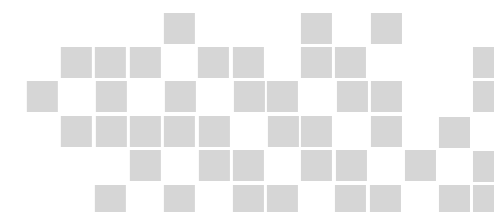
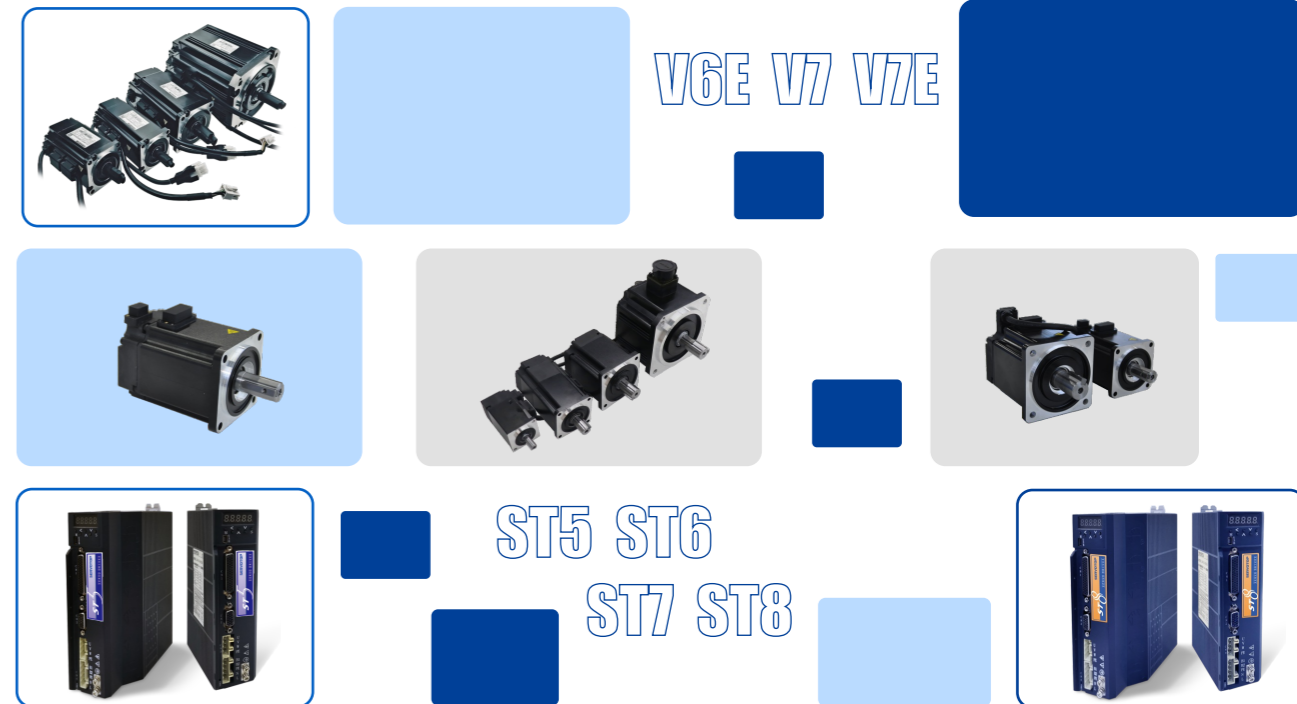




Universal servo drive
Universal servo drive, servo motor
Universal servo motor

Era of Direct Drive · Peak of Servo



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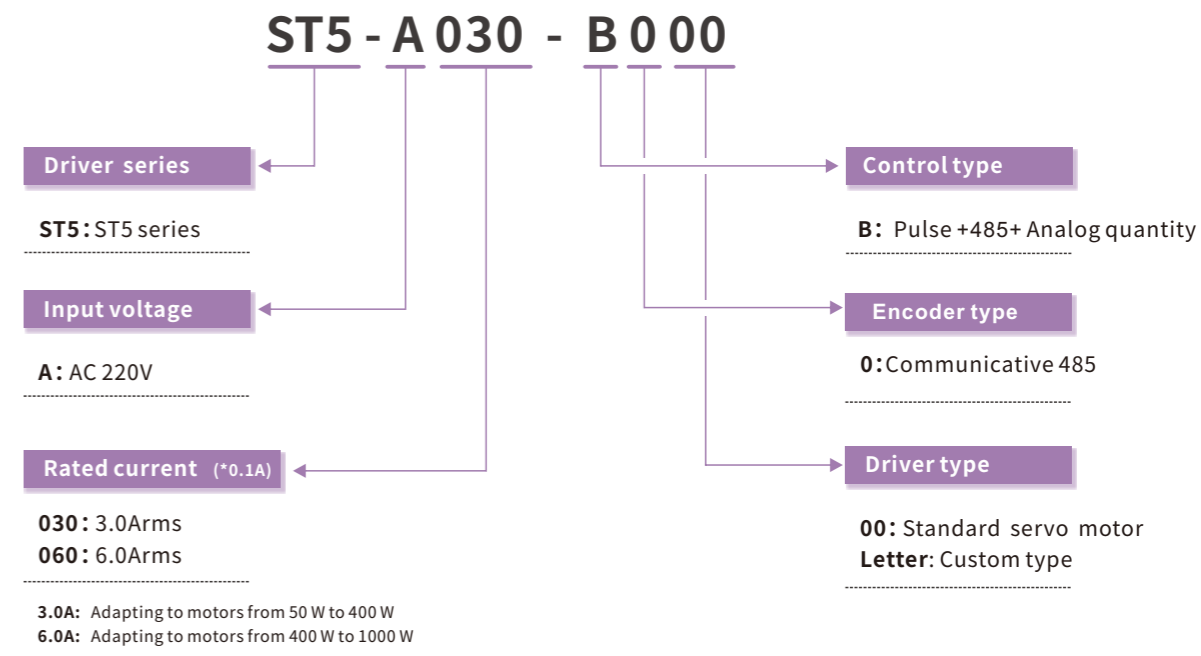


STP-ST-V7E Series
Standard Servo Motor

ST5 Series Drivers



ST5 Series Servo Driver



ST5 Series Servo Driver

- Parameter group settings
- Absolute-value encoder
- AC 220 V input of control power supply
- Regenerative braking
- Voltage monitoring and low-voltage warning
- Excellent protection
- Over-current, over-voltage, over-speed, output phase loss, and encoder break protection
- Protection classification, warning and fault differentiation
- Debugging software supports functions such as parameter management, monitoring and oscilloscope
- Pulse input supports differential input and collector 1M input
- Current loop calculation cycle 62.5 us, featuring fast positioning response
- Supporting 24 V pulse signal input

Driver Specification sheet

Series	Specification Model	Voltage (V)	Rated Current (A)	Control Type	Encoder Type	Driver Type
ST5	ST5-A030-B000	220	3	Pulse /Modbus/ Analog quantity	Absolute value	Standard servo motor
	ST5-A060-B000	220	6	Pulse /Modbus/ Analog quantity	Absolute value	Standard servo motor

ST5 servo driver
ST6 servo driver
ST7 servo driver
ST8 servo driver
Driver description
V6E servo motor
V7 servo motor
V7E servo motor
Motor specification

Driver Function Parameters

Function	
1M low-speed pulse input	√
4M high-speed pulse input	×
Analog quantity control input	√
Modbus communication	√
Modbus control	Under development
EtherCAT control	×
Position control mode	√
Speed control mode	√
Torque control mode	√
Assignable I/O	√
Pulse frequency-division output	×
Self-tuning	×
Disturbance torque compensation	√
Notch filter	×
Oscillation suppression	×
Dynamic braking function	×
Inertia identification	√
Rigidity ranking list	√
Bode diagram analysis	×
Absolute position compensation	×
FFT analysis	√

Project	Specification
Carrier frequency	16KHZ
Current loop sampling	16KHZ
Speed loop sampling	8KHZ
Position loop sampling	8KHZ
Maximum speed loop bandwidth	1.2KHZ
Current range	3A/6A
Adaptable motor	Absolute-value feedback rotary servo motor

Working Environment

Project		Specification
Temperature	Service ambient temperature	0 ~ 55 °C
	Storage ambient temperature	- 20 ~ 65 °C
Humidity	Service ambient temperature	20~85%RHbelow (no condensation)
	Storage ambient temperature	20~85%RHbelow (no condensation)
Use preserved ambient air		Indoor (without direct sunlight), no corrosive gas, flammable gas, oil mist, dust
Slitude		The altitude is 1000mbelow
Vibration		5.8m/s ² (0.6G)below 10~60Hz(not used continuously at resonant frequency)
Insulation withstand voltage		Primary one FG between AC1500V 1 min

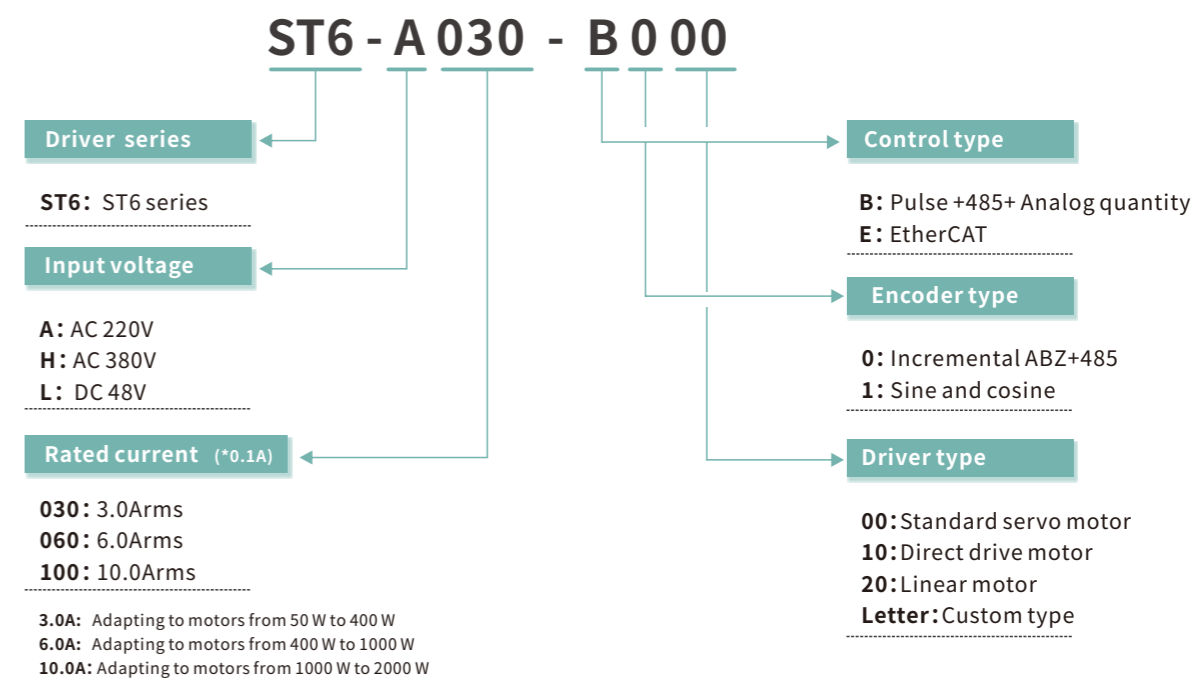
Driver Performance Parameter

Item		Specification		
Position control	Pulse input	Open-collector pulse input: frequency not more than 900 KHZ, pulse width not less than 2.5 us		
		Differential normal pulse input: frequency not more than 1000 KHZ, pulse width not less than 1 us		
		N/A		
	Pulse output	Input pulse logic mode	Pulse + direction, A phase + B phase, CW + CCW	
		Electronic gear ratio setting	Electronic gear ratio: A/B times, qualification condition (encoder resolution/10000000 < A/B < encoder resolution/2.5)	
		Instruction filter	Smoothing filter, FIR filter, mean filter	
Internal position mode function		Internal path planning of sections 1 to 8		
Speed control	Control mode		External analog instruction control/DI terminal signal combination to achieve internal speed selection in sections 1 to 8/Communication specified	
	Analog quantity input voltage range		DC ± 10 V [corresponding to rated speed at ± 10 V] (full-function model)	
	Torque limit function		Internal parameter setting or analog input (full-function model)	
Torque control	Control mode		External analog instruction control (full-function model)/Internal parameters/DI terminal switching (analog quantity/internal parameters)/Communication specified	
	Analog quantity input voltage range		DC ± 10 V [corresponding to rated torque at ± 10 V] (full-function model)	
	Speed limit function		Internal parameter setting or analog input (full-function model)	
Common functions	Control signal	Input/Output	5IN/OUT	
	Analog quantity signal	Input/Output	2IN ± 10V	
	STO		N/A	
	Speed observer function		Available	
	Damping control function		N/A	
	Adaptive notch filter		N/A	
	Automatic adjustment function		Available	
	Encoder output frequency division		N/A	
	Dynamic braking		N/A	
	Regeneration function		External regenerative resistor (30 Ω to 50 Ω, 100 W to 300 W)	
	Protection function		Overvoltage, power supply anomaly, overcurrent, overtemperature anomaly, overload, encoder anomaly, overspeed, excessive position deviation, and abnormal parameters	
	Communication function	USB	Used for PC communication (for "Servostudio" connection)	
		Machine type	RS485	

ST6 Series Drivers



ST6 series Servo driver



ST6 Series Servo Driver

- Parameter group settings
- Absolute-value encoder, supporting incremental ABZ signals
- AC 220 V input of control power supply
- Regenerative braking
- Voltage monitoring and low-voltage warning
- Excellent protection
- Over-current, over-voltage, over-speed, output phase loss, and encoder break protection
- Protection classification, warning and fault differentiation
- Debugging software supports functions such as parameter management, monitoring and oscilloscope
- High-speed pulse input supports differential 4M input
- Current loop calculation cycle 62.5 us, featuring fast positioning response
- Supporting 24 V pulse signal input

Specification table of the driver

Series	Specification Model	Voltage (V)	Rated Current (A)	Control Type	Encoder Type	Driver Type
ST6	ST6-A030-B000	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A030-E000	220	3	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A060-B000	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A060-E000	220	6	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A100-B000	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A100-E000	220	10	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A030-B010	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A030-E010	220	3	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A060-B010	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A060-E010	220	6	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A100-B010	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A100-E010	220	10	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A030-B020	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST6-A030-E020	220	3	EtherCAT	Incremental ABZ/Absolute value	Linear Motors
	ST6-A060-B020	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST6-A060-E020	220	6	EtherCAT	Incremental ABZ/Absolute value	Linear Motors
	ST6-A100-B020	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST6-A100-E020	220	10	EtherCAT	Incremental ABZ/Absolute value	Linear Motors

Driver Function Parameters

Function	
1M low-speed pulse input	√
4M high-speed pulse input	√
Analog quantity control input	√
Modbus communication	√
Modbus control	Developing
EtherCAT control	√
Position control mode	√
Speed control mode	√
Torque control mode	√
Assignable I/O	√
Pulse frequency-division output	×
Self-tuning	×
Disturbance torque compensation	Developing
Notch filter	√
Oscillation suppression	Developing
Dynamic braking function	√
Inertia identification	√
Rigidity ranking list	√
Bode diagram analysis	√
Absolute position compensation	Developing
FFT analysis	√

Project	Specification
Carrier frequency	16KHZ
Current loop sampling	16KHZ
Speed loop sampling	8KHZ
Position loop sampling	8KHZ
Maximum speed loop bandwidth	3.2KHZ
Current range	3A/6A/10A
Adaptable motor	Absolute-value feedback rotary servo motor, absolute-value feedback torque motor, communication feedback linear motor, ABZ incremental feedback linear motor

Working Environment

Item	Specifications	
Temperature	Working temperature	0~55°C
	Storage temperature	-20~65°C
Humidity	Working humidity	20% to 85% RH or below (no condensation)
	Storage humidity	20% to 85% RH or below (no condensation)
Air in storage environment	Indoor (no direct sunlight), no corrosive gas, no flammable gas, no oil mist, no dust	
Altitude	Below 1000 m altitude	
Vibration	10 to 60 Hz below 5.8 m/s ² (0.6 G) (cannot be used continuously at the resonance frequency)	
Dielectric voltage withstand	AC 1500 V for 1 minute between the primary stage and FG	

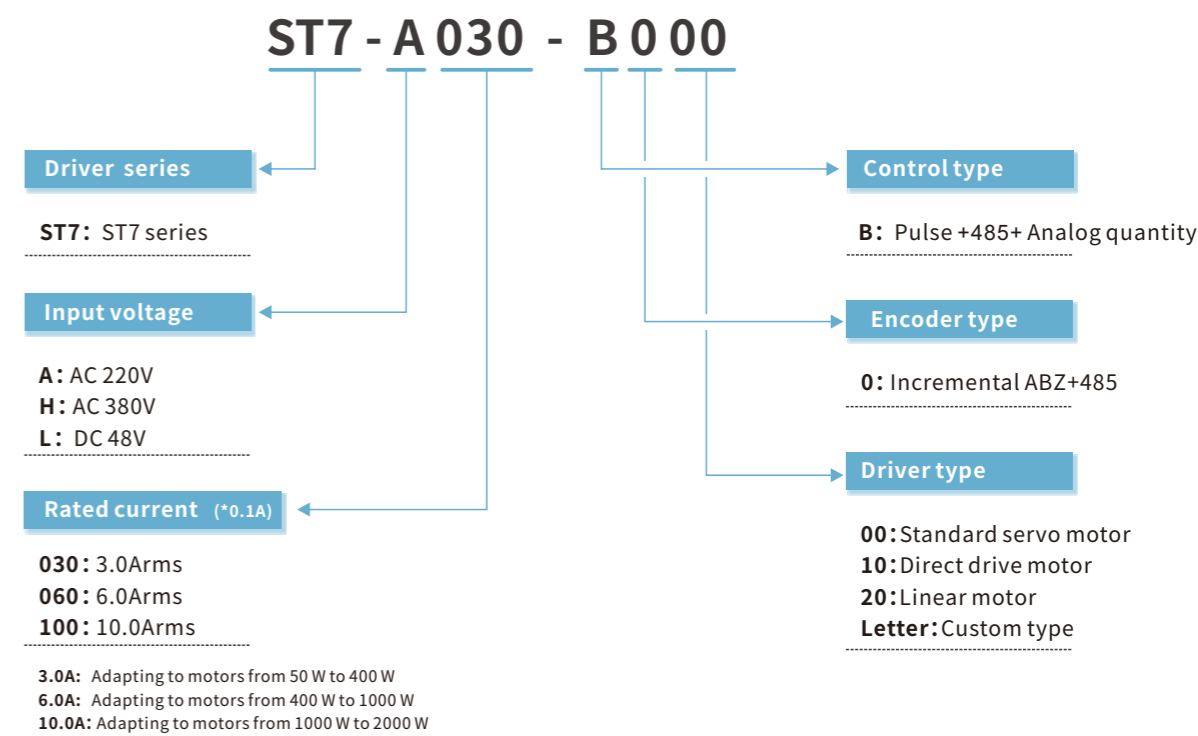
Driver Performance Parameter

Item		Specification
Position control	Pulse input	Open-collector pulse input: frequency not more than 900 KHz, pulse width not less than 2.5 us
		Differential normal pulse input: frequency not more than 1000 KHz, pulse width not less than 1 us
		Differential high-speed pulse input: frequency not more than 4000 KHz, pulse width not less than 1 us
	Input pulse logic mode	Pulse + direction, A phase + B phase, CW + CCW
	Electronic gear ratio setting	Electronic gear ratio: A/B times, qualification condition (encoder resolution/10000000 < A/B < encoder resolution/2.5)
	Instruction filter	FIR filter
Pulse output	Output pulse function	Developing
	Frequency division ratio	Developing
	Output pulse shape	Developing
Internal position mode function		Internal path planning of sections 1 to 16
Speed control	Control mode	
	External analog instruction control/DI terminal signal combination to achieve internal speed selection in sections 1 to 16/Communication specified	
	Analog quantity input voltage range	
DC ± 10 V [corresponding to rated speed at ±10 V] (full-function model)		
Torque limit function		Internal parameter setting or analog input (full-function model)
Torque control	Control mode	
	External analog instruction control (full-function model)/Internal parameters/DI terminal switching (analog quantity/internal parameters)/Communication specified	
	Analog quantity input voltage range	
DC ± 10 V [corresponding to rated torque at ±10 V] (full-function model)		
Speed limit function		Internal parameter setting or analog input (full-function model)
Common functions	Control signal	Input/Output
	5IN/OUT	
	Analog quantity signal	Input/Output
	2IN ± 10V	
	STO	N/A
	Speed observer function	Available
	Damping control function	Available
	Adaptive notch filter	Available
	Automatic adjustment function	Available
	Encoder output frequency division	N/A
	Dynamic braking	Available
	Regeneration function	External regenerative resistor (30 Ω to 50 Ω, 100 W to 300 W)
	Protection function	Overvoltage, power supply anomaly, overcurrent, overtemperature anomaly, overload, encoder anomaly, overspeed, excessive position deviation, and abnormal parameters
	Communication function	USB
Machine type		RS485/EtherCAT

ST7 Series Drivers



ST7 series Servo driver



ST7 Series Servo Driver

- Parameter group settings
- Absolute-value encoder, supporting incremental ABZ signals
- AC 220 V input of control power supply
- Regenerative braking
- Voltage monitoring and low-voltage warning
- Excellent protection
- Over-current, over-voltage, over-speed, output phase loss, and encoder break protection
- Protection classification, warning and fault differentiation
- Debugging software supports functions such as parameter management, monitoring and oscilloscope
- High-speed pulse input supports differential 4M input
- Current loop calculation cycle 62.5 us, featuring fast positioning response
- Supporting 24 V pulse signal input
- Supporting hardware-level pulse frequency-division output

Specification table of the driver

Series	Specification Model	Voltage (V)	Rated Current (A)	Control Type	Encoder Type	Driver Type
ST7	ST7-A030-B000	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST7-A060-B000	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST7-A100-B000	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST7-A030-B010	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST7-A060-B010	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST7-A100-B010	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST7-A030-B020	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST7-A060-B020	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST7-A100-B020	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors

Driver Function Parameters

Function	
1M low-speed pulse input	√
4M high-speed pulse input	√
Analog quantity control input	√
Modbus communication	√
Modbus control	Developing
EtherCAT control	×
Position control mode	√
Speed control mode	√
Torque control mode	√
Assignable I/O	√
Pulse frequency-division output	√ Hardware-level
Self-tuning	Developing
Disturbance torque compensation	Developing
Notch filter	√
Oscillation suppression	Developing
Dynamic braking function	√
Inertia identification	√
Rigidity ranking list	√
Bode diagram analysis	√
Absolute position compensation	Developing
FFT analysis	√

Project	Specification
Carrier frequency	8KHZ
Current loop sampling	16KHZ
Speed loop sampling	8KHZ
Position loop sampling	8KHZ
Maximum speed loop bandwidth	2.3KHZ
Current range	3A/6A/10A
Adaptable motor	Absolute-value feedback rotary servo motor, absolute-value feedback torque motor, communication feedback linear motor

Working Environment

Item	Specifications	
Temperature	Working temperature	0~55°C
	Storage temperature	-20~65°C
Humidity	Working humidity	20% to 85% RH or below (no condensation)
	Storage humidity	20% to 85% RH or below (no condensation)
Air in storage environment	Indoor (no direct sunlight), no corrosive gas, no flammable gas, no oil mist, no dust	
Altitude	Below 1000 m altitude	
Vibration	10 to 60 Hz below 5.8 m/s ² (0.6 G) (cannot be used continuously at the resonance frequency)	
Dielectric voltage withstand	AC 1500 V for 1 minute between the primary stage and FG	

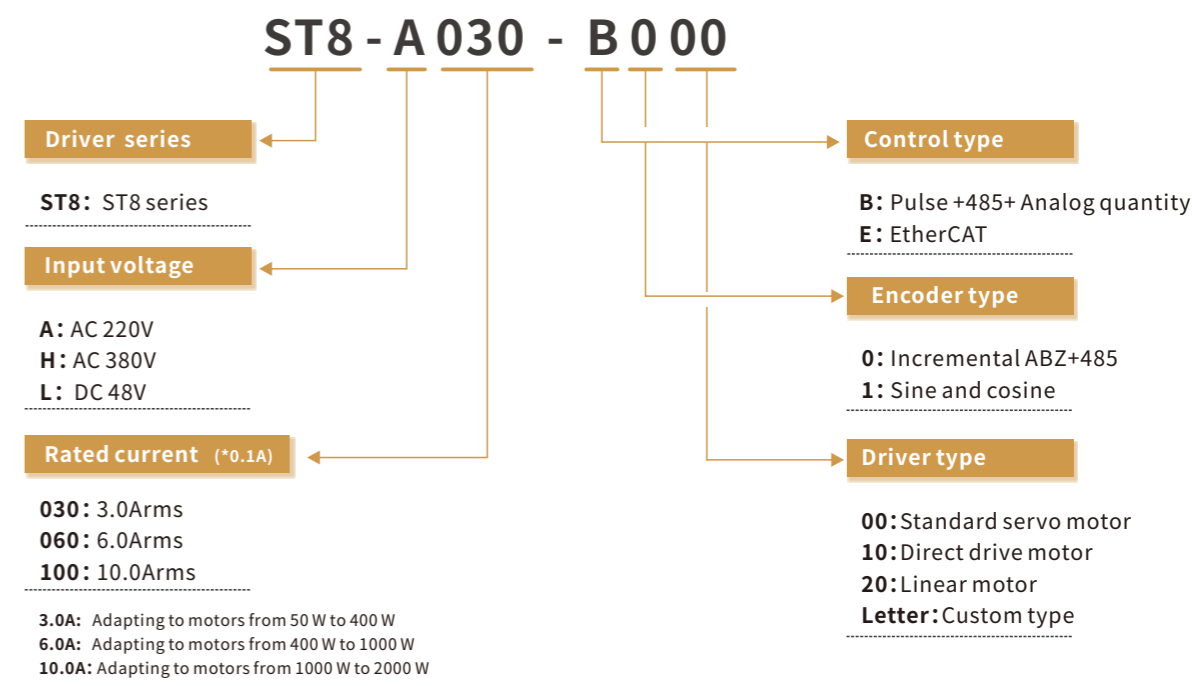
Driver Performance Parameter

Item		Specification		
Position control	Pulse input	Open-collector pulse input: frequency not more than 900 KHz, pulse width not less than 2.5 us		
		Differential normal pulse input: frequency not more than 1000 KHz, pulse width not less than 1 us		
		Differential high-speed pulse input: frequency not more than 4000 KHz, pulse width not less than 1 us		
	Input pulse logic mode	Pulse + direction, A phase + B phase, CW + CCW		
	Electronic gear ratio setting	Electronic gear ratio: A/B times, qualification condition (encoder resolution/10000000 < A/B < encoder resolution/2.5)		
	Instruction filter	Smoothing filter, FIR filter, mean filter		
Pulse output	Output pulse function	Available		
	Frequency division ratio	Arbitrary even frequency division ratio		
	Output pulse shape	ABZ quadrature encoder pulse signal		
Internal position mode function		Internal path planning of sections 1 to 16		
Speed control	Control mode		External analog instruction control/DI terminal signal combination to achieve internal speed selection in sections 1 to 16/Communication specified	
	Analog quantity input voltage range		DC ± 10 V [corresponding to rated speed at ±10 V] (full-function model)	
	Torque limit function		Internal parameter setting or analog input (full-function model)	
Torque control	Control mode		External analog instruction control (full-function model)/Internal parameters/DI terminal switching (analog quantity/internal parameters)/Communication specified	
	Analog quantity input voltage range		DC ± 10 V [corresponding to rated torque at ±10 V] (full-function model)	
	Speed limit function		Internal parameter setting or analog input (full-function model)	
Common functions	Control signal	Input/Output	5IN/OUT	
	Analog quantity signal	Input/Output	2IN ± 10V	
	STO		N/A	
	Speed observer function		Available	
	Damping control function		Available	
	Adaptive notch filter		Available	
	Automatic adjustment function		Available	
	Encoder output frequency division		Available	
	Dynamic braking		Available	
	Regeneration function		External regenerative resistor (30 Ω to 50 Ω, 100 W to 300 W)	
	Protection function		Overvoltage, power supply anomaly, overcurrent, overtemperature anomaly, overload, encoder anomaly, overspeed, excessive position deviation, and abnormal parameters	
	Communication function	USB	Used for PC communication (for "Servostudio" connection)	
		Machine type	RS485	

ST8 Series Drivers



ST8 series Servo driver



ST8 series Servo driver

- Absolute-value encoder, supporting incremental ABZ signals
- AC 220 V input of control power supply
- Regenerative braking
- Voltage monitoring and low-voltage warning
- Excellent protection
- Over-current, over-voltage, over-speed, output phase loss, and encoder break protection
- Protection classification, warning and fault differentiation
- Debugging software supports functions such as parameter management, monitoring and oscilloscope
- High-speed pulse input supports differential 4M input
- The calculation frequency of the current loop is 40 KHZ, and the maximum bandwidth of the speed loop is 6.4 KHZ, which are suitable for high-speed response applications
- Supporting 24 V pulse signal input

Specification table of the driver

Series	Specification Model	Voltage (V)	Rated Current (A)	Control Type	Encoder Type	Driver Type
ST8	ST8-A030-B000	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A030-E000	220	3	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A060-B000	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A060-E000	220	6	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A100-B000	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A100-E000	220	10	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A030-B010	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A030-E010	220	3	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A060-B010	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A060-E010	220	6	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A100-B010	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A100-E010	220	10	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A030-B020	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST8-A030-E020	220	3	EtherCAT	Incremental ABZ/Absolute value	Linear Motors
	ST8-A060-B020	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST8-A060-E020	220	6	EtherCAT	Incremental ABZ/Absolute value	Linear Motors
	ST8-A100-B020	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST8-A100-E020	220	10	EtherCAT	Incremental ABZ/Absolute value	Linear Motors

Driver Function Parameters

Function	
1M low-speed pulse input	√
4M high-speed pulse input	√
Analog quantity control input	√
Modbus communication	√
Modbus control	Developing
EtherCAT control	×
Position control mode	√
Speed control mode	√
Torque control mode	√
Assignable I/O	√
Pulse frequency-division output	√ Hardware-level
Self-tuning	Developing
Disturbance torque compensation	Developing
Notch filter	√
Oscillation suppression	Developing
Dynamic braking function	√
Inertia identification	√
Rigidity ranking list	√
Bode diagram analysis	√
Absolute position compensation	Developing
FFT analysis	√

Project	Specification
Carrier frequency	8KHZ
Current loop sampling	16KHZ
Speed loop sampling	8KHZ
Position loop sampling	8KHZ
Maximum speed loop bandwidth	2.3KHZ
Current range	3A/6A/10A
Adaptable motor	Absolute-value feedback rotary servo motor, absolute-value feedback torque motor, communication feedback linear motor

Working Environment

Item	Specifications	
Temperature	Working temperature	0~55°C
	Storage temperature	-20~65°C
Humidity	Working humidity	20% to 85% RH or below (no condensation)
	Storage humidity	20% to 85% RH or below (no condensation)
Air in storage environment	Indoor (no direct sunlight), no corrosive gas, no flammable gas, no oil mist, no dust	
Altitude	Below 1000 m altitude	
Vibration	10 to 60 Hz below 5.8 m/s ² (0.6 G) (cannot be used continuously at the resonance frequency)	
Dielectric voltage withstand	AC 1500 V for 1 minute between the primary stage and FG	

Driver Performance Parameter

Item		Specification	
Position control	Pulse input	Open-collector pulse input: frequency not more than 900 KHz, pulse width not less than 2.5 us	
		Differential normal pulse input: frequency not more than 1000 KHz, pulse width not less than 1 us	
		Differential high-speed pulse input: frequency not more than 4000 KHz, pulse width not less than 1 us	
	Input pulse logic mode	Pulse + direction, A phase + B phase, CW + CCW	
	Electronic gear ratio setting	Electronic gear ratio: A/B times, qualification condition (encoder resolution/10000000 < A/B < encoder resolution/2.5)	
	Instruction filter	Smoothing filter, FIR filter, mean filter	
Pulse output	Output pulse function	Available	
	Frequency division ratio	Arbitrary frequency division ratio	
	Output pulse shape	ABZ quadrature encoder pulse signal	
Internal position mode function		Internal path planning of sections 1 to 16	
Speed control	Control mode	External analog instruction control/DI terminal signal combination to achieve internal speed selection in sections 1 to 16/Communication specified	
	Analog quantity input voltage range	DC ± 10 V [corresponding to rated speed at ±10 V] (full-function model)	
	Torque limit function	Internal parameter setting or analog input (full-function model)	
Torque control	Control mode	External analog instruction control (full-function model)/Internal parameters/DI terminal switching (analog quantity/internal parameters)/Communication specified	
	Analog quantity input voltage range	DC ± 10 V [corresponding to rated torque at ±10 V] (full-function model)	
	Speed limit function	Internal parameter setting or analog input (full-function model)	
Common functions	Control signal	Input/Output (5IN/5OUT)/9IN/8OUT	
	Analog quantity signal	Input/Output 2IN ± 10V	
	STO	N/A	
	Speed observer function	Available	
	Damping control function	Available	
	Adaptive notch filter	Available	
	Automatic adjustment function	Available	
	Encoder output frequency division	Available	
	Dynamic braking	Available	
	Regeneration function	External regenerative resistor (30 Ω to 50 Ω, 100 W to 300 W)	
	Protection function	Overvoltage, power supply anomaly, overcurrent, overtemperature anomaly, overload, encoder anomaly, overspeed, excessive position deviation, and abnormal parameters	
	Communication function	USB	Used for PC communication (for "Servostudio" connection)
		Machine type	RS485/EtherCAT

■ Dimensions of ST Series Drivers

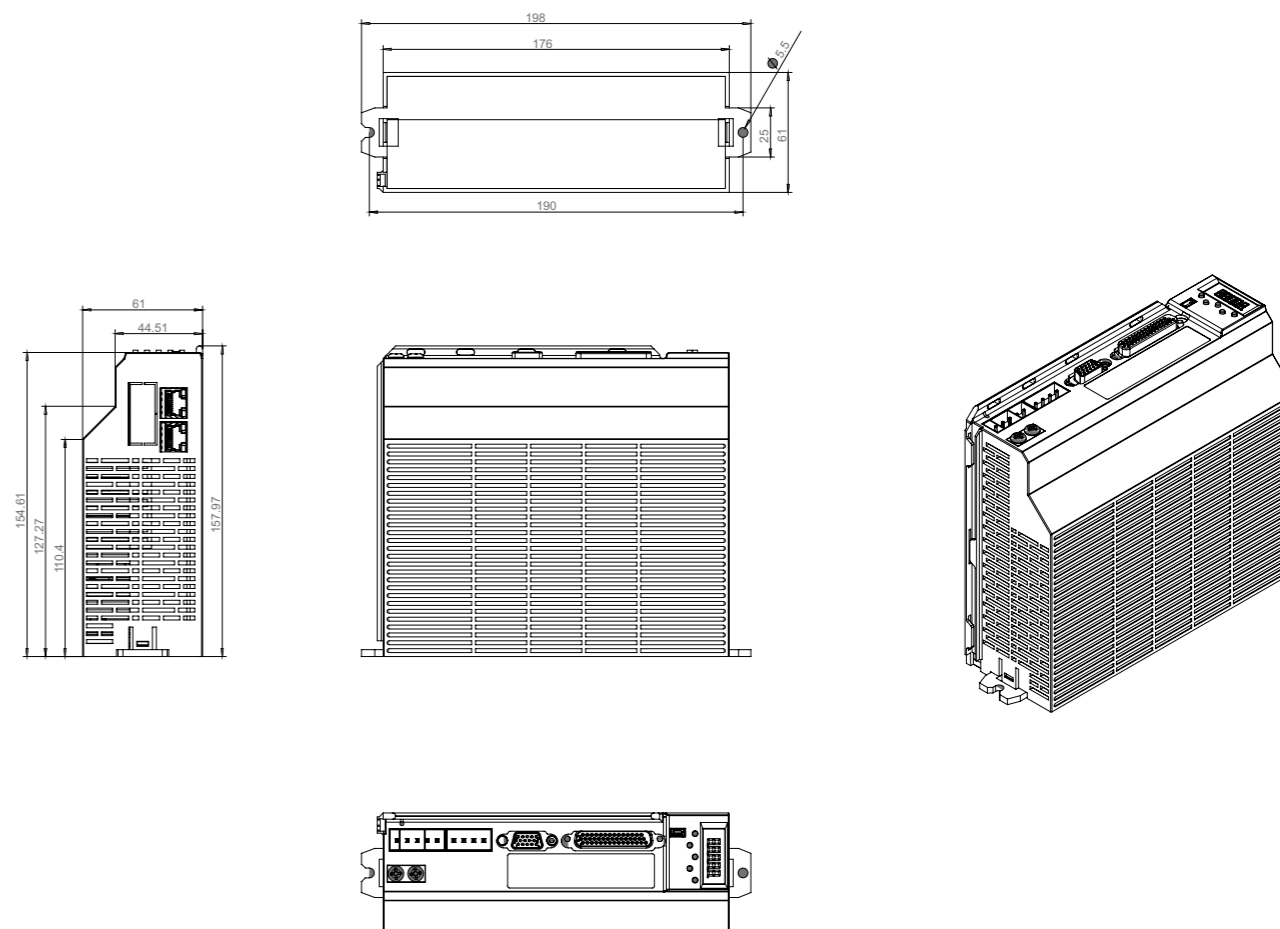
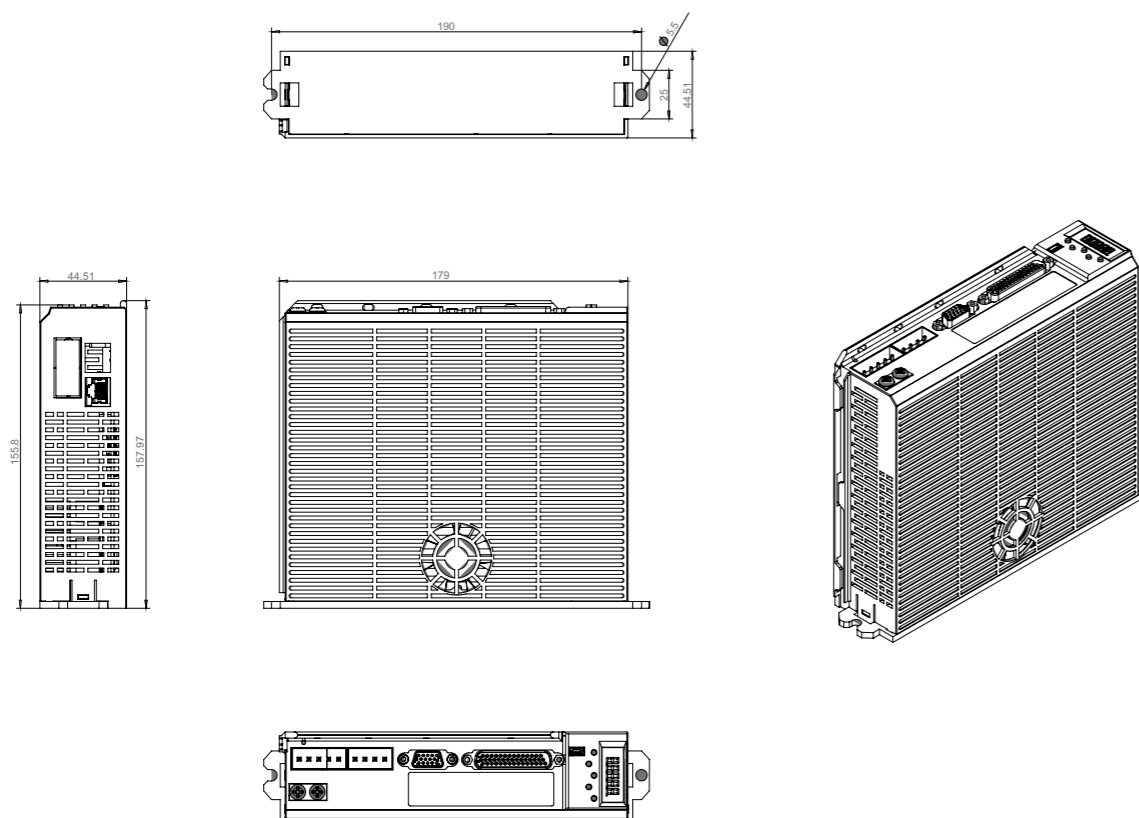
■ Dimensions of ST Series Drivers

■ 3A/6A Driver Dimensions (unit:mm)

■ 10A Driver Dimensions (unit:mm)

ST5/6/7/8-A030/A060-BXXX & ST6/8-A030/A060-EXXX

ST6/7/8-A100-BXXX & ST6/8-A100-EXXX

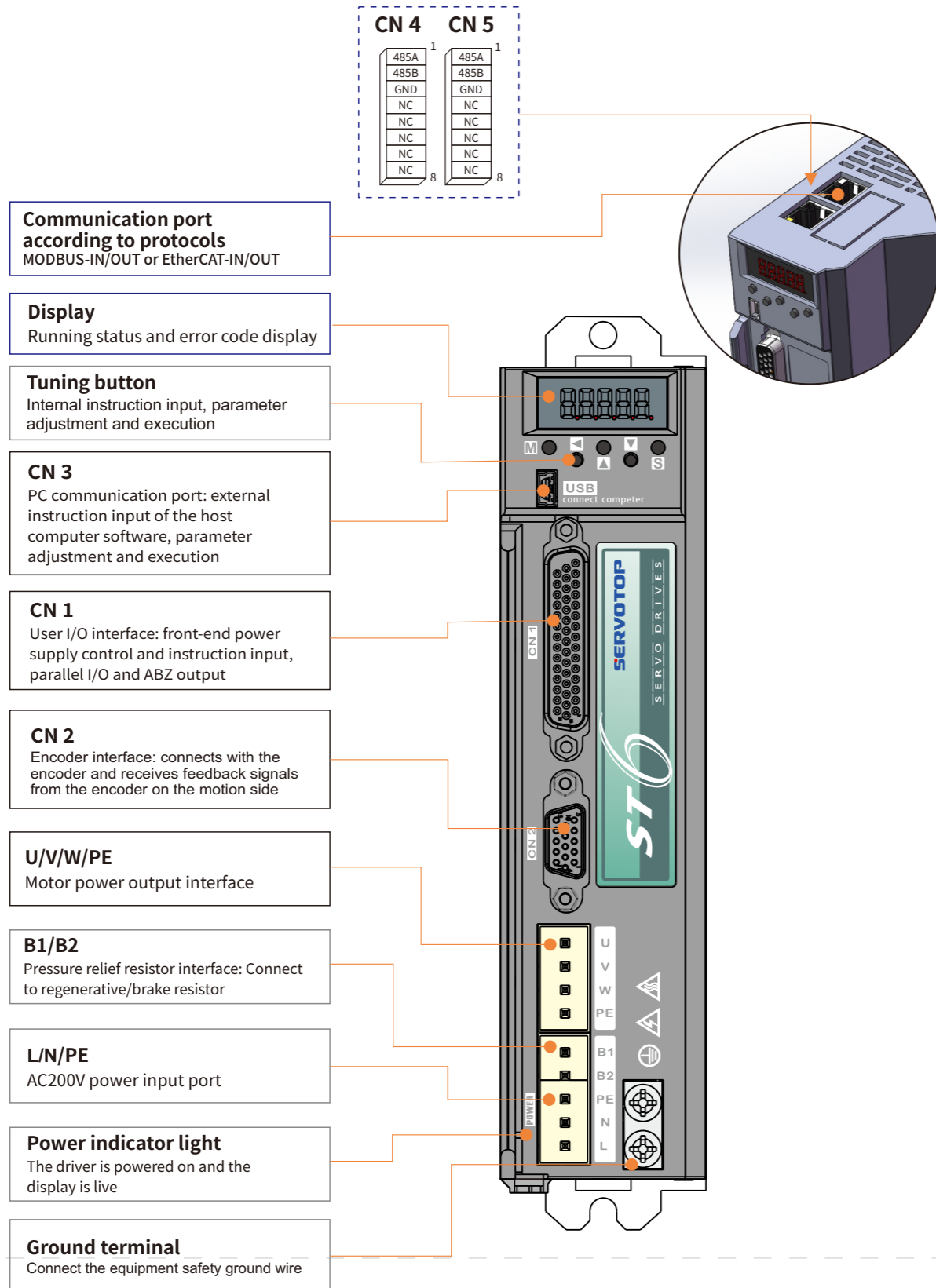


Drive series	Specification Model	Length(mm)	Width(mm)	Hight(mm)	Installation Hole Spacing (mm)	Installation Hole Diameter (mm)
ST5/6/7/8	A030-BXXX	179	44.51	157.97	190	5.5
	A060-BXXX					
ST6/8	A030-EXXX					
	A060-EXXX					

Drive series	Specification Model	Length(mm)	Width(mm)	Hight(mm)	Installation Hole Spacing (mm)	Installation Hole Diameter (mm)
ST6/7/8	A100-BXXX	176	61	157.97	190	5.5
ST6/8	A100-EXXX					

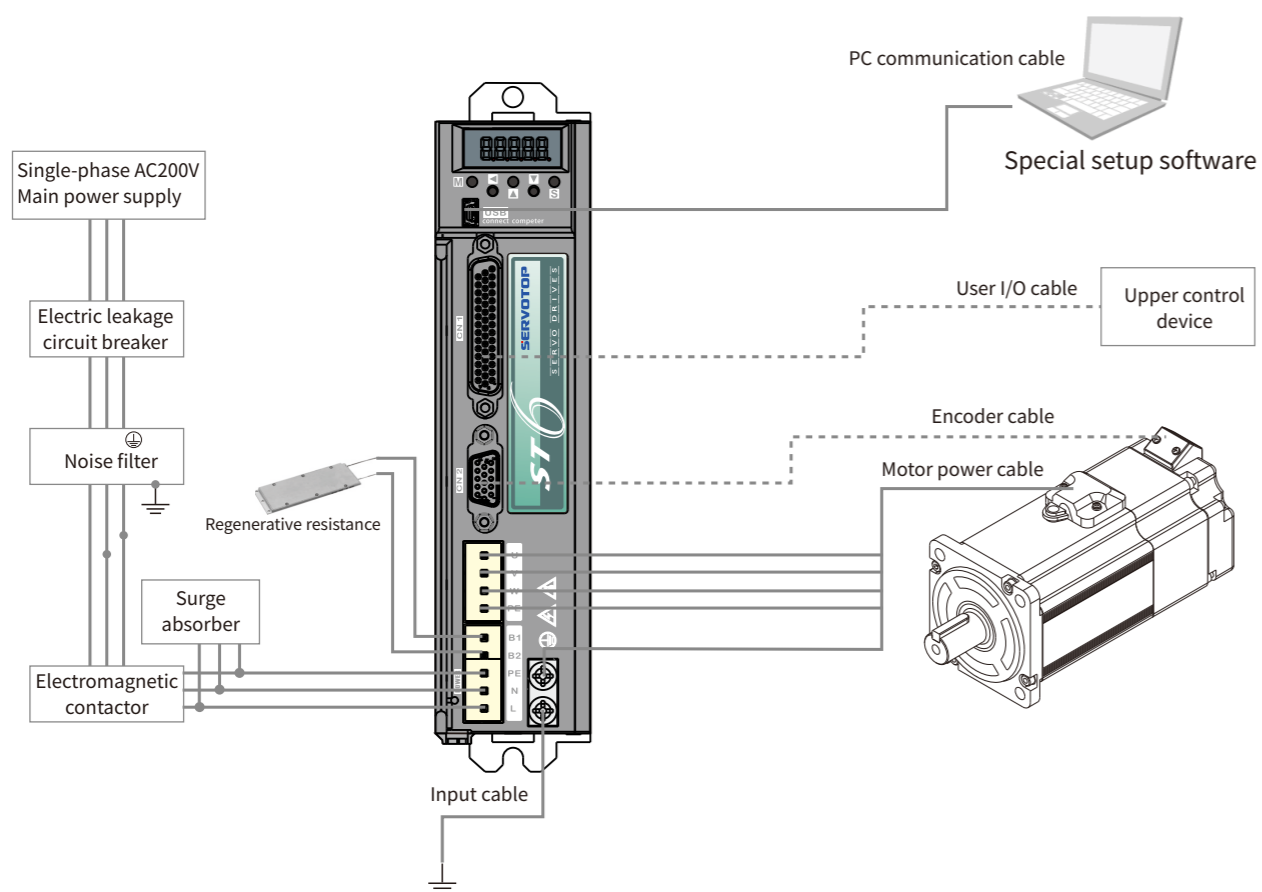
Driver panel interface description

Driver connector terminal arrangement

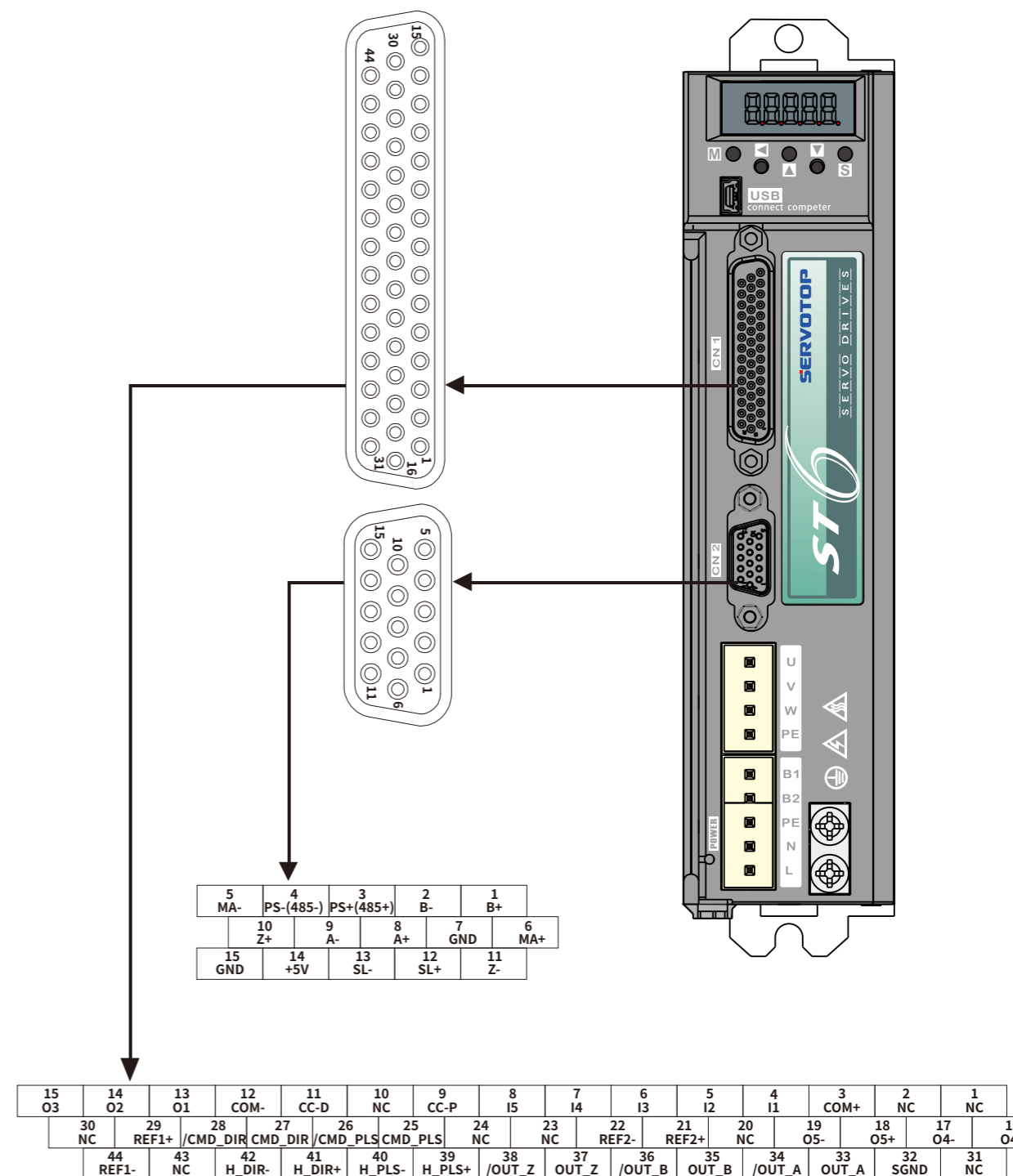


Name	Mark	Terminal number	Signal Name	Content
Regenerative resistor connection	B1/B2	1	B1	B1 interface for regenerative resistor connection
		2	B2	B2 interface for regenerative resistor connection
Unidirectional AC 200 V inputon	PE	3	PE	Grounding
	L/N	4	Power	L/N
	5			
Electric power input	U/V/W	1	U	Motor power U-phase output
		2	V	Motor power V-phase output
		3	W	Motor power W-phase output
Encoder	CN2	1	B+	Incremental encoder phase B +
		2	B-	Incremental encoder phase B -
		3	PS+(485+)	Absolute-value encoder +
		4	PS-(485-)	Absolute-value encoder -
		5	MA-	
		6	MA+	
		7	GND	Internal power supply GND
		8	A+	Incremental encoder phase A +
		9	A-	Incremental encoder phase A -
		10	Z+	Incremental encoder phase Z +
		11	Z-	Incremental encoder phase Z -
		12	SL+	
		13	SL-	
		14	+5V	Internal power supply +5 V (max. load current 500 mA)
		15	GND	Internal power supply GND
PC communication	CN3	1	VBUS	USB power supply
		2	D-	USB data -
		3	D+	USB data +
		4	NC	—
		5	GND	USB signal grounding
User I/O	CN1	For details, see "Cabling Instructions for User Control Terminal (CN1)" (P27-28)		
Communication port according to protocols	CN4/CN5	1	485A	485 communication port
		2	485B	
		3	GND	Internal power supply GND

■ System cabling diagram



■ Cabling for connecting panel terminals (CN1/CN2)



【 Key points of correct cabling 】

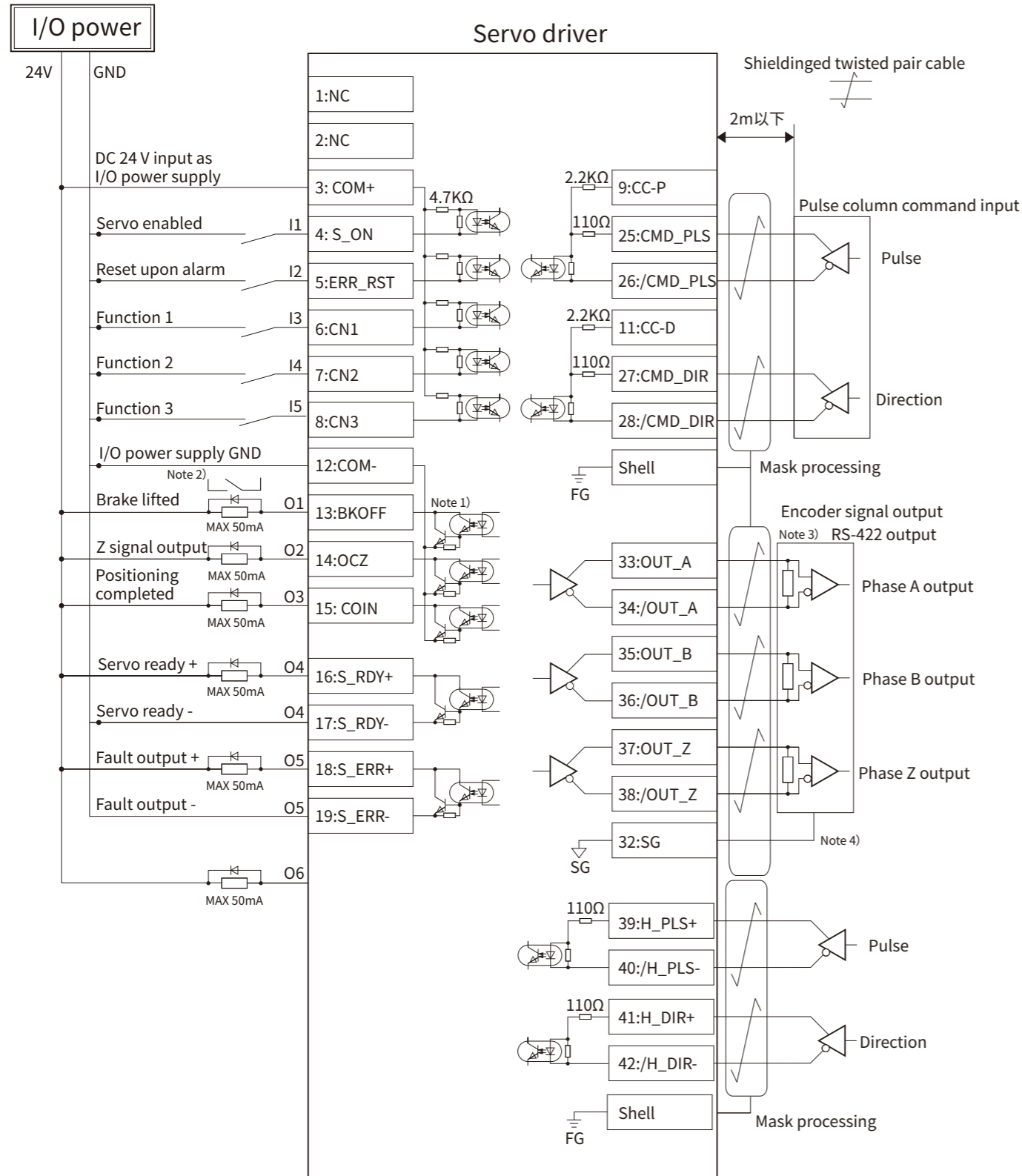
- ※ Use a twisted pair with Shielding wire when a user's I/O cable is longer than 50 cm.
- ※ The encoder cable shall be shorter than 15 m.



Note

1. There is a high voltage in the circuit in the solid part of the cabling diagram. Exercise caution when performing cabling operations or using the system.
2. The dotted part of the cabling diagram indicates a non-hazardous voltage circuit.

■ Differential input of pulse commands



■ Differential input of pulse commands

Note 1: When driving loads with inductive components such as relays, connect the protection circuit (diode).

Note 2: The output circuit adopts the Darlington transistor output mode of the open-collector, which is connected to the relay or optocoupler. When the transistor status is ON, the voltage between the open-collector and the emitter is about VCE (SAT) 1 V, which cannot meet the VIL voltage requirements of TTL level IC. Do not connect the output circuit directly.

Note 3: The differential pulse output and the differential signal connection terminal of the 485 communication circuit need to be connected to the terminal resistor.

Note 4: The signal ground wire of the upper control device that connects to the encoder output signal of the driver is connected. The signal grounding and the GND connection of the control power supply may cause misoperation.

※The DI function can be flexibly configured by a function code. DI is effective when it is turned on by default, and its positive-negative logic can be modified by using the function code.
 ※The DO function can be flexibly configured by a function code. DO is turned on when it is effective by default, and its positive-negative logic can be modified by using the function code.

■ Cabling Instructions for User Control Terminal (CN1)

■ Driver connector terminal arrangement(CN2)

■ Cabling Instructions for User Control Terminal (CN1)

Name	Terminal number	Signal Name	Content
User control I/O	1	NC	Reserved
	2	NC	Reserved
	3	COM+	I/O power input 24 V+ (connected when using input signal)
	4	I1	Servo enabled S_ON (configurable)
	5	I2	Alarm reset ERR_RST (configurable)
	6	I3	Position torque switching (origin input signal, combination function 1) (configurable)
	7	I4	Combined function 2 (positive over-travel P_OT) (configurable)
	8	I5	Combined function 3 (negative over-travel N_OT) (configurable)
	9	CC-P	Collector pulse command input PLS power supply (24 V)
	10	NC	Reserved
	11	CC-D	Collector pulse command input DIR power supply (24 V)
	12	COM-	IO power input GND (connected when using output signal)
	13	O1	Brake lifting BKOFF (configurable)
	14	O2	OCZ encoder Z-phase signal output (open-collector) (configurable)
	15	O3	Positioning completed (configurable)
	16	O4+	Servo ready + S_RDY+ (configurable)
	17	O4-	Servo ready - S_RDY- (configurable)
	18	O5+	Fault output + S_ERR+ (configurable)
	19	O5-	Fault output - S_ERR- (configurable)
	20	NC	Reserved
	21	REF2+	Analog quantity input AI2+ (torque)
	22	REF2-	Analog quantity input AI2- (torque)
	23	NC	Reserved
	24	NC	Reserved
	25	CMD_PLS	Pulse command input 5V
	26	/CMD_PLS	Pulse command input PLS+ (≤ 1 MHz)
	27	CMD_DIR	Direction command input 5V
	28	/CMD_DIR	Direction command input PLS- (≤ 1 MHz)
	29	REF1+	Analog quantity input AI1+ (speed)
	30	NC	Reserved
	31	NC	Reserved
	32	SGND	Internal power supply GND
	33	OUT_A	Encoder signal pulse regenerative output A+
	34	/OUT_A	Encoder signal pulse regenerative output A-

■ Cabling Instructions for User Control Terminal (CN1)

Name	Terminal number	Signal Name	Content
User control I/O	35	OUT_B	Encoder signal pulse regenerative output B+
	36	/OUT_B	Encoder signal pulse regenerative output B-
	37	OUT_Z	Encoder signal pulse regenerative output Z+
	38	/OUT_Z	Encoder signal pulse regenerative output Z-
	39	H_PLS+	High-speed pulse signal input 5V
	40	H_PLS-	High-speed pulse signal input PLS- (≤ 4 MHz)
	41	H_DIR+	High-speed direction signal input 5V
	42	H_DIR-	High-speed direction signal input DIR- (≤ 4 MHz)
	43	NC	Reserved
	44	REF1-	Analog quantity input 1- (speed)

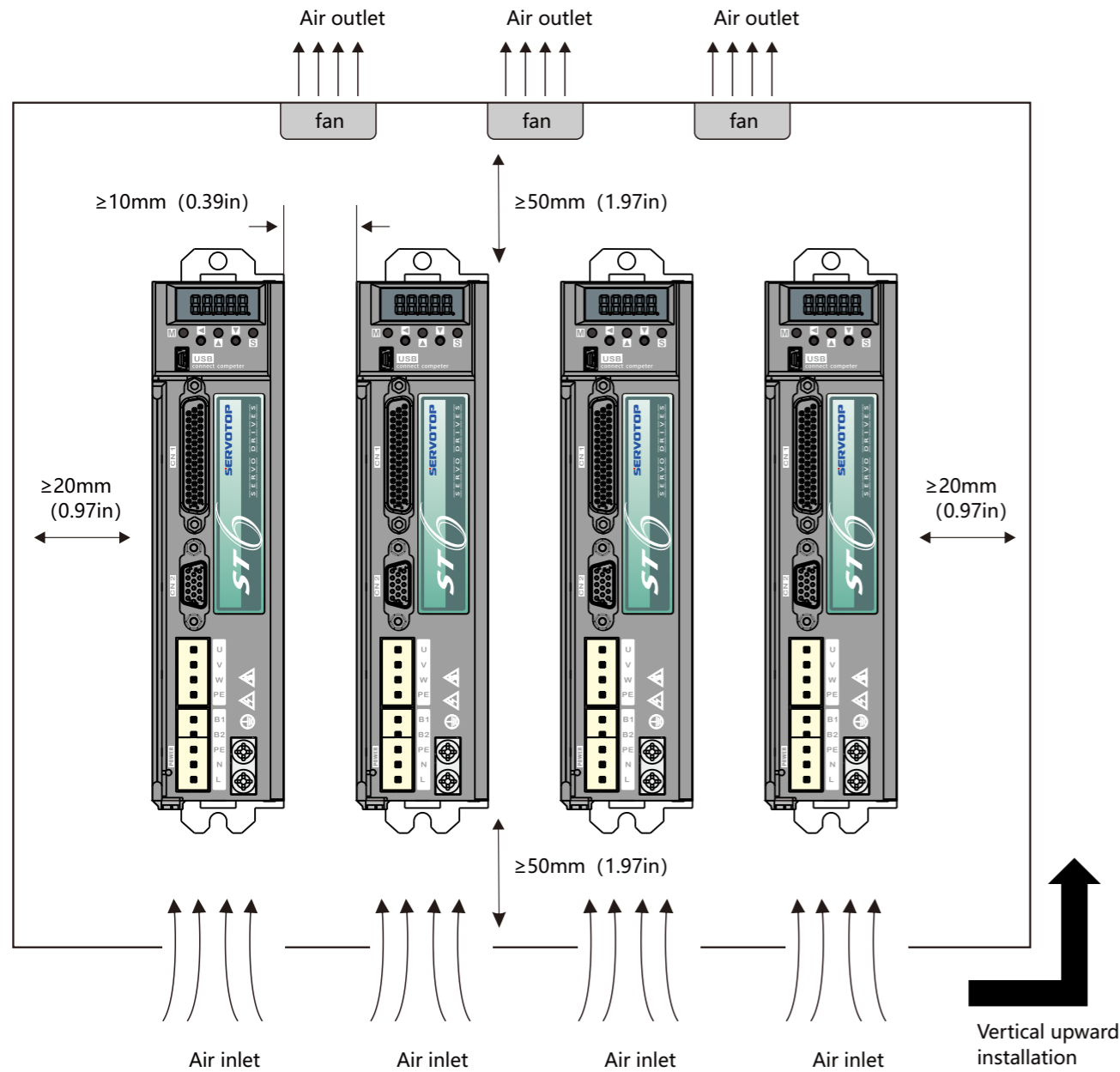
■ Driver connector terminal arrangement

Name	Terminal number	Signal Name	Content
Encoder	1	B+	Incremental encoder phase B +
	2	B-	Incremental encoder phase B -
	3	PS+(485+)	Absolute-value encoder +
	4	PS-(485-)	Absolute-value encoder -
	5	MA-	
	6	MA+	
	7	GND	Internal power supply GND
	8	A+	Incremental encoder phase A +
	9	A-	Incremental encoder phase A -
	10	Z+	Incremental encoder phase Z +
	11	Z-	Incremental encoder phase Z -
	12	SL+	
	13	SL-	
	14	+5V	Internal power supply +5 V (max. load current 500 mA)
	15	GND	Internal power supply GND

Driver Installation Diagram - Reserved Distance

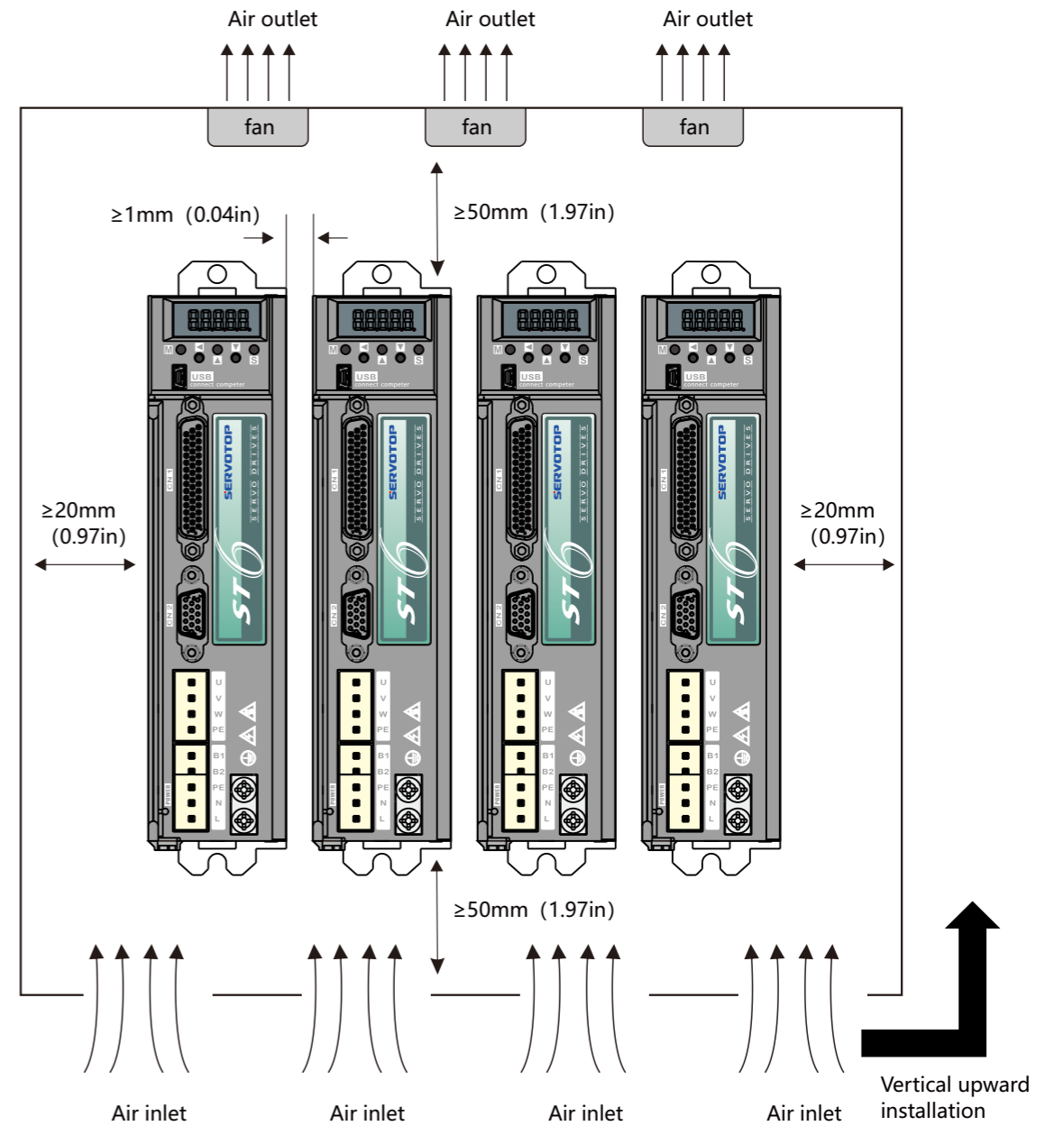
Driver Installation Diagram - Compact

Installation diagram



Schematic diagram of the installation space with a reserved distance

Installation diagram



Schematic diagram of the compact installation space

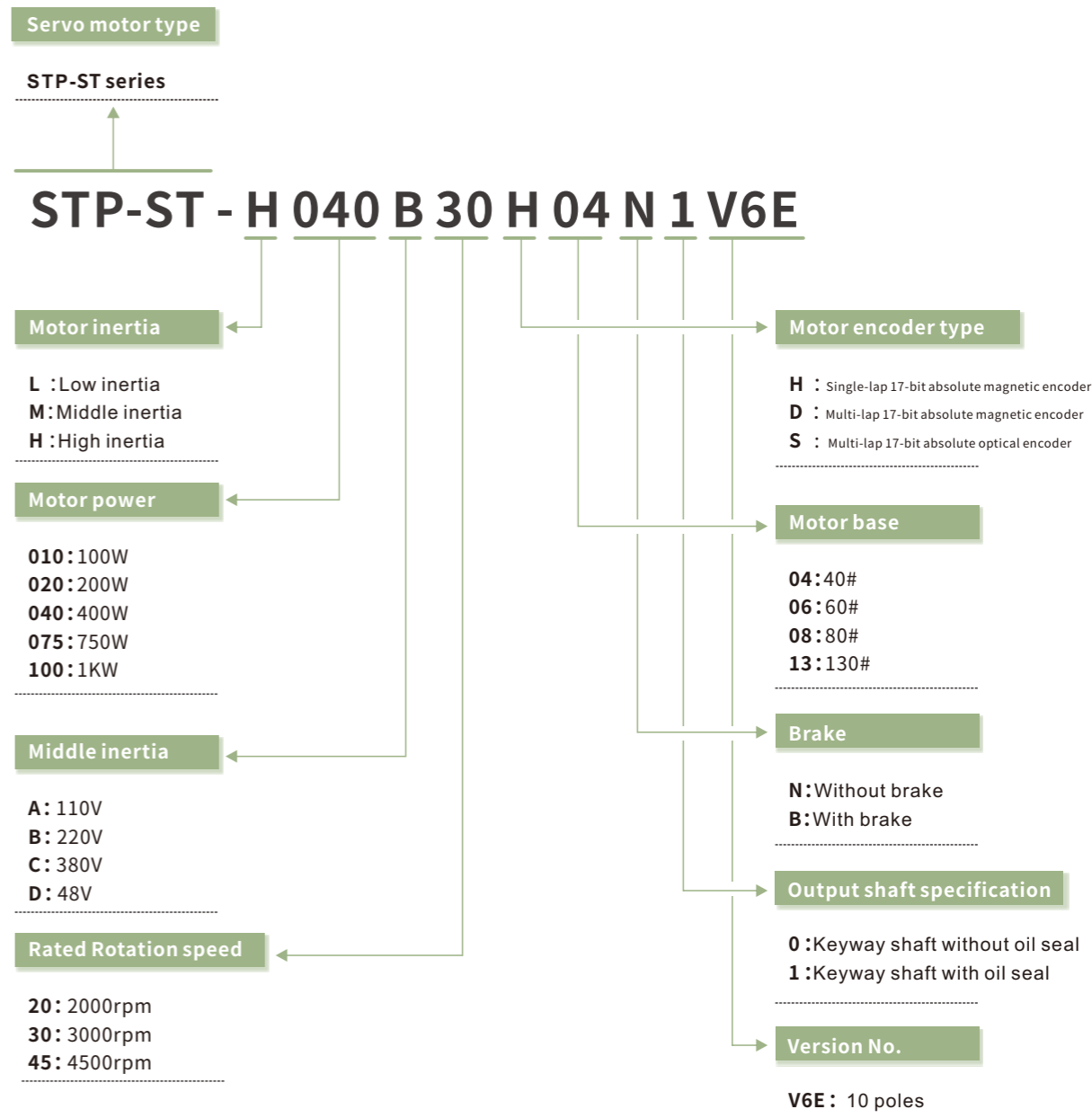
ST5 servo driver
 ST6 servo driver
 ST7 servo driver
 ST8 servo driver
 驱动器安装图
 V6E servo motor
 V7 servo motor
 V7E servo motor
 Motor specification

ST5 servo driver
 ST6 servo driver
 ST7 servo driver
 ST8 servo driver
 驱动器安装图
 V6E servo motor
 V7 servo motor
 V7E servo motor
 Motor specification

V6E Series Servo Motor



STP series servo motor



STP-ST-V6E Series Servo Motor

- Excellent environmental resistance (against dust, oil mist, vibration)
- Low temperature rise
- Supporting 3 times standard overload, which can be measured on site
- Small positioning torque (the best combination of motor poles and slots to reduce torque ripple)
- Quality assurance, passing ISO9001 certification
- Compact design and high power density
- Highly rigid body
- Custom development (R&D capability to ensure fast delivery)
- IP65 protection level

ST5 servo driver
ST6 servo driver
ST7 servo driver
ST8 servo driver
Driver description
V6E servo motor
V7 servo motor
V7E servo motor
Motor specification

Motor specification

Project		Unit	Specification				
Motor model			50W	100W	200W	400W	400W
STP □□□□□**			Middle inertia STP-ST-M005	Middle inertia STP-ST-M010	Low inertia STP-ST-L020	Low inertia STP-ST-L040	High inertia STP-ST-H040
Dimensions of mounting flange		mm	□40	□40	□60	□60	□60
Mass	Without brake	Kg	0.35	0.47	1.01	1.28	1.42
	With brake			0.59	1.38	1.61	1.71
Rated torque *		N·m	0.159	0.318	0.64	1.27	1.27
Max. torque *		N·m	0.477	0.954	1.92	3.81	3.81
Rated torque *		rpm	3000	3000	3000	3000	3000
Max. Rotation speed *		rpm	6000	6000	6000	6000	6000
Rated winding current *		Arms	0.69	1.1	1.7	2.8	2.8
Max. winding current *		Arms	2.07	3.3	5.1	8.4	8.4
Torque coefficient ±10%**		N·m/Arms	0.272	0.289	0.416	0.477	0.477
Potential coefficient ±10%**		mV/min ⁻¹	17.2	20.5	26.3	30.2	30.2
Line resistance ±10%**		Ω	26	14.3	5.9	3.07	3.07
Line inductance ±10%**		mH	20.7	14.8	18.3	11.5	11.5
Rotor inertia	Without brake	Kg·m ² ×10 ⁻⁴	0.023	0.046	0.20	0.3	0.436
	With brake		0.043	0.066	0.22	0.32	0.456
Allowable max. moment of inertia			30 times	30 times	20 times	20 times	20 times
Rated power conversion rate *		kW/s	10.1	22	20.5	50.4	23.7
Electrical time constant **		ms	0.95	0.95	2.50	3.30	3.30
Mechanical time constant **		ms	1.73	1.73	5.06	1.48	1.48
Number of poles			8	8	10	10	10
Sensor			Incremental 17bit/ Absolute 17bit				

*: It is the value of a motor when the motor is installed on an aluminum cooling plate and runs to a stable state.
The dimensions of the motor cooling plate are 400 mm x 400 mm x 20 mm.

** : It is the value when the winding temperature is 20°C.
The value in () represents the value of a motor equipped with a brake.

Motor specification

Project		Unit	Specification			
Motor model			600W	750W	750W	1KW
STP □□□□□**			High inertia STP-ST-H060	Low inertia STP-ST-L075	High inertia STP-ST-H075	High inertia STP-ST-H100
Dimensions of mounting flange		mm	□60	□80	□80	□80
Mass	Without brake	Kg	1.61	2.41	2.57	2.83
	With brake		1.94	3.07	3.24	3.5
Rated torque *		N·m	1.91	2.39	2.39	3.18
Max. torque *		N·m	5.73	7.17	7.17	9.52
Rated torque *		rpm	3000	3000	3000	3000
Max. Rotation speed *		rpm	5000	5000	5000	5000
Rated winding current *		Arms	3.3	4.9	4.9	5.7
Max. winding current *		Arms	9.9	14.7	14.7	17.1
Torque coefficient ±10%**		N·m/Arms	0.576	0.488	0.488	0.57
Potential coefficient ±10%**		mV/min ⁻¹	38.2	33.5	33.5	36.2
Line resistance ±10%**		Ω	3.06	1.08	1.08	1.07
Line inductance ±10%**		mH	12	6.1	6.1	6.9
Rotor inertia	Without brake	Kg·m ² ×10 ⁻⁴	0.528	0.9	1.43	1.6
	With brake		0.558	0.96	1.49	1.63
Allowable max. moment of inertia			20 times	15 times	15 times	15 times
Rated power conversion rate *		kW/s	30.1	57.1	37.3	57.1
Electrical time constant **		ms	3.3	5.65	5.65	6.45
Mechanical time constant **		ms	1.48	1.31	1.31	1.31
Number of poles			10	10	10	10
Sensor			Incremental 17bit/ Absolute 17bit			

*: It is the value of a motor when the motor is installed on an aluminum cooling plate and runs to a stable state.
The dimensions of the motor cooling plate are 400 mm x 400 mm x 20 mm.

** : It is the value when the winding temperature is 20°C.
The value in () represents the value of a motor equipped with a brake.

V6E Series Servo Motor

V6E Series Servo Motor

Motor specification

Project		Unit	Specification				
Motor model			50W	100W	200W	400W	750W
STP □□□□□**			Middle inertia (Low pressure) STP-ST-M005	Middle inertia (Low pressure) STP-ST-M010	Low inertia (Low pressure) STP-ST-L020	Low inertia (Low pressure) STP-ST-L040	Middle inertia (Low pressure) STP-ST-M075
Dimensions of mounting flange		mm	□40	□40	□60	□60	□80
Mass	Without brake	Kg	0.35	0.47	1.01	1.35	2.41
	With brake		-	-	-	1.62	3.07
Rated torque *		N·m	0.159	0.318	0.64	1.27	2.39
Max. torque *		N·m	0.477	0.954	1.92	3.81	7.17
Rated torque *		rpm	3000	3000	3000	3000	3000
Max. Rotation speed *		rpm	6000	6000	6000	6000	6000
Rated winding current *		Arms	2.9	2.9	5	12	20
Max. winding current *		Arms	8.7	8.7	15	36	60
Torque coefficient ±10%**		N·m/Arms	0.055	0.127	0.128	0.106	0.117
Potential coefficient ±10%**		mV/min ⁻¹	2.15	4.3	5.88	6.1	6.8
Line resistance ±10% **		Ω	0.52	0.88	0.36	0.16	0.07
Line inductance ±10%**		mH	0.49	0.85	1.39	0.54	0.49
Rotor inertia	Without brake	Kg·m ² ×10 ⁻⁴	0.023	0.046	0.2	0.3	0.9
	With brake		-	-	-	0.32	0.96
Allowable max. moment of inertia			30 times	30 times	30 times	20 times	15 times
Rated power conversion rate *		kW/s					
Electrical time constant **		ms	0.94	0.97	3.86	3.38	7
Mechanical time constant **		ms	1.73	1.73	5.06	1.48	2
Number of poles			8	8	10	10	10
Sensor			Incremental 17bit/ Absolute 17bit				

* : It is the value of a motor when the motor is installed on an aluminum cooling plate and runs to a stable state.
The dimensions of the motor cooling plate are 400 mm x 400 mm x 20 mm.

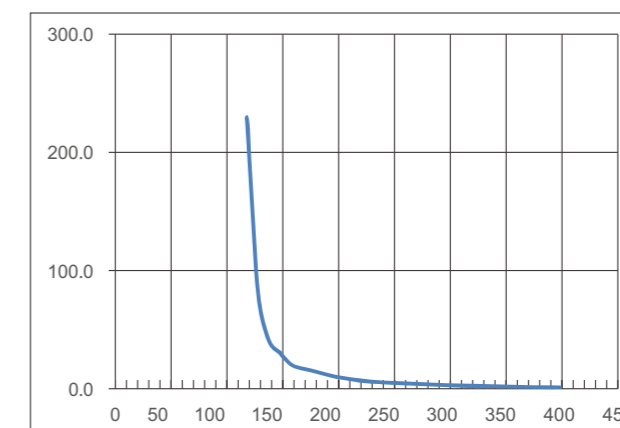
** : It is the value when the winding temperature is 20°C.
The value in () represents the value of a motor equipped with a brake.

Parameter specification of mechanical properties of motor

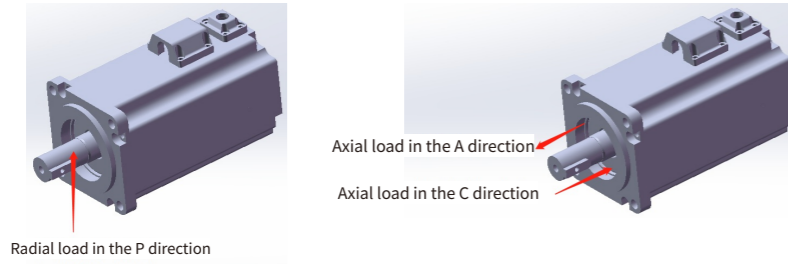
Item	Description
Working mode	Continuous
Vibration level	V15
Insulation resistance	DC500V, more than 10MΩ
Working temperature	0 ~ 40 °C
Excitation mode	Permanent magnet type
Installation method	Flange type
Heat resistance level	Class H
Insulation voltage	AC 1500 V for 1 minute (200 V level) AC1800 V for 1 minute (400 V level)
Shell protection mode	Rejection-line IP65 (excluding shaft pass-through) Embedded-terminal IP67 (except shaft pass-through)
Working humidity	20 ~ 80%(no condensation)
Rotation direction	CCW rotation when viewed from the load side under the forward rotation command

Overload Feature of Motors

Load Ratio (%)	Running Time (s)
120	230
130	80
140	40
150	30
160	20
170	17
180	15
190	12
200	10
210	8.5
220	7
230	6
240	5.5
250	5
300	3
350	2
400	1



Allowable load in the radial and axial directions of a motor

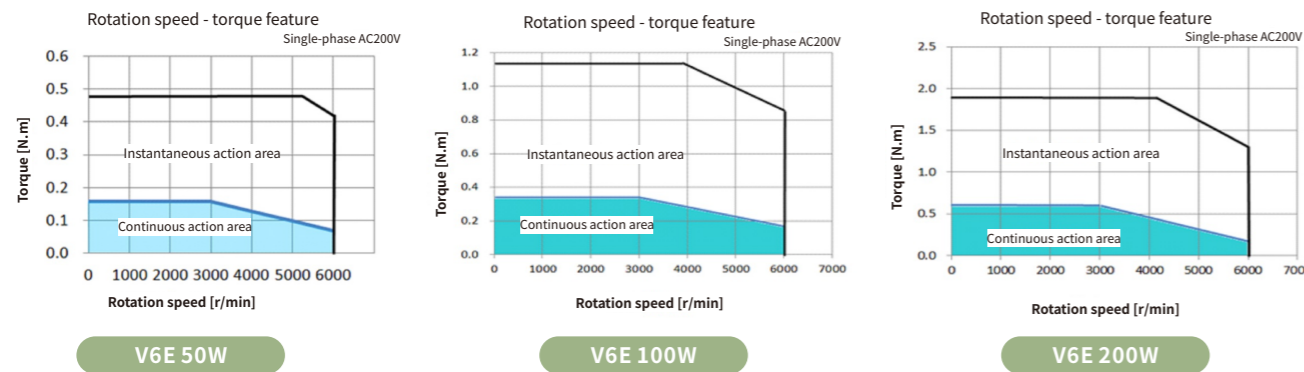


Base (mm)	Allowable radial load (N)	Allowable axial load (N)
40	78	54
60	245	74
80	392	147

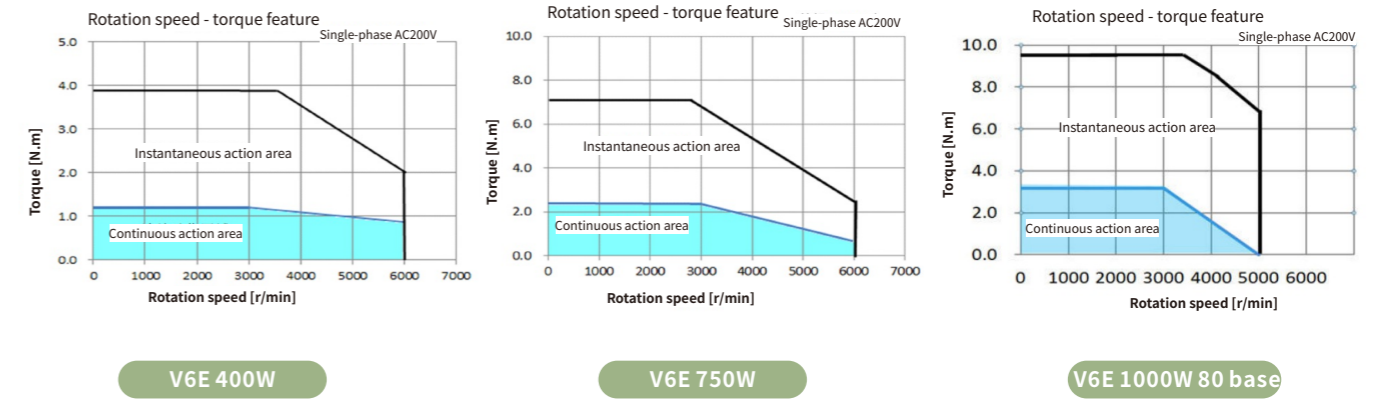
Electrical specifications for brake motors

Motor model	Base (mm)	Holding Torque (Nm)	Power Supply Voltage (Vdc) ±10%	Detach Time (ms)	Attraction Time (ms)	Rotary Clearance (°)
50W	40	0.15	24	20	50	0.5
100W	40	0.38		20	50	0.5
200W/400W	60	1.52		20	60	0.5
600W	60	2.5		20	50	0.5
750W/1000W	80	3.8		40	60	0.5

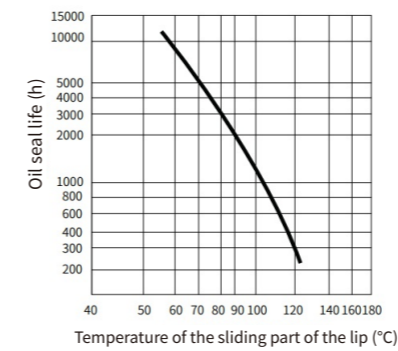
Motor Torque - Rotation Speed



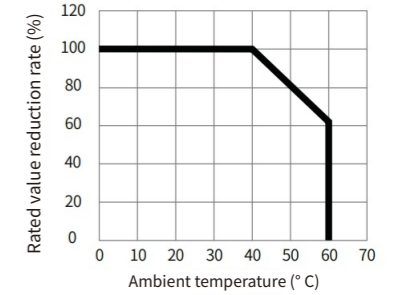
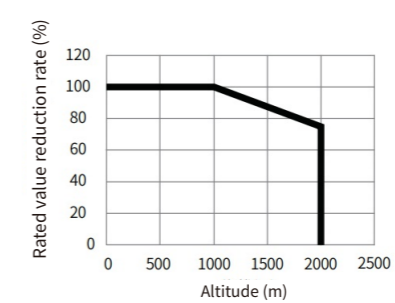
Torque speed characteristics of motor



Oil seal temperature curve



Derating feature



Altitude-related derating curve

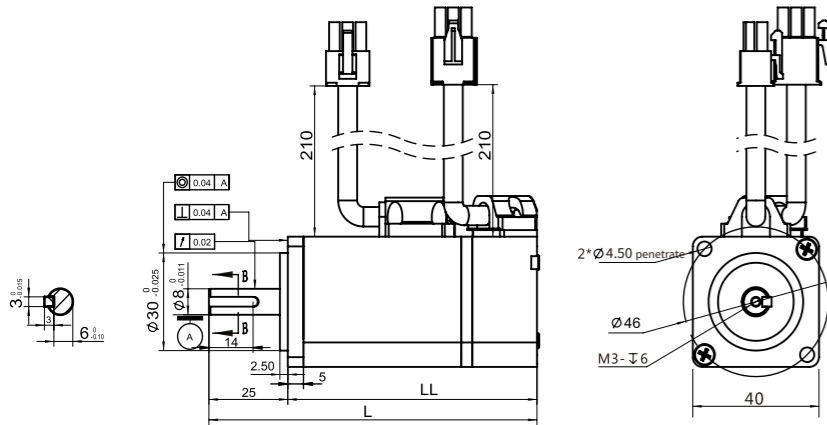
High-temperature-related derating curve

V6E Series Servo Motor

V6E Series Servo Motor

Dimensions of the servo motor on the 40 base (Unit:mm)

Motor dimensions



Specifications

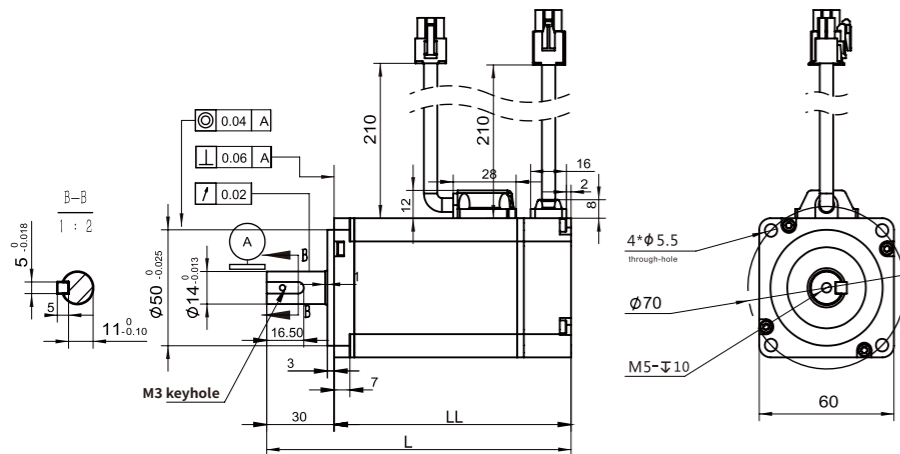
Base 40

Model Specification	L	LL
STP-ST-M005	88.5 (118.5)	63.5 (93.5)
STP-ST-M010	104 (134)	79 (109)

NOTE: The value in () represents the value of a motor equipped with a brake.

Dimensions of the servo motor on the 60 base (Unit:mm)

Motor dimensions



Specifications

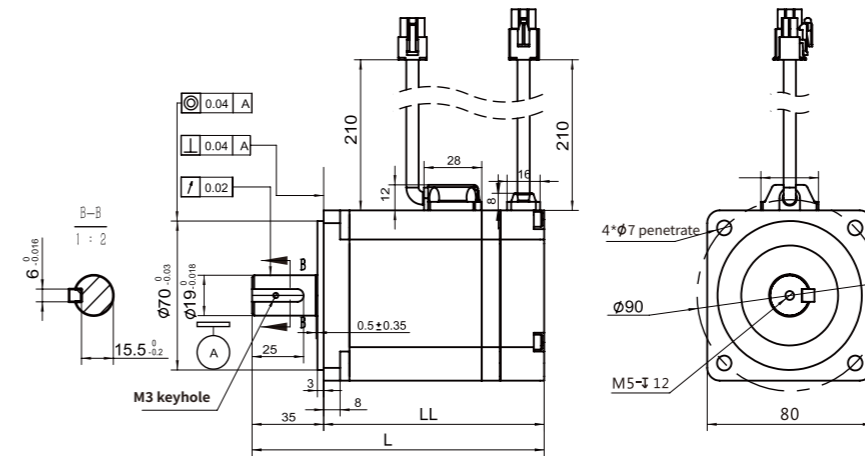
Base 60

Model Specification	L	LL
STP-ST-L020	108.5 (134)	78.5 (104)
STP-ST-L040	135.5 (161.8)	105.5 (131.5)
STP-ST-L040D	135.5 (166)	105.5 (131.5)
STP-ST-H040	135.5 (161.8)	105.5 (131.5)
STP-ST-H060	157.5 (188)	127.5 (153.5)

NOTE: The value in () represents the value of a motor equipped with a brake.

Dimensions of the servo motor on the 80 base (Unit:mm)

Motor dimensions



Specifications

Base 80

Model Specification	L	LL
STP-ST-L075	149 (178)	114 (143)
STP-ST-L075D	149 (178)	114 (143)
STP-ST-H075	149 (178)	114 (143)
STP-ST-H100	161 (190)	126 (155)

NOTE: The value in () represents the value of a motor equipped with a brake.

V6E Series Servo Motor

Definition of rejection-line connection of V6E motor (rejection-line type) with up to 1000 W power

Power line length: 210±30mm
Encoding line length: 210±30mm

Model of power rejection-line joint

Plastic shell:AMP172167-1
Terminal:AMP170360-1



Definition of power rejection-line joint

Pin definition	Signal definition
1	U
2	V
4	W
5	PE

Model of brake rejection-line joint

Plastic shell:AMP172165-1
Terminal:AMP170360-1



Definition of power rejection-line joint

Pin definition	Signal definition
1	U
2	V
4	W
5	PE
3	24V+
6	24V-

Model of encoder rejection-line joint

Plastic shell:AMP172169-1
Terminal:AMP170359-1



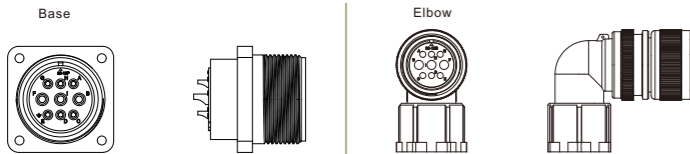
Definition of encoder rejection-line joint

Pin definition	Signal definition
3	PS+
6	PS-
2	/
5	/
1	Battery + (multiple laps)
4	Battery - (multiple laps)
9	+5V
8	GND
7	Shielding

VDefinition of rejection-line connection of V6E motor (rejection-line type) with at least 1000 W power

Model of power rejection-line joint

Plug-in connector 20-18P/20-18S

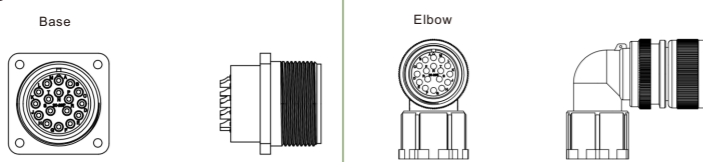


Definition of power rejection-line joint

Pin definition	Signal definition
B	U
I	V
F	W
G	PE
C	24V(Brake)
E	0V(Brake)

Model of encoder rejection-line joint

Plug-in connector CM10-R10P-D



Definition of encoder rejection-line joint

Pin definition	Signal definition
1	PS+
2	PS-
3	Battery + (multiturn)
4	Battery - (multiturn)
5	5V
6	0V
7	Shielding

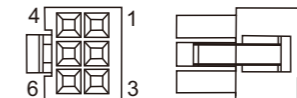
V6E Series Servo Motor

Definition of rejection-line connection of V6E low-voltage motor (rejection-line type) with up to 1000 W power

Power line length: 210±30mm
Encoding line length: 210±30mm

Model of power rejection-line joint

Plastic shell:MOLEX-39-01-2065
Terminal:MOLEX-0039000038

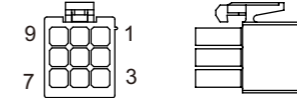


Definition of power rejection-line joint

Pin definition	Signal definition
1	U
2	V
4	W
5	PE

Model of encoder rejection-line joint

Plastic shell:AMP172169-1
Terminal:AMP170361-1



Definition of encoder rejection-line joint

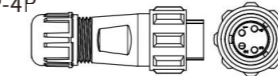
Pin definition	Signal definition
9	5V
8	GND
3	PS+
6	PS-
7	Shielding

VDefinition of rejection-line connection of V6E ow-voltage motor (rejection-line type) with at least 1000 W power

Power line length: 210±30mm
Encoding line length: 210±30mm

Model of power rejection-line joint

Plug-in connector type:GM2110/P-4P

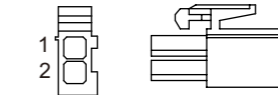


Definition of power rejection-line joint

Pin definition	Signal definition
1	U
2	V
4	W
5	PE

Model of brake rejection-line joint

Plastic shell:AMP172165-1
Terminal:AMP170360-1

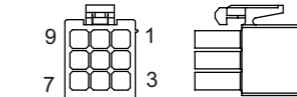


Definition of power rejection-line joint

Pin definition	Signal definition
1	0V(Brake)
2	24V(Brake)

Model of encoder rejection-line joint

Plastic shell:AMP172169-1
Terminal:AMP170361-1



Definition of encoder rejection-line joint

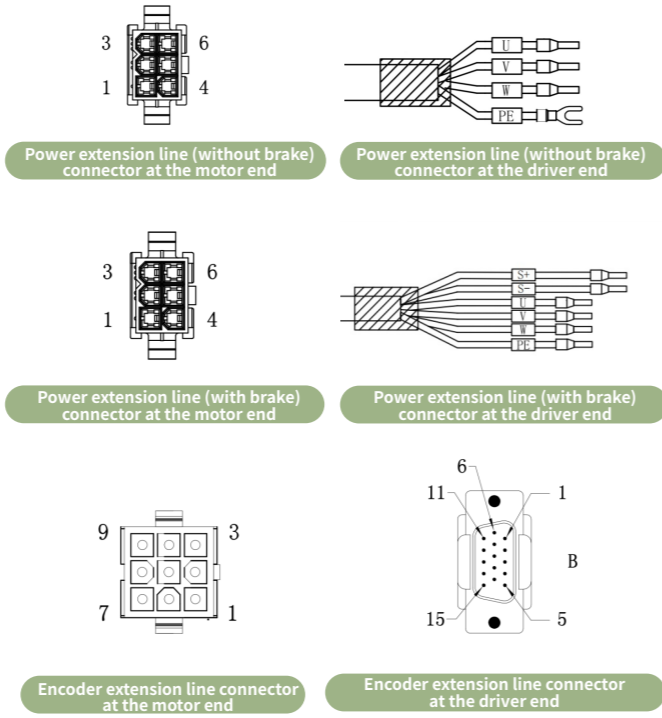
Pin definition	Signal definition
9	5V
8	GND
3	PS+
6	PS-
7	Shielding

V6E Series Servo Motor

V6E Series Servo Motor

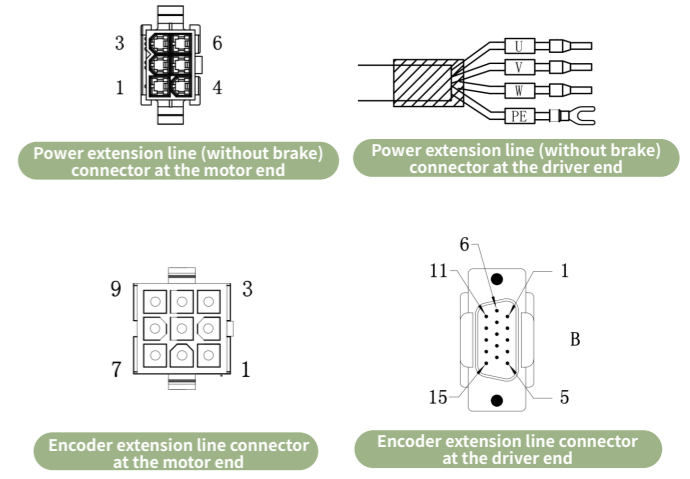
Specification of extension cables for V6E motors with up to 1000 W power

Name	Pin definition	Signal definition	Line Color	
Power extension line (without brake)	1	U	Red	
	2	V	Black	
	4	W	White	
	5	PE	Yellow-green	
Power extension line (with brake)	1	U	Red	
	2	V	Black	
	4	W	White	
	5	PE	Yellow-green	
	3	24V	Red	
Encoder extension line	Motor end /Driver end	6	0V	Black
		9/14	5V	Blue
		8/15	0V	Blue/white
		3/3	PS+	The purple
		6/4	PS-	Purple/white
		7/Shell	Shielding	Braid
		1(multiple laps)	Battery +	Red
4(multiple laps)	Battery -	Black		



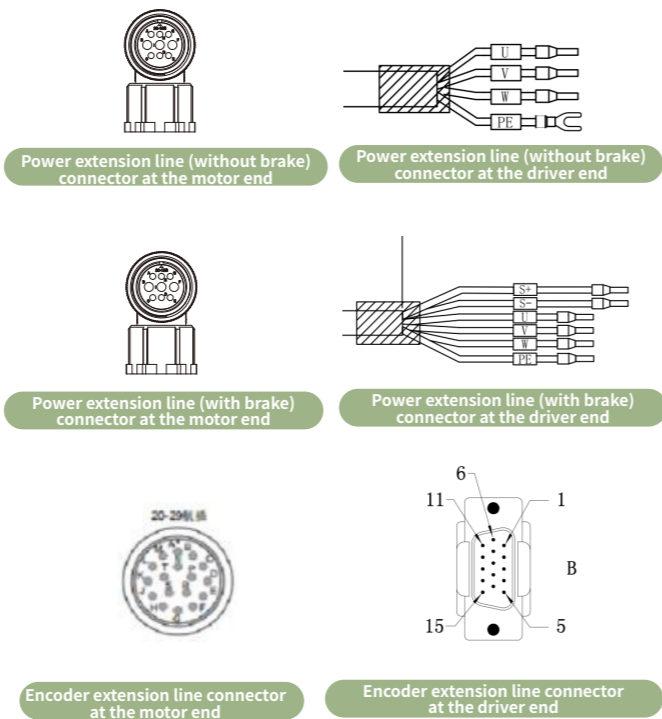
Specification of extension cables for V6E low-voltage motors with up to 200 W power

Name	Pin definition	Signal definition	Wiring color	
Power extension line (without brake)	1	U	Red	
	2	V	Black	
	4	W	White	
Encoder extension line	Motor end /Driver end	5	PE	Yellow-green
		9/14	5V	Blue
		8/15	0V	Blue/white
		3/3	PS+	The purple
		6/4	PS-	Purple/white
		7/Shell	Shielding	Braid
		1(multiple laps)	Battery +	Red
4(multiple laps)	Battery -	Black		



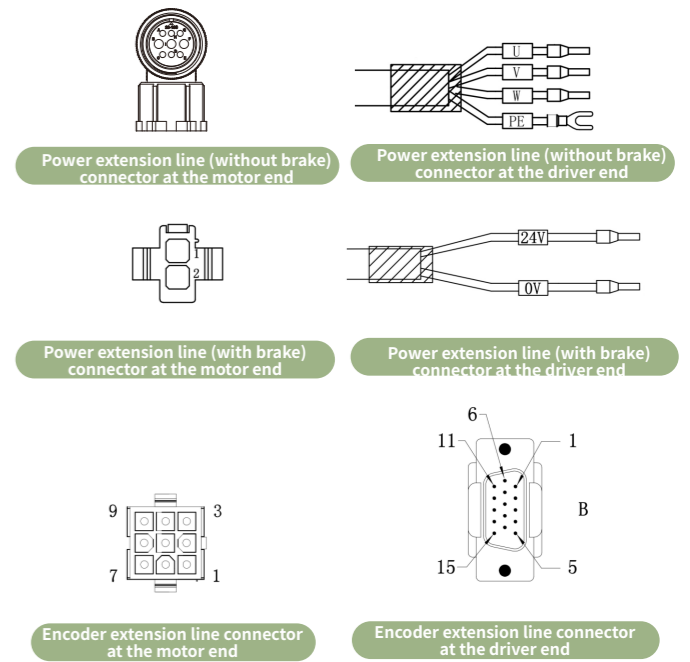
Specification of extension cables for V6E motors with at least 1000 W power

Name	Pin definition	Signal definition	Wiring color	
Power extension line (without brake)	B	U	Brown	
	I	V	White	
	F	W	Black	
	G	PE	Yellow-green	
Power extension line (with brake)	B	U		
	I	V		
	F	W		
	G	PE		
	C	24V		
Encoder extension line	Motor end /Driver end	E	0V	
		G/14	5V	Blue
		H/15	0V	Blue/white
		A/3	PS+	The purple
		B/4	PS-	Purple/white
		J/ housing	Shielding	Braid
		E(multiple laps)	Battery +	Red
F(multiple laps)	Battery -	Black		



Specification of extension cables for V6E low-voltage motors with at least 400 W power

Name	Pin definition	Signal definition	Wiring color	
Power extension line (without brake)	B	U	Brown	
	I	V	White	
	F	W	Black	
Power extension line (with brake)	G	PE	Yellow-green	
	1	24V	Black	
Encoder extension line	Motor end /Driver end	2	0V	Red
		2/14	5V	Blue
		3/15	0V	Blue/white
		Four thirds	PS+	The purple
		5/4	PS-	Purple/white
		1/ shell	Shielding	Braid
		6(multiple laps)	Battery +	Red
7(multiple laps)	Battery -	Black		



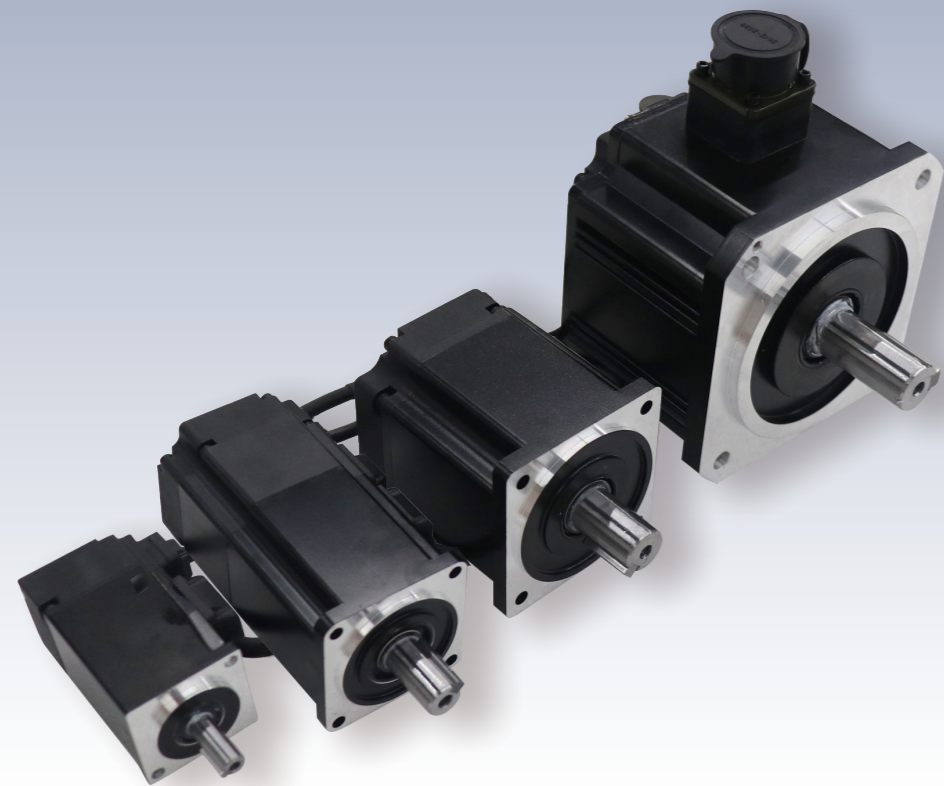
Selection of Specifications and Models of V6E Servo Motor Extension Lines

Wire Harness Name	Driver End	Power end			Extension Line Length*(m)	Specification Model
	Driver Series	Motor Type	Power	Brake/Encoder		
Power extension line	ST5 Drive ST6 Drive ST7 Drive ST8 Drive	V6E Servo Motor	50-1000W	Standard (without brake)	3	STP-MT04-N05-L030-M11A-S03A
				With brake		STP-MT06-N05-L030-M11B-S03A
Single lap				STP-ET04-P01-L030-M09A-S01A		
Multiple laps				STP-ET06-P01-L030-M09B-S01A		
Encoder extension line			1000-2000W	Standard (without brake)		STP-MT04-N10-L030-M05A-S03A
				With brake		STP-MT06-N10-L030-M05B-S03A
				Single lap		STP-ET04-P01-L030-M03A-S01A
				Multiple laps		STP-ET06-P01-L030-M03B-S01A

*The extension line length can be selected from the standard length.
 For example: In the model STP-MT04-N05-L030-M11A-S03A, L030 represents that the available line length is 3 meters: L030 = 3 m
 L050 = 5 m
 L080 = 8 m
 L100 = 10 m
 L150 = 15 m.

MEMO

V7 Series Servo Motor



STP-ST-V7 Series Servo Motor

- Excellent environmental resistance (against dust, oil mist, vibration)
- Low temperature rise
- Supporting 3 times standard overload, which can be measured on site
- Small positioning torque (the best combination of motor poles and slots to reduce torque ripple)
- Quality assurance, passing ISO9001 certification
- Compact design and high power density
- Highly rigid body
- Custom development (R&D capability to ensure fast delivery)
- IP65 protection level
- IP67 protection level (embedded terminal)

STP series servo motor

Servomotor type

STP-ST series

STP-ST - H 040 B 30 H 04 N 1 V7

Motor inertia

L : Low inertia
M: Medium inertia
H : High inertia

Motor power

010: 100W
020: 200W
040: 400W
075: 750W
085: 850W
130: 1.3kW
180: 1.8kW

Middle inertia

A: 110V
B: 220V
C: 380V
D: 48V

Rated Rotation speed

15: 1500rpm
30: 3000rpm

Motor encoder type

H: Single-lap 17-bit absolute magnetic encoder
D: Multi-lap 17-bit absolute magnetic encoder
F: Single-lap 17-bit absolute optical encoder
S: Multi-lap 17-bit absolute optical encoder
W: Single-lap 23-bit absolute optical encoder
Q: Multi-lap 23-bit absolute optical encoder

Motor base

04: 40#
06: 60#
08: 80#
13: 130#

Brak

N: Without brake
B: Belt brake

Output shaft specification

0: Keyway shaft without oil seal
1: Keyway shaft with oil seal

Version No.

V7: Integrated housing (10 poles)

ST5 servo driver
ST6 servo driver
ST7 servo driver
ST8 servo driver
Driver description
V6E servo motor
V7 servo motor
V7E servo motor
Motor specification

Motor specification

Project		Unit	Specification		
Motor type			100W	200W	400W
STP □□□□□**			High inertia STP-ST-H010	High inertia STP-ST-H020	High inertia STP-ST-H040
Dimensions of mounting flange		mm	□40	□60	□60
Mass	Without brake	Kg	0.4	0.78	1.2
	With brake		0.64	1.2	1.6
Rated torque		N·m	0.32	0.64	1.27
Max. torque		N·m	1.11	2.54	5.08
Rated torque		rpm	3000	3000	3000
Max. rotational speed		rpm	6500	6500	6500
Rated winding current		Arms	1.1	1.6	2.6
Max. winding current		Arms	4	6.4	10.9
Torque coefficient ±10%		N·m/Arms	0.29	0.4	0.488
Potential coefficient ±10%		mV/(r/min)	18.8	26.9	34.1
Line resistance ±10%		Ω	14.9	7.3	4.3
Line inductance ±10%		mH	14.8	14.7	9.8
Rotor inertia	Without brake	Kg·m ² ×10 ⁽⁻⁴⁾	0.071	0.28	0.56
	With brake		0.079	0.31	0.59
Allowable max. moment of inertia		Multiple of rotor inertia	30s	20s	20s
Electrical time constant		ms	1.0	2	2.3
Number of poles			10	10	10
Sensor			Absolute form 17bit/Absolute Form 23bit		

* : It is the value of a motor when the motor is installed on an aluminum cooling plate and runs to a stable state.
The dimensions of the motor cooling plate are 400 mm x 400 mm x 20 mm.

** : It is the value when the winding temperature is 20°C.
The value in () represents the value of a motor equipped with a brake.

Motor specification

Project		Unit	Specification			
Motor type			750W	850W	1300W	1800W
STP □□□□□**			High inertia STP-ST-H075	High inertia STP-ST-H085	High inertia STP-ST-H130	High inertia STP-ST-H180
Dimensions of mounting flange		mm	□80	□130	□130	□130
Mass	Without brake	Kg	2.1	4.8	5.5	7.5
	With brake		2.9	5.8	6.5	8.5
Rated torque		N·m	2.39	5.39	8.34	11.5
Max. torque		N·m	8.35	14.2	23.3	28.7
Rated torque		rpm	3000	1500	1500	1500
Max. rotational speed		rpm	6000	3000	3000	3000
Rated winding current		Arms	4.6	6.9	10.7	16.7
Max. winding current		Arms	17.5	17	29.8	42
Torque coefficient ±10%		N·m/Arms	0.519	0.78	0.78	0.69
Potential coefficient ±10%		mV/(r/min)	33.5	51.2	50.2	46
Line resistance ±10%		Ω	1.3	0.93	0.53	0.32
Line inductance ±10%		mH	6.8	9.8	5.8	3.6
Rotor inertia	Without brake	Kg·m ² ×10 ⁽⁻⁴⁾	1.58	13.9	19.8	26
	With brake		1.63	16	22	28.1
Allowable max. moment of inertia		Multiple of rotor inertia	15倍	5倍	5倍	5倍
Electrical time constant		ms	5.2	10.5	10.9	11.3
Number of poles			10	10	10	10
Sensor			Absolute form 17bit/Absolute Form 23bit			

* : It is the value of a motor when the motor is installed on an aluminum cooling plate and runs to a stable state.
The dimensions of the motor cooling plate are 400 mm x 400 mm x 20 mm.

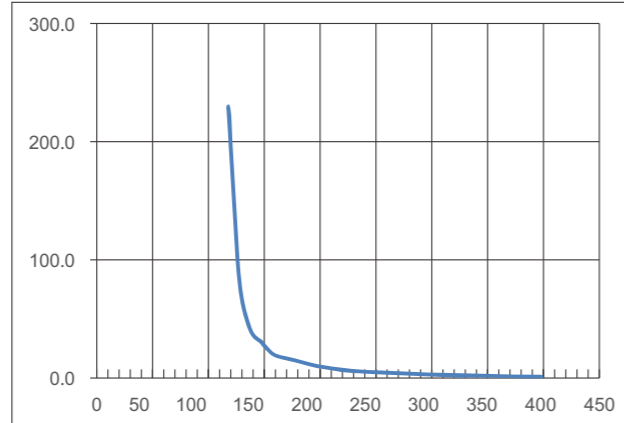
** : It is the value when the winding temperature is 20°C.
The value in () represents the value of a motor equipped with a brake.

Parameter specification of mechanical properties of motor

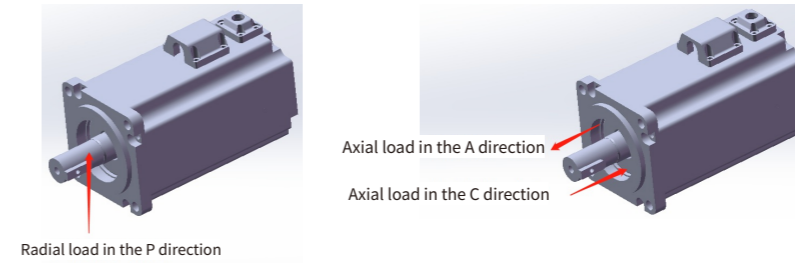
Item	Description
Working mode	Continuous
Vibration level	V15
Insulation resistance	DC500V, more than 10MΩ
Working temperature	0 ~ 40 °C
Excitation mode	Permanent magnet type
Installation method	Flange type
Heat resistance level	Class H
Insulation voltage	AC 1500 V for 1 minute (200 V level) AC1800 V for 1 minute (400 V level)
Shell protection mode	Rejection-line IP65 (excluding shaft pass-through) Embedded-terminal IP67 (except shaft pass-through)
Working humidity	20 ~ 80%(no condensation)
Rotation direction	CCW rotation when viewed from the load side under the forward rotation command

Overload Feature of Motors

Load Ratio (%)	Running Time (s)
120	230
130	80
140	40
150	30
160	20
170	17
180	15
190	12
200	10
210	8.5
220	7
230	6
240	5.5
250	5
300	3
350	2
400	1



Allowable load in the radial and axial directions of a motor

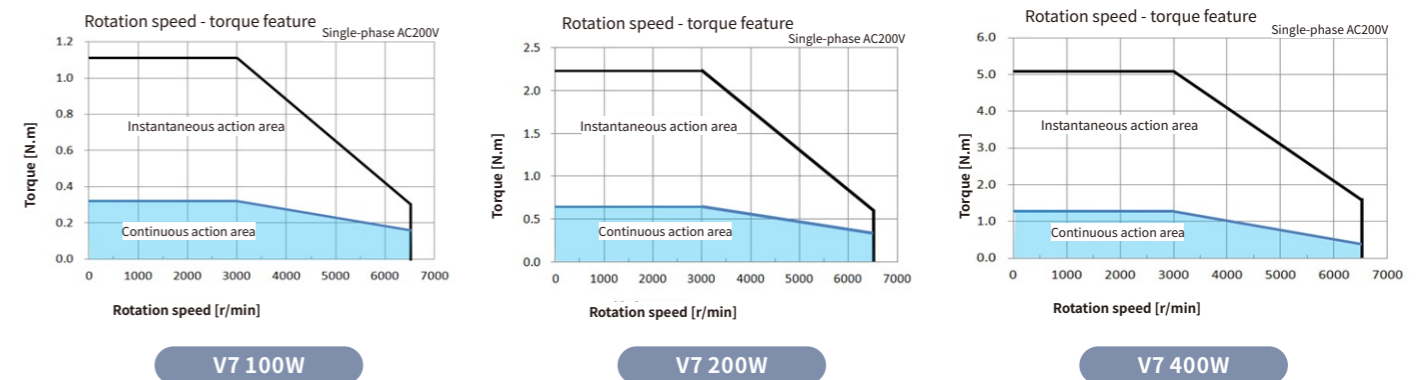


Base (mm)	Allowable radial load (N)	Allowable axial load (N)
40	78	54
60	245	74
80	392	147
130	686	196

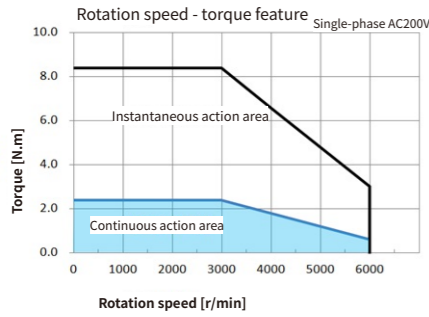
Electrical specifications for brake motors

Motor type	Base (mm)	Holding torque (Nm)	Power Supply Voltage (Vdc) ±10%	Detach Time (ms)	Attraction Time (ms)	Rotary Clearance (°)
100W	40	0.38	24	20	50	0.5
200W/400W	60	1.52		20	60	0.5
600W	60	2.5		20	50	0.5
750W/1000W	80	3.8		40	60	0.5
850W/1300W/1800W	130	16		40	80	0.5

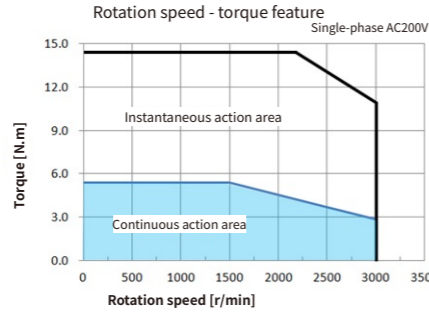
Motor Torque - Rotation Speed



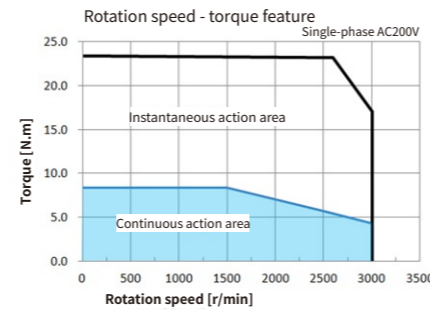
Motor Torque - Rotation Speed



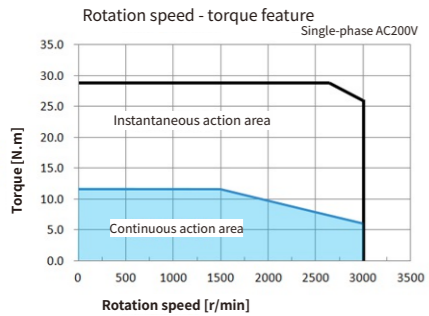
V7 750W



V7 850W

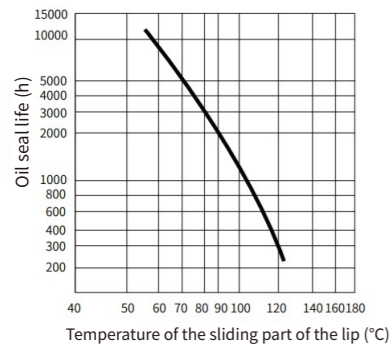


V7 1300W

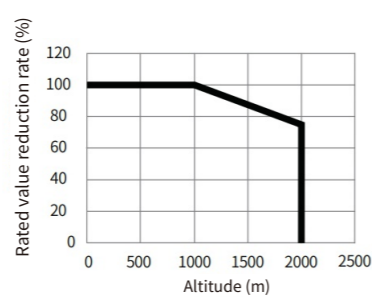


V7 1800W

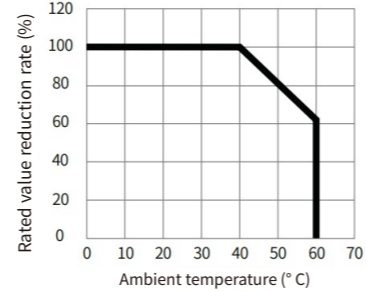
Oil seal temperature curve



Derating feature



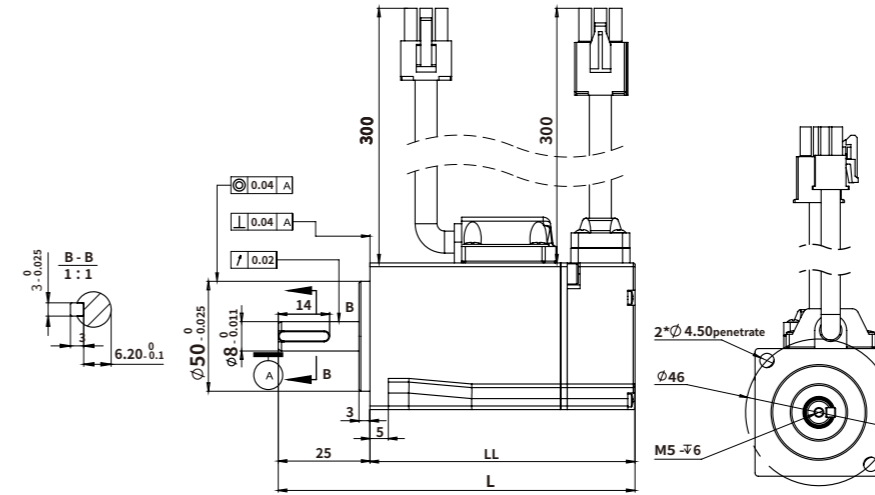
Altitude-related derating curve



High-temperature-related derating curve

Dimensions of the servo motor on the 40 base (Unit:mm)

Motor dimensions



Specifications

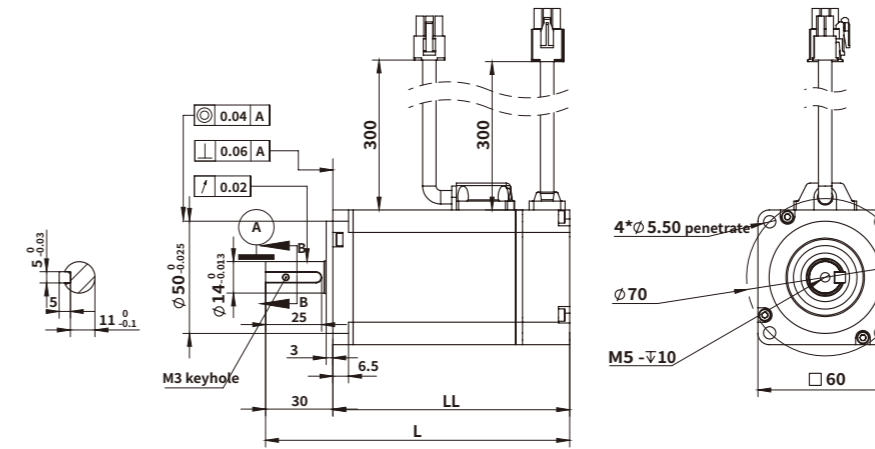
40 pedestal

Model Specification	L	LL
STP-ST-H010	97.3 (128)	72.3 (103)

NOTE: The value in () represents the value of a motor equipped with a brake.

Dimensions of the servo motor on the 80 base (Unit:mm)

Motor dimensions



Specifications

60 pedestal

Model Specification	L	LL
STP-ST-H020	97.5 (128)	67.5 (98)
STP-ST-H040	115.5 (146)	85.5 (116)

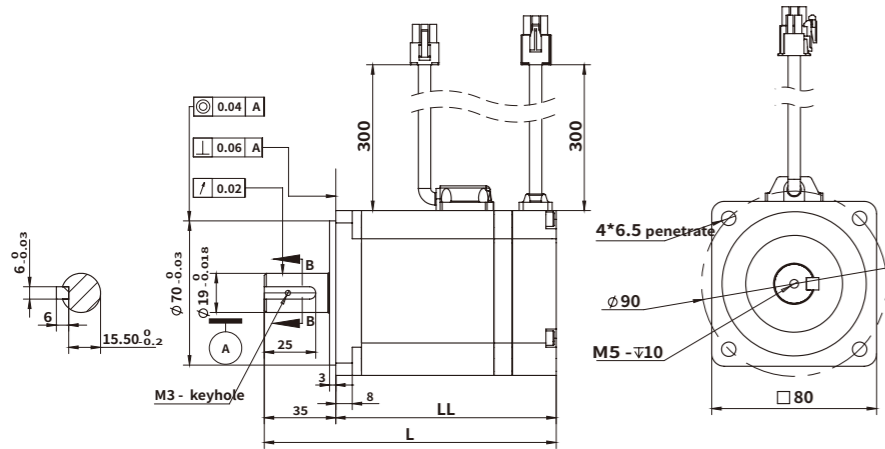
NOTE: The value in () represents the value of a motor equipped with a brake.

V7 Series Servo Motor

V7 Series Servo Motor

Dimensions of the servo motor on the 80 base (Unit:mm)

Motor dimensions



Specifications

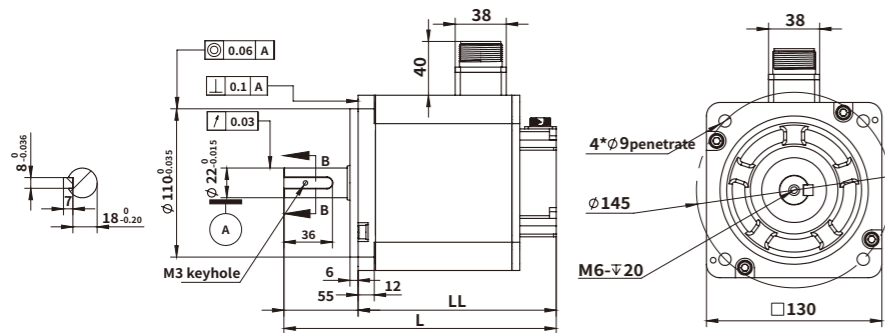
80 pedestal

Model Specification	L	LL
STP-ST-H075	127.5 (162)	92.5 (127)

NOTE: The value in () represents the value of a motor equipped with a brake.

Dimensions of the servo motor on the 130 base (Unit:mm)

Motor dimensions



Specifications

130 pedestal

Model Specification	L	LL
STP-ST-H085	174 (204)	119 (149)
STP-ST-H130	182 (210)	127 (155)
STP-ST-H180	188 (218)	133 (163)

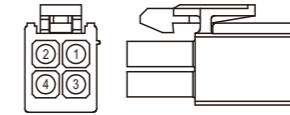
NOTE: The value in () represents the value of a motor equipped with a brake.

V7 servo motor 750W and below power off line connection definition

Power wire (core wire is 4+2) length: 300±30mm
Code line length: 300±30mm

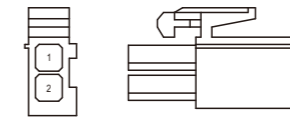
Model of power rejection-line joint

Plastic shell:AMP172167-1
Terminal:AMP170360-1



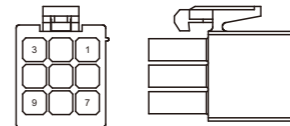
Model of brake rejection-line joint

Plastic shell:AMP172165-1
Terminal:AMP170360-1



Model of encoder rejection-line joint

Plastic shell:AMP172169-1
Terminal:AMP170359-1



Definition of power rejection-line joint

Pin definition	Signal definition
1	U
2	V
3	W
4	PE

Model of brake rejection-line joint

Pin definition	Signal definition
1	0V(Brake)
2	24V(Brake)

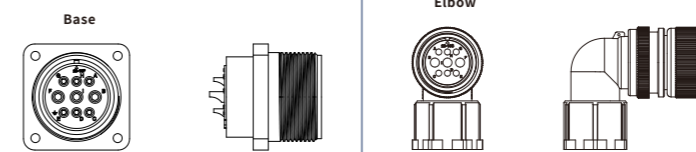
Definition of encoder rejection-line joint

Pin definition	Signal definition
1	Shielding
2	5V
3	0V
4	PS+
5	PS-
6	Battery + (multiple laps)
7	Battery - (multiple laps)
8	/
9	/

V7 servo motor 850W and above power output terminal wiring definition

Model of power-line plug-in connector

Plug-in connector 20-18P/20-18S

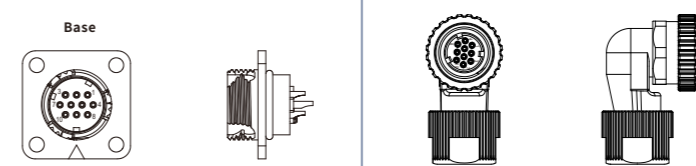


Definition of power-line plug-in connector wiring

Pin definition	Signal definition
B	U
I	V
F	W
G	PE
C	24V(Brake)
E	0V(Brake)

Model of encoder line plug-in connector

Plug-in connector CM10-R10P-D



Definition of encoder line plug-in connector wiring

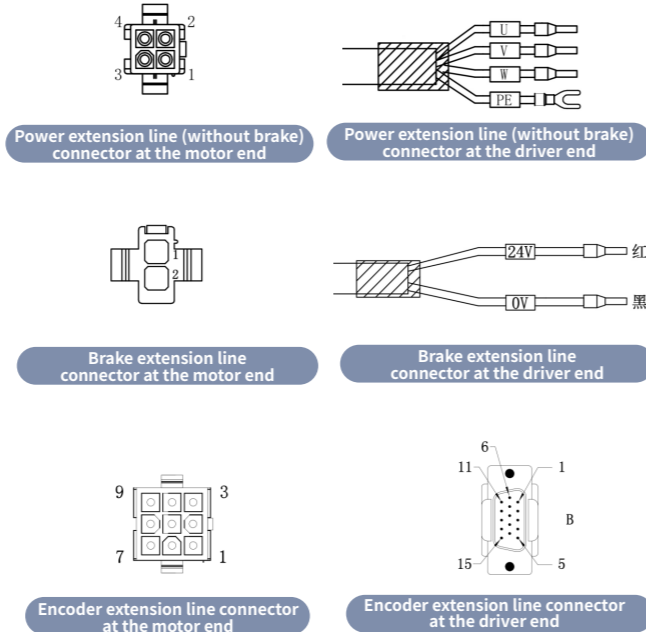
Pin definition	Signal definition
1	PS+
2	PS-
3	Battery + (multiple laps)
4	Battery - (multiple laps)
5	5V
6	0V
7	Shielding

V7 Series Servo Motor

V7 Series Servo Motor

Specification of extension cables for V7 motors with up to 750 W power

Name	Pin definition	Signal definition	Wiring color	
Power extension line (without brake)	1	U	Red	
	2	V	Black	
	3	W	White	
	4	PE	Yellow-green	
Brake extension line	1	24V	Black	
	2	0V	Red	
Encoder extension line	Motor end /Driver end	2/14	5V	Blue
		3/15	0V	Blue/white
		4/3	PS+	The purple
		5/4	PS-	Blue/white
		1/ Shell	Shielding	Braid
		6(multiple laps)	Battery +	Red
		7(multiple laps)	Battery -	Black



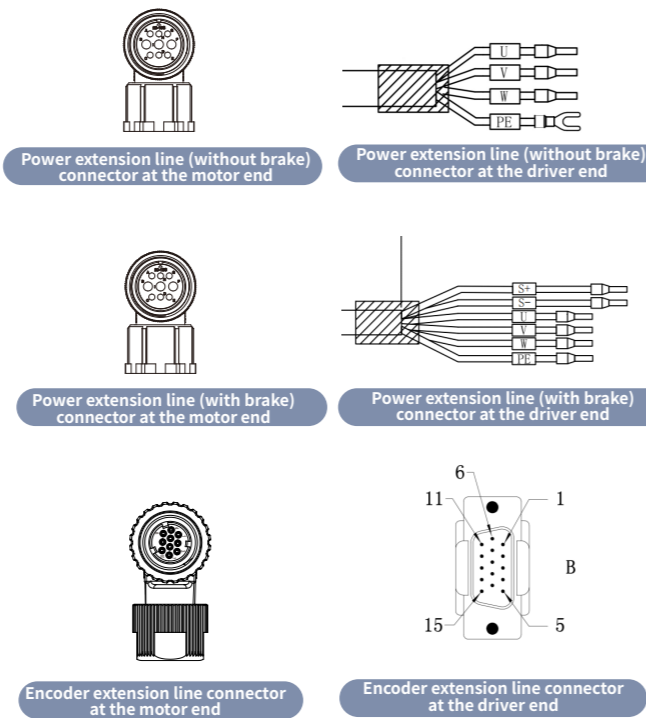
Selection of Specifications and Models of V7 Servo Motor Extension Lines

Wire Harness Name	Driver End	Power end			Extension Line Length*(m)	Specification Model				
	Driver Series	Motor Type	Power	Brake/Encoder						
Power extension line	ST5 Drive ST6 Drive ST7 Drive ST8 Drive	V7 servo motor	50-750W	Standard	3	STP-MT04-N05-L030-M07A-S06A				
				With brake		STP-ST02-N01-L030-M06A-S03A				
Single lap				STP-ET04-P01-L030-M08A-S01A						
Multiple laps				STP-ET06-P01-L030-M08B-S01A						
Power extension line				ST5 Drive ST6 Drive ST7 Drive ST8 Drive		V7 servo motor	850-1800W	Standard	3	STP-MT04-N10-L030-M05A-S03A
								With brake		STP-MT06-N10-L030-M05B-S03A
Single lap	STP-ET04-P01-L030-M04A-S01A									
Multiple laps	STP-ET06-P01-L030-M04B-S01A									

*The extension line length can be selected from the standard length.
 For example: In the model STP-MT04-N05-L030-M07A-S06A, L030 represents that the available line length is 3 meters: L030 = 3 m
 L050 = 5 m
 L080 = 8 m
 L100 = 10 m
 L150 = 15 m.

Specification of extension cables for V7 motors with at least 850 W power

Name	Pin definition	Signal definition	Wiring color	
Power extension line (without brake)	B	U	Brown	
	I	V	White	
	F	W	Black	
	G	PE	Yellow-green	
Power extension line (with brake)	B	U		
	I	V		
	F	W		
	G	PE		
	C	24V		
	E	0V		
Encoder extension line	Motor end /Driver end	5/14	5V	Blue
		6/15	0V	Blue/white
		1/3	PS+	The purple
		2/4	PS-	Purple/white
		7/ Shell	Shielding	Braid
		3(multiple laps)	Battery +	Red
4(multiple laps)	Battery -	Black		



V7E Series Servo Motor

STP series servo motor



STP-ST-V7E Series Servo Motor

- Excellent environmental resistance (against dust, oil mist, vibration)
- Low temperature rise
- Supporting 3 times standard overload, which can be measured on site
- Small positioning torque (the best combination of motor poles and slots to reduce torque ripple)
- Quality assurance, passing ISO9001 certification
- Compact design and high power density
- Highly rigid body
- Custom development (R&D capability to ensure fast delivery)
- IP65 protection level
- IP67 protection level (embedded terminal)

Servomotor type

STP-ST series

STP-ST - H 040 B 30 H 04 N 1 V7E

Motor inertia

L : Low inertia
M: Medium inertia
H : High inertia

Motor power

010: 100W
020: 200W
040: 400W
075: 750W
085: 850W
130: 1.3kW
180: 1.8kW

Middle inertia

A: 110V
B: 220V
C: 380V
D: 48V

Rated Rotation speed

15: 1500rpm
30: 3000rpm

Motor encoder type

H: Single-lap 17-bit absolute magnetic encoder
D: Multi-lap 17-bit absolute magnetic encoder
F: Single-lap 17-bit absolute optical encoder
S: Multi-lap 17-bit absolute optical encoder
W: Single-lap 23-bit absolute optical encoder
Q: Multi-lap 23-bit absolute optical encoder

Motor base

04: 40#
06: 60#
08: 80#
13: 130#

Brak

N: Without brake
B: Belt brake

Output shaft specification

0: Keyway shaft without oil seal
1: Keyway shaft with oil seal

Version No.

V7E: Embedded terminal (10 poles)

ST5 servo driver
ST6 servo driver
ST7 servo driver
ST8 servo driver
Driver description
V6E servo motor
V7 servo motor
V7E servo motor
Motor specification

Motor specification

Project		Unit	Specification		
Motor type			100W	200W	400W
STP □□□□□**			High inertia STP-ST-H010	High inertia STP-ST-H020	High inertia STP-ST-H040
Dimensions of mounting flange		mm	□40	□60	□60
Mass	Without brake	Kg	0.4	0.78	1.2
	With brake		0.64	1.2	1.6
Rated torque		N·m	0.32	0.64	1.27
Max. torque		N·m	1.11	2.54	5.08
Rated torque		rpm	3000	3000	3000
Max. rotational speed		rpm	6500	6500	6500
Rated winding current		Arms	1.1	1.6	2.6
Max. winding current		Arms	4	6.4	10.9
Torque coefficient ±10%		N·m/Arms	0.29	0.4	0.488
Potential coefficient ±10%		mV/(r/min)	18.8	26.9	34.1
Line resistance ±10%		Ω	14.9	7.3	4.3
Line inductance ±10%		mH	14.8	14.7	9.8
Rotor inertia	Without brake	Kg·m ² ×10 ⁽⁻⁴⁾	0.071	0.28	0.56
	With brake		0.079	0.31	0.59
Allowable max. moment of inertia		Multiple of rotor inertia	30s	20s	20s
Electrical time constant		ms	1.0	2	2.3
Number of poles			10	10	10
Sensor			Absolute form 17bit/Absolute Form 23bit		

* : It is the value of a motor when the motor is installed on an aluminum cooling plate and runs to a stable state.
The dimensions of the motor cooling plate are 400 mm x 400 mm x 20 mm.

** : It is the value when the winding temperature is 20°C.
The value in () represents the value of a motor equipped with a brake.

Motor specification

Project		Unit	Specification			
Motor type			750W	850W	1300W	1800W
STP □□□□□**			High inertia STP-ST-H075	High inertia (Same as V7) STP-ST-H085	High inertia (Same as V7) STP-ST-H130	High inertia (Same as V7) STP-ST-H180
Dimensions of mounting flange		mm	□80	□130	□130	□130
Mass	Without brake	Kg	2.1	4.8	5.5	7.5
	With brake		2.9	5.8	6.5	8.5
Rated torque		N·m	2.39	5.39	8.34	11.5
Max. torque		N·m	8.35	14.2	23.3	28.7
Rated torque		rpm	3000	1500	1500	1500
Max. rotational speed		rpm	6000	3000	3000	3000
Rated winding current		Arms	4.6	6.9	10.7	16.7
Max. winding current		Arms	17.5	17	29.8	42
Torque coefficient ±10%		N·m/Arms	0.519	0.78	0.78	0.69
Potential coefficient ±10%		mV/(r/min)	33.5	51.2	50.2	46
Line resistance ±10%		Ω	1.3	0.93	0.53	0.32
Line inductance ±10%		mH	6.8	9.8	5.8	3.6
Rotor inertia	Without brake	Kg·m ² ×10 ⁽⁻⁴⁾	1.58	13.9	19.8	26
	With brake		1.63	16	22	28.1
Allowable max. moment of inertia		Multiple of rotor inertia	15倍	5倍	5倍	5倍
Electrical time constant		ms	5.2	10.5	10.9	11.3
Number of poles			10	10	10	10
Sensor			Absolute form 17bit/Absolute Form 23bit			

* : It is the value of a motor when the motor is installed on an aluminum cooling plate and runs to a stable state.
The dimensions of the motor cooling plate are 400 mm x 400 mm x 20 mm.

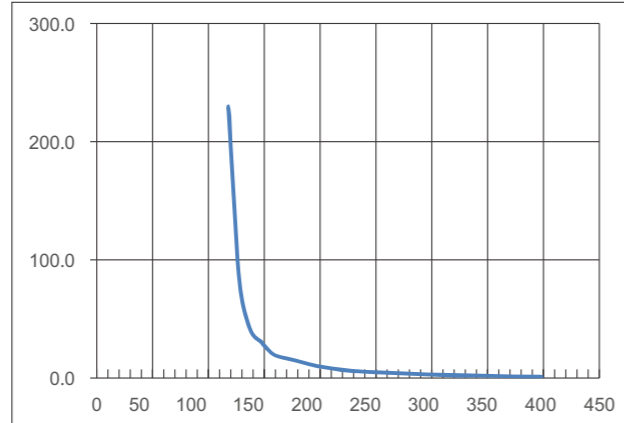
** : It is the value when the winding temperature is 20°C.
The value in () represents the value of a motor equipped with a brake.

Parameter specification of mechanical properties of motor

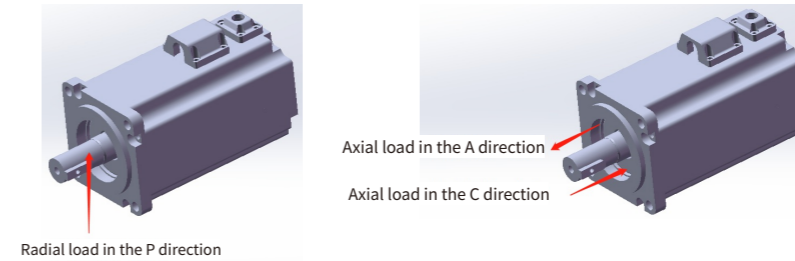
Item	Description
Working mode	Continuous
Vibration level	V15
Insulation resistance	DC500V, more than 10MΩ
Working temperature	0 ~ 40 °C
Excitation mode	Permanent magnet type
Installation method	Flange type
Heat resistance level	Class H
Insulation voltage	AC 1500 V for 1 minute (200 V level) AC1800 V for 1 minute (400 V level)
Shell protection mode	Rejection-line IP65 (excluding shaft pass-through) Embedded-terminal IP67 (except shaft pass-through)
Working humidity	20 ~ 80%(no condensation)
Rotation direction	CCW rotation when viewed from the load side under the forward rotation command

Overload Feature of Motors

Load Ratio (%)	Running Time (s)
120	230
130	80
140	40
150	30
160	20
170	17
180	15
190	12
200	10
210	8.5
220	7
230	6
240	5.5
250	5
300	3
350	2
400	1



Allowable load in the radial and axial directions of a motor

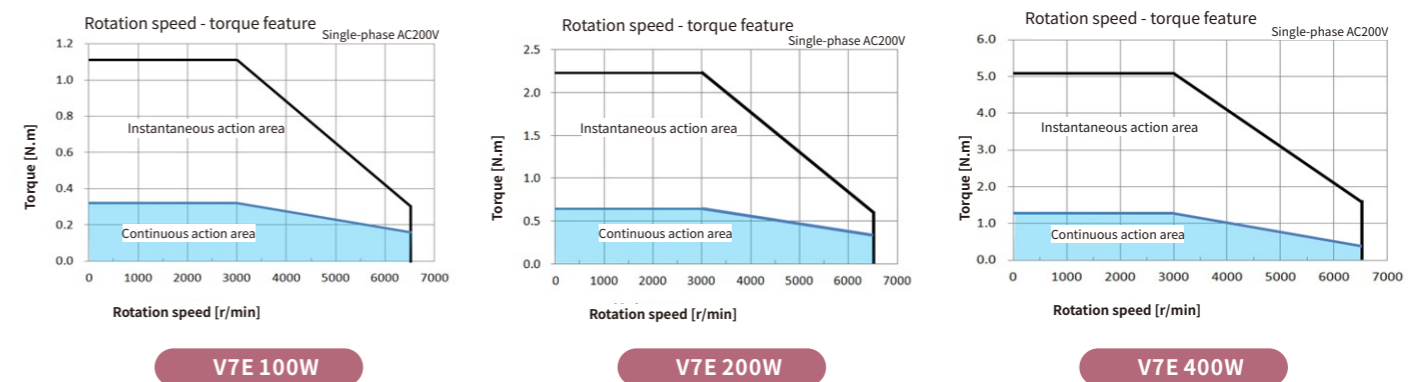


Base (mm)	Allowable radial load (N)	Allowable axial load (N)
40	78	54
60	245	74
80	392	147
130	686	196

Electrical specifications for brake motors

Motor type	Base (mm)	Holding torque (Nm)	Power Supply Voltage (Vdc) ±10%	Detach Time (ms)	Attraction Time (ms)	Rotary Clearance (°)
100W	40	0.38	24	20	50	0.5
200W/400W	60	1.52		20	60	0.5
600W	60	2.5		20	50	0.5
750W/1000W	80	3.8		40	60	0.5
850W/1300W/1800W	130	16		40	80	0.5

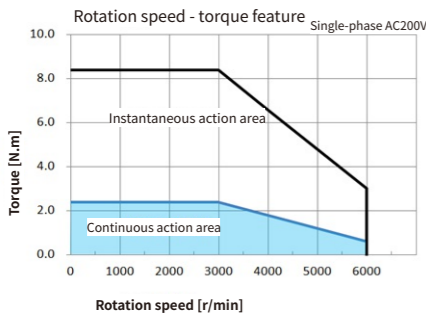
Motor Torque - Rotation Speed



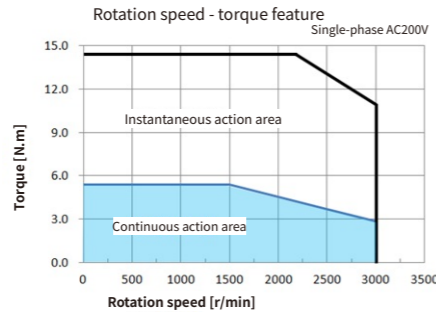
V7E Series Servo Motor

V7E Series Servo Motor

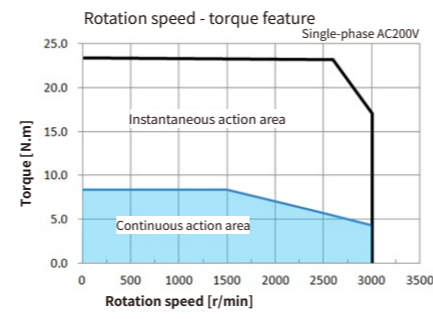
Motor Torque - Rotation Speed



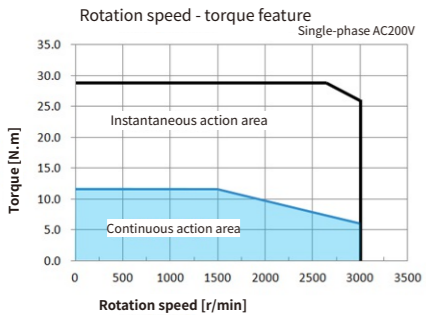
V7E 750W



V7E 850W

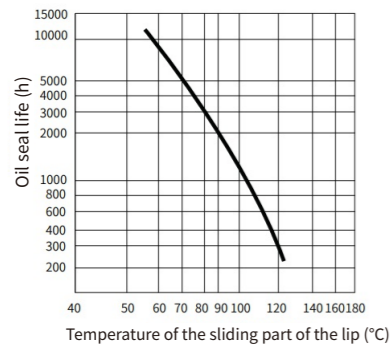


V7E 1300W

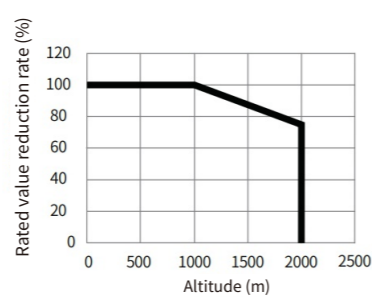


V7E 1800W

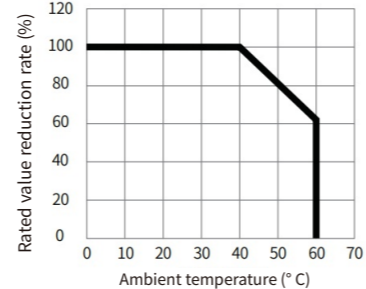
Oil seal temperature curve



Derating feature



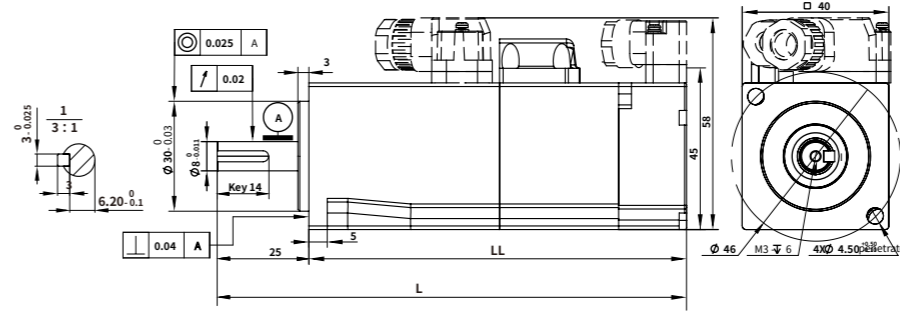
Altitude-related derating curve



High-temperature-related derating curve

Dimensions of the servo motor on the 40 base (Unit:mm)

Motor dimensions



Specifications

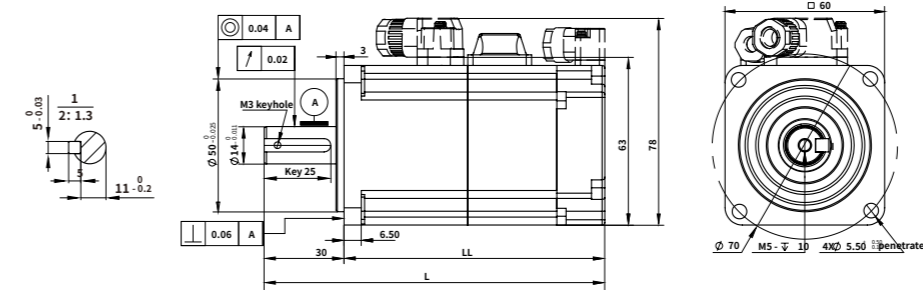
Base 40

Model Specification	L	LL
STP-ST-H010	97.3 (128)	72.3 (103)

NOTE: The value in () represents the value of a motor equipped with a brake.

Dimensions of the servo motor on the 60 base (Unit:mm)

Motor dimensions



Specifications

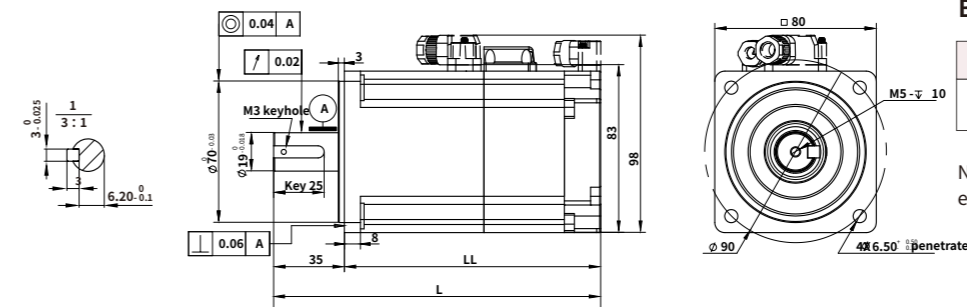
Base 40

Model Specification	L	LL
STP-ST-H020	97.5 (128)	67.5 (98)
STP-ST-H040	115.5 (146)	85.5 (116)

NOTE: The value in () represents the value of a motor equipped with a brake.

Dimensions of the servo motor on the 80 base (Unit:mm)

Motor dimensions



Specifications

Base 40

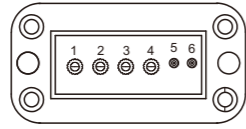
Model Specification	L	LL
STP-ST-H075	127.5 (162)	92.5 (127)

NOTE: The value in () represents the value of a motor equipped with a brake.

V7E Series Servo Motor

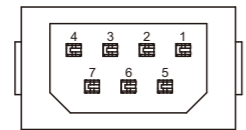
V7E servo motor 750W and below outlet terminal connection definition

Power line



Pin definition	Signal definition
1	PE
2	U
3	V
4	W
5	24V(Brake)
6	0V(Brake)

Encoder wire

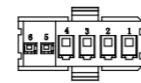


Pin definition	Signal definition
1	Shielding
2	5V
3	0V
4	PS+
5	PS-
6	Battery + (multiple laps)
7	Battery - (multiple laps)

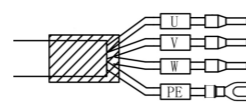
Plug-in connector wiring definition at the line outlet of V7E servo motor with at least 850 W power is the same as that of V7 series (P54)

V7E servo motor 850W and below extension cable connection definition

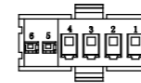
Name	Pin definition	Signal definition	Wiring color	
Power extension line (without brake)	1	PE	Yellow-green	
	2	U	Red	
	4	V	Black	
	5	W	White	
Power extension line (with brake)	1	U	Red	
	2	V	Black	
	4	W	White	
	5	PE	Yellow-green	
	3	24V	Red	
Encoder extension line	Motor end /Driver end	2/14	5V	Blue
		3/15	0V	Blue/white
		4/3	PS+	The purple
		5/4	PS-	Purple/white
		1/ Shell	Shielding	Braid
		6(multiple laps)	Battery +	Red
		7(multiple laps)	Battery -	Black



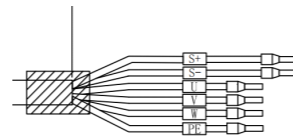
Power extension line (without brake) connector at the motor end



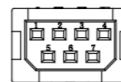
Power extension line (without brake) connector at the driver end



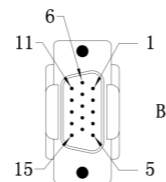
Power extension line (with brake) connector at the motor end



Power extension line (with brake) connector at the driver end



Encoder extension line connector at the motor end



Encoder extension line connector at the driver end

Extension line wiring definition of V7E servo motor with at least 850 W power is the same as that of V7 series (P55)

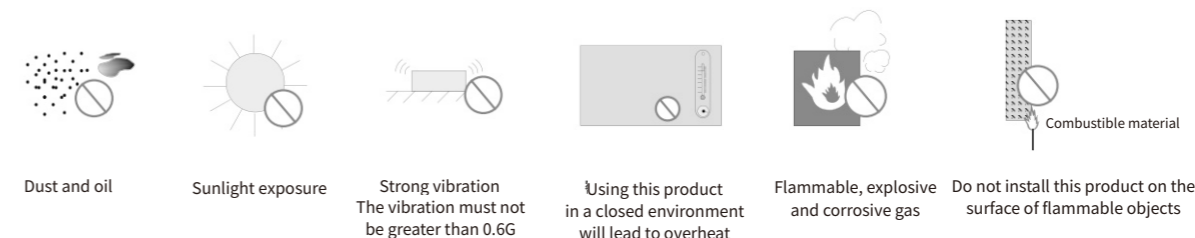
MEMO

Installation

Installation Site

- Do not use this product near corrosive and flammable gases, such as hydrogen sulfide, chlorine, ammonia, sulfur, chlorinated gases, acids, alkali, and salts, or near combustible materials.
- Select the product with oil seal in places where there are substances, such as grinding fluid, oil mist, iron powder, and cutting fluid.
- Keep the product away from heat sources such as stoves.
- Do not use the motor in a closed environment. The closed environment will cause the motor to overheat and shorten the service life of the motor.
- Prevent foreign objects or water from entering into the terminal to ensure that the installation and use of this product are not affected.
- The hoisting bolts of the servo motor shall be used only for the handling of the servo motor. Do not use the servo motor when it is installed on a machine.
- Use the hoisting bolts of the motor for the handling of the servo motor. Otherwise, it may lead to damage to the servo motor or injury to people.
- Do not excessively tighten the hoisting bolts. Strong fastening using a tool may lead to bolt hole damage.
- Do not hold the cable or motor shaft for handling. Otherwise, it will lead to injury or product failure.
- Do not install the product in any of the following environments. Otherwise, it will cause fire, electric shock, or product failure.
 - A place outdoors or in direct sunlight
 - A place with large temperature difference and condensation
 - A place close to corrosive gases, combustible gases, or combustible materials
 - A place with much dust, salt, or metal powder
 - A place with oil droplets and medicament splashes
 - A place where vibration or shock will be transmitted to the product body
 - A place that is difficult to check and clean

- When installing the servo motor on a machine, do not stress the cable or connector.
- When using the servo motor in places where a large amount of water and oil droplets are splashed, take protective measures such as installing a protective cover. In addition, it is recommended that the connector be used in a downward manner.
- Do not install servo motors with absolute encoders in places where strong magnetic fields exist, that is, magnetic flux density above 0.01 Tesla (100 Gauss).
- Install the servo motor firmly on a machine. Otherwise, it may lead to machine damage or personnel injury.
- Do not sit on the servo motor or place heavy objects on it. Otherwise, it may lead to personal injury.
- Do not allow foreign objects to enter the interior of the servo motor.
- When using a servo motor with a cooling fan, reserve a space of more than 200 mm on the air intake side of the fan.
- To prevent electric shock, carry out grounding construction with care.
- The servo motor is a precision machine and should avoid falling or incurring a strong impact.
- Take protective measures such as installing a cover to avoid accidentally touching the rotating parts such as the motor shaft during operation.
- When the fan runs continuously at a constant speed in one direction, it may cause bearing damage (due to electrical corrosion). When using the product in such scenarios, consult our business office or licensed shops.
- Servo motors that have been kept for a long time need to be checked. In this case, consult our business office or licensed shops.
- Swing operation (forward and reverse continuous operation when the rotation angle of the motor shaft is less than 150°) may lead to a decrease of the service life of the bearing. Therefore, rotate the motor shaft more than once a day, and more than one lap at a time.
- Do not disassemble or revamp the servo motor.



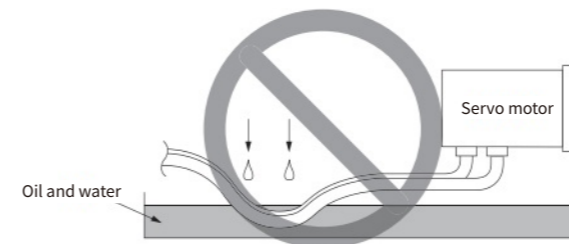
Installation environment requirements

Item	Description
Working temperature	0°C to 40°C (not frozen)
Working humidity	0°C to 40°C (not frozen)
Storage temperature	-20°C to 60°C (max. temperature guarantee: 80°C for 72 hours)
Storage humidity	20% to 90% RH (no condensation)
Vibration	Below 49 m/s ²
Shock	Below 490 m/s ²
Protection class	IP65 (shaft pass-through part)
Altitude	Below 1000 m (derated when the altitude is higher than 1000 m)

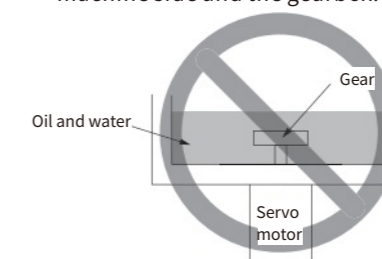
Countermeasures for oil and water

Observe the following rules to prevent foreign objects such as oil and water from entering into the servo motor.

- Do not soak the cable in oil and water for use.
- When installing the shaft end upward, prevent oil and water from seeping into the servo motor from places such as the machine side and the gearbox.



When using the product in this case, use an oil-resistant cable. Note that the oil-resistant cable shall be prepared by the customer.



When using the product in this case, take protective measures on the machine side to prevent oil and water from seeping into the motor from places such as gearbox.

- Do not use the product when in contact with substances, such as cutting fluid. Some types of liquids may affect materials, such as sealants, gaskets, and cables.
- Do not use the product in an environment with frequent contact with substances, such as oil mist, water vapor, oil, and grease. When using the product in such an environment, be sure to take dustproof and waterproof measures on the machine side.

• Precautions for Using Cables

1. Bend radius: Moving the cable in a cable carrier: 7.5 times cable outer diameter in minimum.
Fixed layout: The minimum cable outer diameter is 4 mm.
2. Applicable temperature range: (-25°C to 80°C).
3. The standard motor cable is not resistant to torsion. If you need torsion cable, contact the manufacturer.

• Install direction

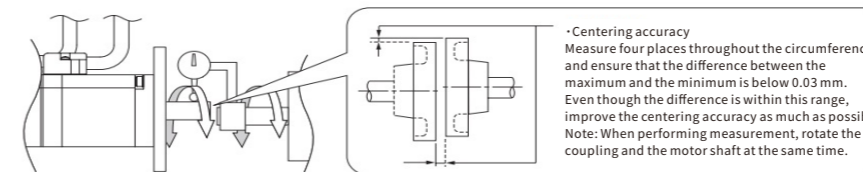
The servo motor can be installed both horizontally and vertically.

Install direction	Picture	Matters needing attention
Horizontal direction		Refer to the following when using a servo motor with an oil seal. → When using a servo motor with an oil seal (page 73)
Vertical direction	Shaft upward 	<ul style="list-style-type: none"> • Servo motors with oil seals cannot be used in this direction. • Set a cable trap to prevent water droplets from entering the servo motor along the cable. • Take protective measures on the machine side to prevent oil from seeping into the motor from places such as gearbox.
	Shaft downward 	Refer to the following when using a servo motor with an oil seal. → When using a servo motor with an oil seal (page 73)

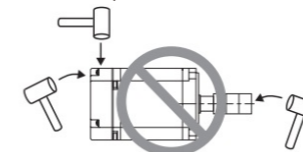
Note When a user installs the gear on the servo motor, follow the installation method instructed by the gear manufacturer and install it correctly.

• When linked to a coupling

1. Wipe the antirust agent on the motor shaft completely.
2. When using a servo motor with a key, install the key attached to the servo motor or the key of the specified size on the shaft.
3. Check that the centering accuracy of the micrometer is within the specified range. If there is no micrometer, slide the coupling on both shafts and adjust it until the block disappears.



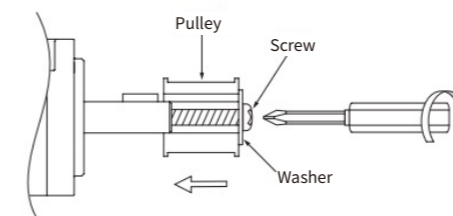
4. Use a coupling so that the shaft core of the servo motor is aligned with the shaft core of the machine.
Note: 1) Use flexible couplings for servo motors. Two leaf springs with a certain degree of eccentricity are recommended.
2) Select a coupling of an appropriate size that meets the conditions for use. Inappropriate couplings may lead to a failure.
3) Do not directly impact the keyway or shaft when installing a key on the motor shaft.
4) During the connection, ensure that it is within the centering accuracy range. If the centering is inaccurate, it may cause vibration or lead to damage to components, such as bearing and encoder.
5. Do not impose a direct impact on the shaft when installing the coupling. In addition, do not impose an impact near the encoder. Otherwise, the encoder will be damaged by the impact.



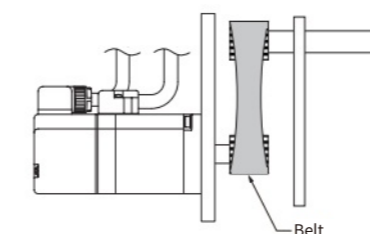
6. When an abnormal noise sounds from the coupling, reorient the core until the abnormal noise disappears.
7. Check that the axial load and the radial load are within the specified range. For details about the axial load and the radial load, refer to the specifications of each servo motor.

• When linked to the belt

1. Wipe the antirust agent on the motor shaft completely.
2. When using a servo motor with a key, install the key attached to the servo motor or the key of the specified size on the shaft.
3. When installing a pulley on the servo motor with a key, use a screwdriver to tighten the screw at the front end of the motor shaft and press the pulley to install.

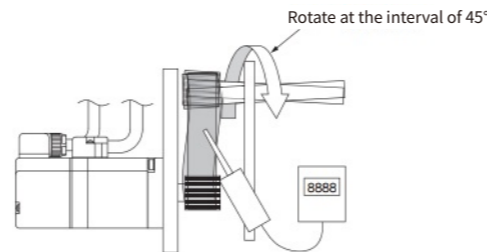


4. Use a belt to connect the servo motor to the machine. When installing a belt, set the tension of the belt. Ensure that the tension is within the "allowable radial load" listed in the specification table of each servo motor. For details, refer to the product samples of the belt manufacturer.



Note:

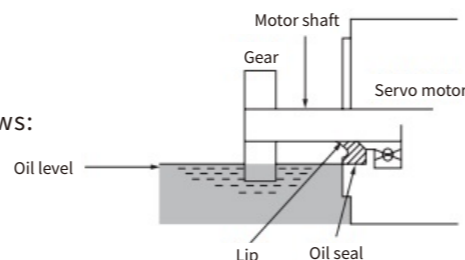
- 1) Regarding the belt used for connection, select the products suitable for the allowable radial load of the servo motor and the power of the servo motor. In addition, when the servo motor accelerates and decelerates, in addition to the initial belt tension, the reaction force caused by the acceleration and deceleration torque will also be regarded as tension. Take this into account when selecting a belt to connect.
- 2) Do not directly impact the keyway or shaft when installing a key on the motor shaft.
- 3) Adjust the radial load based on the belt tension. Regarding the belt tension, rotate the shaft on the machine side at an interval of 45° and measure each point by using a belt tensiometer.



• When using a servo motor with an oil seal

When using a servo motor with an oil seal, the conditions of use are as follows:

1. Lower the oil level below the lip of the oil seal.
2. To prevent excessive wear of the oil seal, a small amount of oil foam shall be left on the lip for lubrication.
3. Do not accumulate oil on the oil seal lip.
4. Do not soak the oil seal in oil for use. Otherwise, the oil enters the interior of the servo motor and may lead to a failure.
5. The motor with an oil seal needs to be derated by 10% for use.



• When using a servo motor with a brake

When using a servo motor with a brake, the precautions are as follows:

1. The brake is a consumable component. In addition, although the quality and reliability of the brake have been fully verified, the holding action may fail due to stress factors such as emergency braking. When used for purposes with potential safety problems such as gravity shaft fall-off, consider the safety on the machine side. For example, consider doubling the anti-falling mechanism for protection. For example, the dual anti-fall mechanism.
2. When using a servo motor with a brake, the motor shaft will have a small clearance in the direction of rotation (initial clearance: less than 1.5°) because the brake backlash will occur even though the brake is not powered on.
3. When a servo motor with a brake is accelerating, stopping or running at a low speed, the rotating disc of the brake will produce friction sound, which is not a fault or or exception.

• About the temperature rise of the servo motor

The countermeasures to restrain the temperature rise of servo motor are as follows:

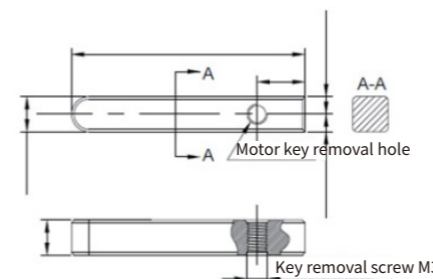
1. When installing a servo motor, observe the cooling conditions (heat sink size) recorded in the specification table of each servo motor. The heat of the servo motor is dissipated through the installation of the heat sink on the motor. Therefore, a small surface area of the heat sink may lead to abnormal heating of the servo motor.
2. In some working environments, when it is difficult to ensure the proper size of the heat sink, and when the ambient temperature and altitude listed in the specification table are exceeded, perform the following countermeasures.
3. Perform derating. For details about derating, refer to the specifications of each servo motor. Consider selecting the capacity of a servo motor after derating.
4. Conduct forcible cooling for the servo motor from the outside by using a tool such as the cooling fan.

Note: Do not insert insulators such as gaskets at the joint part between the servo motor and the heat sink. Otherwise, in addition to the rise of motor temperature, it may also affect the anti-interference performance and lead to a failure.

Appendix: Removal of a Flat Key and an Oil Seal from the Motor

• Motor flat key removal instructions

At present, the flat keys of the standard motor bases 60/80/130 base have been unified into C-type flat keys with key holes, so you only need to confirm using the key removal screw of the corresponding specification according to the motor model (preferably inner hexagon screw). Use an inner hexagon wrench to tighten the screw clockwise until the flat key A-A end is completely separated from the keyway. Then, remove the flat key, as shown in the following figure:



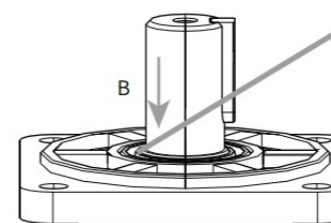
• Specifications of key removal screws of the motor

Motor specification	Flat Key Dimension	Key Removal Screw Specification (Inner Hexagon Screw)
Base 40	M3*3*14	No key removal hole
Base 60	M5*5*16	Length above M3 x 10
Base 80	M6*6*25	Length above M3 x 15
Base 130	M8*7*35	Length above M3 x 20

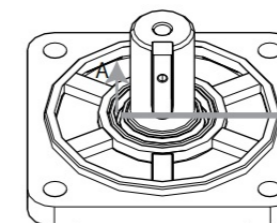
• Disassembly Method of the Motor Oil Seal

Tools: a pair of needle-nose pliers, a pair of non-slip gloves, and a piece of cotton cloth
The detailed procedure is as follows:

1. Pad the cloth at the support point B (mainly to prevent scratches on the end cover during disassembly).
2. Fix the motor and press one end of the needle-nose pliers against point A of the outer lip of the oil seal.
3. Rely on the support point B, and slowly pry out the oil seal.



(Note that the support point B acts at the shaft extension step)



(Note that the support point A acts at the outer lip of the oil seal)

Security Matters needing attention

■ Safety Statement

- 1) When installing, operating and maintaining the product, please read and comply with this safety Matters needing attention.
- 2) To ensure personal safety and equipment safety, please follow all safety Matters needing attention specified on the product label and in the manual when installing, operating and maintaining the product.
- 3) The "note", "Warning" and "danger" in the manual do not represent all safety Matters to be observed, but only serve as a supplement to all safety Matters needing attention.
- 4) This product shall be used in the environment that meets the requirements of the design specification; otherwise, failure may be caused. function abnormalities or component damage caused by failure to comply with the phase closure regulations are not within the product quality guarantee range.
- 5) Our company will not bear any legal liability for personal safety accidents and property losses caused by illegal operation of products.

MEMO

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V6E servo motor
Driver description
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