

**MOONS'**  
*moving in better ways*

# M5

# 6S

# AC SERVO SYSTEM



# M5 6S SERIES

## High Performance AC Servo System

Drive Specification		Motor Specification	
Supply Voltage	Rated Current (Arms)	Frame Size (mm)	Rated Power
220VAC	1.8, 3, 4.5, 6, 10, 13	40, 60, 80, 100, 130	50W ~ 2.5kW
400VAC	13, 17, 21, 26	130, 180	850W ~ 7.5kW



## Application

M5 Servo System is widely used in solar processing equipment, battery processing equipment, semiconductor equipment, medical equipment, industrial robots, custom equipment etc.



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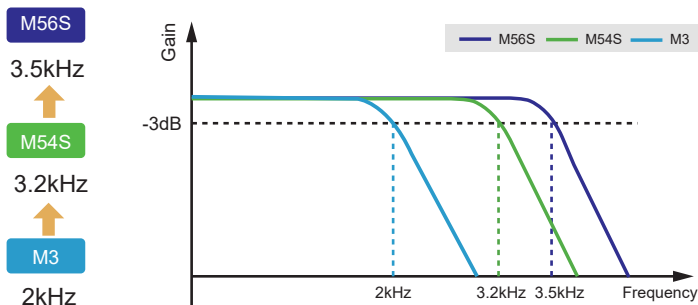
## Standard



## Superior Performance

### High Response Frequency

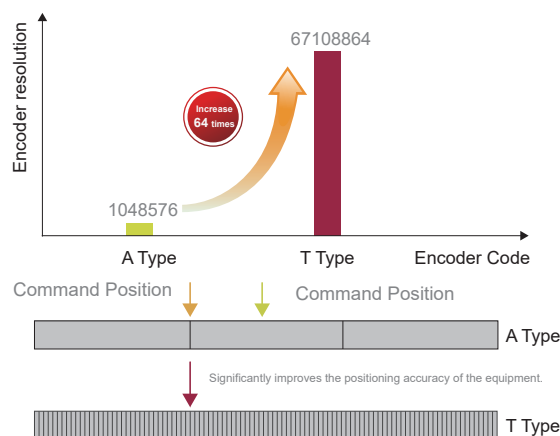
Based on advanced motion control algorithms, the velocity loop bandwidth is up to 3.5kHz, faster instruction tracking and shorter positioning time.



### High Precision Positioning

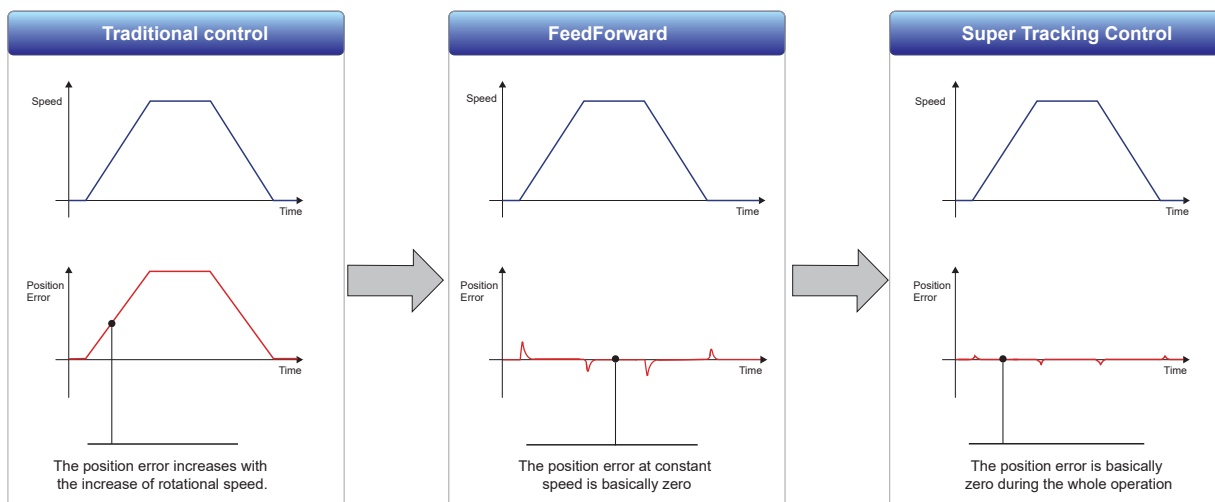
The low cogging torque motor is equipped with high-resolution absolute encoder and built-in high-precision position control algorithm, which makes the servo system run more smoothly and with higher accuracy, and significantly improves the positioning accuracy of the equipment.

- 26-bit Absolute Multi-turn Optical Encoder
  - ◆ High resolution, up to 67,108,864 divisions per revolution
  - ◆ Optional battery backup for 16-bit multi-turn
- 21-bit Absolute Multi-turn Magnetic Encoder
  - ◆ High resolution, up to 2,097,152 divisions per revolution
  - ◆ Optional battery backup for 16-bit multi-turn
  - ◆ Strong vibration resistance
  - ◆ Resistant to dust and oil stains
  - ◆ Anti condensation



### Super Tracking

Using the super tracking control function, the motor not only runs at a constant speed, the following error is basically zero, and the following error is also close to zero during acceleration and deceleration, improving the trajectory accuracy of high-rigidity equipment.



# Easy Set-up

The M56S servo system is designed to help streamline the testing, commissioning and maintenance of your motion system.

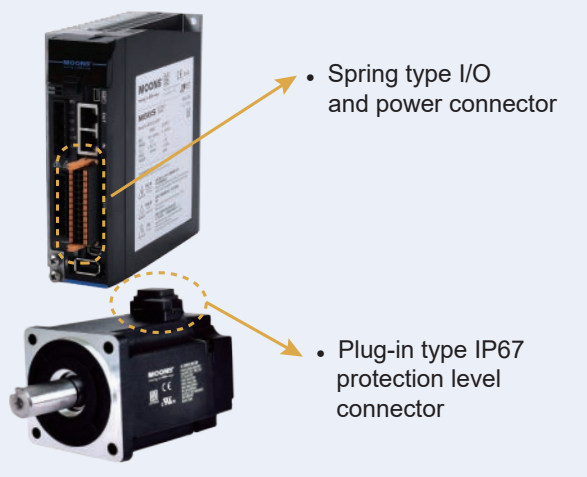
## Unpacking

## Wiring

## Tuning

## Commissioning

## Easy wiring

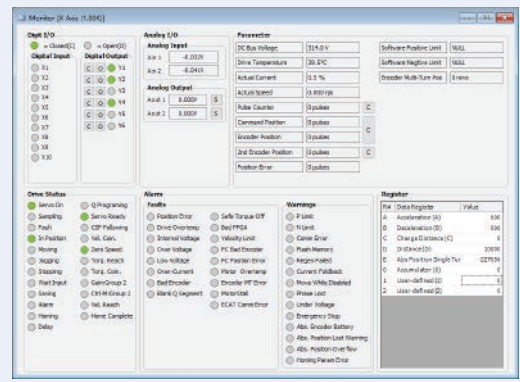


## Easy tuning

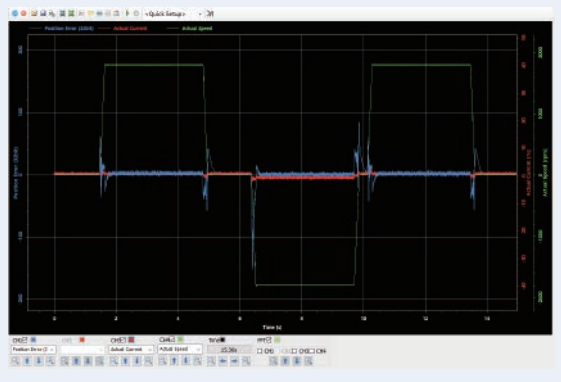
- High speed USB communication between Luna software and drive
- The drive automatically recognizes motors with smart encoder
- Both auto-tuning and tuning-less adjustment function are available
- Stable and smooth operation without complicated gain settings

## Friendly software

### • Operating Status Monitor



### • Real-time Oscilloscope Interface

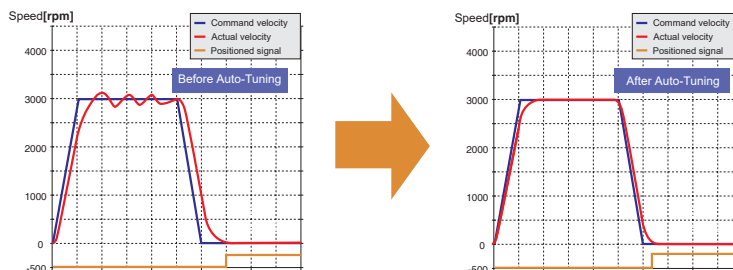


## Easy Tuning

### Auto-tuning

The auto-tuning algorithm can automatically identify the load inertia (ratio), gain and vibration suppression parameters in real time. The auto-tuning function can greatly shorten your system tuning time, improve system responsiveness and equipment production efficiency.

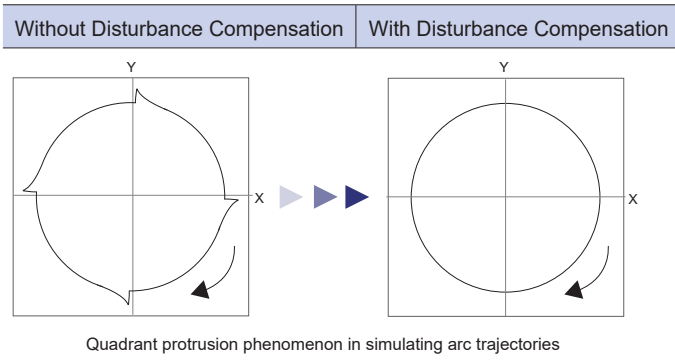
- ◆ No limitation towards any load type and drive control mode.
- ◆ High robustness for maximum control of servo system stability.



### External Disturbance Compensation

The external disturbance compensation can effectively suppress the phenomenon of overquadrant bulge caused by the different friction of the mechanism and the influence of load change, and improve the tracking accuracy in multi-axis synchronous control.

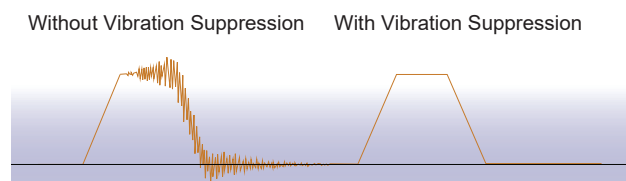
For example, the accuracy of arc trajectory in the interpolation control of XY mechanism can be improved.



### Notch Filters

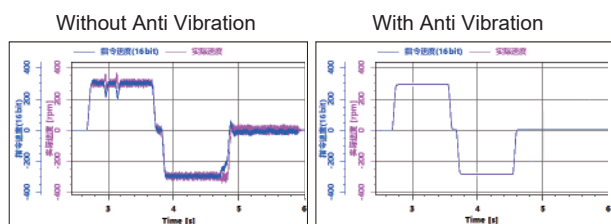
The M56S series provides users with 4 notch filters to suppress mechanical vibrations in their system. The filtering frequency range is 100- 4000 Hz.

- ◆ 2 sets of automatically set notch filters can search and set resonance frequency automatically.
- ◆ 2 sets of manual notch filters for more adjust options.



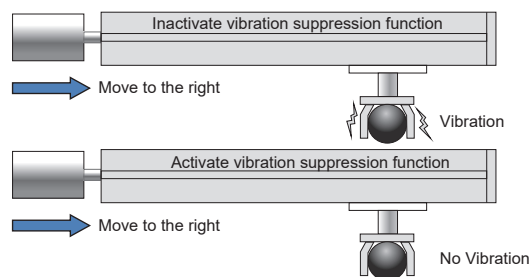
### Novel Resonance Suppression

The new resonance suppression function of the M56S series products can effectively suppress the low-frequency vibration caused by the resonance of 100 ~ 1000Hz.



### Mechanical End Vibration Suppression

Vibration at the end of the machine will lead to longer system settling time, resulting in decreased machine precision or production efficiency. M56S servo can suppress vibrations at the end of the machine, shortening tuning time, increasing the system precision and productivity.

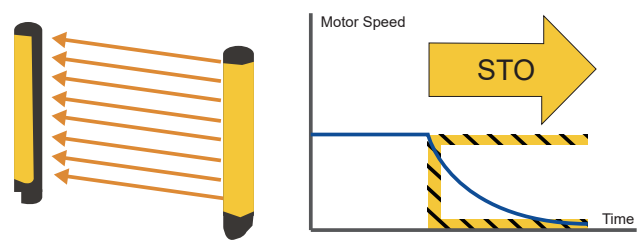


# Reliable operation

## STO Function Safety

Safe Torque Off is a hardware level safety function. While the STO function is enabled, the physical connection between motor and drive is disabled, thereby preventing the motor from being energized. This function is meant to protect personnel as well as equipment in emergency situations.

M56S series drive meets UL61800-5-2(SIL 3), IEC61508(SIL 3), ISO138491(PL e).



## Dynamic Braking

Dynamic braking can be used when a fault occurs at the motor or at the drive. Dynamic braking is implemented by short circuiting the U/V/W phases of the motor. This brings the motor to a stop at the highest deceleration rate and is meant to protect personnel and equipment.

Without Dynamic brake	With Dynamic brake
<p><b>Without Dynamic brake</b></p> <p>In this scenario, the driver exhibits a fault and is disabled. This results in the motor coming to an uncontrolled deceleration that is influenced purely by external factors such as the speed of the motor before fault, inertia of the system and the friction present in the system</p>	<p><b>Dynamic brake is in effect</b></p> <p>In this scenario, the driver exhibits a fault and the driver is disabled. The phases (U/V/W) of the servo motor are shorted and the current generated by the back EMF of the motor windings is used to stop the motor. This greatly reduces deceleration time and protects personnel as well as equipment.</p>

## Built-in Regenerative Absorbing Resistor

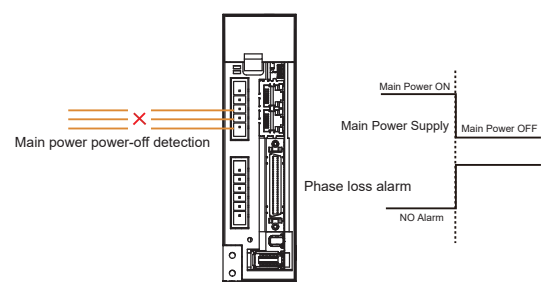
All M56S drives have built-in regenerative absorbing resistor, it can consume the regenerative energy generated when the motor and load decelerate rapidly, make sure the servo system can stop quickly and operate reliably.

No additional regen resistor is required for most applications.



## Main Power Power-off & Phase Loss Detection

The M5 servo drives monitor main power and motor phase connections. Should either of these be lost, a fault will occur. This serves as an added protection measure against damage that might result from these issues.



## What's NEW

### Various Product Lineup

- ◆ Power Rating: 50W ~ 7.5kW
- ◆ Frame Size: 40/60/80/100/130/180mm
- ◆ Low / Medium / High Inertia Servo Motor



### Low, Medium, High Inertia Servo Motor

The SM3 series of servo motors with the same power provide a variety of moment of inertia options, choosing the right motor is conducive to optimizing the inertia ratio of load to motor and improving mechanical performance.

Low inertia motor	Medium inertia motor	High inertia motor
Suitable for most of applications ◆ Low inertia load ◆ High acceleration and deceleration ◆ Quick and frequent starting and stopping	Suitable for applications with low mechanical stiffness ◆ Belt and synchronous belt load ◆ Stability improvement during high-speed operation	Suitable for large inertia load ◆ Large inertia belt load ◆ Turntable with a large moment of inertia ◆ Low speed and high torque

### Various Encoder Motor

SM3 series servo motors can be equipped with a variety of encoders, for different applications, choosing the right encoder motor can improve the performance of the equipment and optimize the system cost.

#### 26-bit Absolute Single/Multi-turn Optical Encoder

- ◆ High resolution, up to 67,108,864 divisions per revolution
- ◆ Optional battery backup for 16-bit multi-turn

#### 21-bit Absolute Single/Multi-turn magnetic Encoder

- ◆ High resolution, up to 2,097,152 divisions per revolution
- ◆ Optional battery backup for 16-bit multi-turn
- ◆ Strong vibration resistance
- ◆ Resistant to dust and oil stains
- ◆ Anti condensation

#### 17-bit Battery-less Absolute Single/Multi-turn Encoder

- ◆ High resolution, up to 131,072 divisions pre revolution
- ◆ Battery-less for 16-bit multi-turn
- ◆ Reduced maintenance and costs due to lack of battery





## Smaller Size and Higher Efficiency

The servo motor adopts a new structure and magnetic circuit design, making the motor smaller and higher power density; At the same time, the electromagnetic scheme is optimized to improve the efficiency of the servo motor and reduce the heating.



## IP67 Protection Level

The SM3 series servo motors are designed to have IP67 protection against dust and water. (except the shaft through hole of the motor mounting face)

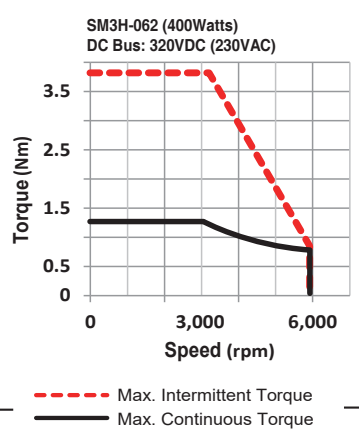
If the mounting face of the motor needs to meet the IP67 protection level, please install the oil seal.



Note: The installation of oil seal will bring extra torque loss. With oil seal, It is recommended to reduce the rating of motors with oil seals by 10%.

## High Speed Motor with 350% of Rated Torque

- ◆ The maximum speed of SM3 series servo motor is up to 6000rpm.
- ◆ 350% peak torque is conducive to providing higher acceleration and deceleration, leading to better manufacture efficiency and capacity.



## Various of Control Mode

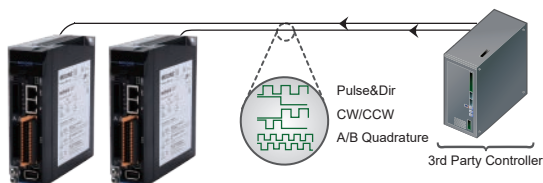
### Digital Pulse Position Modes

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

**Low-speed Open Collector Pulse Input:** 500kHz, 24VDC

**Low-speed Differential Input:** 500kHz, 5VDC

**High-speed Differential Input:** 4MHz, 5VDC

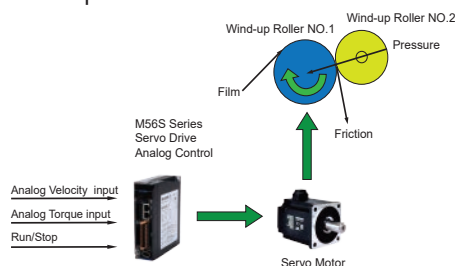


### Analog Input / Output Control Modes

Certain models have two analog inputs and two analog outputs.

-10V ~ +10V analog inputs can be used for analog velocity and analog torque control.

-10V ~ +10V analog outputs can be used to monitor the speed and torque of motor.



### Built-in Software PLC — Q Program

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:

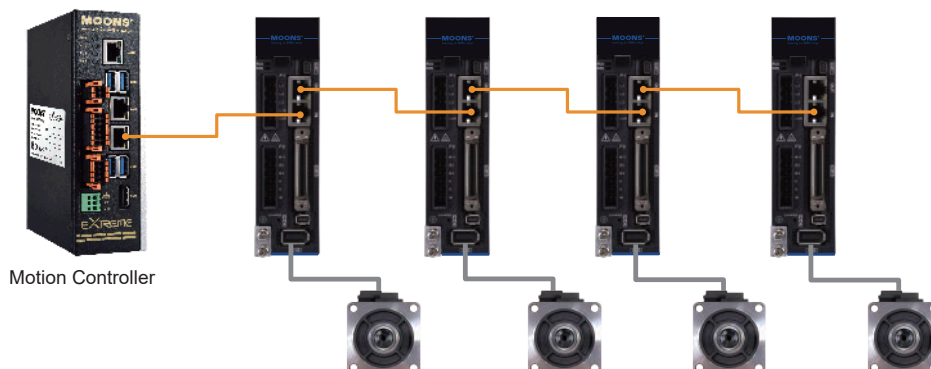
- Motion control commands (relative position, absolute position, homing mode, etc.)
- Multi-tasking
- Conditional Processing (external I/O, internal command)
- Math Calculation (+, -, \*, /, &, or)
- Data register manipulation
- Logic motion commands (loop, call functions)

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 99%
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/dec
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 Velocity 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
26	CC	2.5			Set current to normal
27	CP	5			Set peak current to normal
28	MT	0			Disable Multi-Tasking
...	...	...	...	...	...

### Field Bus Control

M56S servo system support various of industrial field bus options such as EtherCAT, CANopen, Modbus/RTU, Modbus/TCP, EtherNet/IP and Profinet.

EtherCAT® is a registered trademark, licensed by Beckhoff Automation GmbH.



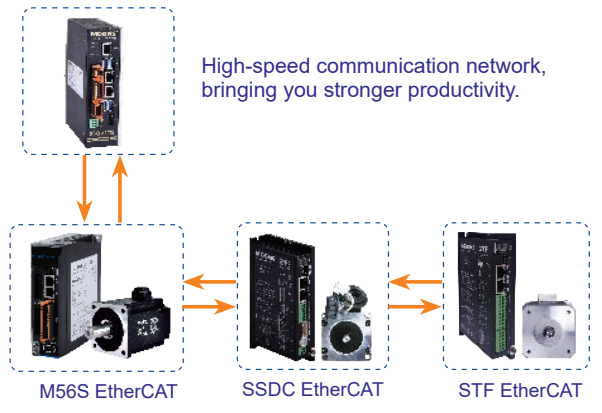
# Various of Field Bus

## EtherCAT



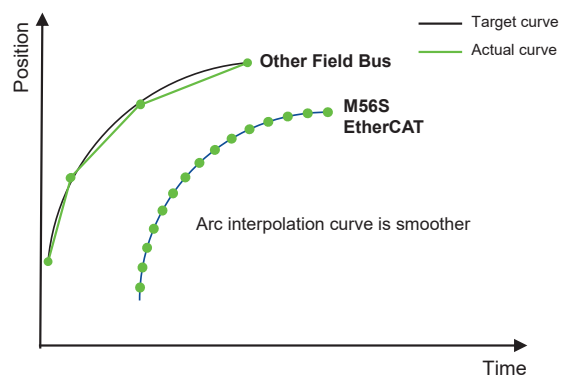
### High Speed, High Efficient

Full duplex, communication baud rate 100Mbps Support CoE(CiA 402 protocol), VoE (Vendor over EtherCAT) Support PP, PV, TQ, CSP, CSV, CST, HM mode, Full closed-loop mode  
Combine with MOONS' EtherCAT stepper series product, we can meet all your motion demands.



### High Performance

The synchronous cycle of M56S series EtherCAT products is up to 0.5ms, which technically makes the position command subdivision smaller, and the equipment movement smoother.



## CANopen



Standard CAN bus interface is available in M56S series servo drives, which makes it easy to get integrated to the industrial field bus.

Features	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
Communication Rate	12.5Kbps, 20Kbps, 50Kbps, 125Kbps, 250Kbps, 500Kbps, 800Kbps, 1Mbps
Message Type	SDO, PDO, SYNC, EMCY, NMT, Heartbeat
Control Mode	Profile Position, Profile Velocity, Profile Torque, Homing Mode, Q Program
PDO Data	4 RxPDOs, 4 TxPDOs
Support Axis	Up to 112 axis

## Modbus



M56S series servo drive supports Modbus communication protocol, it provides an easy motion control platform for modifying drive parameters, and monitor the status of the servo drive.

Features	Specification
Physical Layer Standard	RS-485, Ethernet
Communication Protocol	Modbus/RTU, Modbus/TCP
Bus Connector	RJ45
Communication Rate	RS-485: 9600bps, 19200bps, 38400bps, 57600bps, 115200bps Ethernet: 10/100Mbps
Control Mode	Position Mode, Velocity Mode, Torque Mode, Homing Mode, Q Program
Support Axis	Modbus/RTU: Up to 32 axis Modbus/TCP: The number of axes supported on the Ethernet depends on the network configuration.

## EtherNet/IP



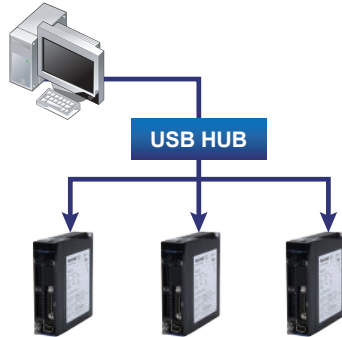
EtherNet/IP is an industrial Ethernet protocol based on Ethernet and TCP/IP. The M56S series of servo drivers provides motion control solutions based on EtherNet/IP communication protocols.

Features	Specification
Physical Layer Standard	Ethernet
Communication Protocol	EtherNet/IP
Bus Connector	RJ45
Communication Rate	Ethernet: 10/100Mbps
Control Mode	Position Mode, Velocity Mode, Torque Mode, Homing Mode, Q Program
Support Axis	The number of axes supported on the Ethernet depends on the network configuration.

## Friendly Software

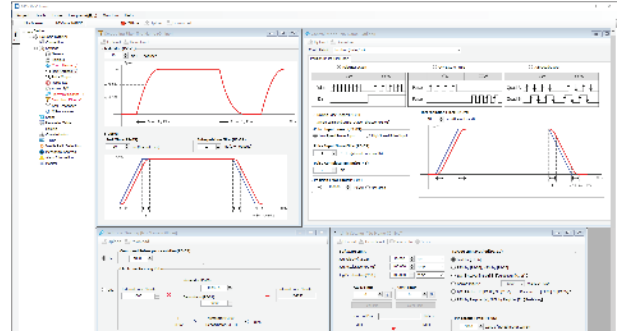
### USB Multi-axis Tuning

Based on USB communication, it can realize multi-axis tuning, simple and convenient.



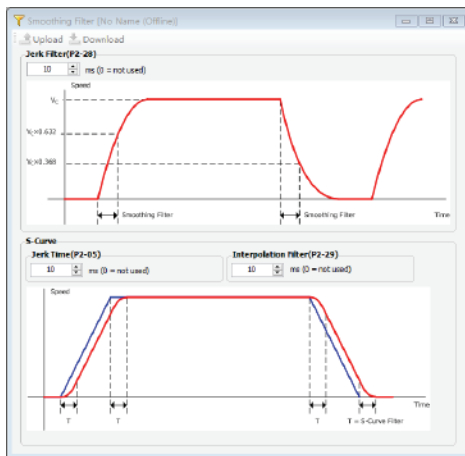
### Tree Structure

Newly designed tree-structure software, multi-window display, clear function classification.



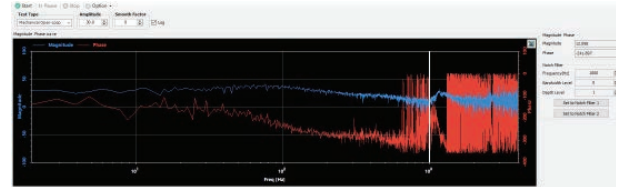
### Graphical Setting Interface

The setting interface adopts a simple and clear graphical interface, which can intuitively set the required functions.



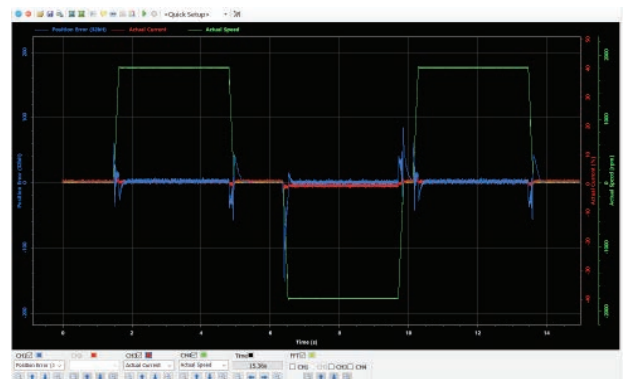
### Mechanical Analysis

Quickly diagnose the frequency characteristics of mechanical equipment and draw a Bode diagram. It can be used to detect the resonance point and frequency response characteristics of the machine, and quickly set the notch filter.



### Powerful Oscilloscope Function

- Real-time data curve display
- Up to 4 channels with 16bit data per channel and 8kHz sampling rate
- Up to 2 channels with 32bit data per channel and 8kHz sampling rate
- In the selected cursor area, display the maximum value, minimum value, root mean square, etc.
- Customizing trigger conditions
- Monitoring the operation status of the drive and the digital inputs and outputs



# General Specifications

## Safety Certification

M56 series products are designed to meet the following standards.



		Drive	Motor
Europe	EMC	EN 61800-3	EN 60034-1
			EN 61000-6-2
			EN 61000-6-4
	LVD	EN 61800-5-1	EN 60034-1
			EN 60034-5
Function Safety (STO)		UL61800-5-2(SIL 3)	
		IEC61508(SIL 3)	
		ISO13849-1(PL e)	
UL Standard	UL 61800-5-1		UL 1004-1
			UL 1004-6
	File No.E332730	File No.E525873	
CSA Standard	C22.2 No.274.13	CSA C22.2 No.100	

## Motor General Specifications

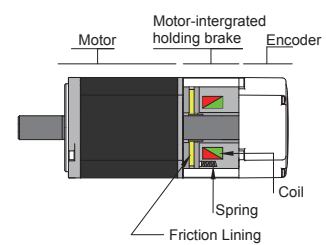
Insulation class	Class F (155°C )	Ambient temperature	Working temperature: 0°C ~ 40°C Storage temperature: -20°C ~ 60°C
Protection level	IP67 ( Except transfixion part of shaft )	Humidity	Storage and usage: 20 ~ 85%RH ( no condensation )
Installation conditions	indoor installation, avoiding direct sunlight, corrosive and flammable gas	Altitude	Derating is not required for altitudes not higher than 1000m Derating 1% for every additional 100m for altitudes between 1000m and 2000m
Vibration	Under 49m/s <sup>2</sup> , 10 ~ 60Hz(Do not use continuously at resonance frequency )		

## Brake Specifications

Motor brake is used to prevent motor from rotating by power off the servo system. The most common way of use is in vertical application, when the motor is disabled or powered off, in order to prevent the displacement of the mechanical mechanism driven by the motor due to gravity and other reasons, the servo motor with brake needs to be used.

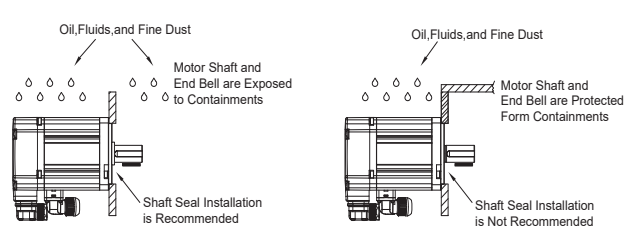
When the brake is powered on, the armature is retracted, the brake pad is released, and the motor can operate normally. When the brake is powered off, the armature is released, the brake pad is locked, and the motor can't rotate normally.

Frame	40mm	60mm	80mm	100mm	130mm	180mm
Static Friction Torque (Nm)	0.32	1.5	3.2	8.0	18.5	60
Rated Voltage (VDC)	24					
Power Waste (W @ 20°C)	6.3	7.2	9.6	14.4	24.3	52
Current (A)	0.26	0.3	0.4	0.6	1.05	2.16
Braking Time	< 70ms (Standard air gap, at 20°C)					
Release Time	<25ms					
Release Voltage	18.5VDC max.(at 20°C)					



## Shaft Seal

Industrial oil seals can block contaminants (oils, impurities) to extend the life of the motor. The oil seal will produce a certain resistance to the motor shaft, about 10% torque will be lost.



## Featured Function Application

### Full Closed-loop Control

The M5 series allows users to use an external encoder. This encoder is used along with the motor encoder to increase positioning accuracy during operation. Using two encoders in this manner is known as full closed-loop operation and can greatly increase servo responsiveness and reliability.



### More Functions

Position / Velocity / Torque Control
<p>Support position control, velocity control and torque control.</p> <ul style="list-style-type: none"> <li>Position control supports pulse, internal position or communication command for positioning.</li> <li>Velocity control supports analog, internal multi-segments velocity or communication commands.</li> <li>Torque control supports analog, internal torque or communication commands.</li> </ul>
Control Mode Switching
<p>Position control, speed control, and torque control can be switched using an external digital input. The P and R types of drive can switch between 2 control modes.</p>
Gain Switching Function
<p>The gain during operation and stop can be automatically switched under certain conditions. Or freely switch between the two sets of gains via digital input.</p>
Internal Multi-segment Velocity Function
<p>Velocity control is possible with digital inputs. 8 segments of velocity can be saved in the drive, and the corresponding internal velocity control commands can be selected via digital inputs.</p>
Pulse Input Inhibit Function
<p>When the pulse inhibit input signal is valid, the drive ignores the external pulse command and the motor decelerates to stop.</p>
Internal Software Position Limit
<p>In absolute value systems, the software position limit can be set to protect the device without the external limit sensor.</p>

Configurable Input and Output
<ul style="list-style-type: none"> <li>The input functions can be assigned to any of the digital input by parameters.</li> <li>The output functions can be assigned to any of the digital output by parameters.</li> </ul>
Encoder Feedback Output
<ul style="list-style-type: none"> <li>The motor encoder feedback and the second encoder feedback are output in A/B/Z pulse mode, and the pulse division output is supported.</li> <li>Support for pulse command By-pass output.</li> </ul>
Analog Input
<p>Support 2 analog voltage inputs for analog velocity control and torque control.</p>
Analog Monitor output
<p>2 analog output, real-time voltage output the command or actual speed, command or actual torque, or the actual position error of the motor.</p>
Zero Speed Clamp Function
<p>In the velocity control mode, when the zero speed clamp signal is valid, when the actual speed is less than the zero speed threshold value, the servo motor enters the zero position lock state. At this time, the internal position loop of the drive is activated, and even if the external force rotates the motor, it also returns to the clamping position.</p>
Stop Mode Setting
<p>When the drive servo off or fault, the stop type (free run, reduce speed, dynamic brake ) and the status after stopping can be selected.</p>
Moving Command Smoothing Filter
<p>The command smoothing function filters the position command and the speed command, which makes the servo motor run smoother even if the command is abrupt.</p>

Drive Part Numbering

# M56S - 2 3A0 R F - \*\*\*

- ① M56S Series
- ② Supply Voltage \*1
  - 2 --- Single/Three-Phase 220VAC
  - 3 --- Three-Phase 400VAC
- ④ Function Type
- ⑤ Model Type
- ⑥ Customization

\*1 Line to Line Voltage  
 \*2 Use Single/Three-Phase 220VAC input  
 \*3 Available for single-phase while the motor power is under 1.5kW  
 \*4 It will be released in the first quarter of 2024.

③ Current

Supply Voltage	Current	Rated Current A(rms)	Peak Current A(rms)	Rated Power
*2 2	1A8	1.8	5.4	200W
	3A0	3	12	400W
	4A5	4.5	15	750W
	6A0	6	21	1.0kW
	10A	10	30	1.5kW
*3 3	13A	13	45	2.5kW
	13A	13	40	3.0kW
	17A	17	42.5	5.0kW
	21A	21	52.5	6.0kW
	26A	26	65	7.5kW

Control Function Type

## Servo Drive

**-R RS-485**

**RS-485**

- ◆ Support Modbus/RTU
- ◆ Pulse Control
- ◆ Analog Control
- ◆ 2 Analog Inputs\*1
- ◆ 2 Analog Outputs\*1
- ◆ Position, Velocity, Torque Control
- ◆ Encoder feedback output
- ◆ Built-in Q program control function
- ◆ Full Closed Loop Control\*2
- ◆ Support STO(SIL3)\*2
- ◆ Dynamic Brake\*2
- ◆ USB(Configuration)

**-EC EtherCAT**

**EtherCAT**

- ◆ EtherCAT
- ◆ 2 Analog Inputs\*1
- ◆ 2 Analog Outputs\*1
- ◆ Position, Velocity, Torque Control
- ◆ Built-in Q program control function
- ◆ Full Closed Loop Control\*2
- ◆ Support STO(SIL3)\*2
- ◆ Dynamic Brake\*2
- ◆ USB(Configuration)

**-C CANopen**

**CANopen**

- ◆ CiA 301 & CiA 402 protocols
- ◆ 2 Analog Inputs\*1
- ◆ 2 Analog Outputs\*1
- ◆ Position, Velocity, Torque Control
- ◆ Built-in Q program control function
- ◆ Full Closed Loop Control\*2
- ◆ Support STO(SIL3)\*2
- ◆ Dynamic Brake\*2
- ◆ USB(Configuration)

**-IP EtherNet/IP型**

**EtherNet/IP**

- ◆ EtherNet/IP, Support Modbus/TCP
- ◆ 2 Analog Inputs\*1
- ◆ 2 Analog Outputs\*1
- ◆ Position, Velocity, Torque Control
- ◆ Built-in Q program control function
- ◆ Full Closed Loop Control\*2
- ◆ Support STO(SIL3)\*2
- ◆ Dynamic Brake\*2
- ◆ USB(Configuration)

Under developing...

**-PN Profinet型**






**PROFINET**

- ◆ Support Profinet protocols
- ◆ 2 Analog Inputs\*1
- ◆ 2 Analog Outputs\*1
- ◆ Position, Velocity, Torque Control
- ◆ Built-in Q program control function
- ◆ Full Closed Loop Control\*2
- ◆ Support STO(SIL3)\*2
- ◆ Dynamic Brake\*2
- ◆ USB(Configuration)

Under developing...

\*1\*2 Certain models don't support this function. Please refer to the drive list on page 16 for details.

## Servo Drive Table

Function Type		-R—RS-485	-EC—EtherCAT	-C—CANopen	-IP—EtherNet/IP	-PN—Profinet					
											
Model Type		F	D	X	N	X	N	X	N	X	N
Control Mode	Position Mode	●	●	●	●	●	●	●	●	●	●
	Velocity Mode	●	●	●	●	●	●	●	●	●	●
	Torque Mode	●	●	●	●	●	●	●	●	●	●
	Q Program	●	●	●	●	●	●	●	●	●	●
	Full Closed-loop Control	●		●		●		●		●	
Interface	5V Pulse Inputs	●	●								
	24V Pulse Inputs	●	●								
	2 Analog Inputs	●	●	●		●		●		●	
	2 Analog outputs	●		●		●		●		●	
	10 inputs/6 outputs (Digital)	●	●								
	8 inputs/4 outputs (Digital)			●	●	●	●	●	●	●	●
	Encoder Feedback Output	●	●								
	Second Encoder Input	●		●		●		●		●	
Comm Port	USB (Configuration)	●	●	●	●	●	●	●	●	●	●
	RS-485	●	●								
	EtherCAT			●	●						
	CANopen					●	●				
	EtherNet/IP							●	●		
	Modbus TCP							●	●		
	Profinet									●	●
Safty Function	Dynamic Brake	●		●		●		●		●	
	STO	●		●		●		●		●	

 Short delivery Type

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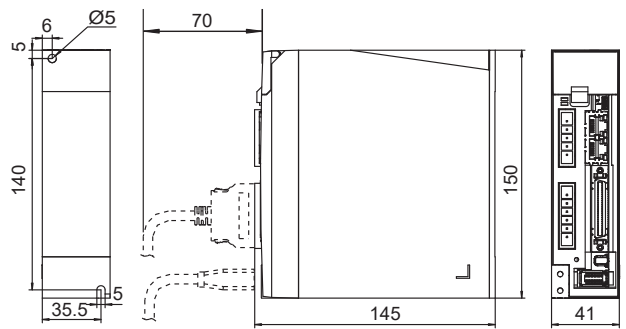
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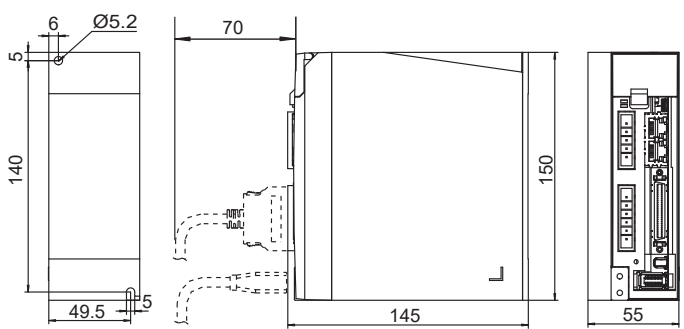


## Drive Mechanical Dimensions (Unit: mm)

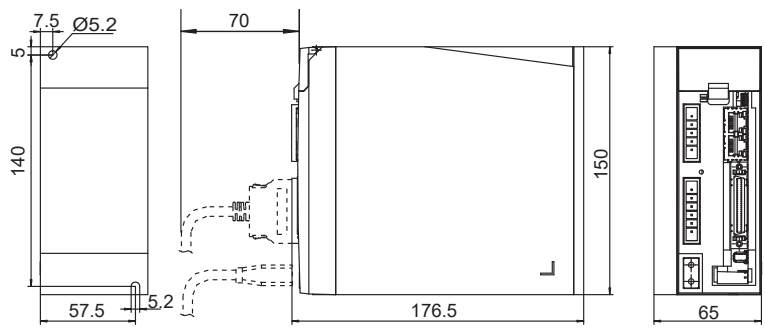
□ M56S-21A8 ■◆ (200W)



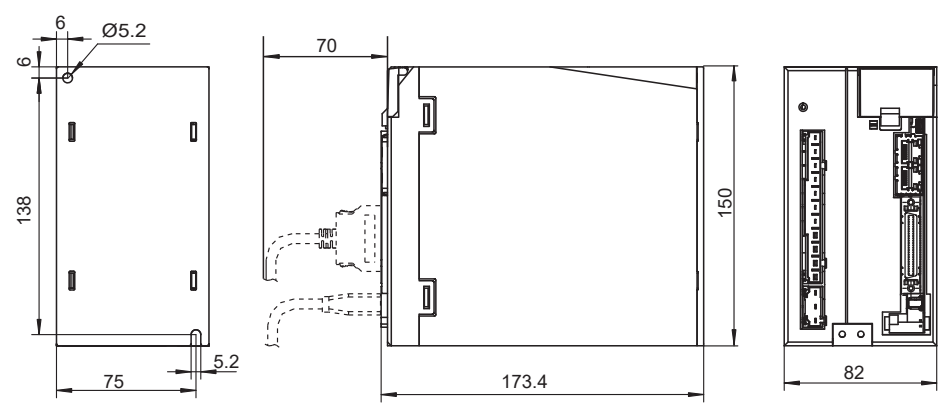
□ M56S-23A0 ■◆ (400W)



□ M56S-24A5 ■◆ (750W)



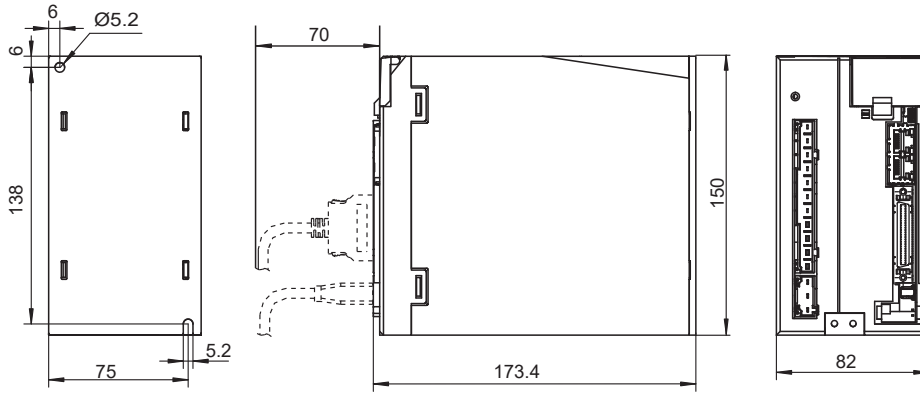
□ M56S-26A0 ■◆ (1.0kW)  
 M56S-210A ■◆ (1.5kW)  
 M56S-213A ■◆ (2.5kW)



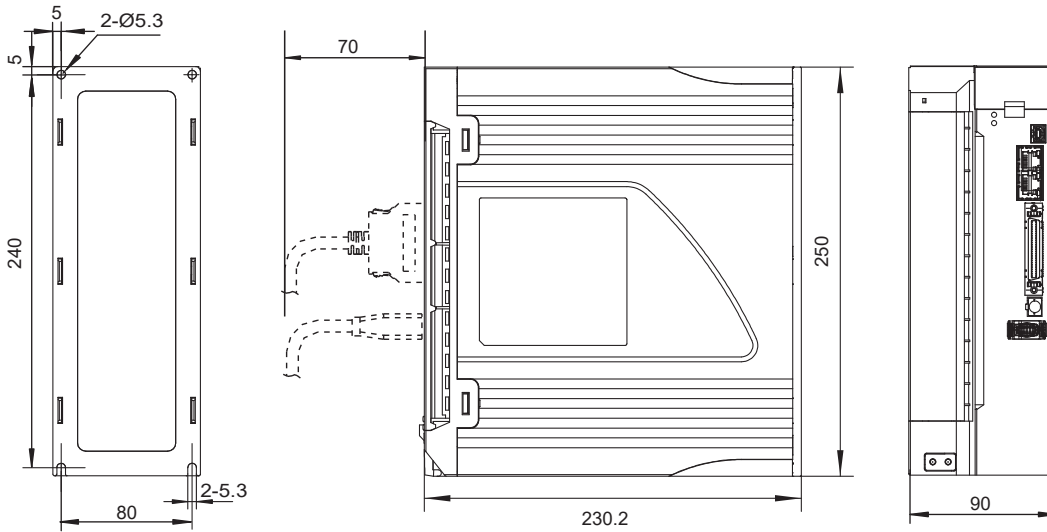
■: Function Type ◆: Model Type

Drive Mechanical Dimensions(Unit: mm)

□ M56S-313A ■◆ (3.0kW)



□ M56S-317A ■◆ (5.0kW)  
 M56S-321A ■◆ (6.0kW)  
 M56S-326A ■◆ (7.5kW)



■ : Function Type ◆ : Model Type

## Motor Part Numbering

**SM3 L - 13 2 A X N U V - \*\*\***

Servo Motor	
SM3 Series	

Inertia Type	
L	Low Inertia
M	Medium Inertia
H	High Inertia

Frame Size	
04	40mm
06	60mm
08	80mm
10	100mm
13	130mm
18	180mm

Motor Length	
1	1 Stacks
2	2 Stacks
3	3 Stacks
4	4 Stacks
5	5 Stacks

Voltage	
A	220VAC
Y	400VAC

**Custom Code**

Shaft	
N	Standard Keyway without oil seal
V	Standard keyway, oil seal shipped with motor, but not installed
K	Standard keyway with installed oil seal

Connector & Rear Cover Type	
D	Direct-mount with sealed plastic connector, metal rear cover
P	Direct-mount with sealed plastic connector, standard rear cover
U	Direct-mount with sealed metal straight connector, standard rear cover

Brake	
N	No brake
B	With brake(24VDC)

Encoder Type	
T <sup>1</sup>	26-bit Absolute Multi-turn Optical Encoder
X	21-bit Absolute Multi-turn Magnetic Encoder
B	17-bit Battery-less Absolute Multi-turn Encoder

Note: \*1 For 100/130/180mm frame size motor, the encoder resolution is 23-bit.

## Motor Products Table

Rated Power	Low Inertia		Medium Inertia		High Inertia		
	Frame Size	Rated Speed (Max.Speed)	Frame Size	Rated Speed (Max. Speed)	Frame Size	Rated Speed (Max. Speed)	
W	mm	rpm	mm	rpm	mm	rpm	
50					40	3000 (6000)	
100	40				40		
200	60				60		
400	60				60		
750	80				80		
850		3000 (6000)			130	1500 (3000)	
1000	80						
1000	100		130	2000 (3000)			130
1300							130
1500	100		130				
1800					130		
2000	100		130				
2500	100						
2900					180		
3000			130				
4400					180		
5500					180		
7500					180		

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Frame Size (mm)	Inertia Type	Rated Power (watts)	Rated Torque (N·m)	Peak Torque (N·m)	Rated Speed (rpm)	Max. Speed (rpm)	Rated Current A(rms)	Peak Current A(rms)	Matching Servo Motor				
									26-bit Absolute Multi-turn Optical Encoder	23-bit Absolute Multi-turn Optical Encoder	21-bit Absolute Multi-turn Magnetic Encoder		
40	High Inertia	50	0.16	0.64	3000	6000	1.4	4.8	SM3H-041AT □ P △	—	SM3H-041AX □ P △		
	Low Inertia	100	0.32	1.28			1.2	5.9	SM3L-042AT □ D △	—	SM3L-042AX □ D △		
	High Inertia		0.32	1.28			1.4	5.7	SM3H-042AT □ P △	—	SM3H-042AX □ P △		
60	Low Inertia	200	0.64	1.9			1.5	5.4	SM3L-061AT □ P △	—	SM3L-061AX □ P △		
	High Inertia		0.64	2.24			1.7	5.9	SM3H-061AT □ P △	—	SM3H-061AX □ P △		
	Low Inertia	400	1.27	3.8			2.8	10	SM3L-062AT □ P △	—	SM3L-062AX □ P △		
	High Inertia		1.27	4.44			2.8	9.8	SM3H-062AT □ P △	—	SM3H-062AX □ P △		
80	Low Inertia	750	2.4	6.7			4.5	14	SM3L-083AT □ P △	—	SM3L-083AX □ P △		
	High Inertia		2.4	8.4			4.5	16.7	SM3H-083AT □ P △	—	SM3H-083AX □ P △		
	Low Inertia	1000	3.2	9.6			5.6	19	SM3L-084AT □ P △	—	SM3L-084AX □ P △		
100	Low Inertia	1000	3.2	9.6			6000	6.0	21	—	SM3L-102AT □ U △	SM3L-102AX □ U △	
		1500	4.9	14.7			5700	9.6	30	—	SM3L-103AT □ U △	SM3L-103AX □ U △	
		2000	6.4	19.2	5600	12.7	44	—	SM3L-104AT □ U △	SM3L-104AX □ U △			
		2500	8	24	5600	13	45	—	SM3L-105AT □ U △	SM3L-105AX □ U △			
130	Medium Inertia	1000	4.77	14.3	2000	3000	5.4	16.9	—	SM3M-132AT □ U △	SM3M-132AX □ U △		
		1500	7.16	21.5			8.5	26	—	SM3M-133AT □ U △	SM3M-133AX □ U △		
		2000	9.55	28.6			11	32.7	—	SM3M-134AT □ U △	SM3M-134AX □ U △		
		3000	14.3	42.9			10.5	30	—	SM3M-135YT □ M △	SM3M-135YX □ M △		
	High Inertia	850	5.39	16.2			6	19	—	SM3H-132AT □ U △	SM3H-132AX □ U △		
		1300	8.34	25			9.6	29.6	—	SM3H-133AT □ U △	SM3H-133AX □ U △		
		1800	11.5	34.5			13	45	—	SM3H-134AT □ U △	SM3H-134AX □ U △		
180	High Inertia	2900	18.5	55.5	1500	3000	10.5	35.3	—	SM3H-182YT □ U △	—		
		4400	28	84			16.6	54.3	—	SM3H-183YT □ U △	—		
		5500	35	105			20.9	69.9	—	SM3H-184YT □ U △	—		
		7500	48	120			25.2	73.4	—	SM3H-185YT □ U △	—		

□ : Brake Options △ : Oil Seal Options Please refer to the numbering system of servo motor on page 19.

◆ : Motor Type Please refer to the numbering system of servo drive on page 15.

Motor		Matching Servo Drive				
	17-bit Battery-less Absolute Multi-turn Encoder	-R RS-485 Type	-EC EtherCAT Type	-C CANopen Type	-IP EtherNet/IP Type	-PN Profinet Type
	SM3L-042AB □ D △	M56S-21A8R ◆	M56S-21A8EC ◆	M56S-21A8C ◆	M56S-21A8IP ◆	M56S-21A8PN ◆
	SM3L-061AB □ D △					
	SM3L-062AB □ D △	M56S-23A0R ◆	M56S-23A0EC ◆	M56S-23A0C ◆	M56S-23A0IP ◆	M56S-23A0PN ◆
	SM3L-083AB □ D △	M56S-24A5R ◆	M56S-24A5EC ◆	M56S-24A5C ◆	M56S-24A5IP ◆	M56S-24A5PN ◆
	SM3L-084AB □ D △					
	—	M56S-26A0RF	M56S-26A0ECX	M56S-26A0CX	M56S-26A0IPX	M56S-26A0PNX
	—	M56S-210ARF	M56S-210AECX	M56S-210ACX	M56S-210AIPX	M56S-210APNX
	—	M56S-213ARF	M56S-213AECX	M56S-213ACX	M56S-213AIPX	M56S-213APNX
	—					
	—	M56S-26A0RF	M56S-26A0ECX	M56S-26A0CX	M56S-26A0IPX	M56S-26A0PNX
	—	M56S-210ARF	M56S-210AECX	M56S-210ACX	M56S-210AIPX	M56S-210APNX
	—	M56S-213ARF	M56S-213AECX	M56S-213ACX	M56S-213AIPX	M56S-213APNX
	—	M56S-313ARF	M56S-313AECX	M56S-313ACX	M56S-313AIPX	M56S-313APNX
	—	M56S-26A0RF	M56S-26A0ECX	M56S-26A0CX	M56S-26A0IPX	M56S-26A0PNX
	—	M56S-210ARF	M56S-210AECX	M56S-210ACX	M56S-210AIPX	M56S-210APNX
	—	M56S-213ARF	M56S-213AECX	M56S-213ACX	M56S-213AIPX	M56S-213APNX
	—	M56S-313ARF	M56S-313AECX	M56S-313ACX	M56S-313AIPX	M56S-313APNX
	—	M56S-317ARF	M56S-317AECX	M56S-317ACX	M56S-317AIPX	M56S-317APNX
	—	M56S-321ARF	M56S-321AECX	M56S-321ACX	M56S-321AIPX	M56S-321APNX
	—	M56S-326ARF	M56S-326AECX	M56S-326ACX	M56S-326AIPX	M56S-326APNX

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## Drive Specification

### -R—RS-485 Type 220VAC Specification

Input Power	M56S-21A8 ■◆	Main Circuit	Single / Three-phase, AC200 ~ 240V ± 10%, 50/60Hz						
	M56S-23A0 ■◆		Control Circuit	Single-phase, AC200 ~ 240V ± 10%, 50/60Hz					
	M56S-24A5 ■◆	Main Circuit		Three-phase, AC200 ~ 240V ± 10%, 50/60Hz					
	M56S-26A0RF		Control Circuit	Single-phase, AC200 ~ 240V ± 10%, 50/60Hz					
	M56S-210ARF	Main Circuit	Three-phase, AC200 ~ 240V ± 10%, 50/60Hz						
	M56S-213ARF		Control Circuit	Single-phase, AC200 ~ 240V ± 10%, 50/60Hz					
Withstand Voltage			Primary to earth: withstand 1500 VAC, 1 min, (Leakage current: 20 mA) [220V Input]						
Environment	Temperature		<ul style="list-style-type: none"> <li>Ambient temperature: 0°C ~ 55°C (If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location)</li> <li>Storage temperature: -20°C ~ 65°C</li> </ul>						
	Humidity		Both operating and storage : 10 ~ 85%RH or less						
	Altitude		Derating is not required for altitudes not higher than 1000m Derating 1% for every additional 100m for altitudes between 1000m and 2000m						
	Vibration		9.8m/s <sup>2</sup> or less, 10 ~ 60Hz (Do not use continuously at resonance frequency)						
Motor Encoder Feedback			<ul style="list-style-type: none"> <li>26-bit Absolute Multi-turn Optical Encoder</li> <li>21-bit Absolute Multi-turn Magnetic Encoder</li> <li>17-bit Battery-less Absolute Multi-turn Encoder</li> </ul>						
Second Encoder Feedback <sup>*1</sup>			A/B/Z phase signal differential input						
I/O	Digital Signal	Input	10 Configurable optically isolate digital general inputs, 24VDC, 20mA						
		Output	6 Configurable optically isolate digital general outputs, Max. 30VDC, 100mA						
	Analog Signal	Input	2 Analog inputs, -10 ~ +10V, 12bit						
		Output <sup>*2</sup>	2 Analog outputs, -10 ~ +10V, Max.10mA						
	Pulse Signal	Input	2 Pulse Inputs (Optocoupler input, Line Receiver input): <ul style="list-style-type: none"> <li>Optocoupler input: 5 ~ 24V, minimum pulse width 1μs, max. pulse frequency 500KHz</li> <li>Line Receiver input: 5V differential signal, minimum pulse width 0.125μs, max. pulse frequency 4MHz</li> </ul>						
		Output	4 Outputs(3 Line Driver outputs, 1 open collector output) <ul style="list-style-type: none"> <li>Line Driver output: Encoder A、B、Z feedback output</li> <li>Open collector output: Encoder Z phase</li> </ul>						
Comm Port	USB		Connection with PC for configuration						
	RS-485		Modbus/RTU Communication protocol						
Front Panel			4 keys (MODE, UP, DOWN, SET) 5 - digital LED Display						
Regeneration Resistor			<ul style="list-style-type: none"> <li>-F Type Built-in regenerative resistor</li> <li>-D Type 750W Built-in regenerative resistor</li> <li>All models can be equipped with external absorption resistors</li> </ul>						
Control Mode			1. Pulse Position Mode 2. Analog Velocity Mode 3. Analog Torque Mode 4. Internal Position Mode 5. Internal Torque Mode 6. Internal Velocity Mode 7. Command Torque Mode 8. Full Closed Loop Control Mode <sup>*3</sup> , Each control mode can be switched by digital input						
Control Input Signal			Servo-ON, Alarm Reset, CW/CCW Limit, Control Mode Select, Gain Select, Clear Position Error, Zero Speed Clamp, Command and Velocity input Direction control, Command and Torque input Direction control, Emergency Stop, Homing Switch, Torque Limit, Speed Limit, Pulse Inhibit, Multi-velocity Switch, Start Q Program, General Purpose Input						
Control Output Signal			Warning Output, Fault Output, Servo Ready, Velocity Reached, Torque Reached, Position Reached, Servo-on Status, Brake Release, Dynamic Position Error Following, Positioning Complete, Zero Speed Detected, Velocity Coincidence, Torque Coincidence, Velocity limit, Torque limit, Homing Finished, Soft Limit CW/CCW, General Purpose Output						
Protection			Over Current, Over Voltage, Under Voltage, Over Temperature, Bad Encoder Feedback, Over Load, Over Speed, Position Error, STO, CW/CCW Limit, Full Closed-loop Hybrid Deviation Fault, Main Power Phase Loss						
Dynamic Brake			-F Built in						
STO			-F Built in						
Weight			<table border="0"> <tr> <td>M56S-21A8 ■◆: 0.8Kg</td> <td>M56S-26A0RF: 1.9Kg</td> </tr> <tr> <td>M56S-23A0 ■◆: 1.1Kg</td> <td>M56S-210ARF: 1.9Kg</td> </tr> <tr> <td>M56S-24A5 ■◆: 1.6Kg</td> <td>M56S-213ARF: 1.9Kg</td> </tr> </table>	M56S-21A8 ■◆: 0.8Kg	M56S-26A0RF: 1.9Kg	M56S-23A0 ■◆: 1.1Kg	M56S-210ARF: 1.9Kg	M56S-24A5 ■◆: 1.6Kg	M56S-213ARF: 1.9Kg
M56S-21A8 ■◆: 0.8Kg	M56S-26A0RF: 1.9Kg								
M56S-23A0 ■◆: 1.1Kg	M56S-210ARF: 1.9Kg								
M56S-24A5 ■◆: 1.6Kg	M56S-213ARF: 1.9Kg								

注: \*1, \*2, \*3 -RD models don't support this function, please refer to page16 Servo Drive Table.

■: Control Function Type ◆: Model Type

## Drive Specification

### -R—RS-485 Type 400VAC Specification

Input Power	M56S-313ARF	Main Circuit	Three-phase, AC380 ~ 480V ± 10%, 50/60Hz
	M56S-317ARF	Control Circuit	Single-phase, AC380 ~ 480V ± 10%, 50/60Hz
Withstand Voltage		Primary to earth: withstand 1800 VAC, 1 min, (Leakage current: 20 mA) [220V Input]	
Environment	Temperature		<ul style="list-style-type: none"> <li>Ambient temperature: 0°C ~ 55°C (If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location)</li> <li>Storage temperature: -20°C ~ 65°C</li> </ul>
	Humidity		Both operating and storage : 10 ~ 85%RH or less
	Altitude		Derating is not required for altitudes not higher than 1000m Derating 1% for every additional 100m for altitudes between 1000m and 2000m
	Vibration		9.8m/s <sup>2</sup> or less, 10 ~ 60Hz (Do not use continuously at resonance frequency)
Motor Encoder Feedback			<ul style="list-style-type: none"> <li>23-bit Absolute Multi-turn Optical Encoder</li> <li>21-bit Absolute Multi-turn Magnetic Encoder</li> </ul>
Second Encoder Feedback			A/B/Z phase signal differential input
I/O	Digital Signal	Input	10 Configurable optically isolate digital general inputs, 24VDC, 20mA
		Output	6 Configurable optically isolate digital general outputs, Max. 30VDC, 100mA
	Analog Signal	Input	2 Analog inputs, -10 ~ +10V, 12bit
		Output	2 Analog outputs, -10 ~ +10V, Max.10mA
	Pulse Signal	Input	2 Pulse Inputs (Optocoupler input, Line Receiver input): <ul style="list-style-type: none"> <li>Optocoupler input: 5 ~ 24V, minimum pulse width 1μs, max. pulse frequency 500KHz</li> <li>Line Receiver input: 5V differential signal, minimum pulse width 0.125μs, max. pulse frequency 4MHz</li> </ul>
		Output	4 Outputs(3 Line Driver outputs, 1 open collector output) <ul style="list-style-type: none"> <li>Line Driver output: Encoder A、 B、 Z feedback output</li> <li>Open collector output: Encoder Z phase</li> </ul>
Comm Port	USB		Connection with PC for configuration
	RS-485		Modbus/RTU Communication protocol
Front Panel			4 keys (MODE, UP, DOWN, SET) 5 - digital LED Display
Regeneration Resistor			Built-in regenerative resistor (All models can be equipped with external absorption resistors)
Control Mode			1. Pulse Position Mode 2. Analog Velocity Mode 3. Analog Torque Mode 4. Internal Position Mode 5. Internal Torque Mode 6. Internal Velocity Mode 7. Command Torque Mode 8. Full Closed Loop Control Mode <sup>3</sup> , Each control mode can be switched by digital input
Control Input Signal			Servo-ON, Alarm Reset, CW/CCW Limit, Control Mode Select, Gain Select, Clear Position Error, Zero Speed Clamp, Command and Velocity input Direction control, Command and Torque input Direction control, Emergency Stop, Homing Switch, Torque Limit, Speed Limit, Pulse Inhibit, Multi-velocity Switch, Start Q Program, General Purpose Input
Control Output Signal			Warning Output, Fault Output, Servo Ready, Velocity Reached, Torque Reached, Position Reached, Servo-on Status, Brake Release, Dynamic Position Error Following, Positioning Complete, Zero Speed Detected, Velocity Coincidence, Torque Coincidence, Velocity limit, Torque limit, Homing Finished, Soft Limit CW/CCW, General Purpose Output
Protection			Over Current, Over Voltage, Under Voltage, Over Temperature, Bad Encoder Feedback, Over Load, Over Speed, Position Error, STO, CW/CCW Limit, Full Closed-loop Hybrid Deviation Fault, Main Power Phase Loss
Dynamic Brake			Built in
STO			Built in
Weight			M56S-313ARF: 1.9Kg      M56S-321ARF: 3.8Kg M56S-317ARF: 3.8Kg      M56S-326ARF: 3.8Kg

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## Drive Specification

-EC—EtherCAT Type   -C—CANopen Type  
220VAC Specification

Input Power	M56S-21A8 ■◆	Main Circuit	Single / Three-phase, AC200 ~ 240V ±10%, 50/60Hz	
	M56S-23A0 ■◆		Control Circuit	Single-phase, AC200 ~ 240V ±10%, 50/60Hz
	M56S-24A5 ■◆	Main Circuit		Three-phase, AC200 ~ 240V ±10%, 50/60Hz
	M56S-26A0 ■ X		Control Circuit	Single-phase, AC200 ~ 240V ±10%, 50/60Hz
Withstand Voltage				Primary to earth: withstand 1500 VAC, 1 min, (Leakage current: 20 mA) [220V Input]
Environment	Temperature		<ul style="list-style-type: none"> <li>● Ambient temperature: 0°C ~ 55°C (If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location)</li> <li>● Storage temperature: -20°C ~ 65°C</li> </ul>	
	Humidity		Both operating and storage : 10 ~ 85%RH or less	
	Altitude		Derating is not required for altitudes not higher than 1000m Derating 1% for every additional 100m for altitudes between 1000m and 2000m	
	Vibration		9.8m/s <sup>2</sup> or less, 10 ~ 60Hz (Do not use continuously at resonance frequency)	
Motor Encoder Feedback			<ul style="list-style-type: none"> <li>● 26-bit Absolute Multi-turn Optical Encoder</li> <li>● 21-bit Absolute Multi-turn Magnetic Encoder</li> <li>● 17-bit Battery-less Absolute Multi-turn Encoder</li> </ul>	
Second Encoder Feedback* <sup>1</sup>			A/B/Z phase signal differential input	
I/O	Digital Signal	Input	8 Configurable optically isolate digital general inputs, 24VDC, 20mA	
		Output	4 Configurable optically isolate digital general outputs, Max. 30VDC, 100mA	
	Analog Signal	Input	2 Analog inputs, -10 ~ +10V, 12bit	
		Output* <sup>2</sup>	2 Analog outputs, -10 ~ +10V, Max.10mA	
Comm Port	USB		Connection with PC for configuration	
	EtherCAT		-EC Control Function Type: EtherCAT Communication	
	CANopen		-C Control Function Type: CANopen Communication	
Front Panel			4 keys (MODE, UP, DOWN, SET) 5 - digital LED Display	
Regeneration Resistor			<ul style="list-style-type: none"> <li>● -X Type regenerative resistor</li> <li>● -N Type 750W Built-in regenerative resistor</li> <li>● All models can be equipped with external absorption resistors</li> </ul>	
Control Mode			-EC Control Function Type: CoE(Complies with CiA402 standard), Support PP, PV, TQ, CSP, CSV, CST and HM mode, Full Closed Loop Control Mode* <sup>3</sup> , Q programs that are pre-stored in the drive can also be started with EtherCAT instructions  -C Control Function Type: Complies with CiA402 standard, Support PP, PV, TQ and HM mode, Full Closed Loop Control Mode* <sup>3</sup> , Q programs that are pre-stored in the drive can also be started with CANopen instructions	
Control Input Signal			Alarm Reset, CW/CCW Limit, Gain Select, Zero Speed Clamp, Emergency Stop, CW/CCW Torque Limit, Speed Limit, General Purpose Input	
Control Output Signal			Warning Output, Fault Output, Servo Ready, Velocity Reached, Torque Reached, Position Reached, Servo-on Status, Brake Release, Dynamic Position Error Following, Positioning Complete, Zero Speed Detected, Velocity Coincidence, Torque Coincidence, Velocity limit, Torque limit, Homing Finished, Soft Limit CW/CCW, General Purpose Output	
Protection			Over Current, Over Voltage, Under Voltage, Over Temperature, Bad Encoder Feedback, Over Load, Over Speed, Position Error, STO, CW/CCW Limit, Full Closed-loop Hybrid Deviation Fault, Main Power Phase Loss	
Dynamic Brake			-X Built in	
STO			-X Built in	
Weight			M56S-21A8 ■◆: 0.8Kg                      M56S-26A0 ■ X: 1.9Kg M56S-23A0 ■◆: 1.1Kg                    M56S-210A ■ X: 1.9Kg M56S-24A5 ■◆: 1.6Kg                    M56S-213A ■ X: 1.9Kg	

**Note:** \*1, \*2, \*3 Certain models don't support this function, please refer to page16 Servo Drive Table.

■: Control Function Type   ◆: Model Type



## Drive Specification

-EC—EtherCAT Type -C—CANopen Type  
400VAC Specification

Input Power	M56S-313A ■ X M56S-317A ■ X M56S-321A ■ X M56S-326A ■ X	Main Circuit	Three-phase, AC380 ~ 480V ± 10%, 50/60Hz
		Control Circuit	Single-phase, AC380 ~ 480V ± 10%, 50/60Hz
Withstand Voltage		Primary to earth: withstand 1800 VAC, 1 min, (Leakage current: 20 mA) [220V Input]	
Environment	Temperature		<ul style="list-style-type: none"> <li>● Ambient temperature: 0°C ~ 55°C (If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location)</li> <li>● Storage temperature: -20°C ~ 65°C</li> </ul>
	Humidity		Both operating and storage : 10 ~ 85%RH or less
	Altitude		Derating is not required for altitudes not higher than 1000m Derating 1% for every additional 100m for altitudes between 1000m and 2000m
	Vibration		9.8m/s <sup>2</sup> or less, 10 ~ 60Hz (Do not use continuously at resonance frequency)
Motor Encoder Feedback		<ul style="list-style-type: none"> <li>● 23-bit Absolute Multi-turn Optical Encoder</li> <li>● 21-bit Absolute Multi-turn Magnetic Encoder</li> </ul>	
Second Encoder Feedback		A/B/Z phase signal differential input	
I/O	Digital Signal	Input	8 Configurable optically isolate digital general inputs, 24VDC, 20mA
		Output	4 Configurable optically isolate digital general outputs, Max. 30VDC, 100mA
	Analog Signal	Input	2 Analog inputs, -10 ~ +10V, 12bit
		Output	2 Analog outputs, -10 ~ +10V, Max.10mA
Comm Port	USB		Connection with PC for configuration
	EtherCAT		-EC Control Function Type: EtherCAT Communication
	CANopen		-C Control Function Type: CANopen Communication
Front Panel		4 keys (MODE, UP, DOWN, SET) 5 - digital LED Display	
Regeneration Resistor		Built-in regenerative resistor (All models can be equipped with external absorption resistors)	
Control Mode		-EC Control Function Type: CoE(Complies with CiA402 standard), Support PP, PV, TQ, CSP, CSV, CST and HM mode, Full Closed Loop Control Mode <sup>*3</sup> , Q programs that are pre-stored in the drive can also be started with EtherCAT instructions -C Control Function Type: Complies with CiA402 standard, Support PP, PV, TQ and HM mode, Full Closed Loop Control Mode <sup>*3</sup> , Q programs that are pre-stored in the drive can also be started with CANopen instructions	
Control Input Signal		Alarm Reset, CW/CCW Limit, Gain Select, Zero Speed Clamp, Emergency Stop, CW/CCW Torque Limit, Speed Limit, General Purpose Input	
Control Output Signal		Warning Output, Fault Output, Servo Ready, Velocity Reached, Torque Reached, Position Reached, Servo-on Status, Brake Release, Dynamic Position Error Following, Positioning Complete, Zero Speed Detected, Velocity Coincidence, Torque Coincidence, Velocity limit, Torque limit, Homing Finished, Soft Limit CW/CCW, General Purpose Output	
Protection		Over Current, Over Voltage, Under Voltage, Over Temperature, Bad Encoder Feedback, Over Load, Over Speed, Position Error, STO, CW/CCW Limit, Full Closed-loop Hybrid Deviation Fault, Main Power Phase Loss	
Dynamic Brake		Built in	
STO		Built in	
Weight		M56S-313A ■ X: 1.9Kg M56S-317A ■ X: 3.8Kg	M56S-321A ■ X: 3.8Kg M56S-326A ■ X: 3.8Kg

Note: ■ : Control Function Type

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## Drive Specification

-IP—EtherNet/IP Type -PN—Profinet Type  
220VAC Specification

Input Power	M56S-21A8 ■◆	Main Circuit	Single / Three-phase, AC200 ~ 240V ± 10%, 50/60Hz						
	M56S-23A0 ■◆		Control Circuit	Single-phase, AC200 ~ 240V ± 10%, 50/60Hz					
	M56S-24A5 ■◆	Main Circuit		Three-phase, AC200 ~ 240V ± 10%, 50/60Hz					
	M56S-26A0 ■ X			Control Circuit	Single-phase, AC200 ~ 240V ± 10%, 50/60Hz				
	M56S-210A ■ X	Control Circuit	Single-phase, AC200 ~ 240V ± 10%, 50/60Hz						
M56S-213A ■ X									
Withstand Voltage			Primary to earth: withstand 1500 VAC, 1 min, (Leakage current: 20 mA) [220V Input]						
Environment	Temperature		<ul style="list-style-type: none"> <li>Ambient temperature: 0°C ~ 55°C (If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location)</li> <li>Storage temperature: -20°C ~ 65°C</li> </ul>						
	Humidity		Both operating and storage : 10 ~ 85%RH or less						
	Altitude		Derating is not required for altitudes not higher than 1000m Derating 1% for every additional 100m for altitudes between 1000m and 2000m						
	Vibration		9.8m/s <sup>2</sup> or less, 10 ~ 60Hz (Do not use continuously at resonance frequency)						
Motor Encoder Feedback			<ul style="list-style-type: none"> <li>26-bit Absolute Multi-turn Optical Encoder</li> <li>21-bit Absolute Multi-turn Magnetic Encoder</li> <li>17-bit Battery-less Absolute Multi-turn Encoder</li> </ul>						
Second Encoder Feedback <sup>*1</sup>			A/B/Z phase signal differential input						
I/O	Digital Signal	Input	8 Configurable optically isolate digital general inputs, 24VDC, 20mA						
		Output	4 Configurable optically isolate digital general outputs, Max. 30VDC, 100mA						
	Analog Signal	Input	2 Analog inputs, -10 ~ +10V, 12bit						
		Output <sup>*2</sup>	2 Analog outputs, -10 ~ +10V, Max.10mA						
Comm Port	USB		Connection with PC for configuration						
	EtherNet/IP		-IP Control Function Type: EtherNet/IP、Modbus TCP Communication						
	Profinet		-PN Control Function Type: Profinet Communication						
Front Panel			4 keys (MODE, UP, DOWN, SET) 5 - digital LED Display						
Regeneration Resistor			<ul style="list-style-type: none"> <li>-X Type regenerative resistor</li> <li>-N Type 750W Built-in regenerative resistor</li> <li>All models can be equipped with external absorption resistors</li> </ul>						
Control Mode			1. Position Mode 2. Velocity Mode 3. orque Mode 4. Full Closed Loop Control Mode <sup>*3</sup> , 5.The pre-stored Q program in the drive can also be started by command and each control mode can be switched by digital input						
Control Input Signal			Alarm Reset, CW/CCW Limit, Gain Select, Zero Speed Clamp, Emergency Stop, CW/CCW Torque Limit, Speed Limit, General Purpose Input						
Control Output Signal			Warning Output, Fault Output, Servo Ready, Velocity Reached, Torque Reached, Position Reached, Servo-on Status, Brake Release, Dynamic Position Error Following, Positioning Complete, Zero Speed Detected, Velocity Coincidence, Torque Coincidence, Velocity limit, Torque limit, Homing Finished, Soft Limit CW/CCW, General Purpose Output						
Protection			Over Current, Over Voltage, Under Voltage, Over Temperature, Bad Encoder Feedback, Over Load, Over Speed, Positon Error, STO, CW/CCW Limit, Full Closed-loop Hybrid Deviation Fault, Main Power Phase Loss						
Dynamic Brake			-X Built in						
STO			-X Built in						
Weight			<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">M56S-21A8 ■◆: 0.8Kg</td> <td style="width: 50%;">M56S-26A0 ■ X: 1.9Kg</td> </tr> <tr> <td>M56S-23A0 ■◆: 1.1Kg</td> <td>M56S-210A ■ X: 1.9Kg</td> </tr> <tr> <td>M56S-24A5 ■◆: 1.6Kg</td> <td>M56S-213A ■ X: 1.9Kg</td> </tr> </table>	M56S-21A8 ■◆: 0.8Kg	M56S-26A0 ■ X: 1.9Kg	M56S-23A0 ■◆: 1.1Kg	M56S-210A ■ X: 1.9Kg	M56S-24A5 ■◆: 1.6Kg	M56S-213A ■ X: 1.9Kg
M56S-21A8 ■◆: 0.8Kg	M56S-26A0 ■ X: 1.9Kg								
M56S-23A0 ■◆: 1.1Kg	M56S-210A ■ X: 1.9Kg								
M56S-24A5 ■◆: 1.6Kg	M56S-213A ■ X: 1.9Kg								

**Note:** \*1, \*2, \*3 Certain models don't support this function, please refer to page16 Servo Drive Table.

■: Control Function Type ◆: Model Type

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Motor Specification

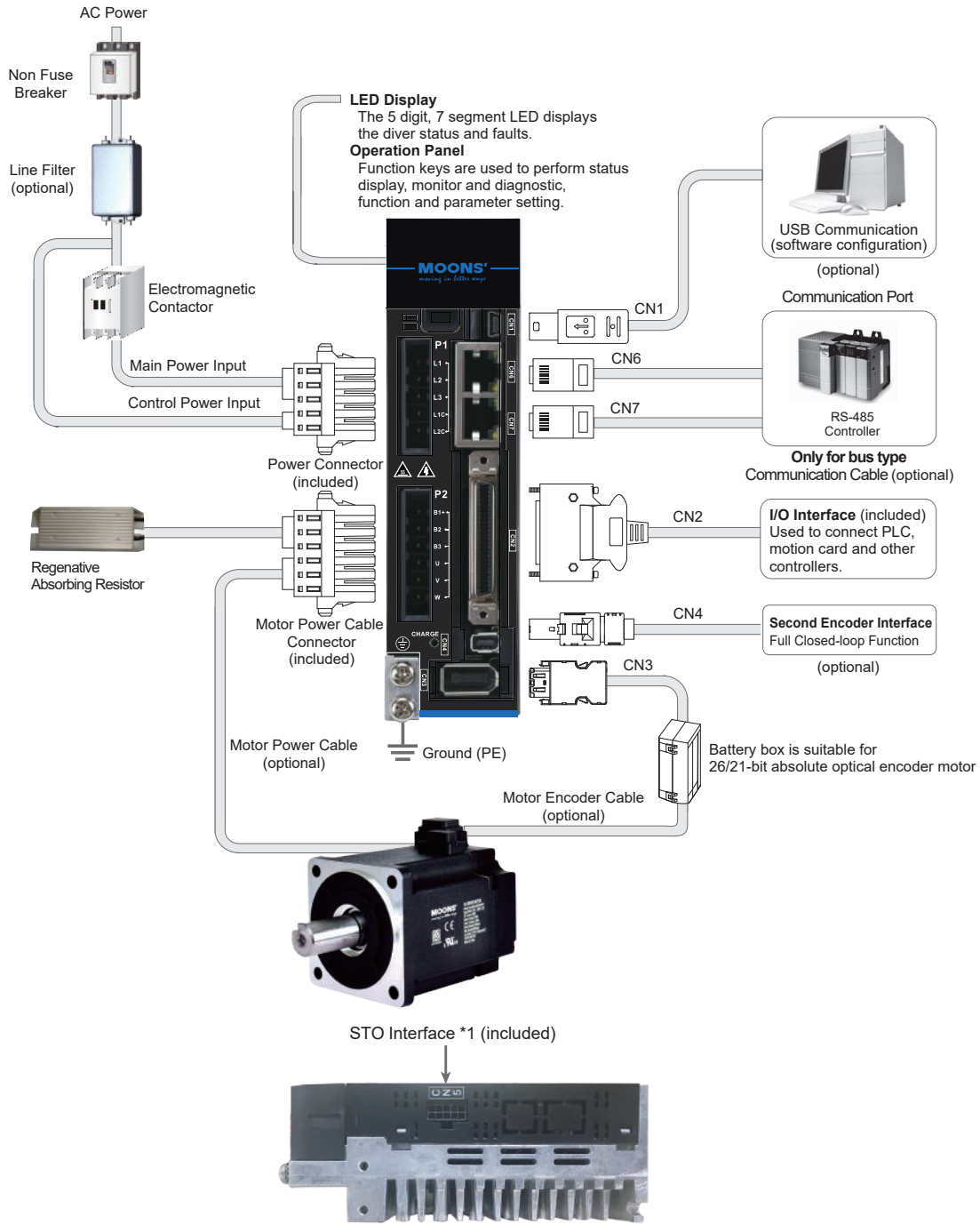
Accessories

## Drive Specification

-IP—EtherNet/IP Type -PN—Profinet Type  
400VAC Specification

Input Power	M56S-313A ■ X M56S-317A ■ X M56S-321A ■ X M56S-326A ■ X	Main Circuit	Three-phase, AC380 ~ 480V ±10%, 50/60Hz
		Control Circuit	Single-phase, AC380 ~ 480V ±10%, 50/60Hz
Withstand Voltage		Primary to earth: withstand 1800 VAC, 1 min, (Leakage current: 20 mA) [220V Input]	
Environment	Temperature		<ul style="list-style-type: none"> <li>Ambient temperature: 0°C ~ 55°C (If the ambient temperature of servo drive is higher than 45°C, please install the drive in a well-ventilated location)</li> <li>Storage temperature: -20°C ~ 65°C</li> </ul>
	Humidity		Both operating and storage : 10 ~ 85%RH or less
	Altitude		Derating is not required for altitudes not higher than 1000m Derating 1% for every additional 100m for altitudes between 1000m and 2000m
	Vibration		9.8m/s <sup>2</sup> or less, 10 ~ 60Hz (Do not use continuously at resonance frequency)
Motor Encoder Feedback		<ul style="list-style-type: none"> <li>23-bit Absolute Multi-turn Optical Encoder</li> <li>21-bit Absolute Multi-turn Magnetic Encoder</li> </ul>	
Second Encoder Feedback		A/B/Z phase signal differential input	
I/O	Digital Signal	Input	8 Configurable optically isolate digital general inputs, 24VDC, 20mA
		Output	4 Configurable optically isolate digital general outputs, Max. 30VDC, 100mA
	Analog Signal	Input	2 Analog inputs, -10 ~ +10V, 12bit
		Output	2 Analog outputs, -10 ~ +10V, Max.10mA
Comm Port	USB		Connection with PC for configuration
	EtherNet/IP		-IP Control Function Type: EtherNet/IP, Modbus TCP Communication
	Profinet		-PN Control Function Type: Profinet Communication
Front Panel		4 keys (MODE, UP, DOWN, SET) 5 - digital LED Display	
Regeneration Resistor		Built-in regenerative resistor (All models can be equipped with external absorption resistors)	
Control Mode		1. Position Mode 2. Velocity Mode 3. orque Mode 4. Full Closed Loop Control Mode <sup>*3</sup> , 5.The pre-stored Q program in the drive can also be started by command and each control mode can be switched by digital input	
Control Input Signal		Alarm Reset, CW/CCW Limit, Gain Select, Zero Speed Clamp, Emergency Stop, CW/CCW Torque Limit, Speed Limit, General Purpose Input	
Control Output Signal		Warning Output, Fault Output, Servo Ready, Velocity Reached, Torque Reached, Position Reached, Servo-on Status, Brake Release, Dynamic Position Error Following, Positioning Complete, Zero Speed Detected, Velocity Coincidence, Torque Coincidence, Velocity limit, Torque limit, Homing Finished, Soft Limit CW/CCW, General Purpose Output	
Protection		Over Current, Over Voltage, Under Voltage, Over Temperature, Bad Encoder Feedback, Over Load, Over Speed, Positon Error, STO, CW/CCW Limit, Full Closed-loop Hybrid Deviation Fault, Main Power Phase Loss	
Dynamic Brake		Built in	
STO		Built in	
Weight		M56S-313A ■ X: 1.9Kg M56S-317A ■ X: 3.8Kg	M56S-321A ■ X: 3.8Kg M56S-326A ■ X: 3.8Kg

Note: ■ : Control Function Type

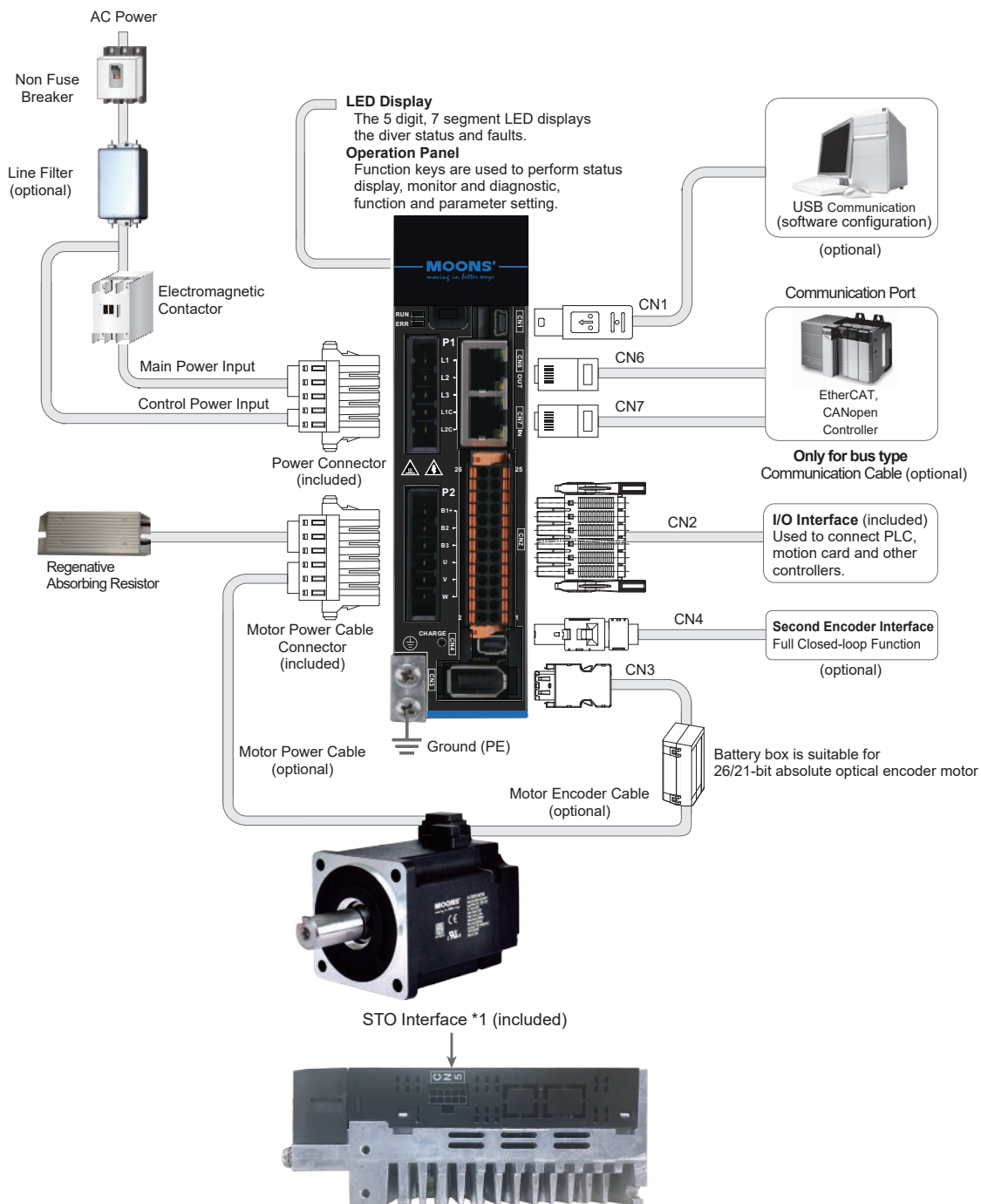


Note: \*1 Certain models don't support this function, please refer to page 16.

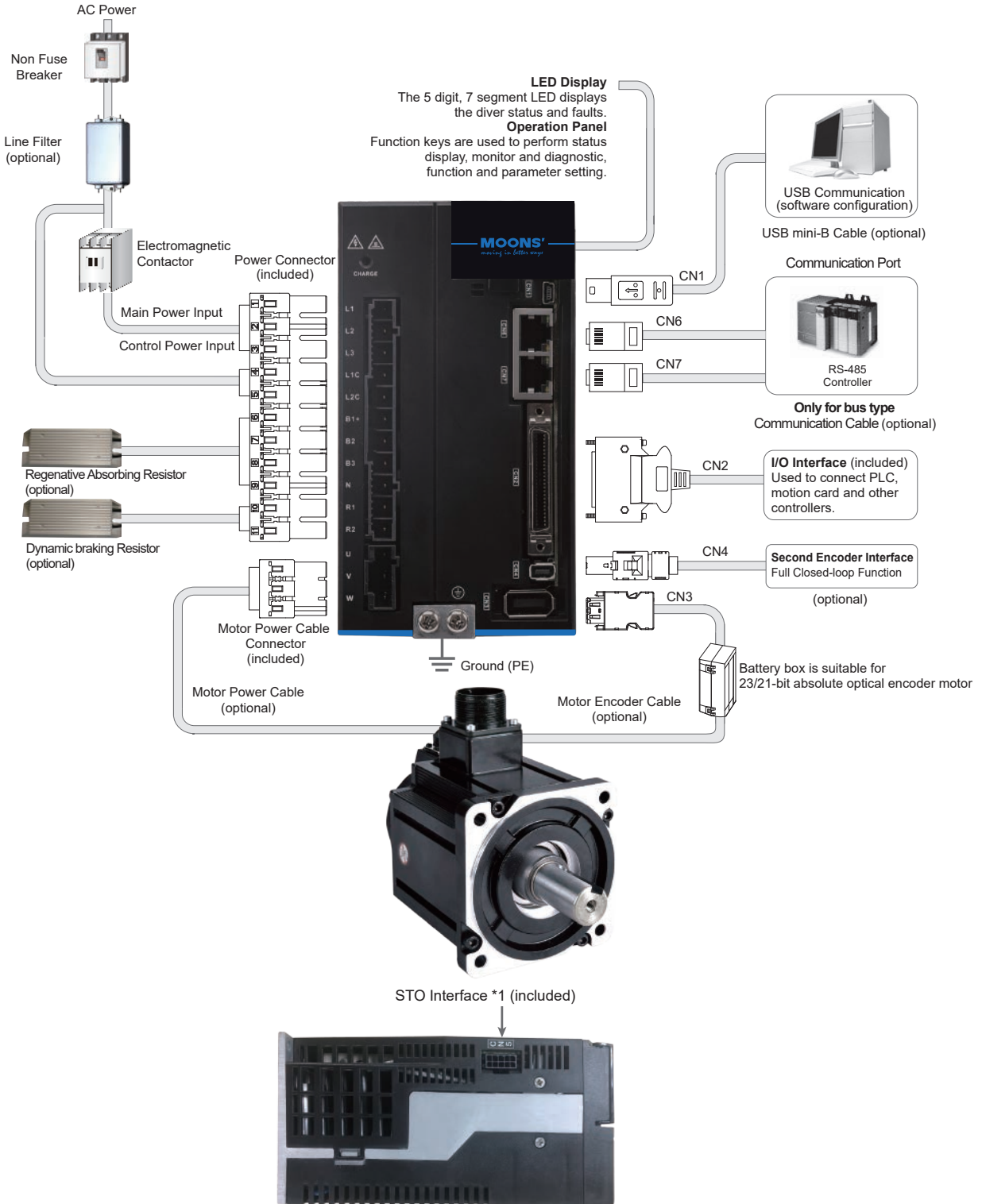
# System Configuration

## Push-in Spring I/O Connector Model Type: X, N

200/400/750W Type



Note: \*1 Certain models don't support this function, please refer to page 16.

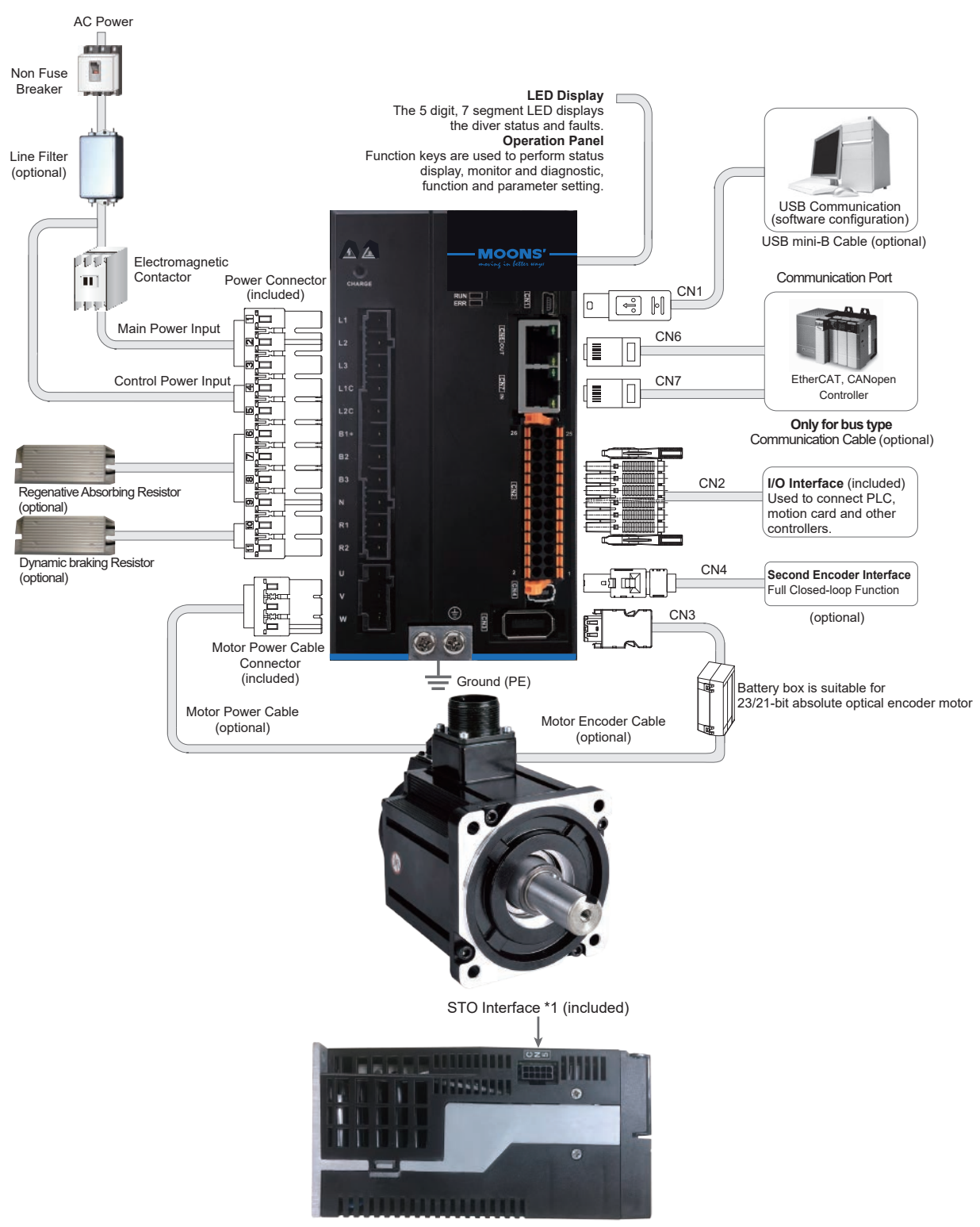


Note: \*1 Certain models don't support this function, please refer to page 16.

# System Configuration

## Push-in Spring I/O Connector Model Type: X

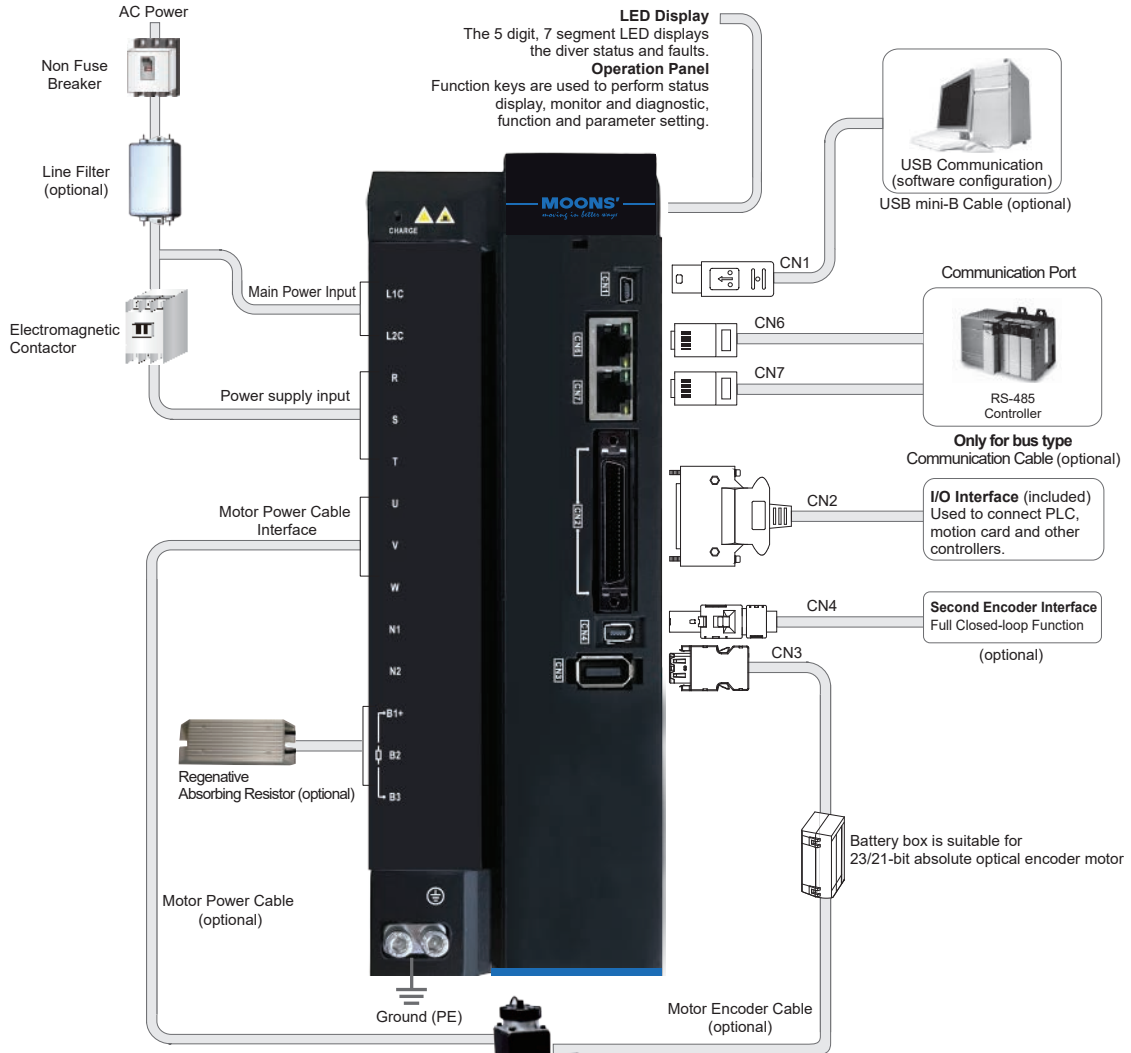
1.0/1.5/2.5/3.0kW Type



# System Configuration

High Density I/O Connector  
Model Type: F

5.0/6.0/7.5kW Type



STO Interface (included)



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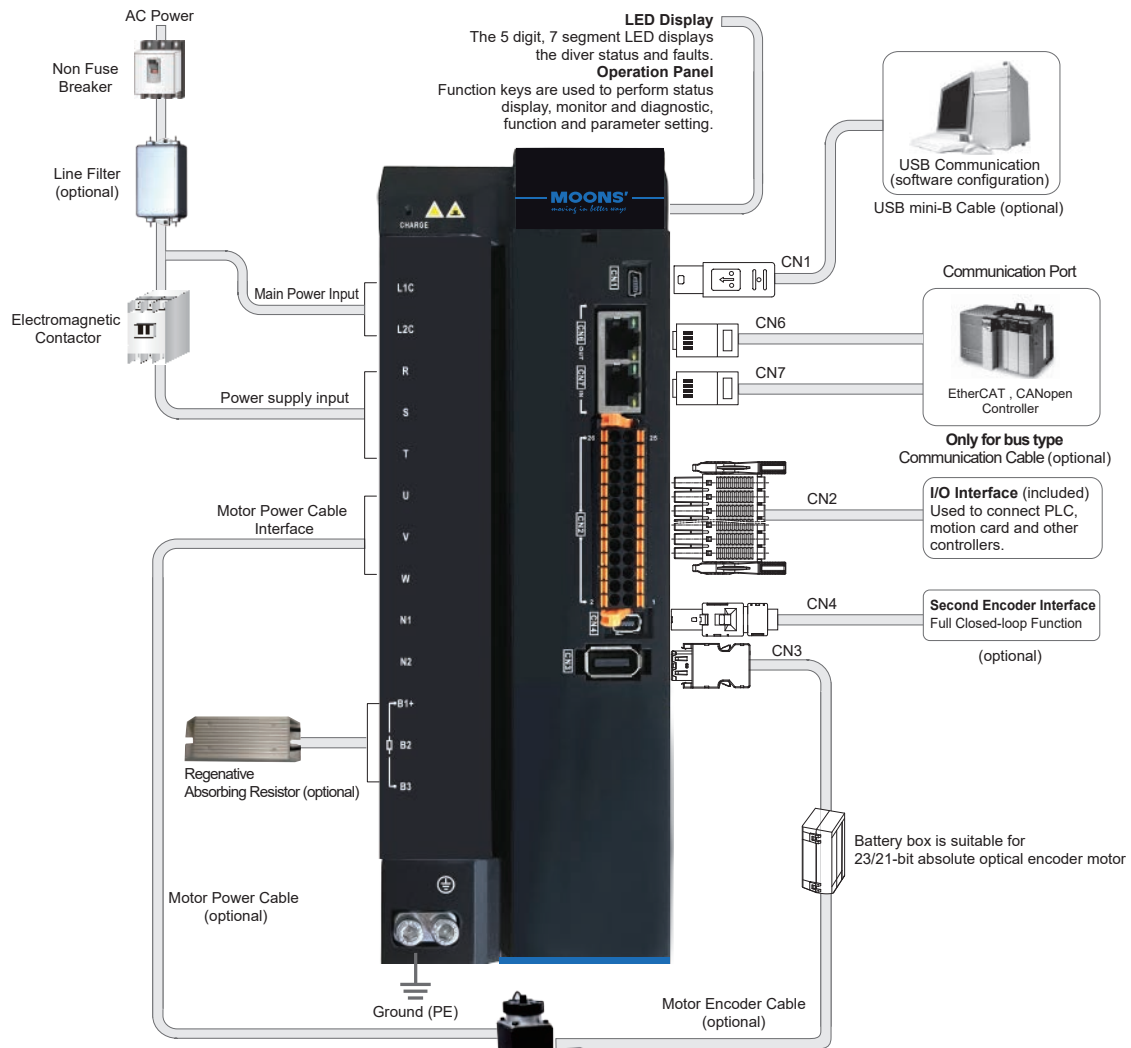
Accessories



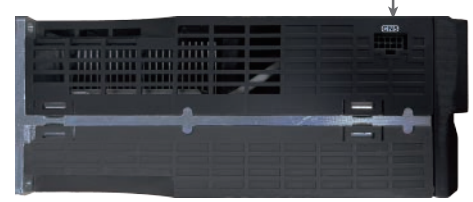
# System Configuration

## Push-in Spring I/O Connector Model Type: X

5.0/6.0/7.5kW Type



STO Interface (included)



# Motor Specification

40mm Frame  
Low Inertia

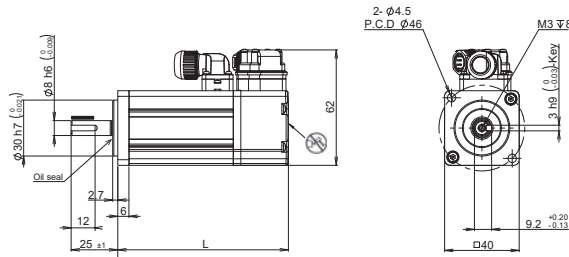
## Specification

Type*		SM3L - 042A ◇ □ D △
Rated Output Power	watts	100
Rated Speed	rpm	3000
Max.Speed	rpm	6000
Rated Torque	N·m	0.32
Peak Torque	N·m	1.28
Rated Current	A (rms)	1.2
Peak Current	A (rms)	5.9
Voltage Constant ± 5%	V (rms) / K rpm	16.8
Torque Constant ± 5%	N·m / A (rms)	0.267
Rotor Inertia	Kg·m <sup>2</sup>	0.038 × 10 <sup>-4</sup>
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	0.0433 × 10 <sup>-4</sup>
Shaft Load - Axial	N (max.)	50
Shaft Load - Radial (End of Shaft)	N (max.)	60
Weight	Kg	0.55
Weight - With Brake	Kg	0.8

\* ◇ Encoder Options; □ Brake Options; △ Oil Seal Options

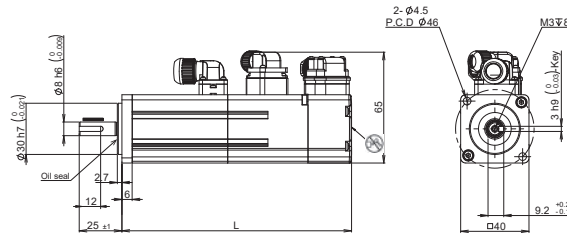
## Dimensions (Unit: mm)

### 1) Without Brake



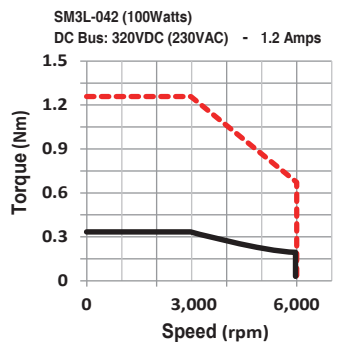
Without Brake	L
SM3L-042A ◇ ND △	91.5
SM3L-042ABND △	100

### 2) With Brake



With Brake	L
SM3L-042A ◇ BD △	134.5
SM3L-042ABBD △	143

## Torque Curves



--- Max. Intermittent Torque  
— Max. Continuous Torque

# Motor Specification

40mm Frame  
High Inertia

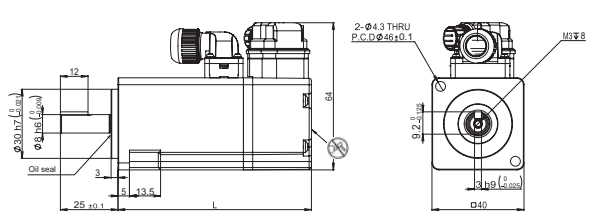
## Specification

Type*		SM3H - 041A ◇ □ P △	SM3H - 042A ◇ □ P △
Rated Output Power	watts	50	100
Rated Speed	rpm	3000	3000
Max.Speed	rpm	6000	6000
Rated Torque	N·m	0.16	0.32
Peak Torque	N·m	0.64	1.28
Rated Current	A (rms)	1.4	1.4
Peak Current	A (rms)	4.8	5.7
Voltage Constant ± 5%	V (rms) / K rpm	9.24	14.8
Torque Constant ± 5%	N·m / A (rms)	0.277	0.277
Rotor Inertia	Kg·m <sup>2</sup>	0.0383 × 10 <sup>-4</sup>	0.0702 × 10 <sup>-4</sup>
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	0.0395 × 10 <sup>-4</sup>	0.0724 × 10 <sup>-4</sup>
Shaft Load - Axial	N (max.)	50	50
Shaft Load - Radial (End of Shaft)	N (max.)	60	60
Weight	Kg	0.45	0.55
Weight - With Brake	Kg	0.55	0.8

\* ◇ Encoder Options; □ Brake Options; △ Oil Seal Options

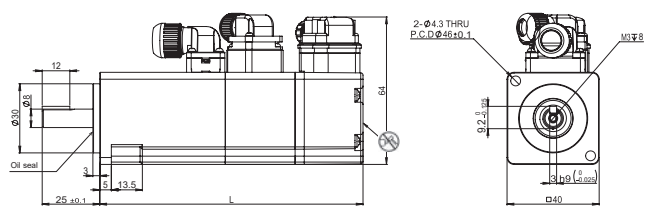
## Dimensions (Unit: mm)

### 1) Without Brake



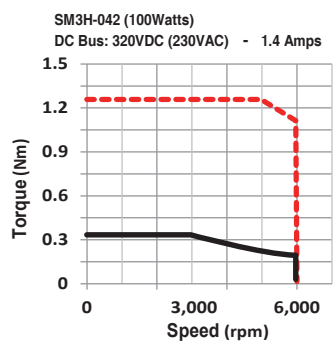
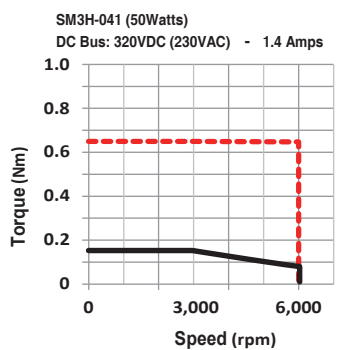
Without Brake	L
SM3H-041A ◇ NP △	70
SM3H-042A ◇ NP △	84

### 2) With Brake



With Brake	L
SM3H-041A ◇ BP △	100.3
SM3H-042A ◇ BP △	114.3

## Torque Curves



----- Max. Intermittent Torque  
 ————— Max. Continuous Torque

# Motor Specification

60mm Frame  
Low Inertia

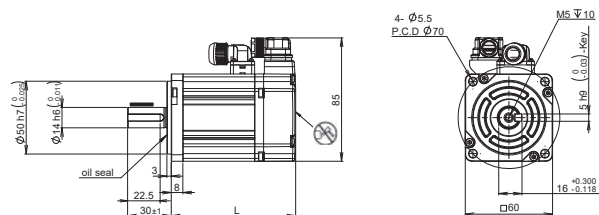
## Specification

Type*		SM3L - 061A ◇ □ P △	SM3L - 062A ◇ □ P △
Rated Output Power	watts	200	400
Rated Speed	rpm	3000	3000
Max.Speed	rpm	6000	6000
Rated Torque	N·m	0.64	1.27
Peak Torque	N·m	1.9	3.8
Rated Current	A (rms)	1.5	2.8
Peak Current	A (rms)	5.4	10
Voltage Constant ± 5%	V (rms) / K rpm	26.5	28.3
Torque Constant ± 5%	N·m / A (rms)	0.427	0.454
Rotor Inertia	Kg·m <sup>2</sup>	0.152 × 10 <sup>-4</sup>	0.237 × 10 <sup>-4</sup>
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	0.182 × 10 <sup>-4</sup>	0.268 × 10 <sup>-4</sup>
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	Kg	1.5	1.9

\* ◇ Encoder Options; □ Brake Options; △ Oil Seal Options

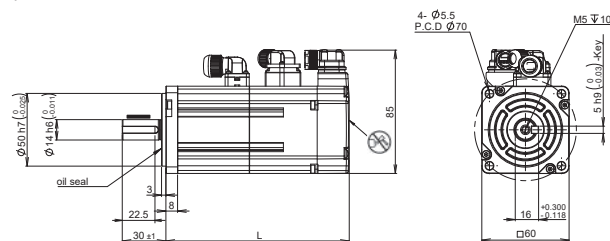
## Dimensions (Unit: mm)

### 1) Without Brake



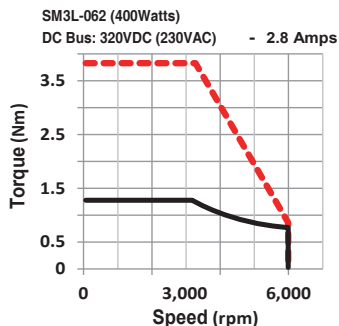
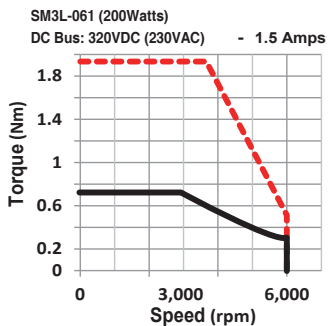
Without Brake	L
SM3L - 061A ◇ NP △	84.5
SM3L - 061ABND △	85.5
SM3L - 062A ◇ NP △	103
SM3L - 062ABND △	104

### 2) With Brake



With Brake	L
SM3L - 061A ◇ BP △	125
SM3L - 061ABBD △	126
SM3L - 062A ◇ BP △	143.5
SM3L - 062ABBD △	144.5

## Torque Curves



----- Max. Intermittent Torque  
 \_\_\_\_\_ Max. Continuous Torque

# Motor Specification

60mm Frame  
High Inertia

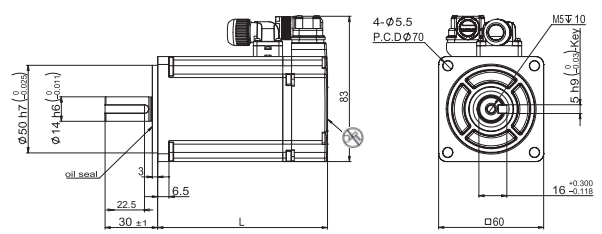
## Specification

Type*		SM3H - 061A ◇ □ P △	SM3H - 062A ◇ □ P △
Rated Output Power	watts	200	400
Rated Speed	rpm	3000	3000
Max.Speed	rpm	6000	6000
Rated Torque	N·m	0.64	1.27
Peak Torque	N·m	2.24	4.445
Rated Current	A (rms)	1.7	2.8
Peak Current	A (rms)	5.9	9.8
Voltage Constant ± 5%	V (rms) / K rpm	24.3	28.9
Torque Constant ± 5%	N·m / A (rms)	0.376	0.423
Rotor Inertia	Kg·m <sup>2</sup>	0.31 × 10 <sup>-4</sup>	0.566 × 10 <sup>-4</sup>
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	0.32 × 10 <sup>-4</sup>	0.62 × 10 <sup>-4</sup>
Shaft Load - Axial	N (max.)	70	70
Shaft Load - Radial (End of Shaft)	N (max.)	200	240
Weight	Kg	0.8	1.4
Weight - With Brake	Kg	1.2	1.7

\* ◇ Encoder Options; □ Brake Options; △ Oil Seal Options

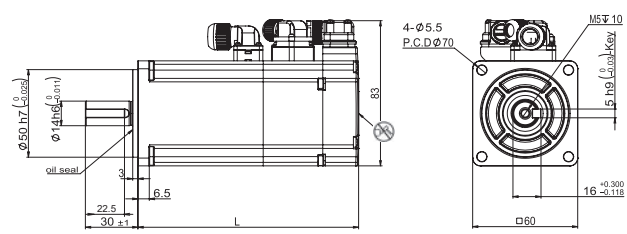
## Dimensions (Unit: mm)

### 1) Without Brake



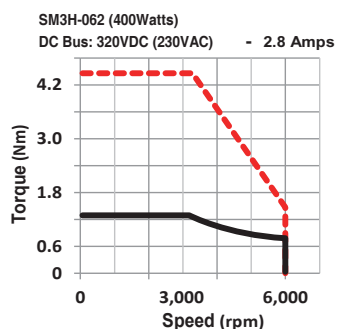
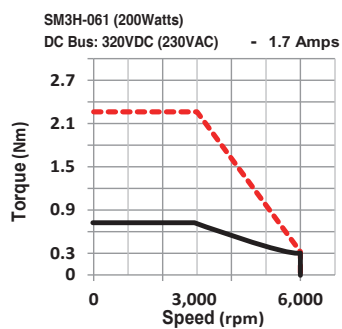
Without Brake	L
SM3H-061A ◇ NP △	77
SM3H-062A ◇ NP △	97

### 2) With Brake



With Brake	L
SM3H-061A ◇ BP △	106
SM3H-062A ◇ BP △	126

## Torque Curves



----- Max. Intermittent Torque  
 \_\_\_\_\_ Max. Continuous Torque

# Motor Specification

80mm Frame  
Low Inertia

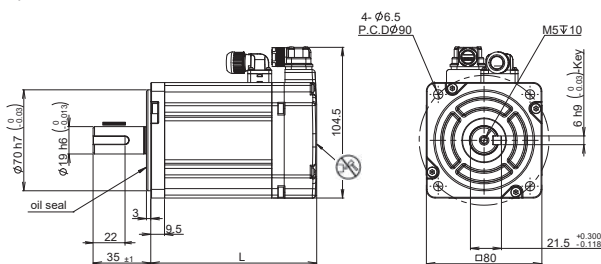
## Specification

Type*		SM3L - 083A ◇ □ P △	SM3L - 084A ◇ □ P △
Rated Output Power	watts	750	1000
Rated Speed	rpm	3000	3000
Max.Speed	rpm	6000	6000
Rated Torque	N·m	2.4	3.2
Peak Torque	N·m	6.7	9.6
Rated Current	A (rms)	4.5	5.6
Peak Current	A (rms)	14	19
Voltage Constant ± 5%	V (rms) / K rpm	33.9	36.65
Torque Constant ± 5%	N·m / A (rms)	0.533	0.63
Rotor Inertia	Kg·m <sup>2</sup>	0.829 × 10 <sup>-4</sup>	1.01 × 10 <sup>-4</sup>
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	0.961 × 10 <sup>-4</sup>	1.12 × 10 <sup>-4</sup>
Shaft Load - Axial	N (max.)	90	90
Shaft Load - Radial (End of Shaft)	N (max.)	270	270
Weight	Kg	2.6	2.8
Weight - With Brake	Kg	3.4	3.6

\* ◇ Encoder Options; □ Brake Options; △ Oil Seal Options

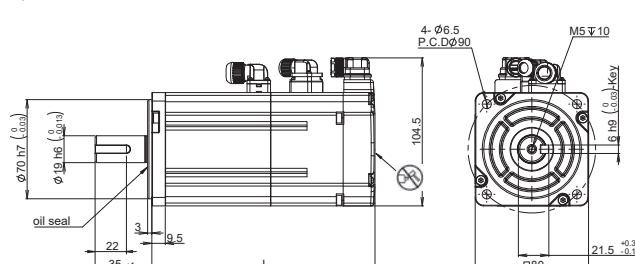
## Dimensions (Unit: mm)

### 1) Without Brake



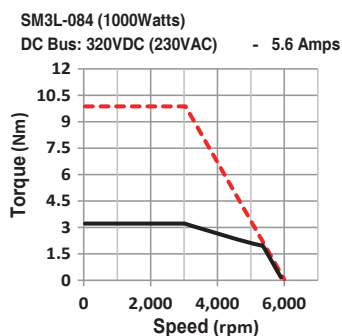
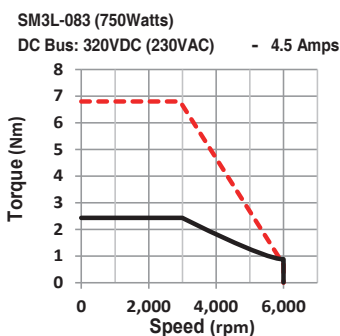
Without Brake	L
SM3L-083A ◇ NP △	115
SM3L-083ABND △	115
SM3L-084A ◇ NP △	129
SM3L-084ABND △	129

### 2) With Brake



With Brake	L
SM3L-083A ◇ BP △	157
SM3L-083ABBD △	157.5
SM3L-084A ◇ BP △	171
SM3L-084ABBD △	171.5

## Torque Curves



----- Max. Intermittent Torque  
————— Max. Continuous Torque

# Motor Specification

80mm Frame  
High Inertia

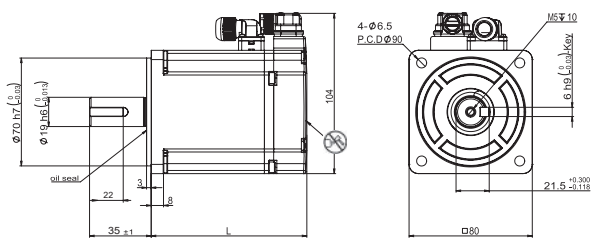
## Specification

Type*		SM3H - 083A ◊ □ P △
Rated Output Power	watts	750
Rated Speed	rpm	3000
Max.Speed	rpm	6000
Rated Torque	N·m	2.4
Peak Torque	N·m	8.4
Rated Current	A (rms)	4.5
Peak Current	A (rms)	16.7
Voltage Constant ± 5%	V (rms) / K rpm	32.3
Torque Constant ± 5%	N·m / A (rms)	0.53
Rotor Inertia	Kg·m <sup>2</sup>	1.46 × 10 <sup>-4</sup>
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	1.63 × 10 <sup>-4</sup>
Shaft Load - Axial	N (max.)	90
Shaft Load - Radial (End of Shaft)	N (max.)	270
Weight	Kg	2.6
Weight - With Brake	Kg	3.2

\* ◊ Encoder Options: □ Brake Options: △ Oil Seal Options

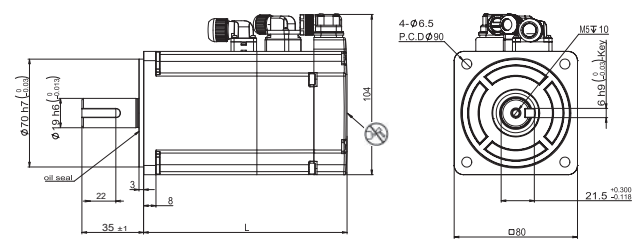
## Dimensions (Unit: mm)

### 1) Without Brake



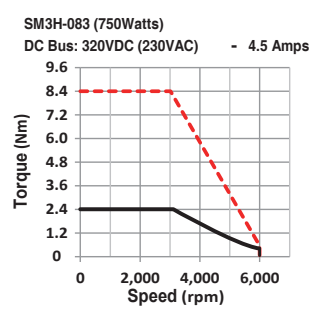
Without Brake	L
SM3H-083A ◊ NP △	101

### 2) With Brake



With Brake	L
SM3H-083A ◊ BP △	132

## Torque Curves



----- Max. Intermittent Torque  
 ————— Max. Continuous Torque

# Motor Specification

100mm Frame  
Low Inertia

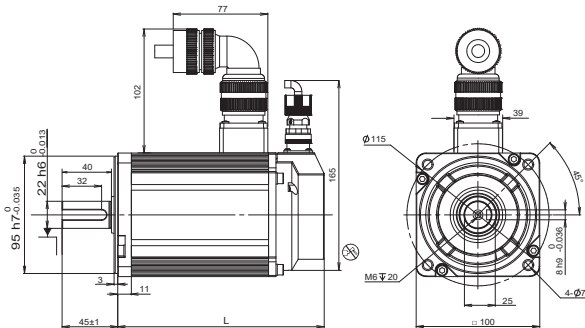
## Specification

Type*		SM3L - 102A $\diamond$ $\square$ U $\triangle$	SM3L - 103A $\diamond$ $\square$ U $\triangle$	SM3L - 104A $\diamond$ $\square$ U $\triangle$	SM3L - 105A $\diamond$ $\square$ U $\triangle$
Rated Output Power	watts	1000	1500	2000	2500
Rated Speed	rpm	3000	3000	3000	3000
Max.Speed	rpm	6000	5700	5600	5600
Rated Torque	N·m	3.2	4.9	6.4	8
Peak Torque	N·m	9.6	14.7	19.2	24
Rated Current	A (rms)	6.0	9.6	12.7	13
Peak Current	A (rms)	21	36.5	44	45
Voltage Constant $\pm$ 5%	V (rms) / K rpm	32.9	34.1	34.3	37.4
Torque Constant $\pm$ 5%	N·m / A (rms)	0.543	0.563	0.565	0.61
Rotor Inertia	Kg·m <sup>2</sup>	$1.79 \times 10^{-4}$	$2.37 \times 10^{-4}$	$2.98 \times 10^{-4}$	$3.68 \times 10^{-4}$
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	$2.67 \times 10^{-4}$	$3.25 \times 10^{-4}$	$3.86 \times 10^{-4}$	$4.56 \times 10^{-4}$
Shaft Load - Axial	N (max.)	90	90	90	90
Shaft Load - Radial (End of Shaft)	N (max.)	270	270	270	270
Weight	Kg	4	4.6	5.2	6.2
Weight - With Brake	Kg	5.2	5.8	6.4	7.6

\*  $\diamond$  Encoder Options:  $\square$  Brake Options:  $\triangle$  Oil Seal Options

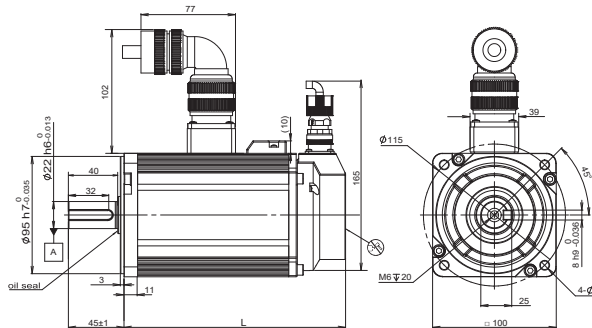
## Dimensions (Unit: mm)

### 1) Without Brake



Without Brake	L
SM3L-102A $\diamond$ NU $\triangle$	137
SM3L-103A $\diamond$ NU $\triangle$	152
SM3L-104A $\diamond$ NU $\triangle$	168
SM3L-105A $\diamond$ NU $\triangle$	186

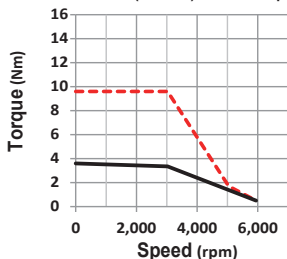
### 2) With Brake



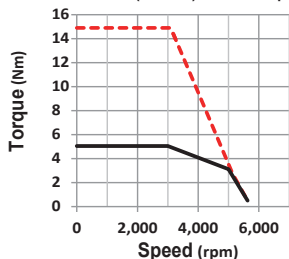
With Brake	L
SM3L-102A $\diamond$ BU $\triangle$	179
SM3L-103A $\diamond$ BU $\triangle$	194
SM3L-104A $\diamond$ BU $\triangle$	210
SM3L-105A $\diamond$ BU $\triangle$	228

## Torque Curves

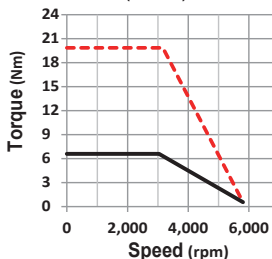
SM3L-102A (1000Watts)  
DC Bus: 320VDC (230VAC) - 6.0 Amps



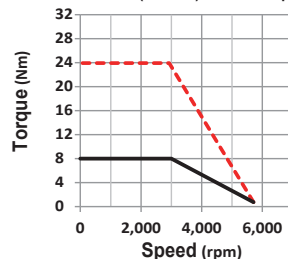
SM3L-103A (1500Watts)  
DC Bus: 320VDC (230VAC) - 9.6 Amps



SM3L-104A (2000Watts)  
DC Bus: 320VDC (230VAC) - 12.7 Amps



SM3L-105A (2500Watts)  
DC Bus: 320VDC (230VAC) - 13 Amps



----- Max. Intermittent Torque  
————— Max. Continuous Torque



# Motor Specification 130mm Frame High Inertia

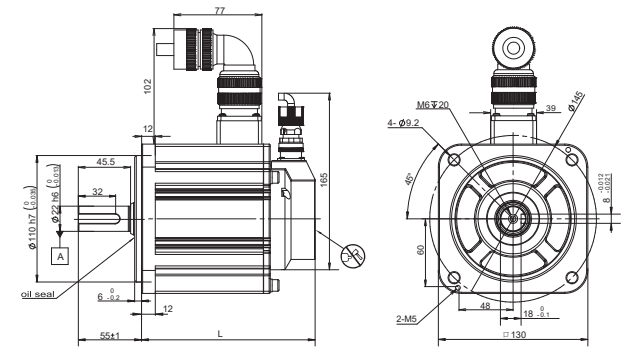
Specification

Type*		SM3M - 132A ◊ □ U △	SM3M - 133A ◊ □ U △	SM3M - 134A ◊ □ U △
Rated Output Power	watts	1000	1500	2000
Rated Speed	rpm	2000	2000	2000
Max.Speed	rpm	3000	3000	3000
Rated Torque	N·m	4.77	7.16	9.55
Peak Torque	N·m	14.3	21.5	28.6
Rated Current	A (rms)	5.4	8.5	11
Peak Current	A (rms)	16.9	26	32.7
Voltage Constant ± 5%	V (rms) / K rpm	55.3	54.2	55.5
Torque Constant ± 5%	N·m / A (rms)	0.883	0.843	0.87
Rotor Inertia	Kg·m <sup>2</sup>	13 × 10 <sup>-4</sup>	18.3 × 10 <sup>-4</sup>	24.4 × 10 <sup>-4</sup>
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	15.2 × 10 <sup>-4</sup>	20.5 × 10 <sup>-4</sup>	26.6 × 10 <sup>-4</sup>
Shaft Load - Axial	N (max.)	196	343	396
Shaft Load - Radial (End of Shaft)	N (max.)	490	686	980
Weight	Kg	6.2	7.3	9.1
Weight - With Brake	Kg	8.5	9.5	11.4

\* ◊ Encoder Options: □ Brake Options: △ Oil Seal Options

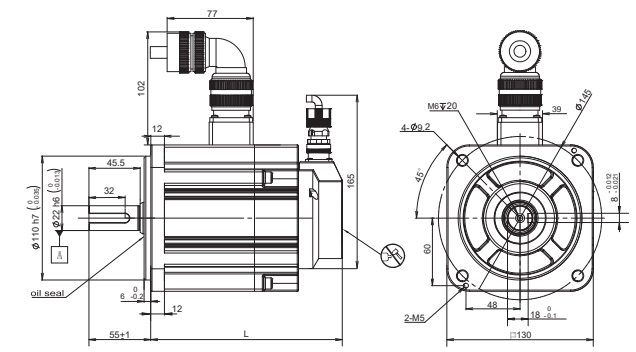
Dimensions (Unit: mm)

1) Without Brake



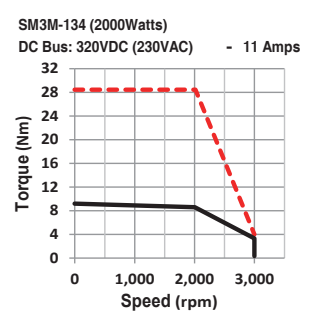
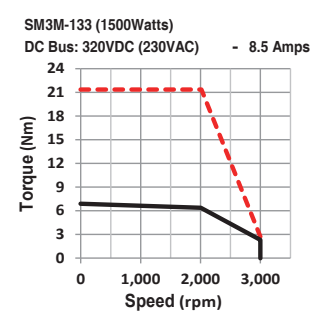
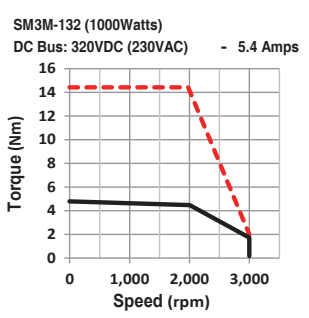
Without Brake	L
SM3M-132A ◊ NU △	138
SM3M-133A ◊ NU △	155
SM3M-134A ◊ NU △	169

2) With Brake



With Brake	L
SM3M-132A ◊ BU △	171
SM3M-133A ◊ BU △	185
SM3M-134A ◊ BU △	202

Torque Curves



----- Max. Intermittent Torque  
 \_\_\_\_\_ Max. Continuous Torque

Features

Numbering Information  
 Drive

Drive Overview

Numbering Information  
 Motor

Servo Drive and  
 Motor Matching List

Drive Specification

Motor Specification

Accessories

# Motor Specification

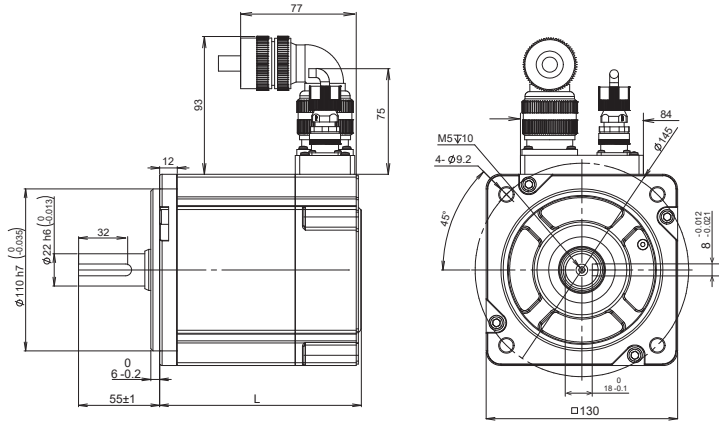
130mm Frame  
Medium Inertia

## Specification

Type*		SM3M - 135Y ◇ □ M △
Rated Output Power	watts	3000
Rated Speed	rpm	2000
Max.Speed	rpm	3000
Rated Torque	N·m	14.3
Peak Torque	N·m	42.9
Rated Current	A (rms)	10.5
Peak Current	A (rms)	30
Voltage Constant ± 5%	V (rms) / K rpm	93.2
Torque Constant ± 5%	N·m / A (rms)	1.47
Rotor Inertia	Kg·m <sup>2</sup>	36.4 × 10 <sup>-4</sup>
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	38.6 × 10 <sup>-4</sup>
Shaft Load - Axial	N (max.)	396
Shaft Load - Radial (End of Shaft)	N (max.)	980
Weight	Kg	12.5
Weight - With Brake	Kg	14.7

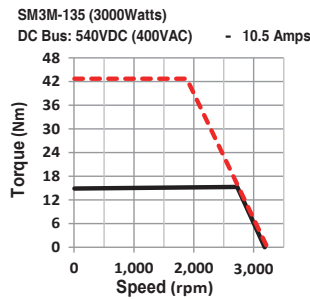
\* ◇ Encoder Options: □ Brake Options: △ Oil Seal Options

## Dimensions (Unit: mm)



	Model	L
Without Brake	SM3M-135Y ◇ NM △	205
With Brake	SM3M-135Y ◇ BM △	238

## Torque Curves



----- Max. Intermittent Torque  
————— Max. Continuous Torque

# Motor Specification

130mm Frame  
High Inertia(Low Speed, High Torque)

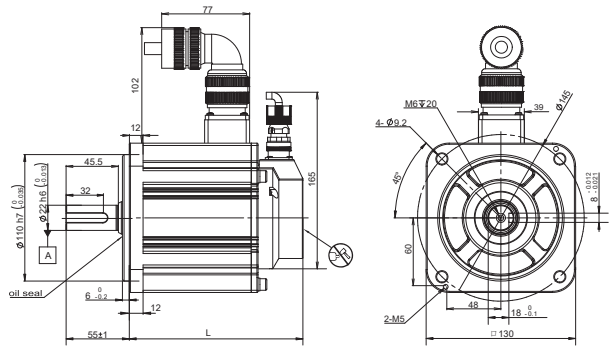
## Specification

Type*		SM3H - 132A ◇ □ U △	SM3H - 133A ◇ □ U △	SM3H - 134A ◇ □ U △
Rated Output Power	watts	850	1300	1800
Rated Speed	rpm	1500	1500	1500
Max.Speed	rpm	3000	3000	3000
Rated Torque	N·m	5.39	8.34	11.5
Peak Torque	N·m	16.2	25	34.5
Rated Current	A (rms)	6	9.6	13
Peak Current	A (rms)	19	29.6	45
Voltage Constant ± 5%	V (rms) / K rpm	55.3	54.2	51
Torque Constant ± 5%	N·m / A (rms)	0.891	0.869	0.88
Rotor Inertia	Kg·m <sup>2</sup>	13 × 10 <sup>-4</sup>	18.3 × 10 <sup>-4</sup>	24.4 × 10 <sup>-4</sup>
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	15.2 × 10 <sup>-4</sup>	20.5 × 10 <sup>-4</sup>	26.6 × 10 <sup>-4</sup>
Shaft Load - Axial	N (max.)	196	343	396
Shaft Load - Radial (End of Shaft)	N (max.)	490	686	980
Weight	Kg	6.2	7.3	9.1
Weight - With Brake	Kg	8.5	9.5	11.4

\* ◇ Encoder Options: □ Brake Options: △ Oil Seal Options

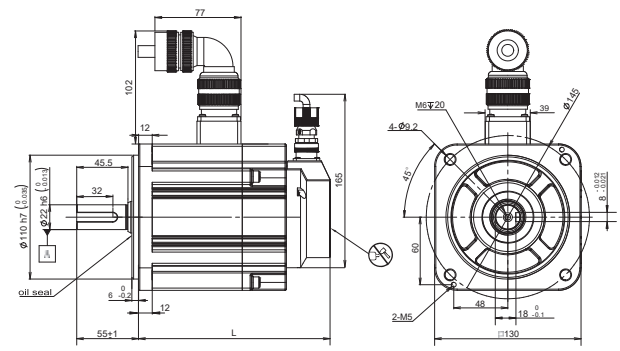
## Dimensions (Unit: mm)

### 1) Without Brake



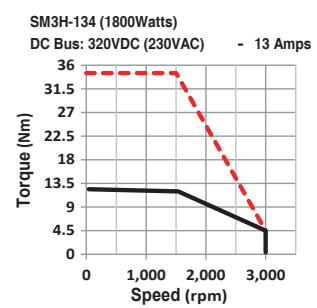
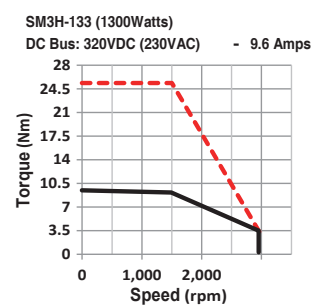
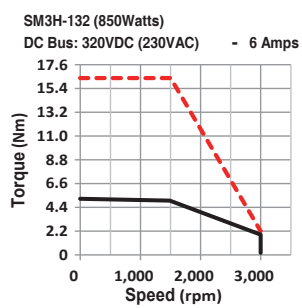
Without Brake	L
SM3H-132A ◇ NU △	138
SM3H-133A ◇ NU △	152
SM3H-134A ◇ NU △	169

### 2) With Brake



With Brake	L
SM3H-132A ◇ BU △	171
SM3H-133A ◇ BU △	185
SM3H-134A ◇ BU △	202

## Torque Curves



----- Max. Intermittent Torque  
————— Max. Continuous Torque



# Motor Specification

180mm Frame  
High Inertia

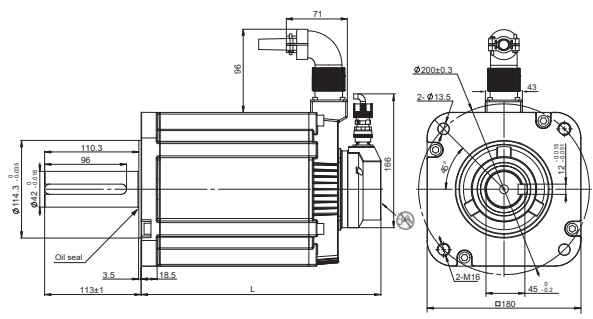
## Specification

Type*		SM3H - 184Y ◊ □ U △	SM3H - 185Y ◊ □ U △
Rated Output Power	watts	5500	7500
Rated Speed	rpm	1500	1500
Max.Speed	rpm	3000	3000
Rated Torque	N·m	35	48
Peak Torque	N·m	105	120
Rated Current	A (rms)	20.9	25.2
Peak Current	A (rms)	70	73.4
Voltage Constant ± 5%	V (rms) / K rpm	114	115
Torque Constant ± 5%	N·m / A (rms)	1.67	1.93
Rotor Inertia	Kg·m <sup>2</sup>	89 × 10 <sup>-4</sup>	125 × 10 <sup>-4</sup>
Rotor Inertia - With Brake	Kg·m <sup>2</sup>	92 × 10 <sup>-4</sup>	145 × 10 <sup>-4</sup>
Shaft Load - Axial	N (max.)	588	588
Shaft Load - Radial (End of Shaft)	N (max.)	1764	1764
Weight	Kg	21	26.8
Weight - With Brake	Kg	23	28.9

\* ◊ Encoder Options: □ Brake Options: △ Oil Seal Options

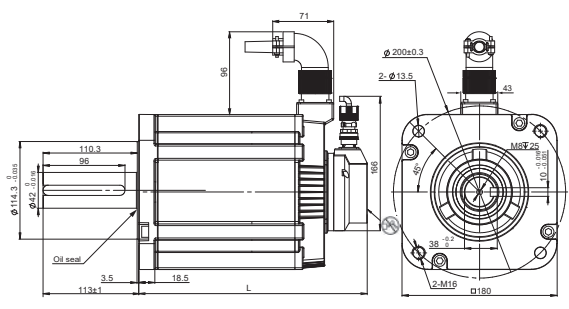
## Dimensions (Unit: mm)

### 1) Without Brake



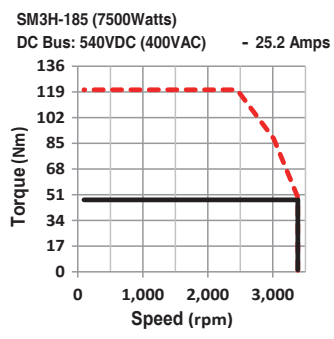
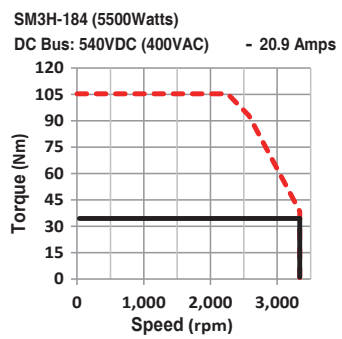
Without Brake	L
SM3H-184Y ◊ NU △	230
SM3H-185Y ◊ NU △	281

### 2) With Brake



With Brake	L
SM3H-184Y ◊ BU △	280
SM3H-185Y ◊ BU △	316

## Torque Curves



----- Max. Intermittent Torque  
 \_\_\_\_\_ Max. Continuous Torque

Accessories

Encoder Cables  
For 40mm, 60mm, 80mm Frame Size Motor

Model*	Length(L)	Description	For Servo Motor*	Outline
2640-0100	1m	Encoder Cables Incremental Encoder Standard		
2640-0200	2m			
2640-0300	3m			
2640-0400	4m			
2640-0500	5m			
2640-0800	8m			
2640-1000	10m			
2640-1500	15m			
2640-2000	20m	Encoder Cables Incremental Encoder Flexible	SM3L-042A ◇ □ D △ SM3L-061A ◇ □ P △ SM3L-062A ◇ □ P △ SM3L-083A ◇ □ P △ SM3L-084A ◇ □ P △	
2640-0100-C10	1m			
2640-0200-C10	2m			
2640-0300-C10	3m			
2640-0400-C10	4m			
2640-0500-C10	5m			
2640-0800-C10	8m			
2640-1000-C10	10m			
2640-1500-C10	15m	Encoder Cables With Battery Absolute Encoder Standard	SM3H-041A ◇ □ P △ SM3H-042A ◇ □ P △ SM3H-061A ◇ □ P △ SM3H-062A ◇ □ P △ SM3H-083A ◇ □ P △	
2639-0100	1m			
2639-0200	2m			
2639-0300	3m			
2639-0400	4m			
2639-0500	5m			
2639-0800	8m			
2639-1000	10m			
2639-1500	15m	Encoder Cables With Battery Absolute Encoder Flexible	SM3H-041A ◇ □ P △ SM3H-042A ◇ □ P △ SM3H-061A ◇ □ P △ SM3H-062A ◇ □ P △ SM3H-083A ◇ □ P △	
2639-0100-C10	1m			
2639-0200-C10	2m			
2639-0300-C10	3m			
2639-0400-C10	4m			
2639-0500-C10	5m			
2639-0800-C10	8m			
2639-1000-C10	10m			
2639-1500-C10	15m	Encoder Cables Without Battery Absolute Encoder Standard	SM3L-042AB □ D △ SM3L-061AB □ D △ SM3L-062AB □ D △ SM3L-083AB □ D △ SM3L-084AB □ D △	
2641-0100	1m			
2641-0200	2m			
2641-0300	3m			
2641-0400	4m			
2641-0500	5m			
2641-0800	8m			
2641-1000	10m			
2641-1500	15m	Encoder Cables Without Battery Absolute Encoder Flexible	SM3M-062AB □ D △ SM3M-083AB □ D △	
2641-2000	20m			
2641-0100-C10	1m			
2641-0200-C10	2m			
2641-0300-C10	3m			
2641-0400-C10	4m			
2641-0500-C10	5m			
2641-0800-C10	8m			
2641-1000-C10	10m			
2641-1500-C10	15m			
2641-2000-C10	20m			

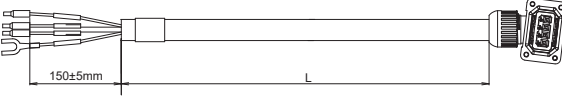
\* ◇ Encoder Options □ Brake Options △ Oil Seal Options

\* Flexible -C10 10 million times

Test Conditions: Bend Radius 50mm, Frequency 40 times/min, Distance 1000mm

Accessories

Motor Power Cables, Motor Brake Cables  
For 40mm, 60mm, 80mm Frame Size Motor

Model*	Length(L)	Description	For Servo Motor*	Outline
1672-0100	1m	Motor Cables Standard	SM3L-042A ◇ □ D △	
1672-0200	2m		SM3L-061A ◇ □ P △	
1672-0300	3m		SM3L-062A ◇ □ P △	
1672-0400	4m		SM3L-083A ◇ □ P △	
1672-0500	5m			
1672-0800	8m		SM3H-041A ◇ □ P △	
1672-1000	10m		SM3H-042A ◇ □ P △	
1672-1500	15m		SM3H-061A ◇ □ P △	
1672-2000	20m		SM3H-062A ◇ □ P △	
1672-0100-C10	1m		Motor Cables Flexible	
1672-0200-C10	2m	SM3L-042AB □ D △		
1672-0300-C10	3m	SM3L-061AB □ D △		
1672-0400-C10	4m	SM3L-062AB □ D △		
1672-0500-C10	5m	SM3L-083AB □ D △		
1672-0800-C10	8m	SM3L-084AB □ D △		
1672-1000-C10	10m	SM3M-062AB □ D △		
1672-1500-C10	15m	SM3M-083AB □ D △		
1672-2000-C10	20m			
1674-0100	1m	Motor Cables With Brake Cable Standard		SM3L-042A ◇ BD △
1674-0200	2m		SM3L-061A ◇ BP △	
1674-0300	3m		SM3L-062A ◇ BP △	
1674-0400	4m		SM3L-083A ◇ BP △	
1674-0500	5m		SM3L-084A ◇ BP △	
1674-0800	8m			
1674-1000	10m		SM3H-041A ◇ BP △	
1674-1500	15m		SM3H-042A ◇ BP △	
1674-2000	20m		SM3H-061A ◇ BP △	
1674-0100-C10	1m		Motor Cables With Brake Cable Flexible	SM3H-062A ◇ BP △
1674-0200-C10	2m	SM3H-083A ◇ BP △		
1674-0300-C10	3m	SM3L-042ABBD △		
1674-0400-C10	4m	SM3L-061ABBD △		
1674-0500-C10	5m	SM3L-062ABBD △		
1674-0800-C10	8m	SM3L-083ABBD △		
1674-1000-C10	10m	SM3L-084ABBD △		
1674-1500-C10	15m	SM3M-062ABBD △		
1674-2000-C10	20m	SM3M-083ABBD △		

\* ◇ Encoder Options □ Brake Options △ Oil Seal Options

\* Flexible -C10 10 million times

Test Conditions: Bend Radius 50mm, Frequency 40 times/min, Distance 1000mm

注: SM3L-084A ◇ □ P △ Normal Power cable 1645-XXXX series, Flexible Power cable 1645-XXXX-C10 series.

Features

Drive Numbering Information

Drive Overview

Motor Numbering Information

Servo Drive and Motor Matching List

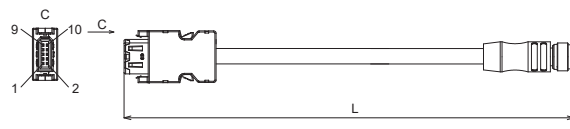
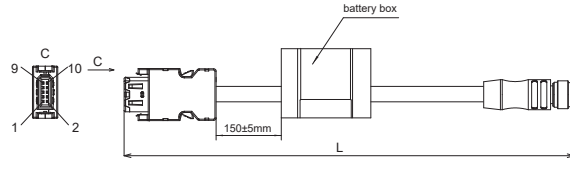
Drive Specification

Motor Specification

Accessories

Accessories

Encoder Cables (Straight Plug)  
For 100mm, 130mm, 180mm Frame Size Motor

Model*	Length(L)	Description	For Servo Motor*	Outline
2643-0100	1m	Encoder Cables Incremental Encoder Standard		
2643-0300	3m			
2643-0500	5m			
2643-1000	10m			
2643-1500	15m			
2643-2000	20m			
2643-0100-C10	1m	Encoder Cables Incremental Encoder Flexible	SM3L-102A ◇ □ U △ SM3L-103A ◇ □ U △ SM3L-104A ◇ □ U △ SM3L-105A ◇ □ U △ SM3M-132A ◇ □ U △ SM3M-133A ◇ □ U △ SM3M-134A ◇ □ U △ SM3M-135Y ◇ □ M △	
2643-0300-C10	3m			
2643-0500-C10	5m			
2643-1000-C10	10m			
2643-1500-C10	15m			
2643-2000-C10	20m			
2642-0100	1m	Encoder Cables With Battery Absolute Encoder Standard	SM3H-132A ◇ □ U △ SM3H-133A ◇ □ U △ SM3H-134A ◇ □ U △ SM3H-182Y ◇ □ U △ SM3H-183Y ◇ □ U △ SM3H-184Y ◇ □ U △ SM3H-185Y ◇ □ U △	
2642-0300	3m			
2642-0500	5m			
2642-1000	10m			
2642-1500	15m			
2642-2000	20m			
2642-0100-C10	1m	Encoder Cables With Battery Absolute Encoder Flexible		
2642-0300-C10	3m			
2642-0500-C10	5m			
2642-1000-C10	10m			
2642-1500-C10	15m			
2642-2000-C10	20m			

\* ◇ Encoder Options △ Oil Seal Options

\* Flexible -C10 10 million times

Test Conditions: Bend Radius 50mm, Frequency 40 times/min, Distance 1000mm

Features

Drive  
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Drive Specification

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Accessories



## Accessories

### Motor Power Cables (Angled Plug)

For 100mm Frame Size 1.0kW Motor; 130mm Frame Size 0.85/1.0kW Motor

Model*	Length(L)	Description	For Servo Motor*	Outline
1658-0100	1m	Motor Cables Standard	SM3L-102A ◇ NU △ SM3M-132A ◇ NU △ SM3H-132A ◇ NU △	
1658-0300	3m			
1658-0500	5m			
1658-1000	10m			
1658-1500	15m			
1658-2000	20m			
1658-0100-C10	1m	Motor Cables Flexible	SM3L-102A ◇ NU △ SM3M-132A ◇ NU △ SM3H-132A ◇ NU △	
1658-0300-C10	3m			
1658-0500-C10	5m			
1658-1000-C10	10m			
1658-1500-C10	15m			
1658-2000-C10	20m			
1660-0100	1m	Motor Cables With Built-in Brake Cable Standard	SM3L-102A ◇ BU △ SM3M-132A ◇ BU △ SM3H-132A ◇ BU △	
1660-0300	3m			
1660-0500	5m			
1660-1000	10m			
1660-1500	15m			
1660-2000	20m			
1660-0100-C10	1m	Motor Cables With Built-in Brake Cable Flexible	SM3L-102A ◇ BU △ SM3M-132A ◇ BU △ SM3H-132A ◇ BU △	
1660-0300-C10	3m			
1660-0500-C10	5m			
1660-1000-C10	10m			
1660-1500-C10	15m			
1660-2000-C10	20m			

\* ◇ Encoder Options △ Oil Seal Options

\* Flexible -C10 10 million times

Test Conditions: Bend Radius 100mm, Frequency 40 times/min, Distance 1000mm

Accessories

Motor Power Cables (Angled Plug)

For 100mm Frame Size 1.5kW Motor; 130mm Frame Size 1.3/1.5kW Motor

Model*	Length(L)	Description	For Servo Motor*	Outline
1656-0100	1m	Motor Cables Standard	SM3L-103A ◇ NU △ SM3M-133A ◇ NU △ SM3H-133A ◇ NU △	
1656-0300	3m			
1656-0500	5m			
1656-1000	10m			
1656-1500	15m			
1656-2000	20m			
1656-0100-C10	1m	Motor Cables Flexible	SM3L-103A ◇ NU △ SM3M-133A ◇ NU △ SM3H-133A ◇ NU △	
1656-0300-C10	3m			
1656-0500-C10	5m			
1656-1000-C10	10m			
1656-1500-C10	15m			
1656-2000-C10	20m			
1662-0100	1m	Motor Cables With Built-in Brake Cable Standard	SM3L-103A ◇ BU △ SM3M-133A ◇ BU △ SM3H-133A ◇ BU △	
1662-0300	3m			
1662-0500	5m			
1662-1000	10m			
1662-1500	15m			
1662-2000	20m			
1662-0100-C10	1m	Motor Cables With Built-in Brake Cable Flexible	SM3L-103A ◇ BU △ SM3M-133A ◇ BU △ SM3H-133A ◇ BU △	
1662-0300-C10	3m			
1662-0500-C10	5m			
1662-1000-C10	10m			
1662-1500-C10	15m			
1662-2000-C10	20m			

\* ◇ Encoder Options △ Oil Seal Options

\* Flexible -C10 10 million times

Test Conditions: Bend Radius 100mm, Frequency 40 times/min, Distance 1000mm

Features

Drive Numbering Information

Drive Overview

Motor Numbering Information

Servo Drive and Motor Matching List

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Accessories

Motor Power Cables (Angled Plug)

For 100mm Frame Size 2.0/2.5kW Motor, 130mm Frame Size 1.8/2.0/3.0kW Motor

Model*	Length(L)	Description	For Servo Motor*	Outline
1650-0100	1m	Motor Cables Standard	SM3L-104A ◇ NU △ SM3L-105A ◇ NU △ SM3M-134A ◇ NU △ SM3M-135Y ◇ NM △ SM3H-134A ◇ NU △	
1650-0300	3m			
1650-0500	5m			
1650-1000	10m			
1650-1500	15m			
1650-2000	20m			
1650-0100-C10	1m	Motor Cables Flexible	SM3L-104A ◇ BU △ SM3L-105A ◇ BU △ SM3M-134A ◇ BU △ SM3M-135Y ◇ BM △ SM3H-134A ◇ BU △	
1650-0300-C10	3m			
1650-0500-C10	5m			
1650-1000-C10	10m			
1650-1500-C10	15m			
1650-2000-C10	20m			
1652-0100	1m	Motor Cables With Built-in Brake Cable Standard	SM3L-104A ◇ BU △ SM3L-105A ◇ BU △ SM3M-134A ◇ BU △ SM3M-135Y ◇ BM △ SM3H-134A ◇ BU △	
1652-0300	3m			
1652-0500	5m			
1652-1000	10m			
1652-1500	15m			
1652-2000	20m			
1652-0100-C10	1m	Motor Cables With Built-in Brake Cable Flexible	SM3L-104A ◇ BU △ SM3L-105A ◇ BU △ SM3M-134A ◇ BU △ SM3M-135Y ◇ BM △ SM3H-134A ◇ BU △	
1652-0300-C10	3m			
1652-0500-C10	5m			
1652-1000-C10	10m			
1652-1500-C10	15m			
1652-2000-C10	20m			

\* ◇ Encoder Options △ Oil Seal Options

\* Flexible -C10 10 million times

Test Conditions: Bend Radius 100mm, Frequency 40 times/min, Distance 1000mm

Accessories

Motor Power Cables (Angled Plug)  
For 180mm Frame Size 2.9/4.4kW Motor

Model*	Length(L)	Description	For Servo Motor*	Outline
1666-0100	1m	Motor Cables Standard	SM3H-182Y ◇ NU △ SM3H-183Y ◇ NU △	
1666-0300	3m			
1666-0500	5m			
1666-1000	10m			
1666-1500	15m			
1666-2000	20m			
1666-0100-C10	1m	Motor Cables Flexible	SM3H-182Y ◇ NU △ SM3H-183Y ◇ NU △	
1666-0300-C10	3m			
1666-0500-C10	5m			
1666-1000-C10	10m			
1666-1500-C10	15m			
1666-2000-C10	20m			
1668-0100	1m	Motor Cables With Built-in Brake Cable Standard	SM3H-182Y ◇ BU △ SM3H-183Y ◇ BU △	
1668-0300	3m			
1668-0500	5m			
1668-1000	10m			
1668-1500	15m			
1668-2000	20m			
1668-0100-C10	1m	Motor Cables With Built-in Brake Cable Flexible	SM3H-182Y ◇ BU △ SM3H-183Y ◇ BU △	
1668-0300-C10	3m			
1668-0500-C10	5m			
1668-1000-C10	10m			
1668-1500-C10	15m			
1668-2000-C10	20m			

\* ◇ Encoder Options △ Oil Seal Options

\* Flexible -C10 10 million times

Test Conditions: Bend Radius 100mm, Frequency 40 times/min, Distance 1000mm

Features

Drive  
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Motor Matching List

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Motor Specification

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Accessories

Motor Power Cables (Angled Plug)  
For 180mm Frame Size 5.5/7.5kW Motor

Model*	Length(L)	Description	For Servo Motor*	Outline
1667-0100	1m	Motor Cables Standard	SM3H-184Y ◇ NU △ SM3H-185Y ◇ NU △	
1667-0300	3m			
1667-0500	5m			
1667-1000	10m			
1667-1500	15m			
1667-2000	20m			
1667-0100-C10	1m	Motor Cables Flexible	SM3H-184Y ◇ BU △ SM3H-185Y ◇ BU △	
1667-0300-C10	3m			
1667-0500-C10	5m			
1667-1000-C10	10m			
1667-1500-C10	15m			
1667-2000-C10	20m			
1669-0100	1m	Motor Cables With Built-in Brake Cable Standard	SM3H-184Y ◇ BU △ SM3H-185Y ◇ BU △	
1669-0300	3m			
1669-0500	5m			
1669-1000	10m			
1669-1500	15m			
1669-2000	20m			
1669-0100-C10	1m	Motor Cables With Built-in Brake Cable Flexible	SM3H-184Y ◇ BU △ SM3H-185Y ◇ BU △	
1669-0300-C10	3m			
1669-0500-C10	5m			
1669-1000-C10	10m			
1669-1500-C10	15m			
1669-2000-C10	20m			

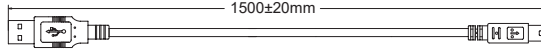
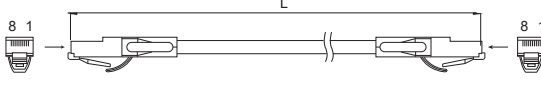
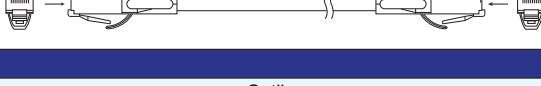
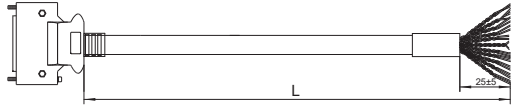


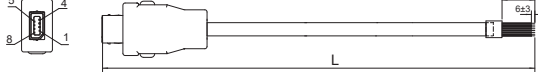
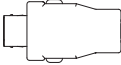

\* ◇ Encoder Options △ Oil Seal Options

\* Flexible -C10 10 million times

Test Conditions: Bend Radius 100mm, Frequency 40 times/min, Distance 1000mm

## Accessories

## Servo Drive Accessories

USB Cable			
Model	Length	Description	Outline
2620-150	1.5m	USB configuration cable connect with PC	
CN6/CN7 Communication Daisy Chain Cable			
Model	Length (L)	Description	Outline
2012-030	0.3m	Twisted-pair, Standard type	
2012-300	3m		
2013-030	0.3m	Twisted-pair, Shielded type	
2013-300	3m		
IO Connector, I/O Signal Cable			
Model	Length (L)	Description	Outline
1644-100	1m	CN2 50pin high density I/O cable Shielded type	
1644-200	2m		
1644-300	3m		
M2-50P	-	CN2 50pin high density I/O connector	
MSOP-CN226P	-	CN2 26pin push-in spring I/O connector	
Second Encoder Connector, Full Closed-loop Accessories			
Model	Length (L)	Description	Outline
1643-300	3m	CN4 Secondary encoder feedback cable Shielded type	
1643-500	5m		
1643-300-C05	3m		
1643-500-C05	5m		
MSOP-CN408P	-	CN4 Secondary encoder feedback connector	
Motor Encoder Connector (Drive Side)			
Model	Length	Description	Outline
MSOP-CN310P	-	CN3 Motor encoder connector	
EMI Filter			
Model	Specification	Description	Outline
MSOP-EMI020	250VAC, 20A	EMI filter for AC power of drive side(Single Phase)	-
Absolute Encoder System Battery Kit			
Model	Specification	Description	Outline
MSOP-BA01	Battery	For motor with battery absolute encoder	-
MSOP-BAKIT01	Batteries and battery cases		
External Regenerative Resistor			
Model	Specification	Description	Outline
REG100W120R	100W, 20Ω	Regenerative absorbing resistor	-
REG200W120R	200W, 120Ω		
REG300W120R	300W, 120Ω		
Dynamic Brake Resistor (1.0/1.5/2.5/3 kW Type)			
Model	Specification	Description	Outline
DBR80W3R5	80W, 3.5Ω	External dynamic brake resistor	-
Drive Connector Kit			
Model	Description		Outline
MSOP-DRPWKITA	200/400/750W drive P1, P2 JST handle lever		-
MSOP-DRPWKITB	1.0/1.5/2.5/3.0kW drive P1, P2 JST handle lever		-
STO Connector Kit			
Model	Specification	Description	Outline
STO Connector Kit	-	-	-
Motor Connector Kit (Motor Side)			
Model	Description		Outline
MSOP-MTKITA	80mm and lower frame size motor (without brake connector)		-
MSOP-MTKITD	80mm and lower frame size motor (with brake connector)		
MSOP-MTKITF	100mm/130mm frame size motor (angle plug type)		
MSOP-MTKITE	180mm frame size motor (angle plug type)		

# Customer Service Center



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