

CDHD2S-RO SERVO SYSTEM SELECTION MANUAL



- CDHD2S-RO Series Servo Drive
- PH3 Series Servo Motor
- P3C Series Servo Motor
- P3G Series Servo Motor

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Founded in Israel in 1987, Servotronix Motion Control Ltd, as a comprehensive solution provider for development, production, and sales of servomechanism, control systems, and other products, is committed to making continuous breakthrough in the field of automation and facilitating the rapid development of China's high-end manufacturing industry. It owns two brands namely Servotronix and Dorna.

Servotronix and Dorna are dedicated to designing and providing standardized and customized motion control solutions for equipment manufacturers and automation system suppliers, providing professional services to more than 1000+ customers in over 30 countries around the globe. In particular, Servotronix has been leading the direct-driver industry in the Chinese market. As an international company Servotronix has set up R&D teams in Israel, Shanghai, Jiashan, and Shunde.



Our motion control solutions cover most industries and automation equipment, such as lithium battery industry, semiconductor industry, robot industry, robotic arms industry, electronics industry, laser industry, photovoltaic industry, etc.

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1 CDHD2S RO Selection Chart

PH3 Series Servo Motor

Motor Base mm	Rated Power kW	Voltage Rating V	Torque N·m (Rated/Peak)	Current Arms (Rated/Peak)	Speed rpm (Rated/Max)	Inertia Value kg·cm² (Unbraked/Braked)	Oil Seal	Brake	20-bit Magnetic Encoder Single-turn Absolute	20-bit Magnonic Encoder Multi-turn Absolute	23-bit Optical Encoder Multi-turn Absolute	CDHD2S-RO Drive (Bus & Pulse)
40	0.1	220	0.32/1.12	1.30/4.25	3000/7000	0.044/0.046	×	✓	PH3E-L01A004BG	PH3E-L01A004BM	PH3S-L01A004BT	CDHD2S-1D52AEC2-RO
							×	×	PH3E-L01A004NG	PH3E-L01A004NM	PH3S-L01A004NT	
60	0.2	220	0.64/2.30	1.38/5.80	3000/7000	0.24/0.25	✓	✓	PH3E-M02A006EG	PH3E-M02A006EM	PH3S-M02A006ET	CDHD2S-1D52AEC2-RO
							✓	×	PH3E-M02A006SG	PH3E-M02A006SM	PH3S-M02A006ST	
	0.4	220	1.27/4.45	2.40/9.60	3000/7000	0.47/0.48	✓	✓	PH3E-M04A006EG	PH3E-M04A006EM	PH3S-M04A006ET	CDHD2S-0032AEC2-RO
							✓	×	PH3E-M04A006SG	PH3E-M04A006SM	PH3S-M04A006ST	
	0.6	220	1.91/7.50	3.65/16.60	3000/7000	0.68/0.69	✓	✓	PH3E-M06A006EG	PH3E-M06A006EM	PH3S-M06A006ET	CDHD2S-0062AEC2-RO
							✓	×	PH3E-M06A006SG	PH3E-M06A006SM	PH3S-M06A006ST	
80	0.75	220	2.39/8.37	4.42/16.90	3000/7000	1.46/1.51	✓	✓	PH3E-M08A008EG	PH3E-M08A008EM	PH3S-M08A008ET	CDHD2S-0062AEC2-RO
							✓	×	PH3E-M08A008SG	PH3E-M08A008SM	PH3S-M08A008ST	
130	1.0	220	3.18/11.13	5.74/23.00	3000/7000	2.00/2.05	✓	✓	PH3E-M10A008EG	PH3E-M10A008EM	PH3S-M10A008ET	CDHD2S-0062AEC2-RO
							✓	×	PH3E-M10A008SG	PH3E-M10A008SM	PH3S-M10A008ST	
	0.85	220	5.39/13.50	5.73/16.28	1500/4500	12.21/14.22	✓	✓	PH3E-G09A013EG	PH3E-G09A013EM	PH3S-G09A013ET	CDHD2S-0082AEC2-RO
							✓	×	PH3E-G09A013SG	PH3E-G09A013SM	PH3S-G09A013ST	
	380	5.39/13.50	3.30/8.85	1500/4500	12.21/14.22	✓	✓	PH3E-G09B013EG	PH3E-G09B013EM	PH3S-G09B013ET	CDHD2S-0064DEC2-RO	
						✓	×	PH3E-G09B013SG	PH3E-G09B013SM	PH3S-G09B013ST		
	1.3	220	8.28/20.85	9.70/26.09	1500/4500	18.03/20.05	✓	✓	PH3E-G13A013EG	PH3E-G13A013EM	PH3S-G13A013ET	CDHD2S-0102AEC2-RO
							✓	×	PH3E-G13A013SG	PH3E-G13A013SM	PH3S-G13A013ST	
	380	8.28/20.85	5.15/13.35	1500/4500	18.03/20.05	✓	✓	PH3E-G13B013EG	PH3E-G13B013EM	PH3S-G13B013ET	CDHD2S-0064DEC2-RO	
						✓	×	PH3E-G13B013SG	PH3E-G13B013SM	PH3S-G13B013ST		
	1.8	220	11.5/28.75	11.60/31.35	1500/4500	23.94/25.95	✓	✓	PH3E-G18A013EG	PH3E-G18A013EM	PH3S-G18A013ET	CDHD2S-0132AEC2-RO
							✓	×	PH3E-G18A013SG	PH3E-G18A013SM	PH3S-G18A013ST	
380	11.5/28.75	7.14/19.12	1500/4500	23.94/25.95	✓	✓	PH3E-G18B013EG	PH3E-G18B013EM	PH3S-G18B013ET	CDHD2S-0124DEC2-RO		
					✓	×	PH3E-G18B013SG	PH3E-G18B013SM	PH3S-G18B013ST			

P3C Series Servo Motor

Motor Base mm	Rated Power kW	Voltage Rating V	Torque N·m (Rated/Peak)	Current Arms (Rated/Peak)	Speed rpm (Rated/Max)	Inertia Value kg·cm² (Unbraked/Braked)	Oil Seal	23-bit Multi-turn Optical Encoder		17-bit Multi-turn Magnetic Encoder		CDHD2S-RO Drive
								Without brake	With brake	Without brake	With brake	(Bus & Pulse)
40	0.05	220	0.16/0.48	0.6/1.8	3000/6000	0.035/0.038	✓	P3C-LA5A104ST	P3C-LA5A104ET	P3C-LA5A104SJ	P3C-LA5A104EJ	CDHD2S-1D52AEC2-RO
40	0.05	220	0.16/0.48	0.6/1.8	3000/6000	0.035/0.038	×	P3C-LA5A104NT	P3C-LA5A104BT	P3C-LA5A104NJ	P3C-LA5A104BJ	CDHD2S-1D52AEC2-RO
40	0.1	220	0.32/0.96	1/3	3000/6000	0.05/0.053	✓	P3C-L01A104ST	P3C-L01A104ET	P3C-L01A104SJ	P3C-L01A104EJ	CDHD2S-1D52AEC2-RO
40	0.1	220	0.32/0.96	1/3	3000/6000	0.05/0.053	×	P3C-L01A104NT	P3C-L01A104BT	P3C-L01A104NJ	P3C-L01A104BJ	CDHD2S-1D52AEC2-RO
80	1	220	3.18/11.13	6.3/25	3000/6000	0.88	✓	P3C-L10A108ST	/	P3C-L10A108SJ	/	CDHD2S-0082AEC2-RO
100	1	220	3.18/9.54	7/22	3000/6000	2.26/3	✓	P3C-L10A110ST	P3C-L10A110ET	P3C-L10A110SJ	P3C-L10A110EJ	CDHD2S-0082AEC2-RO
100	1	380	3.18/9.54	3.5/11	3000/6000	2.26/3	✓	P3C-L10B110ST	P3C-L10B110ET	P3C-L10B110SJ	P3C-L10B110EJ	CDHD2S-0064DEC2-RO
100	1.5	220	4.77/14.31	10/31	3000/6000	3.1/3.83	✓	P3C-L15A110ST	P3C-L15A110ET	P3C-L15A110SJ	P3C-L15A110EJ	CDHD2S-0102AEC2-RO
100	1.5	380	4.77/14.31	5/16	3000/6000	3.1/3.83	✓	P3C-L15B110ST	P3C-L15B110ET	P3C-L15B110SJ	P3C-L15B110EJ	CDHD2S-0064DEC2-RO
100	2	220	6.37/19.11	11.6/36	3000/5000	3.93/4.66	✓	P3C-L20A110ST	P3C-L20A110ET	P3C-L20A110SJ	P3C-L20A110EJ	CDHD2S-0132AEC2-RO
100	2	380	6.37/19.11	6/18	3000/5000	3.93/4.66	✓	P3C-L20B110ST	P3C-L20B110ET	P3C-L20B110SJ	P3C-L20B110EJ	CDHD2S-0064DEC2-RO
100	2.5	380	7.96/23.88	7.5/22	3000/5000	4.76/5.5	✓	P3C-L25B110ST	P3C-L25B110ET	P3C-L25B110SJ	P3C-L25B110EJ	CDHD2S-0124DEC2-RO
130	2.2	380	14.3/40	10.5/29.4	1500/3000	27.1/28.33	✓	P3C-G22B113ST	P3C-G22B113ET	P3C-G22B113SJ	P3C-G22B113EJ	CDHD2S-0124DEC2-RO
130	1	220	4.77/14.31	5.8/17.4	2000/3000	5.98/7.21	✓	P3C-C10A113ST	P3C-C10A113ET	P3C-C10A113SJ	P3C-C10A113EJ	CDHD2S-0062AEC2-RO
130	1	380	4.77/14.31	3.5/10.5	2000/3000	5.98/7.21	✓	P3C-C10B113ST	P3C-C10B113ET	P3C-C10B113SJ	P3C-C10B113EJ	CDHD2S-0064DEC2-RO
130	1.5	220	7.16/21.48	8/24	2000/3000	8.05/9.28	✓	P3C-C15A113ST	P3C-C15A113ET	P3C-C15A113SJ	P3C-C15A113EJ	CDHD2S-0082AEC2-RO
130	1.5	380	7.16/21.48	4.7/14.1	2000/3000	8.05/9.28	✓	P3C-C15B113ST	P3C-C15B113ET	P3C-C15B113SJ	P3C-C15B113EJ	CDHD2S-0064DEC2-RO
130	2	220	9.55/28.65	10.2/30.6	2000/3000	10.13/11.36	✓	P3C-C20A113ST	P3C-C20A113ET	P3C-C20A113SJ	P3C-C20A113EJ	CDHD2S-0132AEC2-RO
130	2	380	9.55/28.65	6.2/18.6	2000/3000	10.13/11.36	✓	P3C-C20B113ST	P3C-C20B113ET	P3C-C20B113SJ	P3C-C20B113EJ	CDHD2S-0124DEC2-RO
130	3	380	14.3/42.9	11/33	2000/3000	13.69/14.92	✓	P3C-C30B113ST	P3C-C30B113ET	P3C-C30B113SJ	P3C-C30B113EJ	CDHD2S-0124DEC2-RO
180	2.9	380	18.6/55.8	11.9/35.7	1500/3000	63.5/69.5	✓	P3C-G29B118ST	P3C-G29B118ET	P3C-G29B118SJ	P3C-G29B118EJ	CDHD2S-0124DEC2-RO
180	4.4	380	28.4/85.2	16.5/49.5	1500/3000	88.5/94.5	✓	P3C-G44B118ST	P3C-G44B118ET	P3C-G44B118SJ	P3C-G44B118EJ	CDHD2S-0244DEC2-RO
180	5.5	380	35/105	20.8/62.4	1500/3000	114.4/120.4	✓	P3C-G55B118ST	P3C-G55B118ET	P3C-G55B118SJ	P3C-G55B118EJ	CDHD2S-0244DEC2-RO
180	7.5	380	48/120	26/65	1500/3000	136.6/142.6	✓	P3C-G75B118ST	P3C-G75B118ET	P3C-G75B118SJ	P3C-G75B118EJ	CDHD2S-0304DEC2-RO

P3G Series Servo Motor

Motor Base mm	Rated Power kW	Voltage Rating V	Torque N·m (Rated/Peak)	Current Arms (Rated/Peak)	Speed rpm (Rated/Max)	Inertia Value kg·cm² (Unbraked/Braked)	Oil Seal	23-bit Multi-turn Optical Encoder		CDHD2S-RO Drive
								Without brake	With brake	
200	7.9	380	50/123	15/36.9	1500/1700	98/118	✓	P3G-B80B120ST-F	P3G-B80B120ET-F	CDHD2S-0244DEC2-RO
200	11.8	380	75/170	22.4/50.8	1500/1700	128/148	✓	P3G-B12CB120ST-F	P3G-B12CB120ET-F	CDHD2S-0244DEC2-RO
200	14.5	380	92/225	27.5/67.3	1500/1700	178/198	✓	P3G-B15CB120ST-F	P3G-B15CB120ET-F	CDHD2S-0304DEC2-RO
200	18.1	380	115/263	34.5/78.9	1500/1700	188/208	✓	P3G-B18CB120ST-F	P3G-B18CB120ET-F	CDHD2S-0404DEC2-RO
200	23.6	380	150/373	44.7/112	1500/1700	248/268	✓	P3G-B24CB120ST-F	P3G-B24CB120ET-F	CDHD2S-0604DEC2-RO
260	26.7	380	170/280	48	1500/1700	296	✓	P3G-B27CB126ST-F	/	CDHD2S-0604DEC2-RO
200	8.9	380	50/123	16.8/41.4	1700/2000	98/118	✓	P3G-C90B120ST-F	P3G-C90B120ET-F	CDHD2S-0244DEC2-RO
200	13.4	380	75/170	25.4/57.6	1700/2000	128/148	✓	P3G-C13CB120ST-F	P3G-C13CB120ET-F	CDHD2S-0304DEC2-RO
200	16.4	380	92/225	31/75.9	1700/2000	178/198	✓	P3G-C16CB120ST-F	P3G-C16CB120ET-F	CDHD2S-0304DEC2-RO
200	20.5	380	115/263	38.8/88.8	1700/2000	188/208	✓	P3G-C21CB120ST-F	P3G-C21CB120ET-F	CDHD2S-0404DEC2-RO
200	26.7	380	150/373	50.5/126	1700/2000	248/268	✓	P3G-C27CB120ST-F	P3G-C27CB120ET-F	CDHD2S-0604DEC2-RO
260	30.2	380	170/280	59.2	1700/2000	296	✓	P3G-C30CB126ST-F	/	CDHD2S-0604DEC2-RO
200	10.5	380	50/123	19.6/48.3	2000/2500	98/118	✓	P3G-D11B120ST-F	P3G-D11B120ET-F	CDHD2S-0244DEC2-RO
200	15.7	380	75/170	29.8/67.6	2000/2500	128/148	✓	P3G-D16CB120ST-F	P3G-D16CB120ET-F	CDHD2S-0304DEC2-RO
200	19.4	380	92/225	37.1/90.8	2000/2500	178/198	✓	P3G-D19CB120ST-F	P3G-D19CB120ET-F	CDHD2S-0404DEC2-RO
200	24.1	380	115/263	45.7/104.6	2000/2500	188/208	✓	P3G-D24CB120ST-F	P3G-D24CB120ET-F	CDHD2S-0604DEC2-RO
200	31.4	380	150/373	59/147	2000/2500	248/268	✓	P3G-D31CB120ST-F	P3G-D31CB120ET-F	CDHD2S-0604DEC2-RO

2 CDHD2S RO AC Servo System

Rotary Drive



Focus on core axis

Industry-leading
High-bandwidth current loop

5KHz frequency response
Flexible for high-speed and high-precision requirements

Durable and stable
High-spec materials

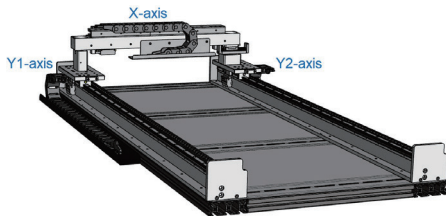
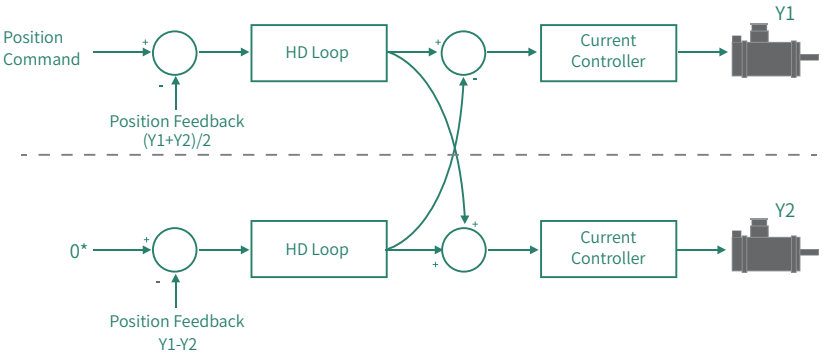
Lifespan of more than 12 years
Power consumption device test lifespan

Comprehensive functionality

Supports features like gantry, full closed-loop, PCOM, built-in error compensation, closed-loop force control, and more.

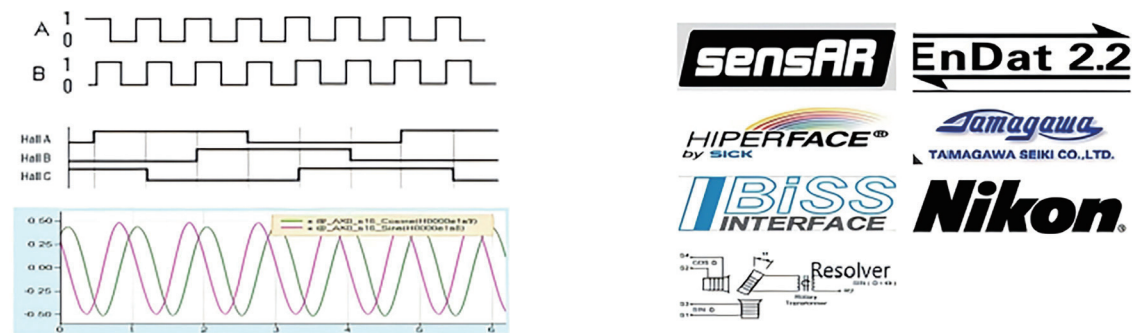
Gantry Function

- High-speed communication between drives to enable the Gantry function.
- Effective solution for dual-axis non-synchronization issues
- Can reduce current consumption by 30% and enhance the operation speed of the machine's Gantry.
- Supports both rigid and flexible mechanical Gantry structures.



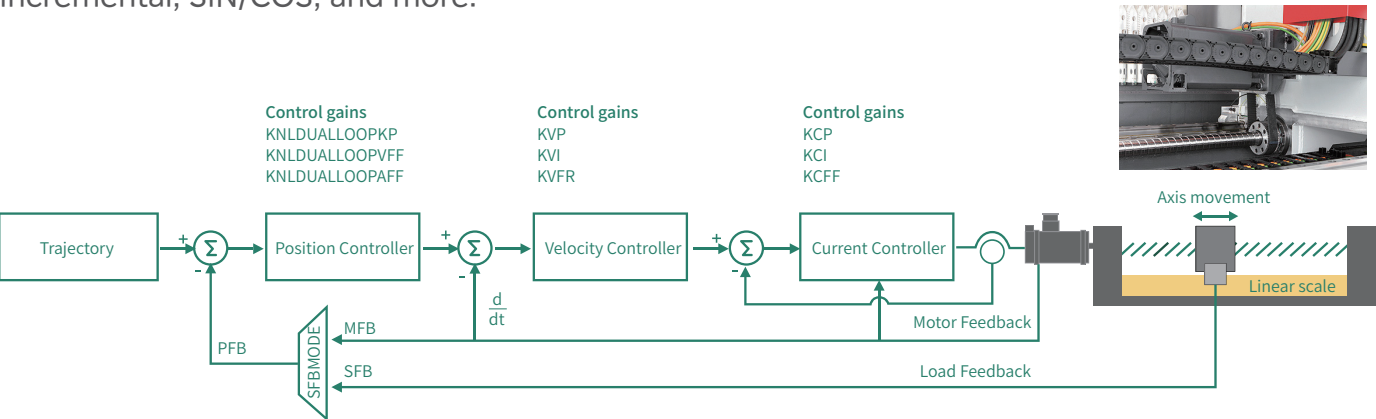
Rich variety of encoder feedback types

The CDHD2S-RO supports various encoder feedback types, including BISS-C, EnDat, HIPER-FACE, AB incremental, SIN/COS, Nikon, Tamagawa, and rotary transformer encoders.



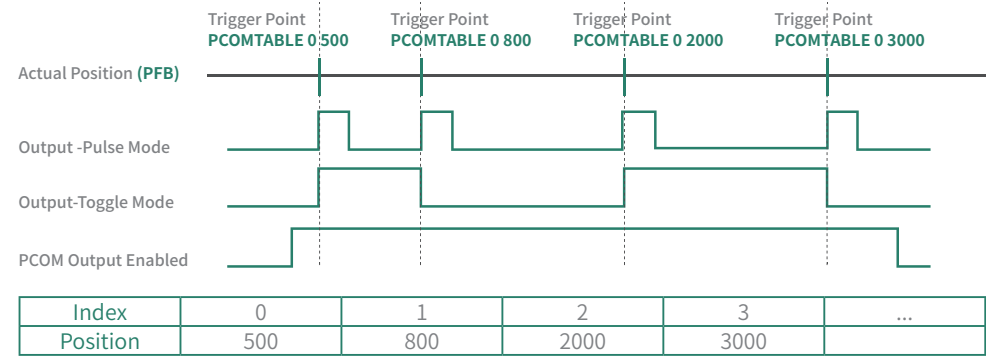
Full closed-loop function

The CDHD2S-RO supports multiple types of secondary encoders, including BISS-C, EnDat, AB incremental, SIN/COS, and more.



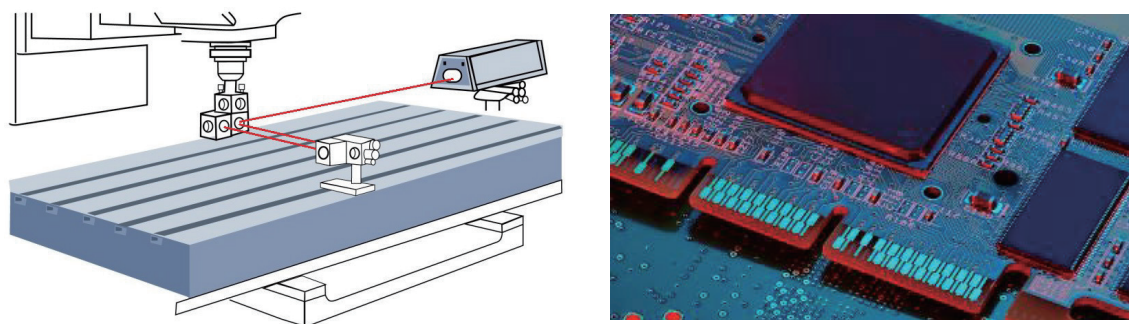
PCOM features

- Supports dual-channel PCOM position triggering
- Up to a triggering frequency of 20KHz and position accuracy of 1um
- In terms of triggering modes, it supports serial, tabular, and multi-axis triggering based on a synchronized clock.



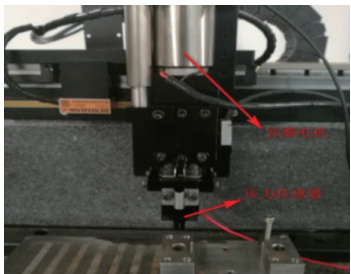
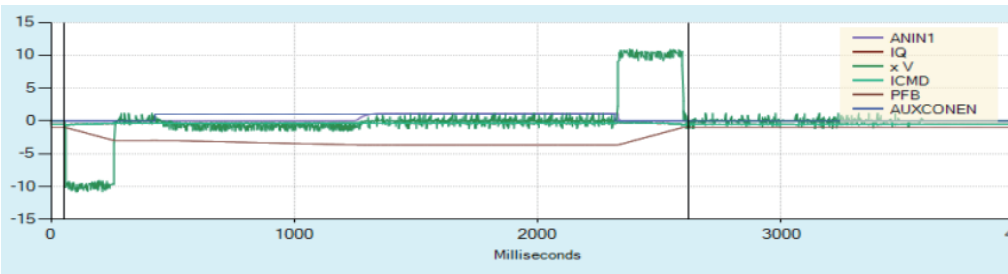
Built-in error compensation

- CDHD2S-RO Drive: Built-in Error Compensation Table
- Up to 1000 compensation points can be set.

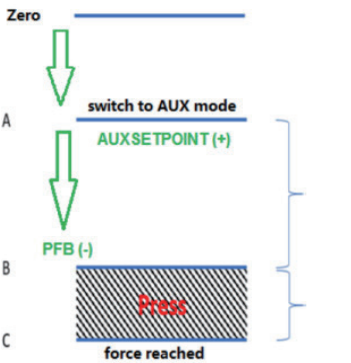


Closed-loop pressure control

- Install auxiliary sensors (such as force/torque gauges) at the load end to measure actual force or torque
- The CDHD2S-RO enables precise control of pressure through a closed-loop system.



Item	Time(ms)	ANIN1	IQ	V	ICMD	PFB	AUXCONEN
CurSor NO 1	54.000	0.003	-0.513	0.000	-0.514	-1.000	0.000
Cursor NO 2	2620.000	-0.001	-0.538	0.073	-0.531	-0.997	0.000
Cursors Difference	2566.000	0.004	0.025	-0.073	0.017	-0.003	0.000
RMS Between Cursors		0.706	0.377	4.325	0.375	3.282	0.858
Average Between Cursors		0.457	0.371	0.037	-0.370	-3.213	0.736
Min Between Cursors		-0.009	-0.720	-10.827	-0.708	-3.680	0.000
Max Between Cursors		1.125	-0.089	10.956	-0.126	-0.996	1.000
Pk-Pk Between Cursors		1.134	0.630	21.782	0.582	2.684	1.000
STD Between Cursors		0.538	0.065	4.325	0.060	0.671	0.441



Naming rules

CDHD2S

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006

2A

EC2

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RO

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① CDHD2S Servo Drive - HD Series

③ Input power supply

2A	Medium-voltage input power single-phase input 120 L-N VAC +10% - 15% 50/60HZ single-phase input 240 L-N VAC +10% - 15% 50/60HZ three-phase input 120-240 L-L VAC + 10% - 15% 50/60HZ
4D	AC power input three-phase input 380 L-L VAC +10% - 15% 50/60 HZ three-phase input 460 L-L VAC +10% - 15% 50/60 HZ three-phase input 480 L-L VAC +10% - 15% 50/60 HZ 24VDC power supply for the control board

⑤ Motor type

[blank]	Rotary servo motor and linear motor
RO	Only rotary servo motor available

Model	Input Voltage (VAC)	Main Circuit Input Power Supply	Continuous Current (Arms)	Peak Current (Arms)	Width (mm)	Height (mm)	Depth (mm)
CDHD2S-1D52AEC2-RO	220	single phase	1.5	4.5	48.2	150	152.2
CDHD2S-0032AEC2-RO	220	single phase	3	9	48.2	150	152.2
CDHD2S-4D52AEC2-RO	220	single/three phase	4.5	18	53.2	150	161.1
CDHD2S-0062AEC2-RO	220	single/three phase	6	18	53.2	150	161.1
CDHD2S-0082AEC2-RO	220	single/three phase	8	31.8	60.3	170.2	181.1
CDHD2S-0102AEC2-RO	220	single/three phase	10	31.8	60.3	170.2	181.1
CDHD2S-0132AEC2-RO	220	three phase	13	31.8	60.3	170.2	181.1
CDHD2S-0034DEC2-RO	380	three phase	3	9	110	162.8	193.1
CDHD2S-0064DEC2-RO	380	three phase	6	18	110	162.8	193.1
CDHD2S-0124DEC2-RO	380	three phase	12	24	116.4	234.2	193.5
CDHD2S-0244DEC2-RO	380	three phase	24	72	163.3	353	209.3
CDHD2S-0304DEC2-RO	380	three phase	30	90	163.3	353	209.3
CDHD2S-0404DEC2-RO	380	three phase	40	120	179.3	353	209.3
CDHD2S-0604DEC2-RO	380	three phase	60	180	330	610	310

② Power specification

	120/240 VAC			400/480 VAC	
	Continuous current [A rms]	Peak current [A rms]		Continuous current [A rms]	Peak current [A rms]
1D5	1.5	4.5	003	3	9
003	3	9	006	6	18
4D5	4.5	18	012	12	24
006	6	18	024	24	72
008	8	31.8	030	30	90
010	10	31.8	040	40	120
013	13	31.8	060	60	180

**CDHD2S-060 Voltage 380VAC/460VAC

④ Communication interface

	Communication interface	analog input
ECx	EtherCAT, analog voltage, pulse, USB, RS232	1 or 2*
AP1	analog voltage, pulse, USB, RS232	1
	x= 1: A 16-bit analog input x= 2: Two analog input ports	* Standard configuration

⑥ Special standard

[blank]	standard
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Universal specifications

Characteristic			CDHD2S-RO Specifications
Electrical Appliances	Type	Rotary servo motor (PH3, P3C, P3G series motors)	
	Encoder	Single/multiple-turn absolute value encoder	
	Motor phase	Automatically configures motor phase and encoder direction.	
Operation mode	Optional control mode	Current (torque) control, speed control, position control, HD control, dual-loop control, gantry control	
Current (torque) control	Performance	Update rate: 31.25μs (32KHz), output waveform: sinusoidal wave	
	Control circuit	DQ, PI, feedforward	
	Reference command *	Simulated DC voltage of ±10V, serial RS232 or USB, PROFINET	
	Automatic tuning	Automatically setting parameters for the current control loop.	
Speed control	Performance	Update rate: 125μs (8kHz)	
	Reference command	Simulated DC voltage of ±10V, serial RS232 or USB*, PROFINET	
Position control	Performance	Update rate: 250μs (4kHz)	
	Control circuit	PID and feedforward	
	Reference command *	Electronic gear transmission of pulses and direction, serial RS232 or USB, PROFINET	
HD control	Performance	Update rate: 125μs (8kHz)	
	Control circuit	The non-linear control algorithm provides smooth motion with low tracking error, zero or minimal settling time; it includes adaptive feedforward characteristics that are applied at the end of motion to achieve zero or minimal settling time	
	Filter	A second-order low-pass filter, two notch filters, and other filters designed for handling flexible and resonant systems	
	Reference command *	Speed: Simulated DC voltage ±10V, Serial RS232 or USB, PROFINET Location: Pulse sequence, Serial RS232 orUSB, PROFINET	
	Automatic tuning	Automatic inertial load measurement, automatic setting and optimization of HD control loop parameters.	
Dragon Gate Control	Control circuit	Position control of the H-shaped mechanical structure	
Brake	Method	Control braking, dynamic braking, motor electromechanical braking	
Digital display tubes	User interface	7 segments of LED (green), displays the status of the drive	
GUI	User interface	The ServoStudio2 application, which is based on Windows	
	Function	Connection setup, driver information, power supply information, motor, feedback, input/output selection/configuration, action setting/tuning, fault history/display, setup wizard, expert view	
Motor unit	Location	Speed, count, degree	
	Speed	rps、rpm、deg/s	
	Acceleration / Deceleration	rps/s、rpm/s、deg/s²	

Protection features and environmental standards

Characteristic	Specification
Protection features	Including but not limited to: low/over voltage, over current, driver and motor overheating, motor backfeed, driver backfeed, feedback loss, second feedback loss, STO signal not connected, not configured, circuit fault.
Compliance	IEC61800-5-1: Low-Voltage Commands 2006/95/EC. Speed-Controlled Power Drive Systems
	EN61800-5-2:2017: Mechanical Commands 2006/42/EC. Regulated Power Drive Systems - Safety Requirements - Functionality
	IEC61800-3: Electromagnetic Compatibility (EMC) Command 2004\108\E. Variable Speed Power Drive Systems
	EN50581: Supports the basic requirements of the EU RoHS Directive 2011/65/EU. Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment
Environment	REACH: EC Regulation No. 1907/2006. Regulation concerning chemicals and their safe use
	The operating temperature range is 0-55°C (no reduction in performance below 45°C, and a reduction in performance above 45°C, with a 4% reduction in output for every 1°C increase)
	Humidity: 10-90%
	Height: According to the spacing requirements specified in the IEC61800-5-1 standard, the CDHD2S is designed to operate at heights below 2000 meters.
Working conditions	Vibration: 1.0g
	Protection Class: IP20, Degree of Pollution: IEC60664-1 standard 2 degrees Do not use in the following locations: corrosive or flammable gases, water, oil, or chemicals, dust (including iron powder), and salt.

STO functional safety specification

Characteristic	Specification	
STO powe supply voltage	Rated voltage	DC voltage 24V
	ltage class, according to EN61131-2 standard, category 2 exception (operating voltage is 15 volts DC instead of 11 volts DC).	DC voltage 15-30V: STO function not activated (permitted operation) DC voltage 0-5V: STO function activated (operation suppressed) DC voltage 5-15V: STO function undefined and not guaranteed
	Power supply - external	Requires SELV/PELV
	Power supply - internal	Requires STO jumper
Cable	Maximum length	30m
	Line number	22-24AWG
Current loss	24VDC±10%	Under the conditions of a direct voltage of 15V with a current of less than 450mA, a direct voltage of 24V with a current of less than300mA, and a direct voltage of 30V with a current of less than250mA.
Maximum response time	Motion suppression time range	40ms
OSSD test pulse maximum duration	Drive ignores OSSD test pulse	1ms
OSSD test pulse maximum frequency	Absolute maximum frequency of the test pulse successfully filtered by the driver.	475Hz

Communication specification

Characteristic	Specification
EtherCAT*	application layer and CiA402 device profile for drive and motion control
	Communication cycle: 0.125ms~16ms (If it is larger than 16ms, please contact the manufacturer to customize the parameters)
	CANopen (CoE) CiA 402 on EtherCAT
	File over EtherCAT (FoE)
RS232	Based on ASCII, ServoStudio2, Hyperterminal
	Baud rate: 115200bit/s
	Maximum cable length: 10 meters
USB	Based on ASCII, ServoStudio2, Hyperterminal
	Baud rate: 115200bit/s
	Maximum cable length: 3 meters
Daisy link ring	Up to 8 axes. Axis address Settings range from 0 to 99
	Maximum cable length: 1 m

Input and output specifications

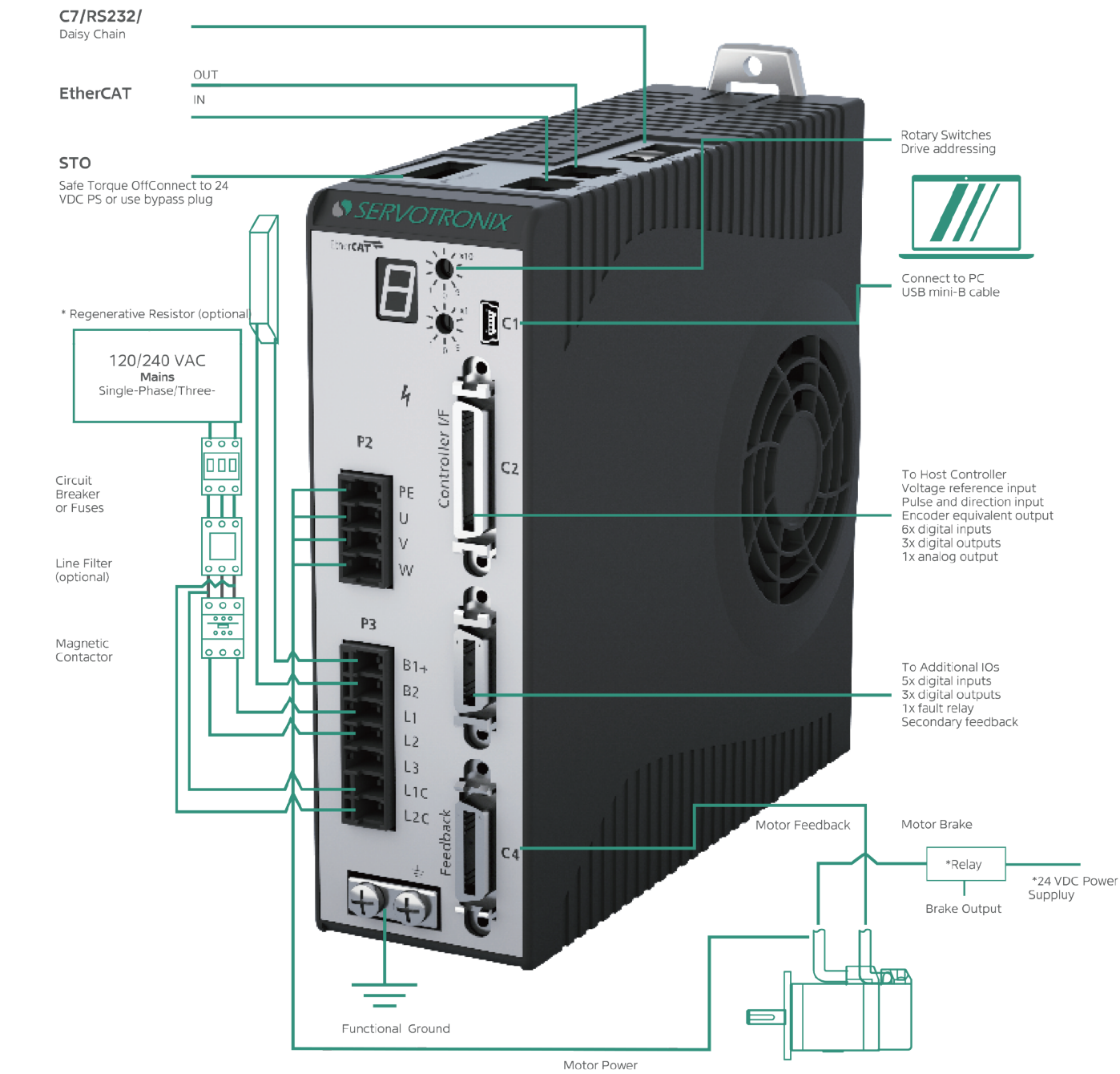
Characteristic	Specification	
Analog Input 1	Voltage range	Simulated DC voltage: ±10V Differential
	Input resolution	16-bit (Version with two analog inputs is 14-bit)
	Input impedance	8kΩ (When using two analog inputs, it is 20kΩ)
	Bandwidth (-3db)	8kHz
Analog Input 2	Accuracy	±2%
	Voltage range	Simulated DC voltage: ±10V deviation
	Input resolution	14-bit
	Input impedance	20kΩ
Pulse Sequence	Bandwidth (-3db)	8kHz
	Accuracy	±2%
	Signal	RS422 line receiver
Equivalent Encoder Output	Maximum input frequency	5MHz
	Signal	RS422 format AB orthogonal signal, mechanical zero position marking signal output
Digital Input	Maximum output frequency	5MHz
	Quantity	8
	Signal	Configurable, optical isolation.
	Voltage	24V(IEC61131)
	Maximum Input Current	6mA
	Transmission Delay Time	1ms
Fast Digital Input	Frequency	1kHz
	Quantity	3
	Signal	Configurable, optical isolation.
	Voltage	24V(IEC61131)
	Maximum Input Current	12.5mA
	Transmission Delay Time	1μs
Digital Output	Frequency	1MHz
	Quantity	6
	Signal	Configurable, optical isolation.
	Voltage	24V(IEC61131)
	Maximum Output Current	100mA
Fast Digital Output	Transmission Delay Time	1ms
	Quantity	2
	Signal	Configurable, optical isolation/collector-open/sinking or sourcing type signal input.
	Voltage	24V
Analog Output	Maximum Output Current	50mA
	Transmission Delay Time	1μs
	Signal	Configurable analog output
	Voltage	±10V
	Resolution	12-bit
Fault Relay Output	Bandwidth	2kHz
	Maximum Load	100kΩ
	Signal	Configurable digital output
	Voltage	24V
Function	Maximum current	1A

Second Feedback Specifications

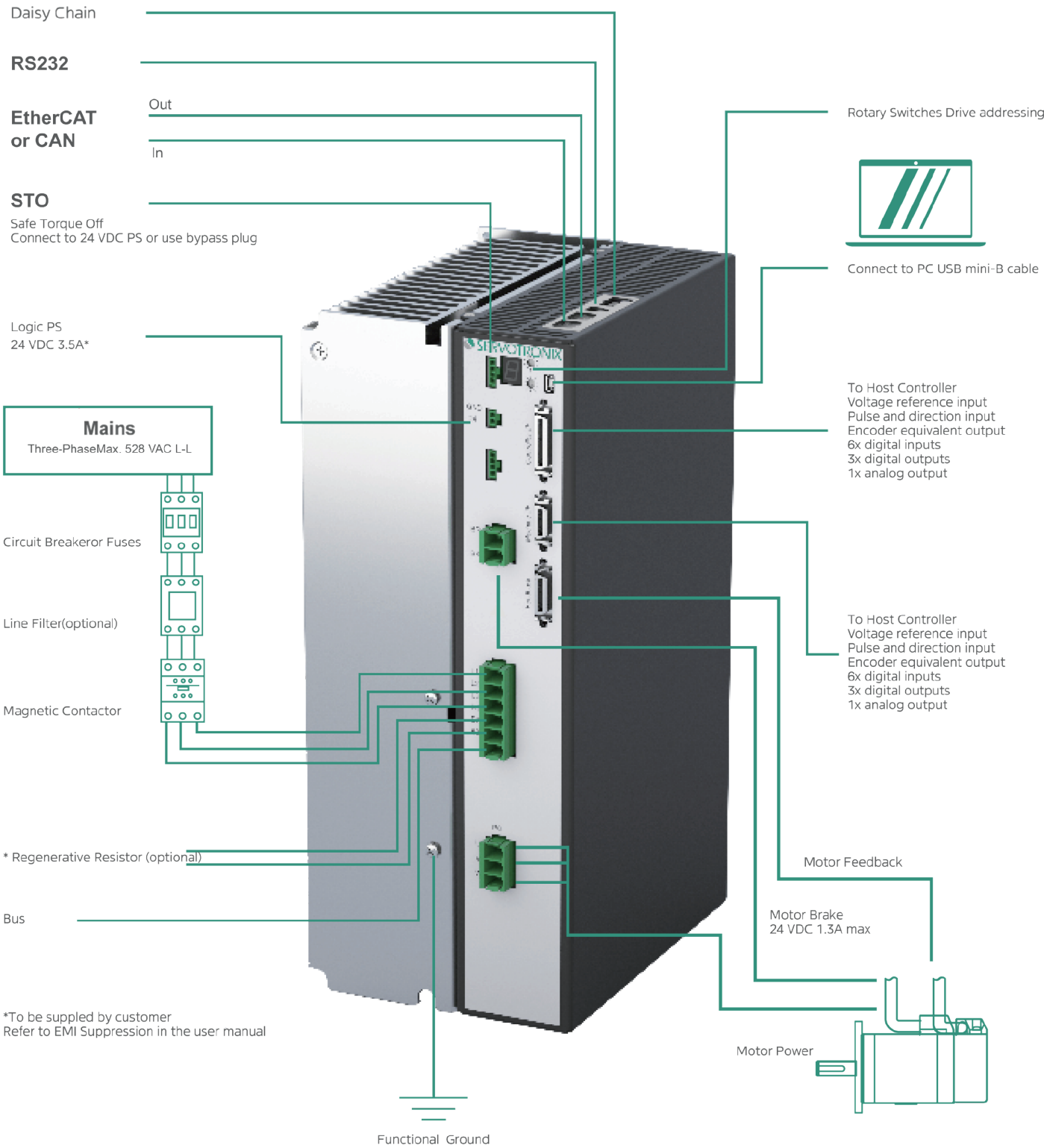
Characteristic	Specification	
Power supply	Drive power supply voltag	DC voltage: 5V
	Maximum power supply current from drive to encoder*	320mA
Incremental encoder	Differential RS422 or RS485 AB orthogonal	AB orthogonal; with or without index
	Maximum input frequency	5MHz (before orthogonalization)
	Minimum index pulse width	1μs
Serial encoder	signal	Synchronized differential data and clock for a coder. Suitable only for data from asynchronous coders.
	Protocol	EnDat2.2、 BiSS-C(up to 32 bits)
Analog signal	Protocol	DC voltage: 5V
Function	Full closed-loop, main/passive device or handwheel, encoder readout device	

Wiring Instructions

Single-Phase 220V Power Supply:

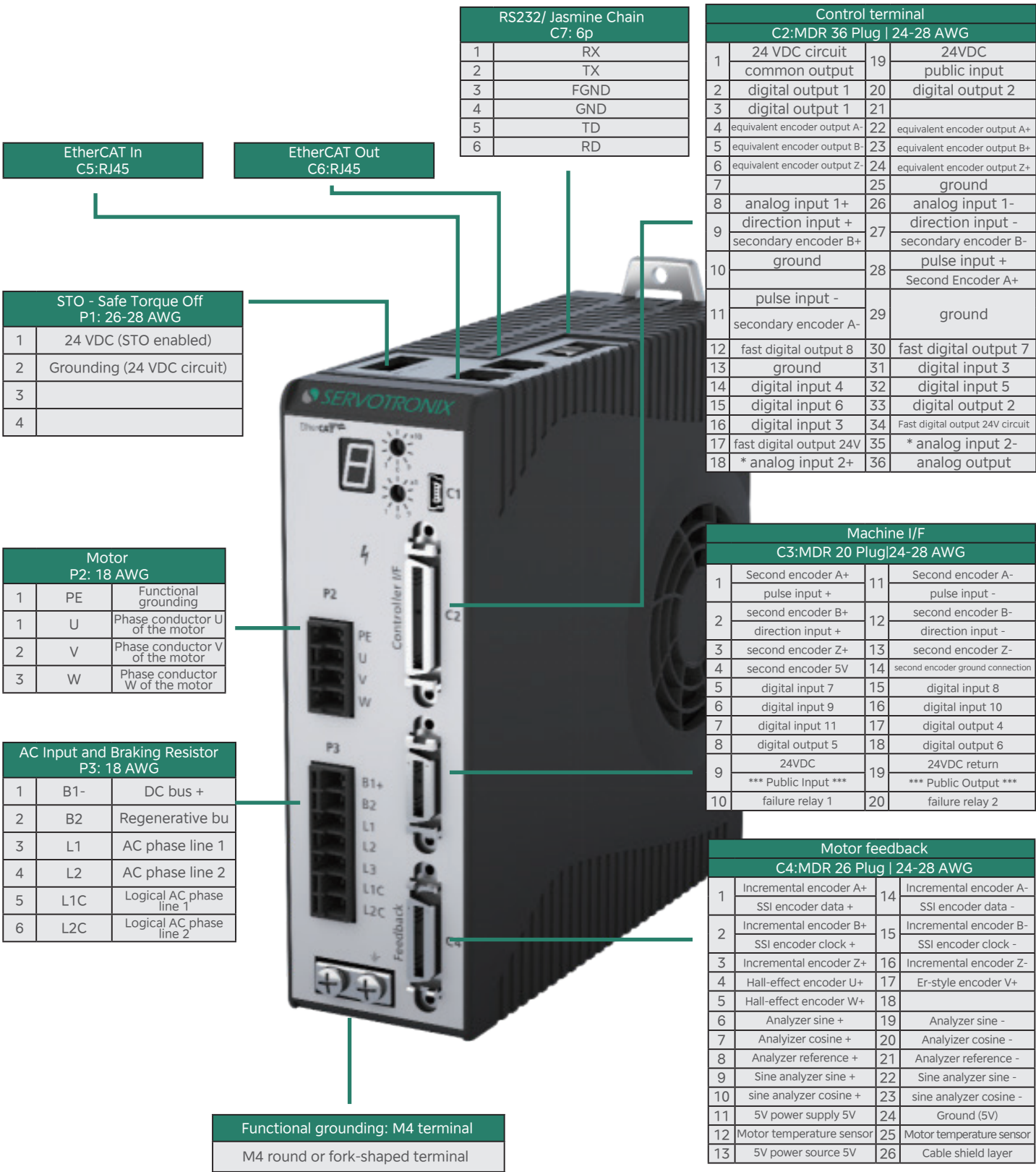


Three-Phase 380V Power Supply:

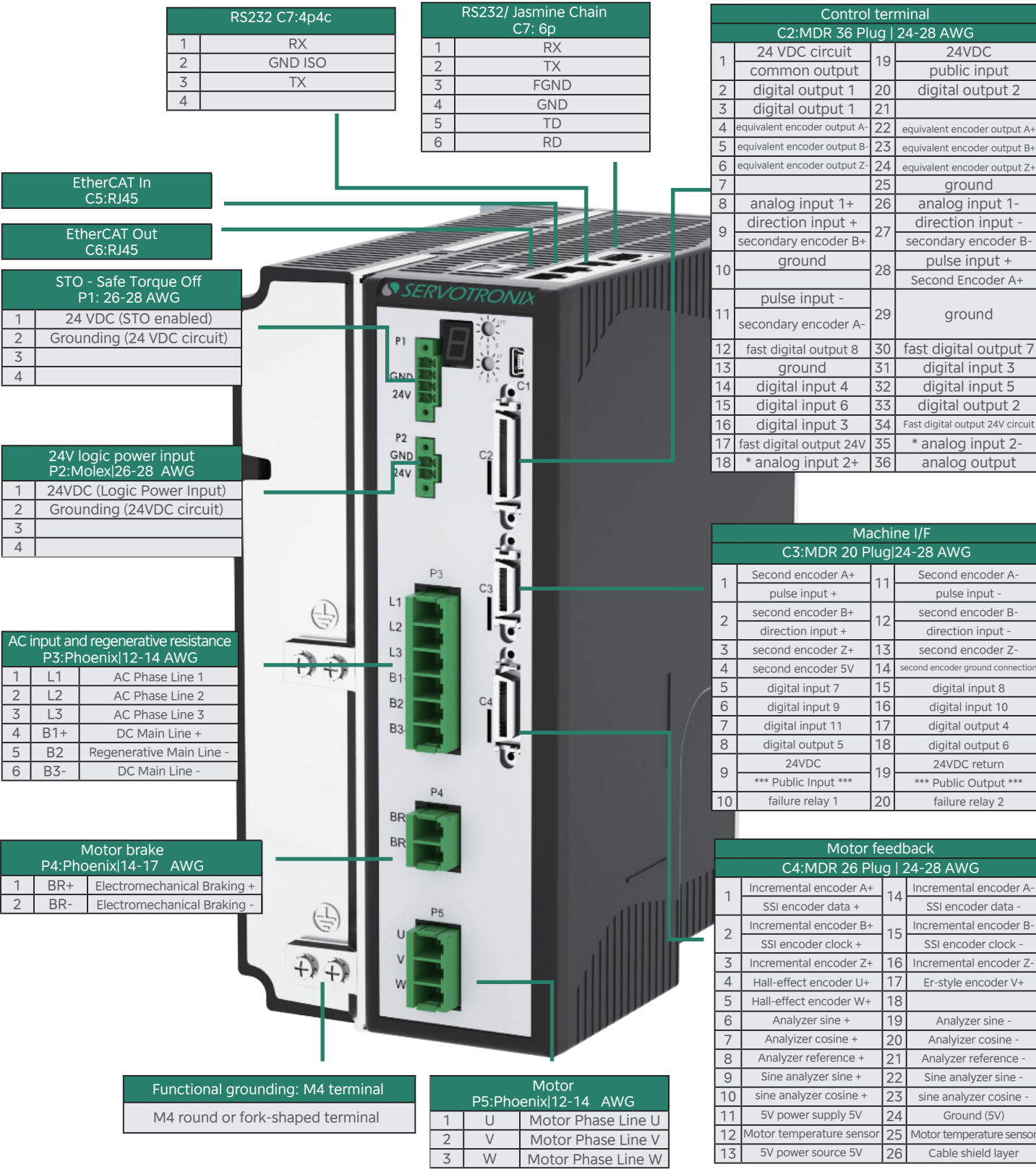


Port Definition for CDHD2S-RO Standard-Type Servo Drive

Medium pressure machine



High pressure machine



CDHD2S-RO terminal

Gaochuang Tmall Flagship Store



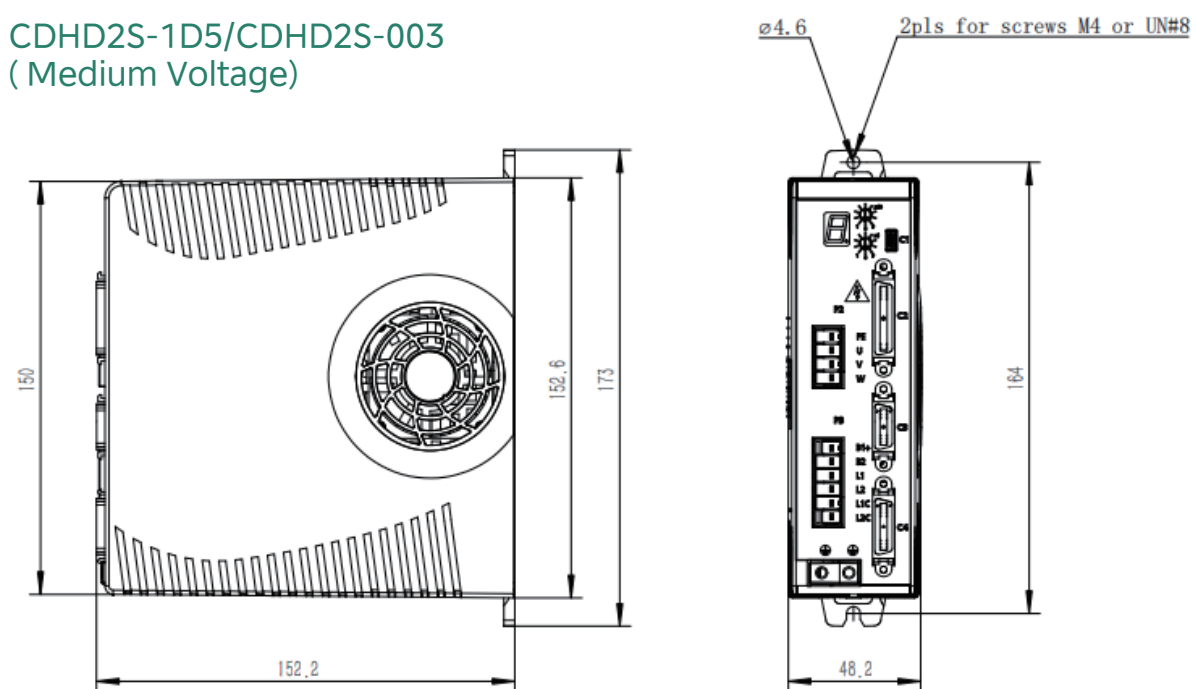
Terminal Cables: Scan to Buy

Model number	Control Terminal	Product Name	Specification Model	Part Number (P/N)	Is it the factory-installed configuration	Power Terminal	Product Name	Specification Model	Coding	Is it the factory-installed configuration		
CDHD2S-1D5/003 2A(MV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNG-3.5-04P-14-1008Z(H)	11201707002095	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	Motor UVW terminal	SC-T3005004SB0X	11201707001995			
	C3	Machine I/F	CONr00000020-38	11201707000413			P3	Power supply terminal	SC-T3005006SB0X		11201707001996	
	C4	Encoder	CONr00000026-31	11201707000414				C5&C6	Bus communication interface		Simply select a Super Class VI network cable	
	C7	Communication via RS232 The Chrysanthemum Chain	Pulse version of 232 port integrated into C7 (support 232, chrysanthemum chain communication, not standard, can be used with Takamatsu 15EDGKN-3.5-06P or Kefa KF2EDGKN-3.5-06P, recommended black terminal)									
CDHD2S-4D5/006 2A(MV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNG-3.5-04P-14-1008Z(H)	11201707002095	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	Motor UVW terminal	SC-T3005004SB0X	11201707001995			
	C3	Machine I/F	CONr00000020-38	11201707000413			P3	Power supply terminal	SC-T3005007SB0X		11201707001997	
	C4	Encoder	CONr00000026-31	11201707000414				C5&C6	Bus communication interface		Simply select a Super Class VI network cable	
	C7	Communication via RS232 The Chrysanthemum Chain	Pulse version of 232 port integrated into C7 (support 232, chrysanthemum chain communication, not standard, can be used with Takamatsu 15EDGKN-3.5-06P or Kefa KF2EDGKN-3.5-06P, recommended black terminal)									
CDHD2S-008/010/013 2A(MV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNG-3.5-04P-14-1008Z(H)	11201707002095	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	Motor UVW terminal	F9A-7.5-04P-A-0415	11201707002295			
	C3	Machine I/F	CONr00000020-38	11201707000413			P3	Power supply terminal	F9A-7.5-07P-A-0403		11201707002275	
	C4	Encoder	CONr00000026-31	11201707000414				C5&C6	Bus communication interface		Simply select a Super Class VI network cable	
	C7	Communication via RS232 The Chrysanthemum Chain	Pulse version of 232 port integrated into C7 (support 232, chrysanthemum chain communication, not standard, can be used with Takamatsu 15EDGKN-3.5-06P or Kefa KF2EDGKN-3.5-06P, recommended black terminal)									
CDHD2S-003/006 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	Logic power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Power terminal	CONr00000006-78	11201707000306			
	C4	Encoder	CONr00000026-31	11201707000414		P4	Hold-off brake terminal	CONr10000002-16	11201707000304			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P5	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-012 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-3.5-04P-14-00A (H)	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	Control power terminal	15EDGKNM-3.5-02P-14-1000A (H)	11201707001436			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Power terminal	CONr00000006-78	11201707000306			
	C4	Encoder	CONr00000026-31	11201707000414		P4	Hold-off brake terminal	CONr10000002-16	11201707000304			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P5	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-024/030 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Control power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C4	Encoder	CONr00000026-31	11201707000414		P4	Power terminal	CONr10000002-16	11201707000304			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P5	Hold-off brake terminal	CONr00000006-78	11201707000306			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-040 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Control power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C4	Encoder	CONr00000026-31	11201707000414		P5	Power terminal	CONr00000006-78	11201707000306			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P6	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-040 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Control power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C4	Encoder	CONr00000026-31	11201707000414		P5	Power terminal	CONr00000006-78	11201707000306			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P6	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-040 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Control power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C4	Encoder	CONr00000026-31	11201707000414		P5	Power terminal	CONr00000006-78	11201707000306			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P6	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-040 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Control power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C4	Encoder	CONr00000026-31	11201707000414		P5	Power terminal	CONr00000006-78	11201707000306			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P6	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-040 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Control power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C4	Encoder	CONr00000026-31	11201707000414		P5	Power terminal	CONr00000006-78	11201707000306			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P6	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-040 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Control power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C4	Encoder	CONr00000026-31	11201707000414		P5	Power terminal	CONr00000006-78	11201707000306			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P6	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-040 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Control power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C4	Encoder	CONr00000026-31	11201707000414		P5	Power terminal	CONr00000006-78	11201707000306			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P6	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-040 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Control power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C4	Encoder	CONr00000026-31	11201707000414		P5	Power terminal	CONr00000006-78	11201707000306			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P6	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									
CDHD2S-040 4D(HV)	C1	mini-usb	The mini-USB servo debugging line		No	P1	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435	Yes		
	C2	Controller I/F	CONr00000036-01	11201707000415		P2	STO terminal	15EDGKNM-4P4-GSn-3.5	11201707001435			
	C3	Machine I/F	CONr00000020-38	11201707000413		P3	Control power terminal	15EDGKNM-2P2-GSn-3.5	11201707001436			
	C4	Encoder	CONr00000026-31	11201707000414		P5	Power terminal	CONr00000006-78	11201707000306			
	C5&C6	Bus communication interface	Simply select a Super Class VI network cable			P6	Motor UVW terminal	CONr10000003-21	11201707000305			
	C7	Communication via RS232	Four-core crystal head debugging cable									

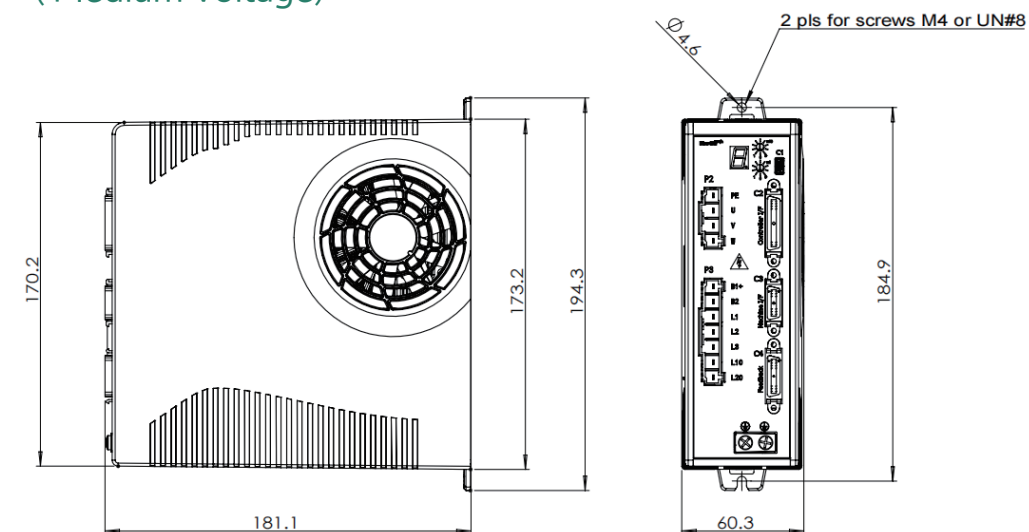
CDHD2S-RO Standard Type Servo Drive Product Dimensions

The outer casing of various models of CDHD2S drives varies, and its appearance and dimensions are shown in the diagram below

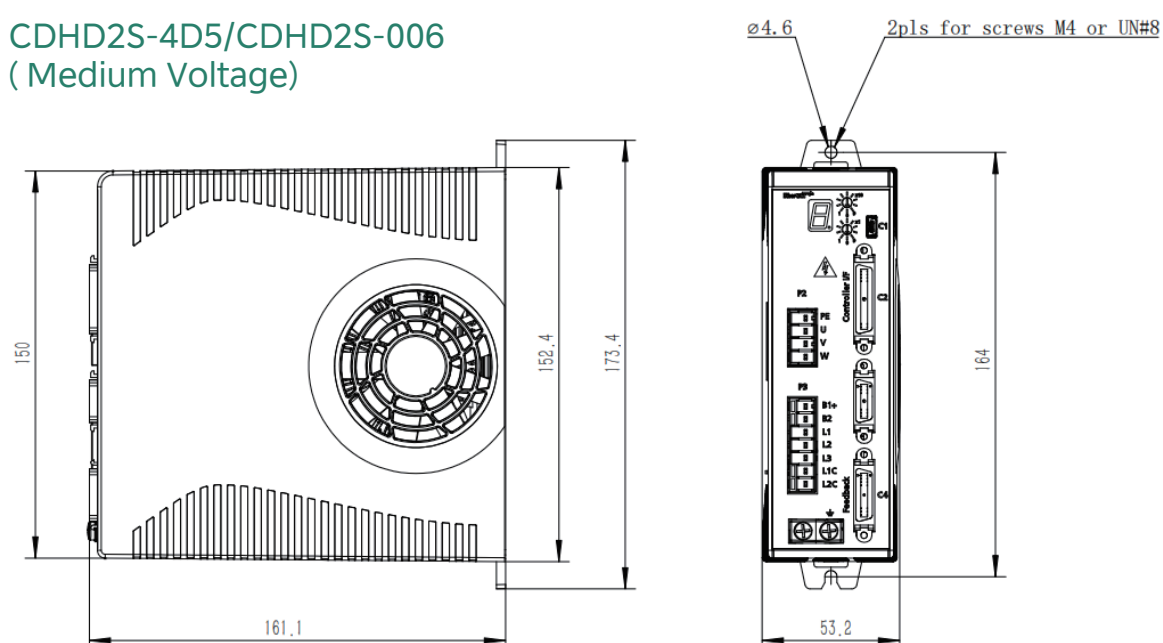
CDHD2S-1D5/CDHD2S-003
(Medium Voltage)



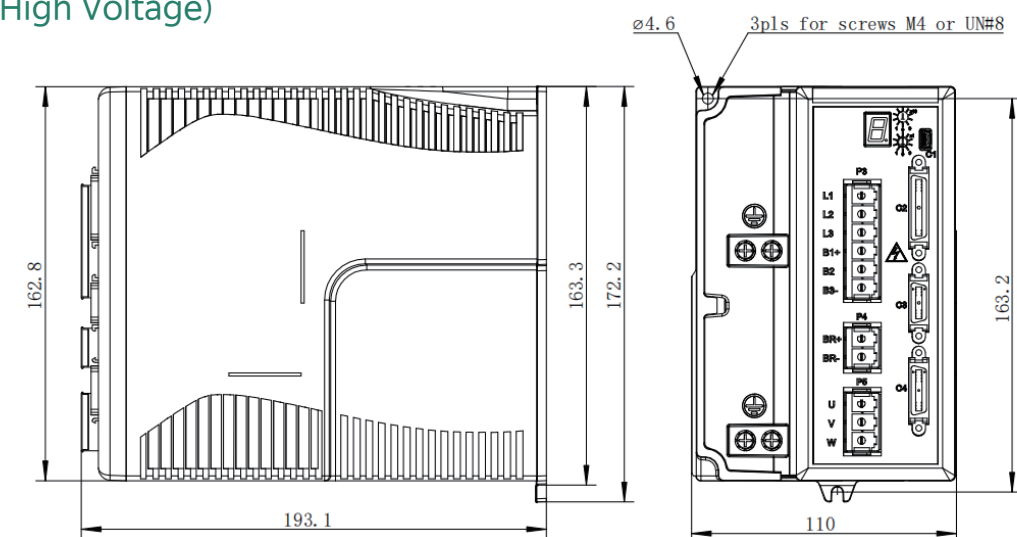
CDHD2S-008/CDHD2S-010/CDHD2S-013
(Medium Voltage)



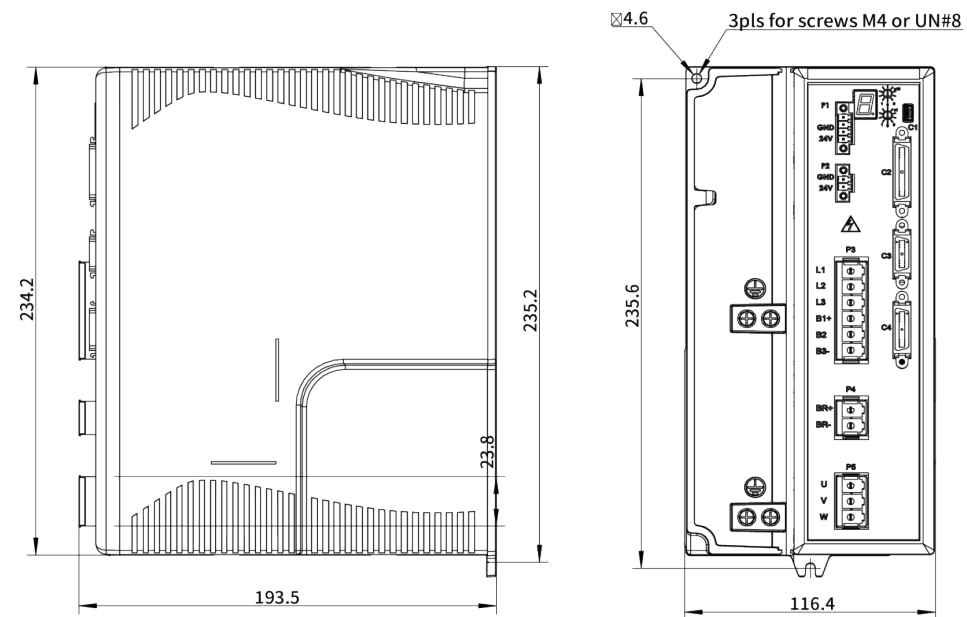
CDHD2S-4D5/CDHD2S-006
(Medium Voltage)



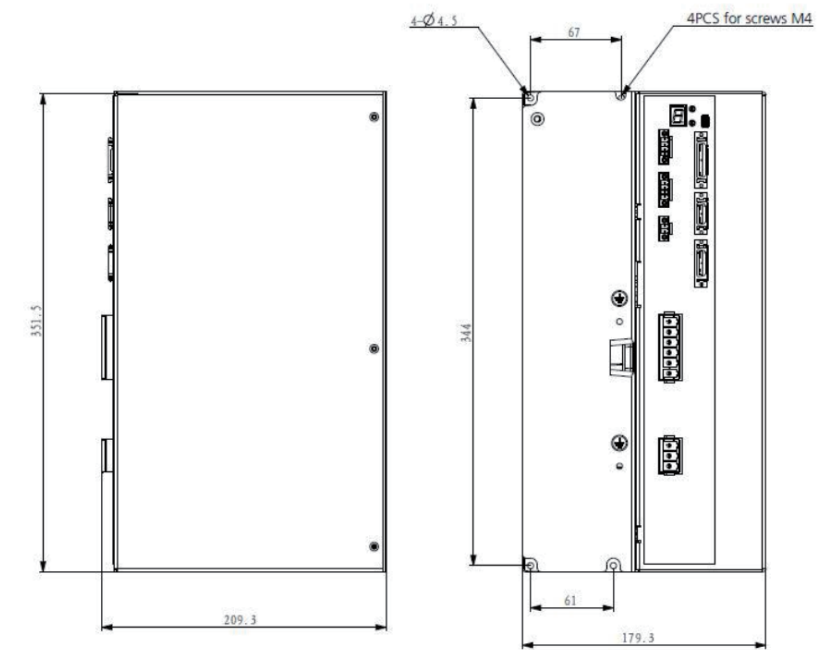
CDHD2S-003/CDHD2S-006
(High Voltage)



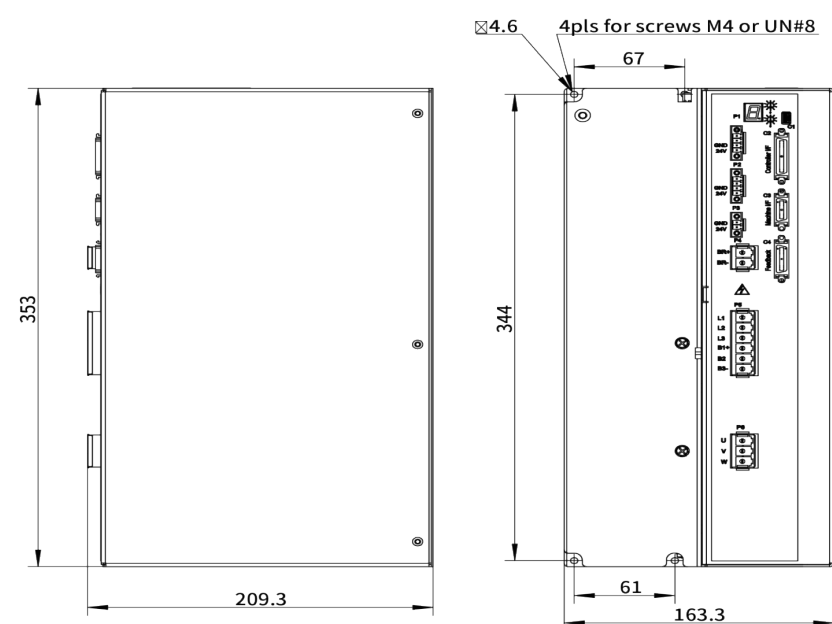
CDHD2S-012
(High Voltage)



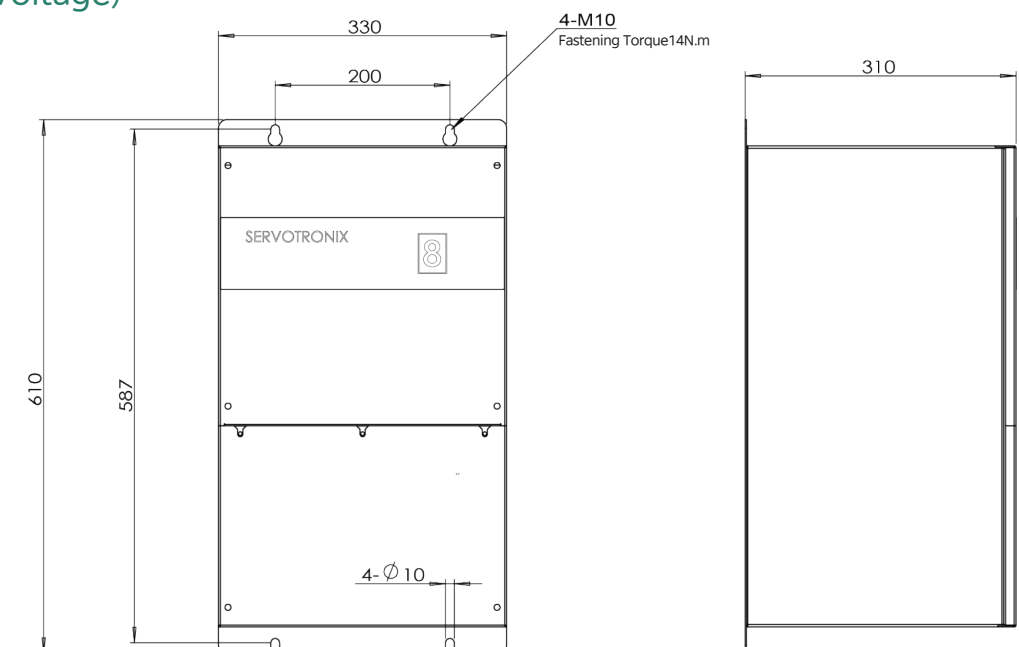
CDHD2S-040
(High Voltage)



CDHD2S-024/CDHD2S-030
(High Voltage)



CDHD2S-060
(High Voltage)



3 PH3E/S Series Servo Motor Product Overview

PH3E/S Series High-Performance Rotary Servo Motors represent the third-generation servo motor products developed on Googol Technology's all-new platform. Compared to the previous PH2 series, this new generation delivers comprehensive upgrades in electrical characteristics, structural integrity, control accuracy, ease of use, and manufacturability!

PH3E/S Series Servo Motor Naming Convention

PH 3 S - M 04 A 0 06 S T - ***
1 2 3 4 5 6 7 8 9 10 11 12 13

1 Generation name

Symbol	Specification
PH	PH Series

5 Motor Type (by Configuration)

Symbol	Specification
L	Low Inertia, High-Speed Motor
M	Medium Inertia, High-Speed Motor
G	Medium Inertia, High-Torque Motor

9 Frame Size

Symbol	Specification	Symbol	Specification
04	40mm	08	80mm
06	60mm	13	130mm

2 Generation system number

Symbol	Specification
3	Generation 3

6 Rated Power

Symbol	Specification	Symbol	Specification
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

Symbol	Specification
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 性能类别

Symbol	Specification
S	Standard Type (with Optical Encoder)
E	Economy Type (with Magnetic Encoder)

7 Voltage Level

Symbol	Specification
A	220V
B	380V

11 Encoder Configuration

Symbol	Specification
T	Encoder: 23-bit single-turn resolution + 16-bit multi-turn count (using 23-bit Tamagawa data protocol)
M	Magnetic Encoder: 20-bit single-turn resolution + 16-bit multi-turn count (using 23-bit Tamagawa data protocol)
G	Magnetic Encoder: 20-bit single-turn resolution (using 23-bit Tamagawa data protocol)

4. - Hyphen - no specific meaning

8 Electromagnetic Design Number

Symbol	Specification
0	Electromagnetic Design Number 0
Other	Other Electromagnetic Designs

13 Customization Code

Symbol	Specification
blank	Standard Parts (Standard Configuration, Standard Keys, Standard Shafts)
**	For other custom codes, please refer to the custom product specification.

Note:
This naming convention is provided solely to explain the meaning of the characters in the product model number. It does not imply that all possible character combinations correspond to an existing product.

PH3E/S Series Servo Motor Product Map

PH3 □ -L	PH3 □ -M	PH3 □ -G
		
 Low-Inertia High-Speed Rated 3000rpm Peak 7000rpm	 Medium-Inertia High-Speed Rated 3000rpm Peak 7000rpm	 Medium-Inertia High-Torque Rated 1500rpm Peak 4500rpm

Rated Power (kW)	0.1	0.2	0.4	0.6	0.75	0.85	1.0	1.3	1.8
Motor Type									

Motor Type Explanation:

- The □ symbol represents a Square Frame motor;
- The numbers 40/60/80/130 indicate the Frame Size;
- Color indicates motor type:  PH3-L: Low-inertia, high-speed motor;  PH3-M: Medium-inertia, high-speed motor;  PH3-G: Medium-inertia, high-torque motor.
- The superscript indicates the voltage class: ○ 220V Class; ◐ 220V Class+380V Class

Key Features of PH3E/S Series Servo Motors

Higher Performance

□ Frame 40/60/80 Products

Peak Torque Overload Capability: **3.5 times** and above
Maximum Speed: **7000RPM**

□ Frame 130 Products

Peak Torque Overload Capability: **2.5 times** and above
Maximum Speed: **4500RPM**

High Energy Efficiency

Models rated above 550W comply with the Level 1 efficiency requirement of GB 30253.



Full certification

(additional in progress; contact sales)

The full product line is compliant with UL, CE, and UKCA certifications.

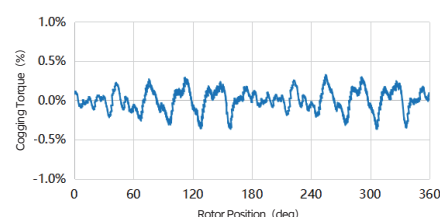


More Products

The standard product portfolio covers low-inertia motors in frame size 40 and medium-inertia motors in frame sizes 60, 80, and 130, with a power range from 0.1 kW to 1.8 kW. Compared to the previous generation (PH2), the lineup has been expanded with the addition of medium-inertia 60-frame 0.6 kW and 80-frame 1.0 kW models, offering greater configuration flexibility.

High Stability

Cogging torque is optimized to less than 1%.



Low Temperature Rise

Patented Electromagnetic Circuit Design: Typical Housing Temperature Rise under Standard Operating Conditions

less than 60k

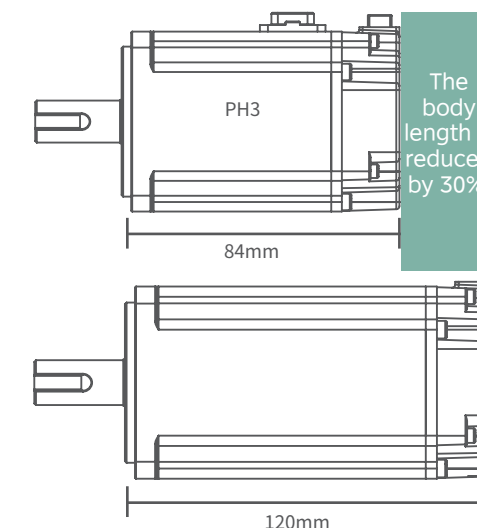
Low Noise

With optimized magnetic circuit and mechanical design, the operating noise is significantly reduced.



Short Frame

Compared to the PH2, the motor dimensions are reduced by up to 30%, significantly saving installation space.



Quick-Connect Design

The entire motor series incorporates a quick-connect design, eliminating the need for external "pigtail" cables and mid-air connector mating. This results in higher interface reliability, along with more convenient and flexible cabling.

High Protection



The housing of the entire product series is certified to IP67 (including the connector area, excluding the shaft through-hole).

Multiple Encoder Configuration

It is compatible with a range of encoder options and uses the Tamagawa data protocol as the default, ensuring stronger interoperability.

20-bit Magnetic Encoder Version

Repeatability: Up to 50 arcseconds.

23-bit Optical Encoder Version

Repeatability: Up to 20 arcseconds.

PH3E/S Series Servo Motors - Specification Overview

20 20-Bit Single-Turn Absolute Magnetic Encoder 20 20-Bit Multi-Turn Absolute Magnetic Encoder 23 23-Bit Single-Turn Absolute Optical Encoder

Inertia Class		Specification	100W
PH3□-L Low-Inertia High-Speed	Model	L01A004	
	Flange [mm]	40	
	Rated/Peak Torque [N·m]	0.32/1.12	
	Rated/Maximum Speed [rpm]	3000/7000	
	Inertia (Without Brake/With Brake) [kg·cm²]	0.044/0.046	
	Voltage Class [VAC]	220	
	Encoder Type [bit]	20 20 23	

Inertia Class		Specification	200W	400W	600W	750W	1000W
PH3□-M Medium-Inertia High-Speed	Model	M02A006	M04A006	M06A006	M08A008	M10A008	
	Flange [mm]	60	60	60	80	80	
	Rated/Peak Torque [N·m]	0.64/2.30	1.27/4.45	1.91/7.50	2.39/8.37	3.18/11.13	
	Rated/Maximum Speed [rpm]	3000/7000	3000/7000	3000/7000	3000/7000	3000/7000	
	Inertia (Without Brake/With 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]	202023	202023	202023	202023	202023	

Inertia Class		Specification	850W	1300W	1800W
PH3□-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/Maximum Speed [rpm]	1500/4500	1500/4500	1500/4500	
	Inertia (Without Brake/With 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	

Note:
The speed/torque performance data represents test results obtained when used with our BD3 series drives.

PH3E/S Series Servo Motor Catalog

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
L Low-Inertia High-Speed Motor	40	0.1	220	0.32/1.12	3000/7000	0.044/0.046	1.30/4.25	×	✓	PH3E-L01A004BG	PH3E-L01A004BM	PH3S-L01A004BT
								×	×	PH3E-L01A004NG	PH3E-L01A004NM	PH3S-L01A004NT
M Medium-Inertia High-Speed Motor	60	0.2	220	0.64/2.30	3000/7000	0.24/0.25	1.38/5.80	✓	✓	PH3E-M02A006EG	PH3E-M02A006EM	PH3S-M02A006ET
								✓	×	PH3E-M02A006SG	PH3E-M02A006SM	PH3S-M02A006ST
		0.4	220	1.27/4.45	3000/7000	0.47/0.48	2.40/9.60	✓	✓	PH3E-M04A006EG	PH3E-M04A006EM	PH3S-M04A006ET
								✓	×	PH3E-M04A006SG	PH3E-M04A006SM	PH3S-M04A006ST
		0.6	220	1.91/7.50	3000/7000	0.68/0.69	3.65/16.60	✓	✓	PH3E-M06A006EG	PH3E-M06A006EM	PH3S-M06A006ET
								✓	×	PH3E-M06A006SG	PH3E-M06A006SM	PH3S-M06A006ST
	80	0.75	220	2.39/8.37	3000/7000	1.46/1.51	4.42/16.90	✓	✓	PH3E-M08A008EG	PH3E-M08A008EM	PH3S-M08A008ET
								✓	×	PH3E-M08A008SG	PH3E-M08A008SM	PH3S-M08A008ST
		1.0	220	3.18/11.13	3000/7000	2.00/2.05	5.74/23.00	✓	✓	PH3E-M10A008EG	PH3E-M10A008EM	PH3S-M10A008ET
								✓	×	PH3E-M10A008SG	PH3E-M10A008SM	PH3S-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	✓	✓	PH3E-G09A013EG	PH3E-G09A013EM	PH3S-G09A013ET
								✓	×	PH3E-G09A013SG	PH3E-G09A013SM	PH3S-G09A013ST
		380	5.39/13.50	1500/4500	12.21/14.22	3.30/8.85		✓	✓	PH3E-G09B013EG	PH3E-G09B013EM	PH3S-G09B013ET
								✓	×	PH3E-G09B013SG	PH3E-G09B013SM	PH3S-G09B013ST
		220	8.28/20.85	1500/4500	18.03/20.05	9.70/26.09		✓	✓	PH3E-G13A013EG	PH3E-G13A013EM	PH3S-G13A013ET
								✓	×	PH3E-G13A013SG	PH3E-G13A013SM	PH3S-G13A013ST
	130	380	8.28/20.85	1500/4500	18.03/20.05	5.15/13.35		✓	✓	PH3E-G13B013EG	PH3E-G13B013EM	PH3S-G13B013ET
								✓	×	PH3E-G13B013SG	PH3E-G13B013SM	PH3S-G13B013ST
		220	11.5/28.75	1500/4500	23.94/25.95	11.60/31.35		✓	✓	PH3E-G18A013EG	PH3E-G18A013EM	PH3S-G18A013ET
								✓	×	PH3E-G18A013SG	PH3E-G18A013SM	PH3S-G18A013ST
		380	11.5/28.75	1500/4500	23.94/25.95	7.14/19.12		✓	✓	PH3E-G18B013EG	PH3E-G18B013EM	PH3S-G18B013ET
								✓	×	PH3E-G18B013SG	PH3E-G18B013SM	PH3S-G18B013ST

Special Marking Note:
Frame 40 motors do not include oil seals as standard. Please contact our sales personnel for customization if oil seals are required.

General Technical Specifications

Product Generation		PH3E/S Series	
Voltage Class		220V Model Number	380V Model Number
Withstand Voltage Rating		1500 VAC 1 minute	1800 VAC 1 minute
Duty Cycle	S1		
Insulation Class	F		
Insulation Resistance	≥ 10MΩ @ 500 VDC		
Excitation Mode	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), counterclockwise (CCW) rotation is defined as the positive direction. Under this condition, the phase relationship of the motor's back EMF is: U > V > W.		
Vibration Class	V15		
Enclosure Protection Rating	IP67 (excluding the shaft through-hole, and requires the connector to be reliably mated)		
Vibration Resistance	Frequency: 10–150 Hz Amplitude: 0.175 mm or Acceleration: 25 m/s2 Sweep Cycles: 10		
Shock Resistance	Peak Acceleration: 50 m/s2 Pulse Duration: 30 ms Waveform: Half-sine Tests: 3 shocks per direction, 18 shocks 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 (non-freezing)	
		Ambient Humidity: 20% RH to 85% RH (non-condensing)	
	Operating Environment	Ambient Temperature: -10°C to 40°C	
		Ambient Humidity: 20% RH to 85% RH (non-condensing)	
	Installation Location	• Indoor locations free from corrosive or explosive gases	
		• Well-ventilated areas with minimal dust, debris, and moisture	
		• Locations allowing easy inspection and cleaning	
		• Altitude below 1000m (for 1000m to 2000m, derating is required)	
		• Areas free from strong magnetic field generation	

Motor Electrical Specifications

PH3E/S-L Electrical Specifications

Parameter		Unit	L01A004
Rated Voltage		VAC	220
Inertia Type		/	Low Inertia
Mounting Flange		mm	40
Rated Power		W	100
Rated Torque		N·m	0.32
Maximum Torque *1		N·m	1.12
Rated Speed		r/min	3000
Maximum Speed *1		r/min	7000
Rated Current *1		Arms	1.30
Maximum Current *1		Arms	4.25
Torque Constant *1		Nm/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	d-axis	mH (±10%)	2.97
	q-axis	mH (±10%)	2.46
Rotor Inertia	Without Brake	x10 ⁻⁴ kg.m ²	0.044
	With Brake	x10 ⁻⁴ kg.m ²	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
	Rotation Angle	°	≤ 1.5
Encoder Configuration		/	20 20 23
Test Heat Sink Specifications		mm	200*200*6

Notes:
*1: All parameter values are typical figures measured from the test prototype at an ambient temperature of 25°C. Testing was conducted using Googoltech BD3 series servo drives; performance may vary when used with other drive models.
*2: The brake is designed for static holding only and must not be used for dynamic braking applications.

PH3E/S-M Electrical Specification

Parameter		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
Maximum Torque *1		N·m	2.30	4.45	7.50	8.37	11.13
Rated Speed		r/min	3000	3000	3000	3000	3000
Maximum Speed *1		r/min	7000	7000	7000	7000	7000
Rated Current *1		Arms	1.38	2.40	3.65	4.42	5.74
Maximum Current *1		Arms	5.80	9.60	16.60	16.90	23.00
Torque Constant *1		Nm/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

Notes:
*1: All parameter values are typical figures measured from the test prototype at an ambient temperature of 25°C. Testing was conducted using Googoltech BD3 series servo drives; performance may vary when used with other drive models.
*2: The brake is designed for static holding only and must not be used for dynamic braking applications.

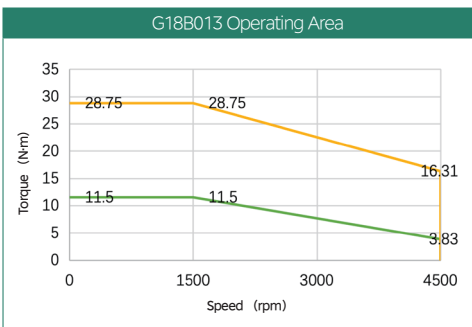
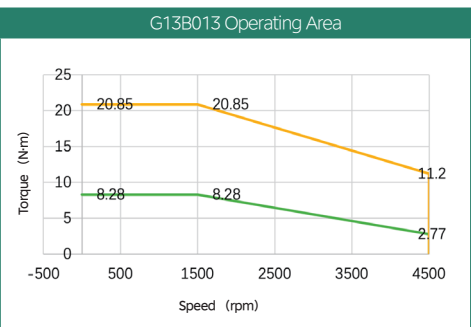
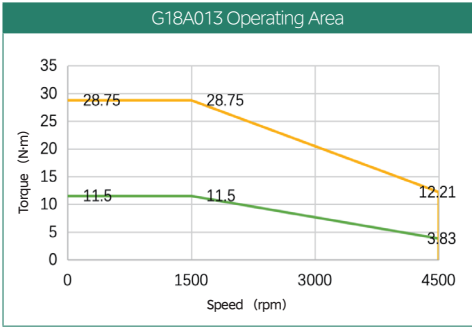
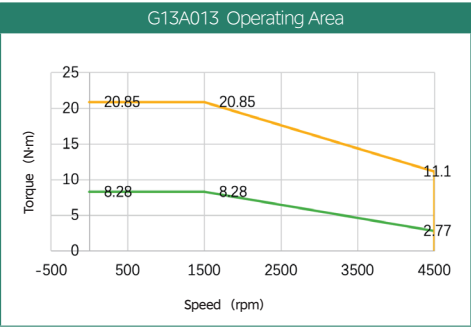
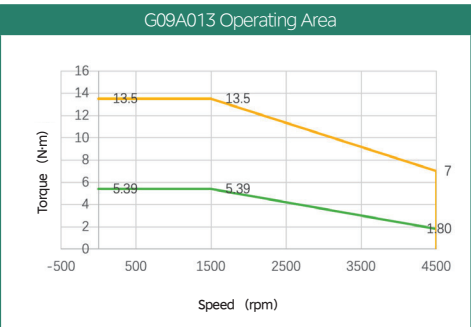
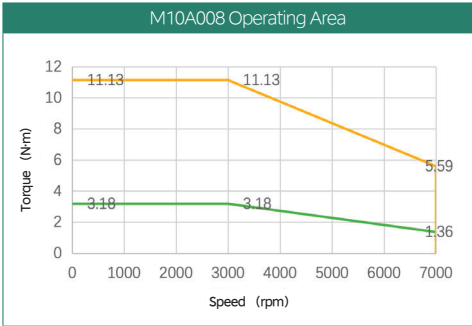
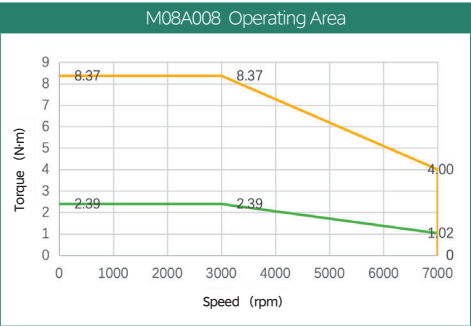
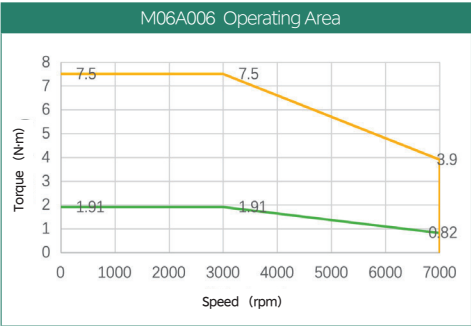
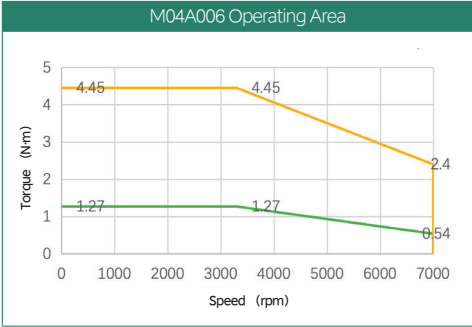
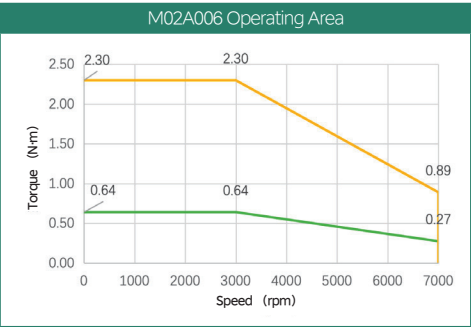
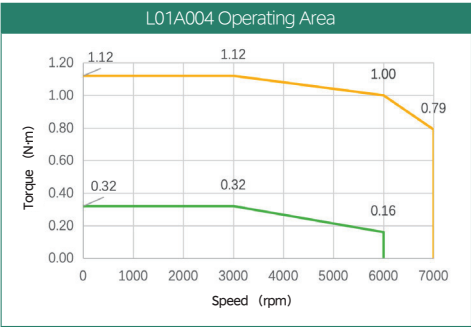
PH3E/S-G Electrical Specifications

Parameter		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
Maximum 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
Maximum Current *1		Arms	16.28	8.85	26.09	13.35	31.35	19.12
Torque Constant *1		Nm/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

Notes:
*1: All parameter values are typical figures measured from the test prototype at an ambient temperature of 25°C. Testing was conducted using Googoltech BD3 series servo drives; performance may vary when used with other drive models.
*2: The brake is designed for static holding only and must not be used for dynamic braking applications.

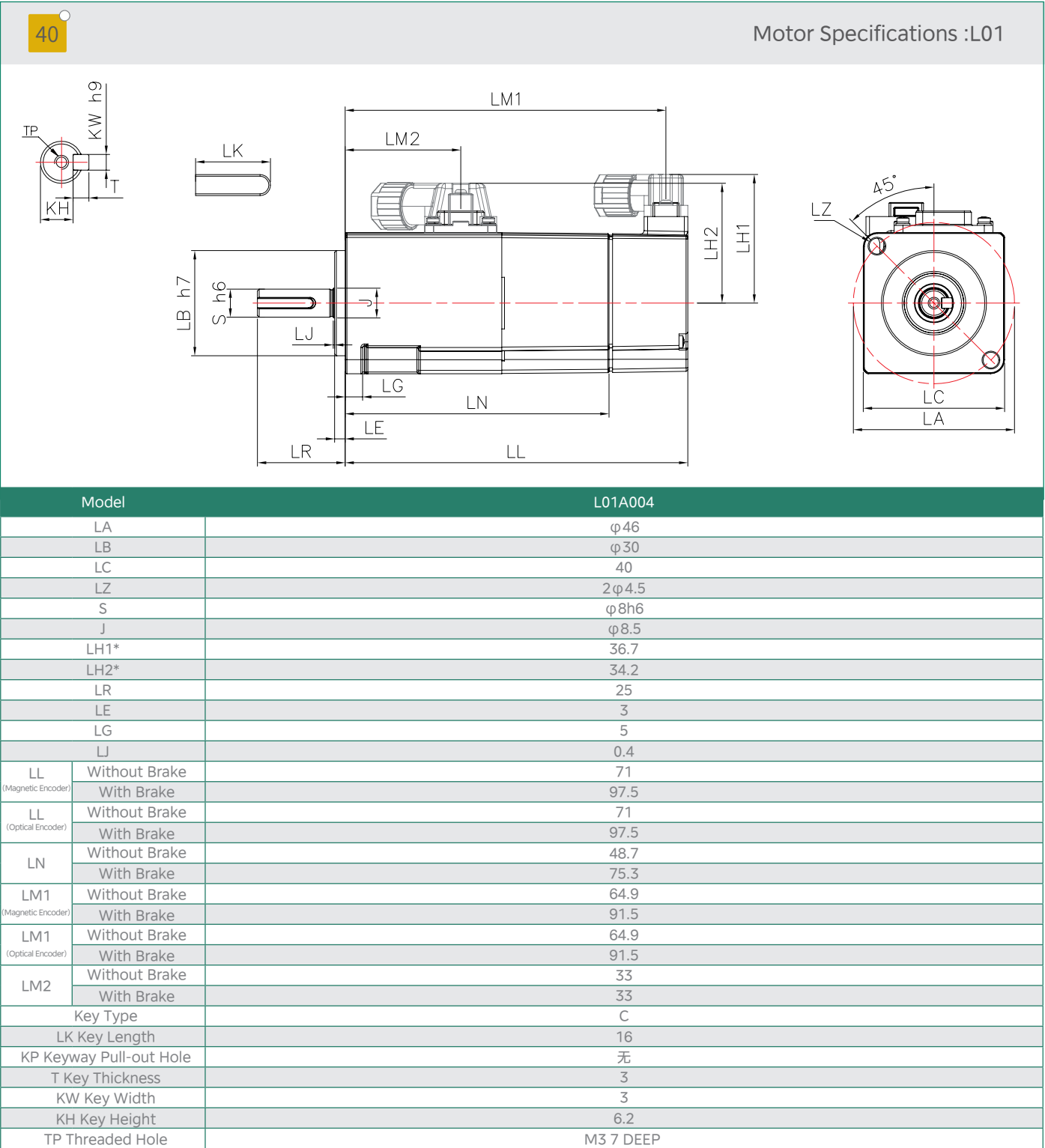
T-N Operating Region Curve

Continuous Operating Area Continuous Duty Zone



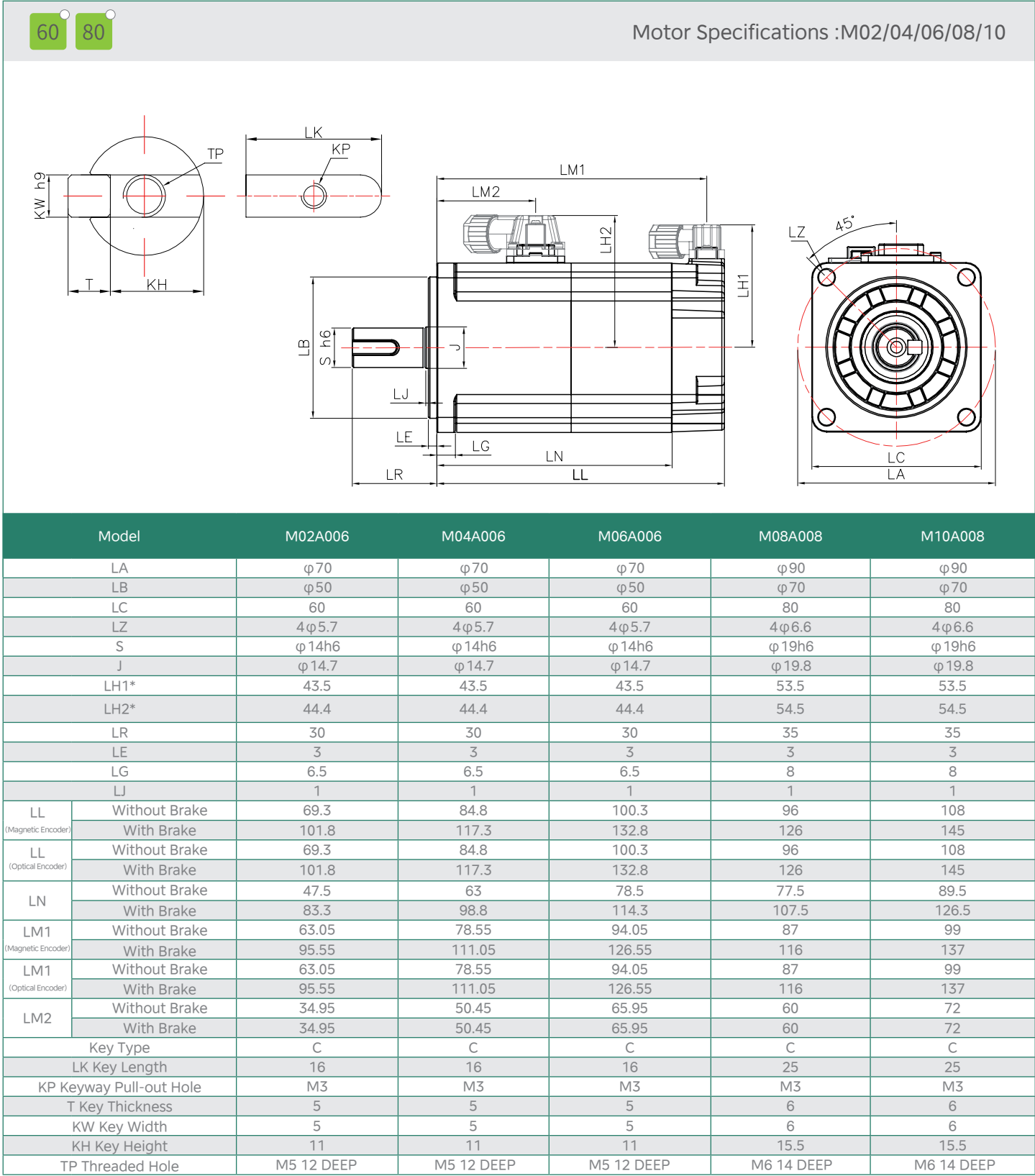
Motor Structural Characteristics

PH3E/S-L Structural Dimensions



Notes:
*1. Standard unit for dimensions: mm
*2. Explanation of mark *: The motor body does not include the connector on the extension cable. LH1 and LH2 indicate the maximum overall height after installing the connector of the extension cable.

PH3E/S-M Structural Dimensions

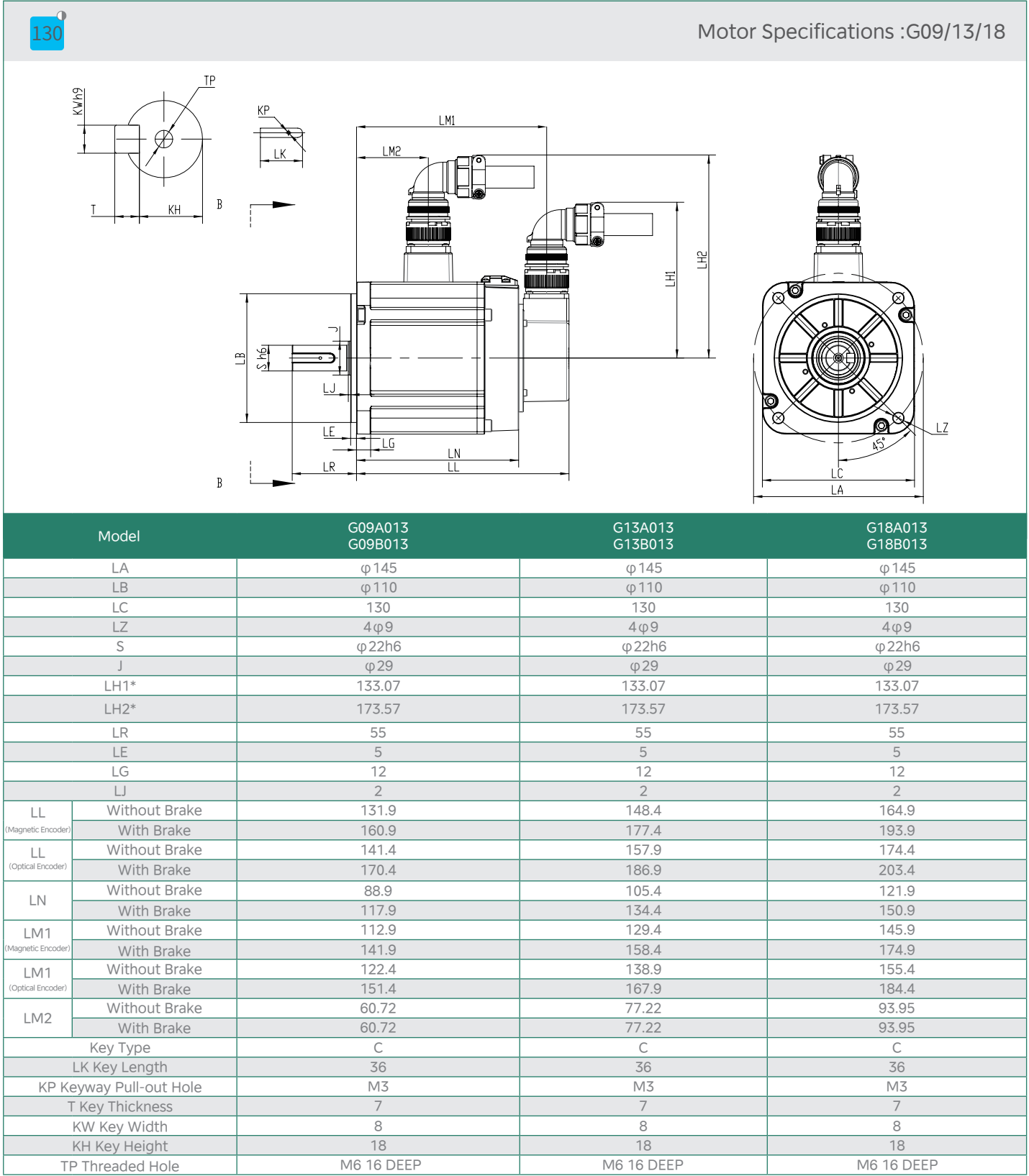


Notes:

*1. Standard unit for dimensions: mm

*2. Explanation of mark *: The motor body does not include the connector on the extension cable. LH1 and LH2 indicate the maximum overall height after installing the connector of the extension cable.

PH3E/S-G Structural Dimensions



Notes:

*1. Standard unit for dimensions: mm

*2. Explanation of mark *: The motor body does not include the connector on the extension cable. LH1 and LH2 indicate the maximum overall height after installing the connector of the extension cable.

Motor Interface

PH3E/S series motors are equipped with SUNCHU MC Series and 5015 Military-Spec IP67 rated electrical interfaces. These provide effective enhancement of the servo motor's overall protection rating, offering long interface lifespan, reliable connectivity, and flexible cable routing.

※ The connector brand specified in this manual is Sanzhu Technology (SUNCHU) **SUNCHU** 三竹机电。
※ Connectors are critical components that ensure reliable electrical connections. It is imperative to use only the brand and model officially specified by Googoltech.
※ Googoltech shall not be liable for any malfunctions or losses resulting from the unauthorized use of connectors from other brands.

Interface Specifications for Frame 40/60/80 Motors and Extension Cables (MC Series Connector)

	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 <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> Pin: Model: Forward: S-FMC19012220 (*7) Reverse: S-FMC19012220 (*7) D Direction (Forward)N Direction (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 Line 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 <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>Green Yellow</td></tr></table> Pin: Model: Forward: S-FMCK6012220 (*4) Reverse: S-FMCK6092220 (*4) D Direction (Forward)N Direction (Reverse)	Pin Number	Signal	Wire Color	1	U	Red	2	V	White	3	W	Black	4	PE	Green Yellow															
	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	Green Yellow																																								
Power Line 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 <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>Green Yellow</td></tr><tr><td>A</td><td>BRK+</td><td>Blue</td></tr><tr><td>B</td><td>BRK-</td><td>Brown</td></tr></table> Pin: Model: Forward: S-FMCK6012220 (*4) S-FMC19012220 (*2) Reverse: S-FMCK6092220 (*4) S-FMC19012220 (*2) D Direction (Forward)N Direction (Reverse)	Pin Number	Signal	Wire Color	1	U	Red	2	V	White	3	W	Black	4	PE	Green Yellow	A	BRK+	Blue	B	BRK-	Brown					
	Pin Number	Signal																																								
1	U																																									
2	V																																									
3	W																																									
4	PE																																									
A	BRK+																																									
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Pin Number	Signal	Wire Color																																								
1	U	Red																																								
2	V	White																																								
3	W	Black																																								
4	PE	Green Yellow																																								
A	BRK+	Blue																																								
B	BRK-	Brown																																								

Servo Cable Selection Guide

- ① Neither servo cables nor connector kit packages are standard accessories and must be ordered separately.
- ② Customers only need to select either the servo cable or the connector kit package.
- ③ Each servo cable model has a corresponding connector kit package. Select the appropriate connector kit package based on the specific cable required for the servo system.
- ④ The connector kit package includes connectors and accessories for both ends of the cable, but does not include conductors. Customers must prepare their own conductors for harness assembly.

Power Cables and Connector Accessories Catalog

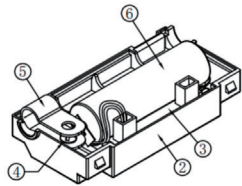
PH3 Motor Model	Compatible Drive Type	Encoder Configuration	Length (m)	Cable Model (Standard Flexible Cable)		Connector Kit Model (Either this or the cable is required)
				Front Outlet(D Direction)	Rear Outlet(N Direction)	
L01、M02/04/06	CDHD2S-RO Series	Without Brake	3	SPC-A61011-0303-F	SPC-A63011-0303-F	Front Outlet(D Direction): CAP-A6-01-A Rear Outlet(N Direction): 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	
		With Brake	3	SPC-A62021-0403-F	SPC-A64021-0403-F	Front Outlet(D Direction): CAP-A6-02-A Rear Outlet(N Direction): 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	CDHD2S-RO Series	Without Brake	3	SPC-A61031-0503-F	SPC-A63031-0503-F	Front Outlet(D Direction): CAP-A6-03-A Rear Outlet(N Direction): 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	
M08/10	CDHD2S-RO Series	With Brake	3	SPC-A62041-0603-F	SPC-A64041-0603-F	Front Outlet(D Direction): CAP-A6-04-A Rear Outlet(N Direction): 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	CDHD2S-RO Series	Without Brake	3	CBL-PWPH220000A003		CAP-PWPH20000A0
			5	CBL-PWPH220000A005		
			10	CBL-PWPH220000A010		
			15	CBL-PWPH220000A015		
			20	CBL-PWPH220000A020		
G09/13/18	CDHD2S-RO Series	With Brake	3	CBL-PWPH220001A003		CAP-PWPH20001A0
			5	CBL-PWPH220001A005		
			10	CBL-PWPH220001A010		
			15	CBL-PWPH220001A015		
			20	CBL-PWPH220001A020		

Note: The power cables designed for M08/10 models are backward compatible with those used for L01, M02/04/06 motors.

Encoder Cables and Connector Accessories Catalog

PH3 Motor Model	Compatible Drive Type	Encoder Configuration	Length (m)	Cable Model (Standard Flexible Cable)		Connector Kit Model (Either this or the cable is required)
				Front Outlet(D Direction)	Rear Outlet(N Direction)	
L01、M02/04/06 /08/10 M08/10 M08/10	CDHD2S-RO Series	Single-Turn Encoder (Without Battery)	3	SFC-A71A51-0103-F	SFC-A73A51-0103-F	CAP-A7-A5-1
			5	SFC-A71A51-0105-F	SFC-A73A51-0105-F	
			10	SFC-A71A51-0110-F	SFC-A73A51-0110-F	
			15	SFC-A71A51-0115-F	SFC-A73A51-0115-F	
			20	SFC-A71A51-0120-F	SFC-A73A51-0120-F	
		Multi-Turn Encoder (With Battery)	3	SFC-A72A52-0103-F	SFC-A74A52-0103-F	CAP-A7-A5-2
			5	SFC-A72A52-0105-F	SFC-A74A52-0105-F	
			10	SFC-A72A52-0110-F	SFC-A74A52-0110-F	
			15	SFC-A72A52-0115-F	SFC-A74A52-0115-F	
			20	SFC-A72A52-0120-F	SFC-A74A52-0120-F	
G09/13/18 G09/13/18	CDHD2S-RO Series	Single-Turn Encoder (Without Battery)	3	CBL-FBPH22S300A003		CAP-FBPH2S300A0
			5	CBL-FBPH22S300A005		
			10	CBL-FBPH22S300A010		
			15	CBL-FBPH22S300A015		
			20	CBL-FBPH22S300A020		
		Multi-Turn Encoder (With Battery)	3	CBL-FBPH22T200A003		CAP-FBPH2T200A0
			5	CBL-FBPH22T200A005		
			10	CBL-FBPH22T200A010		
			15	CBL-FBPH22T200A015		
			20	CBL-FBPH22T200A020		

- Notes:
1. For motors equipped with multi-turn encoders, if the multi-turn function is not required, you may select cables corresponding to the "single-turn encoder" configuration. Cables or connector kits with batteries should only be selected when utilizing the multi-turn counting function of the encoder.
2. CDHD2S Series Battery Box Assembly:
Model: DCH
Includes: Battery case and battery assembly
Part Number: 12119400000139
The wired battery model is EVE ER14505 (3.6V, 2700mAh), as shown in the right figure. Part Number: 12119400000621
3. The encoder cable connector kits for LO1, M02/04/06, and M08/10 motors are universal for both front and rear cable lead-out directions. The motor-side connector consists of two parts: the "terminal" (insert) and the "housing". When creating custom cables, users can adjust the orientation of the "housing" according to the required cable lead-out direction.



PH3 Interface Adapter Cables and Connector Accessories Catalog

Purpose:

1. To adapt the motor interface of the 4% PH3 series L01, M021/04/06/08/10 to the AMP connector interface used by the older PH2/PM2/PM1 series in frame sizes 40/60/80. This enables compatibility with the corresponding harnesses of the older series, meeting the application requirements of a wider range of servo drives from different generations.

2. When customers upgrading from the older PM1/PM2/PH2 series servo motors to the standard PH3 series motors in frame sizes 60/80, the PH3 motor interface, being a quick-plug version, cannot directly connect to the AMP plastic connector cables on the customer's existing equipment. This adapter cable converts the PH3 motor interface to the AMP connector of the older motor series, allowing connection with the original cables on the equipment.

Motor Type	Length (m)	High-Flex Cable		Connector Kit
		Front Outlet(D Direction)	Rear Outlet(N Direction)	
Power Cable - Without Brake	0.3	SPC-A61D11-05A3-F	SPC-A63D11-05A3-F	Front Outlet(D Direction): CAP-A6-D1-A Rear Outlet(N Direction): CAP-A6-D1-B
Power Cable - With Brake	0.3	SPC-A62D31-06A3-F	SPC-A64D31-06A3-F	Front Outlet(D Direction): CAP-A6-D3-A Rear Outlet(N Direction): CAP-A6-D3-B
Encoder Cable - Universal for Single/Multi-Turn	0.3	SFC-A72D51-01A3-F	SFC-A74D51-01A3-F	CAP-A7-D5

Example:

1. The customer's site originally uses a PH2-M06B23035T40D motor and a CDHD series drive, with the matching power cable CBL-PWPH220000D0O*# and encoder cable CBL-FBPH2T200D0**.

2. When replacing the PH2 motor with a PH3 motor while keeping the customer's existing drive, there are two possible solutions depending on whether the customer's site replaces the cables, as detailed below:

Category	Drive	Motor	Power Cable	Encoder Cable	Remarks
Current Solution	CDHD Drive	PH2-M06B23035T40D (With Lead Wires)	CBL-PWPH220000D0**	CBL-FBPH2T200D0**	/
Alternative 1	CDHD Drive	PH3S-M04A006ST (Socket, No Lead Wires)	SPC-A61D11-05A3-F CBL-PWPH220000D0**	SFC-A72D51-01A3-F CBL-FBPH2T200D0**	By utilizing an interface conversion cable, the existing customer-site cabling remains unchanged. This cable adapts the PH3 motor interface to match the PH2's lead-out interface, enabling a direct replacement of the PH2 motor with the PH3 model.
Alternative 2	CDHD Drive	PH3S-M04A006ST (Socket, No Lead Wires)	SPC-A61011-03*-F	SFC-A72A52-0103-F	All on-site cables are replaced with PH3 standard cables to complete the replacement of the PH2 motor with the PH3 model.

Note: This example is intended solely to demonstrate the usage of the interface adapter cable. The selection of an appropriate interface adapter cable must always be based on the specific application requirements and use case.

Connector Kit Package Information

Kit Category	Compatible Drives	Applicable Motors	Kit Purpose	Cable Exit Direction	Model / Part Number	Connector Illustration
Power Line Connector Kit	CDHD2S-RO Series	PH3 Series L01/M02/M04/M06	Without Brake	Front Outlet (D Direction)	CAP-A6-01-A	
				Rear Outlet (N Direction)	CAP-A6-01-B	
			Without Brake	Front Outlet (D Direction)	CAP-A6-02-A	
				Rear Outlet (N Direction)	CAP-A6-02-B	
		PH3 Series M08/M10	Without Brake	Front Outlet (D Direction)	CAP-A6-03-A	
				Rear Outlet (N Direction)	CAP-A6-03-B	
			With Brake	Front Outlet (D Direction)	CAP-A6-04-A	
				Rear Outlet (N Direction)	CAP-A6-04-B	
		PH3 Series G09/G13/G18	Without Brake	/	CAP-PWPH20000A0	
			With Brake	/	CAP-PWPH20001A0	

Kit Category	Compatible Drives	Applicable Motors	Kit Purpose	Cable Exit Direction	Model / Part Number	Connector Illustration
Encoder Cable Connector Kit	CDHD2S-RO Series	PH3 Series L01/M02/M04/M06/M08/M10	Single-Turn Encoder	Front/Rear Outlet Universal	CAP-A7-A5-1	
			Multi-Turn Encoder	Front/Rear Outlet Universal	CAP-A7-A5-2	
		PH3 Series G09/G13/G18	Single-Turn Encoder	/	CAP-FBPH2S300A0	
			Multi-Turn Encoder	/	CAP-FBPH2T200A0	

Kit Category	Compatible Drives	Applicable Motors	Kit Purpose	Cable Exit Direction	Model / Part Number	Connector Illustration
Interface Conversion Cable Connector Kit	CDHD2S-RO Series	PH3 Series L01/M02/M04/M06/M08/M10	For Power Line (Without Brake)	Front Outlet (D Direction)	CAP-A6-D1-A	
				Rear Outlet (N Direction)	CAP-A6-D1-B	
			For Power Line (With Brake)	Front Outlet (D Direction)	CAP-A6-D3-A	
				Rear Outlet (N Direction)	CAP-A6-D3-B	
			For Encoder Cable (Universal for Single/Multi-Turn Encoders)	Front/Rear Outlet Universal	CAP-A7-D5	

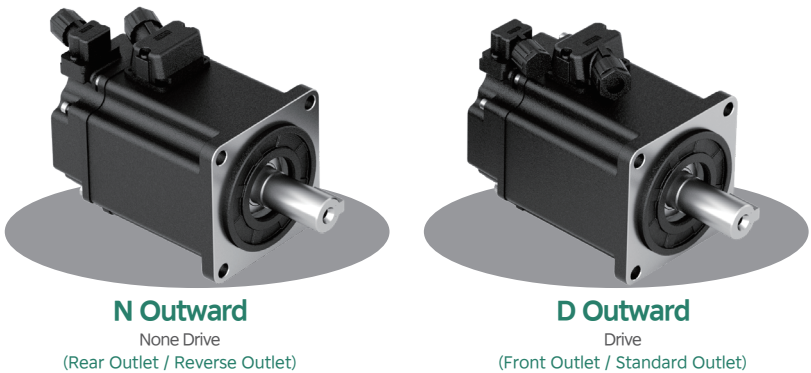
Notes:

1. The illustration of the MC connector for LO1/M02/M04/M06/M08/M10 motors shows the fully assembled configuration. The actual kit contains discrete components to facilitate installation.

2. The MC connector for LO1/M02/M04/M06/M08/M10 motors is a universal design for both front and rear cable lead-out directions. Users can adjust the orientation of the insert accordingly based on the required cable direction.

3. The appearance diagram is provided solely to illustrate the physical shape of the connector within the kit. For detailed model numbers and specifications, please refer to the connector kit specification document.

Front-Exit / Rear-Exit Cable Routing Diagram



Notes:

1. This diagram illustrates the installation of an MC connector on a terminal-type motor (Frame 40/60/80).

2. The MC connector is not a standard accessory; its depiction here is solely for demonstrating the orientation of the connector after cables with different lead-out directions are installed on the motor.

3. Users can flexibly select the lead-out direction combination for the power cable and encoder cable based on actual requirements, such as N+N, D+D, N+D, D+N, etc.

4 P3C Motor Designation

P3C Motor Designation Rules

P	3	C	-	L	01	A	1	04	S	T	-	***
1	2	3	4	5	6	7	8	9	10	11	12	13

P 1 Generation name

Symbol	Specification
P	Servotronix Servo Motor Product Designation

3 2 Generation system number

Symbol	Specification
3	Generation 3

C 3 Product Categories

Symbol	Specification
C	General-Purpose Low-Power Rotary Servo Motor

- 4 Em Dash

L 5 Motor Types (Inertia)

Symbol	Specification
L	Low Inertia, High Speed (Rated: 3000 rpm)
C	Medium Inertia, Medium Speed (2000 rpm)
G	Medium Inertia, High Torque (Rated: 1500 rpm)

01 6 Rated power

Symbol	Specification
A5	0.05kW
01	0.1kw
10	1.0kw
15	1.5kw
20	2.0kw
25	2.5kw

A 7 Rated power supply

Symbol	Specification
A	220VAC 3PhY
B	380VAC 3PhY

1 8 Design Serial number

Symbol	Specification
1	1 to 9 one-bit character,representing different electromagnetic schemes

04 9 Machine flange

Symbol	Specification
04	40mm
08	80mm
10	100mm
13	130mm
18	180mm

S 10 Brake/oil seal/shaft configuration

Symbol	Specification
S	With seal, without brake, standard keyed shaft (Seal)
E	With seal and brake, standard keyed shaft (Either)
N	Without seal and brake, standard keyed shaft (None)
B	Without seal, with brake, standard keyed shaft (Brake)

Symbol	Specification
29	2.9kw
30	3.0kw
44	4.4kw
55	5.5kw
75	7.5kw

T 11 Encoder configuration

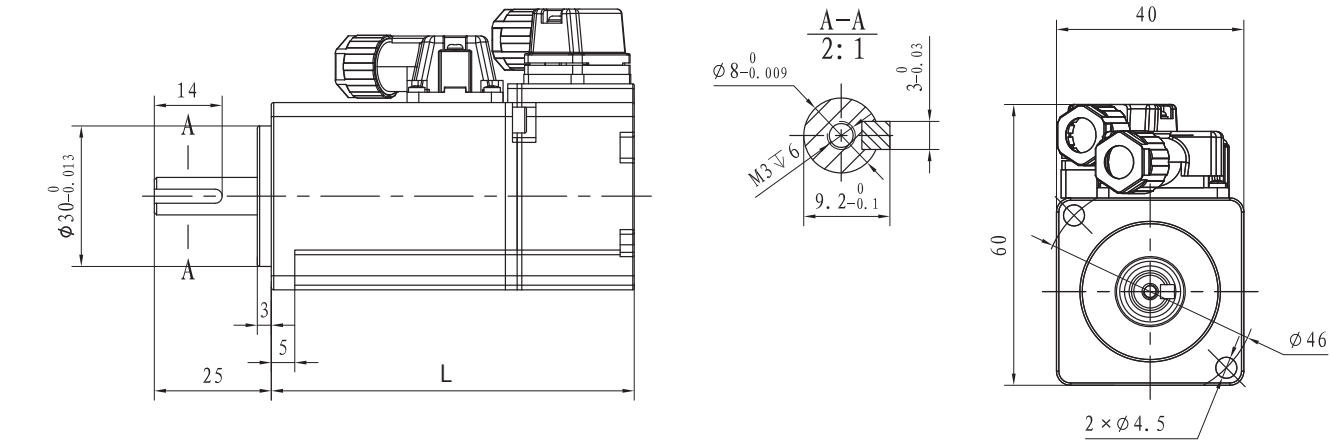
Symbol	Specification
T	Tamagawa protocol standard 23bit optical encoder (multi-turn only)
J	Tamagawa protocol standard 17bit magnetoencoder (multiple turns only)

- 12 Em Dash

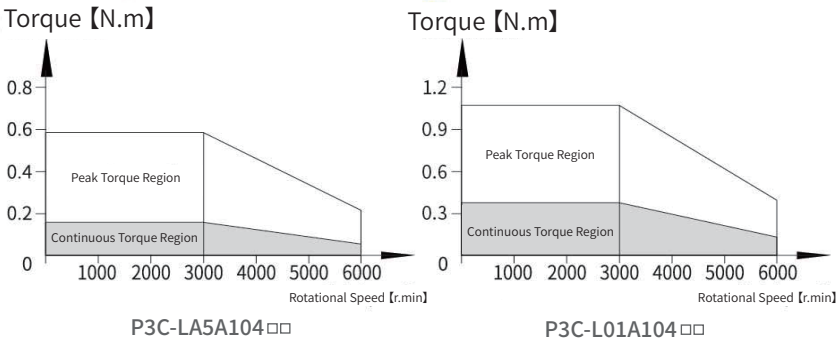
*** 13 Custom Code

Symbol	Specification
blank	Standard product (standard structure, standard key standard axis)
other	Non-electromagnetic custom custom code, see thespecification

40-Flange Low-Inertia Motors



Torque-Speed Characteristic Curve



Outline Dimension Drawing	50W	100W
L without Brake (mm)	67.5	77.5
L with Brake (mm)	100.5	110.5

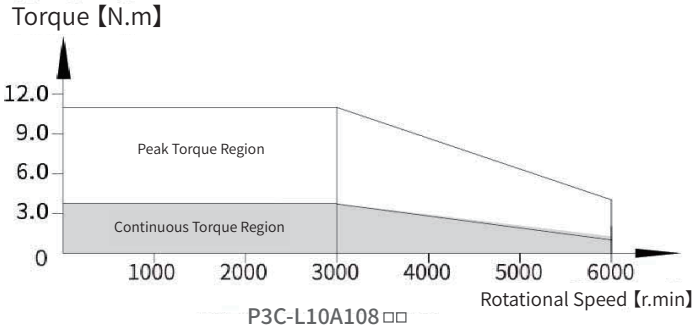
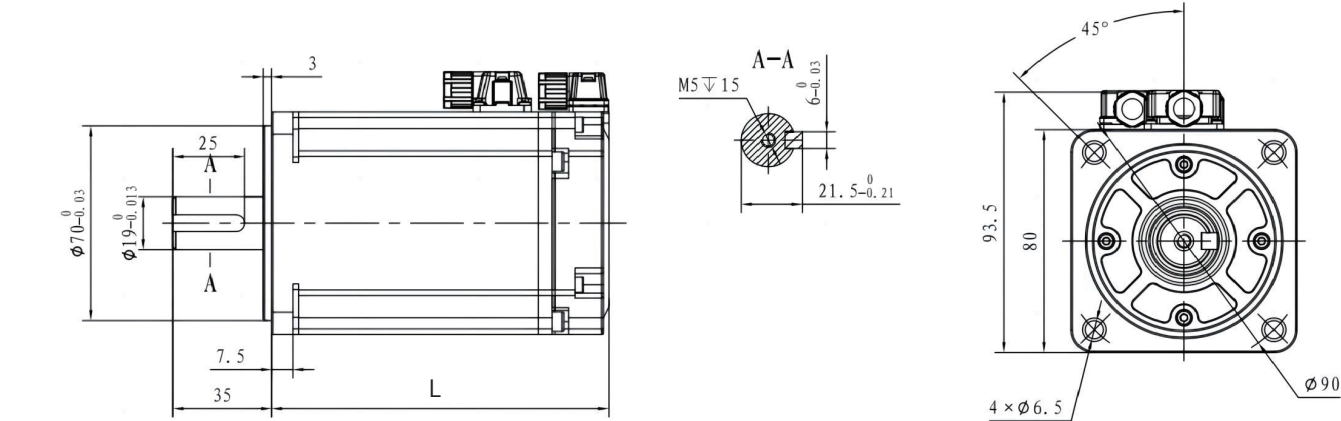
Technical Parameters

Motor Specifications	P3C-LA5A104	P3C-L01A104
Rated Power (W)	50	100
Rated Voltage (V)	220	220
Rated Current (A)	0.6	1
Rated Torque (N·m)	0.16	0.32
Rated Speed (r/min)	3000	3000
Peak Current (A)	1.8	3
Peak Torque (N·m)	0.48	0.96
Maximum Speed (r/min)	6000	6000
Back EMF (V/1000r/min)	18	19
Torque Constant (N·m/A)	0.3	0.3
Winding Resistance (Line-to-Line) (Ω)	26	14.5

Motor Specifications	P3C-LA5A104	P3C-L01A104
Winding Inductance (Line-to-Line) (mH)	20	13.7
Electrical Time Constant (ms)	0.8	0.9
Rotor Inertia (kg·m ² ×10 ⁻⁴)	0.035(0.038)	0.05(0.053)
Weight (kg)	0.4	0.55
Number of Pole Pairs	5 Pole Pairs	
Motor Insulation Class	ClassF	
Protection Rating (IP Code)	IP65	
Operating Environment	Ambient Temperature: -20°C to 40°C Ambient Humidity: < 90% relative humidity (Non-condensing)	

Note:() are for motors with holding brakes.

80-Flange Low-Inertia Motors



Outline Dimension Drawing	1000W
L without Brake (mm)	119.4
L with Brake (mm)	156.4

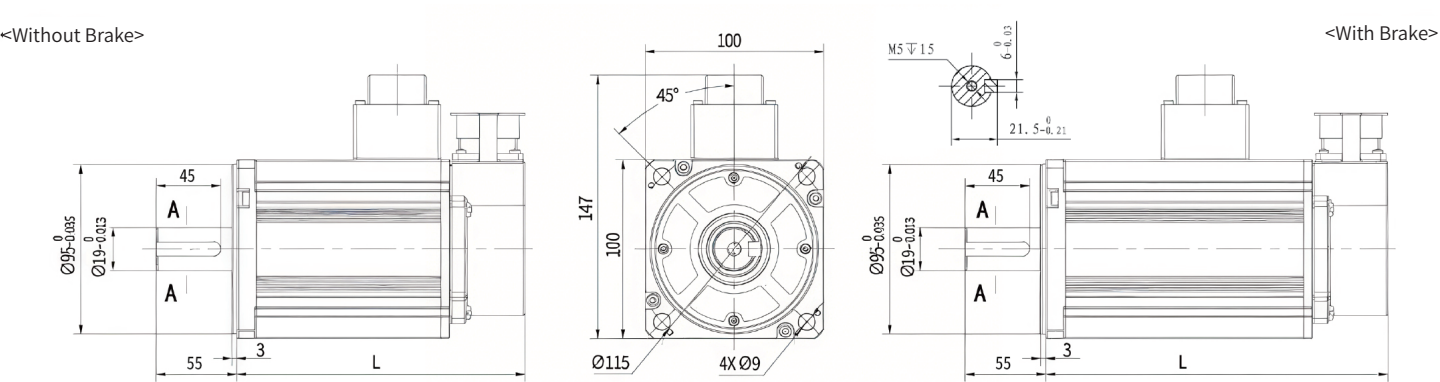
Technical Parameters

Motor Specifications	P3C-L10A108 □□
Rated Power (W)	1000
Rated Voltage (V)	220
Rated Current (A)	6.3
Rated Torque (N·m)	3.18
Rated Speed (r/min)	3000
Peak Current (A)	25
Peak Torque (N·m)	11.13
Maximum Speed (r/min)	6000
Back EMF (V/1000r/min)	33.3
Torque Constant (N·m/A)	0.50
Winding Resistance (Line-to-Line) (Ω)	0.74

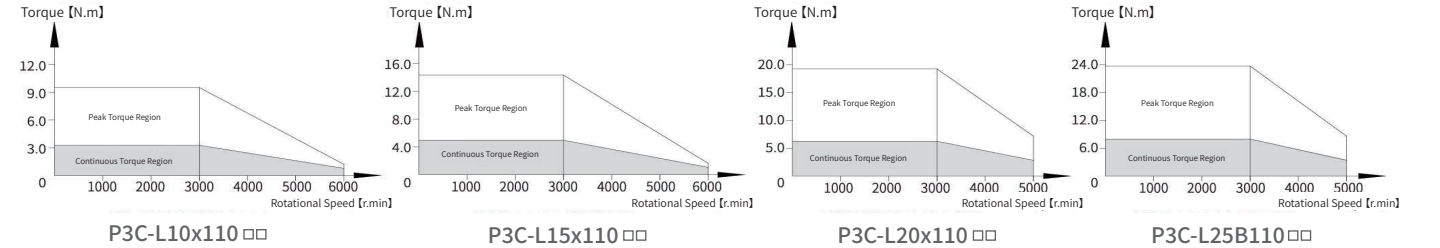
Motor Specifications	P3C-L10A108 □□
Winding Inductance (Line-to-Line) (mH)	6.7
Electrical Time Constant (ms)	9.1
Rotor Inertia (kg·m²×10⁻⁴)	0.88
Weight (kg)	2.5
Number of Pole Pairs	5 Pole Pairs
Motor Insulation Class	ClassF
Protection Rating (IP Code)	IP65
Operating Environment	Ambient Temperature: -20°C to 40°C Ambient Humidity: < 90% relative humidity (Non-condensing)

Note:() are for motors with holding brakes.

100-Flange Low-Inertia Motors



Torque-Speed Characteristic Curve



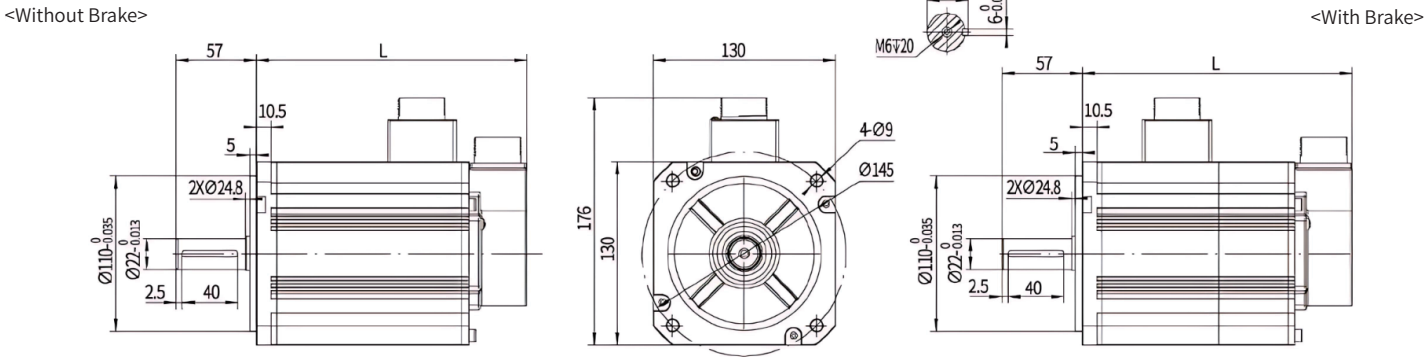
Outline Dimension Drawing	1000W	1500W	2000W	2500W
L without Brake (mm)	142	161	180	199
L with Brake (mm)	147	191	210	229

Technical Parameters

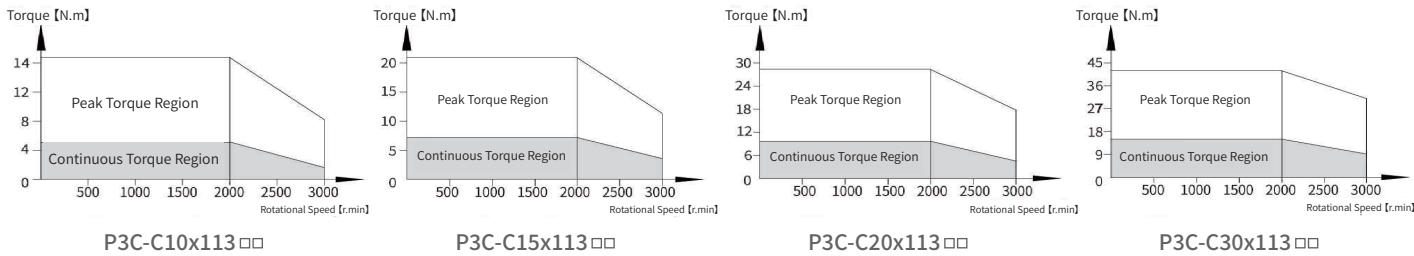
Motor Specifications	P3C-L10x110 □□		P3C-L15x110 □□		P3C-L20x110 □□		P3C-L25B110 □□
Rated Power (W)	1000		1500		2000		2500
Rated Voltage (V)	220	380	220	380	220	380	380
Rated Current (A)	7	3.5	10	5	11.6	6	7.5
Rated Torque (N·m)	3.18	3.18	4.77	4.77	6.37	6.37	7.96
Rated Speed (r/min)	3000	3000	3000	3000	3000	3000	3000
Peak Current (A)	22	11	31	16	36	18	22
Peak Torque (N·m)	9.54	9.54	14.31	14.31	19.11	19.11	23.88
Maximum Speed (r/min)	6000	6000	6000	6000	5000	5000	5000
Back EMF (V/1000r/min)	30	60	31	62	33	66	68
Torque Constant (N·m/A)	0.45	0.91	0.48	0.95	0.55	1.06	1.06
Winding Resistance (Line-to-Line) (Ω)	0.46	1.76	0.31	1.27	0.25	0.96	0.66
Winding Inductance (Line-to-Line) (mH)	4.6	18	3.6	13.8	2.65	10.6	8.4
Electrical Time Constant (ms)	10.0	10.2	11.6	10.9	10.6	11.0	12.7
Rotor Inertia (kg·m²×10⁻⁴)	2.26(3.0)		3.1(3.83)		3.93(4.66)		4.76(5.5)
Weight (kg)	4		5		6		7
Number of Pole Pairs	5 Pole Pairs						
Motor Insulation Class	ClassF						
Protection Rating (IP Code)	IP65						
Operating Environment	Ambient Temperature: -20℃ to 40℃		Ambient Humidity: < 90% relative humidity (Non-condensing)				

Note: X:A indicates a rated voltage of 220V; B indicates a rated voltage of 380V. □□ : For brake and encoder options, refer to the model designation rule.

130-Flange Medium-Inertia Motors



Torque-Speed Characteristic Curve



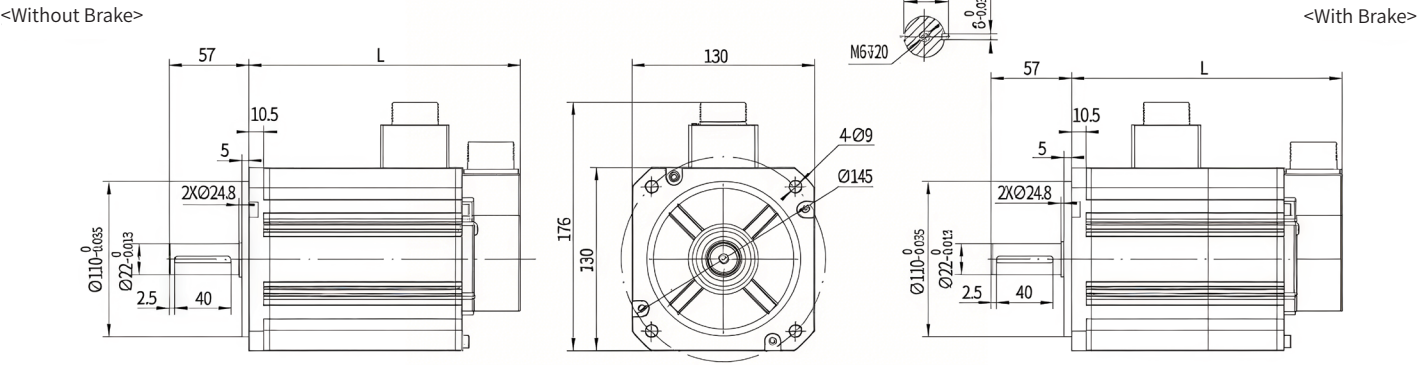
Outline Dimension Drawing	1000W	1500W	2000W	3000W
L without Brake (mm)	135	152.5	170	200
L with Brake (mm)	187	204.5	222	252

Technical Parameters

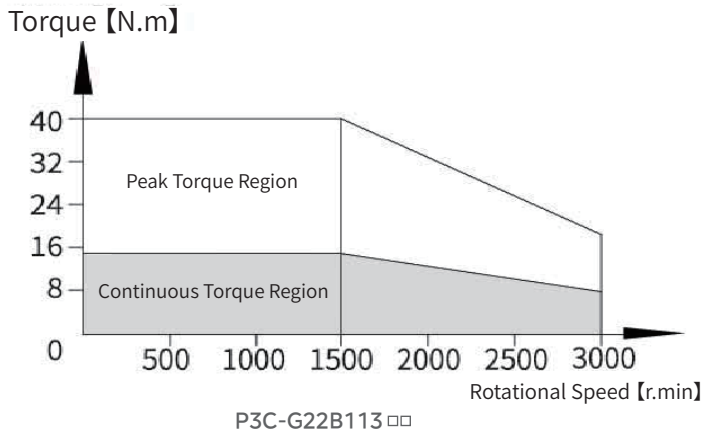
Motor Specifications	P3C-C10x113□□		P3C-C15x113□□		P3C-C20x113□□		P3C-C30x113□□
Rated Power (W)	1000		1500		2000		3000
Rated Voltage (V)	220	380	220	380	220	380	380
Rated Current (A)	5.8	3.5	8	4.7	10.2	6.2	11
Rated Torque (N·m)	4.77	4.77	7.16	7.16	9.55	9.55	14.3
Rated Speed (r/min)	2000	2000	2000	2000	2000	2000	2000
Peak Current (A)	17.4	10.5	24	14.1	30.6	18.6	33
Peak Torque (N·m)	14.31	14.31	21.48	21.48	28.65	28.65	42.9
Maximum Speed (r/min)	3000	3000	3000	3000	3000	3000	3000
Back EMF (V/1000r/min)	53	89	58	98	60	100	89
Torque Constant (N·m/A)	0.82	1.36	0.9	1.52	0.93	1.54	1.3
Winding Resistance (Line-to-Line) (Ω)	0.73	2.1	0.49	12	0.48	2.1	0.68
Winding Inductance (Line-to-Line) (mH)	9.7	28	7.3	17.8	6	26	9.5
Electrical Time Constant (ms)	13.3	13.3	14.9	14.8	12.5	12.4	14.0
Rotor Inertia (kg·m²×10⁻⁴)	5.98(7.21)		8.05(9.28)		10.13(11.36)		13.69(14.92)
Weight (kg)	5.4		7.1		8.3		10.7
Number of Pole Pairs	5 Pole Pairs						
Motor Insulation Class	ClassF						
Protection Rating (IP Code)	IP65						
Operating Environment	Ambient Temperature: -20℃ to 40℃		Ambient Humidity: < 90% relative humidity (Non-condensing)				

Note: X:A indicates a rated voltage of 220V; B indicates a rated voltage of 380V. □ □ : For brake and encoder options, refer to the model designation rule.

130-Flange Medium-Inertia Motors



Torque-Speed Characteristic Curve



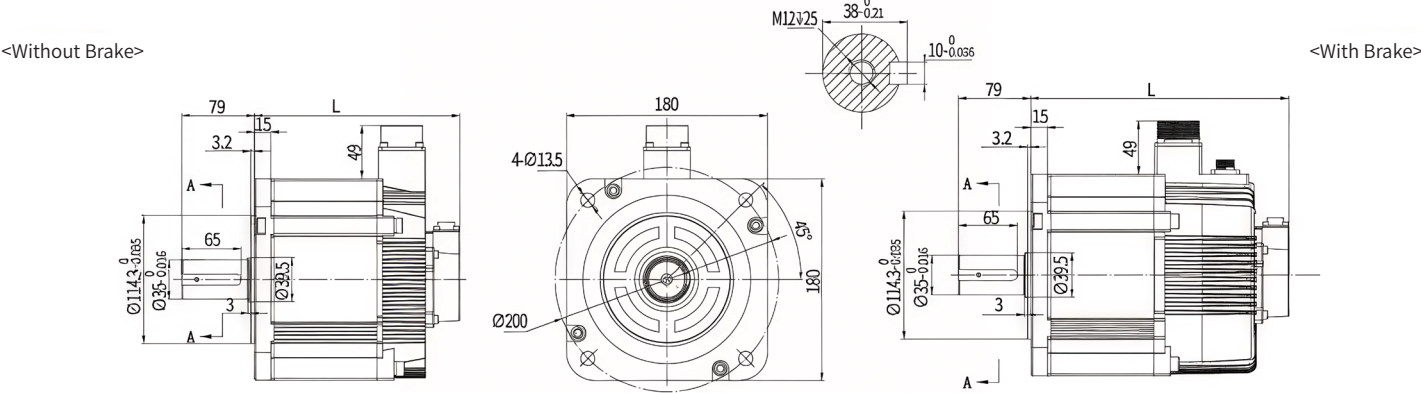
Outline Dimension Drawing	2200W
L without Brake (mm)	200
L with Brake (mm)	252

Motor Specifications	P3C-G22B113 □ □
Rated Power (W)	2200
Rated Voltage (V)	380
Rated Current (A)	10.5
Rated Torque (N·m)	14.3
Rated Speed (r/min)	1500
Peak Current (A)	29.4
Peak Torque (N·m)	40
Maximum Speed (r/min)	3000
Back EMF (V/1000r/min)	92
Torque Constant (N·m/A)	1.36
Winding Resistance (Line-to-Line) (Ω)	0.85

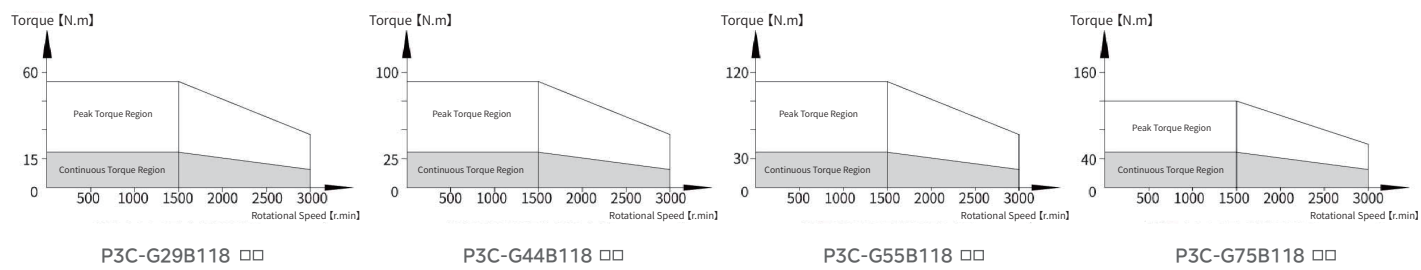
Motor Specifications	P3C-G22B113 □ □
Winding Inductance (Line-to-Line) (mH)	5.6
Electrical Time Constant (ms)	6.6
Rotor Inertia (kg·m²×10⁻⁴)	27.1 (28.33)
Weight (kg)	10.7
Number of Pole Pairs	5 Pole Pairs
Motor Insulation Class	ClassF
Protection Rating (IP Code)	IP65
Operating Environment	Ambient Temperature: -20°C to 40°C Ambient Humidity: < 90% relative humidity (Non-condensing)

Note:() are for motors with holding brakes.

180-Flange Medium-Inertia Motors



Torque-Speed Characteristic Curve

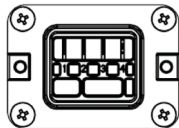
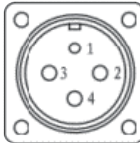
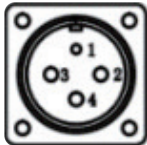
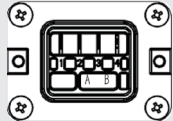
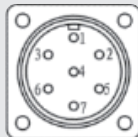
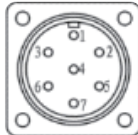
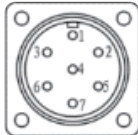


Outline Dimension Drawing	2.9kW	4.4kW	5.5kW	7.5kW
L without Brake (mm)	188	215	243	267
L with Brake (mm)	235	262	290	314

Technical Parameters

Motor Specifications	P3C-G29B118 □□	P3C-G44B118 □□	P3C-G55B118 □□	P3C-G75B118 □□
Rated Power (W)	2.9	4.4	5.5	7.5
Rated Voltage (V)	380	380	380	380
Rated Current (A)	11.9	16.5	20.8	26
Rated Torque (N·m)	18.6	28.4	35	48
Rated Speed (r/min)	1500	1500	1500	1500
Peak Current (A)	35.7	49.5	62.4	65
Peak Torque (N·m)	55.8	85.2	105	120
Maximum Speed (r/min)	3000	3000	3000	3000
Back EMF (V/1000r/min)	100	114	108	115
Torque Constant (N·m/A)	1.56	1.7	1.7	1.85
Winding Resistance (Line-to-Line) (Ω)	0.37	0.24	0.18	0.17
Winding Inductance (Line-to-Line) (mH)	5.0	3.5	2.6	2.4
Electrical Time Constant (ms)	13.5	14.5	14.4	14.1
Rotor Inertia (kg·m²×10⁻⁴)	63.5(69.5)	88.5(94.5)	114.4(120.4)	136.6(142.6)
Weight (kg)	16.7	21.1	25.6	30.8
Number of Pole Pairs	5 Pole Pairs			
Motor Insulation Class	ClassF			
Protection Rating (IP Code)	IP65			
Operating Environment	Ambient Temperature: -20°C to 40°C Ambient Humidity: < 90% relative humidity (Non-condensing)			

Motor Connector Terminal Definitions

Classification	Configuration	Frame Sizes 40/60/80	Frame Sizes 100/130	Frame Size 180																																																
Power Connector	Without Brake	Receptacle Model: San Zhu SC-MC6P-AP2G-054  <table><tr><td>1</td><td>V</td></tr><tr><td>2</td><td>U</td></tr><tr><td>3</td><td>W</td></tr><tr><td>4</td><td>PE</td></tr></table>	1	V	2	U	3	W	4	PE	Receptacle Model: YD28J4Z  <table><tr><td>Pin Number</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Definition</td><td>PE</td><td>U</td><td>V</td><td>W</td></tr></table>	Pin Number	1	2	3	4	Definition	PE	U	V	W	Receptacle Model: YD32J4Z  <table><tr><td>Pin Number</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Definition</td><td>PE</td><td>U</td><td>V</td><td>W</td></tr></table>	Pin Number	1	2	3	4	Definition	PE	U	V	W																				
	1	V																																																		
2	U																																																			
3	W																																																			
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Definition	PE	U	V	W																																																
With Brake	Receptacle Model: San Zhu SC-MC6P-AP2G-044  <table><tr><td>1</td><td>V</td><td rowspan="2">A</td><td rowspan="2">Brake Terminal</td></tr><tr><td>2</td><td>U</td></tr><tr><td>3</td><td>W</td><td rowspan="2">B</td><td rowspan="2">Brake Terminal</td></tr><tr><td>4</td><td>PF</td></tr></table>	1	V	A	Brake Terminal	2	U	3	W	B	Brake Terminal	4	PF	Receptacle Model: YD28J7Z  <table><tr><td>Pin Number</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Definition</td><td>PE</td><td>U</td><td>V</td><td>W</td><td>Brk+</td><td>Brk-</td><td>空</td></tr></table>	Pin Number	1	2	3	4	5	6	7	Definition	PE	U	V	W	Brk+	Brk-	空	Main and brake power interfaces have dedicated power inputs. Main Power Receptacle Model: YD32J4Z  <table><tr><td>Pin Number</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Definition</td><td>PE</td><td>U</td><td>V</td><td>W</td></tr></table> Brake Power Receptacle Model: XS16J4Z  <table><tr><td>Pin Number</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Definition</td><td>Brk+</td><td>Brk-</td><td>None</td><td>None</td></tr></table>	Pin Number	1	2	3	4	Definition	PE	U	V	W	Pin Number	1	2	3	4	Definition	Brk+	Brk-	None	None	
1	V	A	Brake Terminal																																																	
2	U																																																			
3	W	B	Brake Terminal																																																	
4	PF																																																			
Pin Number	1	2	3	4	5	6	7																																													
Definition	PE	U	V	W	Brk+	Brk-	空																																													
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Pin Number	1	2	3	4																																																
Definition	Brk+	Brk-	None	None																																																
ncoder Interface	Without Brake	Receptacle Model: San Zhu SC-MC7P-A60G-18  <table><tr><td>1</td><td>DATA+</td><td>5</td><td>+5V</td></tr><tr><td>2</td><td>DATA-</td><td>6</td><td>OV</td></tr><tr><td>3</td><td>BAT+</td><td>7</td><td>FG</td></tr><tr><td>4</td><td>BAT-</td><td></td><td></td></tr></table>	1	DATA+	5	+5V	2	DATA-	6	OV	3	BAT+	7	FG	4	BAT-			Receptacle Model: YD28J7Za  <table><tr><td>Pin Number</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Definition</td><td>PE</td><td>E-</td><td>E+</td><td>SD-</td><td>OV</td><td>SD+</td><td>5V</td></tr></table>	Pin Number	1	2	3	4	5	6	7	Definition	PE	E-	E+	SD-	OV	SD+	5V	Receptacle Model: YD28J7Za  <table><tr><td>Pin Number</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Definition</td><td>PE</td><td>E-</td><td>E+</td><td>SD-</td><td>OV</td><td>SD+</td><td>5V</td></tr></table>	Pin Number	1	2	3	4	5	6	7	Definition	PE	E-	E+	SD-	OV	SD+	5V
1	DATA+	5	+5V																																																	
2	DATA-	6	OV																																																	
3	BAT+	7	FG																																																	
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Definition	PE	E-	E+	SD-	OV	SD+	5V																																													
Pin Number	1	2	3	4	5	6	7																																													
Definition	PE	E-	E+	SD-	OV	SD+	5V																																													

Cables and Kit Selection

P3C Series Motor Category	Drive Type	Length (m)	Extension Power Cable (without Brake)			Extension Power Cable (with Brake)		
			Front Exit	Rear Exit	Connector Kit	Front Exit	Rear Exit	Connector Kit
Frame Size 40 LA5/L01	CDHD2S-RO Series	3	SPC-A65011-0303-F	SPC-A67011-0303-F	Front Exit:CAP-A6-01-A Rear Exit:CAP-A6-01-B	SPC-A66021-0403-F	SPC-A68021-0403-F	Front Exit:CAP-A6-02-A Rear Exit:CAP-A6-02-B
		5	SPC-A65011-0305-F	SPC-A67011-0305-F		SPC-A66021-0405-F	SPC-A68021-0405-F	
		10	SPC-A65011-0310-F	SPC-A67011-0310-F		SPC-A66021-0410-F	SPC-A68021-0410-F	
Frame Size 60/80 L10		3	SPC-A65031-0503-F	SPC-A67031-0503-F	Front Exit:CAP-A6-03-A Rear Exit:CAP-A6-03-B	SPC-A66041-0603-F	SPC-A68041-0603-F	Front Exit:CAP-A6-04-A Rear Exit:CAP-A6-04-B
		5	SPC-A65031-0505-F	SPC-A67031-0505-F		SPC-A66041-0605-F	SPC-A68041-0605-F	
		10	SPC-A65031-0510-F	SPC-A67031-0510-F		SPC-A66041-0610-F	SPC-A68041-0610-F	
Frame Size 100/130 L10/L15/C10/C15		3	SPC-AG1051-0903-F		CAP-AG-05-1	SPC-AH1061-1003-F		CAP-AH-06-1
		5	SPC-AG1051-0905-F			SPC-AH1061-1005-F		
		10	SPC-AG1051-0910-F			SPC-AH1061-1010-F		
Frame Size 100/130 G22/L20/L25/C20/C30		3	SPC-AG2071-1503-F		CAP-AG-07-1	SPC-AH2081-1603-F		CAP-AH-08-1
		5	SPC-AG2071-1505-F			SPC-AH2081-1605-F		
		10	SPC-AG2071-1510-F			SPC-AH2081-1610-F		

Frame Size 180 Models	Drive Type	Length(m)	Power Cable (Without Brake)	Power Cable Kit (Without Brake)	Brake Power Cable	Brake Cable Kit
Frame Size 180 G29/G44	CDHD2S-RO Series	3	SPC-AJ1091-1703-F	CAP-AJ-09-1	SBC-AK1131-0203-F	CAP-AK-13-1
		5	SPC-AJ1091-1705-F		SBC-AK1131-0205-F	
		10	SPC-AJ1091-1710-F		SBC-AK1131-0210-F	
Frame Size 180 G55/G75		3	SPC-AJ2111-2103-F	CAP-AJ-11-1	SBC-AK1131-0203-F	CAP-AK-13-1
		5	SPC-AJ2111-2105-F		SBC-AK1131-0205-F	
		10	SPC-AJ2111-2110-F		SBC-AK1131-0210-F	

Note: For Frame 180 motors, the power cable and brake power cable have separate terminals. For non-brake models, select the power cable without brake connector. For motors with brake, select the power cable without brake connector plus the brake power cable.

P3C Series Motor Category	Drive Type	Length (m)	Encoder Extension Cable (Single-Turn Absolute, Without Battery/Battery Box Component)			Encoder Extension Cable (Multi-Turn Absolute, With Battery/Battery Box Component)		
			Front Exit	Rear Exit	Connector Kit	Front Exit	Rear Exit	Connector Kit
Frame Size 40 LA5/L01	CDHD2S-RO Series	3	SFC-A81A51-0103-F	SFC-A83A51-0103-F	CAP-A8-A5-1	SFC-A82A52-0103-F	SFC-A84A52-0103-F	CAP-A8-A5-2
		5	SFC-A81A51-0105-F	SFC-A83A51-0105-F		SFC-A82A52-0105-F	SFC-A84A52-0105-F	
		10	SFC-A81A51-0110-F	SFC-A83A51-0110-F		SFC-A82A52-0110-F	SFC-A84A52-0110-F	
Frame Size 60/80 L10		3	SFC-A91A51-0103-F	SFC-A93A51-0103-F	CAP-A8-A9-1	SFC-A92A52-0103-F	SFC-A94A52-0103-F	CAP-A9-A5-2
		5	SFC-A91A51-0105-F	SFC-A93A51-0105-F		SFC-A92A52-0105-F	SFC-A94A52-0105-F	
		10	SFC-A91A51-0110-F	SFC-A93A51-0110-F		SFC-A92A52-0110-F	SFC-A94A52-0110-F	
Frame Size 100/130/180 All Models		3	SFC-AH3A51-0103-F		CAP-AH-A5-1	SFC-AH4A52-0103-F		CAP-AH-A5-2
		5	SFC-AH3A51-0105-F			SFC-AH4A52-0105-F		
		10	SFC-AH3A51-0110-F			SFC-AH4A52-0110-F		

5 P3G Motor Designation

P3G Motor Designation Rules

P 3 G - C 89B B 1 20 S T - ***

P 1 Generation name

Symbol	Specification
P	Gaochuang Servo Motor Product Code

3 2 Generation system number

Symbol	Specification
3	Generation 3

G 3 Product Categories

Symbol	Specification
G	High-Power General-Purpose Rotary Servo Motor

- 4 Em Dash

C 5 Motor Types

Symbol	Specification
A	Rated Speed: 1000 rpm General-Purpose
B	Rated Speed: 1500 rpm General-Purpose
C	Rated Speed: 1700 rpm General-Purpose
D	Rated Speed: 2000 rpm General-Purpose

89B 6 Rated Power

Symbol	Specification
75B	7500W
89B	8900W
10C	10kW
15C	15kW
20C	20kW
30C	30kW
36C	36kW

B 7 Rated Power Supply

Symbol	Specification
B	380VAC 3Ph-Y

1 8 Electromagnetic Design Number

A single character from A to Z, representing different electromagnetic designs.

20 9 Machine flange

Symbol	Specification
20	200mm
26	260mm

S 10 Brake / Oil Seal / Shaft Configuration

Symbol	Specification
S	With seal, without brake, standard keyed shaft (Seal)
E	With seal and brake, standard keyed shaft (Either)
N	Without seal and brake, standard keyed shaft (None)
B	Without seal, with brake, standard keyed shaft (Brake)

T 11 Encoder Configuration

Symbol	Specification
T	Tamagawa protocol standard 23bit optical encoder (multi-turn only)
J	Tamagawa protocol standard 17bit magnetoencoder (multiple turns only)

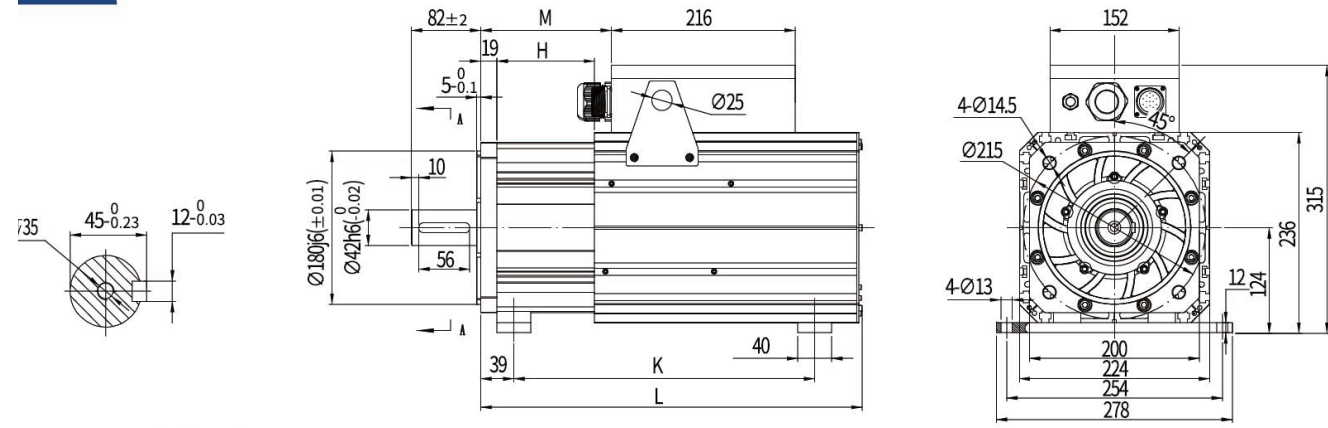
- 12 Em Dash

** 13 Custom Code

Symbol	Specification
Blank	Standard Product, Natural Cooling (Standard structure, standard keyway, standard shaft)
F	Forced Air Cooling
***	Customization Code for non-electromagnetic customizations. Please refer to the specification sheet for details.

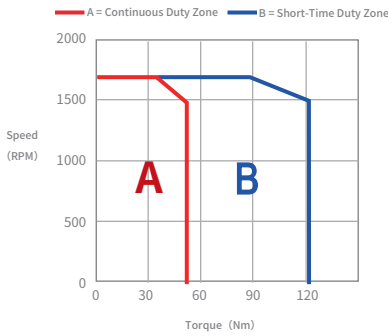
P3G Series AC Servo Motor Selection

Servo Motor Characteristics (200 Flange)

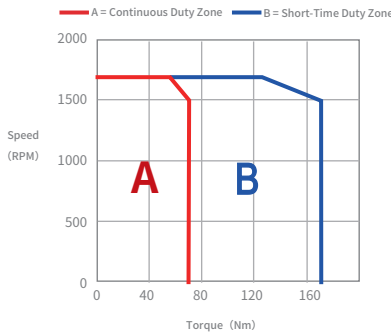


Outline Drawing	L(mm)	K(mm)	H(mm)	M(mm)
P3G-B80BB120/P3G-C90BB120/P3G-D11BB120	381(453)	285(357)	65	84
P3G-B12CB120/P3G-C13CB120/P3G-D16CB120	416(488)	312(388)	115	119

Motor type	Rated Power [W]	Rated Voltage [V]	Rated Torque [N·m]	Maximum Torque [N·m]	Rated Current [Arms]	Maximum Current [Arms]	Rated Speed [rpm]	Maximum Speed [rpm]	Moment of Inertia [x10 ⁻⁴ kg·m ²]	Line-to-Line Back EMF [V/Krpm]	Line-to-Line Resistance [Ω]	Line-to-Line Inductance [mH]	Torque Constant [N·m/Arms]	Electrical Time Constant [ms]
P3G-B80BB120	7.9	380	50	123	15	36.9	1500	1700	98 (118)	216	0.93	20	3.3	21.5
P3G-C90BB120	8.9	380	50	123	16.8	41.4	1700	2000	98 (118)	191	0.71	14	3	19.7
P3G-D11BB120	10.5	380	50	123	19.6	48.3	2000	2500	98 (118)	162	0.47	11	2.6	23.4
P3G-B12CB120	11.8	380	75	170	22.4	50.8	1500	1700	128 (118)	216	0.64	14.9	3.3	23.3
P3G-C13CB120	13.4	380	75	170	25.4	57.6	1700	2000	128 (148)	191	0.47	11.3	3	24
P3G-D16CB120	15.7	380	75	170	29.8	67.6	2000	2500	128 (148)	162	0.35	7.7	2.5	22.0

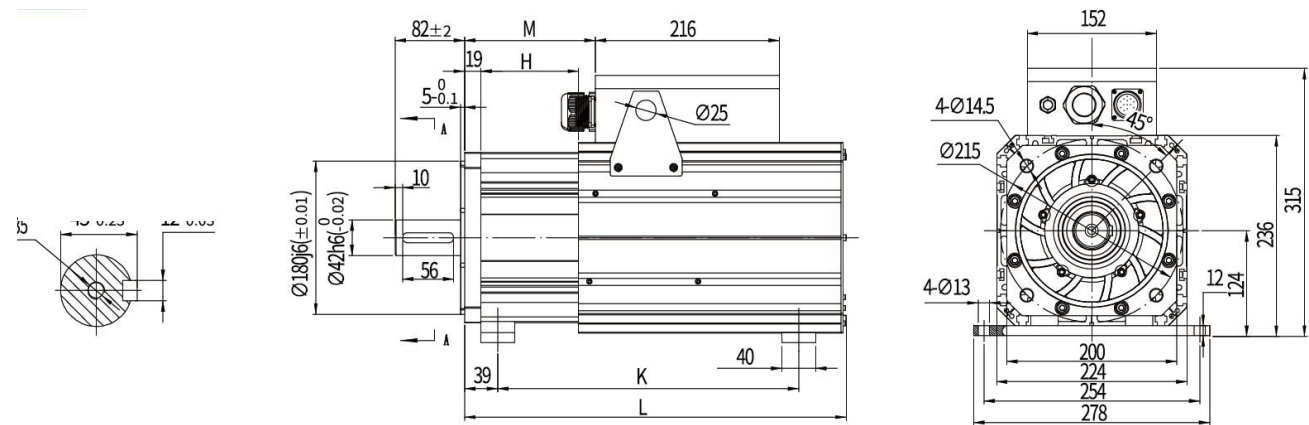


P3G-B80BB120



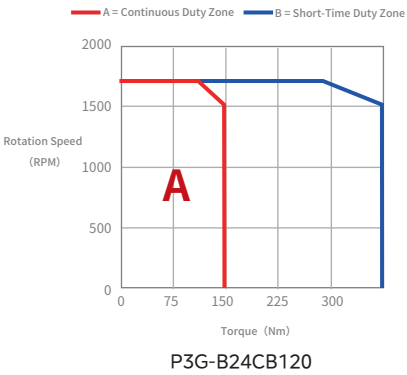
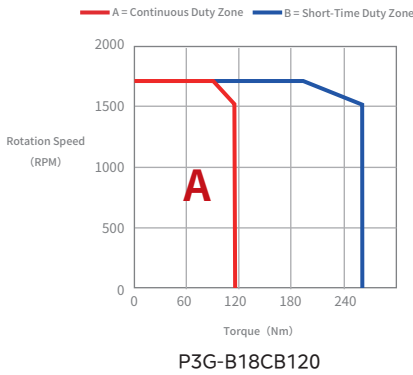
P3G-B12CB120

Servo Motor Characteristics (200 Flange)

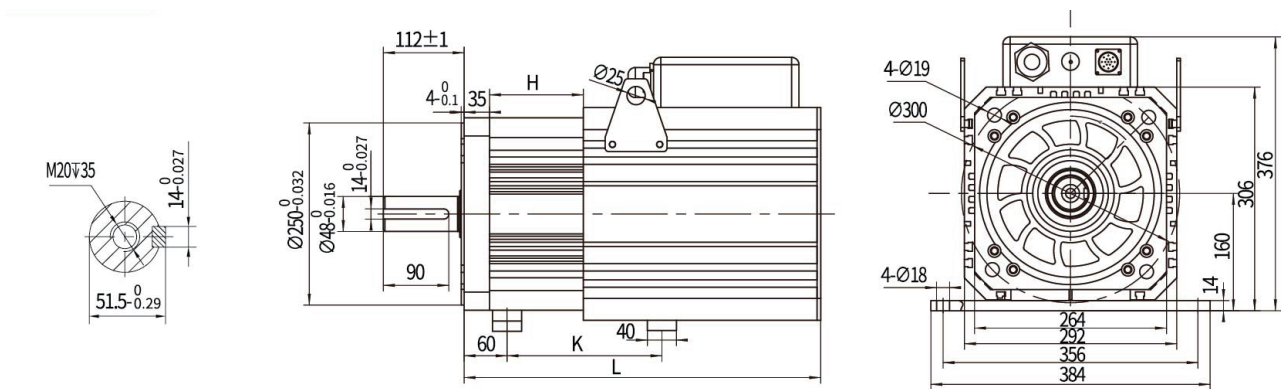


Outline Drawing	L(mm)	K(mm)	H(mm)	M(mm)
P3G-B15CB120/P3G-C16CB120/P3G-D19CB120	451(523)	354(426)	115	154
P3G-B18CB120/P3G-C21CB120/P3G-D24CB120	486(558)	395(467)	115	189
P3G-B24CB120/P3G-C27CB120/P3G-D31CB120	556(628)	471(543)	115	259

Motor type	Rated Power [W]	Rated Voltage [V]	Rated Torque [N·m]	Maximum Torque [N·m]	Rated Current [Arms]	Maximum Current [Arms]	Rated Speed [rpm]	Maximum Speed [rpm]	Moment of Inertia [x10 ⁻⁴ kg·m ²]	Line-to-Line Back EMF [V/Krpm]	Line-to-Line Resistance [Ω]	Line-to-Line Inductance [mH]	Torque Constant [N·m/Arms]	Electrical Time Constant [ms]
P3G-B15CB120	14.5	380	92	225	27.5	67.3	1500	1700	178 (198)	216	0.48	10.5	3.3	21.9
P3G-C16CB120	16.4	380	92	225	31	75.9	1700	2000	178 (198)	191	0.38	9.2	3	24.2
P3G-D19CB120	19.3	380	92	225	37.1	90.8	2000	2500	178 (198)	162	0.27	6.1	2.5	22.6
P3G-B18CB120	18.1	380	115	263	34.5	78.9	1500	1700	188 (208)	216	0.38	9.8	3.3	25.8
P3G-C21CB120	20.5	380	115	263	38.8	88.8	1700	2000	188 (208)	191	0.37	8.2	3	22.2
P3G-D24CB120	24.1	380	115	263	45.7	104.6	2000	2500	188 (208)	162	0.26	6	2.5	23.1
P3G-B24CB120	23.6	380	150	373	44.7	112	1500	1700	248 (268)	216	0.28	6.5	3.3	23.2
P3G-C27CB120	26.7	380	150	373	50.5	126	1700	2000	248 (268)	191	0.16	4.5	3	28.1
P3G-D31CB120	31.4	380	150	373	59	147	2000	2500	248 (268)	162	0.12	2.8	2.5	23.31

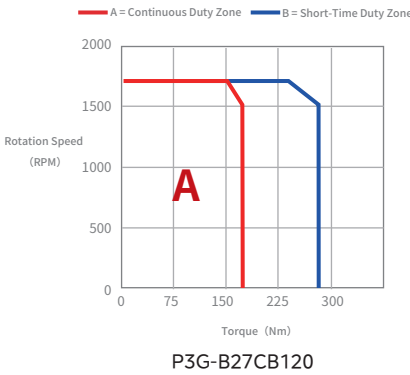


Servo Motor Characteristics (260 Flange)

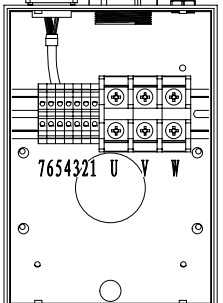
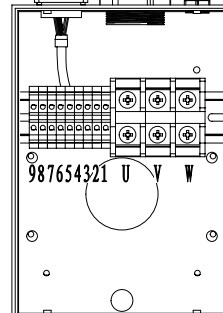


Outline Drawing	L(mm)	K(mm)	H(mm)
P3G-B27CB126/P3G-C30CB126	516.5	360	88

Motor type	Rated Power [W]	Rated Voltage [V]	Rated Torque [N·m]	Maximum Torque [N·m]	Rated Current [Arms]	Maximum Current [Arms]	Rated Speed [rpm]	Maximum Speed [rpm]	Moment of Inertia [x10 ⁻⁴ kg·m ²]	Line-to-Line Back EMF [V/Krpm]	Line-to-Line Resistance [Ω]	Line-to-Line Inductance [mH]	Torque Constant [N·m/Arms]	Electrical Time Constant [ms]
P3G-B27CB126	26.7	380	170	280	48	79	1500	1700	296	228	102	3.63	3.5	35.6
P3G-C30CB126	30.2	380	170	280	59.2	97	1700	2000	296	183	97	3.42	2.87	35.3



Motor Terminal Designations

Motor Flange	Classification	Wiring/Pin Definition	Wiring Definition (Brake)	Description	Connector Part No. (Cable Side)	Brand	Qty per Cable																																																														
200 & 260	Non-locking models	M18 Connector Fan & Brake Wiring M40 Connector Motor Power Cables YD28 Aviation Plug Encoder Wiring  Encoder Cable Temperature Sensor Models: 1. Thermistor: MZ6-130-DS 2. Sensor: KTY84-130 <table><tr><td>Receptacle Model</td><td colspan="7">Connector : YD28K17Z</td></tr><tr><td>Pin Number</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Definition</td><td>PB</td><td>B-</td><td>B+</td><td>SD-</td><td>0V</td><td>SD+</td><td>5V</td></tr></table><table><tr><td>No.</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>U</td><td>V</td><td>W</td></tr><tr><td>Color</td><td>Blue</td><td>Black</td><td>brown</td><td>Black</td><td>Red</td><td>Blue</td><td>Blue</td><td>Red</td><td>Blue</td><td>Yellow</td></tr><tr><td>Definitio</td><td>220V Fan L</td><td>220V Fan N</td><td>None</td><td>KTY84-130</td><td>MZ6-130-DS</td><td colspan="5">Motor Power Cable</td></tr></table>						Receptacle Model	Connector : YD28K17Z							Pin Number	1	2	3	4	5	6	7	Definition	PB	B-	B+	SD-	0V	SD+	5V	No.	7	6	5	4	3	2	1	U	V	W	Color	Blue	Black	brown	Black	Red	Blue	Blue	Red	Blue	Yellow	Definitio	220V Fan L	220V Fan N	None	KTY84-130	MZ6-130-DS	Motor Power Cable									
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Lock type	M18 Connector Fan & Brake Wiring M40 Connector Motor Power Cables YD28 Aviation Plug Encoder Wiring  Encoder Cable Temperature Sensor Models: 1. Thermistor: MZ6-130-DS 2. Sensor: KTY84-130 <table><tr><td>Receptacle Model</td><td colspan="7">Connector : YD28K17Z</td></tr><tr><td>Pin Number</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Definition</td><td>PB</td><td>B-</td><td>B+</td><td>SD-</td><td>0V</td><td>SD+</td><td>5V</td></tr></table><table><tr><td>No.</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>U</td><td>V</td><td>W</td></tr><tr><td>Color</td><td>White</td><td>White</td><td>Blue</td><td>Black</td><td>brown</td><td>Black</td><td>Red</td><td>Blue</td><td>Blue</td><td>Red</td><td>Blue</td><td>Yellow</td></tr><tr><td>Definitio</td><td>brk-</td><td>brk+</td><td>220V Fan L</td><td>220V Fan N</td><td>None</td><td>KTY84-130</td><td>MZ6-130-DS</td><td colspan="5">Motor Power Cable</td></tr></table>						Receptacle Model	Connector : YD28K17Z							Pin Number	1	2	3	4	5	6	7	Definition	PB	B-	B+	SD-	0V	SD+	5V	No.	9	8	7	6	5	4	3	2	1	U	V	W	Color	White	White	Blue	Black	brown	Black	Red	Blue	Blue	Red	Blue	Yellow	Definitio	brk-	brk+	220V Fan L	220V Fan N	None	KTY84-130	MZ6-130-DS	Motor Power Cable				
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Definitio	brk-	brk+	220V Fan L	220V Fan N	None	KTY84-130	MZ6-130-DS	Motor Power Cable																																																													

Cable Selection

Power Cable or Accessory Kit

P3G Series Motor Classification	Drive Type	Power Cable Extension - Model Without Brake		Connector Kit
		Length (m)	High-Flex Cable	
P3G Series (B80B、B12C、C90B、C13C、D11B)	CDHD2S-RO Series	3	SPC-141111-2103-F	CAP-14-11-1
		5	SPC-141111-2105-F	
		10	SPC-141111-2110-F	
		15	SPC-141111-2115-F	
		20	SPC-141111-2120-F	
P3G Series (B15C、B18C、C16C、C21C、D16C、D19C)	CDHD2S-RO Series	3	SPC-151171-2503-F	CAP-15-17-1
		5	SPC-151171-2505-F	
		10	SPC-151171-2510-F	
		15	SPC-151171-2515-F	
		20	SPC-151171-2520-F	
P3G Series (B24C、B27C、C27C、C30C、D24C、D31C)	CDHD2S-RO Series	3	SPC-161181-2903-F	CAP-16-18-1
		5	SPC-161181-2905-F	
		10	SPC-161181-2910-F	
		15	SPC-161181-2915-F	
		20	SPC-161181-2920-F	

Brake Power Cable

P3G Series Motor Classification	Drive Type	Brake Power Cable		Connector Kit
		Length (m)	High-Flex Cable	
P3G Series (All Models with Built-in Brake)	Common	3	SBC-131131-0203-F	CAP-13-13-1
		5	SBC-131131-0205-F	
		10	SBC-131131-0210-F	
		15	SBC-131131-0215-F	
		20	SBC-131131-0220-F	

Cooling Fan Power Cable

P3G Series Motor Classification	Drive Type	Brake Power Cable		Connector Kit
		Length (m)	High-Flex Cable	
P3G Series (All Models with Cooling Fan)	Common	3	SCC-132131-0203-F	CAP-13-13-1
		5	SCC-132131-0205-F	
		10	SCC-132131-0210-F	
		15	SCC-132131-0215-F	
		20	SCC-132131-0220-F	

Encoder Cable or Accessory Kit

Absolute Value Model (Without Battery)				
P3G Series Motor Classification	Drive Type	Single-Turn Absolute Encoder Extension Cable (Excludes Battery & Case Assembly)		Connector Kit
		Length (m)	High-Flex Cable	
All Models of the P3G Series (Multi-Turn Function Not Required)	CDHD2S-RO Series	3	SFC-AH3A51-0103-F	CAP-AH-A5-1
		5	SFC-AH3A51-0105-F	
		10	SFC-AH3A51-0110-F	
		15	SFC-AH3A51-0115-F	
		20	SFC-AH3A51-0120-F	
Absolute Value Model (With Battery)				
P3G Series Motor Classification	Drive Type	Single-Turn Absolute Encoder Extension Cable (Excludes Battery & Case Assembly)		Connector Kit
		Length (m)	High-Flex Cable	
All Models of the P3G Series (Multi-Turn Function Required)	CDHD2S-RO Series	3	SFC-AH4A52-0103-F	CAP-AH-A5-2
		5	SFC-AH4A52-0105-F	
		10	SFC-AH4A52-0110-F	
		15	SFC-AH4A52-0115-F	
		20	SFC-AH4A52-0120-F	



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Channels



Official Website

Our company is committed to continuous product improvement. Therefore, product specifications are subject to change without notice.

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