MABARA


# User Guide

# DQ Door Drive

# Integrated Door Operated Controller


**MABARA**

**version -DQ-01**

**date: 22-10-2025**

# Preface

Thank you for purchasing the MDDPM series integrated door machine controller.

The DQ series integrated door machine controller is a variable frequency controller specialized for driving the door machine system such as elevator door, cold storage door, and subway door.

It integrates door open/close logic control and motor drive, and implements control on the entire door system with door open/close commands from the external system. The MDDPM can drive the permanent magnet motor (PM), and supports two control modes, speed control and distance control. Applicable to various applications, it can meet drive and control requirements of most door systems.

This manual describes correct use of the MDDPM, including product features, safety information and precautions, installation, parameter setting, commissioning, and troubleshooting. Read and understand the manual before using the product, and keep it carefully for reference to future maintenance.

| **Notes** |
| --- |
| • The drawings in the manual are sometimes shown without cover or protective guard. Remember to install the cover or protective guard as specified first, and then perform operations in accordance with the instructions.<br>• The drawings in the manual are shown for description only and may not match the product that you have purchased.<br>• The instructions are subject to change due to product upgrade, specification modification, as Well as the efforts to increase the accuracy and convenience of the manual.<br>• Contact our regional agent or customer service center if the manual delivered is lost or damaged.<br>• Contact our customer service center if you have problems during the use.Email:mabarasales@gmail.com |

**Contents**

# 1

# Safety Information and Precautions

## Safety Information and Precautions

In this manual, the notices are graded based on the degree of danger:

- DANGER indicates that severe personal injury or even death may result due to improper operation.
- CAUTION indicates that personal injury or equipment damage may result due to improper operation.

Read the following safety notices carefully so that you understand how to install, commission, operate and maintain the equipment. Mabara assumes no liability or responsibility for any injury or loss caused by improper operation of the equipment described in the manual.

## Safety Information

### ■ Before installation

| DANGER |
| --- |
| • Do not install the equipment if you find the controller damaged upon unpacking.<br>• Do not install the equipment if the packing list does not conform to the product you receive. |
| **CAUTION** |
| • Do not install the equipment if you find the controller damaged upon unpacking.<br>• Do not install the equipment if the packing list does not conform to the product you receive. |

### ■ During installation

| DANGER |
| --- |
| • Mount the controller on in combustible surface such as metal. Keep it far away from flammable materials. Failure to comply may result in a fire.<br>• Do not loosen the fixed screws of the components, especially the screws with red mark. |
| **CAUTION** |
| • Do not drop wire end or screw into the controller. Otherwise, the controller may be damaged.<br>• Install the controller in places free of vibration and direct sunlight. |

## ■ At wiring

| DANGER |
| --- |
| • Wiring must be performed only by qualified personnel under instructions described in this manual. Failure to comply may result in unexpected accidents.<br>• A circuit breaker must be used to isolate the power supply and the controller. Failure to comply May result in a fire.<br>• Tie the controller to ground properly according to the standard. Failure to comply may resulting electric shock. |

| DANGER |
| --- |
| • Never connect the power cables to the output terminals (U,V,W) of the controller. Pay attention to the marks of the wiring terminals and ensure correct wiring. Failure to comply will result in damage to the controller.<br>• Ensure that the cabling satisfies the EMC requirements and the local codes. Use wire sizes Recommended in the manual. Failure to comply may resulting accidents.<br>• Use the shielded cable for the encoder, and ensure that the shield is reliably grounded at one end.<br>• Use a twisted cable with twisted distance of 20−30mm as the communication cable, and ensure<br>• That the shield is reliably grounded. |

## ■ Before Power - ON

| DANGER |
| --- |
| • Check that the following requirements are met:<br>The voltage class of the power supply is consistent with the rated voltage class of the controller. The input terminals (L, N) and output terminals (U, V, W) are correctly connected.<br>No short circuit exists in the peripheral circuit. The wiring is secured.<br>Failure to comply will resulting damage to the controller.<br>• For the PM, ensure that motor auto-tuning is performed before running for the first time.<br>Failure to comply may resulting motor run away.<br>• Do not perform the voltage resistance test on any part of the controller because such test has been done in the factory. Failure to comply will result in accidents. |

| DANGER |
| --- |
| • Do not touch the rotating part of the motor during the motor auto-tuning or running. Failure to comply may result in personal injury.<br>• Do not change the factory parameters. Otherwise, the equipment may be damaged. |

## ■ After Power - ON

| DANGER |
| --- |
| • Do not open the cover of the controller after power-on. Failure to comply may resulting electric shock.<br>• Do not touch any input or output terminal of the controller with hands. Failure to comply may result in electric shock. |

| DANGER |
| --- |
| • Do not touch the rotating part of the motor during the motor auto-tuning or running. Failure to comply may result in personal injury.<br>• Do not change the factory parameters. Otherwise, the equipment may be damaged. |

## ■ During running

| DANGER |
| --- |
| • Do not touch the fan or the discharging resistor to check the temperature. Otherwise, you may get burnt.<br>• Signal detection must be performed only by qualified personnel during operation. Failure to<br>• Comply will resulting personal injury or damage to the controller. |

| DANGER |
| --- |
| • Avoidobjectsfallingintothecontrollerwhenitisrunning.Failuretocomplywillresultindamage to the controller.<br>• Donotstart/stopthecontrollerbyopeningorclosingthecontactor.Failuretocomplywillresult in damage to the controller. |

## ■ During maintenance

| DANGER |
| --- |
| • Do not repair or maintain the controller at power-on. Failure to comply will result in electric shock.<br>• Repair or maintenance of the controller must be performed only by qualified personnel.<br>Otherwise, personal injury or equipment damage may result.<br>• Set the parameters again after the controller is replaced. All the pluggable components must be plugged or removed only after power-off. |

**Precautions**

1. Motor Insulation Test

Perform an insulation test on the motor under the following conditions:

- Before the motor is used for the first time
- When the motor is reused after being stored for a longtime
- During periodic inspection

This is to prevent the poor insulation of motor windings from damaging the controller. The motor must be disconnected from the controller during the insulation test. A 500-volt megameter is recommended for this test, and the insulation resistance must not be less than 5 MΩ.

2. Motor Heat and Noise

The output of the controller is pulse width modulation (PWM) wave with certain harmonic wave, and therefore, the motor temperature rise, noise, and vibration are slightly greater than those at running with the mains frequency.

3. Voltage-sensitive device or capacitor on the output side of the controller

The controller outputs PWM voltage, and therefore, do not install the capacitor for improving power factor or lightning protection voltage-sensitive resistor on the output side of the controller. Otherwise, the controller may suffer transient overcurrent or even be damaged.

4. Apply rated voltage

The controller must not be used outside the allowable voltage range specified in this manual. Otherwise, components inside the controller may be damaged. If required, use a corresponding voltage step-up or step-down device to match the power voltage to the rated voltage range for the controller.

5. Surge Suppressor

The controller has a built-in varistor for suppressing the surge voltage generated when the inductive loads (electromagnetic contactor, electromagnetic relay, solenoid valve, electromagnetic coil and electromagnetic brake) around the controller are switched on or off. If the inductive loads generate very high surge voltage, use a surge suppressor for the inductive load or use a surge suppressor together with a diode.

| NOTE |
| --- |
| **Do not connect the surge suppressor to the output side of the controller.** |

1. Altitude and De-rating

In places where the altitude is above 1000m and the cooling effect reduces due to thin air, it is necessary to de-rate the controller. Contact Mabara for technical support.

2. Disposal

The electrolytic capacitors in the main circuit and PCB board may explode when they are burnt. Poisonous gases generated when the plastic parts are burnt. Treat them as ordinary industrial waste.

3. Adaptable Motor

- This Drive is designed to operate permanent magnet (PM) motor of mentioned rating. Select the proper Drive model model according to the motor type and ratings.
- To reach better control result, perform motor auto-tuning based on actual conditions. For a PM, motor auto-tuning is mandatory.
- The controller might alarm or be damaged when a short circuit exists on cables or inside the motor. Therefore, perform the insulation short circuit test when the motor and cables are newly installed or during routine maintenance. During the test, disconnect the controller from the tested part.
- Main Frequency 45 to 55Hz.

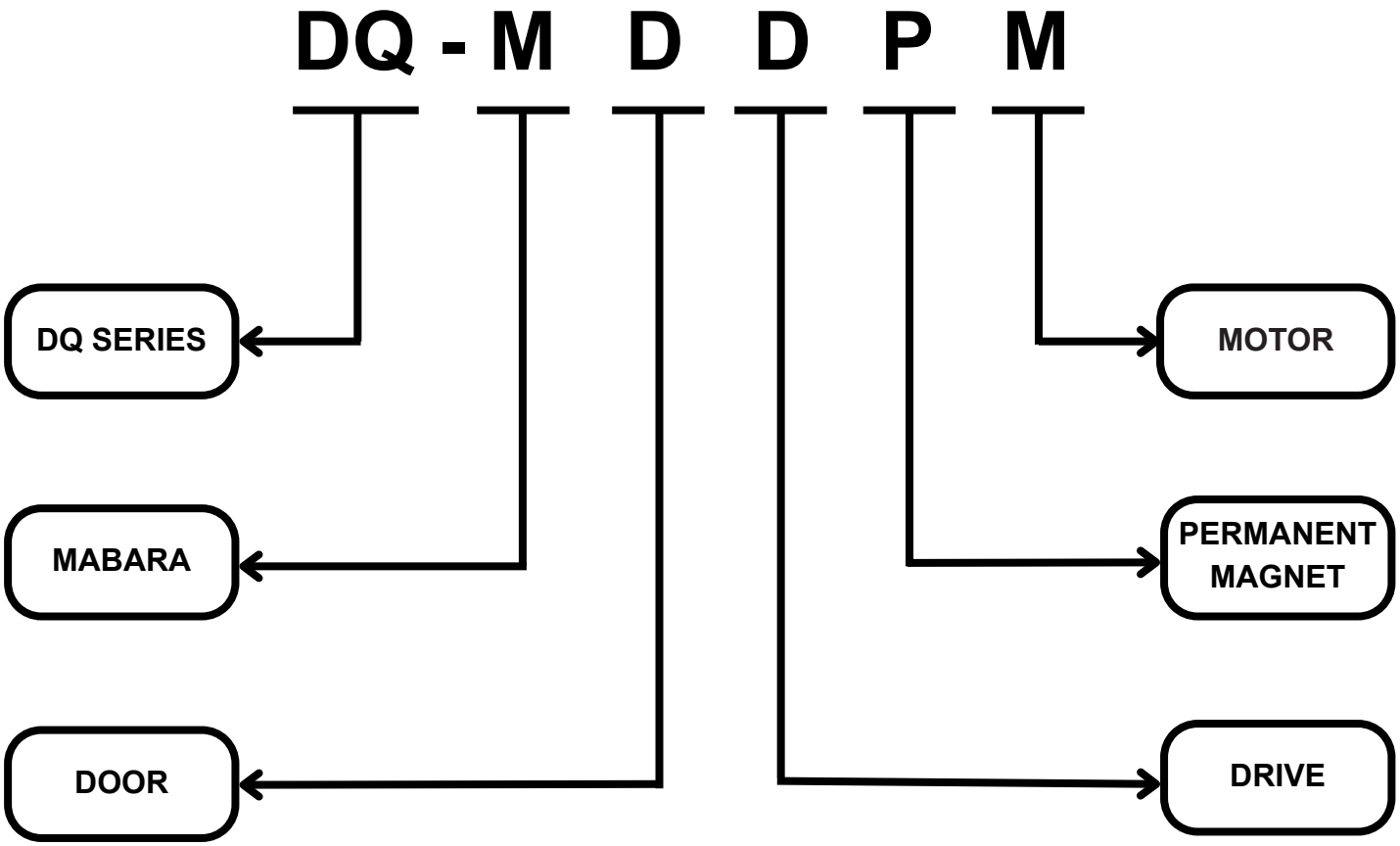
# 2

# Product information

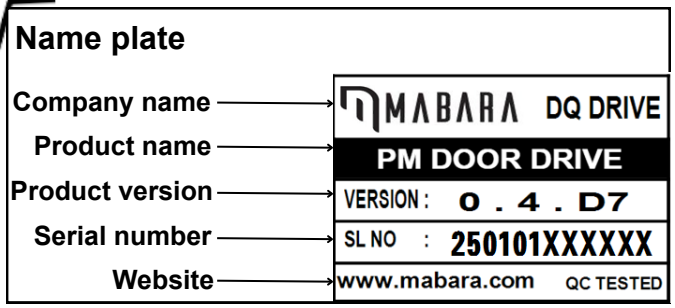
# PRODUCT INFORMATION

## 2.1 DESIGNATION RULES AND NAME PLATE

**Figure 2-1 Designation rules and name plate of the MDDPM - DQ DRIVE**







## 2.2 STRUCTURE

### Figure 2-2 Structure of the MDDPM - DQ DRIVE


## 2.3 DQ DRIVE MODEL:

### Table 2-1 DQ DRIVE MODEL:

| Model | Input Voltage | Power Capacity (kVA) | Input Current (A) | Output Current (A) | Motor Rating (W) |
|---|---|---|---|---|---|
| MABARA DQ | SINGLE PHASE 220V (-15% TO 20%) | 1 | 5.4 | 2.3 | 400 |

## 2.4 General Specifications

| Item | | Specifications |
|---|---|---|
| Basic specifications | Maximum output frequency | 300Hz |
| | Speed range | 300RPM |
| | Speed stability | 1% |
| | Start up torque | 3NM |
| | Frequency resolution | 0.1Hz |
| | Current resolution | 0.1A |
| | Carrier frequency | 14khz Center aligned PWM |
| Major functions | | Automatic motor learning, initial rotor position detection |
| | | Automatic door learning |
| | | Intelligent torque adjustment |
| | | Neutral open - 400v no failure |
| | | Auto brake of motor after power fail |
| | | Multiple Scurve option |
| Protection functions | | Over voltage, under voltage, over current, short circuit |
| | | Over temperature |

## Chapter 2.5 Advantages of DQ drive

**DQ door drive is the most advanced elevator door drive with inbuilt artificial intelligence which adjusts the parameters automatically based on the motor and door conditions and reduces 90% of your tuning efforts.**

- DQ drive is equipped with 4lines wide display that helps in e-documentation, parameter description, error detailing and recovery documentation, etc.
- Advanced rotor position estimation which greatly minimizes the load during ard operations.
- Motor learning algorithm helps you to run the drive even for a motor with unknown details. Drive automatically detects the poles and encoder counts.
- The intelligent algorithm reduces the motor’s heat at the long open and close end as low as 50% compared to other competitor’s drives.
- Implemented with the world’s first self-tuning algorithm that can automatically adjust its speed and torque s-curve based on the door header’s inertia and door friction.
- Drive is designed to withstand 400v in case of neutral open which is common in 3 phase. Such design robustness is possible due to our long years of R & D experience.
- Integrated with standard protections during over-voltage, under-voltage cut-off, output short circuit, etc.
- Anti-pinch parameter setting helps to fine-tune the torque and door press during the sensor operation (sudden door open request while closing).
- Assured installation of door drive tuning in just less than 10mins. (user just needs to know how to operate the program keys)
- Users need not bother about the u-v-w sequence of the motor and a-b of the encoder. Any sequence will be automatically adapted by the DQ drive.

# 3

# Electrical installation

# Chapter 3 Electrical Installation

## 3.1 Installation Environment

| Item | Requirement |
|---|---|
| Ambient temperature | 10 to 55 DegC |
| Heat Dissipation | Mount the controller on the surface of incombustible objects with Sufficient room for heat dissipation.<br>Install the controller base with the screws vertically. |
| Mounting location | Free from direct sunlight, high humidity and condensation |
| | Free from corrosive, explosive and combustible gas |
| | Free from oil dirt, dust and metal powder |

## 3.2 Electrical Installation

### Wiring and Description of Main Circuit Terminals

**Figure 3 – 5 Main circuit terminal arrangement**

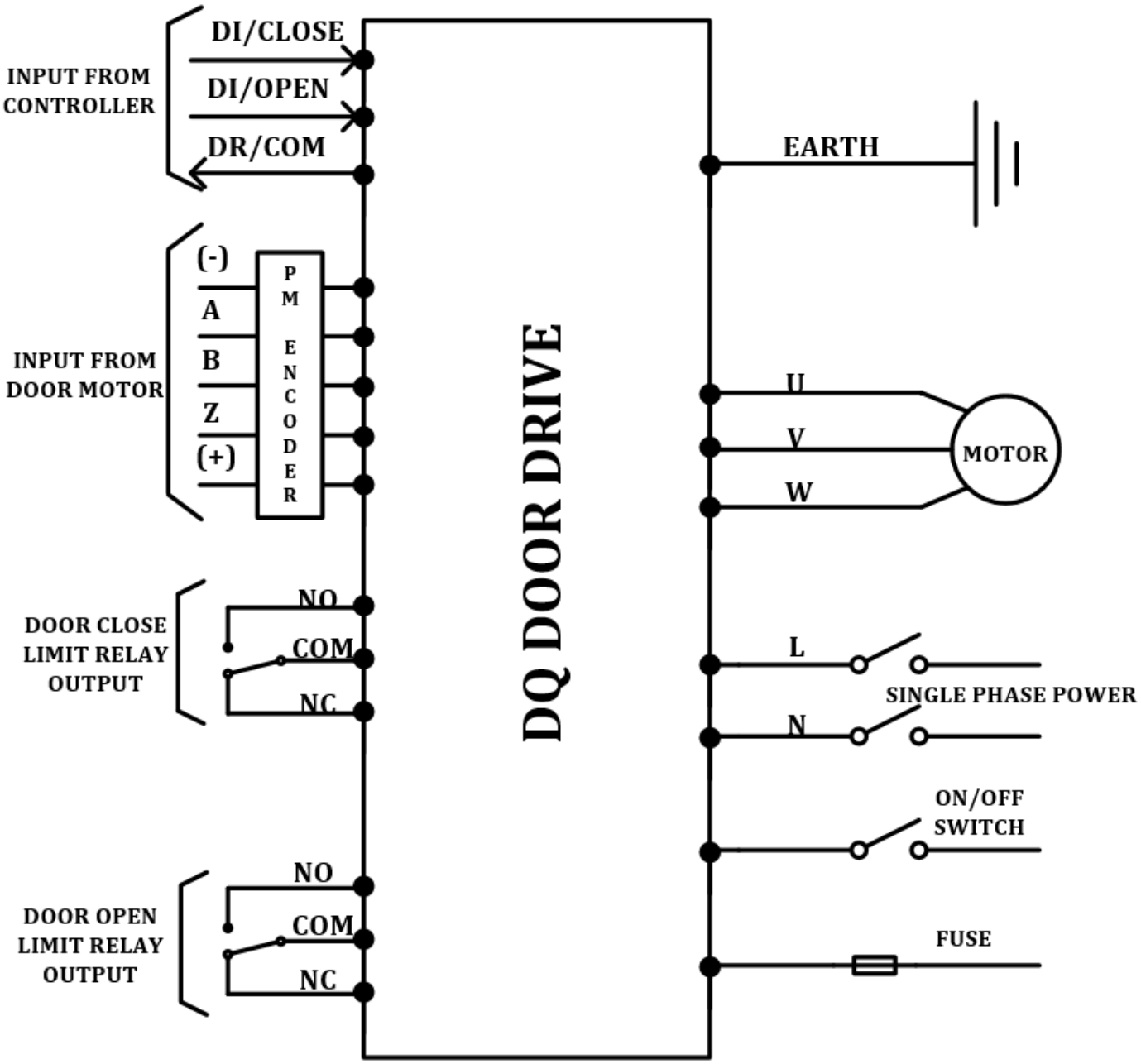


**Figure 3 – 6 Main circuit terminal arrangement**

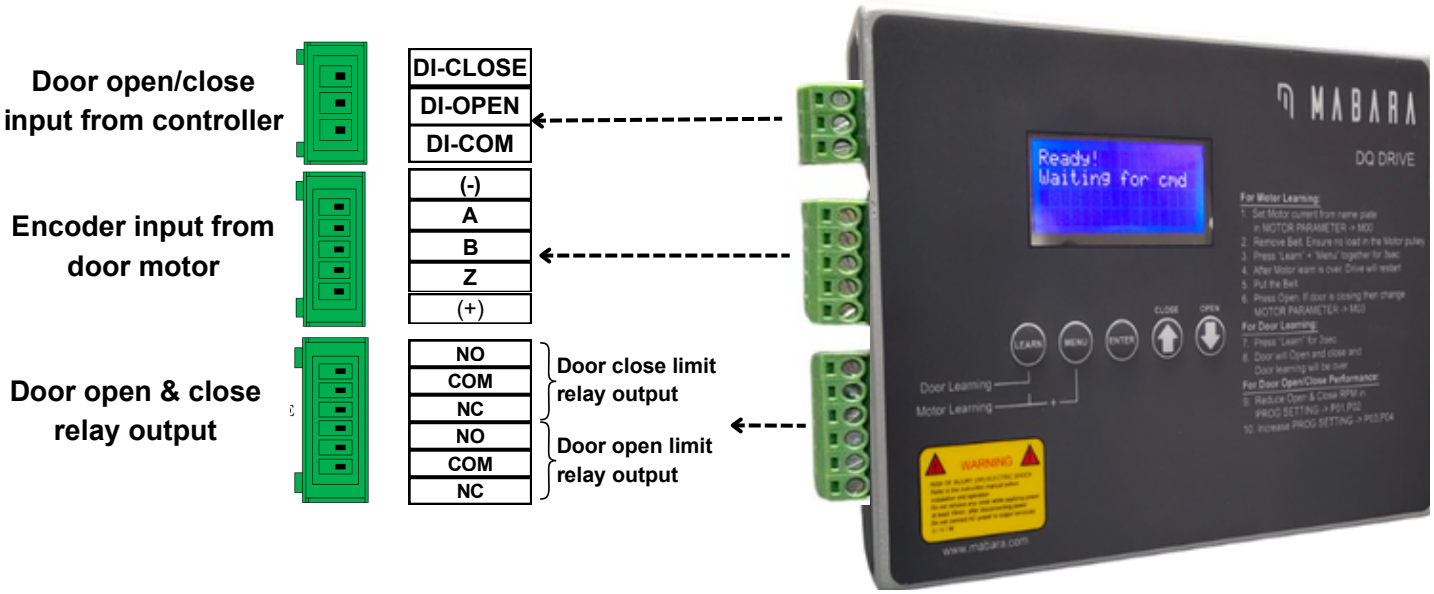



**Figure 3 – 7 Main circuit terminal arrangement**

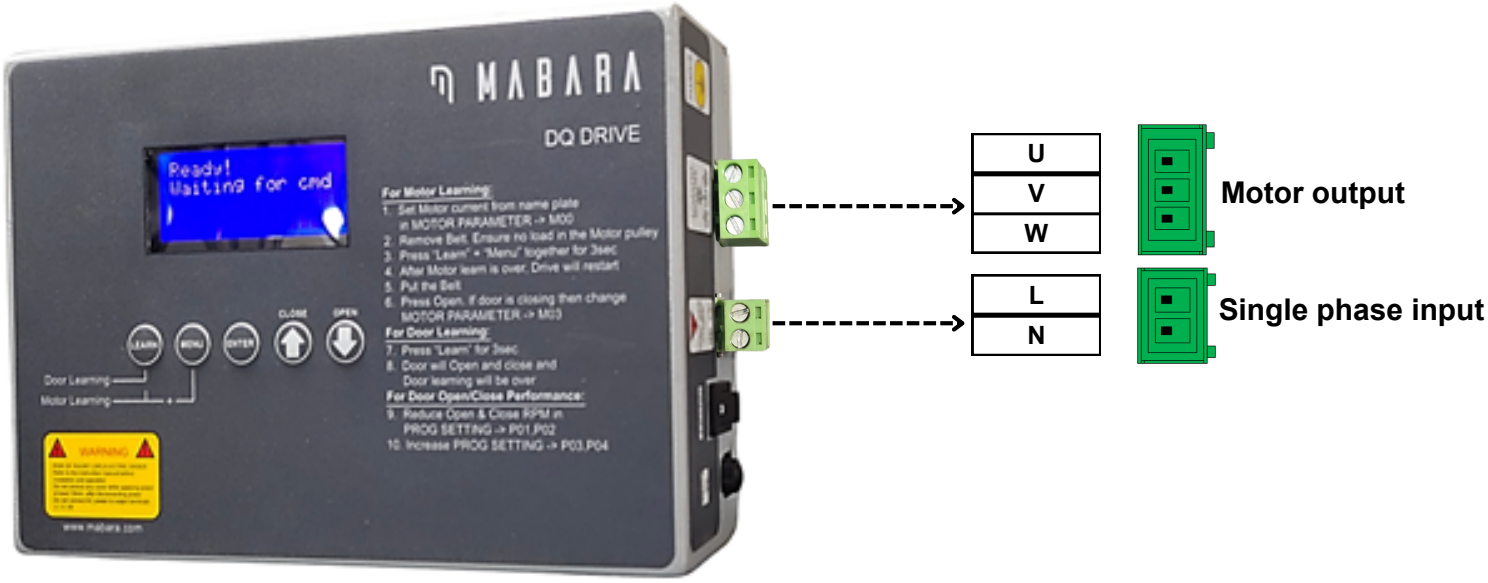


**Table 3-1 Main circuit terminal description**

| Terminal | Name | Description |
|---|---|---|
| L, N | Single-phase powering input terminals | Provide single-phase 220VAC power supply. |
| U,V,W | Controller output terminals | Connect the three-phase to motor. |
| ⏚ | Earth | Grounding terminal - Must be grounded. |
| CLOSE<br>OPEN<br>COM | DI CLOSE/DI OPEN/DR COM | Input from controller |
| + A,B,Z - | PM ENCODER | Input from Door Motor |
| NO,COM,NC | RELAY OUTPUT | Door close limit relay output |
| NO,COM,NC | RELAY OUTPUT | Door open limit relay output |
| ON/OFF SWITCH | SWITCH | Switch for power on/off. |
| FUSE | FUSE | 3A FUSE |

**Check the wiring before power-on to ensure device and personal safety:**

1. The wiring is performed according to the instructions.
2. All switches act reliably.
3. Check the inter-phase resistance of the main circuit to ensure that there is no short circuit to ground.
4. The mechanical installation is proper.

**Connections:**

· Connect the 2 pin connector (L,N) to 220V AC single phase power supply and connect the earth wire (Motor Earth & Drive Earth).

· Connect the U,V,W door motor wires to the drive output.

· Connect the motor encoder to the 5 – pin connector in the drive (- A,B,Z+).

· Manually open the car door to 50%.

· Power ON.

· Display should show “READY”.

# 4

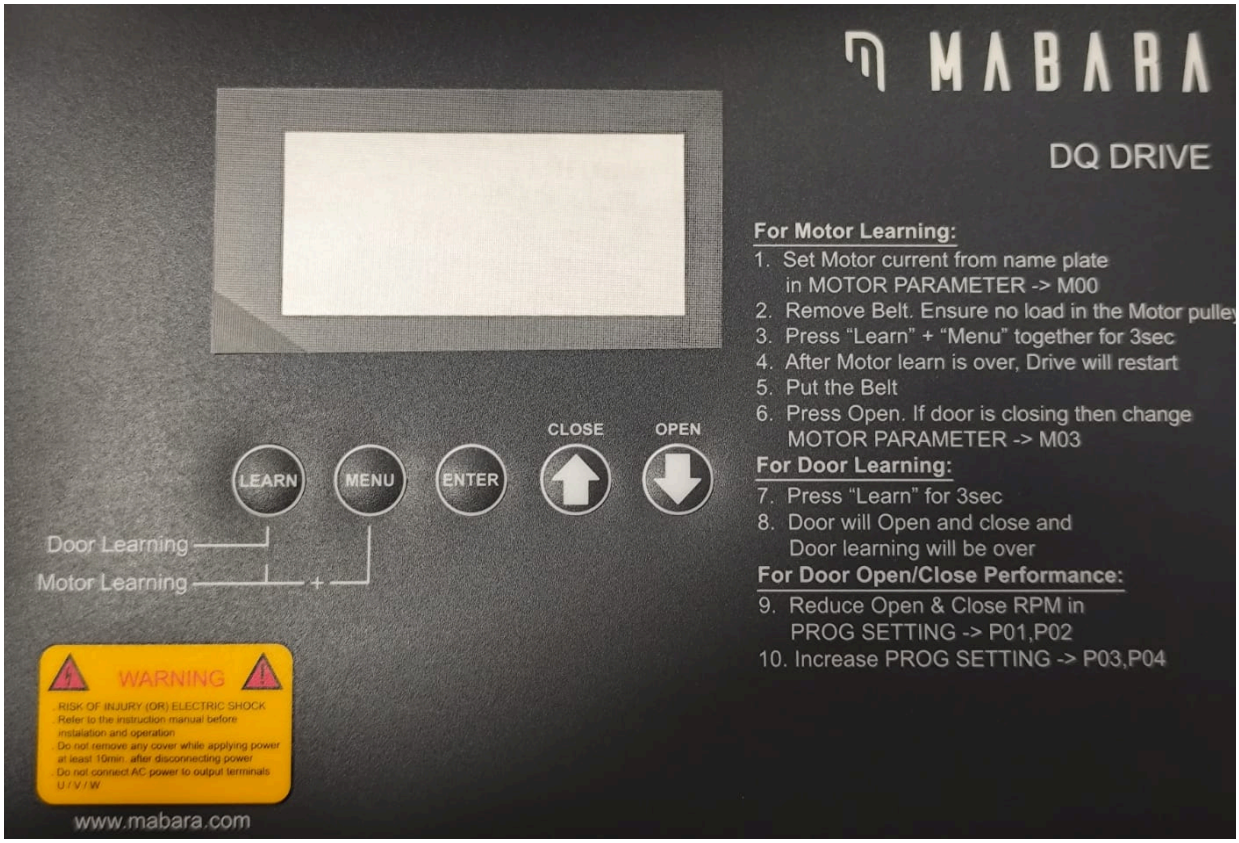
# Operation and Trial Running

# Chapter 4 Operation and Trial Running

## 4.1 Operation Panel

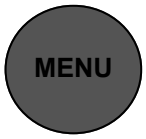
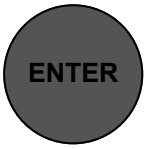
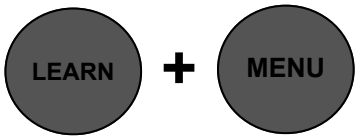
**You can modify the parameters, monitor the working status and run or stop the controller by operating the operation panel shown as below:**

**Figure 4-1 Operation panel diagram**



**1. Description of Keys on the Operation Panel**

**Table 4 - 2 Description of keys on the operation panel**

| Key | Name | Function |
|---|---|---|
|  | Door Learning | Learning the door. Press Learn button for 3 seconds. |
|  | Menu | Menu to view the program settings. |
|  | Confirm | Enter the menu interfaces level by level, and confirm the parameter setting. |
| **Open**  | Door open | Open the door in the operation panel operation mode. |
| **Close**  | Door close | Close the door in the operation panel operation mode. |
|  | Motor Learning | Learning the motor. Press Learn & MENU button together for 3 seconds. |

## 4.2 Basic Operations

### Operation Procedure of the Operation Panel

### For motor learning:

- Set the motor current from the nameplate in the motor parameter -> m00 settings.
- Remove the belt and ensure there is no load on the motor pulley.
- Press the "learn" and "menu" buttons together for 3 seconds.
- After the motor learning is complete, the drive will restart.
- Reconnect the belt.
- Press the "open" button. If the door is closing, change the motor parameter -> m03 setting -> 00 (or) 01

**Note:**

**1.During motor learning, make sure the motor belt is removed.**

**2.Verify that proper earthing is provided for both the motor and the drive.**

### For door learning:

- During door learning, make sure the door is halfway open (50% open position).
- Press the "learn" button for 3 seconds.
- The door will open and close, completing the door learning process.

.

### For door open/close performance:

- Reduce the open and close rpm in the prog setting → P01 and P02 respectively.
- Increase the open and close acceleration time in the prog setting → P03 and P04 respectively.

# 5

# Fuction code table

## Chapter 5 Function code table

## Chapter 5.1 Program setting

| DEFAULT VALUES FOR DOOR CENTER OPENING | | | | | |
|---|---|---|---|---|---|
| MENU: 1/6------PROGRAM SETTING | | | | | |
| PARAMETER | DESCRIPTION DISPLAY | 600MM | 700MM | 800MM | 900MM |
| P00 | S-CURVE-USER | 01 | 01 | 01 | 01 |
| P01 | OPEN RPM | 150 | 170 | 180 | 210 |
| P02 | CLOSE RPM | 140 | 160 | 180 | 210 |
| P03 | OPEN ACC TIME | 0.25S | 0.20s | 0.20S | 0.23S |
| P04 | CLOSE ACC TIME | 0.05S | 0.20s | 0.20S | 0.25S |
| P05 | FIXED ACC TIME | 0.20s | 0.20s | 0.20s | 0.23S |
| P06 | ANTI JERK ACC TIME | 0.20s | 0.20s | 0.20s | 0.23S |
| P07 | FIXED SPEED HZ | 20.0Hz | 20.0Hz | 20.0Hz | 14.0HZ |
| P08 | FIXED SPEED END | 2.0Hz | 2.0Hz | 2.0Hz | 2.0Hz |
| P09 | FIXED SPEED END 50% | 50% | 50% | 50% | 50% |
| P10 | LEARNING HZ | 10.0Hz | 10.0Hz | 10.0Hz | 10.0Hz |
| P11 | OPEN LOCK TORQUE | 70% | 70% | 70% | 70% |
| P12 | CLOSE LOCK TORQUE | 50% | 50% | 50% | 50% |
| P13 | LONG CLOSING LOCK TORQUE | 05% | 05% | 05% | 05% |
| P14 | LOCK TIME | 0.80s | 0.80s | 0.80s | 0.80s |
| P15 | LATCH INPUT | 01 | 01 | 01 | 01 |
| P16 | LEARN COUNT | 1454 | 1454 | 1454 | 1454 |
| P17 | VAC CORRECTION | 220 | 220 | 220 | 220 |
| P18 | ALL PGG DEFAULT | 00 | 00 | 00 | 00 |
| P19 | OPEN LMT RLY% | 95 | 95 | 95 | 95 |
| P20 | CLOSE LMT RLY% | 95 | 95 | 95 | 95 |
| P21 | OPEN AT POWERON | 00 | 00 | 00 | 00 |
| P22 | TRIAL RUN COUNT | 00 | 00 | 00 | 00 |

**Note: To save the program, press and hold the MENU button for a long press.**

## Chapter 5.2 S-Curve setting

| DEFAULT VALUES FOR DOOR CENTER OPENING | | | | | |
|---|---|---|---|---|---|
| MENU: 2/6----------S-CURVE SETTING | | | | | |
| PARAMETER | DESCRIPTION DISPLAY | 600MM | 700MM | 800MM | 900MM |
| S00 | OPEN START % | 00% | 00% | 00% | 00% |
| S01 | OPEN SKATING% | 08% | 08% | 08% | 08% |
| S02 | OPEN MIDDLE 1% | 35% | 35% | 35% | 35% |
| S03 | OPEN MIDDLE 2% | 61% | 61% | 61% | 61% |
| S04 | OPEN BEFOR END % | 85% | 95% | 90% | 83% |
| S05 | OPEN END % | 90% | 99% | 97% | 100% |
| S06 | OPEN START HZ | 8.0HZ | 8.0HZ | 8.0HZ | 8.0HZ |
| S07 | OPEN SKATING HZ | 20.0HZ | 20.0HZ | 20.0HZ | 20.0HZ |
| S08 | OPEN MIDDLE 1 | 50.0HZ | 50.0HZ | 50.0HZ | 50.0HZ |
| S09 | OPEN MIDDLE 2 | 45.0HZ | 45.0HZ | 45.0HZ | 45.0HZ |
| S10 | OPEN BEFORE END | 10.0HZ | 10.0HZ | 10.0HZ | 10.0HZ |
| S11 | OPEN END HZ | 0.5HZ | 0.5HZ | 0.5HZ | 0.5HZ |
| S12 | CLOSE START % | 100% | 100% | 100% | 100% |
| S13 | CLOSE AFTER START % | 90% | 90% | 90% | 90% |
| S14 | CLOSE MIDDLE 2% | 70% | 70% | 70% | 70% |
| S15 | CLOSE MIDDLE 1% | 41% | 41% | 41% | 41% |
| S16 | CLOSE SKATING % | 14% | 14% | 14% | 14% |
| S17 | CLOSE END % | 00% | 00% | 00% | 00% |
| S18 | CLOSE START HZ | 10.0HZ | 10.0HZ | 10.0HZ | 10.0HZ |
| S19 | CLOSE AFTER START % | 30.0HZ | 30.0HZ | 30.0HZ | 30.0HZ |
| S20 | CLOSE MIDDLE 1 HZ | 50.0HZ | 50.0HZ | 50.0HZ | 50.0HZ |
| S21 | CLOSE MIDDLE 2 HZ | 35.0HZ | 35.0HZ | 35.0HZ | 35.0HZ |
| S22 | CLOSE SKATING HZ | 4.5HZ | 4.5HZ | 4.5HZ | 4.5HZ |
| S23 | CLOSE END HZ | 4.0HZ | 4.0HZ | 4.0HZ | 4.0HZ |
| S24 | S-CURVE DEFAULT | 00 | 00 | 00 | 00 |

**Note: To save the program, press and hold the MENU button for a long press.**

## Chapter 5.3 Program motor parameter

| MENU: 3/6-----MOTOR PARAMETER | | |
|---|---|---|
| PARAMETER | DESCRIPTION DISPLAY | DEFAULT |
| M00 | MOTOR CURRENT | 0.80 |
| M01 | MOTOR POLE PAIR | 08 |
| M02 | ENCODER COUNT | 4095 |
| M03 | OP/CL CHANGE | 00 |
| M04 | OFFSET ANGLE | 208 |
| M05 | ENCODER COUNT | 00 |
| M06 | SPEED P GAIN | 250 |
| M07 | SPEED I GAIN | 100 |

## Chapter 5.4 OBD

| **MENU: 4/6-----OBD** |
|---|
| **OBD represents only for production purpose** |

## Chapter 5.5 View data

| **MENU: 5/6-----VIEW DATA** |
|---|
| **The View Data shows real time values for Motor and Drive like motor pulse, motor pole, etc.** |

**Note: To save the program, press and hold the MENU button for a long press.**

Note: All the frequency settings are normalized to 50Hz for ease of handling different types of motor with different operating frequency. For example 50Hz indicates as max operating output frequency (speed) which is factored based on the motor parameter. So the output frequency not necessarily same as entered value in the functional settings.

# 6

# Error Data & Recovery List

## Chapter 6.1 Error data list

| MAIN MENU: 6/6-----ERROR DATA | |
|---|---|
| E00 | HIGH VOLTAGE |
| E01 | LOW VOLTAGE |
| E02 | HIGH BUS VOLTAGE |
| E03 | LOW BUS VOLTAGE |
| E04 | HIGH CURRENT |
| E05 | HIGH TEMPERATURE |
| E06 | RESERVED |
| E07 | RESERVED |
| E08 | MEMORY ERROR |
| E09 | RESERVED |
| E10 | RESERVED |
| E11 | FUSE FAILED |
| E12 | KEY SWITCH ERROR |
| E13 | UVW SHORT |
| E14 | RESERVED |
| E15 | RESERVED |
| E16 | UVW OPEN ? |
| E17 | ADC ERROR |
| E18 | RESERVED |
| E19 | RESERVED |
| E20 | S-CURVE ERROR |
| E21 | MOTOR PARAMETER |
| E22 | OPEN + CLOSE INPUT ERROR |

## Chapter 6.2 Error recover list

| E-CODE | DESCRIPTION | EFFECT | RECOVER |
|---|---|---|---|
| E00 | HIGH VOLTAGE | MOTOR OFF | • Auto Reset<br>• High voltage 275V AC & Recovery Voltage 265V AC<br>• Normal voltage range 175-265V AC. |
| E01 | LOW VOLTAGE | MOTOR OFF | • Auto Reset<br>• Low voltage 165V AC & Recovery Voltage 175V AC<br>• Normal voltage range 175-265V AC. |
| E02 | HIGH BUS VOLTAGE | MOTOR OFF | • The drive must be turned OFF and then ON<br>• High voltage 470V AC & Recovery voltage 410V AC<br>• Normal voltage range 250-410V AC |
| E03 | LOW BUS VOLTAGE | MOTOR OFF | • The drive must be turned OFF and then ON<br>• Low voltage 100V AC & Recovery voltage 250V AC<br>• Normal voltage range 250-410V AC |
| E04 | HIGH CURRENT | MOTOR OFF | • Check motor current (M00) 80% for 30seconds<br>• Do motor learning |
| E05 | HIGH TEMPERATURE | MOTOR OFF | • Auto Recovery or Reset |
| E06 | RESERVED | -- | -- |
| E07 | RESERVED | -- | -- |
| E08 | MEMORY ERROR | -- | • Power OFF & ON issue remains, Go to the program settings in P18, set all PGG to default, and save the memory data |
| E09 | RESERVED | -- | -- |
| E10 | RESERVED | -- | -- |
| E11 | FUSE FAILED | MOTOR OFF | • Contact the manufacturing company or forward it to the authorized service center for assistance |
| E12 | KEY SWITCH ERROR | Indication | • Contact the manufacturing company or forward it to the authorized service center for assistance |
| E13 | UVW SHORT | Permanent trip | • The drive must be switched OFF and ON<br>• Check UVW wire connection<br>• Check proper earthing condition |
| E14 | RESERVED | -- | -- |
| E15 | RESERVED | -- | -- |
| E16 | UVW OPEN? | MOTOR OFF | • Check the UVW wire connection<br>• Check all connector<br>• Check the motor resistor<br>• Restart the drive (Power OFF/ON) |
| E17 | ADC ERROR | MOTOR OFF | • Contact the manufacturing company or forward it to the authorized service center for assistance |
| E18 | RESERVED | RESERVED | -- |
| E19 | RESERVED | RESERVED | -- |
| E20 | S-CURVE ERROR | S-CURVE ERROR | • The fault or error occurs due to a major mechanical fault<br>• Contact the manufacturing company or forward it to the authorized service center for assistance |
| E21 | MOTOR PARAMTER | MOTOR PARAMETER | • Remove belt<br>• Do motor learning<br>• Check encoder wire connections |
| E22 | OPEN CLOSE INPUT ERROR | MOTOR OFF | • Contact the manufacturing company or forward it to the authorized service center for assistance |

## Chapter 6.3 Learning Error Details and Solutions

### For motor learning error details:

| E-CODE | DISPLAY | DESCRIPTION | EFFECT | RECOVER |
|---|---|---|---|---|
| LE3 | OP/CL cnt error | OPEN/CLOSE CNT ERROR | MOTOR OFF | • Check the encoder wire connections<br>• Check the UVW wire connections |
| LE3 | OP/CL cnt error<br>&<br>E16: UVW open? | OPEN/CLOSE CNT ERROR | MOTOR OFF | • Check the encoder wire connections<br>• Check the UVW wire connections |
| - | Err: No Z | ENCODER ERROR | MOTOR OFF | • Check the encoder Z wire connection. |
| - | Err: Z Mix to AB | ENCODER ERROR | MOTOR OFF | • Check encoder A, B and Z wire connections. |

### For door learning error details:

| E-CODE | DISPLAY | DESCRIPTION | EFFECT | RECOVER |
|---|---|---|---|---|
| LE1 | Open Err | LONG OPEN ERROR | MOTOR OFF | • Check the motor belt for any damage or excessive stretching. |
| LE2 | Close Err | LONG CLOSE ERROR | MOTOR OFF | • Check the motor belt for any damage or excessive stretching. |
| LE3 | OP/CL cnt error | OPEN/CLOSE CNT ERROR | MOTOR OFF | • Check the encoder wire connections<br>• Check the UVW wire connections |
| LE4 | Failed! | KEY FAILED ERROR | MOTOR OFF | • If this issue occurs, press the ENTER button and repeat the learning process |

# 7

# Maintenance

## Chapter 7.1 Maintenance

### Routine Maintenance

The influence of the ambient temperature, humidity, dust and vibration will cause the aging of the components inside the controller, which may cause potential faults or reduce the service life of the controller. Therefore, it is necessary to carry out routine and periodic maintenance.

| CAUTION |
| --- |
| The filter capacitors till has residual voltage after the power supply is cutoff.Thus do not repair or maintain the controller immediately.Wait atleast 10 minutes and ensure that the bus voltage measured by multimeter is not higher than 36 V. |

### Routine maintenance involves checking:

- Whether abnormal noise exists during motor running
- Whether the motor vibrates excessively
- Whether the installation environment of the controller changes
- Whether the cooling fan works properly
- Whether the controller overheats Routine cleaning

### Involves:

- Keep the controller clean all the time.
- Remove the dust, especially metal powder on the surface of the controller, to prevent the dust from entering the controller.
- Clear the oil stain on the cooling fan of the controller.

### Periodic Inspection:

Perform periodic inspection on the items that are difficult to check during running.Periodic inspection involves:

- Check and clean the air filter periodically.
- Check whether the screws become loose.
- Check whether the controller is corroded.
- Check whether the wiring terminals have arc signs.
- Carry out the main circuit insulation test.

# MABARA WARRANTY AGREEMENT

Mabara provides an 18-month free warranty to the equipment itself from the date of manufacturing for the failure or damage under normal use conditions.

Within the warranty period, maintenance will be charged for the damage caused by the following reasons:

a. Improper use or repair/modification without prior permission

b. Fire, flood, abnormal voltage, natural disasters and secondary disasters

c. Hardware damage caused by dropping or transportation after procurement

d. Operations not following the user instructions

e. Damage out of the equipment (for example, external device factors)

The maintenance fee is charged according to the latest Maintenance Price List of Mabara.

If there is any problem during the service, contact Mabara's agent or Mabara directly.

Mabara reserves the rights for explanation of this agreement.

**MABARA MANUFACTURING COMPANY**
**MATHIKSHARA TOWER**
**SP135, Southern Avenue Road**
**Ambattur industrial Estate**
**NEAR WAVIN SIGNAL**
**Chennai-600058**

**www.mabara.com**