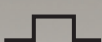


DS3&DM3 AC Servo System Selection Manual

Ether**CAT**[®]

Pulse Command 



- DS3 Series Servo Drive
- DM3 Series Rotary Servo Motor

servotronix@midea.com
www.servotronix.cn



Dongling Technology Co., Ltd. was established on May 16, 2006, and was fully acquired by Midea Group in December 2020, marking the beginning of a new chapter in Dongling's development. The company primarily focuses on designing and providing standardized and customized motion control solutions for equipment manufacturers and automation system suppliers. It serves over 1,000 clients across more than 30 countries worldwide, operating under two brands: Googol Technology and Dongling. The company's brands continue to lead the industry in China's direct-drive sector, with R&D teams located in Israel, Shanghai, Jiashan, and Shunde. Dongling products are widely used across various industries, including woodworking machinery, stone engraving machines, packaging machinery, robotics, tensile testing machines, aluminum profile equipment, and VR devices.

目录

CONTENTS

1. DS3 AC Servo System	1
1.1 DS3 Series Servo Drive Naming Convention	3
1.2 DS3E Wiring Diagram	4
1.3 DS3E Technical Specifications	5
1.4 DS3E Series Servo Terminal Definitions	8
1.5 DS3P Wiring Diagram	11
1.6 DS3P General Technical Specifications	13
1.7 DS3P Series Servo Terminal Definitions	15
1.8 DS3E/P Series Servo Installation Dimensions	17
2. DM3E/S Generation Motor Product Overview	18
2.1 DM3E/S Series Motor Naming Convention	18
2.2 DM3E/S Generation Motor Product Highlights	19
2.3 DM3E/S Generation Motor Product Map	21
2.4 DM3E/S Series Servo Motor Model Spectrum	22
3. DM3E/S Series Servo General Technical Specifications	23
4. DM3E/S Series Servo Motor Electrical Specifications	24
4.1 DM3E/S-M Medium Inertia, High-Speed Motor Electrical Specifications	24
4.2 DM3E/S-G Medium Inertia, High-Torque Motor Electrical Specifications ..	25
4.3 DM3E/S-G Electrical Specifications	26
4.4 T-N Characteristic Curve	27
5. DM3E/S Series Servo Motor Structural Characteristics	28
5.1 DM3E/S-L Structural Dimensions	28
5.2 Structural Dimension Illustrations (DM3-M Series 60/80 Frame Sizes)	29
5.3 Structural Dimension Illustrations (DM3-G Series 130 Frame Size)	30
6. DM3E/S Series Servo Motor Interface Definitions	31
6.1 Motor Interface Definitions -L01、M02/04/06/08/10	31
6.2 Motor Interface Definitions G09/13/18	32
7. DM3E/S Series Servo Drive Cable Selection Guide	33
7.1 Power Cables or Accessory Kits	33
7.2 Encoder Cables or Accessory Kits	34
7.3 Connector Kit Information	35
7.4 Front Exit / Rear Exit Wiring Diagram	36

1 DS3E AC Servo System

Exquisite Design, Masterful Craftsmanship

Exquisite Design, Masterful Craftsmanship

Clean wiring layout with stable connections

Separation of High & Low Power Circuits

Significantly improved noise immunity

Effortless QR Code Scanning

Unique code per device for instant product information retrieval

Ethernet Debug Port

Enables stable and convenient remote parameter download and firmware maintenance

Easy Commissioning & Plug-and-Play Operation

MTP Electronic Nameplate

Enables true motor plug-and-play

One-Touch Auto-Tuning

Cuts commissioning time by up to 90%

Absolute Encoder

Eliminates the need for limit and home sensors

Graphical Setup Wizard

Makes servo tuning simple and intuitive

Dedicated Control Panel

Six-button keypad provides full control over parameter adjustment, system tuning, troubleshooting, and alarm clearance

Uncompromising Quality Rock-Solid Reliability

Active Cooling Design + Conformal Coating

Withstands harsh operating environments including high temperature, high humidity, and excessive dust.

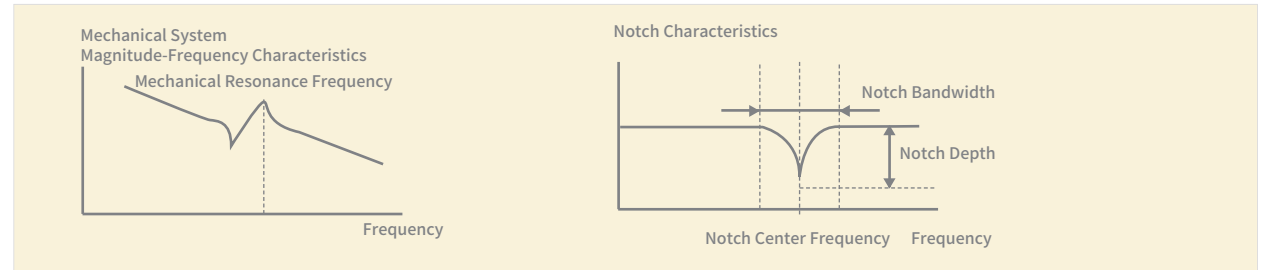
High-Quality Components & Strict Process Control

Ensures stable, reliable equipment operation and enhances production efficiency through superior manufacturing.

Certified to IEC 61800 Standards

Proven to withstand complex and demanding electrical environments.

Advanced Algorithms: Powerful yet Adaptive



Ultra-Fast Tuning

MTP Electronic Nameplate + Self-Tuning

Comprehensive Vibration Control

Full spectrum coverage (low, mid, and high frequencies)
Effective on both rigid and flexible load types

Collision Detection

Open-Loop Force Control | Simplifies System Structure & Eliminates Sensor Costs

Simple Mode - Auto Tuning

High Reliability

Model-based parameter auto-tuning ensures high reliability.

Minimal Object Movement

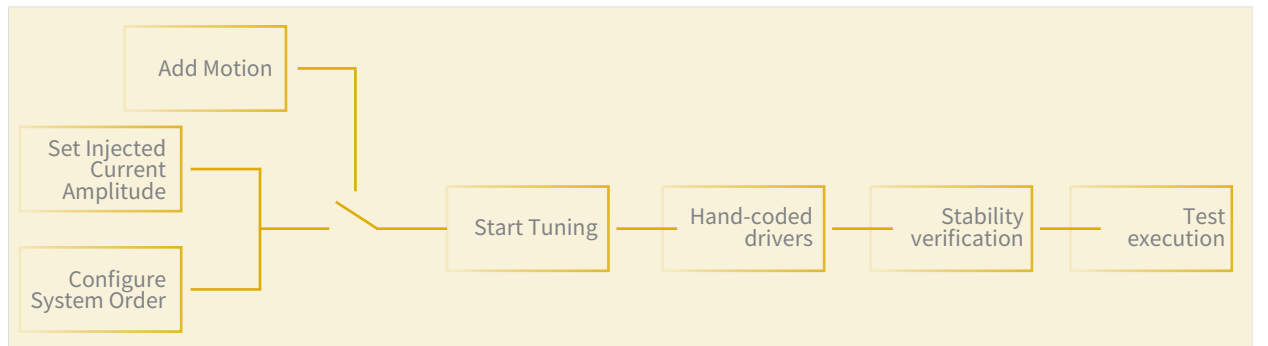
Frequency analysis-based tuning minimizes target object movement during the process.

No Violent Vibrations

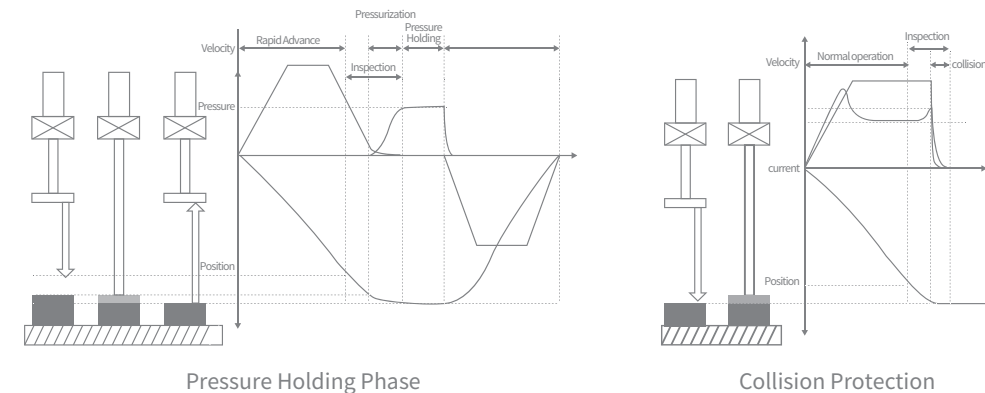
Eliminates risk of machine damage from severe vibrations during tuning.

Fast Tuning Speed

Rapid parameter tuning: Algorithms run on PC for optimized performance.



Open-Loop Force Control



No sensor pressure control, precise control support pressure holding function and collision protection optional
pressure holding support 5-stage position and pressure setting collision protection precision, avoiding false alarms

1.1 DS3E Series Servo Drive Naming Convention

DS3 P - 08 A S - □□ - □□□□

1

2

3

4

5

6

P
1 Servo Drive Series

Symbol	Specifications
P	Pulse Train Type
E	EtherCAT

08
2 Drive Power Rating

Symbol	Specifications
4	400W
8	750W
10	1.0KW
15	1.5KW
20	2KW
30	3KW

A
3 Rated Input Voltage

Symbol	Specifications
A	220V
B	380V

S
4 Encoder Interface

Symbol	Specifications
S	Serial Encoder Interface

□□
5 Non-Standard Specifications

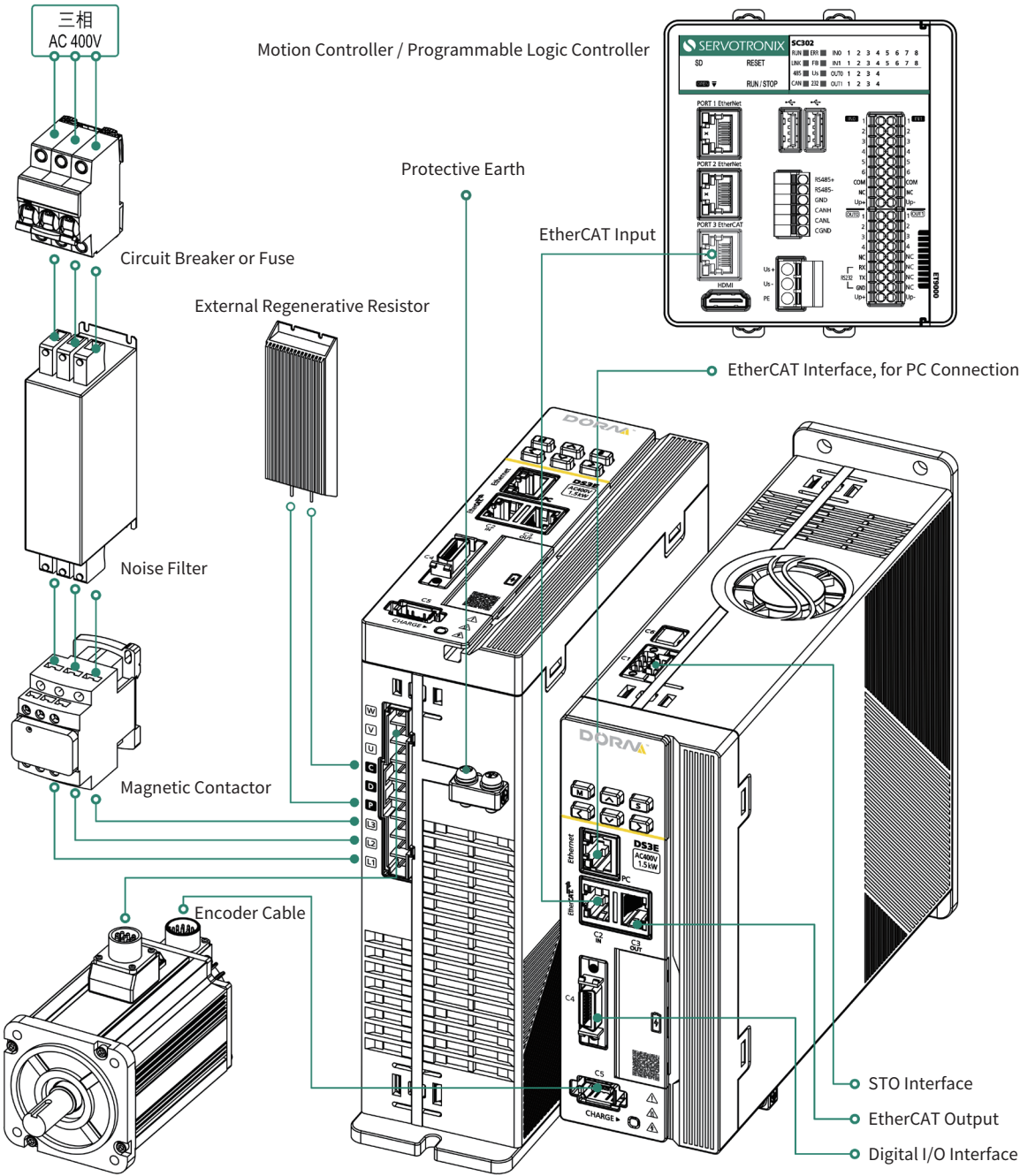
Symbol	Specifications
[Blank]	General Specifications
DB	Dynamic Braking

□□□□

6 Factory Code

Symbol	Specifications
[Blank]	Standard type

1.2 DS3E Wiring Diagram



1.3 DS3E TECHNICAL SPECIFICATIONS

Features		DS3E Specifications
Motor	Series	DM3 Series Motor
	Encoder	20-bit Single/Multi-turn Magnetic Encoder 23-bit Multi-turn Optical Encoder
	Motor Phase	Automatic motor phase and encoder direction configuration
Operation Mode	Control Mode	Current (Torque) control, speed control, position control, control mode switching
Current	Control Method	DQ, PI, Feedforward
(Torque) Control	Reference Command	EtherCAT, VarCom
	Parameter Tuning Method	Auto-tuning of current loop parameters
Speed Control	Performance	2.1 kHz bandwidth
	Filter	First-order low-pass filter, notch filter, load disturbance observer, velocity observer
	Reference Command	EtherCAT, VarCom,
Position Control	Performance	Update rate: 125 μs (8 kHz)
	Control Method	P+ Feedforward
	Reference Command	EtherCAT, VarCom
Brake	Method	Dynamic braking, motor regenerative braking
User Interface	Operator Panel	6-button keypad with LED display
GUI	User Interface	Windows-based ServoStudio application
	Function	Configuration Connection, Drive Information, Power Supply Information, Motor, Feedback, I/O Selection/Configuration, Motion Setup/Tuning, Fault History/Display, Setup Wizard, Expert View
Electronic Gear Ratio	Range	1:1000 ~ 8000:1
Safety Control*	STO	Optional SAFE TORQUE OFF (STO)
Motion Unit	Position	count (user unit)
	Velocity	rpm
	Acceleration / Deceleration	rpm/s
Control Functions	Motor	Field Weakening Control Algorithm
	Notch Filter	5-stage Notch Filter
	Feedforward	Available in (Speed / Torque) mode
	Load Variation Suppression Control	Available in (Position / Torque) mode
	Friction Torque Compensation	Available in (Position / Torque) mode
	Torque Saturation Protection	Available in (Position / Torque) mode
	Torque Limit Switching	Available in (Position / Torque) mode
	Gain Switching	Available in (Position / Torque) mode
High-Speed Digital Input	Torque Filter	Improves high-frequency vibration suppression.
	Channel Count	2
	Signal Format	Configurable Optically Isolated
		NPN
	Voltage Level	24V (IEC 61131)
	Max. Input Current	12.5 mA
	Propagation Delay	1 ms
		1MHz

Features		DS3E Specifications
Standard Digital Input	Number of Channels	3
	Signal Format	Configurable Optically Isolated
		NPN
	Voltage Level	24V (IEC 61131)
	Maximum Input Current	6 mA
	Propagation Delay Time	1 ms
	Maximum Frequency	1 kHz
Standard Digital Output	Number of Channels	3
	Signal Format	Configurable Optically Isolated
		NPN
	Voltage Level	24V (IEC 61131)
	Maximum Output Current	50mA per output (total 200mA)
	Short-Circuit Protection	No
Communication Specifications	Propagation Delay Time	1 ms
	Application Layer Protocol	EtherCAT Protocol
	Supported Services	CoE (PDO, SDO)
	Synchronization Method	DC- Distributed Clock
	Physical Layer	100BASE-TX
	Baud Rate	100Mbit/s (100BASE-TX)
	Duplex Mode	Full-Duplex
	Topology	Line
	Transmission Medium	Shielded Category 5e or higher Ethernet cable
	Transmission Distance	Less than 150m between two nodes (under good environmental conditions with high-quality cables)
	Number of Slaves	Protocol supports up to 65,535 slaves; practical usage exceeds 200 nodes.
	EtherCAT Frame Length	44 bytes – 1,498 bytes
	Process Data	Maximum 1,486 bytes per Ethernet frame
	Refresh Time	Refresh time for 1,000 digital I/points: approx. 30 μs; for two servo axes: approx. 100 μs. Refresh times are configured individually for different interface definitions.
	Communication Bit Error Rate	10-10 Ethernet standar
	LED Indicators	None
Configuration Unit	FMMU Unit	8
	Sync Manager Unit	8
	Process Data RAM	8KB
	Distributed Clock	64-bit
	EEPROM Capacity	32Kbit Initialization data is written via the EtherCAT master
Control Modes		Position Control: Profile Position (pp), Cyclic Synchronous Position (csp)
		Speed Control: Profile Velocity (pv), Cyclic Synchronous Velocity (csv)
		Torque Control: Profile Torque (tq), Cyclic Synchronous Torque (cst)
		Homing Mode (HM)
		Modes are switched via EtherCAT communication commands
Environmental Specifications	Protection Functions	Includes but not limited to:Dynamic Braking (Hardware) Low/Over-voltage, Overcurrent Drive and Motor Overheating
	Compliance	CE Directive: EN61800-3,EN61800-5-1
	Environment	Operating Temperature: 0-45° C no derating, 45-55° C with derating
		Storage Temperature: -20 ~ 65°
		Humidity:10 - 90% (non-condensing)
		Altitude: Up to 1000 m above sea level (per IEC 61800-5-1 clearance requirements)
	Operating Conditions	Vibration: 5.88m/s2, 10Hz-60Hz
		Ingress Protection: IP20
		Pollution Degree: IEC 60664-1 Pollution Degree 2
		Do not install or use the drive in the following locations: Where corrosive or flammable gases are present, Exposed to water, oil, or chemicals, Where dust (including iron powder) or salt is present

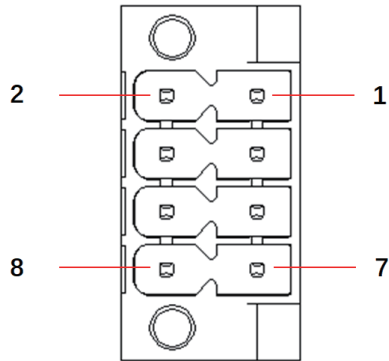
DS3E 220V Series Drive Specifications

Model	Standard Unit	DS3E-02AS	DS3E-04AS	DS3E-08AS	DS3E-10AS	DS3E-15AS	DS3E-20AS
Rated Motor Capacity [W]		200	400	750	1000	1500	2000
Continuous Output Current [Arms]		1.60	2.50	4.50	6.50	10.00	11.60
Peak Output Current [Arms]		5.80	9.60	16.65	22.05	26.50	32.00
Main Circuit	Power Supply	1ph AC 200V-240V +10% ~ -10%, 50/60Hz			1/3ph AC 200V-240V +10% ~ -10%, 50/60Hz		
	Input Current [Arms]	2.3	4	7.9	9.6 (Single-phase power supply) 5.1 (Three-phase power supply)	12.8 (Single-phase power supply) 8.0 (Three-phase power supply)	12.8 (Single-phase power supply) 8.0 (Three-phase power supply)
Control Power		Common DC Bus Powered with Shared Rectification					
Regenerative Resistor	Built-in Resistance [Ω]	No	No	40	25	25	25
	Built-in Resistor PowerRating [W]	No	No	50	80	80	80
	Max. Absorbable Braking Energy [J]	13.15	26.29	22.41	44.7	72.1	72.1
	Minimum Allowable External Resistance [Ω]	50	45	40	25	15	15
Chassis		A		B	C	D	D
Dimensions	W(mm)	45		50	60	80	80
	H(mm)	160		160	160	160	160
	D(mm)	173		173	200	200	200
Fan		No	No	Yes	Yes	Yes	Yes

DS3E 380V Mechanical and Electrical Specifications

Model	Standard Unit	DS3E-10BS	DS3E-15BS	DS3E-20BS	DS3E-30BS
Rated Motor Capacity [W]		850	1500	2000	3000
Continuous Output Current [Arms]		3.50	5.40	7.50	11.9
Peak Output Current [Arms]		9.28	14.00	19.88	29.75
Main Circuit	Power Supply	3ph AC 380V-440V +10% ~ -10%, 50/60Hz			
	Input Current [Arms]	2.4	3.6	5.6	8
Control Power		Common DC Bus Powered with Shared Rectification			
Regenerative Resistor	Built-in Resistance [Ω]	100		50	
	Built-in Resistor PowerRating [W]	60		75	
	Max. Absorbable Braking Energy [J]	34.28	34.28	50.41	50.41
	Minimum Allowable External Resistance [Ω]	80	60	45	40
Chassis		C		D	
Dimensions	W(mm)	60		75	
	H(mm)	160		160	
	D(mm)	200		200	
Fan		Yes	Yes	Yes	Yes

1.4 DS3E Series Servo Terminal Definitions



C1 Terminal Signals

Terminal Signal Definitions

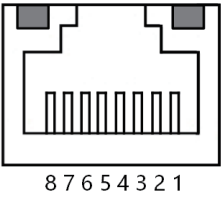
The STO function blocks the PWM signal output to the drive's power stage through the external redundant hardware terminals (STO1 and STO2), thereby preventing motor movement.

Pin	Description	Pin	Description
1	24V Power	2	24V COM
3	STO1	4	STO COM
5	STO2	6	STO COM
7	NC	8	NC

(Note)The STO 24V power supply is dedicated solely to the STO circuit and must not be used for any other purpose.

PC/C2/C3 Terminal Signals

Terminal Signal Definitions

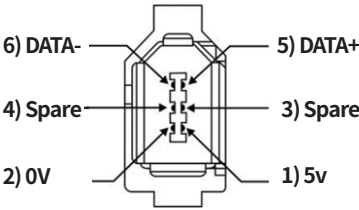


Pin	Description	Function
1	TX+	Data Transmission +
2	TX-	Data Transmission -
3	RX+	Data Reception +
4	NC	No Connection (Do not wire)
5	NC	No Connection (Do not wire)
6	RX-	Data Reception -
7	NC	No Connection (Do not wire)
8	NC	No Connection (Do not wire)
Enclosure	FG	Shield

The PC connector serves as the PC communication interface for connecting to the servo tuning software ServoStudio2 via Ethernet. The C2 and C3 connectors are the host computer communication interfaces, with the EB servo drive operating as an EtherCAT slave device.

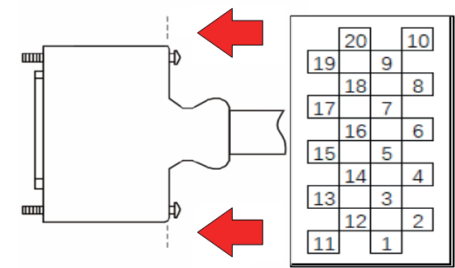
C5Terminal Signals

For details on the C5 terminal signals, refer to the Motor Interface Description.



C4 Terminal Signals

Terminal Signal Definitions

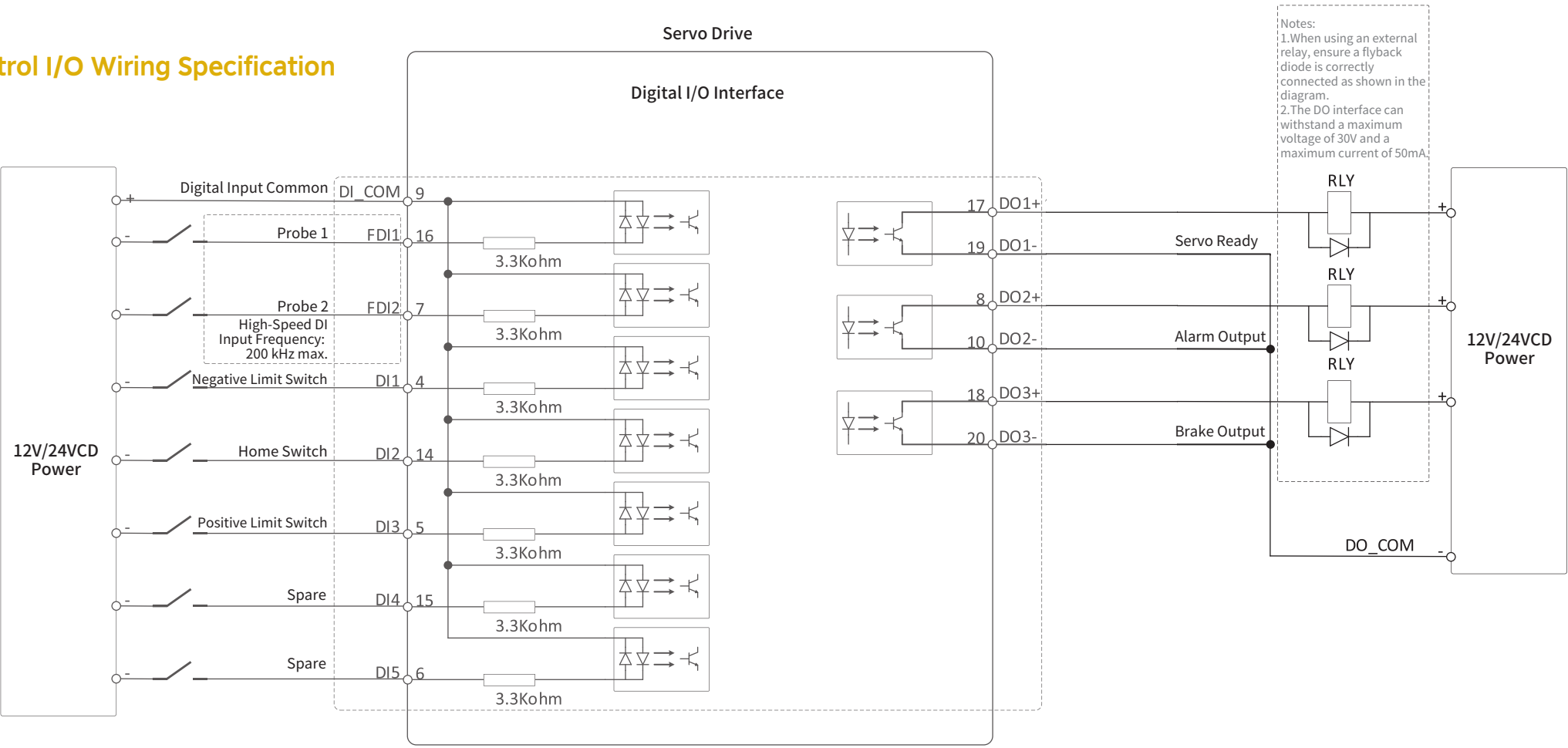


Pin	Function	Description	Pin	Function	Description
1	Internal 24V Power Positive	Internal 24V Power Supply Positive	11	Internal 24V Power Negative	Internal 24V Power Supply Negative
2	Reserved		12	Reserved	
3	Reserved		13	Reserved	
4	Digital Input 1	Optically Isolated Programmable Digital Input Sink/Source	14	Digital Input 2	Optically Isolated Programmable Digital Input Sink/Source
5	Digital Input 3	Optically Isolated Programmable Digital Input Sink/Source	15	Digital Input 4	Optically Isolated Programmable Digital Input Sink/Source
6	Digital Input 5	Optically Isolated Programmable Digital Input Sink/Source	16	High-Speed Digital Input 1	Optically Isolated Programmable Digital Input Sink/Source
7	High-Speed Digital Input 2	Optically Isolated Programmable Digital Input Sink/Source	17	Digital Output 1+	Optically Isolated Programmable Digital Output
8	Digital Output 2+	Optically Isolated Programmable Digital Output	18	Digital Output 3+	Optically Isolated Programmable Digital Output
9	Digital Input Common	Note: 24V or 0V (depending on Sink or Source configuration)	19	Digital Output 1-	Optically Isolated Programmable Digital Output
10	Digital Output 2-	Optically Isolated Programmable Digital Output	20	Digital Output 3-	Optically Isolated Programmable Digital Output

Description	Model	Part Number	Notes
C4 Control Terminal Connector	MDR-20P20-BKAu-1.27	11201707000413	Optional

- (Notes)
- 1.Do not use vacant terminals.
 - 2.Connect the shield of the input/output signal cable to the connector shell. Frame Ground (FG) is established through the connector on the servo drive side.
 - 3.All input/output pins can have their signals assigned via parameter settings.

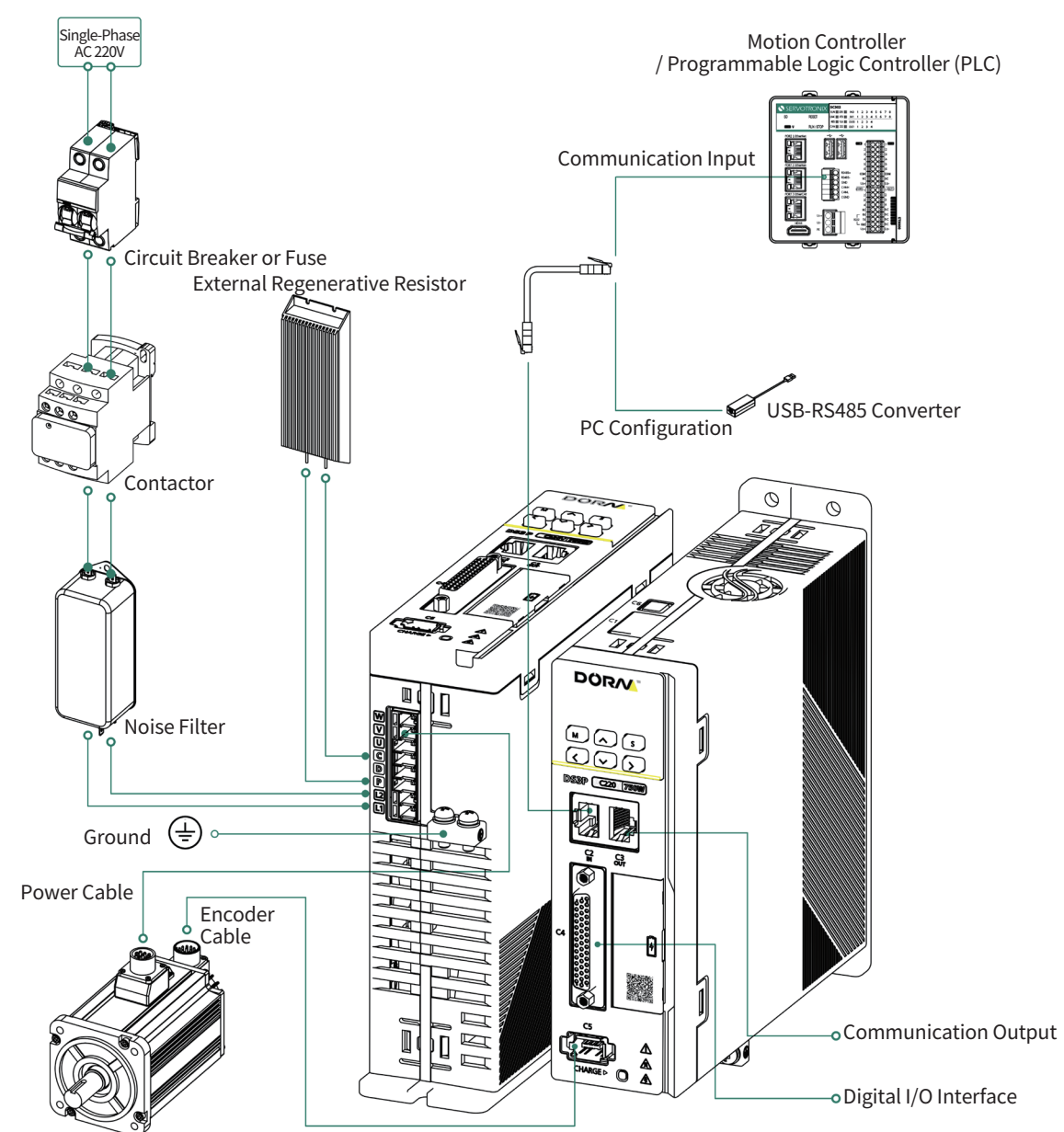
Control I/O Wiring Specification



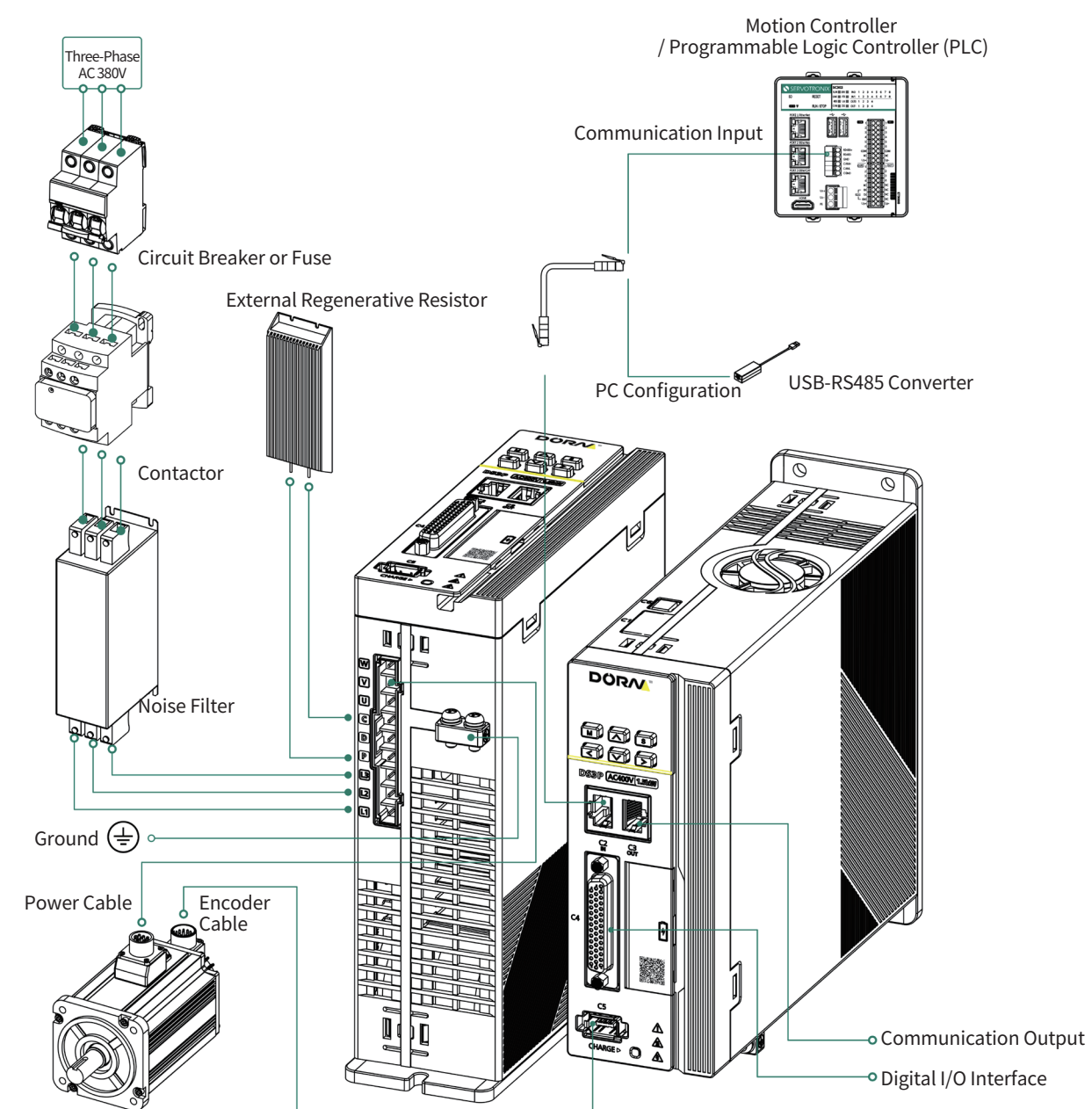
- (Notes)
- 1.The brake coil is non-polarized.
 - 2.The power supply for the brake must be prepared by the customer. Furthermore, the brake power supply and the control signal power supply (VDC) must not be shared.
 - 3.Do not apply voltages exceeding 24V or currents exceeding 50mA to the control signal output terminals.
 - 4.When directly driving a relay with the control output signal, connect a diode in parallel with the relay coil as shown in the diagram. Failure to install this diode, or reverse installation, may damage the drive.
 - 5.It is recommended to use relays such as the MY2N-D2_GSDC24V / MY2N-D2-DSDC12V, which have built-in flyback diodes. Alternatively, connect a fast-recovery diode (e.g., FR102, FR103) in parallel with the relay coil. This diode should have a withstand voltage of at least 70V and a current rating greater than 1A.

1.5 DS3P Wiring diagram

DS3P Single-Phase



DS3P Three-Phase



1.6 DS3P General Technical Specifications

Specifications			DS3P
Control Method			IGBT PWM control, sine wave current drive method
Performance	Speed Loop Frequency Response		2.1kHz
	Within Speed Control Range		Speed control range: 1:5000 (The lower limit is defined as the minimum speed at which the motor can maintain operation without stalling under rated torque load).
	Speed Fluctuation Rate	Load Fluctuation	0–100% load: ±0.5% (at rated speed)
		Voltage Fluctuation	Rated voltage ±10%: 0.5% (at rated speed)
		Temperature Flctuation	Ambient temperature 25±25°C: ±0.5% or less (at rated speed)
	Torque Control Accuracy (Repeatability)		±2%
I/O Signals	Soft-start Time Setting		0–10 s (Acceleration and deceleration times can be set separately).
	Encoder Divided Pulse Output		Phase A, B: Differential output; Phase Z: Selectable as differential or open-collector output with arbitrary division.
	Control Input Signals	Assignable Input Signals	7 Points Servo-on input (S-ON) Control mode switching input Forward drive prohibit input (POT) Reverse drive prohibit input (NOT) Position error counter clear input (CLR) Alarm reset (A-RST) Gain switching input (GAIN) Command pulse inhibit input (INHIBIT), etc. The assignment of the above signals and their positive/negative logic can be configured.
	Control Output Signals	Assignable Output Signals	5 Points Alarm signal (ALM) Positioning complete signal (COIN) Z-phase open collector signal (CZ) External brake release signal (BK) Servo ready (S-RDY) The assignment of the above signals and their positive/negative logic can be configured.
Commun-ication Functions	RS485 Communication	1: NCommunication	When using a repeater, a maximum of N=31 stations can be configured.
		Node Address Setting	Set via parameters
		Connected Devices	PC / Host Computer
	PC Communication	Communication Interface	RS485
Display and Key Functions			LED display with 6 keys
Dynamic Brake (DB)			Main circuit power OFF Servo alarm Servo OFF Overtravel (OT)
Regeneration Processing			Built-in or External Regenerative Resistor
Overtravel (OT) Protection			POT/NOT Input Action: Deceleration stop or coasting stop
Protection Functions			Fault Types: Overcurrent, overvoltage, undervoltage, overload, regenerative fault
Position Control	Feedforward Compensation		Setting Range: 0–100% (in 1% increments)
	Positioning Completion Width Setting		Encoder Units: 0–65565 encoder units
	Input Signal	Input Pulse Form	Input Type: Differential input, open collector
		Maximum Input Pulse Frequency	Differential input: maximum high-speed 4 million pulses per second (pps), pulse width not less than 0.125 μs; Open collector: maximum 200 thousand pps, pulse width not less than 2.5 μs.
		Clear Signal	Clear Position Error Counter
	Internally Set Position Control	Position Selection	Segment 0-15 selection is achieved through combinations of Digital Input (DI) signals. (Other terminals can be assigned for this function via parameter settings.)
Speed Control	Internally Set Speed Control	Soft-start Time Setting	0–10 s (Acceleration and deceleration can be set separately)
		Speed Selection	Selection via external I/O signal input
Torque Control	Internally Set Torque Control	Torque Selection	Selection via external I/O signal input
Other Functions	Vibration Suppression Control		Features resonance suppression function for high, medium, and low characteristic frequencies.
	Auto-Tuning		Supports HDM/PDFF gain adjustment methods.
	Adaptive Notch Filter		Equipped with 5 notch filters (50 Hz–4000 Hz), 2 of which are adaptively configurable.

Environmental Specifications

DS3P	
Protection Rating	Protection Rating: IP20 Pollution Degree: IEC 60664-1 Level 2 Do not use the device in environments exposed to: Corrosive or flammable gases;Water, oil, or chemicals Dust (including iron powder) and salt
Operating Temperature	0°C to 45°C (no derating required)
	45°C to 55°C (derating required)
Storage Temperature	-20°C to 70°C
Humidity	10% to 90% RH (no condensation)
Altitude	< 1000 m (according to IEC 61800-5-1)
Vibration	10 m/s², 10-150 Hz
Protection Functions	Including but not limited to: Power-off dynamic braking, under/over voltage, overcurrent, drive and motor overheating, motor overload, drive overload, loss of feedback, unconfigured parameters, circuit faults.

Electrical Specifications

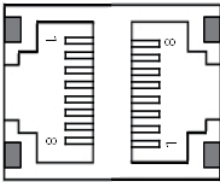
Specifications		DS3P-02AS	DS3P-04AS	DS3P-08AS	DS3P-10BS	DS3P-15BS	DS3P-20BS	DS3P-30BS
Drive Power		200W	400W	750W	1000W	1500W	2000W	3000W
Power Circuit Input L1、L2、(L3)	Input Voltage ±10%	220	220	220	380	380	380	380
	Line Frequency (Hz)	50/60	50/60	50/60	50/60	50/60	50/60	50/60
	AC Input	Single-Phase	Single-Phase	Single-Phase	Three-Phase	Three-Phase	Three-Phase	Three-Phase
	Continuous Current (Single-Phase Arms)	2.3	4	7.9	2.4	3.6	5.6	8
	Line Fuse (FRN-R, LPN, or equivalent) (A)	4	6	16	15	15	15	20
Drive Output	Continuous Output Current (Arms)	1.60	2.50	4.50	3.50	5.40	7.50	11.9
	Peak Output Current (Arms)	5.80	9.60	16.65	9.28	14.00	19.88	29.75
Cable Specifications	Control Circuit (AWG) (Under 3 meters)	24–26	24–26	24–26	24–26	24–26	24–26	24–26
	Main Circuit Motor Lines (AWG)	20	18	16	16	16	16	14
	Main Circuit AC Input (AWG)	20	18	16	16	16	16	14
External Regenerative Resistor	Minimum Resistance (Ω)	50	40	40	80	60	45	40
	Maximum Current (A)	8	10	10	10	13.3	17.8	20
Application Information	DC Bus Capacitance (μF)	660	660	940	340	340	500	500

1.7 DS3P Series Servo Terminal Definitions

Communication Interface (CN2/CN3)

Connectors CN2 and CN3 are communication ports. The DS3P servo drive supports RS485 communication. CN2 is designated as RS485 IN, and CN3 as RS485 OUT. The signals of CN2 and CN3 are mirror images of each other. When cascading multiple servo drives, use a standard straight-through Ethernet cable.

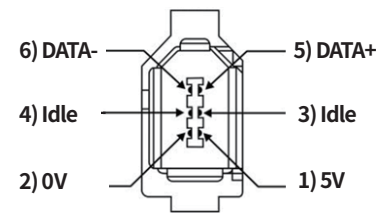
Pin	Name	Function
1	RS485+	RS485 Positive Signal
2	RS485-	RS485 Negative Signal
3	GND	Digital Ground
4	NC	Leave unconnected; do not wire
5	NC	Leave unconnected; do not wire
6	NC	Leave unconnected; do not wire
7	NC	Leave unconnected; do not wire
8	NC	Leave unconnected; do not wire
外壳	FG	Shield



Note: NC (Not Connected) indicates unused terminals. Do not wire to them.

C5 Terminal Signal

For details on the C5 terminal signal, refer to the Motor Interface Description.



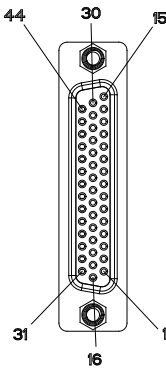
Googoltech Tmall Flagship Store



Terminal Cables - Scan to Purchase Immediately

IO Interface Signal Definitions

31-44				16-30				1-15			
44	AI2	Analog Input 2	30	AGND	Analog Ground	15	AI1	Analog Input 1			
			29	DO5+	Digital Output 5+	14	PL	Pulse Command Power Input			
43	DO5-	Digital Output 5-	28	DOOZ-	Z-phase Divided Open Collector Output -	13	DOOZ+	Z-phase Divided Open Collector Output +			
42	DO1-	Digital Output 1+	27	DO2-	Digital Output 2-	12	DO3+	Digital Output 3+			
41	DO1+	Digital Output 1+	26	DO3-	Digital Output 3-	11	DO4+	Digital Output 4+			
40	DO2+	Digital Output 2+	25	DO4-	Digital Output 4-	10	DI3	Digital Input 3			
39	DI1	Digital Input 1	24	DI4	Digital Input 4	9	DI6	Digital Input 6			
38	DI2	Digital Input 2	23	DI5	Digital Input 5-	8	24VGND	Internal 24V Power Ground			
37	SIGN-	Sign Command Input -	22	PULS+	Pulse Command Input +	7	24V	Internal 24V Power			
36	SIGN+	Sign Command Input +	21	PULS-	Pulse Command Input -	6	NC	-			
35	COM	Digital Input Common	20	COM	Digital Input Common	5	NC	-			
34	COM	Digital Input Common	19	ZO-	Z-phase Divided Output -	4	AO-	A-phase Divided Output -			
33	DI7	Digital Input 7	18	ZO+	Z-phase Divided Output +	3	AO+	A-phase Divided Output +			
32	NC	-	17	BO-	B-phase Divided Output -	2	GND	Internal Digital Ground			
31	NC	-	16	BO+	B-phase Divided Output +	1	NC	-			



(Notes)

Do not use unused terminals.

Connect the shield of the input/output signal cable to the connector housing. Frame ground (FG) is established through the connector on the servo drive side.

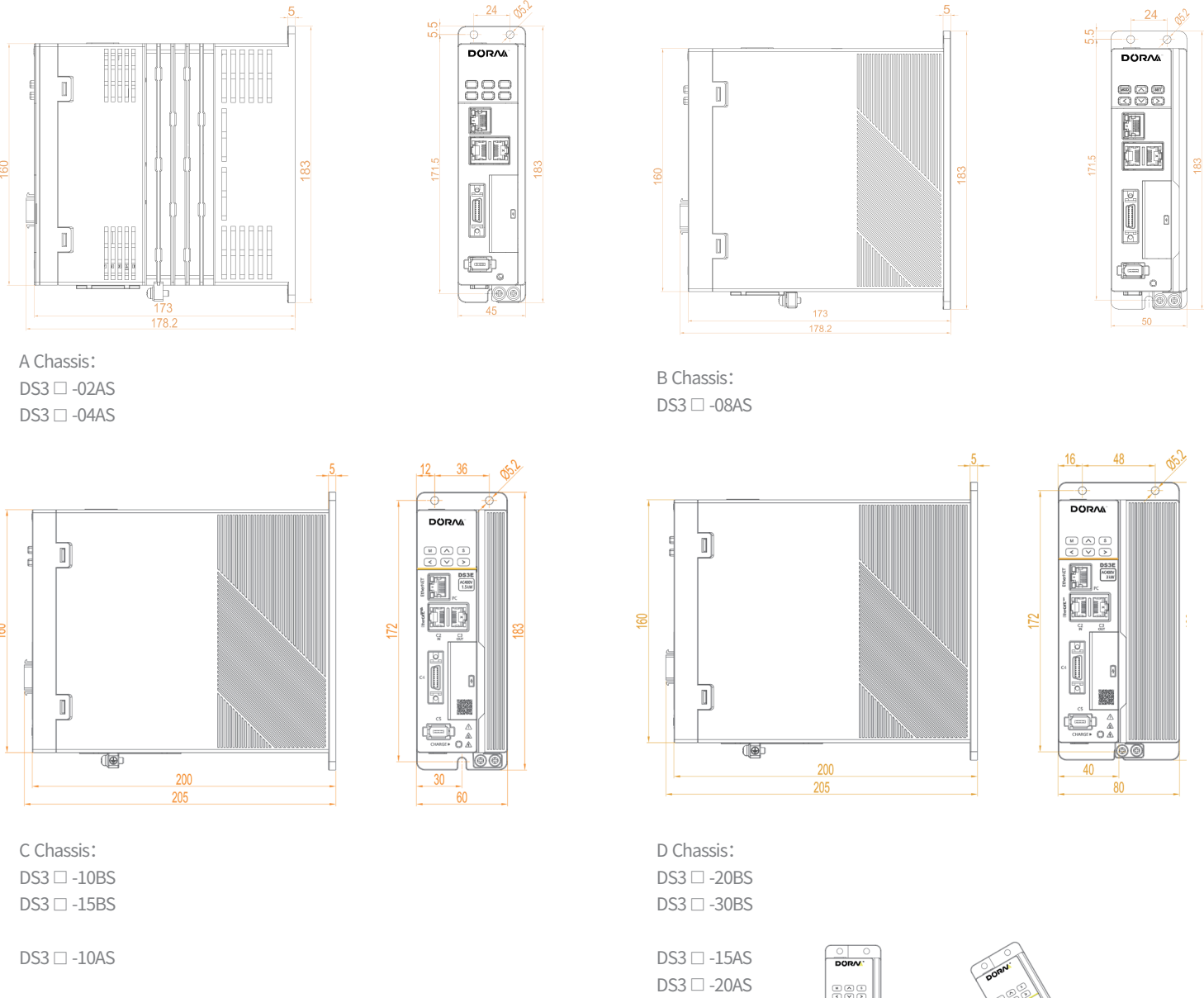
Signals can be assigned to all input/output pins via parameter settings.

DS3P Series Terminals

Model	Control Terminals	Product Name	Model	Part Number	Standard Factory Configuration	Power Terminals	Product Name	Model	Code	Standard Factory Configuration
DS3P-02AS DS3P-04AS DS3P-08AS	C2&C3	Communication Interface	RJ45+ Category 6A Ethernet Cable		No	P1	Power and Motor Connection Terminals	SC-T3005008SB0XT-45	11201707001675	Yes
	C4	Controller	24F78-01-05-00	12115000002541	Yes					
	C5	Encoder	SC-06-4	12119400000273	No					
DS3P-10BS DS3P-15BS DS3P-20BS DS3P-30BS	C2&C3	Communication Interface	RJ45+ Category 6A Ethernet Cable		No	P1	Power and Motor Connection Terminals	9EDGK-7.5-09P-13-1061Z(H)	11201707002135	Yes
	C4	Controller	24F78-01-05-00	12115000002541	Yes					
	C5	Encoder	SC-06-4	12119400000273	No					

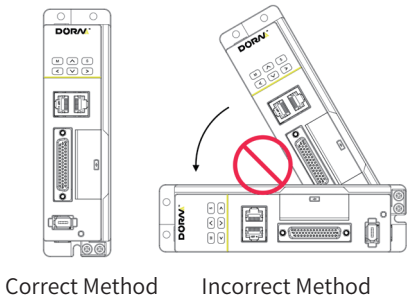
1.8 DS3E/P Series Servo Installation Dimensions

Installation Diagram: To ensure the cooling fan operates with minimal airflow resistance for effective heat dissipation, please adhere to the recommended installation spacing for both single and multiple AC servo drives.



The mounting orientation must comply with the specified requirements. Failure to do so may cause malfunctions.

- Precautions:
- The mounting orientation must comply with the specified requirements. Failure to do so may cause malfunctions.
 - To ensure effective cooling circulation, sufficient clearance must be maintained on all sides (top, bottom, left, right) of the AC servo drive from adjacent objects and panels. Insufficient space may lead to failures.
 - During installation, the air vents of the AC servo drive must not be blocked, and the unit must not be installed in a tilted position. Violating these requirements may result in malfunctions.



2 DM3E/S Generation Motor Product Overview

2.1 DM3E/S Series Motor Naming Convention

DM 3 S - M 04 A 0 06 S T - ***

1 2 3 4 5 6 7 8 9 10 11 12 13

1 Series Designation

Mark	Meaning
DM	DM Series

5 Motor Type (Construction Type)

Mark	Meaning
L	Low Inertia High-Speed Motor
M	Medium Inertia High-Speed Motor
G	Medium Inertia High-Torque Motor

9 Frame Size

Mark	Specifications	Mark	Specifications
04	40mm	08	80mm
06	60mm	13	130mm

2 Generation Designation

Mark	Meaning
3	3rd Generation

6 Rated Power

Mark	Specifications	Mark	Specifications
01	0.1kW	10	1.0 kW
02	0.2 kW	09	0.85 kW
04	0.4 kW	13	1.3 kW
06	0.6 kW	18	1.8 kW
08	0.75 kW		

10 Brake/Oil Seal/Shaft Configuration

Mark	Specifications
S	With Oil Seal, Without Brake
E	With Oil Seal, With Brake
N	Without Oil Seal, Without Brake
B	Without Oil Seal, With Brake

3 Performance Category

Mark	Meaning
S	Standard Type (with Optical Encoder)
E	Economy Type (with Magnetic Encoder)

7 Voltage Class

Mark	Specifications
A	220V
B	380V

11 Encoder Configuration

Mark	Specifications
T	Optical Encoder: 23-bit single-turn resolution with 16-bit multi-turn counting (Utilizes 23-bit Tamagawa data protocol)
M	Magnetic Encoder: 20-bit single-turn resolution with 16-bit multi-turn counting (Utilizes 23-bit Tamagawa data protocol)
G	Magnetic Encoder: 20-bit single-turn resolution (Utilizes 23-bit Tamagawa data protocol)

4、12: Connector symbol no specific meaning.

8 Electromagnetic Design Number

Mark	Meaning
0	Electromagnetic Design Number 0
Other	Other Electromagnetic Designs

13 Custom Code

Mark	Specifications
blank	Standard Products (Standard Construction, Standard Key, Standard Shaft);
**	For other custom codes, please refer to the Custom Product Specification.

Note:
This is provided solely to explain the meaning of the characters in the product model designation; it does not imply that all character combinations correspond to an actual product.

2.2 DM3E/S Generation Motor Product Highlights

The DM3E/S series of high-performance rotary servo motors represents Dongling Technology's new-generation platform of servo motor products. Compared with the previous generation series, this new product line features comprehensive upgrades in electrical characteristics, structural design, control accuracy, ease of use, and manufacturability. At the same time, it maintains full compatibility with the mounting flange, output shaft, and cable specifications of the preceding generation, offering the following outstanding features:

Higher Performance

□ 40/60/80 Frame Size Products

Peak Torque Overload Capability

3.5 times

Maximum Speed

6000RPM

□ 130 Frame Size Products

Peak Torque Overload Capability

2.5 times more than

Maximum Speed

4500RPM

High Efficiency

Models above 550W comply with Energy Efficiency Level 1 requirements of GB 30253.



Comprehensive Certifications

(Certifications underway; contact sales for details)



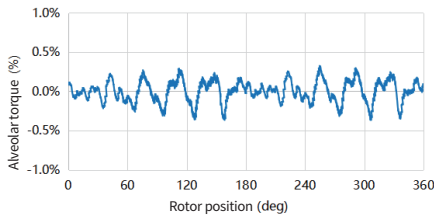
The full product range complies with CE and UKCA certification standards.

Expanded Product Range

The standard model portfolio covers 40-frame low-inertia and 60/80/130-frame medium-inertia products, with a power range of 0.1 kW to 1.8 kW. Compared to the previous generation, it adds 60-frame 0.6 kW and 80-frame 1.0 kW medium-inertia models, offering greater selection flexibility.

High Smoothness

Cogging torque has been reduced to as low as 1% of the rated torque.



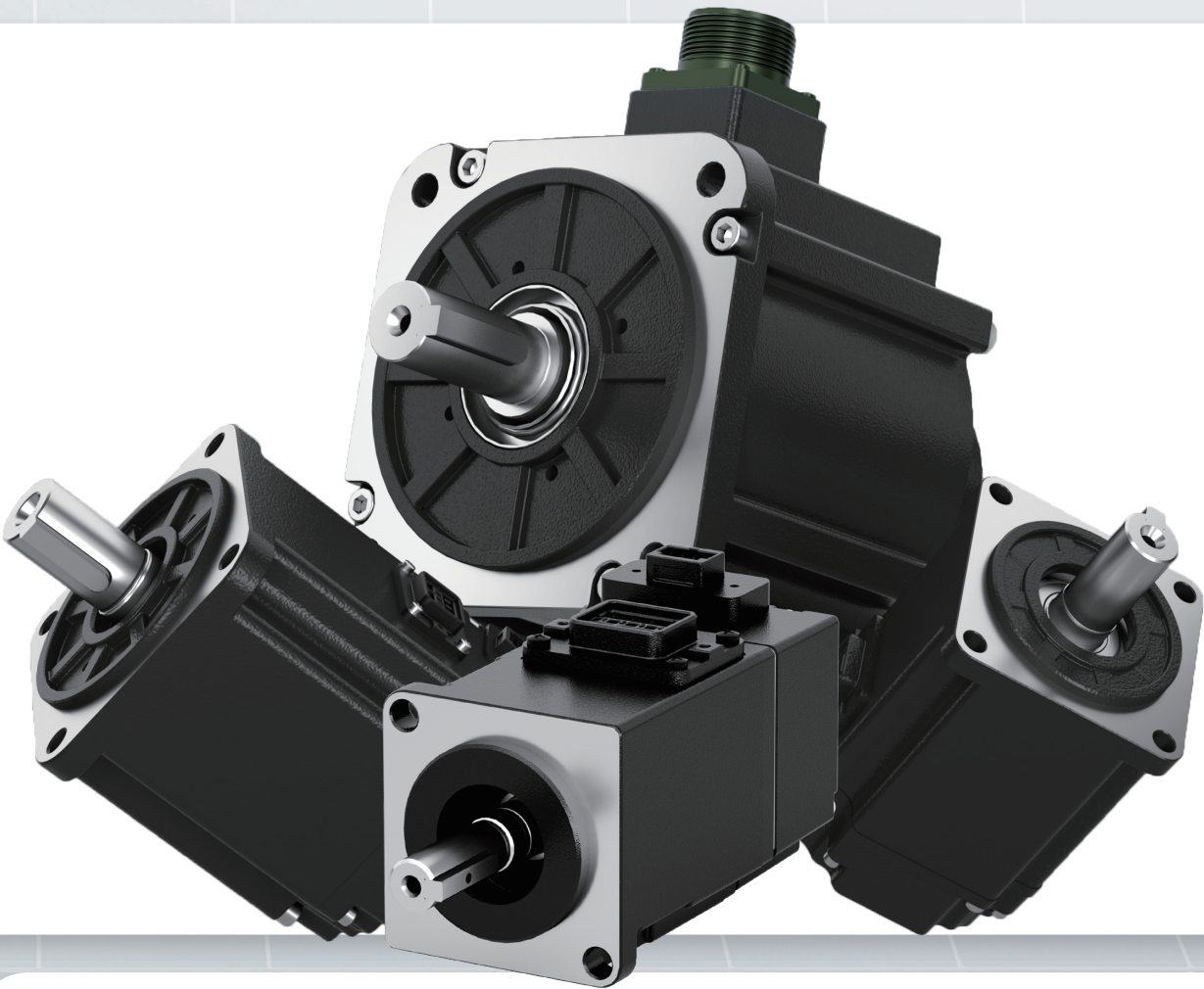
Low Temperature Rise

Patented electromagnetic circuit design, casing temperature rise under typical working conditions

Below 60 K

Low Noise Operation

Optimized magnetic circuit design, structural design, lower running noise



Quick-Insert Design

The entire product series adopts a quick-insert connector design. With no "pigtail" cables on the motor body, mid-air mating of connectors is eliminated. This results in higher interface reliability, more convenient wiring, and greater flexibility.

High Protection



The entire product series features an enclosure that conforms to the IP65 protection rating standard (including the connector interface, excluding the shaft penetration section).

Multiple Encoder Configurations

Multiple encoder options are available, with the default use of the Tamagawa data protocol for enhanced compatibility.

With the 20-bit magnetic encoder version
the repeat positioning accuracy can reach 50 arcseconds.

With the 23-bit optical encoder version
the repeat positioning accuracy can reach 20 arcseconds.

2.3 DM3E/S Generation Motor Product Map Overview

20 20-bit Single-turn Absolute Magnetic Encoder 20 20-bit Multi-turn Absolute Magnetic Encoder 23 Indicates a 23-bit Single-turn Absolute Optical Encoder

Inertia Class		Specifications	100W*
DM3 □ -L Low Inertia, High-Speed	Model		L01A004*
	Flange [mm]		40
	Rated / Peak Torque [N·m]		0.32/1.12
	Rated / Peak Speed [rpm]		3000/6000
	Inertia (With / Without Brake) [kg·cm²]		0.044/0.046
	Voltage Class [VAC]		220
		Encoder Type [bit]	20 20 23

Inertia Class		Specifications	200W	400W	600W	750W	1000W
DM3 □ -M Medium Inertia, High-Speed	Model		M02A006	M04A006	M06A006	M08A008	M10A008
	Flange [mm]		60	60	60	80	80
	Rated / Peak Torque [N·m]		0.64/2.24	1.27/4.45	1.91/6.69	2.39/8.37	3.18/11.13
	Rated / Peak Speed [rpm]		3000/6000	3000/6000	3000/6000	3000/6000	3000/6000
	Inertia (With / Without Brake) [kg·cm²]		0.24/0.25	0.47/0.48	0.68/0.69	1.46/1.51	2.00/2.05
	Voltage Class [VAC]		220	220	220	220	220
	Encoder Type [bit]		20 20 23	20 20 23	20 20 23	20 20 23	20 20 23

Inertia Class		Specifications	850W	1300W	1800W
DM3 □ -G Medium Inertia, High-Torque	Model		G09A013/G09B013	G13A013/G13B013	G18A013/G18B013
	Flange [mm]		130	130	130
	Rated / Peak Torque [N·m]		5.39/13.5	8.28/20.85	11.5/28.75
	Rated / Peak Speed [rpm]		1500/4500	1500/4500	1500/4500
	Inertia (With / Without Brake) [kg·cm²]		12.21/14.22	18.03/20.05	23.94/25.95
	Voltage Class [VAC]		220/380	220/380	220/380
	Encoder Type [bit]		20 20 23	20 20 23	20 20 23

Remark:
The speed/torque performance was tested with our company's DS3 series servo drive.

2.4 DM3E/S Series Servo Motor Model Portfolio

Motor Type	Frame Size	Rated Power (kW)	Voltage Class (VAC)	Torque N·m (Rated / Peak)	Speed rpm (Rated /Maximum)	Inertia kg·cm² (Without Brake / With Brake)	Current Arms (Rated / Peak)	Oil Seal	Brake	20-bit Magnetic Single-turn Absolute	20-bit Magnetic Multi-turn Absolute	23-bit Optical Multi-turn Absolute	Recommended Drive
L Low Inertia, High-Speed Motor	40	0.1	220	0.32/1.12	3000/6000	0.044/0.046	1.30/4.25	×	✓	DM3E-L01A004BG	DM3E-L01A004BM	DM3S-L01A004BT	DS3 □ -02AS
								×	×	DM3E-L01A004NG	DM3E-L01A004NM	DM3S-L01A004NT	
M Medium Inertia, High-Speed Motor	60	0.2	220	0.64/2.30	3000/6000	0.24/0.25	1.38/5.80	✓	✓	DM3E-M02A006EG	DM3E-M02A006EM	DM3S-M02A006ET	DS3 □ -02AS
								✓	×	DM3E-M02A006SG	DM3E-M02A006SM	DM3S-M02A006ST	
		0.4	220	1.27/4.45	3000/6000	0.47/0.48	2.40/9.60	✓	✓	DM3E-M04A006EG	DM3E-M04A006EM	DM3S-M04A006ET	DS3 □ -04AS
								✓	×	DM3E-M04A006SG	DM3E-M04A006SM	DM3S-M04A006ST	
		0.6	220	1.91/6.69	3000/6000	0.68/0.69	3.65/14.40	✓	✓	DM3E-M06A006EG	DM3E-M06A006EM	DM3S-M06A006ET	DS3 □ -08AS
								✓	×	DM3E-M06A006SG	DM3E-M06A006SM	DM3S-M06A006ST	
	80	0.75	220	2.39/8.37	3000/6000	1.46/1.51	4.42/16.90	✓	✓	DM3E-M08A008EG	DM3E-M08A008EM	DM3S-M08A008ET	DS3 □ -08AS
								✓	×	DM3E-M08A008SG	DM3E-M08A008SM	DM3S-M08A008ST	
		1.0	220	3.18/11.13	3000/6000	2.00/2.05	5.74/23.00	✓	✓	DM3E-M10A008EG	DM3E-M10A008EM	DM3S-M10A008ET	DS3 □ -10AS
								✓	×	DM3E-M10A008SG	DM3E-M10A008SM	DM3S-M10A008ST	
G Medium Inertia, High-Torque Motor	130	0.85	220	5.39/13.50	1500/4500	12.21/14.22	5.73/16.28	✓	✓	DM3E-G09A013EG	DM3E-G09A013EM	DM3S-G09A013ET	DS3 □ -10AS
								✓	×	DM3E-G09A013SG	DM3E-G09A013SM	DM3S-G09A013ST	
		380	5.39/13.50	1500/4500	12.21/14.22	3.30/8.85		✓	✓	DM3E-G09B013EG	DM3E-G09B013EM	DM3S-G09B013ET	DS3 □ -10BS
								✓	×	DM3E-G09B013SG	DM3E-G09B013SM	DM3S-G09B013ST	
		1.3	220	8.28/20.85	1500/4500	18.03/20.05	9.70/26.09	✓	✓	DM3E-G13A013EG	DM3E-G13A013EM	DM3S-G13A013ET	DS3 □ -15AS
								✓	×	DM3E-G13A013SG	DM3E-G13A013SM	DM3S-G13A013ST	
		380	8.28/20.85	1500/4500	18.03/20.05	5.15/13.35		✓	✓	DM3E-G13B013EG	DM3E-G13B013EM	DM3S-G13B013ET	DS3 □ -15BS
								✓	×	DM3E-G13B013SG	DM3E-G13B013SM	DM3S-G13B013ST	
	180	220	11.5/28.75	1500/4500	23.94/25.95	11.60/31.35		✓	✓	DM3E-G18A013EG	DM3E-G18A013EM	DM3S-G18A013ET	DS3 □ -20AS
								✓	×	DM3E-G18A013SG	DM3E-G18A013SM	DM3S-G18A013ST	
	180	380	11.5/28.75	1500/4500	23.94/25.95	7.14/19.12		✓	✓	DM3E-G18B013EG	DM3E-G18B013EM	DM3S-G18B013ET	DS3 □ -20BS
								✓	×	DM3E-G18B013SG	DM3E-G18B013SM	DM3S-G18B013ST	

Special Marking Note:
40 frame size motors do not include an oil seal by default. If an oil seal is required, please contact our sales department for customization.

3 DM3E/S Series Servo General Technical Specifications

Product Generation			DM3E/S Series	
Voltage Class		220V Models		380V Models
Withstand Voltage Rating		1500 VAC for 1 minute, leakage current ≤10 mA		1800 VAC for 1 minute, leakage current ≤20 mA
Duty Cycle		S1		
Insulation Class		F		
Insulation Resistance		≥ 10MΩ @ 500 VDC		
Excitation Method		Permanent Magnet Type		
Mounting Method		Flange Mounting		
Drive Connection Method		Direct connection to the drive via an extension cable		
Rotation Direction		When viewed from the motor shaft extension side/load side, the positive direction is defined as counterclockwise (CCW) rotation of the rotor. Under this condition, the back EMF phase relationship satisfies: U > V > W.		
Vibration Grade		V15		
Enclosure Protection Rating		IP65 (excluding the shaft penetration section, and the connector must be reliably connected)		
Vibration Resistance		Vibration Frequency 10–150 Hz, Amplitude 0.175 mm or Acceleration 25 m/s², Sweep Cycles: 10		
Shock Resistance		Shock: Peak Acceleration 50 m/s², Pulse Duration 30 ms, Half-sine wave; 3 shocks per direction, 18 shocks in total		
Environmental Conditions	Storage Environment	When storing the motor in a non-powered state, please adhere to the following environmental requirements:		
		Ambient Temperature: -10°C to +40°C (freezing prohibited)		
		Ambient Humidity: 20% RH to 85% RH (condensation prohibited)		
	Operating Environment	Ambient Temperature: -10°C to +40°C		
		Ambient Humidity: 20% RH to 85% RH (condensation prohibited)		
	Installation Location	• Indoor areas free of corrosive or explosive gases.		
		• Well-ventilated areas with minimal dust, debris, and moisture.		
		• Locations that are easily accessible for inspection and cleaning.		
		• Altitude below 1000m (For altitudes between 1000m and 2000m, the equipment can be used after derating the ratings).		
		• Areas where strong magnetic fields are not generated.		

* The values in the table are typical values, and actual products are subject to certain tolerances.
*1It represents the motor's performance when paired with the standard servo drive; performance may vary when used with other drives.
*2The brake is designed for static holding only and must not be used for dynamic braking.

4 DM3E/S Series Servo Motor Electrical Specifications

4.1 DM3E/S-L Electrical Specifications

Item		Unit	L01A004
Rated Voltage		VAC	220
Inertia Type		/	Low Inertia
Mounting Flange		mm	40
Rated Power		W	100
Rated Torque		N·m	0.32
Peak Torque *1		N·m	1.12
Rated Speed		r/min	3000
Maximum Speed *1		r/min	6000
Rated Current *1		Arms	1.30
Peak Current *1		Arms	4.25
Torque Constant *1		N·m/Arms	0.31
Number of Pole Pairs		/	5
Line Voltage Constant *1		Vrms/krpm (±10%)	18.60
Electrical Time Constant		ms	0.40
Line Resistance (at 20°C) *1		Ω (±5%)	13.57
*Line Inductance *1		mH (±10%)	5.43
Inductance	q-axis	mH (±10%)	2.97
	q-axis	mH (±10%)	2.46
Rotor Inertia	Without Brake	x10 ⁻⁴ kg.m²	0.044
	With Brake	x10 ⁻⁴ kg.m²	0.046
Mechanical Time Constant	Without Brake	ms	0.95
	With Brake	ms	0.99
Mass	Without Brake	kg	0.34
	With Brake	kg	0.51
Allowable Load	Radial Load	N	78
	Axial Load	N	54
Brake Specifications *2	Rated Voltage	VDC (±10%)	24
	Rated Current	A	0.33
	Rated Power	W (@20°C)	8.0
	Holding Torque	N·m	≥ 0.32
	Pull-in Voltage	VDC	≤ 16.8
	Pull-in Time	ms	≤ 40
	Drop-out Voltage	VDC	≥ 1
	Drop-out Time	ms	≤ 20
Encoder Configuration *3		/	20 20 23
Test Heat Sink Specifications		mm	200*200*6

Remark:
*1 The parameter values are typical measurements obtained from a test prototype at an ambient temperature of 25°C. The tests were conducted using a Googoltech DS3 series servo drive. Performance may vary when used with other drives.
*2 The brake is designed for static holding only and must not be used for dynamic braking.

4.2 DM3E/S-M Electrical Specifications

Item		Unit	M02A006	M04A006	M06A006	M08A008	M10A008
Rated Voltage		VAC	220	220	220	220	220
Inertia Type		/	Medium Inertia	Medium Inertia	Medium Inertia	Medium Inertia	Medium Inertia
Mounting Flange		mm	60	60	60	80	80
Rated Power		W	200	400	600	750	1000
Rated Torque		N·m	0.64	1.27	1.91	2.39	3.18
Peak Torque *1		N·m	2.30	4.45	6.69	8.37	11.13
Rated Speed		r/min	3000	3000	3000	3000	3000
Maximum Speed *1		r/min	6000	6000	6000	6000	6000
Rated Current *1		Arms	1.38	2.40	3.65	4.42	5.74
Peak Current *1		Arms	5.80	9.60	14.4	16.90	23.00
Torque Constant *1		N·m/Arms	0.51	0.56	0.56	0.60	0.60
Number of Pole Pairs		/	5	5	5	5	5
Line Voltage Constant *1		Vrms/krpm (±10%)	30.78	33.80	33.78	36.06	36.20
Electrical Time Constant		ms	1.17	1.67	1.56	3.05	2.91
Line Resistance (at 20°C) *1		Ω (±5%)	9.03	3.08	1.87	1.15	0.79
*Line Inductance *1		mH (±10%)	10.57	5.13	2.92	3.51	2.30
Inductance	d-axis	mH (±10%)	5.12	2.40	1.37	1.64	1.08
	q-axis	mH (±10%)	5.45	2.73	1.55	1.87	1.22
Rotor Inertia	Without Brake	x10 ⁻⁴ kg.m ²	0.24	0.47	0.68	1.46	2.00
	With Brake	x10 ⁻⁴ kg.m ²	0.25	0.48	0.69	1.51	2.05
Mechanical Time Constant	Without Brake	ms	1.25	0.69	0.61	0.71	0.66
	With Brake	ms	1.31	0.71	0.62	0.73	0.68
Mass	Without Brake	kg	0.71	1.02	1.30	1.98	2.38
	With Brake	kg	1.09	1.39	1.67	2.27	2.76
Allowable Load	Radial Load	N	245	245	245	393	393
	Axial Load	N	74	74	74	147	147
Brake Specifications *2	Rated Voltage	VDC (±10%)	24	24	24	24	24
	Rated Current	A	0.40	0.40	0.40	0.44	0.35
	Rated Power	W (@20°C)	9.6	9.6	9.6	10.5	8.5
	Holding Torque	N·m	≥ 1.6	≥ 1.6	≥ 2.3	≥ 3.2	≥ 3.8
	Pull-in Voltage	VDC	≤ 18	≤ 18	≤ 18.6	≤ 18.6	≤ 16.8
	Pull-in Time	ms	≤ 60	≤ 60	≤ 70	≤ 70	≤ 60
	Drop-out Voltage	VDC	≥ 1.5	≥ 1.5	≥ 0.5	≥ 0.5	≥ 0.5
	Drop-out Time	ms	≤ 20	≤ 20	≤ 20	≤ 20	≤ 40
	Rotation Angle	°	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Encoder Configuration *3		/	202023	202023	202023	202023	202023
Test Heat Sink Specifications		mm	250*250*6	250*250*6	250*250*6	250*250*6	250*250*6

Remark:

*1 The parameter values are typical measurements obtained from a test prototype at an ambient temperature of 25°C. The tests were conducted using a Googoltech DS3 series servo drive. Performance may vary when used with other drives.

*2 The brake is designed for static holding only and must not be used for dynamic braking.

4.3 DM3E/S-G Electrical Specifications

Item		Unit	G09A013	G09B013	G13A013	G13B013	G18A013	G18B013
Rated Voltage		VAC	220	380	220	380	220	380
Inertia Type		/	Medium Inertia	Medium Inertia	Medium Inertia	Medium Inertia	Medium Inertia	Medium Inertia
Mounting Flange		mm	130	130	130	130	130	130
Rated Power		W	850	850	1300	1300	1800	1800
Rated Torque		N·m	5.39	5.39	8.28	8.28	11.50	11.50
Peak Torque *1		N·m	13.50	13.50	20.85	20.85	28.75	28.75
Rated Speed		r/min	1500	1500	1500	1500	1500	1500
Maximum Speed *1		r/min	4500	4500	4500	4500	4500	4500
Rated Current *1		Arms	5.73	3.30	9.70	5.15	11.60	7.14
Peak Current *1		Arms	16.28	8.85	26.09	13.35	31.35	19.12
Torque Constant *1		N·m/Arms	0.94	1.72	0.90	1.77	1.02	1.67
Number of Pole Pairs		/	5	5	5	5	5	5
Line Voltage Constant *1		Vrms/krpm (±10%)	56.81	103.93	54.21	106.92	61.52	100.73
Electrical Time Constant		ms	7.81	7.51	8.91	9.04	9.38	9.90
Line Resistance (at 20°C) *1		Ω (±5%)	0.99	3.46	0.46	1.79	0.40	1.00
*Line Inductance *1		mH (±10%)	7.73	26.00	4.10	16.19	3.75	9.90
Inductance	d-axis	mH (±10%)	3.60	12.10	1.87	7.54	1.71	4.60
	q-axis	mH (±10%)	4.13	13.90	2.23	8.65	2.04	5.30
Rotor Inertia	Without Brake	x10 ⁻⁴ kg.m ²	12.21	12.21	18.03	18.03	23.94	23.94
	With Brake	x10 ⁻⁴ kg.m ²	14.22	14.22	20.05	20.05	25.95	25.95
Mechanical Time Constant	Without Brake	ms	2.05	2.14	1.55	1.55	1.39	1.29
	With Brake	ms	2.39	2.50	1.72	1.72	1.50	1.40
Mass	Without Brake	kg	5.45	5.45	6.90	6.90	8.40	8.40
	With Brake	kg	6.90	6.90	8.40	8.40	9.80	9.80
Allowable Load	Radial Load	N	686	686	686	686	686	686
	Axial Load	N	196	196	196	196	196	196
Brake Specifications *2	Rated Voltage	VDC (±10%)	24	24	24	24	24	24
	Rated Current	A	0.96	0.96	0.96	0.96	0.96	0.96
	Rated Power	W (@20°C)	23.0	23.0	23.0	23.0	23.0	23.0
	Holding Torque	N·m	≥ 16	≥ 16	≥ 16	≥ 16	≥ 16	≥ 16
	Pull-in Voltage	VDC	≤ 18	≤ 18	≤ 18	≤ 18	≤ 18	≤ 18
	Pull-in Time	ms	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Drop-out Voltage	VDC	≥ 0.5	≥ 0.5	≥ 0.5	≥ 0.5	≥ 0.5	≥ 0.5
	Drop-out Time	ms	≤ 40	≤ 40	≤ 40	≤ 40	≤ 40	≤ 40
	Rotation Angle	°	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Encoder Configuration *3		/	202023	202023	202023	202023	202023	202023
Test Heat Sink Specifications		mm	400*400*20	400*400*20	400*400*20	400*400*20	400*400*20	400*400*20

Remark:

*1 The parameter values are typical measurements obtained from a test prototype at an ambient temperature of 25°C. The tests were conducted using a Googoltech DS3 series servo drive. Performance may vary when used with other drives.

*2 The brake is designed for static holding only and must not be used for dynamic braking.

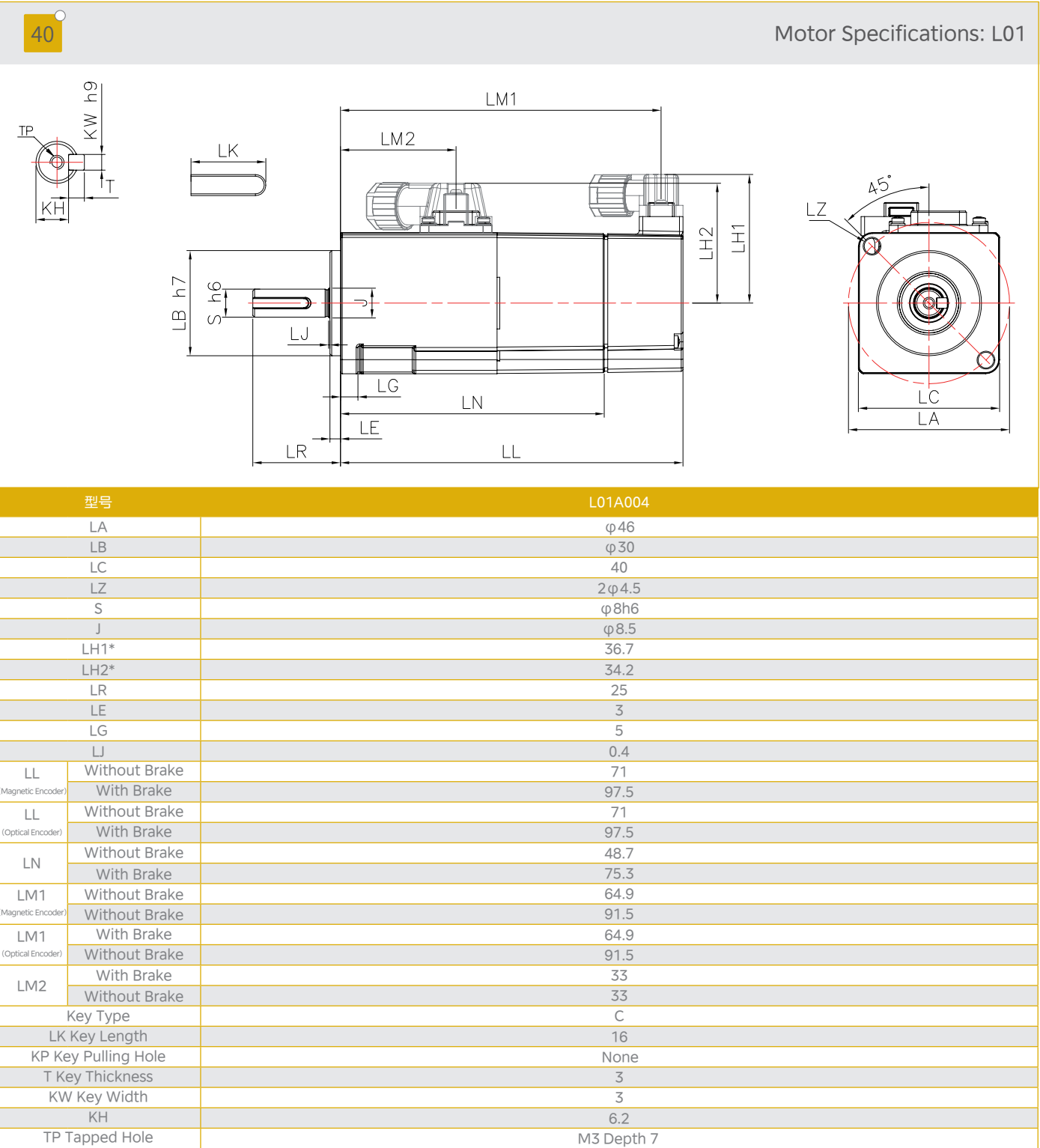
4.4 T-N Operating Area Curve

Continuous Operating Area Intermittent Operating Area



5 DM3E/S Series Servo Motor Structural Characteristics

5.1 DM3E/S-L Structural Dimensions

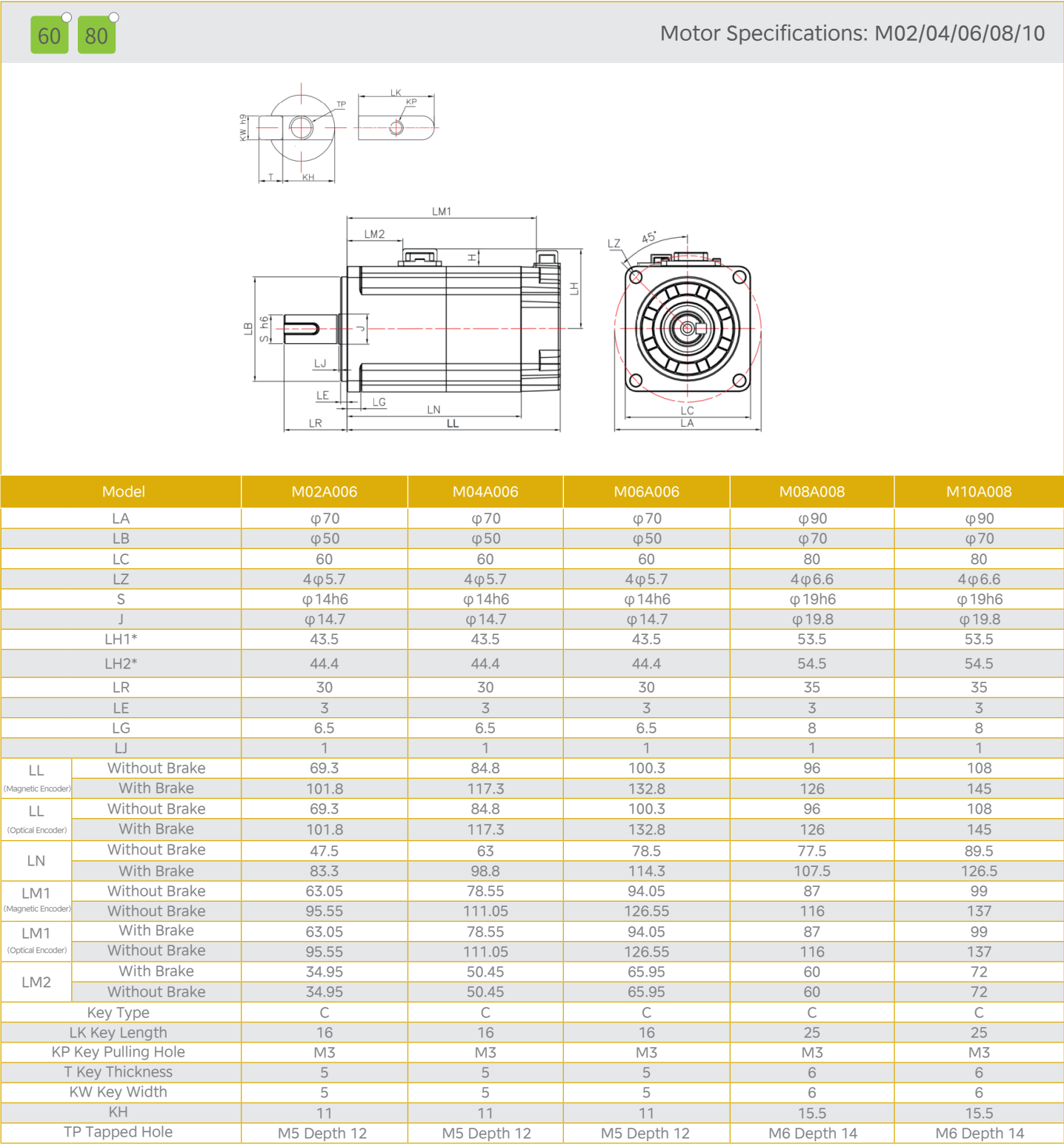


Remark:

1. Standard unit for dimensions: mm

2. Note for the designator * : The motor body does not include the connector on the cable extension. LH1 and LH2 indicate the maximum overall height after the cable extension connector is installed.

5.2 Structural Dimension Illustrations (DM3-M Series 60/80 Size)

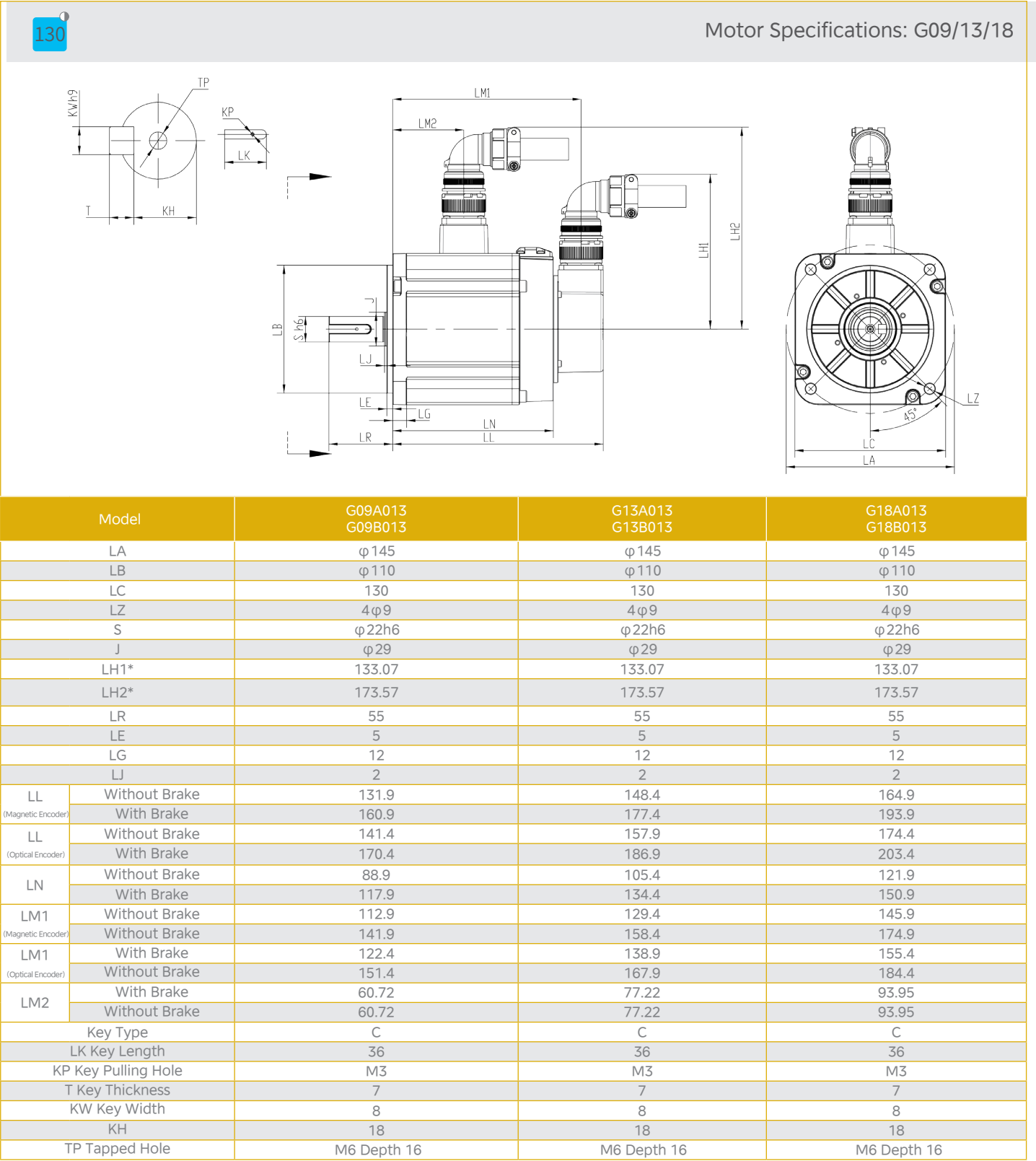


Remark:

1. Standard unit for dimensions: mm

2. Note for the designator * : The motor body does not include the connector on the cable extension. LH1 and LH2 indicate the maximum overall height after the cable extension connector is installed.

5.3 Structural Dimension Illustrations (DM3-G Series 130 Frame Size)



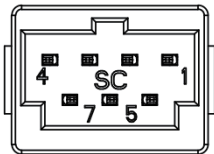
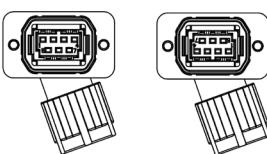
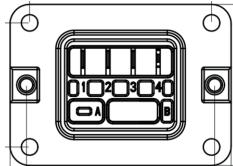
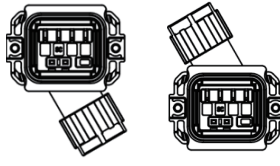
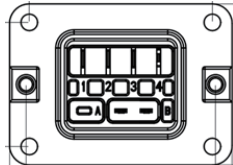
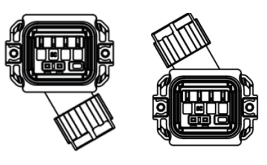
Remark:

1. Standard unit for dimensions: mm

2. Note for the designator * : The motor body does not include the connector on the cable extension. LH1 and LH2 indicate the maximum overall height after the cable extension connector is installed.

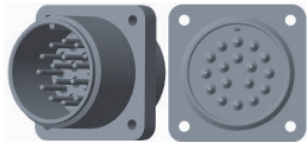
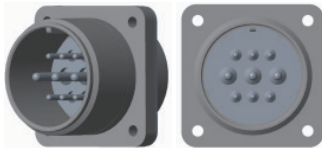
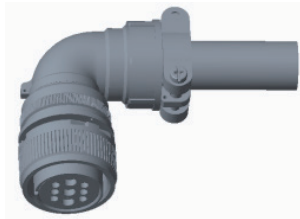
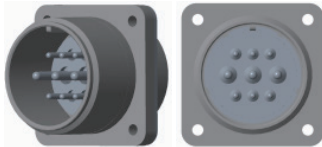
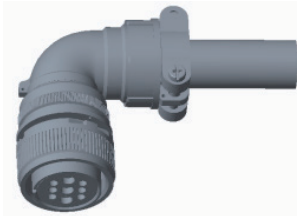
6 DM3E/S Series Servo Motor Interface Definitions

6.1 Motor Interface Definitions -L01、M02/04/06/08/10

	Motor Connector	Extension Cable Connector																																								
Encoder Interface	Connector: Model: SC-MC7P-MDDL <table><tr><th>Pin Number</th><th>Signal</th></tr><tr><td>1</td><td>Shield</td></tr><tr><td>2</td><td>VCC</td></tr><tr><td>3</td><td>GND</td></tr><tr><td>4</td><td>Data+</td></tr><tr><td>5</td><td>Data-</td></tr><tr><td>6</td><td>Bat+</td></tr><tr><td>7</td><td>Bat-</td></tr></table> 	Pin Number	Signal	1	Shield	2	VCC	3	GND	4	Data+	5	Data-	6	Bat+	7	Bat-	Connector: Model: SC-MC7S-AB20-000-10 Pin: Model: Forward: S-FMC19012220 (*7) Reverse: S-FMC19012220 (*7) <table><tr><th>Pin Number</th><th>Signal</th><th>Wire Color</th></tr><tr><td>1</td><td>Shield</td><td>Shield</td></tr><tr><td>2</td><td>VCC</td><td>Red</td></tr><tr><td>3</td><td>GND</td><td>Black</td></tr><tr><td>4</td><td>Data+</td><td>Blue</td></tr><tr><td>5</td><td>Data-</td><td>Blue-Black</td></tr><tr><td>6</td><td>Bat+</td><td>Green</td></tr><tr><td>7</td><td>Bat-</td><td>Green-Black</td></tr></table>  Forward Reverse	Pin Number	Signal	Wire Color	1	Shield	Shield	2	VCC	Red	3	GND	Black	4	Data+	Blue	5	Data-	Blue-Black	6	Bat+	Green	7	Bat-	Green-Black
	Pin Number	Signal																																								
1	Shield																																									
2	VCC																																									
3	GND																																									
4	Data+																																									
5	Data-																																									
6	Bat+																																									
7	Bat-																																									
Pin Number	Signal	Wire Color																																								
1	Shield	Shield																																								
2	VCC	Red																																								
3	GND	Black																																								
4	Data+	Blue																																								
5	Data-	Blue-Black																																								
6	Bat+	Green																																								
7	Bat-	Green-Black																																								
Power Cable Interface (Without Brake)	Connector: Model: SC-MC6P-AP2G-054-19 <table><tr><th>Pin Number</th><th>Signal</th></tr><tr><td>1</td><td>U</td></tr><tr><td>2</td><td>V</td></tr><tr><td>3</td><td>W</td></tr><tr><td>4</td><td>PE</td></tr></table> 	Pin Number	Signal	1	U	2	V	3	W	4	PE	Connector: Model: SC-MC6S-AP20-00 Pin: Model: Forward: S-FMCK6012220 (*4) Reverse: S-FMCK6092220 (*4) <table><tr><th>Pin Number</th><th>Signal</th><th>Wire Color</th></tr><tr><td>1</td><td>U</td><td>Red</td></tr><tr><td>2</td><td>V</td><td>White</td></tr><tr><td>3</td><td>W</td><td>Black</td></tr><tr><td>4</td><td>PE</td><td>Yellow-Green</td></tr></table>  Forward Reverse	Pin Number	Signal	Wire Color	1	U	Red	2	V	White	3	W	Black	4	PE	Yellow-Green															
	Pin Number	Signal																																								
1	U																																									
2	V																																									
3	W																																									
4	PE																																									
Pin Number	Signal	Wire Color																																								
1	U	Red																																								
2	V	White																																								
3	W	Black																																								
4	PE	Yellow-Green																																								
Power Cable Interface (With Brake)	Connector: Model: SC-MC6P-AP2G-044-19 <table><tr><th>Pin Number</th><th>Signal</th></tr><tr><td>1</td><td>U</td></tr><tr><td>2</td><td>V</td></tr><tr><td>3</td><td>W</td></tr><tr><td>4</td><td>PE</td></tr><tr><td>A</td><td>BRK+</td></tr><tr><td>B</td><td>BRK-</td></tr></table> 	Pin Number	Signal	1	U	2	V	3	W	4	PE	A	BRK+	B	BRK-	Connector: Model: SC-MC6S-AP20-00 Pin: Model: Forward: S-FMCK6012220 (*4) S-FMC19012220 (*2) Reverse: S-FMCK6092220 (*4) S-FMC19012220 (*2) <table><tr><th>Pin Number</th><th>Signal</th><th>Wire Color</th></tr><tr><td>1</td><td>U</td><td>Red</td></tr><tr><td>2</td><td>V</td><td>White</td></tr><tr><td>3</td><td>W</td><td>Black</td></tr><tr><td>4</td><td>PE</td><td>Yellow-Green</td></tr><tr><td>A</td><td>BRK+</td><td>Brown</td></tr><tr><td>B</td><td>BRK-</td><td>Blue</td></tr></table>  Forward Reverse	Pin Number	Signal	Wire Color	1	U	Red	2	V	White	3	W	Black	4	PE	Yellow-Green	A	BRK+	Brown	B	BRK-	Blue					
	Pin Number	Signal																																								
1	U																																									
2	V																																									
3	W																																									
4	PE																																									
A	BRK+																																									
B	BRK-																																									
Pin Number	Signal	Wire Color																																								
1	U	Red																																								
2	V	White																																								
3	W	Black																																								
4	PE	Yellow-Green																																								
A	BRK+	Brown																																								
B	BRK-	Blue																																								

- Remark:
- The wire colors shown in the table are recommended. If the actual wire colors differ, please identify the signals based on the pin number definitions.
 - In the encoder interface, Pins 6 and 7 are the external battery supply connections for the multi-turn encoder, and are functional only for multi-turn encoder models.
 - The connectors listed in this table are not available for individual purchase. If required, please select the corresponding connector kit.

6.2 Motor Interface Definitions G09/13/18

	Motor Connector	Extension Cable Connector																																								
Encoder Interface	Connector: Model: CMS3102A20-29P P/N: 12119400001081 <table><tr><th>Pin Number</th><th>Signal</th></tr><tr><td>E</td><td>SD+</td></tr><tr><td>F</td><td>SD-</td></tr><tr><td>G</td><td>GND</td></tr><tr><td>H</td><td>VCC</td></tr><tr><td>J</td><td>Shield</td></tr><tr><td>S</td><td>Bat-</td></tr><tr><td>T</td><td>Bat+</td></tr></table> 	Pin Number	Signal	E	SD+	F	SD-	G	GND	H	VCC	J	Shield	S	Bat-	T	Bat+	Connector: Model: CMS3108A20-29SI P/N: 12119400000501 <table><tr><th>Pin Number</th><th>Signal</th><th>Wire Color</th></tr><tr><td>E</td><td>SD+</td><td>Blue</td></tr><tr><td>F</td><td>SD-</td><td>Blue-Black</td></tr><tr><td>G</td><td>GND</td><td>Black</td></tr><tr><td>H</td><td>VCC</td><td>Red</td></tr><tr><td>J</td><td>Shield</td><td>Shield</td></tr><tr><td>S</td><td>Bat-</td><td>Green-Black</td></tr><tr><td>T</td><td>Bat+</td><td>Green</td></tr></table> 	Pin Number	Signal	Wire Color	E	SD+	Blue	F	SD-	Blue-Black	G	GND	Black	H	VCC	Red	J	Shield	Shield	S	Bat-	Green-Black	T	Bat+	Green
	Pin Number	Signal																																								
E	SD+																																									
F	SD-																																									
G	GND																																									
H	VCC																																									
J	Shield																																									
S	Bat-																																									
T	Bat+																																									
Pin Number	Signal	Wire Color																																								
E	SD+	Blue																																								
F	SD-	Blue-Black																																								
G	GND	Black																																								
H	VCC	Red																																								
J	Shield	Shield																																								
S	Bat-	Green-Black																																								
T	Bat+	Green																																								
Power Cable Interface (Without Brake)	Connector: Model: CMS3102A20-18P P/N: 12119400000841 <table><tr><th>Pin Number</th><th>Signal</th></tr><tr><td>E</td><td>PE</td></tr><tr><td>F</td><td>U</td></tr><tr><td>I</td><td>V</td></tr><tr><td>B</td><td>W</td></tr></table> 	Pin Number	Signal	E	PE	F	U	I	V	B	W	Connector: Model: CMS3108A20-18SI P/N: 12119400000502 <table><tr><th>Pin Number</th><th>Signal</th><th>Wire Color</th></tr><tr><td>E</td><td>PE</td><td>Yellow-Green</td></tr><tr><td>F</td><td>U</td><td>Red</td></tr><tr><td>I</td><td>V</td><td>White</td></tr><tr><td>B</td><td>W</td><td>Black</td></tr></table> 	Pin Number	Signal	Wire Color	E	PE	Yellow-Green	F	U	Red	I	V	White	B	W	Black															
	Pin Number	Signal																																								
E	PE																																									
F	U																																									
I	V																																									
B	W																																									
Pin Number	Signal	Wire Color																																								
E	PE	Yellow-Green																																								
F	U	Red																																								
I	V	White																																								
B	W	Black																																								
Power Cable Interface (With Brake)	Connector: Model: CMS3102A20-18P P/N: 12119400000841 <table><tr><th>Pin Number</th><th>Signal</th></tr><tr><td>E</td><td>PE</td></tr><tr><td>F</td><td>U</td></tr><tr><td>I</td><td>V</td></tr><tr><td>B</td><td>W</td></tr><tr><td>C</td><td>BRK+</td></tr><tr><td>D</td><td>BRK-</td></tr></table> 	Pin Number	Signal	E	PE	F	U	I	V	B	W	C	BRK+	D	BRK-	Connector: Model: CMS3108A20-18SI P/N: 12119400000502 <table><tr><th>Pin Number</th><th>Signal</th><th>Wire Color</th></tr><tr><td>E</td><td>PE</td><td>Yellow-Green</td></tr><tr><td>F</td><td>U</td><td>Red</td></tr><tr><td>I</td><td>V</td><td>White</td></tr><tr><td>B</td><td>W</td><td>Black</td></tr><tr><td>C</td><td>BRK+</td><td>Brown</td></tr><tr><td>D</td><td>BRK-</td><td>Blue</td></tr></table> 	Pin Number	Signal	Wire Color	E	PE	Yellow-Green	F	U	Red	I	V	White	B	W	Black	C	BRK+	Brown	D	BRK-	Blue					
	Pin Number	Signal																																								
E	PE																																									
F	U																																									
I	V																																									
B	W																																									
C	BRK+																																									
D	BRK-																																									
Pin Number	Signal	Wire Color																																								
E	PE	Yellow-Green																																								
F	U	Red																																								
I	V	White																																								
B	W	Black																																								
C	BRK+	Brown																																								
D	BRK-	Blue																																								

- Remark:
- The wire colors listed in the table are recommended. If the actual wire colors differ, please use the pin number definitions to confirm the signals.
 - In the encoder interface, pins S and T are the external battery supply connections for the multi-turn encoder. These are only functional on multi-turn encoder models.

7 DM3E/S Series Servo Drive Cable Selection Guide

7.1 Power Cables or Accessory Kits

Without Brake					
DM3 Motor Model	Drive Type	Power Cable Extension (Without Brake)			Connector Kit
		Length (m)	High-Flex Cable		
			Front Exit	Rear Exit	
L01、M02/04/06	DS3 Series	3	SPC-A61011-0303-F	SPC-A63011-0303-F	Front Exit: CAP-A6-01-A Rear Exit: CAP-A6-01-B
		5	SPC-A61011-0305-F	SPC-A63011-0305-F	
		10	SPC-A61011-0310-F	SPC-A63011-0310-F	
		15	SPC-A61011-0315-F	SPC-A63011-0315-F	
		20	SPC-A61011-0320-F	SPC-A63011-0320-F	
M08/10	DS3 Series	3	SPC-A61031-0503-F	SPC-A63031-0503-F	Front Exit: CAP-A6-03-A Rear Exit: CAP-A6-03-B
		5	SPC-A61031-0505-F	SPC-A63031-0505-F	
		10	SPC-A61031-0510-F	SPC-A63031-0510-F	
		15	SPC-A61031-0515-F	SPC-A63031-0515-F	
		20	SPC-A61031-0520-F	SPC-A63031-0520-F	
G09/13/18	DS3 Series	3	CBL-PWPH220000A003		CAP-PWPH20000A0
		5	CBL-PWPH220000A005		
		10	CBL-PWPH220000A010		
		15	CBL-PWPH220000A015		
		20	CBL-PWPH220000A020		

With Brake					
DM3 Motor Model	Drive Type	Power Cable Extension (With Brake)			Connector Kit
		Length (m)	High-Flex Cable		
			Front Exit	Rear Exit	
L01、M02/04/06	DS3 Series	3	SPC-A62021-0403-F	SPC-A64021-0403-F	Front Exit: CAP-A6-02-A Rear Exit: CAP-A6-02-B
		5	SPC-A62021-0405-F	SPC-A64021-0405-F	
		10	SPC-A62021-0410-F	SPC-A64021-0410-F	
		15	SPC-A62021-0415-F	SPC-A64021-0415-F	
		20	SPC-A62021-0420-F	SPC-A64021-0420-F	
M08/10	DS3 Series	3	SPC-A62041-0603-F	SPC-A64041-0603-F	Front Exit: CAP-A6-04-A Rear Exit: CAP-A6-04-B
		5	SPC-A62041-0605-F	SPC-A64041-0605-F	
		10	SPC-A62041-0610-F	SPC-A64041-0610-F	
		15	SPC-A62041-0615-F	SPC-A64041-0615-F	
		20	SPC-A62041-0620-F	SPC-A64041-0620-F	
G09/13/18	DS3 Series	3	CBL-PWPH220001A003		CAP-PWPH20001A0
		5	CBL-PWPH220001A005		
		10	CBL-PWPH220001A010		
		15	CBL-PWPH220001A015		
		20	CBL-PWPH220001A020		

Remark:

The power cables compatible with M08/M10 models are downward compatible and can be used with the power cables designed for L01, M02/M04/M06 motors.

7.2 Encoder Cables or Accessory Kits

Single-turn Absolute Encoder					
DM3 Motor Model	Drive Type	Encoder Cable Extension - Single-turn Absolute Type (without Battery)			Connector Kit (without Battery)
		Length (m)	High-Flex Cable		
			Front Exit	Rear Exit	
L01、 M02/04/06/08/10	DS3 Series	3	SFC-A71A41-0103-F	SFC-A73A41-0103-F	CAP-A7-A4-1
		5	SFC-A71A41-0105-F	SFC-A73A41-0105-F	
		10	SFC-A71A41-0110-F	SFC-A73A41-0110-F	
		15	SFC-A71A41-0115-F	SFC-A73A41-0115-F	
		20	SFC-A71A41-0120-F	SFC-A73A41-0120-F	
G09/ 13/18	DS3 Series	3	CBL-FBPH22S301A003		CAP-FBPH2S301A0
		5	CBL-FBPH22S301A005		
		10	CBL-FBPH22S301A010		
		15	CBL-FBPH22S301A015		
		20	CBL-FBPH22S301A020		

Multi-turn Absolute Encoder Cable					
DM3 Motor Model	Drive Type	Encoder Cable Extension - Multi-turn Absolute Type (with Battery)			Connector Kit (with Battery Assembly)
		Length (m)	High-Flex Cable		
			Front Exit	Rear Exit	
L01、 M02/04/06/08/10	DS3 Series	3	SFC-A72A43-0103-F	SFC-A74A43-0103-F	CAP-A7-A4-3
		5	SFC-A72A43-0105-F	SFC-A74A43-0105-F	
		10	SFC-A72A43-0110-F	SFC-A74A43-0110-F	
		15	SFC-A72A43-0115-F	SFC-A74A43-0115-F	
		20	SFC-A72A43-0120-F	SFC-A74A43-0120-F	
G09/13/18	DS3 Series	3	CBL-FBPH22T203A003		CAP-FBPH2T203A0
		5	CBL-FBPH22T203A005		
		10	CBL-FBPH22T203A010		
		15	CBL-FBPH22T203A015		
		20	CBL-FBPH22T203A020		

- Remark:
- DS3 Series Battery Assembly: Model BT01, Procurement Code 17419450001421.
 - Cables or connector kits with a battery should only be selected when utilizing the multi-turn counting function of the encoder.
 - The encoder cable connector kits for L01, M02/04/06, and M08/10 models are universal for both front and rear cable exit. The motor-side connector consists of two separate parts: the "terminals" and the "housing". When creating custom cables, users can simply adjust the orientation of the "housing" to achieve the required cable exit direction.

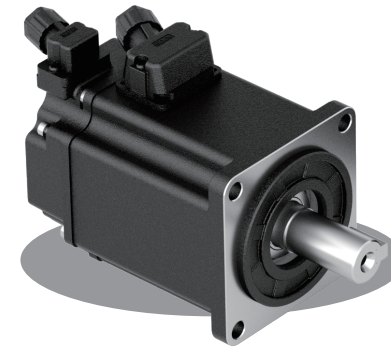
7.3 Connector Kit Information

Kit Category	Compatible Drive	Compatible Motor	Brake Configuration	Cable Exit Direction	Model / Part Number	Connector Appearance Diagram
Power Cable Connector Kit	DS3 Series	DM3 Series L01/M02/M04/M06	Without Brake	Front Exit (D-direction)	CAP-A6-01-A	
				Rear Exit (N-direction)	CAP-A6-01-B	
			Without Brake	Front Exit (D-direction)	CAP-A6-02-A	
				Rear Exit (N-direction)	CAP-A6-02-B	
		DM3 Series M08/M10	Without Brake	Front Exit (D-direction)	CAP-A6-03-A	
				Rear Exit (N-direction)	CAP-A6-03-B	
			With Brake	Front Exit (D-direction)	CAP-A6-04-A	
				Rear Exit (N-direction)	CAP-A6-04-B	
		DM3 Series G09/G13/G18	Without Brake	/	CAP-PWPH2000A0	
			With Brake	/	CAP-PWPH20001A0	

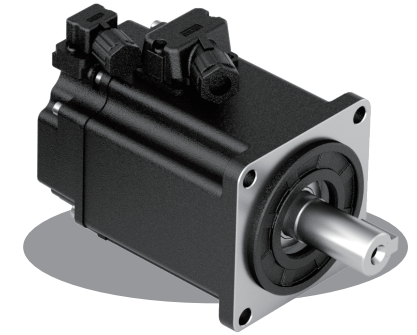
Kit Category	Compatible Drive	Compatible Motor	Brake Configuration	Cable Exit Direction	Model / Part Number	Connector Appearance Diagram
Encoder Cable Connector Kit	DS3 Series	DM3 Series L01/M02/M04/M06/M08/M10	Single-turn Encoder	Front/Rear Exit - Universal	CAP-A7-A4-1	
			Multi-turn Encoder	Front/Rear Exit - Universal	CAP-A7-A4-3	
		DM3 Series G09/G13/G18	Single-turn Encoder	/	CAP-FBPH2S301A0	
			Multi-turn Encoder	/	CAP-FBPH2T203A0	

- Remark:
- Encoder MC connector for L01/M02/M04/M06/M08/M10 motor is the overall assembly effect drawing, and the actual kit contains boxed bulk materials;
 - The encoder MC connector for L01/M02/M04/M06/M08/M10 motor is a general specification for front/rear outgoing line, and the user can adjust the orientation of the rubber core according to the actual outgoing line direction;
 - The appearance drawing is only used to show the appearance of the connector in the kit. For the specific model and specification, see the specification of the connector kit.

7.4 Front/Rear Cable Exit Diagram



N-direction cable exit
None Drive
(Rear Exit / Reverse Exit)



D-direction cable exit
Drive
(Front Exit / Forward Exit)

Remark:

- Terminal type interface motor (40/60/80 frame) is shown without extension terminal connector by default;
- The figure is only used to show the effect of the connector orientation after the cable is installed on the motor by selecting the extension line of the front outgoing line or the rear outgoing line;
- The outgoing line direction can be flexibly selected according to the actual needs, for example, the power line selects the D direction, and the encoder line selects the N direction.



Servotronix
Official Account



Servotronix
WeChat Channels



Servotronix
Official Website

The company is committed to the continuous improvement of products, so product specifications are subject to change without notice.

Dongling Technology Co., Ltd

Address: No.99, Zhuangchi Middle Road, Ganyao Town, Jiashan County, Jiaxing City, Zhejiang Province

Tel : 400-111-8669

Fax : +86 0755 86626665

E-mail : servotronix@midea.com

Official Website : www.servotronix.cn