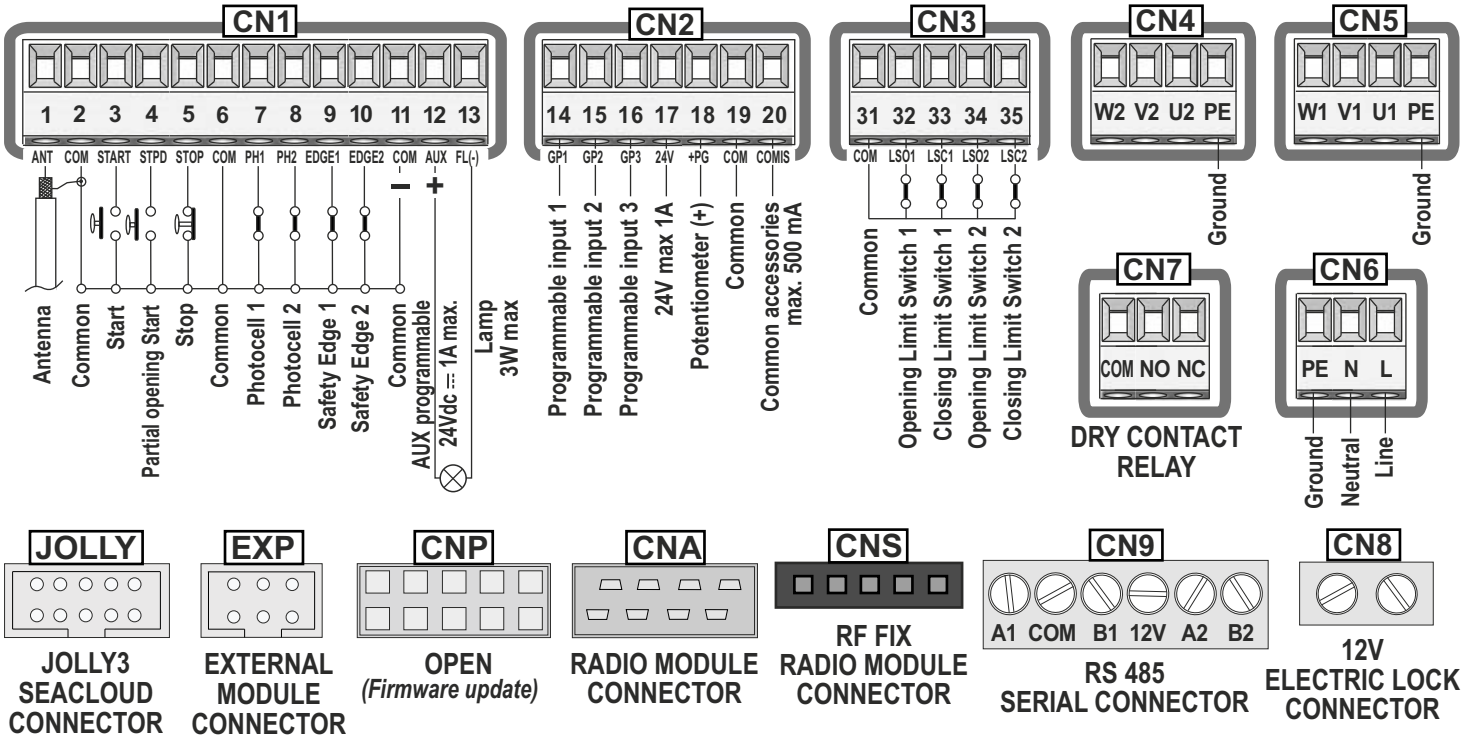
SCATOLA PER ESTERNO EXTERNAL BOX BOITIER EXTERIEURE CONTENEDOR EXTERIOR	325,7 x 246 x 140 mm IP55

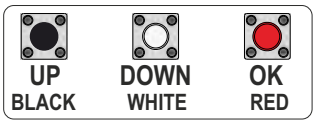
COMPONENTI - COMPONENTS - COMPOSANTS - COMPONENTES

	ITALIANO	ENGLISH	FRANÇAIS	ESPAÑOL
CN1	INGRESSO USCITA	INPUT OUTPUT	ENTREE SORTIE	ENTRADA SALIDA
CN2	POTENZIOMETRO ENCODER INGRESSI PROGRAMMABILI	POTENTIOMETER ENCODER PROGRAMMABLE INPUTS	POTENTIOMETRE ENCODEUR ENTREES PROGRAMMABLES	POTENCIÓMETRO ENCODER ENTRADAS PROGRAMMABLES
CN3	FINECORSA	LIMIT SWITCH	FIN DE COURSE	FINAL DE CARRERA
CN4	MOTORE 2	MOTOR 2	MOTEUR 2	MOTOR 2
CN5	MOTORE 1	MOTOR 1	MOTEUR 1	MOTOR 1
CN6	ALIMENTAZIONE	POWER SUPPLY	ALIMENTATION	ALIMENTACIÓN
CN7	RELAY CONTATTO PULITO	DRY CONTACT RELAY	RELAIS CONTACT SEC	RELAY CONTACTO SECO
CN8	ELETTRO-SERRATURA	ELECTRIC LOCK	SERRURE ELECTRIQUE	CERRADURA ELÉCTRICA
CN9	CONNETTORE SERIALE RS 485	RS 485 SERIAL CONNECTOR	CONNECTEUR SERIE RS 485	CONECTOR SERIAL RS 485
JOLLY	JOLLY 3 SEACLOUD	JOLLY 3 SEACLOUD	JOLLY 3 SEACLOUD	JOLLY 3 SEACLOUD
EXP	MODULO ESTERNO	EXTERNAL MODULE	MODULE EXTERNE	MÓDULO EXTERNO
CNP	PROGRAMMAZIONE	PROGRAMMING	PROGRAMMATION	PROGRAMACIÓN
CNA	MODULO RADIO RF	RF RADIO MODULE	MODULE RADIO RF	MÓDULO RADIO RF
CNS	MODULO RADIO RF FIX	RF FIX RADIO MODULE	MODULE RADIO RF FIX	MÓDULO RADIO RF FIX
F1	FUSIBILE 6.3AT (230V) FUSIBILE 10AT (115V)	FUSE 6.3AT (230V) FUSE 10AT (115V)	FUSIBLE 6.3AT (230V) FUSIBLE 10AT (115V)	FUSIBLE 6.3AT (230V) FUSIBLE 10AT (115V)
F2	FUSIBILE ACCESSORI 1AT	FUSE 1AT ACCESSORIES	FUSIBLE ACCESSOIRES 1AT	FUSIBLE ACCESORIOS 1AT

1 - CONNECTIONS

WARNING: CONNECT ALL DEVICES WITH SWITCHED-OFF CONTROL UNIT





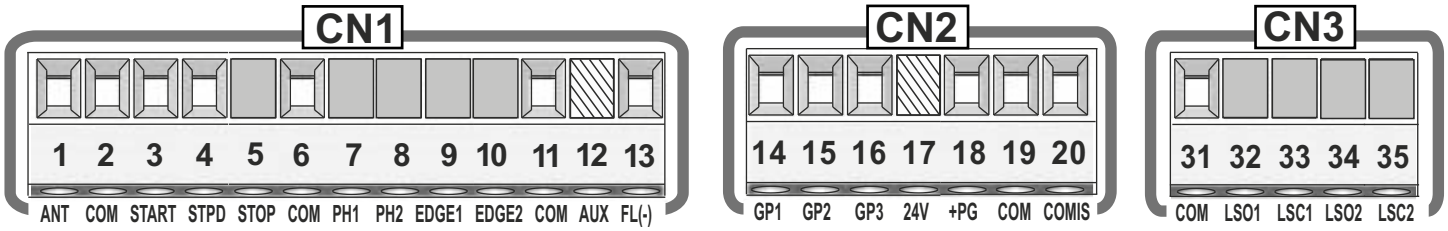
PROGRAMMING BUTTONS

***** THE MAXIMUM INDICATED LOAD (1A) REFERS TO THE MAXIMUM LOAD DISTRIBUTED ON ALL 24V OUTPUTS INCLUDED THE ABSORPTION OF THE RECEIVER ON BOARD (30 mA)

ON THE 24V AUX OUTPUT IT IS POSSIBLE TO CONNECT A MAXIMUM LOAD OF 1A

THE OUTPUT 20 - COMMON INPUT FOR ACCESSORIES (COMIS) OF CN2 CAN ALSO BE USED AS «COMSUMPTION INDICATOR» FOR ACCESSORIES (EG PHOTOCELLS, KEYBOARDS, ETC.); FROM THE 138-COMIS THRESHOLD MENU IT IS POSSIBLE TO SET A MAXIMUM THRESHOLD SO THAT, IN CASE OF EXCESSIVE ABSORPTION OR SHORT CIRCUIT, AN ALARM SIGNAL APPEARS ON THE DISPLAY (COMIS FAULT - SEE ALARM TABLES)

2 - CONTACTS



N.C. CONTACTS

24V DC CONTACTS

WARNING!

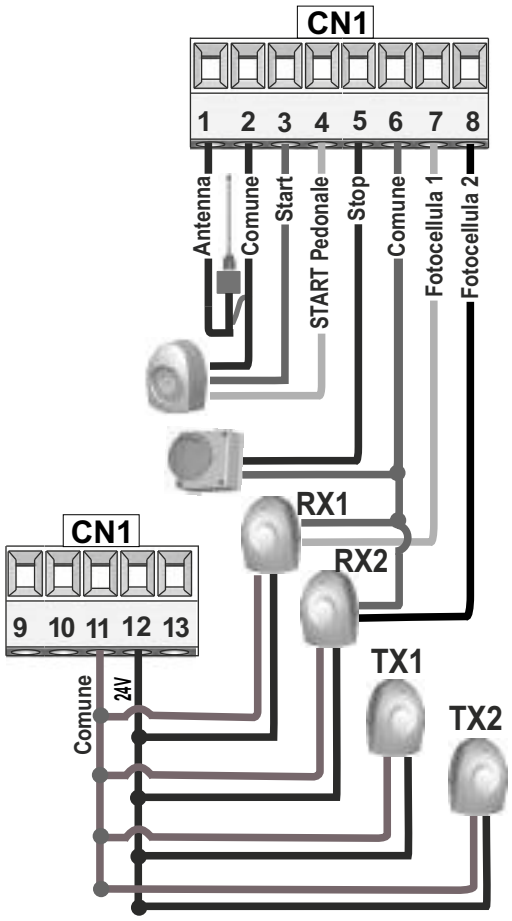
THE CONTROL UNIT IS DESIGNED FOR THE AUTOMATIC DETECTION OF NOT USED N.C. INPUTS (PHOTOCELLS, STOP, LIMIT SWITCHES AND SAFETY EDGES)

NO JUMPERS ARE NEEDED ON N.C. CONTACTS

THE INPUTS EXCLUDED IN SELF-LEARNING CAN BE RESTORED IN THE «INPUTS STATUS CHECK » MENU (CHAPTER 16) WITHOUT NEED TO REPEAT THE CONTROL UNIT SELF-LEARNING

THE HEREIN REPORTED FUNCTIONS ARE AVAILABLE STARTING FROM SOFTWARE REVISION 00.02 OF THIS CONTROL UNIT AND IT IS COMPATIBLE WITH JOLLY 3 PROGRAMMER

3 - CONNECTIONS ON CN1



3.1 - START (N.O.)

On clamps 3 and6

The automation can be opened or closed through an impulse transmitted to this input (via key button, keyboard, etc.). To connect other START devices (for ex. the magnetic loop) refer to the respective instructions

Note 1: For details on the logics that can be associated to the START button, see **chapter 18 (LOGICS)**

Note 2: If this contact is engaged during the pause (ie. Timer), the gate will not close until releasing

3.2 - PARTIAL OPENING START (N.O.)

On clamps 4 and 6

The input allows to obtain the partial opening. It is possible to manage the opening space through the **menu-90** or through the JOLLY 3. It is also possible to manage the partial opening pause time through the **menu- 91**

Note 1: For details on the logics that can be associated to the PARTIAL OPENING START button, see **chapter 18 (LOGICS)**

Note 2: If this contact is engaged during the pause (ie. Timer), the gate will not close until releasing

***IMPORTANT:** on menu **89-TRAFFIC LIGHTS RESERVATION** it is possible to activate the priority in opening or closing to be associated to the START and the PARTIAL OPENING START buttons (only with SEM management unit)*

3.3 - STOP (N.C.) On clamps 5 and 6

If this button is pressed the engine stops immediately in whatever condition or position it is. A new Start command will be required to restore the movement.

***Note:** After the Stop command, the engine will always re-start in closing*

3.4 - PHOTOCELL 1 AND PHOTOCELL 2 (N.C.)

+ = 24V⎓ max 1A (clamp 12) COM = 0V (clamps 2 - 6 - 11)

Ph1 = Photocell 1(clamp 7) PH2 = Photocell 2 (clamp 8)

Note 1: To perform the photocells self-test, connect the positive of the TX photocell to the clamp 20 and 21; From the **95-PHOTOTEST** menu options it is possible to choose where to enable the self-test

Note 2: The default settings are: **97-PHOTOCELL 1** = «closing»; **98-PHOTOCELL 2** = «opening and closing»; for further functions and management, see menu-97 and menu-98

Note 3: the positive cable of the photocells (24V) can also be connected to **clamp 17 of CN2** terminal to keep the AUX output free for other connections

3.5 - 24V⎓ DC AUX OPTIONS max 800mA On clamp 12

From **menu 94-24VAUX** or through the JOLLY 3 it is possible to choose when to have voltage on the AUX output. On the AUX output it is also possible to connect a relay ***(i.e. in paragraph 3.12)*** for the connection and the management of additional accessories (electric brake, additional warning lights, etc.)

3.6 - TIMER (N.O.)

On clamp 4 (Partial Opening Start) or on clamp 8 (Photocell 2)

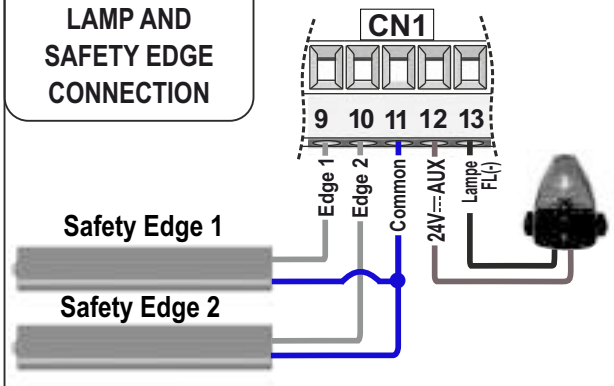
It can be enabled through **menu 92-TIMER** or via JOLLY 3. It opens and keeps the automation open until the contact is released. When released, the operator will wait for the pause time set then will close again

Note 1: If connected to the Partial Opening Start, this command will also be disabled on the remote control

Note 2: If the timer is enabled, in the event of a safety device intervention, the timer automatically restores after 6 seconds

Note 3: In case of power failure when the gate is open, the gate will stay open when the power is restored if the TIMER is still active; if no longer active, a new START impulse will be required to close the gate

EXAMPLE OF LAMP AND SAFETY EDGE CONNECTION



3.7 - 24V⎓ FLASHING LIGHT - MAX 3W

On clamps 12 and 13

It warns of the gate movement by performing 1 blink per second on opening, 2 blinks per second on closing and remaining on steady during pause. Through the flashing light it is also possible to read the alarm signals linked to the Stop, Photocell1, Photocell2 and Edge devices.

From menu **86-FLASHING LIGHT** or JOLLY3 it is possible to modify its functions.

Furthermore it is possible to manage the pre-flashing function from menu 85- PRE-FLASHING

3.8 - SAFETY EDGE (N.C.)

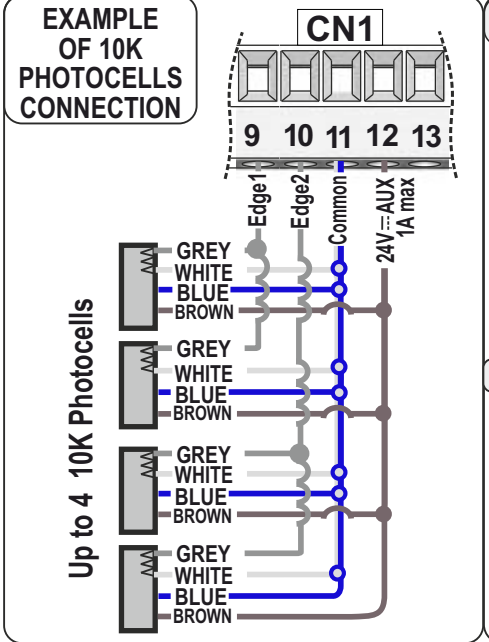
Safety edge 1 on clamps 9 and 11
Safety edge 2 on clamps 10 and 11

If enabled, the safety edge opens the contact causing a partial inversion of the motion both in opening and closing. **The functions can be managed from menus 100-SAFETY EDGE 1 and 101-SAFETY EDGE 2**; **The direction can be managed from menus 102-EDGE 1 DIRECTION and 103-EDGE 2 DIRECTION**

Note 1: among the options of the **menu-100** and **menu-101**, there are the **8K2 balanced or resistive edge** (single or double): the safety edge contact will be controlled by a specific resistance value which detects any possible short-circuit of the device *(a specific alarm will appear on the display)*

Note 2: it is possible to manage the functions of the safety edges also from the JOLLY 3 programmer

EXAMPLE OF 10K PHOTOCELLS CONNECTION



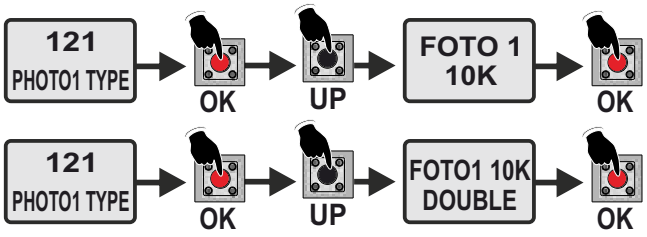
3.9 - 10K SINGLE OR DOUBLE PHOTOCELL

On clamps 9 - 11 - 12 and 10 - 11 - 12

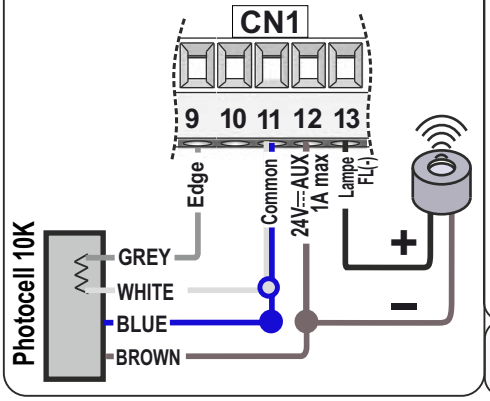
It is possible to connect up to four 10K photocells by setting menus **121-PHOTO 1 TYPE** and/or **122-PHOTO 2 TYPE** on the respective options (each contact allows you to connect up to 2 10K photocells). The 10K photocells will work according to the settings of menu **97-PHOTOCELL 1** and menu **98-PHOTOCELL 2**

Note1: The 10K photocell gives additional protection even in the event of a short circuit on the cables

SINGLE OR DOUBLE PHOTOCELL SETTINGS



EXAMPLE OF 10K PHOTOCELL AND BUZZER CONNECTION



3.10 - BUZZER 24V⎓

On clamps 12 and 13

The Buzzer is a sound alarm that can be used as a safety device.
Use a self-oscillating 24V ⎓ and 100 dB Buzzer

The Buzzer can be connected instead of the flashing light and it is necessary to set on «***BUZZER***» in the menu **86-FLASHING LIGHT**

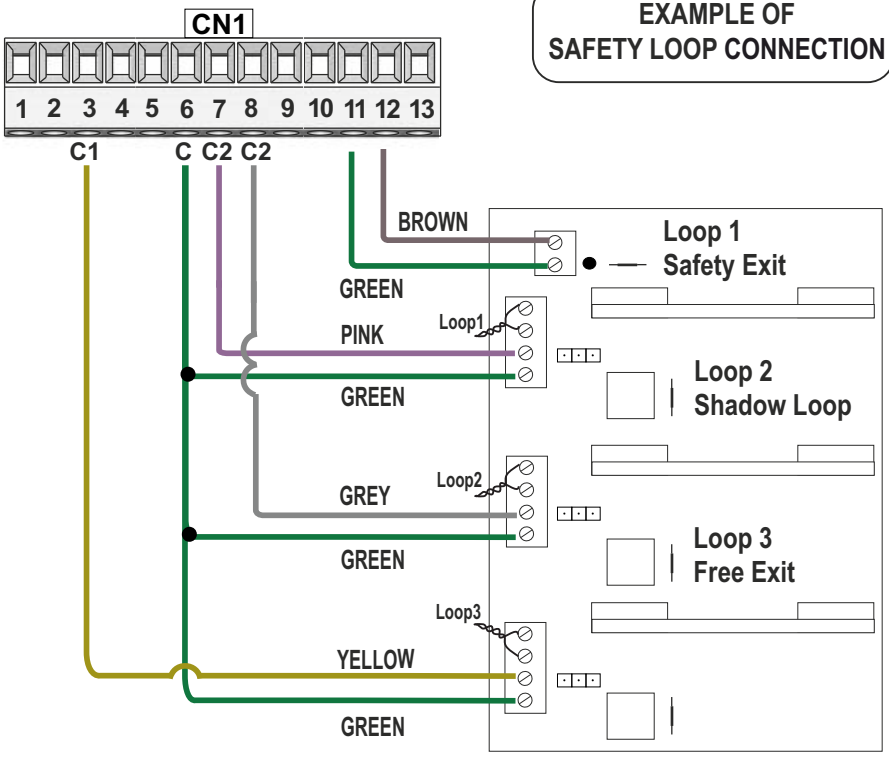
The Buzzer will activate after 2 consecutive interventions of the anti-crushing protection; to reset it press the STOP button;

In any case, the sound of the Buzzer turns off automatically after 5 minutes and the automation will stand waiting for a new command

IF BUZZER DOES NOT WORK, BE SURE THAT MENU 86-FLASHING LIGHT IS SET ON «BUZZER»

*THE POSITIVE CABLE OF THE ACCESSORIES **(24V)** CAN ALSO BE CONNECTED TO THE **CLAMP 17 OF CN2** TERMINAL*

EXAMPLE OF SAFETY LOOP CONNECTION



C1 = OPEN CONTACT
C2 = CLOSED CONTACT

11 / C (-) = 0 V
12 = 24 V

3.11 - SAFETY LOOP

Safety Exit Loop (Loop 1)

Connection scheme of the 1 reader loop detector

7 = Photocell 1 contact **(N.C.)**
6 = Common

Shadow Loop (Loop 2)

Connection scheme of the 2 readers loop detector

8 = Photocell 2 contact **(N.C.)**
6 = Common

NOTE: Menu 98-PHOTOCELL 2 must be set on «SHADOW LOOP»

Free Exit Loop (Loop 3)

Connection scheme of the 1 reader loop detector

3 = Start contact **(N.O.)**
6 = Common

3.12 - LATCH OPENING OR LATCH CLOSING BUTTON

On clamps 6 - 9 or 6 - 10

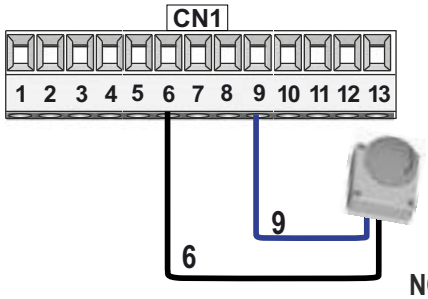
A button for the **Latch Opening** or **Closing** function can be connected to the control unit. To activate it, connect the N.O. contact on the Safety Edge 1 and/or 2 clamp (the Safety Edge function will be disabled). Through the **menu 118-LATCH** it is possible to choose between the various Latch options. To deactivate the Latch function, press again the button used for its activation

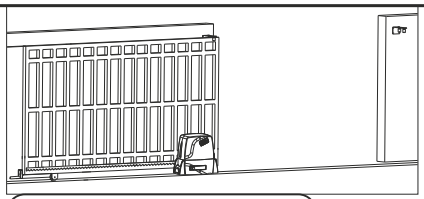
LATCH OPENING: opens and keeps the automation open. If active, no other type of Start command is accepted until the function is deactivated

LATCH CLOSING: closes and keeps the automation closed. If active, no other type of Start command is accepted until the function is deactivated

Note 1: *The Latch function can also be enabled on the second channel of the remote control; see* ***paragraph 20.2*** *for details*

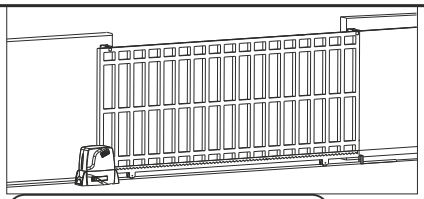
Note 2: *The Latch function can also be enabled through the SEACLOUD. Please refer to the SEACLOUD instructions for more details*





LATCH OPENING
OPENS AND KEEPS OPEN

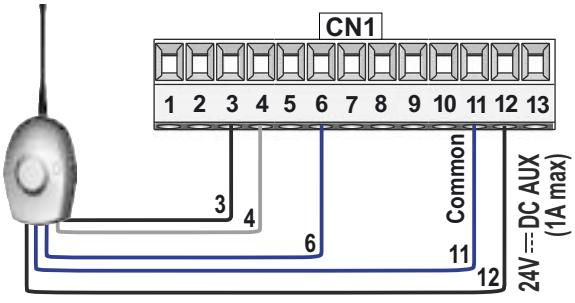
NO OTHER COMMAND ACCEPTED



LATCH CLOSING
CLOSES AND KEEPS CLOSED

NO OTHER COMMAND ACCEPTED

EXAMPLE OF EXTERNAL RECEIVER CONNECTION



3.13 - EXTERNAL RECEIVER

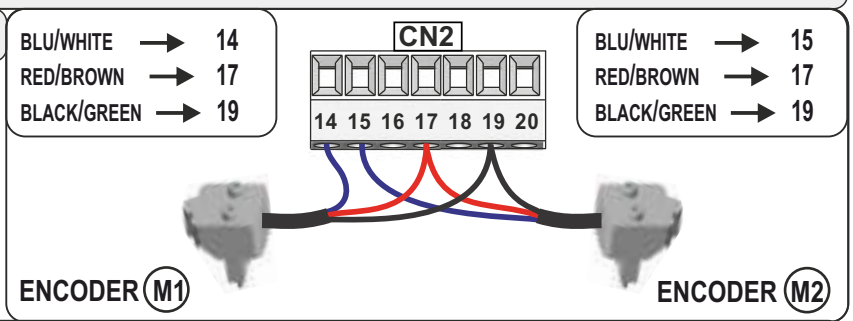
An external receiver can be connected to the control unit, according to the connection diagram on the side. In this case, **it is necessary to set the 94-24VAUX menu to the "ALWAYS" option** ***to ensure the continuous power supply of the output***

4 - CONNECTIONS ON CN2

4.1 - ENCODER CONNECTION

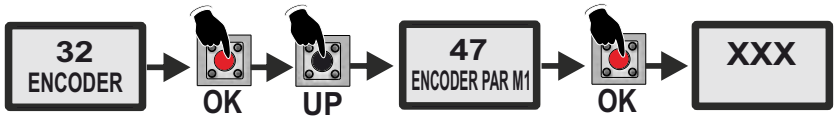
It is possible to connect one or two **ENCODERS** on the CN2 connector, as shown in the figure and by respecting the cables colours

OLD TYPE ENCODER → BROWN - WHITE - GREEN
NEW TYPE ENCODER → RED - BLUE - BLACK

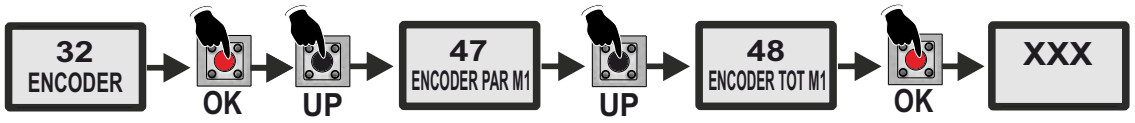


To enable the Encoder set the menu **32-ENCODER** in **«ON»** *(if not ON by default)*

47-ENCODER PAR M1 shows the pulses read during operation



48-ENCODER TOT M1 shows the total pulses stored during programming

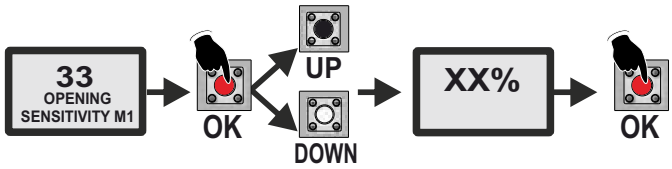


THE EXAMPLE REFERS ONLY TO MOTOR 1 (M1) BUT IT IS ALSO POSSIBLE TO DISPLAY THE PARAMETERS REFERRING TO MOTOR 2 (M2) ON MENUS 49 AND 50

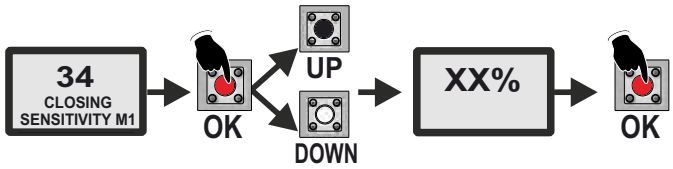
4.2 - ENCODER SETTINGS

values can be set from a minimum of 10% (rapid intervention) to a maximum of 99% (slow intervention).
If parameters are OFF (intervention excluded) the Encoder will only work in position detection mode

SETTING OF OPENING INTERVENTION TIME

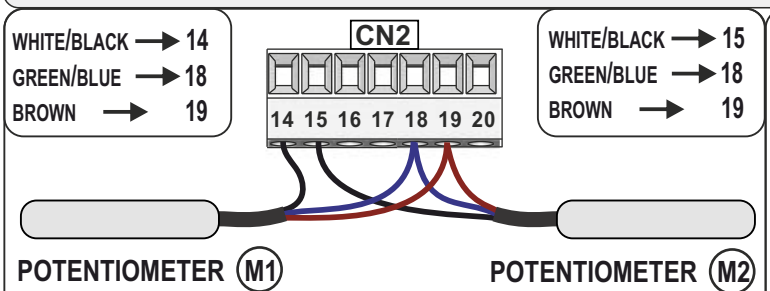


SETTING OF CLOSING INTERVENTION TIME



THE EXAMPLE REFERS ONLY TO MOTOR 1 (M1) BUT IT IS ALSO POSSIBLE TO DISPLAY THE PARAMETERS REFERRING TO MOTOR 2 (M2) ON MENUS 35 AND 36

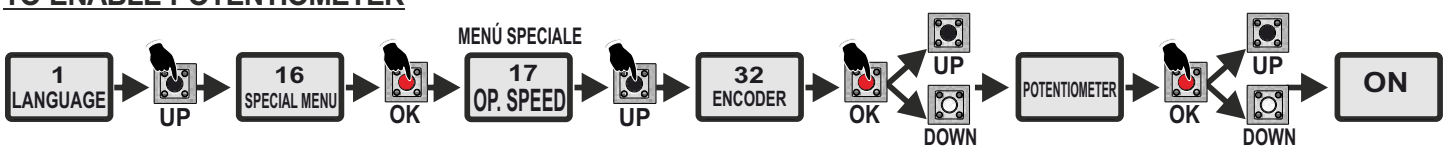
4.3 - «POSITION GATE» LINEAR POTENTIOMETER CONNECTION



On the CN2 connector it is possible to connect one or two «**POSITION GATE**», linear potentiometer for the management of the correct position of the gate and the inversion on the obstacle. Connect the potentiometer as shown in the figure and respec the cables colors

OLD MODEL → BROWN - GREEN - WHITE
NEW MODEL → BROWN - BLUE - BLACK

TO ENABLE POTENTIOMETER



4.4 - «POSITION GATE» CONFIGURATION

MENÚ 32 - POTENTIOMETER - MANAGEMENT SUB-MENUS:

51-I.PAR.M1 (PARTIAL PULSES MOTOR 1) displays the current position of the operator

52-I.AP.M1 (OPENING PULSES MOTOR 1) displays the impulses with the leaf completely open and it is possible, accessing through OK, to increase or decrease the total pulses using the UP and DOWN buttons

53-I.CH.M1 (CLOSING PULSES MOTOR 1) displays the impulses with the leaf completely closed and it is possible, accessing through OK, to increase or decrease the total pulses using the UP and DOWN buttons

54-I.PAR.M2 (PARTIAL PULSES MOTOR 2) displays the current position of the operator

55-I.AP.M2 (OPENING PULSES MOTOR 2) displays the impulses with the leaf completely open and it is possible, accessing through OK, to increase or decrease the total pulses using the UP and DOWN buttons

56-I.CH.M2 (CLOSING PULSES MOTOR 2) displays the impulses with the leaf completely closed and it is possible, accessing through OK, to increase or decrease the total pulses using the UP and DOWN buttons

Example:

NOTE 1: *If the potentiometer reading is reversed in respect to the operator movement , the display will show the alarm "**POTENTIOMETER DIRECTION**" (see the last chapter "**Alarms**"); it is therefore necessary to invert the brown cable with the green cable (or Blue) and repeat the programming*

4.5 - «POSITION GATE» POTENTIOMETER PARAMETERS SETTING

menu 33-OPENING SENSITIVITY MOTOR 1 adjusts the intervention time in opening

menu 34-CLOSING SENSITIVITY MOTOR 1 adjusts the intervention time in closing

menu 35-OPENING SENSITIVITY MOTOR 2 adjusts the intervention time in opening

menu 36-CLOSING SENSITIVITY MOTOR 2 adjusts the intervention time in closing

menu 37-SLOW-DOWN SENSITIVITY adjusts the inversion time during the slow-down

menu 38-OPENING POTENTIOMETER THRESHOLD M1 adjusts the intervention threshold in opening

menu 39-CLOSING POTENTIOMETER THRESHOLD M1 adjusts the intervention threshold in closing

menu 40-OPENING POTENTIOMETER THRESHOLD M2 adjusts the intervention threshold in opening

menu 41-CLOSING POTENTIOMETER THRESHOLD M2 adjusts the intervention threshold in closing

menu 42-POTENTIOMETER DECELERATION THRESHOLD IN OPENING M1

menu 43-POTENTIOMETER DECELERATION THRESHOLD IN CLOSING M1

menu 44-POTENTIOMETER DECELERATION THRESHOLD IN OPENING M2

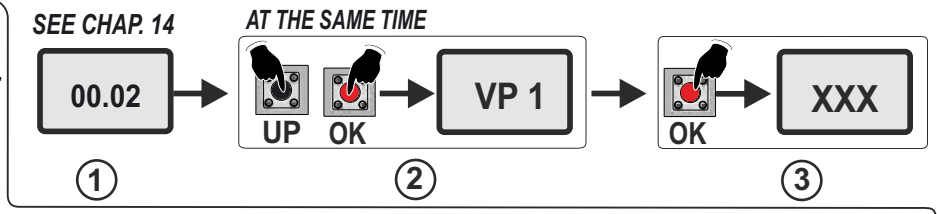
menu 45-POTENTIOMETER DECELERATION THRESHOLD IN CLOSING M2

NOTE 1: For a quick reverse on obstacle *it is necessary to decrease the sensitivity parameters*

NOTE 2: *The sensitivity parameters can also be set in OFF (intervention excluded); in this case the potentiometer will only work in pulse detection mode (it does not reverse on obstacle)*

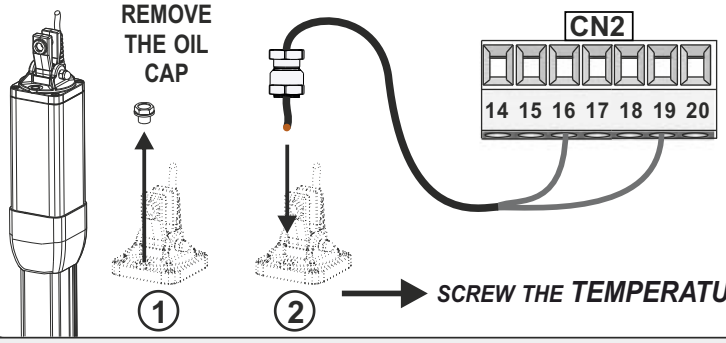
4.6 - ACCESS TO THE HIDDEN «DEBUG» MENU FOR POTENTIOMETER

To view the instantaneous speed values «VP1» and «VP2» (referred to motor 1 and motor 2) ***ACCESS THE HIDDEN «DEBUG» MENU:***



The view of these values allows to adjust a maximum threshold below which the potentiometer (or the encoder) intervenes. The maximum threshold can be adjusted through menus 38 - 39 - 40 - 41 (while the maximum slowdown threshold can be adjusted through menus 42 - 43 - 44 - 45) and must always be higher than the instantaneous speed value shown in VP1 or VP2

4.7 - TEMPERATURE PROBE CONNECTION

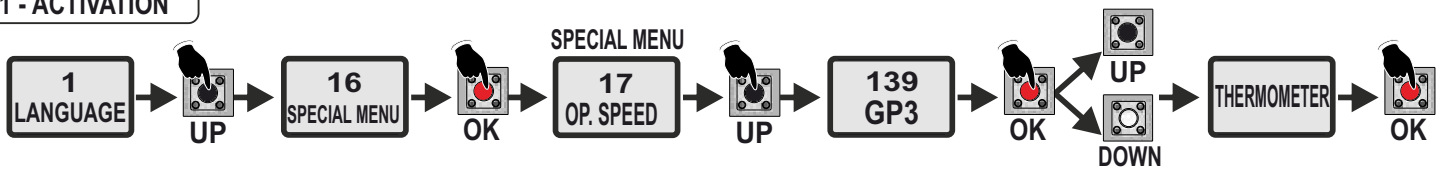


A **TEMPERATURE PROBE** can be connected on the CN2 connector to detect the engine oil temperature; When the temperature drops below the set threshold value, the probe activates the oil heating up to the values defined in the pre-set range

*SCREW THE **TEMPERATURE PROBE** TO REPLACE THE OIL CAP*

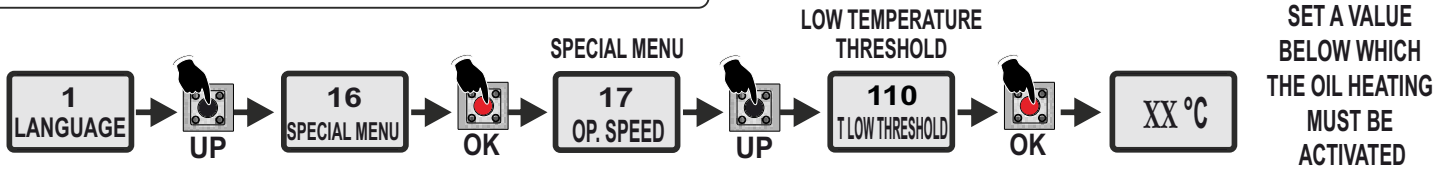
4.8 - ACTIVATION AND SETTING OF THE TEMPERATURE PROBE

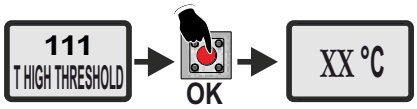
1 - ACTIVATION



2 - DISPLAY THE DETECTED TEMPERATURE

3 - SETTING OF HIGH AND LOW TEMPERATURE THRESHOLDS

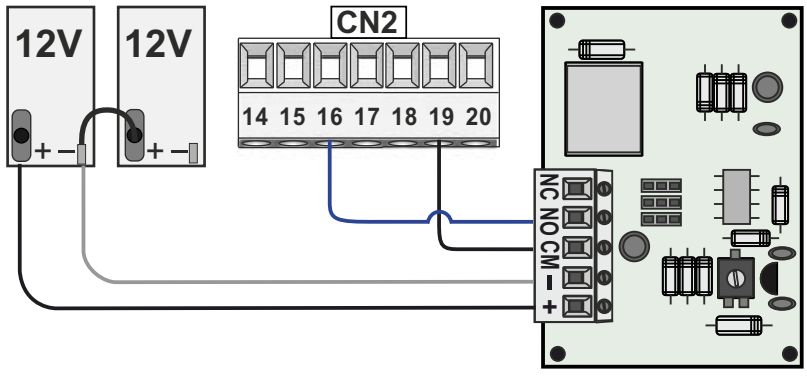




*FROM MENU **111 - HIGH TEMPERATURE THRESHOLD**, SET THE MAXIMUM VALUE WHICH DEACTIVATES THE HEATING ONCE REACHED*

4.9 - «LB» MANAGEMENT UNIT FOR «STAR 400/800»

The **«STAR 400/800»** emergency UPS can be connected to the control unit via the **«LB»** management unit which controls the battery charge and allows the operator to carry out one last maneuver before the batteries are completely discharged. The **«LB»** unit and the batteries can be managed through the **139-GP3 menu**



*FOR FURTHER DETAILS ON THE **«LB»** MANAGEMENT UNIT, ON THE **«STAR 400/800»** EMERGENCY UPS AND ON ALL THE CONNECTIONS, SEE THEIR TECHNICAL INSTRUCTIONS*

5 - CONNECTIONS ON CN3

5.1 - LIMIT SWITCH

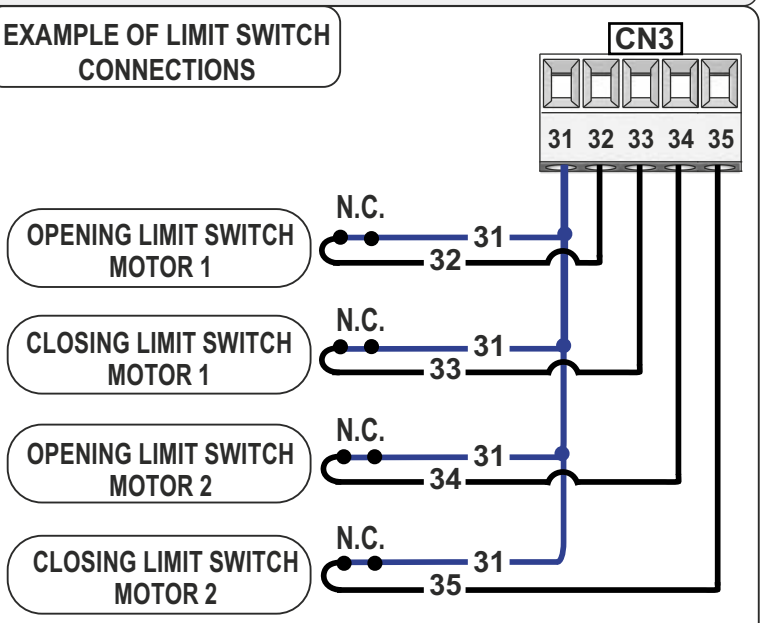
For the limit switch function, both the closing and opening limit switches must be connected. It is also possible to activate the **anti-intrusion function**, which is linked to the presence of one limit switch at least; If it is released, it forces the operator to reclose

For the correct operation of the limit switches the correspondence between the operators movement direction and the respective limit switch direction is required

NOTE:

In the menu 104-SELECT LIMIT SWITCH it is possible to choose the type of limit switch. By setting «*AUTOMATIC*» they are automatically detected by the unit during the self-learning

EXAMPLE OF LIMIT SWITCH CONNECTIONS

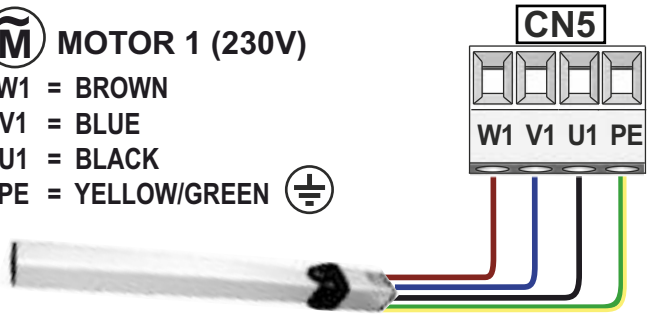


6 - CONNECTIONS ON CN4 AND CN5

6.1 - OPERATORS* CONNECTION ON THE CONTROL UNIT

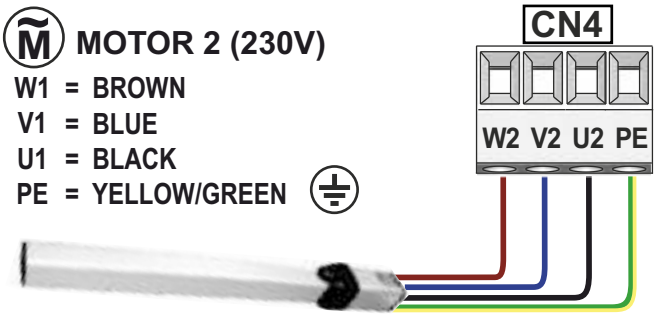
MOTOR 1 (230V)

W1 = BROWN
V1 = BLUE
U1 = BLACK
PE = YELLOW/GREEN



MOTOR 2 (230V)

W1 = BROWN
V1 = BLUE
U1 = BLACK
PE = YELLOW/GREEN



MOTOR 1 (115V)

W1 = BLACK
V1 = WHITE
U1 = RED
PE = GREEN

MOTOR 2 (115V)

W1 = BLACK
V1 = WHITE
U1 = RED
PE = GREEN

* *THE DRAWING SHOWS TWO OPERATORS FOR SWING GATE ONLY AS AN EXEMPLE*

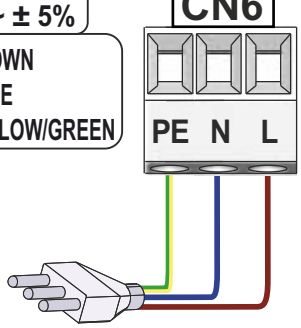
IN CASE OF CONNECTION AND MANAGEMENT OF A SINGLE OPERATOR, USE THE CN5 TERMINAL FOR MOTOR 1

7 - CONNECTIONS ON CN6

7.1 - CONTROL UNIT CONNECTION

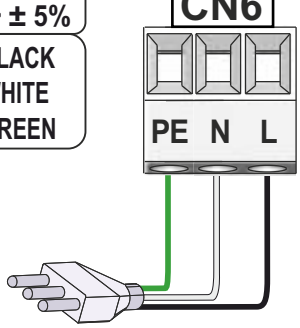
VOLTAGE 230V~ ± 5%

L =BROWN
N =BLUE
PE=YELLOW/GREEN



VOLTAGE 115V~ ± 5%

L = BLACK
N = WHITE
PE = GREEN



Fuse 16AT delayed on 230V~ power supply
Fuse 16AT delayed on 115V~ power supply

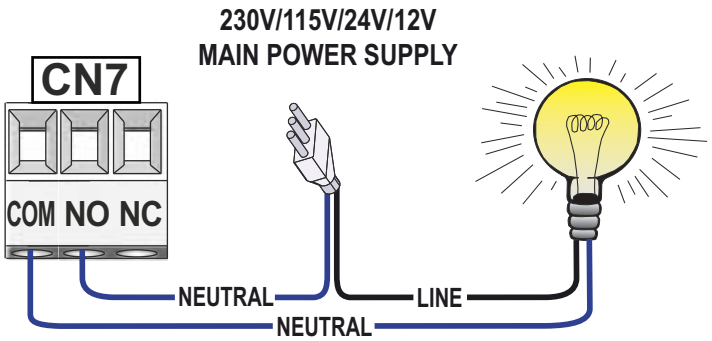
CAUTION!: for the connection to the power grid refer to the regulations in force

NOTE: It is recommended to use a 16A differential switch to protect the power supply system

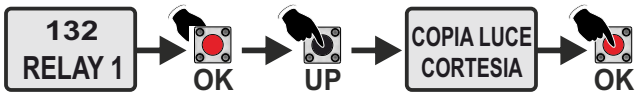
NOTE: In case of unstable power supply, we recommend the use of an external UPS of minimum 800VA

8 - CONNECTIONS ON CN7

8.1 - COURTESY LIGHT CONNECTION ON DRY CONTACT RELAY



A timed courtesy light (from 0 to 240 seconds) can be connected to the CN7, according to the aside connection diagram



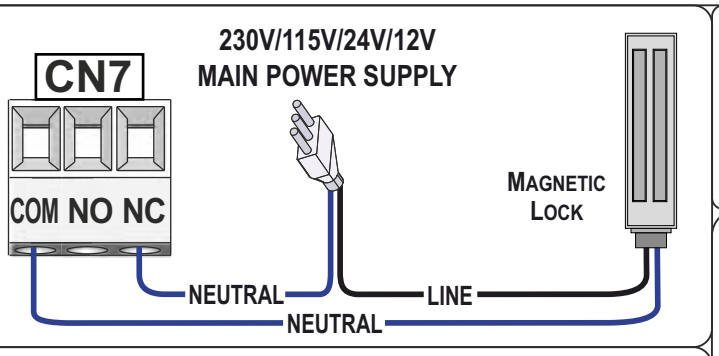
*Settings can be adjusted by the **menu 88-COURTESY LIGHT***

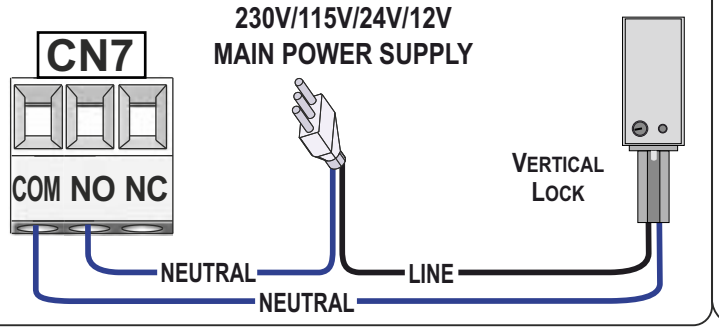
⚠ **Max. 50W ⟶ 230V** **Max. 100W ⟶ 115V**

8.2 - LOCKS CONNECTION ON DRY CONTACT RELAY

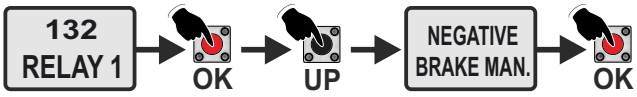
CN7 terminal allows to connect the **LOCK (MAGNETIC OR VERTICAL);**

Set the menus before connecting the lock!

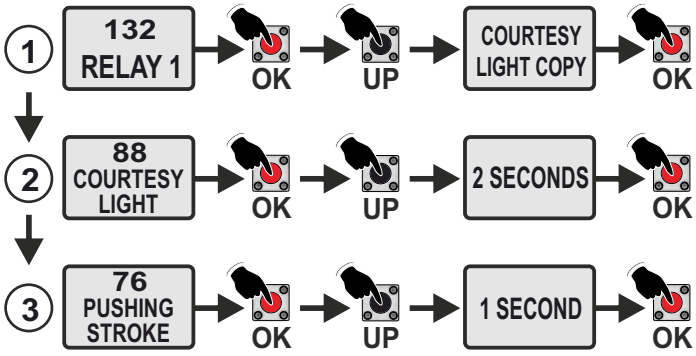




MAGNETIC LOCK



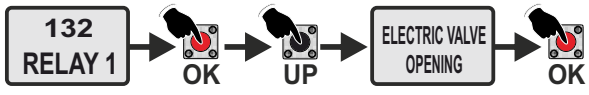
VERTICAL LOCK

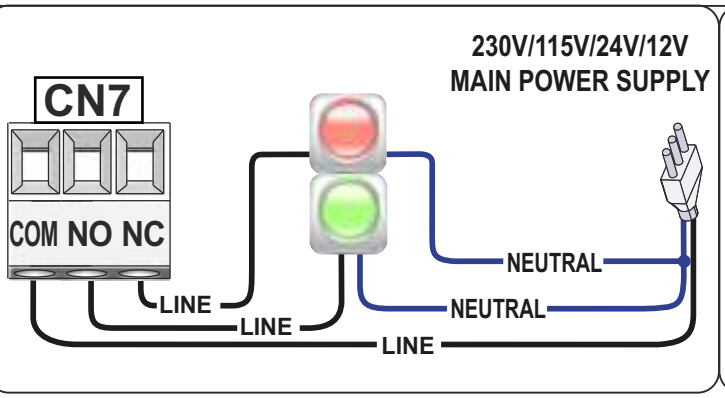


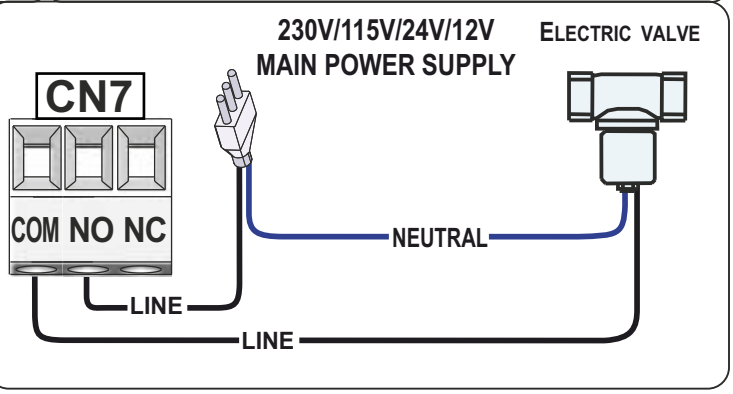
8.3 - TRAFFIC LIGHT OR ELECTRIC VALVE CONNECTION THROUGH RELAY

CN7 also allows the connectionof a **TRAFFIC LIGHT (RED/GREEN)** or an **ELECTRIC VALVE (OPEN/CLOSE)**; *set the menu **132-RELAY 1** on the respective options*

example

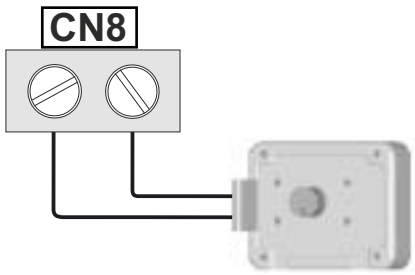






9 - CONNECTIONS ON CN8

9.1 - 12V - 3A max ELECTRIC LOCK CONNECTION



An Electric Lock (12V - 3A max) can be connected

Through **menu 77-LOCK TIME** it is possible to adjust the electric lock release time from 0 to 5 seconds

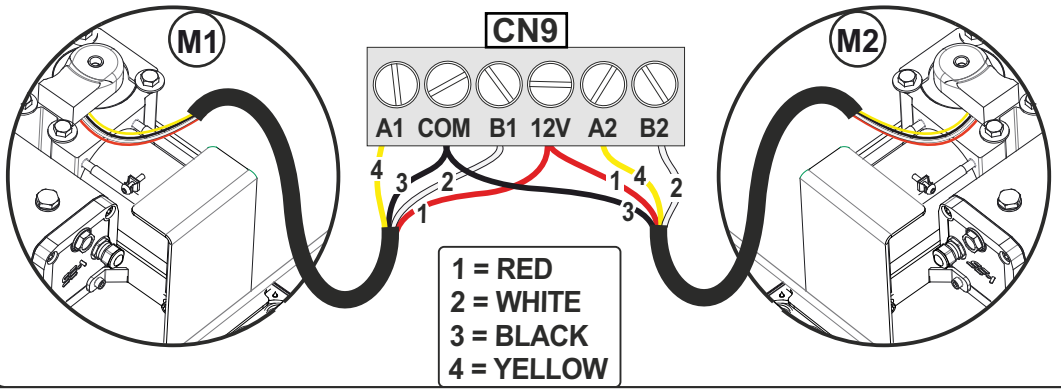
Through **menu 78-LOCK** it is possible to select when to activate the electric lock, if only in opening, only in closing or in both directions

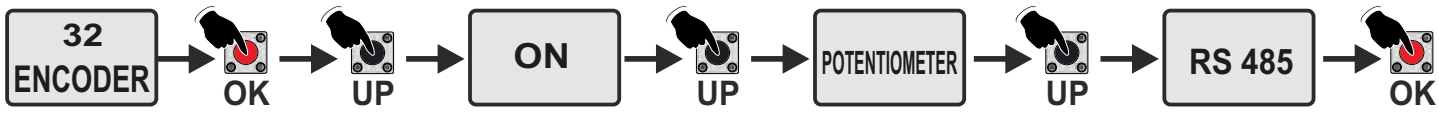
10 - CONNECTIONS ON CN9

10.1 - ABSOLUTE ENCODER TYPE RS 485 CONNECTION

On the **SERIAL CONNECTOR RS 485 - CN9** it is possible to connect one or two operators with **ABSOLUTE ENCODER TYPE RS 485;** To use this encoder during the working times self-learning it is necessary to enable on menu 32-ENCODER, as shown below

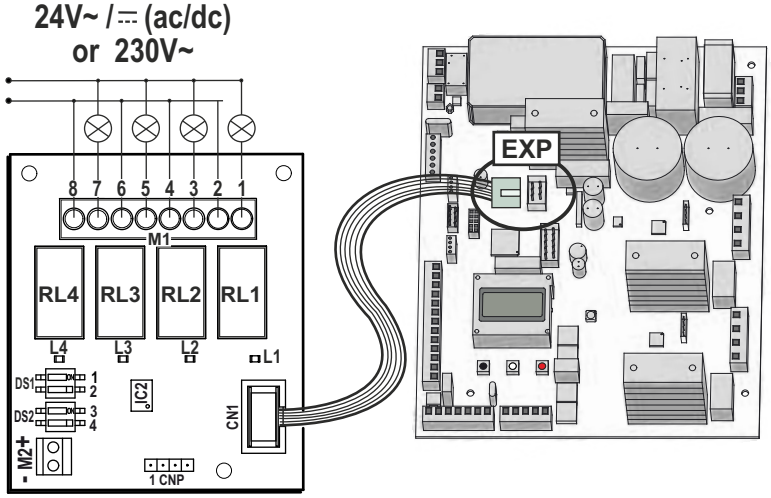
EXAMPLE: JOINT OPERATOR





11 - CONNECTIONS ON EXP

11.1 - «SEM 2» MANAGEMENT UNIT CONNECTION



The **«SEM 2»** management unit can be connected through the **EXP** connector

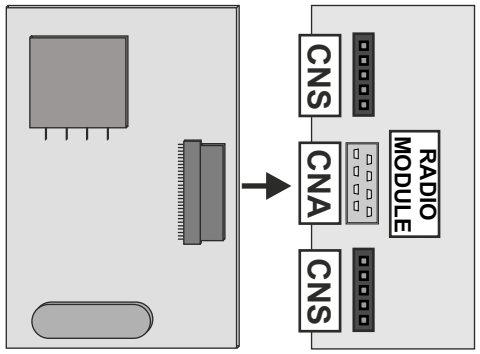
The **SEM 2** unit manages:

- The **TRAFFIC LIGHT** functions
- The **COURTESY LIGHT** functions
- The **VERTICAL ELECTRIC LOCK** functions
- The **POSITIVE AND/OR NEGATIVE ELECTRIC BRAKE** functions
- The **LIMIT SWITCH** status

For further details on the «SEM 2» unit, refer to its TECHNICAL INSTRUCTION

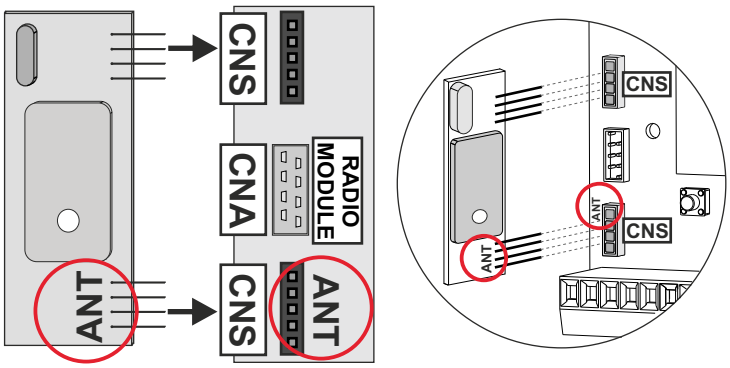
12 - RECEIVERS CONNECTION ON CNA AND CNS

RF UNI
RF UNI PG



RF FIX

RESPECT THE SLOT-IN DIRECTION
THE «ANT» CONTACTS MUST MATCH

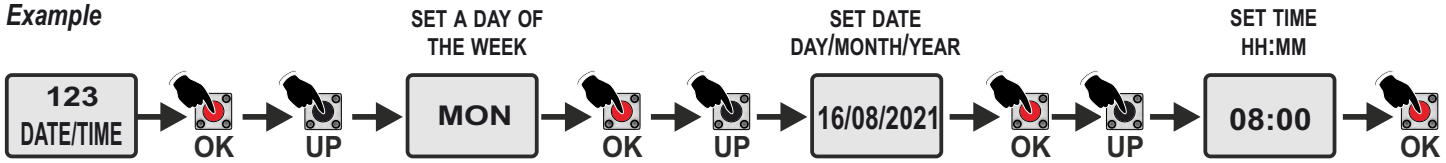


13 - ADDITIONAL FUNCTIONS

13.1 - TIME AND DATE FOR SCHEDULED OPENING

It is possible to set date and time for the management of the scheduled opening (function available only with connected and charged emergency batteries) by the **123-DATE & TIME menu**; *use the UP and DOWN buttons to scroll through the options or set the digits of the date and time and confirm with OK*

Example

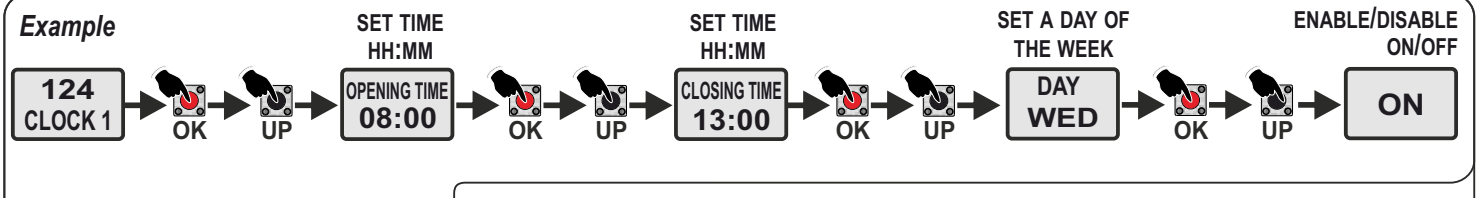


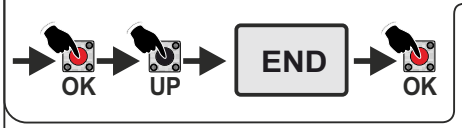
13.2 - CLOCK FUNCTION FOR SCHEDULED OPENING/CLOSING

It is possible to set a date and a time slot for the management of the scheduled opening and closing on a given day; the scheduling is allowed up to 4 time bands with different dates each, using menus **124-CLOCK 1 - 125-CLOCK 2 - 126-CLOCK 3 - 127-CLOCK 4**

Use the UP and DOWN buttons to scroll through the options or set the time digits and confirm with OK

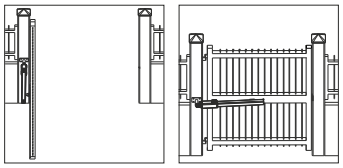
Example





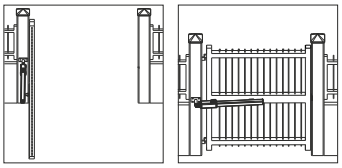
Example of clocks use:

CLOCK 1: OPEN 8:00 CLOSE 13:00



125 CLOCK 2

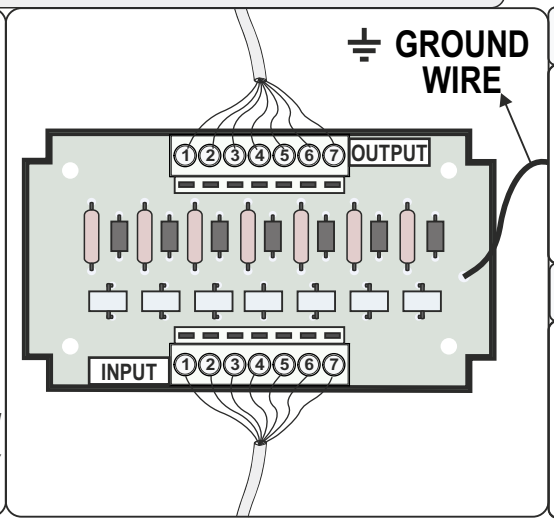
CLOCK 2: OPEN 15:00 CLOSE 18:00



13.3 - «I/O SURGE PROTECTOR» CIRCUIT CONNECTION

It is possible to connect the «**SURGE PROTECTOR**» device, to protect up to 6 inputs + 24V power supply from overvoltages due, for example, to the lightning strikes. Simply connect the cable of the accessory to be protected to the **INPUT** of the SURGE PROTECTOR circuit and then, from the corresponding number on the **OUTPUT** terminal block, connect the cable to the control unit

NOTE: connect the common and the power supply negative directly on the control unit



OUTPUT CONNECTIONS ON CONTROL UNIT	
1	24V DC ACCESSORIES
2	CONTACT 1 (Eg. PHOTOCELL)
3	CONTACT 2 (Eg. SAFETY EDGE)
4	CONTACT 3 (Eg. START)
5	CONTACT 4
6	CONTACT 5
7	CONTACT 6

INPUT ACCESSORIES CONNECTIONS	
1	24V DC ACCESSORIES
2	CONTACT 1 (Eg. PHOTOCELL)
3	CONTACT 2 (Eg. SAFETY EDGE)
4	CONTACT 3 (Eg. START)
5	CONTACT 4
6	CONTACT 5
7	CONTACT 6

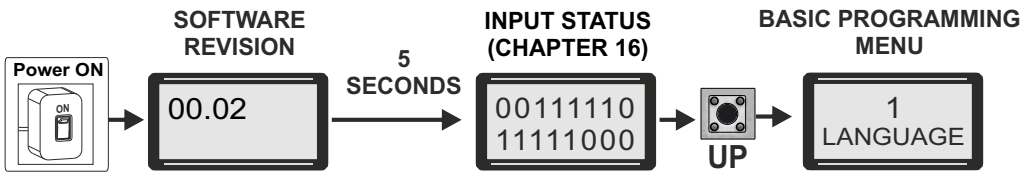
14 - DISPLAY AND PROGRAMMING

WARNING! MAKE ALL DEVICES CONNECTIONS ON SWITCHED-OFF CONTROL UNIT BEFORE THE PARAMETERS CONFIGURATION THROUGH DISPLAY

14.1 - SWITCHING ON THE CONTROL UNIT

When a new control unit is powered on, the display shows the software revision first and the **INPUT STATUS** after 5 seconds.
If a control unit is already programmed, the display immediatelty shows the **INPUT STATUS** view

NEW CONTROL UNIT OR AFTER RESET



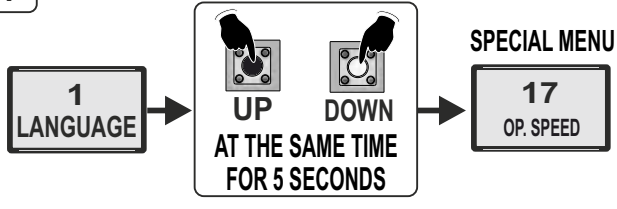
ALREADY PROGRAMMED CONTROL UNIT

14.2 - BASIC PROGRAMMING MENU AND SPECIAL MENU

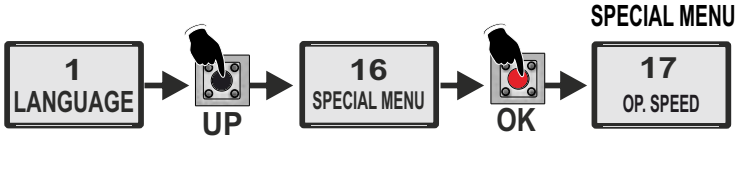
The control unit is equipped with a **basic programming menu** which can be accessed through the procedure above indicated when a control unit is switched on. The control unit is also equipped with a **special menu** that allows the setting of various parameters and the configuration of the accessories.

To access **THE SPECIAL MENU** choose one of the following 2 procedures:

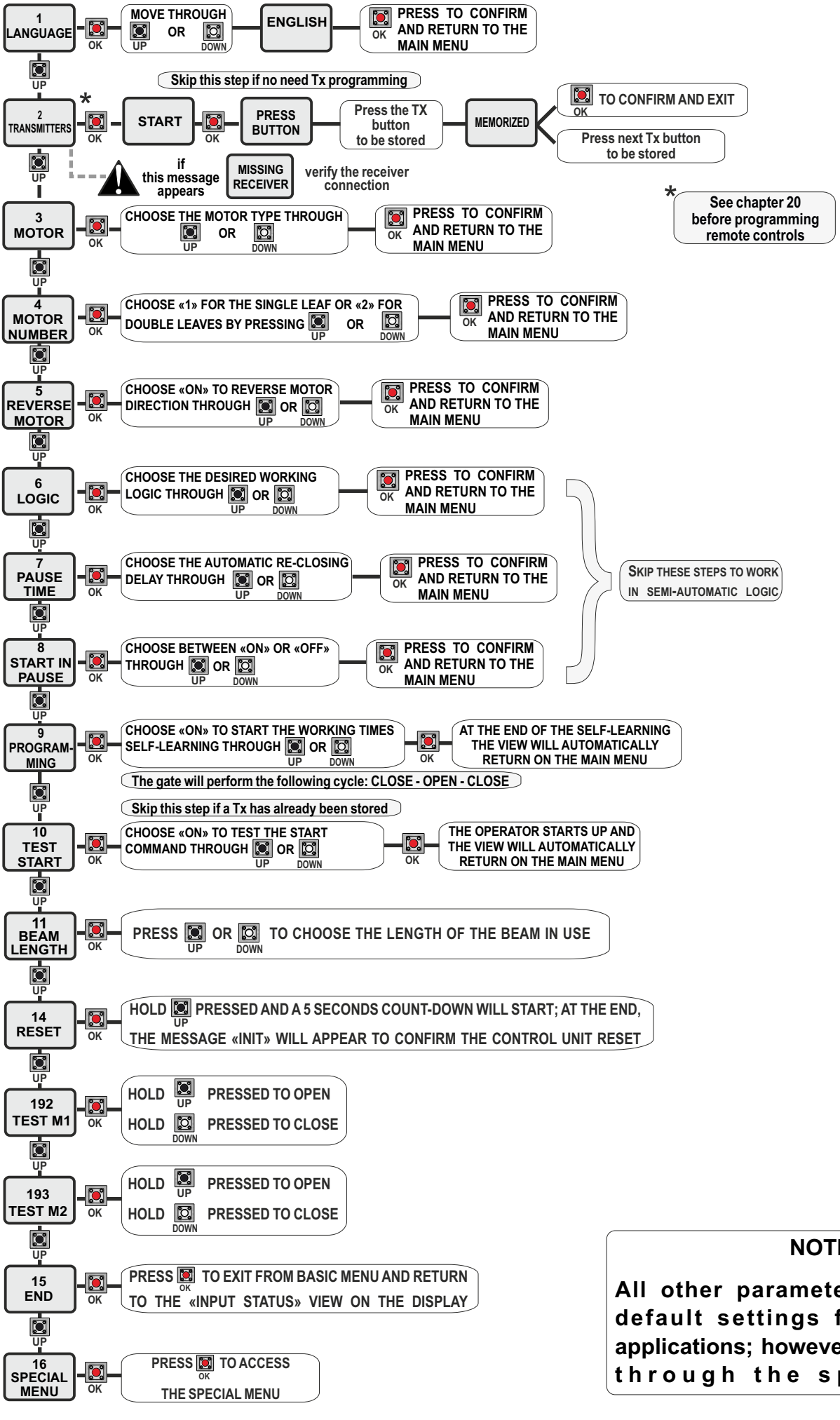
1



2



15 - BASIC MENU FUNCTIONS



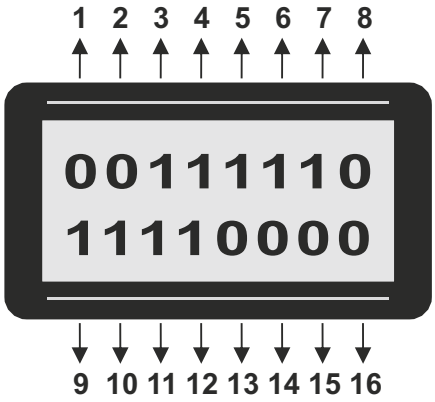
NOTE

All other parameters have useful default settings for the 90% of applications; however they can be set through the special menu

16 - INPUT STATUS CHECK AND MANAGEMENT

The input status check menu is displayed at the start of the control unit ***(for more details see chapter 14)***. Each input corresponds to a fixed position on the display, according to the diagram below and can be **NORMALLY OPEN (N.O.)** or **NORMALLY CLOSED (N.C.)**

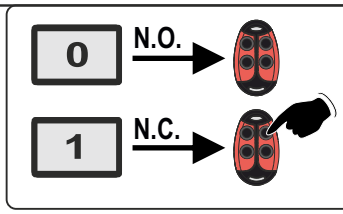
0 = NORMALLY OPEN (N.O.) **1 = NORMALLY CLOSED (N.C.)**

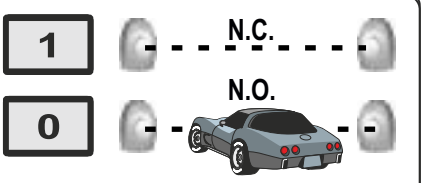


1	START *(*)*	9	OPENING LIMIT SWITCH MOTOR 1
2	PARTIAL OPENING START	10	CLOSING LIMIT SWITCH MOTOR 1
3	STOP	11	OPENING LIMIT SWITCH MOTOR 2
4	PHOTOCELL 1	12	CLOSING LIMIT SWITCH MOTOR 2
5	PHOTOCELL 2	13	NOT IN USE
6	SAFETY EDGE 1	14	GP1
7	SAFETY EDGE 2	15	GP2
8	NOT IN USE	16	GP3

* THE **START** INPUT IS KEPT NORMALLY CLOSED IF A **TIMER** IS CONNECTED ON IT; IN THIS CASE THE DISPLAY WILL SHOW «T» ON POSITION N° 1

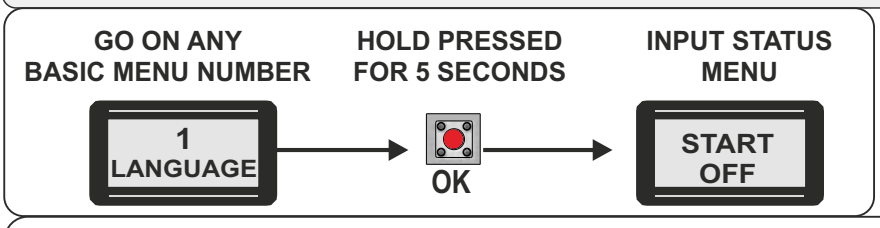
WHEN THE CONTROL UNIT STARTS, THE DISPLAY SHOWS THE NORMAL STATUS OF THE INPUTS *(SEE CHAPTER 14)*; EXAMPLE: IF A START COMMAND IS GIVEN, THE DISPLAY SHOWS THE CHANGE OF THE «START» INPUT (INPUT NUMBER 1) FROM NORMALLY OPEN TO NORMALLY CLOSED.





ON THE CONRARY, IF THE PHOTOCELL IS ACTIVATED, THE DISPLAY SHOWS THE CHANGE OF THE «PHOTOCELL» INPUT (INPUT NUMBER 4 OR 5) FROM NORMALLY CLOSED TO NORMALLY OPEN

16.1 - ACCESS TO THE INPUTS STATUS MENU AND MANAGEMENT



Access the input status menu and scroll forward or backward through UP and DOWN; by scrolling through the inputs, these are shown in their current state: in ON or OFF

example: START OFF or STOP ON

Within this management menu it is possible to enable or disable the inputs; for the procedure see the table in the ***next paragraph (16.2)***;

The LIMIT SWITCHES inputs cannot be managed, but only their current status (ON or OFF) is displayed

⚠ ATTENTION: INSIDE THE INPUT STATUS MANAGEMENT MENU YOU CAN SEE THAT:

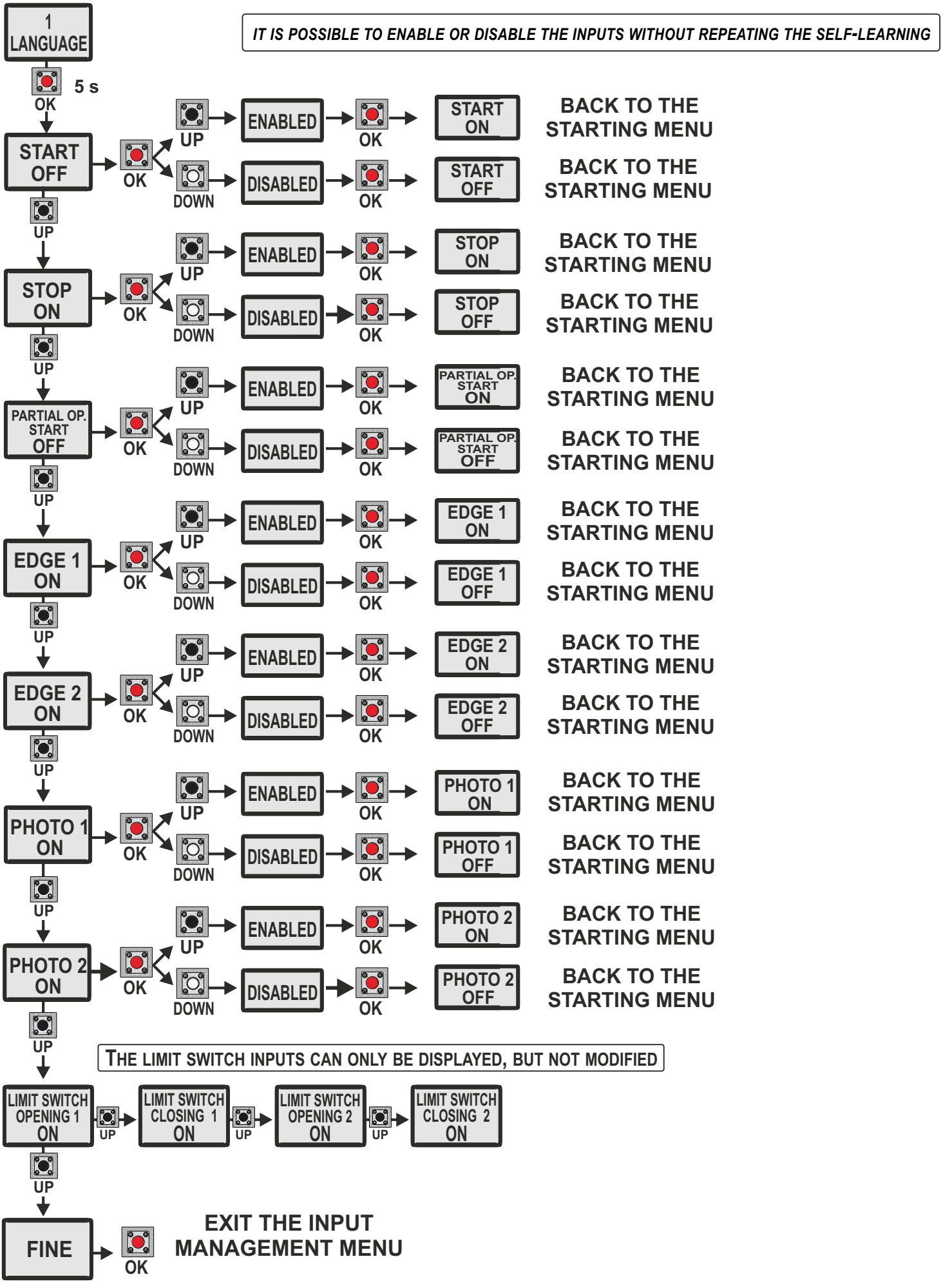
START and **PARTIAL OPENING START** are **NORMALLY OPEN (N.O.)** contacts:

If «**ON**» appears on the display when one of the two command is activated, the input is working
If «**OFF**» is displayed even after the command activation, then it is advisable to check the wirings

ALL OTHER CONTACTS ARE NORMALLY CLOSED (N.C.):

If «**OFF**» appears on the display when a command is activated, the input is working
If «**ON**» is displayed even after the command activation, then it is advisable to check the wirings

16.2 - GATE 2 DG INVERTER INPUT MANAGEMENT MENU



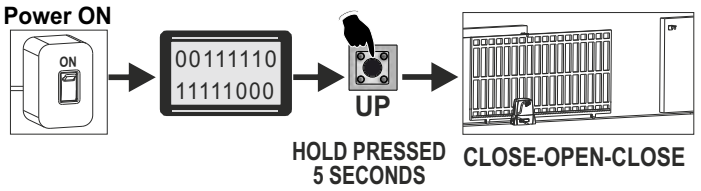
17 - WORKING TIMES SELF-LEARNING

POTENTIALLY DANGEROUS PROCEDURE. TO BE PERFORMED EXCLUSIVELY BY SPECIALIZED INSTALLERS AND IN SAFETY CONDITIONS

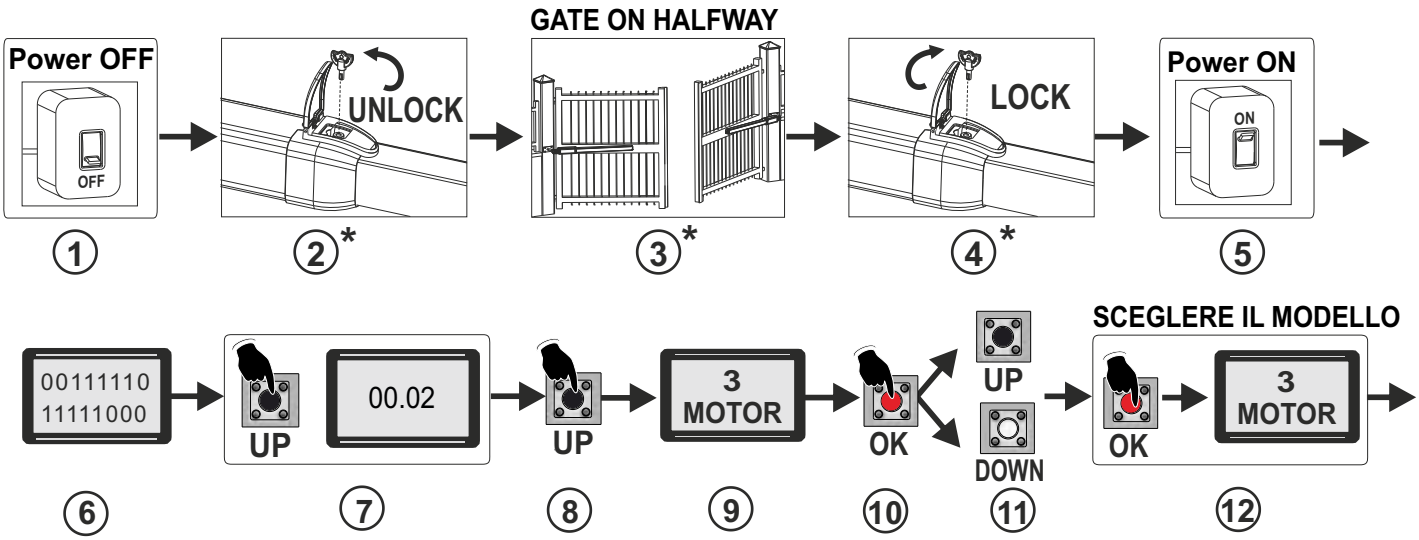
NOTE PRELIMINARI:
- It is not necessary to jumper Limit switches, Photocells, Stop or Safety Edges inputs if not used
- Check the correct operation of all accessories (Photocells, Push buttons etc.)

17.1 - QUICK START

The electronic unit on board the **SLIDING OPERATORS** is already set by default on the respective operator model and already has default settings for main parameters therefore it is possible to proceed with the **quick self-learning of the working times**, starting **with the gate on its halfway**



17.2 - WORKING TIMES SELF-LEARNING PROCEDURE



* *Swing gate operator only for example. For other operators, follow the respective «Lock-Unlock» procedures*

NOTE 1: If a motor performs the first learning cycle starting in opening, remove the power supply and reverse the motor cables (or set to **ON** the menu **5-REVERSE MOTOR**), then repeat the procedure

17.3 - SELF-LEARNING WITH LIMIT-SWITCHES

Working times self-learning through automatic detection of the end-of-stroke points by the limit switches (with or without ENCODER)

PRELIMINARY NOTES:

- From **menu 104-SELECT LIMIT SWITCH**, check or modify the type of limit switch installed if necessary; by default the menu is set on «**AUTOMATIC**» (automatic detection of the limit switches connected on CN3). However, it is possible to choose whether to use only the opening limit switches or only the closing ones
- Check on the **INPUT STATUS menu** ***(see chapter 16)*** that the correct limit switches are engaged for each direction of movement

WORKING TIMES SELF-LEARNING: FOLLOW THE PROCEDURE IN THE PARAGRAPH 17.2

NOTE : *If a motor starts in closing, arrives up to the limit switch lever then it stops, it will be necessary to invert the limit switch cables and repeat the learning procedure*

17.4 - SELF-LEARNING WITH ENCODER OR POTENTIOMETER

Working times self-learning through detection of the pulses by Encoder or Potentiometer

PRELIMINARY NOTES:

- Check that the **32-ENCODER menu** is «**ON**» or in case of Encoder type RS485, check the **menù 32-ENCODER** is on «**RS 485**»; access submenus 47 - 48 - 49 - 50 and check the correct reading of the pulses; if necessary, adjust the sensitivity parameters ***(see paragraphs 4.2)*** *

- Check that the **32-ENCODER menu** is on **«POTENTIOMETER»**; access the submenus 51 - 52 - 53 - 54 - 55 - 56 and check the correct reading of the pulses; if necessary, adjust the sensitivity parameters ***(see paragraphs 4.3 to 4.6)*** *

WORKING TIMES SELF-LEARNING: FOLLOW THE PROCEDURE IN THE PARAGRAPH 17.2

⚠ ***In self-learning with POTENTIOMETER, the gate performs the following cycle:***

CLOSE M2 - CLOSE M1 - OPEN M1 - OPEN M2 - CLOSE M2 - CLOSE M1 - OPEN M1 with SLOW-DOWN OPEN M2 with SLOW-DOWN - CLOSES M2 with SLOW-DOWN - CLOSES M1 with SLOW-DOWN

**** ALL PARAMETERS CAN BE CHANGED EVEN AFTER THE WORKING TIMES SELF-LEARNING PROCEDURE***

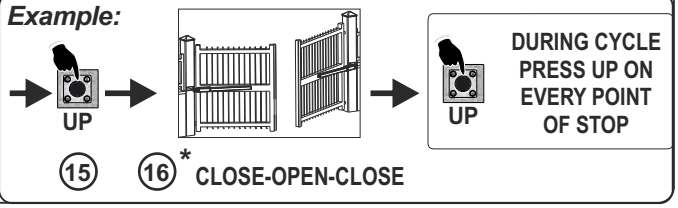
17.5 - SELF-LEARNING THROUGH PULSES without potentiometer

Working times self-learning through manual impulse on the stop points

PRELIMINARY NOTE:

- BEFORE PROCEEDING WITH THE WORKING TIMES SELF-LEARNING it is necessary to set the operating logics, to adjust the desired parameters and, if necessary, to program the radio transmitters

WORKING TIMES SELF-LEARNING: AFTER THE ABOVE-MENTIONED CHECKS, FOLLOW THE PROCEDURE ILLUSTRATED IN THE PARAGRAPH 17.2 UP TO POINT N ° (15) , THEN DURING THE LEARNING CYCLE «CLOSE - OPEN - CLOSE», IT WILL BE POSSIBLE TO GIVE A MANUAL PULSE (BY PRESSING the UP or DOWN buttons or by sending a START command) ON EVERY LEAF POINT OF STOP

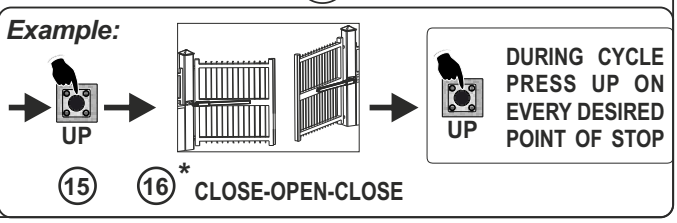


17.6 - SELF-LEARNING THROUGH PULSES WITH POTENTIOMETER

Working times self-learning through detection of the pulses by Potentiometer which allows the choice of the desired stop points.

- Check that the **32-ENCODER menu** is on **«POTENTIOMETER»**; access the submenus 51 - 52 - 53 - 54 - 55 - 56 and check the correct reading of the pulses; if necessary, adjust the sensitivity parameters ***(see paragraphs 4.3 to 4.6)***

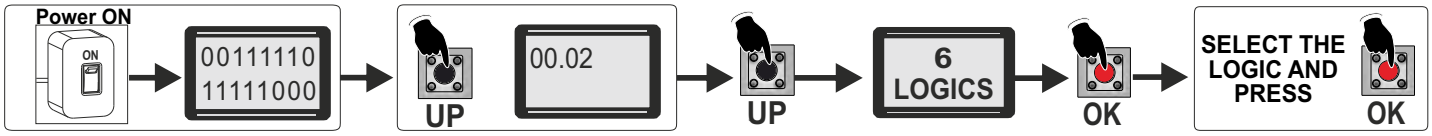
WORKING TIMES SELF-LEARNING: AFTER THE ABOVE-MENTIONED CHECKS, FOLLOW THE PROCEDURE ILLUSTRATED IN THE PARAGRAPH 17.2 UP TO POINT N ° (15) , THEN DURING THE LEARNING CYCLE «CLOSE - OPEN - CLOSE», IT WILL BE POSSIBLE TO GIVE A MANUAL PULSE (BY PRESSING the UP or DOWN buttons or by sending a START command) ON EVERY DESIRED LEAF POINT OF STOP



18 - OPERATING LOGICS

PRELIMINARY NOTES

1) For the automatic closing it is necessary to set a pause time; through the menu **7-PAUSE TIME** set a time between 1 second and 240 seconds; by default this parameter is OFF (SEMI-AUTOMATIC logic: after the opening, a START impulse will be required to close the gate)
2) It is possible to choose whether or not to accept the Start in pause; on menu **8-START PAUSE** select ON By default this parameter is OFF



AUTOMATIC LOGIC

A **START** impulse opens the gate. A second **START** impluse during the opening will not be accepted.
A **START** impulse during closing reverses the movement

SAFETY LOGIC

A **START** impulse opens the gate. A second **START** impulse during opening reverses the movement.
A **START** impulse during closing reverses the movement

STEP BY STEP TYPE 1 LOGIC

The **START** impulse follows the **OPEN-STOP-CLOSE-STOP-OPEN** logic

STEP BY STEP TYPE 2 LOGIC

The **START** impulse follows the **OPEN-STOP-CLOSE-OPEN** logic

DEAD MAN LOGIC

The gate opens as long as the **START** opening button is held pressed; when released the gate stops
The gate closes as long as the **PARTIAL OPENING START** is held pressed; when released the gate stops
To carry out the complete opening and/or closing cycles it is necessary to hold the respective buttons constantly pressed

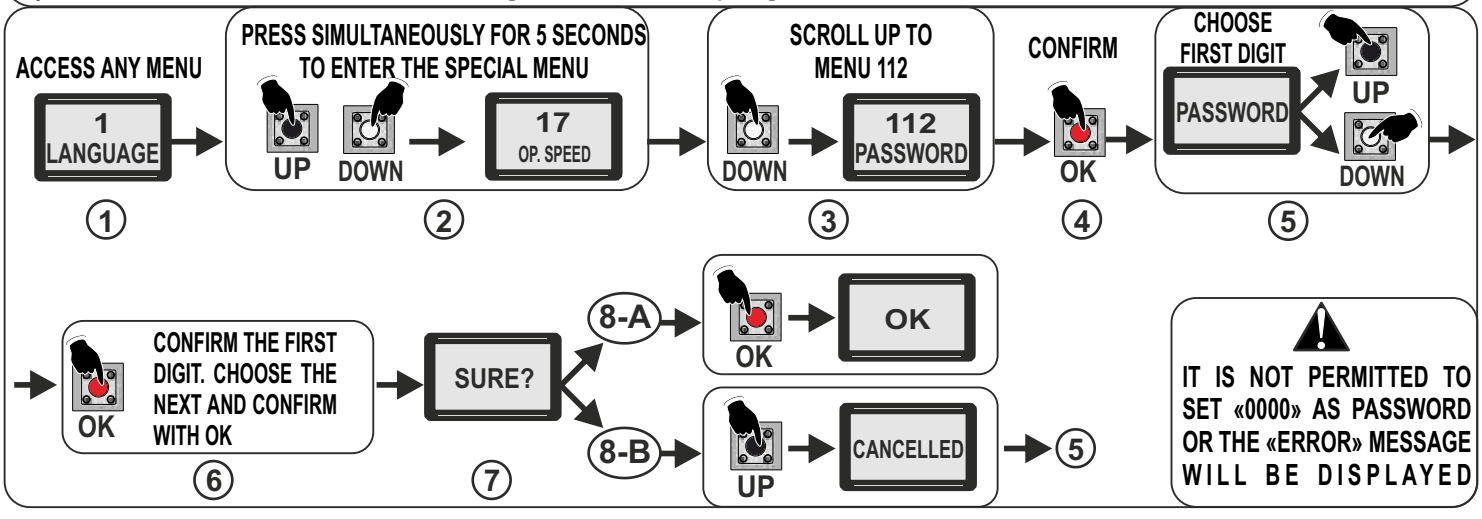
2 PUSH-BUTTONS LOGIC

One **START** opens, one **PARTIAL OPENING START** closes.
A closing input will not be accepted during opening. A **START** command reopens during closing movement while the **PARTIAL OPENING START** (to close) will be ignored

19 - PASSWORD MANAGEMENT

PRELIMINARY NOTES:

1) Once the password is enabled, **the menu cannot be adjusted**;
2) If You forgot the password, contact the SEA technical assistance; SEA will evaluate whether or not to provide the procedure for the control unit unlocking
3) *Password CAN NOT be set through the JOLLY 3 programmer*



20 - RECEIVERS AND REMOTE CONTROLS

SEA PLUG-IN RECEIVERS *(see chapter 12)*	MAX NUMBER OF USERS
RF UNI	**16 USERS** Without additional memory **800 USERS** With MEMO RF additional memory
RF UNI PG ***(Old Model) - non-extractable memory***	**100 USERS** Fix Code **800 USERS** Roll Plus
RF UNI PG ***(New Model) - extractable memory***	**800 USERS** Fix Code **800 USERS** Roll Plus

PRELIMINARY NOTES:

- **With the control unit OFF**, check if the RECEIVER module is correctly connected to the connector
- Power up the control unit and program the radio transmitters before connecting the antenna
- **RF UNI** and **RF UNI PG** modules allow the use of both **ROLL PLUS/UNI** and **FIX CODE** radio transmitters
- Perform the radio transmitters learning ***only with closed gate and stopped motor***
- It is possible to store up to 2 of the available functions
- The START function must ALWAYS be assigned
- If the second function assigned will be modified later, then all the radio transmitters will acquire this last function on the second channel
- ***The RF FIX module only allows the use of FIX CODE radio transmitters***

⚠ **WARNING**: The first stored radio transmitter will determine the coding of the following ones: if the first radio transmitter is stored as ROLLING CODE, then all the following radio transmitters must be stored as ROLLING CODE (FIX CODE storing will not be accepted). Vice versa, if the first radio transmitter is stored as a FIX CODE, then all the following radio transmitters must be stored as FIX CODE (ROLLING CODE storing will not be accepted)

STORING OF A ROLLING CODE RADIO TRANSMITTER:

Follow the procedures on the ***paragraph 20.2*** for programming the remote control different buttons When choosing the remote control button to be programmed, it is required to *«Press the Button»*; **to store THE FIRST REMOTE CONTROL in ROLLING CODE the button must be pressed TWICE IN SUCCESSION; for the subsequent remote controls it is sufficient to press it ONLY ONCE as required by the procedure**

STORING OF A FIX CODE OR ROLLING CODE PLUS/UNI RADIO TRANSMITTER:

Follow the procedures on the ***paragraph 20.2*** for programming the remote control different buttons; **to store REMOTE CONTROLS in FIX CODE or ROLLING CODE PLUS/UNI the button must be pressed ONCE as required by the procedure (for both the first remote control and the following ones)**

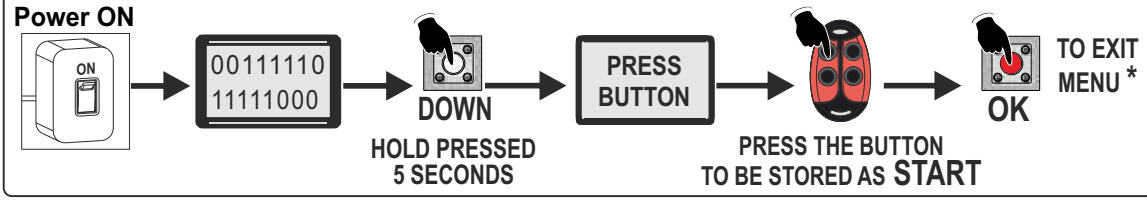
FOR THE INSTALLER: 2-TRANSMITTERS menu shows the stored radio transmitters serial number; It is advisable to create a table* as reminder of the serial numbers for each remote assigned to every customer, for an easy transmitter/customer management

Memory Location \ TX Button	1	2	3	Serial Number	Customer
0					
1					
2					
3					

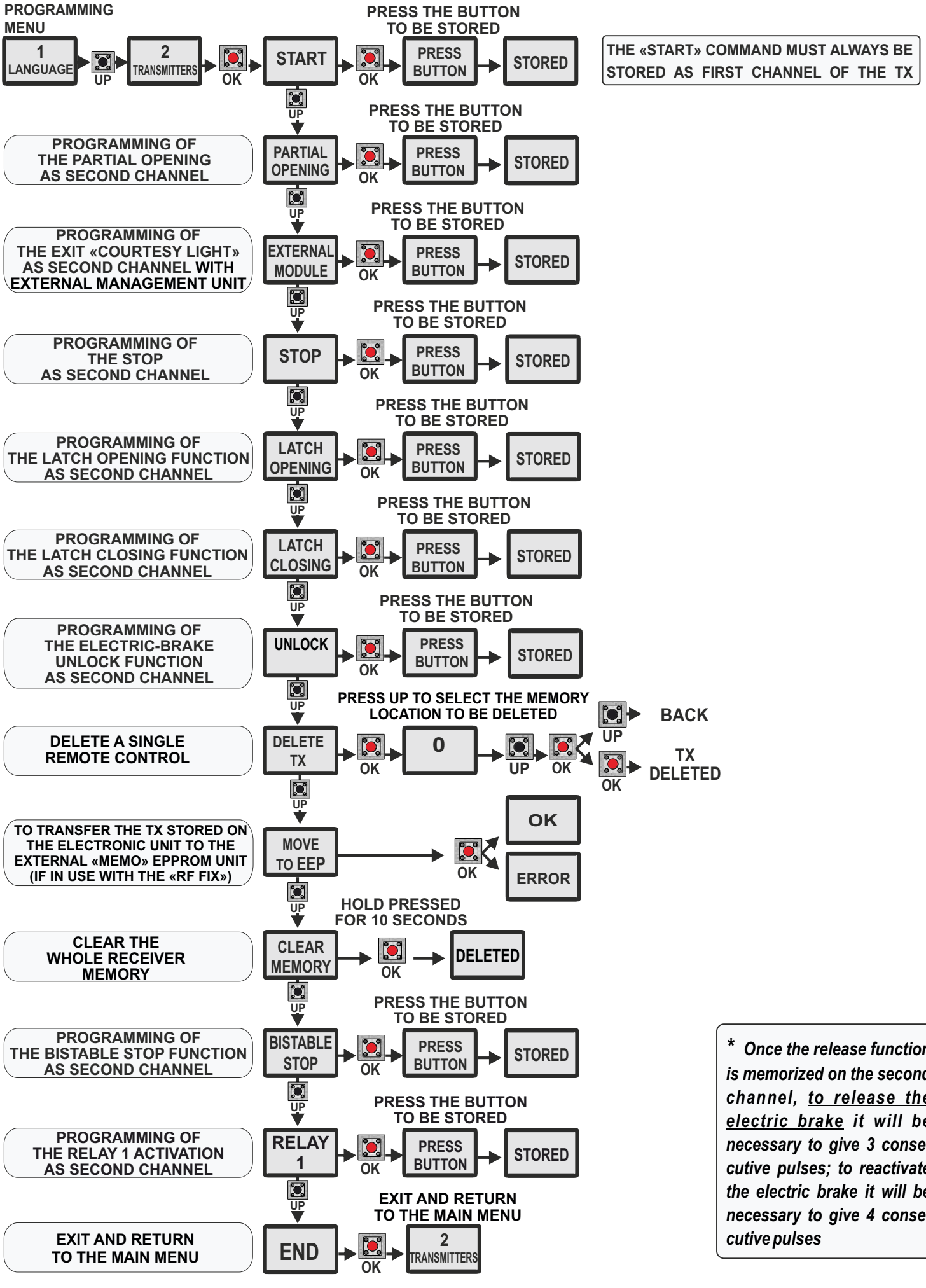
****exemple of table***

20.1 - START COMMAND QUICK SELF-LEARNING

It is possible to use the following quick procedure to store the START command on the remote control



20.2 - REMOTE CONTROLS PROGRAMMING TABLE



* *Once the release function is memorized on the second channel, <u>to release the electric brake</u> it will be necessary to give 3 consecutive pulses; to reactivate the electric brake it will be necessary to give 4 consecutive pulses*

MENU FUNCTIONS TABLE - GATE 2 DG INVERTER

MENU		SET	DESCRIPTION	DEFAULT	NOTE
1	LANGUAGE	*Italiano*	Italian	*English*	
		English	English		
		Français	French		
		Español	Spanish		
		Dutch	Dutch		
2	TRANSMITTERS	*Start*	Start	*Start*	
		Partial opening	Partial opening		
		External module	External module		
		Stop	Stop		
		Relay 1	To Activate Relay 1 for 3 seconds. This function requires the menu 132-Relay 1 set on "TX Relay"		
		Bistable Stop	Pressed once, it stops the gate. Pressed twice, it reactivates the START input		
		Latch opening	One impulse opens and keep open. A second impulse restore the movement	*Partial opening*	
		Latch closing	One impulse closes and keep closed. A second impulse restore the movement		
		Unlock	To store a command for unlocking the electric brake		
		Delete a transmitter	To delete a single transmitter (TX)		
		Move to EEP	To transfer the transmitters stored on the control unit to the external EEPROM (MEM), if connected		
		Clear memory	To delete the full TX memory on the receiver		
		End	To exit the menu "transmitters"		
3	MOTOR	***1-** Hydraulic*	Hydraulic operators - Series I ***(INVERTER)***	– – – –	
		***2-** Sliding*	Sliding operators - Series I ***(INVERTER) (Lepus FAST operator too)***		
		***3-** Reversible Sliding*	Reversible sliding operators - Series I ***(INVERTER)***		
		***4-** Electromechanic swing*	Electromechanic swing operators - Series I ***(INVERTER)***		
		***7-** Barrier*	Barriers - Series I ***(INVERTER)***		
		***10-** JOINT*	Hydraulic operator with 4 limit switch - ***Series I (INVERTER)***		
4	GATES NUMBER	*From 1 to 2*	To set the number of motors to be managed	*1*	
5	REVERSE MOTOR	*On*	To reverse the opening with the closing or vice-versa ***(both motors and limit-switches are reversed)***	*Off*	
		Off	Off		
6	LOGIC	*Automatic*	Automatic	*Auto-matic*	
		Open-stop-close-stop-open	Step by step type 1		
		Open-stop-close-open	Step by step type 2		
		2 button	Two buttons		
		Safety	Safety		
		Dead man	Dead man		
7	PAUSE TIME	*Off*	OFF ***(semi-automatic logics)***	*Off*	
		1 240	Setting from 1 second to 4 minutes		
8	START IN PAUSE	*Off*	The Start command is not accepted during pause	*Off*	
		On	The Start command is accepted during pause		
9	PROGRAMMING	*Off On*	To start the working times self-learning	*Off*	
10	TEST START	*Off On*	To give a Start command for testing the automation	*Off*	
11	BEAM LENGTH	*3m - 4m - 5m - 6m* *7m - 7,5m - 8m*	***Menu shown only if menu 3-MOTORS is set on "7-Barrier"*** To choose the beam length ***(values in meters)***	- - - -	
192	TEST MOTOR 1 *	Allows the movement of the gate for tests or specific positioning in a temporary "dead man" mode HOLDING **UP** PRESSED = OPEN HOLDING **DOWN** PRESSED = CLOSE			
193	TEST MOTOR 2 *	Allows the movement of the gate for tests or specific positioning in a temporary "dead man" mode HOLDING **UP** PRESSED = OPEN HOLDING **DOWN** PRESSED = CLOSE			
**** The command is accepted only at the end of the cycle or after a STOP; it is not accepted during the cycle and during the pause***					
14	RESET	A count-down of 5 seconds will start by holding the UP button; at its end "INIT" will appear on the display as confirmation of the control board reset			
15	END	*Press OK to return to the display of the firmware version and to the one of inputs state*			
16	SPECIAL MENU	*Press OK to enter the special menu*			

SPECIAL MENU

PRESS UP AND DOWN FOR 5 SECONDS AT THE SAME TIME TO ENTER OR TO EXIT THE SPECIAL MENU

	SPECIAL MENU	SET	DESCRIPTION	DEFAULT	NOTE
17	OPENING SPEED 1	*10 100*	Speed in opening Motor 1	*80*	
18	CLOSING SPEED 1	*10 100*	Speed in closing Motor 1	*80*	
19	OPENING SPEED 2	*10 100*	Speed in opening Motor 2	*80*	
20	CLOSING SPEED 2	*10 100*	Speed in closing Motor 2	*80*	
21	SLOWDOWN SPEED IN OPENING 1	*From 10% to 60% of the maximum speed*	Slowdown speed in opening Motor 1	*30*	
22	SLOWDOWN SPEED IN CLOSING 1	*From 10% to 60% of the maximum speed*	Slowdown speed in closing Motor 1	*30*	
23	SLOWDOWN SPEED IN OPENING 2	*From 10% to 60% of the maximum speed*	Slowdown speed in opening Motor 2	*30*	
24	SLOWDOWN SPEED IN CLOSING 2	*From 10% to 60% of the maximum speed*	Slowdown speed in closing Motor 2	*30*	
25	LEARNING SPEED	*10% 100 %*	To adjust the time self-learning speed. This parameter can change according to the motor type set	*50*	
26	LEAF DELAY IN OPENING	*Off 6 Total*	Adjustable from Off to 6 seconds to "Total" ***(if on "Total" the Motor 2 will start opening only after the Motor 1 has completed the opening movement)***	*1,5*	
27	LEAF DELAY IN CLOSING	*Off 20 Total*	Adjustable from Off to 20 seconds to "Total" ***(if on "Total" the Motor 1 will start closing only after the Motor 2 has completed the closing movement)***	*2,5*	
28	OPENING TORQUE 1	*50% 100 %*	**Motor 1 opening torque:** by increasing the torque, more strength will be required to execute the inversion in case of obstacle	*100%*	
29	CLOSING TORQUE 1	*50% 100 %*	**Motor 1 closing torque:** by increasing the torque, more strength will be required to execute the inversion in case of obstacle	*100%*	
30	OPENING TORQUE 2	*50% 100 %*	**Motor 2 opening torque:** by increasing the torque, more strength will be required to execute the inversion in case of obstacle	*100%*	
31	CLOSING TORQUE 2	*50% 100 %*	**Motor 2 closing torque:** by increasing the torque, more strength will be required to execute the inversion in case of obstacle	*100%*	
32	ENCODER	*On*	**ON** = Encoder enabled **OFF** = Encoder disabled ***(when OFF, the working times learnt are only shown)***	*Off*	
	47 ENCODER PAR.1	*xxx.*	Impulses read by Encoder during operation ***(Motor1)***		
	48 ENCODER TOT. 1	*xxx.*	Impulses stored during programming ***(Motor 1)***		
	49 ENCODER PAR.1	*xxx.*	Impulses read by Encoder during operation ***(Motor2)***		
	50 ENCODER TOT. 2	*xxx.*	Impulses stored during programming ***(Motor 2)***		
32	ENCODER	*Potentiometer*	To enable the reading of the potentiometer	*Off*	
		RS 485	To enable the reading of the absolute rotative Encoder		
	51 I.PAR.M1	- - - - - - - -	To show the current position of the potentiometer on the leaf moved by **Motor 1**. This parameter is useful to see if the potentiometer is correctly read		
	52 I.AP.M1	From the value learnt to ± 100 pulses	To show the impulses stored by the control unit when the leaf moved by **Motor 1** is fully open		
	53 I.CH.M1	From the value learnt to ± 100 pulses	To show the impulses stored by the control unit when the leaf moved by **Motor 1** is fully close		
	54 I.PAR.M2	- - - - - - - -	To show the current position of the potentiometer on the leaf moved by **Motor 2**. This parameter is useful to see if the potentiometer is correctly read		
	55 I.AP.M2	From the value learnt to ± 100 pulses	To show the impulses stored by the control unit when the leaf moved by **Motor 2** is fully open		
	56 I.CH.M2	From the value learnt to ± 100 pulses	To show the impulses stored by the control unit when the leaf moved by **Motor 2** is fully close		

SPECIAL MENU		SET	DESCRIPTION	DEFAULT	NOTE
32	ENCODER	*Off*	**ON** = Encoder enabled **OFF** = Encoder disabled ***(when OFF, the working times learnt are only shown)***	*Off*	
	65 OPENING TIME M1	*xxx.s*	To display the learnt value during the working times self learning, in opening and closing **(Motor 1)**. With UP or DOWN it is possible to increase or reduce the working times		
	66 CLOSING TIME M1	*xxx.s*			
	67 OPENING TIME M2	*xxx.s*	To display the learnt value during the working times self learning, in opening and closing **(Motor 2)**. With UP or DOWN it is possible to increase or reduce the working times		
	68 CLOSING TIME M2	*xxx.s*			
33	OPENING SENSITIVITY MOTOR 1	*10% (Fast intervention)* *99% (Slow intervention)*	To adjust the Encoder or Potentiometer intervention time on Motor 1 in opening	*Off*	
		Off (Intervention excluded)	Disabled		
34	CLOSING SENSITIVITY MOTOR 1	*10% (Fast intervention)* *99% (Slow intervention)*	To adjust the Encoder or Potentiometer intervention time on Motor 1 in closing	*Off*	
		Off (Intervention excluded)	Disabled		
35	OPENING SENSITIVITY MOTOR 2	*10% (Fast intervention)* *99% (Slow intervention)*	To adjust the Encoder or Potentiometer intervention time on Motor 2 in opening	*Off*	
		Off (Intervention excluded)	Disabled		
36	CLOSING SENSITIVITY MOTOR 2	*10% (Fast intervention)* *99% (Slow intervention)*	To adjust the Encoder or Potentiometer intervention time on Motor 2 in closing	*Off*	
		Off (Intervention excluded)	Disabled		
37	SLOWDOWN SENSITIVITY MOTOR	*10% (Fast intervention)* *99% (Slow intervention)*	To adjust the amperometric sensitivity in slowdown ***Function available only on electro-mechanic operators***	*30%* *(= 1,5s)*	
		With potentiometer	To set the inversion time in slow-down from 0 to 5 seconds ***(= 99%)*** ***Only with menu 32-Potentiometer enabled***		
38	POTENTIOMETER THRESHOLD OPENING 1	*1 1000* ***(only if the Menu 32-Encoder is set on "Potentiometer")***	To adjust the threshold of the potentiometer intervention. This parameter self-determines during the working times learning but can also be adjusted later, on the condition that the set value is higher than the value shown in VP1 or VP2 (instantaneous speed values which can be shown by accessing the DEBUG menu). ***NOTE: The lower the threshold value, the slower will be the response of the potentiometer.***	*Based on the model*	
39	POTENTIOMETER THRESHOLD CLOSING 1				
40	POTENTIOMETER THRESHOLD OPENING 2				
41	POTENTIOMETER THRESHOLD CLOSING 2				
42	POTENTIOMETER SLOWDOWN THRESHOLD OPENING 1	*1 100* ***(only if the Menu 32-Encoder is set on "Potentiometer")***	To adjust the threshold of the potentiometer intervention in slowdown. By default this value is set on 15. but can be manually increased on the condition that the set value is higher than the value shown in VP1 or VP2 ***(instantaneous speed values which can be shown by accessing the DEBUG menu)***	*15*	
43	POTENTIOMETER SLOWDOWN THRESHOLD CLOSING 1				
44	POTENTIOMETER SLOWDOWN THRESHOLD OPENING 2				
45	POTENTIOMETER SLOWDOWN THRESHOLD CLOSING 2				
46	CLOSING INVERSION	*Total*	To reverse the movement totally in case of safety edge intervention or obstacle detected during closing. If the automatic closing is enabled, it will be attempted for 5 times	*Total*	
		Partial	In case of obstacle, safety edge or potentiometer, it partially reverses direction ***(of about 30 cm)*** then stops		
The menus from 47 to 50 are available only if an Encoder is connected and has been enabled on menu 32-Encoder = ON					
The menus from 51 to 56 are available only if a Potentiometer is connected and enabled on menu 32-Encoder = Potentiometer					
57	WORKING CURRENT MOTOR 1	*…… Ampere*	To display the absorbed current during Motor 1 working	- - - -	
58	WORKING CURRENT MOTOR 2	*…… Ampere*	To display the absorbed current during Motor 2 working	- - - -	

	SPECIAL MENU	SET	DESCRIPTION	DEFAULT	NOTE
59	OPENING SLOWDOWN 1	*Off 50%*	From 0% (OFF) to 50% of the stroke ***(0% = slowdown excluded)***	*30*	
60	CLOSING SLOWDOWN 1	*Off 50%*	From 0% (OFF) to 50% of the stroke ***(0% = slowdown excluded)***	*30*	
61	OPENING SLOWDOWN 2	*Off 50%*	From 0% (OFF) to 50% of the stroke ***(0% = slowdown excluded)***	*30*	
62	CLOSING SLOWDOWN 2	*Off 50%*	From 0% (OFF) to 50% of the stroke ***(0% = slowdown excluded)***	*30*	
63	DECELERATION	*0 %* *100%* 	To adjust the change from normal speed to slowdown speed	*Based on the model*	
64	ACCELERATION	*0,1 s* *5 s* 	Acceleration ramp. To adjust the motor start	*Based on the model*	
The menus from 65 to 68 are available only if menu 32-Encoder = OFF (Encoder not connected or disabled)					
69	ANTI OVERLAP	*Off*	To disable the anti-overlapping control of the leaves allowing their separate control	*Off*	
		On	To enable the anti-overlapping control of the leaves		
70	OPENING POSITION RECOVERY	*0 20 seconds* ***(only if 32-Encoder is OFF)***	To retrieve the inertia of the motor in opening after the Stop or the reversing	*Based on the model*	
71	CLOSING POSITION RECOVERY	*1 20 seconds* ***(only if 32-Encoder is OFF)***	To retrieve the inertia of the motor in closing after the Stop or the reversing	*Based on the model*	
72	OPENING TOLE-RANCE MOTOR 1	*0% 100%*	To adjust the Motor 1 tolerance between the stop and the obstacle, in opening	*20%*	
73	CLOSING TOLE-RANCE MOTOR 1	*0% 100%*	To adjust the Motor 1 tolerance between the stop and the obstacle, in closing	*20%*	
74	OPENING TOLE-RANCE MOTOR 2	*0% 100%*	To adjust the Motor 2 tolerance between the stop and the obstacle, in opening	*20%*	
75	CLOSING TOLE-RANCE MOTOR 2	*0% 100%*	To adjust the Motor 2 tolerance between the stop and the obstacle, in closing	*20%*	
76	PUSHING STROKE	*Time Pushing Stroke Off - 3 sec*	Before opening, the motor starts in closing for the time set, in order to simplify the lock release	*Off*	
		Repeat Lock Release Off – On	If **ON**, the lock will be released both before and after the pushing stroke		
		End			
77	LOCK TIME	*Off 5*	To adjust the lock release time from 0 to 5 seconds	*3*	
78	LOCK	*Only opening*	Lock enabled only before opening	*Only opening*	
		Only closing	Lock enabled only before closing		
		Opening and closing	Lock enabled before opening and closing		
79	ANTI INTRUSION	*Only opening*	If the gate is forced manually, the control unit starts the motor and restores the state of the gate before forcing ***(function only available if limit switches are installed)***	*Off*	
		Only closing			
		Opening and closing			
		Off			
80	PUSHOVER	*Off*	The gate leaf makes an extra movement at the maximum torque to ensure the tightening of the gate	*Off*	
		Opening and closing			
		Only closing			
		Only opening			
81	PERIODICAL PUSHOVER	*Off 8h* ***(only if 80-Pushover is ON)***	To activate the repetition of the pushover function at a distance of time adjustable from 0 to 8 hours, at hourly intervals	*Off*	
82	MOTOR RELEASE	*Opening 1 Off - 3 s*	If different from OFF, the operator slightly reverses its direction at the end of the cycle	*Based on the model*	
		Closing 1 Off - 3 s			
		Opening 2 Off - 3 s			
		Closing 2 Off - 3 s			
		End			

SPECIAL MENU		SET	DESCRIPTION	DEFAULT	NOTE
83	EXTRA TIME	*Opening1 Off - 10s*	If the limit switches are installed, it is possible to add an extra time ***(max. 10 seconds)*** to the movement of the operators after the reading of the limit switches	*1.0 s*	
		Closing 1 Off - 10s			
		Opening2 Off - 10s			
		Closing 2 Off - 10s			
		EXIT			
85	PRE-FLASHING	*Only closing*	To enable the pre-flashing only before closing	*0.0*	
		0.0 5.0 s	To set the pre-flashing duration		
86	FLASHING LIGHT	*Normal*	Normal	*Normal*	
		Light	Warning lamp function		
		Always	Always ON		
		Buzzer	Buzzer		
87	FLASHING LIGHT AND TIMER	*Off*	The flashing light will be OFF with enabled timer and open gate	*Off*	
		On	The flashing light will be ON with enabled timer and open gate		
88	COURTESY LIGHT	*Off*	Disabled	*In cycle*	
		1 240	Adjustable from 1 second to 4 minutes		
		In cycle	Courtesy light only in cycle		
89	TRAFFIC LIGHT RESERVATION	*Off On*	To get the priority in entry or exit. ***Available by the use of the partial opening contact and the SEM management unit***	*Off*	
90	PARTIAL OPENING	*5% 100%*	Adjustable from 5% to 100%	*50%*	
91	PARTIAL PAUSE	*= Start*	The pause in partial opening is the same as in total opening	*= Start*	
		Off	Disabled		
		1 240	Adjustable from 1 second to 4 minutes		
92	TIMER	*Off*	To turn the selected input (on CN1) into an input to which connect an external clock	*Off*	
		On photo2			
		On partial input			
		Clock			
93	FIRE SWITCH	*Off*	Disabled	*Off*	
		On Photo2	Function enabled on the Photocell 2 input		
		On partial input	Function enabled on the partial opening Start input		
94	24V AUX **(Max. 1A)** ***The AUX output allows the connection of a relay for the additional accessories management***	*Always*	AUX output always powered	*Always*	
		In cycle	AUX output powered only during cycle		
		Opening	AUX output powered only during opening		
		Closing	AUX output powered only during closing		
		In pause	AUX output powered only during pause		
		Phototest	AUX output powered for safety devices testing		
		In cycle and phototest	AUX output powered during cycle only and for safety devices testing		
		In cycle and pause	AUX output powered during cycle and during pause		
		Courtesy light ***(connected through relay)***	Courtesy light connected through additional relay on AUX output; ***The courtesy light will work as per Menu-88 settings***		
		Open gate warning light ***(connected through relay)***	**1 flash per second** during opening **2 flashes per second** during closing **Steady lit** in "Stop" or "Open" status		
		Barrier Led lights	**Closed barrier** - the light is switched-on **Open barrier** - the light is switched-off **Moving barrier** - the light blinks		
95	PHOTO-TEST	*Photo 1*	Self-test enabled only on photocell 1	*Off*	
		Photo 2	Self-test enabled only on photocell 2		
		Photo 1 and 2	Self-test enabled on photocells 1 and 2		
		Off	Disabled		
96	SAFETY EDGE SELF-TEST	*Edge 1*	Self-test enabled only on safety edge 1	*Off*	
		Edge 2	Self-test enabled only on safety edge 2		
		Edges 1 and 2	Self-test enabled on safety edges 1 and 2		
		Off	Disabled		

SPECIAL MENU		SET	DESCRIPTION	DEFAULT	NOTE
97	PHOTOCELL 1	*Closing*	If the photocell is occupied during closing, the gate reverses the movement; If the photocell is occupied during the pause, it prevents the gate reclosing	*Closing*	
		Opening and closing	If the photocell is occupied during opening or closing, it stops the gate movement; when the photocell is released, the movement continues		
		Stop	If the photocell is occupied before the START input, the START will be ignored. If the photocell is occupied after the START input, the photocell will be ignored. If the photocell is occupied during closing, the gate will reopen		
		Stop and close	If the photocell is occupied during closing, it stops the gate movement; when released, the closing movement continues		
		Close	The photocell stops the gate until it is occupied in both opening and closing; when released, the photocell gives a closing command ***(the gate closes one second after the photocell release)***		
		Closing *Pause reloading*	If the photocell is occupied during the pause, it recharges the same pause time set. If the photocell is occupied during the closing, it reverses the gate movement		
		Opening and Closing *Pause reloading*	If the photocell is occupied during the pause, it recharges the same pause time set. If it is occupied during the closing, it reverses the gate movement; If the photocell is occupied during the opening, it stops the gate and when released, the opening movement continues		
		Delete pause time	If the photocell is occupied during opening, pause or closing, the gate reopens completely and closes without observing the pause time set		
		Shadow loop	When the gate is open, the shadow loop prevents the reclosing until it is occupied. The Shadow loop is switched off during closing		
		Shadow loop RP ***(pause reloading)***	When the gate is open, the shadow loop prevents the reclosing until it is occupied. When released, the gate repeats the pause time set, then it closes. The Shadow loop is switched off during closing		
98	PHOTOCELL 2	*Closing*	If the photocell is occupied during closing, the gate reverses the movement; If the photocell is occupied during the pause, it prevents the gate reclosing	*Opening and closing*	
		Opening and closing	If the photocell is occupied during opening or closing, it stops the gate movement; when the photocell is released, the movement continues		
		Stop	If the photocell is occupied before the START input, the START will be ignored. If the photocell is occupied after the START input, the photocell will be ignored. If the photocell is occupied during closing, the gate will reopen		
		Stop and open	If the photocell is occupied during opening, the gate will stop; when released, the gate continues the opening movement. The photocell is ignored during closing		
		Stop and close	If the photocell is occupied during closing, it stops the gate movement; when released, the closing movement continues		
		Close	The photocell stops the gate until it is occupied in both opening and closing; when released, the photocell gives a closing command ***(the gate closes one second after the photocell release)***		
		Opening *Pause reloading*	If the photocell is occupied during the pause, it recharges the same pause time set. If the photocell is occupied during the opening, the gate stops and when released, the movement continues		
		Opening and Closing *Pause reloading*	If the photocell is occupied during the pause, it recharges the same pause time set. If it is occupied during the closing, it reverses the movement; If the photocell is occupied during the opening, it stops the gate and when released, the opening movement continues		
		Pause reload *Photo closing*	If the photocell is occupied during the pause, it recharges the pause time set. If the photocell is occupied during the closing, the gate reverses the movement		
		Delete pause time	If the photocell is occupied during opening, pause or closing, the gate reopens completely and closes without observing the pause time set		
		Shadow loop	When the gate is open, the shadow loop prevents the reclosing until it is occupied. The Shadow loop is switched off during closing		
		Shadow loop PR ***(pause reloading)***	When the gate is open, the shadow loop prevents the reclosing until it is occupied. When released, the gate repeats the pause time set, then it closes. The Shadow loop is switched off during closing		

SPECIAL MENU		SET	DESCRIPTION	DEFAULT	NOTE
100	SAFETY EDGE 1	*Normal*	Normal N.C. contact	*Normal*	
		8K2 N.C.	Safety edge protected by a 8K2 resistor enabled		
		8K2 N.C. Double	Two safety edges protected by 8K2 resistor enabled		
		8K2 RES	Resistive safety edge protected by 8K2 resistor enabled		
		8K2 RES Double	Two resistive safety edges protected by 8K2 RES enabled		
101	SAFETY EDGE 2	*Normal*	Normal N.C. contact	*Normal*	
		8K2 N.C.	Safety edge protected by a 8K2 resistor enabled		
		8K2 N.C. Double	Two safety edges protected by 8K2 resistor enabled		
		8K2 RES	Resistive safety edge protected by 8K2 resistor enabled		
		8K2 RES Double	Two resistive safety edges protected by 8K2 RES enabled		
102	SAFETY EDGE 1 DIRECTION	*Opening and closing*	Safety edge enabled in opening and closing	*Opening and closing*	
		Only opening	Safety edge enabled only in opening		
		Only closing	Safety edge enabled only in closing		
103	SAFETY EDGE 2 DIRECTION	*Opening and closing*	Safety edge enabled in opening and closing	*Opening and closing*	
		Only opening	Safety edge enabled only in opening		
		Only closing	Safety edge enabled only in closing		
104	SELECT LIMIT SWITCH	*N. C.*	Limit switch type N.C. ***(Normally Closed)*** ***Example: inductive limit switch or with lever***	*N.C.*	
		Ext	Limit switch connected on the external interface ***for 4 cams limit switches***		
		N.O.	Limit switch type N.O. ***(Normally Open)*** ***Example: magnetic limit switch***		
106	DIAGNOSTICS	*1 10*	To display the last event ***(See alarms table)***	- - - -	
107	MAINTENANCE CYCLES	*100 240000*	Adjustable from 100 to 240000 cycles	*100000*	
108	PERFORMED CYCLES	*0 240000*	To display the executed cycles. ***Hold pressed OK to reset the cycles***	*0*	
109	THERMOMETER	*xx °C (xx °C)*	To display the temperature if a probe is connected to GP3 ***(menu 139 must be set on "Thermometer")*** The connection of up to two temperature probes is allowed; ***(the display will show both temperatures detected)***	*Off*	
110	LOWER THRESHOLD TEMPERATURE	*From -20° to +50°*	To adjust the temperature threshold of the oil heater probe activation ***(menu available with menu 109-Thermometer = ON)***	*-10°*	
111	UPPER THRESHOLD TEMPERATURE	*From -20° to +50°*	To adjust the temperature threshold of the oil heater probe deactivation ***(menu available with menu 109-Thermometer = ON)***	*0°*	
112	PASSWORD	***Note: "0000" setting is not allowed***	To enter a password for blocking the control unit parameters modification	- - - -	
115	DECELERATION RAMP	0,1 s 5s	Deceleration management in case of inversion or Stop command	*0,5 s*	
116	REPEAT LEAF DELAY	*On Off*	In case of a STOP command when the gate is on its halfway, the leaves will repeat the "leaf delay" set on menus 26-27	*On*	
117	ALWAYS CLOSE	*Off 240 seconds*	In case of power failure, if the gate has been manually open, it closes only after the set time has elapsed ***(from 0 to 240 seconds)*** as soon as the power is restored	*Off*	
118	LATCH	*Off*	Disabled	*Off*	
		Opening	The gate opens and stay open till a new START input. **The latch function uses the "Safety Edge 1" N.O. input** ***(Safety Edge 1 function is so disabled)***		
		Closing	The gate closes and stay closed till a new START input. ***The latch function uses the "Safety Edge 2" N.O. input (Safety Edge 2 function is so disabled)***		
		Opening and closing	To enables both the opening and closing functions above described. ***The latch function uses the "Safety Edge 1" and "Safety Edge 2" N.O. inputs (both safety edges are so disabled)***		
119	DISPLAY WRITING SPEED	*From 30% to 100%*	See Note 2 at the end of the table	*80%*	
120	BASIC MENU	Press OK to exit the special menu. The special menu switches off automatically after 20 minutes			

SPECIAL MENU		SET	DESCRIPTION	DEFAULT	NOTE
121	PHOTO 1 TYPE	*Normal*	Standard photocell without 10K control	*Normal*	
		Photo 1 10K	Photocell with 10K control		
		Photo 1 10K DOUBLE	Double photocell with 10K control		
122	PHOTO 2 TYPE	*Normal*	Standard photocell without 10K control	*Normal*	
		Photo 2 10K	Photocell with 10K control		
		Photo 2 10K DOUBLE	Double photocell with 10K control		
123	DATE AND TIME	*Mon - Sun* *dd/mm/yyyy* *Time*	To set the day, the date and the time for the management of the programmed openings. ***(Only with full charge buffer battery)***	- - - -	
124	CLOCK 1	*Opening time*	To set a first time band in which keeping the gate open. It is possible to set, in order: opening time, closing time and the days on which you want to open and keep the gate open	*Off*	
		Closing time			
		Days			
		Modify	To modify the pre-set time and day		
		Exit	Exit from menu		
125	CLOCK 2	*Opening time*	To set a second time band in which keeping the gate open. It is possible to set, in order: opening time, closing time and the days on which you want to open and keep the gate open	*Off*	
		Closing time			
		Days			
		Modify	To modify the pre-set time and day		
		Exit	Exit from menu		
126	CLOCK 3	*Opening time*	To set a third time band in which keeping the gate open. It is possible to set, in order: opening time, closing time and the days on which you want to open and keep the gate open	*Off*	
		Closing time			
		Days			
		Modify	To modify the pre-set time and day		
		Exit	Exit from menu		
127	CLOCK 4	*Opening time*	To set a fourth time band in which keeping the gate open. It is possible to set, in order: opening time, closing time and the days on which you want to open and keep the gate open	*Off*	
		Closing time			
		Days			
		Modify	To modify the pre-set time and day		
		Exit	Exit from menu		
130	GP1	*Off*	Disabled	*Off*	
		Emergency open	To connect an opening button that allows the automation operating in "Dead Man" logic. The button will only work in case of safety devices failure or in case of stuck Start button		
		Open	To connect an opening button that allows the automation operating in "Dead Man" logic. The button will only work when the gate is closed or after a Stop command		
		Thermometer	To connect a temperature probe for the detection of an external temperature which will be shown on the display by accessing menu 109-THERMOMETER ***(i.e. probe for detection of hydraulic motor oil temperature)***		
131	GP2	*Off*	Disabled	*Off*	
		Emergency close	To connect an closing button that allows the automation operating in "Dead Man" logic. The button will only work in case of safety devices failure or in case of stuck Start button		
		Close	To connect a closing button that allows the automation operating in "Dead Man" logic. The button will only work when the gate is closed or after a Stop command		
		Thermometer	To connect a temperature probe for the detection of an external temperature which will be shown on the display by accessing menu 109-THERMOMETER ***(i.e. probe for detection of hydraulic motor oil temperature)***		

SPECIAL MENU		SET	DESCRIPTION	DEFAULT	NOTE
132	RELAY 1	*Off*	Disabled	*Off*	
		Start 3s	To enable the Relay 1 for 3ecs at every START or opening commands		
		Traffic light 1	Traffic light management: the green light is switched-on only when the gate is open		
		Lock copy	The Relay 1 will be ON for the time set on 78-LOCK menu		
		Flashing light copy	The Relay 1 repeats the flashing-light functions		
		Courtesy light copy	The Relay 1 will be ON for the time set on 88-COURTESY LIGHT		
		Opening 1 limit switch	NOT IN USE		
		Closing 1 limit switch	NOT IN USE		
		Opening 2 limit switch	NOT IN USE		
		Closing 2 limit switch	NOT IN USE		
		Tx Relay	It is possible to activate the Relay 1 for 3 seconds by giving an impulse from the remote control		
		Negative brake and Photocell 1 management	The negative electric-brake is not active on the photocell intervention		
		Negative brake 1 manag.	Negative electric-brake ***(in ON with the gate in cycle and 1 second before the Start input)***		
		Positive brake 1 manag.	Positive electric-brake ***(in ON with stationary gate)***		
		Opening electric-valve	The Relay 1 is active during opening		
		Closing electric-valve	The Relay 1 is active during closing		
		Clock	Relay enabled in the same time band set on menu 124-125-126-127		
137	COMIS	*0 350 mA*	It shows the absorption of the accessories connected on input 20 ***(it only works if an accessory is connected at least)***	- - - -	
138	COMIS THRESHOLD	*Off 350mA*	Allows to set a maximum absorption threshold over which an error message appears ***(error message appears also when over 350 mA)***	*Off*	
139	GP3	*Off*	Disabled	*Off*	
		Emergency open	To connect an opening button that allows the automation operating in "Dead Man" logic. The button will only work in case of safety devices failure or in case of stuck Start button		
		Emergency close	To connect a closing button that allows the automation operating in "Dead Man" logic. The button will only work in case of safety devices failure or in case of stuck Start button		
		Close	To connect a closing button that allows the automation operating in "Dead Man" logic. The button will only work when the gate is closed or after a Stop command		
		Open	To connect an opening button that allows the automation operating in "Dead Man" logic. The button will only work when the gate is closed or after a Stop command		
		Thermometer	To enable a probe for the detection of an external temperature		
140	THRESHOLD A OPENING 1	*1 10 Ampere*	NOT IN USE	*Based on the model*	
141	THRESHOLD A CLOSING 1	*1 10 Ampere*	NOT IN USE	*Based on the model*	
142	THRESHOLD A OPENING 2	*1 10 Ampere*	NOT IN USE	*Based on the model*	
143	THRESHOLD A CLOSING 2	*1 10 Ampere*	NOT IN USE	*Based on the model*	
144	OPENING SLOWDOWN M1 - THRESHOLD A	*1 10 Ampere*	NOT IN USE	*Based on the model*	
145	CLOSING SLOWDOWN M1 - THRESHOLD A	*1 10 Ampere*	NOT IN USE	*Based on the model*	
146	OPENING SLOWDOWN M2 - THRESHOLD A	*1 10 Ampere*	NOT IN USE	*Based on the model*	
147	CLOSING SLOWDOWN M2 - THRESHOLD A	*1 10 Ampere*	NOT IN USE	*Based on the model*	
190	BASIC MENU	Press OK to exit the special menu. The special menu switches off automatically after 20 minutes			

Note 1: after initialization, the parameters set on menu **3 - MOTOR** and **104 - SELECT LIMIT SWITCH** always remain set to the value chosen during the programming operation

Note 2: if the menu **119 - DISPLAY WRITING SPEED** is set to the minimum value of 30%, the display writing speed will be low. On the contrary, if it is set to the maximum value of 100%, the writing speed will be very high

Please note: the writing speed will not change on the JOLLY 3 programmer

ALARMS

The control unit advises about faults by a message on the display. The table below shows which faults are advised and what to do in the event of a malfunction. However, it is possible to read the last 10 fault warnings by accessing the **106-DIAGNOSTIC** menu

***Note 1**: To exit the alarms display press OK*
If the warning signal does not disappear, carry out all the checks required for that error or disconnect the device generating error to check whether the signal disappears

It is also possible to visualize the warning signals through the flashing light or the pilot light, simply by observing the number of flashes emitted and checking the correspondence in the flashing table below. When an event occurs, the warning flashes are issued at each Start command;

***Note 2:** When there are no events, with **86-FLASHING LIGHT** set on **«NORMAL»** the lamp operation is:*
1 flash every 0,5 seconds in opening - 1 flash every 0,3 seconds in closing - ON steady during the pause;
*If there are no events, with **86-FLASHING LIGHT** set on **«ALWAYS»** or **«BUZZER»**, the lamp operation is:*
1 flash (or sound) every 0.5 seconds in both directions; ON steady (or continuous sound) during the pause;

WARNING	SOLUTION
MISSING NETWORK FAULT	CHECK THE POWER SUPPLY; CHECK FUSE F2
24V FAULT	CHECK FOR ANY OVERLOADS OR SHORT CIRCUITS ON WIRINGS OR CONTROL UNIT
COMIS FAULT	CHECK THE "COMIS" CONTACT OPERATION AND THE ACCESSORIES WIRINGS ON THE CONTROL UNIT
SAFETY EDGE 1 FAULT	CHECK THE EDGE METAL CABLE AND CONNECTION CABLES; MAKE SURE THE CONTACT IS CLOSED
SAFETY EDGE 2 FAULT	CHECK THE EDGE METAL CABLE AND CONNECTION CABLES; MAKE SURE THE CONTACT IS CLOSED
PHOTOCELL 1 FAULT	CHECK THE PHOTOCELLS OPERATION OR THEIR WIRINGS ON THE CONTROL UNIT
PHOTOCELL 2 FAULT	CHECK THE PHOTOCELLS OPERATION OR THEIR WIRINGS ON THE CONTROL UNIT
LIMIT SWITCH FAULT	CHECK THE OPERATION AND THE CORRESPONDENCE BETWEEN MOTOR DIRECTION AND ITS LIMIT SWITCH
POTENTIOMETER 1 FAULT	CHECK THE WIRINGS - *WARNINGS APPEARS ONLY IF THE POTENTIOMETER IS ON*
POTENTIOMETER 2 FAULT	CHECK THE WIRINGS - *WARNINGS APPEARS ONLY IF THE POTENTIOMETER IS ON*
POTENTIOMETER 1 DIRECTION FAULT	SWAP THE POTENTIOMETER CONNECTION CABLES (REVERSE THE GREEN -OR BLUE- WITH THE BROWN)
POTENTIOMETER 2 DIRECTION FAULT	SWAP THE POTENTIOMETER CONNECTION CABLES (REVERSE THE GREEN -OR BLUE- WITH THE BROWN)
SERIAL INVERTER 1 FAULT	LOGIC MICROPROCESSOR IRREVERSIBLY DAMAGED. REPLACE THE CONTROL UNIT
SERIAL INVERTER 2 FAULT	LOGIC MICROPROCESSOR IRREVERSIBLY DAMAGED. REPLACE THE CONTROL UNIT
SERIAL INVERTER FROM MODULE 1 FAULT	INVERTER MODULE 1 IRREVERSIBLY DAMAGED. REPLACE THE CONTROL UNIT
SERIAL INVERTER FROM MODULE 2 FAULT	INVERTER MODULE 2 IRREVERSIBLY DAMAGED. REPLACE THE CONTROL UNIT
INVERTER 1 FAULT (ERROR CODE FOLLOWING)	INVERTER MODULE 1 FAULT - CHECK THE ALARM FLASHES
INVERTER 2 FAULT (ERROR CODE FOLLOWING)	INVERTER MODULE 2 FAULT - CHECK THE ALARM FLASHES
PASSWORD ERROR	PASSWORD ERROR

ALARM	FLASHES	NOTES
COMIS	8 FAST (EVERY 0.2 SEC) FOR 9 TIMES	COMIS FAULT - CHECK WIRINGS
INVERTER 1 FAULT	10 SLOW (EVERY 0.5 SEC) FOR 6 TIMES	REPAIR OR REPLACEMENT
INVERTER 2 FAULT	12 SLOW (EVERY 0.5 SEC) FOR 6 TIMES	REPAIR OR REPLACEMENT
REPORT PHOTO 1 - 2 CLOSING	2 SLOW (EVERY 0.5 SEC) FOR 5 TIMES	CLOSING PHOTOCELL FAULT
REPORT PHOTO 1 - 2 OPENING	3 SLOW (EVERY 0.5 SEC) FOR 1 TIME	OPENING PHOTOCELL FAULT
OPENING COLLISION WARNING	6 SLOW (EVERY 0.5 SEC) FOR 11 TIMES	OBSTACLE DETECTED DURING OPENING
CLOSING COLLISION WARNING	6 SLOW (EVERY 0.5 SEC) FOR 11 TIMES	OBSTACLE DETECTED DURING CLOSING
REPORT SAFETY EDGE	4 SLOW (EVERY 0.5 SEC) FOR 4 TIMES	SAFETY EDGE FAULT
SAFETY EDGE 1 - 2 FAULT	4 SLOW (EVERY 0.5 SEC) FOR 4 TIMES	SAFETY EDGE FAULT
PHOTOCELL 1 FAULT	3 SLOW (EVERY 0.5 SEC) FOR 1 TIME	PHOTOCELL 1 FAULT
PHOTOCELL 2 FAULT	3 SLOW (EVERY 0.5 SEC) FOR 1 TIME	PHOTOCELL 2 FAULT
STOP	5 SLOW (EVERY 0.5 SEC) FOR 2 TIMES	FAULT ON STOP CONTACT
LIMIT SWITCH FAULT	4 FAST (EVERY 0.2 SEC) FOR 11 TIMES	LIMIT SWITCH FAULT
CYCLES WARNING	7 SLOW (EVERY 0.5 SEC) FOR 2 TIME	MAXIMUM CYCLES ACHIEVED - MAINTENANCE

⚠ *THE **«MAXIMUM CYCLES REACHED»** WARNING REFERS TO THE REACHING OF THE MAXIMUM CYCLES ESTABLISHED AFTER WHICH MAINTENANCE IS REQUIRED; IT IS **ADVISABLE TO REFRESH THE WORKING TIMES SELF-LEARNING PERIODICALLY** AS WELL*

TROUBLESHOOTING

Advices

Make sure all Safeties are turned ON

Problem Found	Possible Cause	Solutions
Operator doesn't respond to any START impulse	a) Check the connected N.C. contacts b) Burnt fuse	a) Check the connections or the jumpers on the connections of the safety edge or of the stop and of the photocell if connected b) Replace the burnt fuse on the control unit
Operator does not run and diagnostic display not on.	a) No power to control board b) Open fuse c) Defective control board	a) Check AC power b) Check fuses c) Replace defective control board
Operator does not respond to a wired control/command (example: Open, Close, etc.)	a) Check Open and Close command input b) Stop button is active c) Reset button is stuck d) Entrapment Protection Device active	a) Check all Open and Close inputs for a stuck on input b) Check Stop button is not stuck on c) Check Reset button d) Check all Entrapment Protection Device inputs for a stuck on sensor
Operator does not respond to a transmitter	a) Stop button is active b) Reset button is stuck c) Poor radio reception	a) Check Stop button is not stuck on b) Check Reset button c) Check if similar wired control operates correctly. Check antenna wire
Motor turn only one way	a) Check resistance between motor phase and neutral, if the resistance is MOhm b) Try to invert the motor phase and watch if the motor change or not the direction	a) Change cable b) If the motor is blocked change the cable if the motor go only in one direction the motor relay direction is damaged
Gate doesn't move while the motor is running	a) The motor is in the released position b) There is an obstacle	a) Re-lock the motor b) Remove obstacle
Gate doesn't reach the complete Open / Closed position	a) Wrong setting of the limit switches b) Error on programming c) Gate is stopped by an obstacle d) Torque too low e) Gate is too heavy for automatic slow-down	a) Set limit switches b) Repeat programming c) Remove obstacle d) Increase torque parameter e) Set the slow-down on OFF
Gate opens but doesn't close	a) The contacts of the photocells are connected and open b) The stop contact is connected and open c) The edge contact is open d) Ammeter alarm	a) b) c) Check the jumpers or the connected devices and the signals indicated on the warning lamp d) Check if the ammeter alarm has intervened and eventually increase the torque parameter
Gate doesn't close automatically	a) Pause time set too high b) Control unit in semi-automatic logic	a) Adjust pause time b) Set the pause parameter on a different value from the OFF
Gate moves, but cannot set correct limits	a) Gate does not move to a limit position b) Gate is too difficult to move	a) Use manual disconnect, manually move gate, and ensure gate moves easily limit to limit. Repair gate as needed b) Gate must move easily and freely through its entire range, limit to limit. Repair gate as needed
Gate does not fully open or fully close when setting limits	a) Gate does not move to a limit position b) Gate is too difficult to move	a) Use manual disconnect, manually move gate, and ensure gate moves easily limit to limit. Repair gate as needed b) Gate must move easily and freely through its entire range, limit to limit Repair gate as needed
Gate stops during travel and reverses immediately	a) Control Open/Close becoming active b) The obstacle sensitivity is too low	a) Check all Open and Close inputs for an active input b) Check the obstacle sensitivity value and try to increase this parameter

...continued

Advices

Make sure all Safeties are turned ON

Problem Found	Possible Cause	Solutions
Gate doesn't respect slow down points	a) ENCODER is not working properly if It's activated b) Mechanical clutch loose c) Slow down space is too wide d) Potentiometer is not working properly if It's activated e) The recovery position parameters are too high or too low	a) Check menu for encoder parameters "Encoder Par" shall be from a low value +/- 10 (gate completely closed) to "Encoder tot" (gate completely opened). If the movement of Ipar is not linear in the range (+/-10 - Encoder tot) probably the Encoder is defective b) Tight mechanical clutch c) Reduce slow down space d) Check menu for potentiometer parameters "IPar" shall be from "I. CH."(gate completely closed) to "I.AP." (gate completely opened). If the movement of Ipar is not linear in the range (I.AP. - I.CH.) probably the potentiometer is defective e) Reduce or increase the recovery position parameters
Gate opens suddenly without start command	a) Frequency or other noise from main line b) Short circuit on the start contact	a) Wiring AC shall be separate from DC wire and pass through separate conduits. If there is a frequency noise it is possible to change frequency to another MHz like 868 for example or FM b) Check all start contacts
Gate doesn't close in automatic logic during pause even if a loop/photo is set as start	a) START IN PAUSE is not in ON b) The photo/loop input is not set as delay pause time	a) Put in ON the menu of START IN PAUSE b) Set in the photo/loop menu (delay pause time)
Gate doesn't have power to close or reach limit switch	a) Slow down not possible for that site due to heavy gate or inclination or not new installation	a) Put Slow Down in OFF
Obstruction in gates path does not cause gate to stop and reverse	a) Force adjustment needed	a) Refer to the Adjustment section to conduct the obstruction test and perform the proper force adjustment that is needed (sensitivity - torque)
Photoelectric sensor does not stop or reverse gate	a) Incorrect photoelectric sensor wiring b) Defective photoelectric sensor c) Photoelectric sensors installed too far apart	a) Check photoelectric sensor wiring. Retest that obstructing photoelectric sensor causes moving gate to stop, and may reverse direction b) Replace defective photoelectric sensor. Retest that obstructing photoelectric sensor causes moving gate to stop, and may reverse direction c) Move the photoelectric sensors closer together or use edge sensors instead
Edge Sensor does not stop or reverse gate	a) Incorrect edge sensor wiring b) Defective edge sensor	a) Check edge sensor wiring. Retest that activating edge sensor causes moving gate to stop and reverse direction b) Replace defective edge sensor. Retest that activating edge sensor causes moving gate to stop and reverse direction
Alarm sounds for 5 minutes or alarm sounds with a command	a) Double entrapment occurred (two obstructions within a single activation)	a) Check for cause of entrapment (obstruction) detection and correct. Press the reset button to shut off alarm and reset the operator.
Shadow loop does not keep gate at the open limit	a) Vehicle detector setup incorrectly b) Defective vehicle loop detector c) Wrong settings	a) Review Shadow loop detector settings. Adjust settings as needed b) Replace defective Shadow loop detector c) Check the photo2 menu is set on shadow loop
Accessories connected to the accessory power not working correctly, turning off or resetting	a) Accessory power protector active b) Defective control board	a) Disconnect all accessory powered devices and measure accessory power voltage (should be 23-30 Vdc). If voltage is correct, connect accessories one at a time, measuring accessory voltage after every new connection b) Replace defective control board
FAILURE 24VAUX	a) Overload or short-circuit on the output N°10 b) Burnt fuse	a) Check a short circuit on the cable b) Change fuse

TO THE ATTENTION OF BOTH INSTALLER AND END USER

MAINTENANCE: Periodically, based on the number of maneuvers performed over time and based on the type of operator, if a change in friction, malfunctioning or non-compliance with the previously set times are noticed, ***it would be advisable to reprogram the learning times on the control unit***

Periodically clean the optical systems of the photocells

REPLACEMENTS: Send request for spare parts to: ***SEA S.p.A. - Teramo - ITALY - www.seateam.com***

SAFETY AND ENVIRONMENTAL COMPATIBILITY: Disposal of packaging materials 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 waste collection)

This brand on the product or on documentation indicates that the product must not be disposed off together with other domestic waste at the end of its life cycle. In order to avoid any possible environmental or health damage caused by irregular waste disposal, we recommand to separate this product from other types of waste 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 to get all the information related to differential watse collection and recycling of this kind of product

STORING

WAREHOUSING TEMPERATURES			
T_{min}	T_{Max}	Dampness $_{min}$	Dampness $_{Max}$
- 20°C	+ 65°C	5% *not condensing*	90% *not condensing*

Materials handling must be made with appropriate vehicles

WARRANTY LIMITS - see the sales conditions

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

GENERAL NOTICE FOR THE INSTALLER AND THE USER

1. **Read carefully these Instructions** before beginning to install the product. Store these instructions for future reference
2. Don't waste product packaging materials and /or circuits.
3. 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 S.p.A. declines all liability caused by improper use or different use in respect to the intended one.
4. The mechanical parts must be comply with Directives: Machine Regulation 2006/42/CE and following adjustments), Low Tension (2006/95/CE), electromgnetic Consistency (2004/108/CE) Installation must be done respecting Directives: EN12453 and En12445.
5. Do not install the equipment in an explosive atmosphere.
6. SEA S.p.A. is not responsible for failure to observe Good Techniques in the construction of the locking elements to motorize, or for any deformation that may occur during use.
7. Before attempting any job on the system, cut out electrical power and disconnect the batteries. Be sure that the earthing system is perfectly constructed, and connect it metal parts of the lock.
8. Use of the indicator-light is recommended for every system, as well as a warning sign well-fixed to the frame structure.
9. SEA S.p.A. declines all liability as concerns the automated system's security and efficiency, if components used, are not produced by SEA S.p.A..
10. For maintenance, strictly use original parts by SEA.
11. Do not modify in any way the components of the automated system.
12. The installer shall supply all information concerning system's manual functioning in case of emergency, and shall hand over to the user the warnings handbook supplied with the product.
13. 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.
14. Transit through the leaves is allowed only when the gate is fully open.
15. 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 centers. User can apply only the manual function of emergency.
16. The power cables maximum length between the central engine and motors should not be greater than 10 m. Use cables with 2,5 mm^2 section. Use double insulation cable (cable sheath) to the immediate vicinity of the terminals, in particular for the 230V cable. Keep an adequate distance (at least 2.5 mm in air), between the conductors in low voltage (230V) and the conductors in low voltage safety (SELV) or use an appropriate sheath that provides extra insulation having a thickness of 1 mm.

TERMS OF SALES

EFFICACY OF THE FOLLOWING TERMS OF SALE: the following general terms of sale shall be applied to all orders sent to SEA S.p.A. All sales made by SEA to all costumers are made under the prescription of this terms of sales which are integral part of sale contract and cancel and substitute all apposed clauses or specific negotiations present in order document received from the buyer.

GENERAL NOTICE The systems must be assembled exclusively with SEA components, unless specific agreements apply. Non-compliance with the applicable safety standards (European Standards EM12453 – EM 12445) and with good installation practice releases SEA from any responsibilities. SEA shall not be held responsible for any failure to execute a correct and safe installation under the above mentioned standards.

1) PROPOSED ORDER The proposed order shall be accepted only prior SEA approval of it. By signing the proposed order, the Buyer shall be bound to enter a purchase agreement, according to the specifications stated in the proposed order.
On the other hand, failure to notify the Buyer of said approval must not be construed as automatic acceptance on the part of SEA.

2) PERIOD OF THE OFFER The offer proposed by SEA or by its branch sales department shall be valid for 30 solar days, unless otherwise notified.

3) PRICING The prices in the proposed order are quoted from the Price List which is valid on the date the order was issued. The discounts granted by the branch sales department of SEA shall apply only prior to acceptance on the part of SEA. The prices are for merchandise delivered ex-works from the SEA establishment in Teramo, not including VAT and special packaging. SEA reserves the right to change at any time this price list, providing timely notice to the sales network. The special sales conditions with extra discount on quantity basis (Qx, Qx1, Qx2, Qx3 formula) is reserved to official distributors under SEA management written agreement.

4) PAYMENTS The accepted forms of payment are each time notified or approved by SEA. The interest rate on delay in payment shall be 1.5% every month but anyway shall not be higher than the max. interest rate legally permitted.

5) DELIVERY shall take place, approximately and not peremptorily, within 30 working days from the date of receipt of the order, unless otherwise notified. Transport of the goods shall be at Buyer's cost and risk. SEA shall not bear the costs of delivery giving the goods to the carrier, as chosen either by SEA or by the Buyer. Any loss or damage of the goods during transport, are at Buyer's cost

6) COMPLAINTS Any complaints and/or claims shall be sent to SEA within 8 solar days from receipt of the goods, proved by adequate supporting documents as to their truthfulness.

7) SUPPLY The concerning order will be accepted by SEA without any engagement and subordinately to the possibility to get it's supplies of raw material which is necessary for the production; Eventual completely or partially unsuccessful executions cannot be reason for complains or reservations for damage. SEA supply is strictly limited to the goods of its manufacturing, not including assembly, installation and testing. SEA, therefore, disclaims any responsibility for damage deriving, also to third parties, from non-compliance of safety standards and good practice during installation and use of the purchased products.

8) WARRANTY The standard warranty period is 12 months. This warranty time can be extended by means of expedition of the warranty coupon as follows:

SILVER: The mechanical components of the operators belonging to this line are guaranteed for 24 months from the date of manufacturing written on the operator.

GOLD: The mechanical components of the operators belonging to this line are guaranteed for 36 months from the date of manufacturing written on the operator.

PLATINUM: The mechanical components of the operators belonging to this line are guaranteed for 36 months from the date of manufacturing written on the operator. The base warranty (36 months) will be extended for further 24 months (up to a total of 60 months) when it is acquired the certificate of warranty which will be filled in and sent to SEA S.p.A. The electronic devices and the systems of command are guaranteed for 24 months from the date of manufacturing. In case of defective product, SEA undertakes to replace free of charge or to repair the goods provided that they are returned to SEA repair centre. The definition of warranty status is by unquestionable assessment of SEA. The replaced parts shall remain propriety of SEA. Binding upon the parties, the material held in warranty by the Buyer, must be sent back to SEA repair centre with fees prepaid, and shall be dispatched by SEA with carriage forward. The warranty shall not cover any required labour activities.
The recognized defects, whatever their nature, shall not produce any responsibility and/or damage claim on the part of the Buyer against SEA. The guarantee is in no case recognized if changes are made to the goods, or in the case of improper use, or in the case of tampering or improper assembly, or if the label affixed by the manufacturer has been removed including the SEA registered trademark No. 804888. Furthermore, the warranty shall not apply if SEA products are partly or completely coupled with non-original mechanical and/or electronic components, and in particular, without a specific relevant authorization, and if the Buyer is not making regular payments. The warranty shall not cover damage caused by transport, expendable material, faults due to non-conformity with performance specifications of the products shown in the price list. No indemnification is granted during repairing and/or replacing of the goods in warranty. SEA disclaims any responsibility for damage to objects and persons deriving from non-compliance with safety standards, installation instructions or use of sold goods. The repair of products under warranty and out of warranty is subject to compliance with the procedures notified by SEA.

9) RESERVED DOMAIN A clause of reserved domain applies to the sold goods; SEA shall decide autonomously whether to make use of it or not, whereby the Buyer purchases propriety of the goods only after full payment of the latter.

10) COMPETENT COURT OF LAW In case of disputes arising from the application of the agreement, the competent court of law is the tribunal of Teramo. SEA reserves the faculty to make technical changes to improve its own products, which are not in this price list at any moment and without notice. SEA declines any responsibility due to possible mistakes contained inside the present price list caused by printing and/or copying. The present price list cancels and substitutes the previous ones. The Buyer, according to the law No. 196/2003 (privacy code) consents to put his personal data, deriving from the present contract, in SEA archives and electronic files, and he also gives his consent to their treatment for commercial and administrative purposes.

Industrial ownership rights: once the Buyer has recognized that SEA has the exclusive legal ownership of the registered SEA brand num.804888 affixed on product labels and / or on manuals and / or on any other documentation, he will commit himself to use it in a way which does not reduce the value of these rights, he won't also remove, replace or modify brands or any other particularity from the products. Any kind of replication or use of SEA brand is forbidden as well as of any particularity on the products, unless preventive and expressed authorization by SEA.

In accomplishment with art. 1341 of the Italian Civil Law it will be approved expressively clauses under numbers:
4) PAYMENTS - 8) GUARANTEE - 10) COMPETENT COURT OF LOW

NOTES

Automatic Gate Openers

International registered trademark n. 804888

SEA S.p.A.

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