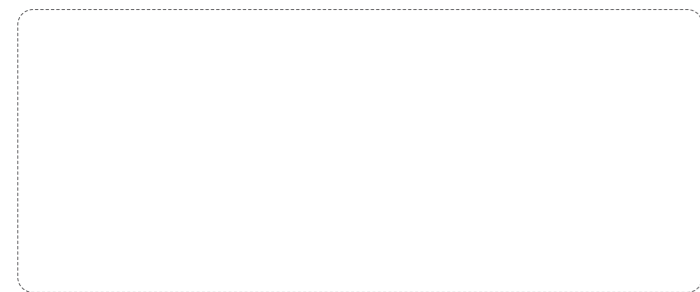
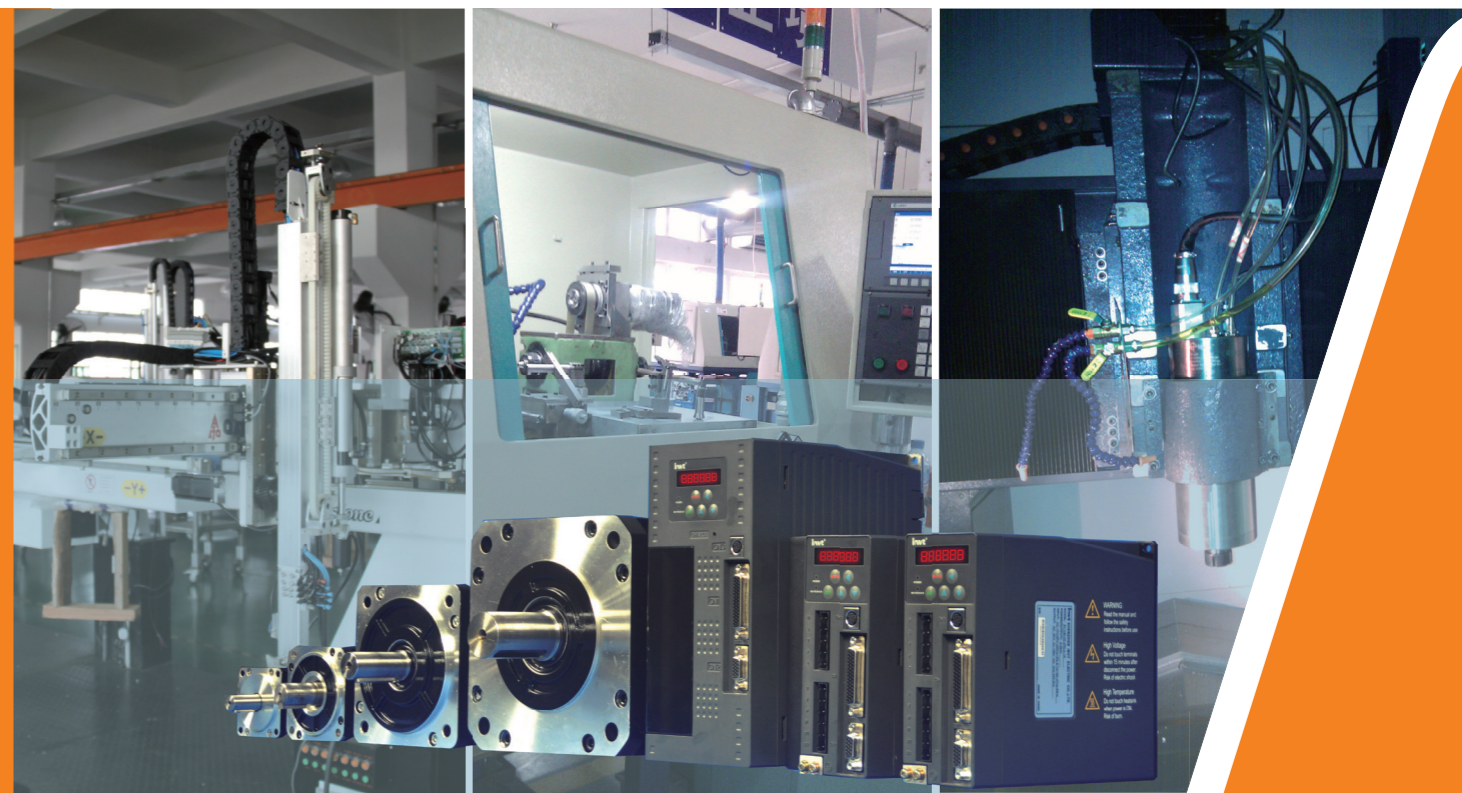


DB100 Series AC Servo Drive System

Innovation, Value, Teamwork



Shanghai Kinway Technologies,INC.

Tel: +86-0755-21673778

Fax:+86-0755-26966252

Website: www.kinwaytech.com

Headquarters address: Building No.1,188 New Junhuan Rd., Minhang Dist., Shanghai, China

Shenzhen office address: 6F.,No.5 Building, Gaofa Industrial Park, Longjing, Nanshan District, Shenzhen, Guangdong, China

Information of this product may be changed along with product improvement without notice.All rights reserved.

201306 (V2.6)



Company profile



Shenzhen INVT Electric Co., Ltd. is based on electrical transmission, industrial control area to provide specialized products and services to users worldwide. In 2010, Company was listed on the Shenzhen Stock Exchange in the A-shares market, and the stock code is 002334. Company now has more than 30 domestic offices, 2 overseas offices and hundreds of domestic and overseas distribution partners with its users in more than 50 countries and regions all around the world.

At present, main products of INVT include all-purpose high, medium and low voltage and industry-specific inverter, AC servo system, brake unit, energy feedback unit and so on. These products are widely used in municipal, building materials, plastics, oil, machinery, chemical industry, metallurgy, textile, printing, machine tools, mining and other industries.

INVT is a national high-tech enterprise who owns the only "Inverter Engineering and Technology Research and Development Center" in Shenzhen.

Inverter products of INVT include CHA/CHV/CHE/CHF/industry-specific series, medium voltage 660V/1140V series, high voltage CHH(6KV/10KV) series, etc., and the power range covers 0.4~8000KW which can meet a variety of inverter control applications demand for different industries.

INVT Servo products are the important components of INVT product strategy, and the development & successful application of high-performance AC servo system marks INVT's expanding and extending to motion control area.

Corporate philosophy

- ◆ Operation philosophy: Honesty for good virtue, Perfection for the future
- ◆ Vision: To be the world's leading and respected provider of products and services in electrical transmission, industrial control area
- ◆ Mission: To make every effort to provide quality products and services that allows customers to become more competitive
- ◆ Core values: Honesty for good virtue, fighting for innovation



Characteristics

voltage grade	driver power	servo driver	servo motor	rated torque/ rated speed
220V	200W	SV-DB100-0R2-2-1R	SV-ML06-0R2G-2-1A0	0.64Nm/3000rpm
	400W	SV-DB100-0R4-2-1R	SV-ML06-0R4G-2-1A0	1.27Nm/3000rpm
	750W	SV-DB100-0R7-2-1R	SV-ML08-0R7G-2-1A0	2.4Nm/3000rpm
	1.0kW		SV-ML08-1R0F-2-1A0	4Nm/2500rpm
	1.0kW	SV-DB100-1R0-2-1R	SV-MM13-1R0F-2-1A0	5Nm/2500rpm
	1.5kW	SV-DB100-1R5-2-1R	SV-MM13-1R5F-2-1A0	7.7Nm/2500rpm
	2.0kW	SV-DB100-2R0-2-1R	SV-MM13-2R0F-2-1A0	10Nm/2500rpm
	2.3kW		SV-MM13-2R3B-2-1A0	15Nm/1500rpm
380V	1.0kW	SV-DB100-1R0-4-1R	SV-MM13-1R0F-4-1A0	5Nm/2500rpm
	1.5kW	SV-DB100-1R5-4-1R	SV-MM13-1R5F-4-1A0	7.7Nm/2500rpm
	2.0kW		SV-MM13-2R0E-4-1A0	10Nm/2000rpm
	3.0kW	SV-DB100-3R0-4-1R	SV-MM18-3R0B-4-1A0	19Nm/1500rpm
	4.4kW	SV-DB100-4R4-4-1R	SV-MM18-4R4B-4-1A0	27Nm/1500rpm
	5.5kW	SV-DB100-5R5-4-1R	SV-MM18-5R5B-4-1A0	35Nm/1500rpm

Application fields

- ◆ Electronic Production Machinery: Winding machine, wire-stripping machine, Lithium battery manufacturing equipment, LED manufacturing equipment, dispenser, component inserter, etc.
- ◆ CNC Equipment: electro machining, wire-electrode cutting, NC lathe, carves-milling machine, deep hole drilling, pipe bender, coiling machine, etc.
- ◆ Packaging machinery: bag machine, sealing and cutting machine, blister packaging machine, horizontal packaging machine, labeller, ect.
- ◆ Printing machinery: screen printer, sticker trademark printing press, paper cutter, die-cutting machine, gilding press, folder, etc.
- ◆ Textile machinery: computerized flat knitting machine, embroidery machine, air-jet loom, water-jet loom, warp knitting machine, etc.
- ◆ Plastic machinery: Loading manipulator, automatic bottle blowing machine
- ◆ Others: glass equipment, TJK, test equipment, etc.

Servo Driver Product Description

Type Description

SV-DB100-0R4-2-1 R

① ② ③ ④ ⑤ ⑥

①

Identification	Product category
SV	Servo system

②

Identification	Product series
DB100	DB100 Series

③

Identification	Rated power
0R2	200W
0R4	400W
0R7	750W
1R0	1.0kW
1R5	1.5kW
2R0	2.0kW
3R0	3.0kW
4R4	4.4kW
5R5	5.5kW

④

Identification	Voltage class
2	AC220V
4	AC380V

⑤

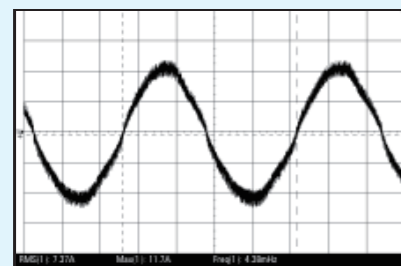
Identification	Encoder type
1	2500-wire standard incremental
2	2500-wire wire-saving incremental
3	17-bit single ring absolute
4	17-bit multi-ring absolute

⑥

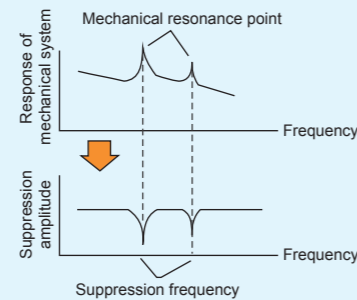
Identification	Communication mode
R	RS485

Special functions

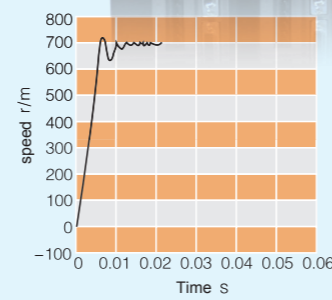
- ◆ High overload capacity: Instantaneous torque can reach 3 times overload, which effectively overcomes the inertia moment of inertia load at starting.
- ◆ Built-in mechanical resonance suppression function, which can effectively inhibit the resonance phenomenon of mechanical structure.
- ◆ Excellent high-speed reflection performance: Speed response bandwidth is up to 650Hz or more, and speed ranges from -3000r/min to 3000r/min with an acceleration time of only 6ms.
- ◆ Full ranges of models have built-in braking unit and braking resistor.
- ◆ Above 1KW servo drivers can be directly powered by 380v, which saves incoming transformer and effectively reduces plan costs.
- ◆ Automatic gain adjustment function, which allows for identification of load inertia and more convenient debugging.



0.1r/min current waveform



Resonance Suppression Figure



Speed response waveform of 5 times inertia ratio

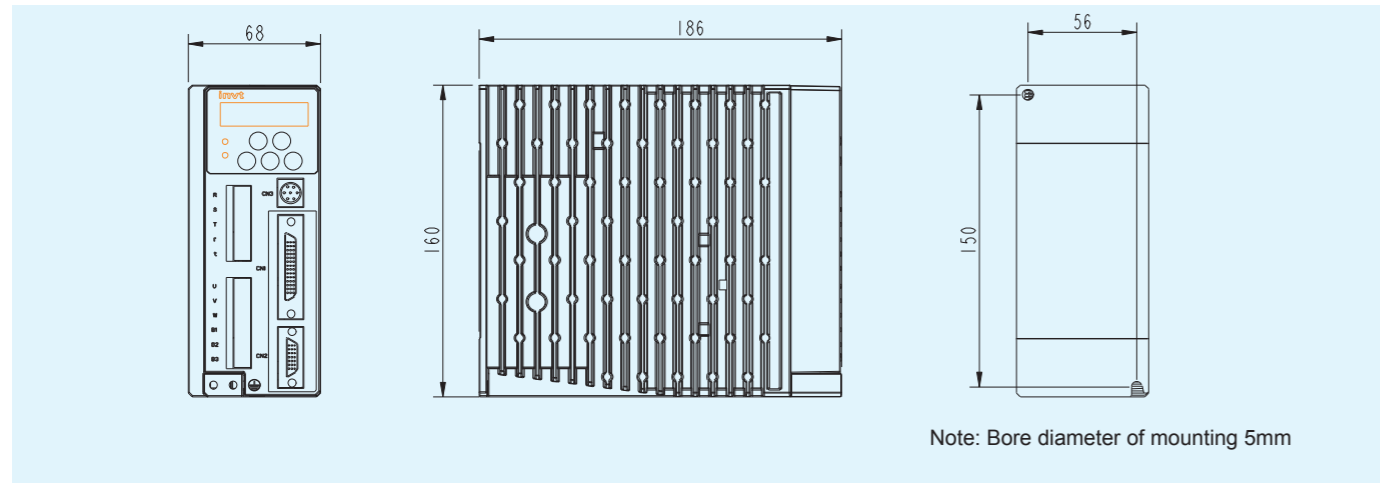
Servo Driver Performance Specifications

model	SV-DB100-0R2-2-1R	SV-DB100-0R4-2-1R	SV-DB100-0R7-2-1R	SV-DB100-1R0-2-1R	SV-DB100-1R5-2-1R	SV-DB100-2R0-2-1R	SV-DB100-3R0-4-1R	SV-DB100-4R4-4-1R	SV-DB100-5R5-4-1R
Power	200W	400W	750W	1.0kW	1.5kW	2.0kW	3.0kW	4.4kW	5.5kW
Rated current	1.8A	2.8A	4.5A	5.7A	8A	10A	8A	11A	14A
main circuit power supply	single phase or 3 phase AC 220V ± 15%/50Hz						3 phase AC 380V ± 15%/50Hz		
Control circuit power supply	Single phase 220v ± 15%/50Hz						Single phase 380v ± 15%/50Hz		
interface power supply	DC 12V~24V, ± 10%, greater than 500mA								
control mode	Vector control. SVPWM								
Basic control mode	position control mode. Speed control mode, torque control mode								
dynamic breaking function	YES								
regeneration breaking unit	built-in braking resistor, and it also can connect an external one								
digital input and output	13 optical isolation inputs, 7 open collector output								
analog input and output	2 inputs : -10V~+10V; 2 outputs : 0V~+10V								
pulsed quantity input and output	2 difference signal inputs or open collector signal inputs, 3 encoder difference signal outputs								
protect function	over current, over voltage, over load, over heat, encoder fault over speed, under voltage etc.								
maximum pulse frequency	500kHz (differential input) : 200kHz (open collector input)								
feedback pulse for positioning	A/B orthogonal pulse, resolution ratio: 10000 pulse/revolution								
magnify range of pulse	electronic gear A/B: A=1~65535, B=1~65535, 1/50 < A/B < 500								
positioning precision	±1 pulse								
speed stabilizing precision	± 0.03%								
torque control range	controlled via parameters setting or external analog input setting DC 0~±10V, maximum torque: 300% rated torque								
speed frequency response	500Hz								
speed control range	the lowest speed is 0.1RPM, and the highest speed is 5000RPM								
analog input for speed	DC 0~±10V/maximum speed								
analog input for torque	DC 0~±10V/maximum torque								
linearity of torque	less than ± 10%								
recommended inertia ratio	less than 15 times								
communication	CAN, Modbus (RS232 and RS485)								
protection grade	IP20, natural cooling			IP20, forced air cooling					
ambient	working temperature:0~45°C, store temperature:-20~80°C (no freeze),humidity:≤90RH (no condensation)								

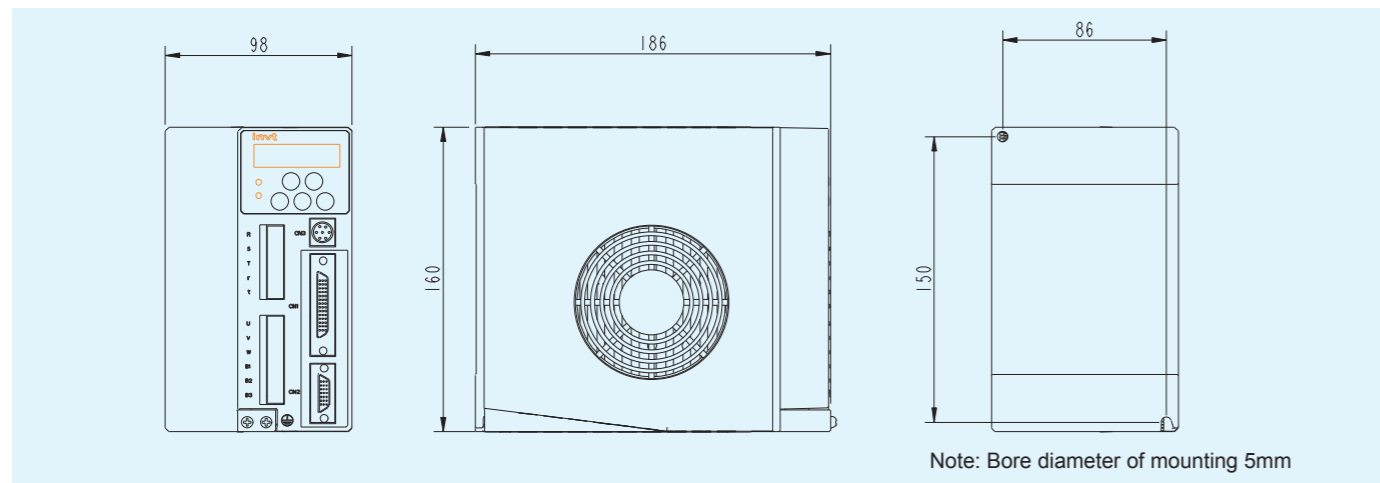
Servo Driver Product Description

Mounting dimensions of servo driver

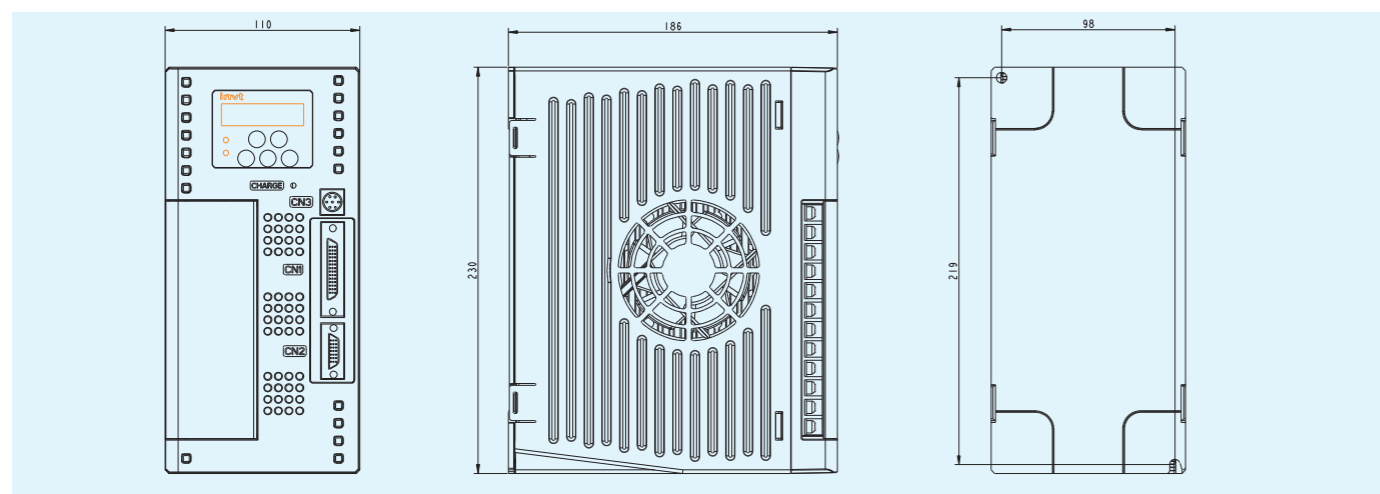
SV-DB100-0R2/0R4 (unit: mm)



SV-DB100-0R7/1R0/1R5/2R0 (unit: mm)



SV-DB100-3R0/4R4/5R5 (unit: mm)



Servo Motor Product Description

Product Description

SV-ML06-0R4G-2-1 A0
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①

Identification	Product category
SV	Servo system

⑤

Identification	Rated speed
A	1000rpm
B	1500rpm
E	2000rpm
F	2500rpm
G	3000rpm

⑧

Identification	Shaft terminal connection
A	Solid with key (standard configuration)
B	Optical axis

②

Identification	Inertia level
ML	General-purpose small inertia servo motor
MM	General-purpose medium inertia servo motor

⑥

Identification	Voltage class
2	AC220V
4	AC380V

⑨

Identification	Optional accessories
0	With oil seal
1	No optional accessories
2	With oil seal & band-type brake
3	With band-type brake

③

Identification	Machine base #
06	60mm
08	80mm
11	110mm
13	130mm
18	180mm

⑦

Identification	Encoder type
1	2500-wire standard incremental
2	2500-wire wire-saving incremental
3	17-bit single ring absolute
4	17-bit multi-ring absolute

④

Identification	Rated power
0R2	200W
0R4	400W
0R7	750W
1R0	1.0kW
1R5	1.5kW
2R0	2.0kW
2R3	2.3kW
3R0	3.0kW
4R4	4.4kW
5R5	5.5kW



Table of Motor Electrical Parameters

■ 60/80 Series

Motor type	SV-ML06-0R2G-2-1A0	SV-ML06-0R4G-2-1A0	SV-ML08-0R7G-2-1A0	SV-ML08-1R0F-2-1A0
Rated power	200W	400W	750W	1.0kW
Rated current (A)	1.4	2.5	3	4.4
Rated torque (Nm)	0.64	1.27	2.4	4
Peak torque (Nm)	1.91	3.8	7.1	12
Rated speed (rpm)	3000	3000	3000	2500
Rotor inertia (Kg.cm ²)	0.17	0.3	1.82	2.97
Counter potential (V/Krpm)	32	31	48	56
Torque coefficient (Nm/A)	0.45	0.5	0.8	0.9
Motor insulation class	Class B(130°C)			
Protection level	IP65			
Operating environment	Temperature: -20°C~50°C (Unfrozen); Humidity: Below 90% RH (No condensation)			

■ 130 Series

Motor type	SV-MM13-1R0F-2-1A0	SV-MM13-1R5F-2-1A0	SV-MM13-2R0F-2-1A0	SV-MM13-2R3B-2-1A0
Rated power	1.0kW	1.5kW	2.0kW	2.3kW
Rated current (A)	5	7.5	10	9.5
Rated torque (Nm)	5	7.7	10	15
Peak torque (Nm)	15	22	25	30
Rated speed (rpm)	2500	2500	2500	1500
Rotor inertia (Kg.cm ²)	10.6	15.3	19.4	27.7
Counter potential (V/Krpm)	68	68	70	114
Torque coefficient (Nm/A)	1	1.03	1	1.58
Motor insulation class	Class B(130°C)			
Protection level	IP65			
Operating environment	Temperature: -20°C~50°C (Unfrozen); Humidity: Below 90% RH (No condensation)			

■ 180 Series

Motor type	SV-MM18-3R0B-4-1A0	SV-MM18-4R4B-4-1A0	SV-MM18-5R5B-4-1A0
Rated power	3.0kW	4.4kW	5.5kW
Rated current (A)	7.5	10	12
Rated torque (Nm)	19	27	35
Peak torque (Nm)	47	67	70
Rated speed (rpm)	1500	1500	1500
Rotor inertia (Kg.cm ²)	38	61	86
Counter potential (V/Krpm)	158	172	181
Torque coefficient (Nm/A)	2.5	2.7	2.9
Motor insulation class	Class B(130°C)		
Protection level	IP65		
Operating environment	Temperature: -20°C~50°C (Unfrozen); Humidity: Below 90% RH (No condensation)		

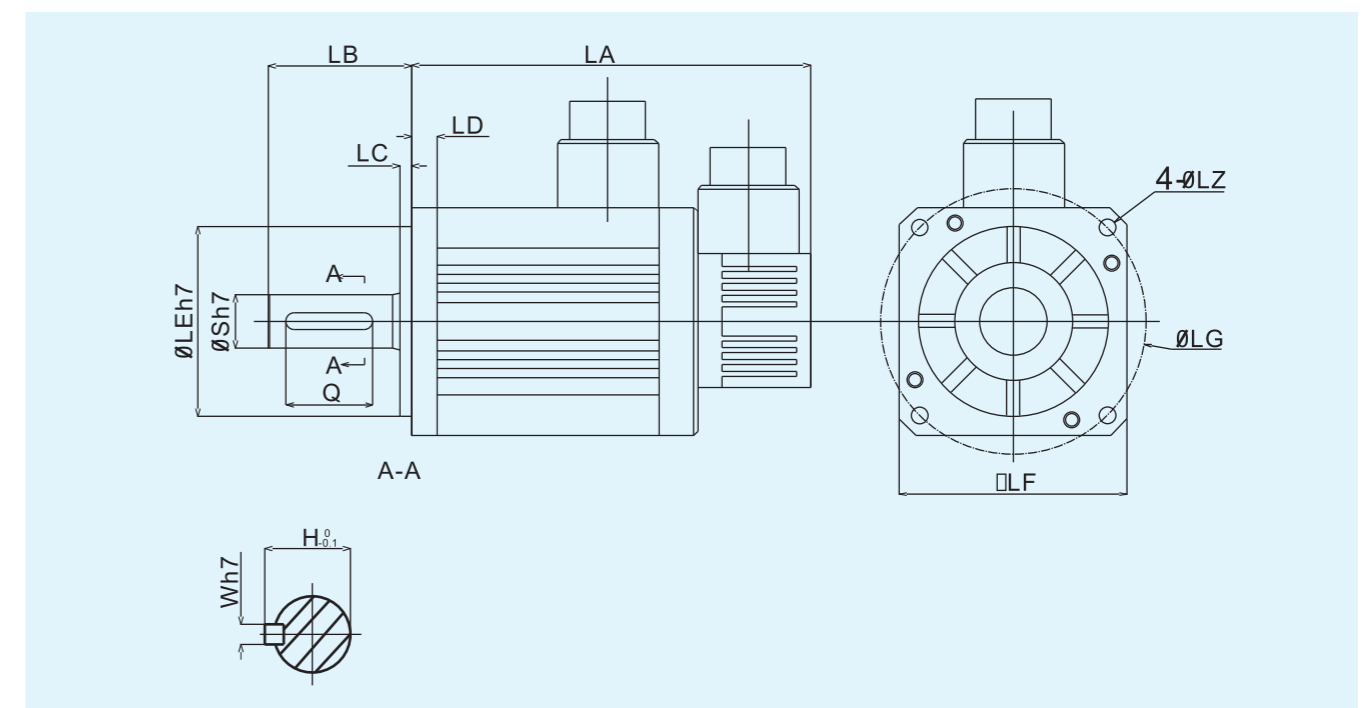
Table of Motor Mechanical Dimensions

Motor type	LA	LB	LC	LD	LE	Flange face dimension			Shaft end dimension				Weight kg
						LF	LZ	LG	S	Q	H	W	
SV-ML06-0R2G-2-1A0	111(159)	30	3	7	50	60	5.5	70	14	20	16	5	1.11(1.8)
SV-ML06-0R4G-2-1A0	136(184)	30	3	7	50	60	5.5	70	14	20	16	5	1.33(2.1)
SV-ML08-0R7G-2-1A0	151(206)	35	3	8	70	80	6	90	19	25	21.5	6	2.86(3.6)
SV-ML08-1R0F-2-1A0	190(245)	35	3	8	70	80	6	90	19	25	21.5	6	3.8(4.8)
SV-MM13-1R0F-2-1A0	171(243)	57	5	14	110	130	9	145	22	40	24.5	6	8.2(10.2)
SV-MM13-1R5F-2-1A0	192(249)	57	5	14	110	130	9	145	22	40	24.5	6	10(10.8)
SV-MM13-2R0F-2-1A0	209(266)	57	5	14	110	130	9	145	22	40	24.5	6	11.5(12.3)
SV-MM13-2R3B-2-1A0	241(298)	57	5	14	110	130	9	145	22	40	24.5	6	14.4(15.2)
SV-MM18-3R0B-4-1A0	232(289)	65	3.2	18	114.3	180	13.5	200	35	51	38	10	20.5(22.5)
SV-MM18-4R4B-4-1A0	262(319)	65	3.2	18	114.3	180	13.5	200	35	51	38	10	25.5(27.5)
SV-MM18-5R5B-4-1A0	292(349)	65	3.2	18	114.3	180	13.5	200	35	51	38	10	30.5(32.5)

(Note) 1. Figures in brackets refer to the value of the motor with brake.

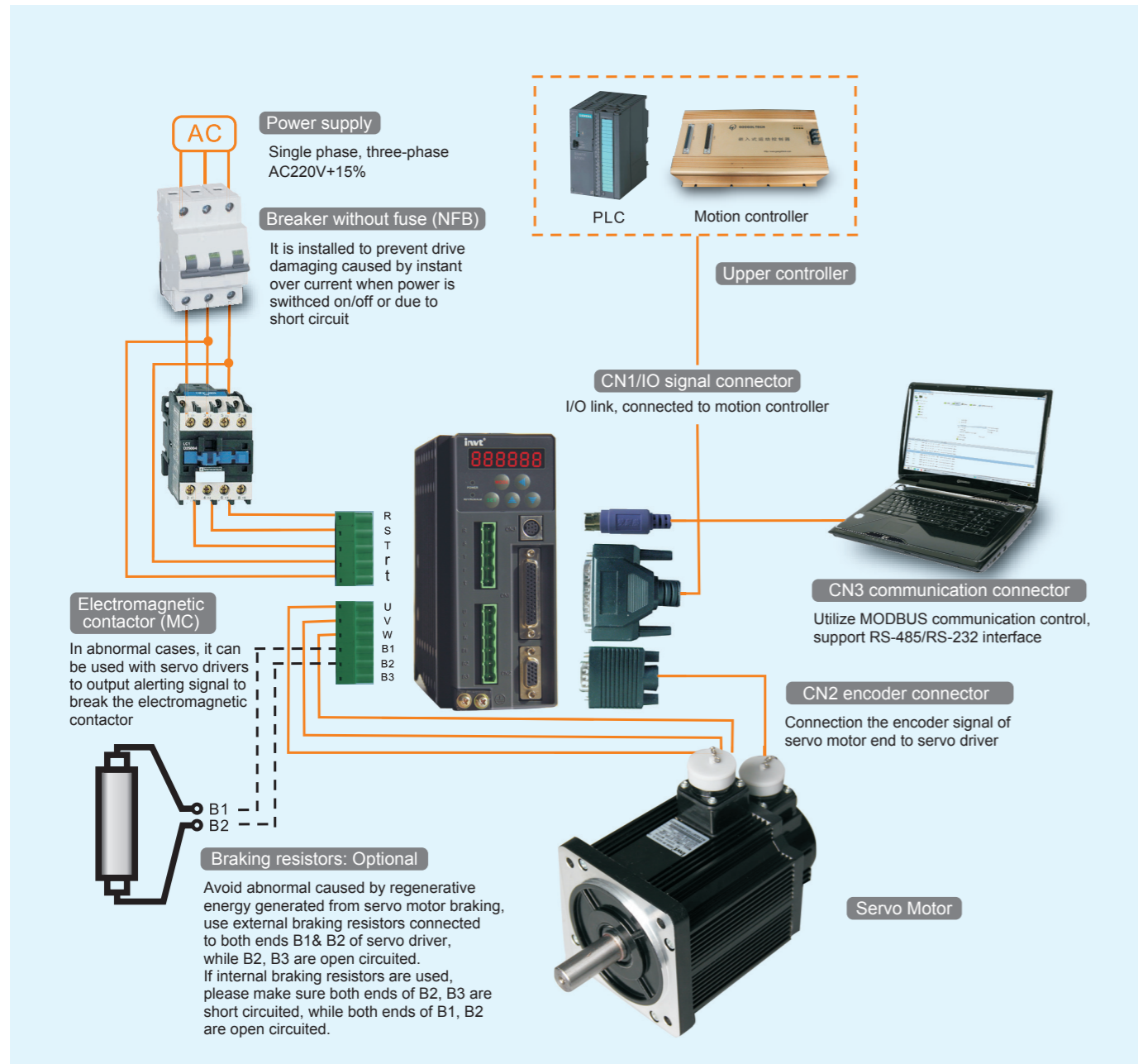
2. Same power; Size of 380V rating motor is identical to that of 220V rating motor.

Figure of Motor Mounting Dimensions



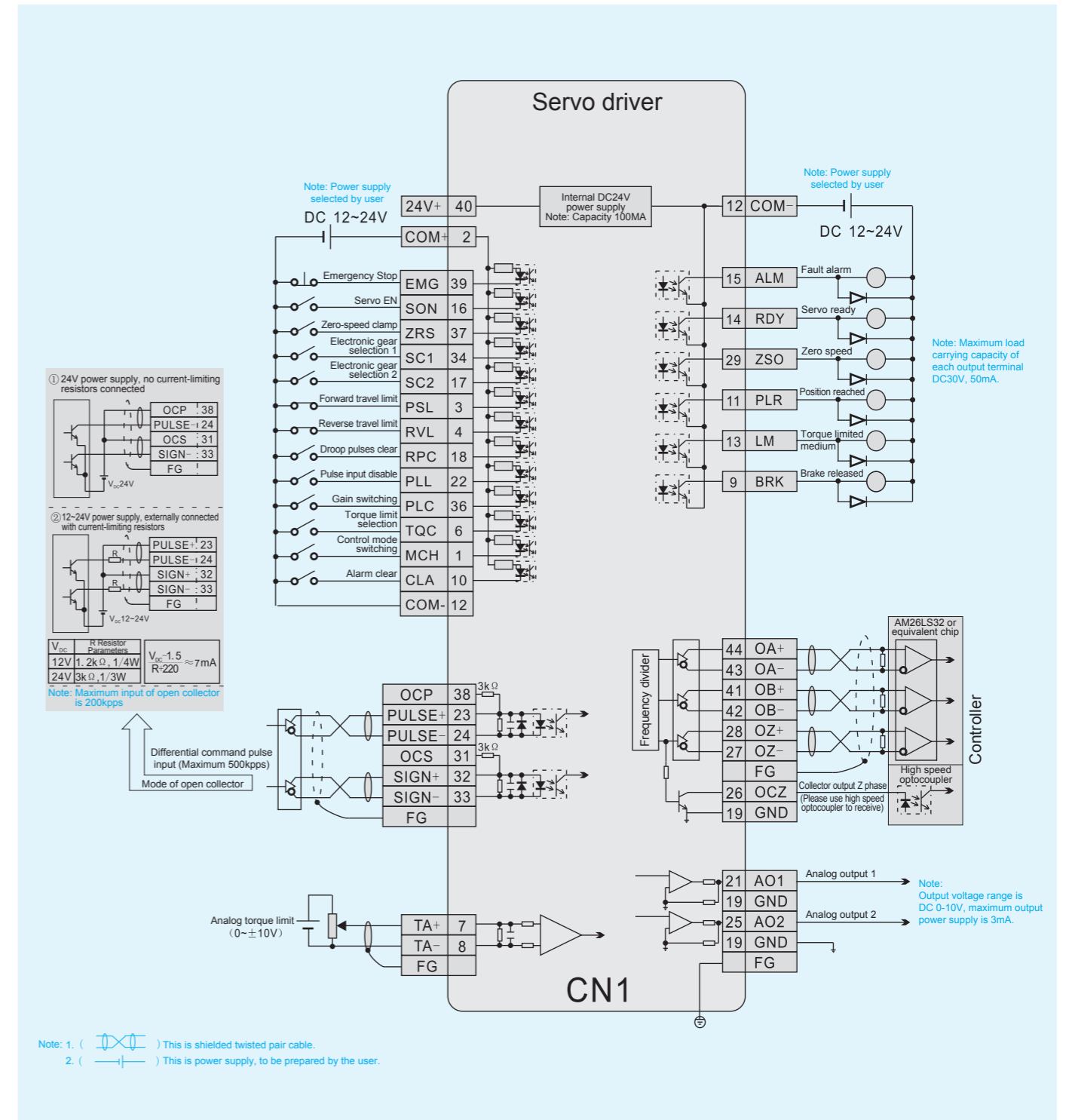
Servo driver & External device cable

External device & specification



Standard Wiring Diagram

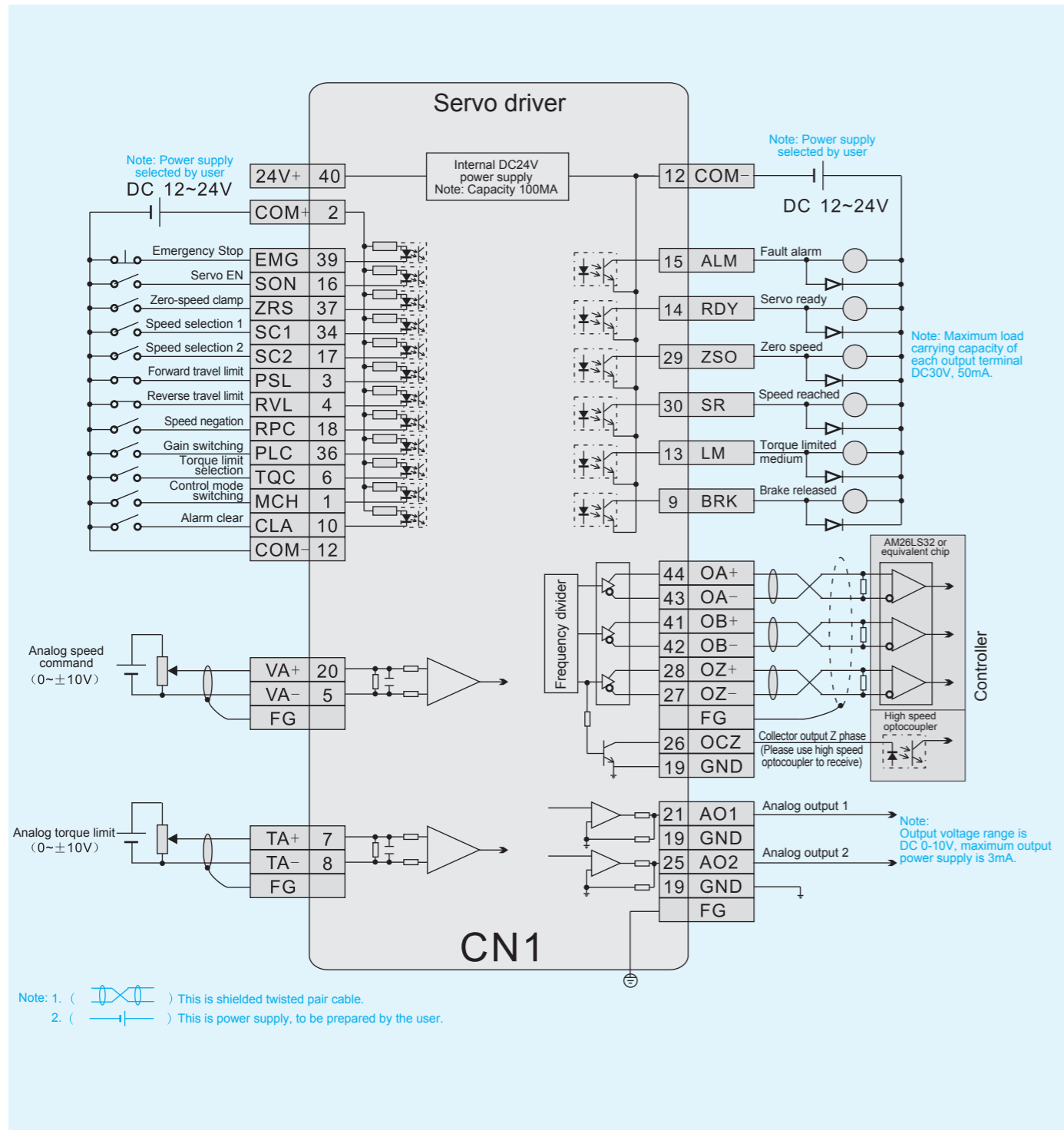
Position mode standard wiring diagram



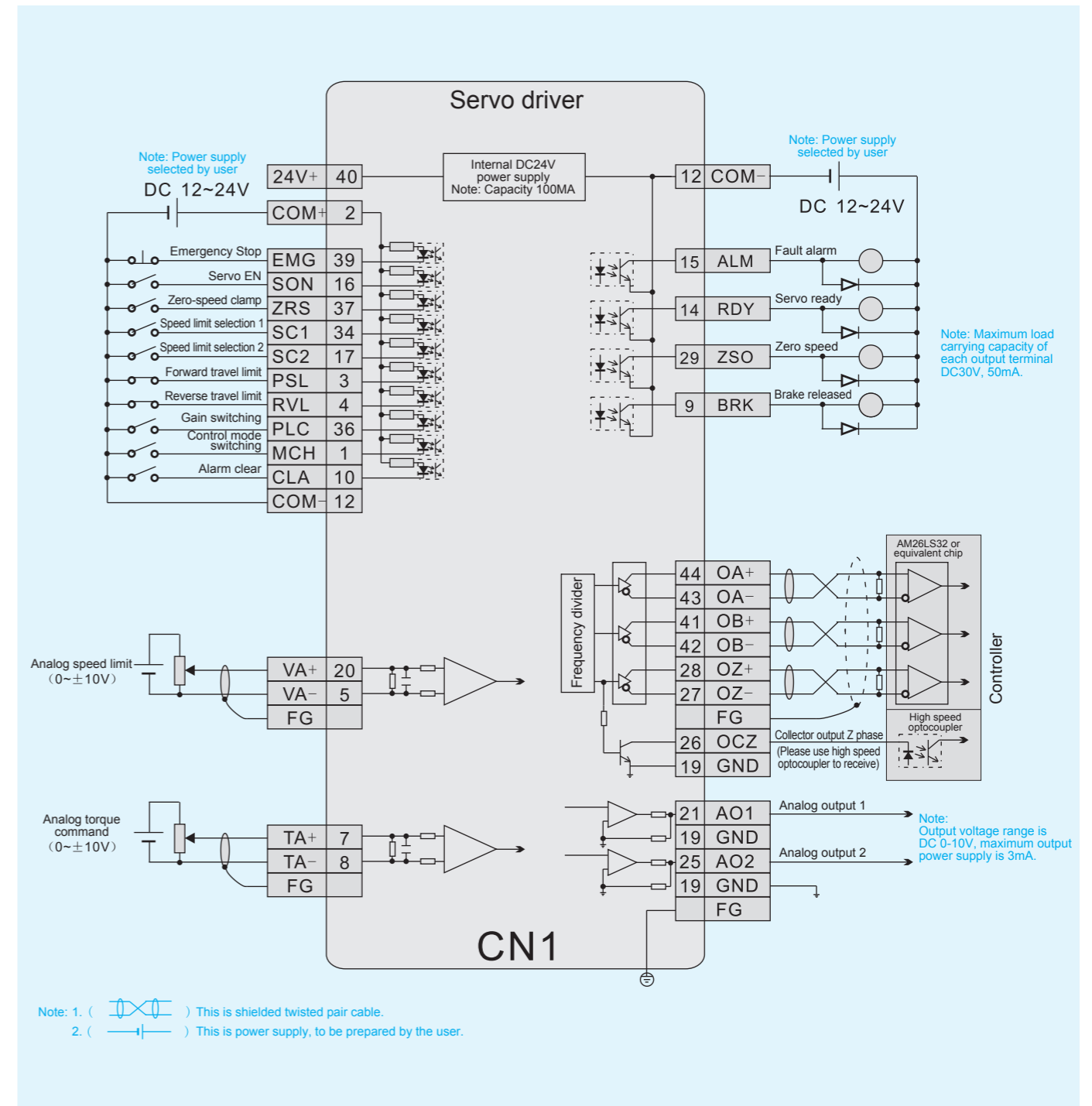
Installation Precautions

1. Check if power supply and wiring of R, S, T and r, t are correct
2. Confirm if the output U, V, W terminals wiring phase sequence of servo motor are correct
3. Use external braking resistors connected to both ends B1& B2 of servo driver, while B1, B2 are open circuited. If internal braking resistors are used, please make sure both ends of B2, B3 are short circuited, while both ends of B1, B2 are open circuited.

Speed mode standard wiring diagram

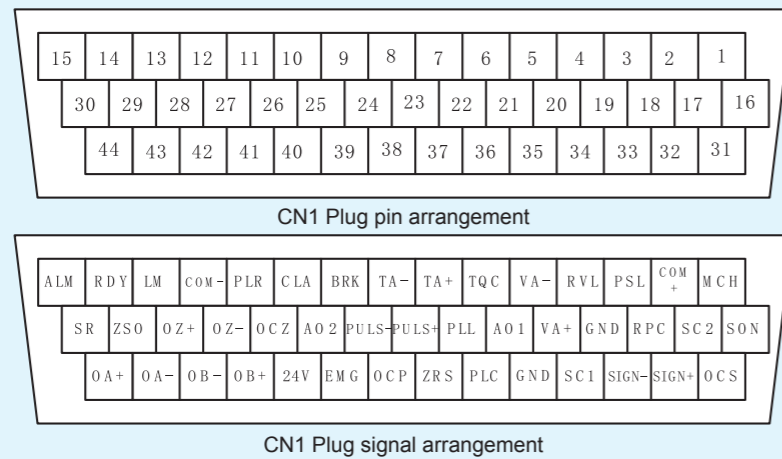


Torque mode standard wiring diagram

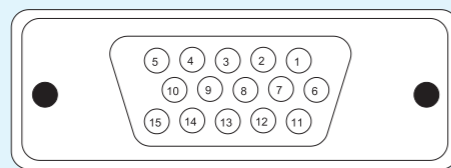


Servo driver plug signal arrangement diagram

CN1 Pin signal arrangement

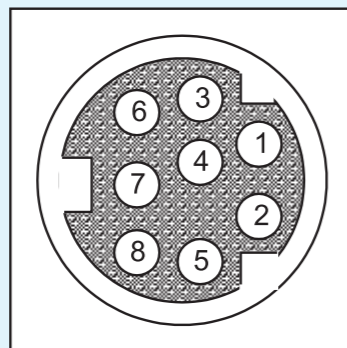


CN2 Pin signal arrangement



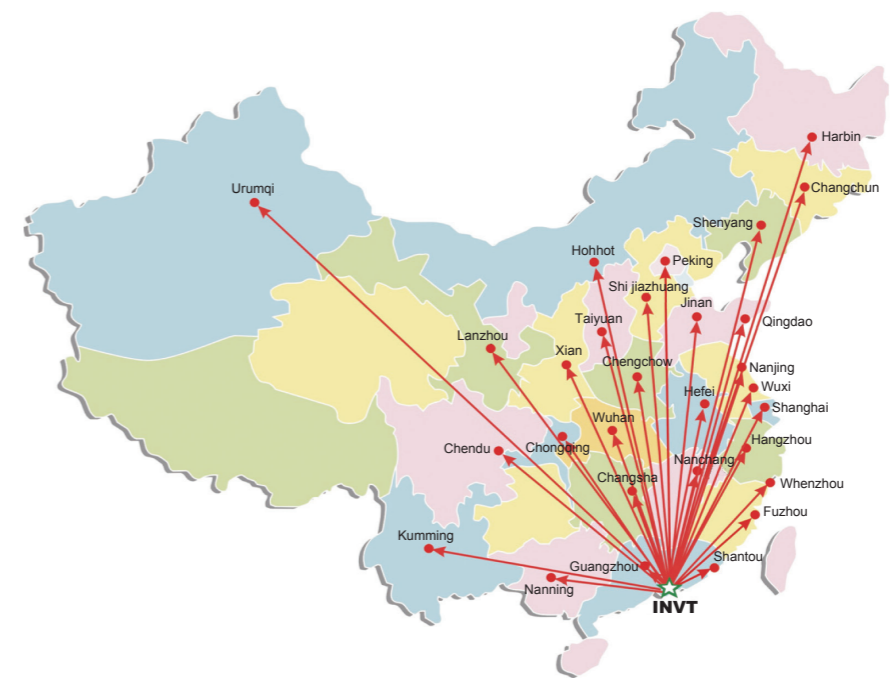
CN2 Pin #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Definition	V+	W+	A+	A-	5V	U+	V-	W-	B-	B+	U-	GND	Z-	Z+	/
Cable color	black	brown	red	red and white	purple	orange	black and white	brown and white	blue	blue and white	orange and white	purple and white	green	green and white	/

CN3 Pin signal arrangement



CN3 Pin #	1	2	3	4	5	6	7	8
Definition	RXD	GND	TXD	CANL	/	CANH	RS485-	RS485+

Marketing service network



30 domestic offices & successively established overseas offices, joint guarantee centre, after sales repair center; sales and services network are well covered and quickly responding

Unified national service hotline: 400-700-9997