• Last version of this manual

IP2413EN • 2026/01/15

Ditec EL500E

Installation manual for digital control unit for 3-phase motors with encoder or mechanical limit switches

(Translation from original instructions)

PAGE INTENTIONALLY LEFT BLANK

INDEX

IP2413EN

⚠ This symbol indicates instructions or notes regarding safety, to which special attention must be paid.

ℹ This symbol indicates useful information for the correct operation of the product.

GENERAL SAFETY PRECAUTIONS FOR TECHNICAL PERSONNEL

ATTENTION! Please follow these instructions carefully • Failure to observe the information given in this manual may lead to severe personal injury or damage to the equipment • Keep these instructions for future reference.

ATTENTION! Disconnect the power supply before any cleaning or maintenance operation • This manual and those for any accessories can be downloaded from www.ditecautomations.com

This installation manual is intended for qualified personnel only •Installation, electrical connections and adjustments must be performed by qualified personnel, in accordance with Good Working Methods and in compliance with the current regulations • Read the instructions carefully before installing the product. Wrong installation could be dangerous • Before installing the product, make sure it is in perfect condition • The packaging materials (plastic, polystyrene, etc.) should not be discarded in the environment or left within reach of children, as they are a potential source of danger • Do not install the product in explosive areas and atmospheres: the presence of inflammable gas or fumes represents a serious safety hazard • Make sure that the temperature range indicated in the technical specifications is compatible with the installation site • Before installing the motorization device, make sure that the existing structure, as well as all the support and guide elements, are up to standards in terms of strength and stability. Verify the stability and smooth mobility of the guided part, and make sure that no risks of fall or derailment subsist. Make all the necessary structural modifications to create safety clearance and to guard or isolate all the crushing, shearing, trapping and general hazardous areas • The motorization device manufacturer is not responsible for failure to observe Good Working Methods when building the frames to be motorized, or for any deformation during use • The safety devices (photocells, safety edges, emergency stops, etc.) must be installed taking into account the applicable laws and directives, Good Working Methods, installation premises, system operating logic and the forces developed by the motorized door or gate • The safety devices must protect against crushing, cutting, trapping and general danger areas of the motorized door or gate. Display the signs required by law to identify hazardous areas. Each installation must bear a visible indication of the data identifying the motorized door or gate • Before connecting the power supply, make sure the plate data correspond to those of the mains power supply. An omnipolar disconnection switch with a contact opening distance of at least 3 mm must be fitted on the mains supply. Check that there is an adequate residual current circuit breaker and a suitable overcurrent cutout upstream of the electrical installation in accordance with Good Working Methods and with the laws in force • When requested, connect the motorized door or gate to an effective earthing system that complies with the current safety standards • Before commissioning the installation to the end user, make sure that the automation is adequately adjusted in order to satisfy all the functional and safety requirements, and that all the command, safety, and manual release devices operate correctly • During installation, maintenance and repair operations, cut off the power supply before opening the cover to access the electrical parts • The protection cover of the operator must be removed by qualified personnel only • The electronic parts must be handled using earthed antistatic conductive arms. The manufacturer of the motorization declines all responsibility if component parts not compatible with safe and correct operation are fitted • Only use original spare parts for repairing or replacing products • The installer must supply all information concerning the automatic, manual and emergency operation of the motorized door or gate, and must provide the user with the operation and safety instructions.

Description

Specific use

- The control unit is specific for doors moved by a single motor.
- Safely operation are guaranteed only with the normal specific use.
- Ditec is not responsible for improper use or non-compliance with safety instruction contained in this manual.
- No-changes are permetted, otherwise the declaration of conformity will be considered void.

WARNING: i it is recommended to activate the impulsive mode only after having completed the set-up and adjustments of the control unit. In particular, during the limit switches adjustment select only the deadman operation mode.

Spare parts

- Use only original spare parts.

EC Declaration of Conformity

We:
ASSA ABLOY Entrance Systems AB
Lodjursgatan 10
SE-261 44 Landskrona
Sweden

Declare under our sole responsibility that the types of equipment with names:

Ditec EL500E	Control units for sectional doors 400 V 3~ or 230 V 3~ operators

Comply with the following directives and their amendments:

2014/35/EU	Low Voltage Directive (LVD)
2014/30/EU	Electromagnetic Compatibility Directive (EMCD)
2011/65/EU	Restriction of hazardous substances (RoHS 2)
2015/863/EU	Restriction of hazardous substances (RoHS 2 Amendment)

Harmonized European standards that have been applied:

EN 61000-6-3 (2007) + A1:2011 Emission – Residential
EN 61000-6-2 (2019) Immunity – Industry
EN 60335-1:2012 + A11:2014 + A13:2017 + A14:2019 + A15:2021
EN 60335-2-103 (2015)

The manufacturing process ensures the compliance of the equipment with the technical file.

Responsible for technical file:

Matteo Fino
BSP Ind channel & Gate Automation
Ditec S.p.A.
Largo U. Boccioni, 1
21040 Origgio (VA)
Italy

Signed for and on behalf of ASSA ABLOY Entrance Systems AB by:

Place	Date	Signature	Position
Origgio	2026/01/15	Matteo Fino	Head of Ind channel & Gate Automation

IP2413EN

UK Declaration of Conformity

We:
ASSA ABLOY Entrance Systems AB
Lodjursgatan 10
SE-261 44 Landskrona
Sweden

Declare under our sole responsibility that the types of equipment with names:

Ditec EL500E Control units for sectional doors 400 V 3~ or 230 V 3~ operators

Comply with the following directives and their amendments:

- Electrical Equipment (Safety) Regulations 2016
- Electromagnetic Compatibility Regulations 2016
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (RoHS)

Harmonized European standards that have been applied:

EN 61000-6-3 (2007) + A1:2011 Emission – Residential
EN 61000-6-2 (2019) Immunity – Industry
EN 60335-1:2012 + A11:2014 + A13:2017 + A14:2019 + A15:2021
EN 60335-2-103 (2015)

The manufacturing process ensures the compliance of the equipment with the technical file.

Responsible for technical file:

Matteo Fino
BSP Ind channel & Gate Automation
Ditec S.p.A.
Largo U. Boccioni, 1
21040 Origgio (VA)
Italy

Signed for and on behalf of ASSA ABLOY Entrance Systems AB by:

Place	Date	Signature	Position
Origgio	2026/01/15	Matteo Fino	Head of Ind channel & Gate Automation

IP2413EN

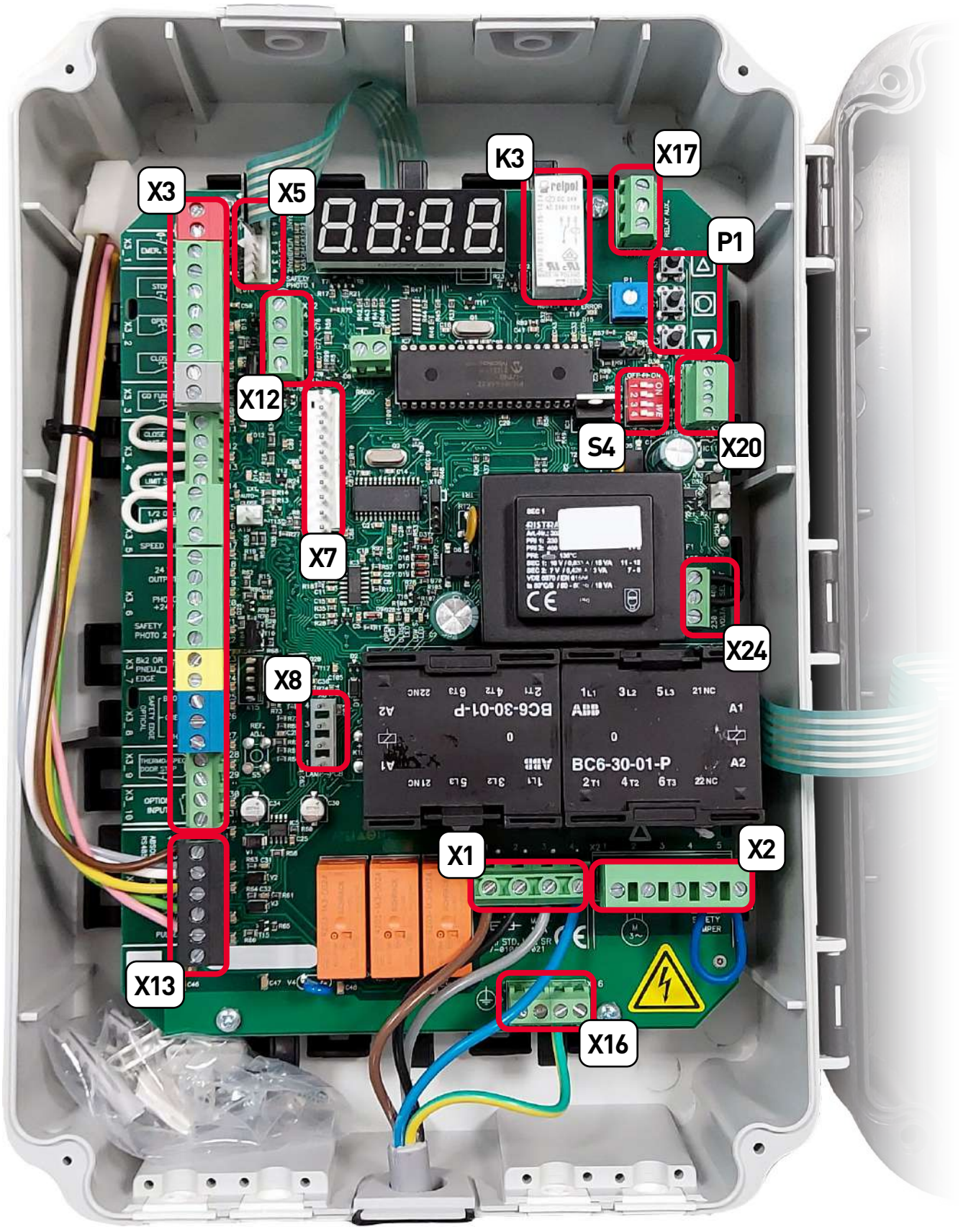
1. Technical Details

Installation	Vertical on a flat wall
Temperature range (operating)	-10 °C / +50 °C
Humidity	Up to 93% RH non-condensing
Degree of protection	IP54
PCB dimension [mm]	163x225x80
Supply voltage	400 V 3~; 50/60H; ± 10% L1,L2,L3,N,PE 230 V 3~; 50/60H; ± 10% L1,L2,L3,PE Mains fuse max: 3 x 10 A Rated insulation voltage Ui = 400 V
Transformer	Max 13 VA , VDE 0570/EN61558 Primary 230 V~ winding is thermal protected by built-in thermal transformer fuse. Both secondary windings are overload protected by multifuses.
Motor output	Max motor load by 400 V 3~: 4 kW Max motor load by 230 V 3~: 2.3 kW Max motor current: 8.5 A
Emergency stop, Stop, Thermo spec. door stop and Safety chain	Function as normal stop command and disconnect power to contactor coils
24 V⎓ Output (terminals X3-18,X3-19)	24 V⎓ ± 20% (non-regulated), Max load: 250 mA
Safety edge input	PNE/air switch Electric type - 8.2 kΩ termination ± 10% Optical type Performance level C, Category 2
Optical safety edge	Input voltage level high (green): 2.5 - 5.0 V Input voltage level low (green): < 0.5 V Input frequency range (green): 250 – 2000 Hz (50% duty-cycle) Pulse interval maximum (green): 7.0 ms (when not 50% dutycycle)
Photocell input	X3-18, 22 or X12 1, 3 External photocell, 24 V⎓ (e.g. self contain photocell) Performance level C, Category 2
Electronic limits	RS485, Data+ Data-, terminated with 120 Ω
Relé (K3+ X17)	Max 230 V~ / 5 A
Box dimension [mm]	210x305x120

Enclosure installation

For a correct installation:

- Install where the control unit can be protected from rain or adverse weather conditions.
- Mounting must be vertical.
- The surface has to be checked for flatness, slope and freedom from vibrations.
- Do not install in an area of potential risk of condensation.
- It is important that the door can be clearly seen from the position of the control through its travel.
- Install in an area not accessible to children or unauthorized persons.
- Do not perform any electrical connections before the enclosure installation is completely accomplished.



X1	MAIN SUPPLY TERMINAL (L1, L2, L3, N)
X2	PLUG IN CONNECTOR FOR MOTOR (U, V, W)
X3	TERMINALS FOR SAFETY DEVICES
X5	INTEGRATED PUSHBUTTON
X12	PHOTOCELL 1 TERMINALS (PHOTO 1)
X17	AUXILIARY DEVICES TERMINALS - AUX RELAIS MANAGEMENT
X24	400 V / 230 V POWER SUPPLY SELECTION JUMPER

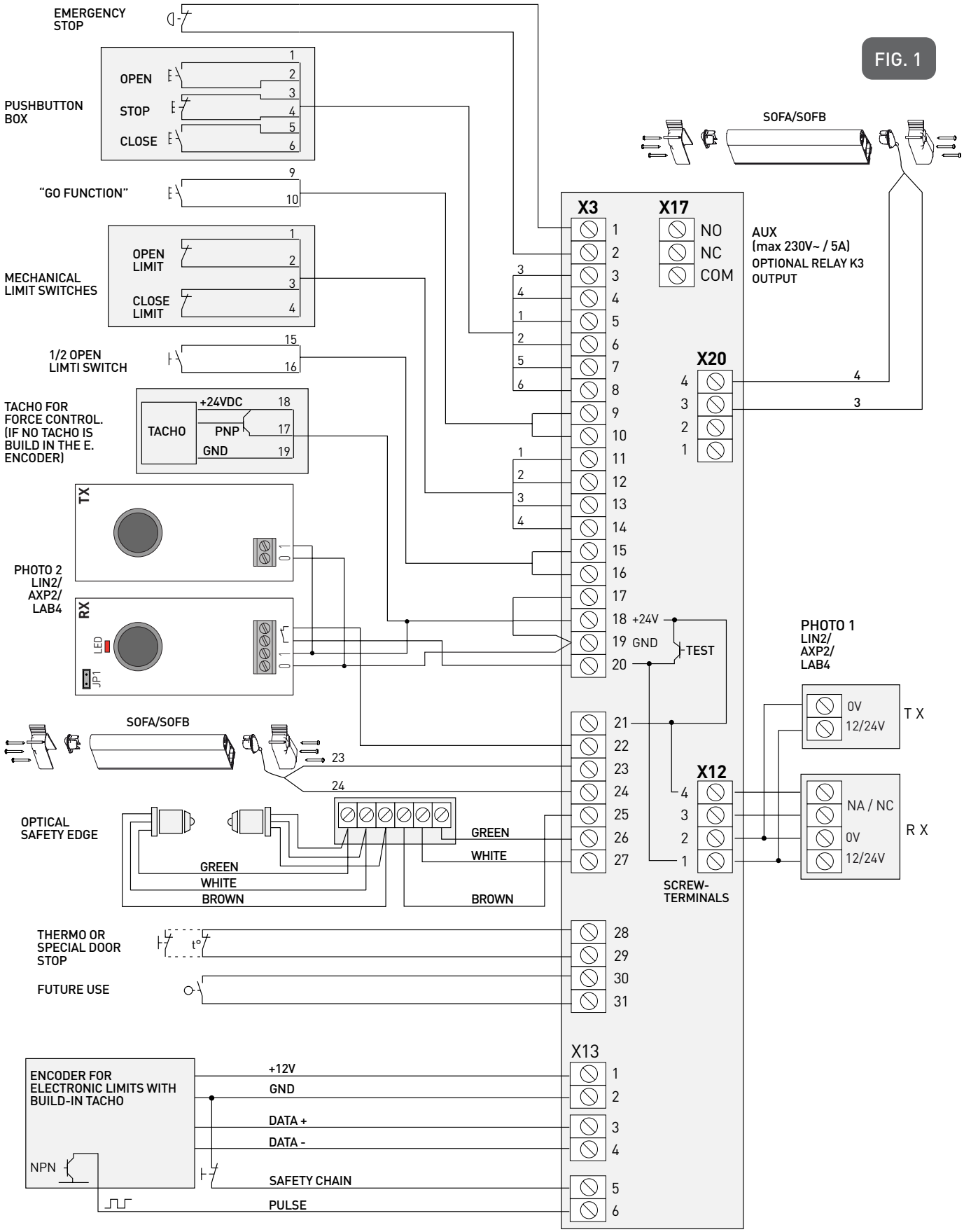
P1	PUSH-BUTTON
X7	SLOT MODULO RADIO NRGZENX1
X8	TRAFFIC LIGHT LAMP SLOT NRGFTL - OPTION.
X13	TERMINALS FOR ABSOLUTE ENCODER
X16	GROUND TERMINALS ⏚
S4	DIP SWITCH FOR PROGRAMMING
X20	SECONDARY MOVABLE SAFETY EDGE

2. Electrical operating instructions

WARNING: All the connection operations must be performed only after the main power supply has been disconnected. TURN OFF THE MAIN POWER SWITCH BEFORE ANY OTHER OPERATION!

When connecting control to mains supply a mains isolator switch (16 A CEE - plug) according EN 12453 is required. The supply disconnect device (main switch or CEE plug) must be installed between 0.6m and 1.7m above floor level.

FIG. 1



2.1 Control unit power supply

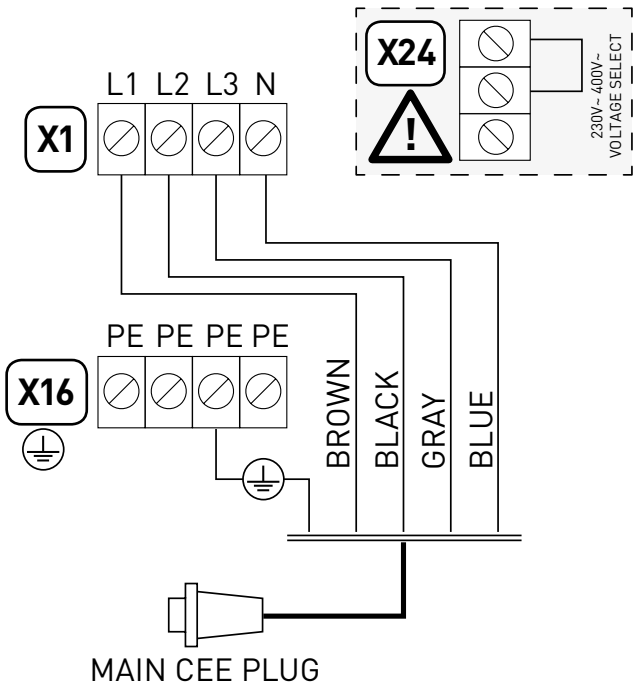
WARNING: The installation must include an automatic cut off switch with minimum distance between the contacts of at least 3 mm.

The control unit can be powered in two different modes: 400 V~ 3-phase and 230 V~ 3-phase.
The power supply of the motor and of the control unit must correspond.

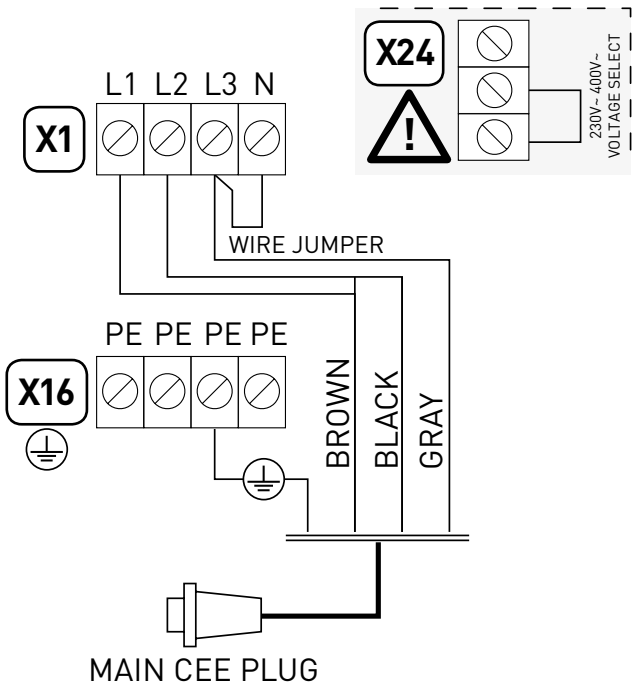
WARNING: if you connect the wires differently from what is shown in the diagrams you can damage the motor and the control unit and endanger the safety of the installer.

Here below shown the connection diagrams based on the selected power supply:

400 V 3~ + N + PE



230 V 3~ + PE



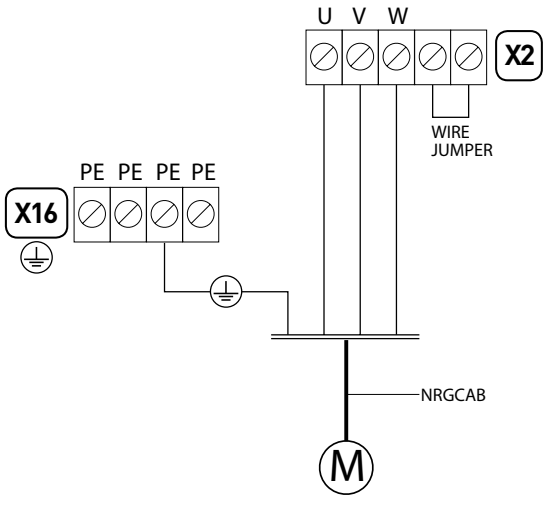
WARNING: All the connection operations must be performed only after the main power supply has been disconnected. TURN OFF THE MAIN POWER SWITCH BEFORE ANY OTHER OPERATION!

If you need to disconnect the power cable and then to reconnect it or change the control unit wiring sequence, you HAVE To connect the wires properly (following the diagram above), restoring the original configuration. Take care to connect the ground wire to the X16 terminal.

2.2 Motor power supply

After installation it is possible to connect motor and central unit with cable Ditec NRGCAB:

- Connect free wires to the X2 terminal (as shown here on the side), and verify the direction of the motor rotation.
- Link the ground conductor to connector X16.



WARNING: Verify the direction of rotation of the motor supplied with 400 V or 230 V 3-phase: by pressing the OPEN button (S2) the door has to open while, by pressing the CLOSE button (S3), the door must close.
In case of wrong direction, reverse two of the phases (L1, L2 and L3) on the X1 terminal.

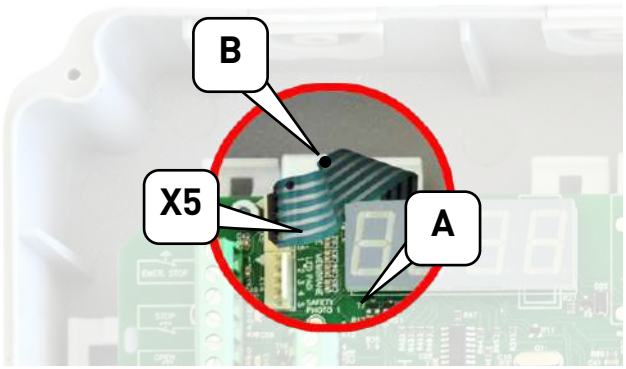
IP2413EN

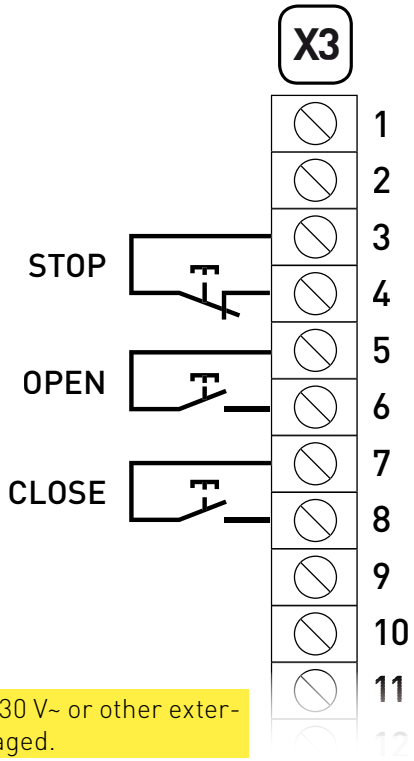
3. Push buttons

The keyboard on the cover of the control unit is connected to terminal X5 through the flat cable (A): if you need to disconnect the flat and then to reconnect it, pay attention to the direction of connection (reference point B).

3.1 Additional control buttons

You can connect additional control pushbuttons through the terminals from 3 to 8 of the X3.





To do it:
1. connect a normally closed button, eliminating the standard jumper, to the contacts 3 and 4 for the STOP command;
2. connect a normally open button to the contacts [5] and [6] for the OPEN command (S2);
3. connect a normally open button to the contacts [7] and [8] for the CLOSE command (S3).

⚠ WARNING: PAY ATTENTION AT THE CONNECTIONS - No line voltage (230 V~ or other external devices) can be connected to the buttons otherwise the unit is damaged.

4. Control unit set-up

Basically the set-up of the control and the right coupling control/motor must be performed by the installer.

⚠ WARNING: The set-up must be performed with the motor off. Follow carefully the steps as described in the procedures, DO NOT activate any safety, hand controls or radio controls unless specifically requested by the procedure.

4.1 Set-up mode activation

To enter the control unit programming mode place the DIP1 of the switch (S4) in ON.

During set-up the control unit will work only in dead man mode.

To return to the normal operating mode, place the DIP1 of the switch (S4) in OFF.

4.2 Basic programming

The control unit is supplied with a basic setting performed at the factory which can be restored at any time with the reset procedure (see paragraph 4.3).

Before beginning the programming procedure:
1. Open the cover of the unit.
2. Make sure all the connections have been made correctly and that the emergency stop or other safety devices are not activated. Otherwise the display shows the stop symbol active [- -] ;
3. Find the buttons OPEN (S2) - CLOSE (S3) - STOP (S1) and the 4 switches (S4) on the board.
4. Ensure that the LED D10 is not flashing (in case it flashes, check again point 2).

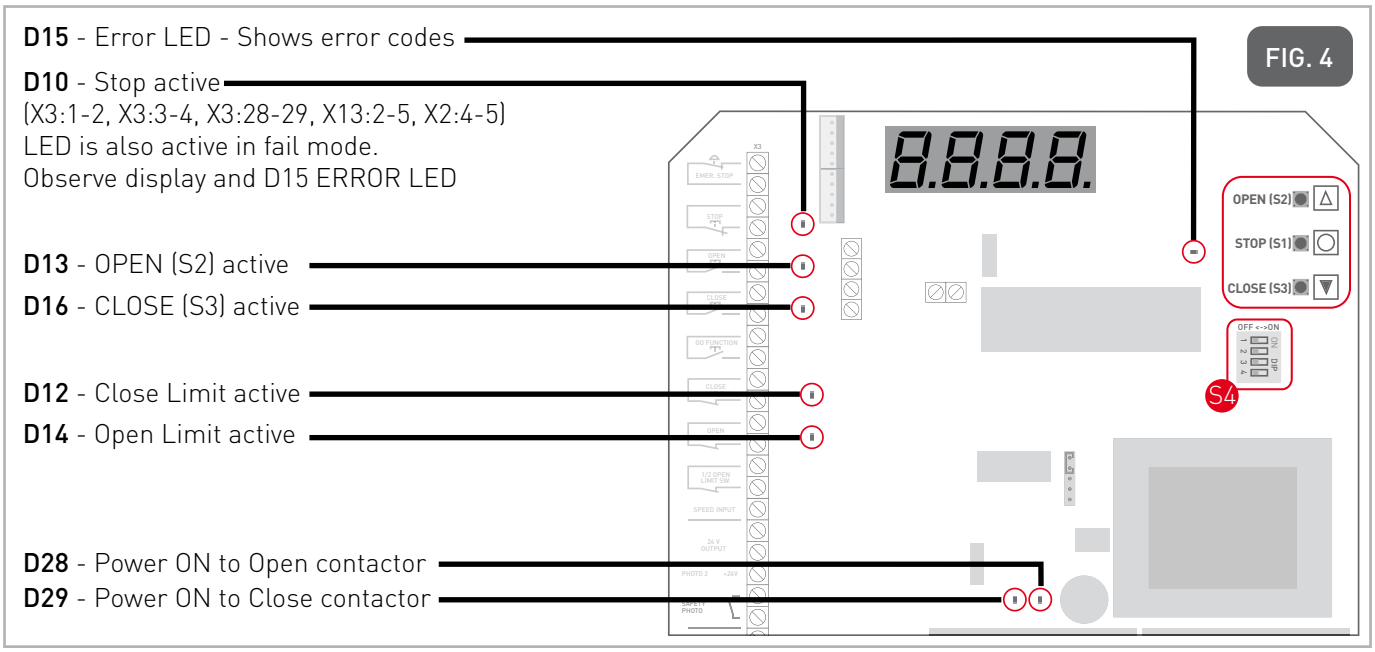
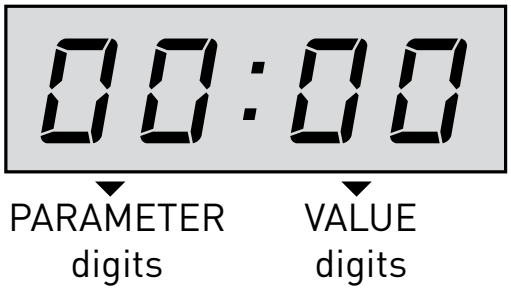
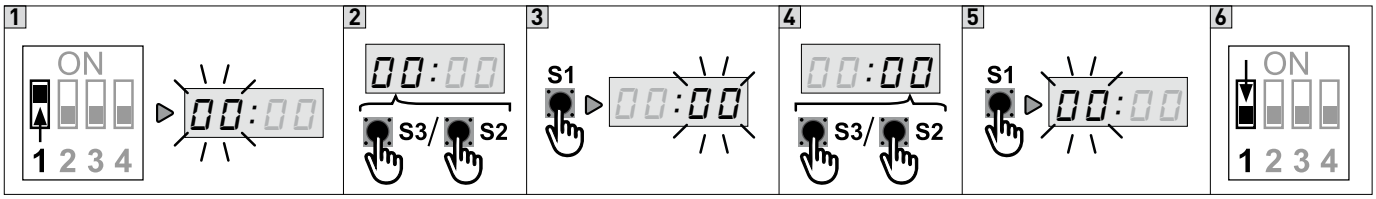


FIG. 4



NOTE: when the control unit is power on, the display shows 4 digits about the firmware version.



STOP (S1) button: to switch from PARAMETER field to VALUE field.

OPEN (S2) / CLOSE (S3) buttons: to increase or decrease the size of the fields PARAMETER and VALUE.

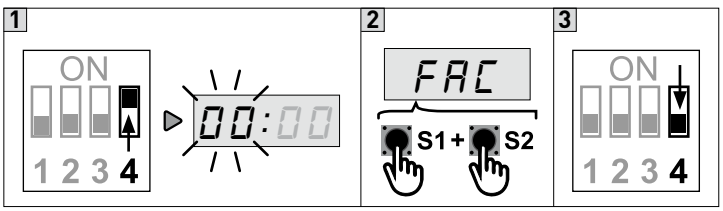
1. Put DIP switch 1 (S4) in ON position, PARAMETER digits start blinking
2. Select by OPEN (S2) / CLOSE (S3) buttons the number desired
3. Confirm by STOP (S1) button the PARAMETER selected. The VALUE digits start blinking
4. Select by OPEN (S2) / CLOSE (S3) buttons the number desired
5. To confirm the VALUE selected and return to PARAMETER field press STOP (S1) button
6. To leave the set-up mode, place the DIP1 in OFF.

NOTE: Some parameters require a further selection after pressing the STOP button (S1) as confirmation of the desired value. For example, to operate the door during the limit switch set-up the display shows RUN. The complete list of the parameters and values is available to the paragraph 14.

4.3 Reset procedure

The reset procedure allows to erase the settled data of the control unit memory and to return to the default programming.

1. SPut DIP 4 (S4) to ON position
2. Within 2 seconds press simultaneously the STOP (S1) / OPEN (S2) buttons. Display will shows FAC blinking and the control unit software version number
3. Put DIP 4 (S4) to OFF position:



5. Operation with encoder motor

5.1 Connecting encoder limit switches

The control unit is pre-set to the type of encoder limit switch.
The encoder limits switch wires are connected according to the diagram of fig. 5.

WARNING: if you connect a control unit pre-set for encoder limit switches to a motor with mechanical limits, the motor does not perform correctly. In particular, the motor will not find the limit positions and this could put at risk the safety of people and/or things.

The limit switches connector (1) of the multicore cable (NRGCAB) must be connected to the male connector (2) of the cable the control unit is provided with (Fig. 5a).

NOTE: in case you are not using a Ditec NRGCAB cable, you have to use a cable with AMP 0172168 connector at both ends

1	GREY	> GRD
2	GREEN	> DATA -
3	WHITE	> GRD
4	YELLOW	> DATA +
5	PINK	> SAFETY
6	BROWN	> +12 V

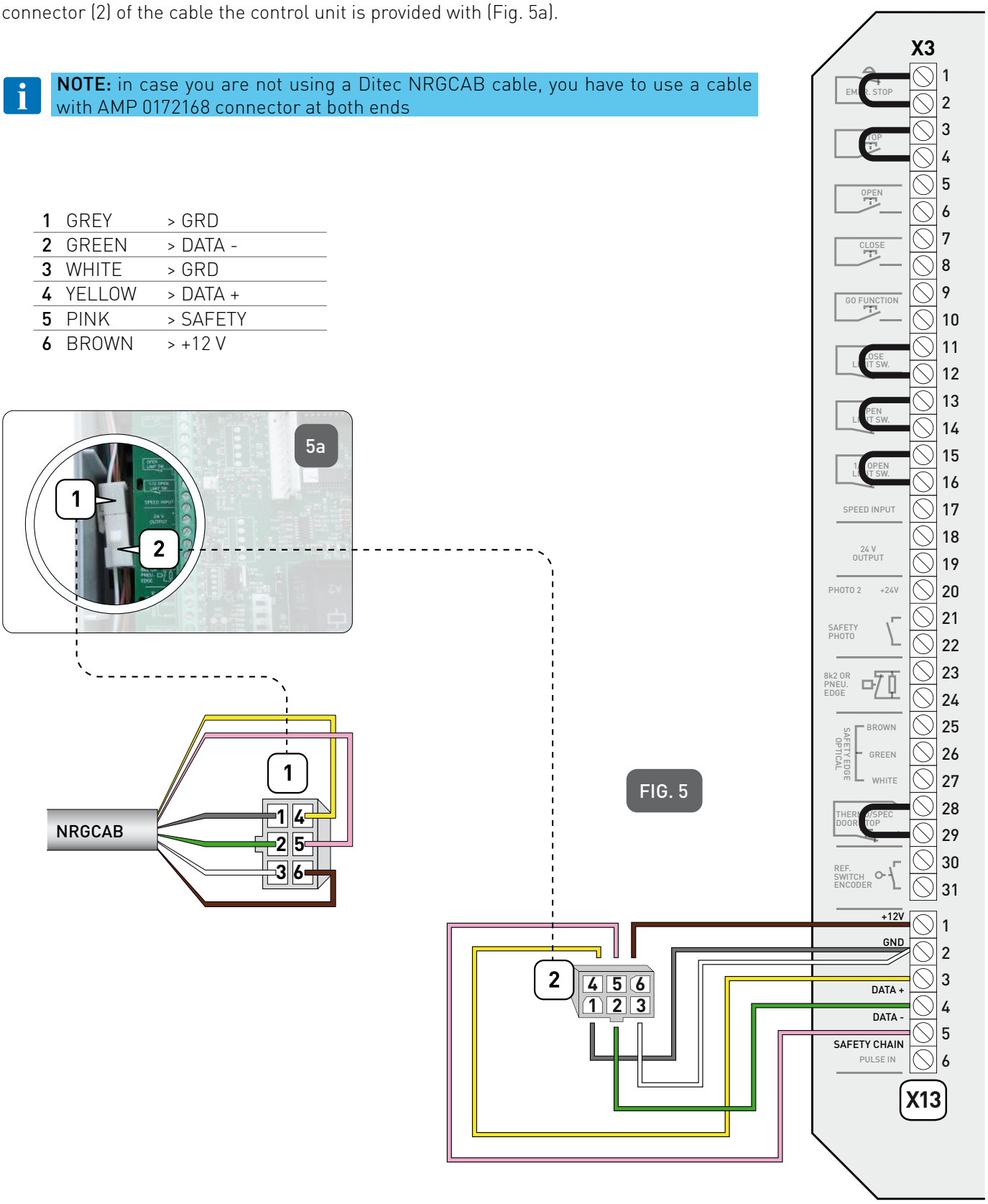
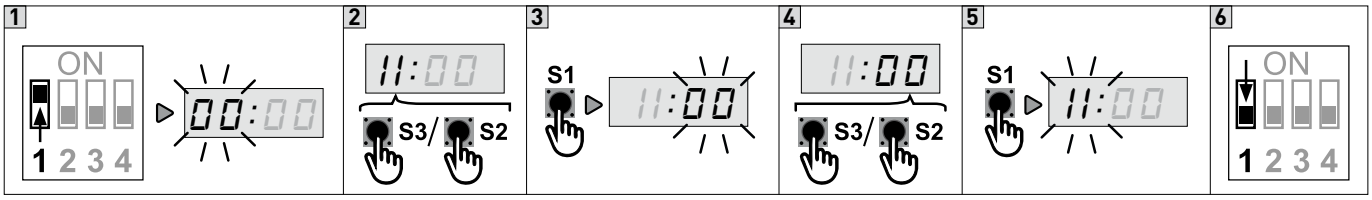


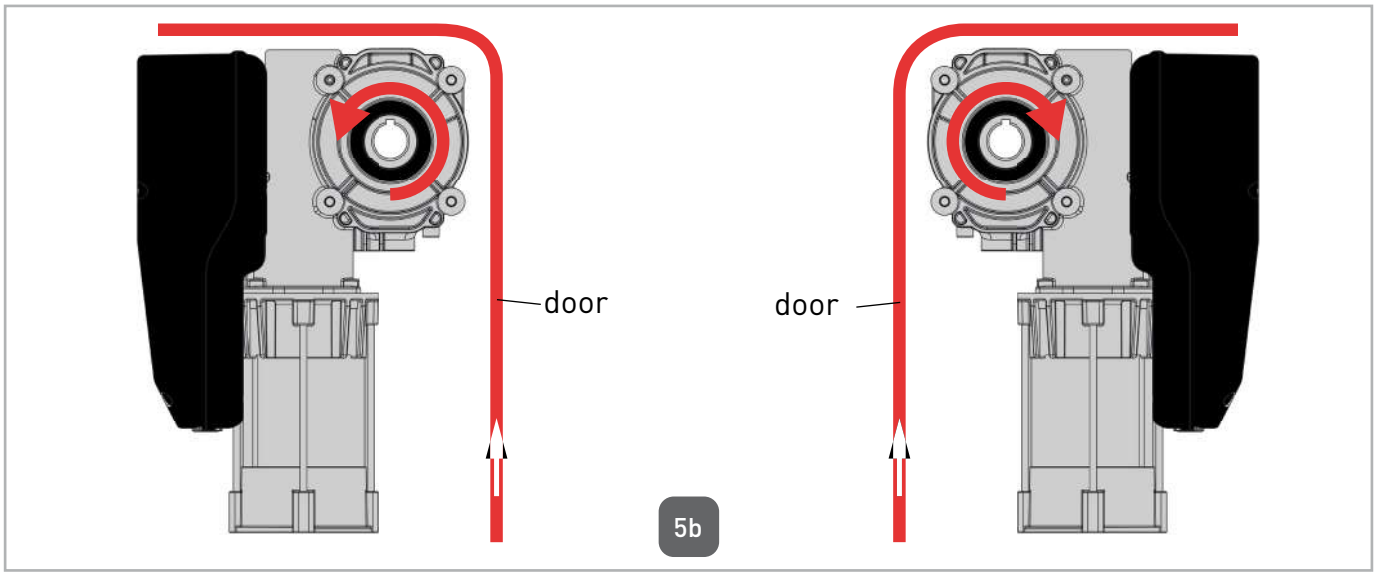
FIG. 5

5.2 Configuration of encoder limit switch

WARNING: Connecting the motor and pressing the up button (⬆) the door must go up, otherwise reverse the phases (see par. 2.2)



1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Select by OPEN (S2) / CLOSE (S3) buttons the number 11
3. Confirm by STOP (S1) button the PARAMETER selected. The VALUE digits start blinking
4. Select by OPEN (S2) / CLOSE (S3) buttons the VALUE:
   - **VALUE 05:** standard installation. Check the rotation direction of the shaft while the door going up (opening) as shown in fig. 5b;



   - **VALUE 06:** not standard installation. While the door going up (opening), the rotation direction is opposite compared to the previous case.
5. To confirm the VALUE selected and return to PARAMETER digits press STOP (S1) button
6. To leave the set-up mode, place the DIP1 in OFF.

WARNING: Please follow the installation requirements of the Ditec motors.

For example, if a motor with encoder is installed in a way which the encoder direction is reversed, it will not run correctly and may put at risk things and/or people.
Ditec disclaims any responsibility from the consequences of an installation not accomplished according to this policy.

WARNING: AFTER THE SELECTION OF THE ENCODER LIMIT SWITCH, IT IS NECESSARY TO PROCEED WITH THE LIMIT SWITCHES ADJUSTMENT.

5.3 Adjustment of encoder limit switches

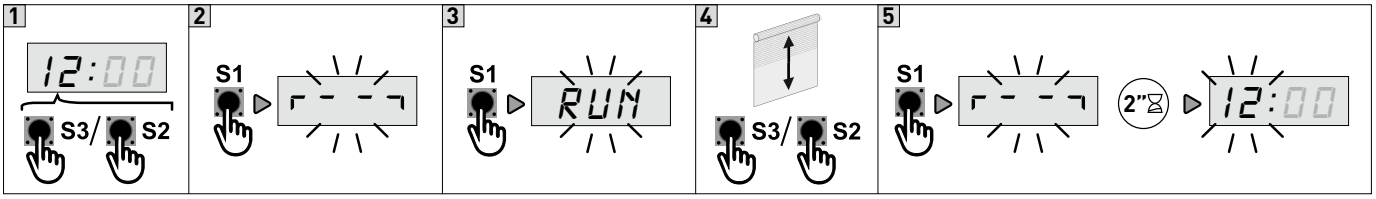
WARNING: Check that motor and control unit are connected.

By following the instructions, select the parameter 11 to the value 05 (or 06). In this case the D15 LED will flash 2 times until both limit switches are not set.
In case the LED D15 blinks only one time, it is necessary to check the correct connection between encoder and control unit and that the correct limit switch type selecting procedure has been accomplished as shown in paragraph 5.2 including the shutdown of the unit after the selecting step in the case of standard Ditec encoder.

- the PARTIAL OPENING function cannot be activated during programming (parameter 16);
- the additional photocell on the door frame cannot be active during programming (parameter 31);
- When you change the limit switch positions the force control value (parameter 41) and operating time (parameter 51) will be reset to the factory default settings.

Up limit switch adjustment

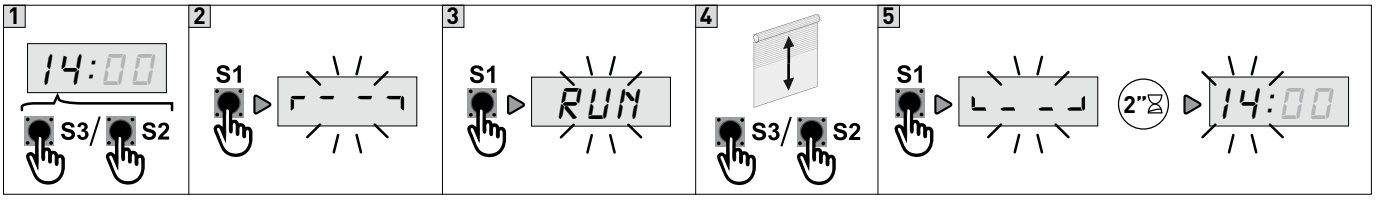
1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Using the buttons OPEN (S2) and CLOSE (S3) select the parameter 12
3. Access the field VALUE pressing STOP (S1). The field VALUE shows the flashing symbol
4. Press button STOP (S1) once again and the unit, showing the message RUN is ready to move the door
5. Use buttons OPEN (S2) and CLOSE (S3) to reach the exact UP limit position
6. Press the STOP button (S1) to confirm the position. The display will show the symbol for 2 seconds and then the PARAMETER field will start flashing again (showing the number 12).
7. To leave the set-up mode, place the DIP1 in OFF.



Down limit switch adjustment

1. With the DIP1 of the S4 switch in ON and the PARAMETER field still blinking
2. Select by OPEN (S2) / CLOSE (S3) buttons the parameter 14
3. Access the field VALUE pressing STOP (S1). The field VALUE shows the flashing symbol
4. Press button STOP (S1) once again and the unit, showing the message RUN is ready to move the door
5. Use buttons OPEN (S2) and CLOSE (S3) to reach the exact DOWN limit position.
6. Press the STOP button (S1) to confirm the position. The display will show the symbol for 2 seconds and then the PARAMETER field will start flashing again (showing the number 14).
7. To leave the set-up mode, place the DIP1 in OFF.

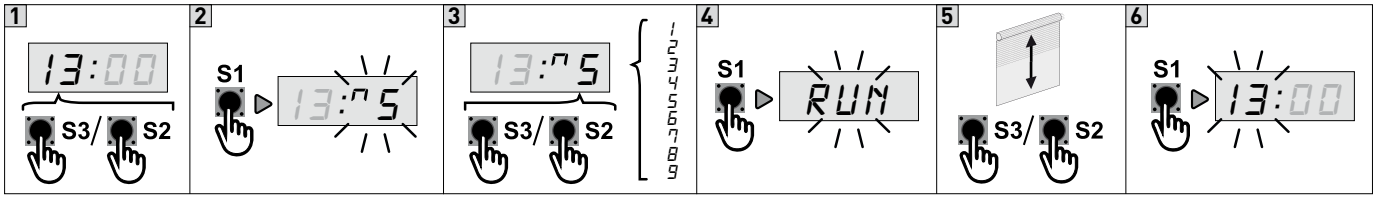
Once the programming phase is correctly accomplished, the LED D15 stops flashing.
If the LED D15 continues flashings with a sequence of 2 flashes the limit switches are not duly set.
Once the limits are set, to tune only one of the two limit positions go to the single parameter 12 or 14 as previously explained. If the LED D15 shows a sequence of 4 flashes it means that an incorrect encoder direction of rotation has been entered in parameter 11. Change the value of parameter 11 by choosing the opposite direction of rotation according to paragraph 5.2. Once the value changed, start with the limit switch adjustment procedure once again.



5.4 Fine-tuning of encoder limit switch

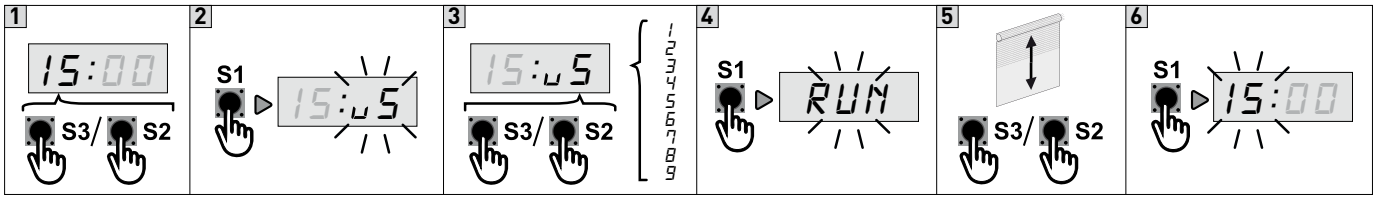
Up limit switch position tuning

1. PPut DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Select parameter 13 using the buttons OPEN (S2) and CLOSE (S3)
3. Access the field VALUE pressing STOP (S1). In the field VALUE symbol [n5] flashes.
4. Using the buttons OPEN (S2) and CLOSE (S3) vary the value:
   - from 4 to 1: progressively decrease the UP position;
   - from 6 to 9: progressively increase the UP position.
     The adjustment range is max ± 0.8% of the travel of the door.
     If the value in not to be changed you can return to the field PARAMETER pressing the STOP button (S1).
5. After modifying the VALUE press the STOP button (S1) to confirm: the display will show [RUN].
6. You can test the varied position of the door by moving it through the buttons OPEN (S2) and CLOSE (S3).
7. Press the STOP button (S1) once again to confirm the tuning and return to the PARAMETER field.
8. To leave the set-up mode, place the DIP1 in OFF.



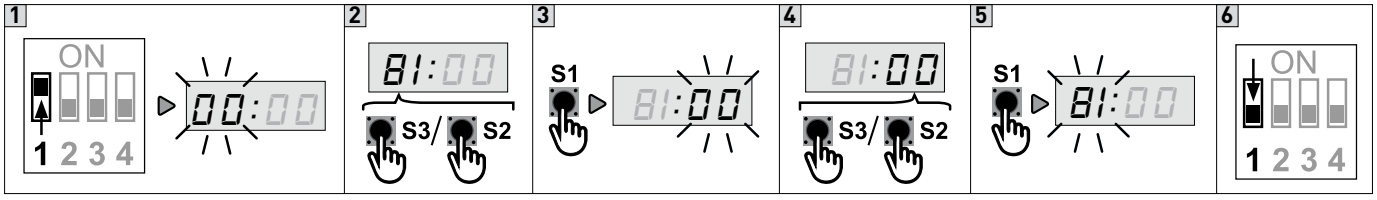
Down limit switch position tuning

1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Select parameter 15 using the buttons OPEN (S2) and CLOSE (S3)
3. Access the field VALUE pressing STOP (S1). In the field VALUE symbol [u5].
4. Using the buttons OPEN (S2) and CLOSE (S3) vary the value:
   - from 4 to 1: progressively decreases the DOWN position;
   - from 6 to 9: progressively increases the DOWN position.
     The adjustment range is max ± 0.8% of the travel of the door.
     If the value in not to be changed you can return to the field PARAMETER pressing the STOP button (S1).
5. After modifying the VALUE press the STOP button (S1) to confirm: the display will show [RUN].
6. You can test the varied position of the door by moving it through the buttons OPEN (S2) and CLOSE (S3).
7. Press the STOP button (S1) once again to confirm the tuning and return to the PARAMETER field.
8. To leave the set-up mode, place the DIP1 in OFF.



Delay before encoder position-loss alarm

1. Set DIP1 of selector S4 to ON; the PARAMETER field will start flashing.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 81.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: 1 sec.
   - VALUE 01: 2 sec.
   - VALUE 02: 4 sec.
   - VALUE 03: After operation without any change in the encoder position, the door stops and the error code [E:09] is automatically reset. WARNING! When selecting value 03, no monitoring is performed.
5. Press STOP (S1) to confirm and return to the PARAMETER field.
6. To exit the settings, set DIP1 to OFF.



IP2413EN

6. Operation with motor with mechanical limit switches

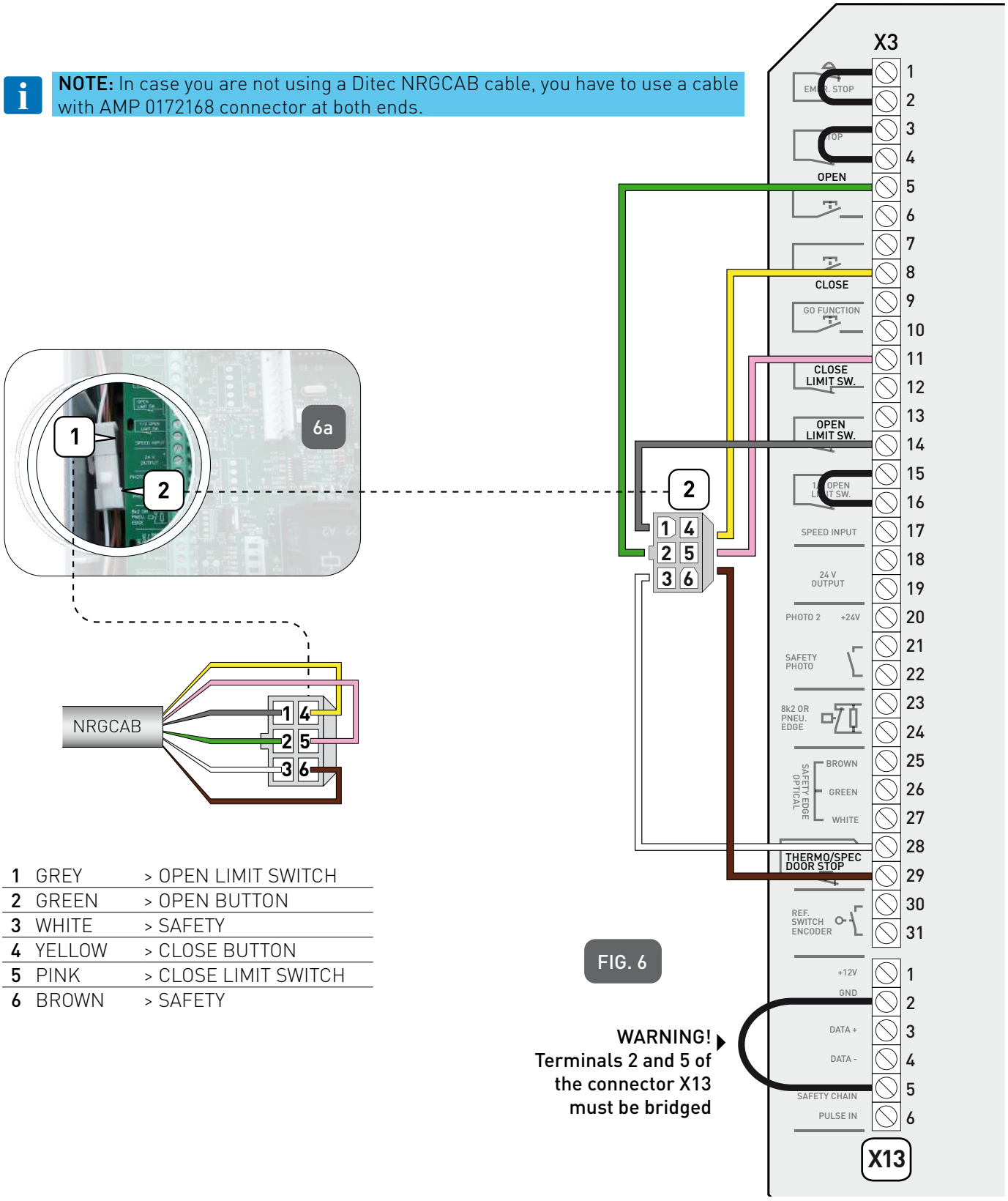
6.1 Connecting mechanical limit switches

The wiring is preset for encoder limit switch.
To set-up the control unit to mechanical limit switch it's needed to modify the wiring as shown below (fig. 6).

WARNING: connect a control unit pre-set for mechanical limits to a motor with encoder limits, the motor does not perform correctly. In particular, the motor will not find the limit positions and this could put at risk the safety of people and/or things.

The limit switches connector (1) of the multicore cable NRGCAB must be connected to the male connector (2) of the cable the control unit is provided with (Fig. 6a).

NOTE: In case you are not using a Ditec NRGCAB cable, you have to use a cable with AMP 0172168 connector at both ends.



1	GREY	> OPEN LIMIT SWITCH
2	GREEN	> OPEN BUTTON
3	WHITE	> SAFETY
4	YELLOW	> CLOSE BUTTON
5	PINK	> CLOSE LIMIT SWITCH
6	BROWN	> SAFETY

FIG. 6

WARNING!
Terminals 2 and 5 of the connector X13 must be bridged

6.2 Configuration for mechanical limit switch

1. Check the configuration; the parameter must be setted for the use of mechanical limit switches: 11:00.
2. Only take care to check the direction of rotation of the motor:
   - by pressing the OPEN button (S2), the door must open;
   - by pressing the CLOSE button (S3), the door must close.

   Otherwise proceed as described in paragraph 2.2.
3. VCheck that the motor and the control unit are connected as shown in section 6.1 and that the DIP switch S4 is in OFF. If correctly installed all LEDs are off and the display will show the symbol dHdH which indicates that the motor is positioned between the two limit switches.
4. Check that:
   - pressing the UP button the motor moves the door upwards (the display shows: ⊓ ⊓);
   - pressing DOWN button the motor moves the door downwards (the display shows: ⊔ ⊔).

Up limit switch adjustment

Adjust the UP limit switch cam.
When the UP microswitch is pressed, the display will show the symbol: ⌜ ⌝ and the LED D14 will switch on.

Down limit switch adjustment

Adjust the DOWN limit switch cam.
When the DOWN microswitch is pressed, the display will show the symbol: ⌞ ⌟ and the LED D12 will switch on.
The door will move between the two positions set by the limit switches cams according to the operation mode shown in parameter 01.

WARNING: the standard mode of the control unit is dead-man (parameter 01). During the mechanical limit switch adjustment use this mode.

Refer to section 7 for the other modes of operation.

7. Operation mode

The control unit is pre-set in dead-man control mode (PARAMETER 01, VALUE 01).
It is possible, however, to define different working modes by modifying the value of PARAMETER 01:

01:01 Hold-to-run OPEN
Hold-to-run CLOSE (Put a bridge in X3 between terminal 23-24 when there is no safety device)

01:02 Impulsive OPEN
Hold-to-run CLOSE (Put a bridge in X3 between terminal 23-24 when there is no safety device)

01:03 Impulsive OPEN; Impulsive CLOSE. REQUIRED WITH RADIO MODULE NRGZENX1 - OPTIONAL.

01:04 Not in use

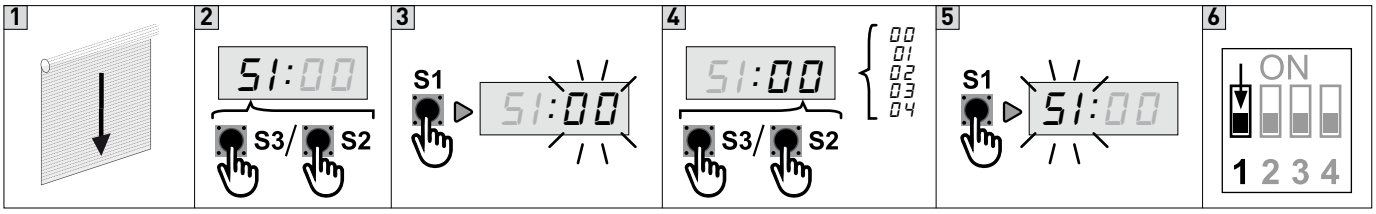
WARNING: it is highly recommended to activate the impulsive mode only after having completed the set-up and adjustments of the control unit. In particular, during the mechanical limit switches adjustment select always the dead-man operation mode.

During the encoder limit switches set-up the control unit will only allow the dead-man working mode.

8. Working time set-up

WARNING! The default parameter is the 51:02 that is to say a working time of 40 seconds.

PARAMETER 51 defines the working time of the door.

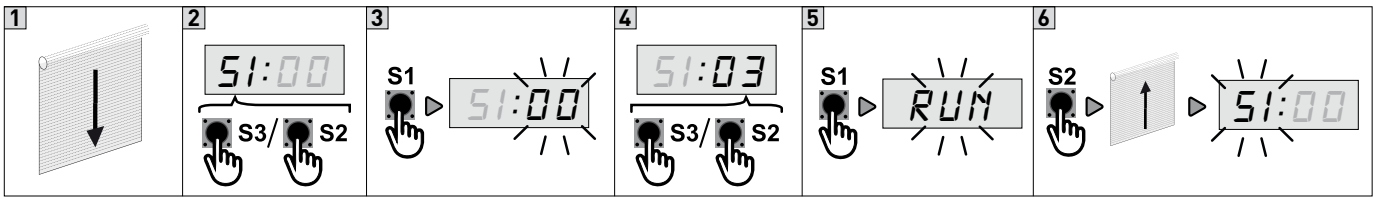


To turn off or modify the working time, follow this procedure:
1. Close the door and stop at the DOWN limit position.
2. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking. Using the buttons OPEN (S2) and CLOSE (S3) select the parameter 51
3. Access the field VALUE pressing STOP (S1)
4. Using the buttons OPEN (S2) and CLOSE (S3) vary the value:
- **VALUE 00: Function inactive.**
- **VALUE 01: Working time 20 seconds.**
- **VALUE 02: Working time 40 seconds (default).**
- **VALUE 03: Activate the self learning function to determine the working time**.

WARNING: In order to use this function the limit switches must be already adjusted.

- **VALUE 04: Working time 60 seconds**

5a. Select the value 00 / 01 / 02 / 04 > press STOP (S1) to confirm
6a. Place the DIP1 again in OFF to be out of the set-up mode.
By selecting a working time, the control unit verify if the door moving time exceeds the predetermined value: if this happens the door will stop and the display will shows the error code E:03.

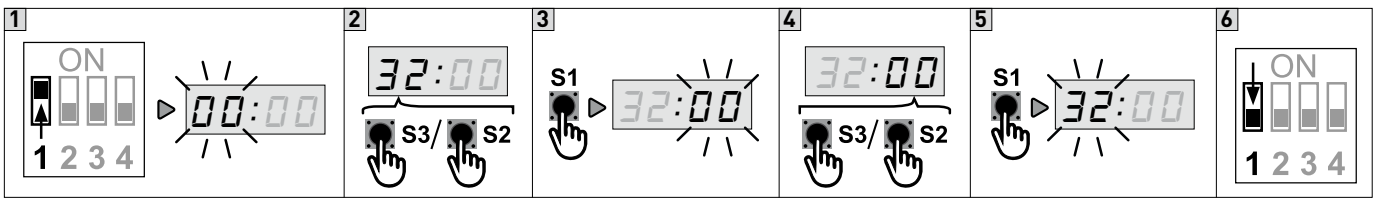


5b. Select value 03
6b. Press STOP (S1) to confirm. The control unit, showing RUN is ready to move the door
7b. Using the OPEN button (S2) move the door from the closed position to the open position without interruptions.
8b. Once the UP limit switch is reached, the door stops, RUN stops flashing and the display will automatically return to field PARAMETER.
9b. To leave the set-up mode, place the DIP1 in OFF.

9. Automatic closing

Parameter 32 allows the selection of the door automatic closing after a selectable period of time.

WARNING: parameter 32 is visible and accessible only if parameter 01 has been set in impulsive mode 01:03 . It will be activated only if on parameter 31 is selected at least one photocell (par. 13.1)



1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Using the buttons OPEN (S2) and CLOSE (S3) select the parameter 32
3. Access the field VALUE pressing STOP (S1)

4. Using the buttons OPEN (S2) and CLOSE (S3) vary the value:
   - The value 00 in the field VALUE inhibits the automatic closing;
   - A value greater than 0, from 1 to 99, indicates the number of seconds to wait before the activation of the automatic closing:

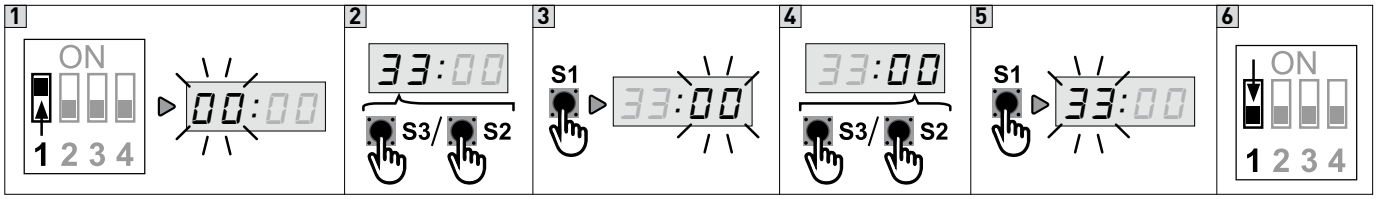
NOTE: From 0 to 99 the change is made every second by using the buttons OPEN and CLOSE.
Over 99 the change is made every 10 seconds and the value will flash quickly: for example, the VALUE 18 corresponds to 180 seconds, the value 19 to 190 seconds...
If you keep the OPEN button pressed you will get a fast increase of the value.

5. Press STOP (S1) to confirm.
6. To leave the set-up mode, place the DIP1 in OFF.

10. "CAR WASH" function

Count down of auto closing time starts, only if photo has been activated more than "photo active time". Door shall be complete closed before start of a new cycle.

WARNING: parameter 33 is selectable only if in the parameter 31 is selected at least one photocell.

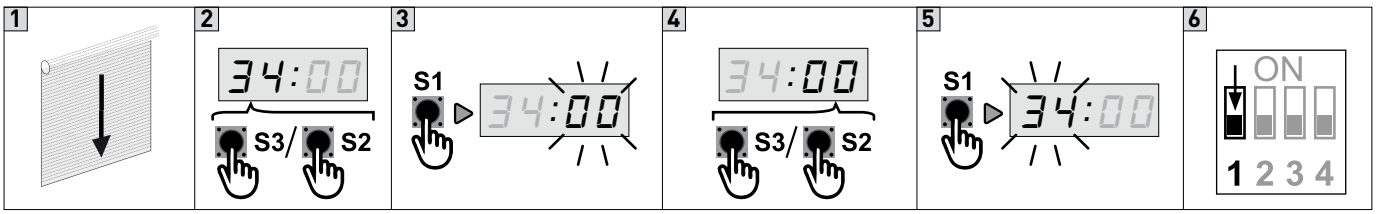


1. Close the door and stop at the DOWN limit position.
2. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
3. Using the buttons OPEN (S2) and CLOSE (S3) select the PARAMETER 51
4. Access the field VALUE pressing STOP (S1)
5. Using the buttons OPEN (S2) and CLOSE (S3) vary the value:
   - >00 Photo active time in 0,1 sec. Units (e. g. 15 = 1,5 sec.) - (Adjustable 1 – 30 units – 0,1 sec. to 3,0 sec.)
6. Press STOP (S1) to confirm.
7. To leave the set-up mode, place the DIP1 in OFF.

11. Forced shutdown

Only if the "car wash" function is selected in parameter 33.

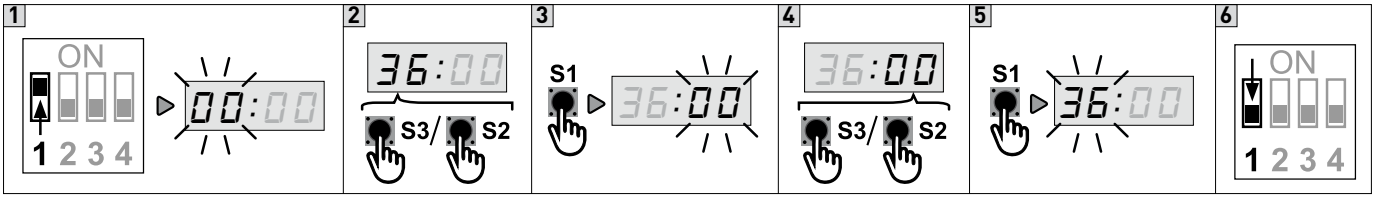
1. Move the door to the lower end-stop position.
2. Following the PARAMETER and VALUE management procedure described in section 5.3, select parameter 34.
3. Access the VALUE field by pressing STOP (S1). The VALUE field will flash.
   Using the UP (S2) and DOWN (S3) buttons, change the value:
   - Value 00: Function not active
   - Value 01: Forced closing after 2 min (even if the photocell has not been activated)
   - Value 02: Forced closing after 5 min (even if the photocell has not been activated)
   - Value 03: Forced closing after 10 min (even if the photocell has not been activated)
   - Value 04: Forced closing after 20 min (even if the photocell has not been activated)
4. Press STOP (S1) to confirm and return to the PARAMETER field.
5. To exit the settings, set DIP1 to OFF..



12. Temporary disabling of automatic closing

The function stops the automatic closing if activated.
The countdown on the display shows the value of the pre-set waiting time. To activate the temporary lock, with the door in its UP limit position, hold the STOP button or the emergency stop button for more than 5 seconds.
To restore the automatic closing press CLOSE button or the closing on "GO Function".

WARNING! Parameter 36 is visible and selectable only if the automatic closing has been selected in parameter 32.



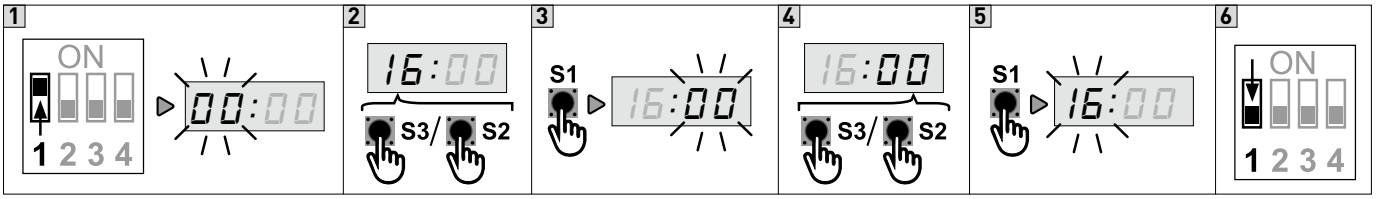
To enable the temporary disabling of automatic closing:
1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Using the buttons OPEN (S2) and CLOSE (S3) select the parameter 36
3. Access the field VALUE pressing STOP (S1)
4. Using the buttons OPEN (S2) and CLOSE (S3) vary the value:
   - **VALUE 00**: function OFF;
   - **VALUE 01**: function ON.
5. Press STOP (S1) to confirm.
6. To leave the set-up mode, place the DIP1 in OFF.

13. Partial opening

It is possible to set an intermediate opening position of the door in the upward direction using PARAMETER 16.
The factory-preset value is 00, which disables this function.
The operation varies depending on the type of limit switch used: mechanical or encoder-based.

13.1 Partial Opening with Mechanical Limit Switches

With mechanical limit switches, the position is determined by an auxiliary microswitch in the motor limit-switch assembly (one of the two yellow cams), which must be connected to terminals 15 and 16 of connector X3.
In this case, PARAMETER 16 must be set to VALUE 01.

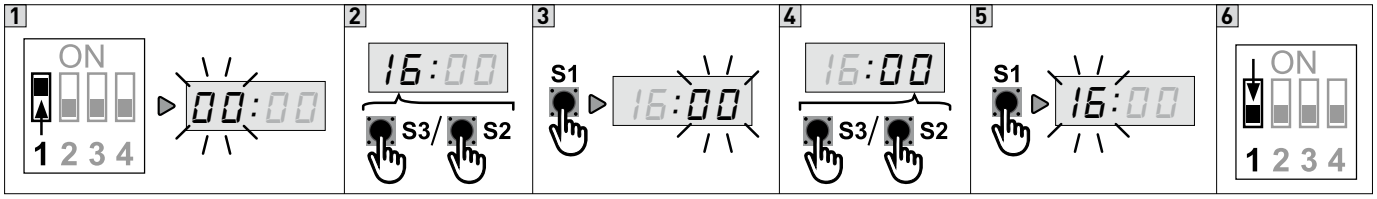


1. Set DIP1 of selector S4 to ON; the PARAMETER field will start flashing.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 16.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: Intermediate position disabled
   - VALUE 01: Position determined by additional microswitch
5. Press STOP (S1) to confirm and return to the PARAMETER field.
6. To exit the settings, set DIP1 to OFF.

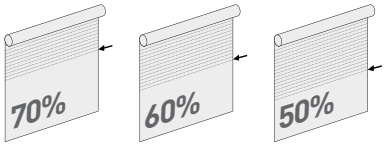
13.2 Partial opening with encoder limit switches

With encoder limit switches type, the partial opening can occur through the use of a selector or of an additional button.
To use this feature, the parameter 16 must be configured with a value >01.

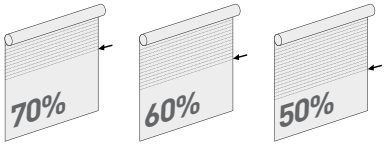
If you are using a selector, this one must be connected to terminals 15 and 16 of X3.
If you open the contact of the selector, the use of the partial opening is inhibited.
If you close the contact of the selector, pressing the UP button, the door stops at the partial opening.
The partial opening can be adjusted by setting the PARAMETER 16 at values from 02 to 07 with a progressive change of the partial opening from 50% to 75% of the travel.



1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Using the buttons OPEN (S2) and CLOSE (S3) select the parameter 16
3. Access the field VALUE pressing STOP (S1)
4. Using the buttons OPEN (S2) and CLOSE (S3) vary the value:
- VALUE 02: Partial opening at 50% of the travel
- VALUE 03: Partial opening at 55% of the travel
- VALUE 04: Partial opening at 60% of the travel
- VALUE 05: Partial opening at 65% of the travel
- VALUE 06: Partial opening at 70% of the travel
- VALUE 07: Partial opening at 75% of the travel
5. Press STOP (S1) to confirm

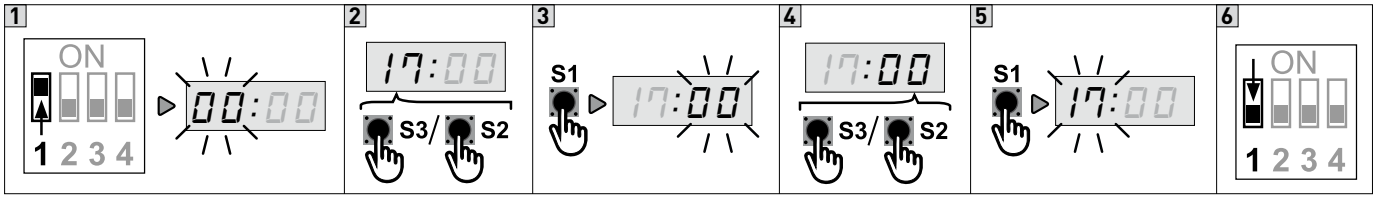


If you are using an additional button, this one must be connected to terminals 15 and 16 of X3.
In this case the UP button allows the opening of the door up to the UP limit position.
While, to move the door to the partial opening you have to press the additional button.
The partial opening can be determined by setting the PARAMETER 16 with values from 08 to 13 with a progressive change of the partial opening from 50% to 75% of the travel:
- VALUE 08: Partial opening at 50% of the travel
- VALUE 09: Partial opening at 55% of the travel
- VALUE 10: Partial opening at 60% of the travel
- VALUE 11: Partial opening at 65% of the travel
- VALUE 12: Partial opening at 70% of the travel
- VALUE 13: Partial opening at 75% of the travel



13.3 Automatic closing from partial opening

You can set the automatic closing even from the partial opening setting the PARAMETER 17.



Activate the automatic closing function

1. Set DIP1 of selector S4 to ON; the PARAMETER field will start flashing.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 17.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: Automatic closing from intermediate position disabled
   - VALUE 01: Automatic closing from intermediate position enabled
5. Press STOP (S1) to confirm and return to the PARAMETER field.
6. To exit the settings, set DIP1 to OFF.

14. Safety devices

NOTE: Refer to the photocells instructions for the supply.

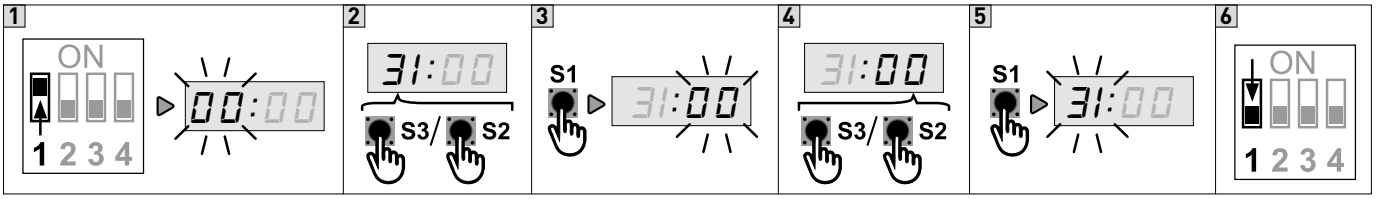
14.1 Photocells

- A 24 V⎓ supply for the photocells is available:
- - Terminal 18 of X3 (or terminal 4 of X12) for the positive.
- - Terminal 19 of X3 (or terminal 2 of X12) for the mass.

WARNING: Both the transmitter and the receiver of the photocells must be connected to the same terminals.

WARNING: connect the photocells out contacts between 18 and 22 terminal of the X3 clamp or between 1 and 3 terminal of the X12 clamp, otherwise the photocells test cycle will fails showing on the display the error code E:05 and preventing the control unit working.
In case of an incorrect connection, restore the correct connections and press stop to start a new test cycle.

Through parameter 31 you can conform the control unit to the type of connection that you are going to select, in order to activate the corresponding test functions.
This test allows the control unit to constantly check of short circuits or malfunctions that could compromise the safety of the device. The test thus allows to ensure the safety even in case of single failure as required by the standards EN13241-1 and EN-12453.



1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Using the buttons OPEN (S2) and CLOSE (S3) select the parameter 31
3. Access the field VALUE pressing STOP (S1)
4. Using the buttons OPEN (S2) and CLOSE (S3) vary the value:
   - **VALUE 00**: No photocells connected
   - **VALUE 01**: Connection PHOTO 1 on X12
   - **VALUE 02**: Connection PHOTO 2 on X3
   - **VALUE 03**: Connection PHOTO 1 and 2
5. Press STOP (S1) to confirm.
6. To leave the set-up mode, place the DIP1 in OFF.

Photocells function description

In case something interposes between the transmitter and the receiver, this one activates a sequence of commands depending on the door status when it was interrupted:

STATUS OF THE DOOR	CONTROL UNIT FEEDBACK
The door is stopped	The display shows the symbol
	Closing is prevented
	Opening allowed to the UP limit position
The door is opening	The display shows the symbol
	Opening continues until the UP limit position is reached
	Closing is prevented
The door is closing	The display shows the symbol
	In case of impulsive operation mode: it reverses the direction to the complete opening
	In the case of dead-man operation mode: it stops and reverses upwards

14.1.1 Additional photocells mounted on the frame (only with encoder limit switches)

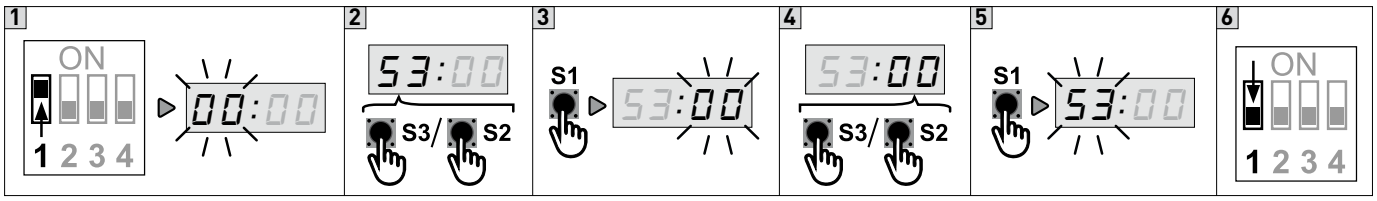
After selecting the correct parameter value, the operating mode is activated by pressing STOP. The photocell position is learned by moving from the closed position to the open position. The door will stop when the photocell is no longer obstructed, and the control unit will automatically return to the parameter number.

Select the desired value using the UP (S2) and DOWN (S3) buttons:
- VALUE 04: Photocell 1 connected and mounted on the door frame
- VALUE 05: Photocell 2 connected and mounted on the door frame
- VALUE 06: Photocells 1 and 2 connected, with photocell 1 mounted on the door frame
- VALUE 07: Photocells 1 and 2 connected, with photocell 2 mounted on the door frame

Install additional safety photocells in the door track to protect the photocells from sunlight and impacts. After installation, the photocells automatically deactivate when the door passes through the light beam. Avoid mounting the photocell receiver on the side of the door where direct low-angle sunlight strikes the sensor.

14.1.2 Photocell Reversal Time

Warning: To use this function, the limit switches must have been adjusted beforehand.



1. Set DIP1 on selector S4 to ON; the PARAMETER field will begin to flash.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 53.
3. Access the VALUE field by pressing STOP (S1). The VALUE field will flash.
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE ...: Photocell reversal time in 1/100 of a second. Range: 0.05 – 0.99 s (Example: 30 = 0.30 s)
5. Press STOP (S1) to confirm.
6. To exit the settings, set DIP1 to OFF.

14.2 Safety edge

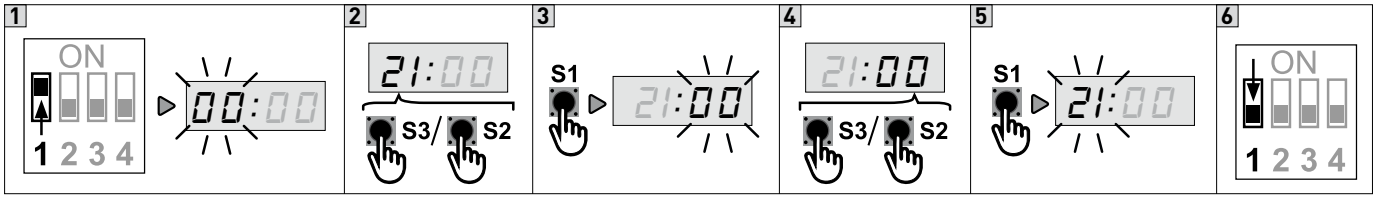
Safety edge connection: in case of resistive safety edges 8.2 kΩ (type SOFA and SOFB) or pneumatic safety edges, connect the wires to the terminals 23 and 24 of X3. In case of optoelectronic safety edge, connect the wires to the terminals 25, 26 and 27 of X3 (respecting the color order).

WARNING: if you choose the optical safety edge (VALUE 03) the terminals 23 and 24 DO NOT have to be connected by a jumper.

WARNING: if you DO NOT want to use a safety edge, select the VALUE 01 and connect the terminals 23 and 24 with a jumper. The terminals 25, 26 and 27 of X3 must not be connected.

WARNING: the safety edge must be connected before the selection of PARAMETER 21, but do not activated them. If this happens, the control unit shows an error signal on the display the code Err.

The same happens if you choose a parameter that does not match with the connected terminals.
Through PARAMETER 21 you can select the type of safety edge.



1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Using the buttons OPEN (S2) and CLOSE (S3) select the parameter 21
3. Access the field VALUE pressing STOP (S1)
4. Using the buttons OPEN (S2) and CLOSE (S3) vary the value
   - **VALUE 01**: PNE / DW pneumatic.
   - **VALUE 02**: Safety edge with resistive contact 8.2 kΩ.
   - **VALUE 03**: Optoelectronic edge.
   - **VALUE 04**: Special LP / DW pneumatic.
5. Press STOP (S1) to confirm.
6. To leave the set-up mode, place the DIP1 in OFF.

Safety edge function description

In case the safety edge is activated the control unit makes a sequence of commands depending on the door status at the time of activation:

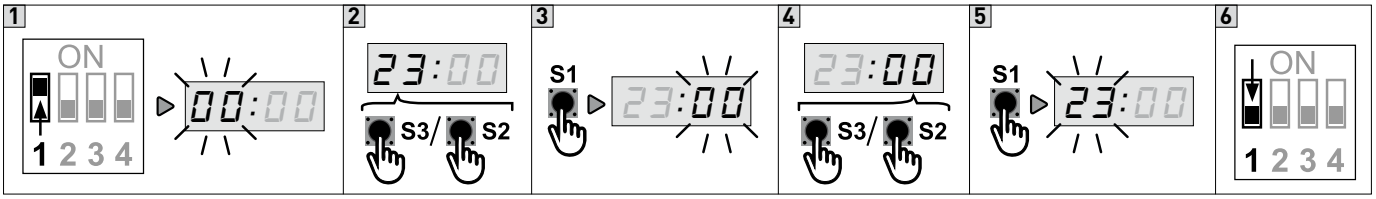
STATUS OF THE DOOR	CONTROL UNIT FEEDBACK
The door is stopped	The display shows the symbol
	Closing is prevented
	Opening allowed to the UP limit position
The door is opening	The display shows the symbol
	Opening continues until the UP limit position is reached
	Closing is prevented
The door is closing	The display shows the symbol
	In case of impulsive operation mode: it reverses the direction to the complete opening
	In the case of dead-man operation mode: it stops and reverses upwards

14.3 Secondary movable safety edge

Connection of the secondary movable safety edge: in case of 8.2 kΩ resistive or pneumatic movable safety edge (SOFA and SOFB series), connect the conductors of the safety edge to the terminals 3 and 4 of connector X20.

WARNING: the movable safety edge must be connected before selecting PARAMETER 23, but it must NOT be activated. If this happens, the station sends back an error signal by showing the Err code on the display.

The same thing happens if you choose a parameter that does not correspond to the connected terminals.
It is possible to determine the type of secondary movable safety edge used on the door through PARAMETER 23.

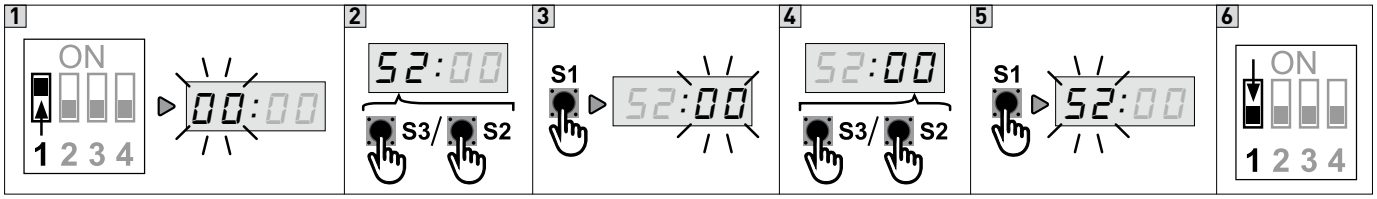


1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking.
2. Using the buttons OPEN (S2) and CLOSE (S3) select the parameter 23.
3. Access the field VALUE pressing STOP (S1).
4. Select the preferred value by pressing buttons S2 and S3:
   - **VALUE 00**: no secondary movable safety edge connected.
   - **VALUE 01**: the secondary movable safety edge works in parallel to the primary */**.
   - **VALUE 02**: the secondary movable safety edge stops the door while it is opening*.
   - **VALUE 03**: the secondary movable safety edge stops the door while it is closing by inverting the direction*.
5. Press STOP (S1) to confirm.
6. To leave the set-up mode, place the DIP1 in OFF.

NOTE: * The secondary movable safety edge must be PNE/air or 8.2 kΩ type. Anyway, it has to be of the same type of the primary movable safety edge. If parameter 88:03 (electromechanical lock) is set, it will not be possible to connect a secondary movable safety edge.

** For the anti-shears function, please connect a photocell instead of a movable safety edge.

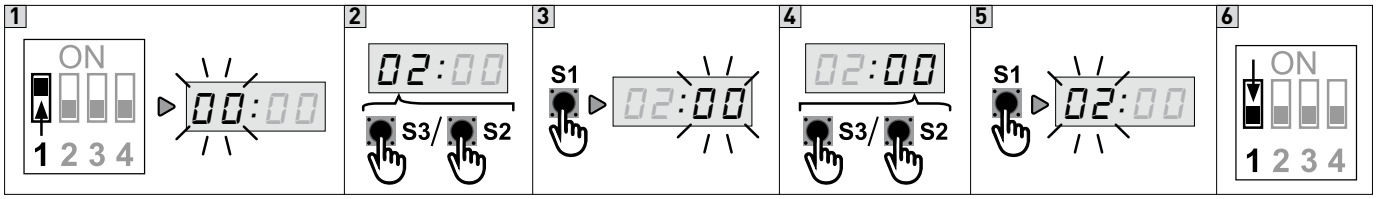
14.4 Mobile Safety Edge Reversal Time



1. Set DIP1 on selector S4 to ON; the PARAMETER field will begin to flash.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 52.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: The reverse time is set to the minimum value of 0.004 s.
   - VALUE > 00: Reversal time of the mobile safety edge in 1/100 of a second, range 0.00 – 0.99 s (Example: 01 = 0.01 s)
5. Press STOP (S1) to confirm.
6. To exit the settings, set DIP1 to OFF..

14.5 Reaction to a Photocell or Mobile Safety Edge Error

Through PARAMETER 02 it is possible to determine the behavior of the shutter in the event of a photocell or safety edge error.



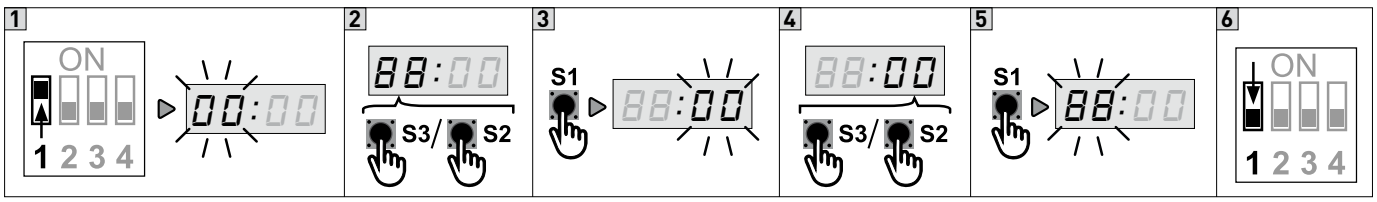
1. Set DIP1 on selector S4 to ON; the PARAMETER field will begin to flash.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 02.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons::

- **VALUE 00**: The door cannot close in hold-to-run mode.
- **VALUE 01**: The hold-to-run function is enabled.

WARNING: DO NOT USE VALUE 01 WHEN A DEVICE WITH A CONSTANT CLOSING SIGNAL IS INSTALLED. THE USE OF VALUE 01 IS AT THE CUSTOMER'S OWN RISK.

5. Press STOP (S1) to confirm.
6. To exit the settings, set DIP1 to OFF..

14.6 AUX relè mangement (max 230 V~/5 A)



Through PARAMETER 88 it is possible to determine the behavior of relé K3.

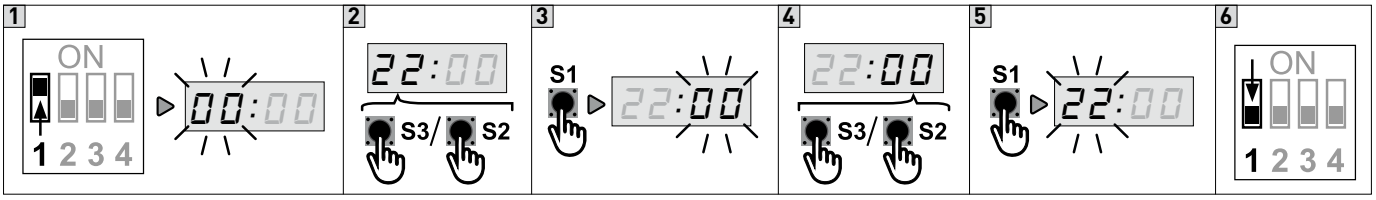
1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Using the buttons OPEN (S2) and CLOSE (S3) select the parameter 88
3. Access the field VALUE pressing STOP (S1)
4. Select the preferred value by pressing buttons S2 and S3:

- VALUE 00: active relé while the door is moving
- VALUE 01: active relé while the door is in the DOWN limit switch position
- VALUE 02: active relé while the door is in the UP limit switch position
- VALUE 03: the relé is used for the electromechanical lock: it activates for one second during the opening and ONLY if the door is closed

5. Press STOP (S1) to confirm
6. To leave the set-up mode, place the DIP1 in OFF

14.7 Overtravel

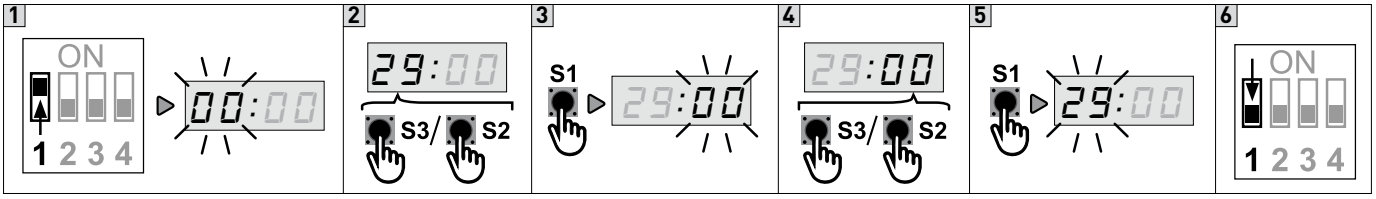
Used to prevent the door from reversing when it reaches the floor before the closing limit switch is activated for example, if dirt is present in the doorway or if the cables stretch over time.
Monitoring of the PNE/DW air-switch safety edge is selected automatically when the After-Run function is active. When the door reaches the closing limit switch, it will continue to close until the PNE/DW air switch is activated or the after-run time expires.



1. Set DIP1 on selector S4 to ON; the PARAMETER field will begin to flash.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 22.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: No overtravel*
   - VALUE > 00: Overtravel active – overtravel time 0.01–0.50 s.
5. Press STOP (S1) to confirm.
6. To exit the settings, set DIP1 to OFF.

14.8 Disengagement

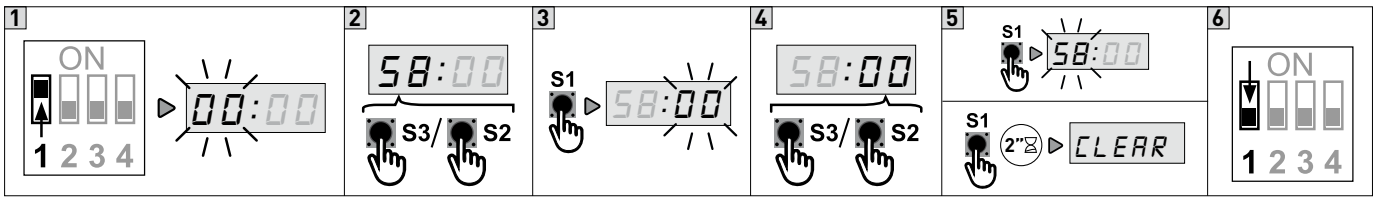
Used to prevent the cable from loosening when the door is closed. It works as a small pull-back time when the door stops at the closing limit switch.



1. Set DIP1 on selector S4 to ON; the PARAMETER field will start flashing.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 29.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: No overtravel*
   - VALUE > 00: Overtravel active – overtravel time 0.01–0.50 s.
5. Press STOP (S1) to confirm.
6. To exit the settings, set DIP1 to OFF.

15. Cycle Counter

Use the cycle counter to schedule maintenance intervals for the doors.



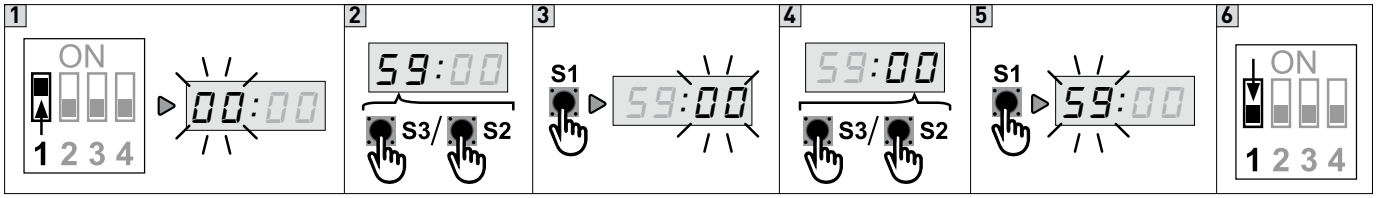
1. Set DIP1 on selector S4 to ON; the PARAMETER field will begin to flash.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 58.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: No maintenance countdown
   - VALUE 01: 15 opening cycles before maintenance (test only)
   - VALUE 02: 5,000 opening cycles before maintenance
   - VALUE 03: 10,000 opening cycles before maintenance
   - VALUE 04: 20,000 opening cycles before maintenance
5. Press STOP (S1) to confirm.

NOTE: Hold down STOP (S1) for 2 seconds to reset the cycle countdown. The display will show CLEAR

6. To exit the settings, set DIP1 to OFF.

15.1 Action When Cycle Count Is Reached

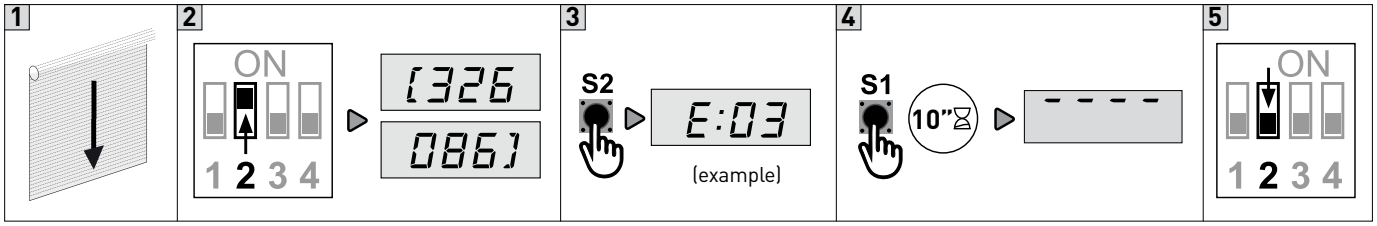
Use this parameter to choose the default action when the selected number of cycles has been reached.



1. Set DIP1 on selector S4 to ON; the PARAMETER field will begin to flash.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 59.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: When the cycle count is reached, the display shows E:04
   - VALUE 01: When the cycle count is reached, the operating mode switches to hold-to-run, and the display shows E:04
5. Press STOP (S1) to confirm.
6. To exit the settings, set DIP1 to OFF.

15.2 Displaying the Number of Cycles and the Error Log

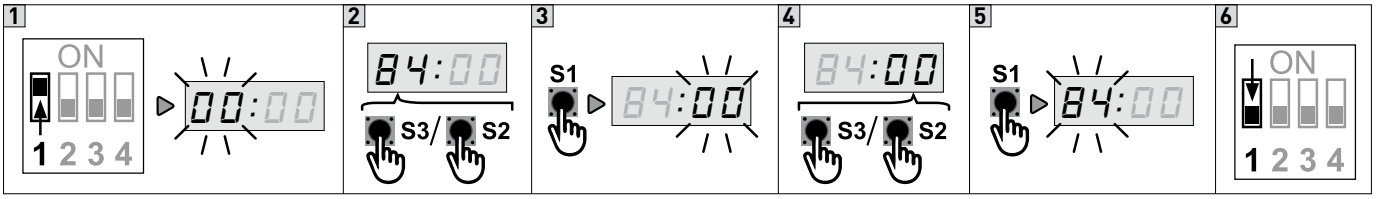
Use this function to view the cycle counter or the error history..



1. Move the door to the lower end-stop position (the door will not be operable while the display remains active)
2. Set DIP2 on selector S4 to ON. The display will alternately show the first and last digits of the total number of opening cycles. In the example, [326 and 0861 correspond to 326086 openings.
3. Pressing the UP (S2) button displays the most recent errors (for example E:03).
   APressing the DOWN (S3) button displays older errors. If no errors are stored, the symbol - - - - is shown.
   After the 10 recorded errors have been displayed, the display will show: Upper limit - - - - / Lower limit - - - -
4. To reset the error log, press and hold UP (S2) for at least 10 seconds until - - - - appears
5. To exit, set DIP2 to OFF.

16. Special Opening/Closing Functions

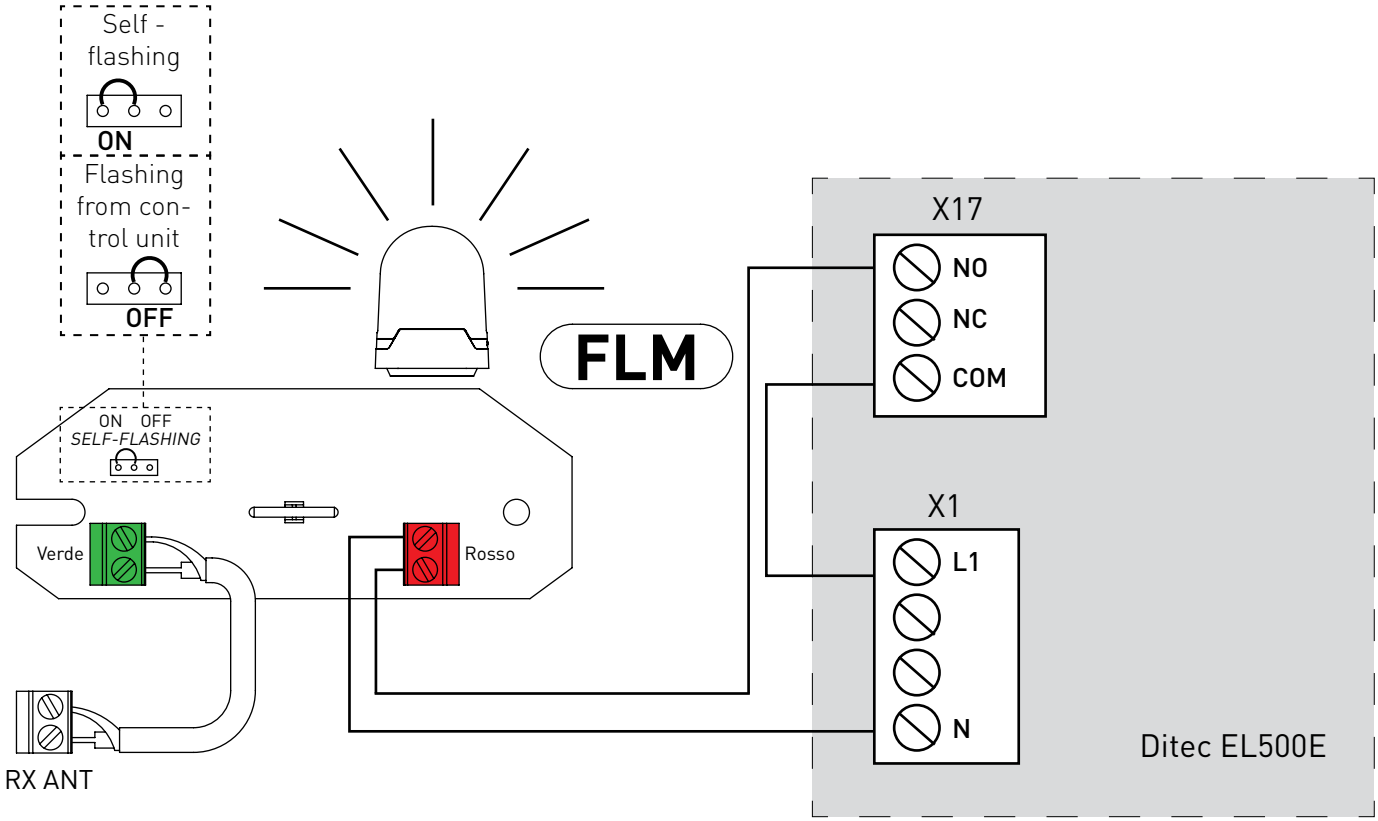
Use this function to enable special priority opening or closing modes.



1. Set DIP1 on selector S4 to ON; the PARAMETER field will begin to flash.
2. Using the UP (S2) and DOWN (S3) buttons, select PARAMETER 84.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: Special functions deactivated. Normal opening/closing operation.
   - VALUE 01: Special Opening Function. The opening signal has maximum priority. The door opens fully even if the STOP button is pressed (e.g., in case of fire).
   - VALUE 02: Special Closing Function. The closing signal has maximum priority. The door closes fully even if the STOP button is pressed (e.g., in case of fire).)
5. Press STOP (S1) to confirm.
6. To exit the settings, set DIP1 to OFF.

17. Flashing light connection (230 V~ with self-flashing) / courtesy light

- The flashing light will be active during the movement of the door. Set PARAMETER 88= 00.
- The flashing light works as courtesy light. Set PARAMETER 88= 00.

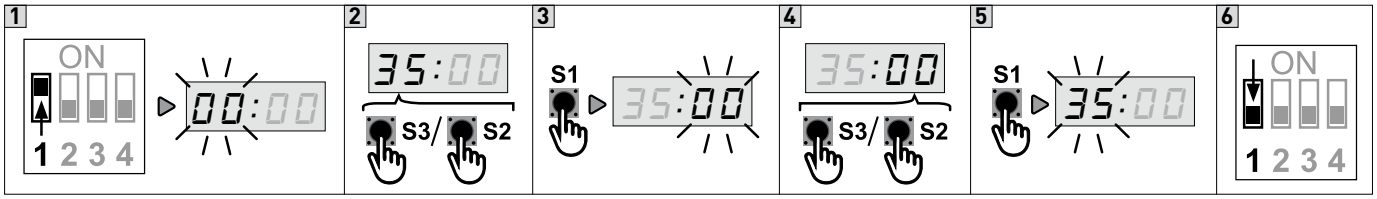


18. Additional radio receiver module NRGZENX1 (optional)

The control unit can be radio operated thanks to the ZEN transmitter. The BIXMR2 storage module of the radio receiver can contain up to 200 transmitters. The ZEN transmitter must be matched to the NRGZENX1 radio receiver already connected to slot X7 (see page 6).

Please look at the instructions attached to the NRGZENX1 radio receiver in order to connect it to the control unit and to match it to the transmitter.
Once the NRGZENX1 radio receiver is inserted, you can set up its operation mode through PARAMETER 35 (parameter 35 is visible ONLY if the photocell is active through parameter 31):

NOTE: Set working mode: 01:03 impulsive OPEN; Impulsive CLOSE.



1. Put DIP 1 (S4) in ON position, PARAMETER digits start blinking
2. Using the buttons OPEN (S2) and CLOSE (S3) select the parameter 35
3. Access the field VALUE pressing STOP (S1)
4. Select the preferred value by pressing buttons S2 and S3:
   - **VALUE 00. MODE OF OPERATION "CONDOMINIUM"**
     The signal of the transmitter always commands the opening, except when the door is already completely opened. In this case it commands the closure.
   - **VALUE 01. MODE OF OPERATION "CONDOMINIUM" + STOP**
     The signal stops the movement of the door ONLY while opening.
   - **VALUE 02. MODE OF OPERATION "ONLY OPENING"**
     The signal of the transmitter **ONLY** activates the opening of the door. If the door is closing, the signal changes the movement till the UP limit switch position has been reached.
   - **VALUE 03. MODE OF OPERATION "STEP-BY-STEP"**
     Every time the signal of the transmitter is activated, it accomplishes the following commands: OPEN > STOP > CLOSE > STOP sequentially.

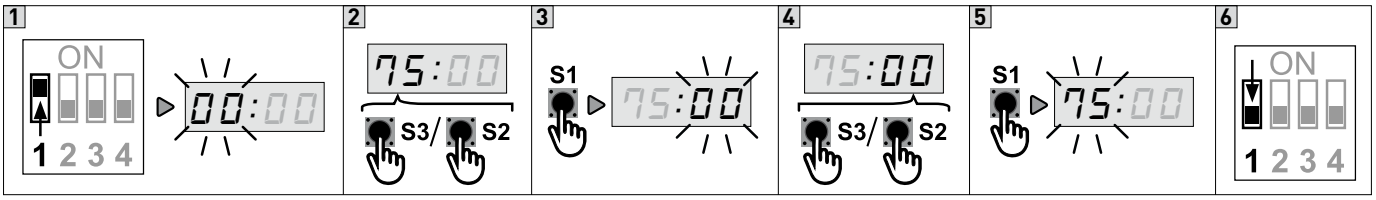
     NOTE: if the AUTOMATIC CLOSURE has been programmed, during the pause the signal of the transmitter will extend the pause by resetting the timer of the automatic closure.
5. Press STOP (S1) to confirm.
6. To leave the set-up mode, place the DIP1 in OFF.

19. "GO FUNCTION"

On input 9-10 of X3 terminal is available the function "GO FUNCTION" that defines the pulse mode of operation.
In case the Ditec radio receiver NRGZENX1 is not used, it is possible to cable third party receivers and to define the mode of operation.
The way of functioning for "GO FUNCTION" is selectable on parameter 35 following the procedure above (paragraph 18).

20. Module NRGFTL (optional)

The function settings for the relay module are configured using parameters 75 and 76. Parameter 75 controls AUX4, and parameter 76 controls AUX5. The operating modes are similar for both parameters (parameter 75 is shown below).



1. Set DIP1 on selector S4 to ON; the PARAMETER field will begin to flash.
2. sing the UP (S2) and DOWN (S3) buttons, select PARAMETER 75.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:

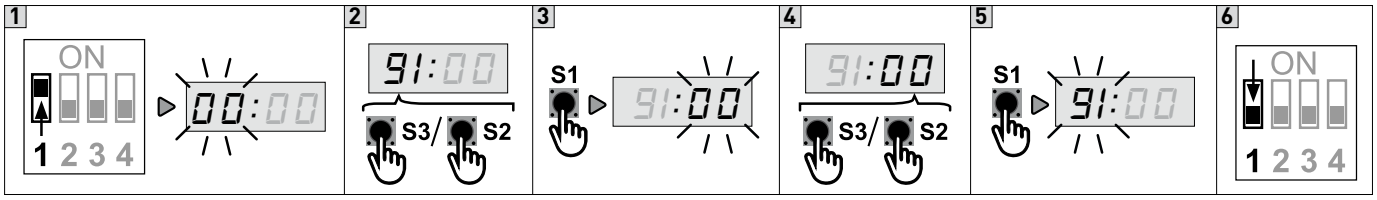
75:00	No function	75:17	ON when the safety edge is activated or when a safety-edge test error occurs
75:01	Flashing warning function and ON when the door is operating	75:18	Flashing during pre-warning and OFF when the door is operating
75:02	Flashing warning function during pre-warning and operation	75:19	ON shortly before and during the OPEN limit position Adjustable via parameter 91 (encoder limit switches only)
75:03	ON during pre-warning and operation	75:23	ON at the OPEN limit position
75:04	1-second pulse ON with Opening command	75:24	1-second ON pulse at each motor start
75:05	ON for error indication (LED D15)	75:25	ON on opening and for 2 minutes after stopping at the OPEN limit position
75:06	ON when the OPEN limit position is reached	75:26	Alternative output signal for the wireless safety edge (parameter 21:05)
75:07	ON when the CLOSED limit position is reached	75:27	2-second ON pulse upon reaching the OPEN limit position
75:08	OFF at the OPEN limit position; all other conditions = ON	75:28	Relay deactivated
75:09	OFF at the CLOSED limit position; all other conditions = ON	75:29	ON when the door opens
75:12	ON just before and during the CLOSED limit position. Adjustable via param. 92 (encoder limit switches only)	75:30	ON when the door closes
75:13	ON during movement + 0.4 s additional delay before and after movement	75:31	ON when the maintenance interval is reached (parameter 58)
75:14	ON when the motor is running (e.g., brake relay)	75:35	ON when photocell signal is OK; OFF when the light beam is interrupted
75:15	ON when the motor is not running	75:43	ON when the door is moving up or down
75:16	ON when the motor is running and the door is in the OPEN limit position		

PARAMETERS AVAILABLE ONLY WHEN WARNINGS ARE SELECTED IN PARAMETER 75 OR 76:

77:00	Start-delay for the timed warning (adjustable from 1 to 10 seconds), in both directions, warning relay active in the closing direction	78:00	Warning time setting for the closing direction (adjustable from 0 to 120 sec - values above 100 in 10 sec steps)

20.1 Opening Adjustment (Relay Module)

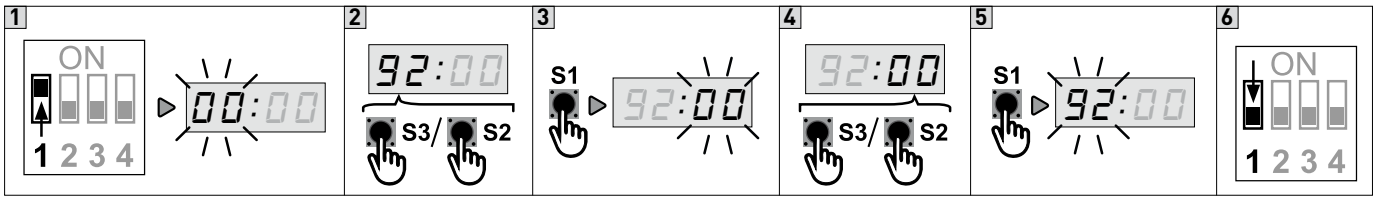
Adjustment for parameter 75/76 (only when parameter 75 or 76 is set to value 19) of the relay module



1. Set DIP1 on selector S4 to ON; the PARAMETER field will begin to flash.
2. sing the UP (S2) and DOWN (S3) buttons, select PARAMETER 91.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: 5% before the OPEN limit position
   - VALUE 01: 10% before the OPEN limit position
   - VALUE 02: 15% before the OPEN limit position
   - VALUE 03: 20% before the OPEN limit position
   - VALUE 04: 25% before the OPEN limit position
   - VALUE 05: 30% before the OPEN limit position
   - VALUE 06: 35% before the OPEN limit position
   - VALUE 07: 40% before the OPEN limit position
5. Press STOP (S1) to confirm.
6. To exit the settings, set DIP1 to OFF.

20.2 Closing Adjustment (Relay Module)

Adjustment for parameter 75/76 (only when parameter 75 or 76 is set to value 12) of the relay module



1. Set DIP1 on selector S4 to ON; the PARAMETER field will begin to flash.
2. sing the UP (S2) and DOWN (S3) buttons, select PARAMETER 92.
3. Access the VALUE field by pressing STOP (S1).
4. Select the desired value using the UP (S2) and DOWN (S3) buttons:
   - VALUE 00: 5% before the OPEN limit position
   - VALUE 01: 10% before the OPEN limit position
   - VALUE 02: 15% before the OPEN limit position
   - VALUE 03: 20% before the OPEN limit position
   - VALUE 04: 25% before the OPEN limit position
   - VALUE 05: 30% before the OPEN limit position
   - VALUE 06: 35% before the OPEN limit position
   - VALUE 07: 40% before the OPEN limit position
5. Press STOP (S1) to confirm.
6. To exit the settings, set DIP1 to OFF.

22. Parameter list

NOTE: bold values and <u>underlined</u> text correspond to the factory settings.

WARNING: set the limit switches (par. 5 or par. 6) before to adjust any parameter.

01 > OPERATION MODE

pag. 16

- **01:01** <u>Hold-to-run OPEN - Hold-to-run CLOSE</u>
- 01:02 Impulse OPEN - Hold-to-run CLOSE
- 01:03 Impulse OPEN - Impulse CLOSE
- 01:04 Not in use

02 > REACTION – FAILURE ON PHOTOCELL OR SAFETY EDGE LIST

pag. 24

- **02:00** <u>Hold to run operation not possible when failure on photo or safety edge list</u>
- 02:01 Hold to run possible when failure on photo or safety edge list

11 > SELECTION OF LIMITS

pag. 12

- **11:00** <u>Mechanical limits</u>
- 11:05 Encoder - standard installation
- 11:06 Encoder - not standard installation

12 > TUNING OF ELECTRONIC LIMIT OPEN

pag. 13

See instructions

13 > FINE TUNING OF ELECTRONIC LIMIT OPEN

pag. 14

See instructions

14 > TUNING OF ELECTRONIC LIMIT CLOSE

pag. 13

See instructions

15 > FINE TUNING OF ELECTRONIC LIMIT CLOSE

pag. 14

See instructions

16 > PARTIAL OPENING

pag. 20

- **16:00** <u>No active</u>
- 16:01 Partial opening active. Position controlled by mechanical micro switch
- 16:02 Partial opening active. Electronic limit on 50 % open position
- 16:03 Partial opening active. Electronic limit on 55 % open position
- 16:04 Partial opening active. Electronic limit on 60 % open position
- 16:05 Partial opening active. Electronic limit on 65 % open position
- 16:06 Partial opening active. Electronic limit on 70 % open position
- 16:07 Partial opening active. Electronic limit on 75 % open position
- 16:08 Partial opening active. Electronic limit on 50 % open position
- 16:09 Partial opening active. Electronic limit on 55 % open position
- 16:10 Partial opening active. Electronic limit on 60 % open position
- 16:11 Partial opening active. Electronic limit on 65 % open position
- 16:12 Partial opening active. Electronic limit on 70 % open position
- 16:13 Partial opening active. Electronic limit on 75 % open position

17 > AUTO CLOSE FROM PARTIAL OPEN

pag. 20

- 17:00 No active
- **17:01** <u>Active</u>

21 > SAFETY EDGE SELECTION

pag. 21

- **21:01** <u>PNE / DW air switch</u>
- 21:02 8.2 kΩ electrical (SOFA and SOFB series)
- 21:03 Optical
- 21:04 Special LP DW air switch
- 21:05 Wireless safety edge with test function on X20
- 21:06 Photoelectric barrier with OSE output

WARNING: if it is NOT use a safety edge, see instruction paragraph 12.2 .

22 > EXTRA RUN pag. 25

- 22:00 No after run
- >00 After run active – after run time 0.01 – 0.50 sec.

23 > EXTRA SAFETY EDGE pag. 23

- 23:00 No extra safety edge list
- 23:01 Extra safety edge list works parallel with primary safety edge list
- 23:02 Extra safety list stops door in opening direction
- 23:03 Extra safety list stops door and reverse a little in opening direction

29 > DISENGAGEMENT Function that allows the disengagement on stop during losing. pag. 25

- 29:00 No wire tighten function
- 29:01 Wire tighten 5mS
- 29:02 Wire tighten 10mS
- 29:03 Wire tighten 20mS
- 29:04 Wire tighten 30mS

31 > PHOTOCELLS SETTINGS pag. 21

- 31:00 No Photo safety connected
- 31:01 Photocell 1 connection on connector X12
- 31:02 Photocell 2 connection on connector X3
- 31:03 Photocell 1 and 2 connection
- 31:04 Photocell 1 connected and mounted on the door frame
- 31:05 Photocell 2 connected and mounted on the door frame
- 31:06 Photocells 1 and 2 connected, with photocell 1 mounted on the door frame
- 31:07 Photocells 1 and 2 connected, with photocell 2 mounted on the door frame

32 > AUTO CLOSE SELECT pag. 17

- 32:00 No auto closing
- >00 Active: the number indicates the number of seconds before activation

33 > CAR WASH FUNCTION pag. 18

- 33:00 No car wash function
- >00 Activation time of the photocell in units of 0.1 seconds

34 > "FORCED" CLOSING Configurable only when "car wash" is active. pag. 18

- 34:00 No forced closing
- 34:01 Forced closing after 2min (even though photocell has not been activated)
- 34:02 Forced closing after 5min (even though photocell has not been activated)
- 34:03 Forced closing after 10min (even though photocell has not been activated)
- 34:04 Forced closing after 20min (even though photocell has not been activated)

35 > OPTIONAL RADIO MODULE NRGZENX1 - "GO FUNCTION" pag. 28

- 35:00 "CONDOMINIUM" OPERATING LOGIC
- 35:01 "CONDOMINIUM + STOP" OPERATING LOGIC
- 35:02 "OPEN-ONLY" OPERATING LOGIC
- 35:03 "STEP-BY-STEP" OPERATING LOGIC

36 > TEMPORARY DISABLING OF AUTOMATIC CLOSING pag. 19

- 36:00 Function OFF
- 36:01 Function ON

51 > RUN TIME CONTROL pag. 17

- 51:00 No run time control
- 51:01 Run time 20 sec
- 51:02 Run time 40 sec
- 51:03 Automatic learning
- 51:04 Run time 60 sec

IP2413EN

52 > REVERSE TIME OF SAFETY EDGE

pag. 24

Reverse time of safety edge in 1/100 seconds. 0.00 – 0.99 sec. (**default 0,004 sec.**)

53 > REVERSE TIME OF PHOTOCELL

pag. 22

Reverse time of Photo in 1/100 seconds. 0.05 – 0.99 sec. (**default 0,30 sec.**)

58 > SERVICE COUNTER SETUP

pag. 26

- **58:00** No Service countdown
- 58:01 15 open cycles before service (for test only)
- 58:02 5000 open cycles before service
- 58:03 10000 open cycles before service
- 58:04 20000 open cycles before service

59 > SERVICE COUNT ALERT

pag. 26

- **59:00** Display shows E:04
- 59:01 Switch to hold-to-run control and display shows E:04

75 > MODULO AGGIUNTIVO NRGFTL (AUX4)

pag. 29

- **75:00** No function
- 75:01 Flashing warning function and ON when the door is operating
- 75:02 Flashing warning during pre-warning and operation
- 75:03 ON during pre-warning and operation
- 75:04 1-second ON pulse with Opening command
- 75:05 ON for error indication (LED D15)
- 75:06 ON at the OPEN limit position
- 75:07 ON at the CLOSED limit position
- 75:08 OFF at the OPEN limit position; all other conditions = ON
- 75:09 OFF at the CLOSED limit position; all other conditions = ON
- 75:12 ON shortly before and at the CLOSED limit position. Adjustable via parameter 92 (section 20.2)
- 75:13 ON during movement + 0.4-second additional delay before and after movement
- 75:14 ON when the motor is running (e.g., brake relay)
- 75:15 ON when the motor is not running
- 75:16 ON when the motor is running and in the OPEN limit position
- 75:17 ON when the safety edge is activated or when a safety-edge test error occurs
- 75:18 Flashing during pre-warning and OFF when the door is operating
- 75:19 ON shortly before and at the OPEN limit position. Adjustable via parameter 91 (section 20.1)
- 75:23 ON at the OPEN limit position
- 75:24 1-second ON pulse at each motor start
- 75:25 ON when opening and for 2 minutes after stopping at the OPEN limit position
- 75:26 Alternative output signal for the wireless safety edge (parameter 21:05)
- 75:27 2-second ON pulse when the OPEN limit position is reached
- 75:28 Relay deactivated
- 75:29 ON when the door opens
- 75:30 ON when the door closes
- 75:31 ON when the maintenance interval is reached (parameter 58)
- 75:35 ON when the photocell signal is OK; OFF when the light beam is interrupted
- 75:43 ON when the door is moving up or down

76 > NRGFTL ADDITIONAL MODULE (AUX5) (ref. parameter 75)

81 > DELAY TIME INDICATION OF MISSING ENCODER POSITION

- **81:00** 1 second
- 81:01 2 second
- 81:02 4 second
- **81:03** 4 second with automatic reset

pag. 14

84 > SPECIAL OPEN FUNCTION pag. 27

- **84:00** Normal open function
- **84:01** Special opening activated: Priority opening signal. The door will open after the up command even if STOP is active (e.g., opening signal for fire-alarm evacuation).
- **84:02** Special closing activated: Priority closing signal. The door will close after the down command even if STOP is active (e.g., closing signal for fire-alarm systems).

88 > OPTION RELAY (K3) pag. 24

- **88:00** Relay active when the door is moving
- **88:01** Relay active when the door is fully open
- **88:02** Relay active when the door is fully closed
- **88:03** Relay used for electric lock: activated for 1 min during opening starting from the closed position

91 > OPENING ADJUSTMENT (RELAY MODULE) pag. 30

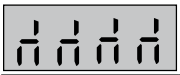
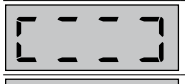
- **91:00** 5% before the OPEN limit position
- **91:01** 10% before the OPEN limit position
- **91:02** 15% before the OPEN limit position
- **91:03** 20% before the OPEN limit position
- **91:04** 25% before the OPEN limit position
- **91:05** 30% before the OPEN limit position
- **91:06** 35% before the OPEN limit position
- **91:07** 40% before the OPEN limit position

92 > CLOSING ADJUSTMENT (RELAY MODULE) pag. 30

- **92:00** 5% before the CLOSE limit position
- **92:01** 10% before the CLOSE limit position
- **92:02** 15% before the CLOSE limit position
- **92:03** 20% before the CLOSE limit position
- **92:04** 25% before the CLOSE limit position
- **92:05** 30% before the CLOSE limit position
- **92:06** 35% before the CLOSE limit position
- **92:07** 40% before the CLOSE limit position

23. Signal visualized on the display

The display will in run mode show status of limits, some inputs or error codes if they occurs.
When power up the software version is showed shortly.

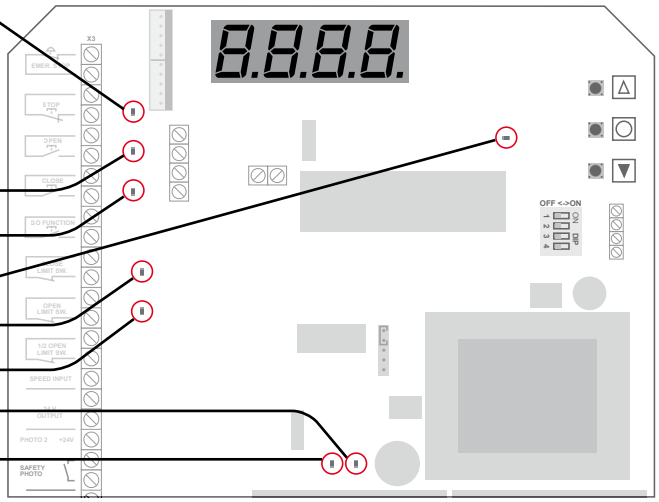
DISPLAY	DESCRIPTION
	• Nothing active. (4 chairs symbol) • Door is stopped between limits and no errors are found.
	**Open limit active (S2)**
	**Close limit active**
	**Partial opening**
	**Active stop**
	**OPEN push-button active (S2)**
	**CLOSE push-button active (S3)**
	**GO function active** (**NOTE**: that the door only can be closed by GO function, when photocell is installed)

PH: 1	**Photocell 1 active** Photocell 2 is external photocells mounted in the screw terminals X12.
PH: 2	**Photocell 2 active** Photocell 2 is external photocells mounted in the screw terminals X3.
----	**Safety Edge active**
ERT	**Safety list not mounted correct / wrong selection in parameter 21**
n n	**Door running up**
u u	**Door running down**

24. Ricerca guasti

D10 - STOP active
(X3:1-2, X3:3-4, X3:28-29, X13:2-5, X2:4-5)
LED is also active in fail mode. Observe display and D15 ERROR LED

D13 - Open Limit
D16 - Close Limit
D15 - Error diode - it shows the error code
D12 - Close Limit active
D14 - Open Limit active
D28 - Power ON to Open contactor (S2)
D29 - Power ON to Close contactor



24.1 Error codes - D15 error LED

(used when electronic limits is selected)

Flashes on error LED D15	Error explanation	Solving error
1	No answer from encoder (No 24 V⎓ control voltage)	Check connections Check the 24 V⎓ voltage in terminal 18-19 of X3
2	Limits not learned	Learn limits
3	Motor running unintended	Service needed. Fatal error. Move the door manual to middle position without power. Change from normal mode to programming mode on DIP switch no.1. This will clear the SER error. If the door is running again in 1 sec. without command when power is on then the PCB is defect.
4	Calculation error	Check that parameter 11 value is correct selected. (Left/right turning select). Possible user error – both limits are the same. Encoder error.
5	Not in use	
6	Not in use	
7	Encoder: position out of learned range.	Re-learn limits
	Encoder – wrong selection of left/right turning	Check that parameter 11 value is correct selected. (Left/right turning select) or re-learn limits
8	Encoder – Failure operating voltage	Check connection and supply voltage. Change encoder
9	EEPROM failure on IC4 by power up	Re-learn limits and make a new power-up. (In that order!) Or Make a factory resetting and a new power-up. (In that order!)

24.2 Display error code

DISPLAY	DESCRIPTION
	**Error code. Door is running without command** Service needed. Fatal error. Move the door manual to middle position without power. Change from normal mode to programming mode on DIP switch no. 1. This will clear the SER error. If the door is running again in 1 sec. without command when power is on then the PCB is defect.
	**Error code. Edge monitoring** Error code Monitoring failure of safety edge if this function is activated. Check or adjust safety edge list.
	**Error code. Run time** Error code. Door is stopped on run time control.
	**Error code. Service** Service counter decremented to 0 Reset for new countdown
	**Error code. Photocell** Failure in photocell circuit. (Test cycle after last stop failed, Press STOP to start new test)
	**Error code. Safety Edge** Failure in edge circuit. (Test cycle after last stop failed, Press STOP to start new test)
	**Error code. no change of encoder position, when running.** Door started, but the position is not changing. Door is stopped after delay time and E:09 failure is shown about 1 sec. Possible errors: The door is blocked, disengaged, cable connection error or the encoder magnet is not fixed on the shaft. Reset of E09: both limits shall be founded again by hold-to-run steps. (If it is not possible to find both limits, the limits must be relearned) If necessary, adjust in parameter 81 (delay time) Parameter 81:03 = autoreset
	**Error code. EEPROM Fail** Possible error: Limits has been changed, after the force control has been learned. Reset of E20: Try deactivating force control in parameter 41 (41:00) and after this make a new power-up.
	**Error code. EEPROM Fail** EEPROM failure of power-up. Try factory clear or change processor (paragraph 4.3).
 or  and 	**Errore sul circuito a 24 V o 12 V** Il circuito 24 / 12 V è in cortocircuito o sovraccarico.

ASSA ABLOY Entrance Systems AB
Lodjursgatan 10
SE-261 44, Landskrona
Sweden