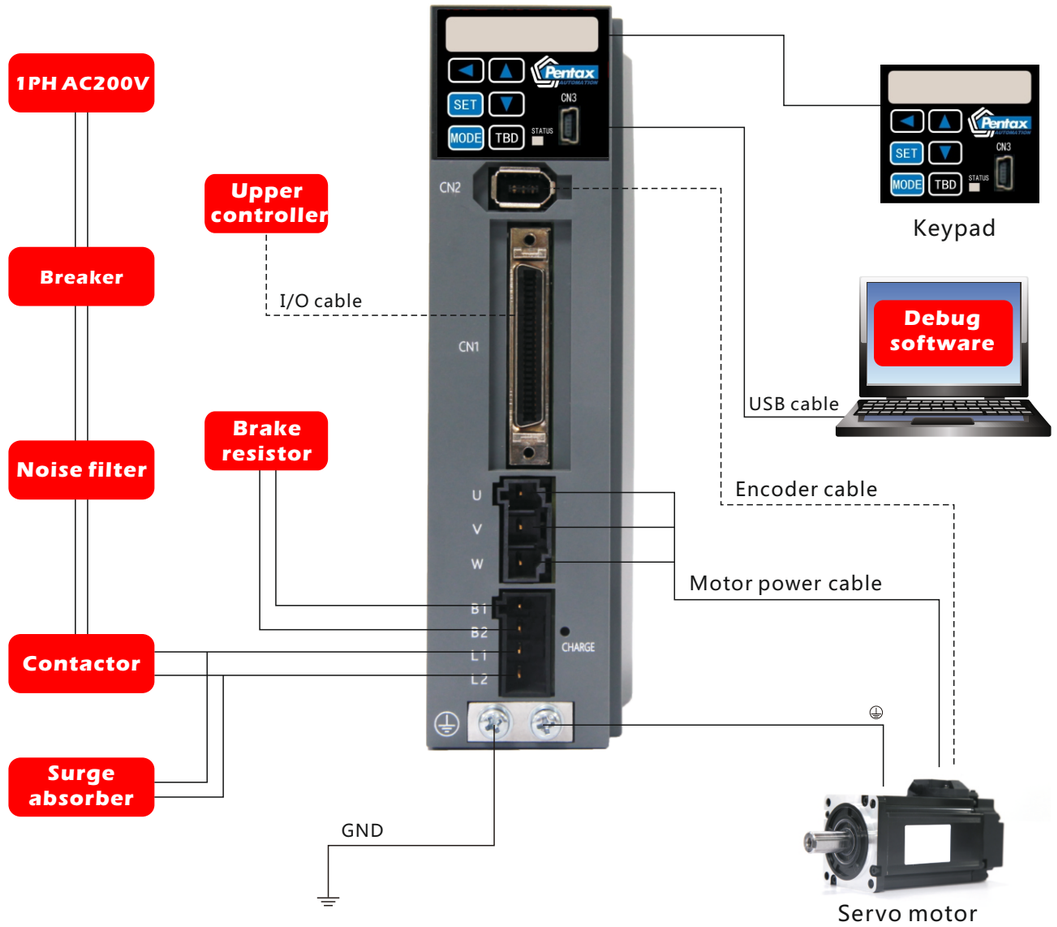
PSD-B

High performance servo system

Products are widely used in robots, manipulators, 3C equipment,
Electronics, woodworking, printing, hardware, welding, CNC, glass,
Machine tools, packaging, die-cut labeling equipment, lithium battery equipment, etc.

Contents

SERVO MOTOR & SERVO DRIVE



⚠ *When the length of the I/O cable is longer than 50cm, please use a shielded wire.

*When wiring, the length of the encoder cable should be less than 20m.

*Please refer to the instruction manual for the wiring method of multi-axis servo drives.

*The dotted line in the wiring diagram indicates a non-hazardous voltage circuit.

Drive model naming rule

PSD	–	B	3	P	075	A	2	A
Servo			3 3 series 5 5 series	P Pulse type B BUS type	005 50W 010 100W 020 200W 040 400W 075 750W 100 1000W 150 1500W	A AC D DC	2 220V 3 380V 4 48V 8 80V	A Standard B Classic C CANopen E EtherCAT

Standard version specifications

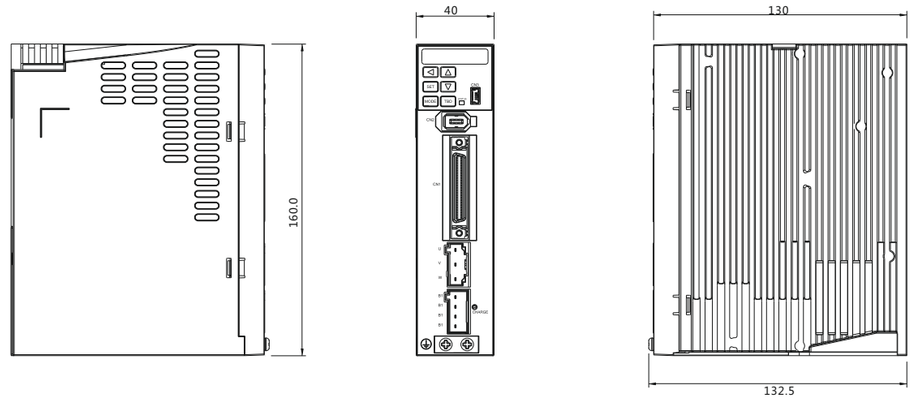
Item		Specification							
Model		PSD-BP005**A	PSD-BP010**A	PSD-BP020**A	PSD-BP040**A	PSD-BP075**A	PSD-BP100**A	PSD-BP150**A	PSD-BP200**A
Motor		50W	100W	200W	400W	750W	1000W	1500W	2000W
	W(m	40			48		61		
	H(mm)	160			160		160		
	D(mm)	130			130		175		
Weight(Kg)		0.7			0.8		1.6		
Input	Main	1Phase 200~240V±10% 50/60Hz					3Phase 200~240V±10%		
	Power	Note 1: Only 2 phases are connected when a 3-phase power supply is used					50/60Hz		
	Control	DC24V±10%							
	Power	140mA Typ				220mA Typ	240mA Typ		
Control mode		Three-phase PWM inverter sine wave drive							
Encoder		17-bit serial incremental/absolute encoder							
DI		8 points (DC24V series optocoupler input isolation) switch under control mode							
DO		8 points (DC24V series optocoupler output isolation) switch under control mode							
Pulse	Input	EIA-422 differential							
		Open collector (OC type)							
	Output	A/B/Z EIA-422differential							
		Open collector output is only available for Z phase							
Communication		USB: PC communication							
		EIA-485: (support multi-station)							
Driver status		Display normal/abnormal through LED (STATUS)							
Power indicator		Normal power ON: green light on/power OFF: off/abnormal power ON: red light flashing							
Regeneration		Support external brake resistor							
Dynamic brake		Short-circuit braking via softwarer							
Control mode		Position control, speed control, torque control							

Classic version specifications

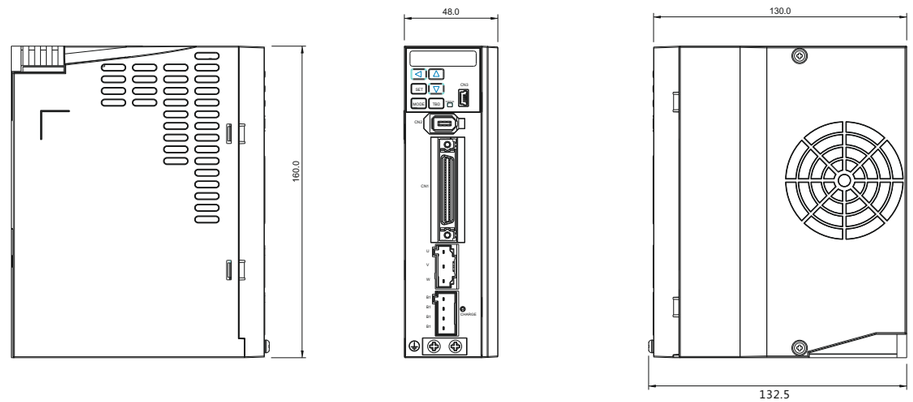
Item		Specification				
Model		PSD-BP005**B	PSD-BP010**B	PSD-BP020**B	PSD-BP040**B	PSD-BP075**B
Motor		50W	100W	200W	400W	750W
	W(mm)	40			48	
	H(mm)	160			160	
	D(mm)	130			130	
Weight(Kg)		0.7			0.8	
Input	Main	1Phase 200~240V±10% 50/ 0Hz				
	Power	Note 1: Only 2 phases are connected when a 3-ph se power s				
	Control	DC24V±10%				
	Power	140mA Typ				220mA Typ
Control mode		Three-phase PWM inverter sine wave drive				
Encoder		17-bit serial incremental/absolute encoder				
DI		2 points Isolated input				
DO		5 points Isolated output				
Pulse	Input	EIA-422 differential				
		Open collector (OC type)				
	Output	A/B/Z EIA-422differential				
		Open collector output is only available for Z phase				
Communication		USB: PC communication				
		EIA-485: (support multi-station)				
Driver status		Display normal/abnormal through LED (STATUS)				
Power indicator		Normal power ON: green light on/power OFF: off/abnormal power ON: red light flashing				
Regeneration		Support external brake resistor				
Dynamic brake		Short-circuit braking via softwarer				
Control mode		Position control				

Note 1) When using two phases of a three-phase power supply, please confirm the power supply specifications according to the specific situation of each country.

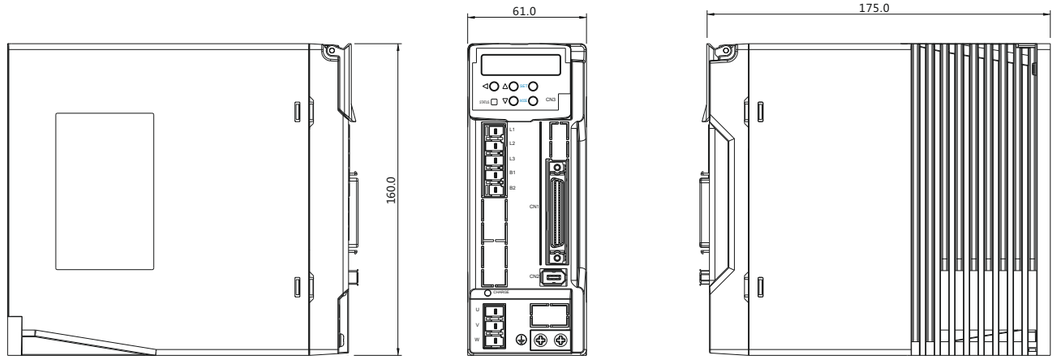
Drive dimensions



50-200W



400-750W



1-2KW and above

Drive connector specifications

Name		Sign	Pin	Signal Name	Content
750W and below	Brake resistor	B1	1	VP	Brake resistor P side
		B2	2	Regen-out	Brake resistor N side
	1PH AC200V input	L1	3	Primary-Power 1	L1
		L2	4	Primary-Power 2	L2
1KW and above	3PH AC200V input	L1	1	Primary-Power 1	L1（L1 for single-phase use）
		L2	2	Primary-Power 2	L2（No use for single-phase use ）
		L3	3	Primary-Power 3	L3（L2 for single-phase use）
	Brake resistor	B1	4	VP	Brake resistor P side
		B2	5	Regen-out	Brake resistor N side
Motor power cable		U/V/W	1	U	Motor U phase
			2	V	Motor V phase
			3	W	Motor W phase
Encoder		CN2	1	VCC	Encoder 5V power supply output
			2	GND	GND
			3	NC	-
			4	NC	-
			5	+D	Encoder signal Data input/output
			6	-D	Encoder signal Data input/output
			-	SHIELD	SHIELD wire to the shell of driver
PC communication		CN3	1	VBUS	USB power supply
			2	D-	USB DATA-
			3	D+	USB DATA+
			4	NC	-
			5	GND	USB GND
User I/O		CN1	Refer to another table		

Environmental requirements

Temperature	Working temperature	0~55°C (No condensation)
	Storage temperature	-20~65°C (No condensation)
Humidity	Working humidity	Below 20~85%RH (No condensation)
	Storage humidity	Below 20~85%RH (No condensation)
Working & Storage Atmospheric Environment		Indoor (no direct sunlight), no corrosive odor, flammable gas, oil mist, dust
Altitude		Below 1000m
Vibration		Below 5.8m/s²（0.6G ） 10~60HZ (Can not be used continuously at resonance frequency)
Insulation & Withstand Voltage		1 time-FG is AC1500V, 1 minute
Precautions		·Must be grounded, Class I corresponding product ·Over voltage category II "Over voltage category II" corresponding products ·Pollution degree 2 corresponding products

Driver function & control specifications

Position control	DI function		SVON、Alarm reset、prohibited command input, deviation counter clear, torque limit selection, CCW/CW prohibited
	DO function		Alarm status
	Pulse input	Maximum command pulse frequency	EIA-422 differential : 4Mpps
			Open collector : 200kpps
		Pulse type	Pulse+directionl、AB phase pulse、CW+CCW pulse
		Pulse division	Supported
		Smoothing	Supported
	Pulse output	Pulse type	Encoder position pulse outputin the following manner: A-/B-phase orthogonal phase difference pulse and Z-phase index pulse released in RS-422 differential format, Z-phase index pulse released through open collector
	Vibration suppression function		Supported
Speed control	DI function		Servo ON, alarm reset, prohibit command input (zero speed clamp), torque limit selection, CCW/CW prohibition
	DO function		Alarm status, servo preparation, brake release, servo status
	Analog input	Speed command input	Input voltage -10V to +10V (Maximum speed occurs at ±10V)
		Smoothing	Supported
	Pulse output	Pulse type	Encoder position pulse outputin the following manner: A-/B-phase orthogonal phase difference pulse and Z-phase index pulse released in RS-422 differential format, Z-phase index pulse released through open collector
Internal speed control	DI function		Servo ON, alarm reset, internal speed command-start/stop, internal speed command selection
			8 segments speed、torque limite
	DO function		Alarm status, servo preparation, brake release, servo status
	Pulse output	Pulse type	Encoder position pulse outputin the following manner: A-/B-phase orthogonal phase difference pulse and Z-phase index pulse released in RS-422 differential format, Z-phase index pulse released through open collector
General	Robust observer		Supported
	Feedforward compensation		Supported
	Mechanical resonance suppression		Supported
	Automatic gain adjustment		Supported
	Encoder output frequency division		Supported
	Adjustment/function setting		Adjust by software
	Protection		Hardware alarm/software alarm

Connector CN1 I/0 definitions

Pin No	Signal name	Classification	Control mode	Contents
1	VCC	Power supply	All	Drive control power supply 24V input
2	G24V	Power supply	All	Drive control power supply GND
3	COM1	Power supply	All	I/O power supply 24V input
4	I1	Input	All	Servo ON
5	I2	Input	All	Alarm reset
6	I3	Input	Position	Command input prohibition
			Analog speed	Command input prohibition (Zero speed clamp)
			Internal speed	Internal speed command-start 1
7	I4	Input	Position	Deviation counter clear
			Analog speed	Reserved
			Internal speed	Internal speed command-start 2
8	I5	Input	Position	Reserved
			Analog speed	Reserved
			Internal speed	Internal speed command –speed command selection 1
9	I6	Input	Position	CCW drive prohibition
			Analog speed	CCW drive prohibition
			Internal speed	Internal speed command –speed command selection 2
10	I7	Input	Position	CCW drive prohibition
			Analog speed	CCW drive prohibition
			Internal speed	Internal speed command –speed command selection 3
11	I8	Input	All	Torque limit
12	COM2	Power supply	All	I/O power supply GND
13	O1	Output	All	Brake release
14	O2	Output	All	Servo status output
15	O3	Output	Position	Positioning completion output
			Analog speed	Reserved
			Internal speed	Reserved
16	O4	Output	All	Reserved
17	O5	Output	All	Reserved
18	O6	Output	All	Encoder Z phase output
19	O7+	Output	All	Servo ready +
20	O7-	Output	All	Servo ready -
21	O8+	Output	All	Alarm ready +
22	O8-	Output	All	Alarm ready -
23	VCC	—	—	Reserved
24	Sp1	—	—	Reserved
25	SP2	—	—	Reserved
26	CMD_PLS	Input	Position	Differential input] ①Pulse + direction pulse ②Orthogonal phase difference A phase ③CCW +CW pulse CCW [5V open collector circuit] ④5V power input of /CMD_PLS
27	/CMD_PLS	Input	Position	[Differential input] ①Pulse + direction / pulse ②Orthogonal phase difference / A phase ③CCW +CW pulse CCW [5V open collector circuit] ④Pulse + direction pulse ⑤Orthogonal phase difference A phase ⑥CCW + CW pulse CCW
28	CC-P	Input	Position	[24V open collector circuit input] ①24V of /CMD_PLS
29	CC-D	Input	Position	[24V open collector circuit input] ①24V of /CMD_DIR
30	CMD_DIR	Input	Position	[Differential input] ①Pulse + direction direction ②Orthogonal phase difference B phase ③CCW +CW pulse CW [5V open collector circuit] ④5V power supply input of /CMD_DIR
31	/CMD_DIR	Input	Position	[Differential input] ①Pulse + direction /direction ②Orthogonal phase difference / B phase ③CCW +CW pulse /CW [5V/24V open collector circuit] ④Pulse + direction direction ⑤Orthogonal phase difference B phase ⑥CCW + CW pulse CW
32	A_SPEED	Input	Analog speed / torque	Analog speed / torque command input
33	A_GND	Input	Analog speed	Analog ground
34	A_TRQ	Input	—	Reserved
35	A_GND	Input	—	Reserved
36	OUT_A	Output	All	Encoder A phase
37	OUT_/A	Output	All	Encoder /A phase
38	OUT_B	Output	All	Encoder B phase
39	OUT_/B	Output	All	Encoder /B phase
40	OUT_Z	Output	All	Encoder Z phase
41	OUT_/Z	Output	All	Encoder /Z phase
42	SG	Power supply	All	Signal ground
43	485	Input	All	EIA-485 communication
44	/485	Input	All	EIA-485 communication
45	SG	Power supply	All	Signal ground
46	G24	—	—	Reserved
47	SP3	—	—	Reserved
48	SP4	—	—	Reserved
49	EDM+	—	—	Reserved
50	EDM-	—	—	Reserved

Note: Pin6,7,8,9,10,11,19,20,32,33,34,35 are not available for classic models.

Diagram of differential pulse input - Position mode

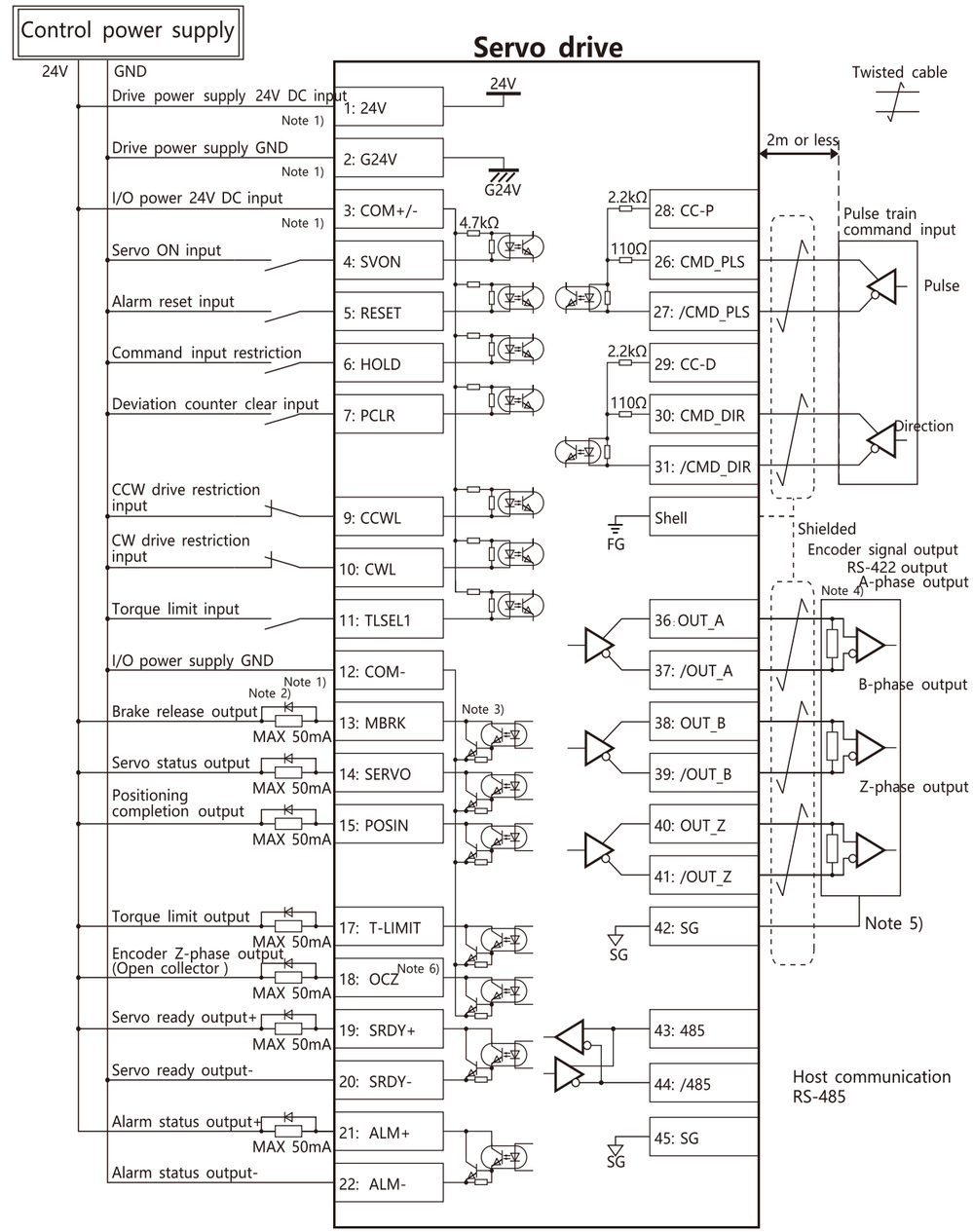


Diagram of 24V OC type pulse input - Position mode

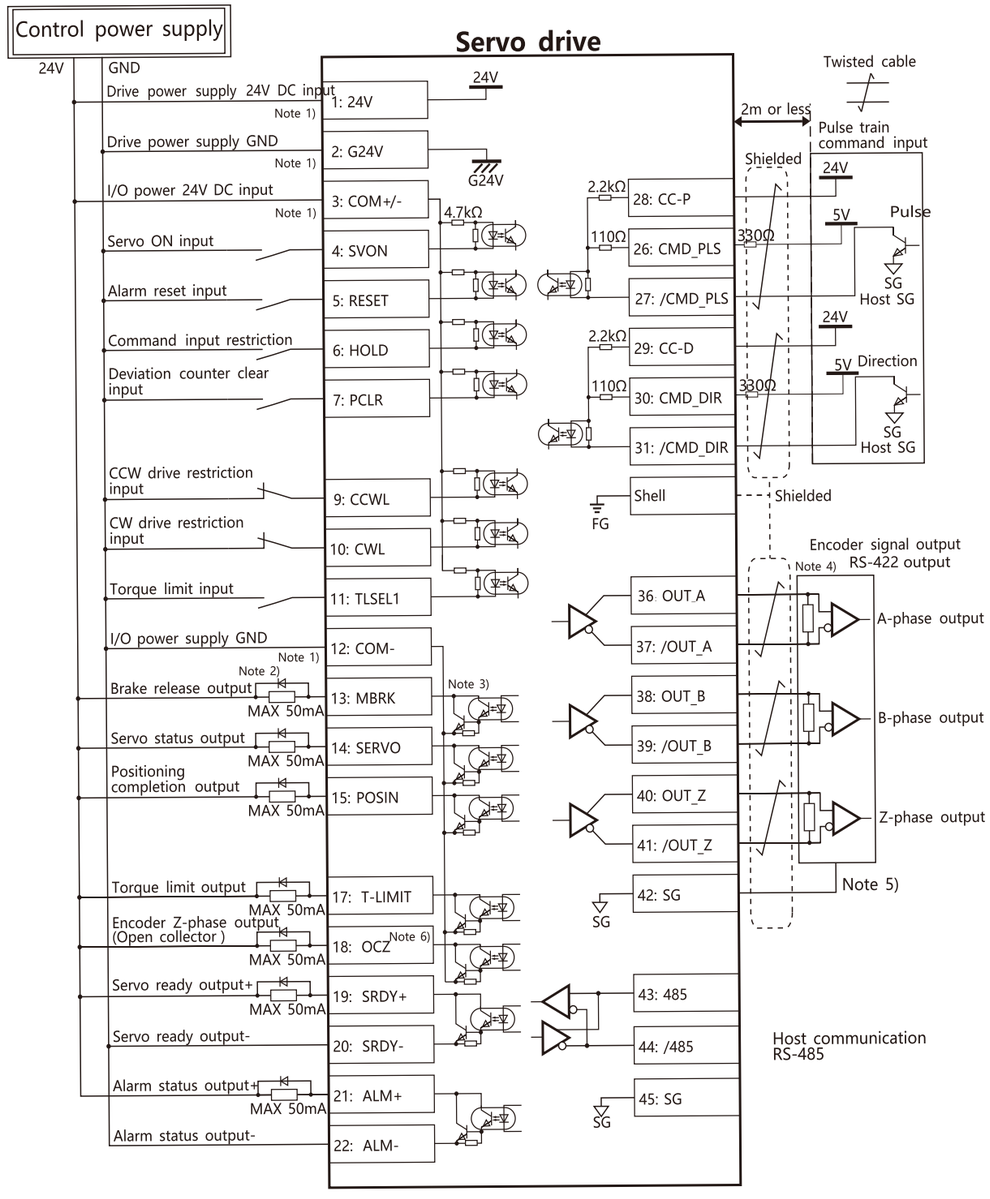


Diagram of analog speed&torque mode

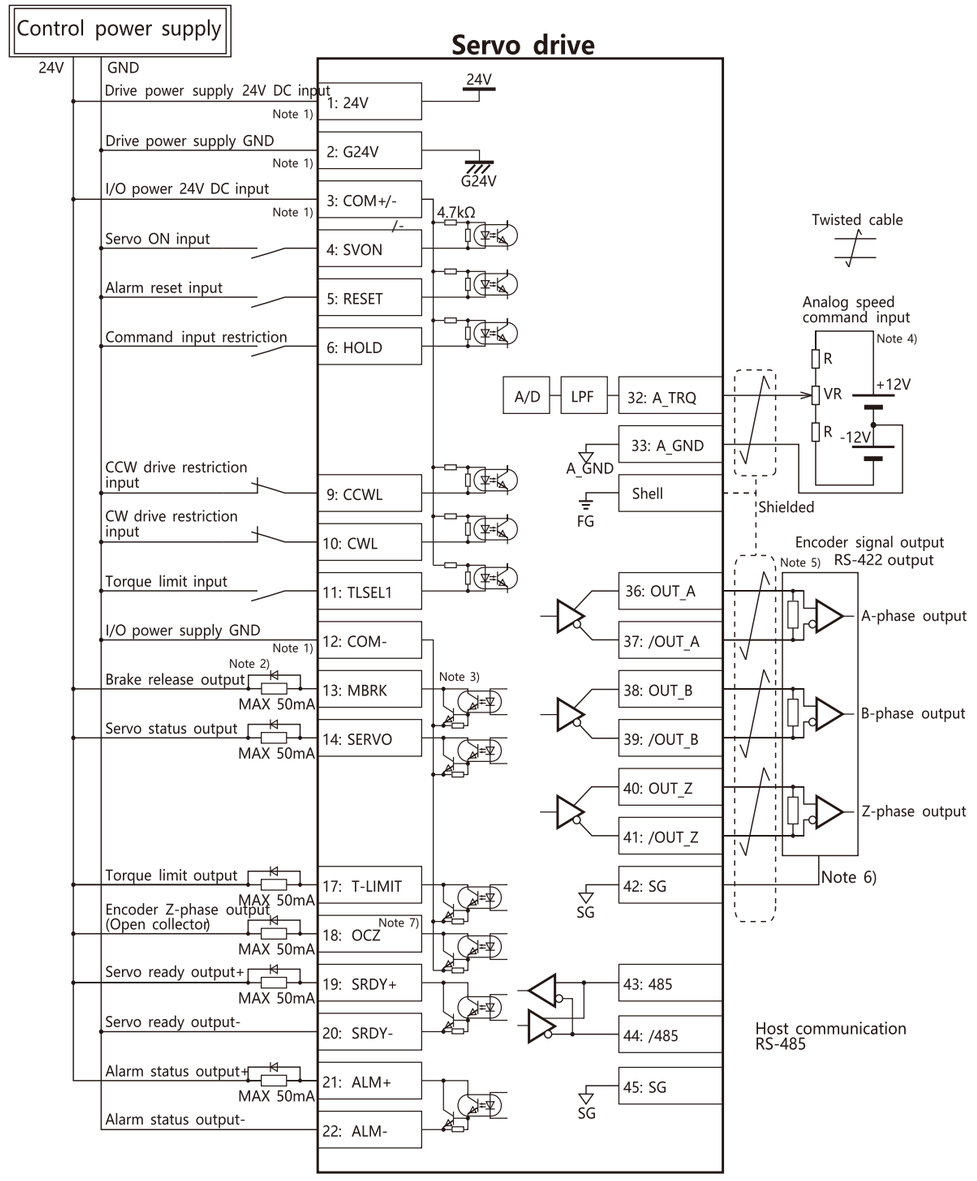
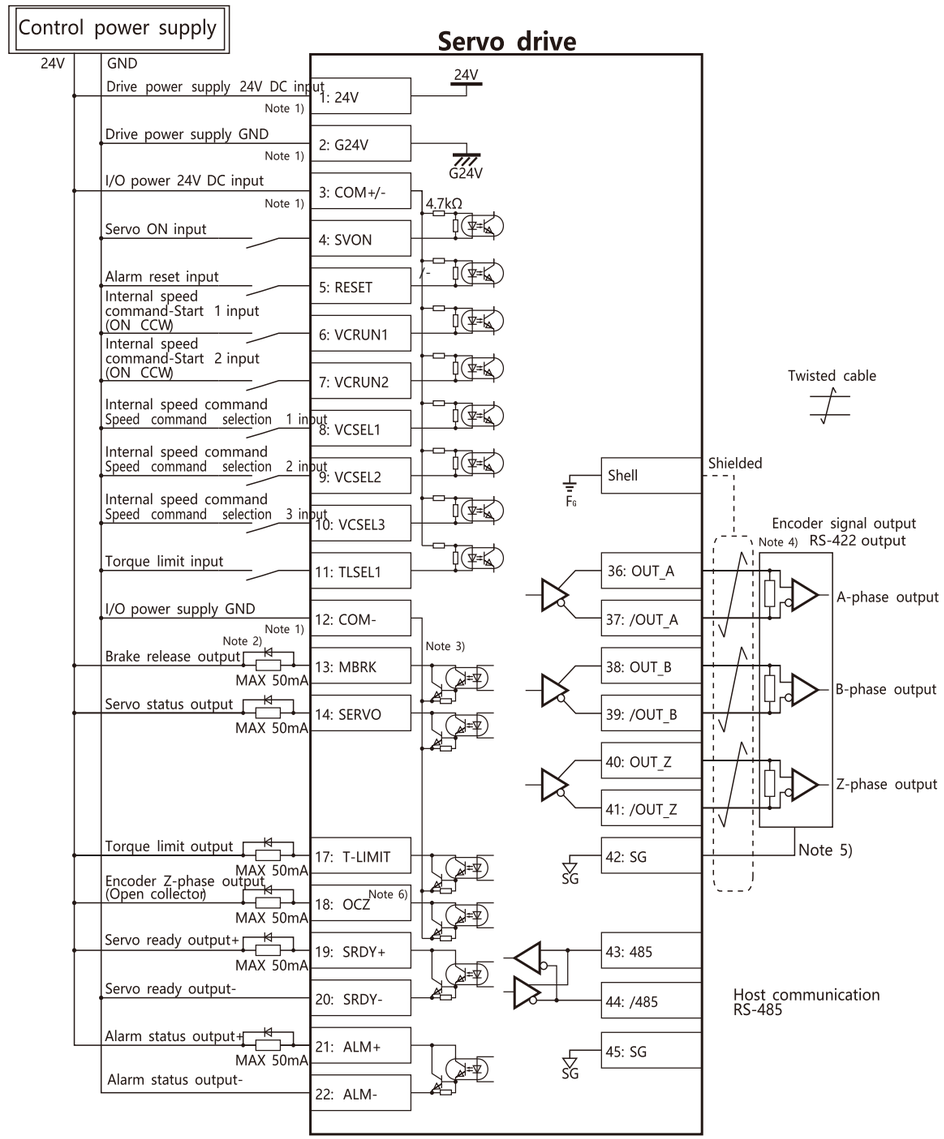


Diagram of internal speed mode



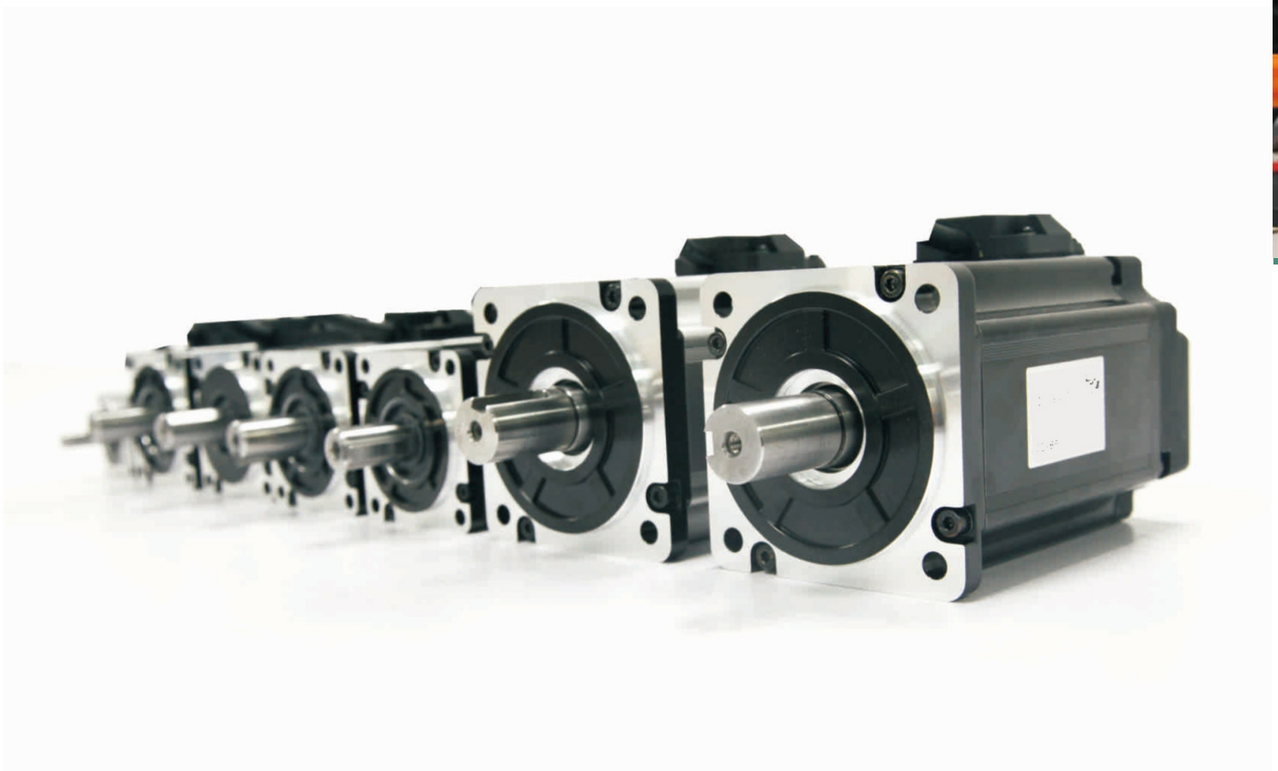
Note 1) Control power supply(24V, G24V) and I/O power (COM+, COM-) share the same power supply(For the models of 750W or less).
Note 2) If there is drive inductive load(relay), please use protective circuits(diode).
Note 3) Transistor output is an open collector output circuit of the Darlington-connected. It should be connected with relay or optocoupler. Please don?t connect transistor directly because the voltage VCE(SAT) between collector and emitter is about 1V which cannot meet the required voltage VIL of TTL IC when transistor is ON.
Note 4) Terminal resistance must be connected as shown in the wiring diagram.
Note 5) Connect the signal ground on the host control device of output signal of the encoder. The connection of signal ground and power supply GND may cause malfunction.

Connector CN1 pins layout

Description of User I/O connector (CN1) terminal arrangements

26 CMD_PLS	28 CC-P	30 CMD_DIR	32 A_SPEED	34 A_TRQ	36 OUT_A	38 OUT_B	40 OUT_Z	42 SG	44 /485	46 G24	48 SP4	50 EDM-													
	27 /CMD_PLS	29 CC-D	31 /CMD_DIR	33 A_GND	35 A_GND	37 OUT_/A	39 OUT_/B	41 OUT_/Z	43 485	45 SG	47 SP3	49 EDM+													
1 VCC	3 COM1	5 I2(RESET)	7 I4(PCLR)	9 I6(CCWL)	11 I8(TLSEL1)	13 01(MBRK)	15 03(POSIN)	17 05	19 07+(SRDY+)	21 08+(ALM+)	23 VCC	25 SP2													
	2 G24	4 I1(SVON)	6 I3(HOLD)	8 I5	10 I7(CWL)	12 COM2	14 02(SERVO)	16 04	18 06(OCZ)	20 07-(SRDY-)	22 08-(ALM-)	24													

Connector



PSM-B series Servo Motor

Our company has produced magnetic encoder of 17bit resolution with excellent environmental resistance (no matter in dust, oil mist or vibration).We also produce the PSM-B servo motor of high quality by means of its simple production structure and international brands of raw materials.

Motor model identification method

PSM-B60	–	2	–	013	L	30	B	–	I1
SE series		Power supply		Inertia	Inertia	Rated speed	Brake		Encoder

Flange size:
40mm
60mm
80mm
130mm

2	AC220V
4	AC380V

002	0.16N.m
003	0.32N.m
006	0.64N.m
013	1.27N.m
024	2.39N.m
048	4.76N.m
072	7.15N.m
095	9.45N.m

L	Low
M	Medium
H	High

20	2000rpm
30	3000rpm

B	Brake
Null	No brake

I1	Incremental 17bits
A1	Absolute 17bits

Environmental conditions

Items	Units	Specification	
Ambient temperature for use	℃	0~40(Without condensation) Note 1)	
Ambient humidity for use	%RH	20~85(Without condensation)	
Ambient temperature for storage	℃	-20~65(Highest temperature guaranteed: 80 degrees, 72hours) Note 2)	
Ambient humidity for storage	%RH	20~85(Without condensation)	
Atmosphere for use/storage	—	Indoors(Not subject to rainwater or direct sunlight); free from corrosive gas, flammable gas, flammables, grinding fluid, oil mist, or dust	
Insulation class	—	Class B	
Insulation resistance	—	1000 VDC megger 5MΩ or more	
Dielectric strength	—	At 1500 V AC 50/60 Hz for 1 minute 10mA or less	
Vibration class	—	V 15	
Vibration resistance	m/s^2	49 (5G)	
Impact resistance	m/s^2	98 (10G)	
Protective construction	—	IP65(Excluding shaft penetrating section and connectors)	
Time rating	—	Continuous	CCW 
Operating position	—	All directions	
Direction of rotation	—	Normal: CW, Reverse: CCW	

*Note 1) The temperature for use is the temperature measured at a point 5cm apart from the motor.
*Note 2) This is a temperature that can be tolerated only for a short period such as during transportation.

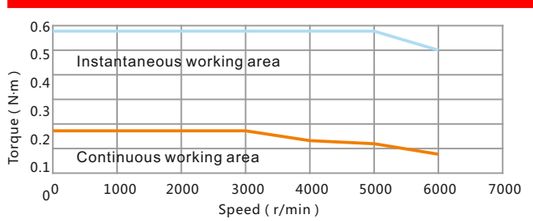
Encoder specifications

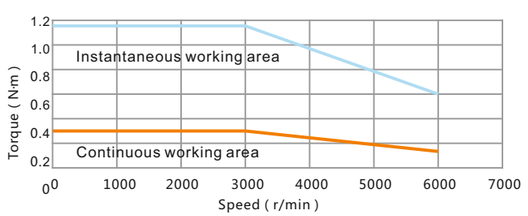
Items		Units	Specification		
Motor Model Name		—	PSM-B□□□□□□□I1	PSM-B□□□□□□□A1	
Encoder specification		—	17 bit (incremental)	17 bit (absolute)	
Encoder room temperature		℃	0~85		
Resistance to external magnetic field		mT	±2 (20G) or less		
Rated voltage		V	DC 4.5V~5.5V		
External battery voltage		V	—	DC 2.4V~5.5V	
Current consumption		mA	160 typ		
State of low power consumption		μA	—	Typ 10μA	
Single revolution resolution		—	131,072(17bit)		
Multi-revolution count		count/turn	—	65,536 Count	 Count-up direction CCW
Maximum speed		r/min	6,000		
Input/ Output form			EIA - 422B(half-duplex)		
Count-up direction		—	CCW		
Communication specification	Transmission method	—	Half-duplex asynchronous serial communication		
	Communication speed	Mbps	2.5		

Motor specification (50-100W)

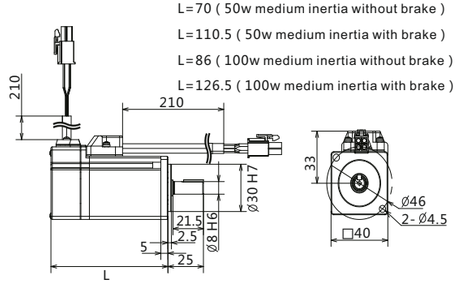
Item		Unit	50W medium inertia	100W medium inertia
Motor model		/	PSM-B40-2-002M30(B)	PSM-B40-2-003M30(B)
Mounting flange size		mm	40	40
Weight	No brake	kg	0.4	0.5
	With brake		0.6	0.8
Rated voltage		V	AC200~240V	AC200~240V
Rated power		W	50	100
Rated torque		N·m	0.16	0.32
Momentary maximum torque		N·m	0.56	1.12
Rated current		Arms	0.68	0.95
Momentary maximum current		Arms	2.4	3.2
Rated speed		r/min	3000	3000
Max. speed		r/min	6000	6000
Torque constant		N·m/A	0.25	0.36
Induction voltage constant of each phase		mV/(r/min)	8.8	12.5
Rated power ratio	No brake	KW/s	5.6	13.6
	With brake		4.7	12.3
Mechanical time constant	No brake	ms	2.6	1.69
	With brake		3.06	1.87
Electrical time constant		ms	0.64	0.76
Rotor inertia	No brake	$\times10^{-4}kg\cdot m^2$	0.045	0.074
	With brake		0.053	0.082
Brake specifications	Function	-	For keeping the stopped state	not for stopping the motor
	Rated voltage	V	DC24V±10%	DC24V±10%
	Rated current	A	0.25	0.25
	Static friction torque	N·m	Above 0.16	Above 0.30
	Close time	ms	Below 35ms (at DC24V)	Below 35ms (at DC24V)
	Release time	ms	Below 20ms (at DC24V)	Below 20ms (at DC24V)
	Release voltage	V	Above DC1V	Above DC1V

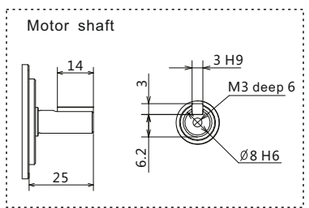
NT characteristics and dimensions





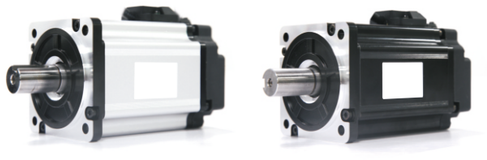
L=70 (50w medium inertia without brake)
L=110.5 (50w medium inertia with brake)
L=86 (100w medium inertia without brake)
L=126.5 (100w medium inertia with brake)

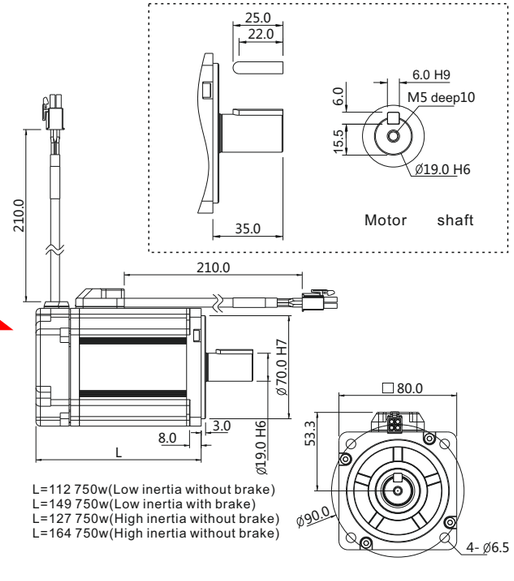




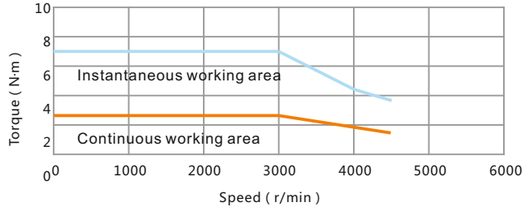
Motor specification 750W

Item		Unit	750W low inertia	750W high inertia
Motor model		/	PSM-B80-2-024L30(B)	PSM-B80-2-024H30(B)
Mounting flange size		mm	80	80
Weight	No brake	kg	2.5	2.7
	With brake		3.3	3.5
Rated voltage		V	AC200~240V	AC200~240V
Rated power		W	750	750
Rated torque		N·m	2.39	2.39
Momentary maximum torque		N·m	7.1	7.1
Rated current		Arms	4.3	4.3
Momentary maximum current		Arms	12.8	12.8
Rated speed		r/min	3000	3000
Max. speed		r/min	4500	4500
Torque constant		N·m/A	0.6	0.6
Induction voltage constant of each phase		mV/(r/min)	21.3	21.3
Rated power ratio	No brake	KW/s	64.1	35.6
	With brake		52.8	32.1
Mechanical time constant	No brake	ms	0.53	0.94
	With brake		0.64	1.06
Electrical time constant		ms	4.3	4.3
Rotor inertia	No brake	$\times10^{-4}kg\cdot m^2$	0.89	1.59
	With brake		1.08	1.78
Brake specifications	Function	-	For keeping the stopped state	not for stopping the motor
	Rated voltage	V	DC24V±10%	DC24V±10%
	Rated current	A	0.4	0.4
	Static friction torque	N·m	Above 2.39	Above 2.39
	Close time	ms	Below 70ms (at DC24V)	Below 70ms (at DC24V)
	Release time	ms	Below 20ms (at DC24V)	Below 20ms (at DC24V)
	Release voltage	V	Above DC1V	Above DC1V



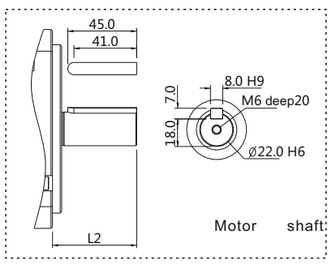


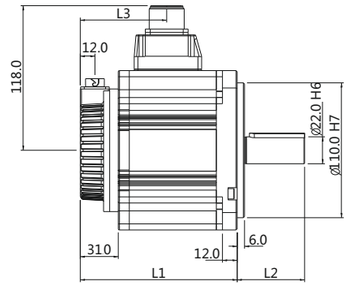
NT characteristics and dimensions



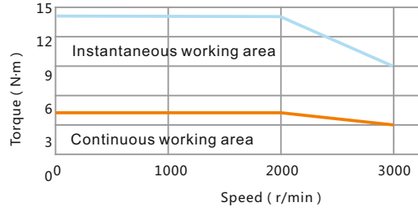
Motor specification 1000W

Item		Unit	1000W medium inertia	1000W high inertia
Motor model		/	PSM-B130-2-048M20(B)	PSM-B130-2-048H20(B)
Mounting flange size		mm	130	130
Weight	No brake	kg	5.6	7.6
	With brake		7	9
Rated voltage		V	AC200~240V	AC200~240V
Rated power		W	1000	1000
Rated torque		N·m	4.76	4.76
Momentary maximum torque		N·m	14.3	14.3
Rated current		Arms	5.6	5.6
Momentary maximum current		Arms	15.9	15.9
Rated speed		r/min	2000	2000
Max. speed		r/min	3000	3000
Torque constant		N·m/A	0.88	0.88
Induction voltage constant of each phase		mV/(r/min)	30.9	30.9
Rated power ratio	No brake	KW/s	50	9.4
	With brake		36.5	8.6
Mechanical time constant	No brake	ms	0.76	4.21
	With brake		1.05	4.43
Electrical time constant		ms	10.2	10.2
Rotor inertia	No brake	$\times10^{-4}kg\cdot m^2$	4.57	24.9
	With brake		6.24	26.4
Brake specifications	Function	-	For keeping the stopped state	not for stopping the motor
	Rated voltage	V	DC24V±10%	DC24V±10%
	Rated current	A	1	1
	Static friction torque	N·m	Above 9.55	Above 9.55
	Close time	ms	Below 120ms (at DC24V)	Below 120ms (at DC24V)
	Release time	ms	Below 30ms (at DC24V)	Below 30ms (at DC24V)
	Release voltage	V	Above DC1V	Above DC1V

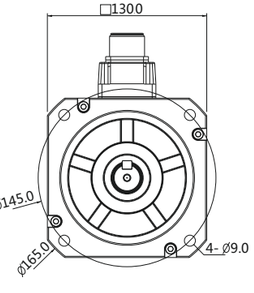




NT characteristics and dimensions

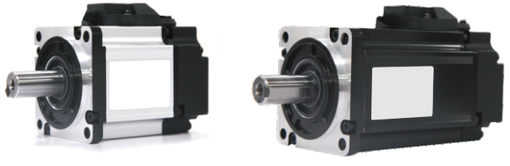


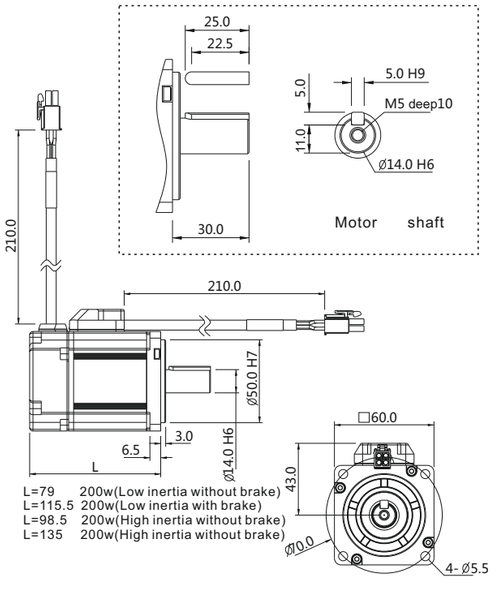
Model	L1	L2	L3
PSM-B130-2-048M20	128	55	70.5
PSM-B130-2-048M20B	153	55	95.5
PSM-B130-2-048H20	163	70	70.5
PSM-B130-2-048H20B	188	70	95.5



Motor specification 200W

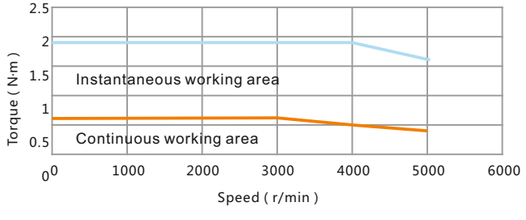
Item		Unit	200W low inertia	200W high inertia
Motor model		/	PSM-B60-2-006L30(B)	PSM-B60-2-006H30(B)
Mounting flange size		mm	60	60
Weight	No brake	kg	0.9	1
	With brake		1.4	1.5
Rated voltage		V	AC200~240V	AC200~240V
Rated power		W	200	200
Rated torque		N·m	0.64	0.64
Momentary maximum torque		N·m	1.9	1.9
Rated current		Arms	1.72	1.72
Momentary maximum current		Arms	5.15	5.15
Rated speed		r/min	3000	3000
Max. speed		r/min	6000	6000
Torque constant		N·m/A	0.41	0.41
Induction voltage constant of each phase		mV/(r/min)	14.5	14.5
Rated power ratio	No brake	KW/s	23.8	9.3
	With brake		19.5	8.6
Mechanical time constant	No brake	ms	1.12	2.87
	With brake		1.37	3.12
Electrical time constant		ms	1.99	1.99
Rotor inertia	No brake	$\times10^{-4}kg\cdot m^2$	0.17	0.43
	With brake		0.21	0.47
Brake specifications	Function	-	For keeping the stopped state	not for stopping the motor
	Rated voltage	V	DC24V±10%	DC24V±10%
	Rated current	A	0.3	0.3
	Static friction torque	N·m	Above 1.26	Above 1.26
	Close time	ms	Below 50ms (at DC24V)	Below 50ms (at DC24V)
	Release time	ms	Below 15ms (at DC24V)	Below 15ms (at DC24V)
	Release voltage	V	Above DC1V	Above DC1V





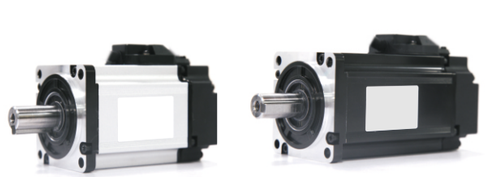
L=79 200w(Low inertia without brake)
L=115.5 200w(Low inertia with brake)
L=98.5 200w(High inertia without brake)
L=135 200w(High inertia without brake)

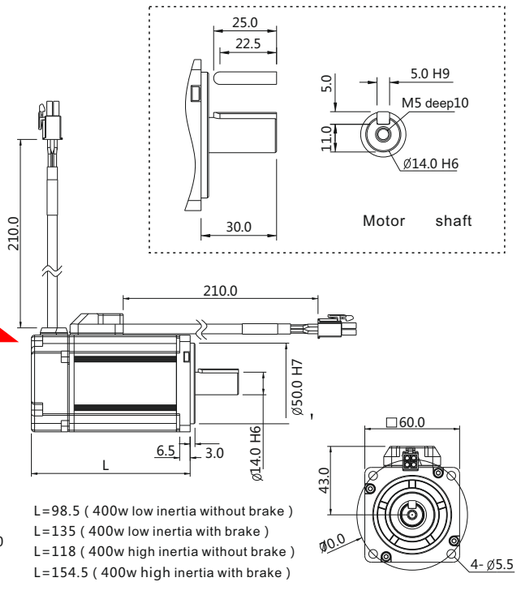
NT characteristics and dimensions



Motor specification 400W

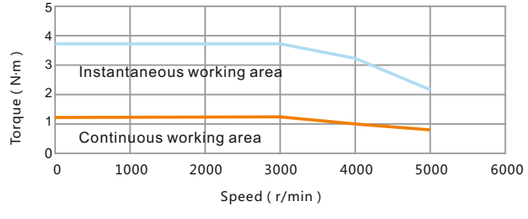
Item		Unit	400W low inertia	400W high inertia
Motor model		/	PSM-B60-2-013L30(B)	PSM-B60-2-013H30(B)
Mounting flange size		mm	60	60
Weight	No brake	kg	1.3	1.5
	With brake		1.8	2
Rated voltage		V	AC200~240V	AC200~240V
Rated power		W	400	400
Rated torque		N·m	1.27	1.27
Momentary maximum torque		N·m	3.82	3.82
Rated current		Arms	2.7	2.7
Momentary maximum current		Arms	8	8
Rated speed		r/min	3000	3000
Max. speed		r/min	6000	6000
Torque constant		N·m/A	0.49	0.49
Induction voltage constant of each phase		mV/(r/min)	17.4	17.4
Rated power ratio	No brake	KW/s	58.7	23.5
	With brake		51.9	22.4
Mechanical time constant	No brake	ms	0.67	1.66
	With brake		0.75	1.75
Electrical time constant		ms	2.47	2.47
Rotor inertia	No brake	$\times10^{-4}kg\cdot m^2$	0.28	0.69
	With brake		0.31	0.72
Brake specifications	Function	-	For keeping the stopped state	not for stopping the motor
	Rated voltage	V	DC24V±10%	DC24V±10%
	Rated current	A	0.3	0.3
	Static friction torque	N·m	Above 1.26	Above 1.26
	Close time	ms	Below 50ms (at DC24V)	Below 50ms (at DC24V)
	Release time	ms	Below 15ms (at DC24V)	Below 15ms (at DC24V)
	Release voltage	V	Above DC1V	Above DC1V





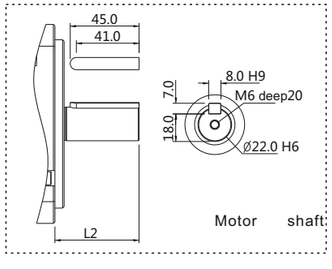
L=98.5 (400w low inertia without brake)
L=135 (400w low inertia with brake)
L=118 (400w high inertia without brake)
L=154.5 (400w high inertia with brake)

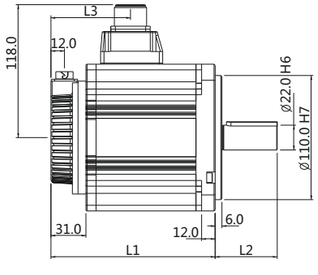
NT characteristics and dimensions



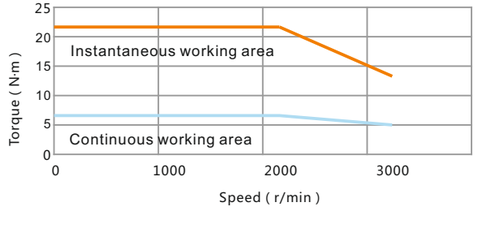
Motor specification 1500W

Item		Unit	1500W medium inertia	1500W high inertia
Motor model		/	PSM-B130-2-072M20(B)	PSM-B130-2-072H20(B)
Mounting flange size		mm	130	130
Weight	No brake	kg	7	9
	With brake		8.4	10.4
Rated voltage		V	AC200~240V	AC200~240V
Rated power		W	1500	1500
Rated torque		N·m	7.15	7.15
Momentary maximum torque		N·m	21.5	21.5
Rated current		Arms	9.9	9.9
Momentary maximum current		Arms	27.3	27.3
Rated speed		r/min	2000	2000
Max. speed		r/min	3000	3000
Torque constant		N·m/A	0.81	0.81
Induction voltage constant of each phase		mV/(r/min)	28.4	28.4
Rated power ratio	No brake	KW/s	76.9	13.7
	With brake		61.5	13.2
Mechanical time constant	No brake	ms	0.6	3.32
	With brake		0.75	3.48
Electrical time constant		ms	12.2	12.2
Rotor inertia	No brake	$\times10^{-4}kg\cdot m^2$	4.56	37.1
	With brake		8.38	38.69
Brake specifications	Function	-	For keeping the stopped state	not for stopping the motor
	Rated voltage	V	DC24V±10%	DC24V±10%
	Rated current	A	1	1
	Static friction torque	N·m	Above 9.55	Above 9.55
	Close time	ms	Below 120ms (at DC24V)	Below 120ms (at DC24V)
	Release time	ms	Below 30ms (at DC24V)	Below 30ms (at DC24V)
	Release voltage	V	Above DC1V	Above DC1V

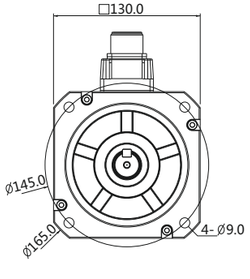




NT characteristics and dimensions

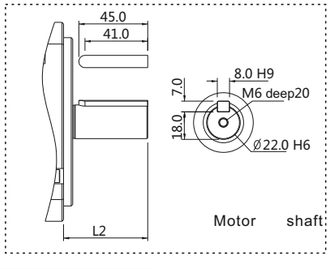


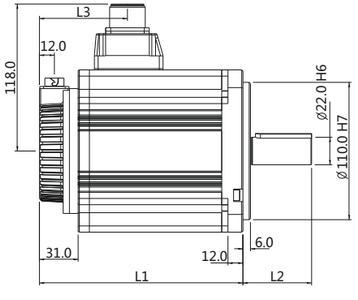
Model	L1	L2	L3
PSM-B130-2-072M20	145.5	55	70.5
PSM-B130-2-072M20B	170.5	55	95.5
PSM-B130-2-072H20	180.5	70	70.5
PSM-B130-2-072H20B	205.5	70	95.5



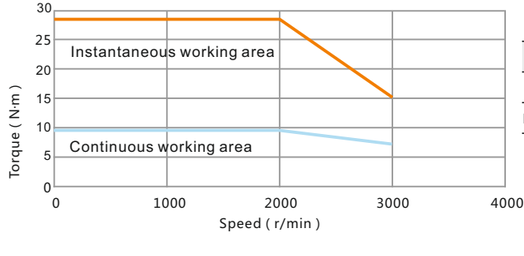
Motor specification 2000W

Item		Unit	2000W medium inertia
Motor model		/	PSM-B130-2-095M20(B)
Mounting flange size		mm	130
Weight	No brake	kg	8.4
	With brake		9.8
Rated voltage		V	AC200~240V
Rated power		W	2000
Rated torque		N·m	9.45
Momentary maximum torque		N·m	28.6
Rated current		Arms	12.2
Momentary maximum current		Arms	35.7
Rated speed		r/min	2000
Max. speed		r/min	3000
Torque constant		N·m/A	0.85
Induction voltage constant of each phase		mV/(r/min)	29.6
Rated power ratio	No brake	KW/s	104.9
	With brake		86.9
Mechanical time constant	No brake	ms	0.58
	With brake		0.71
Electrical time constant		ms	12.2
Rotor inertia	No brake	$\times10^{-4}kg\cdot m^2$	8.7
	With brake		10.35
Brake specifications	Function	-	For keeping the stopped state (not for stopping)
	Rated voltage	V	DC24V±10%
	Rated current	A	1
	Static friction torque	N·m	Above 9.55
	Close time	ms	Below 120ms (at DC24V)
	Release time	ms	Below 30ms (at DC24V)
	Release voltage	V	Above DC1V

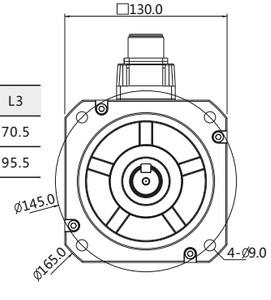




NT characteristics and dimensions



Model	L1	L2	L3
PSM-B130-2-095M20	163	55	70.5
PSM-B130-2-095M20B	188	55	95.5



750w and below

Item	Pin	Sign	Content	Motor connector model	Connector model	Manufacturer
Motor power input	1	U	U phase	NA	NA	NA
	2	V	V phase			
	3	W	W phase			
	4	FG	Motor frame ground			
Brake[Note1]	1	BRK+	Brake power DC24V	NA	NA	NA
	2	BRK-	Brake power GND			
Encoder (incremental)	1	-	Nc	NA	NA	NA
	2	+D	Serial communication data+			
	3	-D	Serial communication data-			
	4	VCC	Encoder power 5V			
	5	GND	GND			
	6	SHIELD	SHIELD			
Encoder (absolute)	1	BAT	External battery[Note2]	NA	NA	NA
	2	CAP	External capacitor[Note2]			
	3	SHIELD	SHIELD			
	4	+D	Serial communication data+			
	5	-D	Serial communication data-			
	6	IC	Internal connection[Note3]			
	7	VCC	Encoder power 5V			
	8	GND	GND			
	9	IC	Internal connection[Note3]			

1000W and above

Item	Pin	Sign	Content	Motor connector model	Connector model	Manufacturer
Motor power input	A	U	U phase	NA	NA	NA
	B	V	V phase			
	C	W	W phase			
	D	FG	Motor frame ground			
Brake	1	BRK+	Brake power DC24V	NA	NA	NA
	2	BRK-	Brake power GND			
Encoder(Incremental)	1	VCC	Encoder power 5V	NA	NA	NA
	2	GND	GND			
	3	-	NC			
	4	-	NC			
	5	+D	Serial communication data+			
	6	-D	Serial communication data-			
	7	-	NC			
	8	-	NC			
	9	-	NC			
	10	SHIELD	SHIELD			
Encoder(Absolute)	1	VCC	Encoder power 5V			
	2	GND	GND			
	3	CAP	External capacitor[Note2]			
	4	BAT	External battery[Note2]			
	5	+D	Serial communication data+			
	6	-D	Serial communication data-			
	7	IC	Internal connection[Note3]			
	8	IC	Internal connection[Note3]			
	9	GND	GND			
	10	SHIELD	SHIELD			

Note 1) For a motor with brake.

Note 2) Please use GND as the reference potential for external capacitors and batteries.

Note 3) Internal wiring (IC) refers to the internal connection to the control board, so please do not connect any equipment here。

Peripheral equipment and wiring instructions

Items	Description
Peripheral device	Conform to European EC Directive. Select the device which meets corresponding standards and install them in accordance with User's Manual.
Installation environment	Install the servo drive to the environment which conform to Pollution degree 2 or 1 of IEC60664-1.
Power supply 1: 200～240VAC (main circuit)	This product can be used under the conditions that conform to IEC60664-1 and overvoltage category Ⅱ.
Power supply 2: 24VDC control power supply of drive I/O power supply Power supply for brake release	The specification of 24VDC external power supply should satisfy the following conditions. Using SELV power supply(※) and power less than 150W. This is the CE corresponding conditions. ※SELV: safety extra low voltage (Reinforced insulation is needed for safety extra low voltage, non-dangerous voltage and dangerous voltage.)
Wiring	Please use withstand voltage cables which are equivalent to AWG18/600V or AWG14/600V for motor power cable, encoder cable, AC220 input cable, FG cable and main circuit power distribution cable under multi-axis drive structure respectively when drives are less than 750W or more than 1kW .
Breaker	Switch off the power supply to protect power cord when overcurrent occurs. Make sure to use the breaker between power supply and interference filter that conforms to IEC specification and UL recognition in accordance with the User manual. Please use the breaker with leakage function recommended by Pentax in order to meet EMC standards.
Interference filter	To prevent the outside interference from power cables. Please use the interference filter recommended by Pentax in order to meet EMC standards.
Magnetic contactor	Switch main power supply (ON/OFF). And use it after installing a surge absorber.
Surge absorber	Please use the surge absorber recommended by Pentax in order to meet EMC standards.
Interference filter for signal cable / ferrite filter	Please use the interference filter recommended by Pentax in order to meet EMC standards.
Regenerative resistor	This product is not equipped with regenerative resistor. The external regenerative resistor is necessary when the internal capacitor cannot absorb more regenerative power. Confirm the regenerative status on the panel. When the regenerative voltage alarm is ON, a regenerative resistor is needed. For the reference specification of regenerative resistor, please refer to user manual. Use a built-in thermostat and set overheat protect circuit.
Grounding	This product belongs to Class 1 and need grounding protection. Using protection grounding terminal. Grounding should be executed by the case and cabinet that conforms to EMC. The following symbol indicates the protection grounding terminal.

Standard Servo Drive Selection Table

Image	Model	Color	Description	Specification
	PSD-BP005A2-A	gray	50W pulse servo drive	Drive power: single-phase AC 200V～240V input Control mode: three-phase PWM frequency conversion sine wave drive Control signal: input optocoupler isolation input, output DC24V open collector Pulse signal: RS-422 differential, open collector Communication function: USB.RS485 (multi-point control) Regeneration function: external regenerative resistance Control mode: position、speed, torque
	PSD-BP010A2-A	gray	100W pulse servo drive	
	PSD-BP020A2-A	gray	200W pulse servo drive	
	PSD-BP040A2-A	gray	400W pulse servo drive	
	PSD-BP075A2-A	gray	750W pulse servo drive	
	PSD-BP100A2-A	gray	1KW pulse servo drive	Drive power: single-phase AC 200V～240V input Control mode: three-phase PWM frequency conversion sine wave drive Control signal: input optocoupler isolation input, output DC24V open collector Pulse signal: RS-422 differential, open collector Communication function: USB.RS485 (multi-point control) Regeneration function: external regenerative resistance Control mode: position control、speed, torque
	PSD-BP150A2-A	gray	1.5KW pulse servo drive	
	PSD-BP200A2-A	gray	2KW pulse servo drive	

Classic Servo Drive Selection Table

Image	Model	Color	Description	Specification
	PSD-BP005A2-B	black	50W pulse servo drive	Drive power: single-phase AC 200V～240V input Control mode: three-phase PWM frequency conversion sine wave drive Control signal: input optocoupler isolation input, output DC24V open collector Pulse signal: RS-422 differential, open collector Communication function: USB.RS485 (multi-point control) Regeneration function: external regenerative resistance Control mode: position
	PSD-BP010A2-B	black	100W pulse servo drive	
	PSD-BP020A2-B	black	200W pulse servo drive	
	PSD-BP040A2-B	black	400W pulse servo drive	
	PSD-BP075A2-B	black	750W pulse servo drive	

50W motor selection table

Image	Model	Color	Inertia	Brake	Encoder	Key	Oil seal
	PSM-B40-2-002M30-I1	black	medium	○	Incremental 17-bit	•	•
	PSM-B40-2-002M30B-	black	medium	•	Incremental 17-bit	•	•
	PSM-B40-2-002M30-	black	medium	○	Absolute 17-bit	•	•
	PSM-B40-2-002M30B-	black	medium	•	Absolute 17-bit	•	•

100W motor selection table

Image	Model	Color	Inertia	Brake	Encoder	Key	Oil seal
	PSM-B40-2-003M30-	black	medium	○	Incremental 17-bit	•	•
	PSM-B40-2-003M30B-	black	medium	•	Incremental 17-bit	•	•
	PSM-B40-2-003M30-	black	medium	○	Absolute 17-bit	•	•
	PSM-B40-2-003M30B-	black	medium	•	Absolute 17-bit	•	•

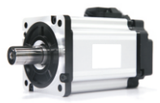
200W motor selection table

Image	Model	Color	Inertia	Brake	Encoder	Key	Oil seal
	PSM-B60-2-006L30-I1	Silver	low	○	Incremental 17-bit	•	•
	PSM-B60-2-006L30B-	Silver	low	•	Incremental 17-bit	•	•
	PSM-B60-2-006L30-	Silver	low	○	Absolute 17-bit	•	•
	PSM-B60-2-006L30B-	Silver	low	•	Absolute 17-bit	•	•
	PSM-B60-2-006H30-	Silver	high	○	Incremental 17-bit	•	•
	PSM-B60-2-006H30B-	Silver	high	•	Incremental 17-bit	•	•
	PSM-B60-2-006H30-	Silver	high	○	Absolute 17-bit	•	•
	ES60-2-006H30B-A1	Silver	high	•	Absolute 17-bit	•	•

400W motor selection table

Image	Model	Color	Inertia	Brake	Encoder	Key	Oil seal
	SE60-2-013L30-I1	Silver	low	○	Incremental 17-bit	•	•
	SE60-2-013L30B-I1	Silver	low	•	Incremental 17-bit	•	•
	SE60-2-013L30-A1	Silver	low	○	Absolute 17-bit	•	•
	SE60-2-013L30B-A1	Silver	low	•	Absolute 17-bit	•	•
	SE60-2-013H30-I1	Silver	high	○	Incremental 17-bit	•	•
	SE60-2-013H30B-I1	Silver	high	•	Incremental 17-bit	•	•
	SE60-2-013H30-A1	Silver	high	○	Absolute 17-bit	•	•
	SE60-2-013H30B-A1	Silver	high	•	Absolute 17-bit	•	•

750W motor selection table

Image	Model	Color	Inertia	Brake	Encoder	Key	Oil seal
	SE80-2-024L30-I1	Silver	low	○	Incremental 17-bit	•	•
	SE80-2-024L30B-I1	Silver	low	•	Incremental 17-bit	•	•
	SE80-2-024L30-A1	Silver	low	○	Absolute 17-bit	•	•
	SE80-2-024L30B-A1	Silver	low	•	Absolute 17-bit	•	•
	SE80-2-024H30-I1	Silver	high	○	Incremental 17-bit	•	•
	SE80-2-024H30B-I1	Silver	high	•	Incremental 17-bit	•	•
	SE80-2-024H30-A1	Silver	high	○	Absolute 17-bit	•	•
	SE80-2-024H30B-A1	Silver	high	•	Absolute 17-bit	•	•

1000W motor selection table

Image	Model	Color	Inertia	Brake	Encoder	Key	Oil seal
	SE130-2-048M20-I1	black	medium	○	Incremental 17-bit	•	•
	SE130-2-048M20B-I1	black	medium	•	Incremental 17-bit	•	•
	SE130-2-048M20-A1	black	medium	○	Absolute 17-bit	•	•
	SE130-2-048M20B-A1	black	medium	•	Absolute 17-bit	•	•
	SE130-2-048H20-I1	black	high	○	Incremental 17-bit	•	•
	SE130-2-048H20B-I1	black	high	•	Incremental 17-bit	•	•
	SE130-2-048H20-A1	black	high	○	Absolute 17-bit	•	•
	SE130-2-048H20B-A1	black	high	•	Absolute 17-bit	•	•

1500W motor selection table

Image	Model	Color	Inertia	Brake	Encoder	Key	Oil seal
	SE130-2-072M20-I1	black	medium	○	Incremental 17-bit	•	•
	SE130-2-072M20B-I1	black	medium	•	Incremental 17-bit	•	•
	SE130-2-072M20-A1	black	medium	○	Absolute 17-bit	•	•
	SE130-2-072M20B-A1	black	medium	•	Absolute 17-bit	•	•
	SE130-2-072H20-I1	black	high	○	Incremental 17-bit	•	•
	SE130-2-072H20B-I1	black	high	•	Incremental 17-bit	•	•
	SE130-2-072H20-A1	black	high	○	Absolute 17-bit	•	•
	SE130-2-072H20B-A1	black	high	•	Absolute 17-bit	•	•

2000W motor selection table

Image	Model	Color	Inertia	Brake	Encoder	Key	Oil seal
	SE130-2-095M20-I1	black	medium	○	Incremental 17-bit	•	•
	SE130-2-095M20B-I1	black	medium	•	Incremental 17-bit	•	•
	SE130-2-095M20-A1	black	medium	○	Absolute 17-bit	•	•
	SE130-2-095M20B-A1	black	medium	•	Absolute 17-bit	•	•