

1. WARNINGS

CAUTION

This manual contains user guidelines for Merih DDCA60 hardware version v1.05 and software version v1.03. This document will be updated with differences result from version differences. Merih Asansor A.S is not responsible for typos or errors that result from version differences.

It is mandatory that Merih DDCA60 is used by technical personnel who are capable of reading, understanding and applying the rules written in this document. Merih Asansor A.S supports the design of safe products, however it accepts no liability for damages caused by user misuse.

BEFORE FIRST USE

Please read this instruction manual before using Merih DDCA60 (and/or its additional hardware) for the first time. For safety it is essential to understand the rules regarding the installation and operation of this product.

GENERAL NOTE

The technical personnel who will use Merih DDCA60 should be familiar with the full functionality of the equipment in addition to the assembly and wiring of it.

In order to avoid electrical shocks or any other damage to the product; please check that

- the equipment is not plugged in before assembly and first use
- all wiring is correct and stable
- corresponding hardware and software is used according to the actuating mechanism of the door
- all operation is carried out in accordance with ESD rules. With this purpose the personnel should discharge themselves electrostatically. The personnel should not touch to connectors or other circuit components with bare hands.

2. DEVICE AND LIMITATIONS

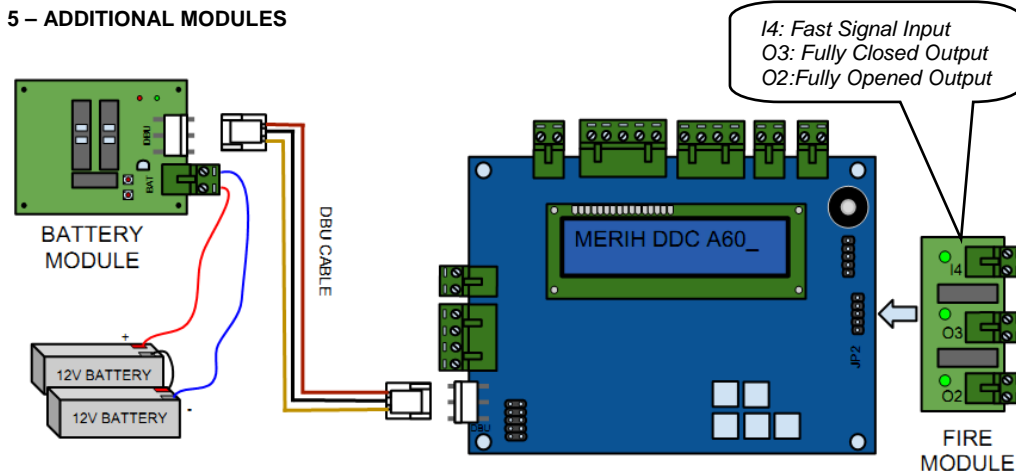
Merih DDCA60 is an electronic board for fully automatic doors.

Supply Voltage	20-24V AC	28-34V DC
Encoder	One channel or double channel 20-1024 pulse per revolution	
Motor Type	24V Brushed DC Motor	
Motor Power	Max 150W	
Door Length	35 – 250 cm	
Door driving speed	1cm/s – 40 cm/s	
Operation temperature	-20°C ~ 50°C	

DEVICE USAGE AND OPERATION SEQUENCE

- Complete the socket connections
 - Limit Switch (Sensor) socket
 - Input (Command) socket
 - O1 (Blockage Relay) socket
- Power the card up
- Choose the desired language
- Update socket connection settings
- Do the Automatic Recognition
- Check the door profile
- Improve the door profile by parameters when necessary
- Normal Mode and Operate

5 – ADDITIONAL MODULES



5.1. Door Battery Module (DBU)

Door Battery Unit (or DBU in short) ; charges the battery in a controlled way for having longer life batteries, as long as 24V power is available on DDCA60. When power outage occurs, provides DDCA60 to supply from battery. In this case, prevents passengers to stay in elevator cabin.

DBU, (if "On Floor Limit Switch" is active) opens the door fully and power downs the DDCA60 board on power outage state, in order to stop discharging battery. Green led on the board indicates that batteries are being charged and the red led indicates that the battery terminals are reversely connected.



If there is no power on the board, although DBU is connected and batteries are full; this means that DBU is powered off itself in case of discharge. If you want to power DDCA60 up without power (via battery supply), you should press both of the buttons on the DBU board, on the same time. In this way, board is powered up once, and does not need to hold down buttons anymore. You may use the door or board for any operation. However if the door becomes fully open, and "On Floor Limit Switch" is active at the same time; DBU will power off the board again.



Supplying the batteries directly is not supported on the Merih DDCA60 board. Door Battery Unit (DBU) and DBU cable must be used definitely.

5.2. Fire Module (FM)

Fire Module (FM) must be plugged if the door will be used as a fire elevator extraordinarily.

I4: Fast Signal Input: The signal which comes from the main control board and provides the door move fast (Fire Mode).

O3: Fully Closed Output: The signal that informs the main control board that the door is fully closed.

O2: Fully Opened Output: The signal that informs the main control board that the door is fully opened.



If fire module is plugged and the necessary connections are done, I4 (Fast Signal) must be set as "Yes-Normally:1" or "Yes-Normally:0" in the Socket Settings menu. Additional setting is not required for O2 and O3 signals. These output relays work as Normally Open (N/O).

Door Slowdowns Early

Be sure that Door Recognition is done.
Be sure that Skate Length is entered correctly.
Reduce the Slow Distance in mentioned direction.

Door Detects Blockage Unnecessary

Be sure that Door Recognition is done.
Be sure that Skate Length is entered correctly.
Check the Photocell Settings in Socket Settings menu (Yes Normally 1, Yes Normally 0 or No N/A)
Be sure that pressure settings are high enough

Overheat on Motor or DDCA60

Reduce the "Hold Open Pressure" or "Hold Close Pressure"

Door Recognition Problems

Gives "Encoder Error"

Be sure that encoder and motor connections are correct.
If the "Door Recognition Pressure" is entered too low, door may not move. Try to increase the parameter.

Door Length is Detected Incorrect

Door length may be detected with +- 5 cm. This situation does not affect the door comfort, therefore it could be neglected.
If the door detected the length of the door with an error more than 5 cm, try again by increasing the "Door Recognition Pressure" parameter.
Choose the right selection of telescopic or central door type.
Make sure that the skate works well and does not hang out (achieving both opening and closing movements exactly) in the closing direction.

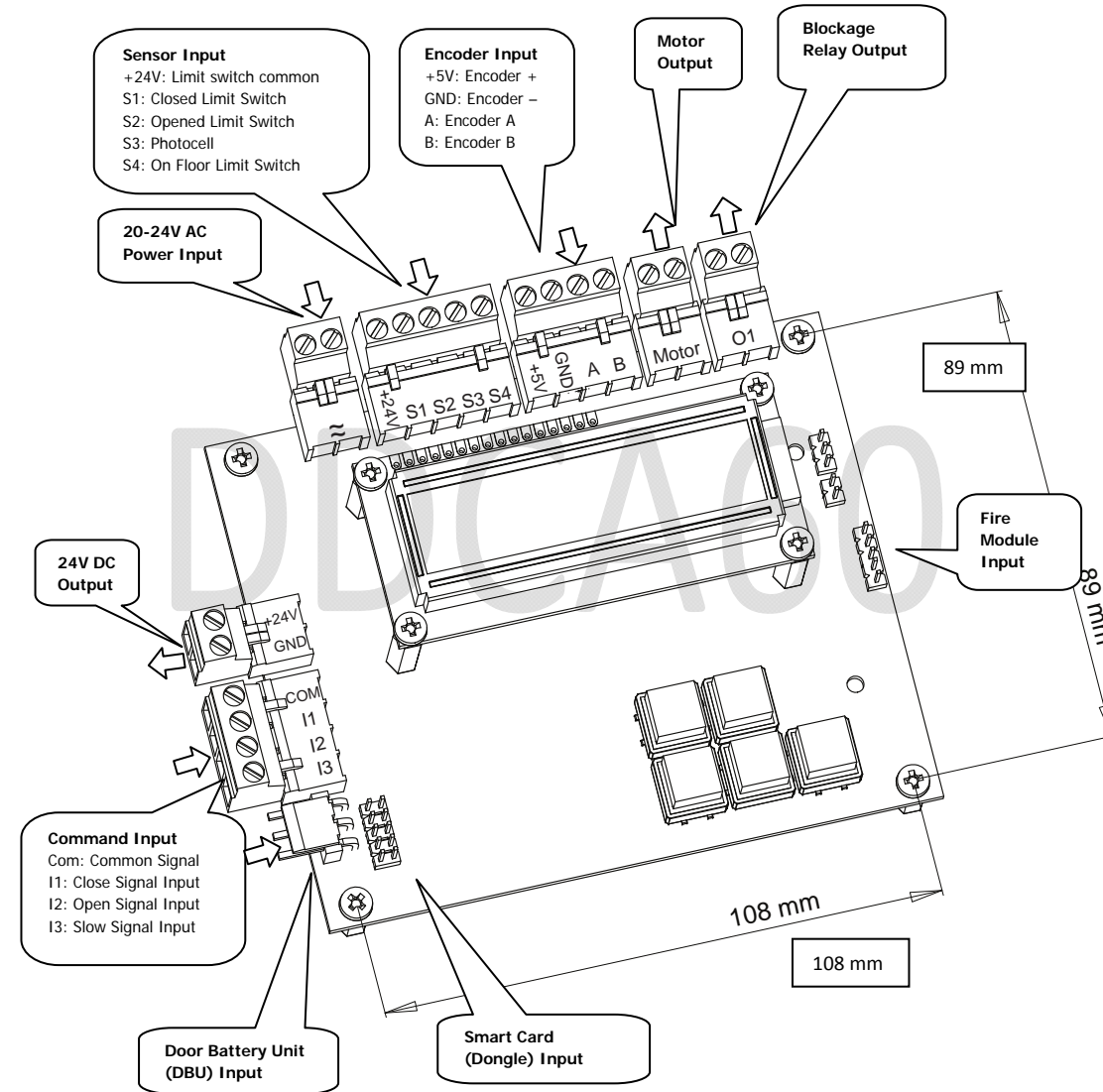
Gives "Limit Switch Error" message

Error 1: Both limit switches are detected. Check Sensor Socket settings.
Error 2, Error 3, Error 4: Open Limit Switch and Close Limit Switch are interchanged, or limit switches are selected as "Yes - Normally..." although they are not available.

Hits Very Fast on Door Recognition

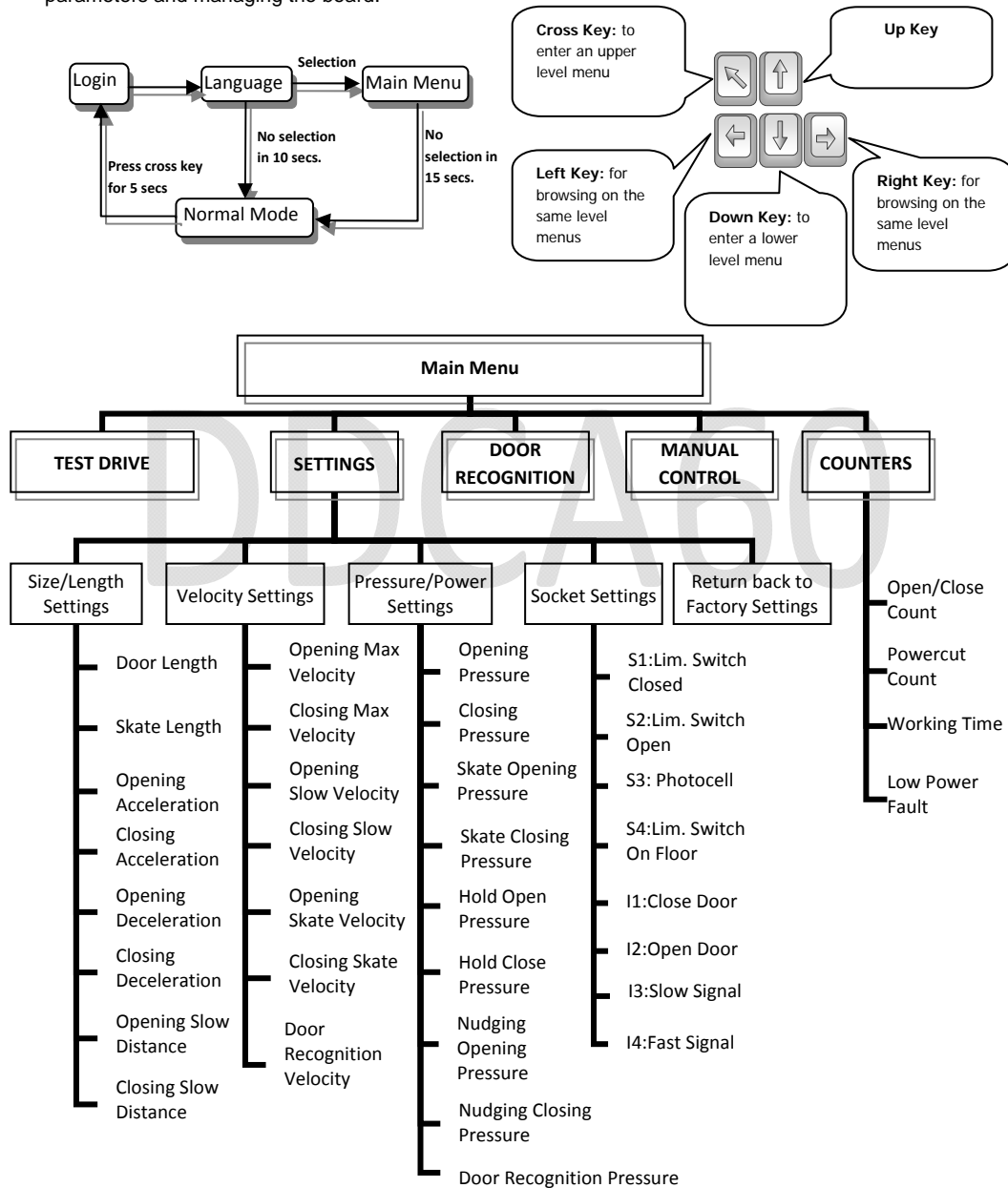
Reduce the "Door Recognition Velocity" parameter.

MOUNTING AND SOCKET CONNECTIONS OF THE BOARD



3. USER INTERFACE

Merih DDCA.60 board has a menu system including a LCD screen and buttons for setting necessary parameters and managing the board.



4 - TROUBLESHOOTING

No Power on Board

Be sure that the green led below 24VAC (L2) is on. If red led (L1) is on instead of the green one, change the fuse of the board (250V 8A).
Be sure that 24VAC Input Socket has power, if not, check transformer input and output connections.

No Movement on the Door

Be sure that Power Input and Motor Socket connections are correct and in contact. To test the correction of these terminal connections, "Manual Control" should be selected in the main menu and door movement should be observed. Increase the power enough which allows the door movement. If there is still no movement on the door, be sure that 24VAC is available on the Power Input Socket.

If the door is moving in Manual Control, but there is no movement in Test Drive and/or Normal Mode: Try to increase pressure parameters (Door Recognition Pressure, Opening Pressure, Closing Pressure, etc.)

Be sure that Input (Command) Socket Settings are correct. (One signal-Two Signal Setting)

Door Moves Too Fast

Fast Signal (Settings-->Socket Settings->I4) may be activated. This mode is for fire elevators. If is not used as a fire elevator, should be set as "No- N/A".

Be sure that Door Recognition is done.

Be sure that encoder connection is correct.

Door Always Waits Either Fully Opened or Fully Closed Position

If this situation occurs in Normal Mode, make sure that Input (Command) socket settings are correct and check the signal that you desire (Open/Close) is available by monitoring the related leds.

Door Moves in Reverse Direction

If the door moves in a different direction rather than the specified direction displayed on the LCD screen, change sides of the motor terminal connections and repeat the "Door Recognition" process.

Door Hits Before Slowing Down Enough

Be sure that Door Recognition is done.
Be sure that Skate Length is entered correctly.
Enter an enough deceleration ramp value.
Reduce the Slow Velocity in mentioned direction.

3.5.3 Pressure/Power Settings

Contains parameters which determine the maximum power to be applied during the door movement in case of door strain (see page 4).

Pressure parameters in opening or closing direction directly affect the sensitivity response of the door in any blockage condition. Therefore, not only performance but also the safety of the door must be considered when setting these parameters.



Nudging Mode: If blockage condition is detected while moving the door, changes the direction and tries to complete the movement in reverse direction. Then attempts to move in blockage direction again. If detects blockage in that direction again, and this is repeated 3 times in a row, detects a situation that prevents to complete the movement and enters nudging mode. In this mode, door moves in blockage detected direction by high pressure (nudging pressure) and slow speed with an audible warning alert. Nudging Mode is also activated by the "Slow Command" signal. The aim of the nudging mode is, to remove the problem which causes to prevent door movement.

3.5.4 Socket Settings

Includes the parameters which determine operation type of the Sensor (Limit switch) and Input (Command) sockets. (see page 4 for these parameters).

For these parameters, there are three values available corresponding to the operation type:

Yes-Normally:1 : This option must be selected if no power in mentioned socket input (led off) when signal is inactive, although there is power on the socket (led on) when the signal is active.

Yes-Normally:0 : This option must be selected if there is power in the socket input (led on) when signal is inactive, although there is no power on the socket (led off) when the mentioned signal is active.

No- N / A: Specifies that the signal is not used.



In Black Series doors, limit switches are not used, so "No- N / A" should be selected for operation type of S1 and S2 sockets



If the main control board has one signal, instead of two signals as "Close the Door" and "Open the Door; 'I2 – Open Door' parameter must be selected as "No- N / A". In this case, door will be closing while 'I1 – Close Door' signal exists and will be opening when signal is gone. If possible; configuring the main control board for two signals is more secure rather than one signal.

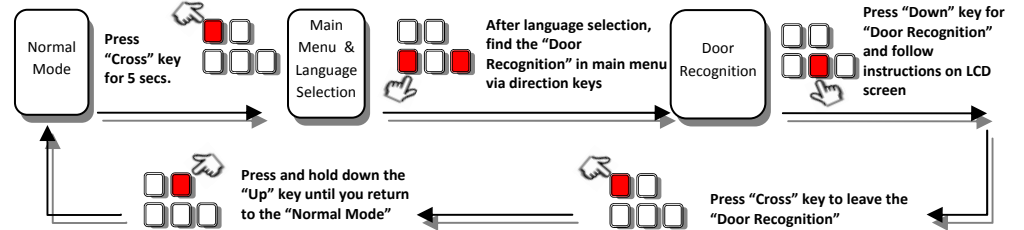
Unused signals in "Socket Settings", must be definitely selected as "No- N / A".

3.6. Return Back to Factory Settings

Parameters are already set to defaults as factory setting. But if the user desires, can configure as he/she want. But if undesired movements occur on the door due to parameter changes, this feature is being used in order to return back to the factory defaults. To return back to the factory defaults, simply follow the instructions on LCD screen.

3.1 Automatic Door Recognition

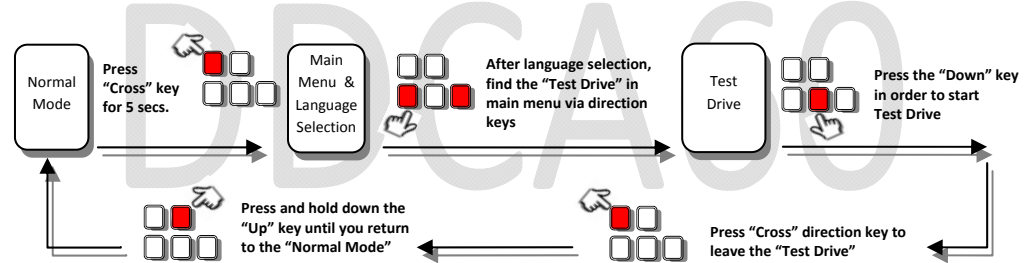
Door recognition mode, provides Merih DDCA60 board to realize the type of the door and door length, by moving the door first closing and then opening direction.



On "Black" type doors, door length is shown on the screen. Door length may be detected 5 cm more or less, this situation does not cause any negative effect on door comfort.

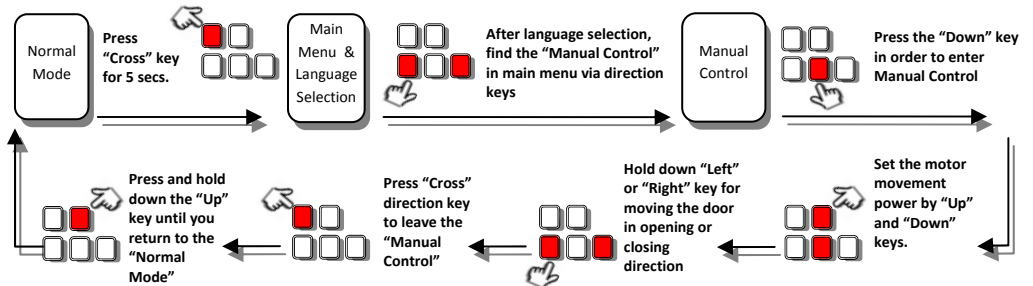
3.2 Test Drive

Test Drive is being used to observe how the door is moving with the updated parameters. During Test Drive mode, board opens and closes the door constantly.



3.3 Manual Control

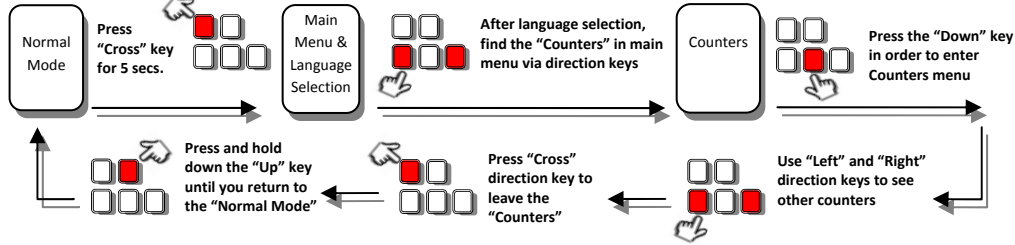
In this menu, the door can be moved in opening or closing direction regardless of door parameters. In this case, a constant voltage is applied to the terminals of the motor in the desired direction.



As long as the key associated with direction is pressed, door tries to move in that direction. As comfort control is inactive, the user must be careful that the door doesn't hit too fast.

3.4 Counters

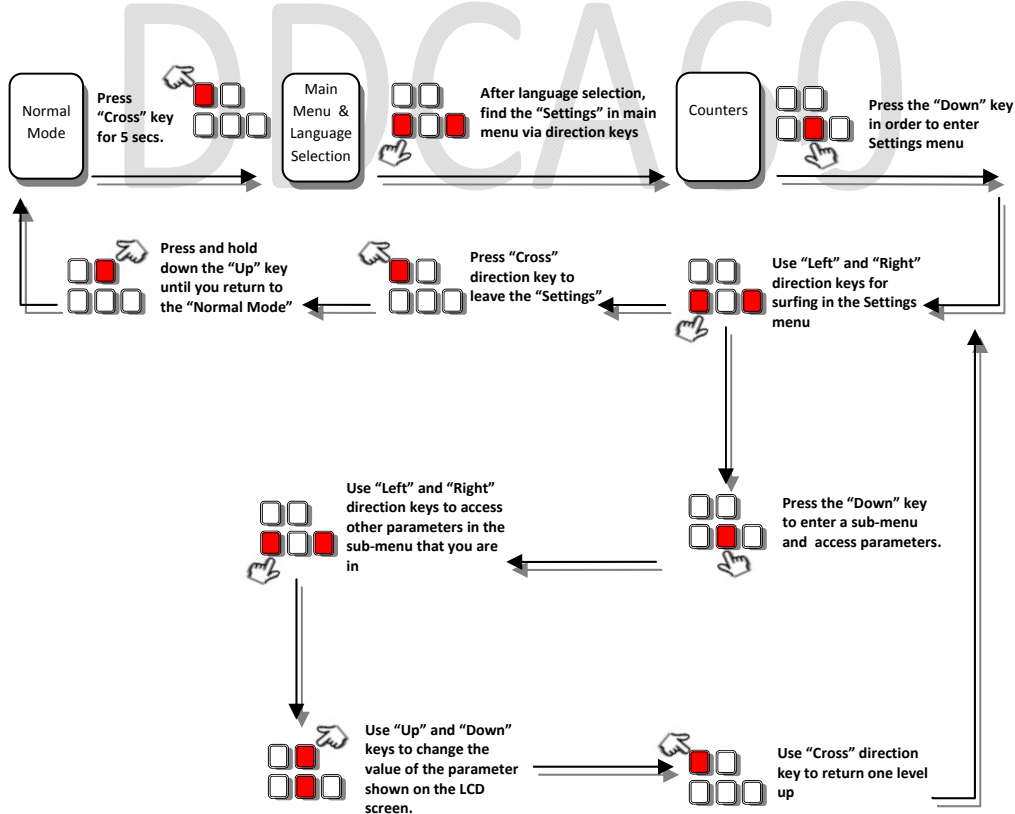
Counters menu contains information about board operation and statistics.



- Open/Close Count:** Shows how many times door is opened and closed.
- Powercut Count:** Shows the power outage count while board is working.
- Working Time:** Indicates the operation time of the board in "days" unit.
- Low Power Fault:** Shows the number of times when there is a voltage drop in transformer because of the door strain.

3.5 Settings

Parameters in the "Settings Menu" are grouped by sub-menus as Size/Length, Velocity, Pressure/Power and Socket Settings. (see page 4.)

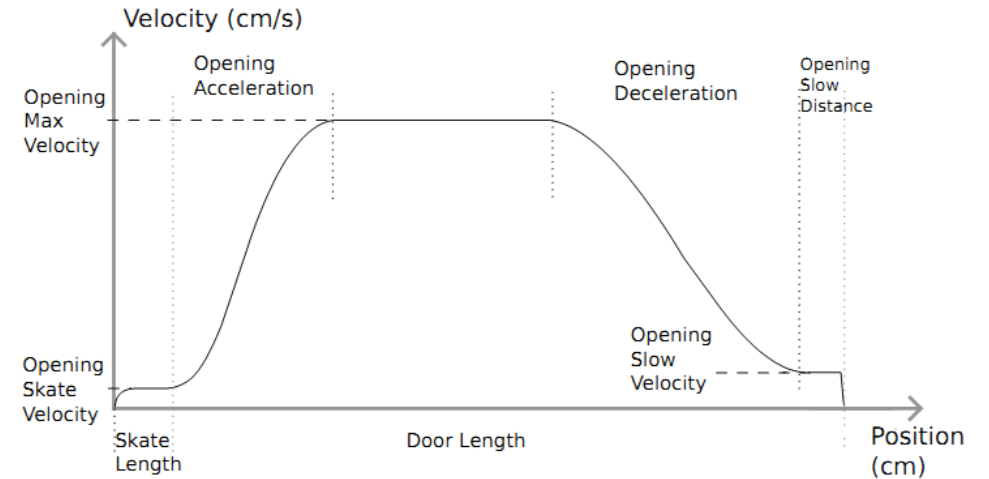


3.5.1 Size/Length Settings

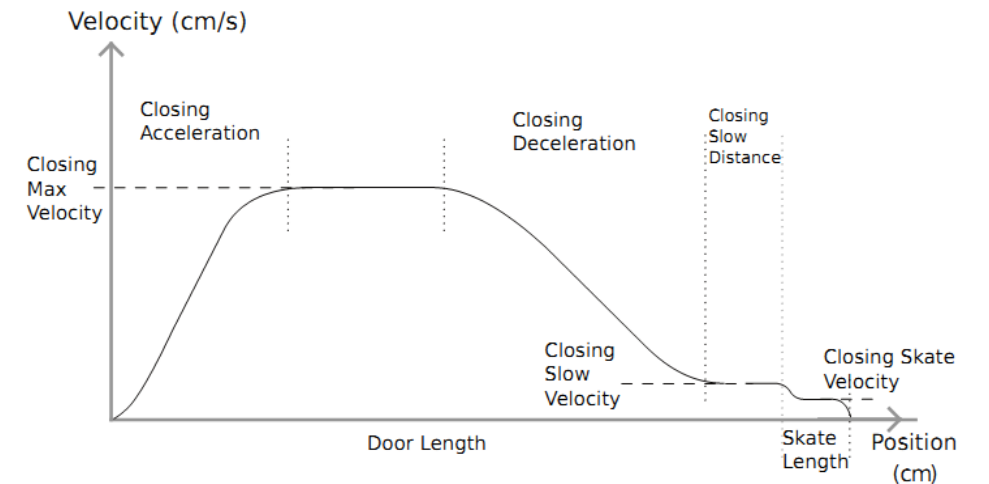
Contains size and length parameters shown in the door movement profile graphs below, in opening or closing direction (see page 4). "Skate Length" parameter is in "mm" unit, although all the other parameters are in "cm" unit.

3.5.2 Velocity Settings

Contains velocity parameters shown in the door movement profile graphs below, in opening or closing direction (see page 4).



Door movement profile in opening direction



Door movement profile in closing direction