

BD3E AP & P3 AC SERVO SYSTEM SELECTION MANUAL



- BD3E AP SERIES SERVO DRIVE (CE)
- P3 SERIES SERVO MOTOR (CE)

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BD3E+P3 SERVO SYSTEM SELECTION LIST

P3 Series Servo Motor										Drive	
Frame mm	Power KW	Rated torque [N · m]	Rated current [Arms]	Rated speed [rpm]	Max speed [rpm]	Model w/ optical encoder & w/o brake	Model w/ optical encoder & w/ brake	Model w/ magnetic encoder & w/o brake	Model w/ magnetic encoder & w/ brake	Voltage level	Drive model
40	0.05	0.16	0.58A	3000	6000	P3S-LA5A204NT	P3S-LA5A204BT	P3E-LA5A204NJ	P3E-LA5A204BJ	Single-phase 220V	BD3E-1D62AAP
	0.1	0.32	0.98A	3000	6000	P3S-L01A204NT	P3S-L01A204BT	P3E-L01A204NJ	P3E-L01A204BJ	Single-phase 220V	BD3E-1D62AAP
60	0.2	0.64	1.3A	3000	6000	P3S-M02A206ST	P3S-M02A206ET	P3E-M02A206SJ	P3E-M02A206EJ	Single-phase 220V	BD3E-1D62AAP
	0.4	1.27	2.6A	3000	6000	P3S-M04A206ST	P3S-M04A206ET	P3E-M04A206SJ	P3E-M04A206EJ	Single-phase 220V	BD3E-2D82AAP
80	0.75	2.39	4.6A	3000	6000	P3S-M08A208ST	P3S-M08A208ET	P3E-M08A208SJ	P3E-M08A208EJ	Single-phase 220V	BD3E-5D52AAP
100	1	3.18	3.44A	3000	6000	P3S-L10B210ST	P3S-L10B210ET	P3E-L10B210SJ	P3E-L10B210EJ	Three-phase 380V	BD3E-3D54DAP
	1.5	4.78	4.86A	3000	6000	P3S-L15B210ST	P3S-L15B210ET	P3E-L15B210SJ	P3E-L15B210EJ	Three-phase 380V	BD3E-5D44DAP
	2	6.37	7.05A	3000	6000	P3S-L20B210ST	P3S-L20B210ET	P3E-L20B210SJ	P3E-L20B210EJ	Three-phase 380V	BD3E-8D44DAP
	2.5	7.96	8.74A	3000	6000	P3S-L25B210ST	P3S-L25B210ET	P3E-L25B210SJ	P3E-L25B210EJ	Three-phase 380V	BD3E-0124DAP
130	0.85	5.39	3.16A	1500	3000	P3S-G09B213ST	P3S-G09B213ET	P3E-G09B213SJ	P3E-G09B213EJ	Three-phase 380V	BD3E-3D54DAP
	1.3	8.34	4.97A	1500	3000	P3S-G13B213ST	P3S-G13B213ET	P3E-G13B213SJ	P3E-G13B213EJ	Three-phase 380V	BD3E-5D44DAP
	1.8	11.5	7.03A	1500	3000	P3S-G18B213ST	P3S-G18B213ET	P3E-G18B213SJ	P3E-G18B213EJ	Three-phase 380V	BD3E-8D44DAP
	1	4.78	5.06A	2000	3000	P3S-C10A213ST	P3S-C10A213ET	P3E-C10A213SJ	P3E-C10A213EJ	Three-phase 380V	BD3E-5D52AAP
	1	4.78	2.96A	2000	3000	P3S-C10B213ST	P3S-C10B213ET	P3E-C10B213SJ	P3E-C10B213EJ	Three-phase 380V	BD3E-3D54DAP
	1.5	7.16	4.52A	2000	3000	P3S-C15B213ST	P3S-C15B213ET	P3E-C15B213SJ	P3E-C15B213EJ	Three-phase 380V	BD3E-5D44DAP
	2	9.55	5.83A	2000	3000	P3S-C20B213ST	P3S-C20B213ET	P3E-C20B213SJ	P3E-C20B213EJ	Three-phase 380V	BD3E-8D44DAP
	3	9.8	10.13A	3000	6000	P3S-L30B213ST	P3S-L30B213ET	P3E-L30B213SJ	P3E-L30B213EJ	Three-phase 380V	BD3E-0124DAP
180	2.9	18.6	10.26A	1500	3000	P3S-G29B218ST	P3S-G29B218ET	P3E-G29B218SJ	P3E-G29B218EJ	Three-phase 380V	BD3E-0124DAP

Note: The Bundle model of 1KW and above will officially go on sale starting May 1, 2025.

BD3E AP & P3 AC SERVO SYSTEM

Exquisite Design

Concealed Battery Compartment

Simple wiring, stable connections

Easy Code Scanning

One code for one machine, enabling quick product information verification

HV & LV Separation

Significantly improved immunity from interference

Simple Debugging + Plug and Play

MTP Electronic Nameplate

Plug and play

One-click Auto Setting

Debugging time reduced by 90%

Absolute Encoder

Limits and home not required

Graphical Debugging Guide

Simplified and intuitive debugging

Control Panel

Six buttons designed for parameter setting, system setting, fault diagnosis and alarm clearing on one panel

Assured Quality

High-quality Materials

Strict process control to enhance quality, making equipment operation more stable and reliable, and improving production efficiency

CE-Certified

CE certification by TUV passed, meeting the safety application requirements of overseas customers

Active Cooling + Three-proof Coating

Good adaptability to severe environments including high temperature, high humidity, and heavy dust

Test against IEC 61800

Favorable tolerance to complex electrical environments



BD3E-AP SERIES NAMING RULES

BD3E - 1D6 2A AP

1 2 3 4

1 BD3E servo drive

1D6

2 Rated current

Code	Specification
1D6	1.6Arms (continuous)/5.8Arms (max)
2D8	2.8Arms (continuous)/9.8Arms (max)
3D5	3.5Arms (continuous)/11Arms (max)
5D4	5.4Arms (continuous)/14Arms (max)
5D5	5.5Arms (continuous)/16.9Arms (max)
8D4	8.4Arms (continuous)/20Arms (max)
012	11.9Arms (continuous)/29.75Arms (max)

2A

3 Rated input voltage

Code	Specification
2A	Single-phase: 200V-240V, -10%~+10%, 50/60Hz
4D	Three-phase: 380V-440V, -10%~+10%, 50/60Hz

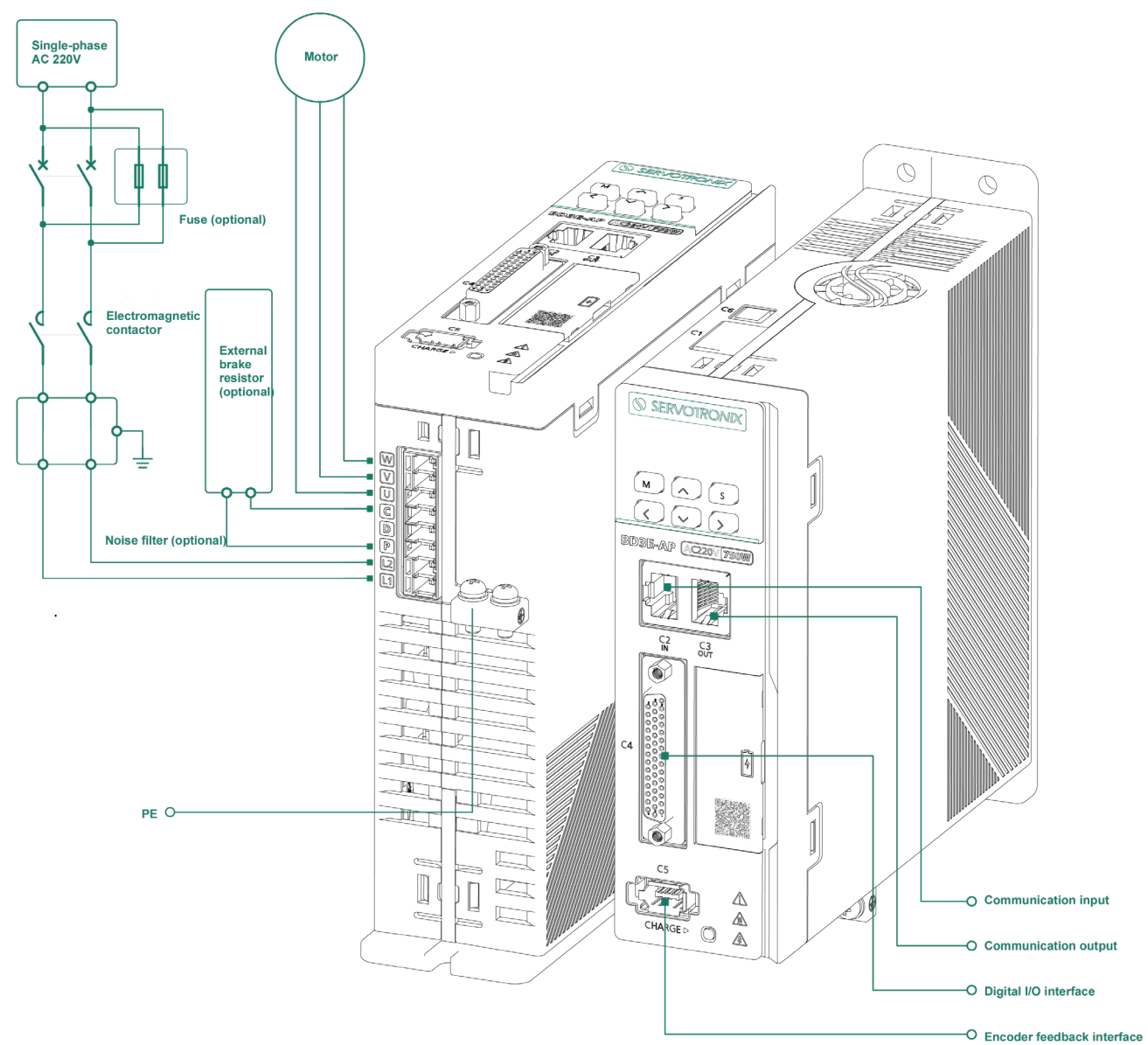
AP

4 Communication interface

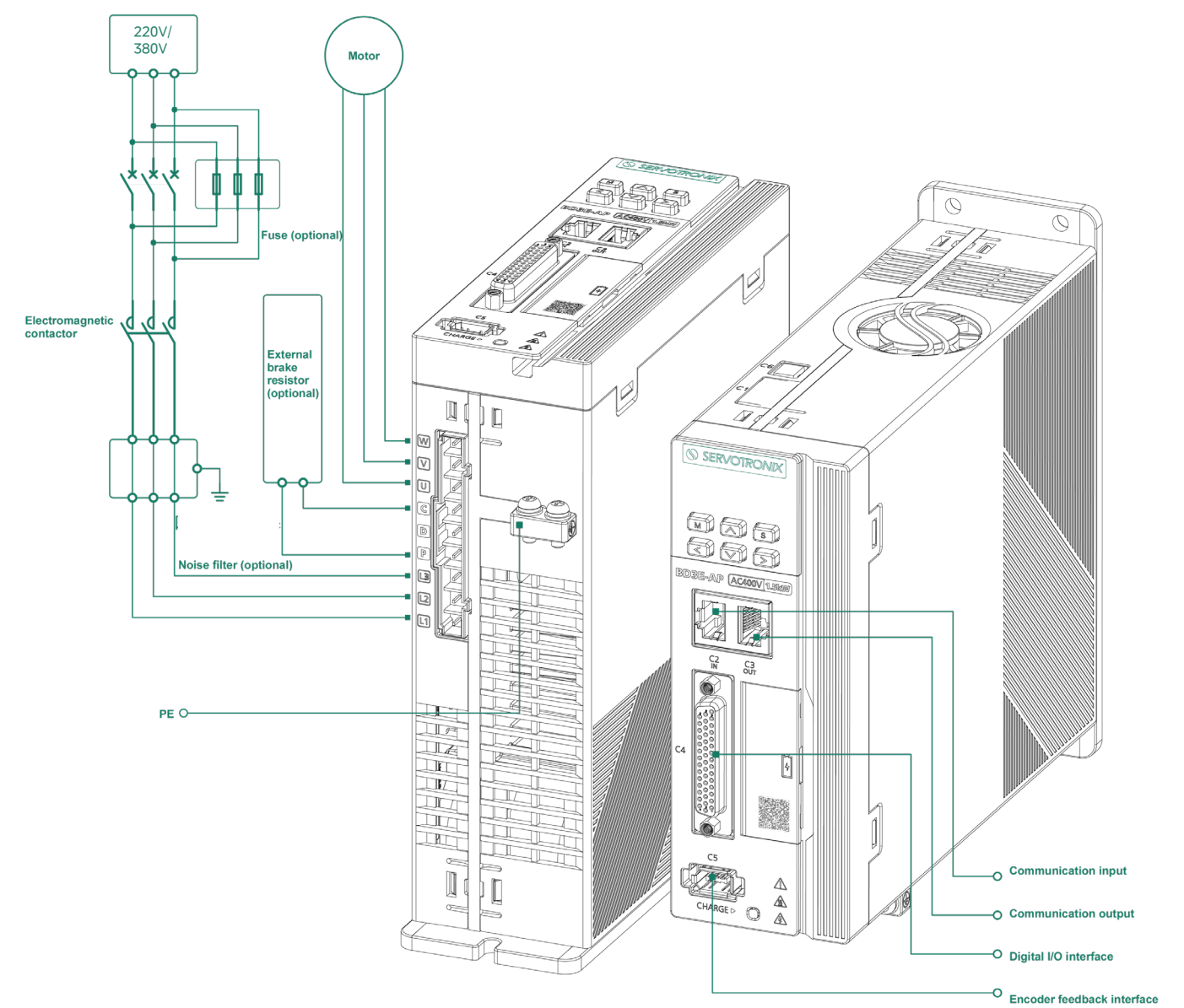
Code	Specification
AP	Position pulse
EB	EtherCAT

WIRING DIAGRAM

BD3E-AP (Single-phase)



BD3E-AP (Three-phase)



Basic Specifications

Basic Specifications			BD3E-AP
Control method			IGBT PWM control, sinusoidal current drive
Performance	Velocity loop		BD3E 2.1kHz
	Speed control range		1:5000 (lower limit of speed control range is the minimum speed at which stop will not occur at rated load and torque)
	Speed fluctuation rate	Load fluctuation	0~100% of rated load: ±0.5% (at rated speed)
		Voltage fluctuation	Rated voltage ±10%: 0.5% (at rated speed)
		Temperature fluctuation	25±25°C : ≦ ±0.5% (at rated speed)
	Torque control accuracy (reproducibility)		±2%
Soft start time setting		0~10s (with acceleration and deceleration settable individually)	
I/O signal	Encoder frequency-division pulse output		Phase A/B: differential output; Phase Z: differential output or open collector output at discretionary frequency division
	Sequential control input signal	Assignable input signals	7 points Servo ON input (S-ON) Control mode switch input (CMODE) Positive drive inhibition input (POT) Negative drive inhibition input (NOT) Deviation counter clear input (CLR) Alarm reset (A-RST) Gain switching input (GAIN) Command pulse inhibition input (INHIBIT), etc. The above-mentioned signals allow for allocation and change of positive/negative logic Sequential control output signal Assignable output signals
	Sequential control input signal	Assignable input signals	5 points Alarm signal (ALM) Positioning completed output signal (COIN) Phase Z pulse collector signal (CZ) External brake release signal (BK) Servo ready (S-RDY) The above-mentioned signals allow for allocation and change of positive/negative logic
Communication function	RS485	1-to-N communication	N=31 (max) when a relay is used
		Axis address setting	Setting by parameters
		Connected device	Computer, upper computer
	Computer	Communication interface	RS485
Display and control buttons			LED + 6 buttons
Dynamic brake (DB)			Activation conditions: Main circuit OFF; Servo alarm; Servo OFF; Overtravel (OT)
Regeneration			Built-in regenerative resistor or external regenerative resistor
Overtravel (OT) protection			Deceleration or free-gear stop when POT or NOT input is activated
Protection functions			Overcurrent protection, overvoltage protection, undervoltage protection, overload protection, regeneration fault protection
Position control	Feedforward compensation		0~100% (setting unit: 1%)
	Positioning completion width setting		0~65565 encoder units
	Input signal	Input pulse pattern	Differential input, open collector
		Max input pulse frequency	Differential input: max speed 4Mpps, min pulse width 0.125us Open collector: max speed 200Kpps, min pulse width 2.5us.
	Clear signal		Clearing deviation pulse open collector
	Internal position control setting	Position selection	Position selection for segments 0-15 via DI signal combination. (this function can be set for other terminals)
Speed control	Internal speed control setting	Soft start time setting	0~10s (with acceleration and deceleration settable individually)
		Speed selection	Selection by external IO input signal
Torque control	Internal torque control setting	Torque selection	Selection by external IO input signal
Other functions	Vibration control		Resonance suppression across frequency domains (low frequency + medium frequency + high frequency).
	Auto adjustment		HDM/PDFF gain adjustment.
	Adaptive notch filter		5 notch filters ranging from 50Hz to4000Hz, 2 of which support adaptive setting

Environmental Specifications

BD3E-AP	
IP rating	IP20 Pollution degree: IEC 60664-1, Level 2 Do not use the product in an environment with corrosive or flammable gases, water, oil or chemicals, dust (including iron powder), and salt
Operating temperature	0°C ~ 45°C , without power derating
	45° C ~ 55° C, with power derating
Storage temperature	-20° C ~ 70° C
Humidity	10 ~ 90% (no condensation)
Altitude	<1,000 m, according to IEC61800-5-1
Vibration	10m/s ² , 10-150Hz
Protection functions	Including but not limited to: power-off dynamic braking, low voltage/overvoltage protection, overcurrent protection, drive and motor overheating protection, motor overload, drive overload protection, feedback loss protection, parameter setting protection, circuit fault protection.

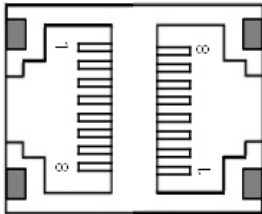
Electrical Specifications

Specification		1D62A	2D82A	5D52A	3D54D	5D44D	8D44D	0124D
Drive power		200W	400W	750W	1000W	1500W	2000W	3000W
Power circuit input L1, L2, (L3)	Input voltage ±10%	220	220	220	380	380	380	380
	Line frequency (Hz)	50/60	50/60	50/60	50/60	50/60	50/60	50/60
	AC input	Single-phase	Single-phase	Single-phase	Three-phase	Three-phase	Three-phase	Three-phase
	Continuous current (single-phase, Arms)	2.3	4	7.9	2.4	3.6	5.6	8
	Fuse (FRN-R, LPN, or equivalent) (A)	4	6	16	15	15	15	20
Drive output	Continuous output current (Arms)	1.6	2.8	5.5	3.5	5.4	8.4	11.9
	Peak output current (Arms)	5.8	9.8	16.9	11	14	20	29.75
Cable Specifications	Control circuit (AWG)(< 3 m)	24~26	24~26	24~26	24~26	24~26	24~26	24~26
	Main circuit - motor wire (AWG)	20	18	16	16	16	16	14
	Main circuit - AC input (AWG)	20	18	16	16	16	16	14
External regenerative resistor	Min resistance (Ω)	50	40	40	80	60	45	40
	Max current (A)	8	10	10	10	13.3	17.8	20
Application	Bus capacitance (μF)	660	660	940	340	340	500	500

SERVO TERMINAL DEFINITION

Communication interface (CN2\CN3)

CN2 and CN3 are communication connectors for RS485 communication of the BD3E-AP servo drive. Specifically, CN2 serves as RS485 IN interface, and CN3 serves as RS485 OUT interface. The signals of CN2 and CN3 connectors are mirrored. When multiple servo drives are cascaded, it is required to use the standard parallel cables.

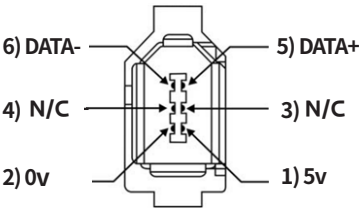


Pin	Description	Function
1	RS485+	RS485 positive signal
2	RS485-	RS485 negative signal
3	GND	Digital ground
4	PRS485+	Not connected
5	PRS485-	Not connected
6	NC	Not connected
7	NC	Not connected
8	NC	Not connected
Enclosure	FG	Shielded wire

Note: NC means "not connected". Do not connect a wire to such pin.

Signals of Terminal C5

See motor interface description for details about signals of terminal C5

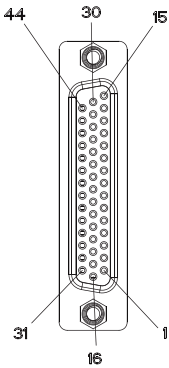


Servotronics Tmall
Flagship Store



Scan to Buy
Terminal Cables

IO interface signal definition



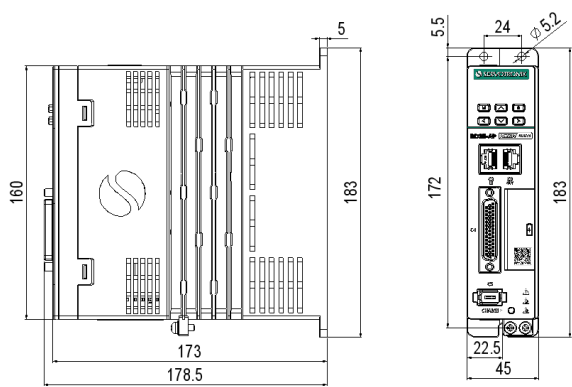
31-44			16-30			1-15		
44	NC	-	30	NC	-	15	NC	-
			29	DO5+	Digital output5+	14	PL	Pulse command power input
43	DO5-	Digital output 5 +	28	DOOZ-	Phase Z frequency division collector output -	13	DOOZ+	Phase Z frequency division collector output +
42	DO1-	Digital output1-	27	DO2-	Digital output2-	12	DO3+	Digital output3+
41	DO1+	Digital output1+	26	DO3-	Digital output3-	11	DO4+	Digital output4+
40	DO2+	Digital output2+	25	DO4-	Digital output4-	10	DI3	Digital input 3
39	DI1	Digital input 1	24	DI4	Digital input 4	9	DI6	Digital input 6
38	DI2	Digital input 2	23	DI5	Digital input 5	8	24VGND	Internal 24V power supply ground
37	SIGN-	Sign command input -	22	PULS+	Pulse command input+	7	24V	Internal 24V power supply
36	SIGN+	Sign command input +	21	PULS-	Pulse command input-	6	NC	-
35	COM	Digital input common terminal	20	COM	Digital input common terminal	5	NC	-
34	COM	Digital input common terminal	19	ZO-	Phase Z frequency division output -	4	AO-	Phase A frequency division output -
33	DI7	Digital input 7	18	ZO+	Phase Z frequency division output +	3	AO+	Phase A frequency division output +
32	NC	-	17	BO-	Phase B frequency division output -	2	GND	Internal digital ground
31	NC	-	16	BO+	Phase B frequency division output +	1	NC	-

- (Note)
- Do not use a N/C terminal.
 - Connect the shielding layer of the I/O cable to the connector shell. Implement frame grounding (FG) through the connector on the servo drive side.
 - Assign signals to all I/O pins through parameter settings.

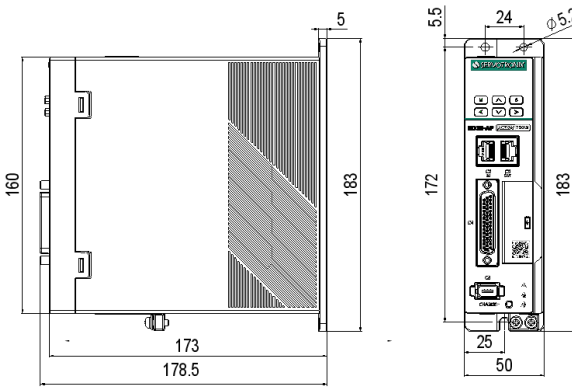
Name	Model	Material number	Remarks
IO control terminal plug	24F78-01-05-00	12115000002541	Standard

MOUNTING DIMENSION

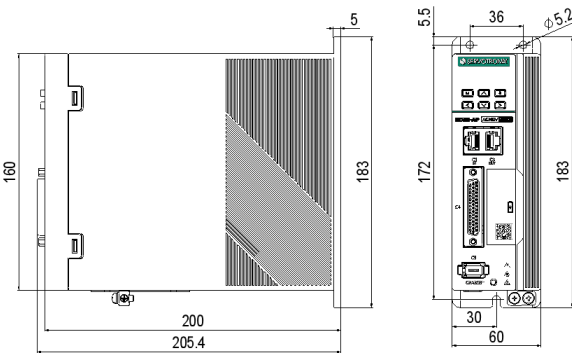
Installation diagram: To ensure a low air resistance and an effective heat dissipation of the cooling fan, please follow the recommended installation spacing for one or multiple AC servo drives.



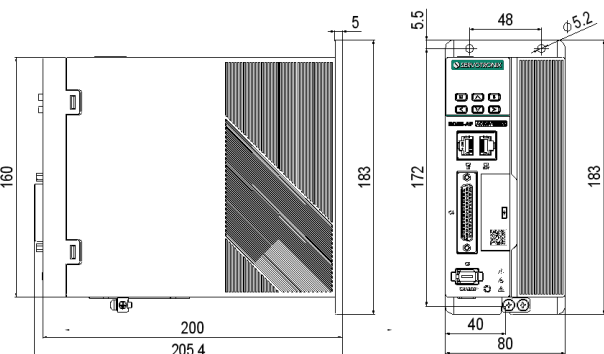
Dimensions of BD3E-1D62AAP/BD3E-2D82AAP (mm)



Dimensions of BD3E-5D52AAP (mm)



Dimensions of BD3E-3D54DAP/BD3E-5D44DAP (mm)



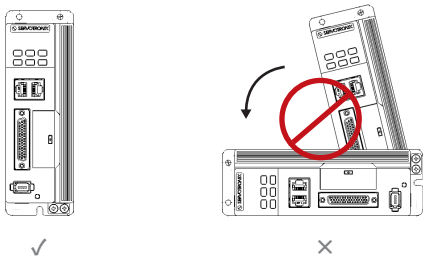
Dimensions of BD3E-8D44DAP/BD3E-0124DAP (mm)

Notes:

The installation must be done in the specified direction; otherwise, it may cause malfunctions.

To ensure a good cooling circulation, when installing the AC servo drive, always keep it at a sufficient distance from the adjacent objects and baffles at its top, bottom, left and right sides; otherwise, it may cause malfunctions.

During installation, prevent the air intake and exhaust ports of the AC servo drive from being blocked, and do not place the servo drive on its side; otherwise, it may cause malfunctions.



P3 SERIES NAMING RULES

P 3 S - M 04 A 1 06 S T - ***

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

P 1 Series

Mark	Specification
P	Product code of Servotronics servo motor

3 2 Generation

Mark	Specification
3	3rd generation

S 3 Product Category

Mark	Specification
E	Low-power general-purpose rotary servo motor (w/ magnetic encoder)
S	Low-power general-purpose rotary servo motor (w/ optical encoder)

M 5 Motor Type

Mark	Specification
L	Low inertia & high speed (rating 3,000 rpm)
M	Medium inertia & high speed (rating 3,000 rpm)
C	Medium inertia & medium speed (rating 2,000 rpm)
G	Medium inertia & high torque (rating 1,500 rpm)

04 6 Rated power

Mark	Specification	Mark	Specification	Mark	Specification
A5	0.05kW	09	0.85kW	29	2.9kW
01	0.1kW	10	1.0kW	30	3.0kW
02	0.2kW	13	1.3kW		
04	0.4kW	15	1.5kW		
E5	0.55kW	18	1.8kW		
06	0.6kW	20	2.0kW		
08	0.75kW	25	2.5kW		

4, 12: Connector, with no special meaning

A 7 Rated power supply

Mark	Specification
A	220VAC 3Ph-Y
B	380VAC 3Ph-Y

1 8 Design sequence number

A character within A~Z, representing different electromagnetic solutions.

06 9 Frame size

Mark	Specification
04	40mm
06	60mm
08	80mm
10	100mm
13	130mm
18	180mm

S 10 Brake/oil seal/shaft configuration

Mark	Specification
S	W/ oil seal, w/o brake, standard keyed shaft (Seal)
E	W/ oil seal, w/ brake, standard keyed shaft (Either)
N	W/O oil seal, w/o brake, standard keyed shaft (None)
B	W/O oil seal, w/ brake, standard keyed shaft (Brake)

T 11 Encoder configuration

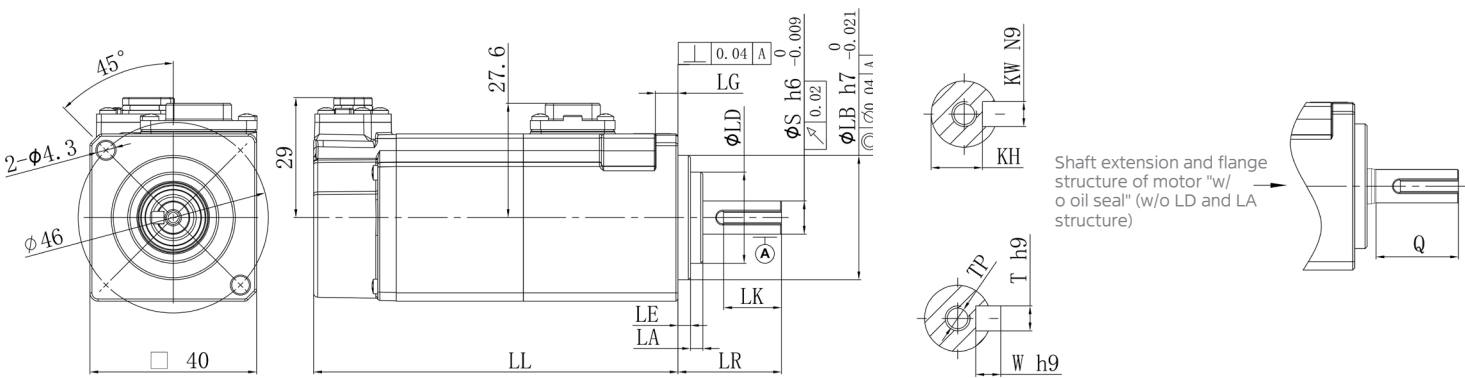
Mark	Specification
T	Tamagawa protocol, 23bit multi-turn absolute optical encoder, for P3S series only
J	Tamagawa protocol, 17bit multi-turn absolute magnetic encoder, for P3E series only

** Custom code

Mark	Specification
Null	Standard product (standard structure, standard key, standard shaft)
Others	For custom codes of non-electromagnetic solutions, see Specifications for details

P3 SERIES AC SERVO MOTOR SELECTION

Servo Motor Features (40 mm Flange)



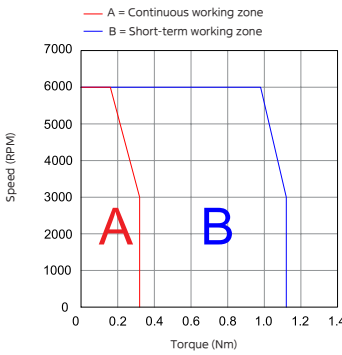
Motor model	LL	LR	LG	LE	LA	LD	Q	S	LB	TP	LK	KH	KW	W	T	Weight (kg)
P3 □ -LA5A204	62.4 (88.1)	25	5.5	3	3	22	19.9	8	30	M3, depth 6	14	6.2	3	3	3	0.28 (0.47)
P3 □ -L01A204	74.4 (100.1)	25	5.5	3	3	22	19.9	8	30	M3, depth 6	14	6.2	3	3	3	0.36 (0.55)

Motor model	Rated power [W]	Rated voltage [V]	Rated torque [N·m]	Max torque [N·m]	Rated current [Arms]	Max current [Arms]	Rated speed [rpm]	Max speed [rpm]	Rotational inertia[x10 ⁻⁴ kg·m ²]	Line-to-line counter electromotive force[V/Krpm]	Line-to-line resistance [Ω]	Line-to-line inductance (Q-axis)	Line-to-line inductance (D-axis) [mH]	Torque coefficient [N·m/Arms]	Electrical time constant [ms]
P3 □ -LA5A204	50	220	0.16	0.56	0.58	2.2	3000	6000	0.018 (0.021)	16.5	25.397	25.8	18.4	0.276	0.87
P3 □ -L01A204	100	220	0.32	1.12	0.98	3.9	3000	6000	0.031 (0.034)	20.1	13.4	15.62	10.78	0.327	1.01

Note: Parameters in parentheses are for motors with a brake

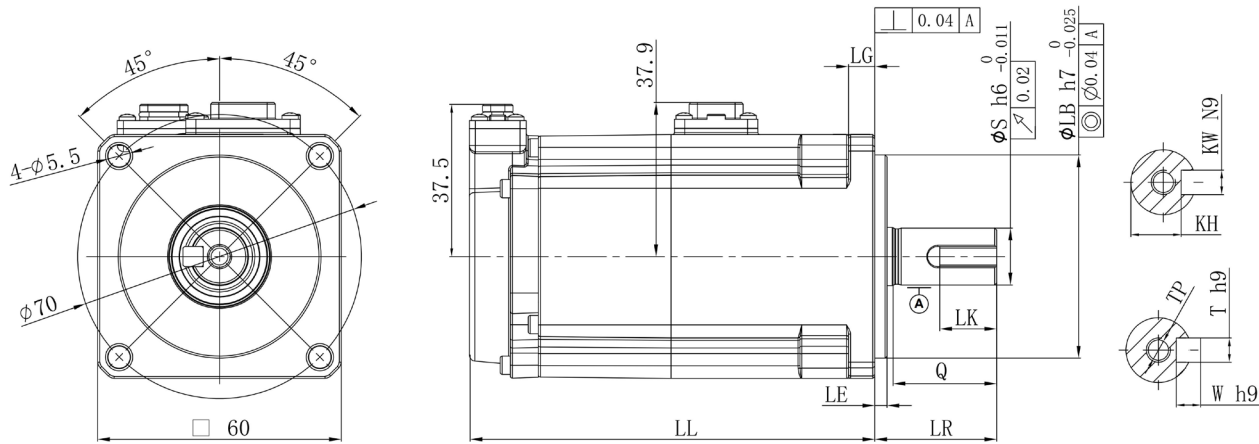


P3S-LA5A204



P3S-L01A204

Servo Motor Features (60 mm Flange)



Motor model	LL	LR	LG	LE	Q	S	LB	TP	LK	KH	KW	W	T	Weight (kg)
P3 □ -M02A206	70.5(99.7)	30	6.5	3	25.5	14	50	M5, depth 10	14	11	5	5	5	0.8 (1.17)
P3 □ -M04A206	88 (117.2)	30	6.5	3	25.5	14	50	M5, depth 10	14	11	5	5	5	1.14 (1.51)

Motor model	Rated power [W]	Rated voltage [V]	Rated torque [N·m]	Max torque [N·m]	Rated current [Arms]	Max current [Arms]	Rated speed [rpm]	Max speed [rpm]	Rotational inertia[x10 ⁻⁴ kg·m ²]	Line-to-line counter electromotive force[V/Krpm]	Line-to-line resistance [Ω]	Line-to-line inductance (Q-axis)	Line-to-line inductance (D-axis) [mH]	Torque coefficient [N·m/Arms]	Electrical time constant [ms]
P3 □ -M02A206	200	220	0.64	2.23	1.3	4.4	3000	6000	0.34 (0.35)	32	8.075	18.7	15.6	0.492	2.07
P3 □ -M04A206	400	220	1.27	4.45	2.6	8.6	3000	6000	0.59 (0.60)	33.9	3.5	10.18	8.26	0.488	2.77

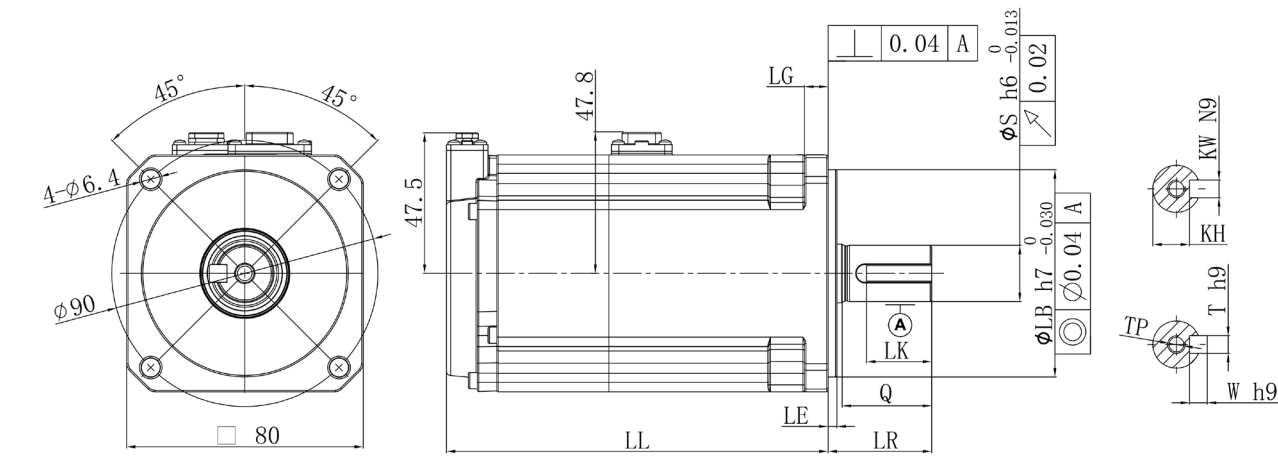


P3S-M02A206



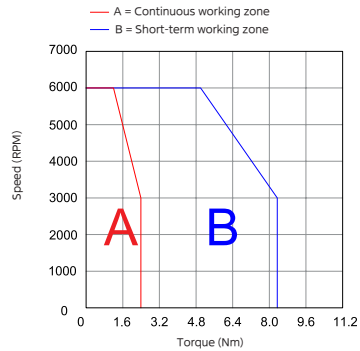
P3S-M04A206

Servo Motor Features (80 mm Flange)

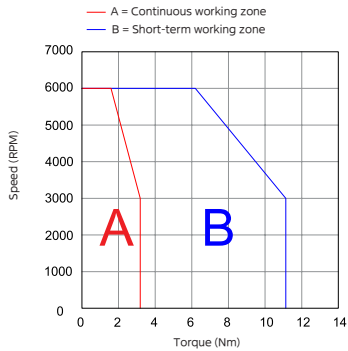


Motor model	LL	LR	LG	LE	Q	S	LB	TP	LK	KH	KW	W	T	Weight (kg)
P3 □ -M08A208	94.6(128.8)	35	8	3	30.2	19	70	M6, depth 12	22	15.5	6	6	6	2.15 (2.83)
P3 □ -M10A208	107.9 (142.1)	35	8	3	30.2	19	70	M6, depth 12	22	15.5	6	6	6	2.59 (3.27)

Motor model	Rated power [W]	Rated voltage [V]	Rated torque [N·m]	Max torque [N·m]	Rated current [Arms]	Max current [Arms]	Rated speed [rpm]	Max speed [rpm]	Rotational inertia[x10 ⁻⁴ kg·m ²]	Line-to-line counter electromotive force[V/Krpm]	Line-to-line resistance [Ω]	Line-to-line inductance (Q-axis)	Line-to-line inductance (D-axis) [mH]	Torque coefficient [N·m/Arms]	Electrical time constant [ms]
P3 □ -M08A208	750	220	2.39	8.36	4.6	16.3	3000	6000	1.72 (1.77)	34.4	0.945	5.6	4.5	0.52	5.4
P3 □ -M10A208	1000	220	3.18	11.13	6.3	20.9	3000	6000	2.23 (2.28)	33.9	0.702	4.08	3.35	0.505	5.292

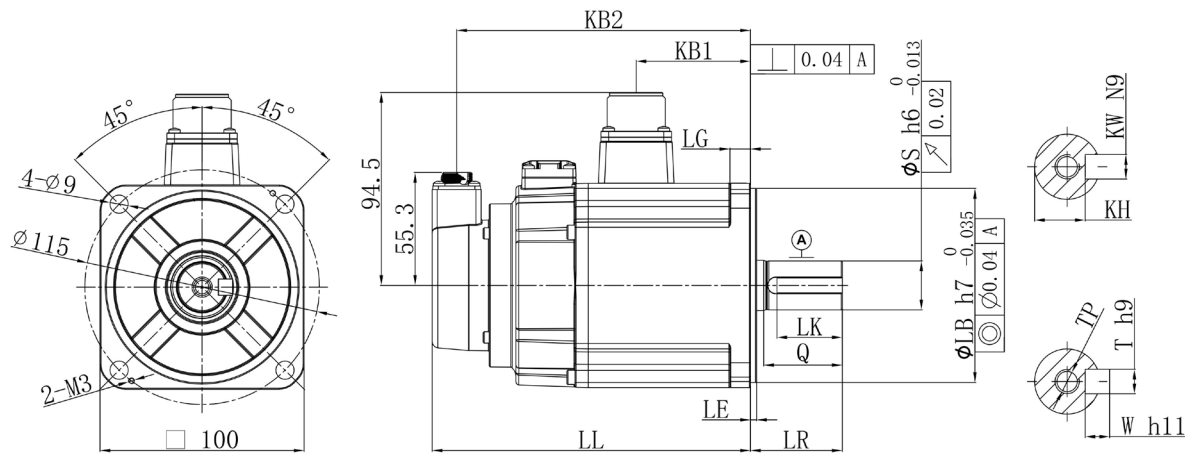


P3S-M08A208



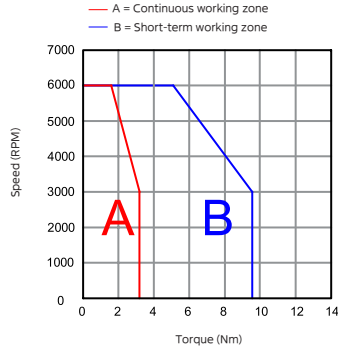
P3S-M10A208

Servo Motor Features (100 mm Flange)

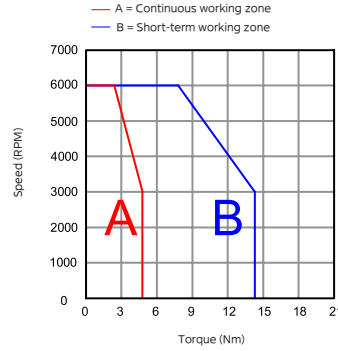


Motor model	LL	LR	KB1	KB2	LG	LE	Q	S	LB	TP	LK	KH	KW	W	T	Weight (kg)
P3 □ -L10A210	127.4(156)	45	56	115.5(144)	10.1	3	38.5	24	95	M8, depth 16	32	20	8	8	7	3.3 (4.1)
P3 □ -L15A210	147.4(176)	45	76	135.5(164)	10.1	3	38.5	24	95	M8, depth 16	32	20	8	8	7	4.3 (5.1)
P3 □ -L20A210	167.4(196)	45	96	155.5(184)	10.1	3	38.5	24	95	M8, depth 16	32	20	8	8	7	5.3 (6.1)

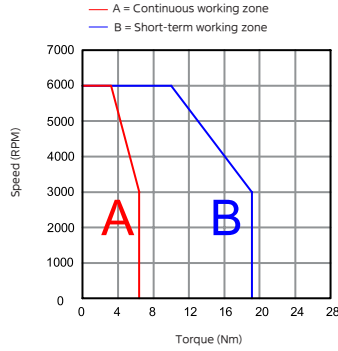
Motor model	Rated power [W]	Rated voltage [V]	Rated torque [N·m]	Max torque [N·m]	Rated current [Arms]	Max current [Arms]	Rated speed [rpm]	Max speed [rpm]	Rotational inertia[x10 ⁻⁴ kg·m ²]	Line-to-line counter electromotive force[V/Krpm]	Line-to-line resistance [Ω]	Line-to-line inductance (Q-axis)	Line-to-line inductance (D-axis) [mH]	Torque coefficient [N·m/Arms]	Electrical time constant [ms]
P3 □ -L10A210	1000	220	3.18	9.55	6.25	19.58	3000	6000	1.84 (2.59)	34.4	0.511	6.25	5.15	0.509	11.155
P3 □ -L15A210	1500	220	4.78	14.3	8.42	25.2	3000	6000	2.75 (3.5)	38.27	0.355	4.64	3.86	0.568	13.239
P3 □ -L20A210	2000	220	6.37	19.1	11.19	31.5	3000	6000	3.65(4.4)	39.76	0.285	3.87	3.14	0.569	12.298



P3S-L10A210

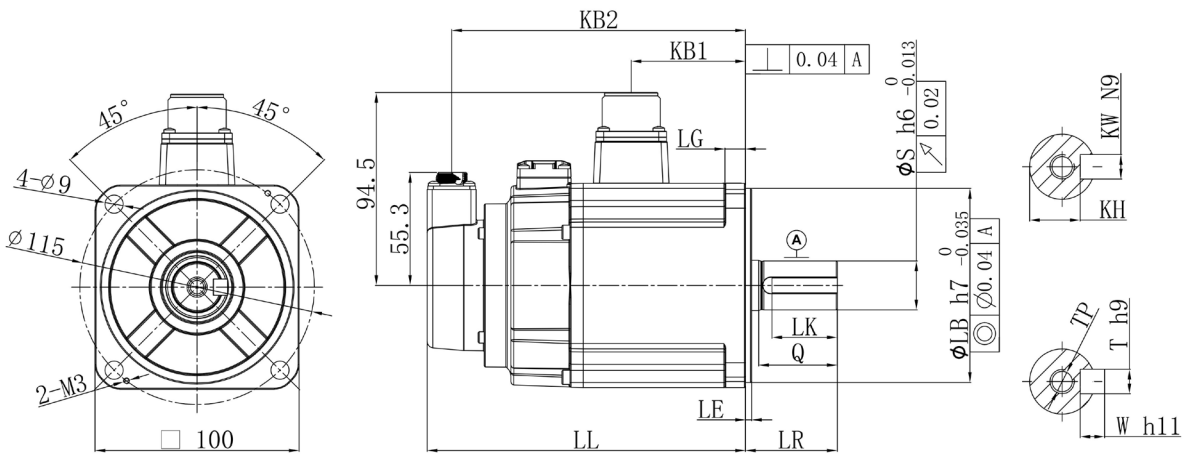


P3S-L15A210



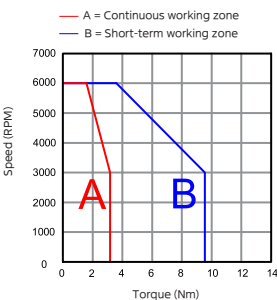
P3S-L20A210

Servo Motor Features (100 mm Flange)

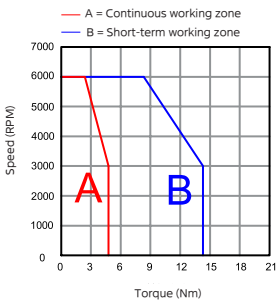


Motor model	LL	LR	KB1	KB2	LG	LE	Q	S	LB	TP	LK	KH	KW	W	T	Weight (kg)
P3 □ -L10B210	127.4(156)	45	56	115.5(144)	10.1	3	38.5	24	95	M8, depth 16	32	20	8	8	7	3.3 (4.1)
P3 □ -L15B210	147.4(176)	45	76	135.5(164)	10.1	3	38.5	24	95	M8, depth 16	32	20	8	8	7	4.3 (5.1)
P3 □ -L20B210	167.4(196)	45	96	155.5(184)	10.1	3	38.5	24	95	M8, depth 16	32	20	8	8	7	5.3 (6.1)
P3 □ -L25B210	184.4(213)	45	113	172.5(201)	10.1	3	38.5	24	95	M8, depth 16	32	20	8	8	7	6.3(7.1)

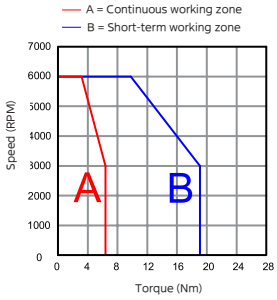
Motor model	Rated power [W]	Rated voltage [V]	Rated torque [N·m]	Max torque [N·m]	Rated current [Arms]	Max current [Arms]	Rated speed [rpm]	Max speed [rpm]	Rotational inertia(x10 ⁻⁴ kg·m ²)	Line-to-line counter electromotive force[V/Krpm]	Line-to-line resistance [Ω]	Line-to-line inductance (Q-axis)	Line-to-line inductance (D-axis) [mH]	Torque coefficient [N·m/Arms]	Electrical time constant [ms]
P3 □ -L10B210	1000	380	3.18	9.55	3.44	10.82	3000	6000	1.84 (2.59)	63.29	2.112	21	17.37	0.924	9.084
P3 □ -L15B210	1500	380	4.78	14.3	4.86	14.59	3000	6000	2.75 (3.5)	65.28	1.033	13.6	11.13	0.984	11.97
P3 □ -L20B210	2000	380	6.37	19.1	7.05	19.78	3000	6000	3.65(4.4)	63.36	0.72	0.72	7.8	0.904	12.007
P3 □ -L25B210	2500	380	7.96	23.9	8.74	25.07	3000	6000	4.36(5.11)	62.25	0.529	0.529	6.32	0.911	13.147



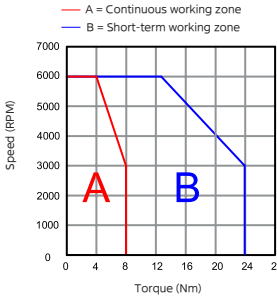
P3S-L10B210



P3S-L15B210

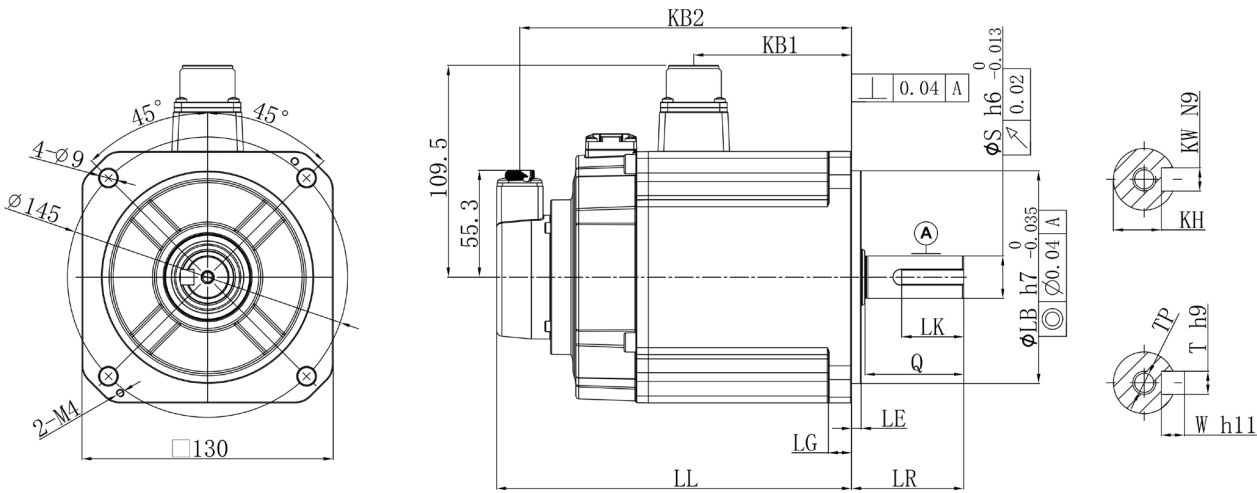


P3S-L20B210



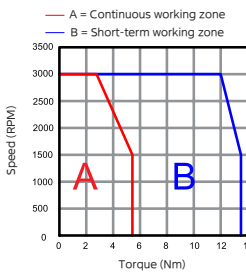
P3S-L25B210

Servo Motor Features (130 mm Flange)

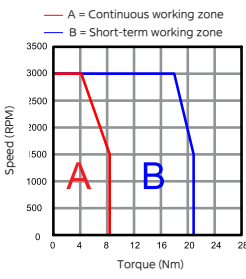


Motor model	LL	LR	KB1	KB2	LG	LE	Q	S	LB	TP	LK	KH	KW	W	T	Weight (kg)
P3 □ -G09A213	136.6(167.6)	58	65.6	124.6(154.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	5.9(7.6)
P3 □ -G13A213	152.6(183.6)	58	81.6	140.6(171.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	7.4(9.1)
P3 □ -G18A213	168.6(199.6)	58	97.6	156.6(187.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	8.7(10.4)
P3 □ -C10A213	136.6(167.6)	58	65.6	124.6(154.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	5.9(7.6)
P3 □ -C15A213	152.6(183.6)	58	81.6	140.6(171.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	7.4(9.1)
P3 □ -C20A213	168.6(199.6)	58	97.6	156.6(187.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	8.7(10.4)

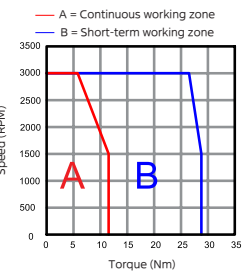
Motor model	Rated power [W]	Rated voltage [V]	Rated torque [N·m]	Max torque [N·m]	Rated current [Arms]	Max current [Arms]	Rated speed [rpm]	Max speed [rpm]	Rotational inertia(x10 ⁻⁴ kg·m ²)	Line-to-line counter electromotive force[V/Krpm]	Line-to-line resistance [Ω]	Line-to-line inductance (Q-axis)	Line-to-line inductance (D-axis) [mH]	Torque coefficient [N·m/Arms]	Electrical time constant [ms]
P3 □ -G09A213	850	220	5.39	13.5	5.72	13.89	1500	3000	13.62(14.56)	62.73	1.192	8.77	7.16	0.941	6.682
P3 □ -G13A213	1300	220	8.34	20.85	8.61	21.1	1500	3000	19.6(20.54)	63.21	0.736	5.91	4.73	0.969	7.228
P3 □ -G18A213	1800	220	11.5	28.75	12.43	29.02	1500	3000	24.78(25.72)	63.35	0.476	4.32	3.47	0.925	8.183
P3 □ -C10A213	1000	220	4.78	14.3	5.06	14.79	2000	3000	13.62(14.56)	62.73	1.192	8.77	7.16	0.945	6.682
P3 □ -C15A213	1500	220	7.16	21.5	7.56	22.1	2000	3000	19.6(20.54)	63.21	0.736	5.91	4.73	0.947	7.228
P3 □ -C20A213	2000	220	9.55	28.65	10.19	28.87	2000	3000	24.78(25.72)	63.36	0.476	4.32	3.47	0.925	8.183



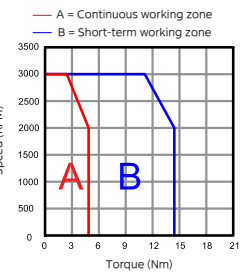
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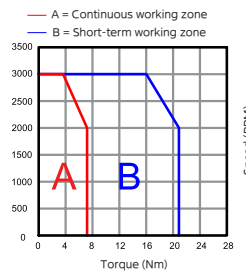
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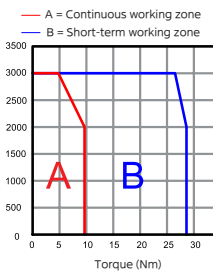
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P3S-C10A213

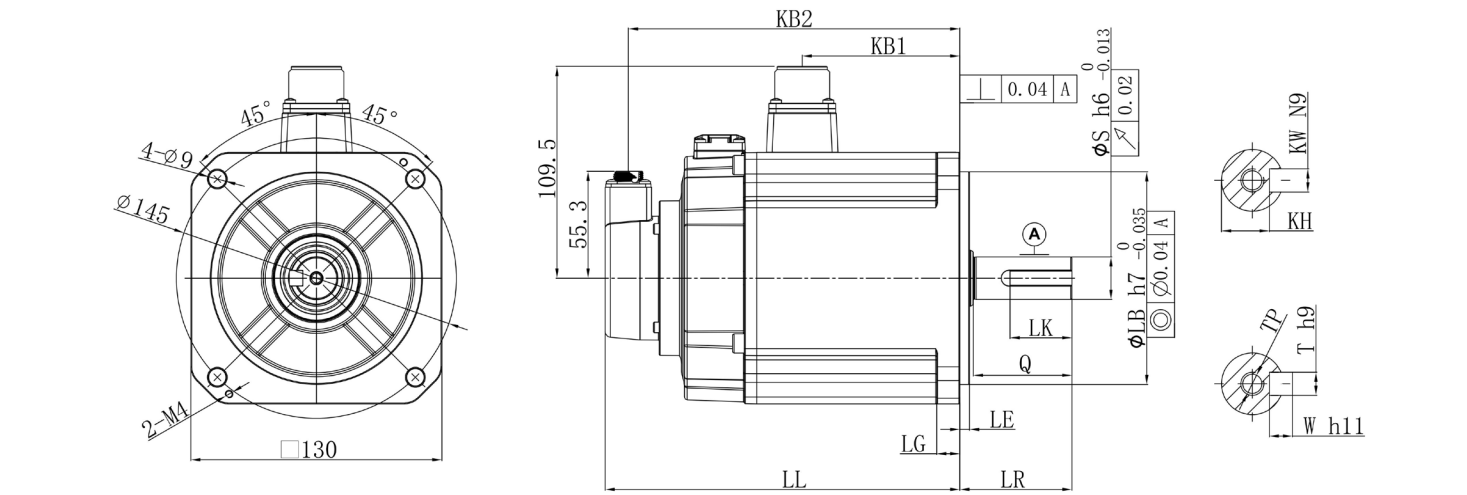


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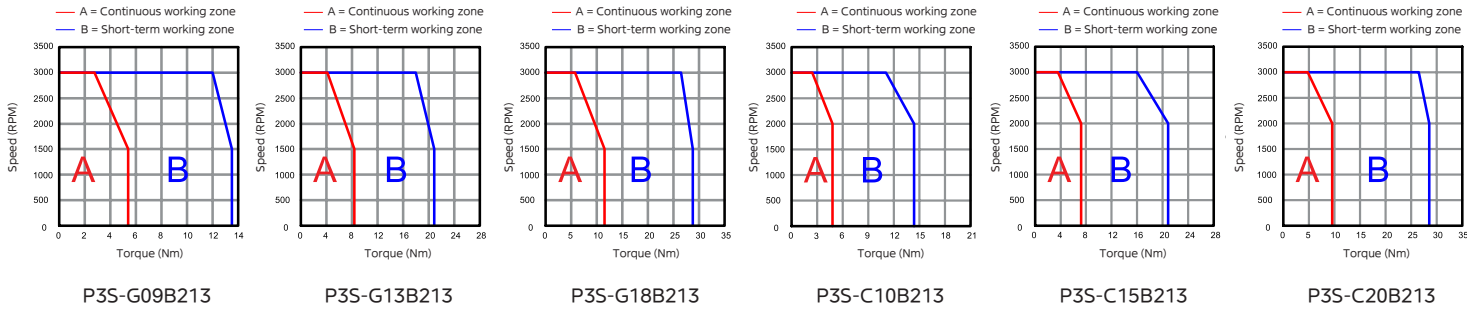
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Servo Motor Features (130 mm Flange)

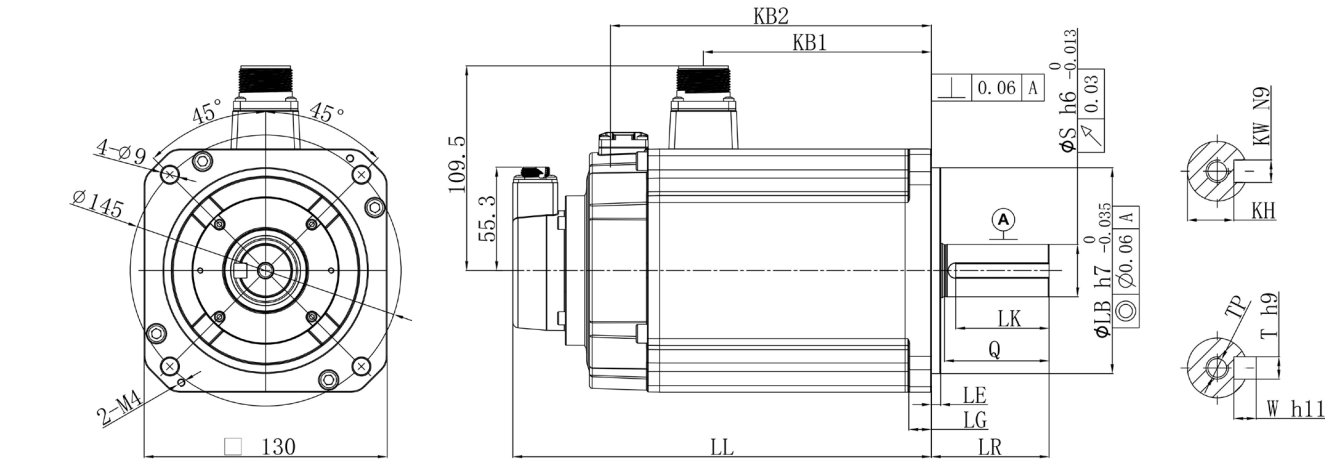


Motor model	LL	LR	KB1	KB2	LG	LE	Q	S	LB	TP	LK	KH	KW	W	T	Weight (kg)
P3 □ -G09B213	136.6(167.6)	58	65.6	124.6(154.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	5.9(7.6)
P3 □ -G13B213	152.6(183.6)	58	81.6	140.6(171.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	7.4(9.1)
P3 □ -G18B213	168.6(199.6)	58	97.6	156.6(187.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	8.7(10.4)
P3 □ -C10B213	136.6(167.6)	58	65.6	124.6(154.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	5.9(7.6)
P3 □ -C15B213	152.6(183.6)	58	81.6	140.6(171.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	7.4(9.1)
P3 □ -C20B213	168.6(199.6)	58	97.6	156.6(187.6)	12	3	51	22	110	M6, depth 12	32	18	8	8	7	8.7(10.4)

Motor model	Rated power [W]	Rated voltage [V]	Rated torque [N·m]	Max torque [N·m]	Rated current [Arms]	Max current [Arms]	Rated speed [rpm]	Max speed [rpm]	Rotational inertia[x10 ⁻⁴ kg·m ²]	Line-to-line counter electromotive force[V/Krpm]	Line-to-line resistance [Ω]	Line-to-line inductance (Q-axis)	Line-to-line inductance (D-axis) [mH]	Torque coefficient [N·m/Arms]	Electrical time constant [ms]
P3 □ -G09B213	850	380	5.39	13.5	3.16	7.99	1500	3000	13.62(14.56)	108.1	3.143	26.1	21.4	1.706	7.556
P3 □ -G13B213	1300	380	8.34	20.85	4.97	12.05	1500	3000	19.6(20.54)	110.2	1.933	17.9	14.1	1.678	8.277
P3 □ -G18B213	1800	380	11.5	28.75	7.03	17.01	1500	3000	24.78(25.72)	110.11	1.361	13	10.4	1.636	8.597
P3 □ -C10B213	1000	380	4.78	14.3	2.96	8.6	2000	3000	13.62(14.56)	108.1	3.143	26.1	21.4	1.615	7.556
P3 □ -C15B213	1500	380	7.16	21.5	4.52	13.22	2000	3000	19.6(20.54)	110.2	1.933	17.9	14.1	1.584	8.277
P3 □ -C20B213	2000	380	9.55	28.65	5.83	16.71	2000	3000	24.78(25.72)	110.11	1.361	13	10.4	1.638	8.597

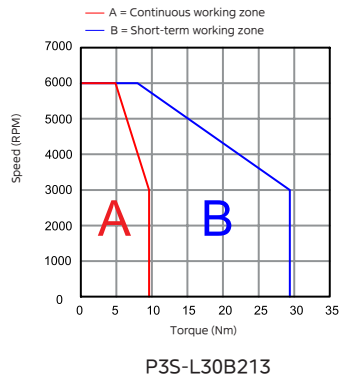


Servo Motor Features (130 mm Flange)



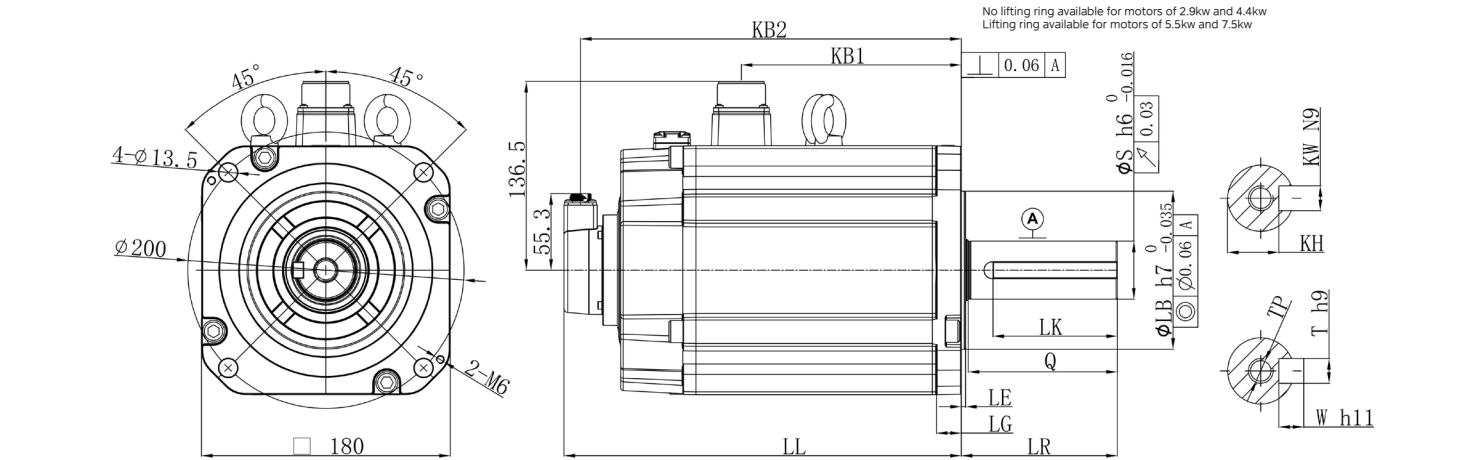
Motor model	LL	LR	KB1	KB2	LG	LE	Q	S	LB	TP	LK	KH	KW	W	T	Weight (kg)
P3 □ -L30B213	192.9(223.9)	63	121.9	180.9(211.9)	12	3	57	28	110	M8 深 18	50	24	8	8	7	9.9(11.6)

Motor model	Rated power [W]	Rated voltage [V]	Rated torque [N·m]	Max torque [N·m]	Rated current [Arms]	Max current [Arms]	Rated speed [rpm]	Max speed [rpm]	Rotational inertia[x10 ⁻⁴ kg·m ²]	Line-to-line counter electromotive force[V/Krpm]	Line-to-line resistance [Ω]	Line-to-line inductance (Q-axis)	Line-to-line inductance (D-axis) [mH]	Torque coefficient [N·m/Arms]	Electrical time constant [ms]
P3 □ -L30B213	3000	380	9.8	29.4	10.13	29.59	3000	6000	7.28(8.22)	69.11	0.434	6.9	6.64	0.967	15.599



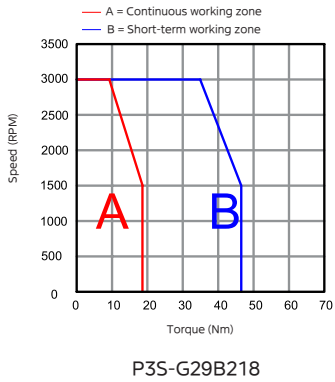
Servo Motor Features (180 mm Flange)

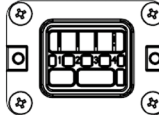
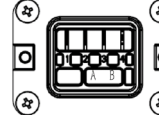
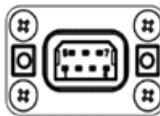
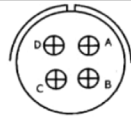
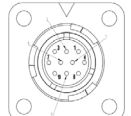
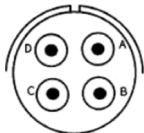
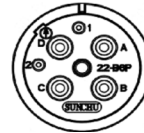
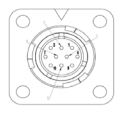
MOTOR TERMINAL DESCRIPTION



Motor model	LL	LR	KB1	KB2	LG	LE	Q	S	LB	TP	LK	KH	KW	W	T	Weight (kg)
P3 □ -G29B218	172.5(217.5)	79	89.1	160.5(205.5)	18	3.2	74	35	114.3	M12, depth 25	60	30	10	10	8	14.3(17.9)

Motor model	Rated power [W]	Rated voltage [V]	Rated torque [N·m]	Max torque [N·m]	Rated current [Arms]	Max current [Arms]	Rated speed [rpm]	Max speed [rpm]	Rotational inertia(x10 ⁻⁴ kg·m ²)	Line-to-line counter electromotive force[V/Krpm]	Line-to-line resistance [Ω]	Line-to-line inductance (Q-axis)	Line-to-line inductance (D-axis) [mH]	Torque coefficient [N·m/Arms]	Electrical time constant [ms]
P3 □ -G29B218	2900	380	18.6	46.5	10.26	25.81	1500	3000	46.19(51.94)	118.69	0.601	10.78	8.43	1.813	15.982



Motor flange (mm)	Category	Wiring definition	Wiring definition (brake)	Description	Cable-side terminal model	Brand	Quantity per cable																								
40/60/80	Power terminal	 <table border="1" data-bbox="1890 513 2041 625"><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	 <table border="1" data-bbox="2180 513 2358 625"><tr><td>1</td><td>V</td><td rowspan="2">A</td><td>Brake terminal</td></tr><tr><td>2</td><td>U</td></tr><tr><td>3</td><td>W</td><td>B</td><td>Brake terminal</td></tr><tr><td>4</td><td>PE</td><td></td><td></td></tr></table>	1	V	A	Brake terminal	2	U	3	W	B	Brake terminal	4	PE			Power cable terminal	SC-MC6S-AP20-00	SUNCHU	1 PCS		
		1	V																												
	2	U																													
	3	W																													
4	PE																														
1	V	A	Brake terminal																												
2	U																														
3	W	B	Brake terminal																												
4	PE																														
Encoder terminal	 <table border="1" data-bbox="1877 774 2098 876"><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>0V</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	0V	3	BAT+	7	FG	4	BAT-			Same as Standard Version	Encoder cable terminal	SC-MC7S-A620-10	SUNCHU	1 PCS									
		1	DATA+	5	+5V																										
2	DATA-	6	0V																												
3	BAT+	7	FG																												
4	BAT-																														
PIN	S-FMCK6012220	SUNCHU	4 (6) PCS																												
100/130	Power terminal	 <table border="1" data-bbox="1899 1050 2035 1174"><tr><td>A</td><td>V</td></tr><tr><td>B</td><td>U</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>PE</td></tr></table>	A	V	B	U	C	W	D	PE	 <table border="1" data-bbox="2186 1033 2358 1191"><tr><td>A</td><td>V</td></tr><tr><td>B</td><td>U</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>PE</td></tr><tr><td>1</td><td colspan="3">Brake terminal</td></tr><tr><td>2</td><td colspan="3">Brake terminal</td></tr></table>	A	V	B	U	C	W	D	PE	1	Brake terminal			2	Brake terminal			Military power plug	CMS3108A18-10SI	SUNCHU	1 PCS
		A	V																												
	B	U																													
	C	W																													
D	PE																														
A	V																														
B	U																														
C	W																														
D	PE																														
1	Brake terminal																														
2	Brake terminal																														
Encoder terminal	 <table border="1" data-bbox="1986 1222 2125 1396"><tr><td>1</td><td>DATA+</td></tr><tr><td>2</td><td>DATA-</td></tr><tr><td>6</td><td>BAT+</td></tr><tr><td>5</td><td>BAT-</td></tr><tr><td>4</td><td>+5V</td></tr><tr><td>9</td><td>0V</td></tr><tr><td>10</td><td>FG</td></tr></table>	1	DATA+	2	DATA-	6	BAT+	5	BAT-	4	+5V	9	0V	10	FG	Same as Standard Version	Military power plug (brake)	CMS08A18-B6SBI003	SUNCHU	1 PCS											
		1	DATA+																												
2	DATA-																														
6	BAT+																														
5	BAT-																														
4	+5V																														
9	0V																														
10	FG																														
Military encoder plug	SC-CMV1-SP10CBT	SUNCHU	1 PCS																												
180	Power terminal	 <table border="1" data-bbox="1920 1568 2056 1680"><tr><td>A</td><td>V</td></tr><tr><td>B</td><td>U</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>PE</td></tr></table>	A	V	B	U	C	W	D	PE	 <table border="1" data-bbox="2165 1568 2385 1680"><tr><td>A</td><td>U</td><td>1</td><td>Brake terminal</td></tr><tr><td>B</td><td>V</td><td>2</td><td>Brake terminal</td></tr><tr><td>C</td><td>W</td><td></td><td></td></tr><tr><td>D</td><td>PE</td><td></td><td></td></tr></table>	A	U	1	Brake terminal	B	V	2	Brake terminal	C	W			D	PE			Military power plug	CMS3108A22-22SI	SUNCHU	1 PCS
		A	V																												
	B	U																													
	C	W																													
D	PE																														
A	U	1	Brake terminal																												
B	V	2	Brake terminal																												
C	W																														
D	PE																														
Encoder terminal	 <table border="1" data-bbox="1980 1694 2116 1877"><tr><td>1</td><td>DATA+</td></tr><tr><td>2</td><td>DATA-</td></tr><tr><td>6</td><td>BAT+</td></tr><tr><td>5</td><td>BAT-</td></tr><tr><td>4</td><td>+5V</td></tr><tr><td>9</td><td>0V</td></tr><tr><td>10</td><td>FG</td></tr></table>	1	DATA+	2	DATA-	6	BAT+	5	BAT-	4	+5V	9	0V	10	FG	Same as Standard Version	Military power plug (brake)	CMS08A22-B6SBI006	SUNCHU	1 PCS											
		1	DATA+																												
2	DATA-																														
6	BAT+																														
5	BAT-																														
4	+5V																														
9	0V																														
10	FG																														
Military encoder plug	SC-CMV1-SP10CBT	SUNCHU	1 PCS																												

CABLE AND KIT SELECTION

Power Cable or Accessory Kit (BD3 + P3)



Specification of P3 series motor	Drive type	Length (m)	W/O brake			W/ brake		
			Front outlet	Rear outlet	Connector kit	Front outlet	Rear outlet	Connector kit
LA5/L01/M02/M04	BD3 series	3	SPC-A65031-0303-F	SPC-A67031-0303-F	Front outlet: CAP-A6-03-A Rear outlet: CAP-A6-03-B	SPC-A66041-0403-F	SPC-A68041-0403-F	Front outlet: CAP-A6-04-A Rear outlet: CAP-A6-04-B
		5	SPC-A65031-0305-F	SPC-A67031-0305-F		SPC-A66041-0405-F	SPC-A68041-0405-F	
		10	SPC-A65031-0310-F	SPC-A67031-0310-F		SPC-A66041-0410-F	SPC-A68041-0410-F	
		15	SPC-A65031-0315-F	SPC-A67031-0315-F		SPC-A66041-0415-F	SPC-A68041-0415-F	
		20	SPC-A65031-0320-F	SPC-A67031-0320-F		SPC-A66041-0420-F	SPC-A68041-0420-F	
M08/M10	BD3 series	3	SPC-A65031-0503-F	SPC-A67031-0503-F	Front outlet: CAP-A6-03-A Rear outlet: CAP-A6-03-B	SPC-A66041-0603-F	SPC-A68041-0603-F	Front outlet: CAP-A6-04-A Rear outlet: 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	
		15	SPC-A65031-0515-F	SPC-A67031-0515-F		SPC-A66041-0615-F	SPC-A68041-0615-F	
		20	SPC-A65031-0520-F	SPC-A67031-0520-F		SPC-A66041-0620-F	SPC-A68041-0620-F	
G09/G13、L10/L15、C10/C15	BD3 series	3	SPC-AC1051-0903-F		CAP-AC-05-1	SPC-AD1061-1003-F		CAP-AD-06-1
		5	SPC-AC1051-0905-F			SPC-AD1061-1005-F		
		10	SPC-AC1051-0910-F			SPC-AD1061-1010-F		
		15	SPC-AC1051-0915-F			SPC-AD1061-1015-F		
		20	SPC-AC1051-0920-F			SPC-AD1061-1020-F		
G18、L20、C20	BD3 series	3	SPC-AC2071-1503-F		CAP-AC-07-1	SPC-AD2081-1603-F		CAP-AD-08-1
		5	SPC-AC2071-1505-F			SPC-AD2081-1605-F		
		10	SPC-AC2071-1510-F			SPC-AD2081-1610-F		
		15	SPC-AC2071-1515-F			SPC-AD2081-1615-F		
		20	SPC-AC2071-1520-F			SPC-AD2081-1620-F		
L25/L30	BD3 series	3	SPC-AC3091-1703-F		CAP-AC-09-1	SPC-AD3101-1803-F		CAP-AD-10-1
		5	SPC-AC3091-1705-F			SPC-AD3101-1805-F		
		10	SPC-AC3091-1710-F			SPC-AD3101-1810-F		
		15	SPC-AC3091-1715-F			SPC-AD3101-1815-F		
		20	SPC-AC3091-1720-F			SPC-AD3101-1820-F		
G29	BD3 series	3	SPC-AE1071-1503-F		CAP-AE-07-1	SPC-AF1081-1603-F		CAP-AF-08-1
		5	SPC-AE1071-1505-F			SPC-AF1081-1605-F		
		10	SPC-AE1071-1510-F			SPC-AF1081-1610-F		
		15	SPC-AE1071-1515-F			SPC-AF1081-1615-F		
		20	SPC-AE1071-1520-F			SPC-AF1081-1620-F		

Encoder Cable or Accessory Kit (BD3 + P3)

Specification of P3 series motor	Drive type	Length (m)	Single-turn absolute encoder (w/o battery)			Multi-turn absolute encoder (w/ battery)		
			Front outlet	Rear outlet	Connector kit	Front outlet	Rear outlet	Connector kit
LA5/L01	BD3 series	3	SFC-A81A41-0103-F	SFC-A83A41-0103-F	CAP-A8-A4-1	SFC-A82A43-0103-F	SFC-A84A43-0103-F	CAP-A8-A4-3
		5	SFC-A81A41-0105-F	SFC-A83A41-0105-F		SFC-A82A43-0105-F	SFC-A84A43-0105-F	
		10	SFC-A81A41-0110-F	SFC-A83A41-0110-F		SFC-A82A43-0110-F	SFC-A84A43-0110-F	
		15	SFC-A81A41-0115-F	SFC-A83A41-0115-F		SFC-A82A43-0115-F	SFC-A84A43-0115-F	
		20	SFC-A81A41-0120-F	SFC-A83A41-0120-F		SFC-A82A43-0120-F	SFC-A84A43-0120-F	
M02/M04/M08/M10	BD3 series	3	SFC-A91A41-0103-F	SFC-A93A41-0103-F	CAP-A9-A4-1	SFC-A92A43-0103-F	SFC-A94A43-0103-F	CAP-A9-A4-3
		5	SFC-A91A41-0105-F	SFC-A93A41-0105-F		SFC-A92A43-0105-F	SFC-A94A43-0105-F	
		10	SFC-A91A41-0110-F	SFC-A93A41-0110-F		SFC-A92A43-0110-F	SFC-A94A43-0110-F	
		15	SFC-A91A41-0115-F	SFC-A93A41-0115-F		SFC-A92A43-0115-F	SFC-A94A43-0115-F	
		20	SFC-A91A41-0120-F	SFC-A93A41-0120-F		SFC-A92A43-0120-F	SFC-A94A43-0120-F	
L10/L15/L20/L25/L30 G09/G13/G18/G29/C10/ C15/C20	BD3 series	3	SFC-AA1A41-0103-F		CAP-AA-A4-1	SFC-AA2A43-0103-F		CAP-AA-A4-3
		5	SFC-AA1A41-0105-F			SFC-AA2A43-0105-F		
		10	SFC-AA1A41-0110-F			SFC-AA2A43-0110-F		
		15	SFC-AA1A41-0115-F			SFC-AA2A43-0115-F		
		20	SFC-AA1A41-0120-F			SFC-AA2A43-0120-F		



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