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S-50



OTOMATİK KAPI MOTORU SÜRÜCÜ KARTI KULLANMA KILAVUZU

S-50



ELEVATOR DOOR CONTROLLER INSTRUCTION MANUAL

**EDS-50 Automatic Elevator Door Controller
Instruction Manual**

Published : Standard
Version : Y3.xx/E3.xx

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Tic. A. Ş.**

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I. PREFACE

S-50 Elevator door motor driver, Uygur Asansör San. Tic. A. Ş. It is a new generation brushless motor control device designed by the company. This system has unique design with user-friendly interface. This design helps to avoid the probable malfunctions and faults caused by over-heating which will disturb the operation performance. The operator screen has elegant and effective design. Both mid and low level installations are supported. In addition, auto-learning, safety, full-functionality, high precision on speed control, easy installation and reliability offers a high quality solution.

The important features and advantages of S-50 Controller are as follows: It does not require limit switches for identifying open and closed condition of the door. At the same time, it measures the range of door movement and applies its operation within this frame. As a result of long time sensing of the photocell, which is called "nudging", the door is closed with an audible warning. If the door gets stuck or someone is stuck in between, the door re-opens with an audible warning, then while the door closes again, it passes slowly through the jamming zone and the door is closed safely. By measuring the door width and automatically plotting the movement curve, the door moves fast and perfect operation is achieved in acceleration and deceleration slopes which avoids any jerk. Each door opening and closing is counted and kept in memory. In this way, statistics are also stored in memory. While no adjustment is made; in addition to the information of "door closed", "door open", "closing", "opening", "motor temperature", "current drawn", "speed" and "distance", the error description can also be monitored if an error has occurred.

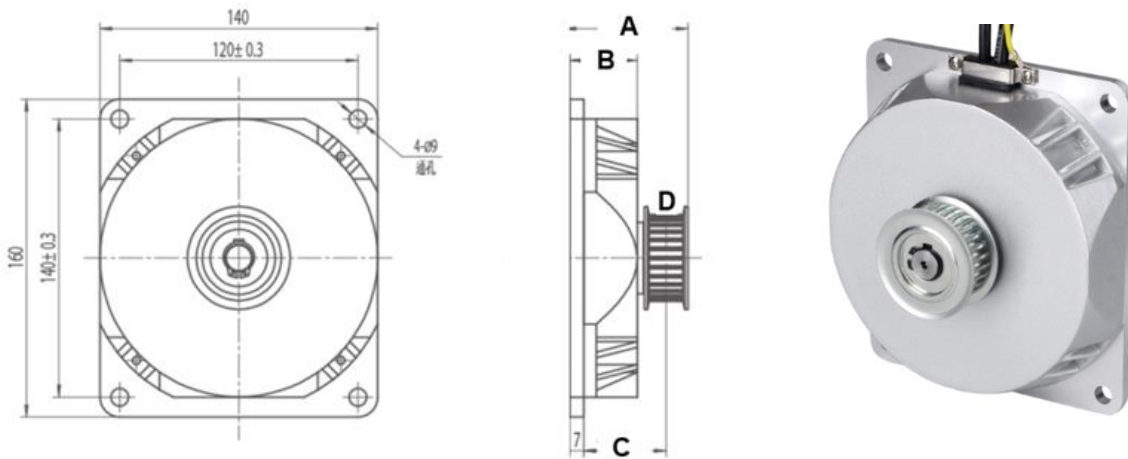
This manual has been created in subject to the installation, initial start-up and setting of the drive and motor.

II. RATINGS AND APPLICATION NOTES

2.1 TECHNICAL SPECIFICATIONS

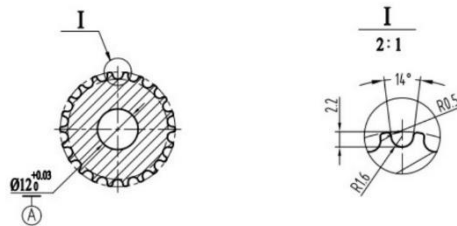
IDENTIFICATION		PRODUCT SPECIFICATION
Power Input & Output	Supply voltage	220VAC
	Rated frequency	50 Hz.
	Output voltage	24VDC. 500mA. Built-in power supply
Encoder	Resolution	4096 Pulse
	Signal type	SPI
Motor Output	Max. Motor power	400W.
	Output voltage	3x220VAC
	Max. Motor current	2A.
	Output protection	Current limiting
User Interface	Interface language	Turkish, English, Russian, French, Espanol
	Control buttons	4 Buttons: Enter, Esc, Up, Down
	Indicator	LCD Screen: White letters on Blue background, 2x16 Characters
	Audio alert	Mini buzzer.
Dimention (mm)		D: 210 x H: 118 x D: 30
Operation Ratings	Door width	50 Cm. - 400 Cm.
	Door movement speed	10 Cm./Sec. - 100 Cm./Sec.
	Skate zone speed	1 Cm./Sec. - 20 Cm./Sec.
Control Signals (Inputs & Outputs)	Input type	PNP / NPN (Selectable)
	Input quantity	5 Pcs. Isolated digital inputs
	Output tpe	PNP / NPN (Selectable)
	Output quantity	4 Pcs. Isolated transistor outputs

2.2 MOTOR APPEARANCE AND DIMENSIONS



N. COG	16 COG	19 COG	22 COG	22 COG
A	61,2 mm	61,2 mm	71,4 mm	78,4 mm
B	38,5 mm	38,5 mm	44,5 mm	51,5 mm
C	44,5 mm	44,5 mm	54,0 mm	61,0 mm
D	13 mm	13 mm	17 mm	17 mm
TORQUE	2,3 Nm	2,3 Nm	3,6 Nm	5,0 Nm
RPM	500 rpm	500 rpm	500 rpm	500 rpm

Timing belt gear details



Note: The timing belt will be 5M in size.

2.3 CONTROLLER APPEARANCE AND CONNECTIONS



Power: That is the point where the electrical energy of the device is connected. The device is powered by 220VAC alternating current.

- L : Phase Input
- PE : Earth Input
- N : Neutral Input

On/Off: The button for Switch ON/OFF the device

M: Motor Output

- U : Motor Phase Input - U
- V : Motor Phase Input - V
- W : Motor Phase Input - W
- PE : Motor Earth Input - PE

Encoder: It is necessary to control the motor motion and to drive the motor by means of vector control. At the same time, the position of the door is learned and the movements are controlled thanks to the encoder.

Built-in Power Supply: For the purpose of reading the input signal; 24VDC, 500mA power supply is supported.

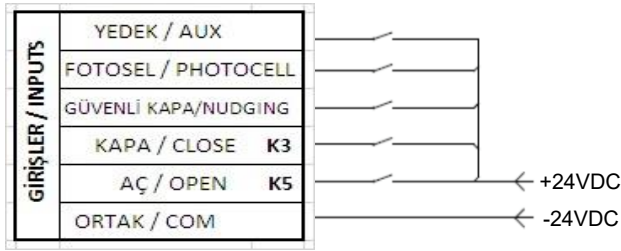
Note: This power supply is provided for signals only, and its use in the supply of external devices may damage the inverter. It should NEVER be used for any other circuit.

Inputs:

The connection of signal inputs can be one of the following 2 options:

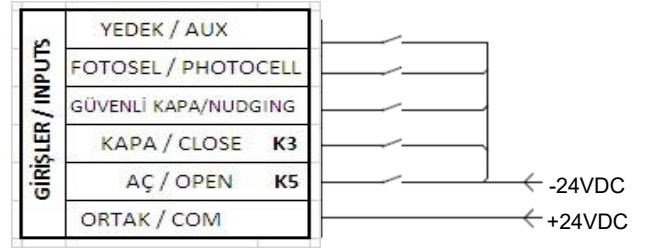
1. With an External Power Supply: In this option, the circuit scheme can be as follows:

When we examine the connections; both **PNP** (COM point is adjusted as “-” then the signals should be “+”) and **NPN** (COM point is adjusted as “+” then signals should be “-”) can be applied.



-	24V DC ÇIKIŞ	
+	24V DC OUT	K15

External Power Supply, “**PNP**” Connection

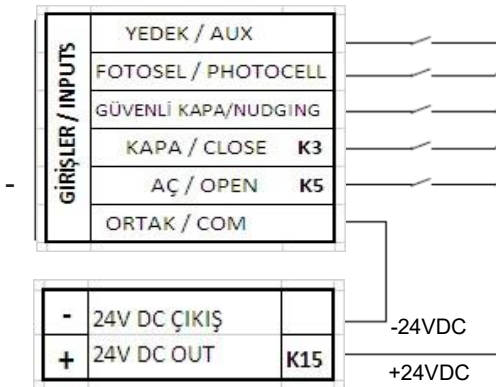


-	24V DC ÇIKIŞ	
+	24V DC OUT	K15

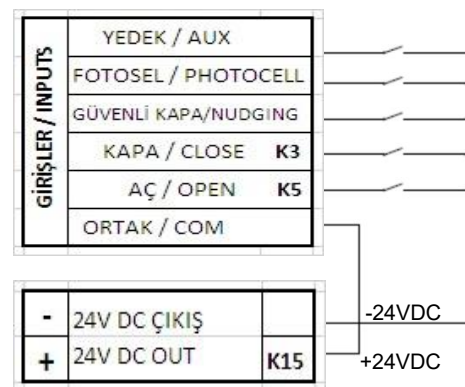
External Power Supply, “**NPN**” Connection

2. By Using Built-in Power Supply: In this option, the circuit scheme can be as follows:

When we examine the connections; both **PNP** (Com point is adjusted as “-” then the signals should be “+”) and **NPN** (Com point is adjusted as “+” then signals should be “-”) can be applied.



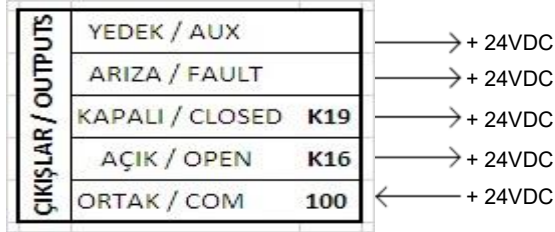
External Power Supply, “**PNP**” Connection



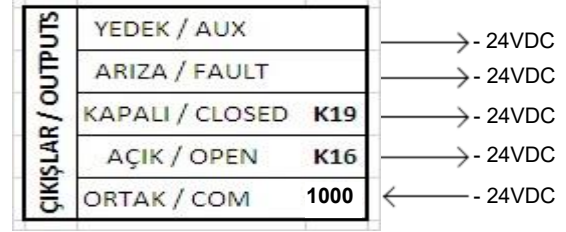
External Power Supply, “**NPN**” Connection

Outputs:

There are 4 transistor outputs on the driver. These outputs can be used as PNP or NPN. Briefly, when we apply (-) on COM point, we get the output of (-) as well. Similarly when we apply (+) on COM, we get the output of (+). External or internal supply can be used at the outputs, as it is with the inputs. You may refer to the following diagram:



Connection when applied “+” and get “+”



Connection when applied “-” and get “-”

III. KEYPAD AND OPERATOR SCREEN

3.1 GENERAL OUTLOOK

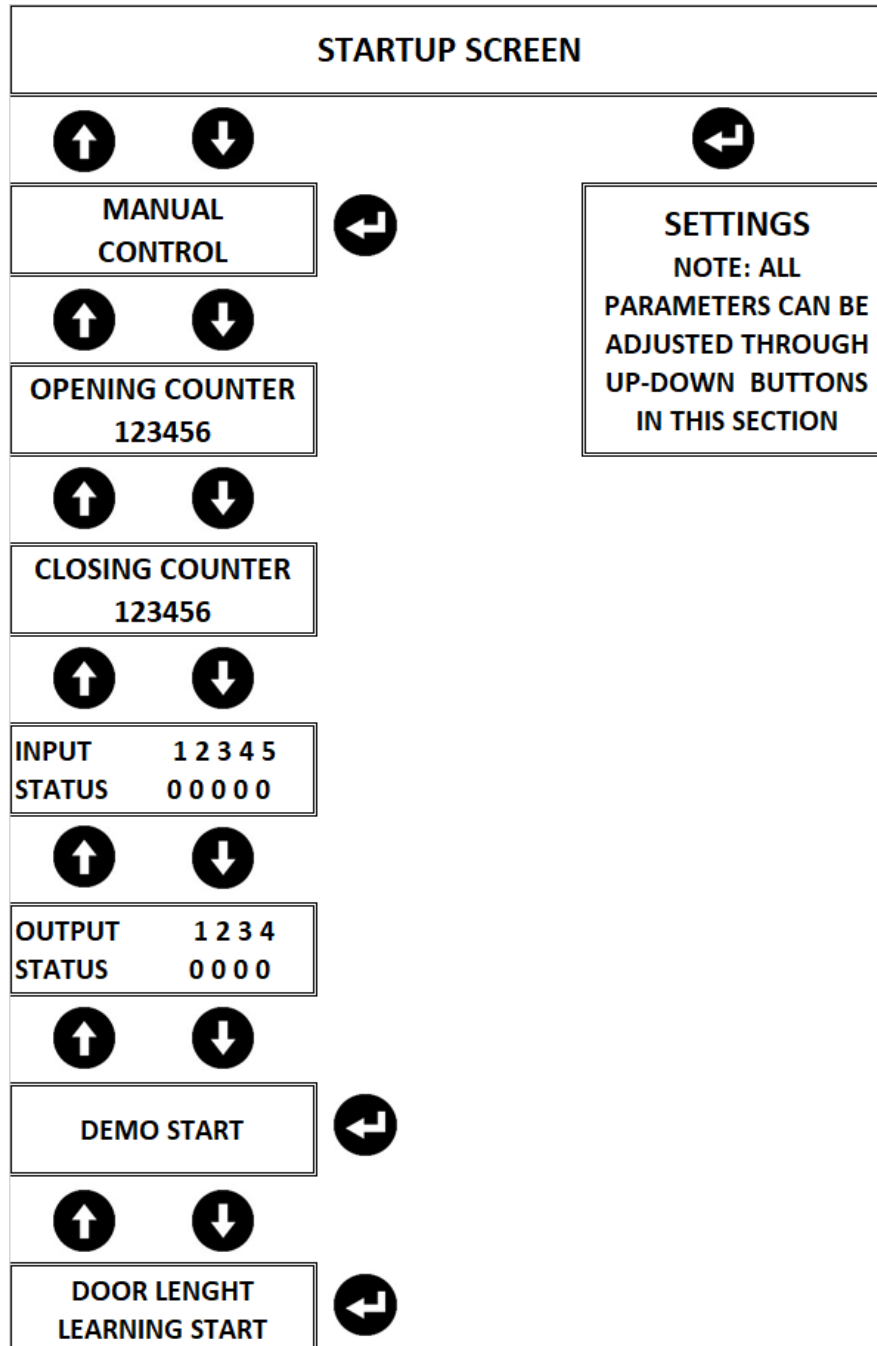
ESC **ESC**: This button is used to go back from the current point. It is also used when entering a setpoint, canceling the setting operation and exit at the same time.

ENTER **ENTER**: This “ENTER” button is used to access any setpoint or menu, in the meantime to save the adjusted setting. It is also used to confirm any job or initiate the action.

DOWN **UP** **“DOWN” and “UP”**: Its main functions can be listed as follows: Switching between set points, increasing and decreasing the set value, switching between monitoring screens, and manually opening and closing the door.

3.2 STRUCTURE OF INTERFACE

It is possible to divide the user interface on the LCD Display into four groups as "MONITORING", "INFORMATION", HAND CONTROL and "SETTINGS". Regarding the user interface, the user menu is schematized as follows.



IV. INSTALLATION AND SETTINGS

4.1 INITIAL SETUP

4.1.1 DOOR LENGHT LEARNING

**DOOR LENGHT
NOT LEARNED**

**DOOR LENGHT
LEARNING START**

MOTOR LEARNING

**DOOR LENGHT
LEARNING**

**IS DOOR OPEN?
YES->ENT/NO->ESC**

When the electrical power is first applied, a screen like the one on the left will appear. In case of changing the driver or installing a new system, door length learning must be performed. This process will normally be performed only once at the first start-up.

To learn the door length, first press the ESC key to exit the menu. Then press the up arrow key to go to the "START DOOR LEARNING" section.

While on this screen, press the enter button for 2 seconds to start the process. First, the motor recognition is done automatically, then the door length learning is done. While the door length learning is done, the door will close and open to its full length. During this time, you should open the door lock with your hand, otherwise the lock will get stuck and the door will not open and the door length learning will not be done correctly. When the door length

learning process is finished, a message will appear on the screen saying "IS THE DOOR OPEN?" If the door is open, press the "ENTRY" button, if it is closed, press the "ESC" button. This completes the process.

4.1.2 MONITORING SCREEN

When electrical energy is supplied, the first thing you see is the opening screen. This screen is also the monitoring screen. It gives you information about the current movement. We can monitor information such as door opening, door closing, door opened, door closed, current drawn, voltage and card temperature from here. You can see the visual related to the subject below.

**DOOR CLOSED
0.038A 220V 34°C**

While on the monitoring screen, pressing the down arrow button once will open the "MANUAL CONTROL" screen.

MANUAL CONTROL

MANUAL CONTROL

The manual control is switched to by pressing the input button. Opening or closing is done by pressing the up or down button. As long as we press the buttons in question, we can open or close. If we press the Up button and the Input button at the same time or the Down button and the Input button at the same time, the door will open or close completely. In order for this operation to be applied, the

door must be opened completely at least once. The system will not take any input into account when controlled from the screen.

If we press the down button while on the monitoring screen, we will see the following information in order.

OPEN COUNTS
2143

We can see the total number of times the door has been opened from here.

CLOSE COUNTS
2343

We can see the total number of times the door has been closed from here.

INPUTS **1 2 3 4 5**
STATUS **0 0 0 0 0**

This is the section where we can check whether inputs such as "Open the door" or "Close the door" are coming. If the number under the number "1" is "1", that means the signal is coming to that number. For example, if the number under the number 2 input is "1", K3, that is, the Close the Door signal is given.

OUTPUTS **1 2 3 4**
STATUS **0 0 0 0**

This is the section where we can check whether the door is open or closed or whether the relay that indicates an error is engaged. For example, if the number under output number 2 is "1", K19, that is, the Door Closed signal is given.

DEMO START

NORMAL MOD START

While on the "START DEMO" screen, if we press the Enter button, self-workink will be started. When self-working is started, the door will open and close continuously. During this time, the door movement speed, the current drawn by the motor, the voltage and the temperature of the IGBT, as well as the door movement status can be seen on the screen. To exit, we press the Enter button while writing "NORMAL MODE START".

4.2 SETTINGS

To set the device to the initial setup settings, press the “ESC” button and power is applied while in this state. When a blue screen appears without any text, release the ESC button. In this way, the device will return to the initial setup settings. Some settings are not returned to factory settings during this process. These are: Language, Pulley type, Skate area length, Door closed signal contact setting and Door open signal contact setting. Since these are settings specifically dedicated to the door, they can only be changed by the user's will. The settings menu is entered with the enter button. The menu is advanced by pressing the up or down button.

4.2.1 LANGUAGE SELECTION

**DİL / LANGUAGE
TÜRKÇE**

Language options are “TURKISH”, “ENGLISH”, “RUSSIAN”, “FRENCH” and “SPANISH”.

4.2.2 PULLEY TYPE

**PULLEY TYPE
D16**

Three types of pulleys can be introduced: “D16”, “D19” and “D22”. In order for door recognition and measurements to be accurate, this selection must be the same as the motor pulley.

4.2.3 INITIALLY MODE

**PULLEY TYPE
D16**

If selected as “1”: When the control card is first energized, if it does not give an open or close signal, the door does not move and the screen displays “DOOR IS IDLE”. If selected as “2”: When the door is first energized, it first closes and after reaching the closed point, it takes into account the control card signal.

4.2.4 SETTINGS OF SKATE ZONE

Skate zone is the path, where the skate is opened and closed completely. This setting has 3 setting parameters:

- 1.Length of Skate** : This is the distance which is necessary for the door's closing and opening completely.
- 2.Speed of Skate Opening** : When the door is opened, it is beneficial to adjust this speed separately in order to exit the skate area safely.
- 3.Speed of Skate Closing** : While the door is being closed, it is beneficial to adjust this speed separately in order to enter the skate zone safely.

Detailed information on the subject will be indicated on the chart later.

4.2.5 SETTINGS OF DISTANCE

The driver allows you to set the distance, speed and force settings separately for opening and closing the door. In this way, it gives you all kinds of flexibility. The following two figures will help you, in the opening direction and in the closing direction.

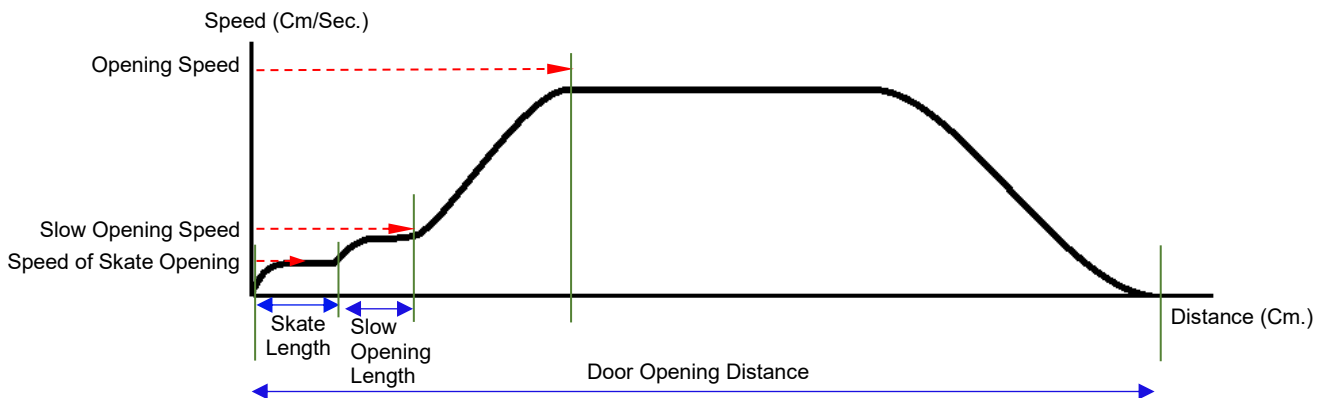
Door Opening Settings

1. Opening slow length : The distance it will travel to exit the skate area and switch to high speed.

2. Opening slow speed : The speed it will travel in the “Opening slow length” distance before exiting the skate area and switching to opening speed.

3. Opening speed : The door opening speed to be reached while opening the door.

4. Opening DEC : Adjusts the acceleration of the door as it reaches its final opening point. As you increase this value, the door slows down later and there is a sudden stop at the opening point. As the value is decreased, the door slows down much earlier than the opening point and there is a softer stop.



Door Closing Settings

1. Closing speed : The door closing speed that will be reached when the door is closing.

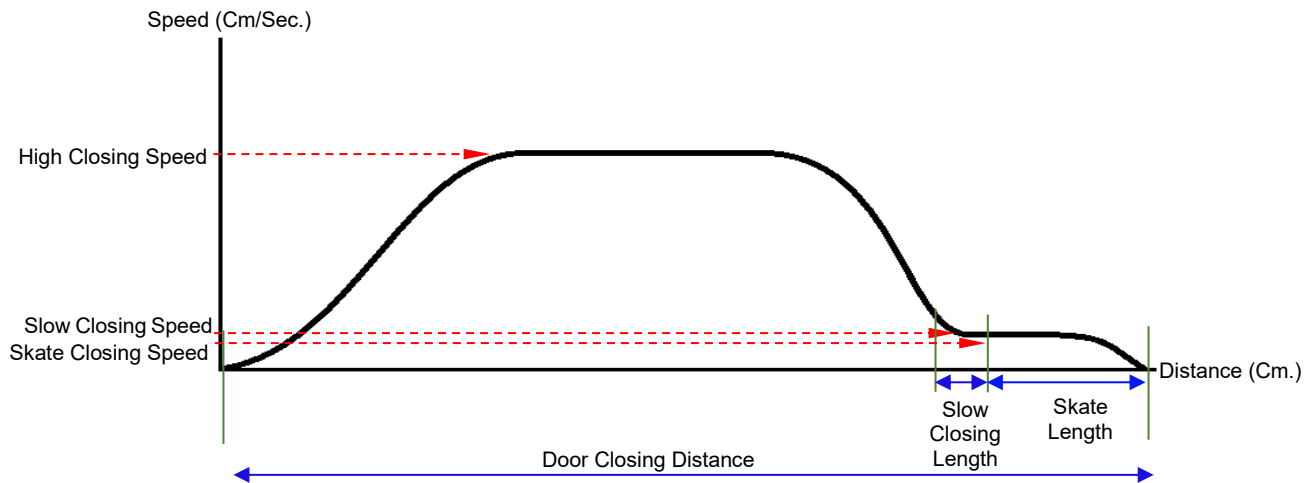
2. Closing DEC : Adjusts the acceleration of the door as it reaches its final closing point. As you increase this value, the door slows down later and there is a sudden stop at the closing point. As you decrease the value, the door slows down much earlier than the closing point and there is a softer stop.

3. Slow closing length : The distance it will travel when it switches from high speed to slow speed in order to safely pass to the skate area.

4. Slow closing speed : The speed at which it will move in the “Slow closing length” distance before entering the skate area.

5. Safe closing speed : If the door is jammed, forced or encountered with an obstacle while closing, the door will open completely and close again. During the re-closing process, from the area where it was, jammed or forced, slowly movement. The speed of the slow movement in question is set here. In addition, the elevator control card will want to close the door slowly with the safe closing (Nudging) signal in long-term photocell cuts. In this case, the speed is the same speed.

When a closing is performed, an audible warning is also given.



4.2.6 SETTINGS OF POWER AND TORQUE

The opening and closing of the door is according to the measurements and speeds specified above. In addition to these speeds, different forces must be applied at different steps for both comfort and safety. These forces are given below with their explanations.

1. Power to Keep Opened : After the door is opened, it is the force that will be applied to keep the door open. For this force, a setting that can overcome the closing force that may occur due to the width of the door and the door spring will be sufficient. An extra high value given while setting may cause overheating in the motor. Therefore, do not set it to a value that is more than necessary.

2. Power to Keep Closed : After the door is closed, it is the force that will be applied to keep the door closed. For this force, an adjustment that can overcome the opening force that may occur due to the skate lock spring will be sufficient. An extra high value given while adjusting may cause overheating in the motor. Therefore, do not adjust it to a value that is more than necessary.

3. Power for Jammed Closing : If the door is jammed, forced or encountered with an obstacle while opening, this is the force to be applied to overcome this jam. If the door still does not open despite exceeding the set force, no more force will be applied to open the door. If this force occurs in the skate-lock area, the driver makes 3 attempts and then the "JAMMED" warning is given and it goes to waste. If the closing signal comes afterwards, it will close the door and continue working.

4. Power for Jammed Closing : If the door is jammed, forced or encountered with an obstacle while closing, this is the force to be applied to overcome the jam. If the door still does not close despite exceeding the set force, the door will open all the way and close again with an audible warning. Sometimes, even though there is no jamming; the setting value may be low due to the weight of the door, closing speed or physical conditions of the construction. In such a case, it may be necessary to increase the setting.

5. Impact Coefficient : The door may crash or encounter an obstacle while closing. The adjusted coefficient is created to take into account the sudden compressions during closing in addition to the compression force. Again, the door will open fully and close again with an audible warning. Sometimes, even though there is no crash or compression; the setting value may be low due to the weight of the door, the closing speed or the physical conditions of the construction. In such a case, it may be necessary to increase the setting.

4.2.7 SETTINGS OF MONITORING OUTPUTS

1.Door closed signal (K19) : The driver generates a signal at the “CLOSED K19” output when the door closes. The output type of the signal is set here.

If “OPEN CONTACT” is selected: It generates a signal here when the door closes, and cuts off the signal when the door starts to open. In other words, you receive a signal as long as the door is fully closed.


If “CLOSED CONTACT” is selected: It cuts off the signal here when the door opens, and gives the signal continuously as long as the door starts to open. In other words, you receive a signal as long as the door is not fully closed.

2.Door opened signal (K16): The driver generates a signal at the “OPEN K16” output when the door is opened. The output type of the signal is set here.

If “OPEN CONTACT” is selected: It generates a signal here when the door opens, and cuts off the signal when the door starts to close. In other words, you receive a signal as long as the door is fully open.

If “CLOSED CONTACT” is selected: It cuts off the signal here when the door opens, and gives the signal continuously when the door starts to close. In other words, you receive a signal as long as the door is not fully open.

V. BELGELER



ERŞEN

ELEKTRİK TİCARET ve SANAYİ LTD. ŞTİ.

30/05/2024

CE

DECLARATION OF CONFORMITY
ERSEN ELECTRICITY AND INDUSTRY TRADE LTD. STYLE

Headquarters: Perpa Electricians Work Center A Blok Floor 2 No:9/0032 Okmeydanı İSTANBUL
Branch:Fevzi Lighter mah. Tek-San Industrial Site 10762 Street A1 Blok No: 12/E Karatay/KONYA
Tel: +90 212 222 13 11 (Pbx) Faks: +90 212 210 04 70

The product meets the technical requirement of the above standards as mentioned in the reference test reports and hence fulfils the technical requirements of the following directives

2014/35/EU Low Voltage Directive 2014/30/EU Electromagnetic Compatibility Directive

This document is only valid for the equipment and configuration described, in conjunction with the test data detailed above reference test reports. Document was issued on voluntary basis and does not imply meeting Notified Body conformity assessment procedure for the product.The CE Mark, under the responsibility of the manufacturer or the importer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives

Product Name: Door Control Card
Product Model: EDS-50
Document Number : SE-1004-01-210524
Test Report Number: LVD-1004-02 // EMC-1004-02
Test Required: EN 60204-1:2018 / EN 12015:2020 / EN 12016:2014 / EN IEC 61000-3-2:2019/A1:2021 / EN 61000-3-3:2014/A2:2021

Şaban GÜNDÜZ
Şirket Müdürü

Perpa Elektrikçiler İş Mrk. A Blok Kat:2 No :9/0032 34384 Okmeydanı - İSTANBUL
Tel.: (0212) 222 13 11 - 222 13 35 - 222 33 74 Fax: (0212) 210 04 70 E-Mail: ersen@ersenelektrik.com

**S-50 model door card Uygur Elevator Sanayi ve Ticaret A.Ş. on behalf of ERŞEN Elektrik Ticaret ve Sanayi Ltd. Şti. it is produced by.