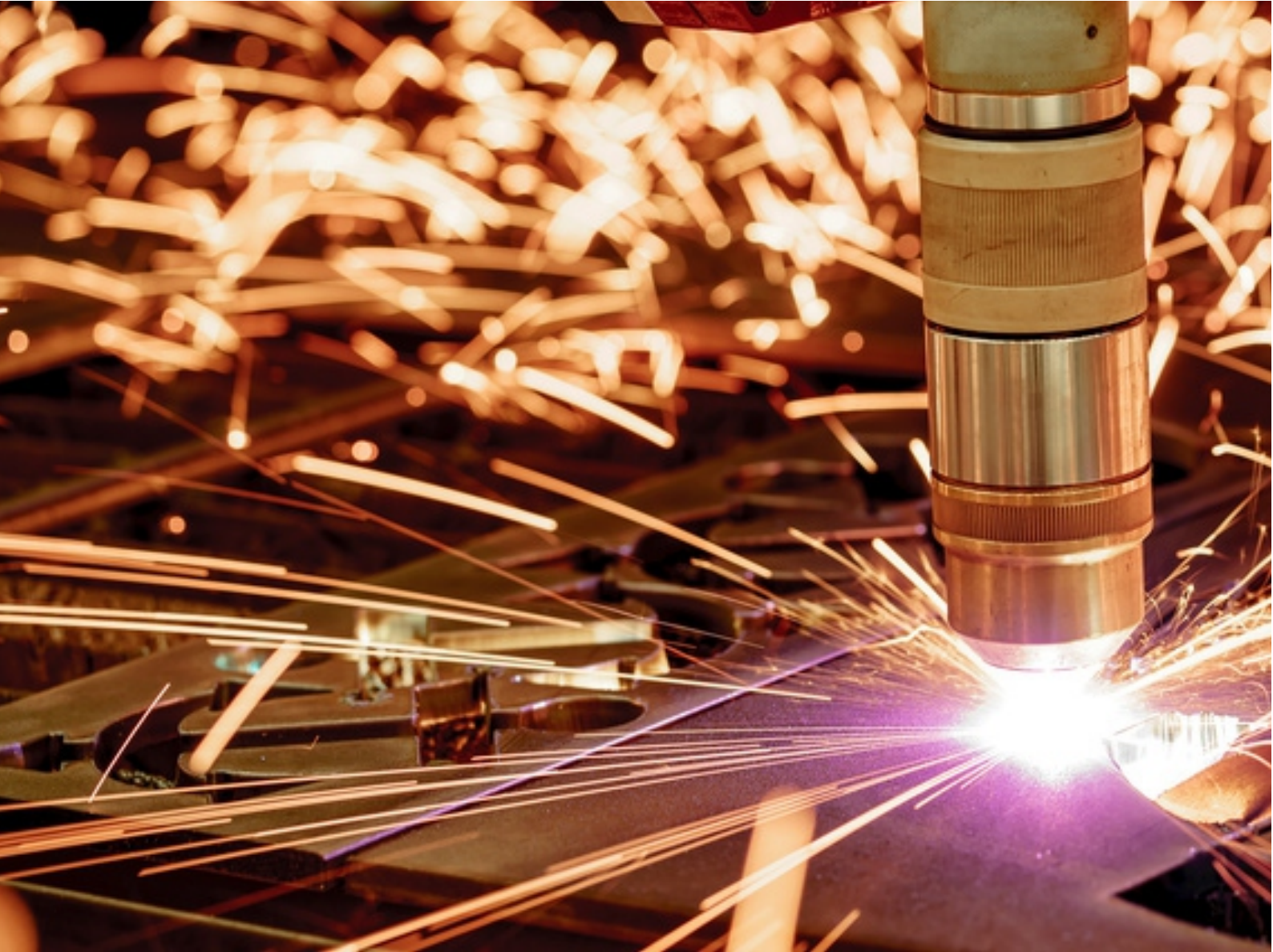


Servo Drive System

SD300S series spindle servo system



FRECON



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 frequency converters, servo drives, energy-saving control cabinets, solar inverter systems etc.





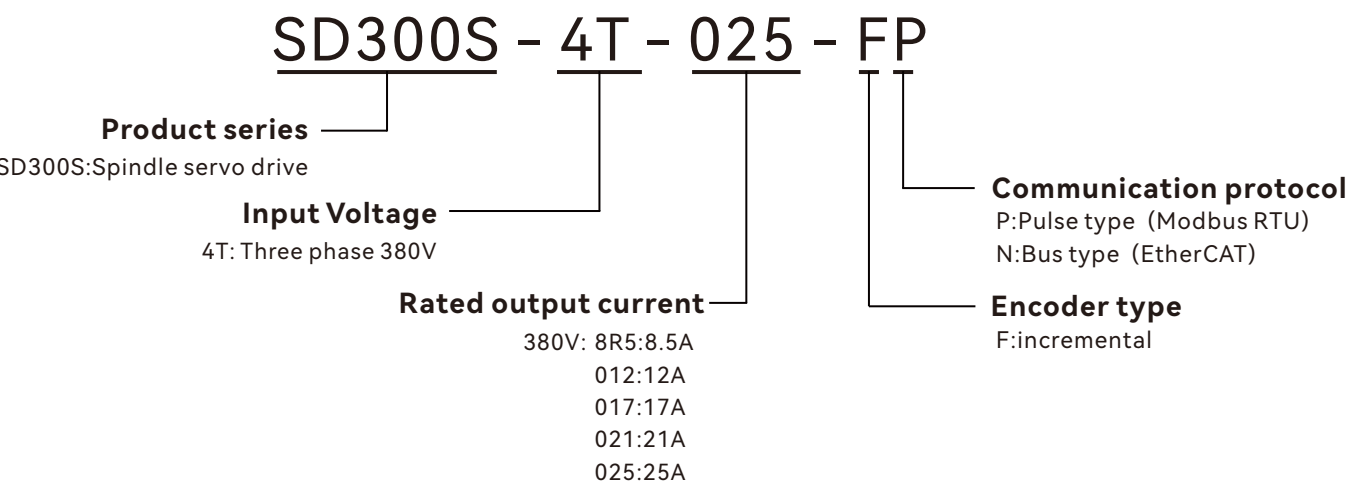
Product Overview

SD300S series spindle servo drive has superior performance, rich interfaces, supports speed, position, and torque control modes, widely used in CNC machine, printing, packaging machine and other industries.

- ▷ Power range: 380V 4.0~11kW
- ▷ Support synchronous/asynchronous motor
- ▷ Compact size: Book-type narrow body design, side-by-side installation
- ▷ Rich functions: pulse type (9 DI, 5 DO), bus type (4DI, 3DO)
- ▷ Multiple control modes: speed, position, torque control
- ▷ Multiple pulse modes: pulse + direction, pulse + pulse, quadrature input
- ▷ Two encoder interfaces: absolute, incremental
- ▷ Supports accurate stop, indexing function, and supports up to 16 positions



Servo Drive Model description



Drive specification

Frame	Model	Input voltage(V)	Rated output current(A)	Maximum current(A)	Adaptive motor power	External brake resistor Minimum allowable resistance(Ω) Power(W)
SIZE C	SD300S-4T-8R5	Three phase 380V	8.5	17	4.0kW	≥30R,≥100W
	SD300S-4T-012	Three phase 380V	12	28	5.5kW	≥30R,≥100W
SIZE D	SD300S-4T-017	Three phase 380V	17	35	7.5kW	≥25R,≥100W
	SD300S-4T-025	Three phase 380V	25	39	11.0kW	≥25R,≥100W

Technical specification

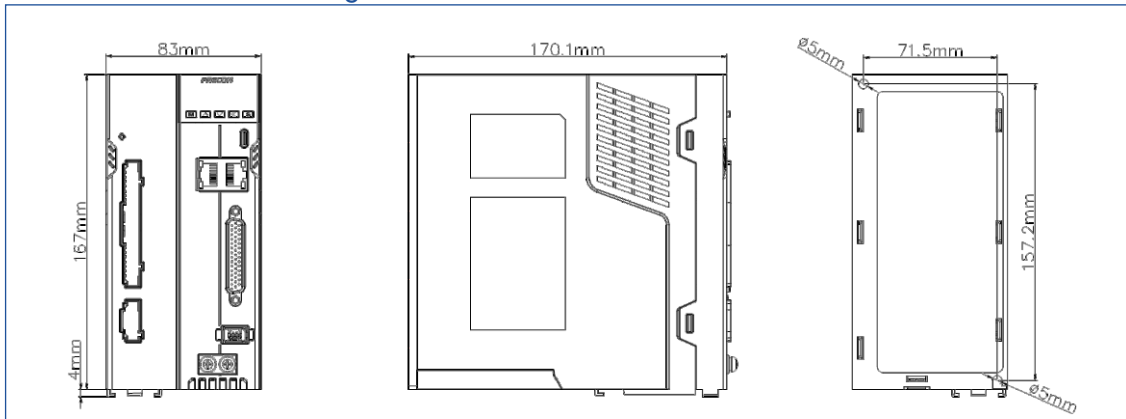
SD300S Bus type specifications	
Control mode	CSP (Cyclic Synchronous Position Mode), CSV (Cyclic Synchronous Speed Mode), CST (Cyclic Synchronous Torque Mode)...
Digital input	4 programmable input terminals (photoelectric isolation), 2 high-speed optocoupler inputs
Digital output	3 programmable output terminals (optically isolated)
Communication	EtherCAT, USB

Technical specification

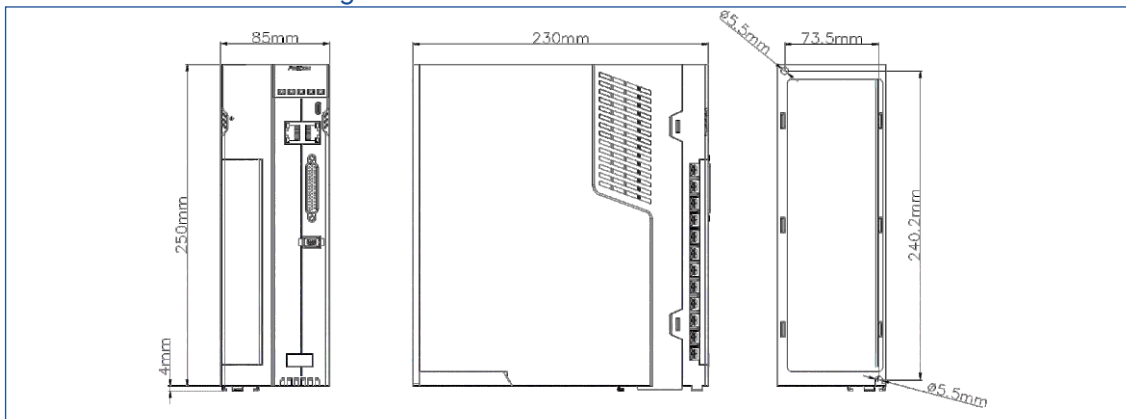
SD300S pulse type technical specifications		
Control mode		Position mode, speed mode, torque mode
Position mode	Pulse input mode	1. Direction + pulse 2. A and B phase orthogonal pulse 3. Forward/reverse pulse
	Pulse input frequency	≤200kHz(single-ended input) ≤500kHz(differential input)
Speed mode	Analog input	-10V~+10V, Input impedance 10kΩ
	Digit setting	0~6000 rpm
Brake	Analog input	-10V~+10V, Input impedance 10kΩ
	Digit setting	-300%~+300%
Digital input		9 programmable input terminals
Digital output		5 programmable output terminals
Communication		Modbus RTU, USB
Other functions		Quasi-stop, indexing, multi-stage position function

Driver size

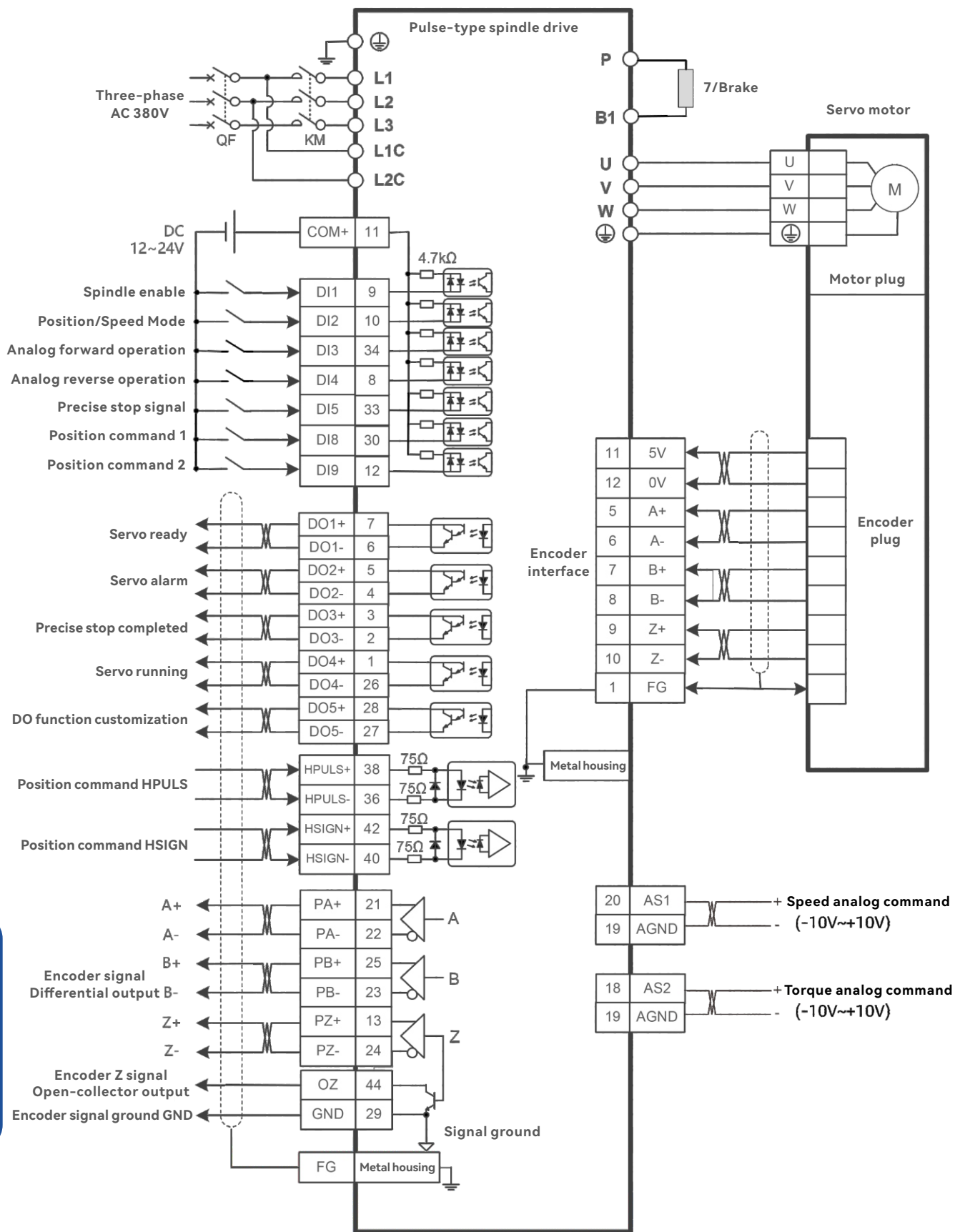
SIZE C Driver size drawing



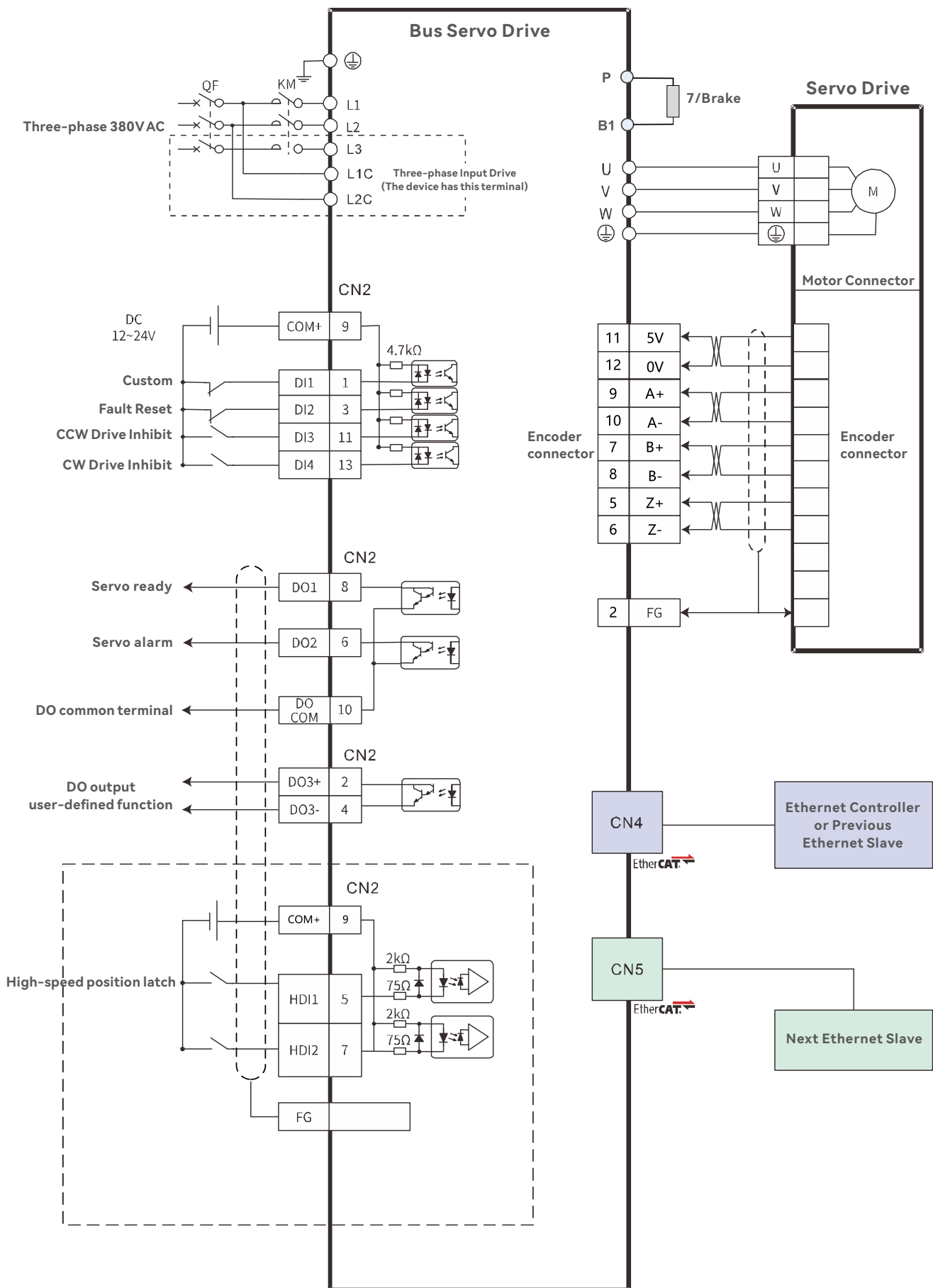
SIZE D Driver size drawing



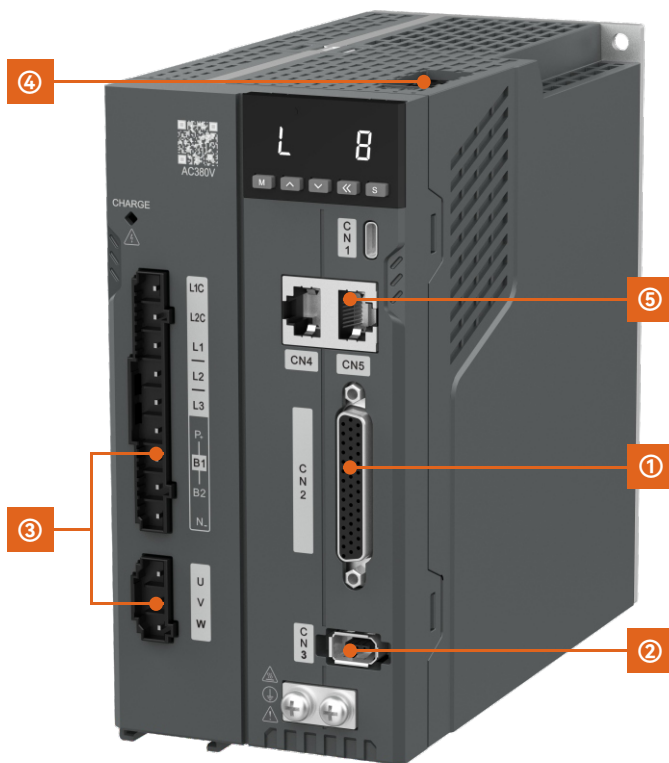
SD300S pulse type position control wiring diagram



SD300S bus control wiring diagram



SD300S pulse terminal description



③Main loop terminal definition

Terminal identification	Terminal function
L1C、L2C	Control circuit power input terminal
L1、L2、L3	Connect external AC power supply: Single phase 220VAC -15%~+10%
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

⑤CN4/CN5 Modbus Communication terminal

Pin	Singal	Description
1	MBS-	Modubus Communication data negative terminal
2	MBS+	Modubus Communication data positive terminal
3	PE	Ground terminal
4	NC	Reserve
5	NC	Reserve
6	GND	Internally power ground
7	PE	Driver grounding, connected to the power supply and motor grounding terminals
8	NC	Reserve

①CN2 control terminal description

Signal name		Default function	Pin	Terminal function
Universal terminal signal	DI1	SpindleEN	9	Spindle enable
	DI2	M1-SEL	10	Mode switch
	DI3	FWD	34	Forward operation
	DI4	REV	8	Reverse operation
	DI5	LocCmd	33	Clearly stop
	DI6	Reserve	31	-
	DI7	Reserve	32	-
	DI8	CMD1	30	Position commands1
	DI9	CMD2	12	Position commands2
	COM+		11	DI input terminal common end
	DO1+	S-RDY+	7	Servo ready
	DO1-	S-RDY-	6	
	DO2+	ALM+	5	Fault output
	DO2-	ALM-	4	
	DO3+	LocCOIN+	3	Clearly stop completed
	DO3-	LocCOIN-	2	
	DO4+	RUN+	1	Running
	DO4-	RUN-	26	
DO5+	Reserve	28	-	
DO5-	Reserve	27		
Position instructions	PULSE+		41	Pulse command output port
	PULSE-		43	
	SIGN+		37	
	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	

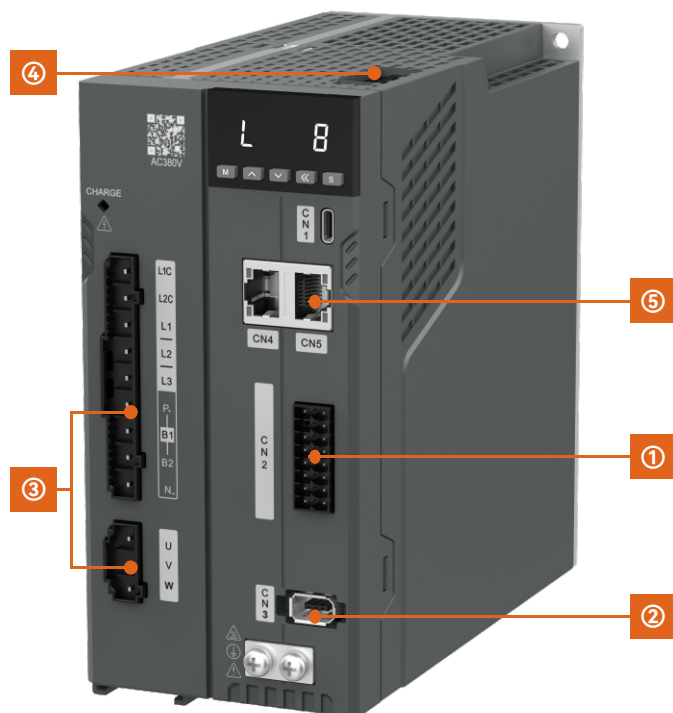
④CNA incremental encoder connection terminal

Name	Pin	Description
PE	1,2	Signal-shielded
PA+,PA-	5,6	Incremental encoder A differential signal input
PB+,PB-	7,8	Incremental encoder B differential signal input
PZ+,PZ-	9,10	Incremental encoder C differential signal input
5V,0V	11,12	5V power supply output

②CN3 Absolute encoder connection terminal

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

SD300S Bus terminal description



①CN2 Control terminal definition

Signal name	Default function	Pin	Terminal function
DI1	S-ON	1	Servo enable
DI2	ALM-RST	3	Alarm fault reset
DI3	P-OT	11	Positive overtravel
DI4	N-OT	13	Reverse overtravel
COM+		9	DI input terminal common end
HDI1		5	High speed digital input 1
HDI2		7	High speed digital input2
DO1+,COM-	S-RDY	8,10	Servo ready
DO2+,COM-	ALM	6,10	Fault output
DO3+,COM-	BK	3,2	Brake
DO4+,COM-	Reserve	12,10	-
COM-	-	10	DO outputs the public end

②Absolute encoder connection terminal

Pin	Definition	Description
1	+5V	5V power
2	GND	
3	Reserve	-
4	Reserve	-
5	SD+	Encoder signal
6	SD-	

④CNA incremental encoder connection terminal

Name	Pin	Description
PE	1,2	Signal-shielded
PA+,PA-	5,6	Incremental encoder A differential signal input
PB+,PB-	7,8	Incremental encoder B differential signal input
PZ+,PZ-	9,10	Incremental encoder C differential signal input
5V,0V	11,12	5V power supply output

⑤EtherCAT Communication interface

③Main loop terminal definition

Terminal identification	Terminal function
L1C, L2C	Control circuit power input terminal
L1, L2, L3	Connect external AC power supply: Single phase 220VAC -15%~+10~
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 supply
PE	Motor ground terminal

Spindle motor



165 series motor picture

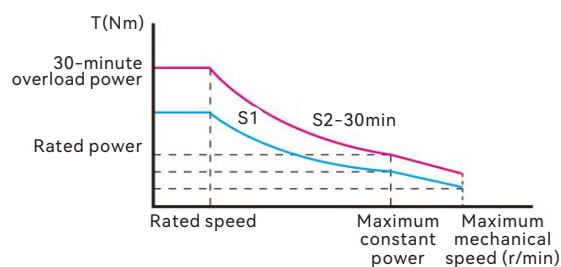
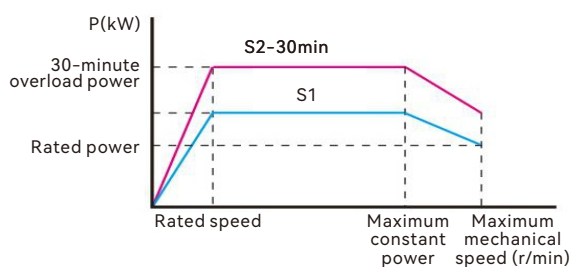


200 series motor picture

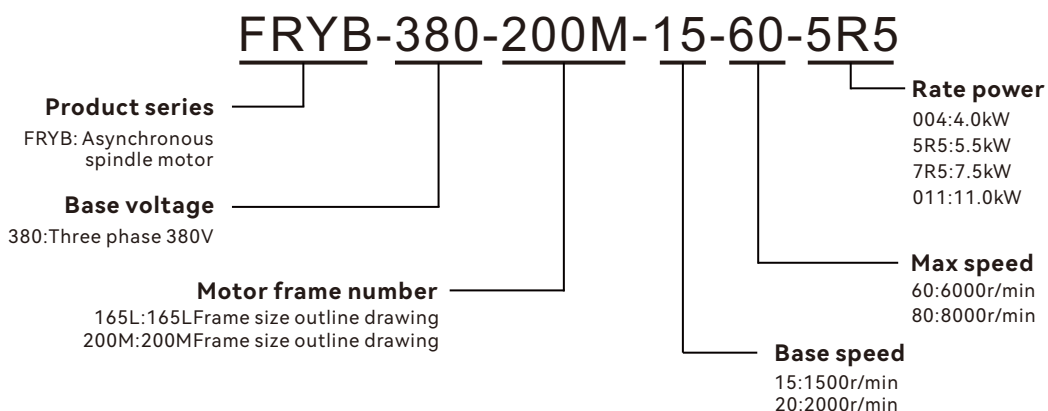
Basic specification features

- ▷ Rated power: 4.0~11kW
- ▷ Vibration level: S level
- ▷ Rated speed: 1500rpm
- ▷ Protection level: IP55
- ▷ Max speed: 6000~8000rpm
- ▷ Level of protection: F level
- ▷ Environment temperature: -15°C~40°C
- ▷ Noise: Less than 70dB(A)
- ▷ Ambient humidity: Relative humidity below 80% (no condensation)

Characteristic diagram



Motor model name description

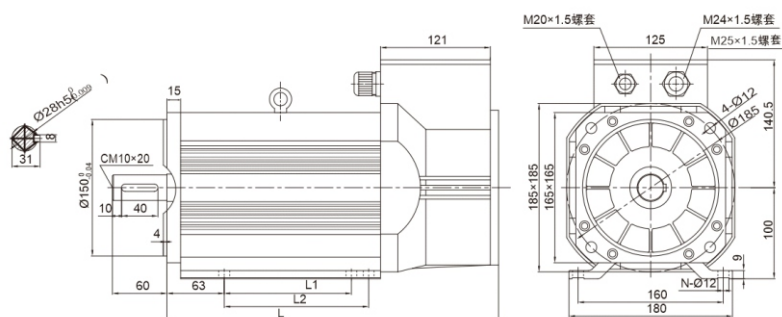


Motor Model List

Model	Rated power	Rate speed (rpm)	Max speed (rpm)	Rated current (A)	Rate torque (N.m)
FRYB-380-165L-15-60/80-004	4.0kW	1500	6000/8000	8.8	25.5
FRYB-380-200M-15-60/80-5R5	5.5kW	1500	6000/8000	11.7	35
FRYB-380-200L-15-60/80-7R5	7.5kW	1500	6000/8000	15.4	48
FRYB-380-200H-15-60/80-011	11kW	1500	6000/8000	22.7	70

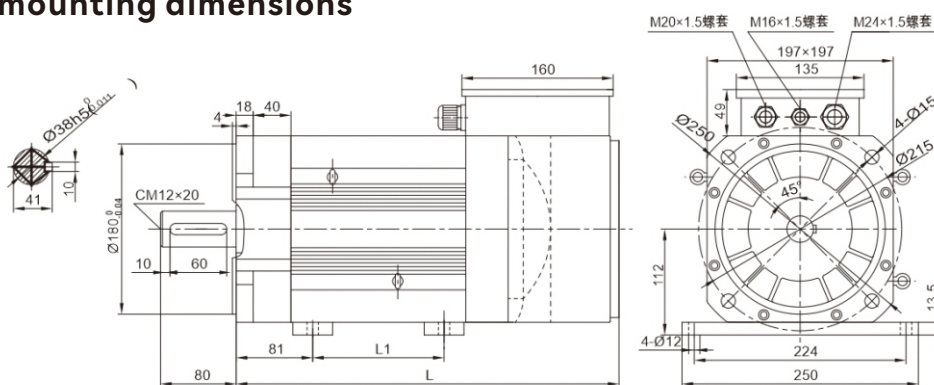
Motor outline and mounting dimensions

165 series mounting dimensions

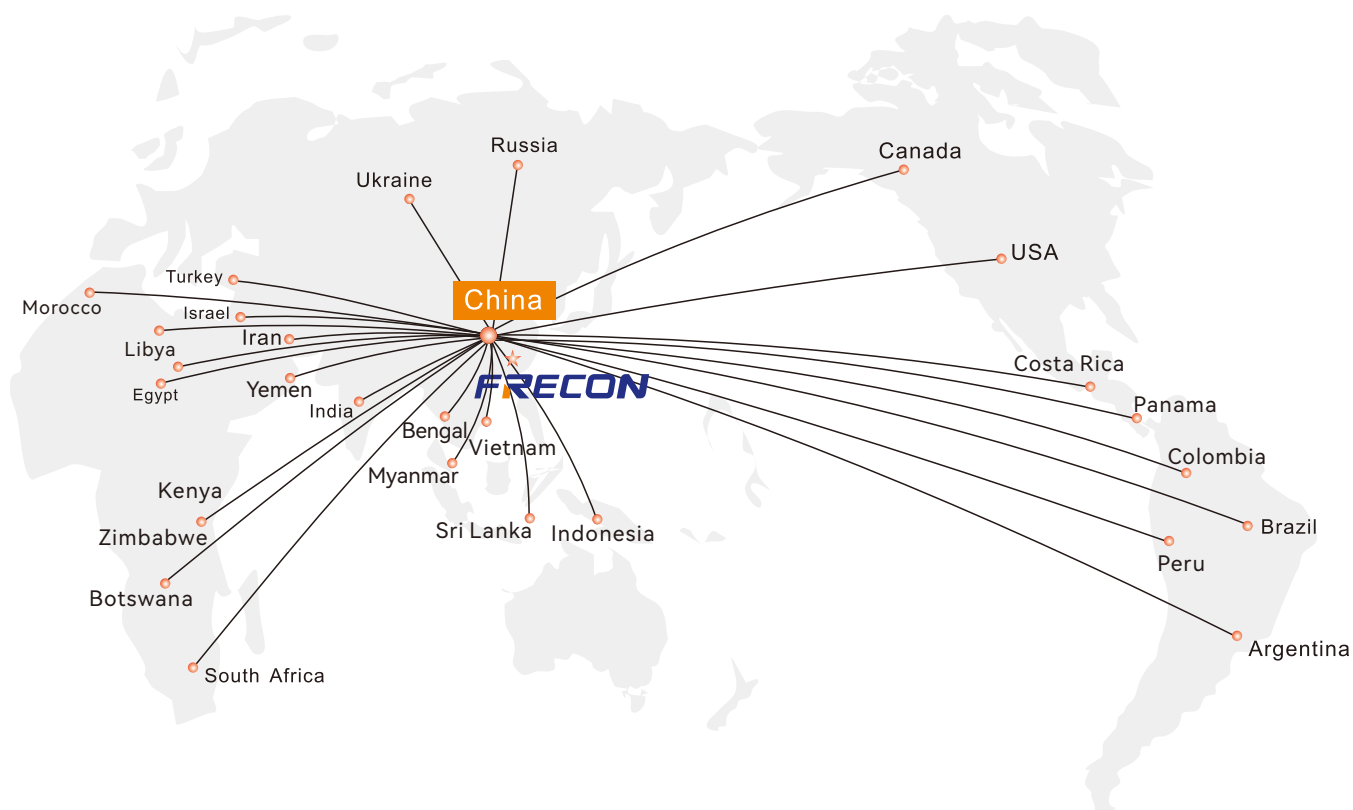


Frame No.	L(mm)	L1(mm)	L2(mm)
165L	385	140	159

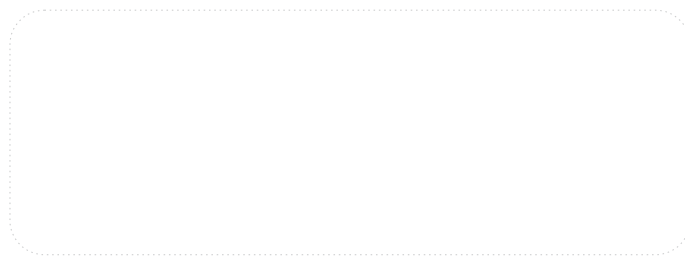
200 series mounting dimensions



Frame No.	L(mm)	L1(mm)
200M	405	139
200L	455	189
200H	505	239



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