


Wisdom-driven, freely controlled

$\Omega 6s$ -A AC Servo System

Catalog





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Ω6 AC Servo Driver



Model designation

ODS **AP6** **A** **401** **G** **B** ******
 1-3 4-6 7 8-10 11 12 13-14

ODS		
1-3	Product category	
	Symbol	Type
	ODS	Single-axis Servo Drive

AP6		
4-6	Product series	
	Symbol	Type
	AP6	Ω6A Series Pulse Type
	AN6	Ω6A Series Bus Type

A		
7	Voltage class	
	Symbol	Type
	A	AC 220V
	B	AC 380V

401				
8-10	Power Specification (Rotating Type)		Continuous Running Current (Linear Type)	
	Symbol	Type	Symbol	Type
	201	200W	2D4	2.4A
	401	400W	3D2	3.2A
	751	750W	5D6	5.6A
	102	1.0kW	007	7.0A
	152	1.5kW	9D7	9.7A
	202	2.0kW	014	14.4A
	302	3.0kW	021	20.8A
		

G		
11	Configuration & Specifications	
	Symbol	Type
	B	Basic
	G	flexible
	F	Multifunction

B		
12	Encoder interface type	
	Symbol	Type
	B	Serial port communication

**		
13-14	Type of drive	
	Symbol	Type
	L*	Linear
	Others	Rotary

Powerful performance Out-of-box experience

Auto-tuning and commissioning-free, with

90%

commissioning time saved

Speed loop bandwidth

3.5kHz

Current loop refresh frequency

1MHz

With 3-channel 16-bit analog quantity command input, it is capable of identifying a voltage change of 2 mV, improving control accuracy by

16 times

Powerful performance makes it easy to bear

115%

continuous
overload,

350%

instantaneous
overload

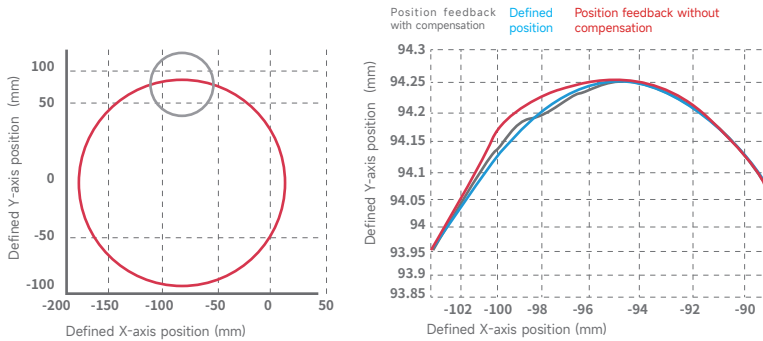
Responding to high-speed IO within 1 μ s, it easily meets the demand for flying trigger and probe technologies; 2DOF control + pseudo-differential feedforward control enable both high-speed response and strong anti-interference ability; 16M pulse control interface enables a 4-time increase of the control accuracy





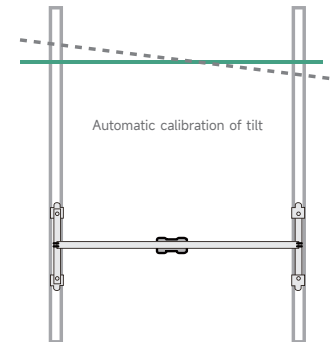
Friction compensation + suppression of quadrant glitches

Easy precision machining, an increase of 85% in roundness



New gantry motion platform synchronization control algorithm + standard R45 socket

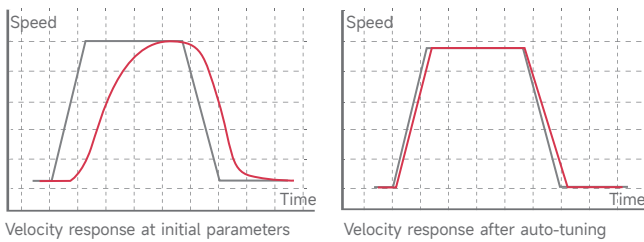
Plug and play gantry motion platform



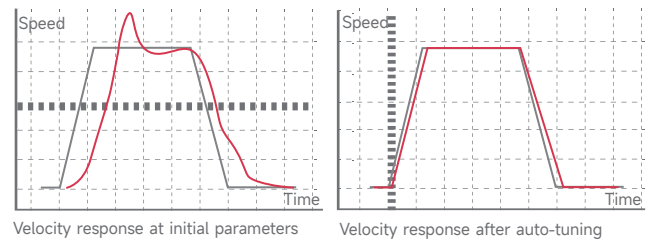
Online inertia identification + online parameter auto-tuning

Excellent performance even with an inertia ratio of 30:1

Small inertia ratio



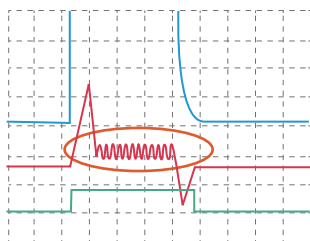
Inertia ratio of 30:1



V-shaped vibration suppression control + end vibration control + adaptive notch filter

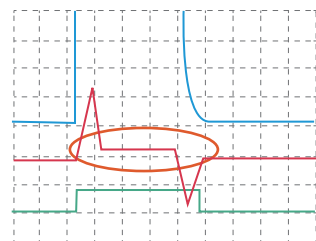
Full-band vibration elimination

Without V-shaped vibration suppression waveform

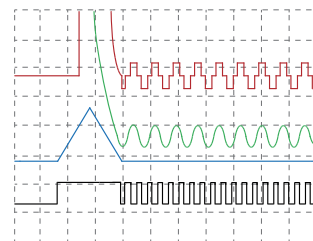


Position deviation Torque command Position reach signal

With V-shaped vibration suppression waveform

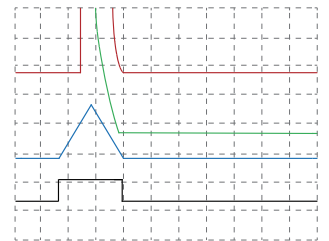


Without working waveform of end vibration function device



Position deviation Vibration at the end of the device Position command velocity
Position reach signal

Working waveform of the device with the end vibration control algorithm



FEATURES



One QR code for one machine

Easy identification of product information to obtain application data and trace the source makes you rest assured



Connection via WiFi

Wireless monitoring, debugging and upgrading, everything "near" under control



Built-in black box

Real-time monitoring of operating status, diagnosis of potential risks, and timely maintenance



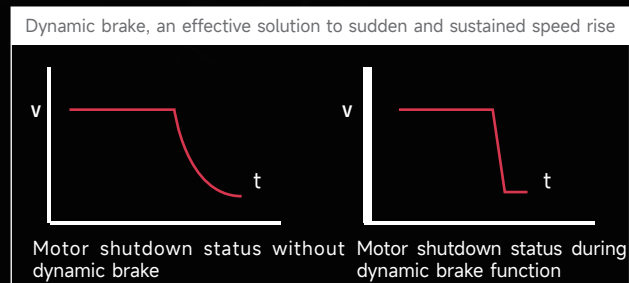
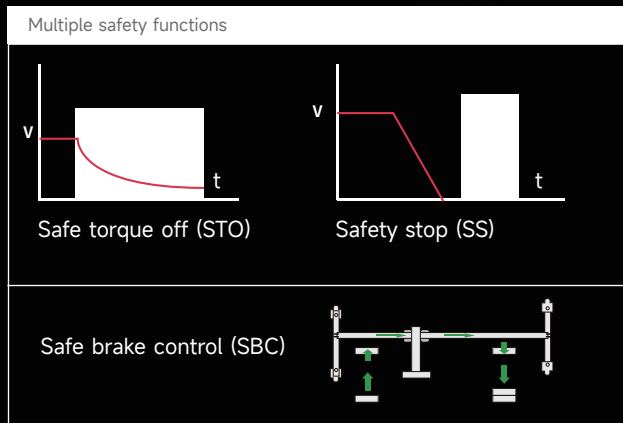
Modular configuration

Extended battery box in cascade connection and contracting brake. Dedicated interface, a natural pair



Comprehensive safety protection

- ▶ The product has passed CE certification and meets the safety requirements for related equipment in European and American markets
- ▶ Independent cooling air duct, temperature monitoring system and thickened UV coating enable resistance to high temperature, high humidity, dust and other harsh environments
- ▶ It has been subject to over 300 rigorous tests in HASS and HALT testing, enabling it to operate stably in various harsh environments



Bus Type Product Features



Minimum communication cycle 100 us

With the STEP master station controller, a standard EtherCAT master station-based integrated drive and control solution can be realized. The position loop or speed loop can be enabled on the controller side, eliminating the delay and accuracy loss caused by servo interpolation, and providing high precision, high real-time motion control solutions.



Synchronization algorithm between nodes

Synchronization algorithm between nodes authorized by invention patent, synchronization accuracy of servo current loop ± 50 ns, which is 20 times higher than the standard EtherCAT synchronization accuracy, and the 6-joint robot's pose accuracy and gauge accuracy are increased by 30%.



With multiple interfaces

Equipped with real-time speed feedforward, torque feedforward, speed limit, torque limit, vibration suppression and other interfaces, it can be used with STEP master station controller to realize high-performance dynamics control.



Support ETG CIA402 protocol

It supports all control modes in ETGCIA402 protocol, including CSP, CSV, CST, IP, PP, PV, PT, HOME mode and online switching between the above modes, and adapts to various industry applications.



Support one-key function

It supports one-key parameter auto-tuning function and one-key parameter import function based on EtherCAT bus, reducing servo debugging time by 90%.

Pulse type product features



Control accuracy increased by 16 times

With 3-channel 16-bit analog quantity command input, it is capable of identifying a voltage change of 2 mV, improving control accuracy by 16 times



16M pulse control interface

16M pulse control interface enables a 4-time increase of the control accuracy

Linear product features

Position comparison output

Perfectly coordinated with the system's flying trigger function, self-adapting running speed

Smooth micro-motion commutation

Simple and easy to use, no need for parameter debugging

Fully automatic Hall learning

For the linear motor with Hall type, the Hall sequence learning can be completed with one key during the first installation and use

Equipped with new HDL algorithm

With the auto-tuning function, the maximum output capacity of linear motor to be exerted, and it can follow perfectly

Error compensation

Directly import the data table tested by the laser interferometer, and automatically generate the compensation table

Configuration & Specifications (pulse type)

Function	Ω6s-APR			Ω6s-APL
	Basic	flexible	multifunction	flexible (linear type)
USB communication	✓	✓		✓
Modbus	✓	✓	✓	✓
Wifi		✓	✓	✓
Security function			✓	✓
Command pulse output	✓	✓	✓	✓
Analog voltage input		✓	✓	✓
Second encoder/external displacement sensor			✓	✓
High-speed DI		✓	✓	✓
High-speed DO		✓	✓	✓
High-speed probe		✓	✓	✓
Flying trigger		✓	✓	✓
Gantry function			✓	✓
Black box		✓	✓	✓
Contracting brake module		✓	✓	✓
Positioning compensation		✓	✓	✓
One-click reversal learning				✓

Interface	Ω6s-APR			Ω6s-APL
	Basic	flexible	multifunction	flexible
CN1 (Type C connector)	✓	✓	✓	✓
CN2 (functional IO terminal)	✓	✓	✓	✓
CN3 (motor encoder/Hall interface (linear type))	✓	✓	✓	✓
CN4 (external encoder)			✓	✓
CN5 (contracting brake and battery extension interface)	✓	✓	✓	✓
CN6 (Communication interface)	✓	✓	✓	✓
CN7 (Communication interface)			✓	✓
CN8 (STO connector)				

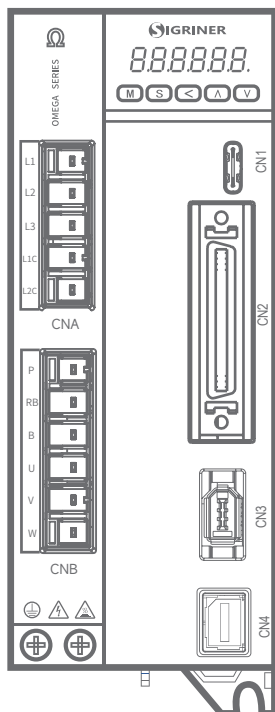
Configuration & Specifications (bus type)

Function	Ω6s-ANR		Ω6s-ANL
	flexible	Multifunction	flexible(Linear Type)
USB communication	✓	✓	✓
EtherCAT	✓	✓	✓
Wifi	✓	✓	✓
Safety function		✓	✓
Command pulse output	✓	✓	✓
Analog voltage input	✓	✓	✓
Second encoder/external displacement sensor		✓	✓
High-speed DI	✓	✓	✓
High-speed DO	✓	✓	✓
High-speed probe	✓	✓	✓
Flying trigger	✓	✓	✓
Gantry function		✓	✓
Black box	✓	✓	✓
Contracting brake module	✓	✓	✓
Positioning compensation	✓	✓	✓
One-click reversal learning			✓

Interface	Ω6s-ANR		Ω6s-ANL
	flexible	Multifunction	flexible
CN1 (Type C connector)	✓	✓	✓
CN2 (EtherCAT communication interface)	✓	✓	✓
CN3 (EtherCAT communication interface)	✓	✓	✓
CN4 (functional IO terminal)	✓	✓	✓
CN5 (external encoder)	✓	✓	✓
CN6 (motor encoder/Hall interface (Linear Type))		✓	✓
CN7 (contracting brake and battery extension interface)	✓	✓	✓
CN8 (gantry synchronization interface)		✓	✓
CN9 (STO connector)		✓	✓

Technical Specifications

Pulse (AP) multifunction (F)



Input power supply			
200V Series	Main circuit power supply	Type A	Single-phase AC200V~240V, -15%~10%; 50/60Hz
		Type B - Type C	Single/three-phase AC200V~240V, -15%~10%; 50/60Hz
		Type D	Three-phase AC200V~240V, -15%~10%; 50/60Hz
	Control circuit power supply	Type A - Type D	Single-phase AC200V~240V, -15%~10%; 50/60Hz

Insulation and voltage resistance	
Primary grounding AC1500V; withstand voltage for 1m (leakage trigger current: 20 mA) (200V series)	

Encoder feedback	
First encoder	17-bit, 23-bit and 24-bit serial communication encoders
Second encoder	16Mbps ABZ encoder

Service conditions	
Operating temperature	-5° C~55° C (no freeze)
Storage temperature	-20° C ~85° C
Operating/Storage humidity	Below 95%RH (no freeze and condensation)
Vibration resistance	Below 5.88 m/s ² , 10 Hz (not suitable for continuous use at a resonant frequency)
Impact resistance	19.6m/s ²
Altitude	Normal use below 1000m; derating before use at 1000m~2000m

IO interface connector		
Digital signal	Input	10-channel general inputs, including 3-channel high-speed DI The general input function is selected based on parameters
	Output	6-channel general outputs, including 2-channel high-speed DO The universal output function is selected based on parameters
Analog signal	Input	3-channel 16bitA/D, ±10V
	Output	2-channel 12bit D/A, ±10V
Pulse signal	Input	2 Input Maximum differential input: 16 Mpps; the pulse width shall not be lower than 62.5 ns Maximum optocoupler input: 1Mpps; the pulse width shall not be lower than 2 us (5V, 12V and 24V inputs are available)
	Output	4 Output Phases A, B and Z differential outputs Phase Z open-collector output

Communication function/basic specifications	
USB (Type-C)	Available for connection with a computer for servo commissioning, parameter setting, status monitoring, etc.
Modbus	1:n communication for the upper controller, with Modbus-RTU and ASCII modes available and the baud rate settable within 2400 bps~230400 bps
Wifi (Type-C)	Wireless communication under both AP and STA modes available via the WiFi module
Safety terminal	Terminals corresponding to safety functions
Front panel	5-bit button, 6-bit LED display
Indicator lamp strip	For servo state display; blue breathing light pulsating (disabled) or blue light always on (enabled) for abnormality; red breathing light pulsating for a warning; red light always on for an alarm.
Brake resistor	Type A/D: no built-in brake resistor (external only); type B/C: built-in brake resistor (external resistor is also acceptable)
Dynamic brake	Types A-D: built-in
Control mode	7 control modes: ① Position control, ② Speed control, ③ Torque control, ④ Position/speed control, ⑤ Position/torque control, ⑥ Speed/torque control, ⑦ full-closed loop control (switched based on parameters)

Position control		
Control input	Deviation counter clear, command pulse input prohibited, command frequency division and multiplication switching, vibration control switching, etc.	
Control output	End of positioning, etc.	
Pulse input	Maximum number of command pulse frequencies	1M pulse/s (Optocoupler input) 16M pulse/s (differential input)
	Input pulse signal form	Optocoupler input or differential input. The input type and model form can be selected according to parameters. (① positive direction/negative direction ② phase A/phase B ③ command + direction)
	Command pulse division and multiplication	Number of command pulse frequency X electronic gear ratio ($\frac{1-2^{30}}{1-2^{30}}$) is treated as position command input. However, please use an electronic gear ratio of 1/1,000 ~ 1,000 times.
	Smoothing filter	Primary delay filter or FIR filter can be selected for command input.
Analog input	Torque limit command input	Torque limit can be set separately for each direction.
	Torque feedforward input	Torque feedforward can be input according to the analog voltage.
Vibration control	A maximum of 4 can be used simultaneously	
V-type Vibration filter	A maximum of 1 can be used simultaneously	
2 DOF	Available	
Load variation suppression control	Available	
Flying trigger function	Available	

Torque control		
Control input	Zero-speed clamp, torque command symbol input, etc	
Control output	Speed arrival etc	
Analog input	Torque command input	Torque command can be input according to the analog voltage..
Speed limit function	The speed limit can be set according to the parameters.	
2 DOF	Unavailable	
Load variation suppression control	Unavailable	
Flying trigger function	Unavailable	

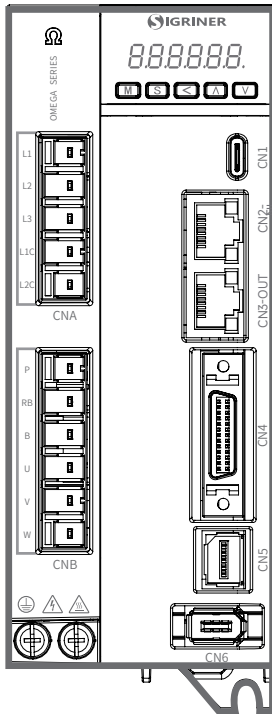
General		
Automatic adjustment	In the motor drive state, the load inertia is determined in real time by the action command from the upper computer and the action command from the installation and commissioning software Q Master, and the gain corresponding to the rigidity setting is automatically set.	
Frequency division function of feedback pulse	The number of pulses can be set as desired (however, it cannot exceed the number of feedback pulses of the encoder)	
Protection function	Hardware error	Overvoltage, undervoltage, overspeed, overload, overcurrent, encoder abnormality, etc.
	Software error	Excessive position deviation, instruction pulse frequency division, abnormal EEPROM parameters, etc.
Alarm data tracking function	Historical record of alarm data can be referenced	
Infinite rotation absolute function	Available	

Fully closed-loop control (rotary type)		
Control input	Deviation counter clear, command pulse input prohibited, command frequency division and multiplication switching, vibration control switching, etc.	
Control output	End of positioning, etc.	
Pulse input	Maximum number of command pulse frequency	1M pulse/s (Optocoupler input) 16M pulse/s (differential input)
	Input pulse signal form	Optocoupler input or differential input. The input type and model form can be selected according to parameters. (① positive direction/negative direction ② phase A/phase B ③ command + direction)
	Command pulse division and multiplication	Number of command pulse frequency X electronic gear ratio ($\frac{1-2^{30}}{1-2^{30}}$) is treated as position command input. However, please use an electronic gear ratio of 1/1,000 ~ 1,000 times.
	Smoothing filter	Primary delay filter or FIR filter can be selected for command input
Analog input	Torque limit command input	Torque limit can be set separately for each direction.
Setting range of second encoder division and multiplication	1/40 to 1280 times The ratio of the encoder feedback pulse (numerator) to the external displacement sensor pulse (denominator) can be set as desired within the range of numerator = 1 ~ 2 ²³ and denominator = 1 ~ 2 ²³ . Please use a value within the above range.	
Vibration control	A maximum of 4 can be used simultaneously	
V-type Vibration filter	Unavailable	
2 DOF	Unavailable	
Load variation suppression control	Available	
Flying trigger function	Available	

Speed control		
Control input	Internal command speed option 1, internal command speed option 2, internal command speed option 3, zero-speed clamp, etc.	
Control output	Speed arrival etc	
Analog input	Speed command input	Speed command can be input according to the analog voltage
	Torque limit input command	Torque limit can be set separately for each direction
	Torque feedforward input	Torque feedforward can be input according to the analog voltage
Internal speed command	8 internal speeds can be switched according to control input	
Soft start/power-off function	0-10s/1000r/min, acceleration and deceleration are set separately	
Zero-speed clamp	Internal speed command can be fixed to 0 according to zero-speed clamp input	
2 DOF	Available	
Load variation suppression control	Available	
Flying trigger function	Unavailable	

Technical Specifications

Bus type (AN) multifunction (F)



Input power supply			
200V series	Main circuit power supply	Type A	Single-phase AC200V~240V, -15%~10%; 50/60Hz
		Type B-Type C	Single/three-phase AC200V~240V, -15%~10%; 50/60 Hz
		Type D	Three-phase AC200V~240V, -15%~10%; 50/60Hz
	Control circuit power supply	Type A-Type D	Single-phase AC200V~240V, -15%~10%; 50/60Hz

Insulation and voltage resistance	
Primary grounding AC1500V; withstand voltage for 1m (leakage trigger current: 20 mA) (200V series)	

Encoder feedback	
First encoder	17-bit, 23-bit and 24-bit serial communication encoder/single-ended signal, OC/OD (Hall signal)
Second encoder	16Mbps ABZ encoder

Service conditions	
Operating temperature	-5° C~55° C (no freeze)
Storage temperature	-20° C ~85° C
Operating/Storage humidity	Below 95%RH (no freeze and condensation)
Vibration resistance	Below 5.88 m/s ² , 10Hz (not suitable for continuous use at a resonant frequency)
Impact resistance	16.9m/s ²
Altitude	Normal use below 1000m; derating before use at 1000m~2000m

IO interface connector		
Digital signal	Input	8-channel general inputs, including 2-channel high-speed DI The general input function is selected based on parameters
	Output	3-channel general outputs, including 1-channel high-speed DO The universal output function is selected based on parameters
Analog signal	Input	1-channel 16 bit A/D, ±10V
Pulse signal	Output	3-channel, encoder signal or external displacement sensor signal (phases A and B) after frequency division processing of differential output. The frequency division ratio can be set by parameters and used as the position pair output.

Communication function/basic specifications	
USB (Type-C)	Available for connection with a computer for servo commissioning, parameter setting, status monitoring, etc.
EtherCAT	Real-time action command transmission, parameter setting, status monitoring, etc. are available
Wifi (Type-C)	Wireless communication under both AP and STA modes available via the WiFi module
Safety terminal	Terminals corresponding to safety functions
Front panel	5-bit button, 6-bit LED display
Indicator lamp strip	For servo state display; blue breathing light effect (disabled) or blue light always on (enabled) for abnormality; red breathing light effect for a warning; red light always on for an alarm.
Brake resistor	Type A/D: no built-in brake resistor (external only); type B/C: built-in brake resistor (external resistor is also acceptable)
Dynamic brake	Types A-D: built-in
Mode	Position control: profile position (pp) mode, cyclic synchronous position (csp) mode Speed control: profile velocity (pv) mode, cyclic synchronous velocity (csv) mode Torque control: profile torque (pt) mode, cyclic synchronous torque (cst) mode Homing mode (hm) The above modes are switched by EtherCAT communication command

Analog input	
Pressure closed-loop control	The maximum allowable input voltage is ±10V. The input A/D converter has a resolution of 16 bit.

General		
Automatic adjustment	In the motor drive state, the load inertia is determined in real time by the action command from the upper computer and the action command from the installation and commissioning software Ω Master, and the gain corresponding to the rigidity setting is automatically set.	
Electronic gear ratio setting	1/1,000~1,000 times, settable within numerator = $1\sim 2^{30}$, denominator = $1\sim 2^{30}$. Please use values within the above range.	
Notch filter	Available	
Gain switching function	Available	
2-step torque filter	Available	
Flying trigger function	Available	
Protection function	Hardware error	Overvoltage, insufficient voltage, overspeed, overload, overheating, overcurrent, encoder abnormality, etc.
	Software error	Excessive position deviation, EEPROM abnormality, etc.
	Built-in black box	Real-time monitoring of operation status and diagnosis of potential risks for timely maintenance
Alarm data tracking function	Historical record of alarm data can be referenced	

Position control	
Vibration control	Maximum of 4 can be used simultaneously
V-type damping filter	Maximum of 1 can be used simultaneously
2 DOF	Available
Load variation suppression control	Available
Model damping filter	Available (all filters can be used at the same time, and 2 frequencies can be set)
Feedforward function	Available (speed/torque)
3rd gain switching function	Available
Friction torque compensation	Available
Hybrid vibration suppression function	Available (only multifunction type can be used)
Quadrant protrusion suppression function	Available
Torque limit switching function	Available
Motor movable range setting	Available
Torque saturation protection function	Available
Single-turn absolute function	Available (when an absolute encoder is connected)
Infinite rotation absolute function	Function of setting the upper limit value of multi-turn data of the absolute encoder
Position information monitor of external displacement sensor	Available (only multifunction type can be used)
Locking mode with stop function	Available (in the servo enabling state, when the communication period of the motor is 0.5 [ms] for normal rotation without obstacles, and the command update period is set to 1.0 [ms], the electronic gear ratio shall be set to 1 times or more)

Speed control	
Soft start/power-off function	0-10s/1000r/min, acceleration and deceleration are set separately
2 DOF	Available
Load variation suppression control	Available
Feedforward function	Available (torque)
Friction torque compensation	Available
Hybrid vibration suppression function	Unavailable
Torque limit switching function	Available
Torque saturation protection function	Available
Single-turn absolute function	Available (when an absolute encoder is connected)
Infinite rotation absolute function	Function of setting the upper limit value of multi-turn data of the absolute encoder
Vibration control	Unavailable
Model Vibration filter	Unavailable
3rd gain switching function	Unavailable
Quadrant protrusion suppression function	Unavailable
Motor movable range setting	Unavailable
Position information monitor of external displacement sensor	Unavailable (only multifunction type can be used)
Locking mode with stop function	Unavailable

Torque control	
Speed limit function	The speed limit can be set according to the parameters.
2 DOF	Unavailable
Load variation suppression control	Unavailable
Feedforward function	Unavailable
Friction torque compensation	Unavailable
Hybrid vibration suppression function	Unavailable
Torque limit switching function	Unavailable
Torque saturation protection function	Unavailable
Single-turn absolute function	Available (when absolute encoder is connected)
Infinite rotation absolute function	Function of setting the upper limit value of multi-turn data of the absolute encoder
Vibration control	Unavailable
Model Vibration filter	Unavailable
3rd gain switching function	Unavailable
Quadrant protrusion suppression function	Unavailable
Motor movable range setting	Unavailable
Position information monitor of external displacement sensor	Unavailable (only multifunction type can be used)
Locking mode with stop function	Unavailable

Fully closed-loop control (rotary type)	
Setting range of second encoder division and multiplication	1/40~1280 times ratio of the encoder feedback pulse (numerator) to the external displacement sensor pulse (denominator) can be set as desired within the range of numerator = $1\sim 2^{23}$ and denominator = $1\sim 2^{23}$. Please use a value within the above range.
Vibration control	Maximum of 4 can be used simultaneously
V-type Vibration filter	Unavailable
2 DOF	Unavailable
Load variation suppression control	Available
Flying trigger function	Available



Specification & Model (Rotary Type)

Specification & Model	Specification for Class 200V Driver						
Drive power kw	0.2	0.4	0.75	1.0	1.5	2.0	3.0
Rated current Arms	2.1	2.8	5.0	6.0	8.4	12.5	18.1
Continuous operating current Arms	2.4	3.2	5.6	7.0	9.7	14.4	20.8
Maximum output current Arms	6.3	9.8	15	18	30	37.5	54.3
Type	A	A	B	B	C	D	D
Main circuit power supply	Single-phase AC 200V-240V, -15%-10%		Single/three-phase AC 200V-240V, -15%-10%			Three-phase AC 200V-240V, -15%-10%	
Control circuit power supply	Single-phase AC200V-240V, -15%-10%						

Specification & Model (Linear Type)

Specification & Model	Specification for Class 200V driver						
	2D4	3D2	5D6	007	9D7	014	021
Continuous operating current Arms	2.4	3.2	5.6	7.0	9.7	14.4	20.8
Maximum output current Arms	6.3	9.8	15	18	30	37.5	54.3
Type	A	A	B	B	C	D	D
Main circuit power supply	Single-phase AC 200V-240V, -15%-10%		Single/three-phase AC 200V-240V, -15%-10%			Three-phase AC 200V-240V, -15%-10%	
Control circuit power supply	Single-phase AC200V-240V, -15%-10%						

Wiring Diagram (pulse type) Type A Drive Wiring Diagram

Wiring circuit breaker
It is used to protect the power line and cut off the power supply in case of overcurrent.

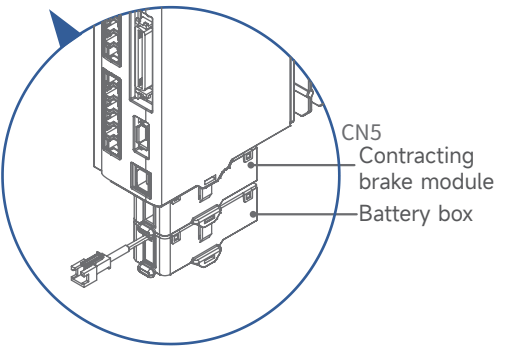
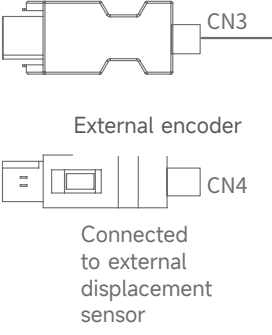
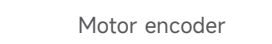
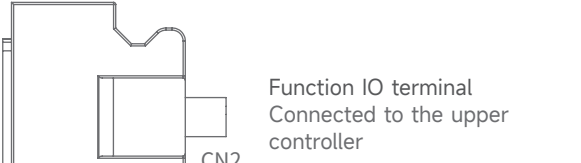
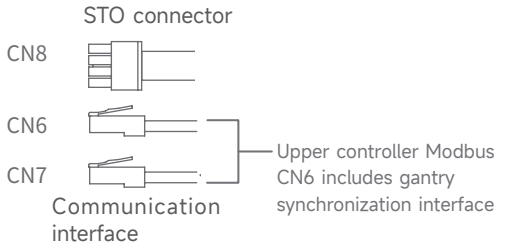
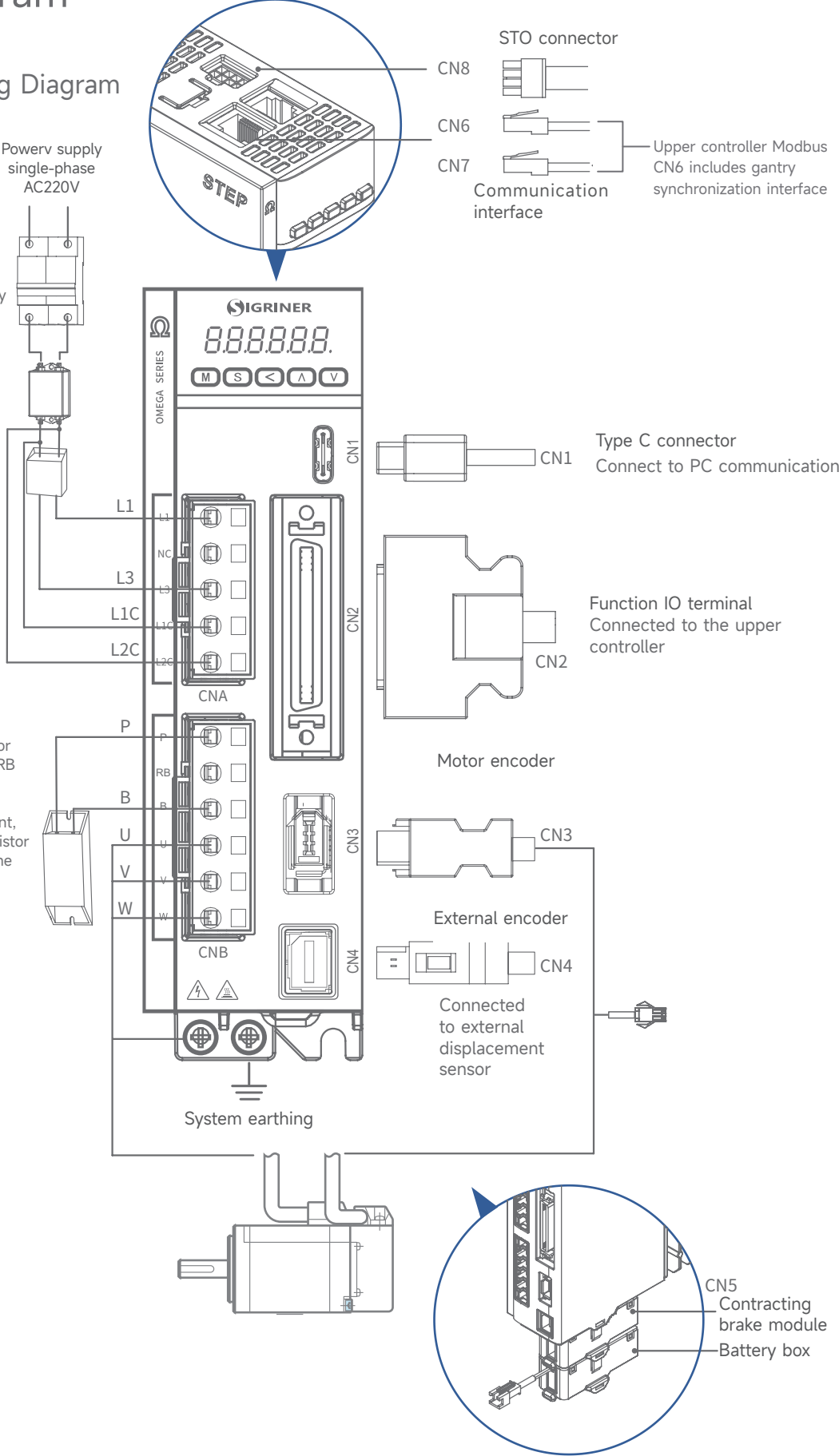
EMI filter
The noise filter is installed to prevent external noise from power lines.

Electromagnetic contactor
Turn on/off servo power. Install the surge suppressor when in use.

When leaving the factory, L1 and L2C have been short-circuited, and L3 and L1C have been short-circuited. If the wiring method recommended in the figure is used, the two short-circuited wires above shall be removed.

Brake resistor
When the internal braking resistor is used, short-circuit RB and B (RB and B have been short-circuited when leaving the factory); when the braking capacity is insufficient, connect the external braking resistor between P and B, and remove the short-circuit wire between them.

Servo motor
It must correspond to the motor UVW terminal.



CONNECTION

Wiring Diagram (pulse type)

Types B ~ C Drive Wiring Diagram

Wiring circuit breaker

It is used to protect the power line and cut off the power supply in case of overcurrent.

EMI filter

The noise filter is installed to prevent external noise from power lines.

Electromagnetic contactor

Turn on/off servo power. Install the surge suppressor when in use.

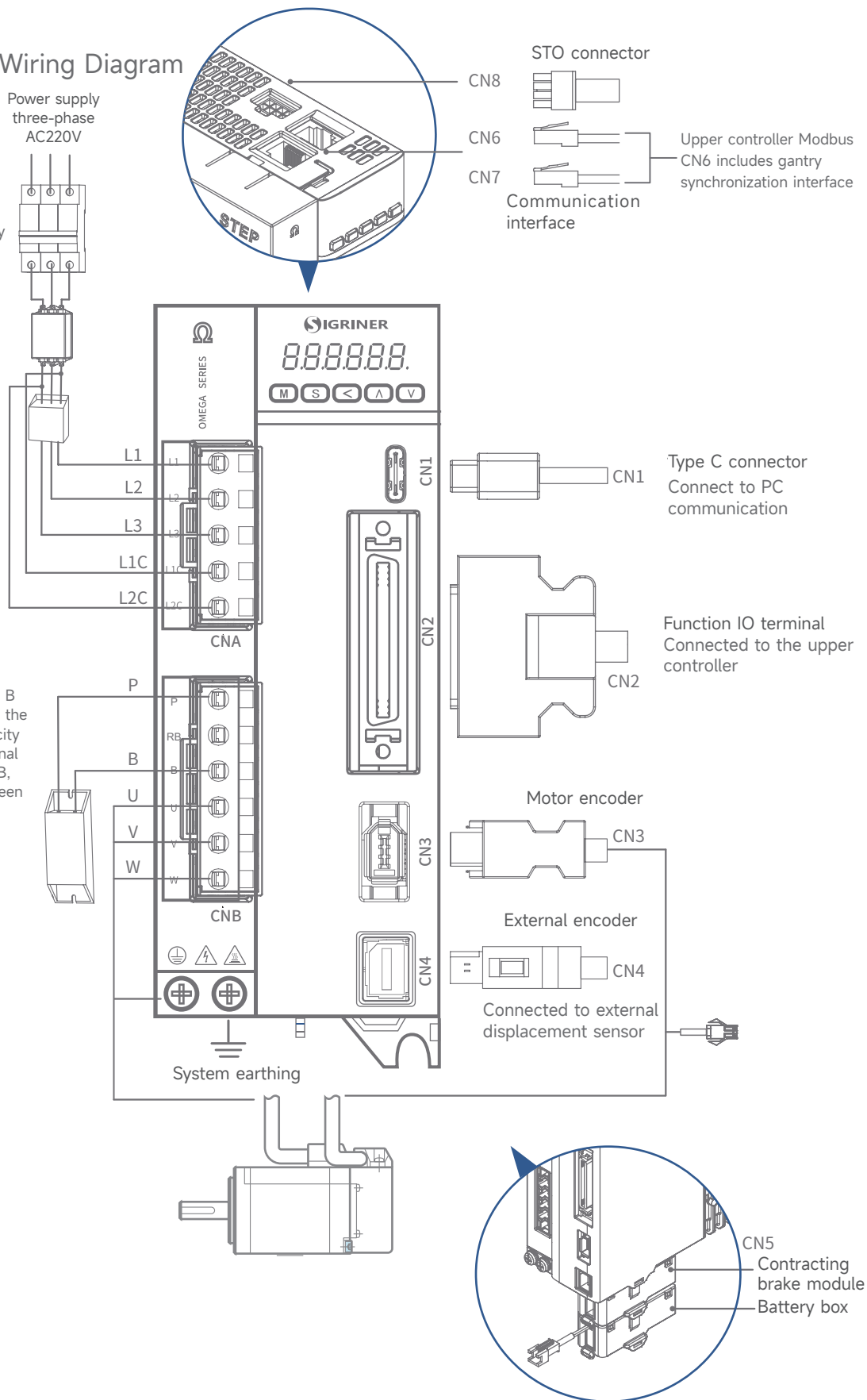
When leaving the factory, L1 and L2C have been short-circuited, and L3 and L1C have been short-circuited. If the wiring method recommended in the figure is used, the two short-circuited wires above shall be removed.

Brake resistor

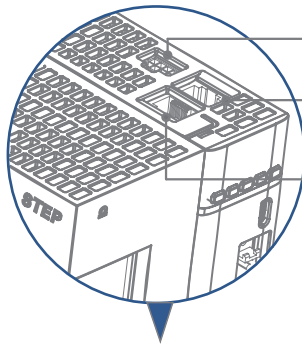
When using the internal braking resistor, short RB and B (RB and B have been shorted when leaving the factory); when the braking capacity is insufficient, connect the external braking resistor between P and B, and remove the short wire between RB and B.

Servo motor

It must correspond to the motor UVW terminal.



Type D Drive Wiring Diagram



STO connector



Upper controller Modbus
CN6 includes gantry synchronization interface

Communication Interface

Power supply
three-phase
AC220V

Wiring circuit breaker

It is used to protect the power line and cut off the power supply in case of overcurrent.

EMI filter

The noise filter is installed to prevent external noise from power lines.

Electromagnetic contactor

Turn on/off servo power. Install the surge suppressor when in use.



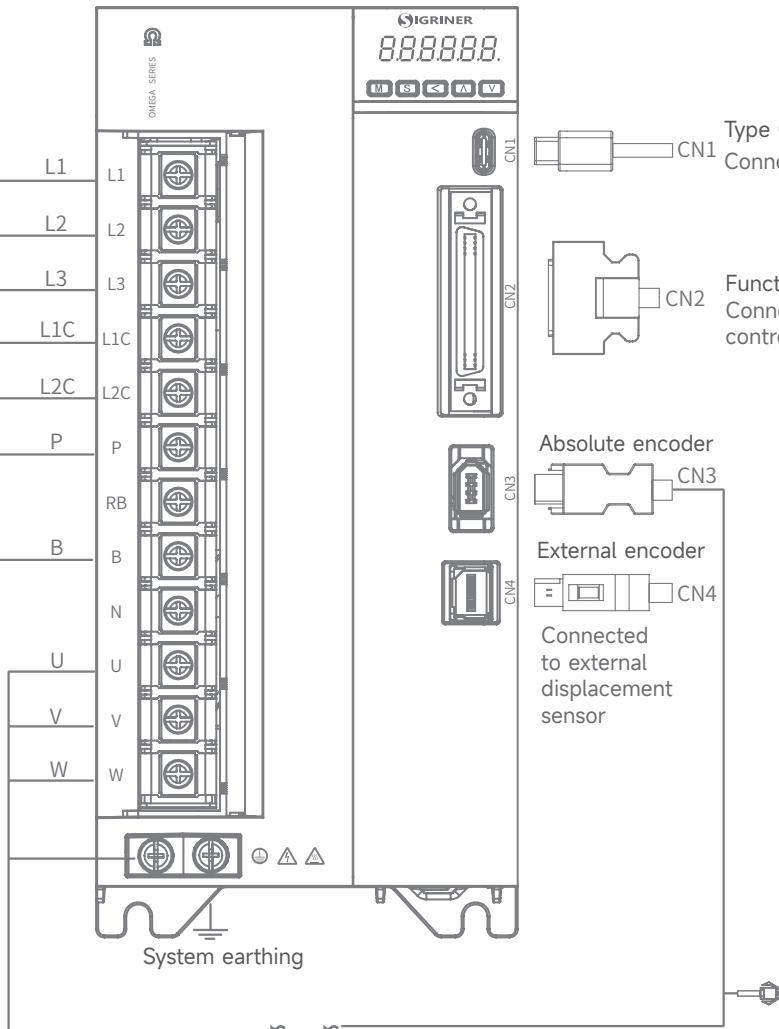
Brake resistor

When the internal braking resistor is used, short-circuit RB and B (RB and B have been short-circuited when leaving the factory); when the braking capacity is insufficient, connect the external braking resistor between P and B, and remove the short-circuit wire between them.



Servo motor

It must correspond to the motor UVW terminal.



Type C connector

Connect to PC communication

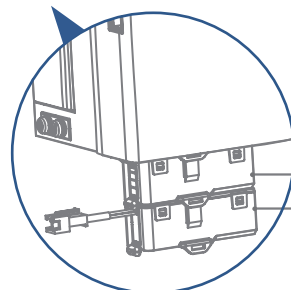
Function IO terminal

Connected to the upper controller

Absolute encoder

External encoder

Connected to external displacement sensor



CN5 Contracting brake module
Battery box

Definition of Servo System Terminal (pulse type)

Wiring of CN1:

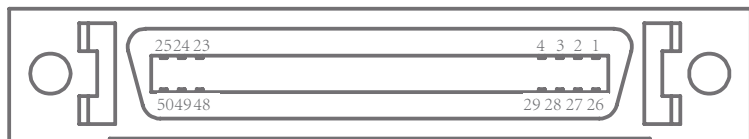
USB_TYPE-C signal terminal

Name	Symbol	Connector pin No.	Content
USB_TYPE-C	GND	A1、B12、A12、B1	Connected to GND of servo driver control circuit.
	VBUS	A4、B9、A9、B4	Used when communicating with the computer.
	D-	A7、B7	
	D+	A6、B6	
	TX+	A2、B2	Serial port communication, external transfer WIFI communication module.
	TX-	A3、B3	
	RX+	A11、B11	
	RX-	A10、B10	



Wiring of CN2:

Interface CN2 on the controller panel is the connection interface for the digital and analog inputs and outputs of the driver and the communication signal. CN2 is SM50J-core socket, and the figure below is the schematic diagram of panel interface:



Terminal No.	Definition	Symbol	Signal name	Function description
1	OPC1	OPC1	Low-speed pulse input signal (level: 12~24 V)	Photocoupler input, pulse (≤ 500 KHz) input signal, allowed to connect external level of 12~24V
2	OPC2	OPC2	Low-speed pulse direction control (level: 12~24 V)	Photocoupler input, pulse (≤ 500 KHz) input signal, allowed to connect external level of 12~24V
3	PULS1	PULS1	Low-speed pulse input signal (level: 5 V)	Photocoupler input, pulse (≤ 500 KHz) input signal, allowed to connect external level of 5V
4	PULS2	PULS2	Low-speed pulse input circuit signal (level: GND)	This pin is connected to external PLC GND signal
5	SIGN1	SIGN1	Low-speed pulse direction control (level: 5 V)	Photocoupler input, pulse (≤ 500 KHz) input signal, allowed to connect external level of 5V
6	SIGN2	SIGN2	Low-speed pulse direction control circuit (level: GND)	This pin is connected to external PLC GND signal
7	COM+	COM+	Optocoupler input common port	Optocoupler input common port
8	NOT	SI1	Negative direction drive input prohibited	Digital input, negative direction drive input prohibited
9	POT	SI2	Positive direction drive input prohibited	Digital input, positive direction drive input prohibited
10	BRKOFF-	SO1-	- Signal of external brake release	Digital output, negative signal of external brake release
11	BRKOFF+	SO1+	+ Signal of external brake release	Digital output, positive signal of external brake release
12	ZSP	SO5	Zero-speed detection signal	Digital output, zero-speed detection signal. This pin can support high-speed digital signal output up to 1 Mhz
13	GND	GND	GND signal	High-speed pulse input and analog ground signal



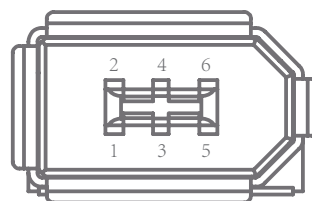
Terminal No.	Definition	Symbol	Signal name	Function description
14	SPR/TRQR/SPL	AI1	Analog input	Analog input 1
15	GND	GND	GND signal	High-speed pulse input and analog ground signal
16	P-ATL/TFQR	AI2	Analog input	Analog input 2
17	GND	GND	GND signal	High-speed command input and analog GND signal
18	N-ATL	AI3	Analog input	Analog input 3
19	CZ	CZ	Encoder phase Z signal	Open circuit collector output, encoder Z phase signal
20	NC	NC	-	Do not connect
21	OA+	OA+	Phase A positive terminal	Positive terminal of pulse frequency division output phase A
22	OA-	OA-	Phase A negative terminal	Negative terminal of pulse frequency division output phase A
23	OZ+	OZ+	Z-phase positive terminal	Positive terminal of pulse frequency division output phase Z
24	OZ-	OZ-	Z-phase negative terminal	Negative terminal of pulse frequency division output phase Z
25	GND	GND	GND signal	High-speed pulse input and analog ground signal
26	VS-SEL1	SI3	Vibration control switching input 1	Digital input, vibration control switching input 1
27	GAIN	SI4	Gain switching input	Digital input, gain switching input
28	DIV1	SI5	Command division and multiplication switching input 1	Digital input, command fractional-octave-band switching input 1. This pin allows high-speed digital signal input of up to 1 MHz
29	SRV-ON	SI6	Servo-On input	Digital input, servo ON input
30	CL	SI7	Deviation counter reset input	Digital input, deviation counter reset input
31	A-CLR	SI8	Alarm clearing	Digital input, alarm clearing
32	C-MODE	SI9	Control mode switching input	Digital input, control mode switching input
33	INH	SI10	Command pulse input prohibited	Digital input, command pulse input prohibited. This pin allows high-speed digital signal input of up to 1 MHz
34	S-RDY-	SO2-	Servo ready output negative terminal	Digital output, servo ready to output negative terminal
35	S-RDY+	SO2+	Servo ready output positive terminal	Digital output, servo ready to output positive terminal
36	ALM-	SO3-	Alarm output negative terminal	Digital output, alarm output negative terminal
37	ALM+	SO3+	Alarm output positive terminal	Digital output, alarm output positive terminal
38	INP-	SO4-	Positioning complete negative terminal	Digital output, positioning completed negative terminal
39	INP+	SO4+	Positioning complete positive terminal	Digital output, positioning completed positive terminal
40	TLC	SO6	Torque in-limit signal output	Digital output, signal output in torque limit This pin enables high-speed digital signal output of up to 1 MHz
41	COM-	COM-	1 High-speed DO output common GND	High-speed DO common terminal
42	IM	AO2	Torque analog signal output	Analog monitor output, torque analog signal output
43	SP	AO1	Speed analog signal output	Analog monitor output, speed analog signal output
44	PULSH1	PULSH1	Command pulse input 1	Input of position command pulses, with the highest frequency of 16 Mpulses/s (differential input). Special pulse train interface for long-line driver (which should be used when the frequency is 500kpulse/s ~ 4Mpulse/s) Note: When it is used, please connect any or more of pins 15, 17 or 25 and increase the reference GND; otherwise, the input pulse may be unstable
45	PULSH2	PULSH2	Command pulse input 2	
46	SIGNH1	SIGNH1	Command symbol input 1	
47	SIGNH2	SIGNH2	Command symbol input 2	
48	OB+	OB+	Phase B positive terminal	Phase B positive terminal of pulse frequency division output
49	OB-	OB-	Phase B negative terminal	Phase B negative terminal of pulse frequency division output
50	FG	FG	Housing grounding	It is connected to the grounding terminal inside the servo driver

TERMINAL

Wiring of CN3:

Rotary

Name	Symbol	Connector pin No.	Content
Power supply of encoder	E5V	1	Encoder power supply +5V
	E0V	2	Encoder power supply 0V
	NC	3	Do not connect any device
	NC	4	Do not connect any device
Encoder RS485	PS	5	Encoder communication signal +
	$\overline{\text{PS}}$	6	Encoder communication signal -
Housing grounding	FG	Housing	It is connected to the grounding terminal inside the servo driver



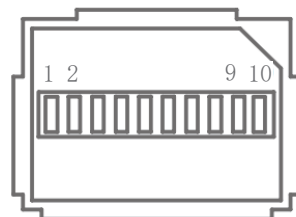
Linear

Name	Symbol	Connector pin No.	Content
Power supply of Hall sensor	E5V	1	Sensor power supply +5V
	E0V	2	Sensor power supply 0V
--	NC	3	Do not connect any device
Hall signal	CS1	4	Hall signal 1
Hall signal	CS2	5	Hall signal 2
	CS3	6	Hall signal 3
Housing grounding	FG	Housing	It is connected to the grounding terminal inside the servo driver

Wiring of CN4:

Rotary

Name	Symbol	Connector pin No.	Content
Power output	EX5V	1	Encoder power supply +5V
	EX0V	2	Encoder power supply 0V
	NC	3	Do not connect any device
	NC	4	Do not connect any device
Signal input of phases A, B and Z encoders	EXA	5	Phase A input signal
	$\overline{\text{EXA}}$	6	
	EXB	7	Phase B input signal
	$\overline{\text{EXB}}$	8	
	EXZ	9	Phase Z (origin) input signal
	$\overline{\text{EXZ}}$	10	
Housing grounding	FG	Housing	It is connected to the grounding terminal inside the servo driver

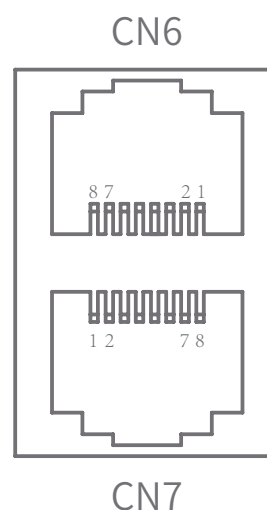


Linear

Name	Symbol	Connector pin No.	Content
Power output	EX5V	1	Encoder power supply +5V
	EX0V	2	Encoder power supply 0V
	EXPS	3	Serial communication signal
	$\overline{\text{EXPS}}$	4	
Signal input of phases A, B and Z encoders	EXA	5	Phase A input signal
	$\overline{\text{EXA}}$	6	
	EXB	7	Phase B input signal
	$\overline{\text{EXB}}$	8	
	EXZ	9	Phase Z (origin) input signal
	$\overline{\text{EXZ}}$	10	
Housing grounding	FG	Housing	It is connected to the grounding terminal inside the driver

Note: As for wiring of CN3 and CN4, please be sure to use shielded cables and ground the terminal shielding layer to enhance vulnerability to jamming

Wiring of CN6 and CN7:



Function definition of CN6 pin

Name	Symbol	Connector pin No.	Content
Synchronous signal input	SYNC_RX+	1	Gantry synchronization function input signal data +
	SYNC_RX-	2	Gantry synchronization function input signal data-
Synchronous signal output	SYNC_TX+	3	Gantry synchronization function input signal data +
RS485 signal	RS485-	4	RS485 signal data -
	RS485+	5	RS485 signal data +
Synchronous signal output	SYNC_TX-	6	Gantry synchronization function input signal data -
	NC	7	Do not connect any device
Signal GND	485_GND	8	RS485 signal GND

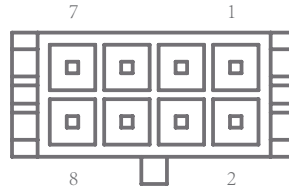
Note: Gantry function is used for the servo drive. Please use Cat5 or Cat5e cross-band shielded Ethernet cable for interconnection

Function definition of CN7 pin

Name	Symbol	Connector pin No.	Content
	NC	1	Do not connect any device
	NC	2	Do not connect any device
Impedance adaptation	RS485_X-	3	For adaptive connection with built-in driver terminal resistor
RS485 signal	RS485-	4	RS485 signal data -
	RS485+	5	RS485 signal data +
Impedance adaptation	RS485_X+	6	For adaptive connection with built-in driver terminal resistor
	NC	7	Do not connect any device
Signal GNDS	485_GND	8	RS485 signal GND

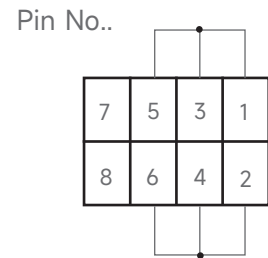
TERMINAL

Wiring of CN8:



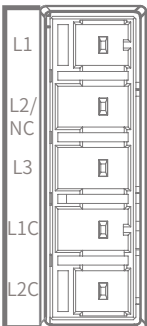
Name	Symbol	Connector pin No.	Content
-12V	—	1	STO safety bypass power supply from inside the driver
+12V	—	2	
Safe input 1	SF1-	3	STO requests input of signal data 1-
	SF1+	4	STO requests input of signal data 1+
Safe input 2	SF2-	5	STO requests input of signal data 2-
	SF2+	6	STO requests input of signal data 2+
EDM output	EDM-	7	Monitoring output signal data of STO safety function failure-
	EDM+	8	Monitoring output signal data of STO safety function failure+

The standard safety bypass plug (internal wiring) provided before delivery of the driver, i.e. wiring that does not form a safety circuit when the safety function is not used:



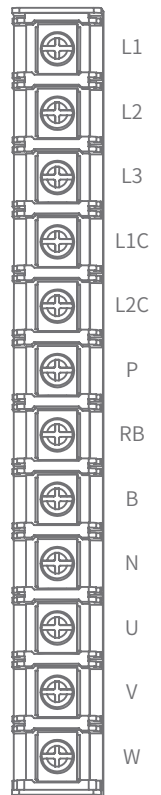
CNA wiring:

CNA provides the interfaces for the driver power supply and driver control power supply. When single-phase AC220V wiring is used for the power supply of type B and type C drivers, please connect ports L1 and L3.



CNA

Name	Symbol	Connector pin No.	Content
L1	L1	1	Single-phase electricity /three-phase electricity L1 connector
L2/NC	L2/NC	2	Three-phase electricity L2 connector (NC for type A driver)
L3	L3	3	Single-phase electricity/three-phase electricity L3 connector
L1C	L1C	4	Control power single-phase input
L2C	L2C	5	Control power single-phase input

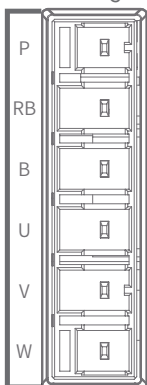


Type D driver power terminal:

The power, control, motor and braking resistor interfaces of type D driver are crimped with nuts, and the interface is defined by reference to CNA and CNB.

CNB wiring:

CNB provides the interface for servomotor power supply and braking resistor.



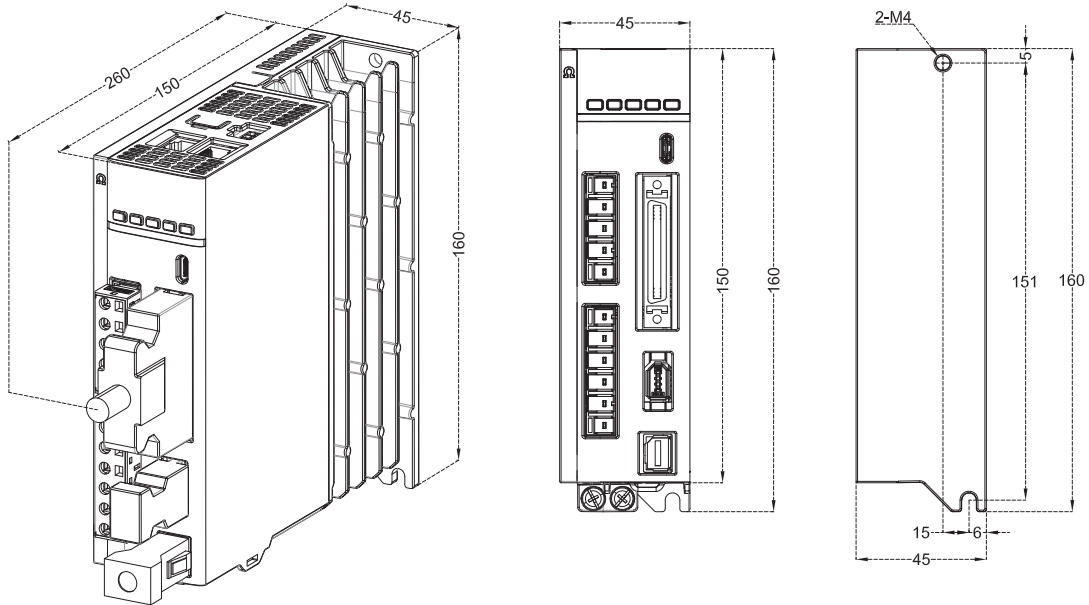
CNB

Name	Symbol	Connector pin No.	Content
P	P	1	Braking resistor +
RB	RB	2	Internal braking resistor; to use the internal braking resistor, short circuit of B and RB is required
B	B	3	External braking resistor interface
U	U	4	Motor phase U output
V	V	5	Motor phase V output
W	W	6	Motor phase W output

Installation Dimension Drawing (Pulse Type)

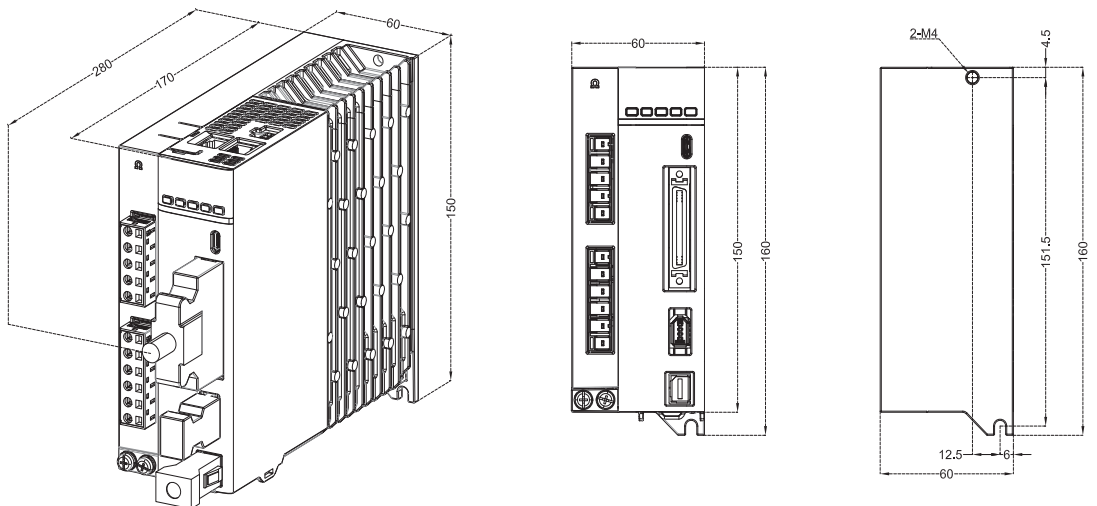
Overall dimensions of type A driver

Unit: mm



Overall dimensions of type B driver

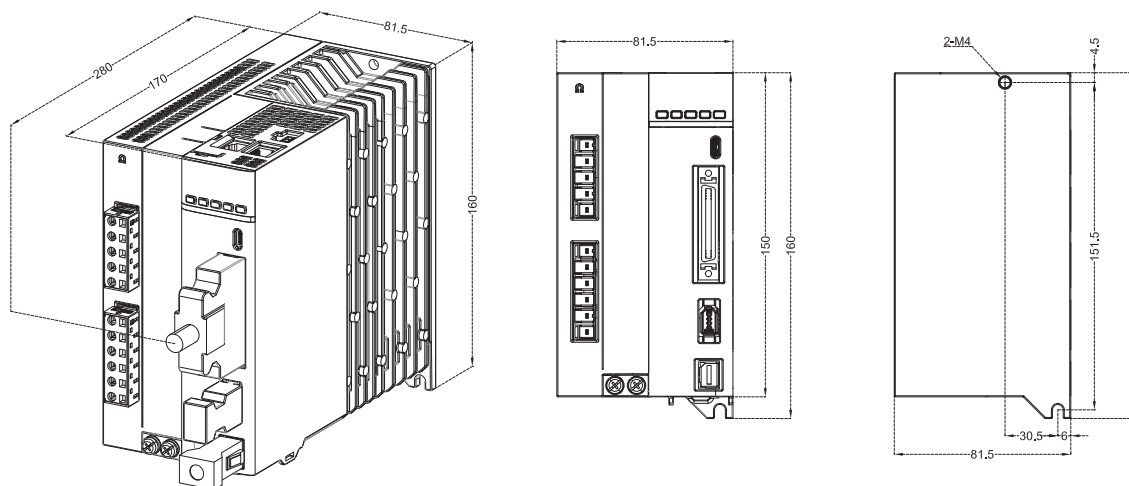
Unit: mm



Installation Dimension Drawing (Pulse Type)

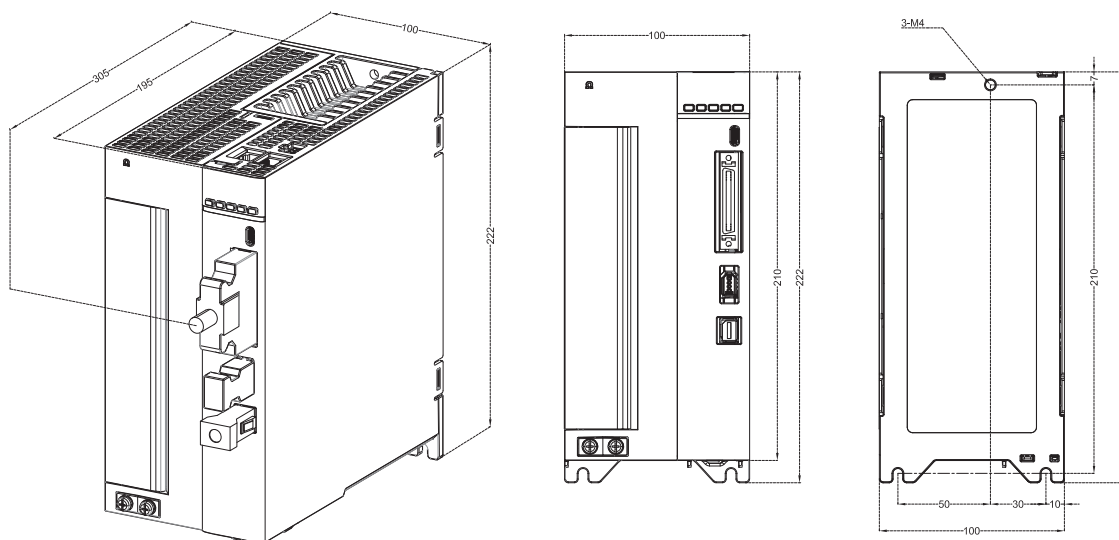
Overall dimensions of type C driver

Unit: mm



Overall dimensions of type D driver

Unit: mm



Wiring Diagram (Bus Type)

Type A Drive Wiring Diagram

Wiring circuit breaker
It is used to protect the power line and cut off the power supply in case of overcurrent.

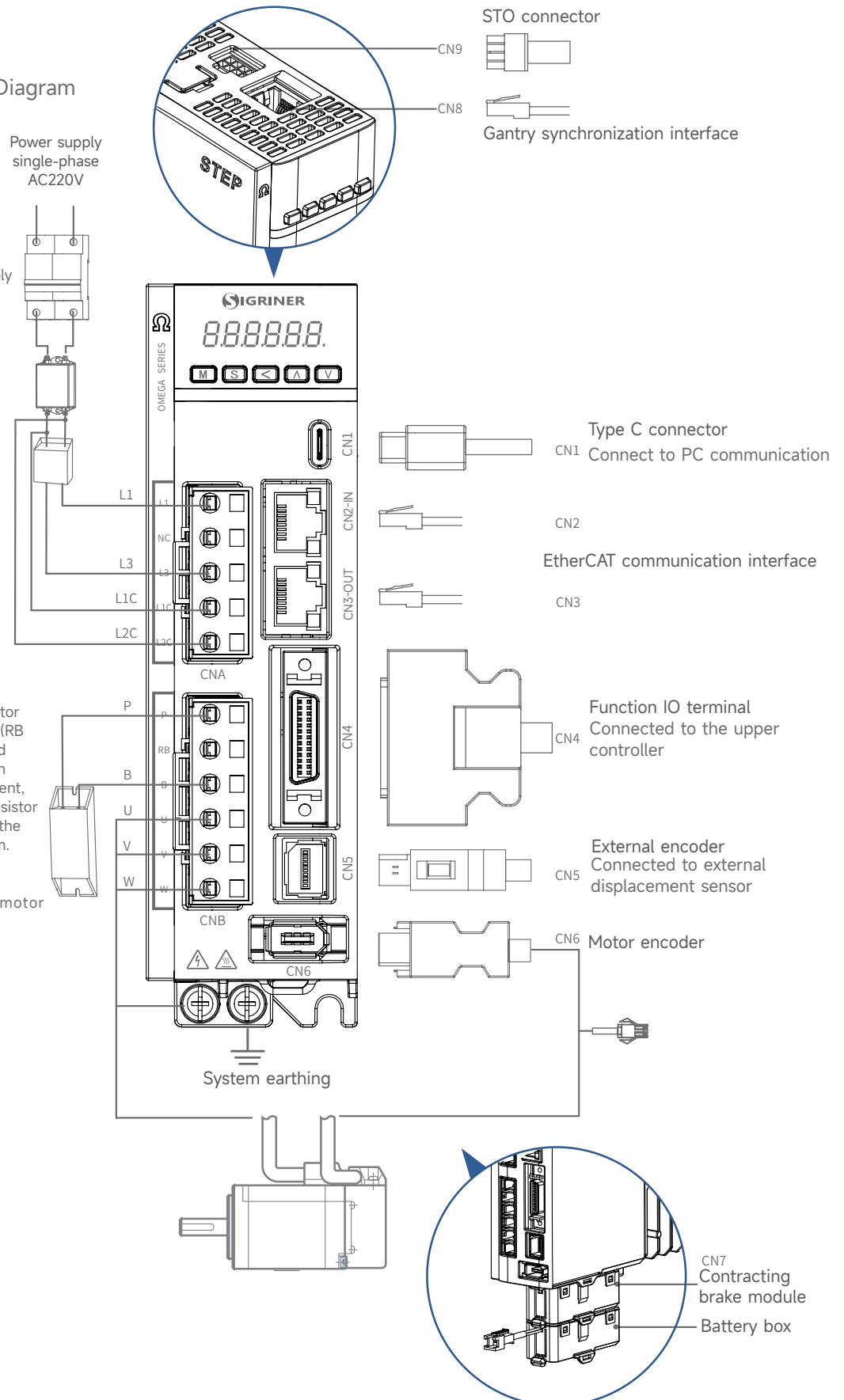
EMI filter
The noise filter is installed to prevent external noise from power lines.

Electromagnetic contactor
Turn on/off servo power. Install the surge suppressor when in use.

When leaving the factory, L1 and L2C have been short-circuited, and L3 and L1C have been short-circuited. If the wiring method recommended in the figure is used, the two short-circuited wires above shall be removed.

Brake resistor
When the internal braking resistor is used, short-circuit RB and B (RB and B have been short-circuited when leaving the factory); when the braking capacity is insufficient, connect the external braking resistor between P and B, and remove the short-circuit wire between them.

Servo motor
It must correspond to the motor UVW terminal.



STO connector

CN9

CN8

Gantry synchronization interface

Power supply
single-phase
AC220V

Type C connector

CN1 Connect to PC communication

CN2

EtherCAT communication interface

CN3

Function IO terminal

Connected to the upper controller

CN4

External encoder

Connected to external displacement sensor

CN5

Motor encoder

CN6

System earthing

CN7

Contracting brake module

Battery box

Wiring Diagram (Bus Type)

Types B ~ C Drive Wiring Diagram

Wiring circuit breaker

It is used to protect the power line and cut off the power supply in case of overcurrent.

EMI filter

The noise filter is installed to prevent external noise from power lines.

Electromagnetic contactor

Turn on/off servo power. Install the surge suppressor when in use.

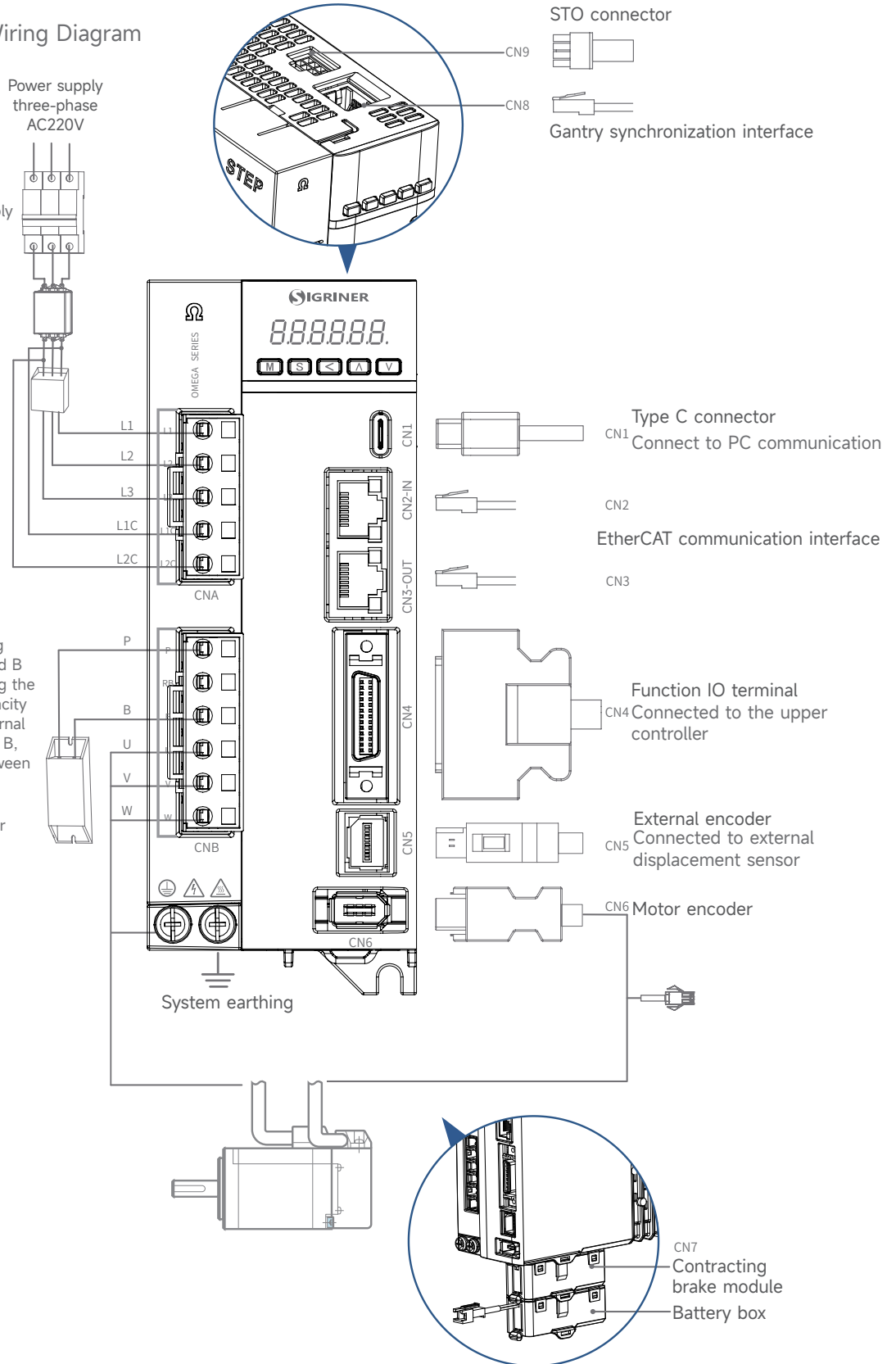
When leaving the factory, L1 and L2C have been short-circuited, and L3 and L1C have been short-circuited. If the wiring method recommended in the figure is used, the two short-circuited wires above shall be removed.

Brake resistor

When using the internal braking resistor, short RB and B (RB and B have been shorted when leaving the factory); when the braking capacity is insufficient, connect the external braking resistor between P and B, and remove the short wire between RB and B.

Servo motor

It must correspond to the motor UVW terminal.



Type D Drive Wiring Diagram

Wiring circuit breaker

It is used to protect the power line and cut off the power supply in case of overcurrent.

EMI filter

The noise filter is installed to prevent external noise from power lines.

Electromagnetic contactor

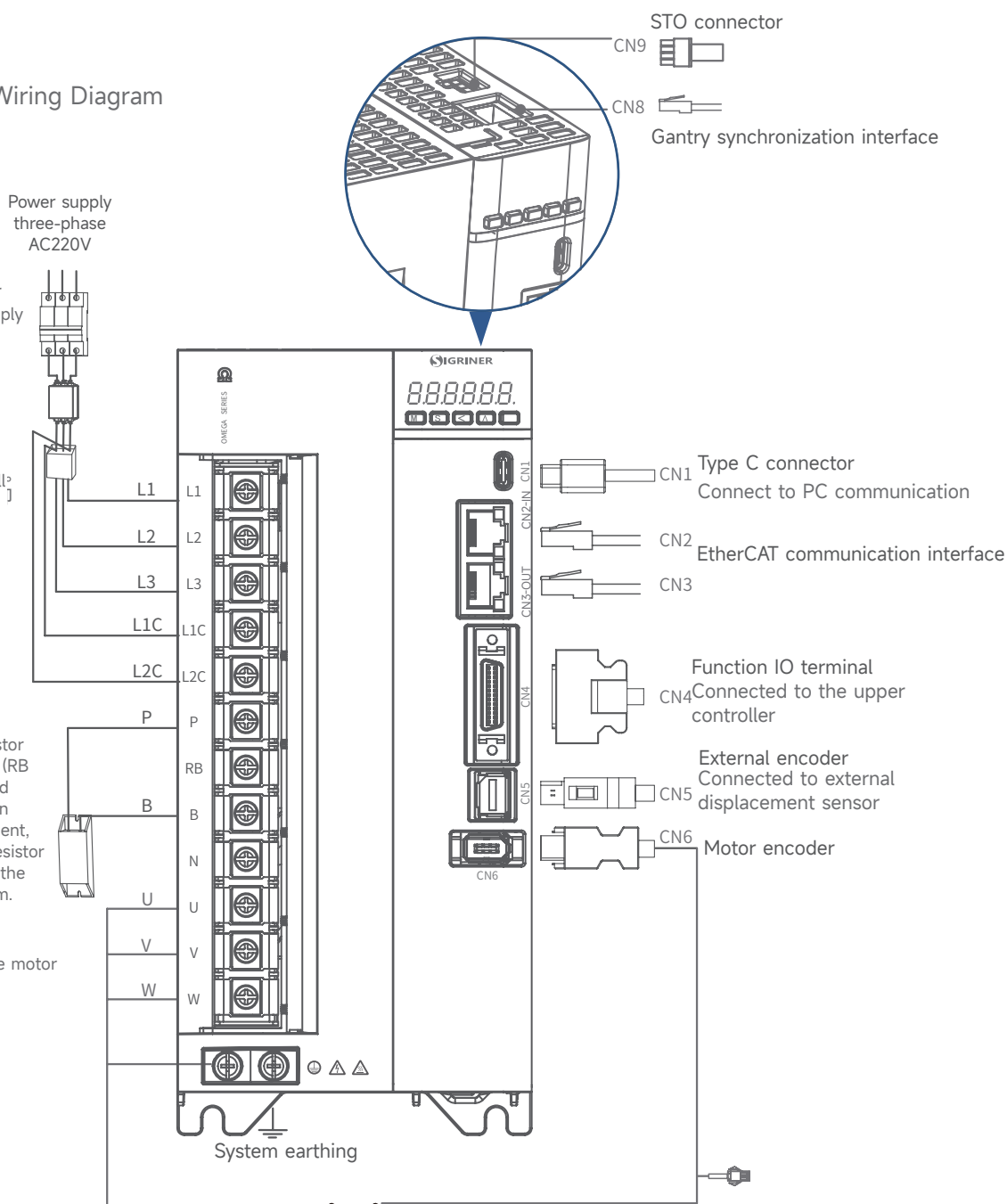
Turn on/off servo power. Install the surge suppressor when in use.

Brake resistor

When the internal braking resistor is used, short-circuit RB and B (RB and B have been short-circuited when leaving the factory); when the braking capacity is insufficient, connect the external braking resistor between P and B, and remove the short-circuit wire between them.

Servo motor

It must correspond to the motor UVW terminal.



STO connector



Gantry synchronization interface

Type C connector

Connect to PC communication

EtherCAT communication interface

Function IO terminal

Connected to the upper controller

External encoder

Connected to external displacement sensor

Motor encoder

CN7 Contracting

brake module

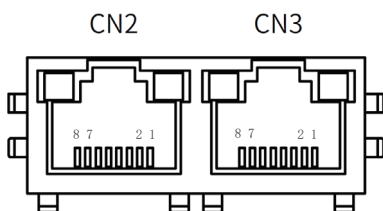
Battery box

Definition of Servo System Terminal (Bus Type)

Wiring of CN1:

USB_TYPE-C signal terminal

Name	Symbol	Connector pin No.	Content
USB_TYPE-C	GND	A1、B12、A12、B1	Connected to GND of servo driver control circuit.
	VBUS	A4、B9、A9、B4	
	D-	A7、B7	Used when communicating with the computer.
	D+	A6、B6	
	TX+	A2、B2	Serial port communication, external transfer WIFI communication module.
	TX-	A3、B3	
	RX+	A11、B11	
	RX-	A10、B10	



Wiring of CN2/CN3:

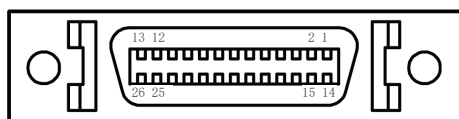
CN2 (RJ45) EtherCAT communication connector IN

Name	Symbol	Connector pin No.	Content
Transmitting+	EtherCAT_IN_TX+	1	EtherCAT input port transmit +
Transmitting-	EtherCAT_IN_TX-	2	EtherCAT input port transmit -
Receiving+	EtherCAT_IN_RX+	3	EtherCAT input port receive +
Unused	NC	4	Do not connect any device.
Unused	NC	5	Do not connect any device.
Receiving-	EtherCAT_IN_RX-	6	EtherCAT input port receive -
Unused	NC	7	Do not connect any device.
Unused	NC	8	Do not connect any device.
Enclosure GND	FG	Housing	It is connected with the shielded wire of the cable

CN3 (RJ45) EtherCAT communication connector OUT

Name	Symbol	Connector pin No.	Content
Transmitting+	EtherCAT_OUT_TX+	1	EtherCAT output port transmit +
Transmitting-	EtherCAT_OUT_TX-	2	EtherCAT output port transmit -
Receiving+	EtherCAT_OUT_RX+	3	EtherCAT output port transmit +
Unused	NC	4	Do not connect any device.
Unused	NC	5	Do not connect any device.
Receiving-	EtherCAT_OUT_RX-	6	EtherCAT output port transmit -
Unused	NC	7	Do not connect any device.
Unused	NC	8	Do not connect any device.
Enclosure GND	FG	Housing	It is connected with the shielded wire of the cable

CN4



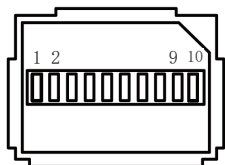
Wiring of CN4:

Control circuit connector

Applicable	Symbol	Connector pin No.	Content
General input COM	SI-COM	6	<ul style="list-style-type: none"> It is connected to the positive pole or negative pole of the external DC power supply (12~ 24V). Use 12V±5%-24V±5% power supply.
General input 1	SI1	5	<ul style="list-style-type: none"> The function can be allocated through parameters. For details, please refer to the <i>Technical Data - Basic Functional Specifications</i>. Please note that there are restrictions on the allocation of functions. For example, external clamping input can only be defined as SI5 for EXT1, SI6 for EXT2 and SI7 for EXT3. Please note that channels SI5 and SI6 enable high-speed digital signal input of up to 1 Mhz
General input 2	SI2	7	
General input 3	SI3	8	
General input 4	SI4	9	
General/High-speed input 5	SI5	10	
General/High-speed input 6	SI6	11	
General input 7	SI7	12	
General input 8	SI8	13	
General output 1	SO1+	1	<ul style="list-style-type: none"> The function can be allocated through parameters. For details, please refer to <i>Technical Data - Basic Functional Specifications</i>. The general output 3 enables high-speed digital signal output of up to 1 Mhz. Note: Please connect 12V-24V power supply at pins 23 and 24 when using this channel.
	SO1-	2	
General output 2	SO2+	25	
	SO2-	26	
General/High-speed output 3	SO3+	3	
	SO3-	4	
Phase A output/position comparison output 1	OA+/OCMP1+	17	<ul style="list-style-type: none"> The encoder signal or external displacement sensor signal (phases A and B) after frequency division processing of differential output. (RS422 driver output). The frequency dividing ratio can be set by parameters. The GND of the long wire receiver of the output circuit is connected to the signal GND, which is not insulated. The maximum output frequency is 4 Mpps (after frequency quadrupling). It can be used as a position pair output via parameter setting. For details, please refer to <i>Technical Data - Basic Functional Specifications</i>. This differential signal is received via a long wire receiver (AM26C32 or equivalent). Please connect the terminal resistance (about 3300) between the inputs of the long wire receiver. Please use shielded twisted-pair cable wiring, and the shielded wire should be connected with the connector shell.
	OA-/OCMP1-	18	
Phase B output/position comparison output 2	OB+/OCMP2+	20	
	OB-/OCMP2-	19	
Position comparison output 3	OCMP3+	21	
	OCMP3-	22	
Signal GND	GND	16	<ul style="list-style-type: none"> Signal GND. Be sure to connect this terminal to the wire receiver GND.
Position comparison output CZ	CZ	14	<ul style="list-style-type: none"> Open circuit collector output, encoder Z phase signal.
Analog input	AI	15	<ul style="list-style-type: none"> Analog voltage input signal. Analog voltage signal input of -10V~+10V is allowed, with a 16-bit resolution.
External power supply for high-speed DO output	HDO_COM+	23	<ul style="list-style-type: none"> Special pin for external power supply of high-speed digital output. Please supply 12V-24V power at this pin
	HDO_COM-	24	
Enclosure GND	FG	Housing	<ul style="list-style-type: none"> It is connected to the grounding terminal inside the servo driver.

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CN5

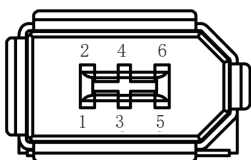


Wiring of CN5:

External displacement sensor connector

Applicable	Symbol	Connector pin No.	Content
Power output for external displacement sensor	EX5V	1	Power supply to external phases A, B and Z encoders. Note: EX5V is connected to pin 1 (E5V) of CN6 inside the servo driver. Maximum: 5V±5%, 300 mA. When the external displacement sensor above the consumption current is used, the client is required to prepare an external power supply.
	EX0V	2	Connected to GND of servo driver control circuit.
Serial communication signal of external displacement sensor	EXPS	3	Serial communication signal
	$\overline{\text{EXPS}}$	4	
Phases A, B and Z signal input of external displacement sensor	EXA	5	Phase A input signal
	$\overline{\text{EXA}}$	6	
	EXB	7	Phase B input signal
	$\overline{\text{EXB}}$	8	
	EXZ	9	Phase Z input signal
	$\overline{\text{EXZ}}$	10	
Enclosure grounding	FG	Housing	It is connected to the grounding terminal inside the driver.

CN6



Wiring of CN6:

Encoder connector

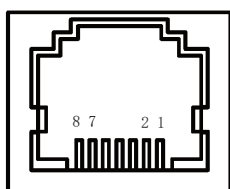
Applicable	Symbol	Connector pin No.	Content
Power supply of encoder	E5V	1	Connected to 5V of the control circuit.
	E0V	2	Connected to GND of the control circuit.
Unused	NC	3	Do not connect any device.
Unused	NC	4	Do not connect any device.
RS485	PS	5	Signal for encoder communication.
	$\overline{\text{PS}}$	6	
Enclosure grounding	FG	Housing	It is connected to the grounding terminal inside the servo driver.



CS signal (Hall sensor) connector (linear version)

Applicable	Symbol	Connector pinNo.	Content
Output for CS signal power supply	E5V	1	Connected to 5V of the control circuit.
	E0V	2	Connected to GND of the control circuit.
Unused	NC	3	Do not connect any device.
CS signal input	CS3	4	CS3 signal input
	CS2	5	CS2 signal input
	CS1	6	CS1 signal input
Enclosure grounding	FG	Housing	It is connected to the grounding terminal inside the servo driver.

CN8



Wiring of CN8:

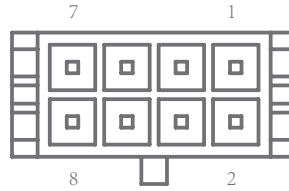
Special connector for gantry synchronization (RJ45)

Applicable	Symbol	Connector pin No.	Content
Gantry synchronous communication 1	SYNC1+	1	Gantry synchronous serial communication 1 data + Gantry synchronous serial communication 1 data - Master-slave objects are configurable.
	SYNC1-	2	
Gantry synchronous communication 2	SYNC2+	3	Gantry synchronous serial communication 2 data + Master-slave objects are configurable.
Unused	NC	4	Do not connect any device.
Unused	NC	5	Do not connect any device.
Gantry synchronous communication 2	SYNC2-	6	Gantry synchronous serial communication 2 data - Master-slave objects are configurable.
Unused	NC	7	Do not connect any device.
Unused	NC	8	Do not connect any device.
Enclosure GND	NC	Housing	It is connected with the shielded wire of the cable.

Note: Gantry function is used for the servo drive. Please use Cat5 or Cat5e cross-band shielded Ethernet cable for interconnection

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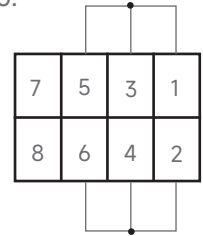
Wiring of CN9:



Name	Symbol	Connector pin No.	Content
-12V	—	1	STO safety bypass power supply from inside the driver
+12V	—	2	
Safe input 1	SF1-	3	STO requests input of signal data 1-
	SF1+	4	STO requests input of signal data 1+
Safe input 2	SF2-	5	STO requests input of signal data 2-
	SF2+	6	STO requests input of signal data 2+
EDM output	EDM-	7	Monitoring output signal data of STO safety function failure-
	EDM+	8	Monitoring output signal data of STO safety function failure+

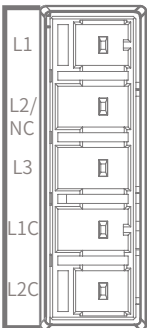
The standard safety bypass plug (internal wiring) provided before delivery of the driver, i.e. wiring that does not form a safety circuit when the safety function is not used:

Pin No.



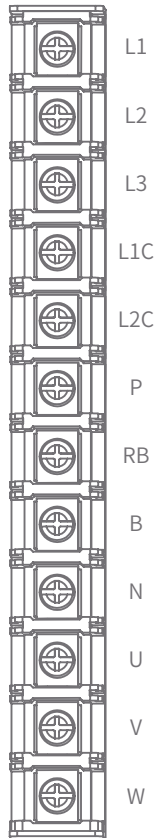
CNA wiring:

CNA provides the interfaces for the driver power supply and driver control power supply. When single-phase AC220V wiring is used for the power supply of type B and type C drivers, please connect ports L1 and L3.



CNA

Name	Symbol	Connector pin No.	Content
L1	L1	1	Single-phase electricity /three-phase electricity L1 connector
L2/NC	L2/NC	2	Three-phase electricity L2 connector (NC for type A driver)
L3	L3	3	Single-phase electricity/three-phase electricity L3 connector
L1C	L1C	4	Control power single-phase input
L2C	L2C	5	Control power single-phase input

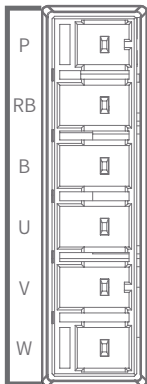


Type D driver power terminal:

The power, control, motor and braking resistor interfaces of type D driver are crimped with nuts, and the interface is defined by reference to CNA and CNB.

CNB wiring:

CNB provides the interface for servomotor power supply and braking resistor.



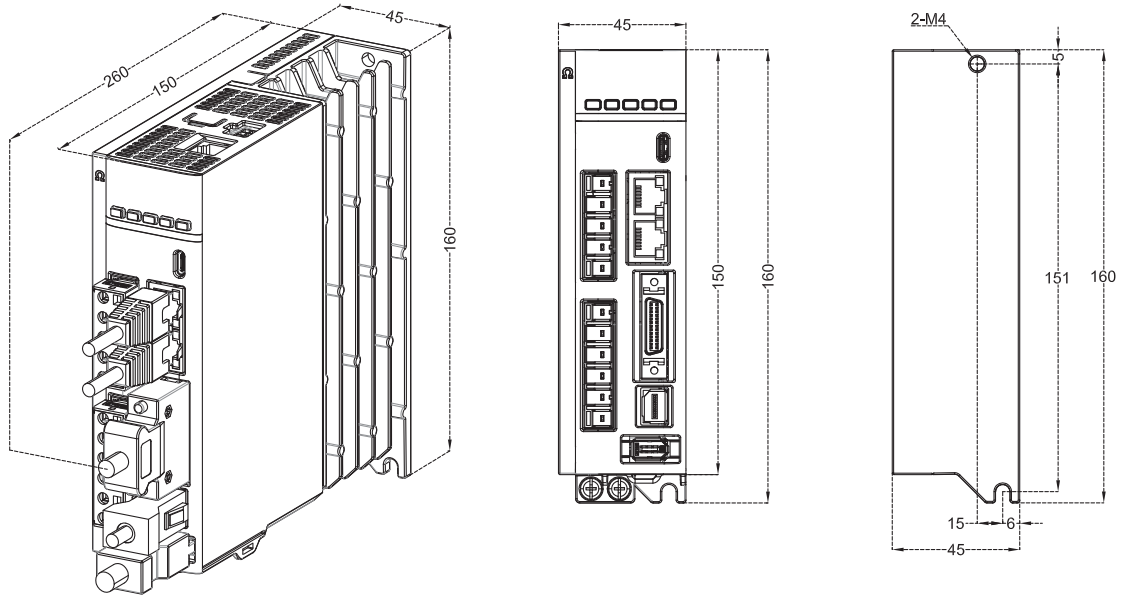
CNB

Name	Symbol	Connector pin No.	Content
P	P	1	Braking resistor +
RB	RB	2	Internal braking resistor; to use the internal braking resistor, short circuit of B and RB is required
B	B	3	External braking resistor interface
U	U	4	Motor phase U output
V	V	5	Motor phase V output
W	W	6	Motor phase W output

Installation Dimension Drawing (Bus Type)

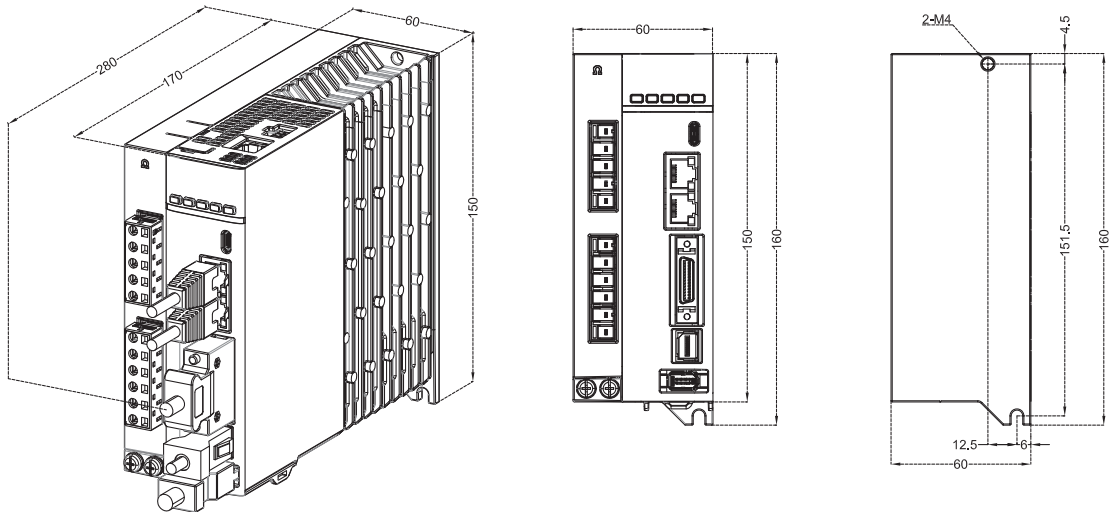
Overall dimensions of type A driver

Unit: mm



Overall dimensions of type B driver

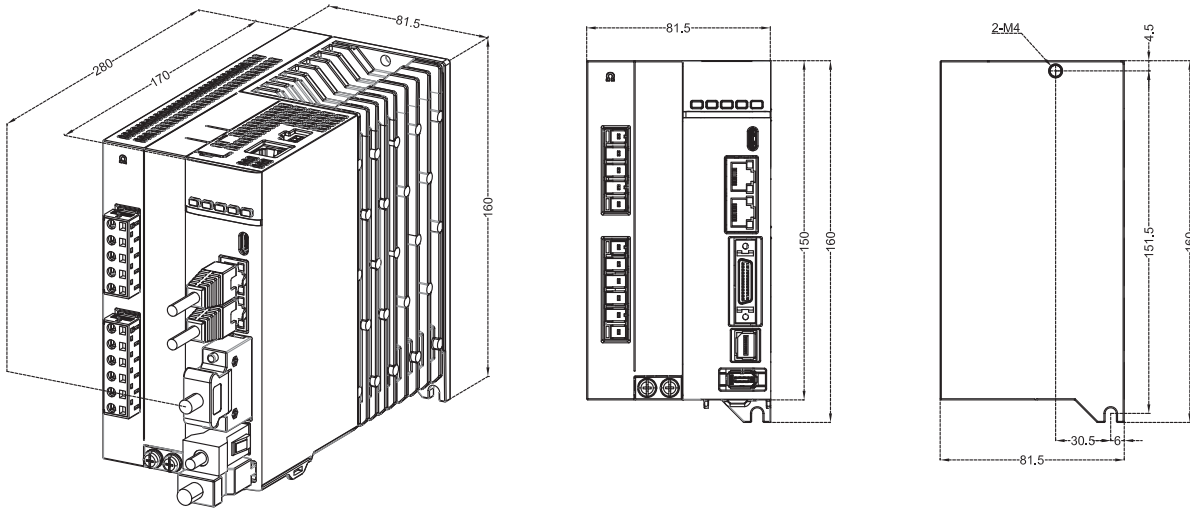
Unit: mm



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Overall dimensions of type C driver

Unit: mm



Overall dimensions of type D driver

Unit: mm

