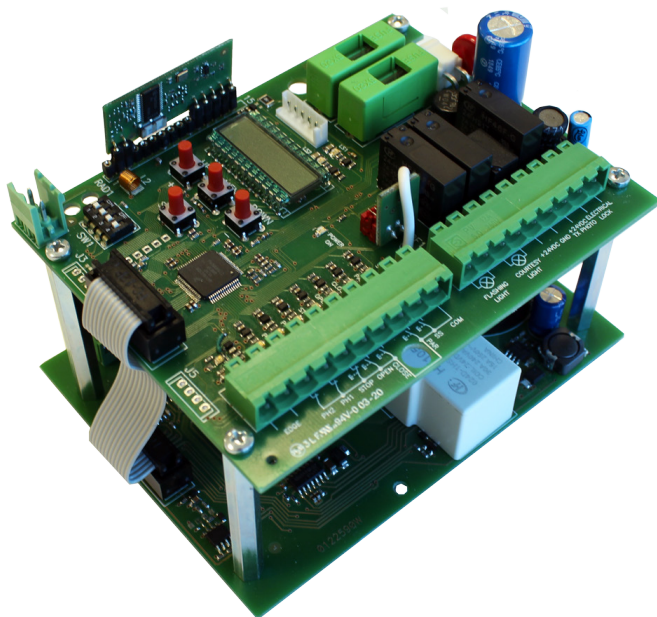




BIOS1 24 POWER

CONTROL UNIT FOR SLIDING GATES



1 - GENERAL WARNINGS



WARNING! Before installing the product, it is mandatory to read the document relating to **GENERAL SAFETY WARNINGS** supplied with the product. Document **6-1620001**.

The supplementary sheet can also be downloaded from www.allmatic.com.

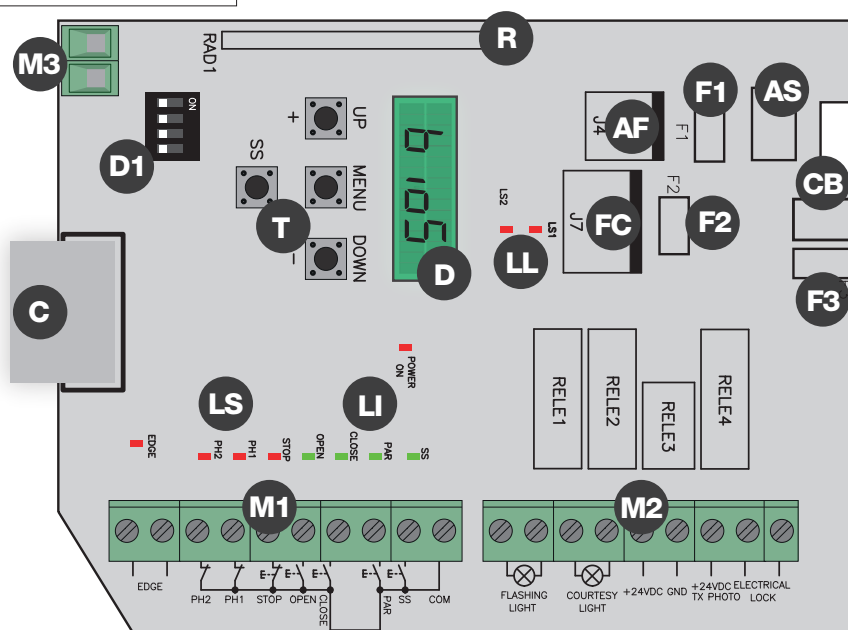
2 - PRODUCT DESCRIPTION

The control unit BIOS1 24 POWER is suitable for installations with a 24Vdc sliding motor. Its operation is easy and intuitive thanks to the display interface and the 4 buttons for menu navigation. The control panel allows precise adjustment of all parameters. The control unit can store up to 1000 transmitters (external memory) with the function step by step, partial opening, open and close. It is equipped with inputs for photocell opening and closing, safety edge (mechanical or resistive), limit switch closing/ opening and wired inputs for step, partial opening, open, close and stop. The outputs include a 24 Vac flashing light, 24 Vac courtesy light and 24 Vdc power supply accessories.

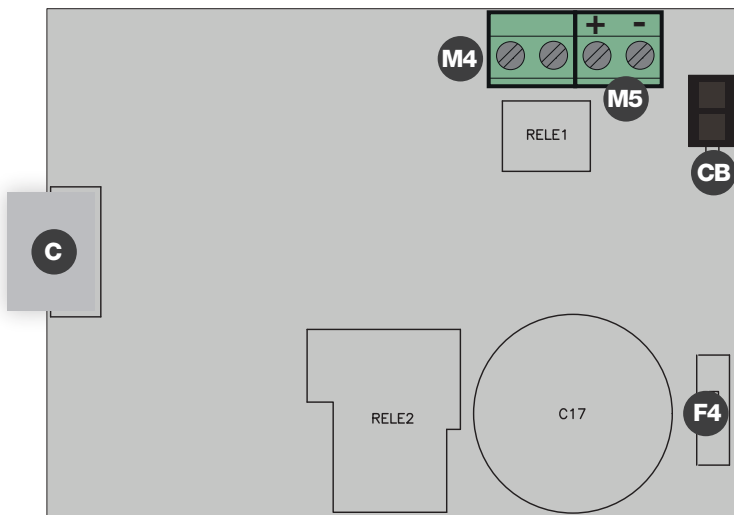
The use of buffer batteries is envisaged if it is necessary to ensure the temporary service in the absence of electricity.

CONTROL BOARD

Fig. 1



- **M1:** Terminal block connecting security devices and wired buttons (stop, open, close, partial, step-by-step)
- **M2:** Terminal block for flashing light, courtesy light, photocell power supply and accessories. Contact electrical lock.
- **M3:** Antenna and shield connection
- **D1:** DIP SWITCH for disabling unused safety features (ON = safety disabled)
- **T:** Keyboard for menu navigation and parameter configuration, 4 keys (MENU, UP, DOWN, SS)
- **D:** Display LCD
- **FC:** Mechanical limit switch terminal
- **AF:** Power supply for magnetic limit switch (optional)
- **AS:** 24Vac Power supply board (transformer)
- **R:** Radio Module
- **LS:** Security LEDs (PH1, PH2, STOP, EDGE)
ON = NO contact, normal function
OFF = state of alarm
- **LI:** Wired command's LEDs
(ON = active command, close contact)
- **LL:** Limit switch LED (ON = limit switch disengaged)
- **F1:** Fuse T2.5A for flashing protection and courtesy light
- **F2:** Fuse T0.5A for 24Vdc accessories protection
- **F3:** Fuse T0.5A for optional battery buffer protection
- **CB:** Battery charger connector (optional)
- **C:** Cable connector for communication between power board and control board



- **M4:** 24V motor output
- **M5:** 24V input for power supply
- **CB:** Battery charger connector (optional)
- **F4:** Fuse 30A for 24Vdc accessories protection
- **C:** Cable connector for communication between power board and control board

3 - PRELIMINARY CHECKS

WARNINGS!



Gate features must be uniformed with the standards and laws in force. The door/gate can be automated only if it is in a good condition and if its conditions comply with the EN 12604 norm.

The installation must be carried out only by qualified personnel.

Before starting the installation check that:

- The gate shall move frictionless.
- The door/gate leaf should not have a pedestrian opening. In the opposite case it is necessary to take the appropriate steps, in accordance with EN12453 norm (for instance: by preventing the operation of the motor when the pedestrian opening is opened, by installing a safety microswitch connected with the control panel).
- Don't generate entrapment points (for example between the open door of the gate and the gate)
- Besides the electrical or mechanical limit switches available on the operators, there must be, on both ends of the installation, a fixed mechanical stopper which stops the gate in the unlikely event of bad functioning of the limit switches on the operators. For this reason the fixed mechanical stopper must be of an adequate size to withstand the static and kinetic forces generated by the gate (A) (Fig. 3).
- The guide must be provided with two mechanical stops at its ends (A) (Fig. 4) to avoid the unintentional gate release.

WARNING! Eliminate the mechanical stops of the kind described by Fig. 4.

No mechanical stop shall be on top of the gate, since mechanical stops are not safe enough.

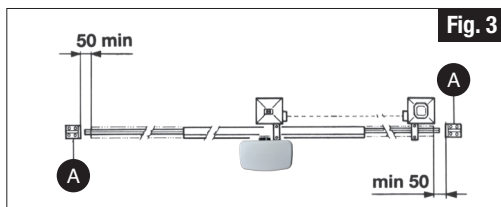


Fig. 3

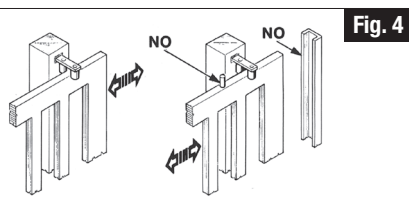


Fig. 4

3.1 - PARTS TO INSTALL MEETING THE EN 12453 STANDARD

COMMAND TYPE	USE OF THE CLOSURE		
	Qualified persons (out of public area*)	Qualified persons (public area)	Unrestricted use
with manned operation	A	B	not possible
with visible impulses (e.g. sensor)	C or E	C or E	C and D, or E
with not visible impulses (e.g. remote control)	C or E	C and D, or E	C and D, or E
automatic	C and D, or E	C and D, or E	C and D, or E
* a typical example are those shutters which do not have access to any public way A: Command button with manned operation (that is, operating as long as activated). B: Key selector with manned operation. C: Adjustable power of the motor. D: Safety strips and/or other safety devices to keep thrust force within the limits of EN12453 regulation - Appendix A. E: Photocells.			

3.2 - LIST OF THE SUGGESTED CABLES

The suggested cables for the connection of the various devices in a standard system are listed in the following list. The used cables must be suitable for the type of installation; for example, an H03VV-F type cable is recommended for indoor applications, while H07RN-F is suitable for outdoor applications.

Connection	Cable	Maximum lenght
Line for the power supply	3 x 1,5 mm ²	20 m *
Motor	2 x 1,5 mm ²	20 m *
Flashing light	2 x 0,5 mm ²	20 m
Courtesy light / Open automation light	2 x 0,5 mm ²	20 m
Photocells - transmitter	2 x 0,5 mm ²	20 m
Photocells - receiver	4 x 0,5 mm ²	20 m
Safety edge	2 x 0,5 mm ²	20 m
Key selector	4 x 0,5 mm ²	20 m

* If the cable is more than 20 m long, it must be of larger gauge and a safety grounding system must be installed near the automation unit.

3.3 - TECHNICAL CHARACTERISTICS

Transformer power supply	230Vac 50-60Hz
Fuse for transformer protection	T 2A
"BIOS1 24V POWER" power supply	24Vac 50-60Hz
Maximum power of the motor output	350 W
Flashing light output	24Vac 25W
Courtesy light / Open automation light output	24Vac 25W
24Vdc accessories power supply	24Vdc 5W
433MHz radio receiver	Rolling Code
Memorisable transmitters	1000
Operating temperature	-10°C ... +55°C

4 - SELECTION OF THE MOTOR



WARNING!
Before executing the learning of the strokes, the memorization of the transmitters and before performing any other setting, it is necessary to select the motorization in use, this allows to optimize the operation of BIOS1 24 POWER.

ACCESS TO THE ADVANCED MENU VOICE *dEF*, select the value corresponding to the motor to be controlled and perform a reset by completing the countdown on the display. Refer to the following table for the correct selection of the motor.

The procedure is as follows, in the example the KALOS XL POWER motor is selected (0):

WARNING! The procedure performs a restoration of the factory values causing the loss of any customizations. It does not affect the amplitude of the programmed strokes and the memorized transmitters.

0	KALOS XL POWER
1	KALOS XL POWERSPEED
2	NOT IN USE

1

2

3

4

5

6

7

8

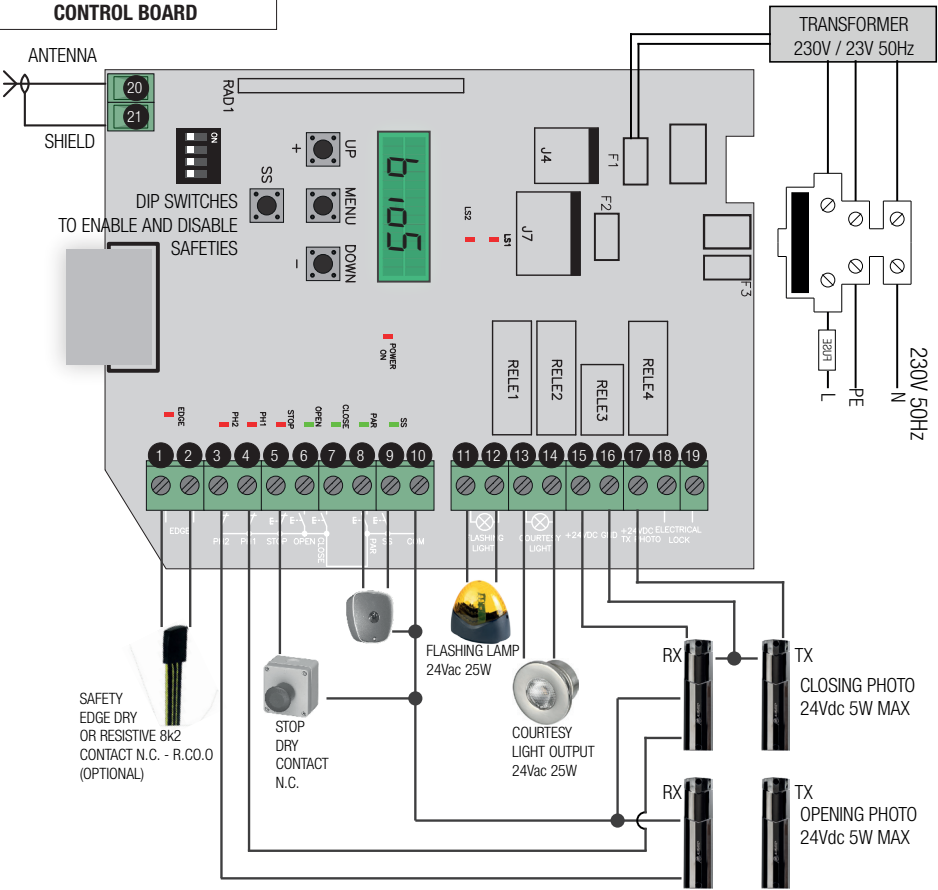
rilasciare per un istante
release for a while
relâchez pendant un moment
suelta por un rato
bir an için serbest bırakmak

5 - ELECTRICAL CONNECTIONS

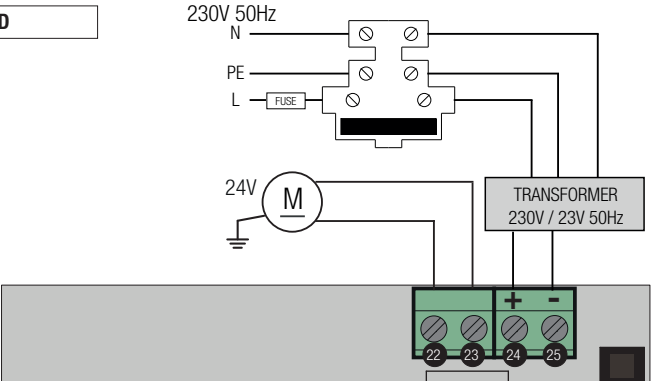


WARNING! Before making the connections, be sure that the control unit is not powered up.
SECURITY DIP-SWITCH: Set to "ON" to disable inputs EDGE, PH2, PH1 and STOP.
Eliminates the need to bridge the terminal board inputs
WARNING - with the dip switch ON, the safety devices are disabled.

CONTROL BOARD



POWER BOARD



NUMBER	NAME	DESCRIPTION
1-2	EDGE	Safety edge input (NC contact). Select the type of the used safety edge (mechanical or resistive) through the advanced menu $\mathcal{E}d\overline{t}$ and the mode of intervention with the advanced menu $\mathcal{E}d$. WARNING - with DIP EDGE on "ON" the input is disabled.
3-10	PH2 - COM	Opening photocell input (NC contact). The photocell intervenes at any time during the opening of the automation system and stops immediately the movement; the automation system will continue the opening when the photocell beam is free. In the event of intervention on closure (parameter $Ph2 = 0$), the automation stops and, when the beam is free, moves on opening. In the advanced item $Ph2$, it is possible to select the behaviour of the photocell. WARNING - with DIP PH2 on "ON" the input is disabled.
4-10	PH1 - COM	Closing photocell input (NC contact). The photocell intervenes at any time during the closing of the automation system, stops immediately and inverts the movement. The photocell doesn't intervene during the opening. In the advanced item SPh it is possible to select the behaviour of the photocell with the closed automation. WARNING - with DIP PH1 on "ON" the input is disabled.
5-10	STOP - COM	Connect the STOP command (NC contact). This input is classified as a safety device; the opening of the contact stops immediately the automation and it remains blocked up to the restoring of the state of the input contact. WARNING - with DIP STOP on "ON" the input is disabled.
6-10	OPEN - COM	Connect the button for the OPEN command (NO contact).
7-10	CLOSE - COM	Connect the button for the CLOSE command (NO contact).
8-10	PAR - COM	Connect the button for the PARTIAL OPENING command (NO contact).
9-10	SS - COM	Connect the button for the STEP-BY-STEP command (NO contact).
10	COM	Common for safety and command inputs.
11-12	FLASH	Flashing light output at 24Vac. Use a flashing light without self flashing card 24Vac 25W max.
13-14	OGL	Courtesy light / Open automation light output at 24Vac. Use a light 24Vac 25W max. The functioning of the auxiliary light and its activation time are managed from advanced menu $\mathcal{F}L\mathcal{Y}$ and $\mathcal{L}c\mathcal{Y}$.
15	+24VDC	+24Vdc accessories power supply. Used for the receiver of the photocells.
16	GND	0Vdc accessories power supply. WARNING - The control unit supplies up to a maximum of 200 mA (5W) for the accessories at 24Vdc.
17	+24VDC TX PHOTO	+24Vdc accessories power supply. Used for the transmitter of the photocells. This connection is necessary in case of use of the photocells test. It is possible to enable the photocells test from the advanced menu $\mathcal{L}Ph$.
18-19	ELECTRICAL LOCK	Connect Electrical Lock contact. WARNING! Use external power, the terminals only give activation contact.
20	ANTENNA	Connect the antenna.

NUMBER	NAME	DESCRIPTION
21	SHIELD	Connect the antenna shield.
22 - 23	MOTOR	24Vdc MOTOR power supply.
24	+24 VDC	+24Vdc "POWER BOARD" power supply.
25	0 VDC	0Vdc "POWER BOARD" power supply.

6 - REMOTE CONTROL LEARNING

The learning of a transmitter can be enabled with the "UP" button of the control unit or with the hidden key of a transmitter already memorized.

The BIOS1 24V POWER control unit can memorize up to 4 functions in as many keys of the remote control. During the learning procedure, described at paragraph 6.1, a single key is stored. So, it will be necessary to carry out up to 4 learnings for the assignment of all possible functions.

The functions will be assigned following the order below:

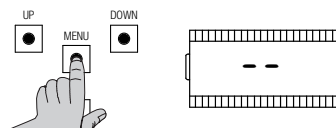
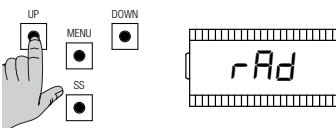

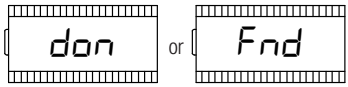

1st memorized key: STEP-BY-STEP function.

2nd memorized key: PARTIAL OPENING function.

3rd memorized key: OPEN function.

4th memorized key: CLOSE function.

6.1 - LEARNING OF A TRANSMITTER

1.	Make sure that the board is out from any programming menus. To quit, press briefly the "MENU" button until the display shows the state of the control unit.	
2.	Press and release the "UP" button. The display shows <i>rAd</i> .	
3.	Press the key of the remote control to be memorised within 10 seconds.	
4.	If the memorisation has been successful, the display shows <i>don</i> or <i>Fnd</i> (transmitter already memorized).	
5.	After 2 seconds the display will show the memory location of the memorized transmitter (for example 235).	

To memorise another key of the remote control (or a new transmitter), repeat the procedure from the point 2.

WARNING! - after 10 seconds of inactivity, the control unit exits from the learning phase (the display shows *EOLt*).

6.2 - LEARNING WITH THE HIDDEN KEY OF A TRANSMITTER ALREADY MEMORIZED

With stationary automation it is possible to press the hidden button of an already learned transmitter to open the radio memory of the control unit. This is equivalent to pressing the «UP» button on the control unit. Then follow the learning procedure from point 3 to 5 of the previous paragraph.

6.3 - CANCELLATION OF A SINGLE TRANSMITTER

1.	Make sure that the board is out from any programming menus. To quit, press briefly the "MENU" button until the display shows the state of the control unit.	
2.	Press and release the "UP" button or the hidden key of a transmitter already memorized. The display shows <i>rAd</i> .	
3.	Press at the same time the hidden key and the 1st key of the transmitter that you want to delete within 10 seconds.	
4.	If the deleting has been successful, the display shows <i>CLr</i> .	
5.	After 2 seconds the display will show the memory location of the deleted transmitter (for example 235).	

WARNING! - after 10 seconds of inactivity, the control unit exits from the learning phase (the display shows *LoUt*).

7 - SETTING OF THE STROKE

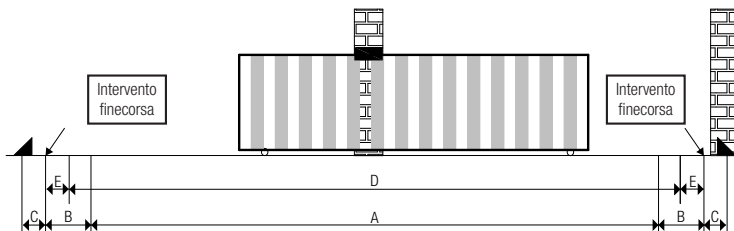
At the first power up, it is necessary to carry out a learning of the stroke for the acquisition of the stroke length and the slowdown areas. After this procedure the installation is complete. To customize the automation, proceed as described in the chapter 8.



WARNING!

Be sure that the limit switches are connected and correctly adjusted. Check with the advanced menu *dEF* (chapter 4) if the selected motor type is correct, before carrying out the learning.

A = area at running speed.
B = area at slowdown speed.
C = overstroke zone (the movement is at slowdown speed, if the slowdown is enabled).
D = intervention zone of the amperometric sensor with movement inversion (detects the obstacle).
E = intervention zone of the amperometric sensor with the stop of the movement and the setting of the reached position as total closing/opening position (resync area).

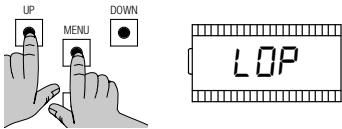
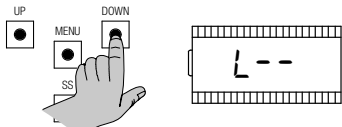
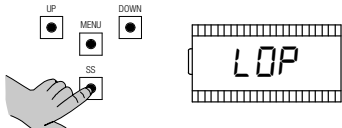
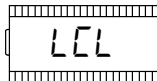

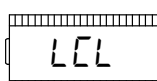


7.1 - EASY SETTINGS OF THE STROKE

With the simple learning the control unit autonomously performs all the procedure and calculation of slowdowns, which will be set with the same percentage both in opening and closing (base parameter $L5I$).

Before starting the procedure make sure you have installed the electric limit switches and have them properly adjusted.

Make a check of the settings and eventually customize them.

1.	Unlock the automation and move it to the middle of the stroke. Press at the same time the "UP" and "MENU" buttons for at least 5 seconds until the display shows LOP .	
2.	If the automation <u>DOESN'T MOVE</u> in opening, press the "DOWN" button to stop the learning. The display shows $L--$.	
3.	Press the "SS" button to restart the procedure: the automation moves in opening, at reduced speed, until it reaches the limit switch. In this phase the display shows LOP .	
4.	Reached the opening limit switch, the automation moves automatically in closing, at running speed, until it reaches the closing limit switch. In this phase the display shows LCL .	
5.	Reached the closing limit switch, the automation moves automatically in closing, at running speed, until it reaches the opening limit switch. In this phase the display shows LOP .	
6.	Reached the opening limit switch, the automation moves in closing at running speed and with the slowdowns set into the menu $L5I$.	

WARNING! in the event of a safety device intervention, the learning is stopped and will appear on the display $L--$. Press the "SS" button to start again the learning from the 3rd point.

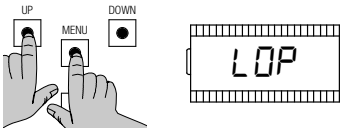
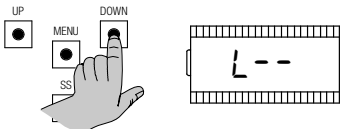
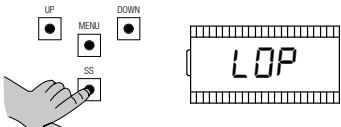
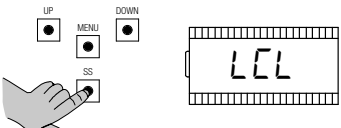
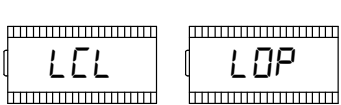
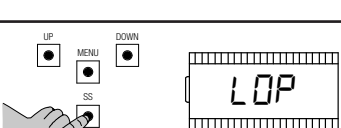
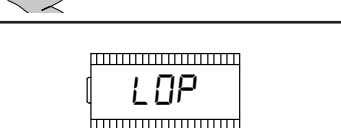
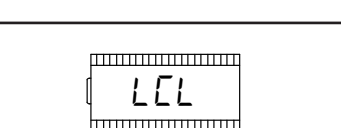
7.2 - ADVANCED SETTINGS OF THE STROKE

With personalized learning, the slowdowns will have to be set during the learning procedure and the amplitudes in the two directions will be independent.

Before starting the procedure make sure you have installed the electric limit switches and have them properly adjusted.

Make a check of the settings and eventually customize them.

Set the parameter $LS1 = P$ in the base menu (chapter 8.5).

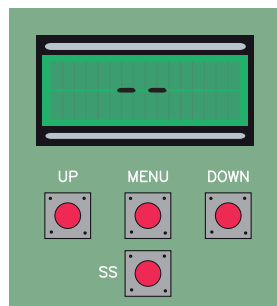
1.	Unlock the automation and move it to the middle of the stroke. Press at the same time the "UP" and "MENU" buttons for at least 5 seconds until the display shows LOP .	
2.	If the automation DOESN'T MOVE in opening, press the "DOWN" button to stop the learning. The display shows L-- .	
3.	Press the "SS" button to restart the procedure: the automation moves in opening, at reduced speed, until it reaches the limit switch. In this phase the display shows LOP .	
4.	Reached the opening limit switch, the automation moves automatically in closing, at running speed. When the automation reaches the position for the beginning of the slowdown, give a Step-by-Step command (SS). In this phase the display shows LCL .	
5.	The automation proceeds at slowdown speed until it reaches the closing limit switch. The automation moves automatically in opening, at running speed. In this phase the display shows LCL and then LOP .	
6.	When the automation reaches the position for the beginning of the slowdown, give a Step-by-Step command (SS). In this phase the display shows LOP .	
7.	The automation proceeds at slowdown speed until it reaches the opening limit switch. In this phase the display shows LOP .	
8.	Reached the opening limit switch, The automation moves in closing at running speed with slowdowns set.	

WARNING! In the event of a safety device intervention, the learning is stopped and will appear on the display **L--**. Press the "SS" button to start again the learning from the 3rd point.

8 - PROGRAMMING OF THE CONTROL UNIT

8.1 - DISPLAY

By pressing the "DOWN" button it is possible to read on the display the following parameters.



DISPLAY	DESCRIPTION
State showing (- -, OP , CL , ...)	Description of the control unit state. Refer to the follow table for the description of the single states of functioning.
Maneuvers performed, e.g.: 02.0 . (units) / 001 (thousands), that is 1020 cycles.	Maneuvers count: the display shows alternately the thousands (without dots) and the units (with dots).

8.2 - STATE OF THE CONTROL UNIT

DISPLAY	DESCRIPTION
- -	Standby - Automation closed or after the switch on of the control unit.
OP	Opening phase.
CL	Closing phase.
SO	Automation stopped by the user during the opening.
SC	Automation stopped by the user during the closing.
HA	Automation stopped by an external event (photocells, stop).
oP	Automation opened without automatic reclosing.
PE	Automation opened on partial opening position without automatic reclosing.
- tC	Automation opened with auto reclosing; in the last 10 seconds the dash will be replaced by the countdown.
- tP	Automation opened on partial opening position with auto reclosing; in the last 10 seconds the dash will be replaced by the countdown.

8.3 - DISPLAY SIGNALLINGS DURING THE FUNCTIONING

DISPLAY	DESCRIPTION
<i>rAd</i>	Visualized during the learning of transmitters.
<i>don</i>	Visualized when a new transmitter is memorized or at the end of a reset.
<i>Fnd</i>	Visualized when a key of a transmitter already memorized is stored.
<i>CLr</i>	Visualized when a transmitter is erased.
<i>LOP</i>	Visualized during the learning of strokes to indicate that the control unit is opening the automation.
<i>LL</i>	Visualized during the learning of strokes to indicate that the control unit is closing the automation.
<i>L--</i>	Visualized during the learning of strokes if there is an intervention of safety devices.
<i>SEE</i>	Visualized when the control unit waits for a transmitter signal, during the function of viewing of the memory location.
<i>not</i>	Visualized when the transmitter is not stored on the memory, during the function of viewing of the memory location.
<i>toUt</i>	Visualized when the control unit exits from the function of viewing of the memory location for inactivity.
<i>POWER</i>	Visualized when the power supply is not enough.

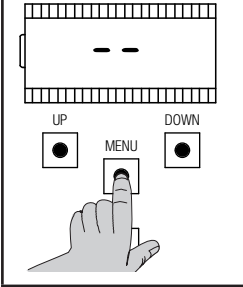
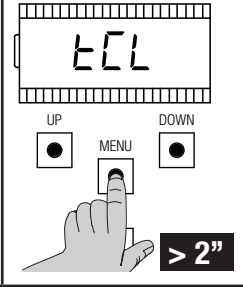
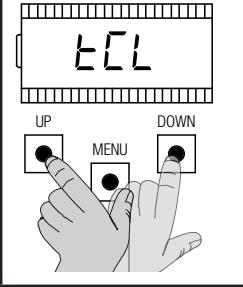
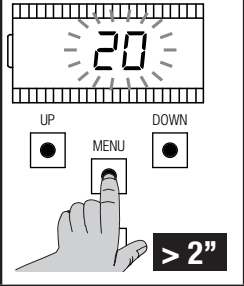
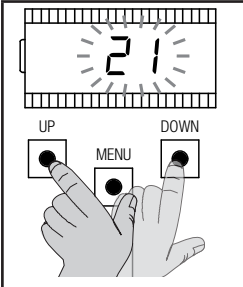
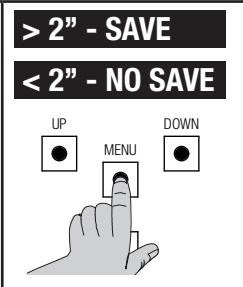
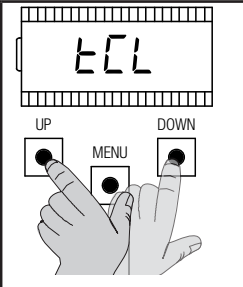
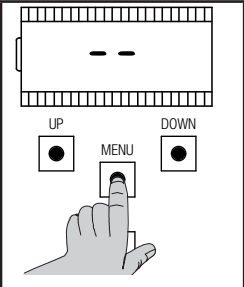
8.4 - LED SIGNALLINGS

LED	COLOUR	DESCRIPTION
RADIO	RED	Led ON with a radio transmission or interferences.
LS1	RED	Led is turned on when the limit switch is not activated.
LS2	RED	Led is turned on when the limit switch is not activated.
POWER ON	GREEN	Led normally ON. It shows the presence of the power supply.
SS	GREEN	Led normally OFF. It is turned on when the button is pressed.
PAR	GREEN	Led normally OFF. It is turned on when the button is pressed.
CLOSE	GREEN	Led normally OFF. It is turned on when the button is pressed.
OPEN	GREEN	Led normally OFF. It is turned on when the button is pressed.
STOP	RED	Safety signalling, Led normally ON.
PH1	RED	Safety signalling, Led normally ON.
PH2	RED	Safety signalling, Led normally ON.
EDGE	RED	Safety signalling, Led normally ON.

8.5 - CHANGE PARAMETERS - BASE MENU

It is possible to access to the BASE MENU to change the main parameters of the control unit. To enter the menu, proceed as described below. **WARNING** - after 2 minutes of inactivity the control unit automatically exits from the menu.

Example of accessing the base menu to modify the t_{CL} parameter.

			
<p>Make sure that the board is out from any programming menus (press briefly the "MENU" button).</p>	<p>To enter the basic menu, press and hold the "MENU" button for at least 2 seconds.</p>	<p>Use the "UP" or "DOWN" buttons to move inside the menu.</p>	<p>To enter the parameter, press and hold the "MENU" button for at least 2 seconds until the value blinks.</p>
			
<p>Use the "UP" or "DOWN" buttons to change the value.</p>	<p>To save the value, press and hold the "MENU" button for at least 2 seconds. To quit without saving, press briefly the "MENU" button.</p>	<p>Use the "UP" or "DOWN" buttons to move inside the menu.</p>	<p>To quit, press briefly the "MENU" button.</p>

	PARAMETERS	DESCRIPTION	DEFAULT KALOS XL 24 POWER	MIN	MAX	UM
1	t_{CL}	Auto reclosing time (0 = disabled).	0	0	900	s
2	t_{tr}	Auto reclosing time after transit (0 = disabled).	0	0	30	s
3	SE_n	Obstacle sensitivity with running speed (0 = disabled).	40	0	100	%
4	SE_L	Obstacle sensitivity during slowdowns (0 = disabled).	60	0	100	%

	PARAMETERS	DESCRIPTION	DEFAULT KALOS XL 24 POWER	MIN	MAX	UM
5	<i>SPn</i>	Running speed.	100	50	100	%
6	<i>SPL</i>	Slowdowns speed.	50	10	100	%
7	<i>Sbs</i>	Step-by-Step configuration: 0 = normal (AP-ST-CH-ST-AP-ST...). 1 = alternated STOP (AP-ST-CH-AP-ST-CH...). 2 = alternated (AP-CH-AP-CH...). 3 = condominium - timer. 4 = condominium with immediate auto reclosing.	0	0	4	
8	<i>bLt</i>	Behavior after the blackout: 0 = no action. 1 = closing.	0	0	1	
9	<i>LSI</i>	Amplitude of the slowdown areas. 0...100% = percentage of the stroke. P = personalized during the learning.	20	0	100	%
10	<i>ASL</i>	Anti slipping / Extra time.	15	0	300	s
11	<i>EnC</i>	Use of the Encoder: 0 = Not used. 1 = Detect obstacle and position. 2 = Detect obstacle. 3 = Detect position.	0	0	3	

NOTE - the parameters highlighted in grey depend on the selected motor. In the table are reported the data of the KALOS XL POWER motor. For more information, refer to chapter 8.7.

1. AUTO RECLOSING TIME *tCL*

Active when the automation is in the completely open position, the automation automatically closes after *tCL* . seconds. In this phase the display shows *-tCL* with the blinking dash, that during the last 10 seconds will be replaced by the count down. An opening command or the photocells intervention restarts the counting.

2. AUTO RECLOSING TIME AFTER TRANSIT *tEt*

If in the opening phase or in the completely open position the beam of the photocells is obscured and freed, the automation automatically closes after *tEt* seconds when the completely open position is reached. In this phase the display shows *-tEt* with the blinking dash, that during the last 10 seconds will be replaced by the count down.

3. OBSTACLE SENSITIVITY WITH RUNNING SPEED *SEn*

Adjust the obstacle sensitivity to ensure a correct functioning of the automation, it must stop if there is an obstacle but also it must ensure the complete movement in the worst conditions (exp. winter, hardening of motors, etc). After the adjustment of this parameter it is recommended to perform a complete movimentation (opening and closing) before trying the obstacle detection.

Lower values correspond to a greater thrust on the obstacle.

The intervention for obstacle stops the automation and makes a short inversion of the movement.

4. OBSTACLE SENSITIVITY DURING SLOWDOWNS AREA *SEL*

Adjust the obstacle sensitivity during the slowdown to ensure a correct functioning of the automation, it must stop if there is an obstacle but also it must ensure the complete movement in the worst conditions (exp. winter, hardening of motors, etc). After the

adjustment of this parameter it is recommended to perform a complete movimentation (opening and closing) before trying the obstacle detection.

Lower values correspond to a greater thrust on the obstacle.

The intervention for obstacle stops the automation and makes a short inversion of the movement.

5. RUNNING SPEED SP_n

Adjust the running speed to ensure a correct functioning of the automation. It is possible to adjust the percentage of speed between 50% and 100%.

WARNING - after the amendment of this parameter, it is necessary to carry out a new setting of the strokes.

6. SLOWDOWNS SPEED SPL

Adjust the slowdowns speed to ensure a correct functioning of the automation. It is possible to adjust the percentage of speed between 10% and 100% of the running speed SP_n .

WARNING - after the amendment of this parameter, it is necessary to carry out a new setting of the strokes.

7. STEP-BY-STEP CONFIGURATION (SS) $Sb5$

It is possible to set 5 different working modes for the SS command:

- $Sb5 = 0$: normal (AP-ST-CH-ST-AP-ST-CH-...).
Typical functioning of Step by Step. During the movement a SS command stops the automation.
- $Sb5 = 1$: alternated STOP (AP-ST-CH-AP-ST-CH-...).
Alternated functioning with STOP during the opening. During the opening phase a SS command stops the automation.
- $Sb5 = 2$: alternated (AP-CH-AP-CH-...).
The user cannot stop the automation during the movement with a SS command. A SS command during the movement inverts the movement.
- $Sb5 = 3$: condominium – timer.
A SS command only opens the automation. When the automation is completely open, if the command persists the control unit will wait until the opening of the contact before beginning the countdown of the automatic reclosing (if enabled), another SS command in this phase will restart the countdown of the automatic reclosing.
- $Sb5 = 4$: condominium with immediate auto reclosing.
Like condominium – timer (previous point) but during the countdown a SS command will close the automation.

8. BEHAVIOR AFTER THE BLACKOUT bLt

When the control unit switches on after a black-out, the behaviour of the control unit depends on the parameter bLt :

- $bLt = 0$: no action – when the control unit turns on the automation doesn't move until the first command. The first movement is an opening.
- $bLt = 1$: closing – at the turning on of the control unit it will perform a closing.

9. AMPLITUDE OF SLOWDOWN AREAS LSi

With this parameter it is possible to adjust the amplitude of the slowdown and eventually disable it ($LSi = 0$). If you need more precise or different slowdown between opening and closing it is possible to set the parameter LSi on P (personalized) and perform an advanced learning of strokes providing also the beginning of slowdowns during the learning.

10. ANTI SLIPPING / EXTRA TIME ASL

This parameter is used if the motor slips, the control unit adds ASL seconds to the movement, to ensure a complete movement of the automation also in the worst conditions.

11. USAGE OF THE ENCODER Enc

Parameter to determine how the motor encoder is used.

- $Enc = 0$: Not used.
- $Enc = 1$: Detect obstacle and position.
- $Enc = 2$: Detect obstacle.
- $Enc = 3$: Detect position.

8.6 - CHANGE PARAMETERS - ADVANCE MENU

This menu allows a more detailed setting of some parameters.

To enter the ADVANCED MENU, press and hold the "MENU" button for at least 5 seconds.

To change the parameters, proceed as described for the BASIC MENU.

WARNING - after 2 minutes of inactivity, the control unit exits automatically from the menu.

	PARAMETERS	DESCRIPTION	DEFAULT KALOS XL 24 POWER	MIN	MAX	UM
1	<i>Sni</i>	Intervention mode of the current sensor: 0 = disabled. 1 = complete (limit switch + obstacle). ¹ 2 = only obstacle detection in any point of the stroke. 3 = only end of the movement in any point of the stroke. ¹	2	0	3	
2	<i>Sit</i>	Intervention time of the current sensor.	2	1	10	x 100 ms
3	<i>Sdt</i>	The disabling time of the current sensor during the start of the motor.	15	1	30	x 100 ms
4	<i>Ura</i>	Acceleration ramp amplitude: 0 ... 30 = ramp amplitude. 55r = single step at 50% of the running speed. ² H5r = single step at 100% of the running speed. ²	5	0	30	x 100 ms
5	<i>dra</i>	Deceleration ramp amplitude.	10	0	30	x 100 ms
6	<i>SPh</i>	Functioning of closing photocell (PH1) moving from closed: 0 = check PH1. 1 = the automation opens also with PH1 obscured.	1	0	1	
7	<i>Ph2</i>	Functioning of opening photocell PH2: 0 = enabled in opening and closing. 1 = enabled only in opening.	0	0	1	
8	<i>tPh</i>	Photocells test: 0 = disabled. 1 = enabled on PH1 2 = enabled on PH2 3 = enabled on PH1 and PH2	0	0	3	
9	<i>Edi</i>	Safety edge type: 0 = mechanical contact (NC). 1 = resistive (8k2).	1	0	1	
10	<i>iEd</i>	Operation mode of safety edge: 0 = working only in closing with inversion of movement. 1 = stops the automation (both opening and closing) and free the obstacle (short inversion).	1	0	1	
11	<i>Ebt</i>	Deceleration ramp due safety edge intervention.	100	0	100	x 10 ms
12	<i>Ert</i>	Time of movement inversion due safety edge intervention.	20	0	20	x 100 ms

	PARAMETERS	DESCRIPTION	DEFAULT KALOS XL 24 POWER	MIN	MAX	UM
13	tEd	Safety edge test: 0 = disabled. 1 = enabled.	0	0	1	
14	LPo	Partial opening.	30	0	100	%
15	tPC	Auto reclosing time from partial opening (0 = disabled).	0	0	900	s
16	FPr	Blinker output mode: 0 = fix. 1 = blinking.	1	0	1	
17	tPr	Pre-flashing time (0 = disabled).	0	0	10	s
18	FCY	Courtesy light settings: 0 = at the end of the movement, light ON for a tCY time. 1 = on if the automation is not closed + tCY time. 2 = on if the courtesy light timer (tCY) is not expired. 3 = open automation light on/off. 4 = open automation light with proportional flashing.	0	0	4	
19	tCY	Courtesy light time.	180	0	900	s
20	dEA	DEAD-MAN mode: 0 = disabled. 1 = enabled.	0	0	1	
21	SEr	Threshold of cycles for assistance request. Once the limit is reached the next cycles will be done with fast blinking (only if FPr is enabled). 0 = disabled.	0	0	100	x 1000 cicli
22	SEF	Continuous blinking for assistance request (done only with closed automation): 0 = disabled. 1 = enabled.	0	0	1	
23	$r li$	Not in use.				
24	iPr	Pressure of the motor in closed position. ²	0	0	480	min
25	$iurE$	Function for the mechanical relaxation of the motor. ²	0	0	10	x 50 ms
26	SFt	SOFT STOP function.	10	0	20	x 100 ms
27	EnP	Time of motor encoder	22	4	80	ms
28	dEF	Restore default settings depending on the motor type: 0 = KALOS XL POWER 1 = KALOS XL POWERSPEED 2 = not in use	0	0	2	
29	trS	Viewing of the memory location for a single transmitter.				
30	trC	Cancellation of a single transmitter.				

	PARAMETERS	DESCRIPTION	DEFAULT KALOS XL 24 POWER	MIN	MAX	UM
31	<i>ErF</i>	Cancelling all transmitters. Enter to modify the parameter and then keep pressed the "MENU" button, a count down appears that ends with <i>don</i> on the display.				
32	<i>Sl d</i>	Not in use.				

¹ : **WARNING - do not use on the sliding motors.**

² : These values are not suggested for the sliding motors.

NOTE - the parameters highlighted in grey depend on the selected motor. In the table are reported the data of the KALOS XL POWER motor. For more information, refer to chapter 8.7.

1. MODE OF THE SENSOR INTERVENTION *Sn̄i*

It is possible to select 4 intervention types for the current sensor that detect the motor blocked:

- *Sn̄i* = 0 : the sensor is disabled.
- *Sn̄i* = 1 : complete functioning. Intervention for obstacle detection in the central zone of the stroke and intervention for the ends of the movement in the areas near the limit switch. **Do not use with sliding gates.**
- *Sn̄i* = 2 : the sensor intervenes only for obstacle detection in any position.
- *Sn̄i* = 3 : the sensor intervenes only as end of the movement in any position. **Do not use with sliding gates.**

2. INTERVENTION TIME OF THE SENSOR *St*

Time after which intervenes the sensor for the motor blocked detection (current sensor) with an obstacle.

3. DISABLING TIME DURING THE START OF THE MOTOR *Stt*

Time in which the current sensors is disabled during the start of the motor.

4. ACCELERATION RAMP *UrA*

This parameter allows to set the acceleration ramp amplitude during the start of the motor. Higher is the value and longer will be the ramp. With *UrA* = 0, the ramps are disabled and the motor starts directly at the running speed or at the slowdown speed, depending on the position during the stroke.

In addition to the numerical values, there are 2 additional options:

- *SSr* : the motor starts at the 50% of the running speed for 0,6 seconds.
- *HSr* : the motor starts at the 100% of the running speed for 0,6 seconds.

5. DECELERATION RAMP *drA*

This parameter allows to set the deceleration ramp amplitude from the running speed to the slowdown speed. Higher is the value and longer will be the ramp.

6. FUNCTIONING OF PH1 FROM CLOSED POSITION *SPh*

The closing photocell has the following functioning:

- Closing: immediate inversion of the movement.
- Opening from an intermediate position: no intervention.
- Opening from closed position:
 - *SPh* = 0 : the automation doesn't move if PH1 beam is cut.
 - *SPh* = 1 : the automation moves also if PH1 beam is cut.

7. FUNCTIONING OF PH2 *Ph2*

The opening photocell has the following functioning:

- Opening: stops the movement and waits until the beam is freed, then moves in opening.
- Closing:
 - *Ph2* = 0 : stops the movement and waits until the beam is freed, then moves in opening.
 - *Ph2* = 1 : no intervention.

8. PHOTOCELLS TEST ϵPh

By enabling this function, before each movement starting from steady automation, the control unit does a functional check of the photocells. The check will not be done in case of fast movement after the intervention of a safety device. Follow paragraph 5 for the connections of the photocells.

9. SAFETY EDGE TYPE $Ed\bar{i}$

The control unit can work with two different types of safety edges:

- $Ed\bar{i} = 0$: mechanical edge with normally closed contact.
- $Ed\bar{i} = 1$: resistive edge 8,2Kohm.

10. OPERATION MODE OF SAFETY EDGE iEd

To allow the installation of the safety edges in both the directions of movements, it is possible to choose 2 different functionings:

- $iEd = 0$: only in closing with total inversion of the movement.
- $iEd = 1$: in both directions of movements, it stops and short inversion of the movement to free the obstacle.

11. DECELERATION RAMP DUE THE SAFETY COAST INTERVENTION Ebt

Through this parameter it is possible to adjust the duration of the deceleration ramp in case of the safety edge intervention. With $Ebt = 0$ there is an immediate interruption of the movement due the intervention of the safety edge.

12. REVERSE TIME ON SAFETY EDGE INTERVENTION Ert

Through this parameter it is possible to adjust the time of reversal of the movement of the gate due the intervention of the safety edge. You can configure the value from a minimum of 0.1 seconds (1), short inversion stroke, to a maximum of 2 seconds (20), prolonged inversion.

13. SAFETY EDGE TEST ϵEd

By enabling this function the control unit does a functional check of the safety edge. This function is used if the edge connected to the control unit has an electronic self test (e.g. radio edge R.CO.O). Connect the test contact of the edge to the power supply of the transmitter of the photocells (chapter 5) and enable the self test with low voltage 0Vdc (for the compatibility follow the instruction of the safety edge with the electronic self test).

14. PARTIAL OPENING $\epsilon P\Delta$

Partial opening can be performed only starting from a closed position. The parameter sets the opening like a percentage of the total stroke.

15. AUTO RECLOSING TIME FROM PARTIAL OPENING ϵPC

Active when the automation is in the partial opening, it automatically closes after ϵPC seconds. In this phase the display shows $-\epsilon C$ with the blinking dash, that during the last 10 seconds will be replaced by the count down.

16. FLASHING LIGHT OUTPUT MODE FPr

It is possible to choose 2 different functionings for the blinker output:

- $FPr = 0$: fixed output. It will be necessary to connect a self flashing blinker (B.RO LIGHT 24 Vac).
- $FPr = 1$: flashing output. It will be necessary to connect a fix light blinker (B.RO LIGHT FIX 24 Vac).

17. PRE-FLASHING TIME ϵPr

Pre-flashing before each movement in both directions, ϵPr seconds of pre-flashing..

18. COURTESY LIGHT SETTINGS Fcy

The control unit has 4 different functionings for the courtesy light:

- $Fcy = 0$: the light switches off at the end of a movement after ϵcy seconds.
- $Fcy = 1$: the light switches off only with closed automation after ϵcy seconds.
- $Fcy = 2$: lighted on for ϵcy seconds from the beginning of a movement, independently on the conditions of the automation (the light could switch off before the end of the movement).
- $Fcy = 3$: open automation light. The light switches off immediately when the automation reaches the closed position.
- $Fcy = 4$: open automation light with proportional blinking:
 - Opening: slow blinking.
 - Closing: fast blinking.

- Opened: light on.
- Closed: light off.
- Stopped: 2flash + long wait + 2flash + long wait + ...

19. COURTESY LIGHT TIME LCY

Activation time of the courtesy light.

20. DEAD-MAN MODE dEA

During the DEAD MAN functioning mode the automation moves only with a permanent command.

The enabled commands are OPEN and CLOSE. SS and PED are disabled. During the dead man functioning all the automatic movements are disabled, like short or total inversions. All safety devices are disabled except for STOP.

21. SETTING THE CYCLES THRESHOLD FOR ASSISTANCE REQUEST $SE-$

It is possible to set a number of cycles before the request of assistance. Once the limit is reached, the next cycles will be done with a fast blinking (only if $FP_r = 1$).

22. CONTINUOUS FLASHING LIGHT FOR ASSISTANCE REQUEST SEF

Once the limit SEF is reached the flashing light will blink also with the automation closed to show the request of assistance.

23. PARAMETER r_{ir}

Not in use.

24. PRESSURE OF THE MOTOR IN CLOSED POSITION r_{Pr}

This function is used to keep the pressure of the motors on the mechanical stop, performed only with closed automation. The control unit performs 1 minute of closing every r_{Pr} minutes to keep the pressure on the mechanical stops..

WARNING - Do not use with sliding gates.

25. MECHANICAL RELAXATION r_{rE}

Function for the mechanical relaxation of the motor: it is useful on those motors that have the unlock for the manual movement which can remain locked due to the pressure of the motor on the mechanical stop. When it arrives on the mechanical stop, opening or closing, the motor will do a short inversion of $r_{\text{rE}} \times 50\text{ms}$.

NOTE - with r_{Pr} with function enabled (pressure of the motor in closed position), the mechanical relaxation is performed only on the first positioning on the mechanical stop.

WARNING - Do not use with sliding gates.

26. SOFT STOP FUNCTION SFE

Through the SFE parameter it is possible to adjust the deceleration ramp in case of voluntary user stop or in case of photocell intervention. **WARNING!** The parameter does not change the deceleration ramp in case of coast intervention. Range from 0 seconds (0) to 2 seconds (20) of deceleration.

27. TIME OF MOTOR ENCODER EnP

Encoder output pulse length, at motor full speed.

28. RESTORE DEFAULT SETTINGS dEF

With the item of the menu dEF it is possible to restore the default settings of the control unit. The reset will restore all the parameters of the base and advanced menu, but doesn't modify the learnt strokes.

Move to dEF then press and hold the "MENU" button until the display shows a number (for example 0), then release the button.

Select the used motor with the "UP" and "DOWN" buttons:

- 0 : KALOS XL POWER.
- 1 : KALOS XL POWERSPEED.
- 2 : not used.

Press and hold the "MENU" button until the number stops blinking, then release the button. Press and hold the "MENU" button, the display will show a count down d80, d79, ..., d01 don't release the button until the display shows $d00$.

WARNING - to know the type of the selected motor, move on the item menu dEF : the display shows alternating the dEF and the selected motor. If a parameter changes (that depends on the motor type, see chapter 8.7), on the display will also appear the letter c (for example c_{ir}).

29. VIEWING OF THE MEMORY POSITION FOR A SINGLE TRANSMITTER E-r5

With the item of the menu E-r5 it is possible to view the memory location in which a transmitter is memorized.

To perform the function, move to E-r5 and then confirm by pressing the "MENU" button. Keep pressed the "MENU" button until the display will show SEE , then release the button.

At this point press a button of the memorized transmitter (it does not active any command). The display shows:

- the memory location for 2 seconds, if is memorized;
- the written noE for 2 seconds, if is not memorized.

After 2 seconds the display returns to the screen SEE and it will be possible to perform this function with another transmitter.

To exit the function, press the "MENU" button. Otherwise, after 15 seconds without transmission, the control unit exits the function and shows the written EoUE .

30. CANCELLATION OF A SINGLE TRANSMITTER E-rC

With the item of the menu E-rC it is possible to delete a single transmitter from the memory.

To perform the function, move to E-rC and then confirm by pressing the "MENU" button. Keep pressed the "MENU" button until the display will show 0 , then release the button. Select the memory location of the transmitter. Press and hold the "MENU" button until the display will show CLr , then release the button.

To exit the function, press the "MENU" button. If the display shows the written Err there are problems with the memory (for example empty position or disconnected memory).

31. CANCELLING ALL THE TRANSMITTERS E-rF

With the item of the menu E-rF it is possible to erase all the transmitters learnt.

Move to E-rF , then keep pressed the "MENU" button until the display shows 0 , then release the button. Press again and keep pressed the "MENU" button, the display will show a count down d80 , d79 , ..., d01 do not release the button until the display shows don .

32. PARAMETER Sl d

Not in use.

8.7 - DEFAULT VALUES

The BIOS1 24V POWER control unit has the possibility to select the used motor. This allows to set, as defaults, some parameters for the optimal functioning of the motor.

Here below, the table of the parameters with the default values assigned that depend on the motor.

MENU	DISPLAY	SHORT DESCRIPTION	DEFAULT VALUES	
			KALOS XL POWER	KALOS XL POWERSPEED
BASE	<i>SEn</i>	Obstacle sensitivity with running speed.	40	20
BASE	<i>SEL</i>	Obstacle sensitivity during slowdowns.	60	20
BASE	<i>SPn</i>	Running speed.	100	100
BASE	<i>SPL</i>	Slowdowns speed.	50	40
BASE	<i>ASL</i>	Anti slipping / Extra time.	15	10
BASE	<i>EnC</i>	Use of the encoder.	0	1
ADVANCED	<i>Si t</i>	Intervention time of the current sensor.	2	10
ADVANCED	<i>Sdt</i>	Disabling time of the current sensor during the start of the motor.	15	30
ADVANCED	<i>UrA</i>	Acceleration ramp amplitude.	5	10
ADVANCED	<i>drA</i>	Deceleration ramp amplitude.	10	10
ADVANCED	<i>Ebt</i>	Deceleration ramp due safety edge intervention.	100	100
ADVANCED	<i>Ert</i>	Time of movement inversion due safety edge intervention.	20	5
ADVANCED	<i>SFt</i>	SOFT STOP function.	10	10
ADVANCED	<i>EnP</i>	Time of the encoder.	22	5
ADVANCED	<i>dEF</i>	Restore default settings.	0	1

WARNING - to know the type of the selected motor, move on the item menu *dEF*: the display shows alternating the *dEF* and the selected motor. If a parameter changes, on the display will also appear the letter *c* (for example *c i*).

9 - MALFUNCTION SIGNALLINGS

DISPLAY	DESCRIPTION
<i>E_{TE}</i>	Memory error: the external memory not installed or not recognised.
<i>EEx</i>	Memory error during the writing: the value x is a number from 1 to 6. In the event of the error, contact the technical assistance.
<i>ELS</i>	Limit switches error: opening and closing limit switches are busy in the same time.
<i>EFD</i>	Impact sensor intervention.
<i>EEd</i>	Safety edge intervention.
<i>EPH</i>	Malfunctioning of photocells.
<i>E_{th}</i>	Thermal intervention to preserve the control unit.
<i>FUL</i>	Full external memory.
<i>E_{rr}</i>	Memory error during functions viewing memory location or cancellation of a single transmitter.

NOTE - The visualization of an error on the display persists until the "DOWN" button is pressed or until another command is given.



WARNING! The restore from an EEx error must be carried out through one of the 3 buttons of the control unit (UP, MENU or DOWN).

WARNING! If the supply fuse blows with the motor blocked, check the intervention thresholds of the current sensor. A correct configuration of the SEN and SEL parameters limits the possibility of failure of the power supply fuse. To avoid the intervention of the supply fuse in the condition of motor block it is advisable to use the inversion function on the obstacle.

10 - DISPOSAL OF THE PRODUCT

As for installation operations, the disassembly of this product must be carried out by qualified personnel. The symbol on the side indicates that the product should not be disposed of as unsorted waste, but should be sent to separate collection facilities for recovery and recycling. For disposal check the recycling or disposal systems provided by the territorial regulations in force for this category of product, or return the product to the seller.

WARNING - • This product consists of various types of materials: some parts of the product may contain pollutants or dangerous substances that, if dispersed, could cause harmful effects to the environment and health. • Local regulations may provide for heavy penalties in the event of incorrect disposal of this product.



10 - WARRANTY

The manufacturer's warranty is valid by law from the date printed on the product and is limited to the free repair or replacement of parts recognized by the manufacturer as defective due to lack of essential qualities in the materials or for errors in the production process. The warranty does not cover damage or defects due to external agents, lack of maintenance, overload, normal wear, installation error, or other causes not attributable to the manufacturer. Tampered products will not be covered by warranty. The manufacturer is not responsible for malfunctions or degradation of performance due to environmental interference, such as electromagnetic disturbances; therefore, the warranty expires in these situations.

[illegible]

[illegible]



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