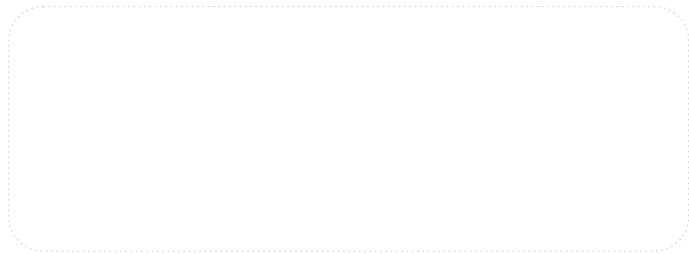




**INNOVATION • DEDICATED • SERVICE • WIN-WIN**



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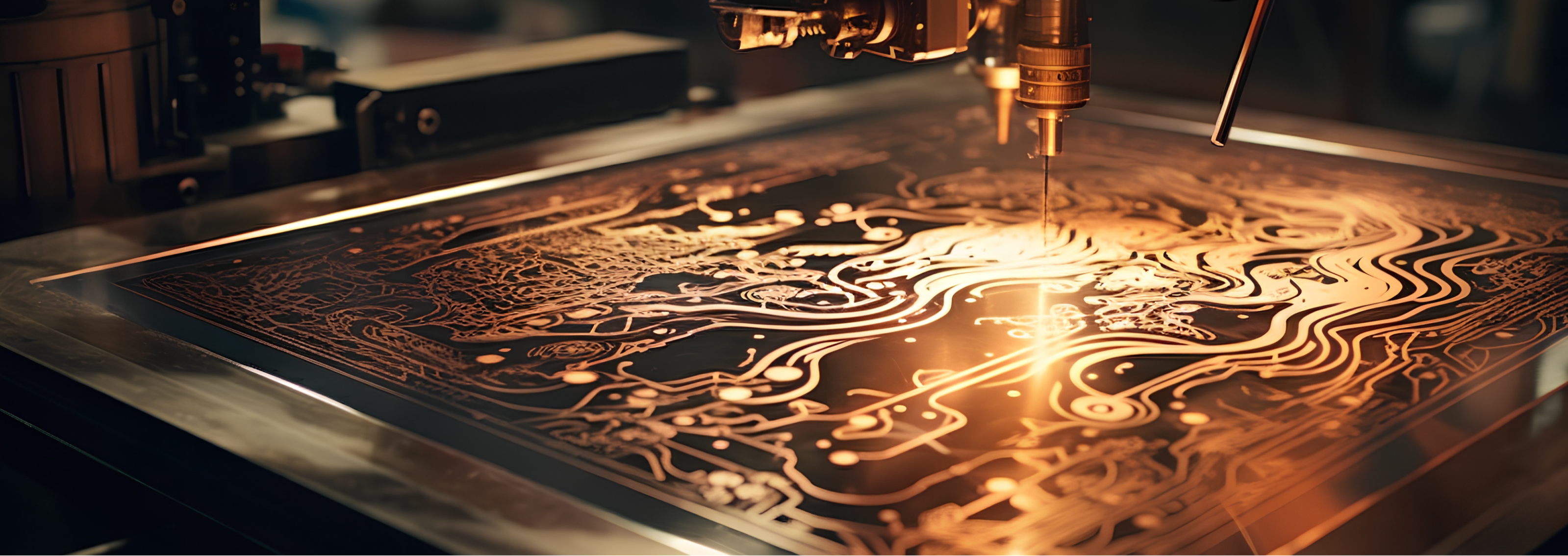
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202411(V1.0)

# Servo Drive System

SD300N/P





## ABOUT US

FRECON Electric (Shenzhen) Co., Ltd. is a national key high-tech enterprise, a dual-soft enterprise in Shenzhen, and a professional company in the fields of industrial automation, high efficiency and energy saving, and green new energy which was founded in 2013. We have more than 16 years of experience in the development and application of inverters, servo drives, energy-saving control cabinets, solar inverter systems etc.



## Product Overview

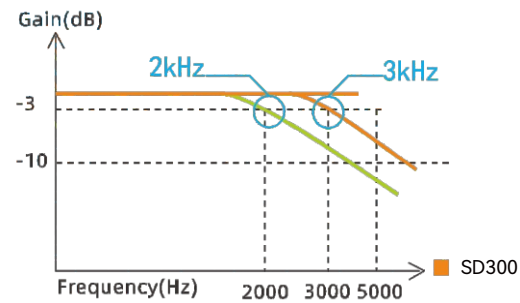


SD300 series is FRECON new generation servo drive, supports pulse and bus type (SD300P and SD300N). The pulse type supports various pulse input mode (pulse + direction, pulse + pulse, quadrature input), and support single-ended and differential signal inputs. The bus type uses EtherCAT communication, with synchronization cycle of 250  $\mu$ s. SD300 with thin and light appearance design, superior performance, and multiple interfaces. Widely used in CNC machine, woodworking, laser, packaging, robots, 3C and other industries.1 Servo product selection manual.

## Features

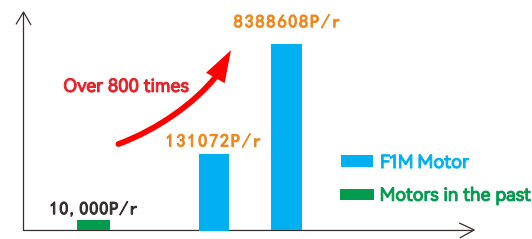
### Superior performance

- Use high-performance motor control dedicated ARM chip (480 MHz) and large-scale programmable gate array (FPGA) dual-chip platform, the speed loop bandwidth is 3 kHz.



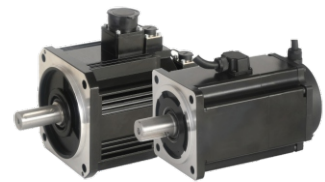
### Precise positioning

- The F1M series motor supports 17bit and 23bit single-turn/multi-turn absolute encoders with high resolution and flexible response for different applications.



### High protection, High speed, High overload

- The motor is IP65 protection grade, Maximum speed is 6000rpm, Maximum torque is 3.5 times rated torque



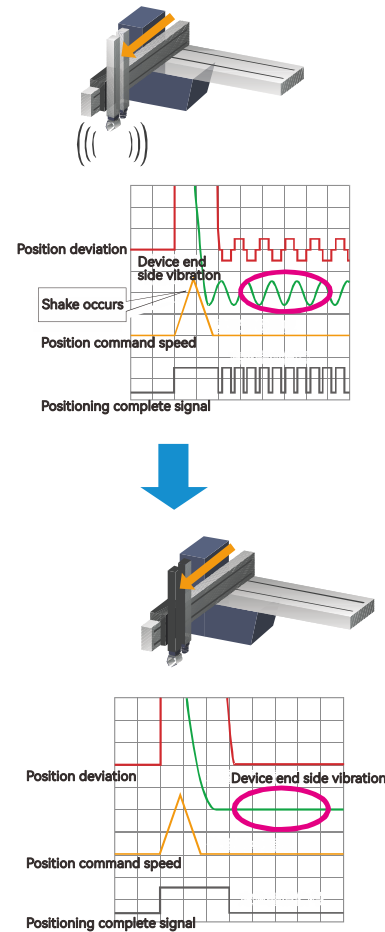
### Use easy

- Support parameter upload/download, waveform analysis function, mode debugging function, which makes debugging more convenient..



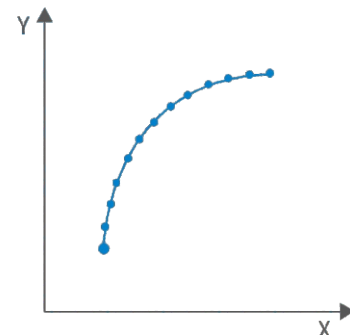
### Suppress device vibration

- The servo drive can simultaneously suppress the two vibrations at the end of the device, which can bring higher mechanical response.

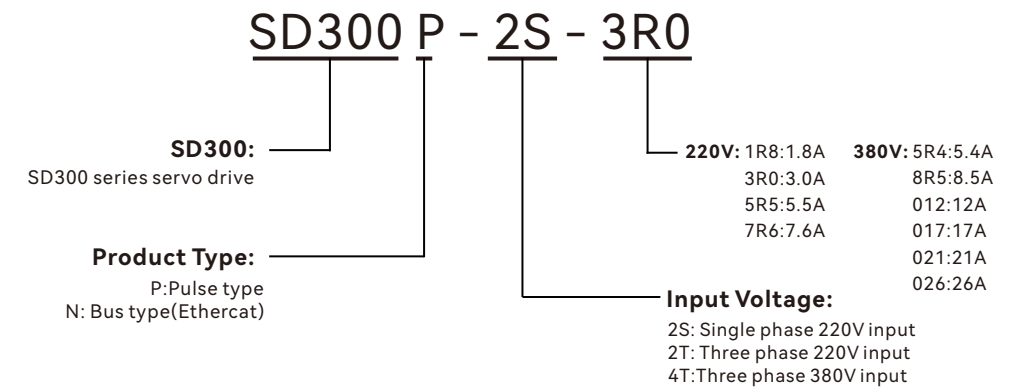


### Synchronization cycle

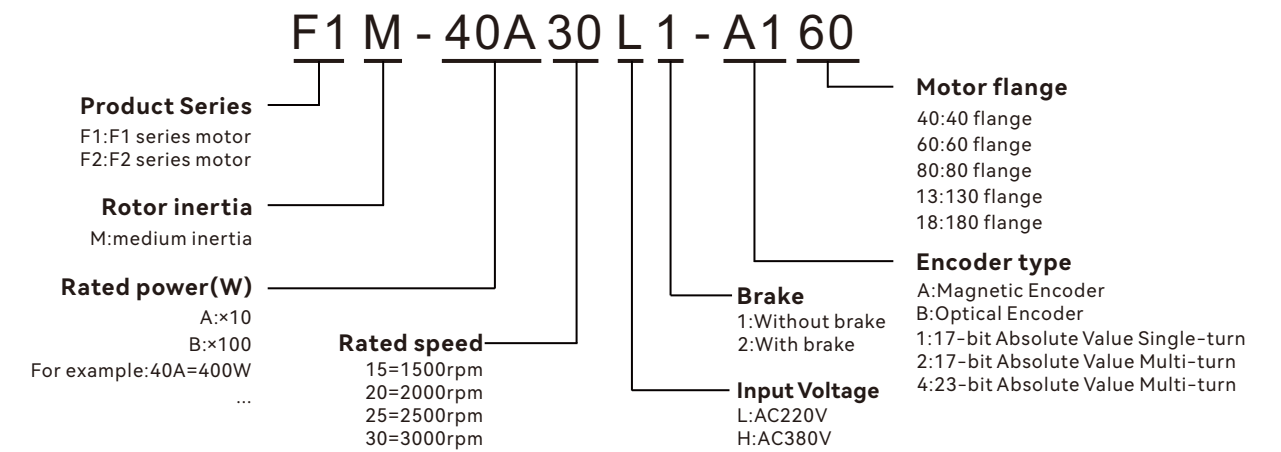
Use high-performance control chip to improve communication ability, supports 250μs synchronization cycle for EtherCAT type



## Servo Drive Model Description



## Motor Model Description



## Cable Model Description

**LPG - 0 075 0 - 3.0 - G**

① ② ③ ④ ⑤ ⑥

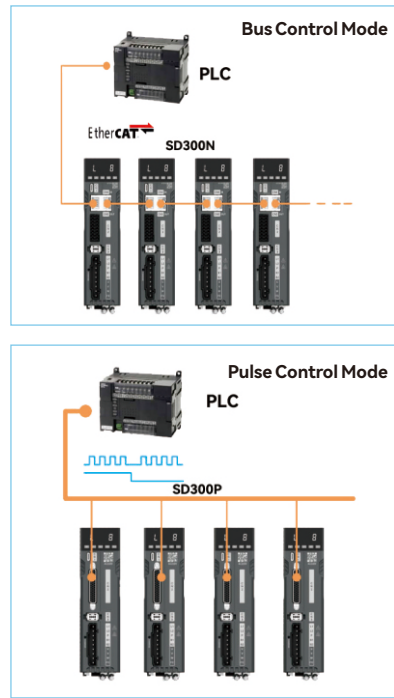
<b>①Motor Power Cable</b> LPG:General 4-core power LPB: Power cable with brake	<b>④Motor Side Plug Type</b> 0:4P-core Amp head 1: SC-MC6S(Gecko Head) 2: Aviation head18-6Z 3: Aviation head 22-A6 4: SC-MC6P-AB2G(Gecko Head)
<b>②Drive Side Plug Type</b> 0:U-shaped type terminal 1:Needle type terminal	<b>⑤Cable Length</b> 3.0: 3m 5.0: 5m 10.0: 10m ...
<b>③Wire Diameter(mm<sup>2</sup>)</b> 050: 0.5 075: 0.75 100: 1.0 150: 1.5 250: 2.5 ...	<b>⑥Cable Type</b> G:General Cable H:Super High-flex Cable(Bend endurance over 10 million cycles)

**LEG - 0 0 - 3.0 - G**

① ② ③ ④ ⑤

<b>①Encoder Cables</b> LEG: Universal absolute encoder cables LEB: Battery-powered absolute encoder cables	<b>④Cable length</b> 3.0:3m 5.0:5m 10.0:10m ...
<b>②Drive Side Plug Type</b> 0:1394 Plug 1:DB15 Plug 2:DB9 Plug	<b>⑤Cable Type</b> G:General Cable H:Super High-flex Cable(Bend endurance over 10 million cycles)
<b>③Motor Side Plug Type</b> 1: SC-MC7S(Gecko Head) 2: 10P aviation head	

## SD300 General Series Servo Drive



### SD300 Servo Drive



- ▷ Thin book design, side by side installation
- ▷ Rich functionality: 7 D1, 5 DO, 2 (16-bit) AI
- ▷ Responsive Performance: 3kHz speed bandwidth
- ▷ Power Range: 220V 100W~2.3kW; 380V 850W~7.5kW
- ▷ Control Type: Plus type control, EtherCAT Bus type control

### SD300 Drive Models List

Frame	Model	Input Voltage(V)	Rated Current(A)	Maximum Current(A)
SIZE A	SD300□-2S-1R8	Single phase 220V	1.8	5.4
	SD300□-2S-3R0		3	9
	SD300□-2S-5R5		5.5	14
SIZE B	SD300□-2T-7R6	Three phase 220V	7.6	18
	SD300□-4T-5R4	Three phase 380V	5.4	14
SIZE C	SD300□-2T-012	Three phase 220V	12	32
	SD300□-4T-8R5	Three phase 380V	8.5	19
	SD300□-4T-012	Three phase 380V	12	30
SIZE D	SD300□-4T-017	Three phase 380V	17	40
	SD300□-4T-021	Three phase 380V	21	50
	SD300□-4T-026	Three phase 380V	26	60

## SD300 Configuration Table

220V	SIZE A	SIZE B
Servo Drive		
	SD300□-2S-1R8 SD300□-2S-5R5 SD300□-2S-3R0	SD300□-2T-7R6
Servo Motor		
	100W,200W,400W,600W,750W  F1M-10A30L□-□□40 F1M-75A30L□-□□80 F1M-20A30L□-□□60 F1M-40A30L□-□□60 F1M-60A30L□-□□60	850W,1.0kW  F1M-10B30L□-□□80 F1M-85A15L□-□□13 F1M-12B30L□-□□11 F1M-18B30L□-□□11

380V	SIZE B	SIZE C	SIZE D
Servo Drive			
	SD300□-4T-5R4	SD300□-4T-8R5 SD300□-4T-012	SD300□-4T-017 SD300□-4T-021 SD300□-4T-026
Servo Motor			
	850W,1.2kW,1.3kW  F1M-85A15H□-□□13 F1M-13B30H□-□□13 F1M-12B30H□-□□11	1.8kW,2.3kW,2.9kW  F1M-18B15H□-□□13 F1M-18B30H□-□□11 F1M-23B15H□-□□13 F2M-30B15H□-□□18	4.5kW,5.5kW,7.5kW  F2M-45B15H□-□□18 F2M-55B15H□-□□18 F2M-75B15H□-□□18

## SD300 Drive Technical Specifications

SD300 drive general technical specifications		
Control method	IGBT PWM Control, sine wave current drive method, 220V, 380V: single-phase or three-phase full-wave rectification	
Environment	Temperature	Working/Storage: 0°C~55°C (the ambient temperature is above 45°C, derate by 10% for every 5°C increase) / -20°C~70°C
	Humidity	Working/Storage: Below 90%RH (no condensation)
	Vibration	4.9m/s <sup>2</sup> / 19.6m/s <sup>2</sup>
	Atmospheric	86kPa~106kPa
IP grade	IP20	
Altitude	Maximum altitude is up to 2000m. No derating is required for use at 1000m and below. Derating by 1% for every 100m above 1000m.	
Encoder	Single-turn/multi-turn absolute encoder (Tamagawa protocol)	

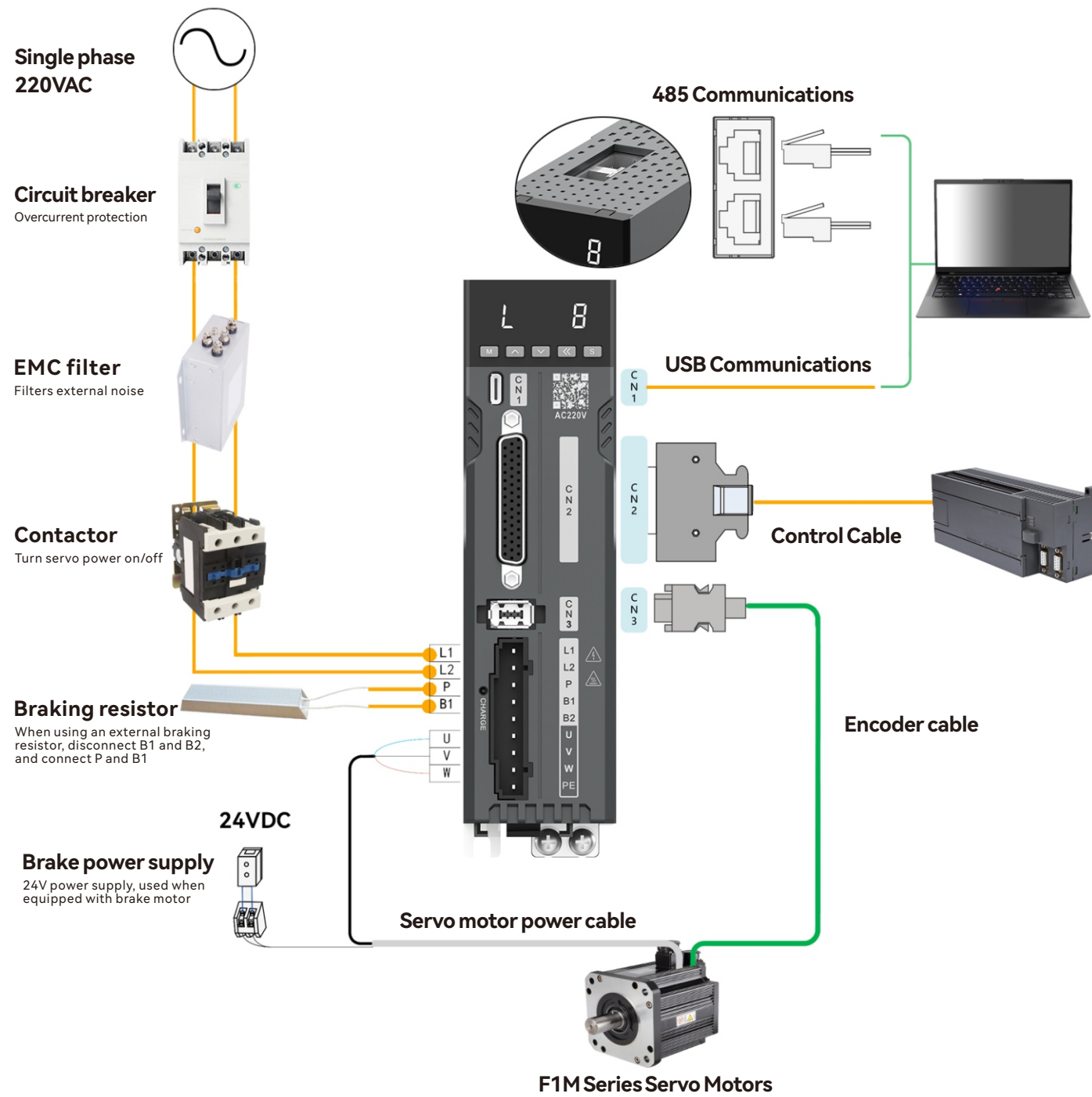
SD300P drive technical specifications				
Position Mode	Input signal	Pulse command	Input pulse type	Three command formats: Direction + Pulse; A, B Phase Quadrature Pulse; Forward/Reverse Pulse
			Input Mode	Differential input, Collector Open Circuit
			Input Frequency	Low speed: ≤500kHz(differential input) ; ≤200kHz(single-ended input) High speed: ≤4MHz(differential input)
	Built-in collector open circuit power supply	Driver (B, C, D type) supports 24V power output		
Position output	Output mode	A phase, B phase: differential output Z phase: differential output or open collector output		
		Frequency division ratio	Any frequency division ratio	
Speed Mode	Analog command input		-10V~+10V, Input impedance 10kΩ, 0~10V	
	Command acceleration and deceleration		Parameter set	
Torque Mode	Command source		Analog, Parameter set	
	Analog command input		-10V~+10V, Input impedance 10kΩ, 0~10V	
	Speed limit		Parameter set	
Input and output signals	Digital input signal	Input signal function selection	7 DI DI1~DI5 Digital signal inputs with a maximum frequency of 1kHz (frequency may decrease when the current-limiting resistance is greater than 2.4kΩ). DI8~DI9 Digital signal inputs with hardware delay less than 1ms (current-limiting resistance is 2.4kΩ). DI functions are as follows: Servo enable, Alarm reset/clear, Forward drive disable, Reverse drive disable, Forward torque limit, Reverse torque limit, Emergency stop, Electronic gear selection 1, Electronic gear selection 2, Clear position deviation, Disable pulse input	
	Digital output signal	Output signal function selection	5DO, programmable output terminal (photoelectric isolation) DO functions are as follows: Servo ready, alarm, positioning completed, speed reached, electromagnetic brake, torque limit, etc.	
Analog input signal		Voltage input specifications: -10V ~ +10V; maximum allowable voltage: ±12V		
Built-in function	Overtravel (OT) prevention function		P-OT, N-OT stops immediately when operate	
	Electronic gear ratio		Numerator and denominator: 1-32767/1-32767	
	LED display		5 digit LED display	
	Monitoring function		Speed, current position, position deviation, motor torque, motor current, command pulse frequency, bus voltage, module internal temperature, etc.	
	Protective function		Overspeed, overvoltage, overcurrent, overload, abnormal braking, abnormal encoder, abnormal position, etc.	
	Communication		Modbus RTU	
Host computer interface		USB, support parameter reading and writing, online upgrade		

## SD300 Drive Technical Specifications

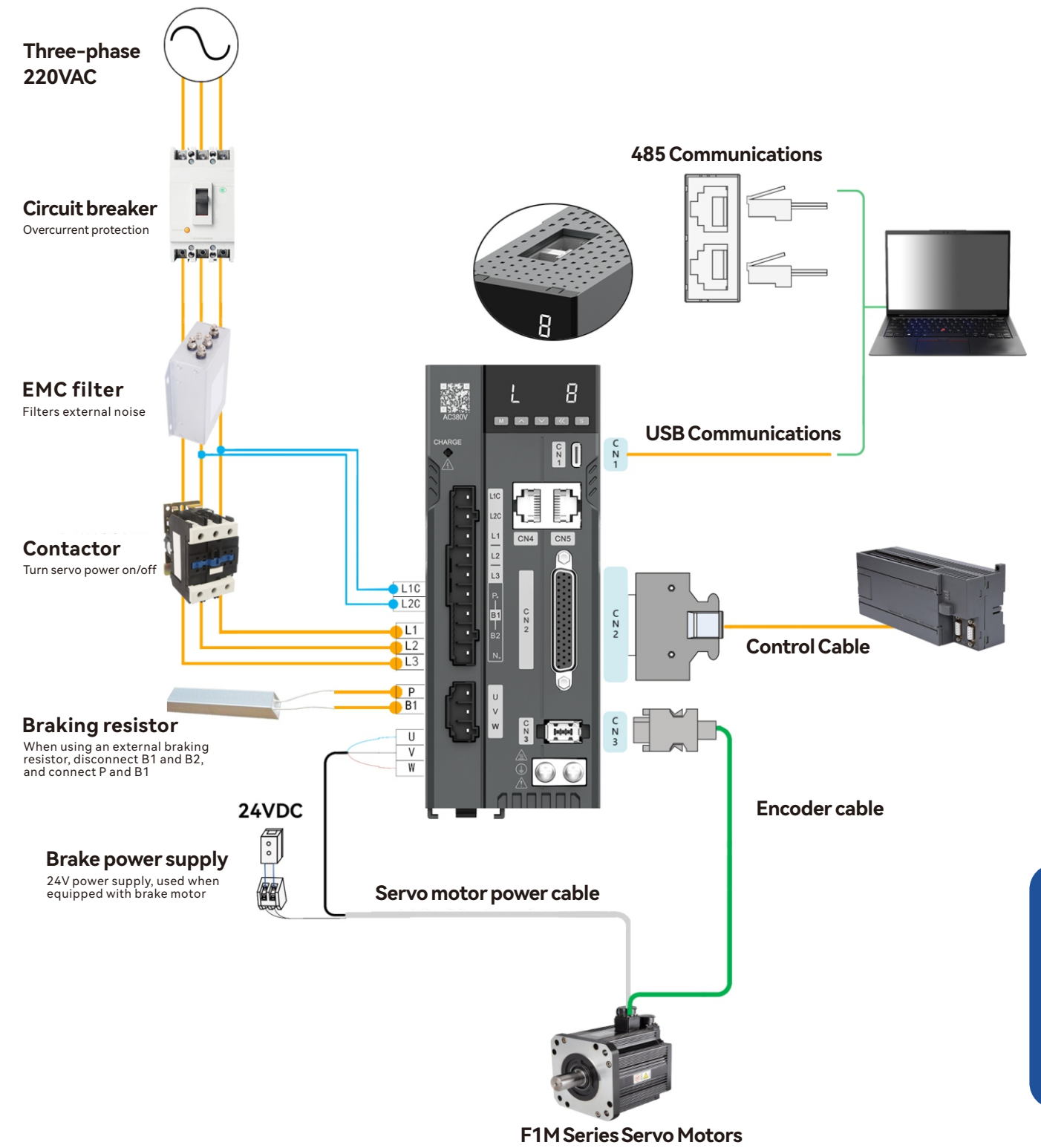
SD300N drive technical specifications			
Input and output signals	Digital input signal		4 programmable input DI terminals (photoelectric isolation) 2 high-speed optocoupler input DI terminals (high-speed latch), supporting up to 200kHz DI functions as follows: Servo enable, Alarm reset, Gain switch, Mode switch 1, Mode switch 2, Zero-point fix enable, Forward over travel switch, Reverse over travel switch, Zero command, Positive external torque limit, Forward jog, Reverse jog, Electronic gear selection, Command direction setting, Home switch, Home return enable, Emergency stop, Clear position deviation, Set current position as home
	Digital output signal		3 programmable output DO terminals, DO load capacity 50mA, voltage range 5V ~ 30V DO functions as follows: Servo ready for output, zero speed, positioning completed, approaching position, torque limit, speed limit, brake engaged output, warning output, fault output, home return completed, electrical home return output, torque reached output, speed reached output, DB brake output
Location mode	Performance	Feedforward compensation	0~100%
	Input signal	Position command input	EtherCAT communication mode: CSP (Cyclic Synchronous Position Mode) / PP (Profile Position Mode) / HM (Home Mode)
Speed torque control mode	Speed control range		1: 5000 (the lower limit of the speed control range is the condition for non-stop at rated torque load)
	Torque control accuracy		±2%
	Input signals	Speed command input	EtherCAT communication mode: CSV (cycle sync speed mode) / PV (contour speed mode)
Torque command input		EtherCAT communication mode: CST (cycle sync torque mode) / PV (contour torque mode)	
Built-in function	Overtravel prevention function		P-OT, N-OT stop immediately when moving
	Protection		Overcurrent, overvoltage, undervoltage, overload, main circuit detection abnormality, radiator overheating, overspeed, encoder abnormality, CPU abnormality, parameter abnormality
	LED display function		5 digit LED display
	Communication		EtherCAT, Maximum number of slaves 255
Other functions		Gain adjustment, alarm recording, JOG operation, dynamic braking	

EtherCAT Slave communication technical specifications	
Communication protocol	EtherCAT
Support services	COE (PDO, SDO)
Synchronously	DC- Distributed Clock
Physical layer	100BASE-TX
Baud Rate	100 Mbit/s (100Base-TX)
Duplex mode	Full-duplex
Topology	Linear
Transmission medium	Shielded Category 5 or electrical performance specification Category 6 or higher cable
Transmission distance	Less than 100M between two nodes (good environment, excellent cable)
Number of slave stations	Protocol supports up to 65535, actual usage does not exceed 100 units
EtherCAT frame length	44 bytes to 1498 bytes
Process data	Maximum size of a single Ethernet frame is 1486 bytes
Synchronizing cycle	250μs

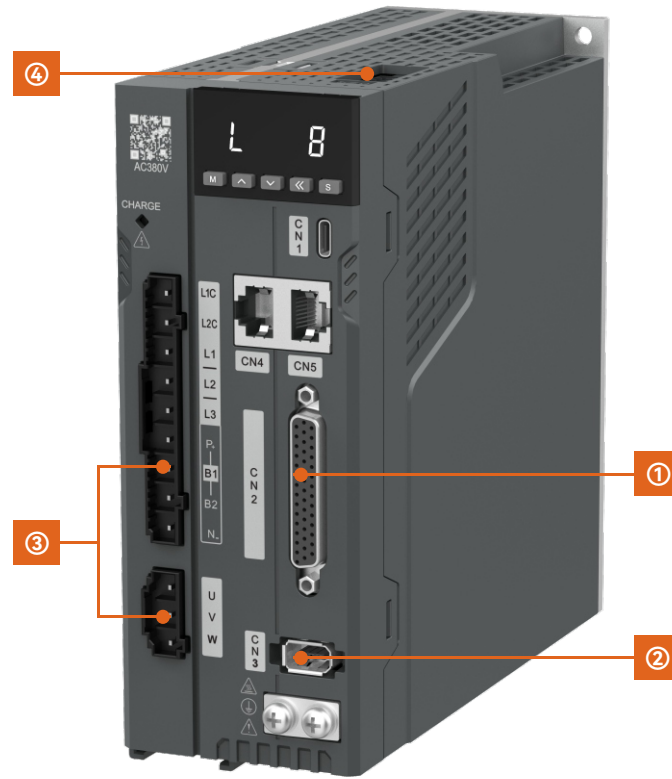
## SD300P Drive Wiring-Signal Phase 220V



## SD300P Drive Wiring- Three Phase 220V/380V



# SD300P Drive Port Definition



## ①CN2 Control terminal definition

Signal Name	Default function	Pin Number	Terminal Function
DI1	S-ON	9	Servo enable
DI2	ALM-RST	10	Alarm fault reset
DI3	P-OT	24	Forward overtravel
DI4	N-OT	8	Reverse overtrave
DI5	ClrPosErr	33	Clear position deviation
DI8	Reserve	30	-
DI9	Reserve	12	-
COM+		11	DI input terminal common end
DO1+	S-RDY+	7	Servo ready
DO1-	S-RDY-	6	
DO2+	COIN+	5	Positioning completed
DO2-	COIN-	4	
DO3+	ZERO+	3	Zero speed signal
DO3-	ZERO-	2	
DO4+	ALM+	1	Fault output
DO4-	ALM-	26	
DO5+	HomeAttain+	28	Home return completion
DO5-	HomeAttain-	27	
PULSE+		41	Input pulse command mode: Differential drive input, collector open circuit
PULSE-		43	
SIGN+		37	Input pulse form: Direction + pulse, A, B phase orthogonal pulse, CW/CCW pulse
SIGN-		39	
HPULSE+		38	High-speed input pulse command
HPULSE-		36	
HSIGN+		42	
HSIGN-		40	
PULLHI		35	External power input interface for command pulse
GND		29	Signal ground

## ④CN4/CN5 Communication terminal

Pin Number	Signal name	Describe
1	MBS-	Modbus communication data negative terminal
2	MBS+	Modbus communication data positive terminal
3	PE	Ground terminal
4	NC	Reserve
5	NC	Reserve
6	GND	Internal power ground
7	PE	The drive is grounded and connected to the power supply and motor ground terminals
8	NC	Reserve

## ③Main circuit terminal definition

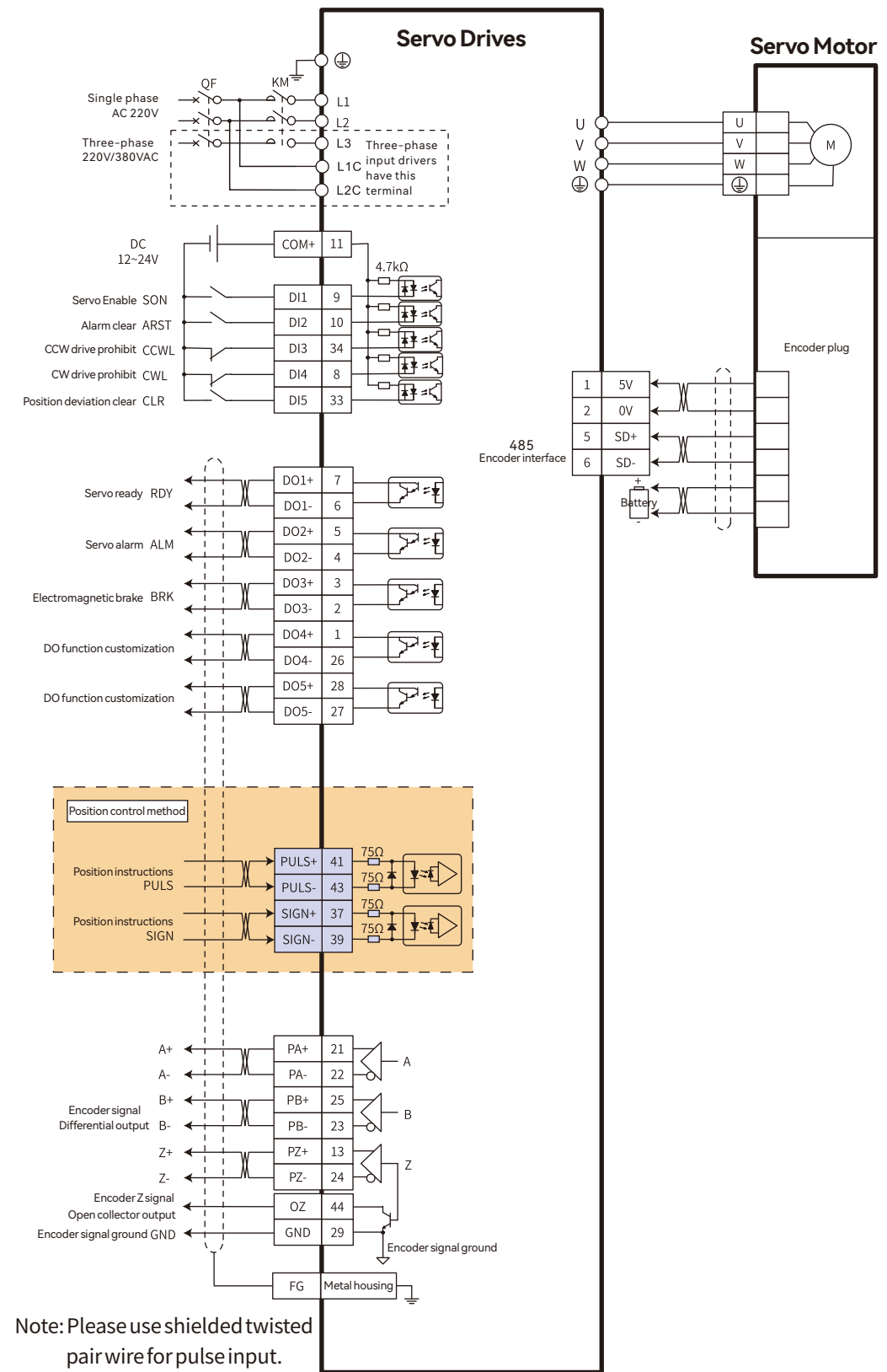
Terminal Identification	Terminal function
L1C, L2C	Control circuit power input terminal
L1, L2, L3	Main circuit power input terminal
P+, N-	Servo bus terminal
P, B1, B2	When use external brake resistor, disconnect between B1 and B2, and connect the external brake resistor across P and B1, not connected to B2
U, V, W	Output to motor U V W power
PE	PE motor ground terminal

## ②CN3 encoder connection terminal

Pin number	Definition	Describe
1	+5V	5V Power
2	GND	
3	Reserve	-
4	Reserve	-
5	SD+	Encoder signal
6	SD-	

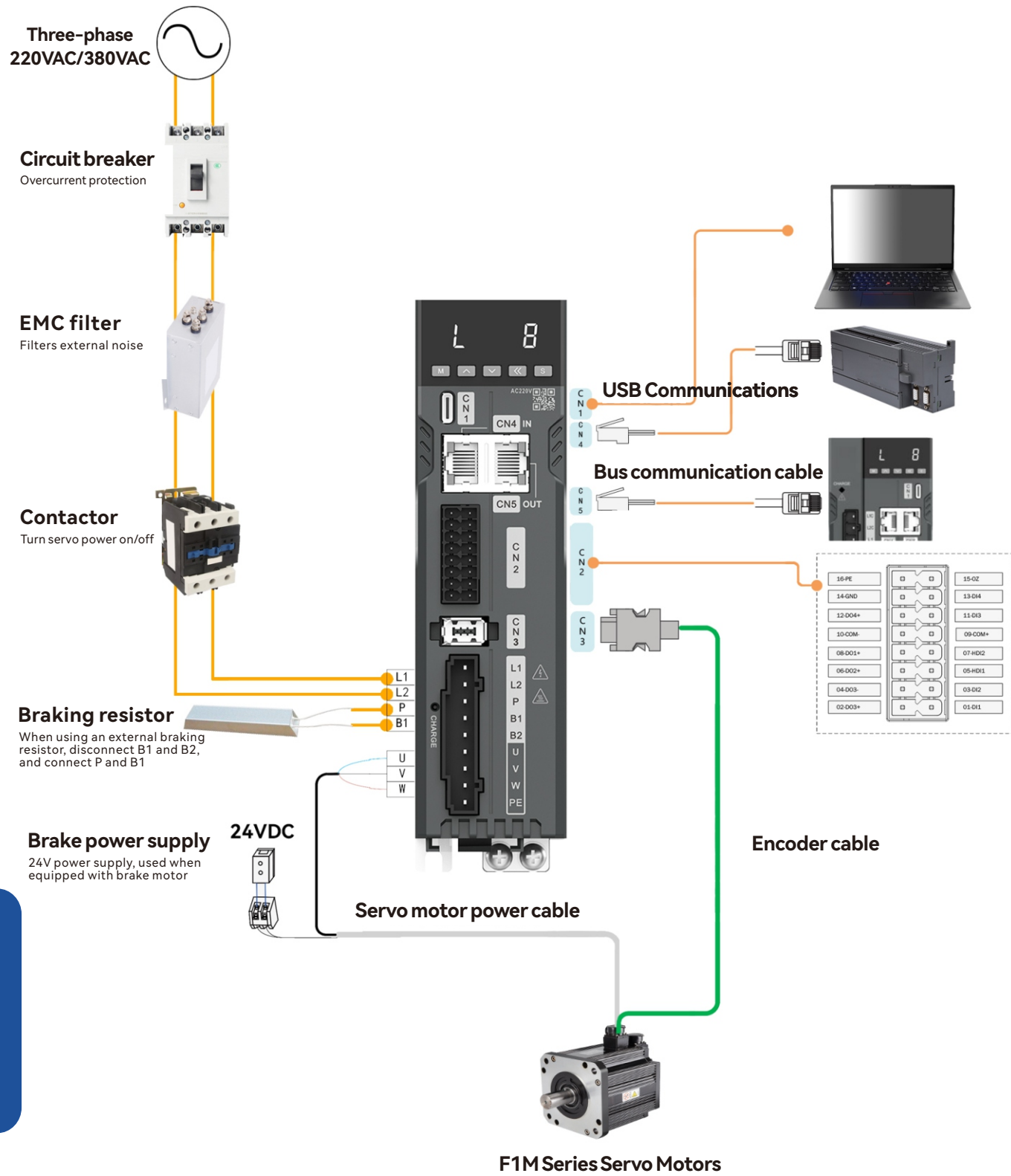
Note: For single-phase 220V models, there is no L1C, L2C control loop terminal, and no N-terminal

# SD300P Drive Port Definition

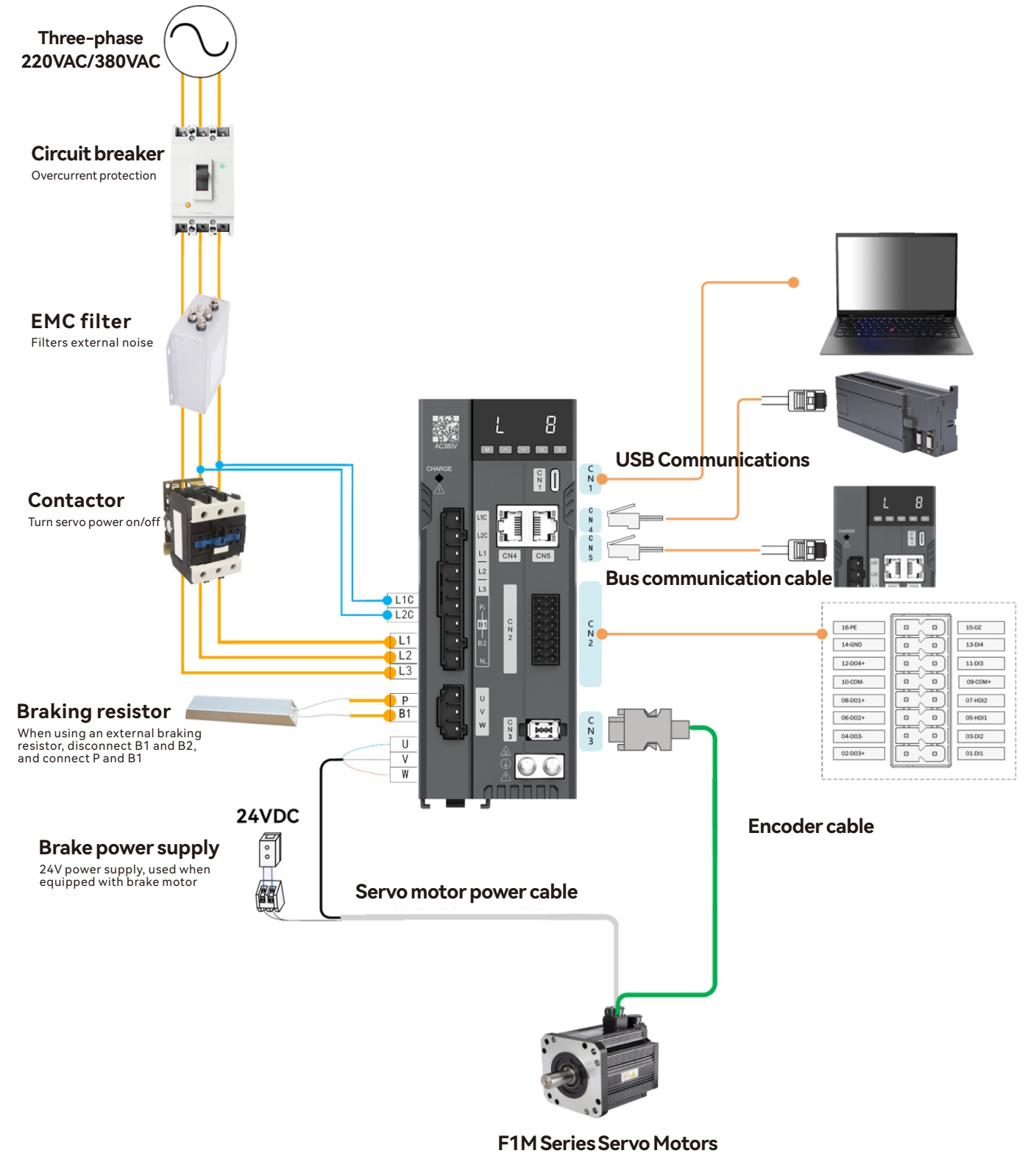


Note: Please use shielded twisted pair wire for pulse input.

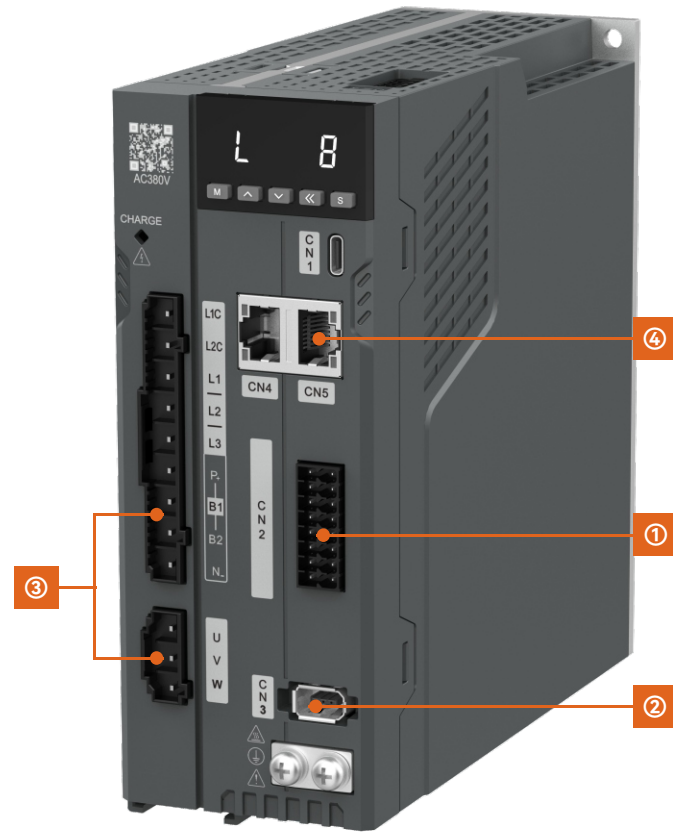
# SD300N Drive Wiring - Single Phase 220V



# SD300N Drive Wiring - Three Phase 220V/380V







### ①CN2 control terminal definition

Signal Name	Default Function	Pin Number	Terminal Function
DI1	S-ON	1	Servo enable
DI2	ALM-RST	3	Alarm fault reset
DI3	P-OT	11	Forward over range
DI4	N-OT	13	Reverse over range
COM+		9	Digital input common
HDI1		5	High speed digital input 1
HDI2		7	High speed digital input 2
DO1+,COM-	S-RDY	8,10	Servo ready
DO2+,COM-	ALM	6,10	Fault output
DO3+,DO3-	BK	3,2	Brake
DO4+,COM-	Reserve	12,10	-
COM-	-	10	DO output common terminal

### ③Main circuit terminal definition

Terminal Identification	Terminal Function
L1C, L2C	Control circuit power input terminal
L1, L2, L3	Connect external AC power supply: Signal-phase 220V AC, -15%~+10%, 50/60Hz
P+, N-	Servo bus terminal
P, B1, B2	When use external brake resistor, disconnect between B1 and B2, and connect the external brake resistor across P and B1, not connected to B2
U, V, W	Output to motor U V W power
PE	PE motor ground terminal

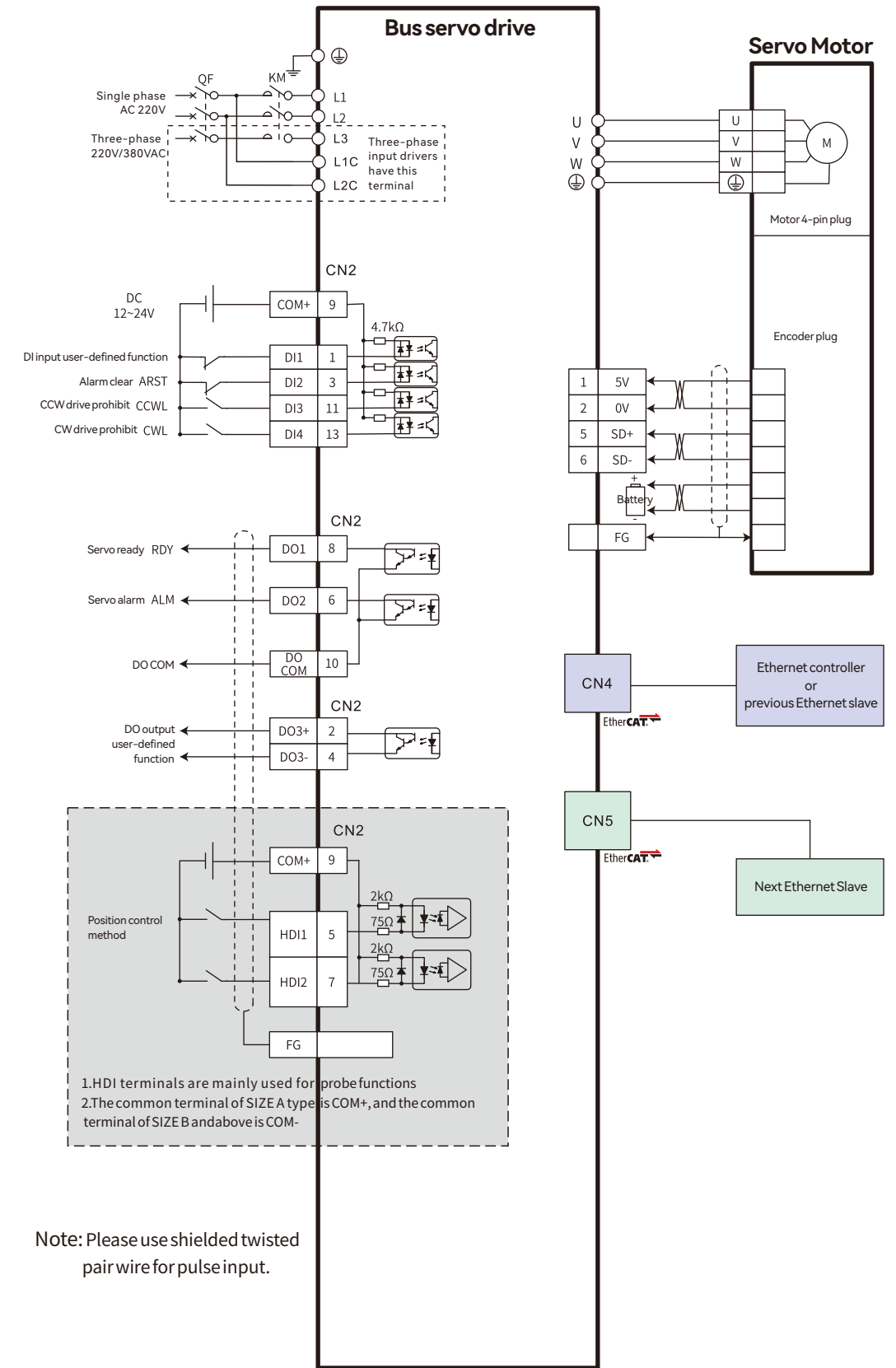
### ④CN4/CN5 connection terminal

Pin Number	Signal Name	Description
1	MBS-	Modbus communication data negative terminal
2	MBS+	Modbus communication data positive terminal
3	PE	Ground terminal
4	NC	Reserve
5	NC	Reserve
6	GND	Internal power ground
7	PE	The drive is grounded and connected to the power supply and motor ground terminal
8	NC	Reserve

### ②CN3 encoder connection terminal

Pin Number	Terminal Description	Function Description
1	+5V	5V Power
2	GND	
3	Reserve	-
4	Reserve	-
5	SD+	Encoder signal
6	SD-	

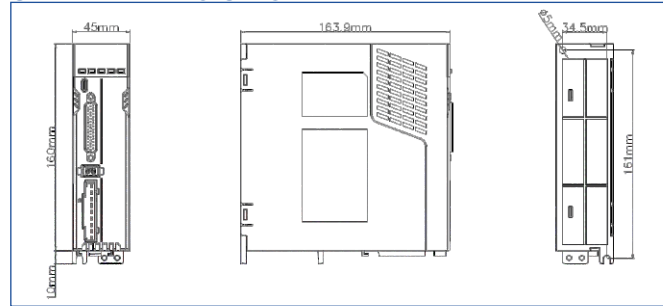
Note: For single-phase 220V models, there is no L1C, L2C control loop terminal, and no N-terminal



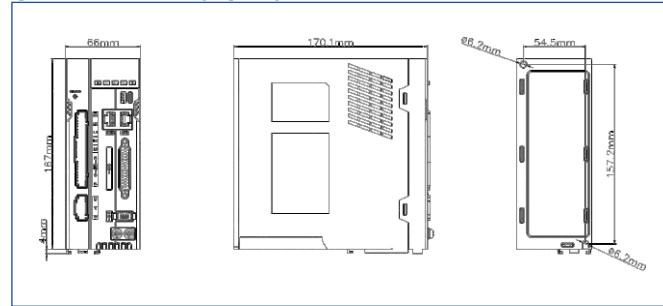
Note: Please use shielded twisted pair wire for pulse input.

## Drive Size

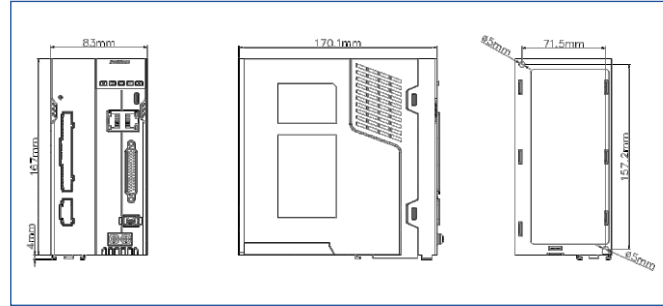
### SIZE A Drive Size



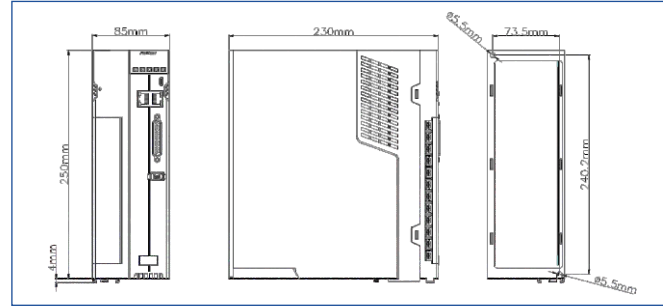
### SIZE B Drive Size



### SIZE C Drive Size



### SIZE D Drive Size



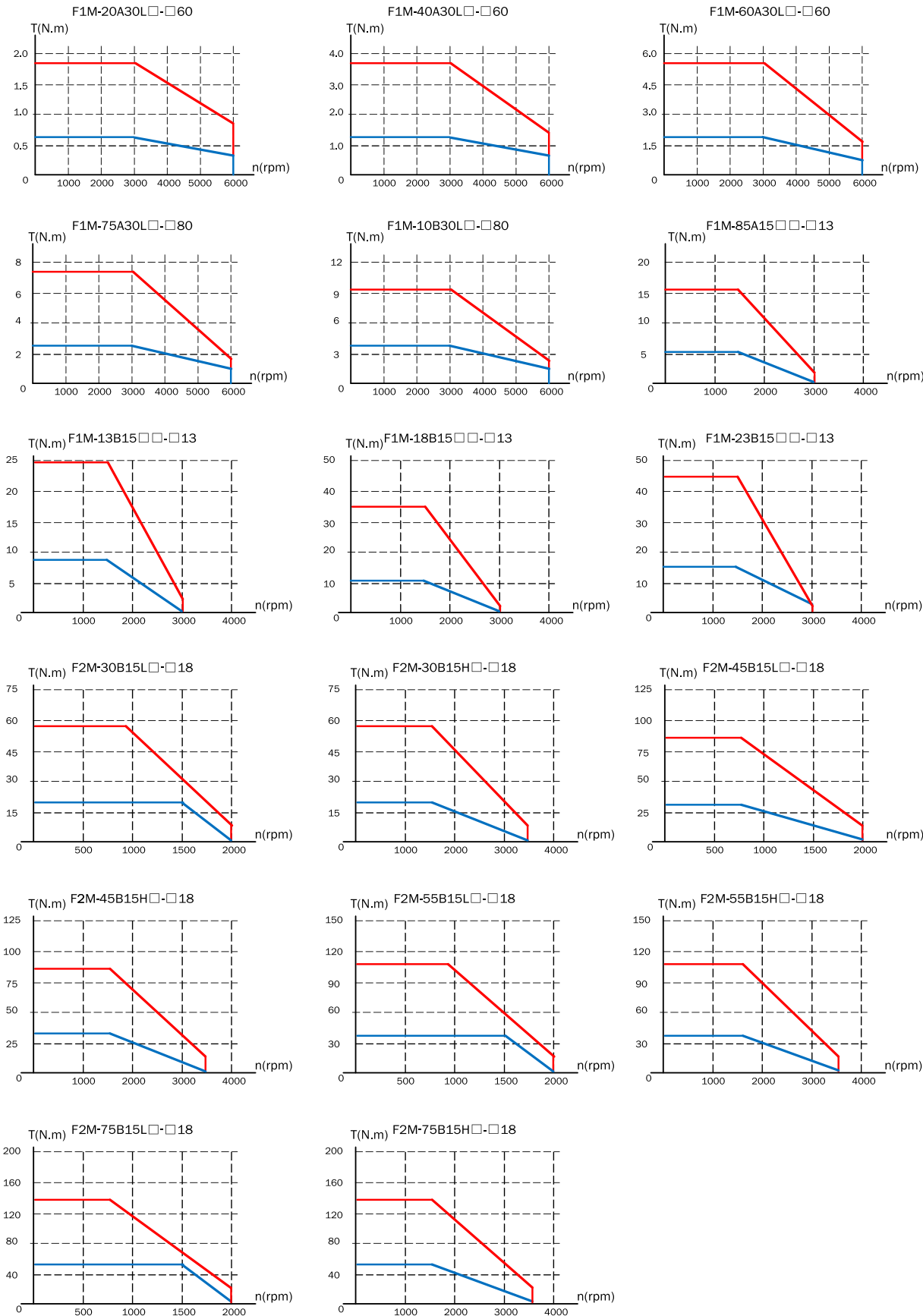
#### Driver Size

Frame	Model	Production size(mm)					
		L	W	H	a	b	d
SIZE A	SD300□-2S-1R8	166	45	160	34.5	161	5
	SD300□-2S-3R0						
	SD300□-2S-5R5						
SIZE B	SD300□-2T-7R6	172	66	167	54.5	157.2	5
	SD300□-4T-5R4						
SIZE C	SD300□-2T-012	170	83	167	71.5	157.2	5
	SD300□-4T-8R5						
	SD300□-4T-012						
SIZE D	SD300□-4T-017	230	85	250	73.5	240.2	5.5
	SD300□-4T-021						
	SD300□-4T-026						

## Servo Motor Specifications

Motor model	Rated output (W)	Input voltage (V)	Rated torque (N.m)	Max torque (N.m)	Rated current (A)	Moment max Current (A)	Rotor inertia (x10 <sup>-4</sup> kg.m <sup>2</sup> )	Rated speed/Most speed(rpm)
F1M-10A30L□-□40	100W	220V	0.318	0.954	1.1	3.5	0.066	3000/6000
F1M-20A30L□-□60	200W	220V	0.64	1.92	1.7	5.7	0.28	3000/6000
F1M-40A30L□-□60	400W	220V	1.27	3.81	2.5	8.4	0.52	3000/6000
F1M-60A30L□-□60	600W	220V	1.91	5.73	3.6	11.2	0.76	3000/6000
F1M-75A30L□-□80	750W	220V	2.39	7.17	4.4	13.8	1.48	3000/6000
F1M-10B30L□-□80	1000W	220V	3.18	9.54	5.8	18.1	1.97	3000/6000
F1M-12B30L□-□11	1200W	220V	3.82	11.46	5.2	16.4	5.2	3000/4500
F1M-12B30H□-□11	1200W	380V	3.82	11.46	3.1	9.3	5.2	3000/4500
F1M-18B30L□-□11	1800W	220V	5.73	17.19	6.8	20.5	7.8	3000/4000
F1M-18B30H□-□11	1800W	380V	5.73	17.19	4	12	7.8	3000/4000
F1M-85A15L□-□13	850W	220V	5.41	16.23	4.6	14.2	12.1	1500/3000
F1M-85A15H□-□13	850W	380V	5.41	16.23	3.1	9.5	12.1	1500/3000
F1M-13B15L□-□13	1300W	220V	8.28	24.84	7.7	23.7	17.5	1500/3000
F1M-13B15H□-□13	1300W	380V	8.28	24.84	5.1	15.6	17.5	1500/3000
F1M-18B15L□-□13	1800W	220V	11.46	34.38	9.8	30.2	23.7	1500/3000
F1M-18B15H□-□13	1800W	380V	11.46	34.38	6.3	19.2	23.7	1500/3000
F1M-23B15L□-□13	2300W	220V	14.64	43.92	12.4	38.4	31.2	1500/3000
F1M-23B15H□-□13	2300W	380V	14.64	43.92	8.5	26.2	31.2	1500/3000
F2M-30B15H□-□18	2900W	380V	18.6	54	10	29	44	1500/2500
F2M-45B15H□-□18	4400W	380V	28.65	71	12.8	31.8	66	1500/2000
F2M-55B15H□-□18	5500W	380V	35	87.5	14	35	102	1500/2000
F2M-75B15H□-□18	7500W	380V	47.76	96	23	46	146	1500/2000

## Servo Motor Characteristic Curve



Note: The blue line is the rated torque, and the red line is the instantaneous torque

## Servo Motor Appearance and Installation Dimensions

### 40 Flange

Model	L(mm)	Brake
F1M-10A30L1-□40	78.8	Without
F1M-10A30L2-□40	105.5	With

Note: If need other encoder types, please contact FRECON.

### 60 Flange

Model	L(mm)	Brake
F1M-20A30L1-□60	73	Without
F1M-20A30L2-□60	102.5	With
F1M-40A30L1-□60	90	Without
F1M-40A30L2-□60	119.5	With
F1M-60A30L1-□60	107	Without
F1M-60A30L2-□60	136.5	With

Note: If need other encoder types, please contact FRECON.

### 80 Flange

Model	L(mm)	Brake
F1M-75A30L1-□80	96.5	Without
F1M-75A30L2-□80	130.5	With
F1M-10B30L1-□80	109.5	Without
F1M-10B30L2-□80	143.5	With

Note: If need other encoder types, please contact FRECON.

### 110 Flange

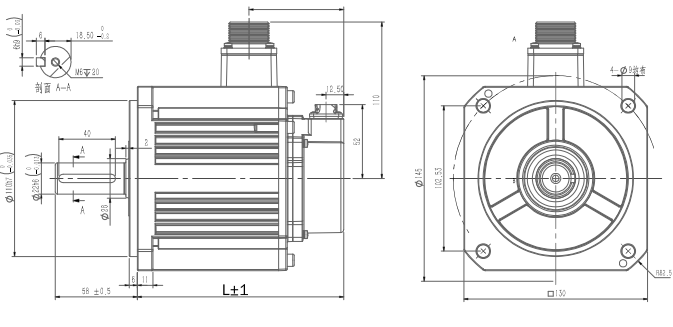
Model	L(mm)	Brake
F1M-12B30□1-□11	140	Without
F1M-12B30□2-□11	165.5	With
F1M-18B30□1-□11	163	Without
F1M-18B30□2-□11	188.5	With

Note: If need other encoder types, please contact FRECON.

## Servo Motor Appearance and Installation Dimensions

### 130 Flange

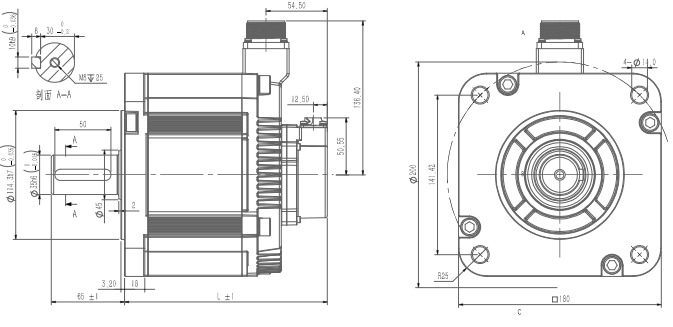
Model	L(mm)	Brake
F1M-85A15□1-□13	130	Without
F1M-85A15□2-□13	155.5	With
F1M-13B15□1-□13	146	Without
F1M-13B15□2-□13	171.5	With
F1M-18B15□1-□13	164	Without
F1M-18B15□2-□13	189.5	With
F1M-23B15□1-□13	186	Without
F1M-23B15□2-□13	211.5	With



Note: 1.If need other encoder types, please contact FRECON. 2.□:H(380V),L(220V)

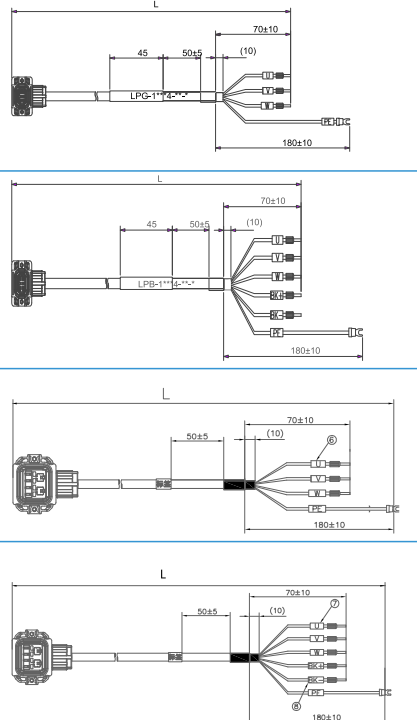
### 180 Flange

Model	L(mm)	Brake
F2M-30B15H1-B418	156	Without
F2M-30B15H2-B418	193	With
F2M-45B15H1-B418	180	Without
F2M-45B15H2-B418	217	With
F2M-55B15H1-B418	205	Without
F2M-55B15H2-B418	242	With
F2M-75B15H1-B418	250	Without
F2M-75B15H2-B418	287	With

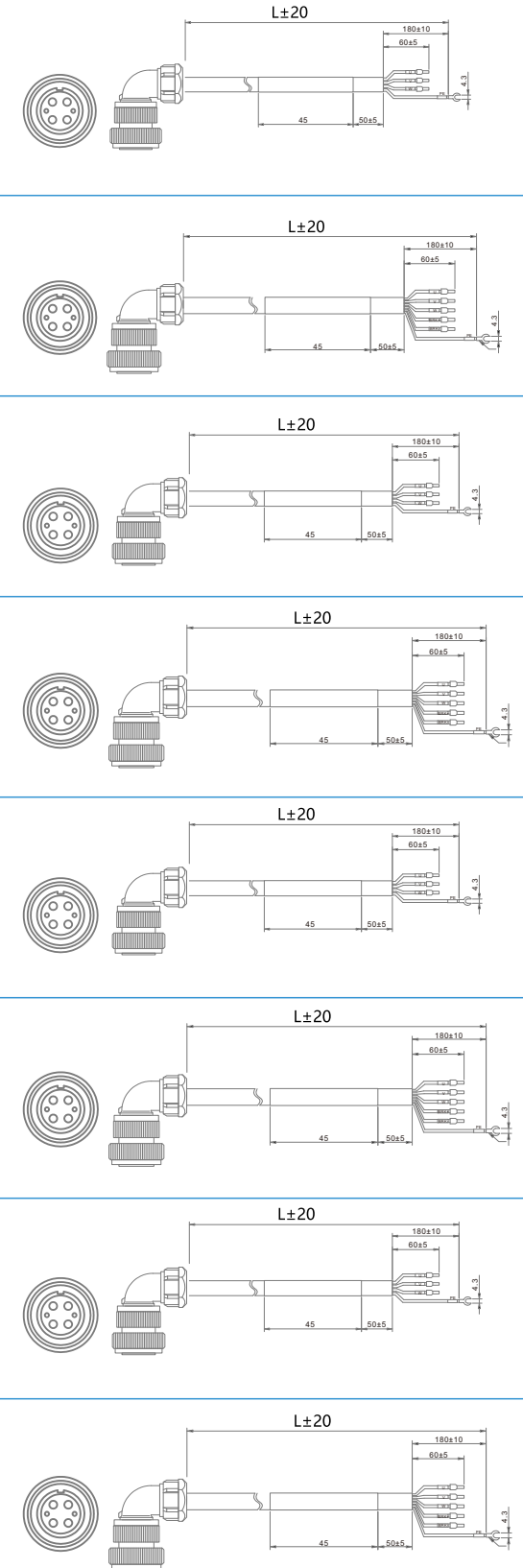
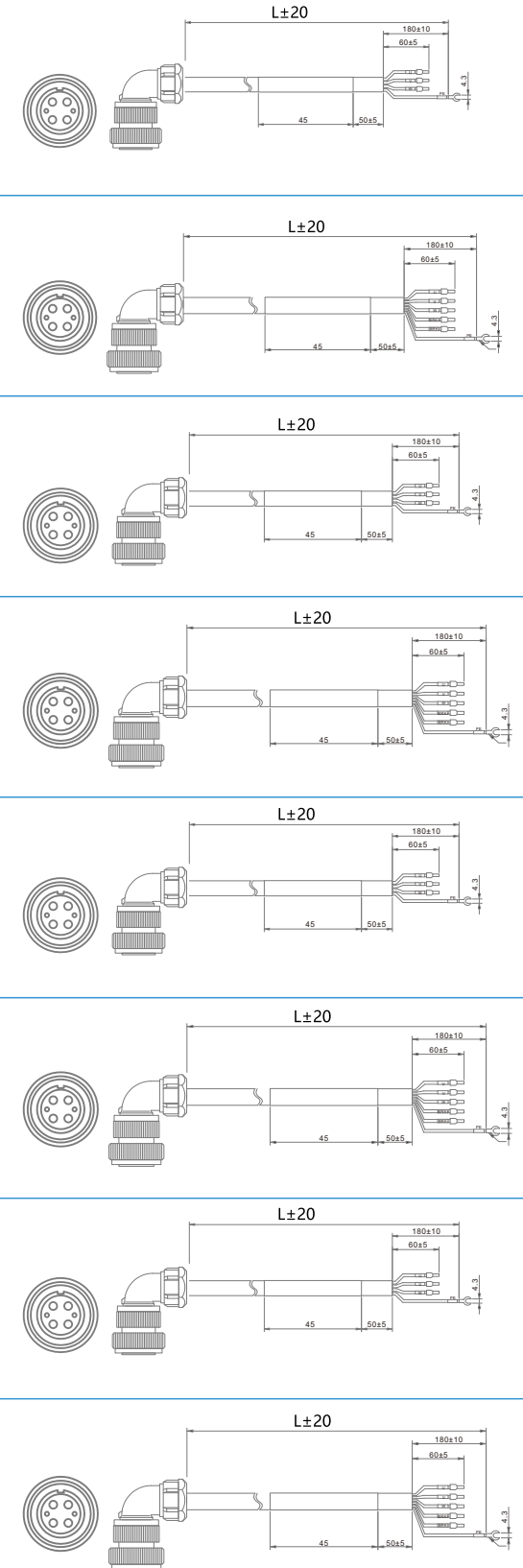
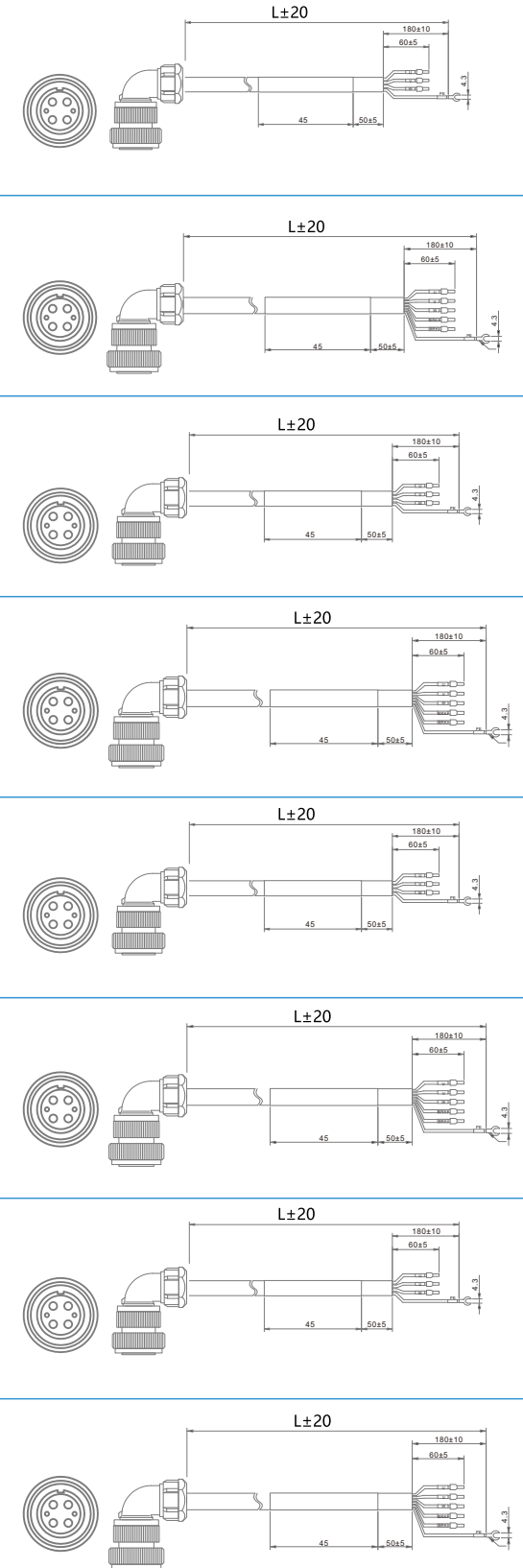
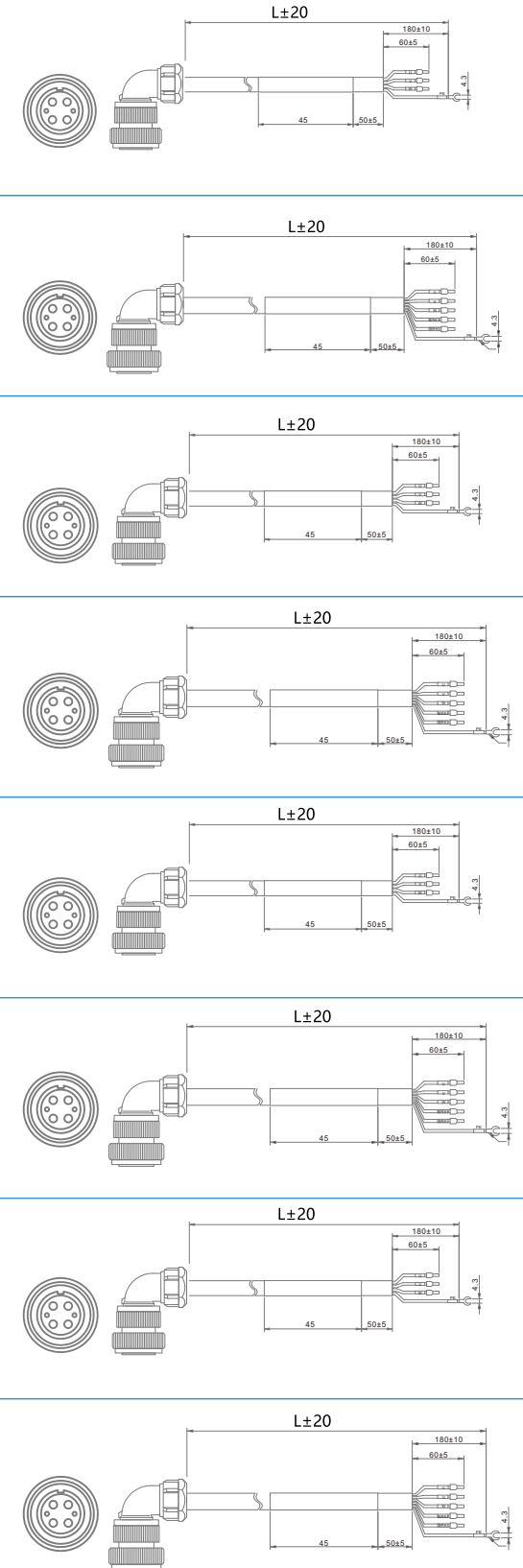


Note: If need other encoder types, please contact FRECON.

## Power Cable Selection Table

Motor Model	Cable Name	Cable Model	Length(m)	Cable Appearance Diagram
F1M terminal type motor (40 flange motor)	Power cable without brake	LPG-10504-3.0-G	3	
		LPG-10504-5.0-G	5	
		LPG-10504-10.0-G	10	
	Power cable with brake	LPB-10504-3.0-G	3	
		LPB-10504-5.0-G	5	
		LPB-10504-10.0-G	10	
F1M terminal type motor (60/80 flange motor)	Power cable without brake	LPG-10501-3.0-G	3	
		LPG-10501-5.0-G	5	
		LPG-10501-10.0-G	10	
	Power cable with brake	LPB-10501-3.0-G	3	
		LPB-10501-5.0-G	5	
		LPB-10501-10.0-G	10	

## Power Cable Selection Table

Motor Model	Cable Name	Cable Model	Length(m)	Cable Appearance Diagram
F1M aviation plug motor (110 flange, 1.2kW; 130 flange, 0.85kW, 1.5kW;)	Power cable without brake	LPG-11002-3.0-G	3	
		LPG-11002-5.0-G	5	
		LPG-11002-10.0-G	10	
	Power cable with brake	LPB-11002-3.0-G	3	
		LPB-11002-5.0-G	5	
		LPB-11002-10.0-G	10	
F1M aviation plug motor (110 flange, 1.8kW; 130 flange, 1.8kW, 2.3kW)	Power cable without brake	LPG-11502-3.0-G	3	
		LPG-11502-5.0-G	5	
		LPG-11502-10.0-G	10	
	Power cable with brake	LPB-11502-3.0-G	3	
		LPB-11502-5.0-G	5	
		LPB-11502-10.0-G	10	
F2M aviation plug motor (180 flange, 3.0kW)	Power cable without brake	LPG-11503-3.0-G	3	
		LPG-11503-5.0-G	5	
		LPG-11503-10.0-G	10	
	Power cable with brake	LPB-11503-3.0-G	3	
		LPB-11503-5.0-G	5	
		LPB-11503-10.0-G	10	
F2M aviation plug motor (180 flange, 4.5kW, 5.5kW, 7.5kW)	Power cable without brake	LPG-02503-3.0-G	3	
		LPG-02503-5.0-G	5	
		LPG-02503-10.0-G	10	
	Power cable with brake	LPB-02503-3.0-G	3	
		LPB-02503-5.0-G	5	
		LPB-02503-10.0-G	10	

## Encoder Cable Selection Table

Motor Model	Cable Name	Cable Model	Length(m)	Cable Appearance Diagram
F1M terminal type motor (40/60/80 flange motor)	Signal-turn	LEG-01-3.0-G	3	
		LEG-01-5.0-G	5	
		LEG-01-10.0-G	10	
	Multi-turn	LEB-01-3.0-G	3	
		LEB-01-5.0-G	5	
F1M aviation plug motor (110flange, 130flange)	Signal-turn	LEG-02-3.0-G	3	
		LEG-02-5.0-G	5	
		LEG-02-10.0-G	10	
F2M aviation plug motor (180flange)	Multi-turn	LEB-02-3.0-G	3	
		LEB-02-5.0-G	5	
		LEB-02-10.0-G	10	

## Motor, Drive and Cable Match Table

Motor Model	Flange	Rated Current (A)	Rate torque (N.m)	Voltage (V)	Adapter Drive	Encoder Cable	Power Cable
F1M-10A30L□-□40	40	1.1	0.32	220V	SD300□-2S-1R8 SD100P-2S-1R8	LEG-01-3.0-G (Without battery) LEB-01-3.0-G (With battery)	LPG-10504-3.0-G4 LPB-10504-3.0-G (With brake)
F1M-20A30L□-□60	60	1.7	0.64				LPG-10501-3.0-G LPB-10501-3.0-G (With brake)
F1M-40A30L□-□60	60	2.5	1.27				SD300□-2S-3R0 SD100P-2S-3R0
F1M-60A30L□-□60	60	3.6	1.91				SD300□-2S-5R5 SD100P-2S-5R5
F1M-75A30L□-□80	80	4.4	2.39				SD300□-2T-7R6 SD100P-2T-7R6
F1M-10B30L□-□80	80	5.8	3.18				
F1M-12B30L□-□11	110	5.2	3.82				
F1M-12B30H□-□11	110	3.1	3.82	380V	SD300□-4T-5R4	LPG-11002-3.0-G LPB-11002-3.0-G (With brake)	
F1M-18B30L□-□11	110	6.8	5.73	220V	SD300□-4T-5R4		
F1M-18B30H□-□11	110	4.0	5.73	380V	SD300□-4T-7R6		
F1M-85A15L□-□13	130	4.6	5.41	220V	SD300□-2T-7R6		
F1M-85A15H□-□13	130	3.1	5.41	380V	SD300□-4T-5R4		
F1M-13B15L□-□13	130	7.7	8.28	220V	SD300□-2T-012		
F1M-13B15H□-□13	130	5.1	8.28	380V	SD300□-4T-5R4		
F1M-18B15L□-□13	130	9.8	11.46	220V	SD300□-2T-012	LPG-11502-3.0-G LPB-11502-3.0-G (With brake)	
F1M-18B15H□-□13	130	6.3	11.46	380V	SD300□-4T-8R5		
F1M-23B15L□-□13	130	12.4	14.64	220V	SD300□-2T-012		
F1M-23B15H□-□13	130	8.5	14.64	380V	SD300□-4T-012	LPG-11503-3.0-G LPB-11503-3.0-G (With brake)	
F2M-30B15H□-□18	180	11.6	19.1	380V	SD300□-4T-012		
F2M-45B15H□-□18	180	16.6	28.65	380V	SD300□-4T-017		
F2M-55B15H□-□18	180	21.4	35	380V	SD300□-4T-021	LPG-02503-3.0-G LPB-02503-3.0-G (With brake)	
F2M-75B15H□-□18	180	26.7	47.76	380V	SD300□-4T-025		

## Cable Terminal

40 flange motor side terminal definition	Motor power cable 6P connector	Motor encoder 7P connector	
Pin number	Signal name	Pin number	Signal name
1	W	1	5V
2	V	2	0
3	U	3	SD+
4	PE	4	SD-
5	BK+	5	PE
6	BK-	6	BAT+
		7	BAT-

60/80 flange motor side terminal definition	Motor power cable 6P connector	Motor encoder 7P connector	
Pin number	Signal name	Pin number	Signal name
1	W	1	5V
2	V	2	0
3	U	3	SD+
4	PE	4	SD-
5	BK+	5	PE
6	BK-	6	BAT+
		7	BAT-

110/130/180 flange motor side terminal definition	Motor power 6P aviation head	Motor encoder 10P aviation head	
Pin number	Signal name	Pin number	Signal name
A	W	1	/
		2	E-
B	V	3	E+
		4	SD-
C	U	5	0V
		6	SD+
D	PE	7	5V
1	BK+	8	/
2	BK-	9	/
		10	PE

## Accessory List

Accessory Name	Accessory Parameter	Accessory Appearance
Pulse 44pin control terminal head	-	
Bus control terminal 16pin	-	
Main loop plug terminal 100-750W	L1, L2,P,B1,B2,U,V,W,PE	
Main loop plug and unplug terminals 1000-3000W	L1C,L2C,L1,L2,L3,P+,B1,B2,N-	
	U,V,W	
Plug and remove the terminal crimping clip	-	
9P/13P control cable 1.5m	9P:PULSE+, PULSE-, SIGN+, SIGN-, DI1, COM+, DO1+, DO1-, GND 13P:PULSE+, PULSE-, SIGN+, SIGN-, PULLHI, DI1, DI2, COM+, DO1+, DO1-, DO2+, DO2-, GND	
EtherCAT dedicated network cable (Category 5)	Length is 0.3m, 2m	

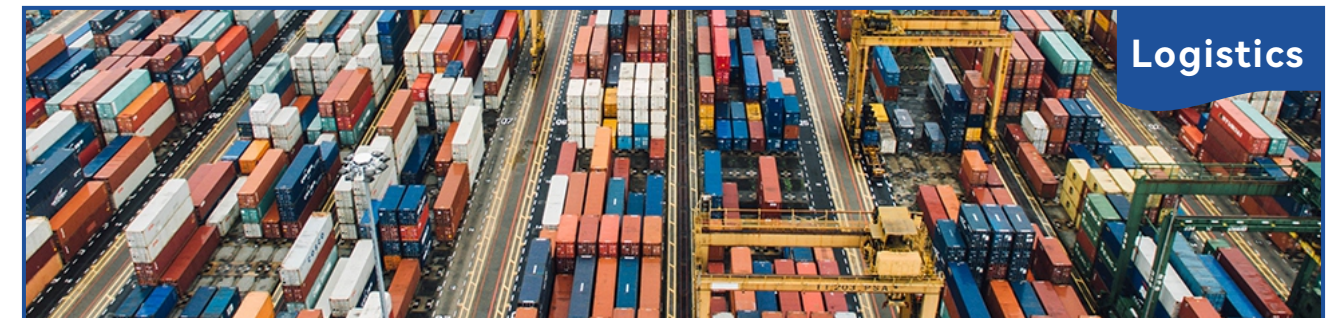
## Application



Robot



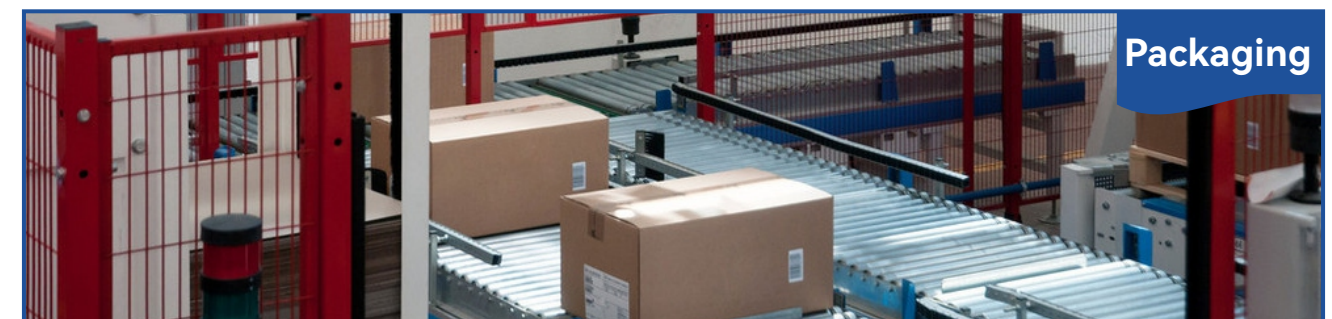
Laser



Logistics



Machine tool



Packaging