MOONS'
moving in better ways

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Servo、Brushless General Catalog

AC Servo System
DC Servo System
Brushless DC System

Dawn of MOONS' 3A Era

1st A **Motion Products & Motion Control Products for Manufacturing Automation**

MOONS' is a leading manufacturer of the key parts, components and system level products used in manufacturing automation including: Stepper Motor and Drive, Brushless Motor and Drive, AC Servo Motor and Drive, Integrated solutions. We continue to play a major role in the manufacturing automation field with us moving forward to being a system level provider of total motion control solutions.

2nd A **Intelligent LED Driver & Control Technologies for LED Lighting Management Automation**

3rd A **Online Asset Monitoring, Fault Detection and Diagnosis Solutions for EAM Automation**

MOONS' Business Philosophies

● Customer satisfaction

MOONS' aims to enhance customer satisfaction through the provision development of innovative solutions, manufacture of high quality products, and ontime delivery and outstanding customer support.

● Employee satisfaction

MOONS' values and respects our employees input and encourages them to grow together with the company.
We have been working to develop tools and trainings to build a thriving culture of excellence internally to support the future growth of our employees and the company.

● Partnership

MOONS' strongly believes in a true integrated partnership between all partners in business including customers, distributors and all these in supply chain. As a result of our this philosophy, we endeavor to provide the best value contribution to all partners, which can help our partners improve their competiveness to achieve the win-win situation.

Worldwide service map


moving in better ways

To demostrate our commitment to our community and our customers, **MOONS'** has adopted as our official slogan: "Moving in Better Ways". These words have following meanings to **MOONS':**

- **MOONS'** is an excellent global manufacturer of control motor & control motor drive system
- **MOONS'** is a leading global supplier of intelligent LED lighting control system and drive solutions
- **MOONS'** is a well-recognized reliable provider of system solutions for the intelligent system management in large asset-intensive industrial enterprises

We provide superior motion control systems to our global customers through optimizing of product design, engineering, and manufacturing. This is done by strengthening process and quality control and constantly creating solutions using motion control products that are more energy efficient and environmental friendly.

We provide leading-edge LED lighting drivers, controls and management solutions. Our leading lighting control technology makes the drive professional, convenient to use, and more energy efficient in reducing costs and enhancing profits for global customers.

We provide management system solutions for large asset-intensive industries including power generation, petrochemical, metallurgy, coal and large scale agriculture.

- **We are an ambitious and enterprising company**

MOONS' never stops the on-going accelerated pace to improve processes and increase efficiency. Through scientific management methodologies and tools and incorporating advanced technology with senior management experience, we constantly optimize management processes that enable **MOONS'** to maintain on-going growth in competitive markets.

- **We are a cooperative and thriving group**

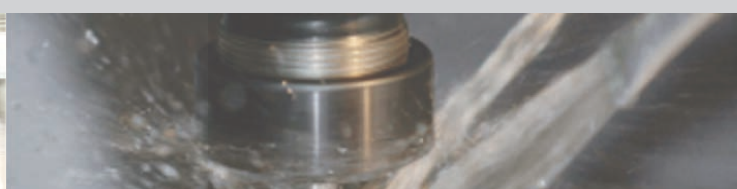
All members of our team are able to incorporate the concept of moving in better ways during work, they continually upgrade our collective values, and strive for excellence in the process of doing business to improve expertise and gain better opportunities.

Motion Control Products and Solutions

MOONS' provides a wide range of motion control products and solutions serving the fields of printing, intelligent stage lighting, textile machinery, consumer appliance, banking equipment, factory automation, electronics, semiconductor equipment, packaging machinery, medical equipment and measuring equipment, to name a few.

Entering into the hybrid stepper motor business in 1997, **MOONS'** has grown to where it is now one of the top 5 global manufacturers of stepper motors, and an integrated provider of related motion control products and solutions.

MOONS' has been and is concentrating on technological advancement, product design innovation and improvement for standard and customized motion control products and solutions. Cutting edge technologies, product improvement and scientifically proven management systems permit **MOONS'** to exceed customers' requirements around the world. **MOONS'** supports our growing customer base by providing exceptional quality, application engineering, rapid prototyping, regional warehousing and competitive pricing.

Products Overview

◇ M2 Series Servo System Products

M2DV Series-AC Input Servo Product

Input Voltage: 220VAC
Motor Frame Size: 40mm, 60mm, 80mm
Motor Power(W): 60, 100, 200, 300, 400, 550, 750
Encoder: 2500 Lines incremental encoder

Position Control
Velocity Control
Torque Control

Features:
- Easy to Use On-line Auto Tuning
- Internal Regeneration Resistors
- Build-In Soft PLC - Q Programmer
- Easy to Tuning Software
- Multiple Speeds Changeable via Digital Inputs
- Position Tables

Control Modes:
- Pulse Control
- Analog Control
- Field Bus Control
- Q Program

Inputs and Outputs:
- 12 Digital Inputs, 6 Digital Outputs
- 2 Analog Inputs
- 2 Line receiver inputs
- Encoder Feedback Ouput

Communications:
SCL CANopen eSCL EtherNet/IP Modbus EtherCAT

M2DC Series-DC Input Servo Product

Input Voltage: 20-60VDC
Motor Frame Size: 40mm, 60mm, 80mm
Motor Power(W): 60, 100, 200, 300, 400, 550, 750
Encoder: 2500 Lines incremental encoder

Position Control
Velocity Control
Torque Control

Features:
- Easy to Use On-line Auto Tuning
- Internal Regeneration Resistors
- Build-In Soft PLC - Q Programmer
- Easy to Tuning Software
- Multiple Speeds Changeable via Digital Inputs
- Position Tables

Control Modes:
- Pulse Control
- Analog Control
- Field Bus Control
- Q Program

Inputs and Outputs:
- 12 Digital Inputs, 6 Digital Outputs
- 2 Analog Inputs
- 2 Line receiver inputs
- Encoder Feedback Output

Communications:
SCL CANopen eSCL EtherNet/IP Modbus

Products Overview

◇ BLD Series Brushless Products

BLD Series-Brushless DC Motor & Drives

CE RoHS Compliant

Velocity Control

Input Voltage: 24-48VDC
Motor Frame Size: 42mm, 57mm, 80mm
Motor Power: 30, 60, 90, 100, 120, 180, 200, 300
Features:

- Wide Speed Control Range
- Excellent Speed Stability
- Compact and High Efficiency
- Low Power Consumption, Low Noise, Low Vibration
- Long Life and Low Maintenance Requirements
- Low Cogging Torque, Low Torque Ripple

Control Mode:

- Velocity Control

Inputs and Outputs:

- 8 Digital Inputs, 2 Digital Outputs
- 1Analog Input

Communication:

SCL

M2 Series Servo Products

M2DV Series-AC Input Servo Product

Input Voltage: 220VAC
Motor Frame Size: 40mm, 60mm, 80mm
Motor Power(W): 60, 100, 200, 300, 400, 550, 750
Encoder: 2500 Lines incremental encoder

Position Control
Velocity Control
Torque Control

Features:
- Easy to Use On-line Auto Tuning
- Internal Regeneration Resistors
- Build-In Soft PLC - Q Programmer
- Easy to Tuning Software
- Multiple Speeds Changeable Control via Digital Inputs
- Position Tables

Control Modes:
- Pulse Control
- Analog Control
- Field Bus Control
- Q Program

Inputs and Outputs:
- 12 Digital Inputs, 6 Digital Outputs
- 2 Analog Inputs
- 2 Line receiver inputs
- Encoder Feedback Ouput

Communications:
SCL CANopen eSCL EtherNet/IP Modbus EtherCAT

M2DC Series-DC Input Servo Product

Input Voltage: 20-60VDC
Motor Frame Size: 40mm, 60mm, 80mm
Motor Power(W): 60, 100, 200, 300, 400, 550, 750
Encoder: 2500 Lines incremental encoder

Position Control
Velocity Control
Torque Control

Features:
- Easy to Use On-line Auto Tuning
- Internal Regeneration Resistors
- Build-In Soft PLC - Q Programmer
- Easy to Tuning Software
- Multiple Speeds Changeable Control via Digital Inputs
- Position Tables

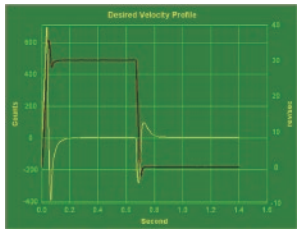
Control Modes:
- Pulse Control
- Analog Control
- Field Bus Control
- Q Program

Inputs and Outputs:
- 12 Digital Inputs, 6 Digital Outputs
- 2 Analog Inputs
- 2 Line receiver inputs
- Encoder Feedback Output

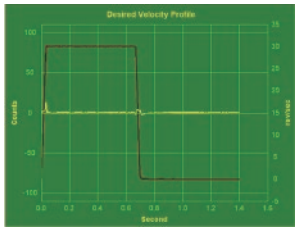
Communications:
SCL CANopen eSCL EtherNet/IP Modbus

Easy to Use On-line Auto Tuning

The M2 servo system can accomplish real time response to the dynamic feedback of the load and optimize gain tuning parameters on-line automatically. The auto tuning function can greatly save on debugging time and simplify the debugging procedure. This can all be done by the PC based software in only a few minutes.



Before auto-tuning

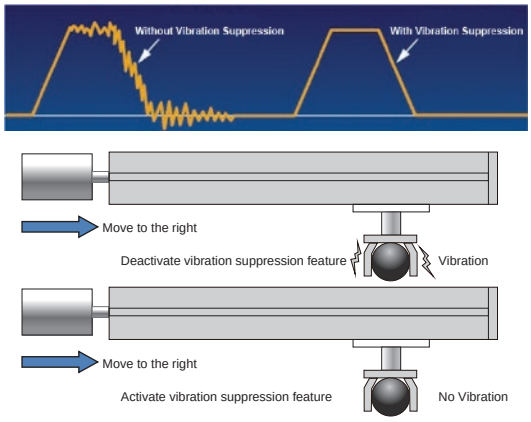


After auto-tuning

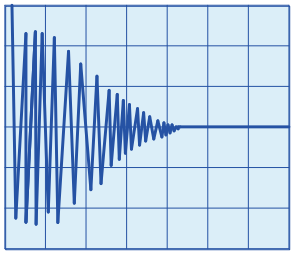
Advanced Anti-Vibration Function

The M2 servo system has an advanced antivibration function which includes anti-resonance and vibration damping.

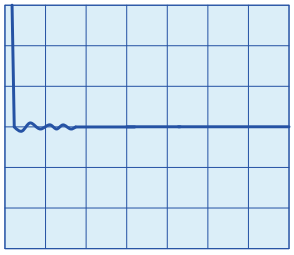
● Anti-resonance uses two notch filters to overcome the resonance from the natural mechanical characteristic of the system.



● Vibration damping uses an adjustable damping ratio in the controller to improve the damping characteristic of the system, which can reduce the vibration of the system.



Without Anti vibration



With Anti vibration

Safety Standards

Functional Safety -- STO (Safe Torque Off)

Safe Torque Off (STO) is a hardware level safety protection function. When the STO function is activated, the drive's hardware circuitry automatically forces all power transistors OFF to cut off the motor current, immediately disable motor operation and prevent unexpected restarting. The operator isn't required to physically shut off the electromagnetic contactor to ensure personal and equipment safety in case of an emergency.

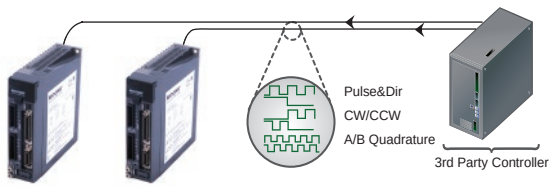
Internal Regeneration Resistors

All M2 Servo Series drives have an internal regeneration resistor.

Digital Pulse Position Modes

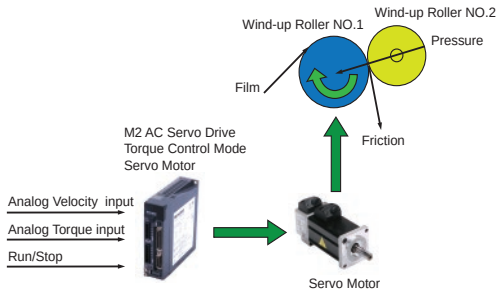
Support STEP/DIR, CW/CCW Pulse and A/B quadrature pulse.

- **Open Collector Pulse Input:** 500KHz, 5-24VDC
- **Differential Line Input:** 2MHz, 5VDC



Analog Input Control Modes

- Two analog inputs
- Support analog position, analog velocity and analog torque control



Built-In Q Programmer Software

Q Programmer is MOONS' own single-axis motion control software based on SCL commands. It can be used to create sophisticated and functional programs that can be saved to a drive's nonvolatile memory, and then run stand-alone, or without a permanent connection to the host. Q drives offer a high level of flexibility and functionality to the machine designer and system integrator.

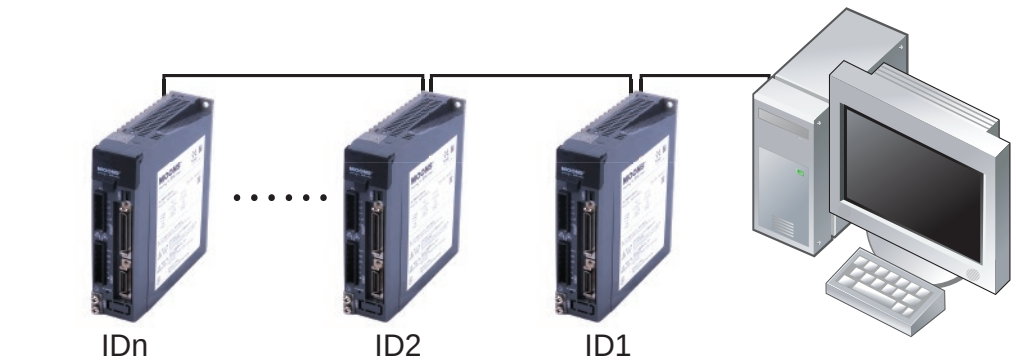
Features:

- Motion control commands (relative position, absolute position, homing mode, etc.)
- Multi-tasking
- Conditional Processing (external I/O, internal command)
- Math Calculation (+, -, *, /, &, or)
- Data register manipulation
- Logic motion command (loop, call functions)

Line	Label	Cmd	Param1	Param2	Comment
1		MT	1		Turn ON Multi-Tasking
2		DL	3		Turn OFF limits
3		PF	2000		Set Position Fault limit
4		CC	2		Set continuous current to 50%
5		CP	2		Also set peak current to same
6		DI	4000		Make distance positive for CW
7		JM	1		Set Jog mode to positioning
8		JS	1		Set Jog speed to 1 rev/sec
9		JA	10		Set Jog accel to 10 rev/sec/sec
10		CJ			Start jogging
11	Label2	TR	x	100	Test Reg ""x"" against 100
12		QJ	G	#Label1	Jump if greater than
13		TR	x	-100	Test Reg ""x"" against -100
14		QJ	G	#Label2	Jump if greater than
15	Label1	SM	M		Stop move with max accel (AM)
16		WM			Wait for stop to complete
17		EP	0		Set encoder position to zero
18		VE	1		Set Veolocity to 1 rev/sec
19		DI	-8000		Set home offset distance (CCW)
20		FL			Do a Relative move
21		WM			Wait for move to complete
22		SP	0		Set absolute position to zero
23		AX			Clear any faults just in case
24		WT	0.1		Wait 0.1 seconds
25		ME			Enable servo drive

Field Bus Control

M2 Servo Series drives support RS-485 Modbus/RTU protocol, CANopen protocal based on CANbus, as well as Ethernet and Ethernet/IP communication protocols.



☐ CANopen

Standard CAN bus interface is available in M2 series servo drives, which makes it easy to get integrated to a industrial field bus.

Items	Specification
Physical Layer Standard	CiA 303-1 Cabling and connector pin assignment
Communication Protocol	CiA 301 Application Layer and Communication Profile CiA 402 Device Profile Drives and Motion Control
Bus Connector	RJ45
Baud Rate	12.5Kbps, 20Kbps, 50Kbps, 125Kbps, 250Kbps, 500Kbps, 800Kbps, 1Mbps
Communication Objects	SDO, PDO, SYNC, EMCY, NMT, Heartbeat
Control Mode	Profile Position, Profile Velocity, Profile Torque, Homing Mode
PDO Data	4 RxPDOs, 4 TxPDOs
Support Axis	112 axis

☐ Modbus

M2 series servo drives provide the Modbus/RTU communication function with RS-232/RS-485 interface, and the Modbus/TCP with Ethernet interface, which can be used to easily control the motor, set parameters or monitor the status of the drive.

Items	Specifications
Physical Layer Standard	RS-232, RS-485, Ethernet
Communication Protocol	Modbus/RTU Modbus/TCP
Bus Connector	RJ11(RS-232)
	RJ45(RS-485, Ethernet)
Baud Rate	RS-232/485: 9600bps, 19200bps, 38400bps, 57600bps, 115200bps
	Ethernet: 10/100Mbps
Control Mode	Position Mode, Velocity Mode, Torque Mode, Homing Mode

☐ SCL

SCL(Serial command language), was developed by MOONS' to give users a simple way to control a motor drive via a serial port. This eliminates the need for separate motion controllers or to supply control signals, like Pulse&Direction, to your servo drives. It also provides an easy way to interface to a variety of the industrial devices like PLC, industrial computers, and HMI, which most often have standard serial ports for communication.

eSCL is based on MOONS's SCL for commanding and querying motion control products over Ethernet.

Items	Specifications
Physical Layer Standard	RS-232, RS-485, Ethernet
Communication Protocol	SCL
	eSCL
Bus Connector	RJ11(RS-232)
	RJ45(RS-485, Ethernet)
Baud Rate	RS-232/485: 9600bps, 19200bps, 38400bps, 57600bps, 115200bps
	Ethernet: 10/100Mbps
Control Mode	Position Mode, Velocity Mode, Torque Mode, Homing Mode

☐ EtherNet/IP

EtherNet/IP is an industrial network protocol that adapts the common industrial protocol to standard Ethernet. M2 series provide motion control solution with EtherNet/IP protocol.

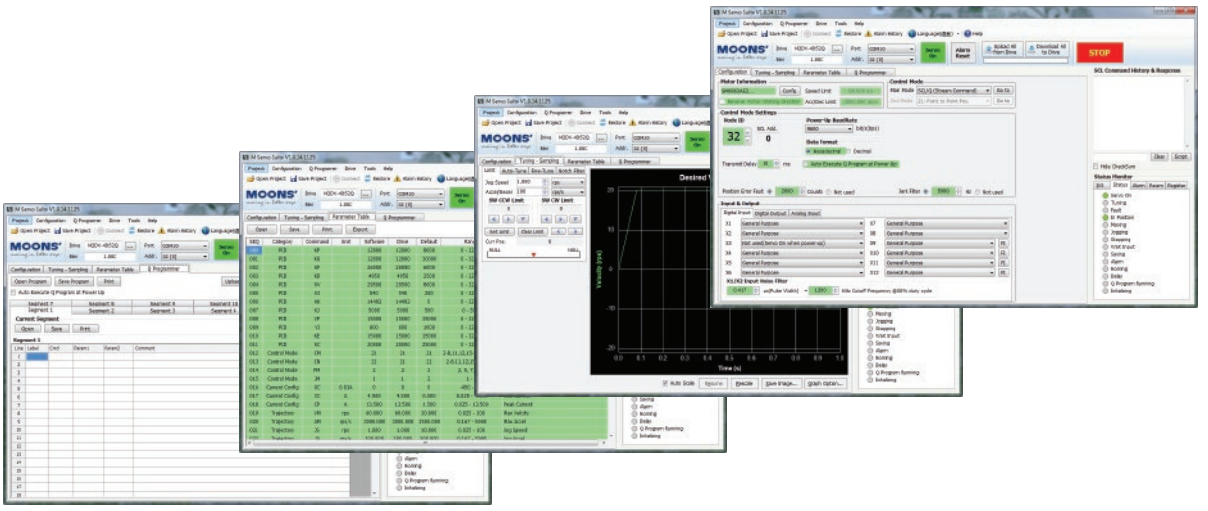
Items	Specifications
Physical Layer Standard	Ethernet
Communication Protocol	EtherNet/IP
Bus Connector	RJ45
Baud Rate	Ethernet: 10/100Mbps
Control Mode	Position Mode, Velocity Mode, Torque Mode, Homing Mode

Easy to Use Control Panel, Friendly Tuning Software

On-board control panel
- Set and query parameters
- LED display of drive status

M Servo Suite tuning software

- Friendly interface
- Easy set-up
- Drive set-up and configuration
- Easy to use on-line auto-tuning
- Built in oscilloscope for motion testing and monitoring
- Write and save SCL scripts



I/O

- Two standard EIA-422 high speed differential inputs
- Four 5-24VDC high speed inputs, maximum input frequency 500KHz, with digital input filter
- Eight optically isolated multi function inputs, 5-24VDC, 20mA
- Six Digital outputs, maximum 30VDC 30mA
- Two analog inputs

Featured Function Application

Position Tables

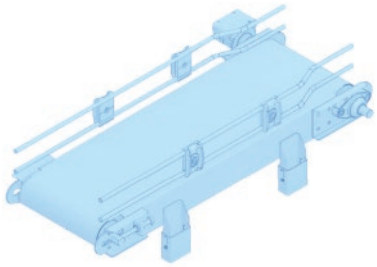
- Linear Motion, Rotary Motion
- Linear Motion: up to 63 position points controlled by different input signal combinations
- Rotary motion: up to 48 position points per revolution
- Configurable acceleration/deceleration speed settings for each individual point
- Multi position control with no pulse input requirement

Applications: Linear Module, Rotary Table, Index Plate, Tool Changing System

Multiple Speed-Change Operation

- Set up to 8 different velocities via different I/O combinations
- Use digital input signal for settings, with no analog input requirement
- Velocity configuration via both M Servo Suite and control panel
- Programmable acceleration and deceleration settings for each individual velocity change

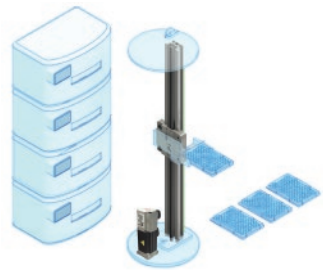
Applications: Polish Machine, Conveyor



Gain Selection

For applications with varying loads, gain selection allows the M2 servo drive to optimize the motor's overall performance.

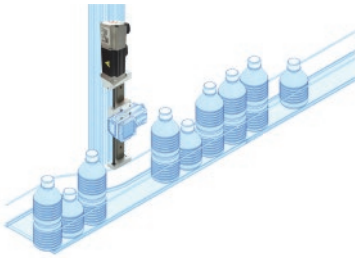
Applications: X-Y Robot Arm, Vertical Conveyor



Pulse Inhibit

When the pulse inhibit signal is triggered, the motor will stop moving regardless of pulse inputs.

Applications: Packaging Machinery



Note

M2DV Series—AC Input Servo System

Features

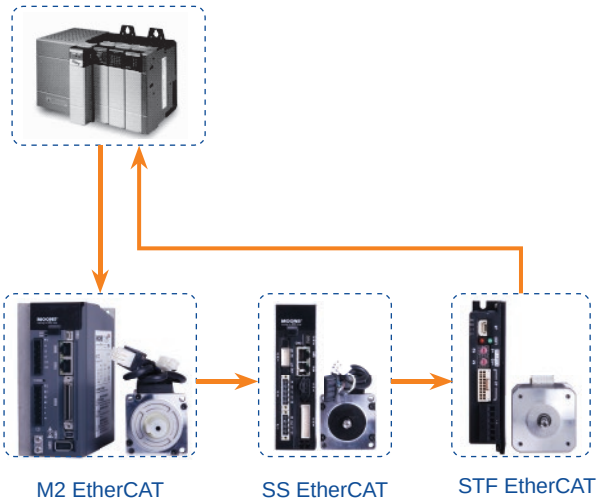
- 220VAC input drive
- Auto Tuning PID Gain Parameters
- Anti Resonance
- Internal Regeneration Resistors
- Build-In Soft PLC - Q Programmer
- Pulse Position Control Modes
- Analog Position, Speed, Torque Modes
- SCL/eSCL Language Communication
- Support Modbus, CANopen, EtherCAT, EtherNet/IP, Ethernet(eSCL) Communication Protocols
- Friendly Tuning Software

M2 Series EtherCAT Bus Type Drive

☐ High Speed, High Efficiency

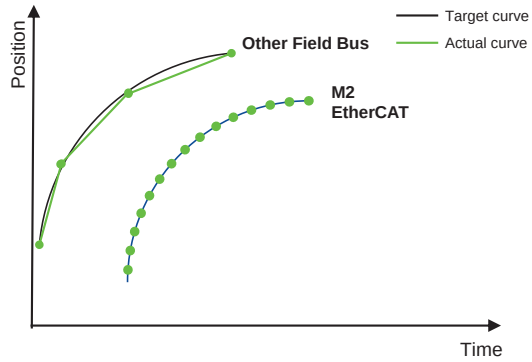
Higher communication field bus control could increase productivity.

- Full-Duplex,100Mbps;
- Support CoE(CiA 402 protocol)
- Support CSP, CSV, PP, PV, TQ, HM
- Full Closed loop Control
- Various EtherCAT motion control products for your applications



☐ High Performance

- Fastest Cycle time: 500μs
- Distributed clock to ensure high precision synchronisation



M2AC Servo Drive Numbering Information

M2DV - □ □ □ 2 □ *

M2 Series AC Servo Drive

Customized Specification(If Applicable)

Current Code	Continuous Current (RMS)	Boost Current(RMS)
1D8	1.80A	5.40A
3D0	3.00A	9.00A
4D5	4.50A	13.50A

Voltage Code	Input Voltage
2	Single/Three-Phases200~240VAC ± 10%, 50/60Hz

Communication Type	Configuration	Description	Communication
S	Mini USB	Basic Type	- - -
Q		Q Type	RS-232
R		Q Type(Modbus/RTU Type)	RS-485
C		CANopen Type	CANBus
D		eSCL Type	Ethernet
IP		EtherNet/IP Type	Ethernet
EC	RS-232	EtherCAT Type	EtherCAT

M2AC Drive Specification(-S/Q/R/C/D/IP Type)

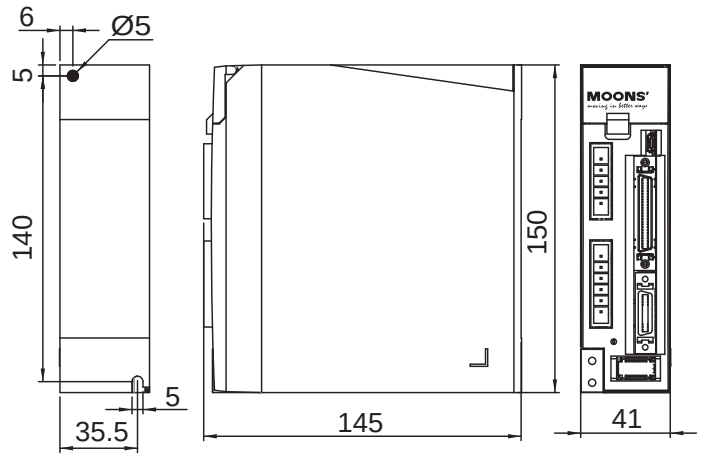
Basic Specifications	Input Power	M2DV-1D8	Main Circuit	Single / Three-phase, 200~240VAC ± 10%, 50/60Hz
			Control Circuit	Single, 200~240VAC ± 10%, 50/60Hz
		M2DV-3D0	Main Circuit	Single / Three-phase, 200~240VAC ± 10%, 50/60Hz
			Control Circuit	Single, 200~240VAC ± 10%, 50/60Hz
		M2DV-4D5	Main Circuit	Single / Three-phase, 200~240VAC ± 10%, 50/60Hz
			Control Circuit	Single, 200~240VAC ± 10%, 50/60Hz
	Withstand Voltage			Primary to earth: withstand 1500 VAC, 1 min, (Leakage current: 20 mA) [220V Input]
	Environment	Temperature		Ambient temperature:0°C to 50°C(If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location) Storage temperature: -20°C to 65°C
		Humidity		Both operating and storage : 10 to 85%RH or less
		Altitude		Lower than 1000m
		Vibration		9.8m/s^2 or less, 10 - 60Hz (Do not use continuously at resonance frequency)
	Control Method			PWM Sinusoidal wave drive
	Encoder Feedback			2500 ppr Optical Encoder with Shared Commutation Signals
	I/O	Digital Signals	Input	8 optical isolated multi function inputs, 5-24VDC, 20mA 2 optical isolated multi function high speed inputs, 5-24VDC, 20mA
			Output	6 optical isolated multi function outputs, 30VDC, 20mA
		Analog Signals	Input	2 inputs (12Bit A/D : 2 input)
		Pulse Signal	Input	2 inputs (Photo-coupler input, Line receiver input) Photocoupler input is compatible with both line driver I/F and open collector I/F. Line receiver input is compatible with line driver I/F.
			Output	4 outputs (Line driver: 3 outputs, open collector: 1 outputs)
	Communication	USB Mini		Connection with PC
		RS-232		RS-232 Communication
		RS-485		RS-485 Communication & Modbus/RTU
		CAN bus		CANopen bus Communication
		Ethernet		EtherNET/IP, eSCL
	Front panel			4 keys (MODE, UP, DOWN, SET) , 5-digit LED Display
	Regeneration Resistor			Built-in regenerative resistor (external resistor can also be used.)
	Control Mode			(1) Position mode (2) Analog Velocity mode (3) Analog Position mode (4) Analog Position mode (5) Velocity Change mode (6) Command Torque mode (7) Command Velocity mode (4) Position Tables
	Control Input Signal			(1) Servo-ON input (2) Alarm clear input (3) CW/CCW Limit (4) Pulse& Direction or CW/CCW input (5) Gain Switch (6) Control mode Switch (7) Pulse Inhibition (8) Gear switch (9) Velocity Change mode (10) Analog input (11) General input
	Control Output Signal			(1) Alarm output (2) Servo-Ready output (3) External brake release (4) Speed reached output (5) Torque reached output (6) Position reached output (7) TachOut (8) Servo-on status output (9) General output
	Drive Mass	M2DV-1D8		0.89kg
		M2DV-3D0		1.21kg
		M2DV-4D5		1.63kg

M2AC Drive Specification (EtherCAT Type)

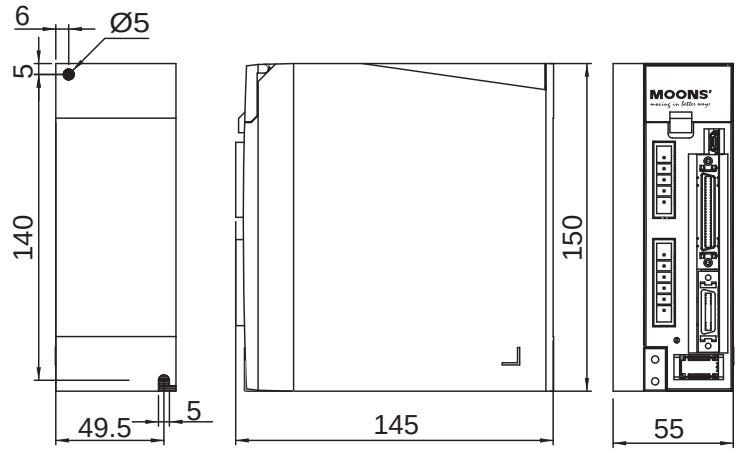
Basic Specifications	Input Power	M2DV-1D8	Main Circuit	Single / Three-phase, 200~240VAC ±10%, 50/60Hz
			Control Circuit	Single, 200~240VAC ±10%, 50/60Hz
		M2DV-3D0	Main Circuit	Single / Three-phase, 200~240VAC ±10%, 50/60Hz
			Control Circuit	Single, 200~240VAC ±10%, 50/60Hz
		M2DV-4D5	Main Circuit	Single / Three-phase, 200~240VAC ±10%, 50/60Hz
			Control Circuit	Single, 200~240VAC ±10%, 50/60Hz
	Withstand Voltage			Primary to earth: withstand 1500 VAC, 1 min, (Leakage current: 20 mA) [220V Input]
	Environment	Temperature		Ambient temperature:0°C to 50°C(If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location) Storage temperature: -20°C to 65°C
		Humidity		Both operating and storage: 10 to 85%RH or less
		Altitude		Lower than 1000m
		Vibration		9.8m/s^2 or less, 10 - 60Hz (Do not use continuously at resonance frequency)
	Control Method			PWM Sinusoidal wave drive
	I/O	Digital Signals	Input	8 optical isolated multi function inputs, 5-24VDC, 20mA
			Output	4 optical isolated multi function outputs, 5-24VDC, 20mA
	Communication	RS-232		RS-232 Communication for configuration
		EtherCAT		EtherCAT
	Front panel			4 keys (MODE, UP, DOWN, SET) , 5-digit LED Display
	Regeneration Resistor			Built-in regenerative resistor (external resistor is also enabled.)
	Control Mode			CSP, CSV, PP, PV, TQ, HM
	Control Input Signal			(1) Servo-ON input (2) Alarm clear input (3) CW/CCW Limit (4) Touch probe (5) General input
	Control Output Signal			(1) Alarm output (2) Servo-Ready output (3) External brake release (4) Speed reached output (5) Torque reached output (6) Position reached output (7) TachOut (8) Servo-on status output (9) General output
	Drive Mass	M2DV-1D82EC		0.89kg
		M2DV-3D02EC		1.21kg
		M2DV-4D52EC		1.63kg

Drive Dimensions (Unit: mm)

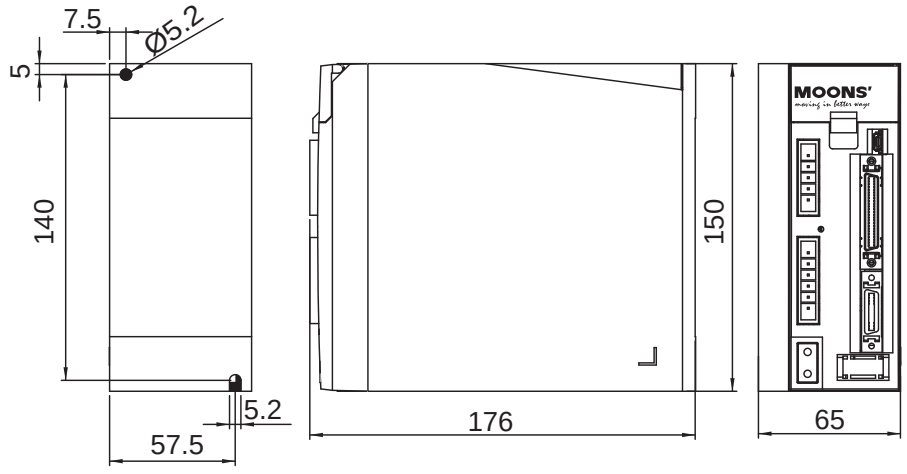
☐ M2DV-1D8 ☐☐



☐ M2DV-3D0 ☐☐

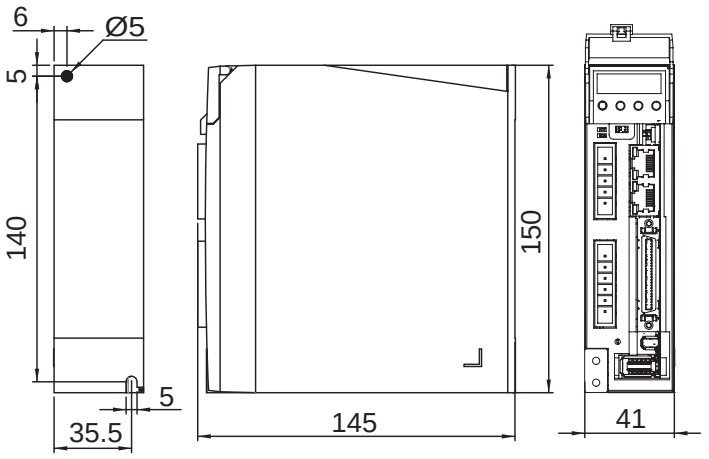


☐ M2DV-4D5 ☐☐

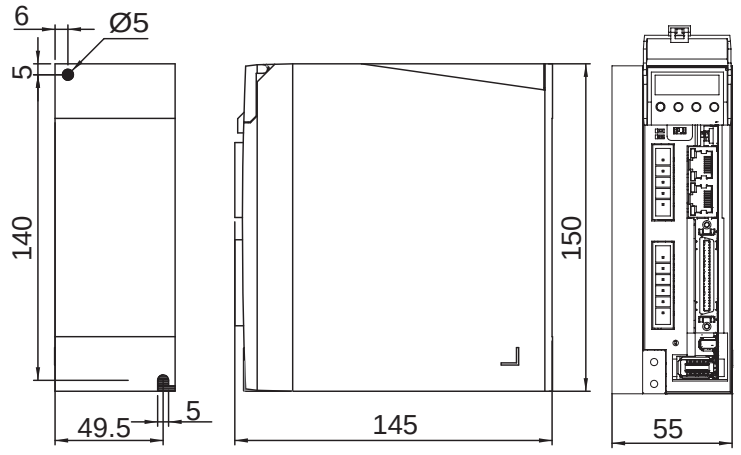


EtherCAT Type Dimensions (Unit: mm)

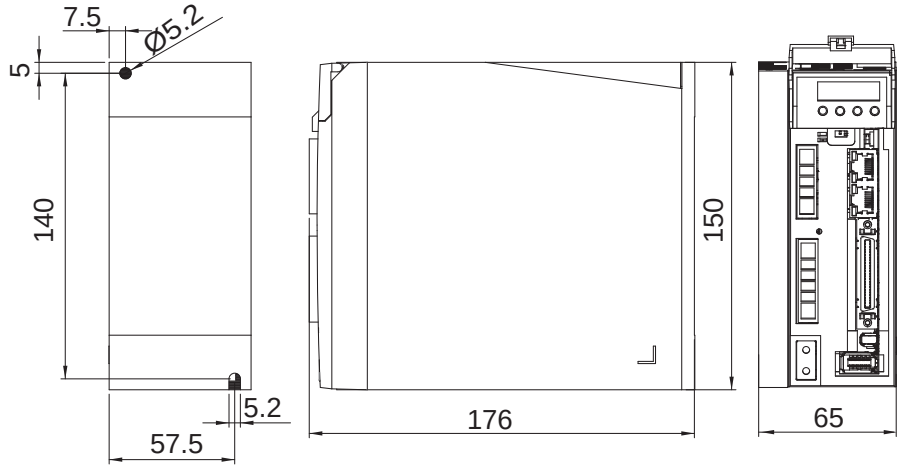
M2DV-1D82EC



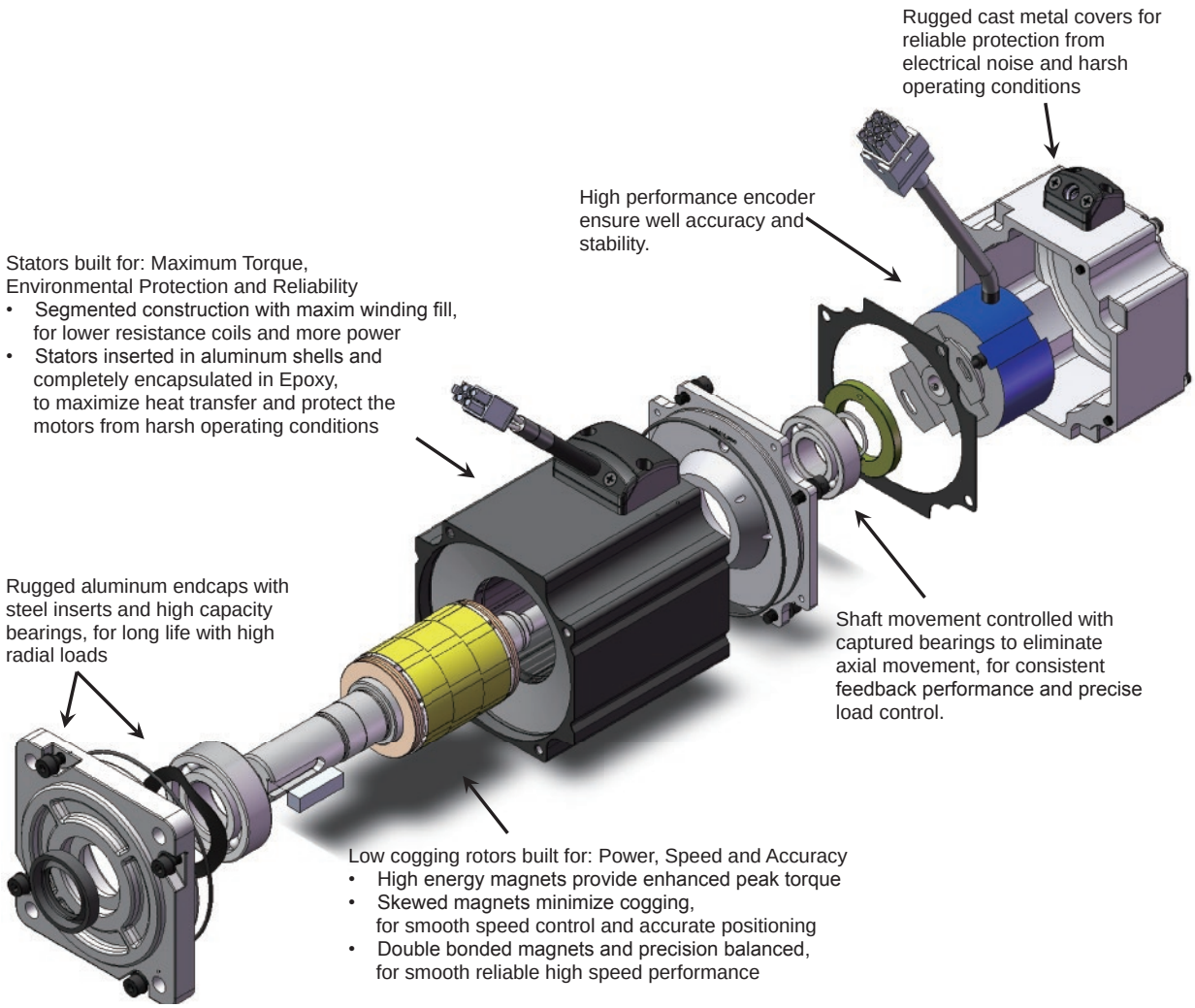
M2DV-3D02EC



M2DV-4D52EC



AC Servo Motor—SM Series



M2AC Servo Motor Numbering Information

SM 06 02 A E4 - KCD - N NV - M - **

- **SM** — SM Series
- **06** — Frame Size

Frame Size
04-□40mm
06-□60mm
08-□80mm

- **02** — Motor Length

	□40	□60	□80
01	60W	200W	300W
02	100W	400W	550W
03			750W

- **A** — Encoder Feedback: E4: 2500 ppr Optical Encoder with Shared Commutation Signals
- **KCD** — Shaft and Lead/Connector Style: KCD: Standard Keyway, Non-sealed Connector
- **N** — Brake Option: N: No Brake; B: 24VDC Brake
- **NV** — Medium Inertia Motor
- **M** — Customized Specifiction(If Applicable)
- ****** — Customized Specifiction(If Applicable)

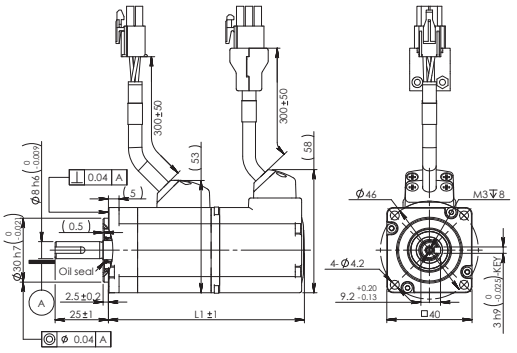
Low Inertia Motor—Frame 40mm

Specifications

Type		SM0401AE4-KCD-*NV	SM0402AE4-KCD-*NV
Rated Output Power	watts	60	100
Rated Speed	rpm	3000	3000
Max Speed	rpm	6000	6000
Rated Torque	Nm	0.19	0.32
Peak Torque	Nm	0.48	0.93
Rated Current	A (rms)	0.7	1.2
Peak Current	A (rms)	1.75	3.6
Voltage Constant±5%	V (rms) / K rpm	17	16.6
Torque Constant±5%	Nm / A (rms)	0.283	0.271
Winding Resistance(Line-Line)	Ohm ±10%@25°C	27	9.7
Winding Inductance(Line-Line)	mH (typ.)	26	11.5
Rotor Inertia	$Kg{\cdot}m^2$	0.0232×10^{-4}	0.0428×10^{-4}
Rotor Inertia-With Brake Option	$Kg{\cdot}m^2$	0.0298×10^{-4}	0.0494×10^{-4}
Shaft Load - Axial	N (max.)	50	50
Shaft Load - Radial (End of Shaft)	N (max.)	50	60
Weight	kg	0.4	0.55
Weight-With Brake Option	kg	0.65	0.8

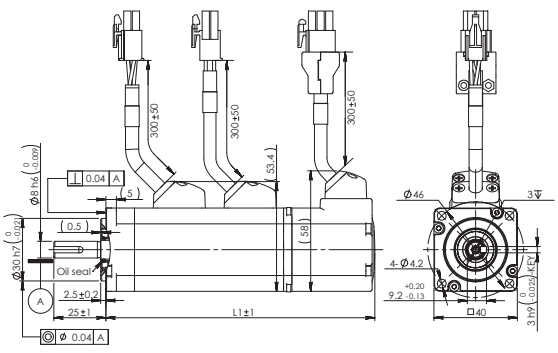
Dimensions (Unit:mm)

1) Without Brake



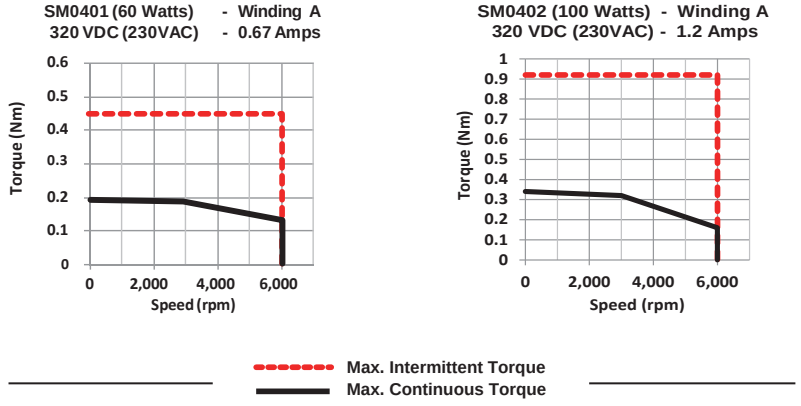
Without Brake	L1
SM0401AE4-KCD-NNV	92
SM0402AE4-KCD-NNV	109

2) With Brake



With Brake	L1
SM0401AE4-KCD-BNV	129
SM0402AE4-KCD-BNV	147

Torque Curves



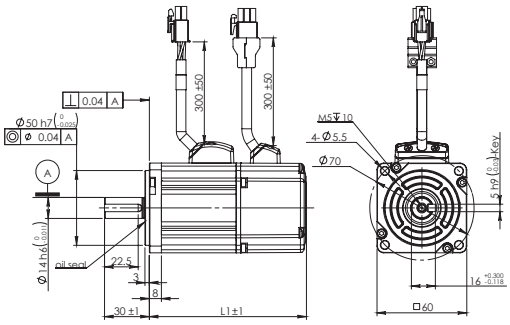
Low Inertia Motor—Frame 60mm

Specifications

Type		SM0601AE4-KCD-*NV	SM0602AE4-KCD-*NV
Rated Output Power	watts	200	400
Rated Speed	rpm	3000	3000
Max Speed	rpm	6000	6000
Rated Torque	Nm	0.64	1.27
Peak Torque	Nm	1.9	3.8
Rated Current	A (rms)	1.5	2.75
Peak Current	A (rms)	4.5	8.3
Voltage Constant±5%	V (rms) / K rpm	27.2	29
Torque Constant±5%	Nm / A (rms)	0.432	0.484
Winding Resistance(Line-Line)	Ohm ±10%@25°C	8.6	3.7
Winding Inductance(Line-Line)	mH (typ.)	25	12.9
Rotor Inertia	$Kg{\cdot}m^2$	0.165×10^{-4}	0.272×10^{-4}
Rotor Inertia-With Brake Option	$Kg{\cdot}m^2$	0.22×10^{-4}	0.326×10^{-4}
Shaft Load - Axial	N (max.)	70	70
Shaft Load - Radial (End of Shaft)	N (max.)	200	240
Weight	kg	1.1	1.4
Weight-With Brake Option	kg	1.6	1.9

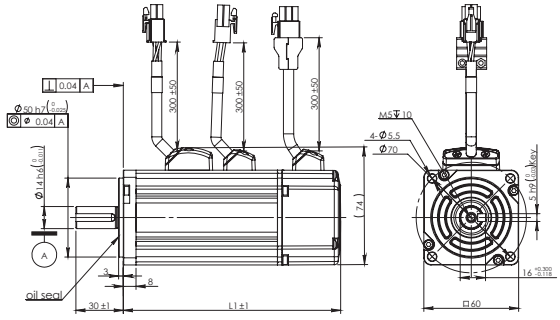
Dimensions (Unit:mm)

1) Without Brake



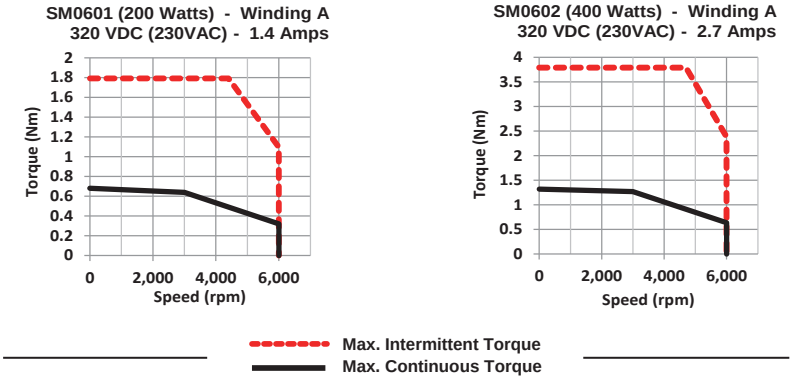
Without Brake	L1
SM0601AE4-KCD-NNV	105
SM0602AE4-KCD-NNV	125

2) With Brake



With Brake	L1
SM0601AE4-KCD-BNV	145
SM0602AE4-KCD-BNV	165

Torque Curves



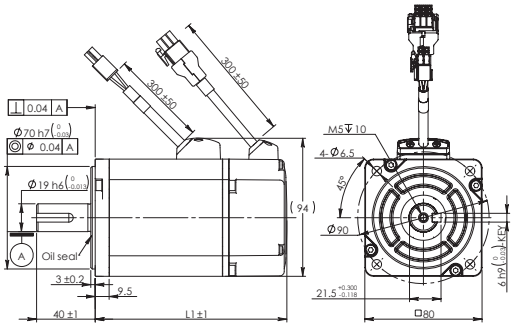
Low Inertia Motor—Frame 80mm

Specifications

Type		SM0801AE4-KCD-*NV	SM0802AE4-KCD-*NV	SM0803AE4-KCD-*NV
Rated Output Power	watts	300	550	750
Rated Speed	rpm	3000	3000	3000
Max Speed	rpm	6000	5500	6000
Rated Torque	Nm	0.95	1.8	2.4
Peak Torque	Nm	2.3	4.6	6.9
Rated Current	A (rms)	1.8	3.0	4.5
Peak Current	A (rms)	4.5	8.3	13.5
Voltage Constant±5%	V (rms) / K rpm	34.3	37.3	36.6
Torque Constant±5%	Nm / A (rms)	0.532	0.586	0.543
Winding Resistance(Line-Line)	Ohm ±10%@25°C	5.9	2.7	1.47
Winding Inductance(Line-Line)	mH (typ.)	26	13.9	8.2
Rotor Inertia	$Kg{\cdot}m^2$	0.45×10^{-4}	0.63×10^{-4}	0.89×10^{-4}
Rotor Inertia-With Brake Option	$Kg{\cdot}m^2$	0.53×10^{-4}	0.71×10^{-4}	0.97×10^{-4}
Shaft Load - Axial	N (max.)	90	90	90
Shaft Load - Radial (End of Shaft)	N (max.)	200	240	270
Weight	kg	1.7	2.2	2.6
Weight-With Brake Option	kg	2.5	3.0	3.4

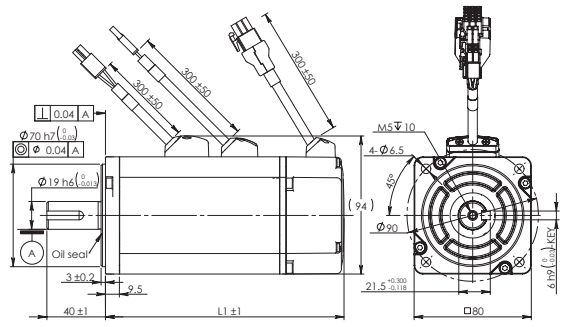
Dimensions (Unit:mm)

1) Without Brake



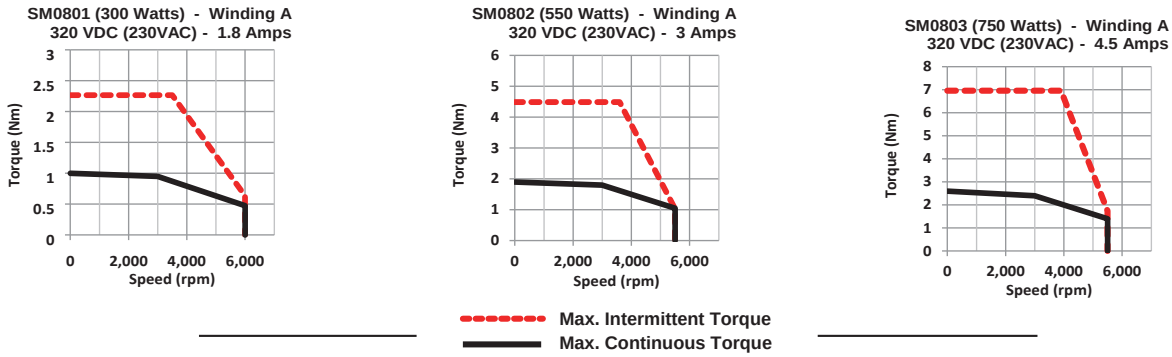
Without Brake	L1
SM0801AE4-KCD-NNV	101
SM0802AE4-KCD-NNV	116
SM0803AE4-KCD-NNV	131

2) With Brake



With Brake	L1
SM0801AE4-KCD-BNV	148
SM0802AE4-KCD-BNV	163
SM0803AE4-KCD-BNV	178

Torque Curves



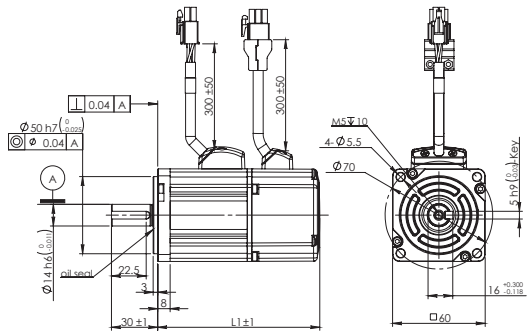
Medium Inertia Motor—Frame 60mm

☐ Specifications

Type		SM0602AE4-KCD-NNV-M	SM0602AE4-KCD-BNV-M
Rated Output Power	watts	400	400
Rated Speed	rpm	3000	3000
Max Speed	rpm	6000	6000
Rated Torque	Nm	1.27	1.27
Peak Torque	Nm	3.8	3.8
Rated Current	A (rms)	2.75	2.75
Peak Current	A (rms)	8.3	8.3
Voltage Constant±5%	V (rms) / K rpm	29	29
Torque Constant±5%	Nm / A (rms)	0.484	0.484
Winding Resistance(Line-Line)	Ohm ±10%@25°C	3.7	3.7
Winding Inductance(Line-Line)	mH (typ.)	12.9	12.9
Rotor Inertia	$Kg{\cdot}m^2$	0.682×10^{-4}	0.72×10^{-4}
Shaft Load - Axial	N (max.)	70	70
Shaft Load - Radial (End of Shaft)	N (max.)	240	240
Weight	kg	1.6	2.1

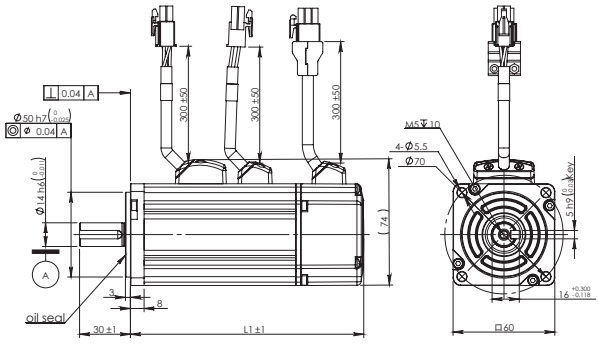
☐ Dimensions (Unit:mm)

1) Without Brake



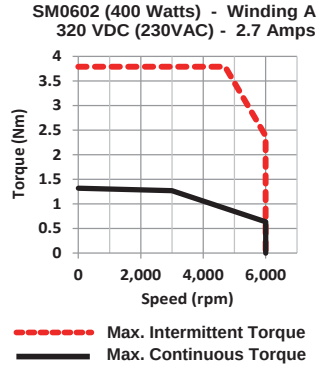
Without Brake	L1
SM0602AE4-KCD-NNV-M	135

2) With Brake



With Brake	L1
SM0602AE4-KCD-BNV-M	175

☐ Torque Curves



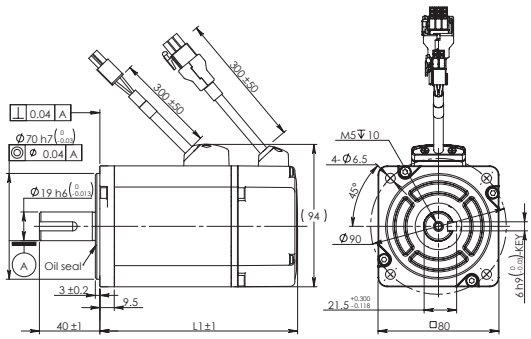
Medium Inertia Motor—Frame 80mm

Specifications

Type		SM0803AE4-KCD-NNV-M	SM0803AE4-KCD-BNV-M
Rated Output Power	watts	750	750
Rated Speed	rpm	3000	3000
Max Speed	rpm	5500	5500
Rated Torque	Nm	2.4	2.4
Peak Torque	Nm	6.9	6.9
Rated Current	A (rms)	4.5	4.5
Peak Current	A (rms)	13.5	13.5
Voltage Constant±5%	V (rms) / K rpm	36.6	36.6
Torque Constant±5%	Nm / A (rms)	0.543	0.543
Winding Resistance(Line-Line)	Ohm ±10%@25°C	1.47	1.47
Winding Inductance(Line-Line)	mH (typ.)	8.2	8.2
Rotor Inertia	$Kg{\cdot}m^2$	1.52×10^{-4}	1.56×10^{-4}
Shaft Load - Axial	N (max.)	90	90
Shaft Load - Radial (End of Shaft)	N (max.)	270	270
Weight	kg	2.8	3.6

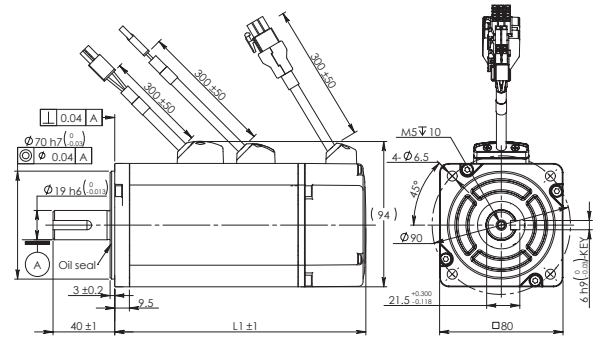
Dimensions (Unit:mm)

1) Without Brake



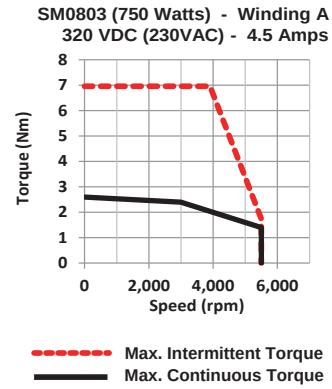
Without Brake	L1
SM0803AE4-KCD-NNV-M	140.8

2) With Brake



With Brake	L1
SM0803AE4-KCD-BNV-M	188

Torque Curves



Gearhead Servo Motors—Frame 40mm

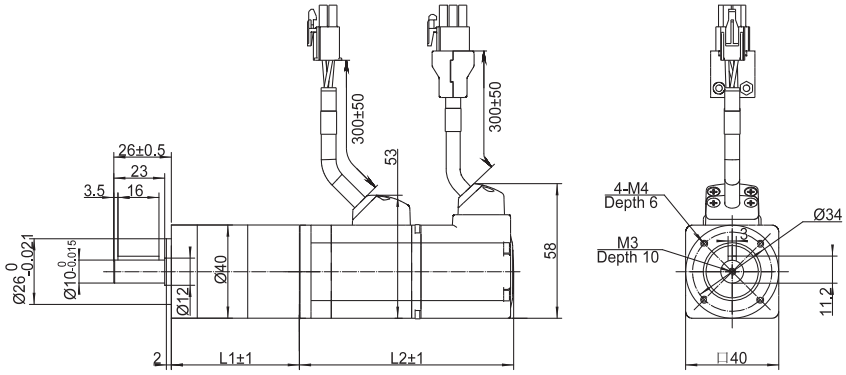
☐ Specifications

Without Brake Type		SM0401AE4-KCD-NNV-PG05A	SM0401AE4-KCD-NNV-PG10A	SM0401AE4-KCD-NNV-PG20A	SM0402AE4-KCD-NNV-PG05A	SM0402AE4-KCD-NNV-PG10A	SM0402AE4-KCD-NNV-PG20A
With Brake Type		**SM0401AE4-KCD-BNV-PG05A**	**SM0401AE4-KCD-BNV-PG10A**	**SM0401AE4-KCD-BNV-PG20A**	**SM0402AE4-KCD-BNV-PG05A**	**SM0402AE4-KCD-BNV-PG10A**	**SM0402AE4-KCD-BNV-PG20A**
Motor Power	W	60			100		
Gear Ratio		5	10	20	5	10	20
Max Output Torque	N·m	0.95	1.9	3.8	1.6	3.2	6.4
Peak Output Torque	N·m	2.4	4.8	11.4	4.65	9.3	18.6
Max Permissible Output Torque	N·m	6	8	12	6	8	40
Stage		1	1	2	1	1	2
Back lash	arcmin	≤12	≤12	≤15	≤12	≤12	≤15
Efficiency		96%	96%	94%	96%	96%	94%
Rated Output Speed	r/min	600	300	150	600	300	150
Max. Output Speed	r/min	1200	600	300	1200	600	300
Motor Rotor Inertia	$Kg·m^2$		$0.0232x10^{-4}$ *($0.0298x10^{-4}$)			$0.0428x10^{-4}$ *($0.0494x10^{-4}$)	
Gearhead Inertia	$Kg·m^2$	$0.015x10^{-4}$	$0.019x10^{-4}$	$0.019x10^{-4}$	$0.015x10^{-4}$	$0.019x10^{-4}$	$0.019x10^{-4}$
L1 Without Brake	mm	67.5	67.5	80.5	67.5	67.5	80.5
L2 Without Brake	mm	92	92	92	109	109	109
L1 With Brake	mm	67.5	67.5	80.5	67.5	67.5	80.5
L2 With Brake	mm	129	129	129	147	147	147
Matching Drive		M2DV-1D82 ☐					

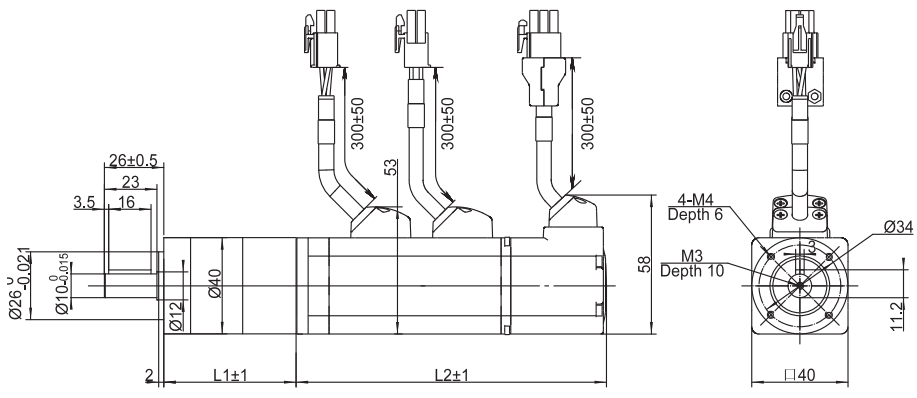
(*) With Brake

☐ Dimensions (Unit:mm)

1) Without Brake



2) With Brake



Gearhead Servo Motors—Frame 60mm

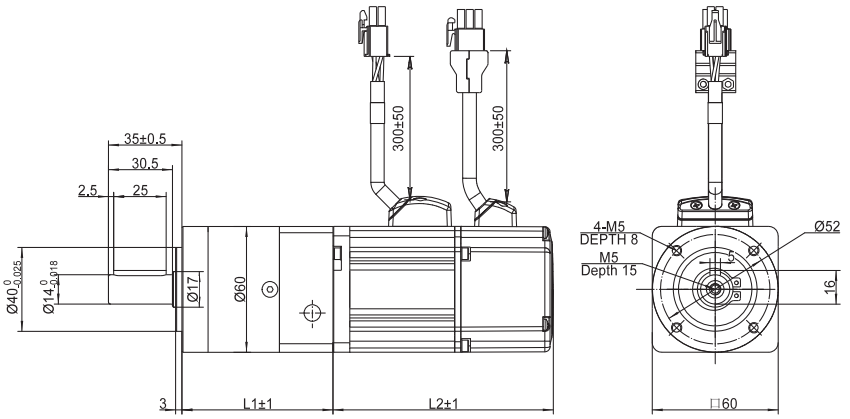
☐ Specifications

Without Brake Type		SM0601AE4-KCD-NNV-PG05A	SM0601AE4-KCD-NNV-PG10A	SM0601AE4-KCD-NNV-PG20A	SM0602AE4-KCD-NNV-PG05A	SM0602AE4-KCD-NNV-PG10A	SM0602AE4-KCD-NNV-PG20A
With Brake Type		**SM0601AE4-KCD-BNV-PG05A**	**SM0601AE4-KCD-BNV-PG10A**	**SM0601AE4-KCD-BNV-PG20A**	**SM0602AE4-KCD-BNV-PG05A**	**SM0602AE4-KCD-BNV-PG10A**	**SM0602AE4-KCD-BNV-PG20A**
Motor Power	W	200			400		
Gear Ratio		5	10	20	5	10	20
Max Output Torque	N·m	3.2	6.4	12.8	6.35	12.7	25.4
Peak Output Torque	N·m	9.5	19	38	19	38	76
Max Permissible Output Torque	N·m	32	24	88	32	24	88
Stage		1	1	2	1	1	2
Back lash	arcmin	≤10	≤10	≤15	≤10	≤10	≤15
Efficiency		96%	96%	94%	96%	96%	94%
Rated Output Speed	r/min	600	300	150	600	300	150
Max. Output Speed	r/min	1200	600	300	1200	600	300
Motor Rotor Inertia	$Kg{\cdot}m^2$	$0.165x10^{-4}$ *($0.22x10^{-4}$)			$0.272x10^{-4}$ *($0.326x10^{-4}$)		
Gearhead Inertia	$Kg{\cdot}m^2$	$0.078x10^{-4}$	$0.054x10^{-4}$	$0.075x10^{-4}$	$0.078x10^{-4}$	$0.054x10^{-4}$	$0.075x10^{-4}$
L1 Without Brake	mm	78.5	78.5	91.5	78.5	78.5	91.5
L2 Without Brake	mm	105	105	105	125	125	125
L1 With Brake	mm	78.5	78.5	91.5	78.5	78.5	91.5
L2 With Brake	mm	145	145	145	165	165	165
Matching Drive		M2DV-3D02 ☐					

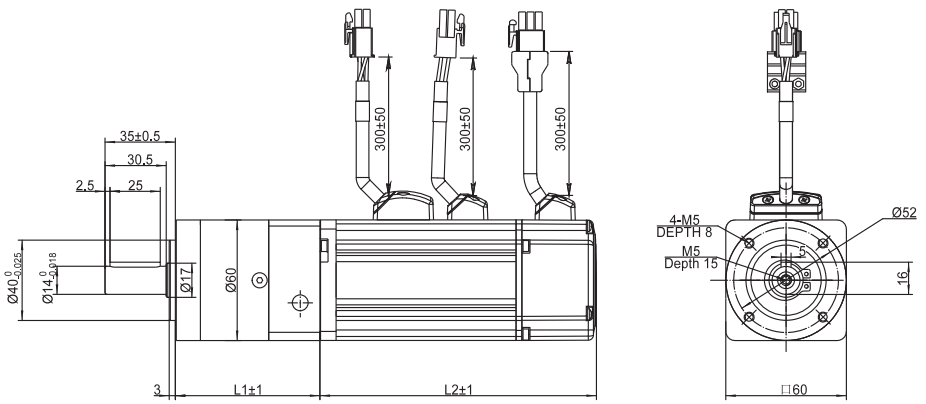
(*) With Brake

☐ Dimensions (Unit:mm)

1) Without Brake



2) With Brake



Gearhead Servo Motors—Frame 80mm

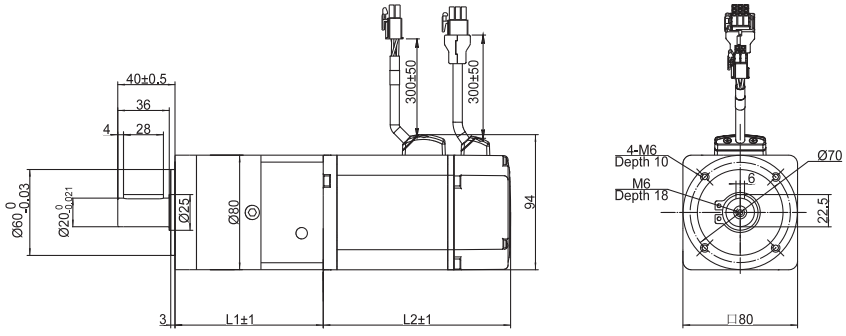
☐ Specifications

Without Brake Type		SM0803AE4-KCD-NNV-PG05A	SM0803AE4-KCD-NNV-PG10A	SM0803AE4-KCD-NNV-PG20A
With Brake Type		**SM0803AE4-KCD-BNV-PG05A**	**SM0803AE4-KCD-BNV-PG10A**	**SM0803AE4-KCD-BNV-PG20A**
Motor Power	W	750		
Gear Ratio		5	10	20
Max Output Torque	N·m	12	24	48
Peak Output Torque	N·m	34.5	69	138
Max Permissible Output Torque	N·m	100	80	240
Stage		1	1	2
Back lash	arcmin	≤10	≤10	≤15
Efficiency		96%	96%	94%
Rated Output Speed	r/min	600	300	150
Max. Output Speed	r/min	1200	600	300
Motor Rotor Inertia	$Kg·m^2$	$0.89x10^{-4}$ *($0.97x10^{-4}$)		
Gearhead Inertia	$Kg·m^2$	$0.45x10^{-4}$	$0.39x10^{-4}$	$0.44x10^{-4}$
L1 Without Brake	mm	104	104	122
L2 Without Brake	mm	131	131	131
L1 With Brake	mm	104	104	122
L2 With Brake	mm	178	178	178
Matching Drive		M2DV-4D52 ☐		

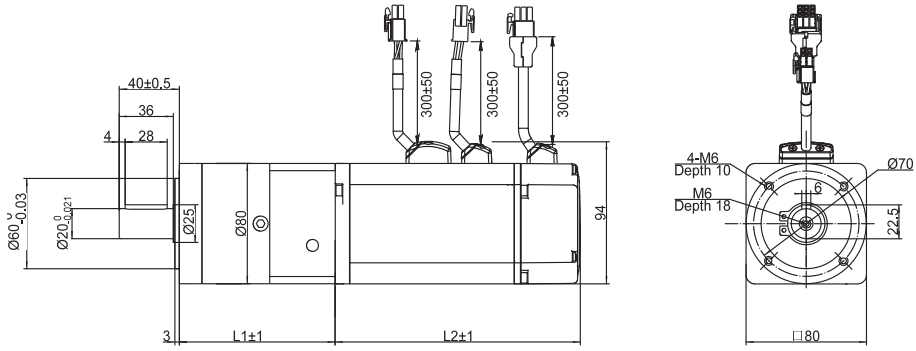
(*) With Brake

☐ Dimensions (Unit:mm)

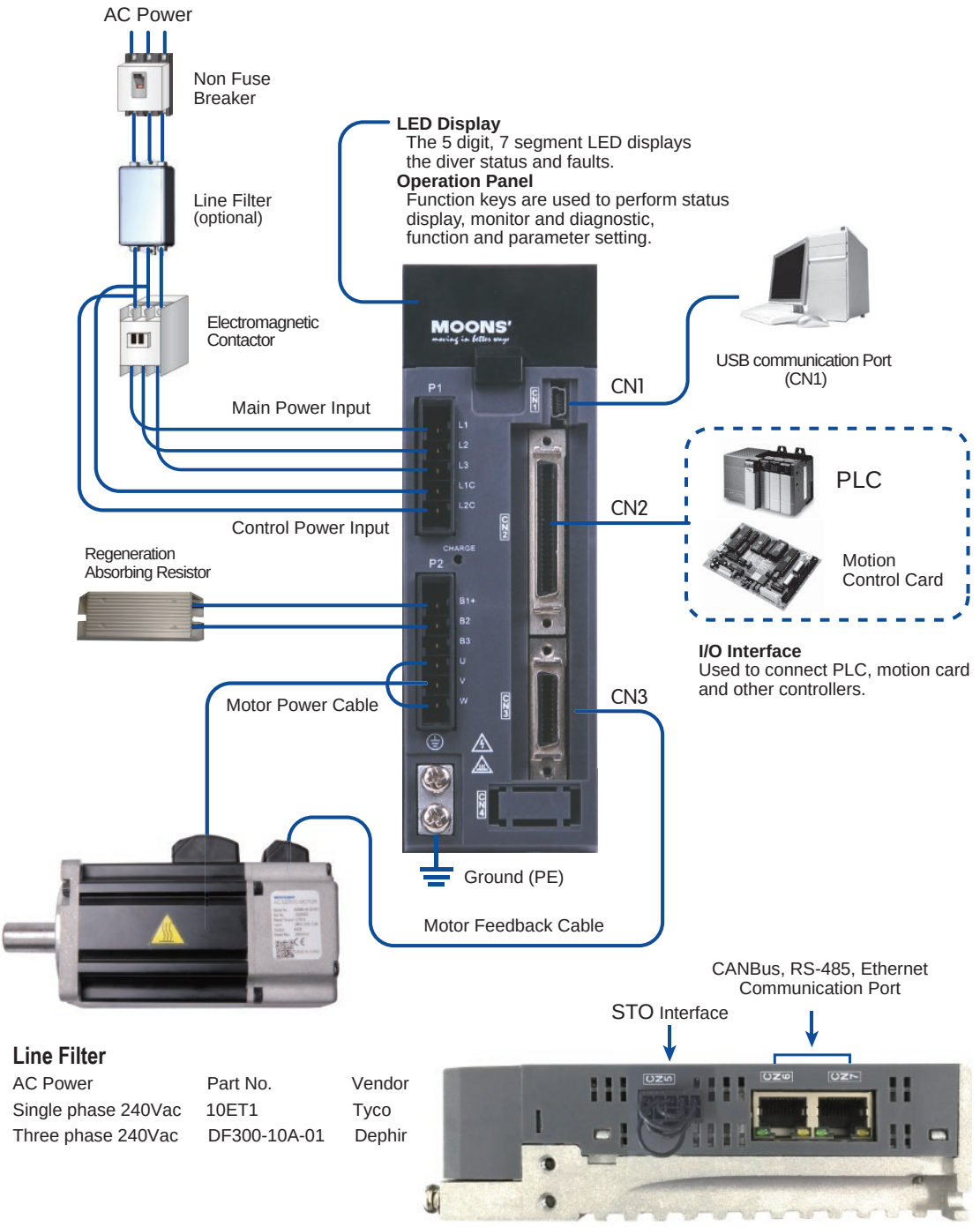
1) Without Brake



2) With Brake



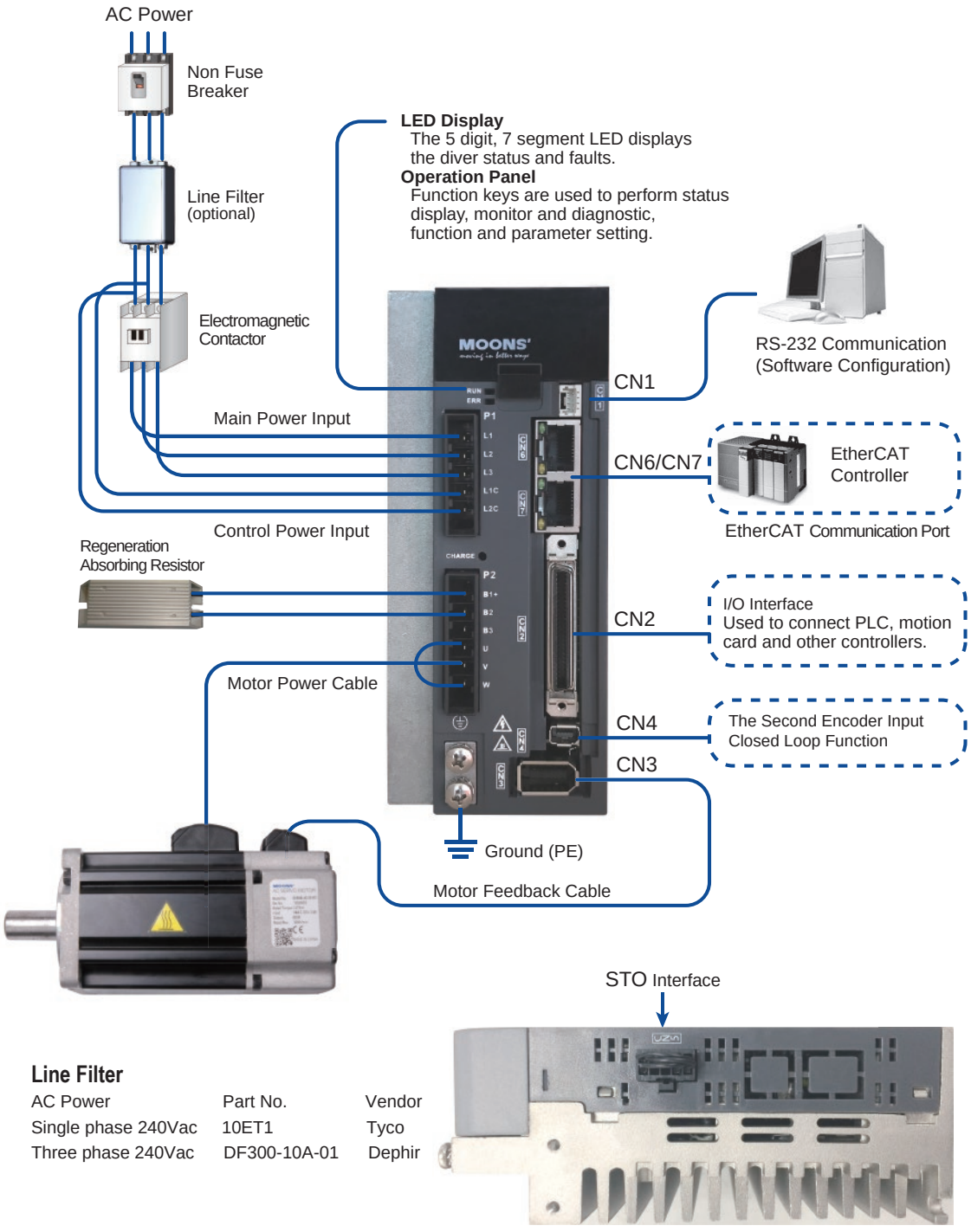
M2AC System Configuration



Line Filter

AC Power	Part No.	Vendor
Single phase 240Vac	10ET1	Tyco
Three phase 240Vac	DF300-10A-01	Dephir

M2 EtherCAT System Configuration



Line Filter

AC Power	Part No.	Vendor
Single phase 240Vac	10ET1	Tyco
Three phase 240Vac	DF300-10A-01	Dephir

Ordering Information

Servo Drive				
				
Basic Type		M2DV-1D82S	M2DV-3D02S	M2DV-4D52S
Q Program Type (RS-232 Communication)		M2DV-1D82Q	M2DV-3D02Q	M2DV-4D52Q
Q Program Type (RS-485 Communication)		M2DV-1D82R	M2DV-3D02R	M2DV-4D52R
CANopen		M2DV-1D82C	M2DV-3D02C	M2DV-4D52C
eSCL		M2DV-1D82D	M2DV-3D02D	M2DV-4D52D
EtherNet/IP		M2DV-1D82IP	M2DV-3D02IP	M2DV-4D52IP
Matching motor				
				
		Frame 40: 60W, 100W	-	-
		Frame 60: 200W	Frame 60: 400W	-
		Frame 80: 300W	Frame 80: 550W	Frame 80: 750W
Low Inertia	Without Brake	SM0401AE4-KCD-NNV SM0402AE4-KCD-NNV SM0601AE4-KCD-NNV SM0801AE4-KCD-NNV	SM0602AE4-KCD-NNV SM0802AE4-KCD-NNV	SM0803AE4-KCD-NNV
	With Brake	SM0401AE4-KCD-BNV SM0402AE4-KCD-BNV SM0601AE4-KCD-BNV SM0801AE4-KCD-BNV	SM0602AE4-KCD-BNV SM0802AE4-KCD-BNV	SM0803AE4-KCD-BNV
Medium Inertia	Without Brake	-	SM0602AE4-KCD-NNV-M	SM0803AE4-KCD-NNV-M
	With Brake		SM0602AE4-KCD-BNV-M	SM0803AE4-KCD-BNV-M

Gearhead Motor			
Without Brake	SM0401AE4-KCD-NNV-PG**A SM0402AE4-KCD-NNV-PG**A SM0601AE4-KCD-NNV-PG**A	SM0602AE4-KCD-NNV-PG**A SM0602AE4-KCD-NNV-M-PG**A	SM0803AE4-KCD-NNV-PG**A SM0803AE4-KCD-NNV-M-PG**A
With Brake	SM0401AE4-KCD-BNV-PG**A SM0402AE4-KCD-BNV-PG**A SM0601AE4-KCD-BNV-PG**A	SM0602AE4-KCD-BNV-PG**A SM0602AE4-KCD-BNV-M-PG**A	SM0803AE4-KCD-BNV-PG**A SM0803AE4-KCD-BNV-M-PG**A

** Standard gear ratios are 5:1; 10:1 and 20:1.

Accessories		
IO Connector		M2-50P
USB mini-B Configuration		2620-150
Standard* Cable	Motor power	1626-X00
	Encoder	2627-X00
	Brake	1602-X00
Flexible** Cable	Motor power	1620-X00
	Encoder	2621-X00
	Brake	1602-X00-C05

* Standard: Can not be used in a drag chain.
* * Bending test: Min. bend radius: 100mm, Travel distance: 60mm, Lifetime: 5,000,000c.

EtherCAT Type—Ordering Information

Servo Drive				
				
EtherCAT		M2DV-1D82EC	M2DV-3D02EC	M2DV-4D52EC
Matching motor				
				
		Frame 40: 60W, 100W	-	-
		Frame 60: 200W	Frame 60: 400W	-
		Frame 80: 300W	Frame 80: 550W	Frame 80: 750W
Low Inertia	Without Brake	SM0401AE4-KCD-NNV SM0402AE4-KCD-NNV SM0601AE4-KCD-NNV SM0801AE4-KCD-NNV	SM0602AE4-KCD-NNV SM0802AE4-KCD-NNV	SM0803AE4-KCD-NNV
	With Brake	SM0401AE4-KCD-BNV SM0402AE4-KCD-BNV SM0601AE4-KCD-BNV SM0801AE4-KCD-BNV	SM0602AE4-KCD-BNV SM0802AE4-KCD-BNV	SM0803AE4-KCD-BNV
Medium Inertia	Without Brake	-	SM0602AE4-KCD-NNV-M	SM0803AE4-KCD-NNV-M
	With Brake		SM0602AE4-KCD-BNV-M	SM0803AE4-KCD-BNV-M

Gearhead Motor			
Without Brake	SM0401AE4-KCD-NNV-PG**A SM0402AE4-KCD-NNV-PG**A SM0601AE4-KCD-NNV-PG**A	SM0602AE4-KCD-NNV-PG**A SM0602AE4-KCD-NNV-M-PG**A	SM0803AE4-KCD-NNV-PG**A SM0803AE4-KCD-NNV-M-PG**A
With Brake	SM0401AE4-KCD-BNV-PG**A SM0402AE4-KCD-BNV-PG**A SM0601AE4-KCD-BNV-PG**A	SM0602AE4-KCD-BNV-PG**A SM0602AE4-KCD-BNV-M-PG**A	SM0803AE4-KCD-BNV-PG**A SM0803AE4-KCD-BNV-M-PG**A

** Standard gear ratios are 5:1; 10:1 and 20:1.

Accessories		
IO Connector		M2-50P
USB mini-B Configuration		2620-150
Standard* Cable	Motor power	1626-X00
	Encoder	2636-X00
	Brake ***	1602-X00
Flexible** Cable	Motor power	1620-X00
	Encoder	2636-X00-C05
	Brake ***	1602-X00-C05

* Standard: Can not be used in a drag chain.
* * Bending test: Min. bend radius: 100mm, Travel distance: 60mm, Lifetime: 5,000,000c.

Encoder Cables

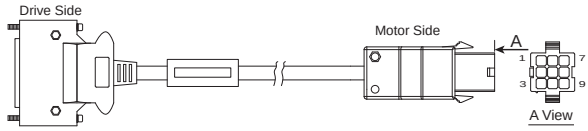
◆ Standard Encoder Cable

P/N	Description
2627-100	M2 Standard Encoder Cable, 1m
2627-300	M2 Standard Encoder Cable, 3m
2627-500	M2 Standard Encoder Cable, 5m
2627-1000	M2 Standard Encoder Cable, 10m

◆ Flexible Encoder Cable - Extra Type

P/N	Description
2621-100	M2 Flexible Encoder Cable, 1m
2621-300	M2 Flexible Encoder Cable, 3m
2621-500	M2 Flexible Encoder Cable, 5m
2621-1000	M2 Flexible Encoder Cable, 10m

*: Min. band radius: 100mm; Travel distance: 600mm; Lifetime: 5,000,000c



Connect to drive	Signal	Colour	Connect to motor
TYCO 3-2232346-1			AMP 172161-1
1	A+/U+	Blue	1
2	B+/V+	Green	2
3	Z+/W+	Yellow	3
14	A-/U-	Blue/Black	4
15	B-/V-	Green/Black	5
16	Z-/W-	Yellow/Black	6
11	+5V	Red	7
24	GND	Black	8
26	Shield	Shield	9

Encoder Cables—For EtherCAT Drive

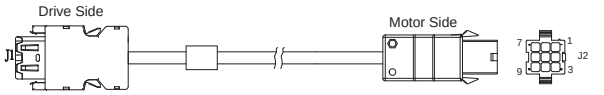
◆ Standard Encoder Cable

P/N	Description
2636-100	M2 EtherCAT Standard Encoder Cable, 1m
2636-300	M2 EtherCAT Standard Encoder Cable, 3m
2636-500	M2 EtherCAT Standard Encoder Cable, 5m
2636-1000	M2 EtherCAT Standard Encoder Cable, 10m

◆ Flexible Encoder Cable - Extra Type

P/N	Description
2636-100-C05	M2 EtherCAT Flexible Encoder Cable, 1m
2636-300-C05	M2 EtherCAT Flexible Encoder Cable, 3m
2636-500-C05	M2 EtherCAT Flexible Encoder Cable, 5m
2636-1000-C05	M2 EtherCAT Flexible Encoder Cable, 10m

*: Min. band radius: 100mm; Travel distance: 600mm; Lifetime: 5,000,000c



Connection Definition			
Connect to drive	Signal	Colour	Connect to motor
10	A+	Blue	1
9	A-	Blue/Black	4
8	B+	Green	2
7	B-	Green/Black	5
6	Z+	Yellow	3
5	Z-	Yellow/Black	6
1	5V	Red	7
2	GND	Black	8
0	Shield		9

Motor Power Cables

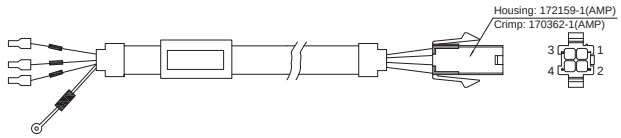
◆ Standard Cables

P/N	Description
1626-100	M2 Standard Motor Cable, unshielded, 1m
1626-300	M2 Standard Motor Cable, unshielded, 3m
1626-500	M2 Standard Motor Cable, unshielded, 5m
1626-1000	M2 Standard Motor Cable, unshielded, 10m

◆ Flexible Motor Cable - Extra Type

P/N	Description
1620-100	M2 Flexible Motor Cable, shielded, 1m
1620-300	M2 Flexible Motor Cable, shielded, 3m
1620-500	M2 Flexible Motor Cable, shielded, 5m
1620-1000	M2 Flexible Motor Cable, shielded, 10m

*: Min. band radius: 100mm; Travel distance: 600mm; Lifetime: 5,000,000c

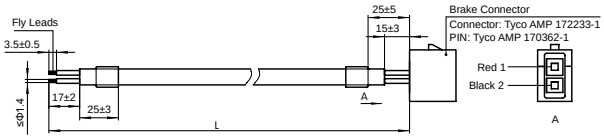


Connect to drive	Signal	Colour	Connect to motor
(JST) S06B-F32SK-GGXR			AMP 172159-1
4	U	Red	1
5	V	Yellow	2
6	W	Blue	3
Ground	PE	Yellow/Green	4

Motor Brake Extension Cable

P/N	Description
1602-100	M2 Motor Brake Cable, 1m
1602-300	M2 Motor Brake Cable, 3m
1602-500	M2 Motor Brake Cable, 5m
1602-1000	M2 Motor Brake Cable, 10m

P/N	Description
1602-100-C05	M2 Flexible Motor Brake cable, extra type, 1m
1602-300-C05	M2 Flexible Motor Brake cable, extra type, 3m
1602-500-C05	M2 Flexible Motor Brake cable, extra type, 5m
1602-1000-C05	M2 Flexible Motor Brake cable, extra type, 10m

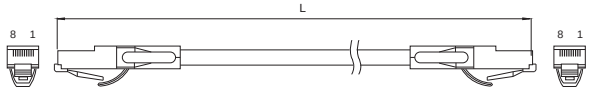


USB mini-B Configuration Cable

Description	P/N	Numbers	Manufacturer	Details
USB mini-B configuration cable	2620-150	1	MOONS'	For connector CN1

CN6\CN7 RS-485/CANopen Daisy Chain Cable

P/N	Description
2012-030	Common type, Twisted-pair, 0.3m
2012-300	Common type, Twisted-pair, 3m
2013-030	Shielded type, Twisted-pair, 0.3m
2013-300	Shielded type, Twisted-pair, 3m



Connector Accessories

◆ I/O Connector-CN2

P/N	M2-50P

◇ Includes

Item	P/N	Numbers	Manufacturer	Description
Connector(Drive side)	5-2232346-1	1	TYCO	For connector CN2

◆ Encoder Connector-CN3

P/N	M2-26P

◇ Includes

Item	P/N	Numbers	Manufacturer	Description
Connector(Drive side)	3-2232346-1	1	TYCO	For connector CN3

◆ Drive Connector Kit

P/N	M2 Drive Connector Kit

◇ Includes

Item	P/N	Numbers	Manufacturer	Description
Power input connector (drive side)	05JFAT-SBXGF-I	1	JST	For connector P1
Power output connector (drive side)	06JFAT-SBXGF-I	1		For connector P2
JST Handle lever	J-FAT-OT	2		

◆ STO Connector Kit

P/N	STO Connecter Kit

◇ Includes

Item	P/N	Numbers	Manufacturer	Description
STO Connector	STO Connector	1	Molex	For connector CN5
Connector	43025-1000	1		
Connector PIN	43030-0005	10		

◆ Servo Motor Connector Kit

P/N	M2 Motor Connector Kit

◇ Includes

Item	P/N	Numbers	Manufacturer	Description
Connector(Drive side)	3-2232346-1	1	TYCO	For connector CN3
Connector	172159-1	1		For motor power connector
Connector	172233-1	1		For motor brake connector
Connector PIN	170362-1	6		For motor power connector
Connector	172161-1	1		For motor encoder connector
Connector PIN	770834-1	9		

External Regeneration Resistors

P/N	Power	Resistance
REG100W120R	100W	120Ω
REG200W120R	200W	120Ω
REG300W120R	300W	120Ω

Certification specification

		Drive	Motor
Europe	EMC Command	EN 61800-3	EN 55011
			EN 55014-1
			EN 55014-2
			EN 6100-3-2
			EN 6100-3-3
	LVD	EN 61800-5-1	EN 60034-1
			EN 60034-5
	STO	UL61800-5-2(SIL2)	
		IEC61508	
		ISO13849-1(PL d)	
UL standard		UL 61800-5-1	UL 1004-1
			UL 1004-6
CSA standard		C22.2 No.274-13	CSA C22.2 No.100

Motor Specifiction

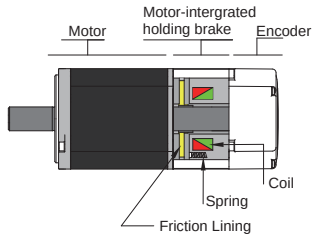
Encoder Type	2500ppr Incremental encoders
Insulation Class	Class B(130℃)
IP65 Rating	IP65 (except shaft through hole and cable end connector)
Installation location	Indoors, away from direct sunlight, corrosive gas, flammable gas
Ambient Temperature	Operating 0 to 40°C, Storage -20 to 80°C
Ambient Humidity	Operate where the relative humidity range is 20% to 85% and non-condensing
Elevation	Operating 1,000m
Vibration	49m/s^2, 10Hz-60Hz (DO NOT use the drive for extended periods of time at the resonance point.)

Holding Brake Option

A holding brake is used to stop the load from moving when power is lost. Typical applications include vertical axis that would drop if power is lost. Holding brakes are not intended to slow a motor that is spinning. The motor should be stopped and then the brake applied.

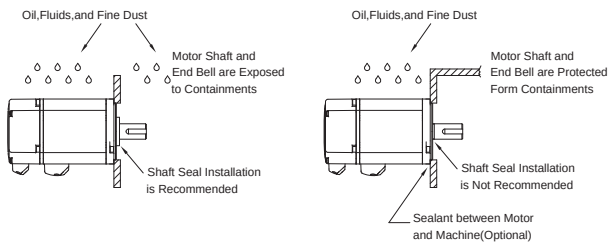
With no power, a spring presses a friction plate into a stationary plate, whitch produces holding torque. When power is applied to the brake coil, the brake solenoid pulls the friction plate away from the stationary plate, whitch allows the motor to turn.

Model	SM04 Series	SM06 Series	SM08 Series
Static friction torque	0.35Nm	2.0Nm	4.5Nm
Rated Voltage	24VDC		
Rated Current	0.25A	0.38A	0.61A
Brake Time	Standard air gap, 20°C below<25ms		
Release Time	<25ms		
Release Voltage	18.5VDC max.(at 20℃)		



Shaft Seal

A shaft seal can extend the life or a motor by keeping contaminants out of the motor. MOONS' servo motors typically include a shaft seal shipped with the motor, but not installed in the motor. These are high quality seals. Installing a shaft seal is recommended if the front of the motor will be exposed to significant amounts of oil, dirt or liquids.



M2DC Series—DC Servo System

The M2DC Series Servo System from MOONS' features drives that are high on functionality with a range of control options, programmable notch filters, an anti-vibration algorithm and auto-tuning. The drives are designed to be used with MOONS' servo motors in the 60/100/200/300/400/550W/750W power range. The M2DC drives can communicate over Modbus/RTU, CANopen, Ethernet/IP and Ethernet(eSCL). Using MOONS' Q Programmer software they can create complex motion programs that can be stored in thedrive and then run in a stand-alone mode.

Features:

- 20-70V DC Input
- Easy to Use On-line Auto Tuning
- Internal Regeneration Resistors
- Build-In Soft PLC - Q Programmer
- Pulse Position Control Modes
- Anlaog Position, Speed, Torque Modes
- SCL/eSCL Language Communication
- Support Modbus, CANopen, EtherNet/IP, Ethernet(eSCL) Communication Protocols
- Friendly Tuning Software

M2DC Servo Drive Numbering Information

M2DC - □ □ □ 5 □ - *

M2 Series DC Servo Drive

Current Code	Continuous Current (RMS)	Peak Current (RMS)
6D0	6.0A	18.0A
10D	10.0A	30.0A
20D	20.0A	50.0A

Voltage Code	Input Voltage
5	20-70VDC

Communication Type	Configuration	Description	Communication
S	USB Mini-B	Basic Type	- - -
Q		Q Type	RS-232
R		Q Type(Modbus/RTU Type)	RS-485
C		CANopen Type	CANBus
D		eSCL Type	Ethernet
IP		EtherNet/IP Type	Ethernet

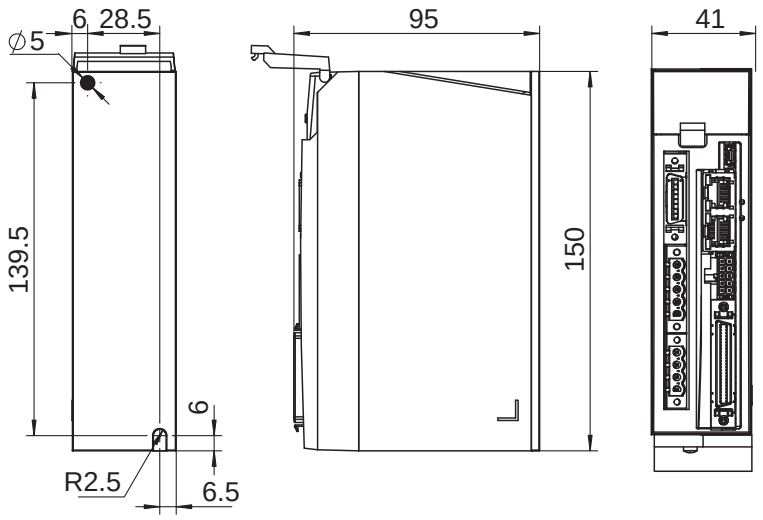
Customized Specification(If Applicable)

M2DC Drive Specifications

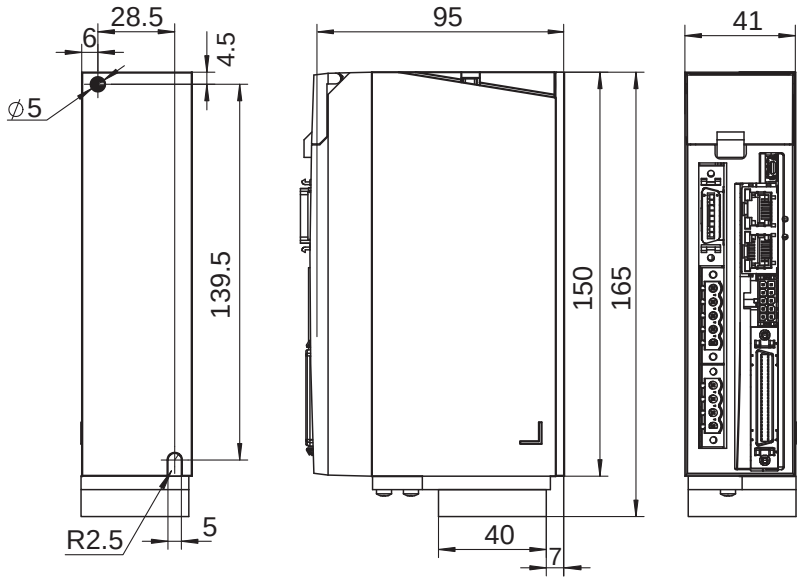
Basic Specifications	Input Power	M2DC-6D0 M2DC-10D M2DC-20D	Main Circuit	20~60VDC
			Control Circuit	10~60VDC
	Environment	Temperature		Ambient temperature: 0°C to 50°C(If the ambient temperature of servo drive is higher than 40°C, please install the drive in a well-ventilated location) Storage temperature: -20°C to 65°C
		Humidity		Both operating and storage: 10 to 85%RH or less
		Altitude		Lower than 1000m
		Vibration		9.8m/s^2 or less, 10 to 60Hz (No continuous use at resonance frequency)
	Control method			PWM Sinusoidal wave drive
	Encoder feedback			2500 ppr Optical Encoder with Shared Commutation Signals
	I/O	Digital Signals	Input	8 optical isolated multi function inputs, 5-24VDC, 20mA 2 optical isolated multi function inputs, 5-24VDC, 20mA
			Output	6 optical isolated multi function outputs, 30VDC max, 20mA
		Analog Signals	Input	2 inputs (12Bit A/D: 2 input)
		Pulse Signals	Input	2 inputs (Photo-coupler input, Line receiver input) Photocoupler input is compatible with both line driver I/F and open collector I/F. Line receiver input is compatible with line driver I/F.
			Output	4 outputs (Line driver: 3 outputs, open collector: 1 outputs)
	Communication	USB Mini-B		Connection with PC or 1 : 1 communication to a host.
		RS-232		RS-232 Communication
		RS-485		RS-485 Communication & Modbus/RTU
		CAN bus		CANopen Bus Communication
		Ethernet		EtherNET/IP, eSCL
	Front panel			4 keys (MODE, UP, DOWN, SET) , 5-digit LED display
	Regeneration Resistor			Built-in regenerative resistor 20W
	Control mode			(1) Position mode (2) Analog Velocity mode (3) Analog Position mode (4) Analog Position mode (5) Velocity Change mode (6) Command Torque mode (7) Command Velocity mode (8) Position Tables
	Control Input Signal			(1) Servo-ON input (2) Alarm clear input (3) CW/CCW Limit (4) Pulse& Direction or CW/CCW input (5) Gain Switch (6) Control mode Switch (7) Pulse Inhibition (8) Gear switch (9) Velocity Change mode (10) Analog input (11) General input
	Control Output Signal			(1) Alarm output (2) Servo-Ready output (3) External brake release (4) Speed reached output (5) Torque reached output (6) Position reached output (7) TachOut (8) Servo-on status output (9) General output
	Certification			RoHS
	Drive Mass		M2DC-6D0	0.59kg
			M2DC-10D	0.59kg
			M2DC-20D	0.61kg

M2DC Drive Dimensions (Unit:mm)

☐ M2DC-6D0/10D



☐ M2DC-20D



M2DC Servo Motor Numbering Information

SM0602FE4-KCD-NNV**

SM Series

Frame Size
04-□40mm
06-□60mm
08-□80mm

Motor Length			
	□40	□60	□80
01	60W	200W	300W
02	100W	400W	550W
03			750W

Winding(DC)	
E	80V
F	60V
G	48V
H	36V

Brake Option
N: No Brake
B: 24VDC Brake

Customized Specification

Shaft and Lead/Connector Style
KCD: Standard Keyway, Non-sealed Connector, For Windings up to 6 Amps
KCF: Standard Keyway, Non-sealed Connector, For Windings 10 Amps

Encoder Type
E4: 2500 ppr Optical Encoder with Shared Commutation Signals

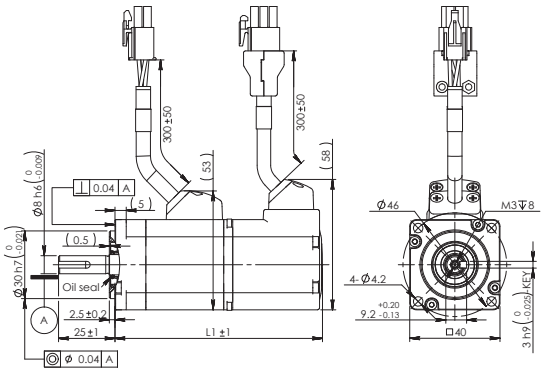
M2DC Servo Motor Specifications and Dimensions—Frame 40mm

Specifications

Model		SM0401HE4-KCD-*NV	SM0402FE4-KCD-*NV
Recommanded Drive Input Voltage (DC-Bus)		**36**	**60**
Rated Output Power	watts	60	100
Rated Speed	rpm	3000	3000
Max. Speed	rpm	6000	6000
Rated Torque	Nm	0.19	0.32
Peak Torque	Nm	0.48	0.91
Rated Current	A (rms)	5.7	5.2
Peak Current	A (rms)	14.3	15.6
Voltage Constant±5%	V (rms) / K rpm	2.1	3.8
Torque Constant±5%	Nm / A (rms)	0.035	0.061
Winding Resistance(Line-Line)	Ohm @25°C	0.36	0.48
Winding Inductance(Line-Line)	mH (typ.)	0.39	0.58
Rotor Inertia	$Kg{\cdot}m^2$	0.0232×10^{-4}	0.0428×10^{-4}
Rotor Inertia - With Brake	$Kg{\cdot}m^2$	0.0298×10^{-4}	0.0494×10^{-4}
Shaft Load - Axial	N (max.)	50	50
Shaft Load - Radial (End of Shaft)	N (max.)	50	60
Weight	kg	0.4	0.55
Weight - With Brake	kg	0.65	0.8

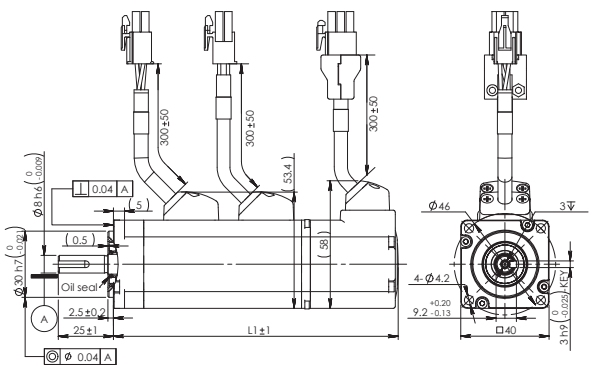
Dimensions (Unit:mm)

1) Without Brake



Without Brake	L1
SM0401HE4-KCD-NNV	92
SM0402FE4-KCD-NNV	109

2) With Brake

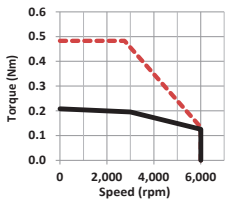


With Brake	L1
SM0401HE4-KCD-BNV	129
SM0402FE4-KCD-BNV	147

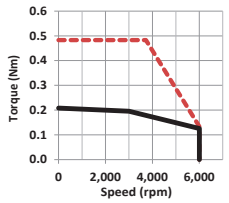
Torque Curves

Note: The torque and maximum speed depand on the DC bus voltage.Please choose proper supply voltage.

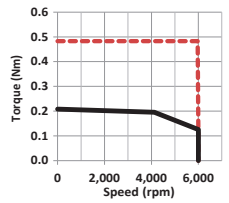
DC Bus--24VDC
SM0401HE4(60 Watts) -5.7 Amps



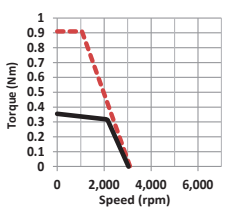
DC Bus--36VDC
SM0401HE4(60 Watts) - 5.7 Amps



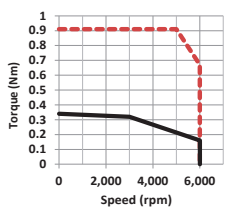
DC Bus--48VDC
SM0401HE4(60 Watts) - 5.7 Amp



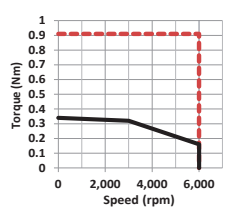
DC Bus--24VDC
SM0402FE4(100 Watts) -5.2Amps



DC Bus--48VDC
SM0402FE4(100 Watts) -5.2Amps



DC Bus--60VDC
SM0402FE4(100 Watts) -5.2Amps



Max. Intermittent Torque
Max. Continuous Torque

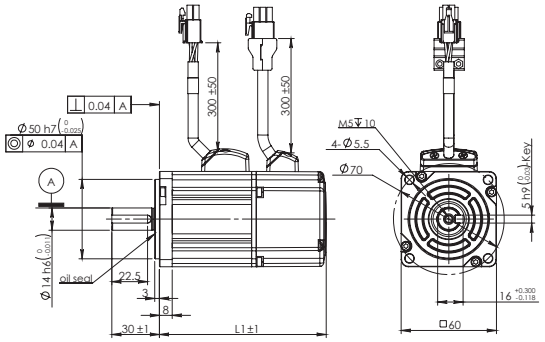
M2DC Servo Motor Specifications and Dimensions—Frame 60mm

Specifications

Model		SM0601GE4-KCF-*NV	SM0602FE4-KCF-*NV	SM0602GE4-KCF-*NV
Recommanded Drive Input Voltage (DC-Bus)		**48**	**60**	**48**
Rated Output Power	watts	200	400	400
Rated Speed	rpm	3000	3000	3000
Max. Speed	rpm	6000	6000	4500
Rated Torque	Nm	0.64	1.26	1.27
Peak Torque	Nm	1.9	3.6	3.4
Rated Current	A (rms)	10	10	12
Peak Current	A (rms)	30	30	36
Voltage Constant±5%	V (rms) / K rpm	4.1	7.5	6.3
Torque Constant±5%	Nm / A (rms)	0.065	0.124	0.103
Winding Resistance(Line-Line)	Ohm @25°C	0.192	0.25	0.214
Winding Inductance(Line-Line)	mH (typ.)	0.56	0.84	0.6
Rotor Inertia	$Kg{\cdot}m^2$	0.165×10^{-4}	0.272×10^{-4}	0.272×10^{-4}
Rotor Inertia - With Brake	$Kg{\cdot}m^2$	0.22×10^{-4}	0.326×10^{-4}	0.326×10^{-4}
Shaft Load - Axial	N (max.)	70	70	70
Shaft Load - Radial (End of Shaft)	N (max.)	200	240	240
Weight	kg	1.1	1.4	1.4
Weight - With Brake	kg	1.6	1.9	1.9

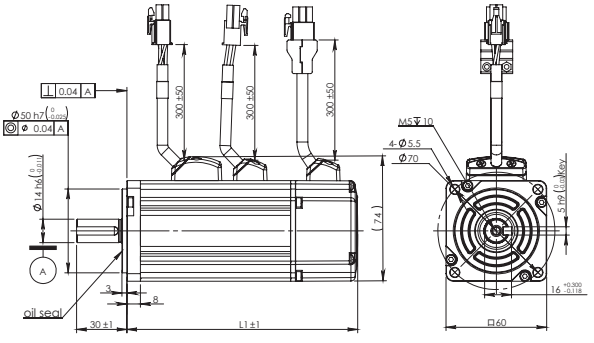
Dimensions (Unit:mm)

1) Without Brake



Without Brake	L1
SM0601GE4-KCF-NNV	105
SM0602FE4-KCF-NNV	125
SM0602GE4-KCF-NNV	125

2) With Brake

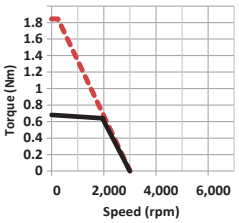


With Brake	L1
SM0601GE4-KCF-BNV	145
SM0602FE4-KCF-BNV	165
SM0602GE4-KCF-BNV	165

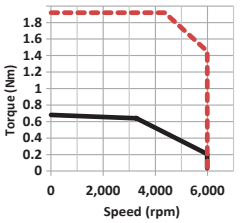
Torque Curves

Note: The torque and maximum speed depand on the DC bus voltage.Please choose proper supply voltage.

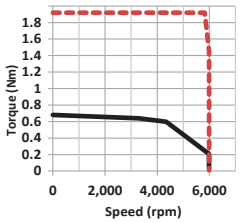
DC Bus--24VDC
SM0601GE4(200 Watts) -10Amps



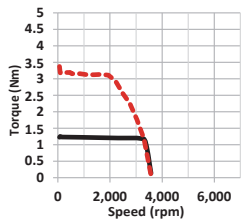
DC Bus--48VDC
SM0601GE4(200 Watts) -10Amps



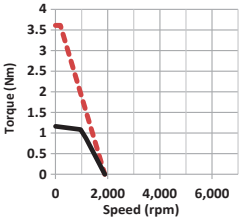
DC Bus--60VDC
SM0601GE4(200 Watts) -10Amps



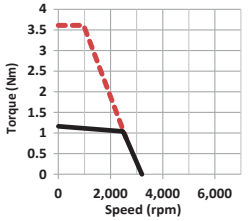
DC Bus--48VDC
SM0602GE4(400 Watts) -12Amps



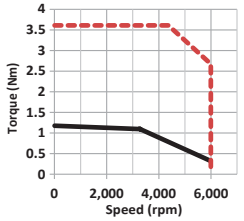
DC Bus--24VDC
SM0602FE4(400 Watts) -10Amps



DC Bus--48VDC
SM0602FE4(400 Watts) -10Amps



DC Bus--60VDC
SM0602FE4(400 Watts) -10Amps



Max. Intermittent Torque
Max. Continuous Torque

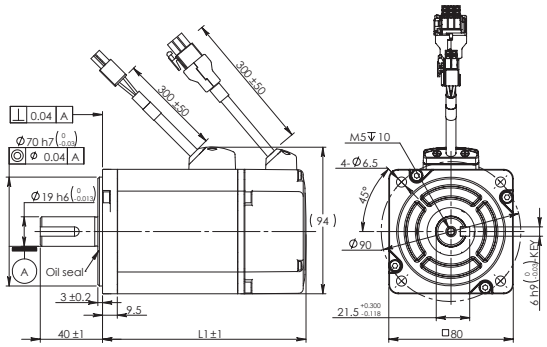
M2DC Servo Motor Specifications and Dimensions—Frame 80mm

Specifications

Model		SM0801GE4-KCF-*NV	SM0802EE4-KCF-*NV
Recommanded Drive Input Voltage (DC-Bus)		**48**	**80**
Rated Output Power	watts	300	550
Rated Speed	rpm	3000	3000
Max. Speed	rpm	6000	5500
Rated Torque	Nm	0.95	1.8
Peak Torque	Nm	2.3	4.6
Rated Current	A (rms)	10	10
Peak Current	A (rms)	25	28
Voltage Constant±5%	V (rms) / K rpm	6.2	11.2
Torque Constant±5%	Nm / A (rms)	0.096	0.176
Winding Resistance(Line-Line)	Ohm @25°C	0.188	0.22
Winding Inductance(Line-Line)	mH (typ.)	0.85	1.25
Rotor Inertia	$Kg{\cdot}m^2$	0.45×10^{-4}	0.63×10^{-4}
Rotor Inertia - With Brake	$Kg{\cdot}m^2$	0.53×10^{-4}	0.71×10^{-4}
Shaft Load - Axial	N (max.)	90	90
Shaft Load - Radial (End of Shaft)	N (max.)	200	240
Weight	kg	1.7	2.2
Weight - With Brake	kg	2.5	3.0

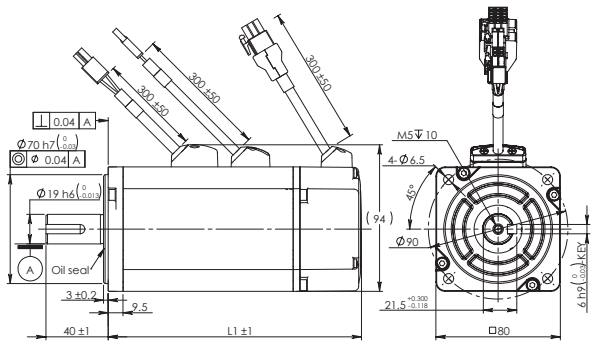
Dimensions (Unit:mm)

1) Without Brake



Without Brake	L1
SM0801GE4-KCF-NNV	101
SM0802EE4-KCF-NNV	116

2) With Brake

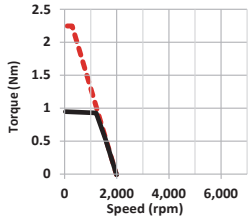


With Brake	L1
SM0801GE4-KCF-BNV	148
SM0802EE4-KCF-BNV	163

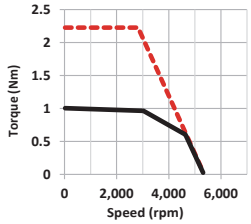
Torque Curves

Note: The torque and maximum speed depand on the DC bus voltage.Please choose proper supply voltage.

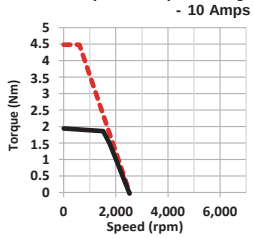
DC Bus--24VDC
SM0801GE4(300 Watts) -10Amps



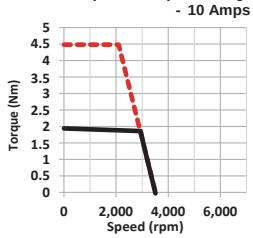
DC Bus--48VDC
SM0801GE4(300 Watts) -10Amps



48 VDC
SM0802 (550 Watts) - winding E - 10 Amps



60 VDC
SM0802 (550 Watts) - winding E - 10 Amps



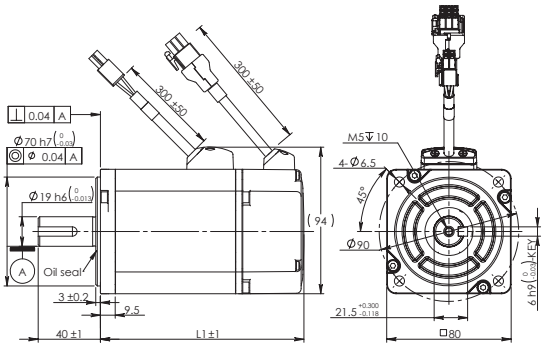
Max. Intermittent Torque
Max. Continuous Torque

M2DC Servo Motor Specifications and Dimensions—Frame 80mm

Model		SM0803GE4-KCF-NNV
Recommanded Drive Input Voltage (DC-Bus)		**48**
Rated Output Power Rated Speed Max. Speed	watts rpm rpm	750 3000 3600
Rated Torque Peak Torque	Nm Nm	2.4 6
Rated Current Peak Current	A (rms) A (rms)	22.5 56.5
Voltage Constant±5% Torque Constant±5% Winding Resistance(Line-Line) Winding Inductance(Line-Line)	V (rms) / K rpm Nm / A (rms) Ohm @25°C mH (typ.)	7.8 0.11 0.06 0.43
Rotor Inertia Rotor Inertia - With Brake	$Kg{\cdot}m^2$ $Kg{\cdot}m^2$	0.89×10^{-4} 0.97×10^{-4}
Shaft Load - Axial Shaft Load - Radial (End of Shaft) Weight Weight - With Brake	N (max.) N (max.) kg kg	90 270 2.6 3.4

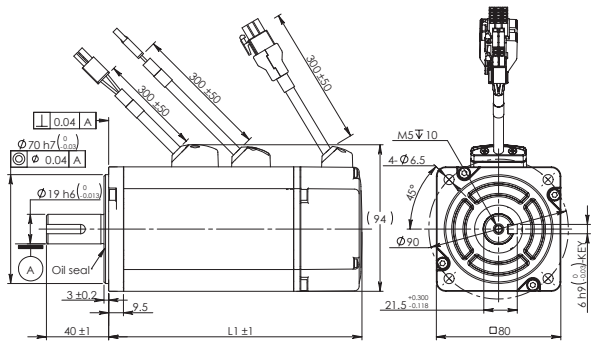
☐ Dimensions (Unit:mm)

1) Without Brake



Without Brake	L1
SM0803GE4-KCF-NNV	130.8

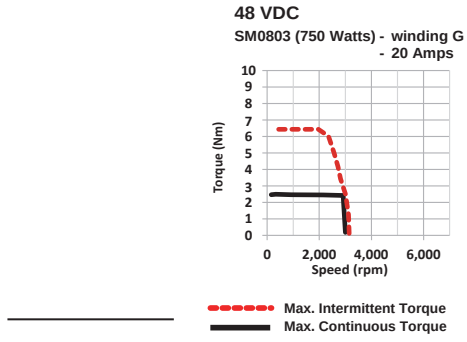
2) With Brake



With Brake	L1
SM0803GE4-KCF-BNV	178

☐ Torque Curves

Note: The torque and maximum speed depand on the DC bus voltage.Please choose proper supply voltage.



M2DC—Gearhead Servo Motors—40mm Frame

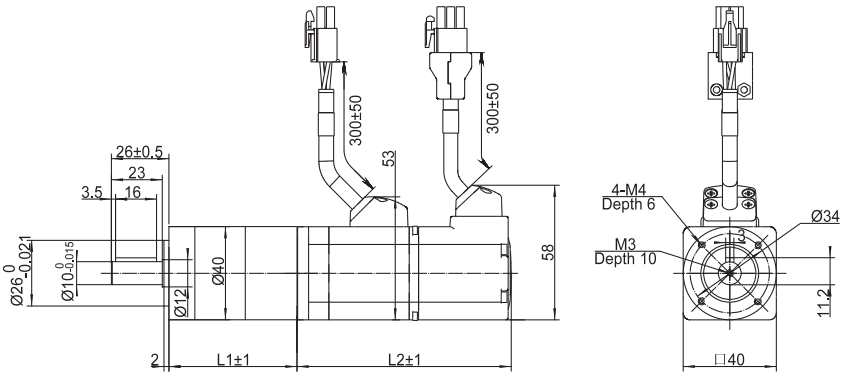
☐ Specifications

Without Brake Type		SM0401HE4-KCD-NNV-PG05A	SM0401HE4-KCD-NNV-PG10A	SM0401HE4-KCD-NNV-PG20A	SM0402FE4-KCD-NNV-PG05A	SM0402FE4-KCD-NNV-PG10A	SM0402FE4-KCD-NNV-PG20A
With Brake Type		**SM0401HE4-KCD-BNV-PG05A**	**SM0401HE4-KCD-BNV-PG10A**	**SM0401HE4-KCD-BNV-PG20A**	**SM0402FE4-KCD-BNV-PG05A**	**SM0402FE4-KCD-BNV-PG10A**	**SM0402FE4-KCD-BNV-PG20A**
Motor Power	W	60			100		
Gear Ratio		5	10	20	5	10	20
Max.Output Torque	N·m	0.95	1.9	3.8	1.6	3.2	6.4
Peak Output Torque	N·m	2.4	4.8	11.4	4.65	9.3	18.6
Max Permissible Output Torque	N·m	6	8	12	6	8	40
Stage		1	1	2	1	1	2
Back lash	arcmin	≤12	≤12	≤15	≤12	≤12	≤15
Efficiency		96%	96%	94%	96%	96%	94%
Rated Output Speed	r/min	600	300	150	600	300	150
Max.Output Speed	r/min	1200	600	300	1200	600	300
Motor Rotor Inertia	$Kg·m^2$	$0.0232x10^{-4}$ *($0.0298x10^{-4}$)			$0.0428x10^{-4}$ *($0.0494x10^{-4}$)		
Gearhead Inertia	$Kg·m^2$	$0.015x10^{-4}$	$0.019x10^{-4}$	$0.019x10^{-4}$	$0.015x10^{-4}$	$0.019x10^{-4}$	$0.019x10^{-4}$
L1 Without Brake	mm	67.5	67.5	80.5	67.5	67.5	80.5
L2 Without Brake	mm	92	92	92	109	109	109
L1 With Brake	mm	67.5	67.5	80.5	67.5	67.5	80.5
L2 With Brake	mm	129	129	129	147	147	147
Matching Drive		M2DC-6D05 ☐					

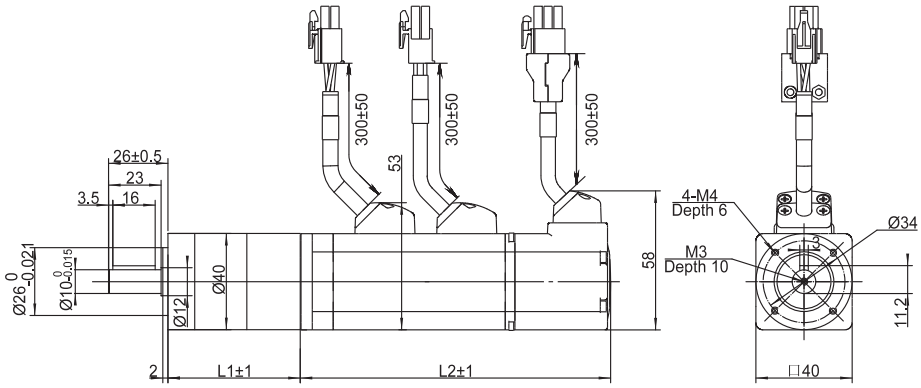
(*) With Brake

☐ Dimensions (Unit:mm)

1) Without Brake



2) With Brake



M2DC—Gearhead Servo Motors—60mm Frame

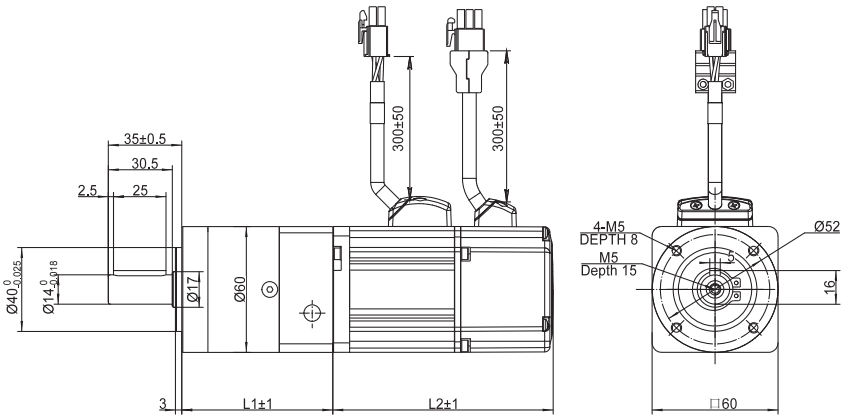
☐ Specifications

Without Brake Type		SM0601GE4-KCF-NNV-PG05A	SM0601GE4-KCF-NNV-PG10A	SM0601GE4-KCF-NNV-PG20A	SM0602FE4-KCF-NNV-PG05A	SM0602FE4-KCF-NNV-PG10A	SM0602FE4-KCF-NNV-PG20A
With Brake Type		**SM0601GE4-KCF-BNV-PG05A**	**SM0601GE4-KCF-BNV-PG10A**	**SM0601GE4-KCF-BNV-PG20A**	**SM0602FE4-KCF-BNV-PG05A**	**SM0602FE4-KCF-BNV-PG10A**	**SM0602FE4-KCF-BNV-PG20A**
Motor Power	W	200			400		
Gear Ratio		5	10	20	5	10	20
Max.Output Torque	N·m	3.2	6.4	12.8	6.35	12.7	25.4
Peak Output Torque	N·m	9.5	19	38	19	38	76
Max Permissible Output Torque	N·m	32	24	88	32	24	88
Stage		1	1	2	1	1	2
Back lash	arcmin	≤10	≤10	≤15	≤10	≤10	≤15
Efficiency		96%	96%	94%	96%	96%	94%
Rated Output Speed	r/min	600	300	150	600	300	150
Max.Output Speed	r/min	1200	600	300	1200	600	300
Motor Rotor Inertia	$Kg·m^2$	$0.165x10^{-4}$ *($0.22x10^{-4}$)			$0.272x10^{-4}$ *($0.326x10^{-4}$)		
Gearhead Inertia	$Kg·m^2$	$0.078x10^{-4}$	$0.054x10^{-4}$	$0.075x10^{-4}$	$0.078x10^{-4}$	$0.054x10^{-4}$	$0.075x10^{-4}$
L1 Without Brake	mm	78.5	78.5	91.5	78.5	78.5	91.5
L2 Without Brake	mm	105	105	105	125	125	125
L1 With Brake	mm	78.5	78.5	91.5	78.5	78.5	91.5
L2 With Brake	mm	145	145	145	165	165	165
Matching Drive		M2DC-10D5 ☐					

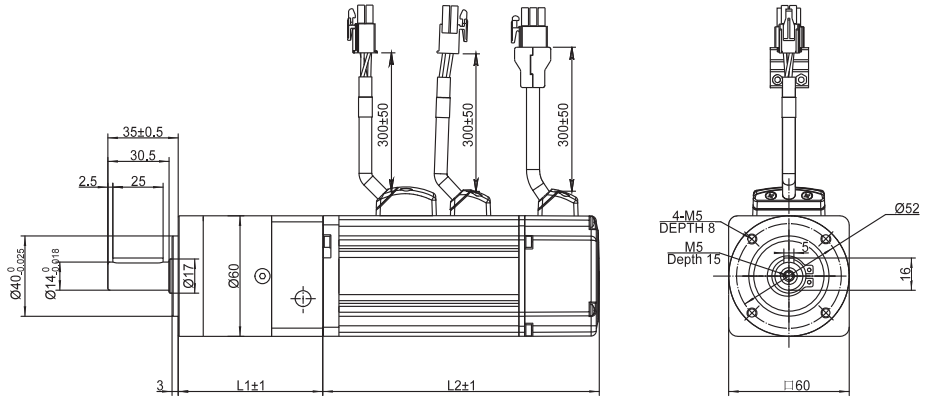
(*) With Brake

☐ Dimensions (Unit:mm)

1) Without Brake



2) With Brake



M2DC—Gearhead Servo Motors—80mm Frame

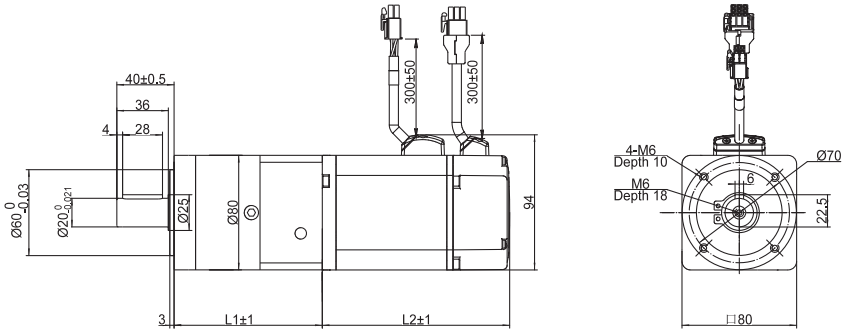
☐ Specifications

Without Brake Type		SM0801GE4-KCF-NNV-PG05A	SM0801GE4-KCF-NNV-PG10A	SM0801GE4-KCF-NNV-PG20A	SM0802EE4-KCF-NNV-PG05A	SM0802EE4-KCF-NNV-PG10A	SM0802EE4-KCF-NNV-PG20A
With Brake Type		**SM0801GE4-KCF-BNV-PG05A**	**SM0801GE4-KCF-BNV-PG10A**	**SM0801GE4-KCF-BNV-PG20A**	**SM0802EE4-KCF-BNV-PG05A**	**SM0802EE4-KCF-BNV-PG10A**	**SM0802EE4-KCF-BNV-PG20A**
Motor Power	W	300			550		
Gear Ratio		5	10	20	5	10	20
Max.Output Torque	N·m	4.75	9.5	19	9	18	36
Peak Output Torque	N·m	11.5	23	46	23	46	92
Max Permissible Output Torque	N·m	100	80	240	100	80	240
Stage		1	1	2	1	1	2
Back lash	arcmin	≤10	≤10	≤15	≤10	≤10	≤15
Efficiency		96%	96%	94%	96%	96%	94%
Rated Output Speed	r/min	600	300	150	600	300	150
Max.Output Speed	r/min	1200	600	300	1200	600	300
Motor Rotor Inertia	$Kg{\cdot}m^2$	$0.45x10^{-4}$ *($0.53x10^{-4}$)			$0.63x10^{-4}$ *($0.71x10^{-4}$)		
Gearhead Inertia	$Kg{\cdot}m^2$	$0.45x10^{-4}$	$0.39x10^{-4}$	$0.44x10^{-4}$	$0.45x10^{-4}$	$0.39x10^{-4}$	$0.44x10^{-4}$
L1 Without Brake	mm	104	104	122	104	104	122
L2 Without Brake	mm	101	101	101	116	116	116
L1 With Brake	mm	104	104	122	104	104	122
L2 With Brake	mm	148	148	148	163	163	163
Matching Drive		M2DC-10D5 ☐					

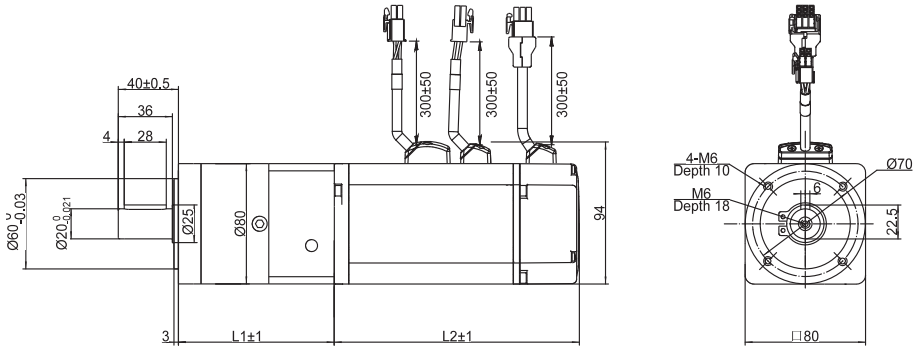
(*) With Brake

☐ Dimensions (Unit:mm)

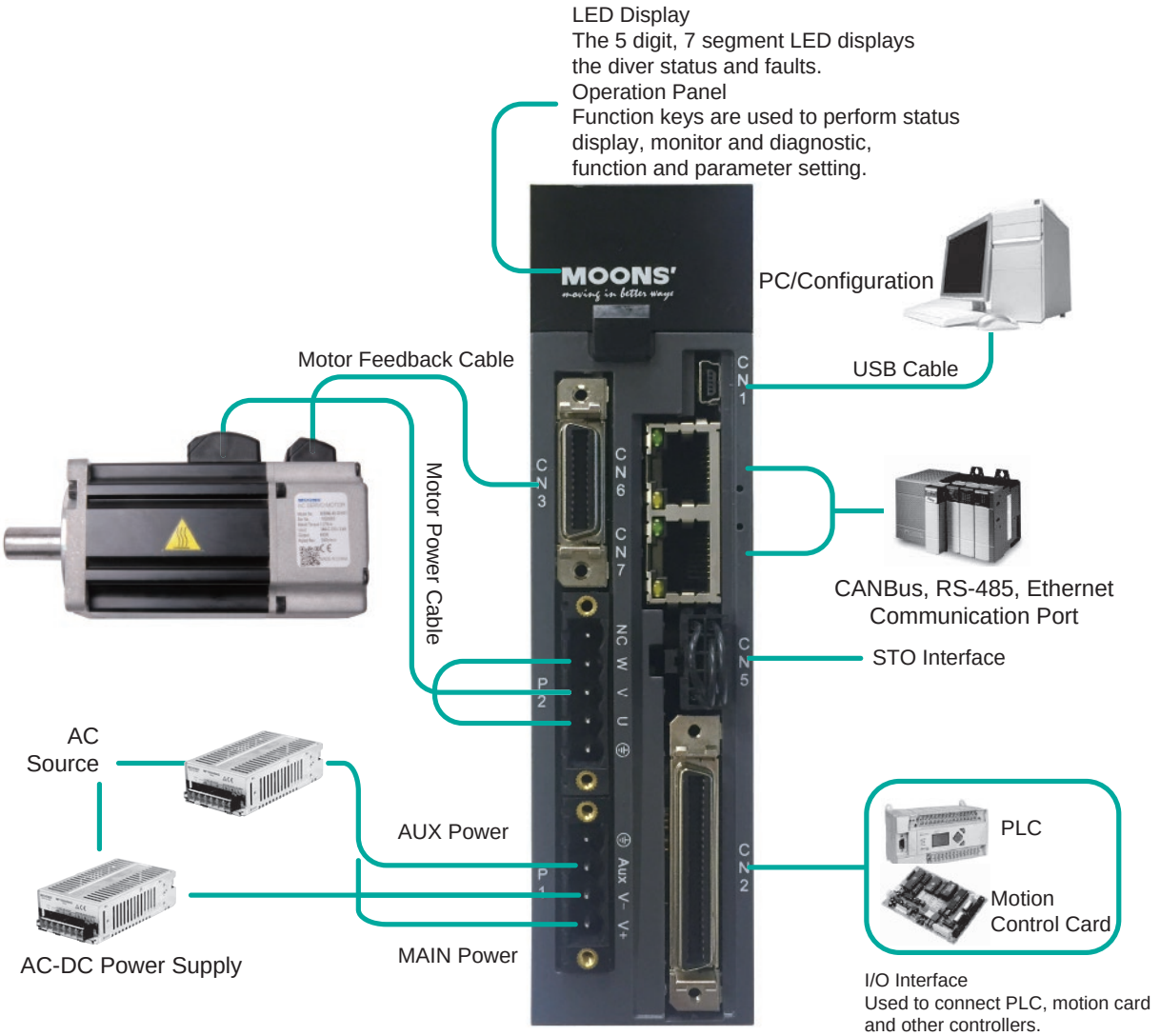
1) Without Brake



2) With Brake



M2DC System Configration



Drive Motor Matching Table

Servo Drive			
			
Basic Type	M2DC-6D05S	M2DC-10D5S	M2DC-20D5S
Q Program Type (RS-232 Communication)	M2DC-6D05Q	M2DC-10D5Q	M2DC-20D5Q
Q Program Type (RS-485 Communication)	M2DC-6D05R	M2DC-10D5R	M2DC-20D5R
CANopen	M2DC-6D05C	M2DC-10D5C	M2DC-20D5C
eSCL	M2DC-6D05D	M2DC-10D5D	M2DC-20D5D
EtherNet/IP*	M2DC-6D05IP	M2DC-10D5IP	M2DC-20D5IP

Matching Motor				
	 40 Frame, 60W, 100W	 60 Frame, 200W, 400W	 80 Frame, 300W, 550W	 80 Frame, 750W
Without Brake	SM0401HE4-KCD-NNV SM0402FE4-KCD-NNV	SM0601GE4-KCF-NNV SM0602FE4-KCF-NNV SM0602GE4-KCF-NNV	SM0801GE4-KCF-NNV SM0802EE4-KCF-NNV	SM0803GE4-KCF-NNV
With Brake	SM0401HE4-KCD-BNV SM0402FE4-KCD-BNV	SM0601GE4-KCF-BNV SM0602FE4-KCF-BNV SM0602GE4-KCF-BNV	SM0801GE4-KCF-BNV SM0802EE4-KCF-BNV	SM0803GE4-KCF-BNV

Gearhead Motor				
Without Brake	SM0401HE4-KCD-NNV-PG**A SM0402FE4-KCD-NNV-PG**A	SM0601GE4-KCF-NNV-PG**A SM0602FE4-KCF-NNV-PG**A	SM0801GE4-KCF-NNV-PG**A SM0802EE4-KCF-NNV-PG**A	
With Brake	SM0401HE4-KCD-BNV-PG**A SM0402FE4-KCD-BNV-PG**A	SM0601GE4-KCF-BNV-PG**A SM0602FE4-KCF-BNV-PG**A	SM0801GE4-KCF-BNV-PG**A SM0802EE4-KCF-BNV-PG**A	

* For the latest details, Please contact our company.
** Standard gear ratios are 5:1; 10:1 and 20:1.

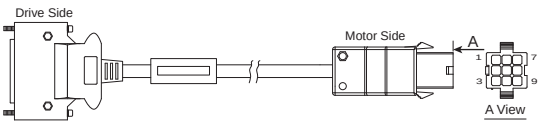
Accessories				
IO Connector		M2-50P		
USB mini-B Configuration		2620-150		
Standard* Cable	Motor power	1630-X00	1627-X00	1641-X00
	Encoder	2627-X00		
	Brake **	1602-X00		
Flexible** Cable	Motor power	1631-X00	1628-X00	1642-X00
	Encoder	2621-X00		
	Brake ***	1602-X00-C05		

* Standard: Can not be used in a drag chain.
* * Bending test: Min. bend radius: 100mm, Travel distance: 60mm, Lifetime: 5,000,000c.

Encoder Cables

◆ Standard Type

P/N	Description
2627-100	M2 Common Encoder Cable, Shielded, 1m
2627-300	M2 Common Encoder Cable, Shielded, 3m
2627-500	M2 Common Encoder Cable, Shielded, 5m
2627-1000	M2 Common Encoder Cable, Shielded, 10m



◆ Flexible Encoder Cable - Extra Type

P/N	Description
2621-100	M2 Flexible Encoder Cable, 1m
2621-300	M2 Flexible Encoder Cable, 3m
2621-500	M2 Flexible Encoder Cable, 5m
2621-1000	M2 Flexible Encoder Cable, 10m

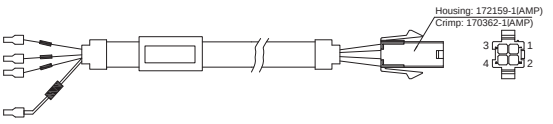
*: Min. band radius: 100mm; Travel distance: 600mm; Lifetime: 5,000,000c

Connect to drive TYCO 3-2232346-1	Signal	Colour	Connect to Motor AMP 172161-1
1	A+/U+	Blue	1
2	B+/V+	Green	2
3	Z+/W+	Yellow	3
14	A-/U-	Blue/Black	4
15	B-/V-	Green/Black	5
16	Z-/W-	Yellow/Black	6
11	+5V	Red	7
24	GND	Black	8
26	Shield	Shield	9

Motor Power Cable—M2DC-6D0

◆ Standard Type

P/N	Description
1630-100	M2DC-6D0 Common Motor Cable, 1m
1630-300	M2DC-6D0 Common Motor Cable, 3m
1630-500	M2DC-6D0 Common Motor Cable, 5m
1630-1000	M2DC-6D0 Common Motor Cable, 10m



◆ Flexible Motor Cable - Extra Type

P/N	Description
1631-100	M2DC-6D0 Flexible Motor Cable, extra type, Shielded, 1m
1631-300	M2DC-6D0 Flexible Motor Cable, extra type, Shielded, 3m
1631-500	M2DC-6D0 Flexible Motor Cable, extra type, Shielded, 5m
1631-1000	M2DC-6D0 Flexible Motor Cable, extra type, Shielded, 10m

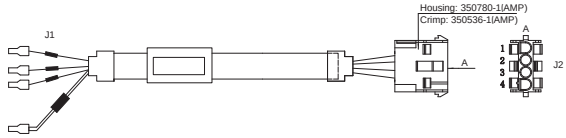
*: Min. band radius: 100mm; Travel distance: 600mm; Lifetime: 5,000,000c

Connect to drive 5452571(Phoenix)	Signal	Colour	Connect to Motor AMP 172159-1
U	U	Red	1
V	V	Yellow	2
W	W	Blue	3
⏚	PE	Yellow/Green	4

Motor Power Cable—M2DC-10D

◆ Standard Type

P/N	Description
1627-100	M2DC-10D Common Motor Cable, Shielded, 1m
1627-300	M2DC-10D Common Motor Cable, Shielded, 3m
1627-500	M2DC-10D Common Motor Cable, Shielded, 5m
1627-1000	M2DC-10D Common Motor Cable, Shielded, 10m



◆ Flexible Motor Cable - Extra Type

P/N	Description
1628-100	M2DC-10D Flexible Motor Cable, extra type, Shielded, 1m
1628-300	M2DC-10D Flexible Motor Cable, extra type, Shielded, 3m
1628-500	M2DC-10D Flexible Motor Cable, extra type, Shielded, 5m
1628-1000	M2DC-10D Flexible Motor Cable, extra type, Shielded, 10m

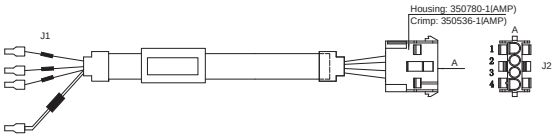
*: Min. band radius: 100mm; Travel distance: 600mm; Lifetime: 5,000,000c

Connect to drive 5452571(Phoenix)	Signal	Colour	Connect to Motor AMP 350780-1
U	U	Red	1
V	V	Yellow	2
W	W	Blue	3
⏚	PE	Yellow/Green	4

Motor Power Cable—M2DC-20D

◆ Standard Type

P/N	Description
1641-100	M2DC-20D Common Motor Cable, Shielded, 1m
1641-300	M2DC-20D Common Motor Cable, Shielded, 3m
1641-500	M2DC-20D Common Motor Cable, Shielded, 5m



◆ Flexible Motor Cable - Extra Type

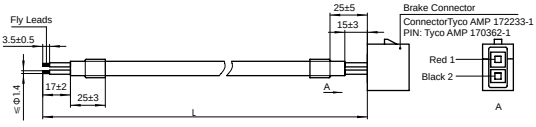
P/N	Description
1642-100	M2DC-20D Flexible Motor Cable, extra type, Shielded, 1m
1642-300	M2DC-20D Flexible Motor Cable, extra type, Shielded, 3m
1642-500	M2DC-20D Flexible Motor Cable, extra type, Shielded, 5m

*: Min. band radius: 100mm; Travel distance: 600mm; Lifetime: 5,000,000c

Connect to drive 5452571(Phoenix)	Signal	Colour	Connect to Motor AMP 350780-1
U	U	Red	1
V	V	Yellow	2
W	W	Blue	3
⏚	PE	Yellow/Green	4

Motor Brake Cable

P/N	Description
1602-100	M2 Motor Brake Cable, 1m
1602-300	M2 Motor Brake Cable, 3m
1602-500	M2 Motor Brake Cable, 5m
1602-1000	M2 Motor Brake Cable, 10m



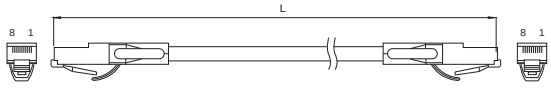
P/N	Description
1602-100-C05	M2 Flexible Motor Brake cable, 1m
1602-300-C05	M2 Flexible Motor Brake cable, 3m
1602-500-C05	M2 Flexible Motor Brake cable, 5m
1602-1000-C05	M2 Flexible Motor Brake cable, 10m

USB mini-B Configuration Cable

Description	P/N	Num.	Manufacturer	Details
USB mini-B Configuration Cable	2620-150	1	MOONS'	For connector CN1

CN6\CN7 RS-485/CANopen Daisy Chain Cable

P/N	Description
2012-030	Common type, Twisted-pair, 0.3m
2012-300	Common type, Twisted-pair, 3m
2013-030	Shielded type, Twisted-pair, 0.3m
2013-300	Shielded type, Twisted-pair, 3m



Connector Accessories

◆ I/O Connector-CN2

P/N	M2-50P

◇ Includes

Item	P/N	Num.	Manufacturer	Details
Connector (drive side)	5-2232346-1	1	TYCO	For I/O connector CN2

◆ Power Connector Kit(Drive side Below 6A)

P/N	M2 Motor Connector Kit

◇ Includes

Item	P/N	Num.	Manufacturer	Details
Connector (drive side)	3-2232346-1	1	TYCO	For encoder connector CN3
Connector	172159-1	1		For motor power connector
Connector	172233-1	1		For motor brake connector
Connector PIN	170362-1	6		For motor power connector
Connector	172161-1	1		For motor encoder connector
Connector PIN	770834-1	9		

◆ Motor Connector Kit(Above 10A)

P/N	M2 Motor Connector Kit2

◇ Includes

Item	P/N	Num.	Manufacturer	Details
Connector	350780-1	1	TYCO	For motor power connector
Connector PIN	350536-1	4		For motor power connector
Connector	172233-1	1		For motor brake connector
Connector PIN	170362-1	2		For motor brake connector
Connector	172161-1	1		For motor encoder connector
Connector PIN	770834-1	9		For motor encoder connector
Connector (drive side)	3-2232346-1	1		For encoder connector CN3

◆ Encoder Connector-CN3

P/N	M2-26P

◇ Includes

Item	P/N	Num.	Manufacturer	Details
Connector (drive side)	3-2232346-1	1	TYCO	For encoder connector CN3

◆ STO Connector Kit

P/N	STO Connector Kit

◇ Includes

Item	P/N	Num.	Manufacturer	Details
STO connector	STO connector	1	Molex	For connector CN5
Connector	43025-1000	1		
Connector PIN	43030-0005	10		

BLD Series—Brushless DC Motor Drive System

Features

- Wide speed control range
- Excellent speed stability
- Compact and High efficiency
- Low power consumption, Low noise, Low vibration
- Long life and Low maintenance requirement
- Low cogging torque, Low torque ripple

Features

◇ DC Input

Input Voltage: 24-48VDC

◇ Various Velocity Commands

- Internal Analog velocity control
- External Analog velocity control
- Multi-velocity control by digital input
- SCL commanded velocity control

◇ Sine-waveform Current Control

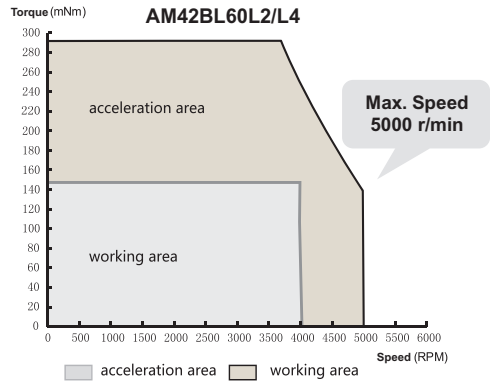
◇ 200% Overload Torque Output

◇ Velocity Control Range 150-4500r/min

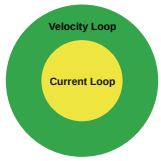
- Velocity control range of 150-4500r/min, Velocity ratio 1:30

◇ Excellent Velocity Stability

- Velocity Regulation (under load) is ±0.5%



◇ Dual Closed-loop Control



◇ Ultimate Performance

- Low heat
- Low noise
- Low vibration
- Low cogging torque
- Support RS-232&RS-485 Communiction Control

Brushless Drive Numbering Information

BLD 5 - A - 42 BL 30 L2

- **BLD** — Brushless Motor Drive
- **5** — Rated Current
  - 5-5A
  - 10-10A
- **A** — Commnication
  - A-RS232
  - R-RS485
- **42** — Frame Size
  - □42
  - □57
  - □80
- **BL** — BLD Motor
- **30** — Rated Power
  - 30W
  - 60W
  - 90W
  - 100W
  - 120W
  - 180W
  - 200W
  - 300W
- **L2** — Rated Voltage
  - L2 24VDC
  - L4 48VDC

Brushless Motor Numbering Information

AM 42 BL 30 L2 *

- **AM** — Series
- **42** — Frame Size
  - □42
  - □57
  - □80
- **BL** — BLD Motor
- **30** — Rated Power
  - 30W
  - 60W
  - 90W
  - 100W
  - 120W
  - 180W
  - 200W
  - 300W
- **L2** — Rated Voltage
  - L2 24VDC
  - L4 48VDC
- ***** — Customized Specification

Gearhead Motor Numbering Information

AM 60 BL 30 L2 - PG 20 A

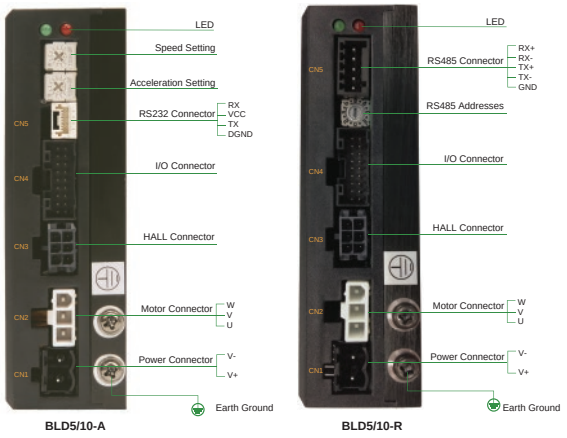
- **AM** — Series
- **60** — Frame Size
  - □42
  - □60
  - □80
- **BL** — BLD Motor
- **30** — Rated Power
  - 30W
  - 60W
  - 90W
  - 100W
  - 120W
  - 180W
  - 200W
  - 300W
- **L2** — Rated Voltage
  - L2 24VDC
  - L4 48VDC
- **PG** — Gearhead
  - GB: Parallel shaft Gearhead
  - PG: Planetary Gearhead
- **20** — Reduction ratio

Drive Specifications

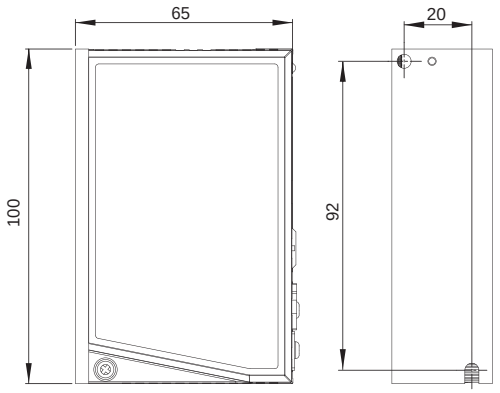
		Min.	Typical	Max.	Units
Power Supply		12	-	48	VDC
Output Current	BLD5	0.1	-	5	Amps
	BLD10	0.1		10	
Under Voltage Protection		-	8.5		V
Over Voltage Protection		-	62	-	V
Input Signal Voltage		5	5-24	28	V
Input Analog Voltage		0	-	5	V
Output Maximum Output Current		-	-	100	mA
Output Maximum Range		-	-	30	V
Speed Control Range		150	-	4500*	r/min

* Limited by the maximum rated speed of the motor

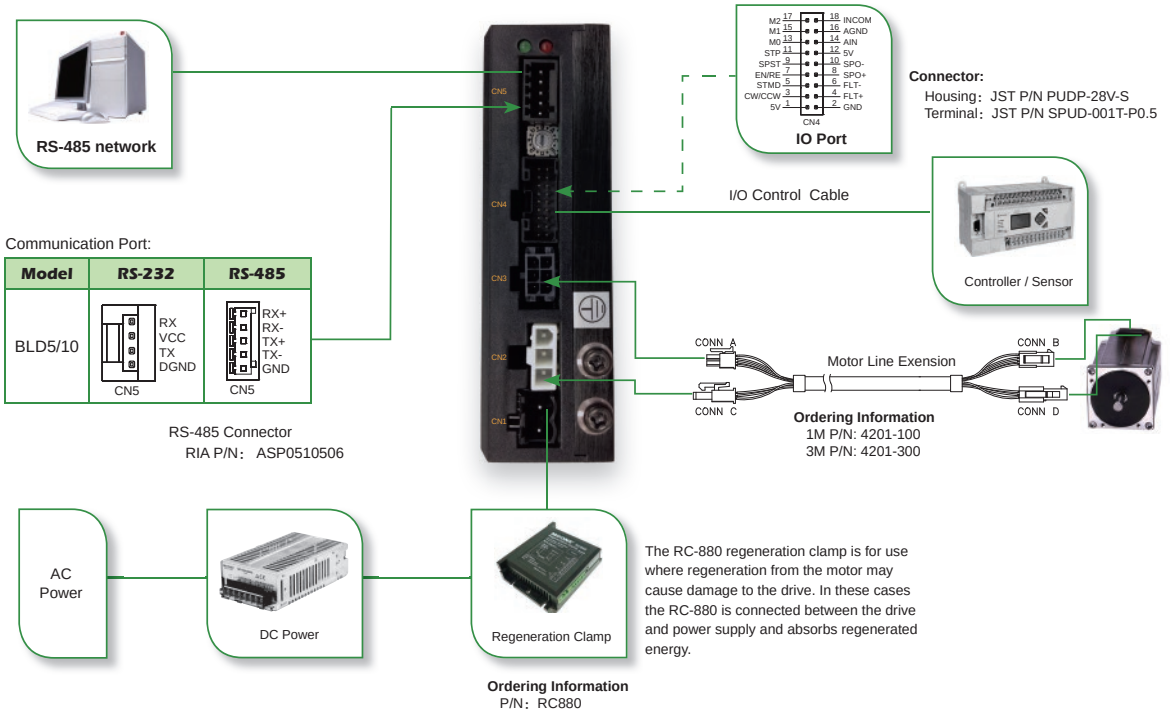
Dimensions (Unit: mm)



BLD5/10-A BLD5/10-R



System Configuration



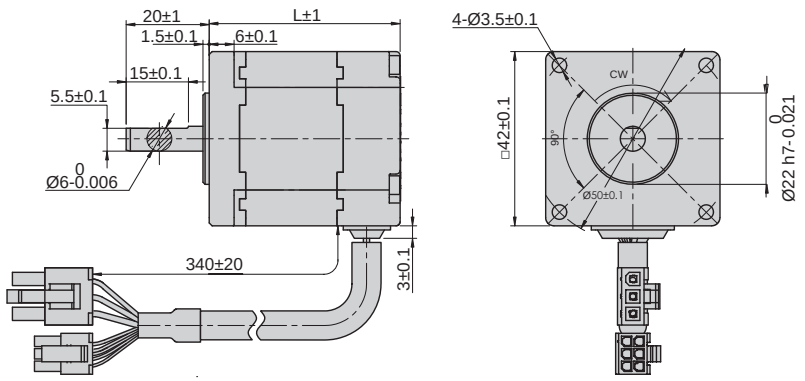
Motor Specifications

Frame 42mm

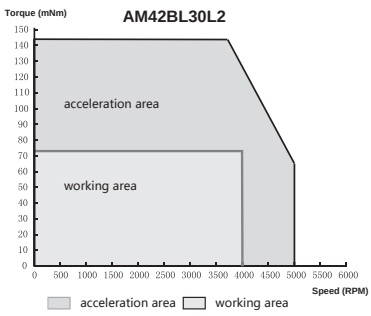
	Unit	Type		
		AM42BL30L2	AM42BL60L2	AM42BL90L2
Length	mm	46	70	100
Input Voltage	VDC	24	24	24
Rated Power	W	30	60	90
Phases		3		
Rated Speed	RPM	4000		
Max. Speed	RPM	5000		
Rated Torque	Nm	0.072	0.144	0.215
Peak Torque	Nm	0.144	0.288	0.43
Rated Current	Arms	1.67	3.28	4.92
Peak Current	Arms	3.34	6.56	9.84
Voltage Constant	Vrms/Krpm	2.95	3.00	3.00
Torque Constant	Nm/Arms	0.043	0.044	0.044
Inertia	$g.cm^2$	39	72	114
Resistance ± 10%(25℃)	Ω	1.34	0.68	0.40
Inductance	mH	1.15	0.60	0.37
Sensor	HALL			
Insulation class	E			
Protective Rating	IP40			
Storage Temperature	-25~+70℃			
Operating Temperature	0~+50℃			
Operating Humidity	85% RH or below (noncondensing)			
Operating Environment	Indoors, away from direct sunlight, corrosive gas and flammable gas			
Altitude	1000m or below			

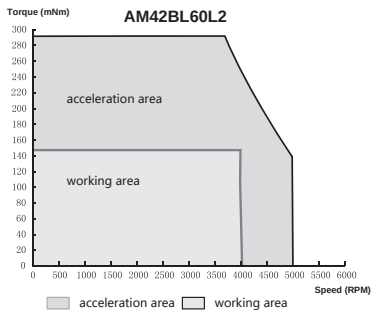
Dimensions (Unit: mm)

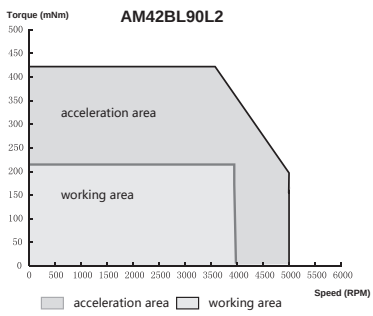
Series	Length
	mm
AM42BL30	46
AM42BL60	70
AM42BL90	100



Torque Curves







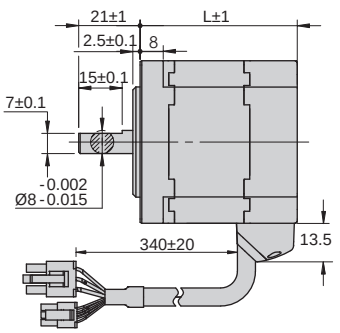
Motor Specifications

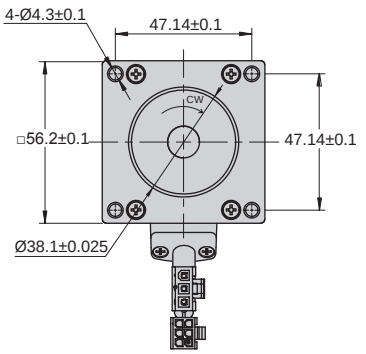
Frame 57mm

	Unit	Type		
		AM57BL60L2	AM57BL120L2	AM57BL180L4
Length	mm	54.5	82.5	120.5
Input Voltage	VDC	24	24	48
Rated Power	W	60	120	180
Phases		3		
Rated Speed	RPM	4000		
Max. Speed	RPM	5000		
Rated Torque	Nm	0.145	0.29	0.43
Peak Torque	Nm	0.29	0.58	0.86
Rated Current	Arms	3.2	6.9	4.5
Peak Current	Arms	6.4	13.8	9.0
Voltage Constant	Vrms/Krpm	3.08	3.00	6.45
Torque Constant	Nm/Arms	0.045	0.042	0.096
Inertia	$g.cm^2$	148	279	456
Resistance ± 10%(25℃)	Ω	0.48	0.18	0.44
Inductance	mH	0.45	0.18	0.54
Sensor	HALL			
Insulation class	E			
Protective Rating	IP40			
Storage Temperature	-25~+70℃			
Operating Temperature	0~+50℃			
Operating Humidity	85% RH or below (noncondensing)			
Operating Environment	Indoors, away from direct sunlight, corrosive gas and flammable gas			
Altitude	1000m or below			

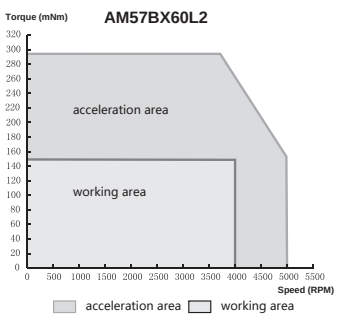
Dimensions (Unit: mm)

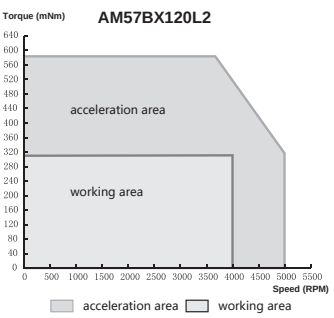
Series	Length
	mm
AM57BL60	54.5
AM57BL120	82.5
AM57BL180	120.5

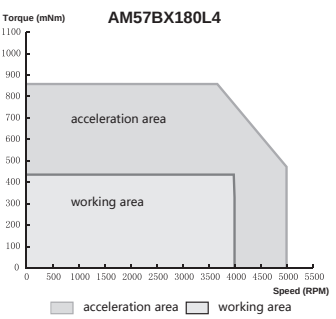




Torque Curves







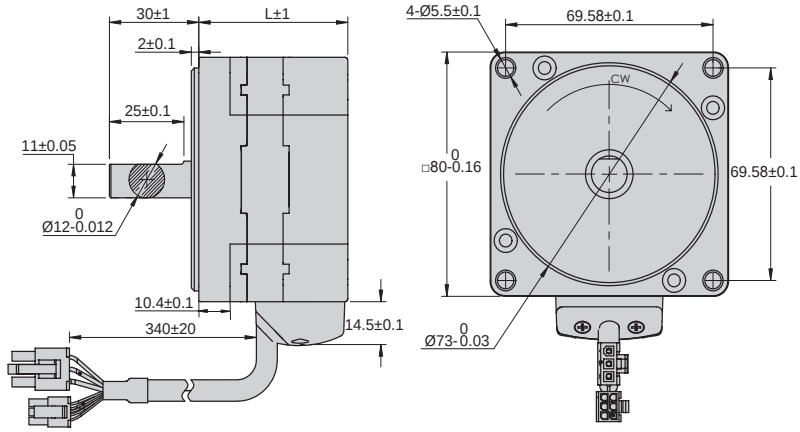
Motor Specifications

□ Frame 80mm

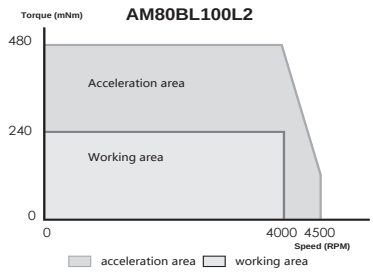
	Unit	Type			
		AM80BL100L2	AM80BL200L2	AM80BL200L4	AM80BL300L4
Length	mm	50	67	67	84
Input Voltage	VDC	24	24	48	48
Rated Power	W	100	200	200	300
Phases		3			
Rated Speed	RPM	4000	4000	4000	4000
Max. Speed	RPM	4500	4500	4500	4500
Rated Torque	Nm	0.24	0.48	0.48	0.72
Peak Torque	Nm	0.48	0.96	0.96	1.44
Rated Current	Arms	5.00	10.10	5.06	7.49
Peak Current	Arms	10.00	20.20	10.12	14.98
Voltage Constant	Vrms/Krpm	3.44	3.38	6.76	7.03
Torque Constant	Nm/Arms	0.048	0.048	0.095	0.096
Inertia	g.cm^2	38	74	74	108
Resistance ± 10%(25℃)	Ω	0.18	0.10	0.32	0.23
Inductance	mH	0.34	0.18	0.70	0.95
Sensor	HALL				
Insulation class	E				
Protective Rating	IP40				
Storage Temperature	-25~+70℃				
Operating Temperature	0~+50℃				
Operating Humidity	85% RH or below (noncondensing)				
Operating Environment	Indoors, away from direct sunlight, corrosive gas and flammable gas				
Altitude	1000m or below				

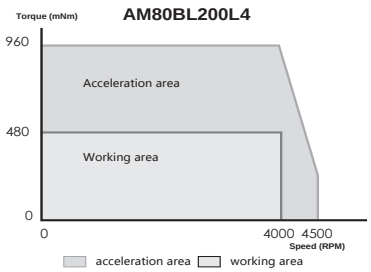
Dimensions (Unit: mm)

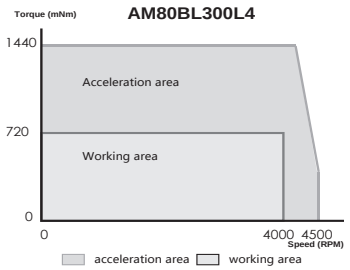
Series	Length
	mm
AM80BL100	50
AM80BL200	67
AM80BL300	84



Torque Curves







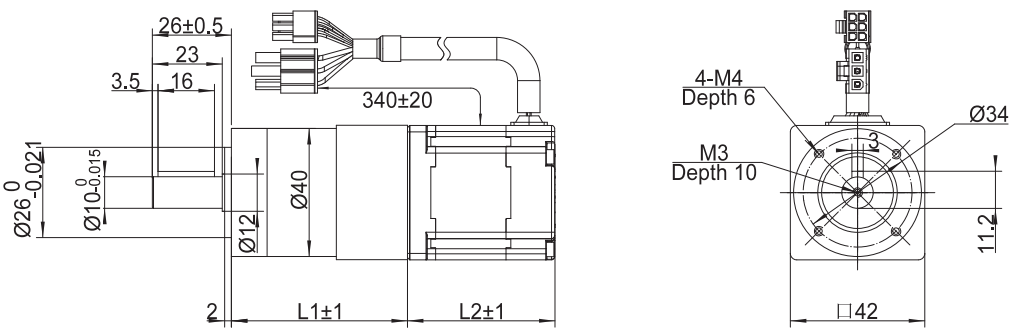
Gearhead Motor Specification

□ 42mm Frame

Type		AM42BL30L2 -PG10A	AM42BL30L2 -PG20A	AM42BL30L2 -PG32A	AM42BL30L2 -PG60A	AM42BL60L2 -PG10A	AM42BL60L2 -PG20A
Voltage	VDC	24					
Rated Power	W	30				60	
Ratio		10	20	32	60	10	20
Max. output Torque	N·m	0.72	1.44	2.304	4.32	1.44	2.88
Peak output torque	N·m	1.44	2.88	4.608	8.64	2.88	5.76
Max. load torque	N·m	8	40	40	40	8	40
Stage		1	2	2	3	1	2
Backlash	arcmin	≤12	≤15	≤15	≤25	≤12	≤15
Efficiency		96%	94%	94%	90%	96%	94%
Rated output speed	r/min	400	200	125	66	400	200
Max. output speed	r/min	500	250	156	83	500	250
Motor rotor inertia	$Kg{\cdot}m^2$	$0.039x10^{-4}$				$0.072x10^{-4}$	
Gearhead Inertia	$Kg{\cdot}m^2$	$0.015x10^{-4}$	$0.019x10^{-4}$	$0.021x10^{-4}$	$0.029x10^{-4}$	$0.015x10^{-4}$	$0.019x10^{-4}$
L1	mm	62.5	75.5	75.5	88	62.5	75.5
L2	mm	46	46	46	46	70	70
Matching Drive		BLD05 Series					

Type		AM42BL60L2 -PG32A	AM42BL60L2 -PG60A	AM42BL90L2 -PG10A	AM42BL90L2 -PG20A	AM42BL90L2 -PG32A	AM42BL90L2 -PG60A
Voltage	VDC	24					
Rated Power	W	60		90			
Ratio		32	60	10	20	32	60
Max. output Torque	N·m	4.608	8.64	2.15	4.3	6.88	12.9
Peak output torque	N·m	9.216	17.28	4.3	8.6	13.76	25.8
Max. load torque	N·m	40	40	8	40	40	40
Stage		2	3	1	2	2	3
Backlash	arcmin	≤15	≤25	≤12	≤15	≤15	≤25
Efficiency		94%	90%	96%	94%	94%	90%
Rated output speed	r/min	125	66	400	200	125	66
Max. output speed	r/min	156	83	500	250	156	83
Motor rotor inertia	$Kg{\cdot}m^2$	$0.072x10^{-4}$		$0.114x10^{-4}$			
Gearhead Inertia	$Kg{\cdot}m^2$	$0.021x10^{-4}$	$0.029x10^{-4}$	$0.015x10^{-4}$	$0.019x10^{-4}$	$0.021x10^{-4}$	$0.029x10^{-4}$
L1	mm	75.5	88	62.5	75.5	75.5	88
L2	mm	70	70	100	100	100	100
Matching Drive		BLD05 Series					

Dimensions (Unit: mm)



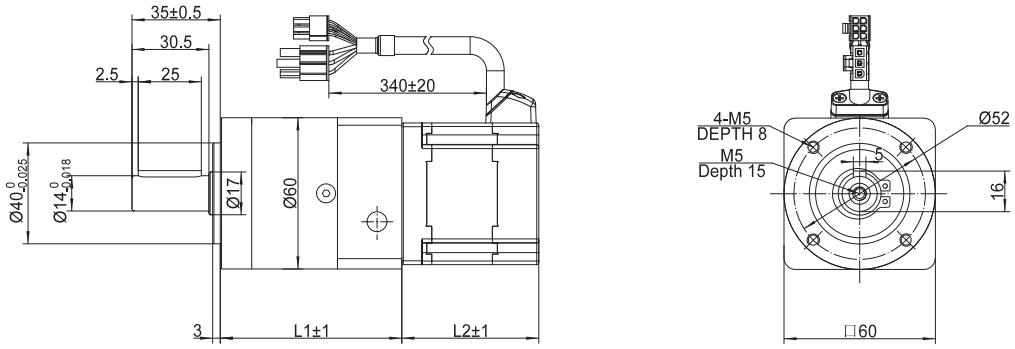
Gearhead Motor Specification

☐ 57mm Frame

Type		AM57BL60L2 -PG10A	AM57BL60L2 -PG20A	AM57BL60L2 -PG32A	AM57BL60L2 -PG60A	AM57BL120L2 -PG10A	AM57BL120L2 -PG20A
Voltage	VDC	24					
Rated Power	W	60				120	
Ratio		10	20	32	60	10	20
Max. output Torque	N·m	1.45	2.9	4.64	8.7	2.9	5.8
Peak output torque	N·m	2.9	5.8	9.28	17.4	5.8	11.6
Max. load torque	N·m	24	88	88	40	24	88
Stage		1	2	2	3	1	2
Backlash	arcmin	≤10	≤15	≤15	≤20	≤10	≤15
Efficiency		96%	94%	94%	90%	96%	94%
Rated output speed	r/min	400	200	125	66	400	200
Max. output speed	r/min	500	250	156	83	500	250
Motor rotor inertia	$Kg{\cdot}m^2$	$0.148x10^{-4}$				$0.279x10^{-4}$	
Gearhead Inertia	$Kg{\cdot}m^2$	$0.054x10^{-4}$	$0.075x10^{-4}$	$0.064x10^{-4}$	$0.130x10^{-4}$	$0.054x10^{-4}$	$0.075x10^{-4}$
L1	mm	73.5	86.5	86.5	99	73.5	86.5
L2	mm	54.5	54.5	54.5	54.5	82.5	82.5
Matching Drive		BLD10 Series					

Type		AM57BL120L2 -PG32A	AM57BL120L2 -PG60A	AM57BL180L4 -PG10A	AM57BL180L4 -PG20A	AM57BL180L4 -PG32A	AM57BL180L4 -PG60A
Voltage	VDC	24		48			
Rated Power	W	120		180			
Ratio		32	60	10	20	32	60
Max. output Torque	N·m	9.28	17.4	4.3	8.6	13.76	25.8
Peak output torque	N·m	18.56	34.8	8.6	17.2	27.52	51.6
Max. load torque	N·m	88	40	24	88	88	40
Stage		2	3	1	2	2	3
Backlash	arcmin	≤15	≤20	≤10	≤15	≤15	≤20
Efficiency		94%	90%	96%	94%	94%	90%
Rated output speed	r/min	125	66	400	200	125	66
Max. output speed	r/min	156	83	500	250	156	83
Motor rotor inertia	$Kg{\cdot}m^2$	$0.279x10^{-4}$		$0.456x10^{-4}$			
Gearhead Inertia	$Kg{\cdot}m^2$	$0.064x10^{-4}$	$0.130x10^{-4}$	$0.054x10^{-4}$	$0.075x10^{-4}$	$0.064x10^{-4}$	$0.130x10^{-4}$
L1	mm	86.5	99	73.5	86.5	86.5	99
L2	mm	82.5	82.5	120.5	120.5	120.5	120.5
Matching Drive		BLD10 Series					

Dimensions (Unit: mm)



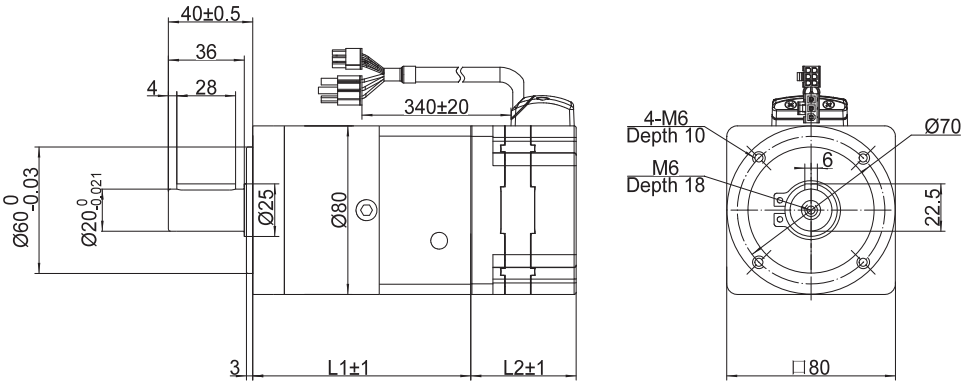
Gearhead Motor Specification

☐ 80mm Frame

Type		AM80BL100L2-PG10A	AM80BL100L2-PG20A	AM80BL100L2-PG32A	AM80BL100L2-PG60A	AM80BL200L4-PG10A	AM80BL200L4-PG20A
Voltage	VDC	24				48	
Rated Power	W	100				200	
Ratio		10	20	32	60	10	20
Max. output Torque	N·m	2.4	4.8	7.68	14.4	4.8	9.6
Peak output torque	N·m	4.8	9.6	15.36	28.8	9.6	19.2
Max. load torque	N·m	80	240	240	240	80	240
Stage		1	2	2	3	1	2
Backlash	arcmin	≤10	≤15	≤15	≤20	≤10	≤15
Efficiency		96%	94%	94%	90%	96%	94%
Rated output speed	r/min	400	200	125	66	400	200
Max. output speed	r/min	450	225	140	75	450	225
Motor rotor inertia	$Kg{\cdot}m^2$	$0.38x10^{-4}$				$0.74x10^{-4}$	
Gearhead Inertia	$Kg{\cdot}m^2$	$0.39x10^{-4}$	$0.44x10^{-4}$	$0.39x10^{-4}$	$0.7x10^{-4}$	$0.39x10^{-4}$	$0.44x10^{-4}$
L1	mm	95.5	113.5	113.5	131	95.5	113.5
L2	mm	50	50	50	50	67	67
Matching Drive		BLD10 Series					

Type		AM80BL200L4-PG32A	AM80BL200L4-PG60A	AM80BL300L4-PG10A	AM80BL300L4-PG20A	AM80BL300L4-PG32A	AM80BL300L4-PG60A
Voltage	VDC	48					
Rated Power	W	200		300			
Ratio		32	60	10	20	32	60
Max. output Torque	N·m	15.36	28.8	7.2	14.4	23.04	43.2
Peak output torque	N·m	30.72	57.6	14.4	28.8	46.08	86.4
Max. load torque	N·m	240	240	80	240	240	240
Stage		2	3	1	2	2	3
Backlash	arcmin	≤15	≤20	≤10	≤15	≤15	≤20
Efficiency		94%	90%	96%	94%	94%	90%
Rated output speed	r/min	125	66	400	200	125	66
Max. output speed	r/min	140	75	450	225	140	75
Motor rotor inertia	$Kg{\cdot}m^2$	$0.74x10^{-4}$		$0.108x10^{-4}$			
Gearhead Inertia	$Kg{\cdot}m^2$	$0.39x10^{-4}$	$0.7x10^{-4}$	$0.39x10^{-4}$	$0.44x10^{-4}$	$0.39x10^{-4}$	$0.7x10^{-4}$
L1	mm	113.5	131	95.5	113.5	113.5	131
L2	mm	67	67	84	84	84	84
Matching Drive		BLD10 Series					

Dimensions (Unit: mm)



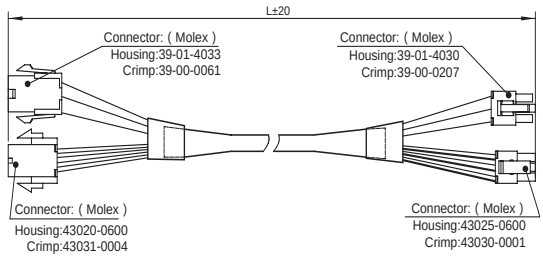
Ordering Information

BLD Drive Type	BLD Motor Type	Power	Voltage	RS-232	RS-485
BLD5-A-42BL30L2	AM42BL30L2	30W	24VDC	√	
BLD5-R-42BL30L2	AM42BL30L2				√
BLD5-A-42BL60L2	AM42BL60L2	60W		√	
BLD5-R-42BL60L2	AM42BL60L2				√
BLD10-A-42BL90L2	AM42BL90L2	90W		√	
BLD10-R-42BL90L2	AM42BL90L2				√
BLD5-A-57BL60L2	AM57BL60L2	60W		√	
BLD5-R-57BL60L2	AM57BL60L2				√
BLD10-A-57BL120L2	AM57BL120L2	120W		√	
BLD10-R-57BL120L2	AM57BL120L2				√
BLD10-A-57BL180L4	AM57BL180L4	180W	48VDC	√	
BLD10-R-57BL180L4	AM57BL180L4				√
BLD10-A-80BL100L2	AM80BL100L2	100W	24VDC	√	
BLD10-R-80BL100L2	AM80BL100L2				√
BLD10-A-80BL200L2	AM80BL200L2	200W	24VDC	√	
BLD10-R-80BL200L2	AM80BL200L2				√
BLD10-A-80BL200L4	AM80BL200L4	200W	48VDC	√	
BLD10-R-80BL200L4	AM80BL200L4				√
BLD10-A-80BL300L4	AM80BL300L4	300W		√	
BLD10-R-80BL300L4	AM80BL300L4				√

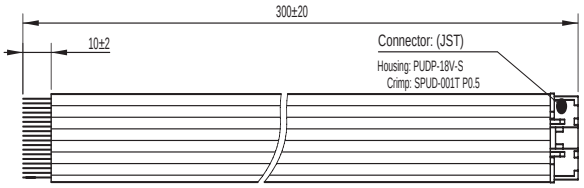
Optional Accessories

☐ Motor Cable

P/N	Length
4201-100	1m
4201-300	3m



☐ I/O Control Cable: P/N 1201-030



Gearhead Motor Ordering Information

		Voltage	Motor Power	Communication	
Gearhead Motor	**Drive**	**VDC**	**W**	**RS-232**	**RS-485**
AM42BL30L2-PG**A	BLD5-A-42BL30L2	24	30	√	
	BLD5-R-42BL30L2				√
AM42BL60L2-PG**A	BLD5-A-42BL60L2		60	√	
	BLD5-R-42BL60L2				√
AM42BL90L2-PG**A	BLD5-A-42BL90L2		90	√	
	BLD5-R-42BL90L2				√
AM57BL60L2-PG**A	BLD5-A-57BL60L2		60	√	
	BLD5-R-57BL60L2				√
AM57BL120L2-PG**A	BLD10-A-57BL120L2		120	√	
	BLD10-R-57BL120L2				√
AM57BL180L4-PG**A	BLD10-A-57BL180L4	48	180	√	
	BLD10-R-57BL180L4				√
AM80BL100L2-PG**A	BLD10-A-80BL100L2	24	100	√	
	BLD10-R-80BL100L2				√
AM80BL200L4-PG**A	BLD10-A-80BL200L4	48	200	√	
	BLD10-R-80BL200L4				√
AM80BL300L4-PG**A	BLD10-A-80BL300L4		300	√	
	BLD10-R-80BL300L4				√

** Stands for Gear ratio, Gear ratio, is 10:1; 20:1; 32:1; 60:1

I/O Control & Functional Description

1	+5V USER	2	GND
3	X1	4	Y1+
5	X2	6	Y1-
7	X3	8	Y2+
9	X4	10	Y2-
11	X5	12	+5V USER
13	X6	14	Analog In
15	X7	16	AGND
17	X8	18	INCOM

PIN	Signal Type	Signal Name	Symbols	Function
1	Power	+5V USER		Provide maximum +5V 100mA power to user
2		GND		External control signal GND
18		INCOM		Digital input common (Sink /Source)
3	Inputs	CW/CCW	X1	CW/CCW
5		STMD(STOP MODE)	X2	Stop Mode Choose,Select how to stop the motor
7		EN/RE(Enable/Reset)	X3	Motor Enable / Disable
9		SPST(SPEED-SET)	X4	Internal / External Analog Speed Selection (Only BLD5/10-A)
11		STOP	X5	Motor Start&Stop
13		M0	X6	Eight changeable speeds (0，500，1000，2000，3000，3500，4000，4500 r/min)
15		M1	X7	
17		M2	X8	
12	Analog Inputs	Analog VCC	+5V	External Analog Control
14		Analog In	AIN	
16		Analog GND	AGND	
4	Outputs	Fault+	Y1+	Alarm Output
6		Fault-	Y1-	
8		Speed Out+	Y2+	Speed output: the default value is 6 counts/rev
10		Speed Out-	Y2-	

Changeable Signal Assignments

Output	MOVE	-	This signal will output when the motor is rotating.
	VA	-	This signal will output when the motor speed reaches the setting speed.
	Fault2	-	This signal will output when the drive overload.
	Warning	-	This signal will output when the drive has an alarm.
	TLC	-	This signal will output when the motor speed reaches the setting speed.
	IDLE	-	General output

Potentiometer&LED

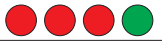
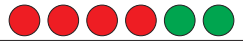
Speed Setting

This potentiometer can be used for adjusting speed. The velocity range can be set in BLD Configurator software. The default range is 150 to 4500rpm.

Acceleration Setting

This potentiometer can be used for adjusting acceleration and deceleration. The acceleration and deceleration range are same and can be configured in BLD Configurator software. The default range is 0 to 3000rps^2

Status LED Codes

Code		Error
	Solid Green	Motor Disabled
	Flashing Green	Motor Enabled
	1 Red, 2 Green	Can't Move (Disabled)
	3 Red, 1 Green	Drive Over Temperature
	3 Red, 2 Green	Bad Internal Voltage
	4 Red, 1 Green	Supply Voltage High
	4 Red, 2 Green	Supply Voltage Low
	5 Red, 1 Green	Over Current
	5 Red, 2 Green	Over Load
	6 Red, 1 Green	Open Motor Phase
	6 Red, 2 Green	Bad Hall Signal
	7 Red, 1 Green	Comm Error
	7 Red, 2 Green	Save Failed

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