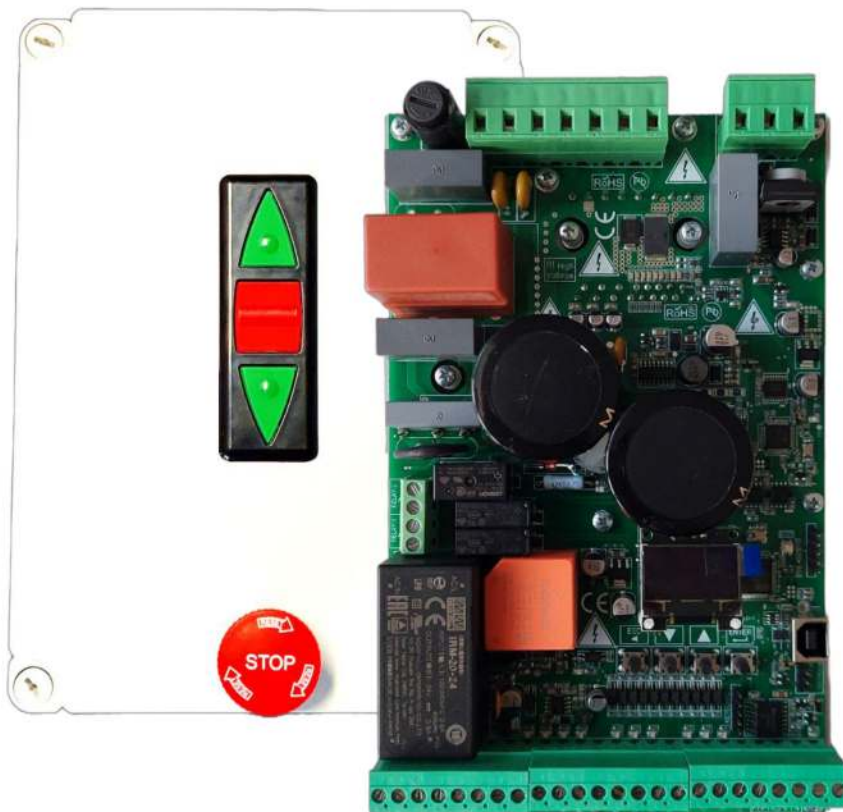


» TABLETA ELECTRONICA PARA OPERADOR ELECTROMECHANICO MARCA ELSAMEC MOD.ALKES PLUS.

elsamec 
gears for comfort



ALKES PLUS
COD. 79280002



Instruction manual for installation, operation and maintenance



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IMPORTANT NOTICE FOR THE INSTALLER

GENERAL SAFETY REGULATIONS

ATTENTION! Incorrect installation can entail serious risks! Follow closely instructions and keep aside.

Improper installation or misuse of the product will cause very serious damages to persons.

Read the instructions carefully before installing the product.

This apparatus has been manufactured respecting the strictest safety standards in force, and is in conformity with the European Directives 2006/95/CE (ex 73/23/CE), and EMC 2004/108/CE (ex 89/366/CE).

The installation will have to be done in respect of the standards in force on the subject of installations in the Country; the manufacturer declines all responsibilities for incorrect installations or improper use of the product. In order to be at standards, the installation should include an omnipolar sectionalizing switch, the contacts of which should have a minimum opening distance of 3mm. For the electrical wiring, if not directly specified, and with low-voltage command on board, use cable CEI 20-22 3x1,5 max diameter 10,6 mm for feeding the system, and a cable CEI 20-22 4x0,5 max diameter 8mm. without ground wire, for the push-button or key-switch activation, which must comply with EN 60335-2-95.

THE MOTOR MUST BE CONNECTED TO GROUND!

Before starting to install the motor, remove all element left from previous installations. Install the motor at a height of minimum 2,5 mtrs. Place the commands of the motors (key-switch etc.) far from any moving part but as near as to check the movement of the shutter, at a minimum height of 1,5 mtrs: The systems for hand override must be always in service and easily accessible. **Strictly follow indications given in these instructions. If the hand override cannot be operated from the outside, make sure that the room is serviced by a secondary entrance.**

After the installation:

verify the movements of the shutter (keep people away from the shutter until it has completely closed);

verify the correct functioning of the limit-switch;

specific safety devices must be installed to avoid that accidental or unwanted operations of opening or closing of the shutter could represent a danger for persons or things that might interfere with the movement of the shutter;

verify the correct functioning of the hand override and instruct all users on the correct use of it.

ONCE THE INSTALLATION IS FINISHED, THE INSTALLER MUST INSTRUCT THE END USER ABOUT THE CORRECT FUNCTIONING OF THE WHOLE SYSTEM, AND ABOUT PROCEDURES IN CASE OF FAILURE.

This product has been designed and manufactured only for the use stated in this manual. Any other use not expressly set forth will affect the reliability of the product and/or could be source of hazard.

Elsamec srl cannot be held responsible for any damage caused by improper use or different from the use for which the automation system is destined to.

Do not use this device in areas subject to explosion: the presence of flammable gas or fumes is a serious hazard.

Elsamec srl cannot be held responsible for failure to observe technical standards in the construction of gates and doors, or for any deformation of the gates which may occur during use.

Installation must comply with recent regulations.

Countries outside the EC shall follow the regulations above besides their national normative references in order to offer the utmost safety.

Elsamec srl cannot be held responsible regarding safety and correct functioning of the automation in the event that parts other than Elsamec srl original parts are used.

Use only Elsamec srl original spare parts for maintenance operations.

Do not carry out any modifications to automation components.

The installer must supply all information regarding manual operation of the system in the event of an emergency and provide the end-user with the leaflet attached to the product.

Keep out of persons when the product is in operation.

Keep out of reach of children the remote radio controls and any control devices. The automation could be operated unintentionally.

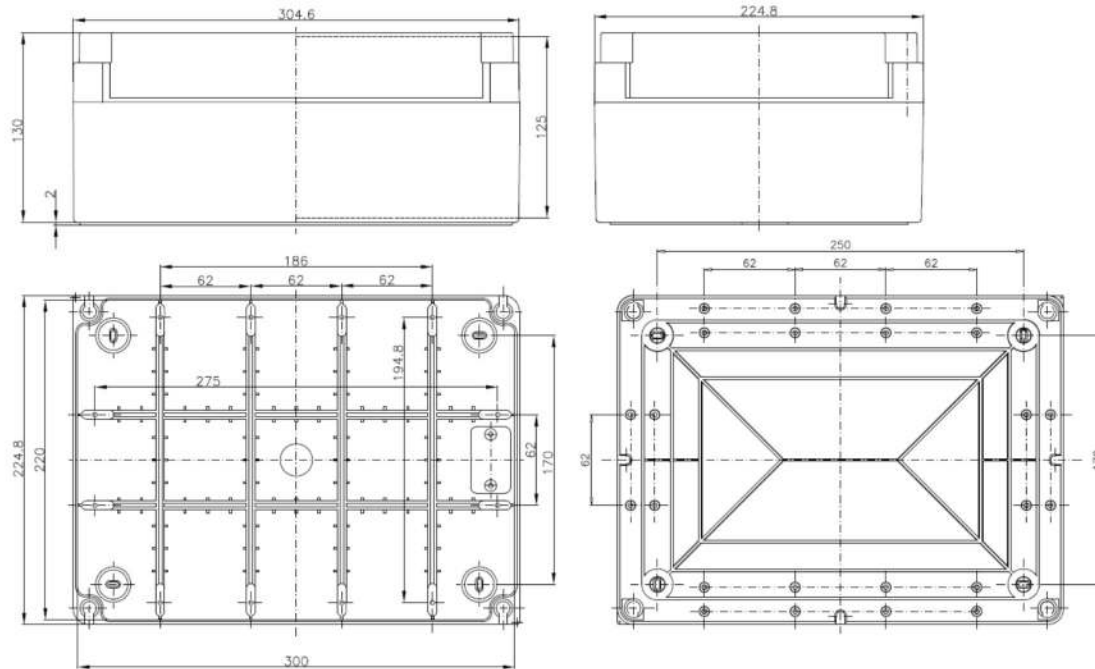
The end-user must avoid any attempt to repair or adjust the automation personally. These operations must be carried out exclusively by qualified personnel.

What is not explicitly stated in these instructions is not permitted.



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TECHNICAL DRAWINGS



TECHNICAL FEATURES

USE DESTINATION: This electronic board is designed and manufactured for the management of Side Gearmotors for rapid doors and industrial shutters, intended for the control of vehicular and pedestrian access, especially for industrial automations with high performance, which guarantee integrated logic opening and closing times.

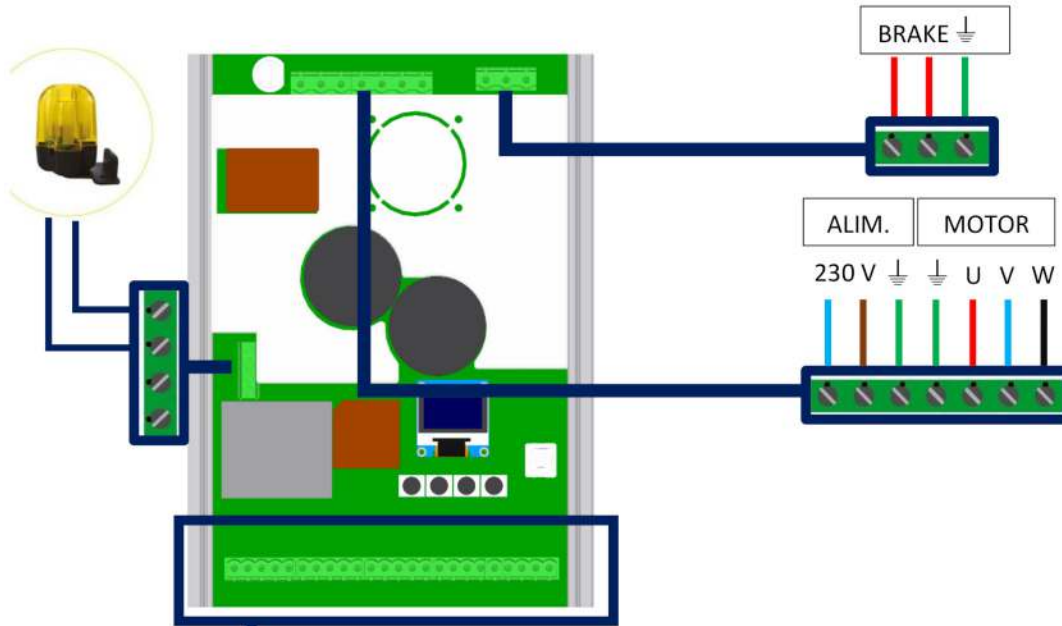
Different operating logics can be chosen by programming.

Power supply	110-230 Vac, 50-60 Hz
Motor output	Three-phase 230Vac
Engine power	Max 2.2 kW
Brake output	10 - 300VDC
Flasher output	Single phase 230Vac
Button input	Contact N.O.
Stop input	Contact N.C.
Photocell input	Contact N.C.
Safety input (thermal protection)	Contact N.C.
Radar input	Contact N.O.
Accessory power supply	12VDC - 650 mA (total max 7.5W, for powers superior use an external transformer)
Operating temperature	-20°C / +60°C
Dimensions	200 x 125 x 75 mm



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1. FIRST INSTALLATION INSTRUCTIONS FOR ALKES PLUS INVERTER



COMMON	1	COM1
24 DC-OUTPUT	2	+24V
24 DC-OUTPUT	3	+24V
COMMON	4	COMMON
24 DC-TEST	5	INV-TEST
COMMON	6	COMMON
8K2 INPUT	7	INP-8K2
PHOTO N.C.	8	PHCTO
SAFETY N.C.	9	SAFETY
PEDESTRIAN N.O.	10	PED.
RADAR N.O.	11	RADAR
COMMON	12	COMMON
DN-LIMIT TERM. N.C.	13	DN_LIM
UP-LIMIT TERM. N.C.	14	UP_LIM
START N.O.	15	START
COMMON	16	COMMON
CLOSE N.O.	17	CLOSE
OPEN N.O.	18	OPEN
STOP N.C.	19	STOP
COMMON	20	COMMON
COMMON	21	COMMON
ENCODER (A)	22	PH-A
ENCODER (B)	23	PH-B
+12VDC - OUTPUT	24	+12V

1	COMMON 0V
2	OUTPUT +24 V ACCESSORIES
3	OUTPUT +24 V ACCESSORIES
4	COMMON 0V
5	PHOTOCELLS TEST OUTPUT +24V
6	COMMON 0V
7	ADMISSION COSTS 8K2
8	FOTECCELLULE INPUT (NC)
9	MOTOR THERMAL PROTECTION INPUT (NC)
10	PEDESTRIAN ENTRANCE (NO)
11	RADAR INPUT (NO)
12	COMMON 0V
13	INPUT END OF STROKE CLOSURE (NC)
14	INPUT END OF STROKE OPENING (NC)
15	INPUT START (NO)
16	COMMON 0V
17	ENTRANCE CLOSURE (NO)
18	ENTRANCE OPENING (NO)
19	INPUT STOP (NC)
20	COMMON 0V

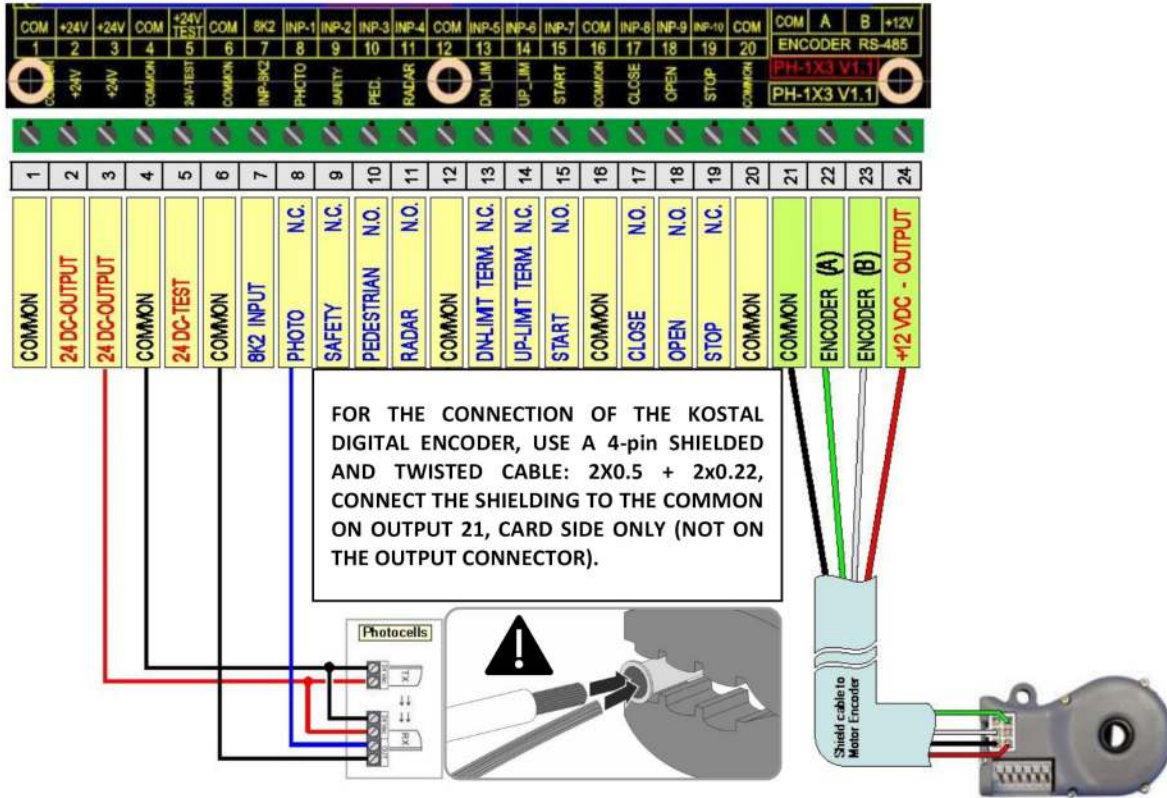
DIGITAL LIMIT SWITCH ENCODER KOSTAL	
21	COMUNE 0V (ENCODER RS485)
22	INGRESSO SEGNALE (A) (ENCODER RS485)
23	INGRESSO SEGNALE (B) (ENCODER RS485)
24	USCITA +12 V (ENCODER RS485)



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CONNECTION OF ACCESSORIES (PHOTCELLS, ENCODERS, START)



MEANING OF THE PUSH BUTTON CONTROL



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2. INSTALLATION PREPARATION PROCEDURES

MEANING OF THE DISPLAY AND BUTTONS ON THE BOARD



1. Firmware Version

During startup and for a few seconds, the firmware version will be displayed.

2. Screensaver

The screen will enter screensaver mode after 2 minutes of menu inactivity.

3. Display Status

After startup, the status screen will be displayed. The following information will be displayed:

- Opening Percentage-Calculated from current position and stored upper and lower limits.
- Amperage and voltage-Current load through power electronics and voltage across DC capacitors.
- Temperature - Temperature in degrees Celsius of the power electronics.
 - Up/Down - A moving symbol will appear to indicate the action of opening or closing.

4. Settings

To enter the list of settings, press the **ENTER** button ↵. Press **ESC** ← to return to the status display. The menu will automatically return to the state after 1 minute of inactivity.

Use the **UP** ↑ and **DOWN** ↓ buttons to navigate the settings. Press **ENTER** ↵ to start changing a setting and change the value with **UP** ↑ and **DOWN** ↓. Press **ENTER** ↵ again to store the new value or **ESC** ← to return to the previously stored value.

LIMIT SWITCH TYPE SELECTION AND CALIBRATION

Enter the menu and proceed to the selection of Limit Switch Type, press **ENTER** ↵ and select **FINAL LIMIT SWITCH** or **SLOW LIMIT SWITCH** or **KOSTAL** for electronic limit switch. Press **ENTER** ↵ to make and confirm the selection.

Enter **MANUAL MOVE** and check with **UP** ↑ and **DOWN** ↓ keys for correspondence with the direction of the door. If there is no correspondence, arrange to reverse the outputs **U, V, W** to the motor (e.g. **U** with **W**). Also check that the mechanical limit switches are installed correctly; if so, arrange to reverse the dedicated inputs **13** and **14** as well.



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Next step before adjusting the limit switch is to carry out the limit switch calibration procedure: select limit switch calibration option and proceed to move downward with the **DOWN ↓** key, if in the case of mechanical limit switch you are already in the closed position, move the door upward with the **UP ↑** key until you move away from the switch (making sure that the signal LED above input **13** lights up) and repeat the downward movement with the **DOWN ↓** key until you read **OK** confirmation.

LIMIT SWITCH ADJUSTMENT

Keep in mind that the central unit has factory default settings, if they are not changed you can proceed with the adjustment.



WHEN LIMIT SWITCH ADJUSTMENT IS COMPLETED, IF ONE OR MORE SETTINGS ARE CHANGED, THE PROCEDURE MUST BE REPEATED

FINAL LIMITS SWITCH

For a classic mechanical limit switch (final limit), it is only necessary to follow the calibration instructions displayed. However, the pedestrian opening needs to be adjusted: Enter the menu and proceed to the selection **POSITIONING SET PEDESTRIAN**. Move the door to the desired position and press **ENTER ↵** to confirm.

SLOW LIMITS SWITCH AND KOSTAL

In the case of slow limit switch, make sure that you have adjusted and positioned the limits correctly, Verifying that the limit switch is activated at the beginning of deceleration. Leave a margin of about 15 cm from the desired position, to be adjusted later during positioning.

Enter the menu and proceed to the **POSITIONING SET LOW**, move the door to the closed position and press **ENTER ↵** to confirm.

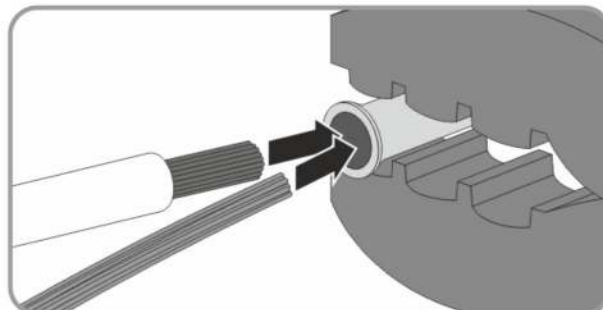
Enter the menu and proceed to the selection **POSITIONING SET HIGH**, move the door to the open position and press **ENTER ↵** to confirm.

Enter the menu and proceed to the selection **POSITIONING SET PEDESTRIAN**, move the door to the desired position and press **ENTER ↵** to confirm.

Check the correct operation by acting on the push button panel, make about 3 complete maneuvers in order to make the door behavior come into effect.



FOR THE CONNECTION OF THE KOSTAL DIGITAL ENCODER, USE A 4-pin SHIELDED AND TWISTED CABLE: 2X0.5 + 2X0.22, CONNECT THE SHIELDING TO THE COMMON ON OUTPUT 21, CARD SIDE ONLY (NOT ON THE OUTPUT CONNECTOR).



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3. FUNCTIONS AND SETTINGS OPENING

OPEN SPEED SETTING

To set the opening speeds, enter the menu and proceed to the selection **OPEN SPEED**, press **ENTER** ↵ and select a value between 10 and 80Hz. Press **ENTER** ↵ To make and confirm the choice.

SLOW OPEN SPEED SETTING

To set the opening slowdown before the door reaches the limit switch enter the menu and proceed to the **SLOW OPEN** selection, press **ENTER** ↵ and select a value between 10 and 80Hz. Press **ENTER** ↵ to make and confirm the selection.

SLOW OPEN RANGE SETTING

To set the slow open range interval before the door reaches the limit switch, enter the menu and proceed to the **SLOW OPEN RANGE** selection, press **ENTER** ↵ and select a value between 0 and 30%. Press **ENTER** ↵ to make and confirm the selection.

CLOSE SPEED SETTING

To set the closing speeds enter the menu and proceed to the **CLOSE SPEED** selection, press **ENTER** ↵ and select a value between 10 and 80Hz. Press **ENTER** ↵ to make and confirm the selection.



BEFORE PROCEEDING TO CHANGE THE CLOSING SPEED, CHECK THAT THE GRIPPING SPEED OF THE FALL ARREST SYSTEM IS SUITABLE FOR THE SET SPEED.

SLOW CLOSE SPEED SETTING

To set the closing slowdown before the door reaches the limit switch enter the menu and proceed to the **SLOW CLOSE SPEED** selection, press **ENTER** ↵ and select a value between 10 and 80Hz. Press **ENTER** ↵ to make and confirm the selection.

SLOW CLOSE RANGE SETTING

To set the closing deceleration interval before the door reaches the limit switch enter the menu and proceed to the **SLOW CLOSE RANGE** selection, press **ENTER** ↵ and select a value between 0 and 30%. Press **ENTER** ↵ to make and confirm the selection.



WHEN LIMIT SWITCH ADJUSTMENT IS COMPLETED, IF ONE OR MORE SETTINGS ARE CHANGED, THE PROCEDURE MUST BE REPEATED



ALL SUBSEQUENT FUNCTIONS WILL BE AVAILABLE BY ENTERING THE ADVANCED MENU, BY PRESSING ESC ← AND UP ↑ SIMULTANEOUSLY

ACCELERATION AND DECELERATION RAMP

To set the acceleration ramp enter the **ACCELERATION** menu, press **ENTER** ↵ and select a value between 10 and 240 Hz. Press **ENTER** ↵ to make and confirm your choice.

To set the deceleration ramp enter the **DECELERATION** menu, press **ENTER** ↵ and select a value between 10 and 240 Hz. Press **ENTER** ↵ to make and confirm your choice.

AUTOMATIC CLOSING TIME SETTING

Automatic closing time is defined as the required pause time before the door automatically closes again after an opening pulse from START, RADAR, or OPEN from push button. To set the automatic



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closing, enter the advanced menu by pressing **ESC ←** and **UP ↑** simultaneously, scroll down to **OPEN MODE**, press **ENTER ↵** and select **AUTOCLOSE**. Press **ENTER ↵** to make and confirm your choice. To set the automatic closing time enter the **AUTO CLOSE** menu, press **ENTER ↵** and select a value between 1 and 60 seconds or disable. Press **ENTER ↵** to make and confirm your choice.

PEDESTRIAN AUTOMATIC CLOSING TIME SETTING

Pedestrian automatic closing time means the required pause time before the door automatically closes again after an opening pulse from the pedestrian button. To set the pedestrian automatic closing, enter the advanced menu by pressing **ESC ←** and **UP ↑** simultaneously, scroll down to **OPEN MODE**, press **ENTER ↵** and select **AUTOCLOSE**. Press **ENTER ↵** to make and confirm your choice. To set the pedestrian automatic closing time, enter the **AUTO CLOSE PEDESTRIAN** menu, press **ENTER ↵** and select a value between 1 and 60 seconds or disable. Press **ENTER ↵** to make and confirm the choice.

SETTING AUTOMATIC CLOSING TIME PHOTOCELLS

Automatic photocells closing time means the required pause time before the door automatically closes again after going through the door when it is in the fully open position. To set the photocells automatic closing, enter the advanced menu by pressing **ESC ←** and **UP ↑** simultaneously, scroll down to **OPEN MODE**, press **ENTER ↵** and select **AUTOCLOSE**. Press **ENTER ↵** to make and confirm your choice. To set the photocell automatic closing time, enter the **AUTO CLOSE PHOTOCCELL** menu, press **ENTER ↵** and select a value between 1 and 60 seconds or disable. Press **ENTER ↵** to make and confirm your choice.

SAFETY TIME SETTING

Safety time is defined as the required safety working time in case of failure if the board disables operation.

To set the safety time enter the **SAFETY TIME** menu, press **ENTER ↵** and select a value between 1 and 120 seconds or disable. Press **ENTER ↵** to make and confirm your choice.

MOTOR BOOST

Motor Boost refers to the additional thrust to the motor in case a frequency drop occurs during operation. It may be needed to support lifting heavy doors from a standstill. To set the motor boost enter the **MOTOR BOOST** menu, press **ENTER ↵** and select a value from 0 to 30Hz. Press **ENTER ↵** to make and confirm your choice.

LAMP AND PREFLASH MODE

To set Lamp enter the **LAMP MODE** menu, press **ENTER ↵** and select active or semaphore. Press **ENTER ↵** to make and confirm your choice.

To set the opening preflash, enter the **LAMP PREFLASH OPEN** menu, press **ENTER ↵** and select a value between 1 and 60 seconds or disable. Press **ENTER ↵** to make and confirm the choice.

To set the closing preflash, enter the **LAMP PREFLASH CLOSE** menu, press **ENTER ↵** and select a value between 1 and 60 seconds or disable. Press **ENTER ↵** to make and confirm the choice.

PHOTOCCELL MODE AND EXCLUSION

To set photocell operation enter the **PHOTOCCELL MODE** menu, press **ENTER ↵** and select with test, without test or disable. Press **ENTER ↵** to make and confirm your choice.



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To set photocell exclusion enter the **PHOTOCELL EXCLUSION** menu, press **ENTER** ↵ and select a value between 1 and 75% or disable. Press **ENTER** ↵ to make and confirm your choice.

BUTTON OPERATION (START, STOP, OPEN, CLOSE)

To set the operation of the start button enter the **START MODE** menu, press **ENTER** ↵ and select open only or step-by-step. Press **ENTER** ↵ to make and confirm your choice.

To set the operation of the stop button enter the **STOP MODE** menu, press **ENTER** ↵ and select active or disable. Press **ENTER** ↵ to make and confirm the choice. To set the operation of the opening button enter the **OPENING BUTTON** menu, press **ENTER** ↵ and select full opening, man present, slow opening or auto closing. Press **ENTER** ↵ to make and confirm the selection.

To set the operation of the close button enter the **CLOSE MODE** menu, press **ENTER** ↵ and select full close, man present or slow close. Press **ENTER** ↵ to make and confirm the selection.

UPS MODE

To set up UPS operation in case of power loss enter the **UPS ACT ON** menu, press **ENTER** ↵ and select no action or open. Press **ENTER** ↵ to make and confirm your choice.

To set up UPS operation in the event of power return enter the **UPS ACT OFF** menu, press **ENTER** ↵ and select no action or close. Press **ENTER** ↵ to make and confirm your choice.

To set the operating speed in case of UPS operation enter the **UPS MODE SPEED** menu, press **ENTER** ↵ and select a value between 5 and 50 Hz. Press **ENTER** ↵ to make and confirm your choice.



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PARAMETRI STANDARD

Open Speed	[50 Hz]
Slow Open Speed	[20 Hz]
Slow Open Range	[15%]
Close Speed	[40 Hz]
Slow Close Speed	[20 Hz]
Slow Close Range	[15%]
Acceleration	[240 Hz/s]
Deceleration	[240 Hz/s]
Auto Close	[DISABLED]
Auto Close Pedestrian	[DISABLED]
Auto Close Photocell	[DISABLED]
Safety Time	[DISABLED]
Motor Boost	[15%]
Lamp Preflash Open	[DISABLED]
Lamp Preflash Close	[DISABLED]
Lamp mode	[OPERATION]
Photocell Mode	[WITHOUT TEST]
Photocell Exclusion	[20%]
Start Mode	[ONLY OPEN]
Stop Mode	[ENABLED]
Open Mode	[FULL OPEN]
Close Mode	[FULL CLOSE]
UPS Act ON	[NO ACTION]
UPS Act OFF	[NO ACTION]
UPS Mode Speed	[10 Hz]
Motor Base	[60 Hz]
Max Current	[12 A]
Max Current Duration	[5 s]
Capacitor Voltage	[320 VDC]
Capacitor Over-Voltage	[350 VDC]
Capacitor Under-Voltage	[280 VDC]
Capacitor Fault Duration	[5 s]
Overheat limit	[80 °C]
Overheat hysteresis	[20 °C]
Fan temperature	[60 °C]
Fan hysteresis	[20 °C]
Obstacle Sensitivity	[DISABLED]
Brake voltage	[30 VDC]
Brake pre-arm voltage	[210 VDC]
Brake pre-arm time	[300 ms]
Brake mode	[OPERATION]



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