Stable quality is fundamental to our survival

Quality service is the premise of our continued development

Customer satisfaction is our only goal

ONKE 欧诺克

Product gallery

Specialising in servo drives, servo motors and automation control systems.

DC Brushless Servo Drive Motor

Shenzhen ONKE Technology Co., Ltd.

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深圳市欧诺克科技有限公司
Shenzhen ONKE Technology Co., Ltd.

Directory

匠心制造
Craftsmanship

精益求精
Excellence

COMPANY PROFILE

Company Prople

Ltd. was founded in 2010, is a professional R & D production and sales of motors and drives of high-tech enterprises, research and development and production of cost-effective various types of motors and drives, keen insight into the market, with the times innovation to meet market demand.

Main business: DC servo drive, DC servo motor, AC servo drive, AC servo motor, linear motor drive, voice coil motor drive, DC brushless drive, DC brushless motor, steering wheel motor drive all-in-one, gearhead motor drive all-in-one, motor drive all-in-one, CANopen bus, EtherCAT bus, dedicated motion control servo system and automation control system. Over the past ten years, we have established mutually beneficial and win-win co-operation with many famous domestic and foreign companies by virtue of our exquisite technology.

Continuously research and develop all kinds of motors and actuators to meet the needs of 'mobile robot (AGV/AMR)' and other industries. Help customers to improve the quality of space and production efficiency. The spirit of customer service, service to society, for customers to solve problems as a responsibility, is the large and medium-sized enterprises preferred partner.

Company culture

Business philosophy: customer-centred! To meet the needs of our customers with honesty, high quality and satisfactory service.

Company goal: to create a first-class servo motor, drive manufacturers.

Company's values: achievement of customers, committed to customer satisfaction and success.

Entrepreneurial innovation: the pursuit of speed and efficiency, focusing on innovation that has an impact on customers and the company.

Precision and truthfulness: Fact-based decision-making and business management.

Honesty and Integrity: Build trust and responsible business.

Enterprise Mission: Continuous commitment to leading technology and service excellence for the enhancement of human manufacturing.

Enterprise Core: Responsibility is the root and integrity is the foundation.

Enterprise Spirit: Innovation changes the world, passion creates the future.

OUR TEAM

Our team

We are a professional team, our members have many years of servo drive, servo motor professional and technical background, from the domestic well-known servo drive, servo motor company's first-line backbone.

We are a young team, our average age is only 30 years old, full of vitality and innovative spirit. We are a dedicated team, we firmly believe that the brand of servo drives and servo motors comes from the trust of customers.

We are a dream team, we come from all over the world, because there is a common dream, to be a really good servo drive, servo motor enterprises, to provide customers with the most reliable servo drive, servo motor products.

Quality Control

Quality control is meticulous

Our mission

Implementing progress of precise transmission,
Help made in China.
Let mankind eijoy a better life and realize more dreams

Rigour is a pursuit, and excellence is an attitude!
With a complete production chain of servo drives and motors, the company has been practising the beauty of transmission for ten years without forgetting its original intention, and has made every effort to control the quality meticulously!

Patents for inventions

- Non-sinusoidal vibration drive control system

Utility model

- A simple economic servo drive
- A servo motor with electronically controlled contacts for easy welding
- A kind of wheel cutting flying shear servo system control component
- A kind of wheel cutting flying shear servo system controller
- A servo motor with controllable magnetic flux
- A DC bus servo drive

Software works

- CNC wire machine control system software V1.0
- CNC Screw Machine Control System Software V1.0
- CNC Wire Cutting Machine Control System Software V1.0
- CNC Shear Chase Control System Software V1.0
- Servo system debugging test software V1.0
- Intelligent Servo Drive Inspection and Maintenance Software V1.0

Comprehensive introduction of servo integrated machine

Comprehensive introduction of servo integrated machine

BY series servo all-in-one is a universal, high-performance, DC-powered, compact, all-digital servo drive all-in-one; brushless servo motors for position, speed, and torque control, and can support incremental encoders.

Servo machine model description

BY C 10 60B 1R3 30 C 5 -C B NS

- **BY** — A series of: BY
- **C** — Input order: P:Pulse A:Analog C:CANopen R:RS485
- **10** — Rated current: 05:5A 10:10A 15:15A 20:20A
- **60B** — Flange Mounting Size: 60/80 T:Surface-mounted B:Embedded
- **1R3** — Rated torque: R64:0.64NM 1R3:1.3NM 1R9:1.9NM 2R4:2.4NM 3R2:3.2NM
- **30** — Rated speed: 30:3000Rpm
- **C** — Rated voltage: A:24V C:48V E:72V I:96V M:144V
- **5** — Polar logarithm: 5:5 pairs of poles 10:10 pairs of poles
- **-C** — Encoder Feedback: C:Incremental Encoder 2500PPR
- **B** — Brake: B:With brake
- **NS** — Non-standard codes: NS:Non-standard shaft NC:Non-standard flange

Servo integrated machine model description

Servomotor Drive All-in-One Model Summary

Model	Flange Size (mm)	Rated voltage (V)	Rated power (W)	Rated torque (N.m)	Rated RPM (rpm)	Rated current (Arms)	Control interface (optional)	Weight/kg
BYC10-60BR6430A5-C	60	24	200	0.64	3000	10	CANopen RS485 脉冲 模拟量	1.05
BYC10-60BR6430A5-CB								1.5
BYC05-60BR6430C5-C		48				5		1.05
BYC05-60BR6430C5-CB								1.5
BYC05-60BR6430E5-C		72				3.5		1.05
BYC05-60BR6430E5-CB								1.5
BYC10-60B1R330C5-C		48	400	1.3		10		1.45
BYC10-60B1R330C5-CB								1.9
BYC10-60B1R330E5-C		72				7		1.45
BYC10-60B1R330E5-CB								1.9
BYC10-60B1R930E5-C		72	600	1.9		10		1.75
BYC10-60B1R930E5-CB								2.15
BYC20-80B2R430C5-C	80	48	750	2.4		20		2.5
BYC20-80B2R430C5-CB								3.3
BYC15-80B2R430E5-C		72				13		2.5
BYC15-80B2R430E5-CB								3.3
BYC20-80B3R230E5-C		72	1000	3.2		17		2.9
BYC20-80B3R230E5-CB								
BYC15-80T1R930C10-C		48	600	1.9		15		
BYC15-80T1R930C10-CB								
BYC10-80T1R930E10-C		72				10		
BYC10-80T1R930E10-CB								
BYC20-80T2R430C10-C		48	750	2.4		20		
BYC20-80T2R430C10-CB								
BYC15-80T2R430E10-C		72				13		
BYC15-80T2R430E10-CB								
BYC20-80T3R230E10-C		72	1000	3.2		17		2.45
BYC20-80T3R230E10-CB								

BY Series Technical Specification

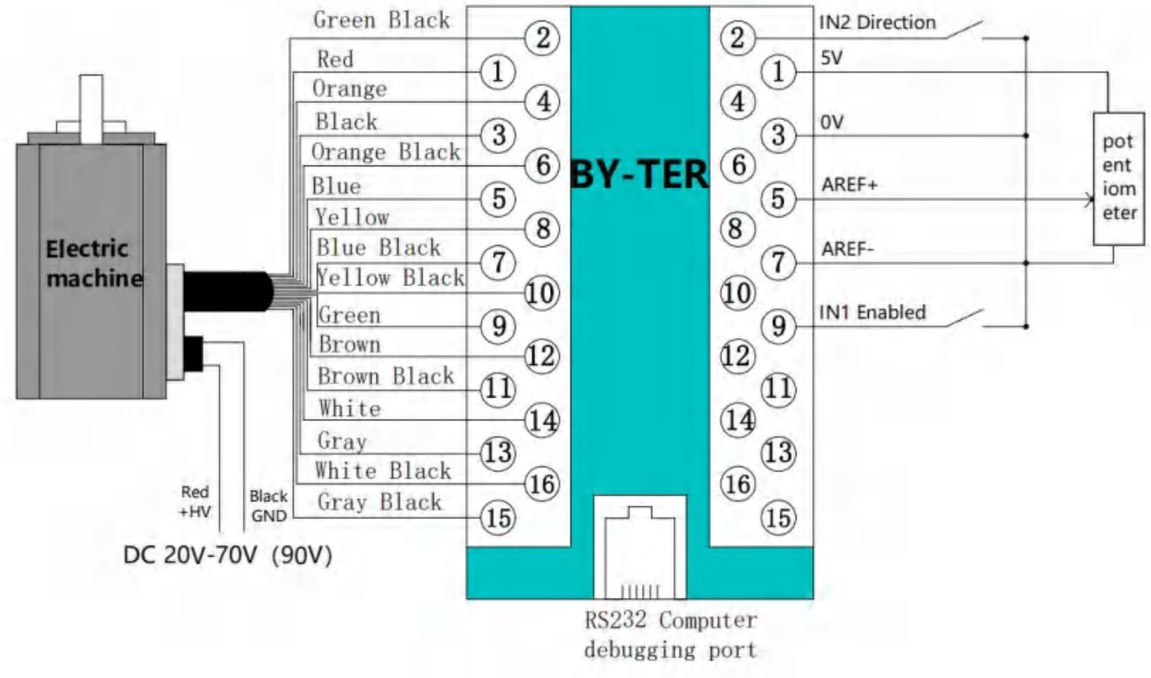
- ◆Control mode: position, speed, torque;
- ◆Programmable protection: position error, over current, over voltage or under voltage, I^2t, output short circuit, overload and other multi-directional protection functions;
- ◆Position feedback: Incremental encoder;
- ◆RS232 serial interface, baud rate up to 115KB;
- ◆RS485 MODBUS RTU serial interface, baud rate up to 115KB;
- ◆CAN communication, compatible with CANopen DS-402, baud rate up to 1MHz;
- ◆Only one RS485 or CAN can be selected;
- ◆Power supply voltage：18-70VDC，（18V-32VDC,18-90VDC customisable）；

Position control	Command control mode			Servo enable, external reset, positive/reverse limit, motor running stop, high-speed analog acquisition control, PWM synchronous signal input, high-speed pulse input, etc
	Input signal	Pulse instruction	Input pulse pattern	"direction + pulse"
			Signal format	Differential input, open collector
			Maximum pulse frequency	Differential input :(Max. 2Mpps) ; Open collector :(Max. 500Kpps)
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Speed control	Command control mode			PWM、±10V analogue
	Input signal	PWM	Polarity	PWM=0∽100%, polarity=1/0
			Nonpolar	PWM=50% +/-50%
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Current control	Command control mode			PWM、±10V analogue
	Input signal	PWM	Polarity	PWM=0∽100%, polarity=1/0
			Nonpolar	PWM=50% +/-50%
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
I/O signal	Digital input IN		Number of Ports	5 (IN4 and IN5 are high-speed ports, maximum voltage 12V), other inputs maximum input voltage 24V.
			Signal format	NPN,PNP（Software sets input to be NPN or PNP）
			Settable function	Servo enable, external reset, forward/reverse limit, motor run stop, high-speed analogue acquisition control, PWM synchronous signal input, etc.
	Digital output OUT		Number of Ports	3
			Signal format	NPN(low effective), can withstand a maximum current of 300mAdc, maximum voltage of 30Vdc
			Settable function	Fault signal, brake control, PWM sync signal, custom event track state, position trigger, program control

BY Series Technical Specification

Function	LED indicator			Drive status indication, communication indication
	Communications functions	RS-232	Baud rate	9600-115200
			Agreement	Full duplex mode, ASCII or binary format
		RS485	Baud rate	9600-115200
			Agreement	MODBUS RTU
		CAN	Baud rate	20kbit/s-1Mbit/s
			Agreement	Canopen application layer DS-301V4.02
			Equipment	Dsp-402 device driver and motion control
	Protection function			Over-voltage,over-current,under-voltage,overload,overheat, encoder abnormality, position tracking error, etc. protection
Use environment	Installation location			Non-corrosive gas, flammable gas, etc
	Altitude			Below 1000 m
	Temperature			-20°C~+50°C
	Humidity			5%~95%RH，No condensation of water droplets
	Resistance to vibration/impact			Less than 4.9m/s2/ less than 19.6m/s2
Feedback	Magnetically programmed incremental encoder (digital A/B quadrature)			

BY servo system wiring diagram



BY Series Terminal Definition

BY series power supply and holding brake wiring definition

Colour	Define	Power line	Instruction
Red	+HV		18VDC-70VDC
Black	GND		
Red (fine)	24V+		If there is a brake, it should be connected to the 24V power supply, if not, it does not need to be connected .(it can also be used as an auxiliary power input).
Black (fine)	GND		

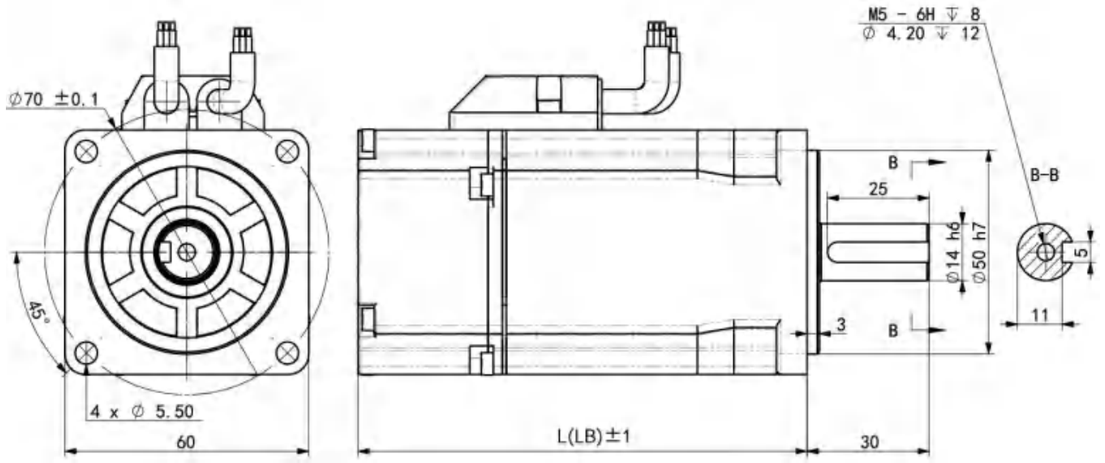
Control signal I/O terminal (14/16 Core selectable)

Colour	Pin	Define	Control Cable	Terminal block
Red	1	5V	 Define the connecting terminal block by color pin.	 The terminal blocks correspond to a group by serial number.
Black	3	0V		
Blue	5	AREF-(Analog-)		
Blue-black	7	AREF+(Analog+)		
Green	9	IN1(Enable)		
Green-black	2	IN2(Custom)		
Orange	4	IN3(Custom)		
Orange -black	6	OUT2(Custom)		
Yellow	8	IN5(DRI)		
Yellow-black	10	IN4(PUL)		
Brown	12	OUT1(Custom)		
White	14	CAN_L(485B)		
White-black	16	CAN_H(485A)		
brown-black	11	GND	Must be connected to pin 11 of the terminal block	This allows you to debug driver parameters using the RJ11 port on the terminal block.
Grey	13	RS232 _RXD	Must be connected to pin 13 of the terminal block	
Grey-black	15	RS232 _TXD	Must be connected to pin 15 of the terminal block	

Note: If the terminal block is not used, the excess core wire, need to be wrapped separately, do not short circuit or touch other metal objects.

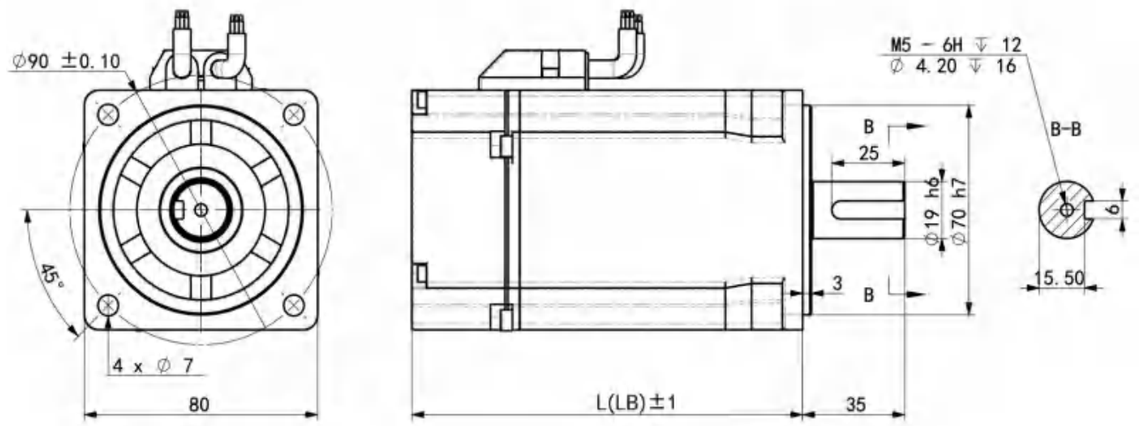
BY All-in-one specification and size chart

60#



L(mm)	92	110.5	129
LB(brake)mm	129	148	166
Weight(KG)	1.05/1.5	1.45/1.9	1.75/2.15

80#



L(mm)	120	134	95	105	120
LB(brake)mm	159	174	134	144	159
Weight(KG)	2.5/3.3				

Servo Drive General Introduction

Servo Drive General Introduction

DC, DH, DE, DE2 and BC, BC2 series intelligent servo drive is a general-purpose, high-performance, DC-powered, compact, all-digital servo drive with maximum power up to 15KW, integrating programmable motion control, PLC, and servo drive functions. It is mainly used for position, speed and torque control of linear (DDL), torque (DDR), voice coil, brush and brushless servo motors. It can be operated in three modes: stand-alone programmable control (Stand-alone), external control, or distributed network (CAN (CANopen), EtherCAT, RS232, RS485 (plug-in)), and supports incremental encoders, analogue sine/cosine encoders, and absolute encoders of various protocols (Abs). Resolver, digital Hall feedback, and absolute encoders are also supported. The multi-mode encoder ports are used as inputs or outputs depending on the basic setup of the drive. Feedback from a secondary encoder is used as an input to create a dual-loop position control system.

Servo Drive Model Description

DC PC -090 12 -OP E MD

A series of
DC/DH/DE/DE2/BC/BC2

Input order
P:Pulse A:Analog R:RS485
C:CANopen E:EtherCAT

power supply voltage
090:18-90VDC 180:18-180VDC
135:18-135VDC

Rated current
16:16Amps(11Arms) 50:50Amps(35Arms)
150:150Amps(105Arms)

Special requirements
MD:subsize LG:Large size
RTR:Reduce temperature rise
GT:Green terminal（BC）
F: With fan

Feedback
E:Incremental A/B orthogonal encoder
A:Absolute encoder 17bit
H:Digital Hall
S:Analogue sine-cosine encoder

Special function
OP:Pulse output
HUB:Servo hub（BC）

Attention to: 1.The driver supply voltage must be greater than or equal to the rated voltage of the motor.

2.The rated current of the driver must be greater than or equal to the rated current of the motor.

Servo Driver Model Description

DC&DH series drive specification summary table

Driver model	service voltage	Rated current Amps(Arms)	Peak current Apk(Arms)6S	Feedback type	Overall dimensions	Weight
DCPC-09002-OPE	18~90 VDC	2A（1.4A）	6A（4.2A）	Incremental	141*90*32mm	0.35kg
DCPC-09003-OPE		3A（2.1A）	9A（6.3A）			
DCPC-09004-OPE		4A（2.8A）	8A（5.6A）			
DCPC-09005-OPE		5A（3.5A）	10A（7A）			
DCPC-09008-OPE		8A（5.6A）	24A（16A）			
DCPC-09016-OPE		16A（11A）	48A（33A）			
DCPC-09024-OPE		24A（16A）	50A（35A）			
DCPC-09030-OPE		30A（21A）	60A（42A）		167*100*35mm	0.45kg
DCPC-09040-OPE		40A（28A）	80A（56A）			
DCPC-09050-OPE		50A（35A）	100A（70A）			
DCPC-09075-OPE		75A（52A）	150A（105A）		200*114*59mm	1.10kg
DCPC-090100-OPE		100A（70A）	200A（140A）			
DCPC-090125-OPE		125A(88A)	250A(177.5A)			
DCPC-090150-OPE		150A（105A）	250A（175A）		221*140*59mm	1.45kg
DCPC-090200-OPE		200A（140A）	300A（210A）		221*140*85mm	1.8kg
DCPC-090300-OPE-MD		300A（210A）	420A（294A）			
DCPC-090300-OPE-LG		300A（210A）	420A（294A）		265*140*85mm	2.3kg
DCPC-090350-OPE		350A（250A）	470A（330A）			
DCPC-18002-OPE	18~180 VDC	2A（1.4A）	6A（4.2A）		167*100*35mm	0.45kg
DCPC-18003-OPE		3A（2.1A）	9A（6.3A）			
DCPC-18004-OPE		4A（2.8A）	8A（5.6A）			
DCPC-18005-OPE		5A（3.5A）	10A（7A）			
DCPC-18008-OPE		8A（5.6A）	24A（16A）			
DCPC-18016-OPE		16A（11A）	48A（33A）			
DCPC-18024-OPE		24A（16A）	50A（35A）			
DCPC-18050-OPE		50A（35A）	100A（70A）		200*114*59mm	1.10kg
DCPC-18075-OPE		75A（52A）	150A（105A）			
DCPC-180100-OPE		100A（70A）	200A（140A）		221*140*59mm	1.45kg
DCPC-180150-OPE		150A（105A）	250A（175A）		265*140*85mm	2.3kg
DCPC-135100-OPE	18~135 VDC	100A（70A）	200A（140A）		221*140*59mm	1.45kg
DCPC-135150-OPE		150（105A）	250（175A）		221*140*85mm	1.8kg
DCPC-135200-OPE		200A（140A）	300A（210A）			
DCPC-125300-OPE		300A（210A）	420A（294A）		265*140*85mm	2.3kg
DHPC-30005-OPEB-DC	160~300 VDC	5A(3.5A)	15A(10.5A)		194*113.5*58mm	0.9kg
DHPC-30010-OPEB-DC		10A(7A)	20A(14A)			
DHPC-30015-OPEB-DC		15A(10A)	37.5(26.5A)		204*140*60mm	1.2kg
DHPC-30020-OPEB-DC		20A(14A)	60A(42A)		204*140*80mm	1.9kg
DHPC-30025-OPEB-DC		25A(17A)	62.5A(44A)			
DHPC-30035-OPEB-DC		35A(24.5A)	105A(73.5A)		285*188*114mm	3.8KG
DHPC-30050-OPEB-DC		50A(35A)	120A(84A)			
DHPC-54005-OPEB-DC	230~690 VDC	5A(3.5A)	15A(10.5A)		204*140*60mm	1.2kg
DHPC-54010-OPEB-DC		10A(7A)	30A(21A)		204*140*80mm	1.9kg
DHPC-54015-OPEB-DC		15A(10A)	37.5A(26.5A)			
DHPC-54020-OPEB-DC		20A(14A)	60A(42A)		285*188*114mm	3.8KG
DHPC-54025-OPEB-DC		25A(17A)	62.5A(44A)			
DHPC-54030-OPEB-DC		30A(21A)	70A(49A)			
DHPC-54035-OPEB-DC		35A(24.5A)	70A(49A)			

Servo Driver Model Description

DE&DE2 series drive specification summary table

Driver model	service voltage	Rated current Amps(Arms)	Peak current Apk(Arms)6S	Feedback type	Overall dimensions	Weight
DEPC-09003-OPEA	18~90VDC	3A（2.1A）	6A（4.2A）	Incremental or Absolute value	167*100*35mm	0.45kg
DEPC-09005-OPEA		5A（3.5A）	10A（7A）			
DEPC-09010-OPEA		10A（7A）	25A（17.5A）			
DEPC-09016-OPEA		16A（11A）	48A（33A）			
DEPC-09024-OPEA		24A（16A）	50A（35A）			
DEPC-09040-OPEA		40A（28A）	80A（56A）			
DEPC-09050-OPEA		50A（35A）	100A（70A）			
DEPC-09075-OPEA		75A（52A）	150A（105A）		200*114*59mm	1.10kg
DEPC-090100-OPEA		100A（70A）	200A（140A）			
DEPC-090150-OPEA		150A（105A）	250A（175A）		221*140*59mm	1.45kg
DEPC-090200-OPEA		200A（140A）	300A（210A）		221*140*85mm	1.8kg
DEPC-090300-OPEA-MD		300A（210A）	420A（294A）			
DEPC-090300-OPEA-LG		300A（210A）	420A（294A）		265*140*85mm	2.3kg
DEPC-090350-OPEA		350A（250A）	465A（330A）			
DEPC-18024-OPEA	18~180VDC	24A（16A）	50A（35A）		167*100*35mm	0.45kg
DEPC-18050-OPEA		50A（35A）	100A（70A）		200*114*59mm	1.10kg
DEPC-18075-OPEA		75A（52A）	150A（105A）			
DEPC-180100-OPEA		100A（70A）	200A（140A）		221*140*59mm	1.45kg
DEPC-180150-OPEA		150A（105A）	250A（175A）		265*140*85mm	2.3kg
DEPC-135100-OPEA	18~135VDC	100A（70A）	200A（140A）		221*140*59mm	1.45kg
DEPC-135150-OPEA		150A（105A）	250A（175A）		221*140*85mm	1.8kg
DEPC-135200-OPEA		200A（140A）	300A（210A）			
DE2PC-09016-OPEA	18~90VDC	16A（11A）	48A（33A）		208*118*40mm	0.7kg
DE2PC-09024-OPEA		24A（16A）	50A（35A）			
DE2PC-09040-OPEA		40A（28A）	80A（56A）			
DE2PC-09050-OPEA		50A（35A）	100A（70A）			
DE2PC-09075-OPEA		75A（52A）	150A（105A）		245*148*59mm	1.65kg
DE2PC-090100-OPEA		100A（70A）	200A（140A）			
DE2PC-090150-OPEA		150A（105A）	250A（175A）			
DE2PC-18024-OPEA	18~180VDC	24A（16A）	50A（35A）		208*118*40mm	0.7kg
DE2PC-18050-OPEA		50A（35A）	100A（70A）		245*148*59mm	1.65kg
DE2PC-18075-OPEA		75A（52A）	150A（105A）			
DE2PC-135100-OPEA	18~135VDC	100A（70A）	200A（140A）			

Servo Driver Model Description

BC series drive specification summary table

Driver model	service voltage	Rated current Amps(Arms)	Peak current Apk(Arms)6S	Feedback type	Overall dimensions	Weight
BCPC-09002-OPE/A	18~90VDC	2A	6A	Incremental or Absolute value	141*90*32mm	0.35kg
BCPC-09005-OPE/A		6A	18A			
BCPC-09010-OPE/A		11A	33A			
BCPC-09015-OPE/A		16A	32A			
BCPC-09020-OPE/A		21A	42A		167*100*35mm	0.45kg
BCPC-09030-OPE/A		30A	60A			
BCPC-09035-OPE/A		35A	70A			
BCPC-09050-OPE/A		50A	100A		200*114*59mm	1.10kg
BCPC-09070-OPE/A		70A	140A			
BCPC-09085-OPE/A		85A	170A			
BCPC-090100-OPE/A		100A	200A		221*140*59mm	1.45kg
BCPC-090140-OPE/A		140A	280A		221*140*85mm	1.8kg
BCPC-090210-OPE/A-MD		210A	300A			
BCPC-090210-OPE/A-LG		210A	300A		265*140*85mm	2.3kg
BCPC-090250-OPE/A		250A	330A			
BCPC-18015-OPE/A	18~180VDC	16A	32A		167*100*35mm	0.45kg
BCPC-18035-OPE/A		35A	70A		200*114*59mm	1.10kg
BCPC-18050-OPE/A		50A	100A			
BCPC-18070-OPE/A		70A	140A		221*140*59mm	1.45kg
BCPC-180100-OPE/A		100A	200A		265*140*85mm	2.3kg
BCPC-13570-OPE/A	18~135VDC	70A	140A		221*140*59mm	1.45kg
BCPC-135100-OPE/A		100A	200A		221*140*85mm	1.8kg
BCPC-125210-OPE/A	18~125VDC	210A	300A		265*140*85mm	2.3kg

BC2 series drive specification summary table

Driver model	service voltage	Rated current Amps(Arms)	Peak current Apk(Arms)6S	Feedback type	Overall dimensions	Weight
BC2PC-09001-OPE/A	18~90VDC	1A	3A	Incremental or Absolute value	141*90*36mm	0.35kg
BC2PC-09002-OPE/A		2A	6A			
BC2PC-09005-OPE/A		6A	18A			
BC2PC-09010-OPE/A		11.5A	34A			
BC2PC-09015-OPE/A		16A	48A			
BC2PC-09020-OPE/A		21A	50A			
BC2PC-09025-OPE/A-MD		25A	60A			
BC2PC-18015-OPE/A	18~180VDC	16A	48A			
BC2PC-09025-OPE/A-LG	18~90VDC	25A	60A		204*126*52mm	0.9KG
BC2PC-09035-OPE/A		35A	70A			
BC2PC-18025-OPE/A	18~180VDC	25A	50A			
BC2PC-18035-OPE/A		35A	70A			
BC2PC-09050-OPE/AF	18~90VDC	50A	100A		204*130*86mm	1.4KG
BC2PC-09070-OPE/AF		70A	140A			
BC2PC-13550-OPE/AF	18~135VDC	50A	100A			

DC Series Technical Specifications

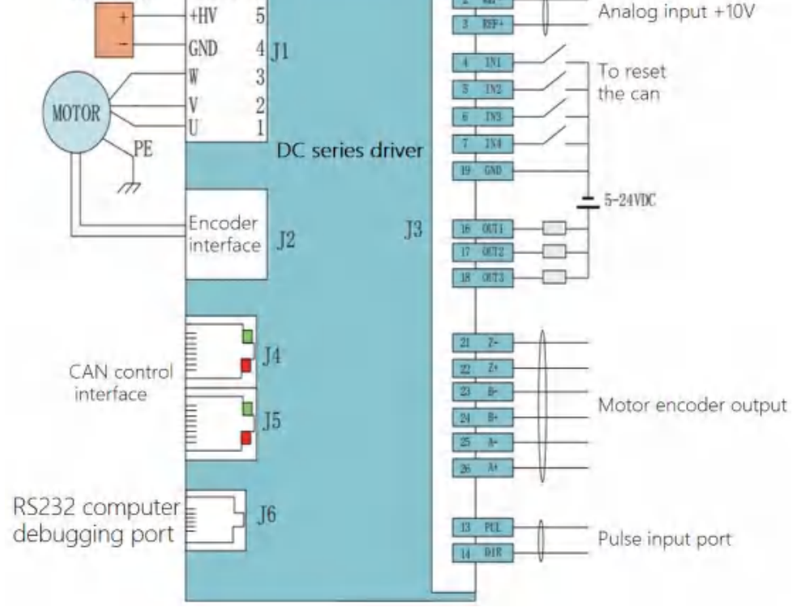
- Control mode: position, speed, torque;
- Sampling frequency (time) Current loop: 15KHz(66.7us); Speed/Position Loop :3KHz(330μs);
- Bandwidth: the current loop is generally 2.5kHz, which varies with parameter adjustment and load inductance;
- Motion mode: electronic gear, electronic CAM, proportional linkage, point to point;
- Programmable protection: position error, over current, over voltage or under voltage, I^2t, output short circuit overload and other multi-directional protection;
- Type of driving motor: three-phase stepping motor, brushless motor, brush motor, linear motor, voice coil motor, etc;
- Position feedback: incremental encoder, Hall, grating ruler, analog sine and cosine (Sin/Cos) encoder(1.0Vp-p), rotary transformer (external conversion card);
- Pulse response frequency up to 2MHz, with digital filtering function;
- RS232 serial interface, baud rate up to 115KB;
- CAN2.0 local area bus, compatible with CANopen DS-402, baud rate up to 1MHz ;
- Power supply voltage: 18-90(135/180)VDC;

Position control	Command control mode			Servo enable, external reset, positive/reverse limit, motor stop, high-speed analog acquisition control, PWM synchronization signal input, high-speed pulse input, etc
	Input signal	Pulse instruction	Input pulse pattern	The command can be direction + pulse, ORTHOGONAL pulse of A and B phases, and CW/CCW pulse.
			Signal format	Differential input, open collector
			Maximum pulse frequency	Differential input :(Max. 2Mpps) Open collector :(Max. 500Kpps)
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Speed control	Command control mode			PWM, ±10V analog, function generator, software programming
	Input signal	PWM	Polarity	PWM=0∽100%, polarity=1/0
			Nonpolar	PWM=50% +/-50%
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Current control	Command control mode			PWM, ±10V analog, function generator, software programming
	Input signal	PWM	Polarity	PWM=0∽100%, polarity=1/0
			Nonpolar	PWM=50% +/-50%
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
I/O signal	Digital input IN		Number of Ports	10(IN6, IN7, IN8, IN9 and IN10 are high-speed ports, IN5 is used for motor temperature protection)
			Signal format	NPN(low active)
			Settable function	Servo enable, external reset, positive/reverse limit, motor stop, high-speed analog acquisition control, PWM synchronization signal input, high-speed pulse input, etc
	Digital output OUT		Number of Ports	3
			Signal format	NPN(low effective), can withstand a maximum current of 300mAdc, maximum voltage of 30Vdc
			Settable function	Fault signal, brake control, PWM sync signal, custom event track state, position trigger, program control

DC Series Technical Specifications

Function	LED indicator			Drive status indication, communication indication
	Communications functions	RS-232	Baud rate	9600-115200
			Agreement	Full duplex mode, ASCII or binary format
		CAN	Baud rate	20kbit/s-1Mbit/s
			Agreement	Canopen application layer DS-301V4.02
			Equipment	Dsp-402 device driver and motion control
	Protection function			Overvoltage, overcurrent, undervoltage, overload, overheating, abnormal encoder, too large position tracking error and other protection
Use environment	Installation location			Non-corrosive gas, flammable gas, etc
	Altitude			Below 1000 m
	Temperature			-20℃~+50℃
	Humidity			5%~95%RH，No condensation of water droplets
	Resistance to vibration/impact			Less than 4.9m/s2/ less than 19.6m/s2
Feedback	Digital A/B quadrature encoder (-E, max. 5M line/s)			
	Auxiliary encoder input/output (full closed-loop control/-OP)			
	Analogue sin/cos encoder (-S) optional			
	Rotary Transformer(-R) Optional			
	Digital Hall (-H (U/V/W, 120 degrees electrical phase difference)			

DC Typical wiring diagram



Description:

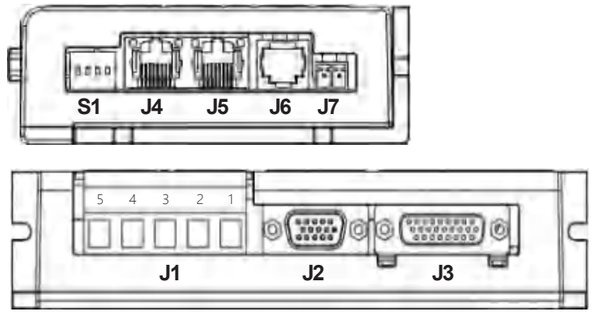
1. Input terminals IN1,IN2,IN3,IN4,IN5,IN 11,IN12 are common ports that can receive NPN and PNP signals. The maximum input voltage is 24V;
2. IN6, IN7,IN8,IN9,IN10 are high-speed input ports with the highest input voltage of 5V;
3. AUXHV is an auxiliary power supply, which can be connected if necessary. If connected, communication is maintained when +HV is disconnected and +AUXHV is powered on, but there is no action when issuing commands.

DC Series Terminal Definition

DC Series Terminal Definition

J6 RS-232 Debugging

PIN	Define
1	NO Connection
2	RxD
3	Signal Ground
4	Signal Groudn
5	TxD
6	NO Connection



J4-J5 CAN communication link

PIN	Define
1	CAN_H
2	CAN_L
3	CAN_GND
4	No Connection
5	Reserved
6	(CAN_SHLD)[1]
7	CAN_GND
8	(CAN_V+)[1]

J1 Motor Power

PIN	Define
1	U
2	V
3	W
4	0V
5	DC20-90
6	Auxiliary power

J3 Control signal terminal

PIN	Define	PIN	Define	PIN	Define
1	Grounding	10	[IN6] custom	19	0V
2	Analog quantity - input	11	[IN7] custom	20	+5V
3	Analog quantity + input	12	[IN8] custom	21	Motor encoder Z- input
4	[IN1] Enable	13	[IN9] custom	22	Motor encoder Z+ input
5	[IN2] custom	14	[IN10] custom	23	Motor encoder B- input
6	[IN3] custom	15	[IN5] Motor temperature	24	Motor encoder B+ input
7	[IN4] custom	16	[OUT1] custom	25	Motor encoder A- input
8	[IN11] custom	17	[OUT2] custom	26	Motor encoder A+ input
9	[IN12] custom	18	[OUT3] custom		

DC Series outline dimension drawing

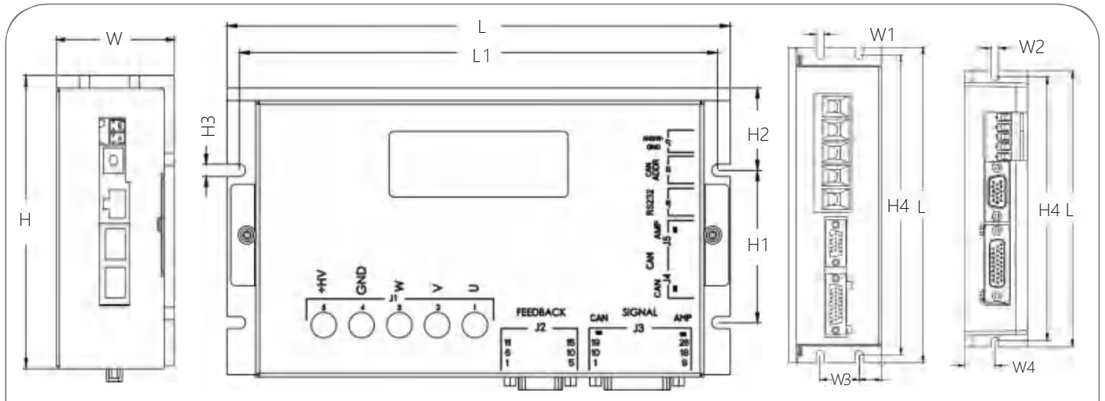
J2 Motor encoder feedback

PIN	Define	PIN	Define	PIN	Define
1	SIN+	6	V+	11	B-
2	SIN-	7	Z-	12	B+
3	U+	8	Z+	13	A-
4	+5 V	9	W+	14	A+
5	0V	10	COS+	15	COS-

SW Indicates the station number of the DIP switch

SW switch Number	Corresponding stand no
1	1
2	2
3	4
4	8

DC Series External Dimensions



Model	L	L1	W	W1	W2	W3	W4	H	H1	H2	H3	H4
DCPC-2A~24A	141	134	32	/	4.5	/	15.5	90	51	18	4.5	134
DCPC-30A~50A	167	160	35	/	2-4.5	/	19.5	100	51	22	4-4.5	160
DCPC-75A100A	200	190	59	4-5.0	/	25	/	114	60	32.5	4-4.8	190
DCPC-100AF	200	190	59	4-5.0	/	25	/	114	60	32.5	4-4.8	190
DCPC-150A	221	211	59	5	/	25	/	140	60	45	4.8	211
DCPC-150AF	221	211	59	5	/	25	/	140	60	45	4.8	211
DCPC-200A	221	211	85	5	/	25	/	140	/	/	/	211
DCPC-300A	221	211	85	5	/	25	/	140	/	/	/	211

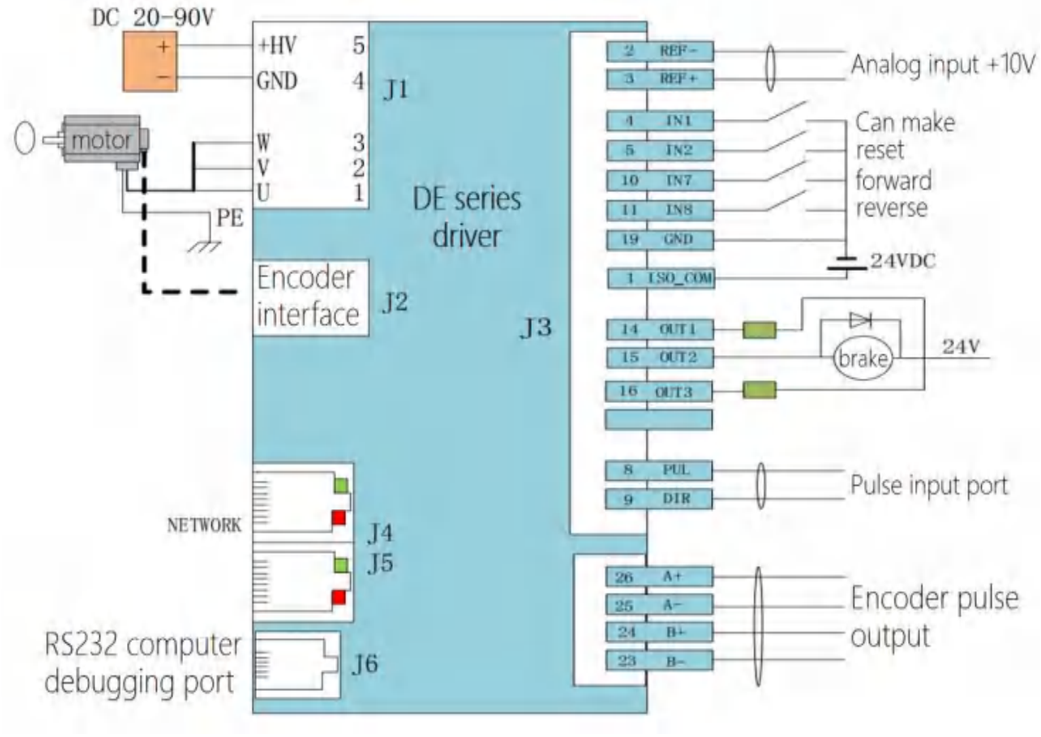
DE Series Technical Specifications

- Control mode: position, speed, torque;
- Sampling frequency (time) Current loop: 16KHz(62.5us); Speed/Position Loop :4KHz(250μs)
- Bandwidth: the current loop is generally 2.5kHz, which varies with parameter adjustment and load inductance;
- Programmable protection: position error, over current, over voltage or under voltage, I^2t, output short circuit overload and other multi-directional protection functions;
- Type of driving motor: brushless motor, brush motor, linear motor, voice coil motor, etc.;
- Encoder feedback: incremental encoder, Hall, grating ruler, rotary transformer (plus conversion card); Absolute encoder, support SSI,Absolute A, BiSS(B&C) protocol;
- Pulse response frequency up to 2MHz, with digital filtering function;
- RS232 serial interface, baud rate up to 115KB;
- CAN2.0 local area bus, compatible with CANopen DS-402, baud rate up to 1MHz; Support PVT, back to zero, interpolation;
- EtherCAT Ethernet Fieldbus, used as EtherCAT slave using CANopen application protocol, supports cyclic synchronous position-speed-Torque (CSP-CSV-CST),PVT, interpolation, and zero back for DSP-402 motion control devices with EtherCAT(CoE) protocol;
- Power supply voltage: 20-90(135/180)VDC;

Position control	Command control mode			Servo enable, external reset, positive/reverse limit, motor stop, high-speed analog acquisition control, PWM synchronization signal input, high-speed pulse input, etc
	Input signal	Pulse instruction	Input pulse pattern	The command can be direction + pulse, ORTHOGONAL pulse of A and B phases, and CW/CCW pulse.
			Signal format	Collector open circuit
			Maximum pulse frequency	Biggest 2 Mpps
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Speed control	Command control mode			PWM, ±10V analog, function generator, software programming
	Input signal	PWM	Polarity	PWM=0∽100%, polarity=1/0
			Nonpolar	PWM=50% +/-50%
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Current control	Command control mode			PWM, ±10V analog, function generator, software programming
	Input signal	PWM	Polarity	PWM=0∽100%, polarity=1/0
			Nonpolar	PWM=50% +/-50%
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
I/O signal	Digital input IN		Number of Ports	10(IN6, IN7, IN8, IN9 and IN10 are high-speed ports, IN5 is used for motor temperature protection)
			Signal format	NPN(low active)
			Settable function	Servo enable, external reset, positive/reverse limit, motor stop, high-speed analog acquisition control, PWM synchronization signal input, high-speed pulse input, etc
	Digital output OUT		Number of Ports	3
			Signal format	NPN(low effective), can withstand a maximum current of 300mAdc, maximum voltage of 30Vdc
			Settable function	Fault signal, brake control, PWM sync signal, custom event track state, position trigger, program control

Function	LED indicator			Drive status indication, communication indication
	Communications functions	RS-232	Baud rate	9600-115200
			Agreement	Full duplex mode, ASCII or binary format
		CAN	Baud rate	20kbit/s-1Mbit/s
			Agreement	Canopen application layer DS-301V4.02
			Equipment	Dsp-402 device driver and motion control
		EtherCAT	Agreement	CoE, CiA-402
	Protection function			Overvoltage, overcurrent, undervoltage, overload, overheating, abnormal encoder, too large position tracking error and other protection
Use environment	Installation location			Non-corrosive gas, flammable gas, etc
	Altitude			Below 1000 m
	Temperature			-20℃~+50℃
	Humidity			5%~95%RH，No condensation of water droplets
	Resistance to vibration/impact			Less than 4.9m/s2/ less than 19.6m/s2
Feedback	Digital A/B quadrature encoder (-E, max. 5M line/s)			
	Auxiliary encoder input/output (full closed-loop control/-OP)			
	Rotary Transformer(-R) Optional			
	Digital Hall (-H (U/V/W, 120 degrees electrical phase difference)			
	Absolute encoder (A17) optional			

DE Typical wiring diagram

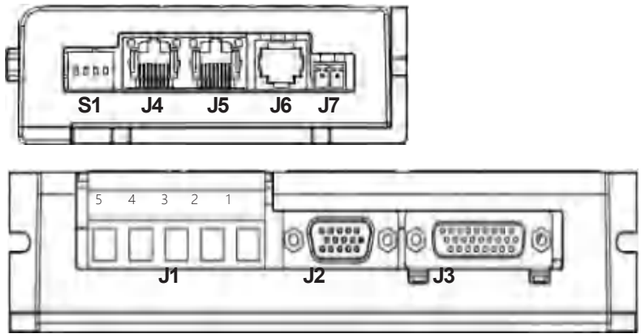


DE Series Terminal Definition

DE Series Terminal Definition

J6 RS-232 Debugging

PIN	Define	Designation
2	RXD	RS232 communication receiver
3	GND	Communication power grounding
5	TXD	RS232 communication sender



J1 Motor Power

NO.	Define	terminal	Wiring instructions
1	U	Motor power line U phase	Must be connected to the motor one by one according to the label
2	V	Motor power line V phase	
3	W	Motor power line W phase	
4	GND	Input power -	+20~90V DC
5	+HV	Input power +	

J4-J5 CAN communication link

PIN	Define	Function
1	CAN_H	CANH signal
2	CAN_L	CANL signal
3	GND	Communication power ground

J3 Control signal terminal

PIN	Define	Function	PIN	Define	Function
1	ISO_COM	Common end of ISO terminal	14	OUT1	custom
2	Ref-	Analog quantity - input	15	OUT2	custom
3	Ref+	Analog quantity + input	16	OUT3	custom
4	IN1	custom	17	MUL_ENC_S-	Second absolute value encoding input
5	IN2	custom	18	MUL_ENC_S+	Second absolute value encoding input
6	IN3	custom	19	GND	Power grounding
7	IN4	custom	20	+5V	5V power output (100mA)
8	IN5	custom	21	EONZ- (CLK-/MA-)	Motor encoder output signal Z- (or second incremental encoder input)
9	IN6	custom	22	EONZ+ (CLK+/MA+)	Motor encoder output signal Z+ (or second incremental encoder input)
10	ISO_IN7	custom	23	EONB-	Motor encoder output signal B-
11	ISO_IN8	custom	24	EONB+	Motor encoder output signal B+
12	ISO_IN9	custom	25	EONA-	Motor encoder output signal A-
13	ISO_IN10	custom	26	EONA+	Motor encoder output signal A+

DE Series outline dimension drawing

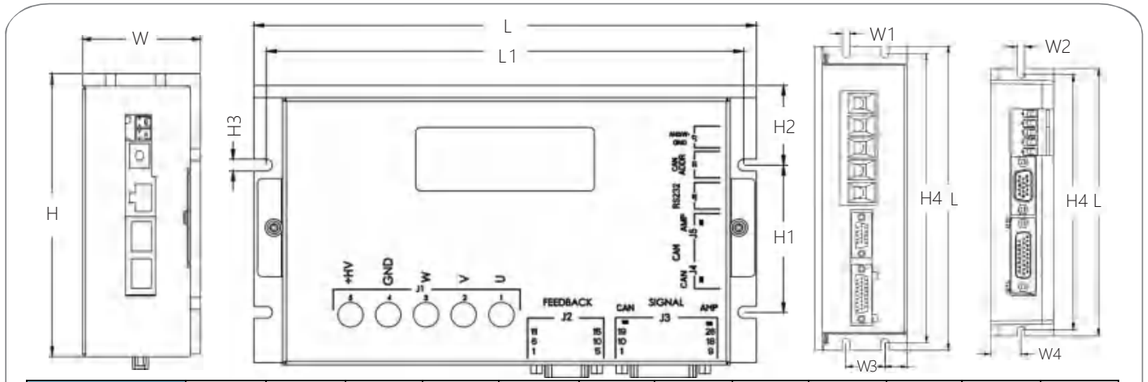
J2 Motor encoder feedback

PIN	Define	Function	PIN	Define	Function
1			9	W+	Motor encoder W+ input
2			10		
3	U+	Motor encoder U+ input	11	B-(DAT-)	Motor encoder B- input (Absolute value coder DAT-)
4	+5V	Motor signal line +5V	12	B+(DAT+)	Motor encoder B+ input (Absolute encoder DAT+)
5	0V	Motor signal cable GND	13	A-	Motor encoder A- input
6	V+	Motor encoder V+ input	14	A+	Motor encoder A+ input
7	Z- (CLK-/MA-)	Motor encoder Z- input (Absolute value CLK-/MA-)	15		
8	Z+ (CL+/MA+)	Motor encoder Z+ input (Absolute value CLK-/MA-)			

SW Indicates the station number of the DIP switch

SW switch Number	Corresponding stand no
1	1
2	2
3	4
4	8

DE Series External Dimensions



Model	L	L1	W	W1	W2	W3	W4	H	H1	H2	H3	H4
DEPC-3A~50A	167	160	35	/	2-4.5	/	19.5	100	51	22	4-4.5	160
DEPC-75A	200	190	59	4-5.0	/	25	/	114	60	32.5	4-4.8	190
DEPC-100A	200	190	59	4-5.0	/	25	/	114	60	32.5	4-4.8	190
DEPC-150A	221	211	59	5	/	25	/	140	60	45	4.8	211
DEPC-200A	221	211	85	5	/	25	/	140	/	/	/	211
DEPC-300A	221	211	85	5	/	25	/	140	/	/	/	211

DE2 Series Technical Specifications

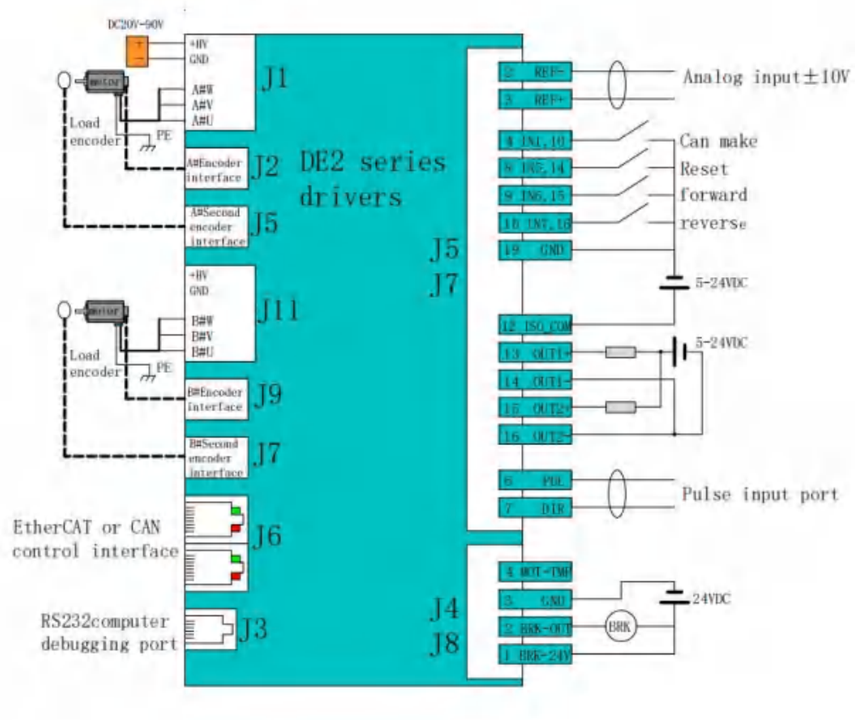
- Control mode: position, speed, torque;
- Sampling frequency (time) Current loop: 16KHz(62.5us); Speed/Position Loop :4KHz(250μs);
- Bandwidth: the current loop is generally 2.5kHz, which varies with parameter adjustment and load inductance;
- Programmable protection: position error, over current, over voltage or under voltage, I^2t, output short circuit overload and other multi-directional protection functions;
- Driving motor type: brushless motor, brush motor, linear motor, voice coil motor, etc;
- Encoder feedback: incremental encoder, Hall, grating scale, analog sine and cosine (Sin/Cos) encoder, rotary transformer (plus conversion card), Absolute encoder, support SSI, Absolute A, BiSS(B&C) protocol;
- Pulse response frequency up to 2MHz, with digital filtering function;
- RS232 serial interface, baud rate up to 115KB;
- CAN2.0 local area bus, compatible with CANopen DS-402, baud rate up to 1MHz; Support PVT, back to zero, interpolation;
- EtherCAT Ethernet Fieldbus, used as EtherCAT slave using CANopen application protocol, supports cyclic synchronous position-speed-Torque (CSP-CSV-CST),PVT, interpolation, and zero back for DSP-402 motion control devices with EtherCAT(CoE) protocol;
- Power supply voltage: 20-90(135/180)VDC;

Position control	Command control mode			Pulse, ±10V analog input, CANopen (EtherCAT), function generator, track index, software programming.
	Input signal	Pulse instruction	Input pulse pattern	The command can be direction + pulse, ORTHOGONAL pulse of A and B phases, and CW/CCW pulse.
			Signal format	Collector open circuit
			Maximum pulse frequency	Biggest 2 MPPS
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Speed control	Command control mode			PWM, ±10V analog, function generator, software programming
	Input signal	PWM	Polarity	PWM=0∽100%, polarity=1/0
			Nonpolar	PWM=50% +/-50%
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Current control	Command control mode			PWM, ±10V analog, function generator, software programming
	Input signal	PWM	Polarity	PWM=0∽100%, polarity=1/0
			Nonpolar	PWM=50% +/-50%
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
I/O signal	Digital input IN		Number of Ports	16（IN3, IN4, IN11 and IN12 are high-speed ports）
			Signal format	NPN，PNP
			Settable function	Servo enable, external reset, positive/reverse limit, motor stop, high speed analog acquisition control, PWM synchronous signal input, high speed pulse input, etc.
	Digital output OUT		Number of Ports	6
			Signal format	Optocoupler output,maximum voltage 30Vdc.Two special motor lock output
			Settable function	Fault signal, brake control, PWM sync signal, custom event, track state, position trigger, program control.

DE2 Series Technical Specifications

Function	LED indicator			State indicator, CAN (EtherCAT) network indicator
	Communications functions	RS-232	Baud rate	9600-115200
			Agreement	Full duplex mode, ASCII or binary format
		CAN	Baud rate	20kbit/s-1Mbit/s
			Agreement	Canopen application layer DS-301V4.02
			Equipment	Dsp-402 device driver and motion control
		EtherCAT	Agreement	CoE, CiA-402
	Protection function			Overvoltage, overcurrent, undervoltage, overload, overheating, abnormal encoder, too large position tracking error and other protection.
Use environment	Installation location			Non-corrosive gas, flammable gas, etc
	Altitude			Below 1000 m
	Temperature			-20℃~+50℃
	Humidity			5%~95%RH，No condensation of water droplets
	Resistance to vibration/impact			Less than 4.9m/s2/ less than 19.6m/s2
Feedback	Digital A/B quadrature encoder (-E, max. 5M line/s)			
	Auxiliary encoder input/output (full closed-loop control/-OP)			
	Analogue sin/cos encoder (-S) optional			
	Rotary Transformer(-R) Optional			
	Digital Hall (-H (U/V/W, 120 degrees electrical phase difference)			
	Absolute encoder (A17) optional			

DE2 Typical wiring diagram

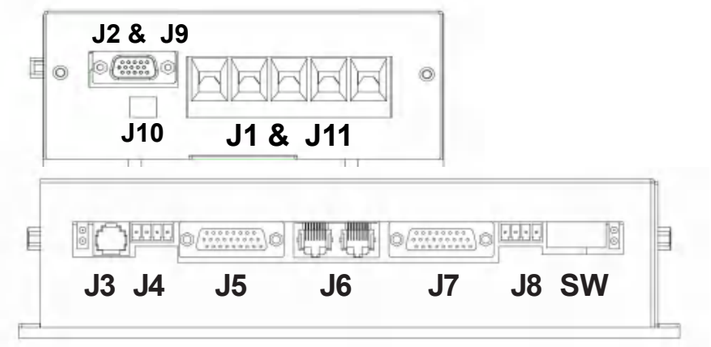


DE2 Series Terminal Definition

DE2 Series Terminal Definition

J3 RS-232 Debugging

PIN	Define	Designation
2	RXD	RS232 communication receiver
3	GND	Communication power grounding
5	TXD	RS232 communication sender



J1&J11 Motor Power

NO.	Define	terminal	Wiring instructions
1	A#U	Motor power line U phase	Must be connected to the motor one by one according to the label
2	A#V	Motor power line V phase	
3	A#W	Motor power line W phase	+20~90V DC
4	GND	Input power -	
5	+HV	Input power +	

J6 CAN communication link

PIN	Define	Function
1	CAN_H	CANH signal
2	CAN_L	CANL signal
3/7	GND	Communication power ground

J5(A#)&J7(B#) Control signal terminal

PIN	Define	Function	PIN	Define	Function
1	FG	grounding	14	ISO_OUT1-	custom
2	Ref-	Analog quantity - input	15	ISO_OUT2+	custom
3	Ref+	Analog quantity + input	16	ISO_OUT2-	custom
4	A#_IN1 B#_IN10	custom	17	MUL_ENC_S-	Second absolute value encoding input
5	A#_IN2 B#_IN11	custom	18	MUL_ENC_S+	Second absolute value encoding input
6	A#_IN3 B#_IN12	custom	19	GND	Power grounding
7	A#_IN4 B#_IN13	custom	20	+5V	5V power output (100mA)
8	A#ISO_IN5 B#ISO_IN14	custom	21	EONZ-	Motor encoder output signal Z- (or second incremental encoder input)
9	A#ISO_IN6 B#ISO_IN15	custom	22	EONZ+	Motor encoder output signal Z+ (or second incremental encoder input)
10	A#ISO_IN7 B#ISO_IN16	custom	23	EONB-	Motor encoder output signal B- (or second incremental encoder input)
11	A#ISO_IN8 B#ISO_IN17	custom	24	EONB+	Motor encoder output signal B+ (or second incremental encoder input)
12	ISO_COM	Common end of ISO terminal	25	EONA-	Motor encoder output signal A- (or second incremental encoder input)
13	ISO_OUT1+	custom	26	EONA+	Motor encoder output signal A+ (or second incremental encoder input)

DE2 Series outline dimension drawing

Motor encoder feedback J2(A#)&J9(B#)

Pin	Define	Function	Pin	Define	Function
1	SIN+	SIN+	9	W+	Motor encoder W+ input
2	SIN-	SIN-	10	COS+	COS+
3	U+	Motor encoder U+ input	11	B-(DAT-)	Motor encoder B- input (Absolute value coder DAT-)
4	+5V	Motor signal line +5V	12	B+(DAT+)	Motor encoder B+ input (Absolute encoder DAT+)
5	0V	Motor signal cable GND	13	A-	Motor encoder A- input
6	V+	Motor encoder V+ input	14	A+	Motor encoder A+ input
7	Z- (CLK-/MA-)	Motor encoder Z- input (Absolute value CLK-/MA-)	15	COS-	COS-
8	Z+ (CL+/MA+)	Motor encoder Z+ input (Absolute value CLK-/MA-)			

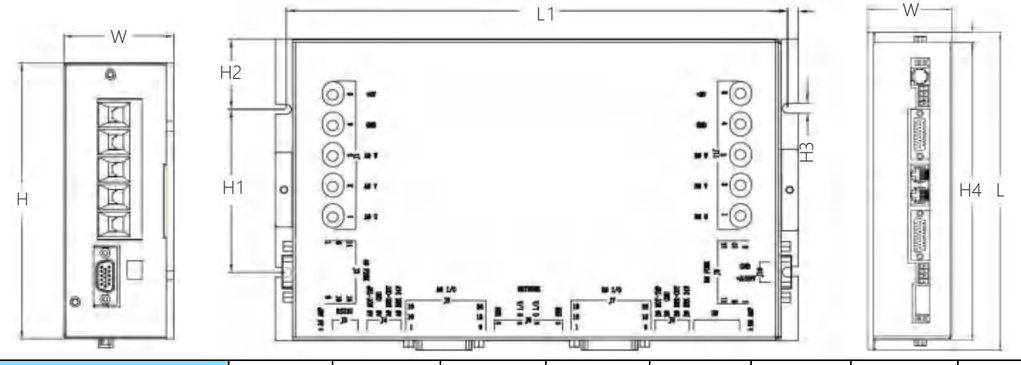
SW Indicates the station number of the DIP switch

SW switch Number	Corresponding stand no.	SW switch Number	Corresponding stand no.
1	1	5	16
2	2	6	32
3	4	7	64
4	8	8	128

J4(A#)&J8(B#) Control Motor Brake Enable Terminal

NO.	Define	Function
1	BRK-24	External 24V
2	BRK-OUT	Brake output
3	GND	External 0V
4	MOT-TMP	Motor temperature switch

DE2 Series External Dimensions



Model	L	L1	W	H	H1	H2	H3	H4
DE2PC-09003A~50A	208	198	40	118	101	/	4-4.8	192
DE2PC-09075A~150A	245	235	59	148	80	34.5	4-5.0	229
DE2PC-18024A	208	198	40	118	101	/	4-4.8	192
DE2PC-18050A~75A	245	235	59	148	80	34.5	4-5.0	229
DE2PC-135100A								

BC Series Technical Specifications

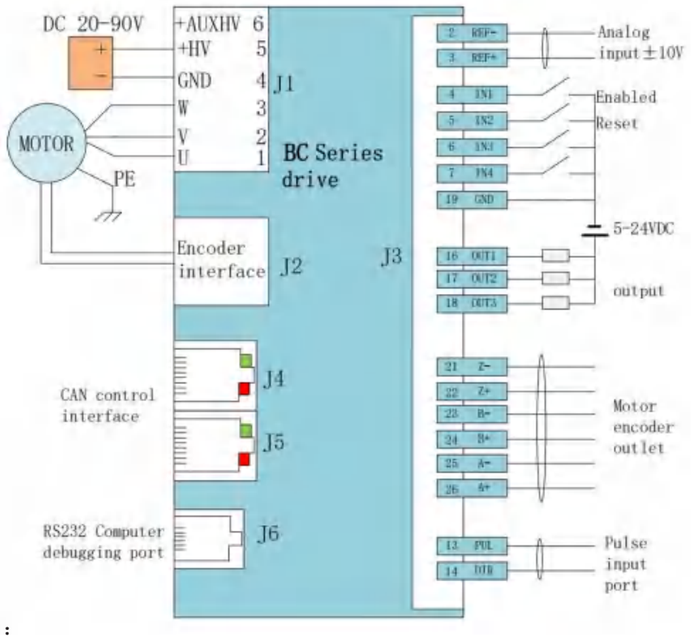
- ◆Control mode: position, speed, torque；
- ◆Sampling frequency (time) Current loop: 16KHz (62.5us) ;Velocity/position loop: 2KHz (500μs)
- ◆Programmable protection: position error, over current, over voltage or under voltage, I^2t, output short circuit, overload and other multi-directional protection functions；
- ◆Drive motor type: brushless motor, servo motor, wheel motor；
- ◆Position feedback: incremental encoder, digital Hall feedback; Absolute encoder Tama Agawa protocol;rotary transformer (external conversion card).
- ◆Pulse response frequency up to 2MHz, with digital filtering function.
- ◆Communication mode：
  1. RS232 serial interface, baud rate up to 115KB；
  2. RS485 MODBUS RTU serial interface, baud rate up to 115KB;
  3. CAN communication, compatible with CANopen DS-402, baud rate up to 1MHz ；
     （Only one RS485 or CAN can be selected）
- ◆Power supply voltage：18-90(135/180)VDC；

Position control	Command control mode			Pulse, ±10V analogue, CANopen, RS485 MODBUS RTU
	Input signal	Pulse instruction	Input pulse pattern	Includes "direction + pulse", "A, B phase orthogonal pulse", "CW/CCW pulse" three command forms.
			Signal format	Open collector
			Maximum pulse frequency	Open collector：（Max. 500Kpps）
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Speed control	Command control mode			PWM、RC model aircraft signal、±10V analogue、CANopen、RS485 MODBUS RTU
	Input signal	PWM	Polarity	PWM=0∽100%，polarity=1/0
			Nonpolar	PWM=50% +/-50%，
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Current control	Command control mode			±10V analogue、CANopen、RS485 MODBUS RTU
	Input signal	PWM	Polarity	PWM=0∽100%，polarity=1/0
			Nonpolar	PWM=50% +/-50%，
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
I/O signal	Digital input IN		Number of Ports	12 (IN6, IN7, IN8, IN9, IN10 are high-speed ports, maximum voltage 12V), other input ports maximum input voltage 24V.
			Signal format	NPN,PNP（The software setup input is NPN or PNP）
			Settable function	Servo enable, external reset, forward/reverse limit, motor stop, high-speed pulse input, etc.
	Digital output OUT		Number of Ports	3
			Signal format	NPN (low level effective), can withstand the maximum current 300mABC, the maximum voltage 30VBC
			Settable function	Fault signal, lock control

BC Series Technical Specifications

Function	LED indicator			Drive status indication, communication indication
	Communications functions	RS-232	Baud rate	9600-115200
			Agreement	Full duplex mode, ASCII or binary format
		RS-485	Baud rate	9600-115200
			Agreement	modbus RTU
		CAN	Baud rate	20kbit/s-1Mbit/s
			Agreement	Canopen application layer DS-301V4.02
			Equipment	Dsp-402 device driver and motion control
	Protection function			Over-voltage,over-current,under-voltage,overload,overheat, encoder abnormality, position tracking error, etc. protection
Use environment	Installation location			Non-corrosive gas, flammable gas, etc
	Altitude			Below 1000 m
	Temperature			-20℃~+50℃
	Humidity			5%~95%RH，No condensation of water droplets
	Resistance to vibration/impact			Less than 4.9m/s2/ less than 19.6m/s2
Feedback	Digital A/B quadrature encoder (-E, max. 5M line/s)			
	Auxiliary encoder input/output (full closed-loop control/-OP)			
	Rotary Transformer(-R) Optional			
	Digital Hall (-H (U/V/W, 120 degrees electrical phase difference)			
	Absolute encoder (A17) optional			

BC Typical wiring diagram



Description：

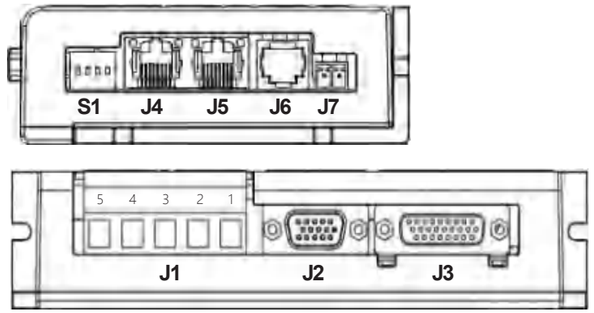
1. Input terminals IN1,IN2,IN3,IN4,IN5,IN 11,IN12 are common ports that can receive NPN and PNP signals. The maximum input voltage is 24V;
2. IN6, IN7,IN8,IN9,IN10 are high-speed input ports with the highest input voltage of 5V;
3. AUXHV is an auxiliary power supply, which can be connected if necessary. If connected, communication is maintained when +HV is disconnected and +AUXHV is powered on, but there is no action when issuing commands.

BC Series Terminal Definition

BC Series Terminal Definition

J6 RS-232 Debugging

PIN	Define
1	NO Connection
2	RXD
3	Signal Ground
4	Signal Groudn
5	TXD
6	NO Connection



J4-J5 CAN (RS485)communication terminal

PIN	Define	Optional
1	485A (CAN_H)	Optional CAN communication function in parentheses
2	485A (CAN_H)	
3	GND_C	
4	GND_C	
5	485B (CAN_L)	
6	485B (CAN_L)	

J1 Motor Power

PIN	Define
1	U
2	V
3	W
4	0V
5	DC20-90V
6	Auxiliary power

J3 Control signal terminal

PIN	Define	PIN	Define	PIN	Define
1	Grounding	10	[IN6] custom	19	0V
2	Analog quantity - input	11	[IN7] custom	20	+5V
3	Analog quantity + input	12	[IN8] custom	21	Motor encoder Z- input
4	[IN1] Enable	13	[IN9] custom	22	Motor encoder Z+ input
5	[IN2] custom	14	[IN10] custom	23	Motor encoder B- input
6	[IN3] custom	15	[IN5] Motor temperature	24	Motor encoder B+ input
7	[IN4] custom	16	[OUT1] custom	25	Motor encoder A- input
8	[IN11] custom	17	[OUT2] custom	26	Motor encoder A+ input
9	[IN12] custom	18	[OUT3] custom		

BC Series outline dimension drawing

J2 Motor encoder feedback

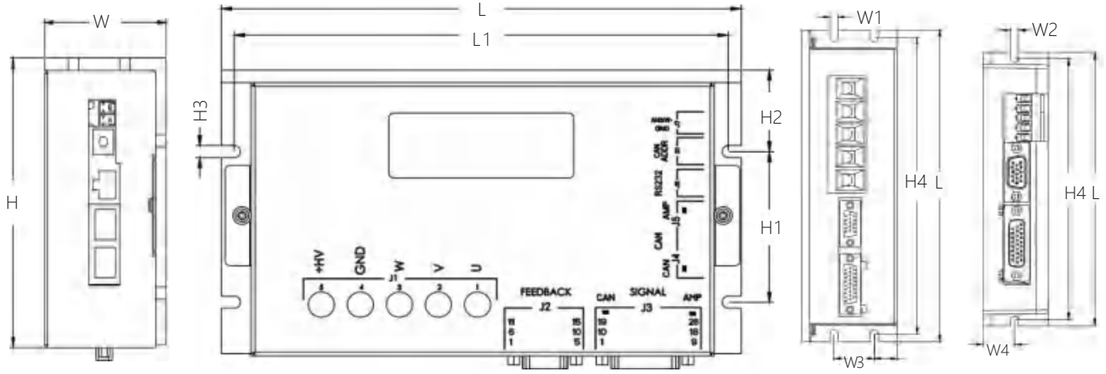
PIN	Define	PIN	Define	PIN	Define
1	NTC*	6	V+	11	B-(Absolute DAT-)
2	NTC*	7	Z-	12	B+ (Absolute DAT+)
3	U+	8	Z+	13	A-
4	+5 V	9	W+	14	A+
5	0V	10		15	IN5* Temperature control switche

Note: 1. For hub motor, if the encoder input signal is single-ended open-collector signal, A connects to pin 13 and B connects to pin 11;
2. *If you need Need NTC resistance temperature sensor input function, order please indicate;
3. *If the temperature switch sensor input function is required, connect to pin 1 and pin 15, order please indicate.

SW Indicates the station number of the DIP switch

SW switch Number	Corresponding stand no
1	1
2	2
3	4
4	8

BC Series External Dimensions



Model	L	L1	W	W1	W2	W3	W4	H	H1	H2	H3	H4
BCPC-02~15A	141	134	32	/	4.5	/	15.5	90	51	18	4.5	134
BCPC-20A~35A	167	160	35	/	2-4.5	/	19.5	100	51	22	4-4.5	160
BCPC-50A~85A	200	190	59	4-5.0	/	25	/	114	60	32.5	4-4.8	190
BCPC-100A	221	211	59	5	/	25	/	140	60	45	4.8	211
BCPC-140A210A	221	211	85	5	/	25	/	140	/	/	/	211
BCPC-250A	265	255	85	5	/	25	/	140	/	/	/	211

BC2 Series Technical Specifications

- ◆Control mode: position, speed, torque;
- ◆Sampling frequency (time) Current loop: 16KHz(62.5us); Speed/position loop :2KHz(500μs);
- ◆Bandwidth: The current loop is generally 1.5kHz, which varies with parameter adjustment and load inductance;
- ◆Programmable protection: position error, over current, over voltage or under voltage, I^2t, output short circuit, overload and other multi-directional protection functions;
- ◆Drive motor type: DC brushless motor, hollow cup brushless motor, wheel hub motor, DC servo motor;
- ◆Encoder feedback: incremental encoder, Digital Hall, grating ruler, rotary transformer (plus converter card), absolute encoder (Tama Kawa Protocol);
- ◆Pulse response frequency up to 2MHz, with digital filtering function;
- ◆RS232 serial interface, baud rate up to 115KB;
- ◆CAN communication, compatible with CANopen DS-402, baud rate up to 1MHz;
- ◆RS485 MODBUS RTU serial interface, baud rate up to 115KB

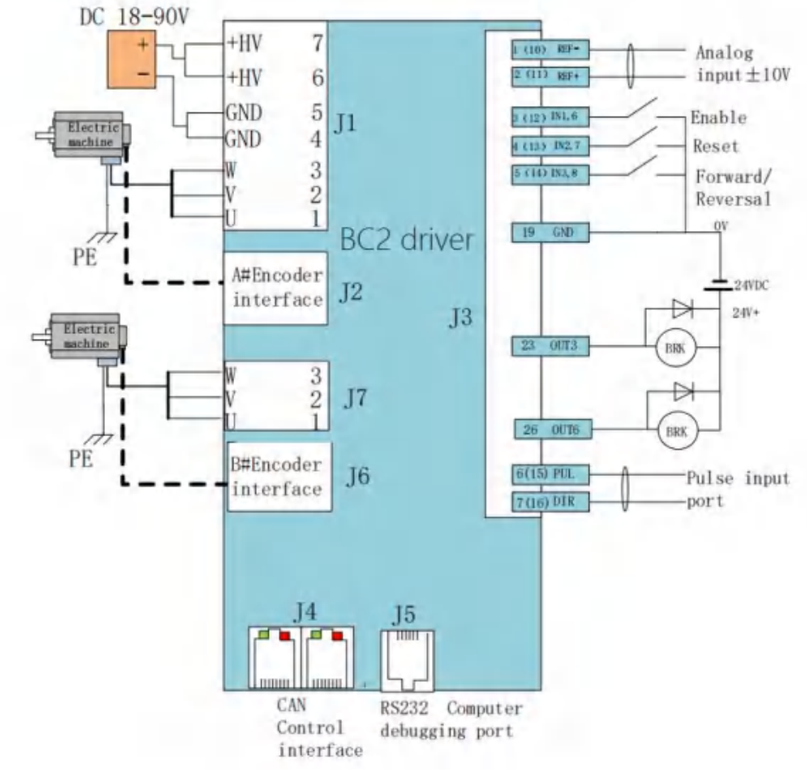
  (Only one RS485 or CAN can be selected);
- ◆Power supply voltage：18-90(135/180)VDC.

Position control	Command control mode			Pulse、CANopen、RS485 MODBUS RTU
	Input signal	Pulse instruction	Input pulse pattern	Includes "direction + pulse", "A, B phase orthogonal pulse", "CW/CCW pulse" three command forms.
			Signal format	Open collector
			Maximum pulse frequency	Maximum is 2Mpps
Speed control	Command control mode			PWM(RC command)、±10V analogue、CANopen、RS485 MODBUS RTU
	Input signal	PWM (RC command)	polarity	PWM=0∽100%，polarity=1/0
			nonpolar	PWM=50% +/-50%，
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			impedance	Differential input impedance =5KΩ
Current control	Command control mode			PWM、±10V analogue、CANopen、RS485 MODBUS RTU
	Input signal	PWM	polarity	PWM=0∽100%，polarity=1/0
			nonpolar	PWM=50% +/-50%，
			Frequency range	Minimum 1 kHz，maximum 100 kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			impedance	Differential input impedance =5KΩ
I/O signal	Digital input IN		Number of Ports	10 (IN4, IN5, IN9, IN10 are high-speed ports)
			Signal format	NPN，PNP
			Settable function	Servo enable, external reset, forward/reverse limit, motor stop, high-speed pulse input, etc.
	Digital output OUT		Number of Ports	6
			Signal format	NPN (low level active), can withstand maximum current 2A, maximum voltage 30V DC
			Settable function	Fault signal, lock control

BC2 Series Technical Specifications

Function	LED indicator			Drive status indication, communication indication
	Communications functions	RS-232	Baud rate	9600-115200
			Agreement	Full duplex mode, ASCII or binary format
		RS-485	Baud rate	9600-115200
			Agreement	modbus RTU
		CAN	Baud rate	20kbit/s-1Mbit/s
			Agreement	Canopen application layer DS-301V4.02
			Equipment	Dsp-402 device driver and motion control
	Protection function			Over-voltage,over-current,under-voltage,overload,overheat, encoder abnormality, position tracking error, etc. protection
Use environment	Installation location			Non-corrosive gas, flammable gas, etc
	Altitude			Below 1000 m
	Temperature			-20℃~+50℃
	Humidity			5%~95%RH，No condensation of water droplets
	Resistance to vibration/impact			Less than 4.9m/s2/ less than 19.6m/s2
Feedback	Digital A/B quadrature encoder (-E, max. 5M line/s)			
	Rotary Transformer(-R) (external resolution card),Optional			
	Digital Hall (-H (U/V/W, 120 degrees electrical phase difference)			
	Absolute encoder (A17) optional			

BC2 Typical wiring diagram



BC2 Series Terminal Definition

BC2 Series Terminal Definition

J5 RS-232 Debugging

PIN	Define	Designation
2	RXD	RS232 communication receiver
3	GND	Communication power grounding
5	TXD	RS232 communication sender

SW dialling code corresponds to station number

SW switch number	Corresponding station number
1	1
2	2
3	4
4	8

J1A# Motor Power

NO.	Define	Terminal	Wiring instructions
1	A#U	Motor power line U phase	Must be connected to the motor one by one according to the label
2	A#V	Motor power line V phase	
3	A#W	Motor power line W phase	
4\5	GND	Input power -	+18~90(135/180)VDC
6\7	+HV	Input power +	

J7B# Motor

NO.	Define	Terminal	Wiring instructions
1	B#U	Motor power line U phase	Must be connected to the motor one by one according to the label
2	B#V	Motor power line V phase	
3	B#W	Motor power line W phase	

J8 Auxiliary power supply

GND	0V
+AUXHV	+24V

J4 RS-485(CAN) communication terminal

PIN	Define	Optional
1	485A (CAN_H)	Optional CAN communication function in parentheses
2	485A (CAN_H)	
3	GND_C	
4	GND_C	
5	485B (CAN_L)	
6	485B (CAN_L)	

Motor encoder feedback J2 & J6

Pin	Define	Function	Pin	Define	Function
1	NTC*	NTC resistance temperature sensor wiring (Analog input function 2 select 1)	9	W+	Motor encoder W+ input
2	NTC*		10		
3	U+	Motor encoder U+ input	11	B-(DAT-)	Motor encoder B input (Absolute value coder DAT-）
4	+5V	Motor signal line +5V	12	B+(DAT+)	Motor encoder B+ input (Absolute value coder DAT+)
5	0V	Motor signal cable GND	13	A-	Motor encoder A- input
6	V+	Motor encoder V+ input	14	A+	Motor encoder A+ input
7	Z-	Motor encoder Z- input	15	IN3&IN8*	Temperature switch sensor wiring
8	Z+	Motor encoder Z+ input			

Note: 1. For hub motor, if the encoder input signal is single-ended open-collector signal, A connectsto pin 13 and B connects to pin 11;
2. *If you need Need NTC resistance temperature sensor input function, order please indicate;
3. *If the temperature switch sensor input function is required, connect to pin 1 and pin 15,order please indicate.

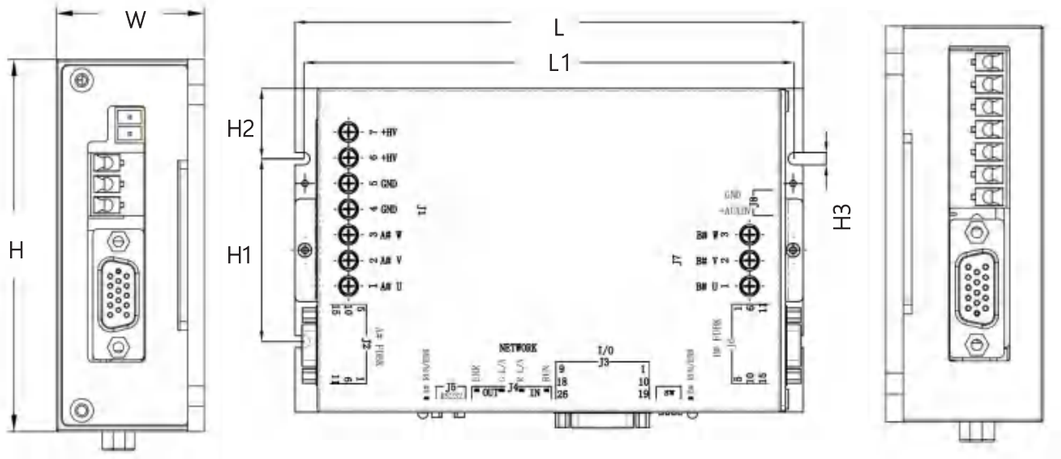
BC2 Series outline dimension drawing

J3 Control signal I/O terminal

Pin	Define	Function	Pin	Define	Function
19	0V	Power ground	20	5V	5V output (100mA)
A axis			B axis		
1	A#AREF+	Analog positive input	10	B#AREF+	Analog positive input
2	A#AREF-	Analog negative input	11	B#AREF-	Analog negative input
3	A#IN1_GP	Hardware enable	12	B#IN6_GP	Hardware enable
4	IN2_GP	custom	13	IN7_GP	custom
5	IN3_GP	custom	14	IN8_GP	custom
6	IN4_HS	custom	15	IN9_HS	custom
7	IN5_HS	custom	16	IN10_HS	custom
8	OUT1	custom	17	OUT4	custom
9	OUT2	custom	18	OUT5	custom
21	A#ENC_A	Motor encoder output signal A	24	B#ENC_A	Motor encoder output signal A
22	A#ENC_B	Motor encoder output signal B	25	B#ENC_B	Motor encoder output signal B
23	OUT3	custom	26	OUT6	custom

Note: Only incremental encoders can output motor encoder signals.

BC2Series External Dimensions



Model	L	L1	W	H	H1	H2	H3
BC2-01~25A	144	138.6	36	88	71.2	10.8	4.8
BC2-25A~35A	204	196.8	52	126	71.2	27.4	4.8
BC2-50A~70AF	204	196.8	86	130	71.2	29.4	4.8

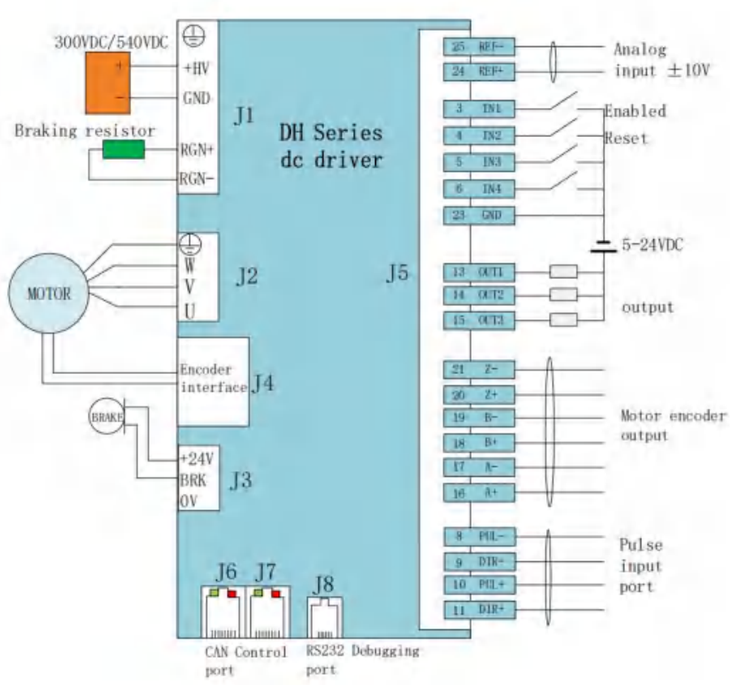
DH DC Series Technical Specifications

- ◆Control mode: position, speed, torque;
- ◆Sampling frequency (time) Current loop: 15KHz(66.7us); Speed/Position Loop :3KHz(330μs);
- ◆Motion mode: electronic gear, electronic CAM, proportional linkage, point to point;
- ◆Programmable protection: position error, over current, over voltage or under voltage, I^2t, output short circuit overload and other multi-directional protection;
- ◆Type of driving motor: brushless motor, brush motor, linear motor, voice coil motor, etc;
- ◆Position feedback: incremental encoder, Hall, grating ruler, analog sine and cosine (Sin/Cos) encoder(1.0Vp-p), rotary transformer (external conversion card);
- ◆Pulse response frequency up to 2MHz, with digital filtering function;
- ◆RS232 serial interface, baud rate up to 115KB;
- ◆CAN2.0 local area bus, compatible with CANopen DS-402, baud rate up to 1MHz ;
- ◆Power supply voltage：300VDC/540VDC ;

Position control	Command control mode			Pulse, ±10V analogue input, CANopen, function generator Trace indexing, software programming
	Input signal	Pulse instruction	Input pulse pattern	The command can be direction + pulse, ORTHOGONAL pulse of A and B phases, and CW/CCW pulse.
			Signal format	Differential input, open collector
			Maximum pulse frequency	Differential input :(Max. 2Mpps); Open collector :(Max. 500Kpps)
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Speed control	Command control mode			PWM, ±10V analog, function generator, software programming
	Input signal	PWM	Polarity	PWM=0∽100%，polarity=1/0
			Nonpolar	PWM=50% +/-50%
			Frequency range	Minimum 1kHz, maximum 100kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
Current control	Command control mode			PWM, ±10V analog, function generator, software programming
	Input signal	PWM	Polarity	PWM=0∽100%，polarity=1/0
			Nonpolar	PWM=50% +/-50%
			Frequency range	Minimum 1kHz, maximum 100kHz
			Minimum pulse width	220ns
		Analog instruction	Voltage range	Input voltage range ±10V
			Input impedance	Differential input impedance=5KΩ
I/O signal	Digital input IN		Number of Ports	12(IN6, IN7, IN8, IN9 and IN10 are high-speed ports, IN5 is used for motor temperature protection)
			Signal format	NPN(low active)
			Settable function	Servo enable, external reset, positive/reverse limit, motor running stop, high-speed analog acquisition control, PWM synchronous signal input, high-speed pulse input, etc
	Digital output OUT		Number of Ports	3
			Signal format	NPN(low effective), can withstand a maximum current of 300mAdc, maximum voltage of 30Vdc
			Settable function	Fault signal, brake control, PWM sync signal, custom event track state, position trigger, program control

Function	LED indicator			Drive status indication, communication indication
	Communications functions	RS-232	Baud rate	9600-115200
			Agreement	Full duplex mode, ASCII or binary format
		CAN	Baud rate	20kbit/s-1Mbit/s
			Agreement	Canopen application layer DS-301V4.02
			Equipment	Dsp-402 device driver and motion control
	Protection function			Overvoltage, overcurrent, undervoltage, overload, overheating, abnormal encoder, too large position tracking error and other protection
Use environment	Installation location			Non-corrosive gas, flammable gas, etc
	Altitude			Below 1000 m
	Temperature			-20℃~+50℃
	Humidity			5%~95%RH，No condensation of water droplets
	Resistance to vibration/impact			Less than 4.9m/s2/ less than 19.6m/s2
Feedback	Digital A/B quadrature encoder (-E, max. 5M line/s)			
	Auxiliary encoder input/output (full closed-loop control/-OP)			
	Analogue sin/cos encoder (-S) optional			
	Rotary Transformer(-R) Optional			
	Digital Hall (-H (U/V/W, 120 degrees electrical phase difference)			

DH DC Typical wiring diagram



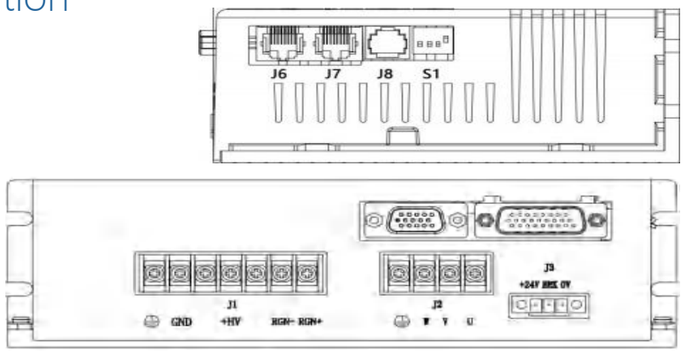
Description：

1.Input terminals IN1,IN2,IN3,IN4,IN5,IN 11,IN12 are common ports that can receive NPN and PNP signals. The maximum input voltage is 24V.

2. IN6, IN7,IN8,IN9,IN10 are high-speed input ports with the highest input voltage of 5V.

DH DC Series Terminal Definition

DH DC Series Terminal Definition



J1 Main power input terminal

PIN	Define	Designation
1	⏚	GND
2	GND	300VDC/540VDC
3	+HV	
4	RGN-	Brake Resistor Interface
5	RGN+	

J2 Motor Terminal

PIN	Define	Designation
1	⏚	Motor cable PE
2	W	Motor cable W
3	V	Motor cable V
4	U	Motor cable U

J3 Internal 24v output terminal

PIN	Define	Designation
1	+24v	24v output 200mA (Do not supply power to the motor lock)
2	BRK	Connect the motor holding wire
3	0V	0V

J6&J7 CAN communication link

PIN	Define	Designation
1	CANH	CANH signal
2	CANL	CANL signal
3/7	GND	Communication power grounding

J8 RS-232 Debugging

PIN	Define	Designation
2	RXD	RS232 communication receiver
3	GND	Communication power grounding
5	TXD	RS232 communication sender

J5 Control signal terminal

Pin	Define	Function	Pin	Define	Function
1	FG	Grounding	14	OUT2	custom
2	IN5	Motor temperature	15	OUT3	custom
3	IN1	Enable	16	EONA+	Motor encoder output signal Z-
4	IN2	custom	17	EONA-	Motor encoder output signal Z+
5	IN3	custom	18	EONB+	Motor encoder output signal B-
6	IN4	custom	19	EONB-	Motor encoder output signal B+
7	IN6	custom	20	EONZ+	Motor encoder output signal A-
8	IN7	custom	21	EONZ-	Motor encoder output signal A+
9	IN8	custom	22	+5V	5V power output(400mA)
10	IN9	custom	23	GND	power ground
11	IN10	custom	24	Ref+	Analog quantity + input
12	IN11	custom	25	Ref-	Analog quantity - input
13	OUT1	custom	26	IN12	custom

DH Series outline dimension drawing

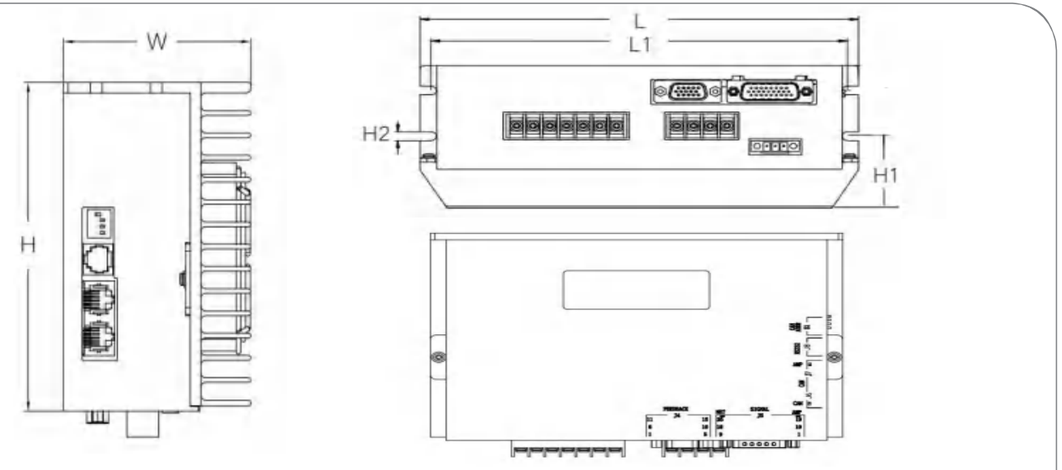
J4 Motor encoder feedback

PIN	Define	PIN	Define	PIN	Define
1	A+	6	Z-	11	W+
2	A-	7	U+	12	SIN-
3	B+	8	SIN+	13	+5V
4	B-	9	V+	14	0V
5	Z+	10	COS+	15	COS-

S1 SW Indicates the station number of the DIP switch

SW switch Number	Corresponding stand no
1	1
2	2
3	4
4	8

DH DC Series External Dimensions



Model	L	L1	W	H	H1	H2
DHPC-30005-OPEB-DC	194	174	58.5	113.5	21	4-5.0
DHPC-30010-OPEB-DC						
DHPC-30015-OPEB-DC	200	190	60	140	21	4-5.0
DHPC-54005-OPEB-DC						
DHPC-30020-OPEB-DC	200	190	80	140	40.5	4-5.0
DHPC-30025-OPEB-DC						
DHPC-54010-OPEB-DC						
DHPC-54015-OPEB-DC						
DHPC-30035-OPEB-DC	285	275	188	114	20.5	4-5.0
DHPC-30050-OPEB-DC						
DHPC-54020-OPEB-DC						
DHPC-54025-OPEB-DC						
DHPC-54030-OPEB-DC						
DHPC-54035-OPEB-DC						

Driver Application Areas

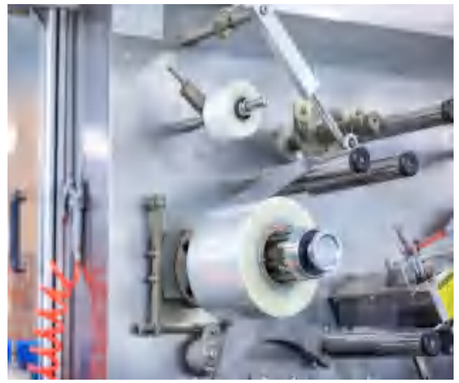
DC, DH DC, DE, DE2 and BC, BC2 Series Application Areas

Servo drive machine is used in various servo motors, robotics field, new energy field, automation field, AGV automotive industry, control system, can convert the input voltage signal into the mechanical output on the motor shaft, dragging the controlled element, so as to achieve the purpose of control.

Logistics automation

Robotics field

New energy field



Packaging machine field

Printing machine field

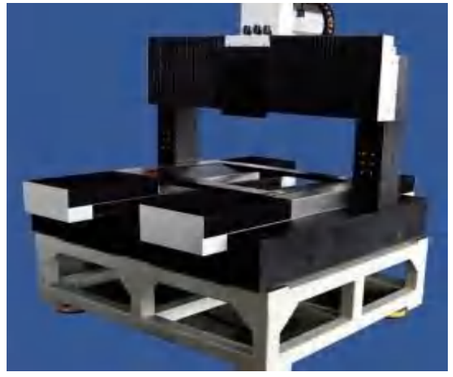
Product inspection system

AGV vehicle

Voice coil motor

Food processing

Textile machinery industry



Linear motor

Rotary direct drive torque motor

Transportation system

Filling and marking

Spraying equipment industry

Peripheral Accessories

DB-01-5P5 Brake unit

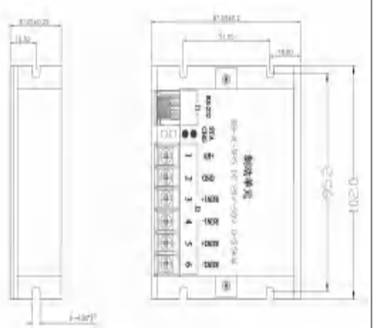
Product Overview:

Principle of braking unit: The braking unit consists of a high-power transistor MOS and its driving circuit. Its function is to add an external braking component to speed up the consumption of regenerative power when the discharge current link capacitor cannot be stored within the specified voltage range or when the internal braking resistor cannot be consumed in time to make the DC part 'over-voltage'.

Model Summary:

Model	Input voltage	Power
DB-01-5P5	18~90VDC	0~5.5kW
DB-05-5P5	18~180VDC	0~5.5kW

Overall dimensions:



Resistive

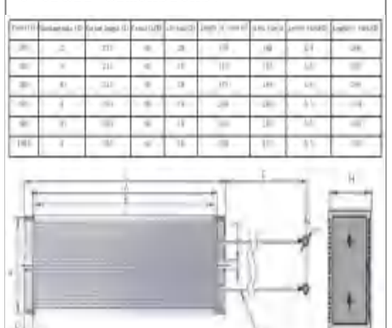
Product Overview:

Brake resistance: is a kind of aluminum shell resistance, mainly used in the mechanical system of the servo drive control motor to stop quickly, to help the motor convert the regenerative electric energy generated by the rapid stop into heat energy.

Model Summary:

Model	Power	Resistance value
300W 2R	300W	2R
300W 4R	300W	4R
300W 8R	300W	8R
600W 2R	600W	2R
600W 4R	600W	4R
1000W 4R	1000W	4R

Overall dimensions:



RS10-1007I Rotary card

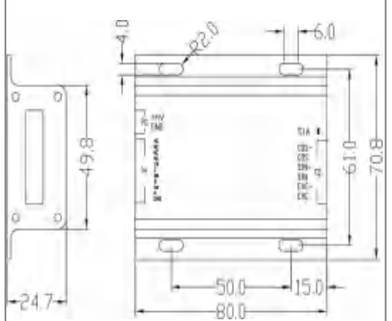
Product Overview:

The rotary decoding board is mainly used for rotary decoding, which can convert the rotary signal into the signal format of the photoelectric encoder (A+, A-, B+, B-, Z+, Z-), and the output digit is 10 bits, corresponding to the simulation incremental encoder is 1024 PPR.

Model Summary:

Model	Input voltage	Encoder accuracy
RS10-1003I09	18~90VDC	1024 PPR
RS10-1003I18	18~180VDC	1024 PPR

Overall dimensions:



Peripheral Accessories

CR090-MRTU CAN-485

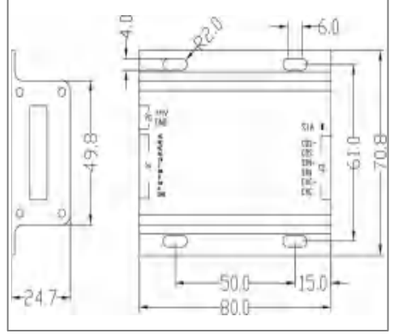
Product Overview:

The CAN-RS485 converter realizes the conversion between the CAN bus interface and the RS485 level serial port. It CAN conveniently connect microcontroller such as single chip microcomputer, ARM and servo driver to CAN bus network to realize data sending and receiving in industrial field. The module can be widely used in industrial control, automotive electronics, security monitoring and other fields.

Model Summary:

Model	Input voltage	Remote Control Terminal
CR090-MRTU	18~90VDC	MRTU
CR180-MRTU	18~180VDC	MRTU

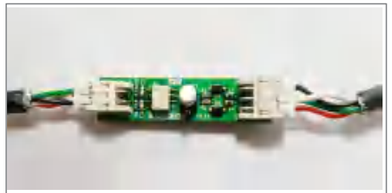
Overall dimensions:



Rectifier Modules

The power grid supplies AC power to users, while various radio devices require DC power. Rectification, is the process of changing alternating current into direct current. Using devices with unidirectional conductive properties, alternating current that changes direction and size can be converted to direct current.

Differential switch set photoelectric isolation card

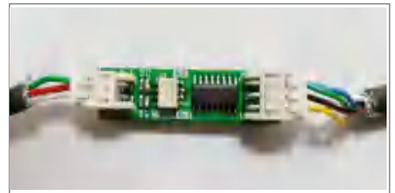


Differential to photoelectric isolator is the function of electrical isolation between signals. Can be encoder, servo drive and other output differential signal isolation conversion, directly connected to the PLC, motion control cards and other machines that can only receive open set signals, to facilitate the connection between the equipment, while the converter adopts optoelectronic isolation can improve the system's ability to resist interference, saving system resources.

Tuning line

RS-232 serial cable RJ11 to DB9P for SMS modem and various conversion devices, easy to achieve the conversion between the computer USB interface to the general serial port COM. Provides fast access to computers and laptops without serial ports.

Open set to differential photoisolation card



Differential optoisolator can convert differential/open-collector pulse signals into differential signals, and at the same time achieve the function of electrical isolation between the two signals. The encoder, servo drive and other output signals can be isolated and converted to differential output, extending the signal transmission distance and improving the system anti-interference, convenient for the power supply system is not the same between the equipment connection, saving system resources.

Motor introduction and model description

Servo motor comprehensive introduction

The ONK servo control system composed of DC servo permanent magnet synchronous motor and corresponding servo drive device can be widely used in transportation robots, medical treatment, machine tools, textiles, plastics, printing and dyeing, printing, building materials, packaging, woodworking, chemical and other fields.

The motor consists of a stator, a rotor, a high-precision feedback element (such as: incremental photoelectric encoder, rotary transformer, etc.). Using high-performance rare earth permanent magnet material to form an air gap magnetic field, using caseless stator core, large temperature gradient, high heat dissipation efficiency, with the following characteristics:：

- Compact structure, high power density;
- Medium inertia, fast response speed;
- Ultra-high intrinsic coercivity rare earth permanent magnet material; Strong anti-demagnetization ability;
- Constant torque output in almost the entire speed range;
- Low speed torque ripple is small; High balance accuracy, high speed running smoothly;
- Low noise, low vibration; Fully sealed design; High cost performance.

Servomotor Model Description

80TM -024 30 A 5 -E B NS

Flange Mounting Size
40/60/80/110/130/180
TM:Surface-mounted
BM:Embedded

Rated torque
R16:0.16NM 013:1.3NM 024:2.4NM
050:5NM 190:19NM 480:48NM

Rated speed
30:3000Rpm 15:1500Rpm 20:2000Rpm

Rated voltage
A:24V C:48V E:72V I:96V F:220V G:380V

Polar logarithm
5:5 pairs of poles 10:10 pairs of poles

Encoder Feedback
E:Optical incremental A/B quadrature
C:Magnetic incremental A/B quadrature
A17:Optical absolute 17bit
C17:Magneto absolute 17bit
R:Rotary Transformer
H:Digital Hall
S:Analogue sine-cosine

Brake
B: With brake

Non-standard codes
NS: Non-standard shaft
NC: Non-standard flange
US: Ultra-short
F: With fan

Remarks: 1.E default E25, means 2500PPR photoelectric incremental;

2.C defaults to C25, indicating 2500PPR magneto incremental；

3.A17, denoting the photoelectric absolute value of 17bit;

4.C17, denoting the magneto-electric absolute value of 17bit.

Motor Application Areas

Servomotor Application Areas

Servo motors are used in various industrial equipment, medical industry, robot industry, new energy industry, laser industry, automation industry, AGV automotive industry, control system, can convert voltage signals into torque and speed to control mechanical components, so as to achieve the purpose of operation.

Logistics automation

Robotics field

New energy field

Laser device

AGV vehicle

Lead screw

Medical equipment

Industrial Wire Cutting Machine

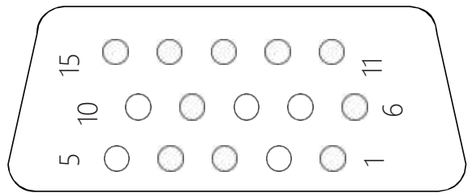
Servo control system

Motor Terminal Definition

Feedback Connector

Socket Numbers	YEGN	RD	BU	BK
Signal leads	PE	U	V	W

DB15 PIN terminal male

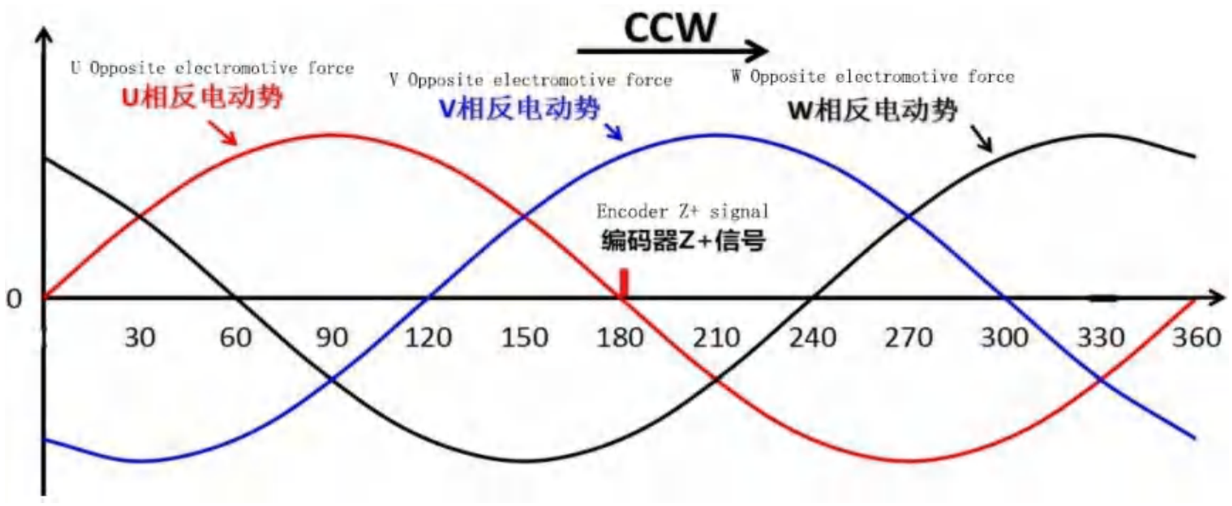


Encoder Socket

Power Line Socket

DC servo motor																
Socket Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	outer shell
Signal lead	Sin +	Sin -	U+	5V	0V	V+	Z-	Z+	W+	Cos +	B-	B+	A-	A+	Cos -	PE
Tamagawa Color	GN	GN BK	BN	RD	BK	GY	YE BK	YE	WH	BU	GN BK	GN	BU BK	BU	BU BK	
Asahi colour			BN	RD	BK	BU	YE WH	YE	ORG		GY WH	GY	GN WH	BU		

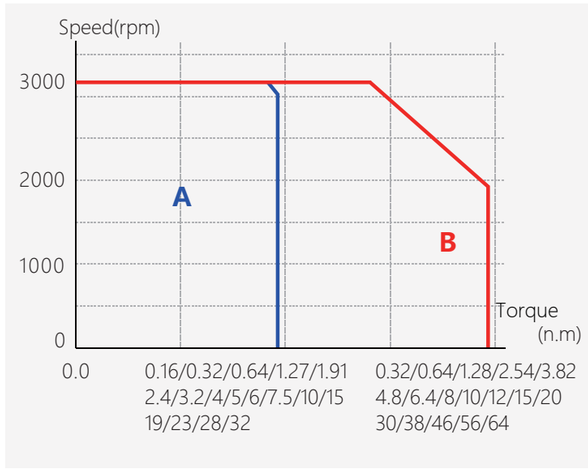
Phase relation between encoder zero and motor



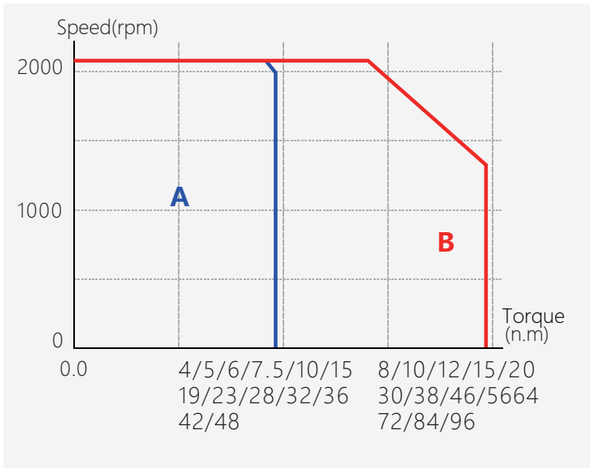
Motor characteristic curve

Torque Characteristic

Torque-speed characteristic curve



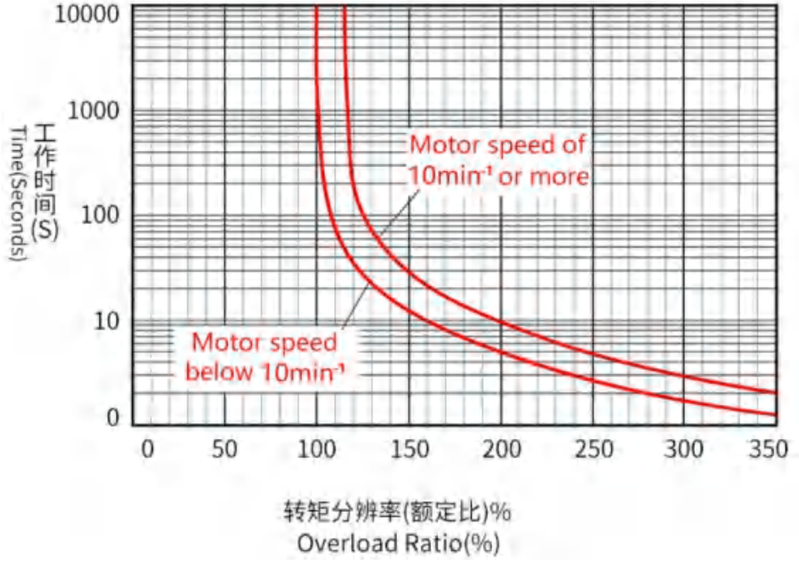
A:Continuous Duty Zone



B:Intermittent Duty Zoue

Overload characteristic curve

The operating time is set at an ambient motor temperature of 40°C and under hot start conditions.



1.The above overload characteristics do not guarantee continuous use of 100% or more of the output;
2.When using the product, please make sure that the effective torque is within the continuous use range of the 'torque-speed characteristic';
3.Due to product improvement or specification change, we will update the specification in due course, please pay attention to the relevant information without prior notice.

Motor Specification Parameter Table

◆40 series

Motor Model	40TM-R3230A5-X	40TM-R3230C5-X
Power(W)	100	100
Rated voltage(V)	24VDC	48VDC
Rated torque(N.M)	0.32	0.32
Rated speed(rpm)	3000	3000
Rated current(Arms)	6.5±10%	3.8±10%
Torque coefficient(N.m/A)	0.05±10%	0.09±10%
Rotor inertial(kg.m^{2}X10^{-4})	0.06±10%	0.06±10%
Line reaction potential(V/krpm)	3.2±10%	5.7±10%
Line inductor(mH)	0.4±10%	1.1±10%
Line resistance(Ω)	0.6±10%	1.3±10%
Motor length L(mm)	82/88	82/88
With brake length LB(mm)	102/108	102/108
Weight(KG)	0.5/0.65	0.5/0.65
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit	
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA	
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)	
Protection class	IP54（IP65 optional）	

◆60 series

Motor Model	60BM-R6430A5-X	60BM-R6430C5-X	60XM-01330A5-X	60XM-01330C5-X
Power(W)	200	200	400	400
Rated voltage(V)	24VDC	48VDC	24VDC	48VDC
Rated torque(N.M)	0.64	0.64	1.27	1.27
Rated speed(rpm)	3000	3000	3000	3000
Rated current(Arms)	11±10%	5.2±10%	20±10%	11±10%
Torque coefficient(N.m/A)	0.06±10%	0.12±10%	0.06±10%	0.12±10%
Rotor inertial(kg.m^{2}X10^{-4})	0.3±10%	0.3±10%	0.58±10%	0.58±10%
Line reaction potential(V/krpm)	3.7±10%	7.5±10%	3.7±10%	7.5±10%
Line inductor(mH)	0.448±10%	1.648±10%	0.17±10%	1.025±10%
Line resistance(Ω)	0.169±10%	0.571±10%	0.07±10%	0.289±±10%
Motor length L(mm)	77/89	77/89	98/109	98/109
With brake length LB(mm)	116/127	116/127	135/146	135/146
Weight(KG)	1/1.35	1/1.35	1.35/1.75	1.35/1.75
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)			
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA			
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)			
Protection class	IP54（IP65 optional）			

Motor Specification Parameter Table

◆60 series

Motor Model	60BM-01930A5-X	60XM-01930C5-X	60BM-01930E5-X
Power(W)	600	600	600
Rated voltage(V)	24VDC	48VDC	72VDC
Rated torque(N.M)	1.91	1.91	1.91
Rated speed(rpm)	3000	3000	3000
Rated current(Arms)	30±10%	15.5±10%	10±10%
Torque coefficient(N.m/A)	0.06±10%	0.12±10%	0.18±10%
Rotor inertial(kg.m^{2}X10^{-4})	0.85±10%	0.85±10%	0.85±10%
Line reaction potential(V/krpm)	3.7±10%	7.5±10%	11±10%
Line inductor(mH)	0.156±10%	0.658±10%	0.84±10%
Line resistance(Ω)	0.052±10%	0.17±10%	0.37±10%
Motor length L(mm)	115/127	116/127	116/127
With brake length LB(mm)	165/177	153/165	153/165
Weight(KG)	1.75/2.15	1.75/2.15	1.75/2.15
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)		
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA		
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)		
Protection class	IP54（IP65 optional）		

◆80 series

Motor Model	80BM-02430A5-X	80BM-02430C5-X	80BM-02430E5-X	80BM-03230C5-X	80BM-03230E5-X
Power(W)	750	750	750	1000	1000
Rated voltage(V)	24VDC	48VDC	72VDC	48VDC	72VDC
Rated torque(N.M)	2.4	2.4	2.4	3.2	3.2
Rated speed(rpm)	3000	3000	3000	3000	3000
Rated current(Arms)	38±10%	19.5±10%	12.5±10%	25±10%	17±10%
Torque coefficient(N.m/A)	0.06±10%	0.12±10%	0.19±10%	0.12±10%	0.18±10%
Rotor inertial(kg.m^{2}X10^{-4})	2.15±10%	1.7±10%	1.7±10%	2.15±10%	2.15±10%
Line reaction potential(V/krpm)	3.7±10%	7.5±10%	11.5±10%	7.5±10%	11±10%
Line inductor(mH)	0.12±10%	0.489±10%	0.3±10%	0.2±10%	±10%
Line resistance(Ω)	0.0138±10%	0.118±10%	0.85±10%	0.05±10%	±10%
Motor length L(mm)	121/134	106/120	106/120	120/134	120/134
With brake length LB(mm)	161/184	146/160	146/160	160/174	160/174
Weight(KG)	2.95/3.6	2.3/3.05	2.3/3.05	2.95/3.6	2.95/3.6
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F)				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

Motor Specification Parameter Table

◆80 series

Motor Model	80TM-01330C10-X	80TM-01330E10-X	80TM-02430C10-X	80TM-02430E10-X	80TM-03230C10-X
Power(W)	400	400	750	750	1000
Rated voltage(V)	48VDC	72VDC	48VDC	72VDC	48VDC
Rated torque(N.M)	1.3	1.27	2.4	2.4	3.2
Rated speed(rpm)	3000	3000	3000	3000	3000
Rated current(Arms)	10±10%	6.5±10%	18.5±10%	13±10%	25±10%
Torque coefficient(N.m/A)	0.13±10%	0.19±10%	0.13±10%	0.20±10%	0.13±10%
Rotor inertial($kg.m^2X10^{-4}$)	0.72±10%	0.72±10%	1.64±10%	1.64±10%	2.33±10%
Line reaction potential(V/krpm)	7.82±10%	11.9±10%	7.7±10%	11.5±10%	8±10%
Line inductor(mH)	0.517±10%	±10%	0.136±10%	0.313±10%	0.398±10%
Line resistance(Ω)	0.363±10%	±10%	0.114±10%	0.286±10%	0.082±10%
Motor length L(mm)	66/80	66/80	86/100	86/100	101/115
With brake length LB(mm)	101/115	101/114	115/129	115/129	141/155
Weight(KG)	1.1/1.9	1.1/1.9	1.8/2.6	1.8/2.6	2.3/3
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

◆80 series

Motor Model	80TM-03230E10-X	80TM-04030C10-X	80TM-04030E10-X	80TM-04830C10-X	80TM-04830E10-X
Power(W)	1000	1250	1250	1500	1500
Rated voltage(V)	72VDC	48VDC	72VDC	48VDC	72VDC
Rated torque(N.M)	3.2	4	4	4.8	4.8
Rated speed(rpm)	3000	3000	3000	3000	3000
Rated current(Arms)	16.7±10%	31.5±10%	21±10%	37±10%	24±10%
Torque coefficient(N.m/A)	0.19±10%	0.13±10%	0.19±10%	0.13±10%	0.20±10%
Rotor inertial($kg.m^2X10^{-4}$)	2.33±10%	2.33±10%	2.33±10%	2.88±10%	2.88±10%
Line reaction potential(V/krpm)	11.6±10%	7.65±10%	11.6±10%	7.7±10%	12.1±10%
Line inductor(mH)	0.192±10%	0.079±10%	±10%	0.062±10%	0.148±10%
Line resistance(Ω)	0.14±10%	0.064±10%	±10%	0.05±10%	0.106±10%
Motor length L(mm)	101/115	101/115	101/115	115/129	115/129
With brake length LB(mm)	141/155	141/155	141/155	155/169	155/169
Weight(KG)	2.3/3	2.3/3	2.3/3	2.85/3.7	2.85/3.7
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

Motor Specification Parameter Table

◆110 series

Motor Model	110TM-03630A5-X	110TM-04030C5-X	110TM-04030E5-X	110TM-04030I5-X
Power(W)	1100	1250	1250	1250
Rated voltage(V)	24VDC	48VDC	72VDC	96VDC
Rated torque(N.M)	3.6	4	4	4
Rated speed(rpm)	3000	3000	3000	3000
Rated current(Arms)	56±10%	29.5±10%	21±10%	15.5±10%
Torque coefficient(N.m/A)	0.06±10%	0.13±10%	0.19±10%	0.26±10%
Rotor inertial($kg.m^2X10^{-4}$)	7.7±10%	7.7±10%	7.7±10%	7.7±10%
Line reaction potential(V/krpm)	3.9±10%	8.16±10%	11.7±10%	15.6±10%
Line inductor(mH)	0.032±10%	0.13±10%	0.16±10%	0.56±10%
Line resistance(Ω)	0.017±10%	0.044±10%	0.024±10%	0.154±10%
Motor length L(mm)	126/139	126/139	126/139	126/139
With brake length LB(mm)	171/184	171/184	171/184	171/184
Weight(KG)	4.14/6.25	4.14/6.25	4.14/6.25	4.14/6.25
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)			
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA			
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)			
Protection class	IP54（IP65 optional）			

◆110 series

Motor Model	110TM-05020C5-X	110TM-05020E5-X	110TM-05030A5-X	110TM-05030C5-X	110TM-05030E5-X
Power(W)	1050	1050	1550	1550	1550
Rated voltage(V)	48VDC	72VDC	24VDC	48VDC	72VDC
Rated torque(N.M)	5	5	5	5	5
Rated speed(rpm)	2000	2000	3000	3000	3000
Rated current(Arms)	26±10%	19±10%	77.5±10%	37±10%	26±10%
Torque coefficient(N.m/A)	0.19±10%	0.28±10%	0.06±10%	0.13±10%	0.19±10%
Rotor inertial($kg.m^2X10^{-4}$)	7.7±10%	7.7±10%	7.7±10%	7.7±10%	7.7±10%
Line reaction potential(V/krpm)	11.7±10%	16.3±10%	3.9±10%	6.8±10%	11.7±10%
Line inductor(mH)	0.16±10%	±10%	±10%	0.104±10%	0.292±10%
Line resistance(Ω)	0.024±10%	±10%	±10%	0.032±10%	0.08±10%
Motor length L(mm)	126/139	126/139	126/139	126/139	126/139
With brake length LB(mm)	171/184	171/184	171/184	171/184	171/184
Weight(KG)	4.14/6.25	4.14/6.25	4.14/6.25	4.14/6.25	4.14/6.25
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

Motor Specification Parameter Table

◆110 series

Motor Model	110TM-06020C5-X	110TM-06020E5-X	110TM-06030C5-X	110TM-06030E5-X	110TM-07520C5-X
Power(W)	1250	1250	1880	1880	1570
Rated voltage(V)	48VDC	72VDC	48VDC	72VDC	48VDC
Rated torque(N.M)	6	6	6	6	7.5
Rated speed(rpm)	2000	2000	3000	3000	2000
Rated current(Arms)	32±10%	22±10%	46±10%	31±10%	39±10%
Torque coefficient(N.m/A)	0.19±10%	0.27±10%	0.128±10%	0.19±10%	0.19±10%
Rotor inertial(kg.m^{2}X10^{-4})	10.9±10%	10.9±10%	10.9±10%	10.9±10%	10.9±10%
Line reaction potential(V/krpm)	11.6±10%	16.5±10%	7.2±10%	11.6±10%	11.6±10%
Line inductor(mH)	0.162±10%	±10%	0.064±10%	0.187±10%	±10%
Line resistance(Ω)	0.072±10%	±10%	0.023±10%	0.053±10%	±10%
Motor length L(mm)	156/169	156/169	156/169	156/169	156/169
With brake length LB(mm)	193/206	193/206	193/206	193/206	193/206
Weight(KG)	6.36/8.47	6.36/8.47	6.36/8.47	6.36/8.47	6.36/8.47
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

◆110 series

Motor Model	110TM-07520E5-X	110TM-07530C5-X	110TM-07530E5-X	110TM-07530I5-X	110TM-07530M5-X
Power(W)	1570	2350	2350	2350	2350
Rated voltage(V)	72VDC	48VDC	72VDC	96VDC	144VDC
Rated torque(N.M)	7.5	7.5	7.5	7.5	7.5
Rated speed(rpm)	2000	3000	3000	3000	3000
Rated current(Arms)	27±10%	59±10%	39±10%	28.5±10%	19±10%
Torque coefficient(N.m/A)	0.28±10%	0.13±10%	0.19±10%	0.26±10%	0.4±10%
Rotor inertial(kg.m^{2}X10^{-4})	10.9±10%	10.9±10%	10.9±10%	10.9±10%	10.9±10%
Line reaction potential(V/krpm)	17.3±10%	7.7±10%	11.6±10%	16±10%	24±10%
Line inductor(mH)	0.415±10%	0.081±10%	±10%	±10%	±10%
Line resistance(Ω)	0.102±10%	0.032±10%	±10%	±10%	±10%
Motor length L(mm)	156/169	156/169	156/169	156/169	156/169
With brake length LB(mm)	193/206	193/206	193/206	193/206	193/206
Weight(KG)	6.36/8.47	6.36/8.47	6.36/8.47	6.36/8.47	6.36/8.47
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

Motor Specification Parameter Table

◆130 series

Motor Model	130TM-05020C5-X	130TM-05030A5-X	130TM-05030C5-X	130TM-05030E5-X
Power(W)	1050	1550	1550	1550
Rated voltage(V)	48VDC	24VDC	48VDC	72VDC
Rated torque(N.M)	5	5	5	5
Rated speed(rpm)	2000	3000	3000	3000
Rated current(Arms)	30±10%	75.5±10%	37±10%	26±10%
Torque coefficient(N.m/A)	0.18±10%	0.06±10%	0.12±10%	0.20±10%
Rotor inertial(kg.m^{2}X10^{-4})	12±10%	12±10%	12±10%	12±10%
Line reaction potential(V/krpm)	11.2±10%	4±10%	7.6±10%	11.8±10%
Line inductor(mH)	0.212±10%	0.027±10%	0.106±10%	±10%
Line resistance(Ω)	0.052±10%	0.014±10%	0.033±10%	±10%
Motor length L(mm)	119/132	119/132	119/132	119/132
With brake length LB(mm)	166/179	166/179	166/179	166/179
Weight(KG)	6/7.8	6/7.8	6/7.8	6/7.8
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)			
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA			
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)			
Protection class	IP54（IP65 optional）			

◆130 series

Motor Model	130TM-07530A5-X	130TM-07520C5-X	130TM-07520E5-X	130TM-07530C5-X
Power(W)	2350	1570	1570	2350
Rated voltage(V)	24VDC	48VDC	72VDC	48VDC
Rated torque(N.M)	7.5	7.5	7.5	7.5
Rated speed(rpm)	3000	2000	2000	3000
Rated current(Arms)	113±10%	39±10%	27.5±10%	59±10%
Torque coefficient(N.m/A)	0.066±10%	0.19±10%	0.27±10%	0.12±10%
Rotor inertial(kg.m^{2}X10^{-4})	12.9±10%	12.9±10%	12.9±10%	12.9±10%
Line reaction potential(V/krpm)	4±10%	11.5±10%	16.5±10%	7.7±10%
Line inductor(mH)	±10%	±10%	±10%	0.065±10%
Line resistance(Ω)	±10%	±10%	±10%	0.021±10%
Motor length L(mm)	149/162	134/147	134/147	134/147
With brake length LB(mm)	196/209	181/194	181/194	181/194
Weight(KG)	8/9.8	8/9.8	8/9.8	8/9.8
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)			
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA			
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)			
Protection class	IP54（IP65 optional）			

Motor Specification Parameter Table

◆130 series

Motor Model	130TM-07530E5-X	130TM-10020C5-X	130TM-10020E5-X	130TM-10030C5-X	130TM-10030E5-X
Power(W)	2350	2100	2100	3150	3150
Rated voltage(V)	72VDC	48VDC	72VDC	48VDC	72VDC
Rated torque(N.M)	7.5	10	10	10	10
Rated speed(rpm)	3000	2000	2000	3000	3000
Rated current(Arms)	39±10%	52.5±10%	36.5±10%	78±10%	52.5±10%
Torque coefficient(N.m/A)	0.19±10%	0.19±10%	0.27±10%	0.12±10%	0.19±10%
Rotor inertial(kg.m^{2}X10^{-4})	12.9±10%	12.9±10%	12.9±10%	12.9±10%	12.9±10%
Line reaction potential(V/krpm)	11.6±10%	11.5±10%	16.6±10%	7.7±10%	11.5±10%
Line inductor(mH)	0.151±10%	0.188±10%	0.8±10%	±10%	±10%
Line resistance(Ω)	0.057±10%	0.049±10%	0.07±10%	±10%	±10%
Motor length L(mm)	134/147	149/162	149/162	149/162	149/162
With brake length LB(mm)	181/194	196/209	196/209	196/209	196/209
Weight(KG)	8/9.8	8/9.8	8/9.8	8/9.8	8/9.8
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

◆130 series

Motor Model	130TM-10030I5-X	130TM-10030M5-X	130TM-15020C5-X	130TM-15020E5-X	130TM-15025C5-X
Power(W)	3150	3150	3150	3150	3800
Rated voltage(V)	96VDC	144VDC	48VDC	72VDC	48VDC
Rated torque(N.M)	10	10	15	15	15
Rated speed(rpm)	3000	3000	2000	2000	2500
Rated current(Arms)	38.6±10%	25.3±10%	81±10%	56.5±10%	94±10%
Torque coefficient(N.m/A)	0.26±10%	0.4±10%	0.18±10%	0.26±10%	0.16±10%
Rotor inertial(kg.m^{2}X10^{-4})	12.9±10%	12.9±10%	17±10%	17±10%	17±10%
Line reaction potential(V/krpm)	15.6±10%	24±10%	11.2±10%	16±10%	9.6±10%
Line inductor(mH)	±10%	±10%	0.26±10%	±10%	±10%
Line resistance(Ω)	±10%	±10%	0.02±10%	±10%	±10%
Motor length L(mm)	149/162	149/162	166/179	166/179	166/179
With brake length LB(mm)	196/209	196/209	221/234	221/234	221/234
Weight(KG)	8/9.8	8/9.8	11/12.8	11/12.8	11/12.8
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

Motor Specification Parameter Table

◆130 series

Motor Model	130TM-15030C5-XF	130TM-15030E5-XF	130TM-15030I5-XF	130TM-15030M5-XF	130TM-16030C5-XF
Power(W)	4700	4700	4700	4700	5000
Rated voltage(V)	48VDC	72VDC	96VDC	144VDC	48VDC
Rated torque(N.M)	15	15	15	15	16
Rated speed(rpm)	3000	3000	3000	3000	3000
Rated current(Arms)	112±10%	81±10%	57±10%	38±10%	120±10%
Torque coefficient(N.m/A)	0.13±10%	0.18±10%	0.264±10%	0.4±10%	0.12±10%
Rotor inertial(kg.m^{2}X10^{-4})	17±10%	17±10%	17±10%	17±10%	25.2±10%
Line reaction potential(V/krpm)	8±10%	11.2±10%	16±10%	24±10%	7.7±10%
Line inductor(mH)	0.26±10%	0.26±10%	±10%	±10%	0.66±10%
Line resistance(Ω)	0.019±10%	0.019±10%	±10%	±10%	0.04±10%
Motor length L(mm)	209(222)	209(222)	209(222)	209(222)	224/237
With brake length LB(mm)	264(277)	264(277)	264(277)	264(277)	264/277
Weight(KG)	11/12.8	11/12.8	11/12.8	11/12.8	14/15.8
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R); With fan（-F)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

◆130 series

Motor Model	130TM-16030E5-XF	130TM-19015C5-X	130TM-19015E5-X	130TM-19020C5-X	130TM-19020E5-X
Power(W)	5000	3000	3000	4000	4000
Rated voltage(V)	72VDC	48VDC	72VDC	48VDC	72VDC
Rated torque(N.M)	16	19	19	19	19
Rated speed(rpm)	3000	1500	1500	2000	2000
Rated current(Arms)	84±10%	75±10%	54.5±10%	99.5±10%	66.5±10%
Torque coefficient(N.m/A)	0.19±10%	0.25±10%	0.34±10%	0.19±10%	0.28±10%
Rotor inertial(kg.m^{2}X10^{-4})	25.2±10%	25.2±10%	25.2±10%	25.2±10%	25.2±10%
Line reaction potential(V/krpm)	11.5±10%	15.36±10%	21.1±10%	11.5±10%	17.2±10%
Line inductor(mH)	0.66±10%	0.66±10%	0.66±10%	0.66±10%	0.66±10%
Line resistance(Ω)	0.04±10%	0.04±10%	0.04±10%	0.04±10%	0.04±10%
Motor length L(mm)	224/237	181/194	181/194	196/209	181/194
With brake length LB(mm)	264/277	221/234	221/234	221/234	221/234
Weight(KG)	14/15.8	14/15.8	14/15.8	14/15.8	14/15.8
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R); With fan（-F)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

Motor Specification Parameter Table

◆180 series

Motor Model	180TM-10030A5-X	180TM-15015C5-X	180TM-15015E5-X	180TM-15020C5-X	180TM-15020E5-X
Power(W)	3000	2350	2350	3000	3000
Rated voltage(V)	24VDC	48VDC	72VDC	48VDC	72VDC
Rated torque(N.M)	10	15	15	15	15
Rated speed(rpm)	3000	1500	1500	2000	2000
Rated current(Arms)	133.5±10%	59±10%	42±10%	82±10%	52±10%
Torque coefficient(N.m/A)	0.07±10%	0.25±10%	0.35±10%	0.18±10%	0.29±10%
Rotor inertial(kg.m^{2}X10^{-4})	60±10%	60±10%	60±10%	90±10%	90±10%
Line reaction potential(V/krpm)	4.5±10%	15.3±10%	21.4±10%	11±10%	17.4±10%
Line inductor(mH)	0.07±10%	±10%	±10%	±10%	±10%
Line resistance(Ω)	0.005±10%	±10%	±10%	±10%	±10%
Motor length L(mm)	183	183	183	213(183)	213(183)
With brake length LB(mm)	277	277	277	277	277
Weight(KG)	14.5/32	14.5/32	14.5/32	18.9/32	18.9/32
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

◆180 series

Motor Model	180TM-19015C5-X	180TM-19015E5-X	180TM-19020C5-X	180TM-19020E5-X	180TM-19020I5-X
Power(W)	3000	3000	4000	4000	4000
Rated voltage(V)	48VDC	72VDC	48VDC	72VDC	96VDC
Rated torque(N.M)	19	19	19	19	19
Rated speed(rpm)	1500	1500	2000	2000	2000
Rated current(Arms)	79±10%	53.5±10%	99±10%	68±10%	50±10%
Torque coefficient(N.m/A)	0.26±10%	0.36±10%	0.19±10%	0.29±10%	0.37±10%
Rotor inertial(kg.m^{2}X10^{-4})	60±10%	60±10%	90±10%	90±10%	90±10%
Line reaction potential(V/krpm)	14.5±10%	21.7±10%	11.6±10%	17.4±10%	22.6±10%
Line inductor(mH)	±10%	±10%	0.101±10%	0.19±10%	±10%
Line resistance(Ω)	±10%	±10%	0.015±10%	0.016±10%	±10%
Motor length L(mm)	183	183	213(183)	213(183)	213(183)
With brake length LB(mm)	277	277	277	277	277
Weight(KG)	14.5/32	14.5/32	18.9/32	18.9/32	18.9/32
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

Motor Specification Parameter Table

◆180 series

Motor Model	180TM-19020M5-X	180TM-23015C5-X	180TM-23015E5-X	180TM-23020C5-X	180TM-23020E5-X
Power(W)	4000	3600	3600	4800	4800
Rated voltage(V)	144VDC	48VDC	72VDC	48VDC	72VDC
Rated torque(N.M)	19	23	23	23	23
Rated speed(rpm)	2000	1500	1500	2000	2000
Rated current(Arms)	33±10%	87±10%	64±10%	120±10%	80±10%
Torque coefficient(N.m/A)	0.57±10%	0.25±10%	0.36±10%	0.19±10%	0.28±10%
Rotor inertial(kg.m^{2}X10^{-4})	122±10%	60±10%	60±10%	122±10%	122±10%
Line reaction potential(V/krpm)	34.8±10%	15.9±10%	21.7±10%	11.5±10%	17.3±10%
Line inductor(mH)	±10%	±10%	±10%	±10%	±10%
Line resistance(Ω)	±10%	±10%	±10%	±10%	±10%
Motor length L(mm)	239	183	183	239	239
With brake length LB(mm)	332	277	277	332	332(277)
Weight(KG)	22.7/34	14.5/32	14.5/32	22.7/34	22.7/34
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R); With fan（-F)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

◆180 series

Motor Model	180TM-24020C5-X	180TM-24030E5-XF	180TM-24030I5-XF	180TM-28015C5-X	180TM-28015E5-X
Power(W)	5000	7500	7500	4400	4400
Rated voltage(V)	48VDC	72VDC	96VDC	48VDC	72VDC
Rated torque(N.M)	24	24	24	28	28
Rated speed(rpm)	2000	3000	3000	1500	1500
Rated current(Arms)	126±10%	123±10%	91±10%	112±10%	76±10%
Torque coefficient(N.m/A)	0.19±10%	0.20±10%	0.26±10%	0.25±10%	0.37±10%
Rotor inertial(kg.m^{2}X10^{-4})	122±10%	150±10%	150±10%	90±10%	90±10%
Line reaction potential(V/krpm)	11.5±10%	11.8±10%	16±10%	15±10%	22.2±10%
Line inductor(mH)	±10%	±10%	±10%	±10%	±10%
Line resistance(Ω)	±10%	±10%	±10%	±10%	±10%
Motor length L(mm)	239	331	331	213	213
With brake length LB(mm)	332	386	386	277	277
Weight(KG)	22.7/34	32/34	32/34	18.9/32	18.9/32
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R); With fan（-F)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

Motor Specification Parameter Table

◆180 series

Motor Model	180TM-28020C5-X	180TM-28020E5-X	180TM-28030E5-XF	180TM-28030I5-XF	180TM-28030M5-XF
Power(W)	5800	5800	8800	8800	8800
Rated voltage(V)	48VDC	72VDC	72VDC	96VDC	144VDC
Rated torque(N.M)	28	28	28	28	28
Rated speed(rpm)	2000	2000	3000	3000	3000
Rated current(Arms)	137±10%	100±10%	144±10%	109±10%	70±10%
Torque coefficient(N.m/A)	0.20±10%	0.28±10%	0.20±10%	0.25±10%	0.4±10%
Rotor inertial(kg.m^{2}X10^{-4})	122±10%	122±10%	150±10%	150±10%	150±10%
Line reaction potential(V/krpm)	12.3±10%	17.3±10%	11.8±10%	15.5±10%	24±10%
Line inductor(mH)	0.049±10%	0.122±10%	±10%	0.13±10%	±10%
Line resistance(Ω)	0.005±10%	0.0125±10%	±10%	0.005±10%	±10%
Motor length L(mm)	239	239	331	331	331
With brake length LB(mm)	332	332(277)	386	386	386
Weight(KG)	22.7/34	22.7/34	32/34	32/34	32/34
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R); With fan（-F)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

◆180 series

Motor Model	180TM-32015E5-X	180TM-32020C5-X	180TM-32020E5-X	180TM-32030E5-XF	180TM-32030I5-XF
Power(W)	5000	6700	6700	10000	10000
Rated voltage(V)	72VDC	48VDC	72VDC	72VDC	96VDC
Rated torque(N.M)	32	32	32	32	32
Rated speed(rpm)	1500	2000	2000	3000	3000
Rated current(Arms)	89±10%	165±10%	110±10%	162±10%	128±10%
Torque coefficient(N.m/A)	0.36±10%	0.20±10%	0.29±10%	0.20±10%	0.25±10%
Rotor inertial(kg.m^{2}X10^{-4})	122±10%	150±10%	150±10%	150±10%	153±10%
Line reaction potential(V/krpm)	21.8±10%	11.7±10%	17.5±10%	12±10%	15±10%
Line inductor(mH)	±10%	±10%	±10%	±10%	±10%
Line resistance(Ω)	±10%	±10%	±10%	±10%	±10%
Motor length L(mm)	239	277	277	331	331
With brake length LB(mm)	332	332	332	386	386
Weight(KG)	22.7/34	32/34	32/34	32/34	32/34
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R); With fan（-F)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

Motor Specification Parameter Table

◆180 series

Motor Model	180TM-35020E5-X	180TM-36015C5-X	180TM-36015E5-X	180TM-36015I5-X	180TM-42015C5-X
Power(W)	7000	5500	5500	5500	6600
Rated voltage(V)	72VDC	48VDC	72VDC	96VDC	48VDC
Rated torque(N.M)	35	36	36	36	42
Rated speed(rpm)	2000	1500	1500	1500	1500
Rated current(Arms)	121±10%	136±10%	97±10%	76±10%	160±10%
Torque coefficient(N.m/A)	0.29±10%	0.26±10%	0.36±10%	0.47±10%	0.26±10%
Rotor inertial(kg.m^{2}X10^{-4})	150±10%	122±10%	122±10%	122±10%	150±10%
Line reaction potential(V/krpm)	17.5±10%	15.5±10%	21.8±10%	28.5±10%	15.8±10%
Line inductor(mH)	±10%	±10%	±10%	±10%	0.06±10%
Line resistance(Ω)	±10%	±10%	±10%	±10%	0.084±10%
Motor length L(mm)	277	239	239	239	277
With brake length LB(mm)	332	332	332	332	332
Weight(KG)	32/34	22.7/34	22.7/34	22.7/34	32/34
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R); With fan（-F)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

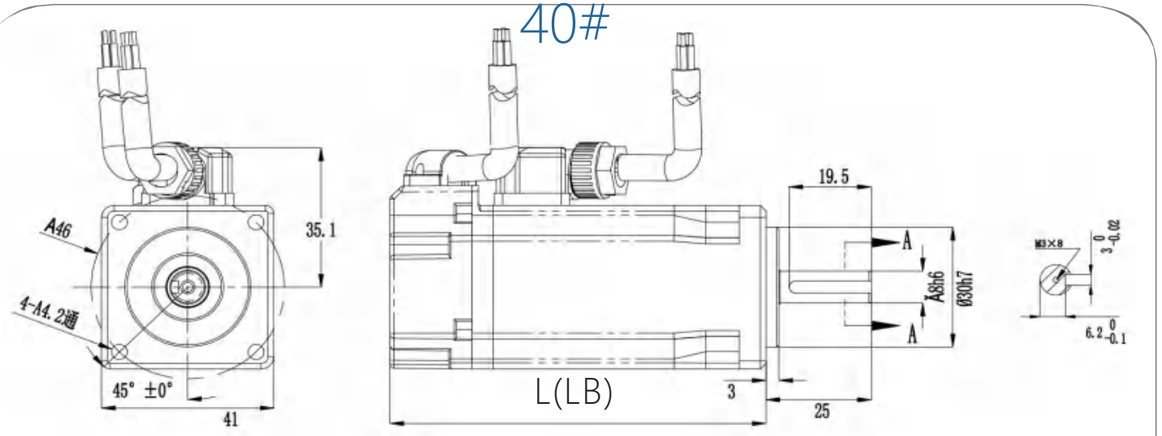
◆180 series

Motor Model	180TM-42015E5-X	180TM-42020E5-X	180TM-42020I5-X	180TM-48015E5-X	180TM-48020E5-X
Power(W)	6600	8800	8800	7500	10000
Rated voltage(V)	72VDC	72VDC	96VDC	72VDC	72VDC
Rated torque(N.M)	42	42	42	48	48
Rated speed(rpm)	1500	2000	2000	1500	2000
Rated current(Arms)	121.5±10%	132±10%	113±10%	136±10%	178±10%
Torque coefficient(N.m/A)	0.34±10%	0.29±10%	0.37±10%	0.36±10%	0.27±10%
Rotor inertial(kg.m^{2}X10^{-4})	150±10%	150±10%	153±10%	150±10%	153±10%
Line reaction potential(V/krpm)	21±10%	17.5±10%	21±10%	21.7±10%	16.2±10%
Line inductor(mH)	±10%	±10%	±10%	±10%	±10%
Line resistance(Ω)	±10%	±10%	±10%	±10%	±10%
Motor length L(mm)	277	277	277	277	277
With brake length LB(mm)	332	332	332	332	332
Weight(KG)	32/34	32/34	34/34	32/34	34/34
Feedback element X (optional)	Magneto(-C)/Photoelectric(-E)Incremental Encoder, 2500PPR，Magneto(-C17)/Photoelectric(-A17) absolute 17bit，Rotary Transformer (-R); With fan（-F)				
Insulation resistance/ voltage resistance	DC500V,>20MΩ(F) / 800VAC/1s/5mA				
Usage environment	Temperature -20~40℃(-40~40℃ optional); Humidity 20%~80%RH(non-condensing); Altitude below 1000(over the temperature, altitude range to reduce the rated value to use)				
Protection class	IP54（IP65 optional）				

Motor external dimensions

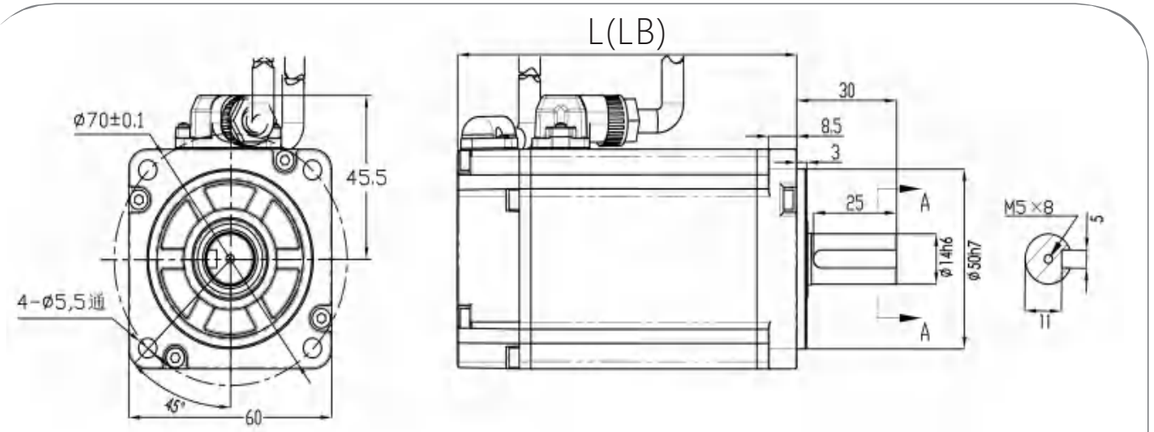
External Dimension

40#



L(mm）	82/88
LB(With brake)mm	102/108
Weight(KG)	0.5/0.65

60#

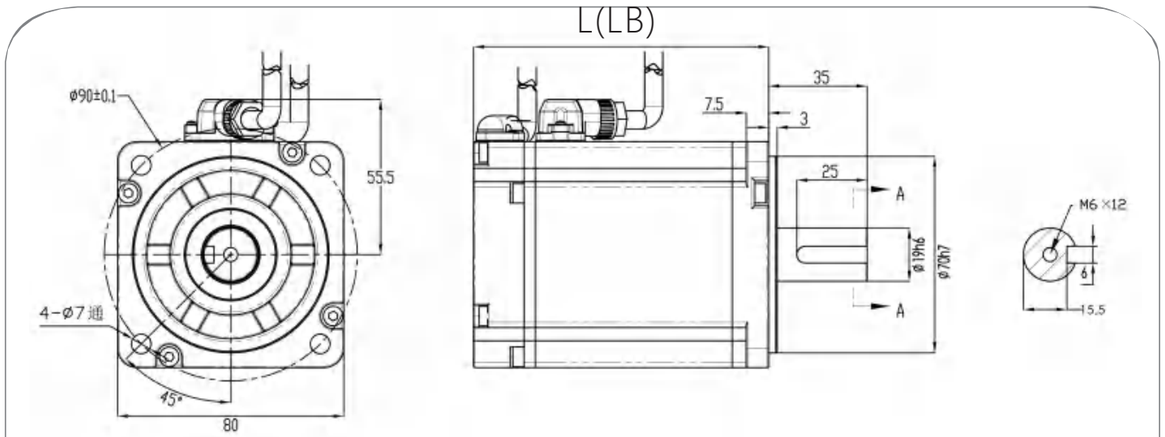


L(mm)	77/89	98/108	116/128	115/127
LB(With brake)mm	116/127	135/146	153/165	165/177
Weight(KG)	1/1.35	1.35/1.75	1.75/2.15	1.75/2.15

Motor external dimensions

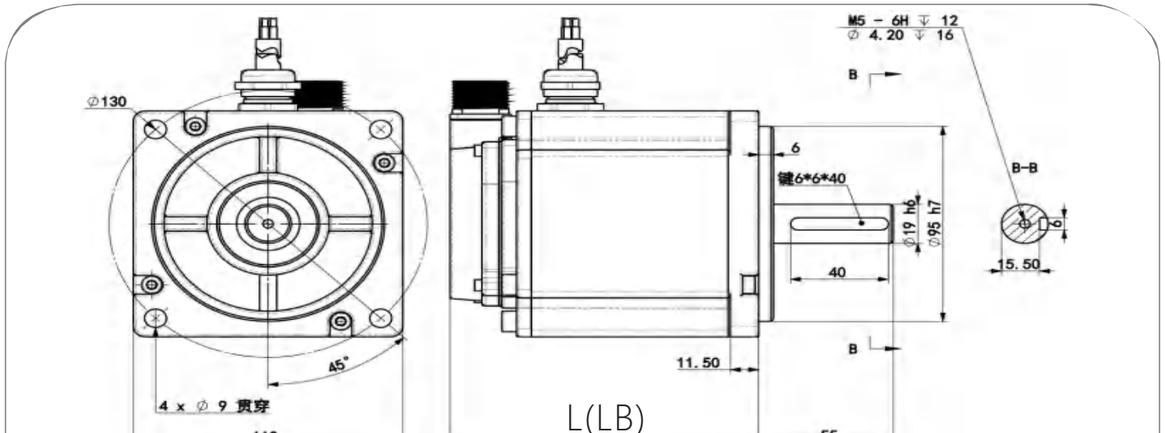
External Dimension

80#



L(mm)	106/120	120/134	66/80	76/90	86(106)	101(120)	115/129
LB(With brake)mm	146/160	160/174	101/115	101/115	115(146)	141(160)	155/169
Weight(KG)	2.3/3.05	2.95/3.6	1.1/1.9	1.8/2.6	1.8/2.6	2.3/3	2.85/3.7

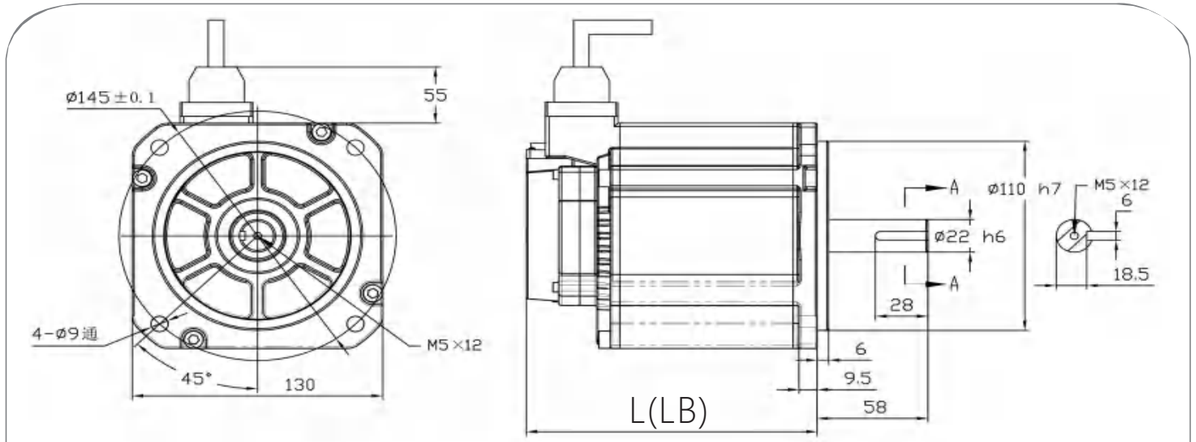
110#



L(mm)	126/139	156/169	171/184
LB(With brake)mm	171/184	193/206	/
Weight(KG)	4.14/6.25	6.36/8.47	8.5

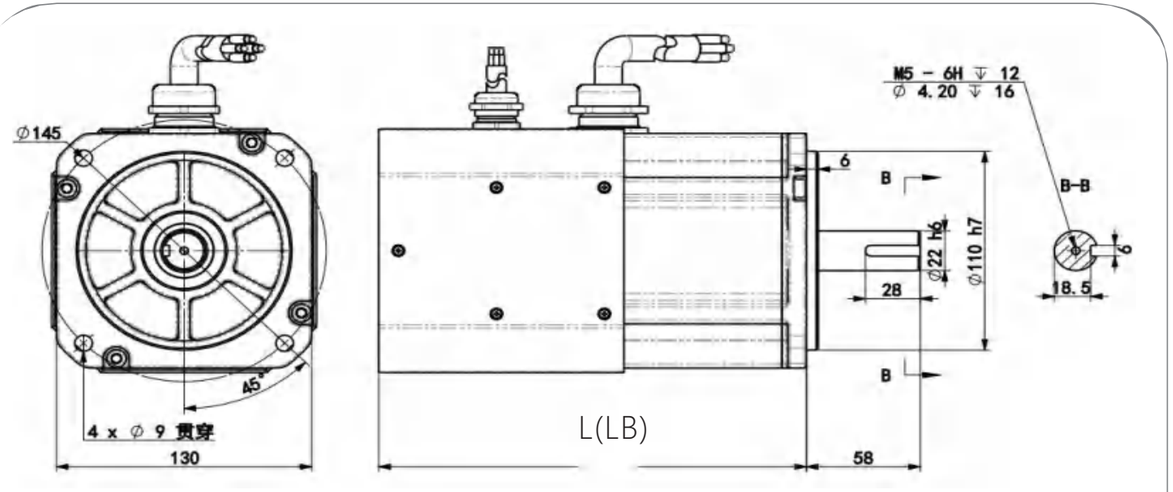
External Dimension

130#



L(mm)	119/132	134/147	134/147	149/162	166/179	181/194
LB(With brake)mm	166/179	181/194	196/209	196/209	221/234	221/234
Weight(KG)	6/7.8	8/9.8	8/9.8	8/9.8	11/12.8	14/15.8

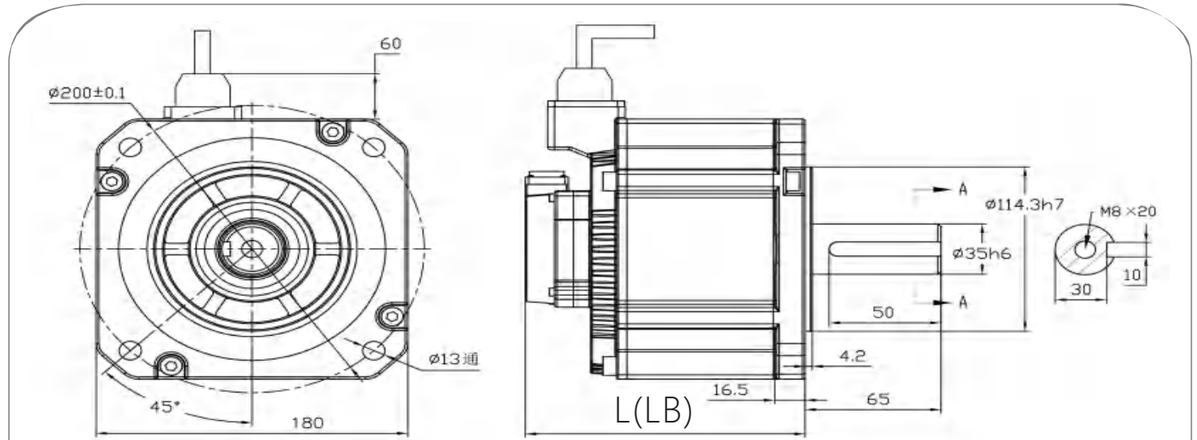
130#With fan



L(mm)	209(222)	209(222)	209(222)	224(237)
LB(With brake)mm	224(237)	239(252)	264(277)	264(277)
Weight(KG)	9/10.8	9/10.8	12/13.8	16/17.8

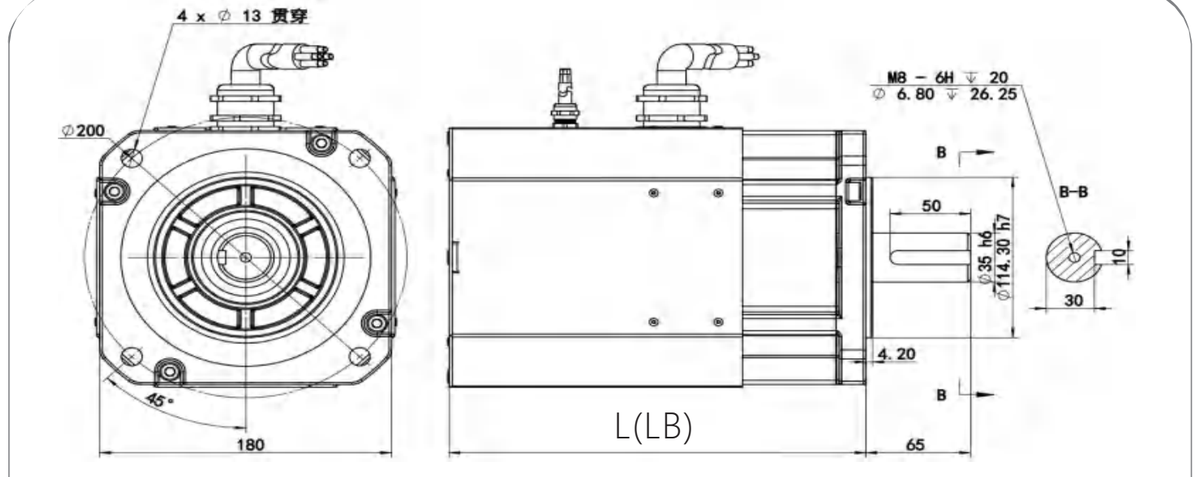
External Dimension

180#



L(mm)	183	213	239	239	277	332
LB(With brake)mm	277	277	277	332	332	/
Weight(KG)	14.5/32	18.9/32	22.7/32	22.7/34	32/34	34

180#With fan



L(mm)	268	293	331
LB(mm)With brake	331	386	386
Weight(KG)	20/34	24.7/36	34/36