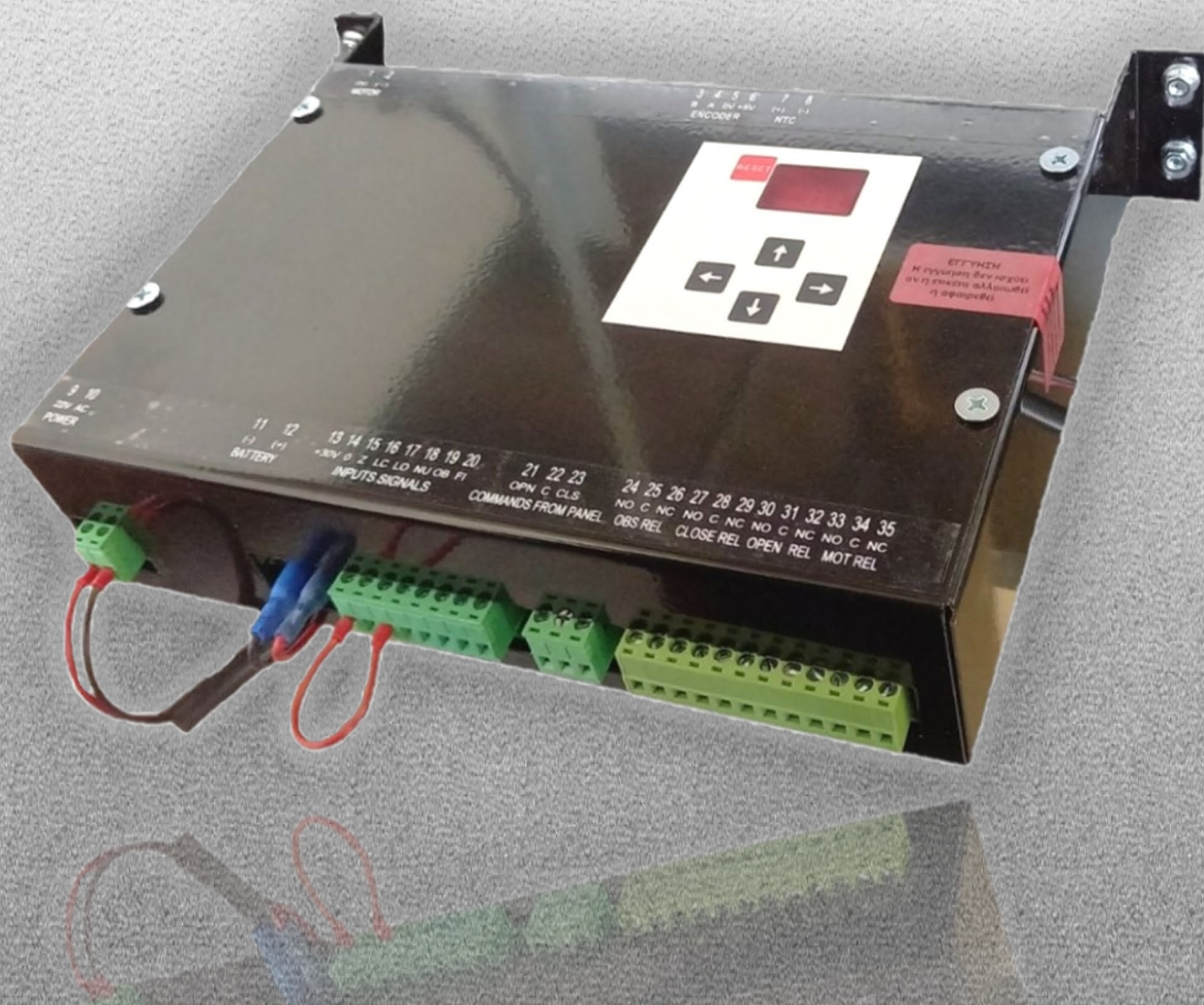


## DCverter V3.0 Manual

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*Intelligent microcontrol System for Automatic Doors*



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## **SAFETY INSTRUCTIONS – WARRANTY**





Please read carefully all the content of this manual before using the product for the first time. The use of this Door Controller is restricted to authorized personnel only. Any use not described in this manual, including opening the box, automatically cancels the provided warranty. For the protection and the correct use of the Controller, please follow the below instructions:

- DO NOT OPEN the metallic box. Controller contains sensitive elements and its opening will lead to warranty loss. In case of malfunction, please contact our company to send the product to our premises for repair.
- Do not spill water on the device.
- Do not expose the Controller to extreme conditions of temperature, humidity or dust.





## **WARRANTY**

DCverter V3.0 Controller comes with **2 year warranty** concerning the functionality of electronic and navigation components (Buttons-Display). Any damage due to misapplication (use that is not described in this manual) is not covered by the warranty.


## 1. INSTALLATION IN 10 STEPS

1. Connect the required contacts as described in the table 'Connections during installation' on page 7.
2. Power ON DCverter V3.0 Controller from power switch 
3. Press  to enter Main Menu.
4. Press  &  to navigate through menu and change values to the settings.


### LIGHTCURTAIN

5. In menu option U9 press , using  &  choose 00 (Power Supply 24V from Door Controller) or 01 (Power Supply 24/220V from Main Control Panel/ No Lightcurtain) and press  for validation.







### COMMANDS FROM MAIN CONTROLLER








6. In menu option U4 choose 00 (Close), 01 (Open & Close) or 02 (Open) according to the commands Main Controller will send to the Door Controller. Press  to validate your choice.

### AUTOLEARNING

7. On Main Menu press extended (for 2 sec)  to start the doors' Autolearning. It includes 3 opening-closings.  
 Caution! Door Controller must receive positive signal (contact 15) that the Cabin is in the Locking zone.

### MAINTENANCE / MANUAL OPERATION

8. To set every Landing door, press simultaneously  &  for 2 seconds, in order to enable manual operation / maintenance. DCverter V3.0 is set to normal operation by default.
9. In Manual Operation press  to open door &  to close it.
10. Press simultaneously  & , in order to return to Normal Operation.

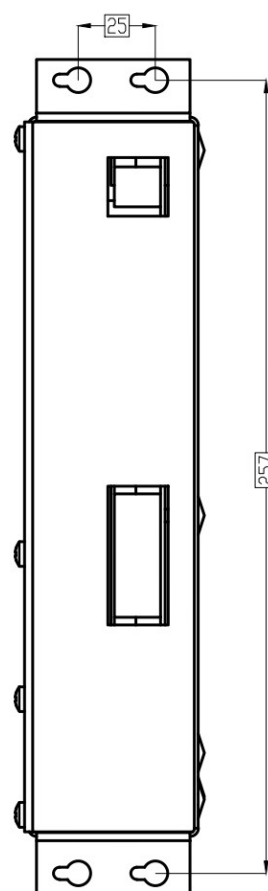
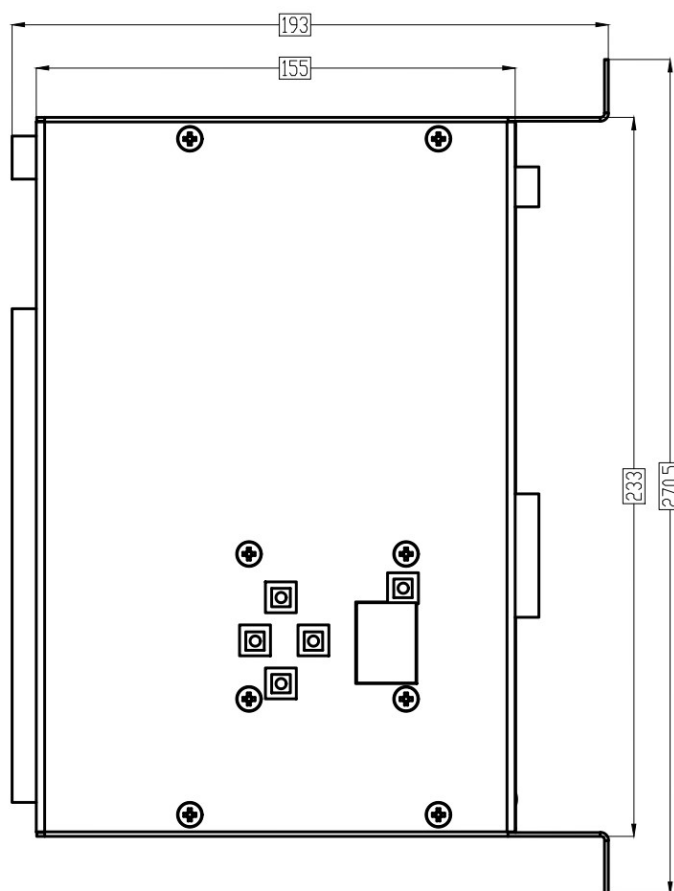
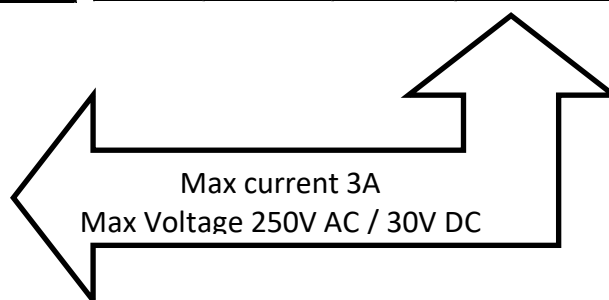
BUTTONS FUNCTIONS			
Button	Normal Operation	Menu Navigation	Manual Operation / Maintenance
	Enter Menu	Navigate through the possible options of Menu & Values Modification	-
	(Exended push for 2 sec) Autolearning of doors		-
	-	Enter the selected menu option / Validation	Door Close
	-	Exit to the previous menu level / Cancel	Door Open
 	(Exended push for 2 sec) Switch between Normal and Manual operation		
	Reset to Factory Settings (Loss of every setting from the user)		

## 2. TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS	
Converter input Voltage	230V AC (1 phase)
Converter power	120 VA
Controller input Voltage	20-24V AC
Rated Motor Voltage	24V DC
Max Motor Power	100W (0,134HP)
Max Current (Controller - Motor)	5A
Encoder input Voltage	5V
Rated Battery Voltage	24V
Battery Capacity	1,5 Ah

INPUTS		
NAME	NUMBER	TYPE
Z	15	Digital Inputs from contacts. The input Voltage is +24V / 0V DC
LC	16	
LO	17	
NU	18	
OB	19	
FI	20	
OPEN	21	
CLOSE	23	

OUTPUTS		
NAME	NUMBER	TYPE
OBS	24 - 26	Relays' Dry Contacts
CLOSE REL	27 - 29	
OPEN REL	30 - 32	
MOT REL	33 - 35	



### 3. GENERAL INFO

The door controller DCverter V3.0 is an autoadjustable automatic door controller of **KALLIOTIS ELEVATORS** and controls every automatic door manufactured by the company, according to the European Regulation **EN 81-20** requirements. It is powered by a converter 230V AC-24V AC with power 120 VA or by a lead battery 24V DC/1.5Ah. It uses a DC motor 24V/100W, which is connected to the automatic door. The motor disposes an integrated encoder, so that the function of Autolearning is sufficient for the door to memorize the terminal points of the travel. Consequently, there is no need for proterminal switches on the door or for separate magnets for the zone and the evacuation, as the same encoder is used for both.

Furthermore, the DCverter V3.0 includes protection systems from a short circuit not only for the door controller, but also for the battery too. It also constantly measures and monitors the voltage of power supply through the door controller, the voltage of the battery, the voltage and the current of the motor, the voltage of the encoder and the Central Power Unit (CPU). The battery is connected to the same type connector, not only in its' contacts, but also in the controller. The automation that switches power source from network to battery, when network supply is out, ensures the immediate evacuation with safety, while the battery charger is protecting the battery from overload and extreme discharge.

Regarding the secondary parts, DCverter V3.0 disposes buttons and a screen (7-segment display) for its' programming and a buzzer for sound notifications. Also, the port RS-485 in the door controller allows its' connection to the programming board of KALLIOTIS ELEVATORS and there is also a reset key, for restarting the program of CPU.

The door controller's programming menu is simple, practical and includes all the basic parameters that need to be adjusted, so that the door functions properly. All the controller's signals have a distinct name that indicates the signal use (f.e. NO, +5V etc.). All the terminals' names are disposed on the upper part of the metallic box.

Last but not least, the DCverter V3.0 is a completely autoadjustable door controller. It is fully adjusted to the door function conditions, providing the possibility of autocontrol of the door speed. It always keeps the programmed speed stable on every floor, regardless the floor, the position and the door opening, without the need of intervention by a technician. The whole control is automatically completed by the DCverter V3.0, which corrects occasional errors during the installation.

## 4. SECONDARY PARTS

As indicated in page 5, door controller includes some supplementary parts, which facilitate its' use.

### BUZZER

The Buzzer is used for sound notifications, which can be deactivated from the menu (except from the beep sound, which is produced when a key is pressed). In particular, the available notifications are as detailed below:

- Violation notification: 3 beeps.
- High motor current notification: 5 beeps.
- Unexpected door stop (f.e. sudden encoder deactivation): 1 very long beep.

### KEYS - BUTTONS

There are 5 keys:

- **Right:** Confirmation- Save (ENTER)
- **Left:** Return (ESC)
- **Up- down:** Navigation in the menu, as well as parameters modifications
- **RESET:** CPU Program restart. After the restart, if there is not a zone or if the motor is not connected, then the program does not move forward and waits till these factors are back.

**Attention,** for the validation and the value saving, the right key (ENTER) must be pressed, because by pressing the left key, we return to the main menu, without any value registration (ESC). The saved settings are maintained even in case the controller is logged out from power supply (except from the AU).

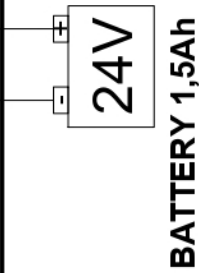
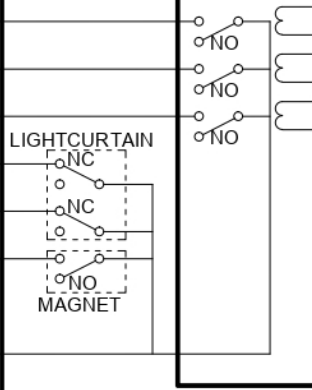
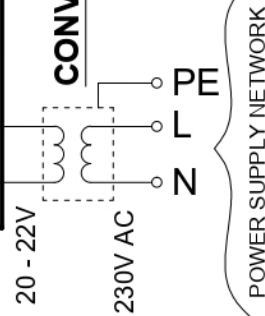
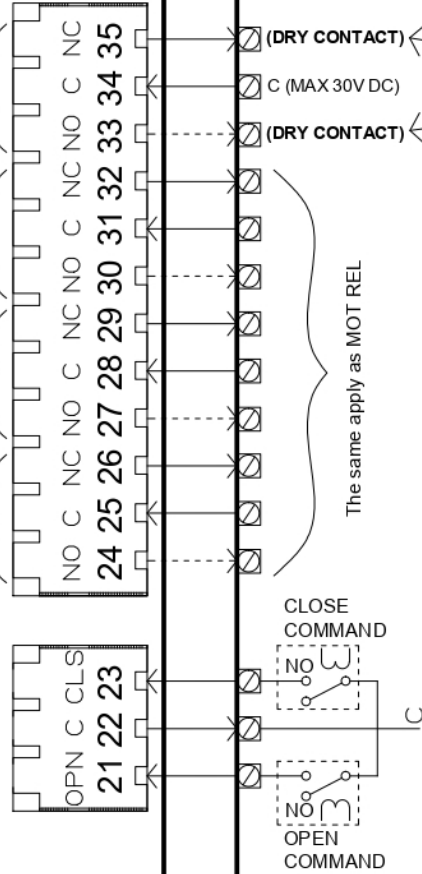
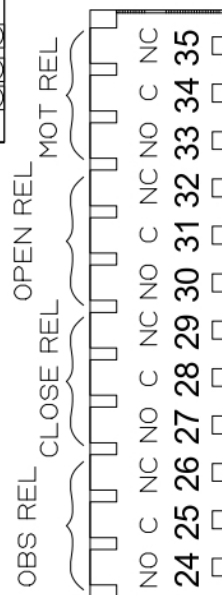
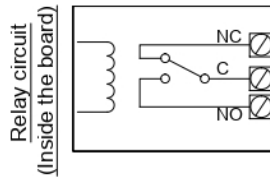
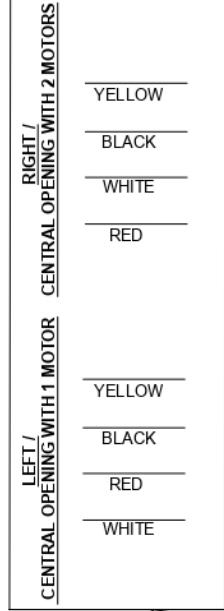
### SCREEN (7 SEGMENT DISPLAY)

This is the screen, on which whether the automatic notification messages are shown or the navigation in the controller's menu is conducted.

### CONTROLLER SERIAL NUMBER

The serial number of Door Controller is on the sign-sticker on the metallic box.

## ENCODER CONNECTION DETAILS



You may use NC or NO (Dashed connection)

## MAIN CONTROLLER



## 5. CONNECTIONS

As long as door is installed on the cabin, proceed with the below connections:

CONNECTIONS DURING INSTALLATION		
Description	Contacts	Notes
<b>ZONE MAGNET</b>	13 – Magnet – 15	<b>Z:</b> Locking Zone Magnet
<b>LIGHT-CURTAIN</b>	13 – LightCurtain – 16	<b>LC:</b> Obstacle Signal from LightCurtain
	13 – LightCurtain – 17	<b>LO:</b> LightCurtain Malfunction. In case LightCurtain does not provide malfunction output, contact 17 must be bridged with 14 (0).
<b>NUDGE</b>	18 – Signal form Main Controller (M.C.)	<b>NU:</b> Low speed door closing with buzzer. LightCurtain is not functioning during this state.
<b>OBSTACLE</b>	19 – Signal form M.C.	<b>OB:</b> Obstacle signal from Main Controller
<b>FIREFIGHTER</b>	20 – Signal form M.C.	<b>FI:</b> Firefighter's operation activation
<b>CLOSING / OPENING FROM MAIN CONTROLLER (M.C.)</b>	21 – Signal form M.C.	<b>OPN:</b> Opening signal form M.C.
	22 – Signal form M.C.	<b>C:</b> Input From M.C.
	23 – Signal form M.C.	<b>CLS:</b> Closing signal form M.C.
<b>OBSTACLE RELAY</b>	24 ( <b>DRY CONTACT</b> ) – Signal to M.C.	Signal to Main Controller that door has encountered obstacle. You may either connect <b>NC (24)</b> or <b>NO (26)</b> .
	25 – Input (max 30V) form M.C.	
	26 ( <b>DRY CONTACT</b> ) – Signal to M.C.	
<b>CLOSING RELAY</b>	27 ( <b>DRY CONTACT</b> ) – Signal to M.C.	Signal to Main Controller that door is fully closed. You may either connect <b>NC (27)</b> or <b>NO (29)</b> .
	28 – Input (max 30V) form M.C.	
	29 ( <b>DRY CONTACT</b> ) – Signal to M.C.	
<b>OPENING RELAY</b>	30 ( <b>DRY CONTACT</b> ) – Signal to M.C.	Signal to Main Controller that door is fully closed. You may either connect <b>NC (30)</b> or <b>NO (32)</b> .
	31 – Input (max 30V) form M.C.	
	32 ( <b>DRY CONTACT</b> ) – Signal to M.C.	
<b>OVERHEATING RELAY</b>	33 ( <b>DRY CONTACT</b> ) – Signal to M.C.	Signal to Main Controller that motor is overheated. You may either connect <b>NC (33)</b> or <b>NO (35)</b> .
	34 – Input (max 30V) form M.C.	
	35 ( <b>DRY CONTACT</b> ) – Signal to M.C.	

FACTORY SETTINGS		
Description	Contacts	Notes
<b>Motor</b>	1 & 2 – Motor	<b>MOT+ &amp; MOT- :</b> Motor Input 24V.
<b>ENCODER</b>	3 – <b>Yellow</b> cable of encoder	<b>5V+</b>
	4 – <b>Black</b> cable of encoder	<b>0V</b>
	5 – <b>Red</b> cable of encoder	<b>A</b>
	6 – <b>White</b> cable of encoder	<b>B</b>
<b>THERMAL SENSOR</b>	7 & 8 – Thermal Sensor	<b>NTC+ &amp; NTC-</b>
<b>POWER SUPPLY</b>	9 & 10 – Converter	<b>24 V AC IN:</b> Power supply form Converter 20-24V AC
<b>BATTERY</b>	11 & 12 – Battery	<b>BAT- &amp; BAT+</b>

## 6. PROGRAMMING MENU

To enter the controller menu press the down button when the doors are not moving.

### INDICATIONS (i)

DCverter V3.0 provides various indications that inform the user on the conditions of door's operation. Some automatically appear on the screen when specific conditions are triggered, while others can be accessed manually through menu.

#### Automatic Indications:

- When door is not moving, the screen shows the version of the software. If there are errors, the screen shows sliding the error code, which always starts with letter 'F'.
- When door is moving, the screen shows its current speed.

#### Indications inside menu:

- i1 → Opening-Closing counter
- i2 → Obstacle counter
- i3 → Time in usage (days)
- i4 → Battery Voltage
- i5 → Input Voltage
- i6 → Max input Voltage
- i7 → Current Motor Temperature
- i8 → Max Motor Temperature

### OTHER CONTROLLER FUNCTIONS

- Successive Closing Failures: During normal Operation or Autolearning, if door fails to close 6 successive times, it waits for 20 seconds and repeats until it manages to close. In the meantime, if another order is given, it stops the previous procedure and executes the last given.
- Power Supply Failure - Evacuation: The controller awaits signal that cabin is in the **Unlocking zone** (floor level), in order to slowly open the door and turn off after 1 minute to protect the battery. Normal Operation returns as soon as power supply return. If Unlocking zone signal does not arrive timely, then door controller turns off without executing evacuation to protect the battery. In this case, evacuation can be done only manually. Battery resets through electrical switch, after power supply restoration, because discharged use of battery will ruin it.

### SETTINGS (U)

Before first use of doors, it is necessary that specific settings are regulated (mandatory settings), while factory settings are ready and can be optionally changed through menu.

MANDATORY SETTINGS DURING INSTALATION			
Description	Menu	e	Notes
LIGHTCURTAIN FUNCTION	U9	00	Power Supply from Door Controller ( 24V )
		01	Power Supply from Main Control Panel (24/220V) / No Lightcurtain
SIGNALS FROM MAIN CONTROLLER SETTING	U4	00	Only Closing
		01	Opening & Closing
		02	Only Opening
AUTO-LEARNING OF DOORS	E		The Cabin must be in the Locking Zone
	▲ for 1 sec		
NORMAL OPERATION	30' idle		After 30' idle the door returns to normal operation automatically
	RESET		Door returns to normal operation (AU=00)
	AU	00	
MANUAL OPERATION / MAINTENANCE	AU	01	Opening ◀ & Closing ▶ of door
			▲ Automatic Operation (Door Opens and closes consecutively)
			▼ If door was closing, reopens. If it was closing, opens more

OPTIONAL SETTINGS - FACTORY SETTINGS					
Description	Menu	Default Telesc	Default Central	Value Range	Notes
Max opening Speed	U1	87	85	45...97	If value ↑, speed ↑
Max closing speed	U2	85	80	45...97	If value ↓, speed ↓
Obstacle detection sensitivity	U3	9	9	5...50	If value ↑, sensitivity ↓
Door Type	U6	01			Telescopic (side)
		02			Central
		03			Central with second motor
Landing Door Type	U7	01			Automatic
		02			Semi-Automatic
Delay after obstacle detection	U8			0...8	Seconds
Number of obstacle detections before Nudge	UA	8	8	5...12	Default 8
Motor Thermal Sensor	bb	0		0	Motor does <b>NOT</b> have thermal sensor (Default)
				1	Motor has thermal sensor
Deceleration RATE before stopping (door opening)	H1	52	52	20...55	If value ↑, deceleration ↓
Deceleration RATE before stopping (door closing)	H2	25	20	20...55	If value ↑, deceleration ↓
Deceleration TIME before stopping (door opening)	o4	16	17	15...50	If value ↑, time ↑
Deceleration TIME before stopping (door closing)	C4	19	21	15...50	If value ↑, time ↑
Beeper State	Bu	0			Disable
		1			Enable
Open - Close of the cam	5E				◀ Open ▶ Close
Exit menu	X				

## 7. ERRORS (F) & POSSIBLE SOLUTIONS

As soon as all the required connections and settings are completed the way the previous chapters describe, doors are ready to use. If any error occurs, first of all please validate the correctness of connections and settings and after that check the below cases:

### INTEGRATED ERROR CHECK

Door Controller DCverter V3.0 integrates automatic alert for the occurrence of some errors. These alerts appear on the screen and its code begins with 'F'. If more than one errors occur, the alerts appear sequentially on the screen. The integrated alerts are:

- F1:** Power Supply failure
- F2:** Battery disconnected
- F3:** Battery overload
- F4:** Battery underload
- F5:** Disconnected motor
- F6:** Unlocking zone magnet error
- F7:** Lightcurtain error
- F8:** Motor overheating
- F9:** High Input Voltage
- F10:** Low Input Voltage

### FREQUENT ERRORS – FAILURES & SUGGESTED SOLUTIONS

- **Autolearning does not start.**  
Door controller must receive signal (15) from Unlocking Zone Magnet. This can be done with 2 ways: The Cabin is in the Unlocking zone or the contacts 13 & 15 are bridged.
- **Right after first use, the door cannot open and display show 'F5'.**  
This means motor is not connected. In this case, door controller does not operate and can not be set.
- **Right after first use, door does not open when on floor.**  
This error means that door controller does not receive signal (15) from Unlocking Zone Magnet.
- **Door closes instead of open.**  
The wires of motor are wrong connected. Switch them based on the described instructions.
- **Door Controller does not execute received orders form Main Controller.**  
Make sure door is not in Maintenance operation (AU menu).
- **All the connections are correct, but door executes only open or only close.**  
Check the setting of menu U4.
- **While door seems to start, after a few centimeters it stops.**  
Check the connections of the Encoder.
- **Door can not close.**  
Check the connection and the setting of Lightcurtain.



- **While door starts to close, it reopens.**  
Check if something blocks the door movement. If door is correctly installed and there is no obstacle, it is programmed to always close.
- **Door receives order to close, but it does not.**  
Wait for 20 seconds, because if nudge condition is triggered, door remains for 20 seconds inactive. Also, check the function of Lightcurtain.
- **There is an error that is included in integrated checks, but the controller does not show it on the screen.**  
There might be an interval of about 6 seconds max between the error occurrence and the appearance on the screen.