Automation for a Changing World

EGP Door Control Drive & Motor VFD-DD Series

Redor Door Control Functions

▪Door Width Auto-tuning

Door width is automatically measured and saved as the door opens and closes. It will open and close twice to confirm the door width accuracy. Once confirmed, the measurement is recorded into the drive parameters.

▪Smooth Door Curve

The door will reopen in a reverse direction when door blockage is detected. The reopen is performed with a smooth curve to minimize the impact of vibration.

▪Demo Mode

Demo mode demonstrates the door open, close and reverse motions to ensure the performance and quality of the drive system and the door structure.

▪Asynchronous (IM) and Synchronous (PM) Motors Applications

Compatible with Delta ECMD series door control servo motor and other induction motors (signal type encoder that accepts open collector and differential signal with 5 or 12 VDC).

▪Door Protection System

Passengers enter and exit the elevator with greater safety. When the light curtain and safety panel fail to function, the drive will command the door to re-open as it detects a rise of current caused by the blocked door.

▪Blockage Detection

4 steps: precise torque detection at blockage, door remains at current position for a few seconds, door "OPEN/CLOSE" time-out, force open.

▪Built-in EMI Filters

(except for Basic Models)

Specifications

220V 1-phase: 70W			
Model Number VFD-_ _ _DD		002	004
Max. Applicable Motor Output (W)		200	400
Output Rating	Rated Output Capacity (KVA)	0.6	1.0
	Rated Output Current for Constant Torque (A)	1.5	2.5
	Maximum Output Voltage (V)	Proportional Input Voltage	
	Output Frequency (Hz)	0.00 ~ 120.00Hz	
	Carrier Frequency (kHz)	10 kHz	
	Rated Input Current (A)	4.9A	6.5A
Environment	Voltage Tolerance	Single Phase 200 -20% ~ 240V +10% (160~264V)	
	Frequency Tolerance	50/60Hz ±5% (47 ~ 63Hz)	
Cooling Method		200W natural cool / 400W natural cool	
Frame		W170 * L215 * H55 mm	

General Specifications

Control Characteristics	Starting Torque		At 0.5Hz, starting torque reaches above 150% at 0.5Hz; under FOC+PG mode, starting torque reaches above 150% at 0Hz.
	Speed Control Range		1:100 (external PG installation can achieve 1:1000)
	Speed Control Accuracy		±0.5% (external PG installation can achieve 0.02%)
	Speed Response Ability		5Hz (vector control can attain 30Hz)
	Max. Output Frequency (Hz)		0.00 to 120.00 Hz
	Output Frequency Accuracy		Digital command ±0.005%
	Frequency Setting Resolution		Digital command ±0.01Hz
	Torque Limit		200% torque current as maximum
	Accel/Decel Time		0.00 ~ 600.00 sec
	V/F Curve Pattern		Adjustable V/F curve of 4 independent points
Operating Characteristics	Frequency Setting Signal	Keypad	By parameter setting
		External Signal	Multi-function input selection 1 ~ 5 (15 step speeds; JOG), parameter setting on serial communication port (RS-485)
	Operation Setting Signal	Keypad	Set by RUN, STOP key
		External Signal	2 wires (Fwd, Rev, RUN), JOG operation, RS-485 serial interface, demo mode
	Multi-Function Input Signal		Multi-step speed selection MI1 ~ MI15, Jog, first to second accel/decel switches, demo mode, force stop, emergency stop, operation command source, parameter lock, driver reset, open/close limit signal, door open prohibited signal, force open signal, reposition, 2nd step open/close curve selection
	Multi-Function Output Signal		(RC1,RA1,RB1), (RC2,RA2,RB2), (MO1,MO2,MO3 and MCM) AC drive operating, frequency attained, fault indication, over torque, over voltage, operation mode, alarm indication, demo mode indication, overheat alarm, drive is ready emergency stop, braking signal, zero speed indication, PG indication error , position detection, limit signal, re-open/ dose indication, position finished
Communication Interface			Built-in MODBUS, customize CAN Bus
Alarm Output Contact			Contact "ON" when malfunctions occurs (relay with a "C" or "A" contact, or 2 open collector outputs)
Operation Function			AVR, 4 set fault records, reverse inhibition, DC brake, auto torque/slip compensation, auto tuning, adjustable carrier frequency, output frequency upper and lower limits, parameter reset, vector control, MODBUS communication, abnormal reset, abnormal re-start, PG feedback control, fan control, demo mode, door width auto-tuning
Protection Function			Over voltage, over current, under current, external fault, overload, ground fault, overload, overheating, electronic thermal, PG feedback error, external limit signal error, re-open/re-close
Digital Keypad			7 function keys, 4-digit 7-segment LED, 4 status LEDs, master frequency, output frequency, output current, custom units, parameter values for setup, review and faults, RUN, STOP, RESET, FWD/REV
Built-in EMI filter			Certified to EN55011 CLASS A
Protection Characteristics	Motor Protection		Electronic thermal relay protection
	Over Current Protection		The current forces 180% of the over-current protection and 240% of the rated current
	Overload Capacity		150% for 120 seconds; 180% for 10 seconds
	Voltage Protection		Over-voltage level: Vdc>400; low-voltage level: Vdc<200
	Over-voltage Protection for Input Power		Varistor (MOV)
	Overheat Protection		Built-in temperature sensor
Environment	Enclosure Rating		IP20
	Operation Temperature		~ 40℃ -10℃
	Ambient Temperature		~ 60℃ -20℃
	Ambient Humidity		Below 90% RH (non-condensing)
	Vibration		1.0G less than 20Hz, 0.6G at 20 ~ 60 Hz
	Installation Location		Altitude 1,000m or lower, keep from corrosive gasses, liquid and dust
Certificate			CE

Number	Description	Default	Content
01	Language	3.Türkçe	1. English 2. French 3. Turkish 4. Dutch 5. Russian 6. Arabic 7. Persian 8. Reserved
02	Opening speed	25.0 Hz ed at 12.	13.Starting speed and Max High spe
03	Closing speed	20.0 Hzed at 12.	13.Starting speed and Max High spe
04	Linear Length	40%	00% - 99%
05	Re-Open	0.45A	19.Durma Akımı ve 18.Max.Akım
06	Working Mode	2.Digital Input	1. Demo Mode 2. Digital Input
07	Motor Spin Direction	1.CW	1. CW (RIGHT) 2. CCW (LEFT & CENTRAL)
08	Motor Auto Tuning		Automatically tunes the Motor
09	Door Auto Learning		Automaticaly learns the door width
10	Factory Defaults		It returns all the parameters to factory defaults
11	Administrator		Enters the advanced parameter menu and changes the factory defaults (Enter Code : 010)
12	Max.High speed	40.Hz parameter 02.	This parameter changes the value at
13	Starting speed	03.5Hz	
14	Collision (hitting) Speed	01.2Hz	
15	Skate Speed		Closing or Opening speed of the Skate can be adjusted.
16	Holding Torque	27% nd closing	Iti s the holding torwue at opening a
17	Auto learning Current	0.45ALearning	Iti s the torque level at Aut
18	Max.Current	1.40A	Motor Max.Current 0.20A – 1.40A
19	Stop Current	0.15A	Bottom level of 05. Re-Open current limit is adjusted from here .
20	Input Mode	3. Edge	1. Two Line 2. One Line 3. Edge
21	Door Width		20 mm. – 4500 mm.
22	Skate Lenght	54 mm.	1 mm. – 100 mm.
23	Collision (hitting) Distance	2 mm.	1 mm. – 20 mm.
24	Gear Ratio		00.1 – 20.0
25	VF GANE	2,0	From 1 to 250
26	KPH ERROR GANE	0,28	Error total ratio
27	KPL ERROR GANE	0,2	Error total ratio
28	Programmable Input	1.Demo Mode	1.Demo Mode 2.Restart Mode 3. Re-Open Mode
29	Programmable Output	2.Cam Mode	1.Cam Mode 2. Re-Open Mode 3.Ready Mode 4. Fault Mode 5.Error Mode
30	Re-Open Error	010	(1-10) To determine how many times to Re-Open before giving Error
31	Save Factory Defaults		All the parameters are recorded and saved as Factory Defaults thus changing the Factory Defaults at parameter Nr.11

Control Circuit Terminals.

The connection example for Door Open and Close Door commands from the elevator control card is as follows. Different elevator control cards may have different connection requirements.

Without External Voltage Application

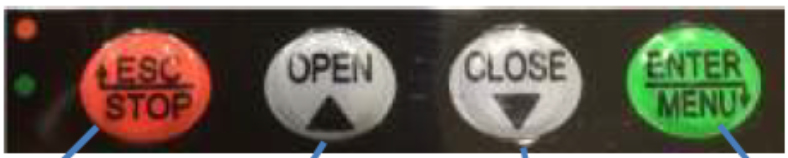
CLOSE — K3 – Door Close Input
OPEN — K5 – Door Open Input
+24V
COM
0V — K15 – Joint Input

Applying External Voltage

CLOSE — K3 – Door Close Input
OPEN — K5 – Door Open Input
+24V
COM — 100 (24V)
0V

Note:
In general it is recommended to use «Without Externa Voltage Application" as in the connection example above. In this case 1000 (0V) and 100 (+ 24V) external supply connections are not required!
If K15 is bridged through the panel with 1000 (0V), the "Applying External Voltage" connection is used.

Keypad Explanations



Stop and Return To Main Screen

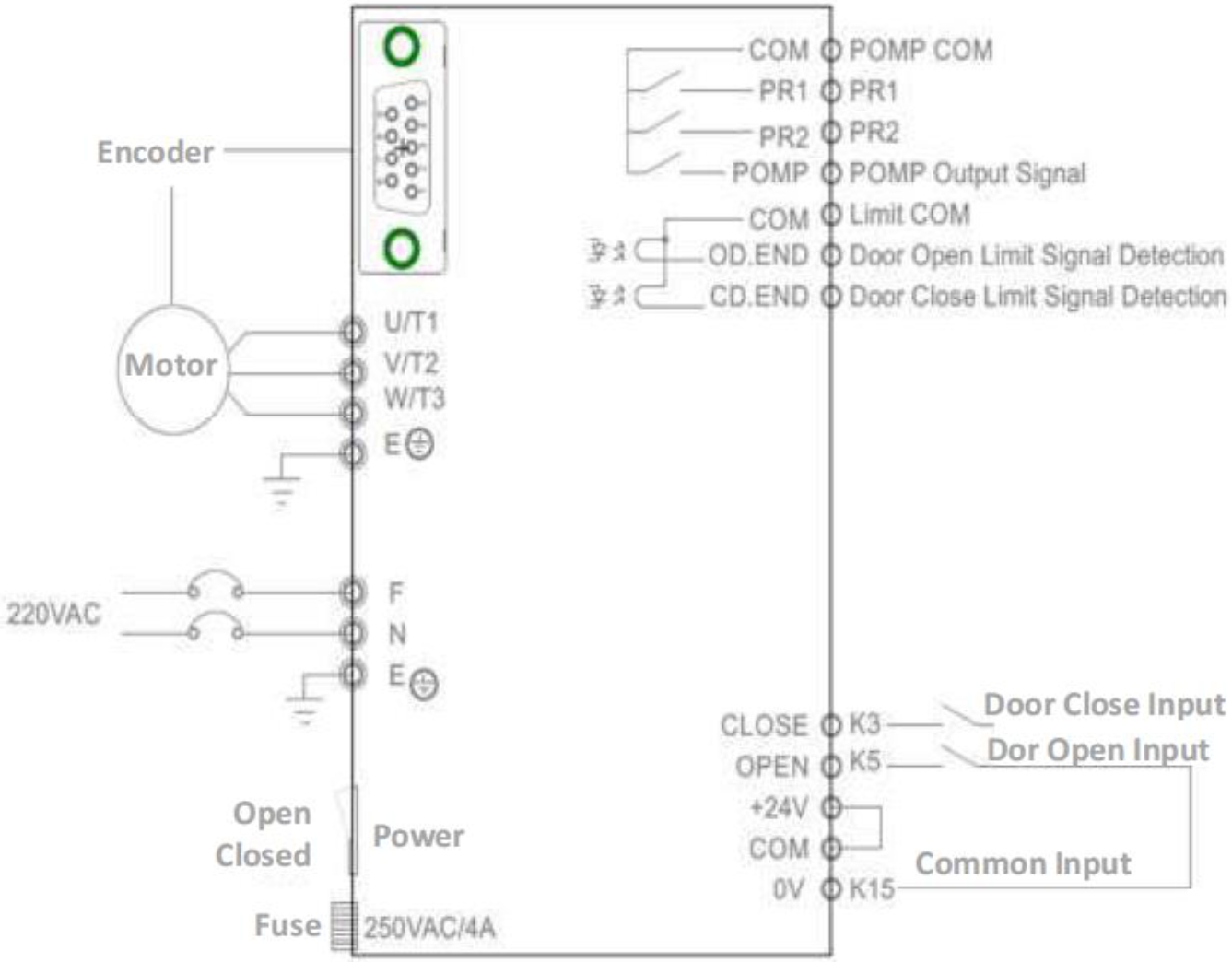
1. Door Open at Main Screen
2. Moving Up at Parameter Screen

1. Door Open at Main Screen
2. Moving Down at Parameter Screen

1. To enter the parameter menu keep it pressed for 5 seconds .
2. To change the parameter pres Enter once , with the arrows up and down change the value , and pres once again to confirm the value.

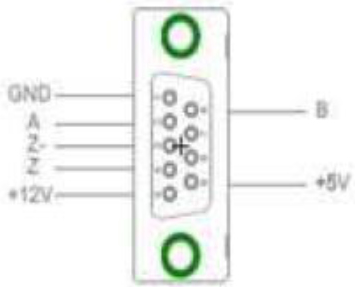
When you are done with the Adjustments press ESC/STOP to return to the main Menu

Connection Diagram

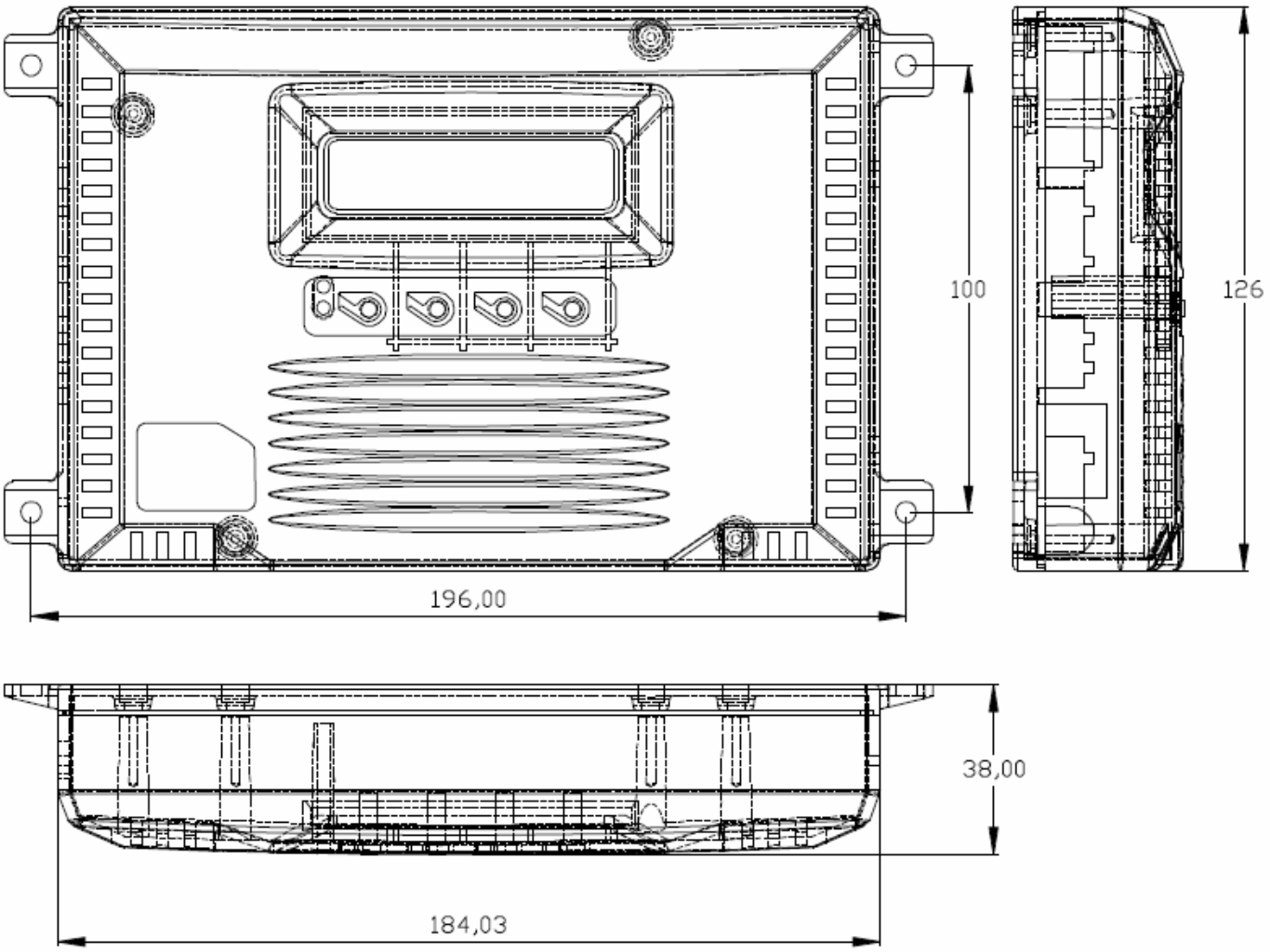


Main Circuit Output Terminal

Control Terminal



Dimensions



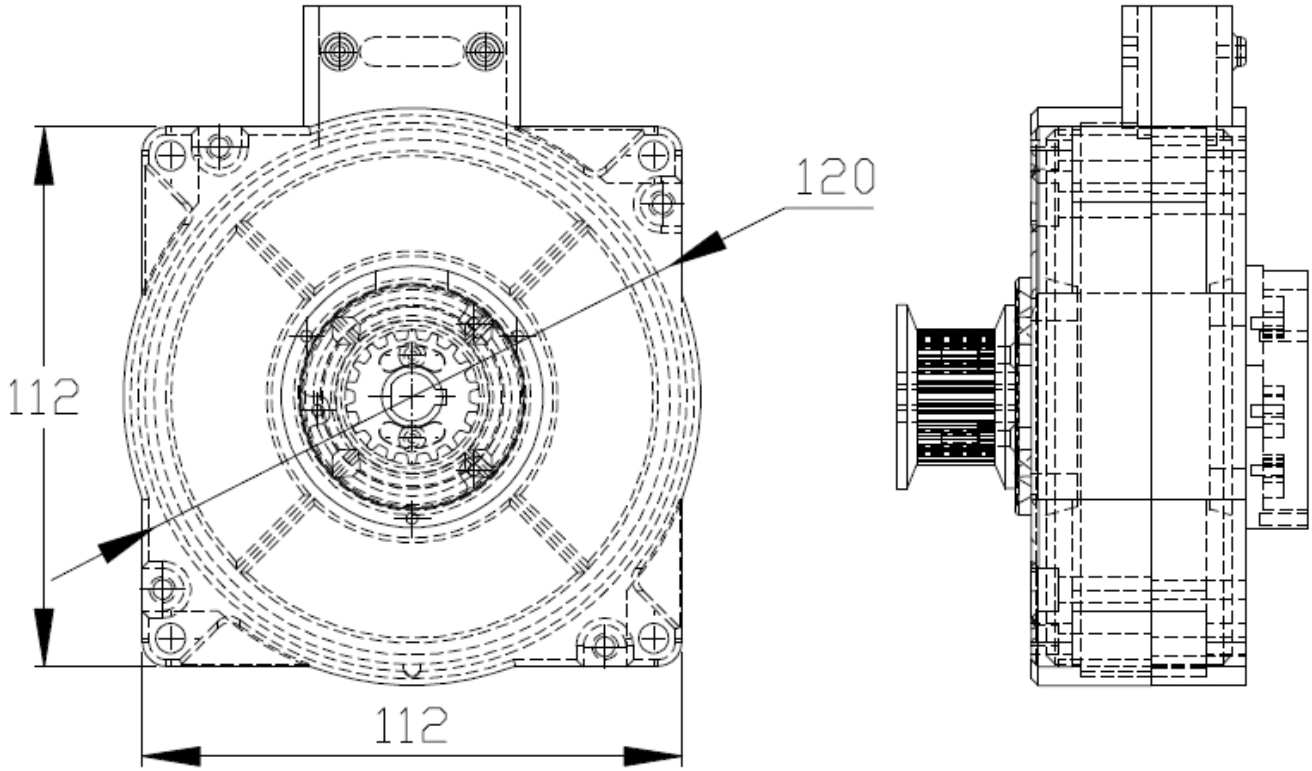
Frame		W	H	D	W1	W2	H1	H2	H3	H4	D1	Ø1	Ø2
A1	mm	215.0	170.0	55.0	204.0	204.0	138.5	15.0	15.1	15.5	8.5	5.0	7.0
	inch	8.46	6.69	2.17	8.03	8.03	5.45	0.59	0.59	0.61	0.34	0.20	0.28

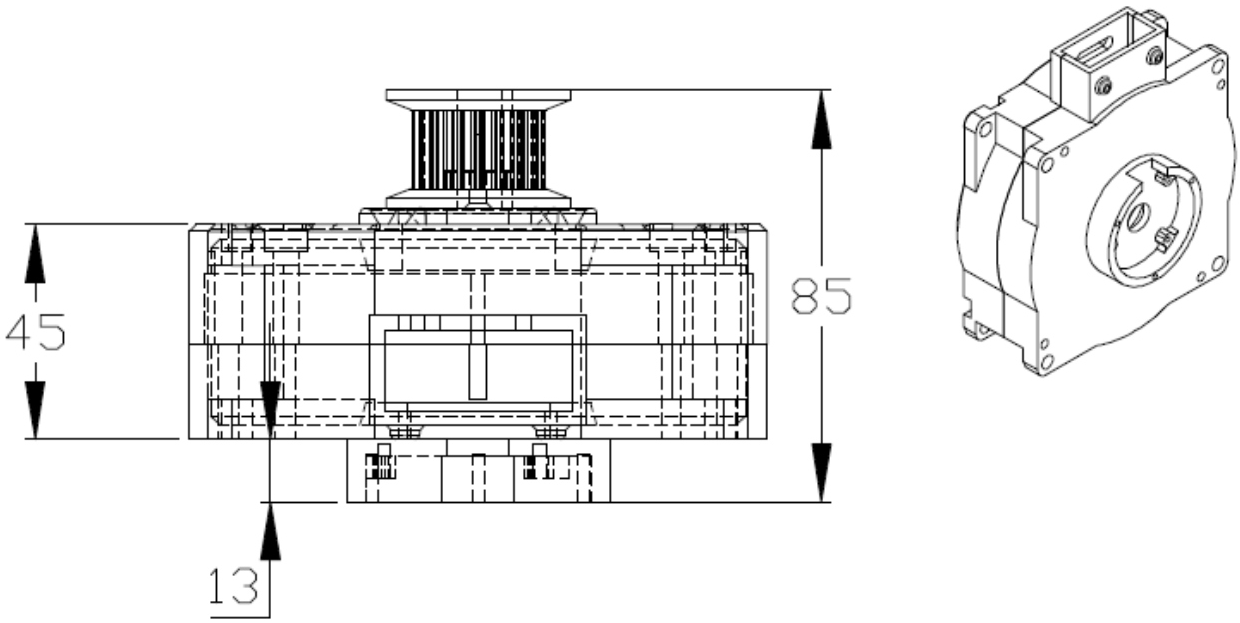
Specifications

	Model Name	ECMD-B91207M_		
Rated Speciation	Rated Power (W)	70		
	Rated Voltage (V)	220		
	Rated Torque (N-m)	2.0		
	Rated Speed (rpm)	350		
	Rated Current (A	0.7		
Rated Speciation	Pole Numbers	10		
	Encoder Resolution	10 bit (256ppr)		
	Continuous Stall Torque (N-m)	2.0		
	Max. Instant Torque (N-m)	5.0		
	Max. Speed (rpm)	750		
	Max. Instant Current (A)	2.5		
	Rotor Moment of Inertia (Kg.m2)	3.0X10-4		
	Armature Resistance (Ohm)	18.7		
	Armature Inductance (mH)	195		
	Mechanical Time Constant (ms)	1.96		
	Electrical Time Constant (ms)	10.4		
	Insulation Class			
	Insulation Resistance			
	Insulation Strength			
	Max. Radial Shaft Load (N)			
	Max. Thrust Shaft Load (N)			
	Weight (kg)	2.5		
Environment	Maximum Winding Temperature			
	Operating Temperature			
	Storage Temperature			
	Operating Humidity (%RH)			
	Storage Humidity(%RH)			
	IP Rating			

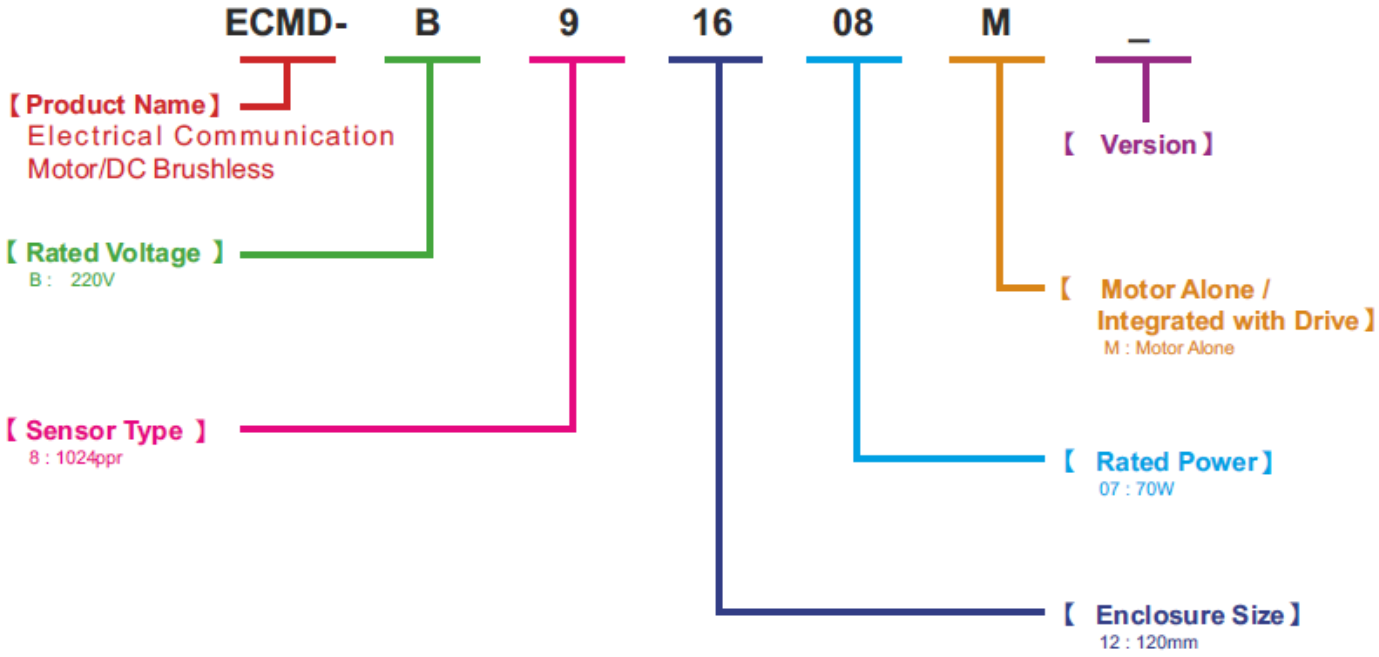
Dimensions

- **ECMD-B81207**

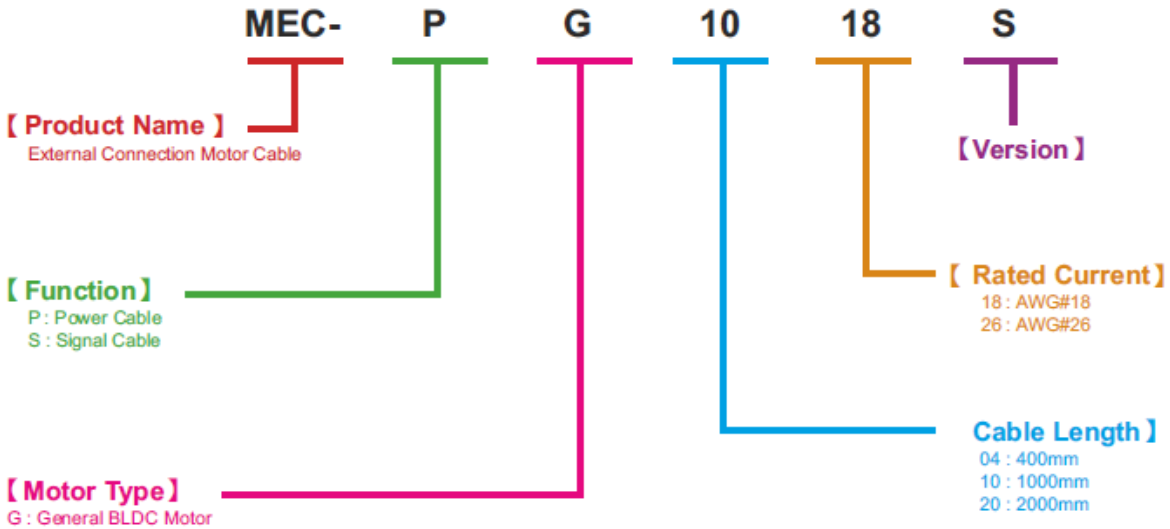


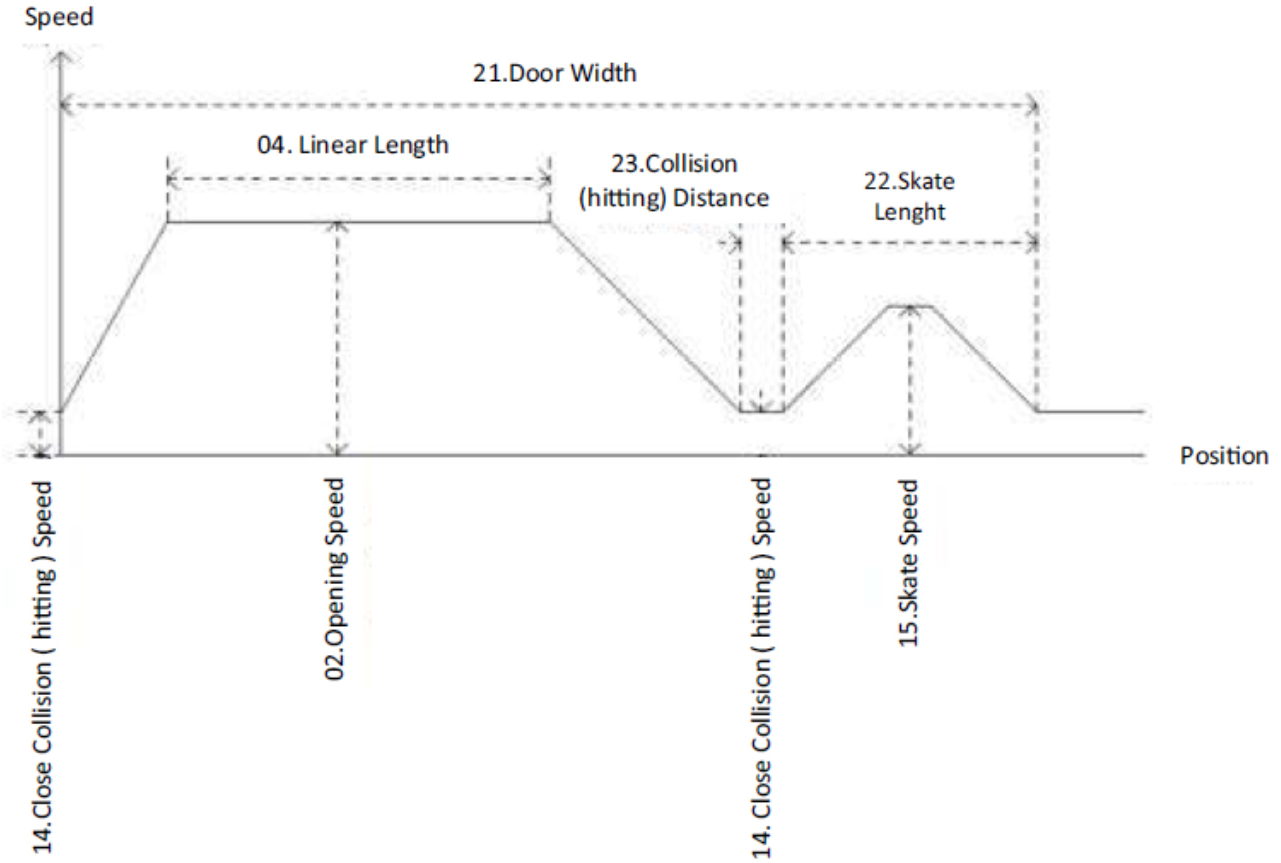


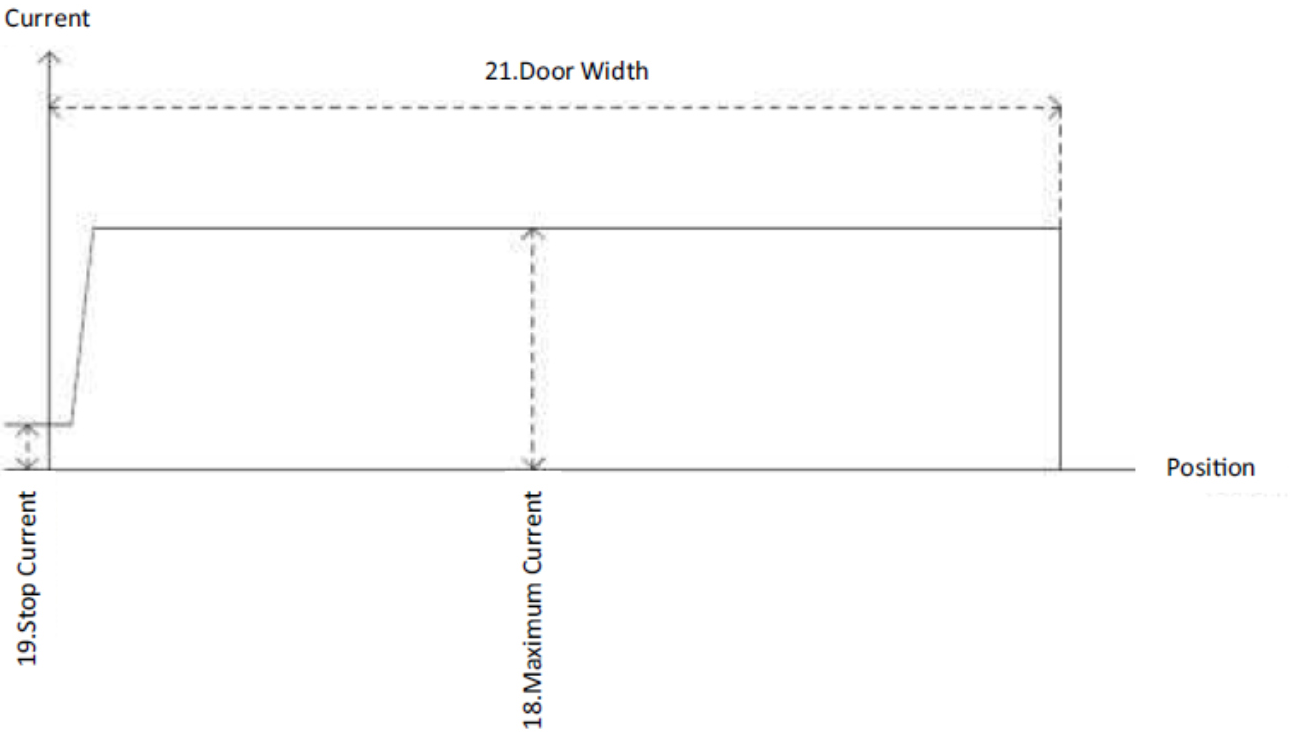
Model Name of ECMD Motor

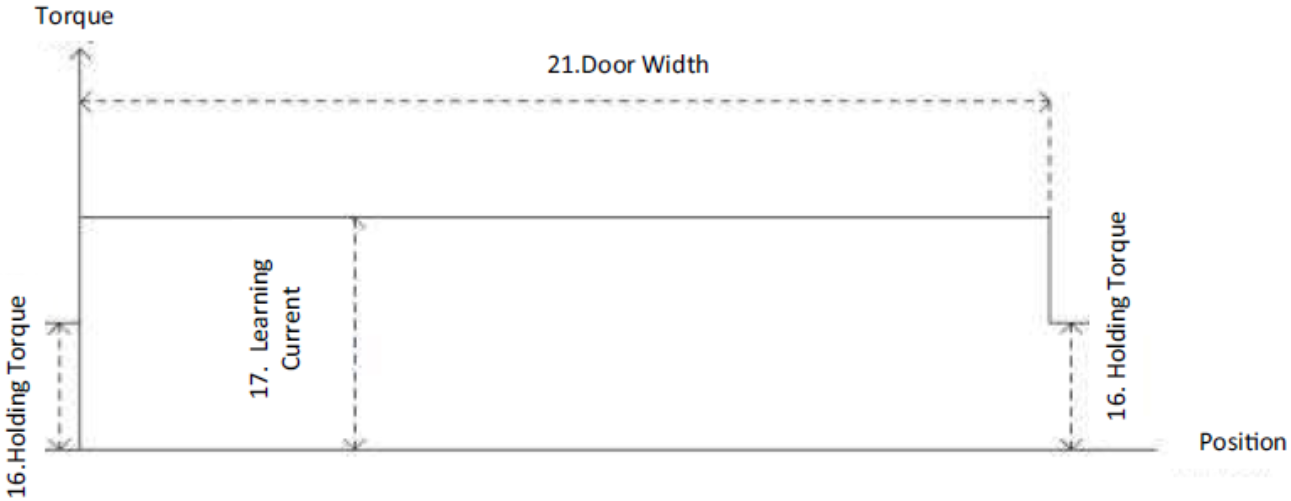


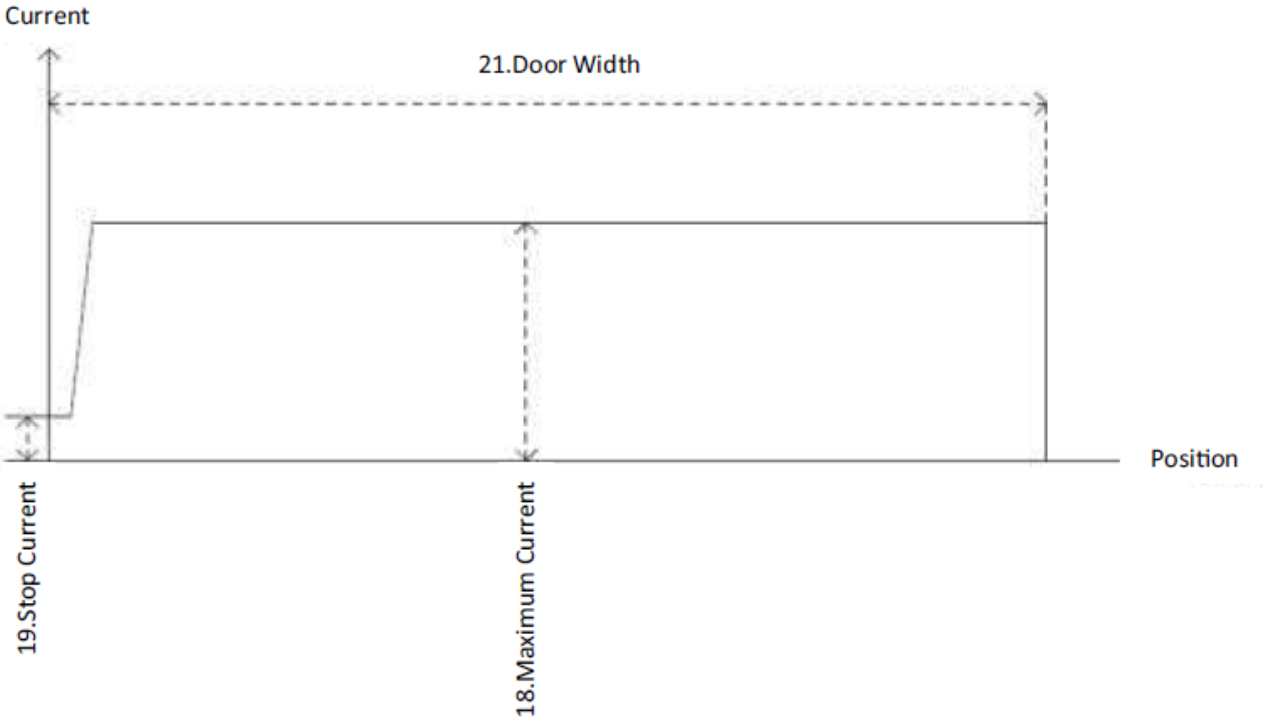
Model Name of Motor Cable

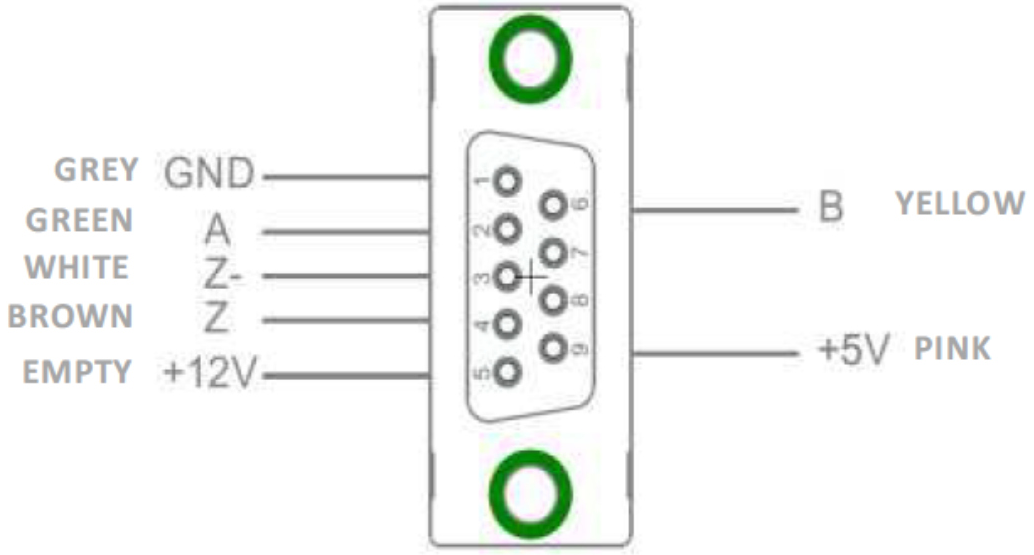



Speed
21.Door Width
04. Linear Length
23.Collision
(hitting) Distance
22.Skate
Lenght
Position
14.Close Collision (hitting) Speed
02.Opening Speed
14. Close Collision (hitting) Speed
15.Skate Speed


Current
21.Door Width
Position
19.Stop Current
18.Maximum Current


Torque
21.Door Width
16.Holding Torque
17. Learning Current
16. Holding Torque
Position


Current
21.Door Width
Position
19.Stop Current
18.Maximum Current



GREY-GND	0 VOLT
GREEN-A	ENCODER SIGNAL
WHITE- Z-	PWM POZITION SIGNAL
WHITE- Z	PWM POZITION SIGNAL
PINK- +5V	+5V VOLTAGE COMING FROM BOARD TO ENCODER
YELLOW-B	ENCODER SIGNAL

ENCODER LED EXPLANATIONS

IND: IT'S BLUE
Iti s constantly on , it goes off when comes to 0° .

QA: IT'S GREEN
Blinks when motor shaft is rotating.

QB: IT'S YELLOW
Blinks when motor shaft is rotating.

ERR: IT'S RED
Encoder has a problem.

PWM: IT'S WHITE
White color is vivid when it is at 0 °, white color becomes transparent when it reaches 360 °.