WE CAN DO IT MORE!

VEIKONG

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VEIKONG

S6 Series
Spindle-specific Servo Drive

Professional R&D team

20+
Over 20 years of professional management experience

CONTENT

COMPANY PROFILE

S6 Series spindle-specific Servo Drive

Shenzhen VEIKONG ELECTRIC CO., LTD is a reputable high-tech enterprise that specializes in researching, manufacturing, and trading both medium and low voltage inverters and solar pumping inverter. We offer our clients integrated system solutions, and our professional R&D team and devoted management with over 20 years of experience have made us one of the first independent AC drives companies in China.

We incorporate latest high efficiency mppt calculations and SPWM, sensorless vector control, and vector and torque control technology into our VFD and solar pump inverter which have reached international advanced standards, making them able to directly replace and be equivalent to Europe, the United States, Japan, and other brands, providing our clients with the highest level of technical support.

Quality is the foundation of our enterprise, and we consistently follow ISO9001 standards to manage and supervise quality. Our products have passed CE and IEC certifications and other technical approvals, and we continuously upgrade our technologies and products to better meet our customers' requirements and market needs.

VEIKONG team believes that the customer is the source of our enterprise. We take great pride in placing our customers' requirements first and ensuring that we meet and exceed their expectations. Our products have been widely used in various industries, including solar pumping, petroleum, chemical, melting, hoisting, electric power, building materials, watersupply, plastics, textiles, printing, packing, and more, to create value for our customers.

COMPANY QUALIFICATIONS

S6 Series spindle-specific Servo Drive

APPLICATIONS

S6 Series spindle-specific Servo Drive

CNC milling machine

01

Turn-Mill Composite Machine

02

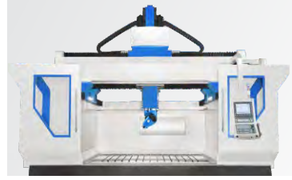
Machining center

03

CNC vertical lathe

04

Gantry machine tool



05

CNC grinding machine

06

CNC Boring Machine

07

CNC lathe

08

S6 SERIES SPINDLE-SPECIFIC SERVO DRIVE

VEIKONG

PRODUCT INTRODUCTION

The S6 series of spindle-specific servo drive products adopt a new design concept and have more complete functions and configurations. They are mainly used to drive spindle motors in CNC lathes, CNC milling machines, machining centers, grinders and other CNC machining equipment.

POWER RANGE

220V Model: 2.2-5.5kW
380V Model: 4.0-11kW

SUPPORTED MOTOR TYPES

Asynchronous motor
Permanent magnet synchronous motor

01

Strong overload capacity:
150% rated output current for 60 seconds
200% rated output current for 8 seconds

02

Powerful self-learning function, accurate learning of motor model parameters and mechanical parameters, high debugging efficiency, fast matching of third-party motors

03

Supports semi-closed loop and full closed loop position control, positioning accuracy ±1 pulse

04

Can match a variety of CNC interfaces: analog pulse type, EtherCAT bus type, M3 bus type

05

Supports a variety of mainstream encoders TTL differential output type, Tamagawa protocol absolute value, SinCos type SSI/BISS protocol type can be arbitrarily divided frequency output

06

Strong weak magnetic speed-up capability, weak magnetic area can exert the maximum output of the motor

STANDARD WIRING DIAGRAM

Precision Redefined in Hydraulic Control

Three phase power

Three phase 380V AC

Circuit breaker

Used to switch the power on and off and to safely trip and disconnect the power supply when the main circuit of the servo drive fails

Electromagnetic contactor

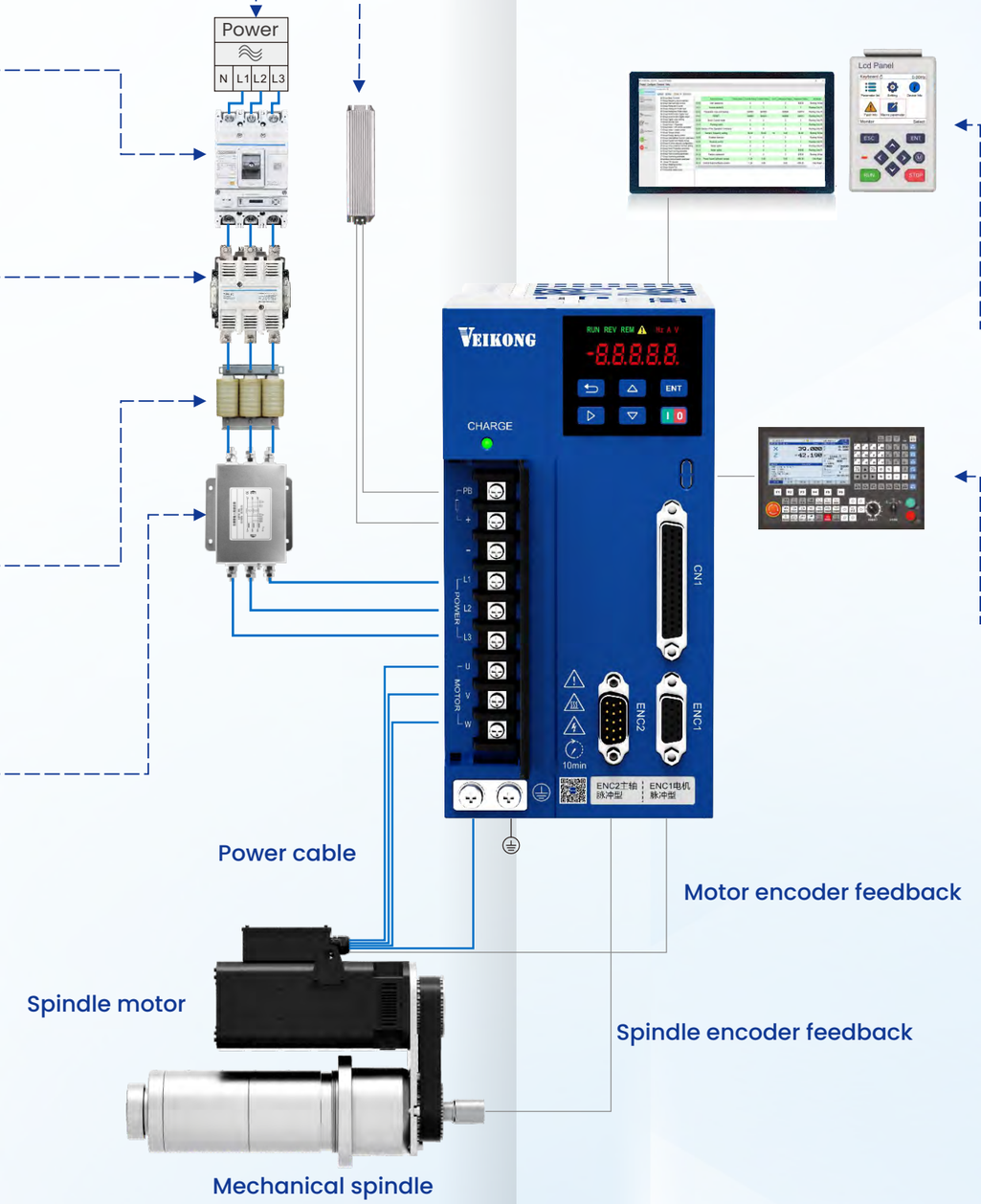
When an abnormal situation occurs, it can cooperate with the servo drive to output an alarm signal, or an external signal can control the contactor to disconnect the servo drive power supply.

Input side AC reactor

Suppress surge voltage and current, reduce motor noise and eddy current loss

Input side EMC filter

Reduce the impact of external electromagnetic on the inverter or internal power grid circuit, reduce radiation interference in the circuit, improve the stability and reliability of the entire system, and reduce false operation and failure rate



Braking resistor

Avoid overvoltage anomaly caused by feedback energy generated when the servo motor is working. When using an external braking resistor: connect the braking resistor to the P and P B terminals

PC tool, keyboard

CN2 and CN3 can be connected to an external host computer. Cn3 can be connected to an external keyboard to adjust product parameters online, monitor status and upgrade firmware

CNC system

CN1 port can be connected to CNC system or external PLC

STANDARD WIRING DIAGRAM

EtherCAT bus type, M3 bus type

Three phase power

Three phase 380V AC

Circuit breaker

Used to switch the power on and off and to safely trip and disconnect the power supply when the main circuit of the servo drive fails

Electromagnetic contactor

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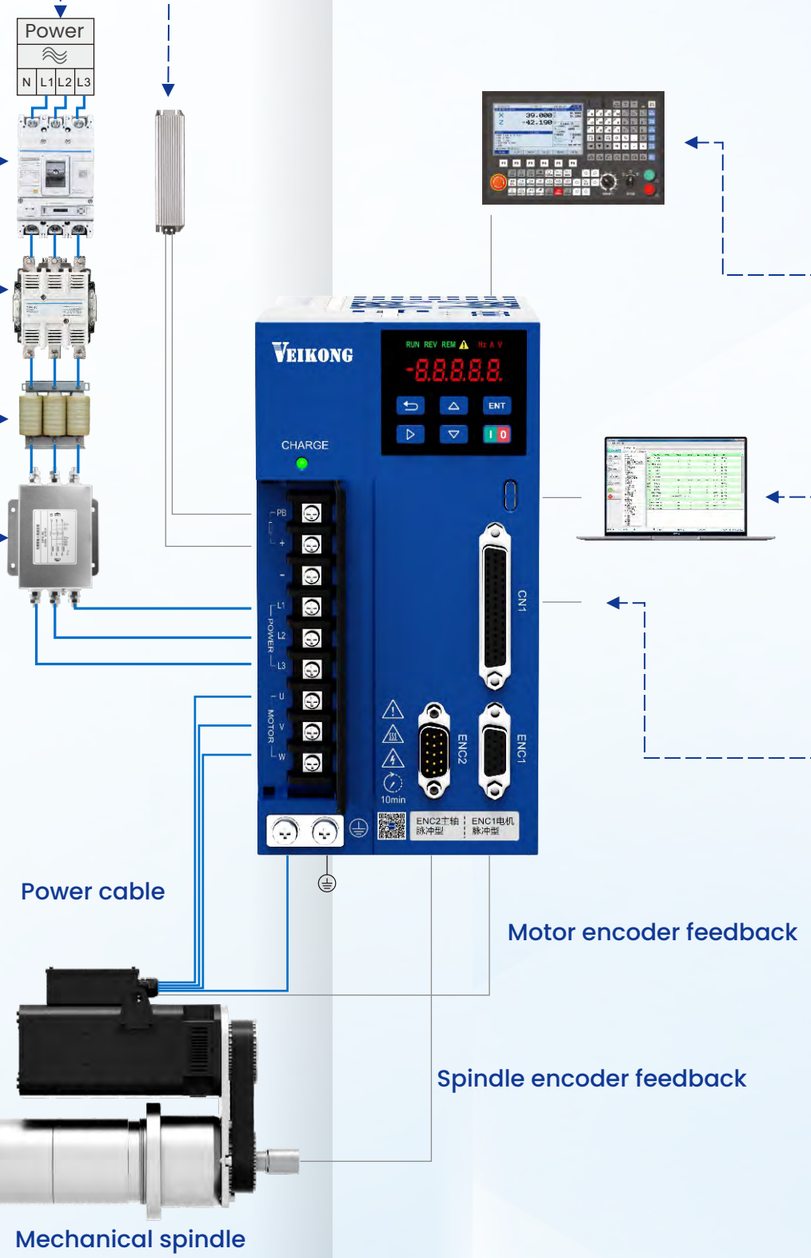


Braking resistor

Avoid overvoltage anomaly caused by feedback energy generated when the servo motor is working. When using an external braking resistor: connect the braking resistor to the P and P B terminals

CNC system

CN2 and CN3 ports can be used for: EtherCAT bus communication, M3 bus communication

PC tool communication

MicroUSB host computer communication port can adjust product parameters online, monitor status and upgrade firmware

External I/0 control

CN1 port can be connected to external I/0 control

MODEL DESCRIPTION

S6 Series spindle-specific Servo Drive

S6 - U - 7R5 - T 4 B

(01) (02) (03) (04) (05) (06)

Product Series Code

(01) S6: Analog Pulse Type S6C: EtherCAT Bus Type S6M: M3 Bus Type

Applicable Encoder Type

(02) U: Incremental M: Compound

Power Model

(03) 7R5 means 7.5kW 011 means 11kW

Power phase

(04) T: Three phase

Voltage range

(05) 2: 220V 4: 380V

Braking Unit

(06) B: With built-in brake unit
None: Without built-in brake unit

PRODUCT SELECTION TABLE

S6 Series spindle-specific Servo Drive

380V grade model

Driver model	Rated output current	Maximum output current	Applicable motor	Structural dimensions	Braking unit
S6-□-4R0-T4B	9.4A	18.8A	4.0kW	SIZE A	Built-in
S6-□-5R5-T4B	13.0A	26.0A	5.5kW		
S6-□-7R5-T4B	17.0A	34.0A	7.5kW	SIZE B	
S6-□-011-T4B	25.0A	50.0A	11kW		

220V grade model

Driver model	Rated output current	Maximum output current	Applicable motor	Structural dimensions	Braking unit
S6-□-2R2-T2B	9.4A	18.8A	2.2kW	SIZE A	Built-in
S6-□-4R0-T2B	17.0A	34.0A	4.0kW		
S6-□-5R5-T2B	25.0A	50.0A	5.5kW	SIZE B	

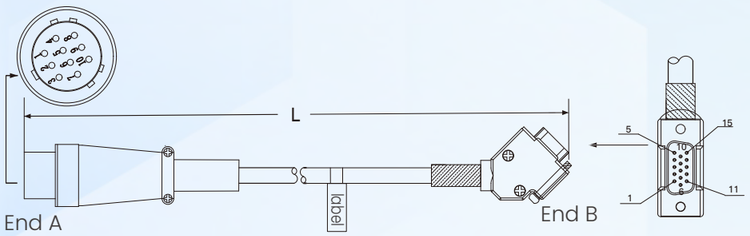
OPTIONAL ACCESSORIES

S6 series of spindle-specific servo drive

Brake resistor selection table

Driver model	Recommended brake resistor specifications	Minimum brake resistor resistance
S6-□-4R0-T4B	800W,60Ω	60Ω
S6-□-5R5-T4B	1500W,50Ω	45Ω
S6-□-7R5-T4B	1500W,40Ω	35Ω
S6-□-011-T4B	2000W,32Ω	25Ω

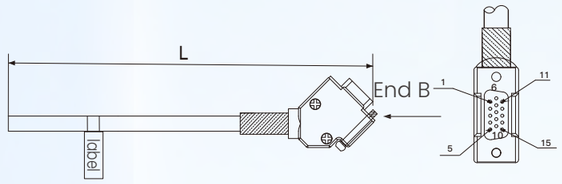
Servo driver cable selection table



▲S5-U first encoder cable

Wiring diagram

End A	Wire color	End B
1	Red(5V)	1
2	Red and white(0V)	2
3	Blue(A1+)	3
4	Blue and black(A1-)	4
5	Black(B1+)	5
6	Black and white(B1-)	6
7	Green(Z1+)	7
8	Green and black(Z1-)	8
10	Shield(PE)	Iron shell



▲ S5-U second encoder cable

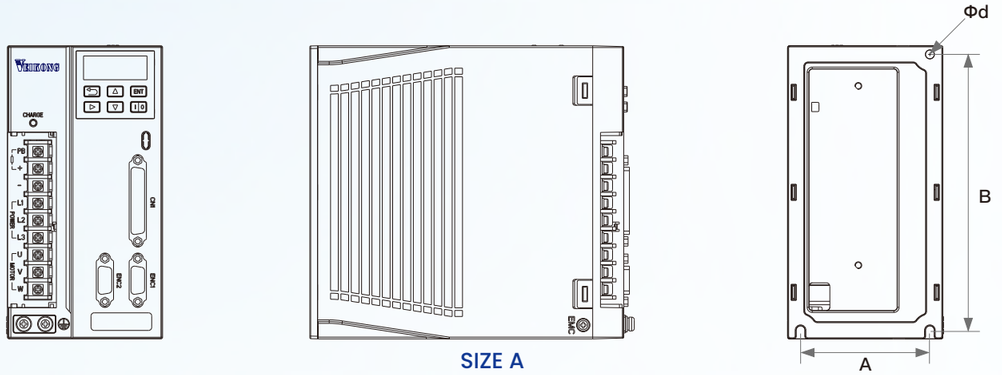
Wiring diagram

Wire color	End B
Red(A2-)	1
Red and white(A2+)	2
Blue(0V)	3
Blue and black(5V)	4
Black(OA-)	5
Black and white(OA+)	6
Green(Z2-)	7
Green and black(Z2+)	8
Brown (OZ-)	9
Brown and black (OZ+)	10
Yellow(B2-)	11
Yellow and Black(B2+)	12
Orange(OB-)	14
Orange and black(OB+)	15
Shield(PE)	Iron shell

Cable Model	Description	Interface Definition
S6-XT-L1.0	S6-U model CN1 to CNC system connection cable, Db44 male, L=1m	See physical line markings
S6-XT-L3.0	S6-U model CN1 to CNC system connection cable, Db44 male, L=3m	See physical line markings
S6-XT-L5.0	S6-U model CN1 to CNC system connection cable, Db44 male, L=5m	See physical line markings
S5-U-E01-3.0	S6-U 1st encoder cable, L=3m	see above
S5-U-E01-5.0	S6-U 1st encoder cable, L=5m	see above
S5-U-E02-3.0	S6-U 2nd encoder cable, L=3m	See physical line markings
S5-U-E02-5.0	S6-U 2nd encoder cable, L=5m	See physical line markings

APPEARANCE AND INSTALLATION DIMENSIONS

S6 Series spindle-specific Servo Drive



Appearance number	Models Covered	Appearance and installation dimensions(mm)						
		A	B	H	W	D	Φd	Mounting screws
SIZE A	S6-□-4R0-T4B S6-□-5R5-T4B S6-□-2R2-T2B	75	160	170	90	182	Φ5.0	M4
SIZE B	S6-□-7R5-T4B S6-□-011-T4B S6-□-4R0-T2B S6-□-5R5-T2B	75	240	250	90	230	Φ5.0	M4

Note: Φd this is the diameter of the screw hole for the whole machine

STABLE AND RELIABLE

S6 Series spindle-specific Servo Drive

Revolutionary Structural Design

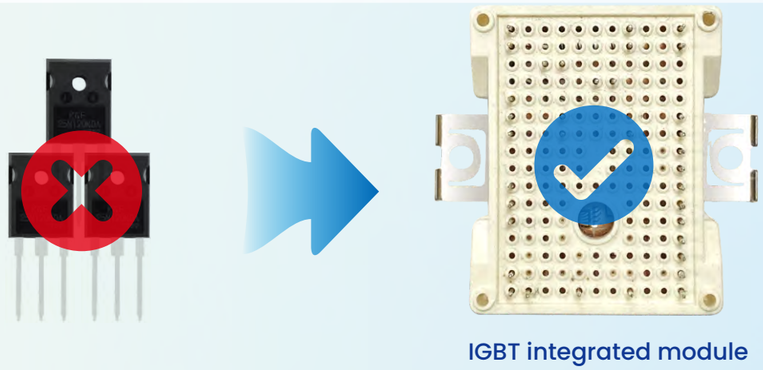
The S6 series adopts a new design concept, which is 46%-55% smaller than the previous generation S5 series;

The motor encoder interface and the spindle encoder interface are separated, which is convenient for wiring and maintenance. The keyboard is upgraded to silicone keys, which feel softer when pressed.

Independent air duct design

Independent air duct design effectively prevents dust from entering the drive and causing short circuits and other faults, thereby improving reliability;

The use of large air volume and long-life cooling fans effectively reduces the temperature rise inside the drive and ensures reliable and stable operation of the drive.



Reliable hardware design

Integrated IGBT module, large margin design, more stable and reliable than some of the discrete IGBT solutions of the same industry;

Reliable overcurrent protection and short circuit protection, effectively preventing the risk of driver damage caused by short circuit on the cable and motor side:

Strong anti-electromagnetic interference ability, effectively avoiding pulse loss and communication errors.

TECHNICAL SPECIFICATIONS

S6 Series spindle-specific Servo Drive

Item		Specifications
Power supply	Input power supply voltage	Three-phase 380V: 380V~480V Three-phase 220V: 200V~240V
	Allowable voltage fluctuation range	-15%~10%
Output	Input power frequency	50Hz or 60Hz, fluctuation less than 5%
Control characteristics	Output voltage	Three-phase: 0~ input voltage
	Overload capacity	150% rated output current 60 seconds, 200% rated output current 8 seconds
	Running Mode	Speed control,torque control (SVC and VC),position control (VC)
	Frequency control range	0-600.00Hz(S6),0-2000Hz(S6C and S6M)
	Frequency given ramp	Supports linear and S-curve acceleration and deceleration; 4 groups of acceleration and deceleration time, setting range 0.00s~60000s
	Main control functions	Spindle orientation,position control,full closed-loop application,parameter backup and recovery,complete fault record
	Debugging tools	LED digital keyboard, PC computer + MicStudio PC Tool, LCD keyboard (analog pulse type only)
	Communication	S6: Modbus communication, S6C: EtherCAT bus communication, S6M: M3 bus communication
	Encoder interface	Motor encoder interface + spindle encoder interface S6: two TTL differential encoder interfaces S6C: composite encoder interface; S6M: composite encoder interface

Item			Specifications
Control characteristics	CN1 interface	S6 type	7 digital input terminals; 1 analog input terminal (±10V) 3 digital output terminals: 1 relay output terminal 1 analog output terminal (±10V) 1 group of position command pulse input 1 group of encoder frequency division output terminals;
		S6C type	5 digital input terminals 1 analog input terminal (±10V) 4 digital output terminals 1 analog output terminal (±10V); 1 group of position command pulse input terminal 1 group of encoder frequency division output terminals
		S6M type	5 digital input terminals 1 analog input terminal (±10V) 4 digital output terminals 1 analog output terminal (±10V) 1 group of position command pulse input terminals 1 group of encoder frequency division output terminals
Protection	See the "Fault Diagnosis and Countermeasures" section in the manual		
Environment	Place of use		Indoors, not exposed to direct sunlight, free of dust, corrosive gases, flammable gases, oil mist, water vapor, dripping water or salt, etc.
	Altitude		0~3000 meters. Above 1000 meters, the rated output current is reduced by 1%-10oc~+40oc for every 100 meters increase,
	Ambient temperature		up to 50oc. From 40oc, the rated output current is reduced by 1.5% for every 1oc increase
	Humidity		Less than 95%RH, no condensation
	Vibration		Less than 5.9m/s (0.5g)
	Storage temperature		-20°C~+60°C
Others	Installation method		Wall-mounted, floor-standing electric control cabinet, through-wall type
	Protection level		Ip20
	Cooling method		Forced air cooling