PROLINECNC

NG۱۰۰A Series Servo Drive Quick Start Guide(EN۲٤,۱۰)

Directory

1 Specification and Installation

١,١ Model Number

NG١٠٠A- P R ٥R٥ S٢
① ② ③ ④ ⑤

①: **Serial number**
NG١٠٠A Series

②: **Product category**
P: Pulse/Analog/RS٤٨٥

③: **Motor Type**
R: Rotary servo motors

④: **Rating**

⑤: **Voltage class** S٢:
Single/Three phase ٢٢٠V T٣:
Three phase ٣٨٠V

Single phase ٢٢٠V	٠٠١	١R٦	٢R٨	٥R٥	٧R٦
Cont [A rms]	١,٠A	١,٦A	٢,٨A	٥,٥A	٧,٦A
Cont [P w]	١٠٠W	٢٠٠W	٤٠٠W	٧٥٠W	١٠٠٠W

Single/Three phase ٢٢٠V	٠١٢	٠١٤
Cont [A rms]	١١,٦A	١٤,٠A
Cont [P w]	١٥٠٠W	٢٠٠٠W

Three phase ٣٨٠V	٣R٥	٥R٤	٨R٤
Cont [A rms]	٣,٥A	٥,٤A	٨,٤A
Cont [P w]	١٠٠٠W	١٥٠٠W	٢٠٠٠W

١,٢ Electrical Specifications

Physical Dimensions	**SIZE-A**			**SIZE-B**		**SIZE-C**				
NG١٠٠A	٠٠١S٢	١R٦S٢	٢R٨S٢	٥R٥S٢	٧R٦S٢	٠١٢S٢	٠١٤S٢	٣R٥T٣	٥R٤T٣	٨R٤T٣
Continuous output current Arms	١,٠	١,٦	٢,٨	٥,٥	٧,٦	١١,٦	١٤,٠	٣,٥	٥,٤	٨,٤
Maximum output current Arms	٣,٩	٥,٨	١٠,١	١٦,٩	٢٣,٠	٣٢,٠	٤٢,٠	١١,٠	١٤,٠	٢٠,٠
Continuous input current Arms	١,٣	٢,٣	٤,٠	٧,٩	٩,٦	Single phase ١٢,٨ Three phase ٨,٠	Single phase ١٦,٠ Three phase ١٠,٢	٢,٤	٣,٦	٦,٦
Power supply of main circuit	Single phase AC٢٠٠V~٢٤٠V -١٠%~+١٠% ,٥٠/٦٠Hz					Single /Three phase AC٢٠٠V~٢٤٠V -١٠%~+١٠% ,٥٠/٦٠Hz		Three phase AC٣٨٠V~٤٤٠V -١٠%~+١٠% ,٥٠/٦٠Hz		
Brake release function١	No Built-in regenerative resistor			Optional ٥٠Ω/٥٠W Built-in		Optional ٢٥Ω/٨٠W Built-in regenerative resistor		Optional ١٠٠Ω/٨٠W Built-in regenerative resistor		

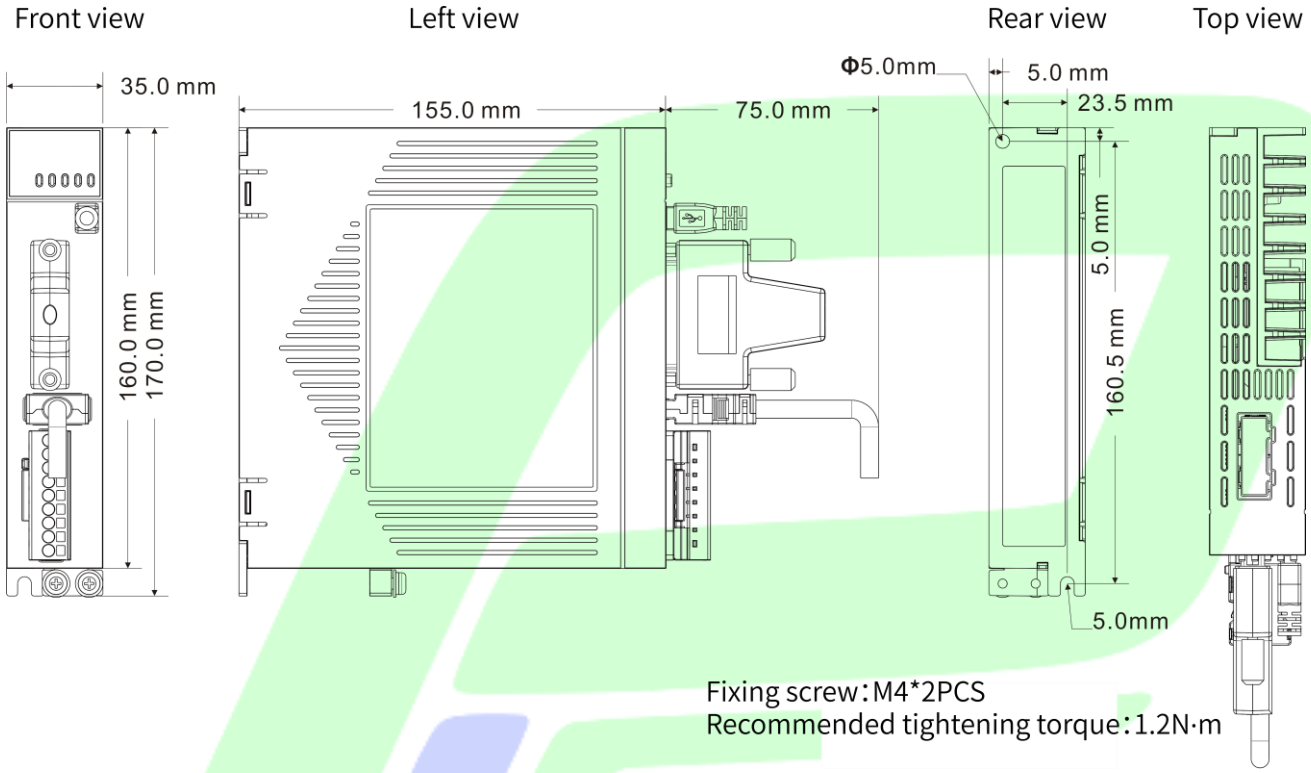
Note١: HR٣-PR Serial support External regenerative resistor 。

۱,۳ General Specifications

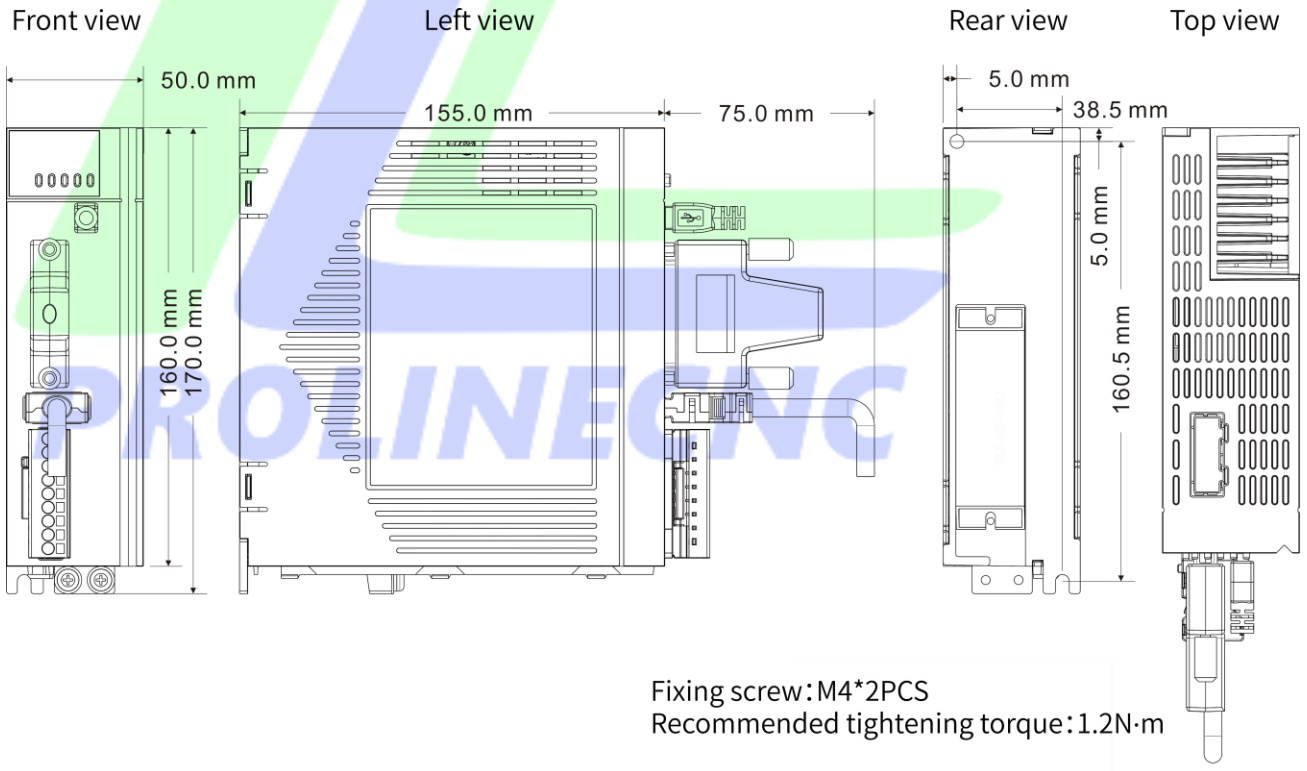
Item			Description
Basic specifications	Control mode		IGBT SVPWM control, sine wave current drive mode ۲۲۰V，۳۸۰V: Single/Three-phase full bridge rectification.
	use Conditions	Use/Storage temperature	۰～+٤۰℃ / -۲۰～+۷۰℃
		Use /Storage humidity	Below ۹۰٪ RH (without condensation)
		Vibration/Impact resistance	٤,۹m/s² / ۱۹,٦m/s²
		IP rating	IP۲۰
		Pollution degree	PD۲
		Altitude	Maximum altitude:٥,۰۰۰m. For altitudes lower than or equal to ۱۰۰۰m, derating is not required. For altitudes above ۱۰۰۰m but lower than ۲۰۰۰m, derate ۱٪ for every additional ۱۰۰m. For altitudes above ۲۰۰۰m, please contact the manufacturer.
Position control mode	Performance	Shaping of instructions	Position instruction low-pass filtering, mean filtering
		Feed forward compensation	Support speed feedforward (۰～۱۰۰,۰٪) setting, eliminate follow up deviation.
	Frequency division output	Output mode	Phase A, phase B,phase Z: differential output
		Frequency division range	The motor rotates one circle, and the frequency can be divided into any pulse in the range of ۱٤۰ to ۱۰٤۸٥۷٦.
Speed/ Torque control mode	Performance	current loop	Step Response Time: ۱۸۷,٥μs (۰～۱۰۰٪) Frequency response: -۳dB (Amplitude attenuation bandwidth) , ۲۰۰۰Hz (Reference Command: ±۲٥٪) ; -۹۰°(Phase shifted bandwidth) , ۳٥۰۰Hz (Reference Command: ±۲٥٪)
		Speed control range	۰～۱۲۰۰۰rpm，If the speed exceeds ٦۰۰۰rpm, please contact the manufacturer.
		Speed loop	Step Response Time: ٥٦۲,٥μs (۰～۱۰۰۰rpm) Frequency response: -۳dB (Amplitude attenuation bandwidth) , ۱۰۰۰Hz (Reference Command: ±٥۰۰rpm) ； -۹۰°(Phase shifted bandwidth) , ٦۳۰Hz(Reference Command: ±٥۰۰rpm)
		Torque control accuracy	±۲٪
Digital Input/output signa	Digital input signal		Function configurable: positive limit switch, negative limit switch, HomeSwitch, etc
	Digital output signal		Function configurable: Servo ready, zero speed signal, speed arrival, position arrival, positioning approach signal, torque limit medium, warning, servo failure, etc.
Built-in functions	Electronic gear ratio		Built-in two sets of electronic gear ratio, support gear ratio switching function
	Overtravel (OT) prevention		The servo drive stops immediately at P-OT or N-OT actions.
	Protections		Overcurrent, overvoltage, undervoltage, overload, main circuit detection abnormal, heatsink overheating, overspeed, encoder abnormal, parameter abnormal, etc.
	display function		٥-digit LED display, Main power CHARGE indicator
	Debug interface		USB
	vibration suppression		Four notches, ٥۰Hz~٥۰۰Hz, four of which are self-adaptive.
	usability		Self-tuning, velocity observer, model tracking.
	Others		Status display, alarm record, JOG running, etc.
Note ۱: Please install the servo driver at ambient temperatures in this range.			

١,٤ Installation Dimensions

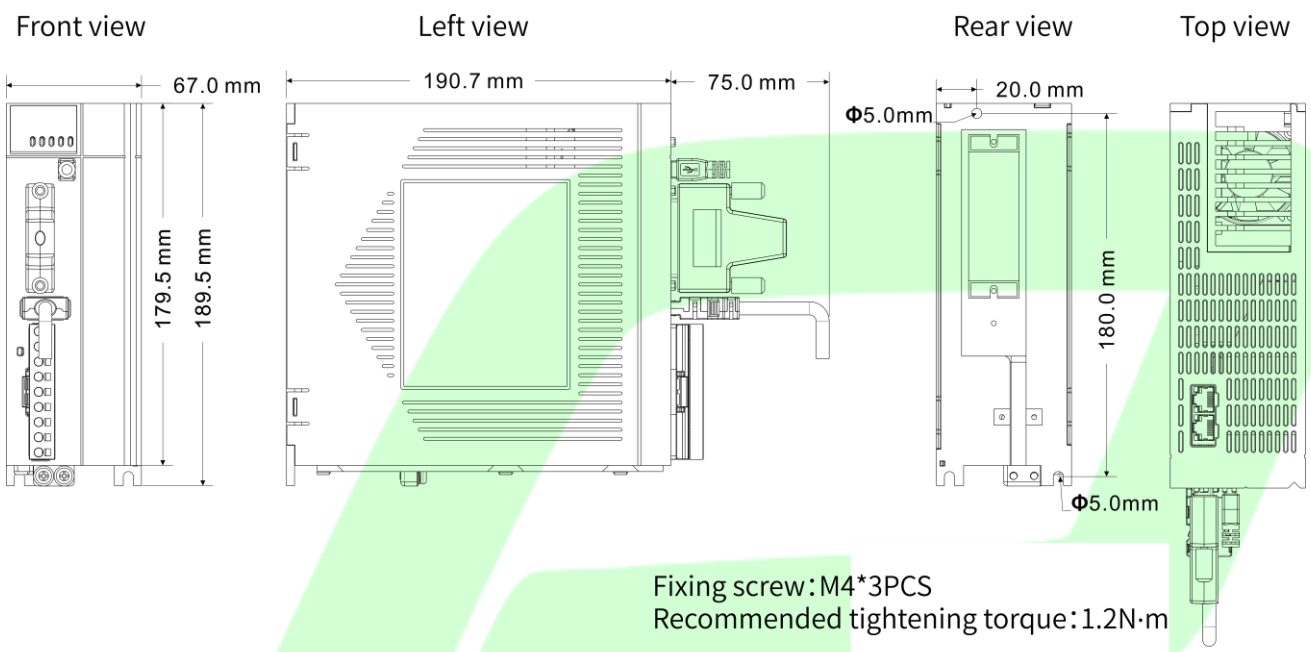
SIZE-A:



SIZE-B:



SIZE-C:



2 Wiring

٢,١ Servo System Wiring Diagram

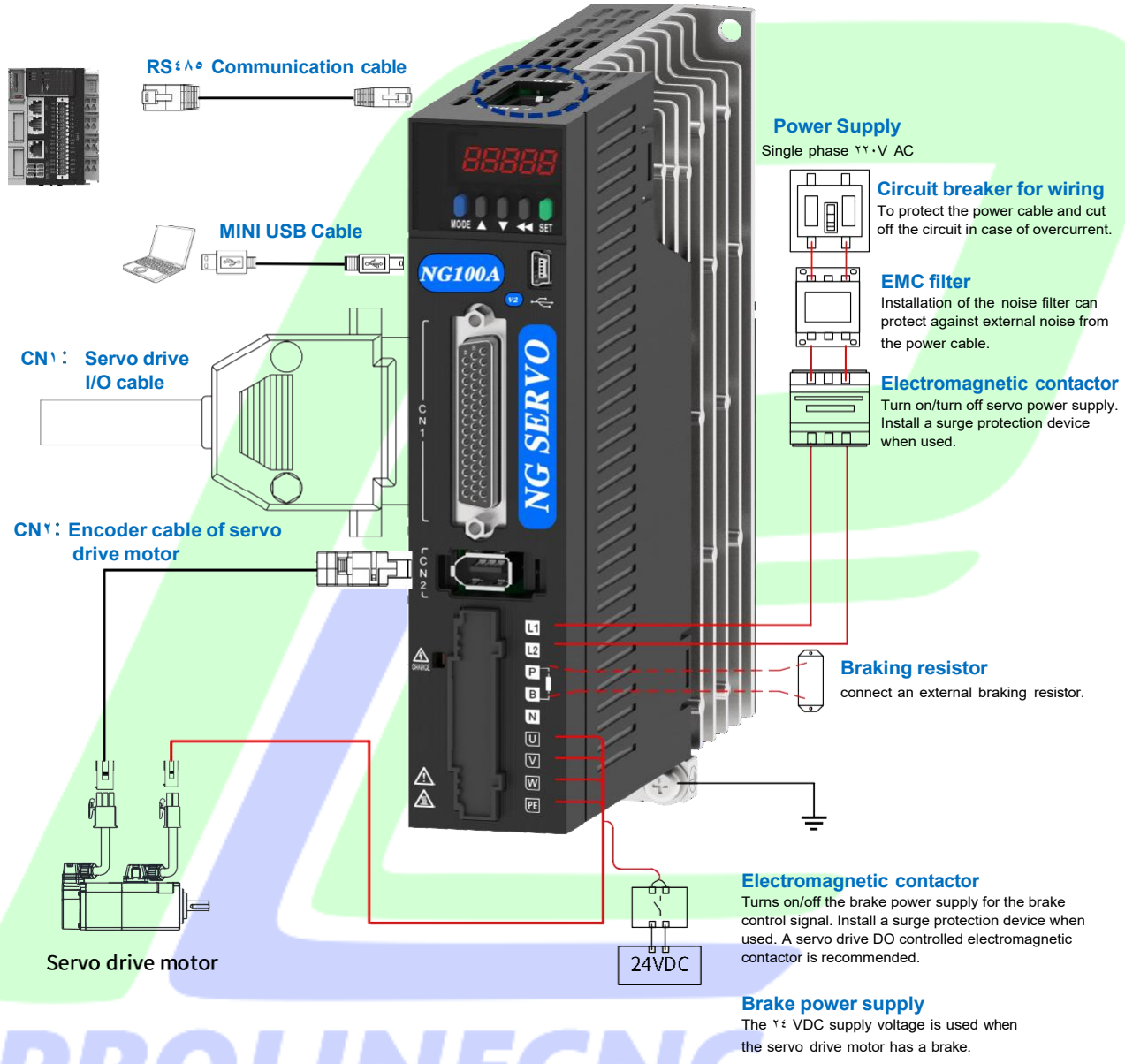


Figure2-1 Layout diagram of the SIZE-A system

- Please use a circuit breaker with leakage protection and a noise filter between the power supply and the main power supply terminals;
- The voltage and power of the holding brake power supply must meet the requirements of the motor holding brake parameters;
- When SIZE-A does not have a built-in regenerative resistor and requires the use of an external regenerative resistor, please select the appropriate resistor. Do not exceed the minimum external resistance value allowed in Table ٢-٣, otherwise it may cause damage to the driver.

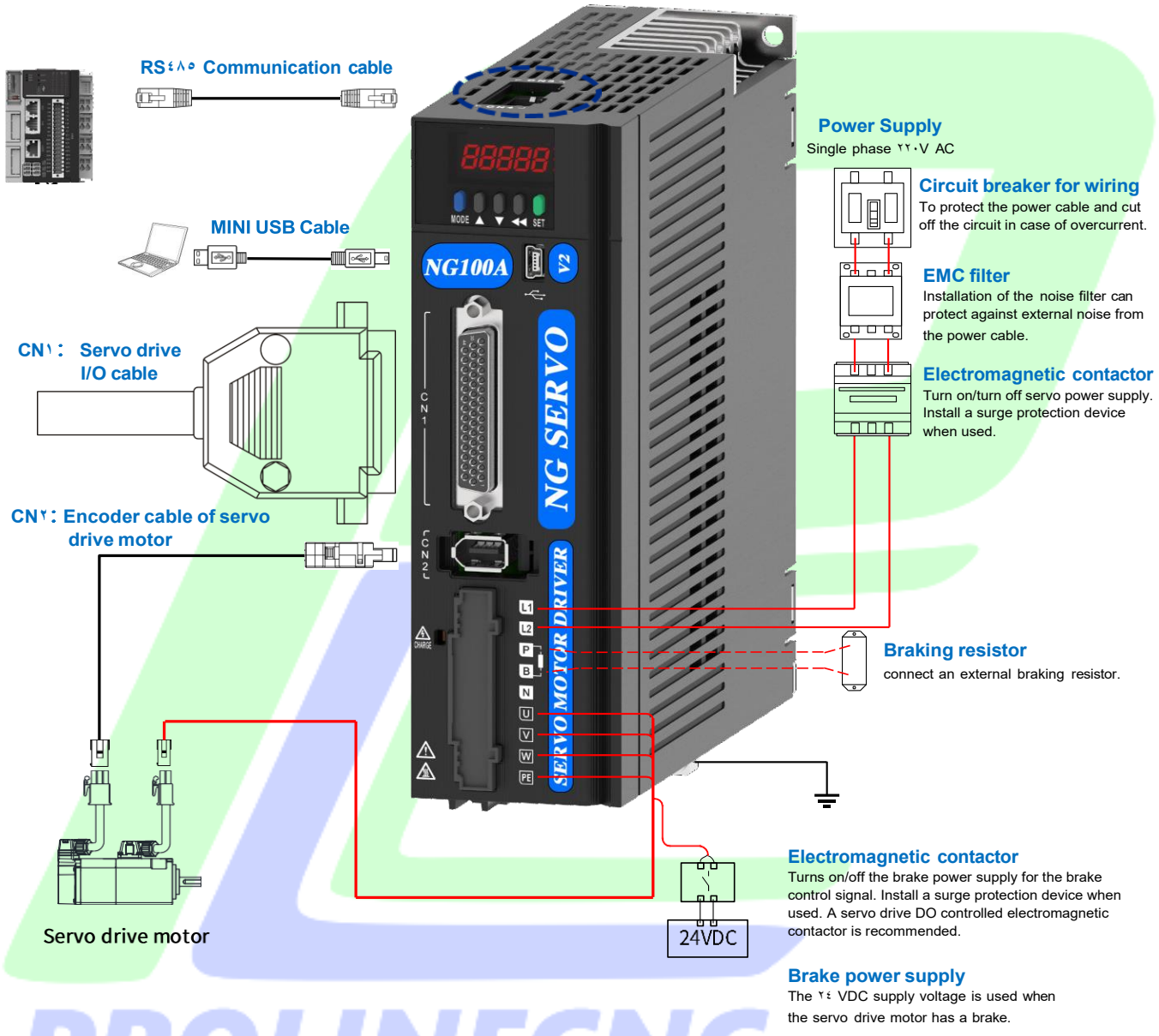


Figure2-2 Layout diagram of the SIZE-B system

- Please use a circuit breaker with leakage protection and a noise filter between the power supply and the main power supply terminals;
- The voltage and power of the holding brake power supply must meet the requirements of the motor holding brake parameters;
- When SIZE-B does not have a built-in regenerative resistor and requires the use of an external regenerative resistor, please select the appropriate resistor. Do not exceed the minimum external resistance value allowed in Table ٢-٣, otherwise it may cause damage to the driver.

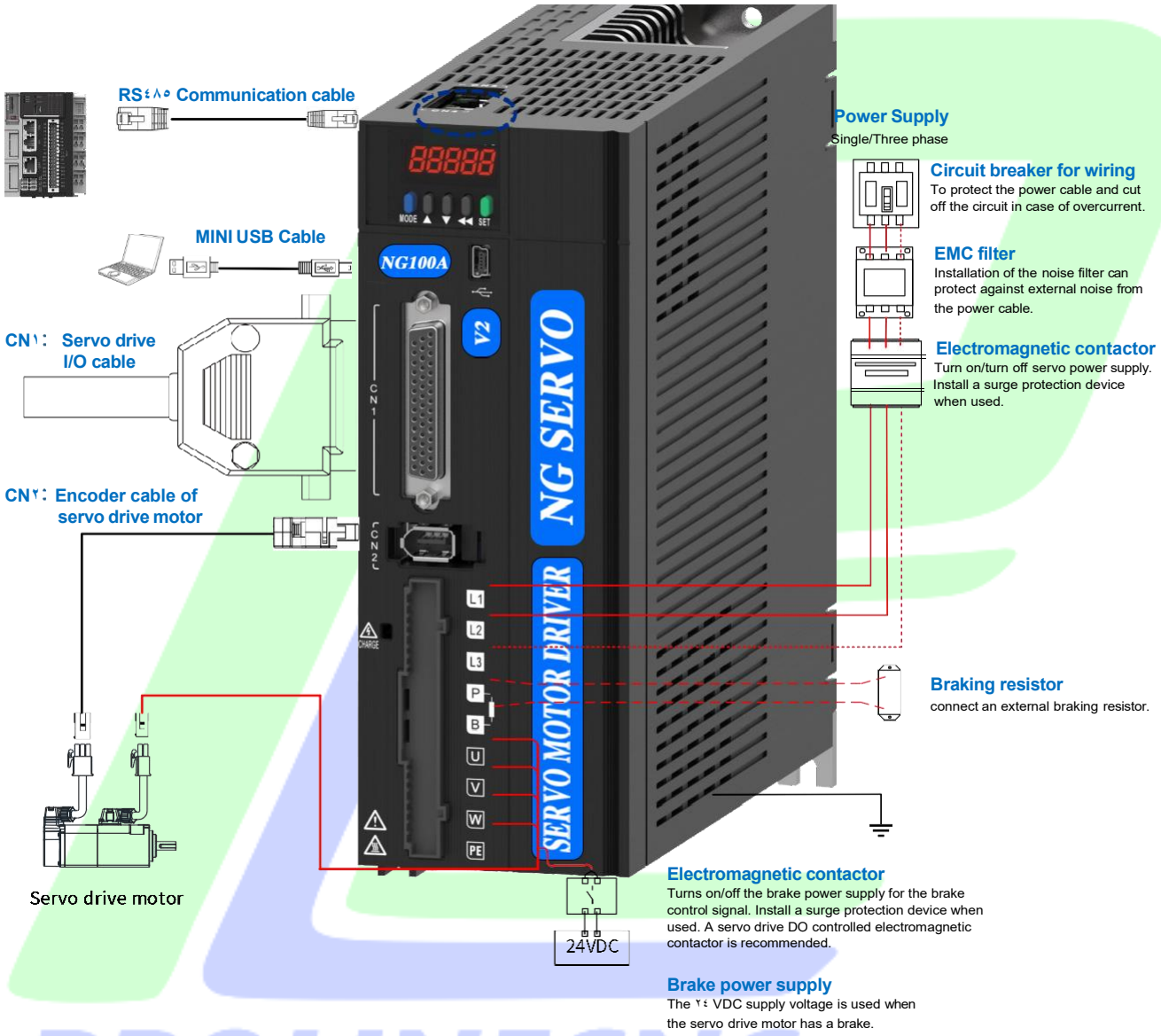


Figure2-3 Layout diagram of the SIZE-C system

- Please use a circuit breaker with leakage protection and a noise filter between the power supply and the main power supply terminals;
- The voltage and power of the holding brake power supply must meet the requirements of the motor holding brake parameters;
- When SIZE-C does not have a built-in regenerative resistor and requires the use of an external regenerative resistor, please select the appropriate resistor. Do not exceed the minimum external resistance value allowed in Table ٢-٣, otherwise it may cause damage to the driver.

٢,٢ Wiring of the Main Circuit

٢,٢,١ Main Circuit Terminals

Table٢-١ SIZE-A/B main circuit connecting terminal definition

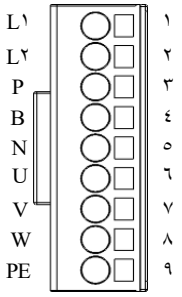
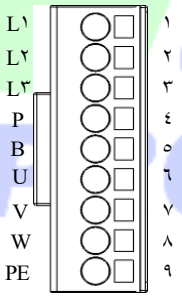
Junctor	Terminal number	Terminal label	Terminal function	Description
	١	L١	Main power input	Single-phase AC٢٠٠V～٢٤٠V，-١٠～+١٠٪，٥٠/٦٠Hz
	٢	L٢		
	٣	P	Regeneration function	If an external regenerative resistor is needed, connect it between terminals P and B.
	٤	B		
	٥	N		
	٦	U	Motor Drive	Connected to U, V, W and PE phases of the servo motor.
	٧	V		
	٨	W		
	٩	PE		

Table٢-٢ SIZE-C main circuit connecting terminal definition

Junctor	Terminal number	Terminal label	Terminal function	Description
	١	L١	Main power input	Single/Three-phase AC٢٠٠V～٢٤٠V，-١٠～+١٠٪，٥٠/٦٠Hz Three-phase AC٣٨٠V～٤٤٠V，-١٠～+١٠٪，٥٠/٦٠Hz
	٢	L٢		
	٣	L٣		
	٤	P	Regeneration function	If an external regenerative resistor is needed, connect it between terminals P and B.
	٥	B		
	٦	U	Motor Drive	Connected to U, V, W and PE phases of the servo motor.
	٧	V		
	٨	W		
	٩	PE		

٢,٢,٢ Circlip type terminal connection method

The power terminal uses a circlip connector for quick connection. When connecting the power terminal, follow the following flowchart to ensure reliable connection.

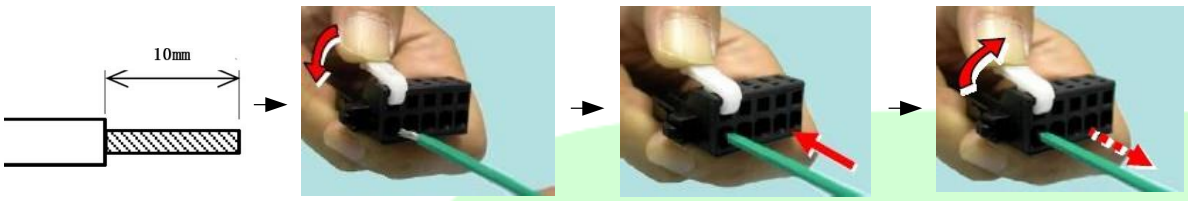


Figure2-4 Circlip type terminal connection method

- Peel off the insulation layer of the wire, with a bare wire length of ١٠mm.
- Press the operating lever to release the internal spring.
- Insert all bare wires into the connector.
- Release the operating lever, gently pull the wire to confirm secure connection, and then complete the wiring.

٢,٢,٣ Specifications of Main Circuit Cables

Table٢-٣ Recommended main circuit cables

SIZE	Model	L١、L٢、L٣		P、B		U、V、W		PE	
		mm٢	AWG	mm٢	AWG	mm٢	AWG	mm٢	AWG
Single-phase ٢٢٠V									
SIZE-A	٠٠١S٢	٢x٠,٧٥	١٨	٢x٠,٧٥	١٨	٣x٠,٧٥	١٨	٠,٧٥	١٨
	١R٦S٢	٢x٠,٧٥	١٨	٢x٠,٧٥	١٨	٣x٠,٧٥	١٨	٠,٧٥	١٨
	٢R٨S٢	٢x٠,٧٥	١٨	٢x٠,٧٥	١٨	٣x٠,٧٥	١٨	٠,٧٥	١٨
SIZE-B	٥R٥S٢	٢x٠,٧٥	١٨	٢x٠,٧٥	١٨	٣x٠,٧٥	١٨	٠,٧٥	١٨
	٧R٦S٢	٢x١,٠٠	١٧	٢x١,٠٠	١٧	٣x١,٠٠	١٧	١,٠٠	١٧
SIZE-C	٠١٢S٢	٢x١,٥٠	١٥	٢x١,٥٠	١٥	٣x١,٥٠	١٥	١,٥٠	١٥
	٠١٤S٢	٢x٢,٠٠	١٤	٢x٢,٠٠	١٤	٣x٢,٠٠	١٤	٢,٠٠	١٤
Three-phase ٢٢٠V									
SIZE-C	٠١٢S٢	٣x١,٠٠	١٧	٢x١,٥٠	١٥	٣x١,٥٠	١٥	١,٥٠	١٥
	٠١٤S٢	٣x١,٥٠	١٥	٢x٢,٠٠	١٤	٣x٢,٠٠	١٤	٢,٠٠	١٤
Three-phase ٣٨٠V									
SIZE-C	٣R٥T٣	٣x٠,٧٥	١٨	٢x٠,٧٥	١٨	٣x٠,٧٥	١٨	٠,٧٥	١٨
	٥R٤T٣	٣x٠,٧٥	١٨	٢x٠,٧٥	١٨	٣x٠,٧٥	١٨	٠,٧٥	١٨
	٨R٤T٣	٣x٠,٧٥	١٨	٢x١,٠٠	١٧	٣x١,٠٠	١٧	١,٠٠	١٧

٢,٣ Wiring of the regenerative resistor

٢,٣,١ Wiring of external regenerative resistor

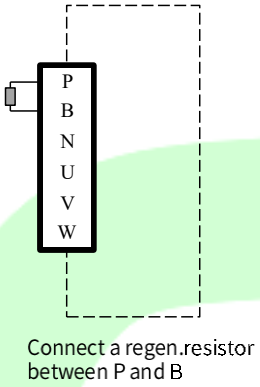


Figure2-5 Wiring of external regenerative resistor

- If an external regenerative resistor is needed for these models, please select the appropriate resistor. Do not exceed the min external resistance value allowed in Table ٢-٣, otherwise it may cause damage to the driver;
- External regeneration resistor connected between P and B;
- Do not connect the regeneration resistor to busbar P between N, otherwise it may cause damage to the drive and trigger a fire;
- Before using the servo, please confirm that the relevant parameters of the external regeneration resistor have been correctly set: P٠٢,٣٤ (regeneration resistor type) , P٠٢,٣٩ (power of external regenerative resistor) , P٠٢,٤٠ (resistance of external regeneration resistor).

٢,٣,٢ Regenerative resistor specifications

Table٢-٤ Regenerative resistor specifications

Servo driver Rated voltage and current		Min resistance of external resistor	Max braking energy absorbed by capacitance EC
Single phase ٢٢٠V	١,٠A	٥٠Ω	٥J
	١,٦A	٥٠Ω	١٠J
	٢,٨A	٤٥Ω	١٥J
	٥,٥A	٤٠	٢٦J
	٧,٦A	٢٠Ω	٢٦J
Single/three phase ٢٢٠V	١٢A	١٥Ω	٤٤J
	١٤A	١٥Ω	٥٣J
Three phase ٣٨٠V	٣,٥A	٨٠Ω	٣٩J
	٥,٤A	٦٠Ω	٣٩J
	٨,٤A	٤٥Ω	٥٧J

٢,٤ Wiring of the brake

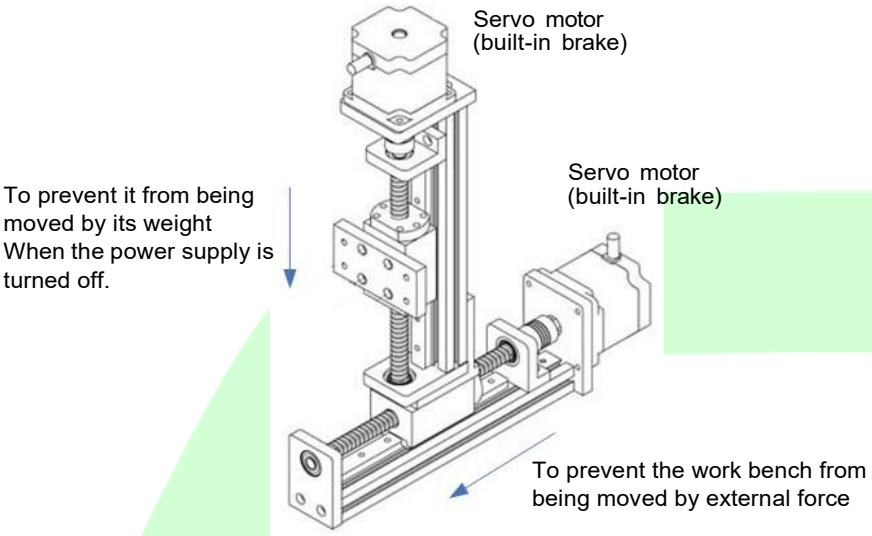


Figure2-6 Application of the motor brake

The brake is used to prevent the servo motor shaft from moving when the servo drive is in the non-operational status. This is to keep the motor and the mechanical load in locked positions.

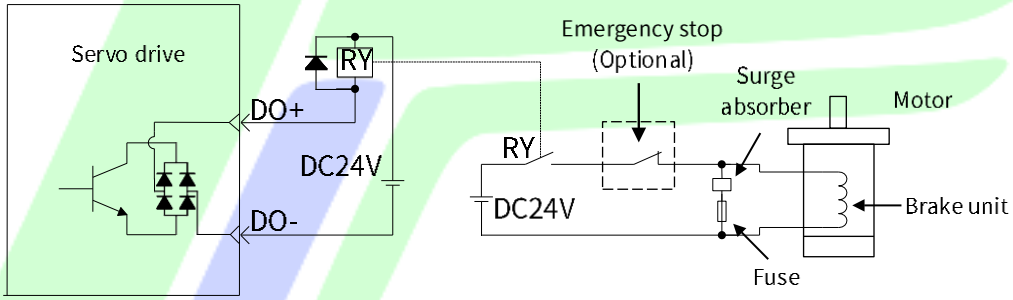


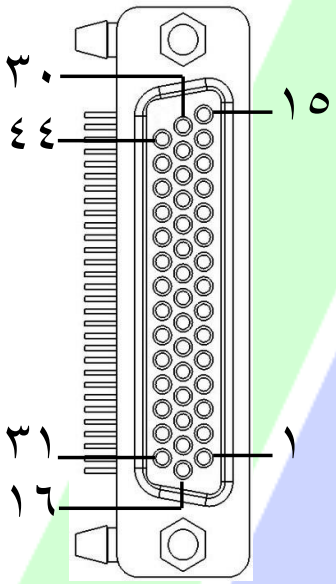
Figure2-7 Wiring of the brake

- The built-in brake in the servo motor is only used for position-lock purpose. Frequent use of the motor brake for emergency stop operations will shorten its service life. Only when the speed of the servo motor is less than ٢٠rpm, use this brake for position-lock in the stop state;
- It is recommended to use an independent power supply for the brake to prevent voltage drop caused by abnormalities in other electrical appliances, which may cause the brake to malfunction;
- Use a single power supply to the brake and brake control signals , avoid electromagnetic interference with electronic devices.

٢,٥ Port definition and wiring of control terminal (CN١)

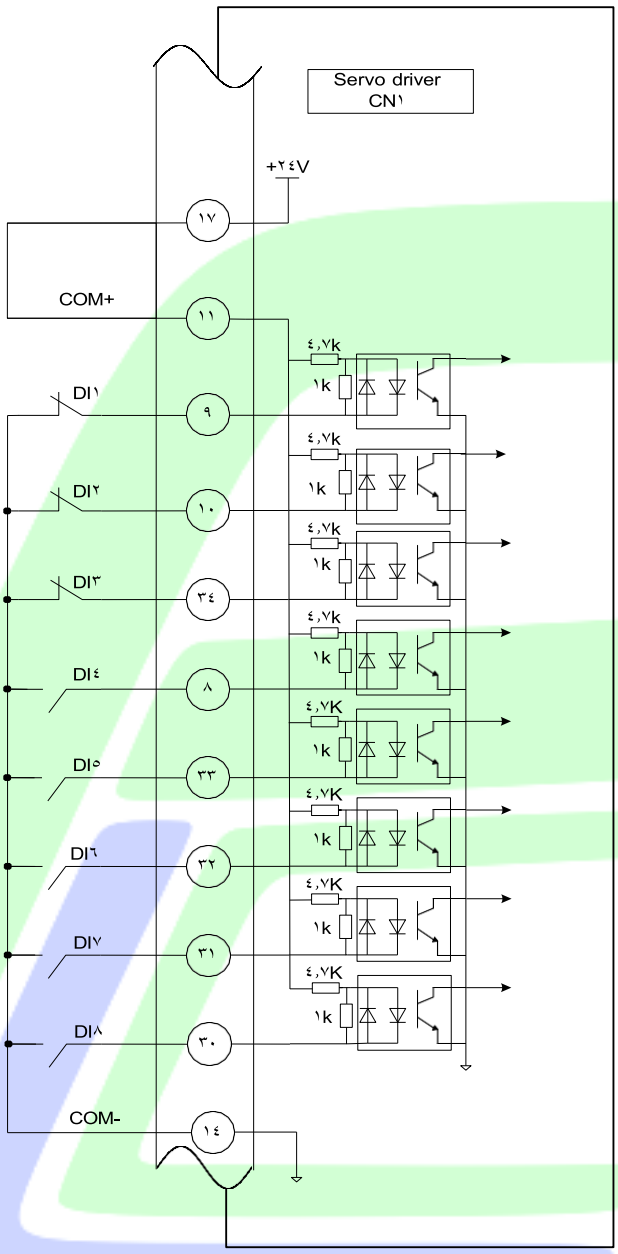
٢,٥,١ Port definition of control terminal (CN١)

Table٢-٥ Control signal CN١ port definition

IF interface connector (CN١)	Module Name	Signal Name	Pin No	Default Function
 HDR ٤٤P	Digital input	DI١	٩	Positive limit
		DI٢	١٠	Negative limit
		DI٣	٣٤	Origin switch
		DI٤	٨	Servo enable
		DI٥	٣٣	Fault reset
		DI٦	٣٢	Position deviation clearance
		DI٧	٣١	Zero speed hold
		DI٨	٣٠	No definition
		COM+	١١	Common terminal of DI terminals
	Digital output	DO١+	٧	Brake control
		DO١-	٦	
		DO٢+	٥	Servo running
		DO٢-	٤	
		DO٣+	٣	Servo fault output
		DO٣-	٢	
		DO٤+	١	Position reached
		DO٤-	٢٦	
		DO٥+	٢٨	Zero return completed
		DO٥-	٢٧	
	Frequency division output	PAO+	٢١	A-phase frequency division output signal
		PAO-	٢٢	
		PBO+	٢٥	B-phase frequency division output signal
		PBO-	٢٣	
		PZO+	١٣	Z-phase frequency division output signal
		PZO-	٢٤	
		OCZ	٤٤	Z-phase open collector output signal

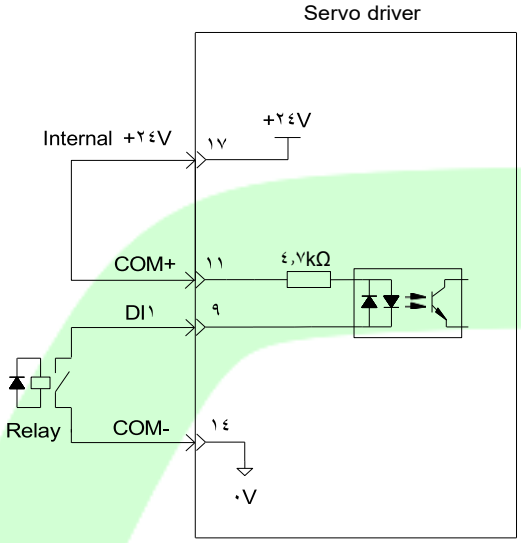
IF interface connector (CN١)	Module Name	Signal Name	Pin No	Default Function
		GND	٢٩	Frequency division output signal ground
	Position reference	PULSE+	٤١	Low speed pulse reference input
		PULSE-	٤٣	
		SIGN+	٣٧	
		SIGN-	٣٩	
		PULLHI	٣٥	Power input for pulse reference
		HPULSE+	٣٨	High speed pulse reference input
		HPULSE-	٣٦	
		HSIGN+	٤٢	High speed position reference sign
		HSIGN-	٤٠	
	Analog input	AI١	٢٠	Analog input signal ١
		AI٢	١٨	Analog input signal ٢
		GND-AI	١٦	Analog input signal ground
		GND-AI	١٩	Analog input signal ground
	٢٤V output power supply	+٢٤V	١٧	٢٤V output power supply
		COM-	١٤	
	Enclosure	PE	—	Shield layer

٢,٥,٢ Wiring of Digital input

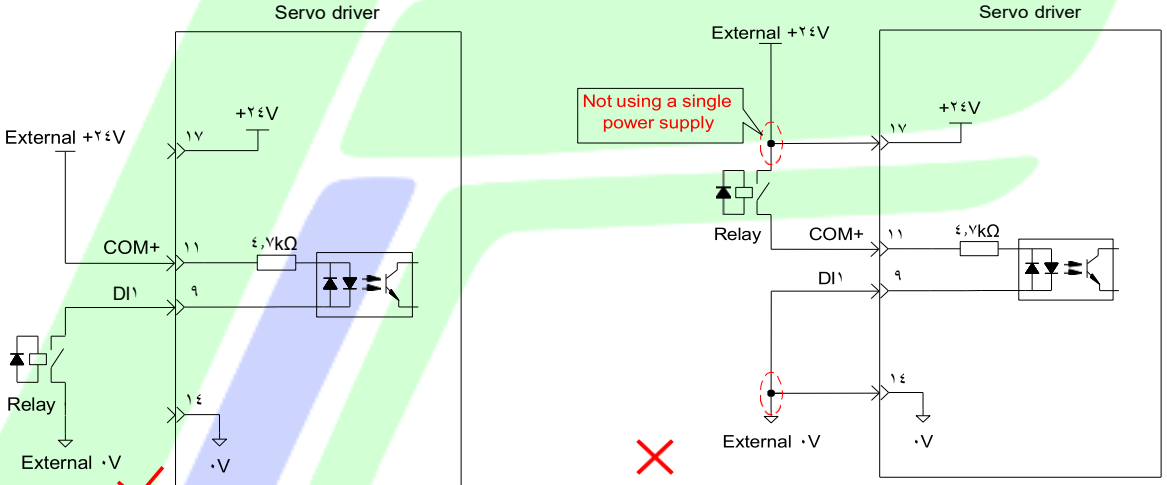


(١) The host controller provides relay output

a) When using the internal ٢٤V power supply:

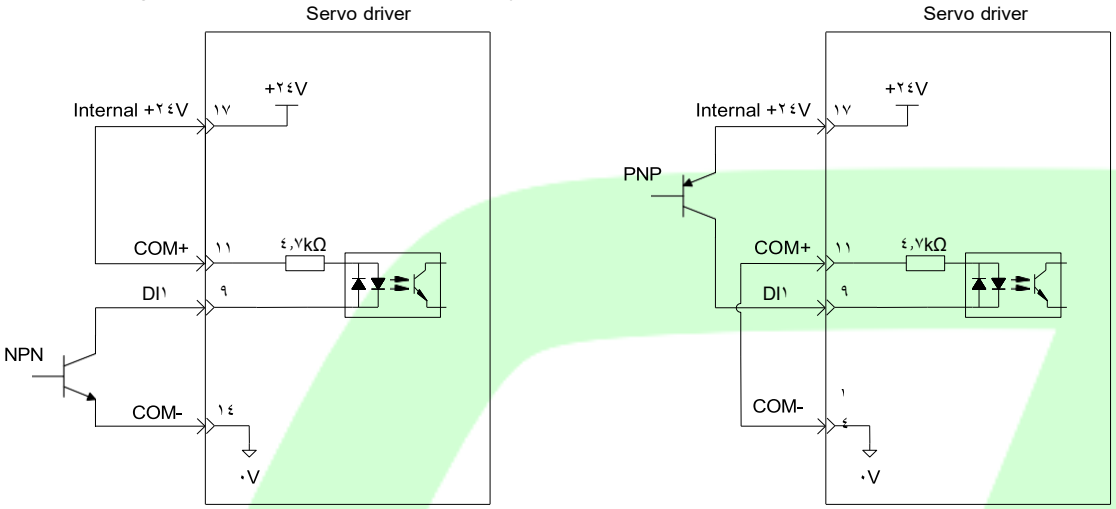


b) When using an external power supply:

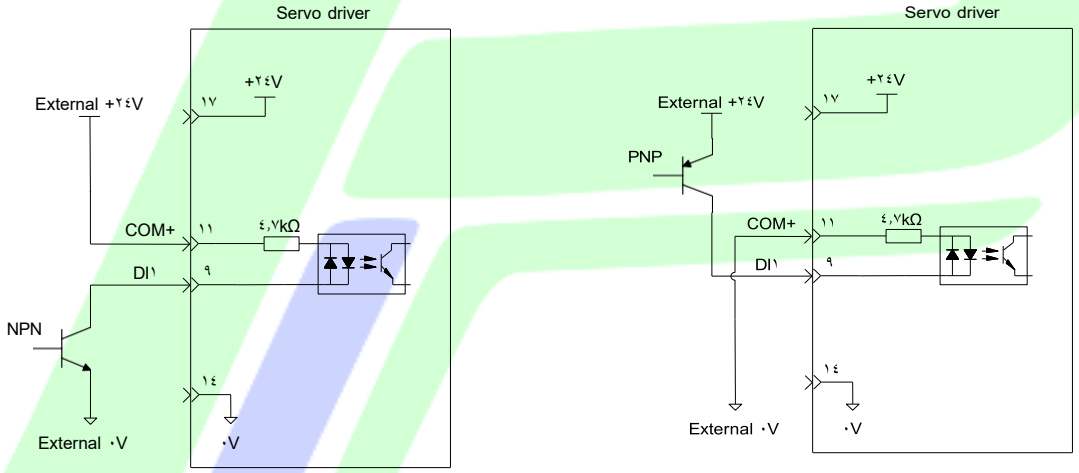


(٢) The host controller provides open-collector output

a) When using the internal ٢٤V power supply:

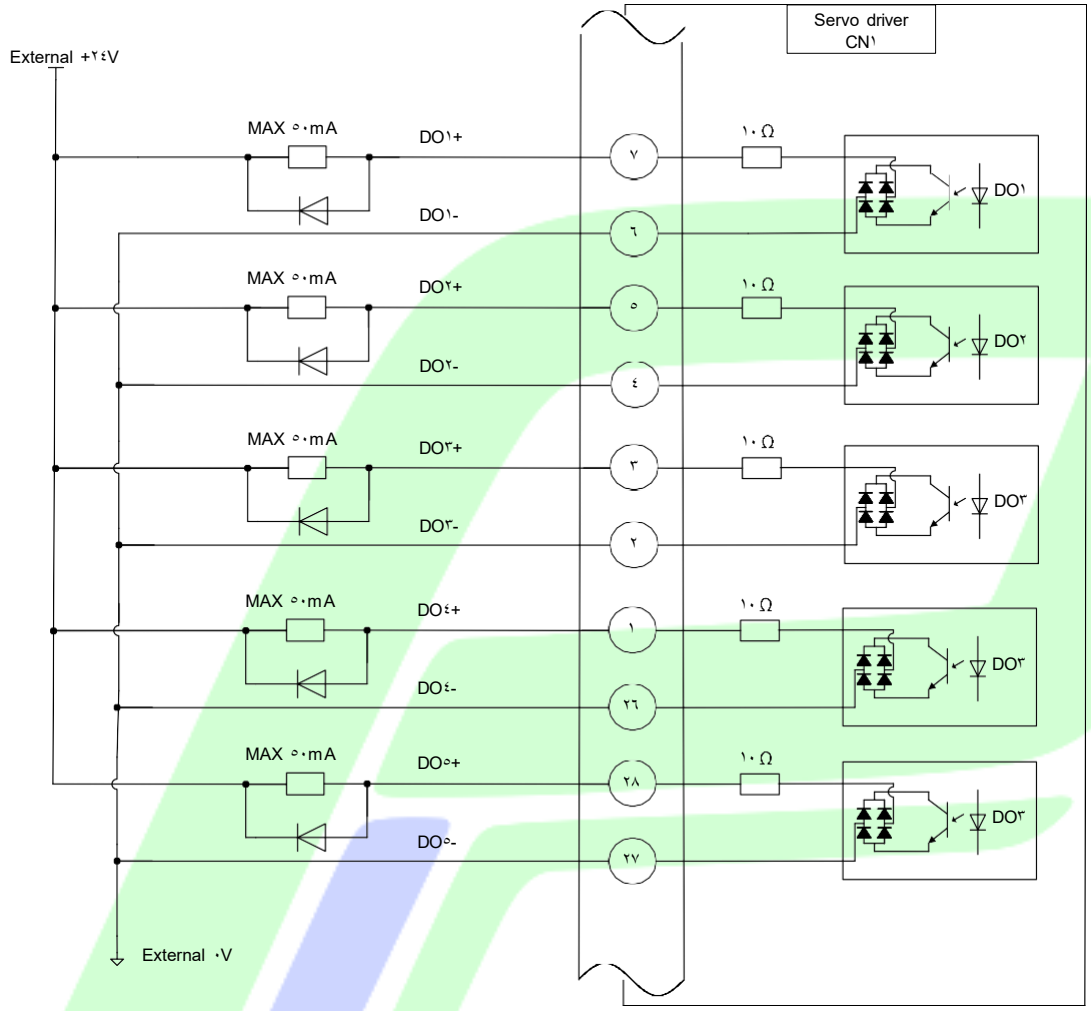


b) When using an external ٢٤V power supply:



➢ PNP and NPN input cannot be used together in the same circuit.

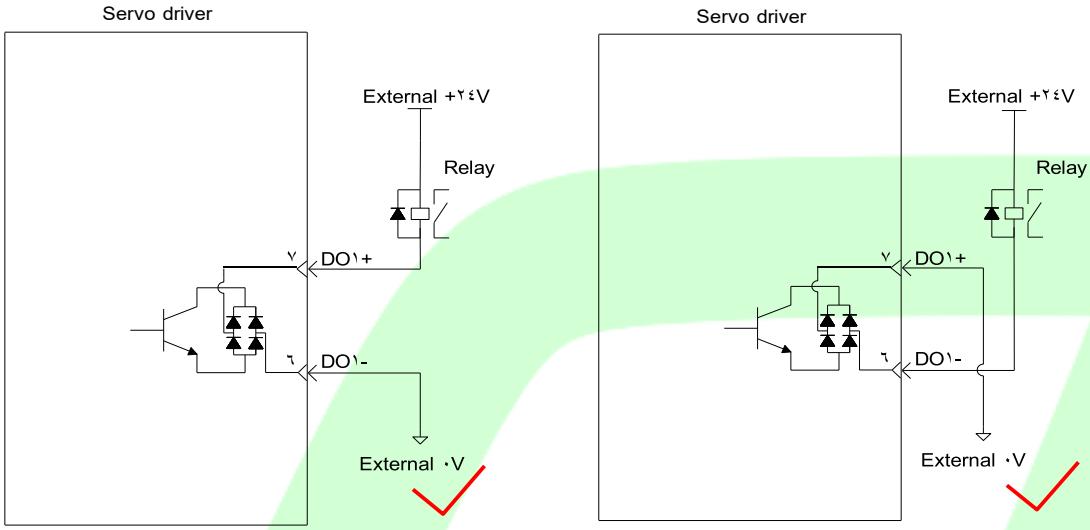
٢,٥,٣ Wiring of Digital output



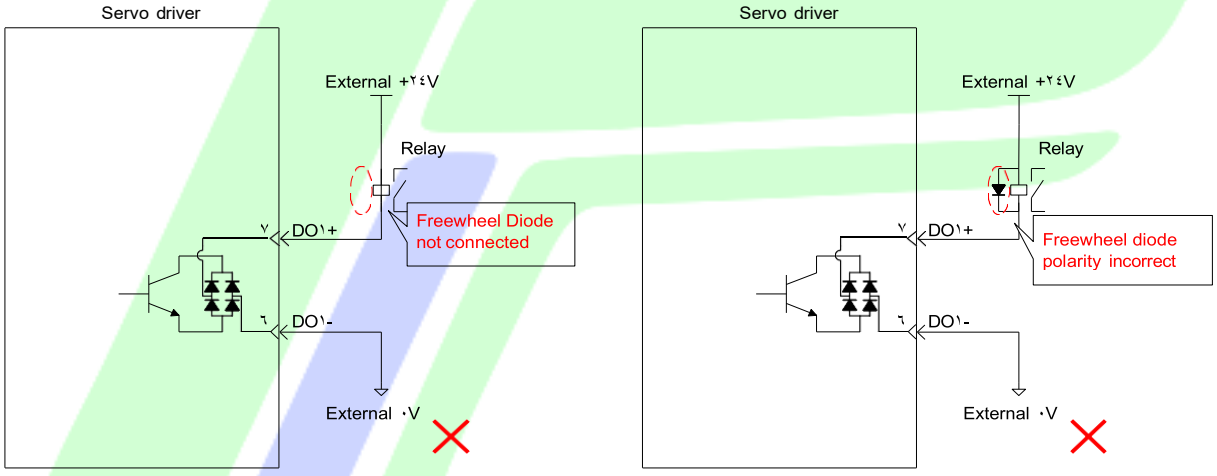
- The maximum permissible voltage and current capacity of the optocoupler output circuit inside the servo drive are as follows:
  - Maximum voltage: DC٣٠V;
  - Maximum current: DC٥٠mA;

(1) The host controller provides relay input

- Correct wiring:

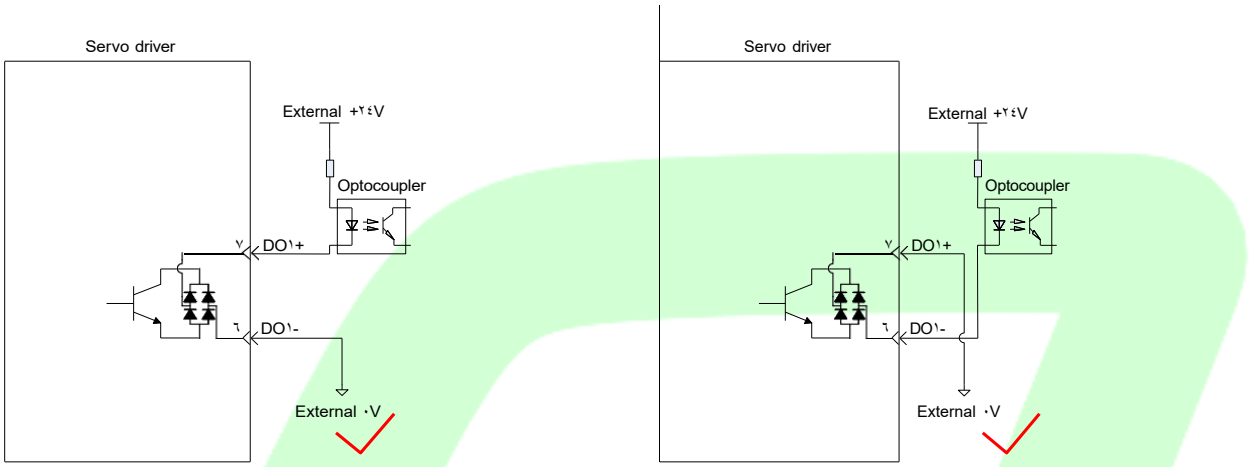


- Incorrect wiring:

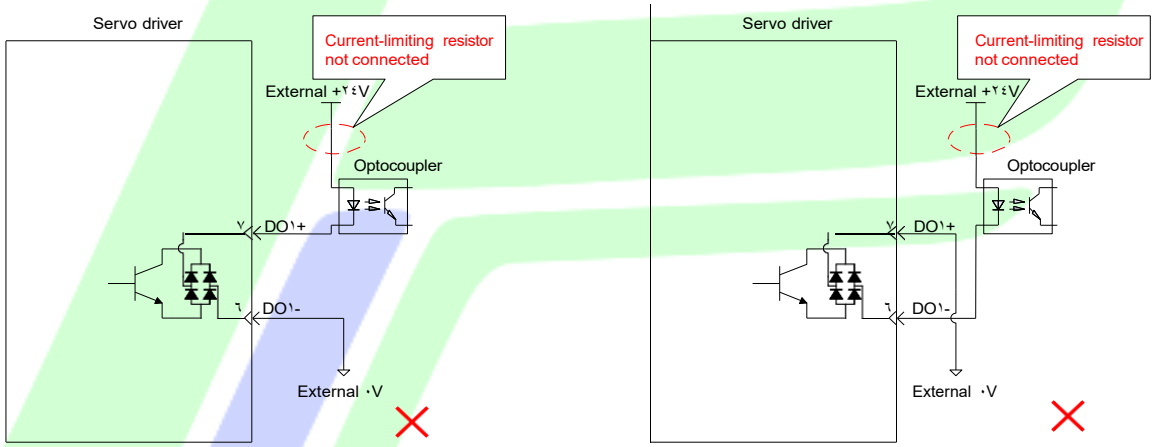


(2) The host controller provides optocoupler input:

- Correct wiring:



- Incorrect wiring:



٢,٥,٤ Wiring of encoder frequency division output signals

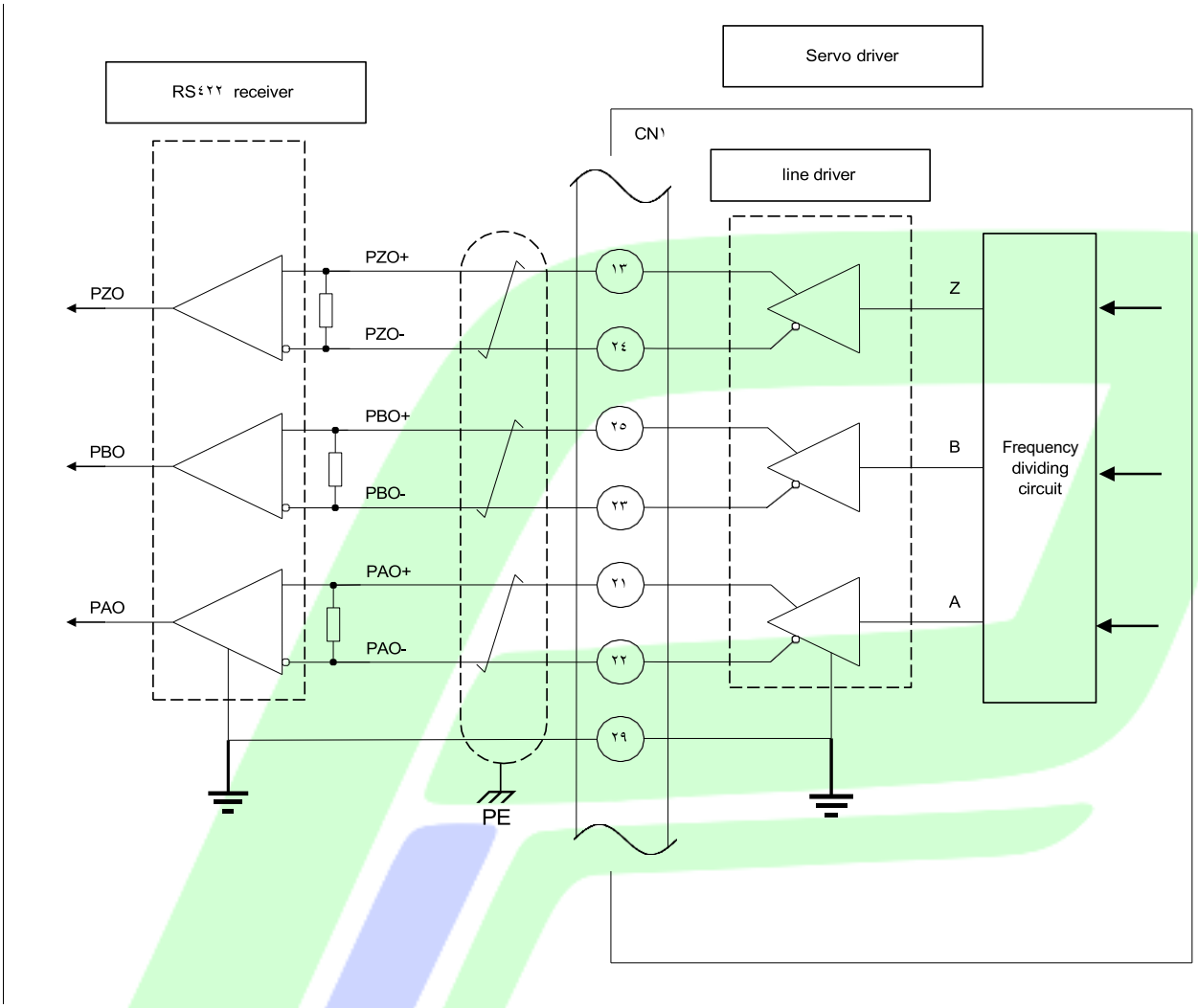


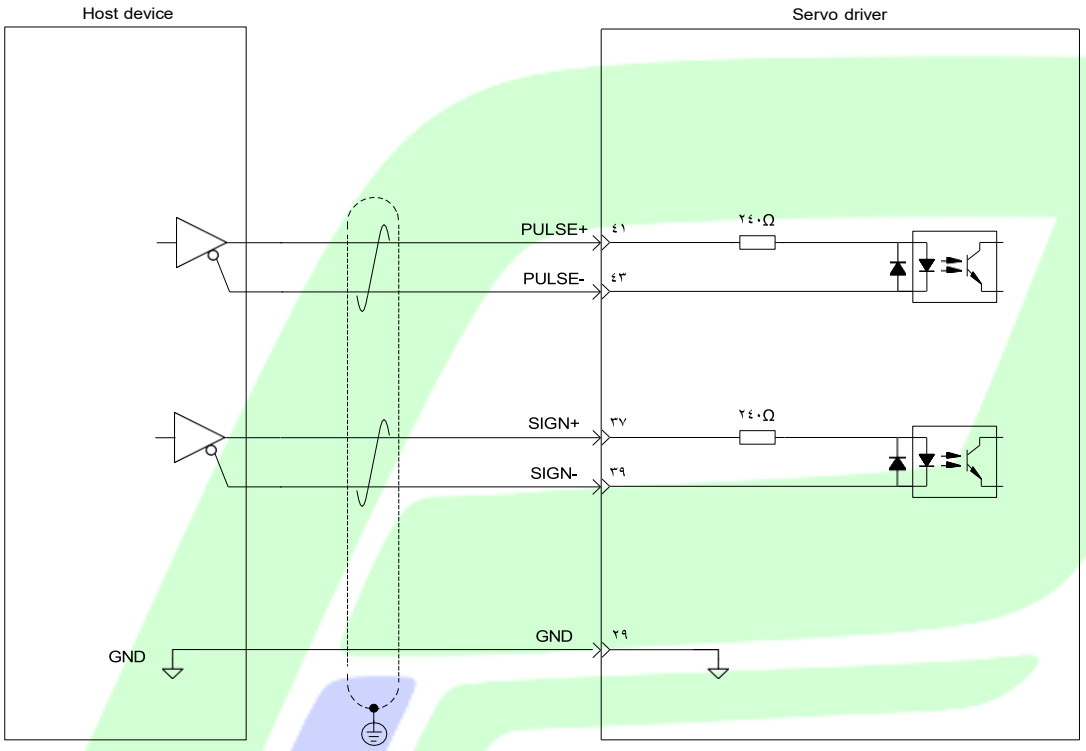
Figure2-8 Wiring of encoder frequency division output signals

- Please use an RS٤٢٢ line receiver (AM٢٦C٣٢ or equivalent) to receive the pulse output signal;
- The maximum output current is ٢٠mA;
- Use shielded twisted pairs to connect PE , and connect the GND of the receiver to the GND of the frequency division output signal

٢,٥,٥ Wiring of position reference input signals

(١) Low speed pulse reference input

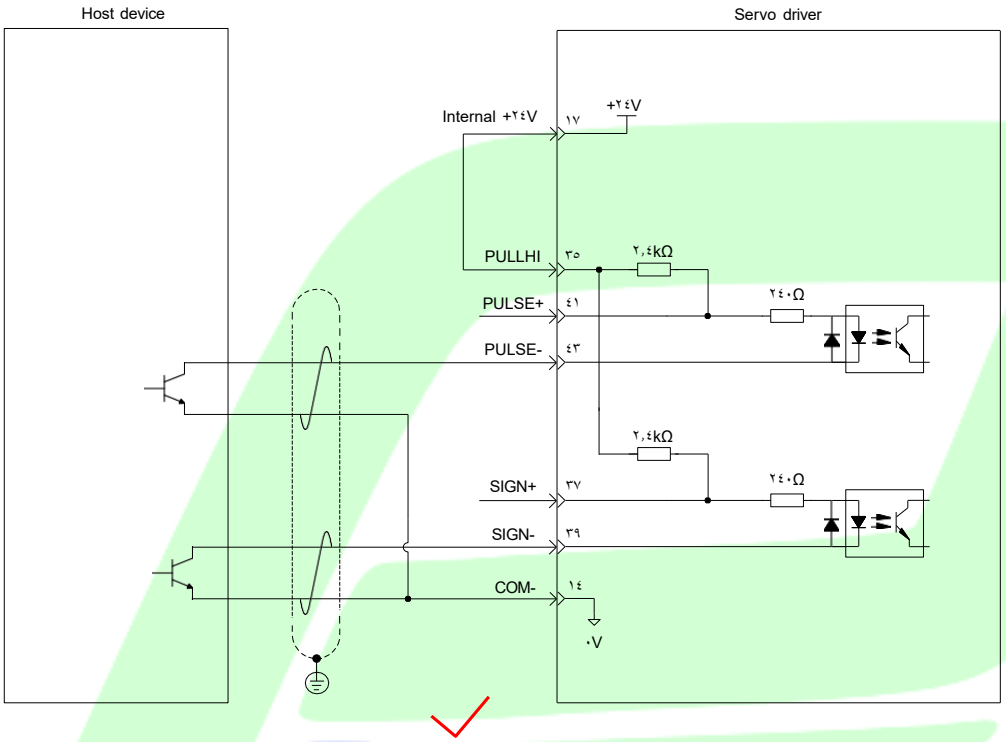
١) Differential mode

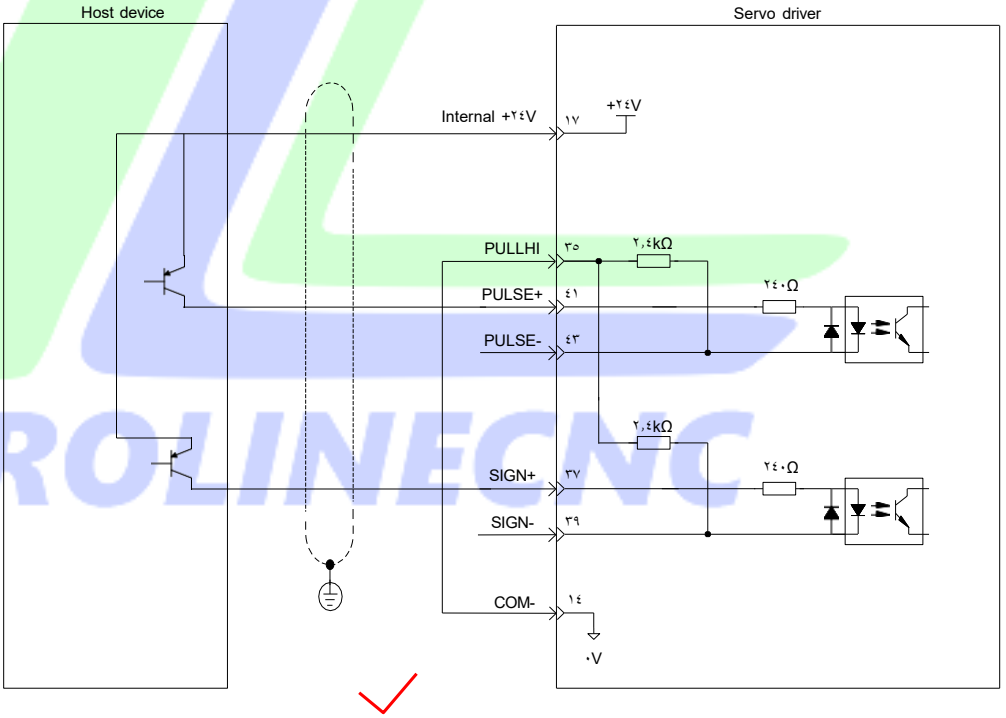


٢) Open collector mode

a) When using the internal ٢٤V power supply:

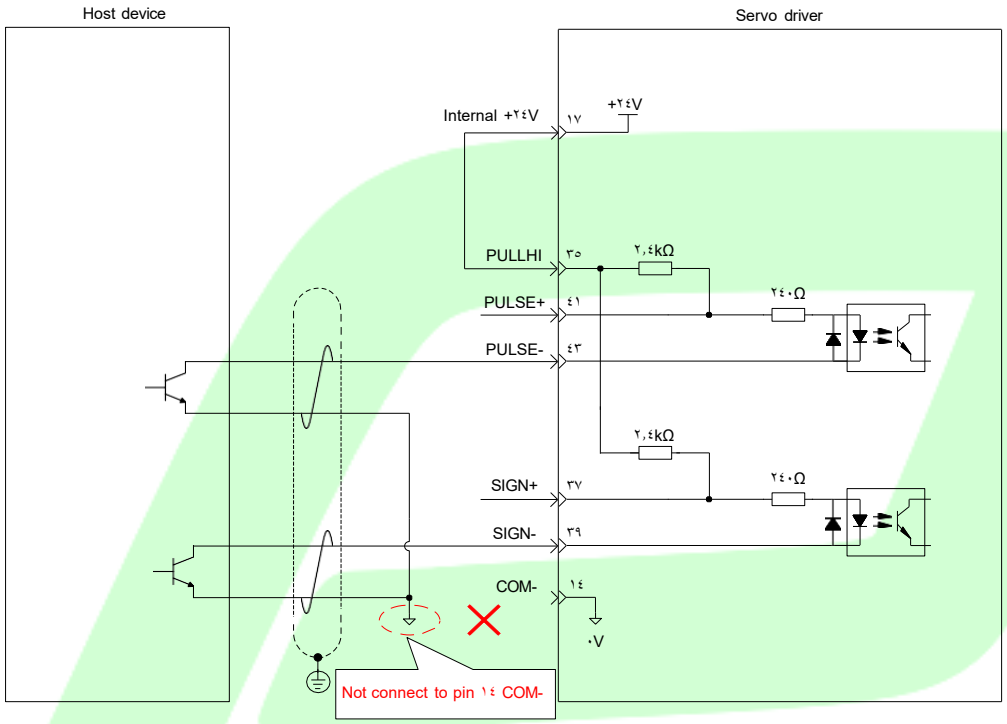
- Correct wiring:





- Incorrect wiring:

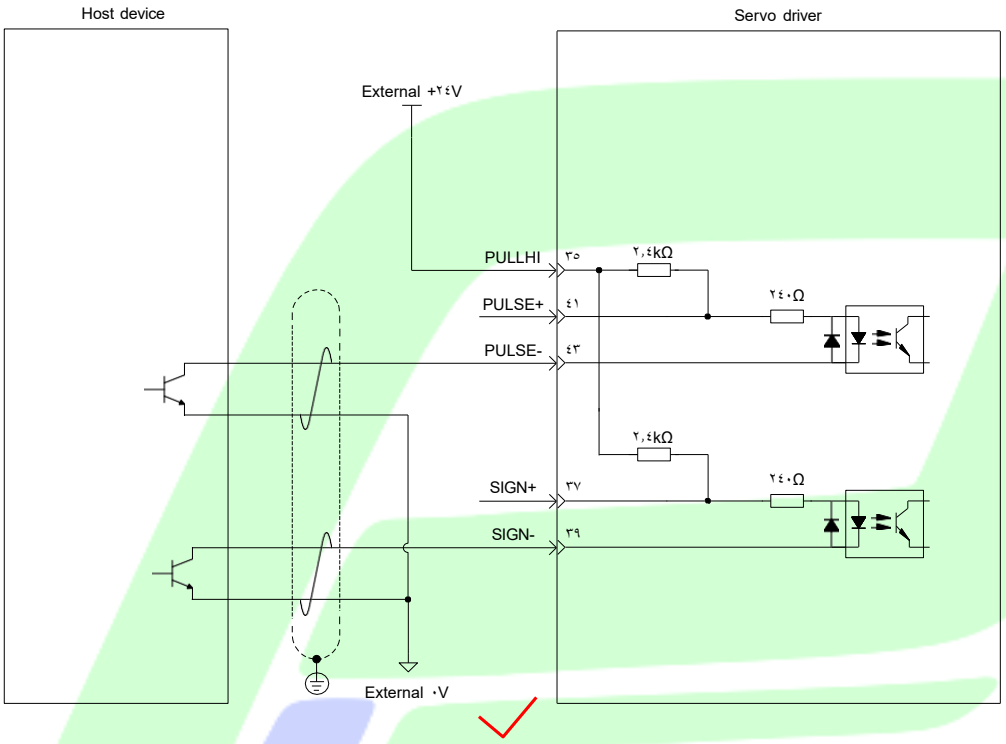
  Pin ١٤ (COM –) is not connected, leading to failure in forming a closed-loop circuit.

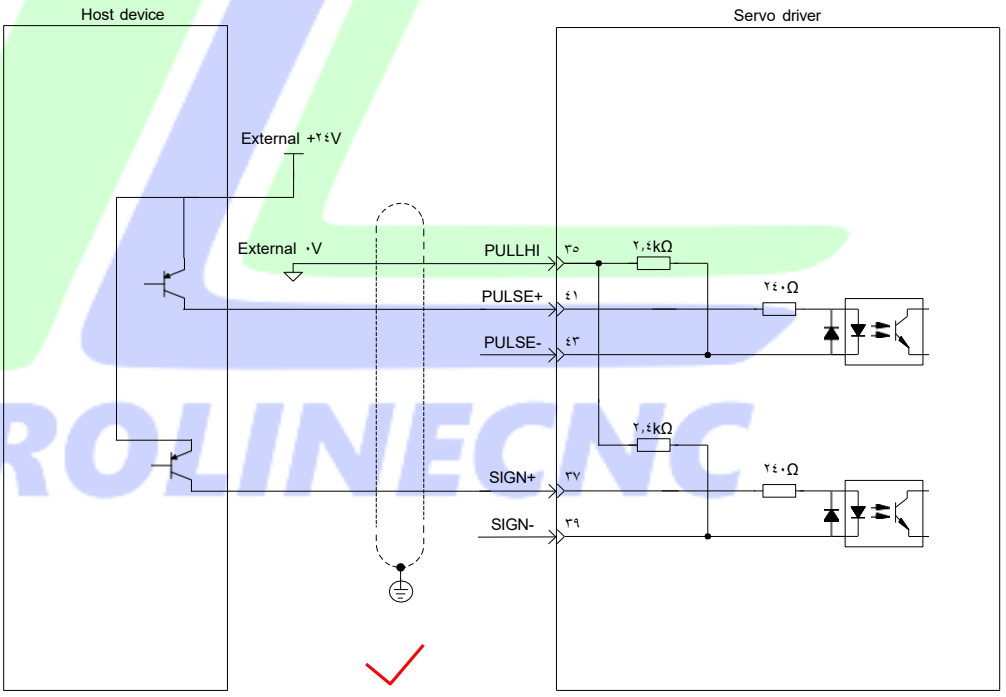


b) When using an external ٢٤V power supply:

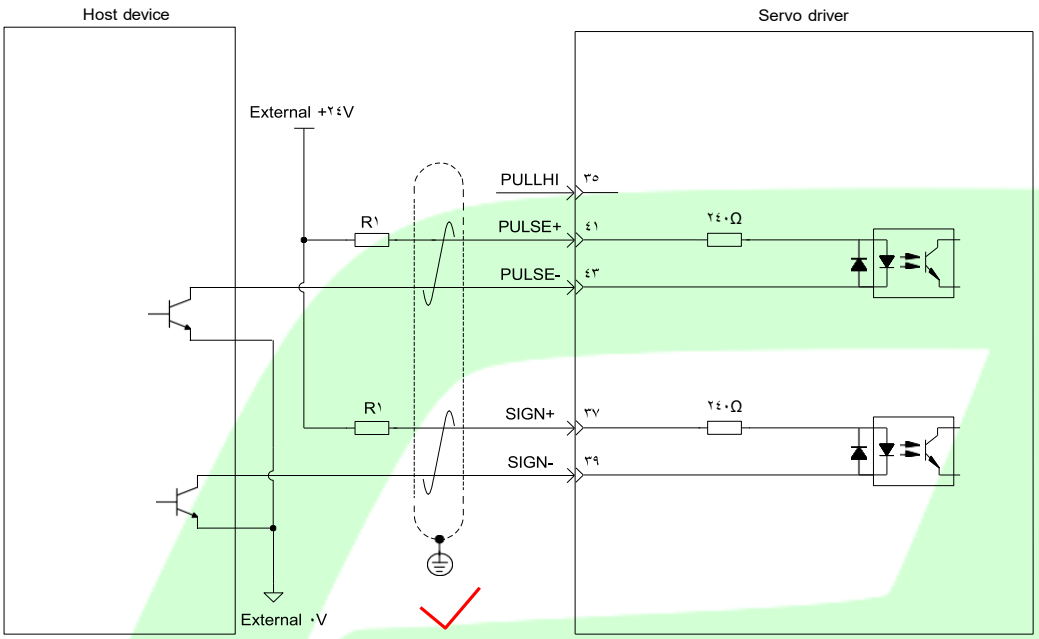
- Correct wiring:

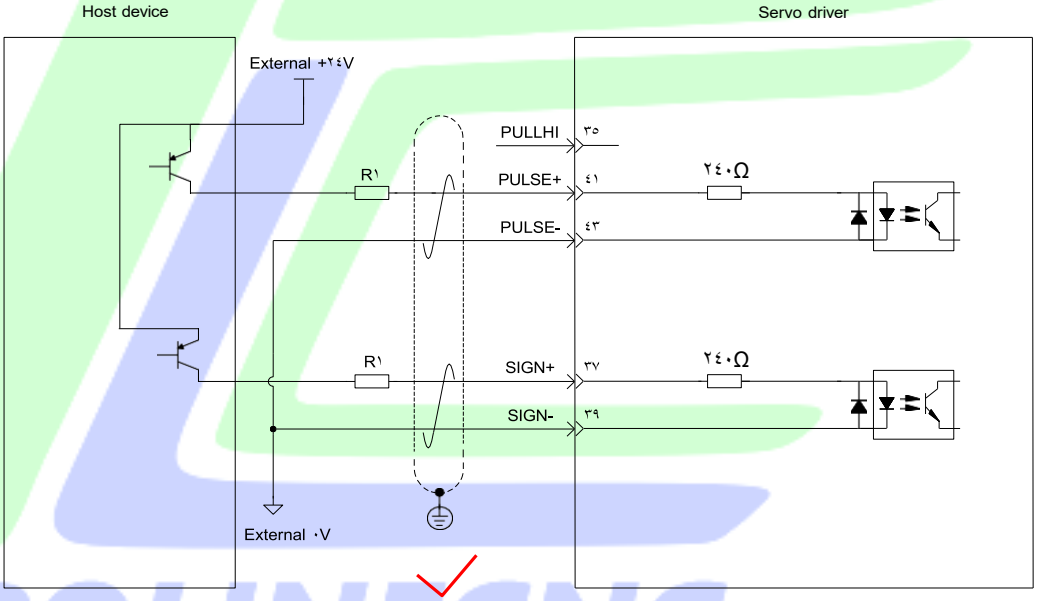
Scheme ١: Using the built-in resistor





Scheme ٢: Using the external resistor





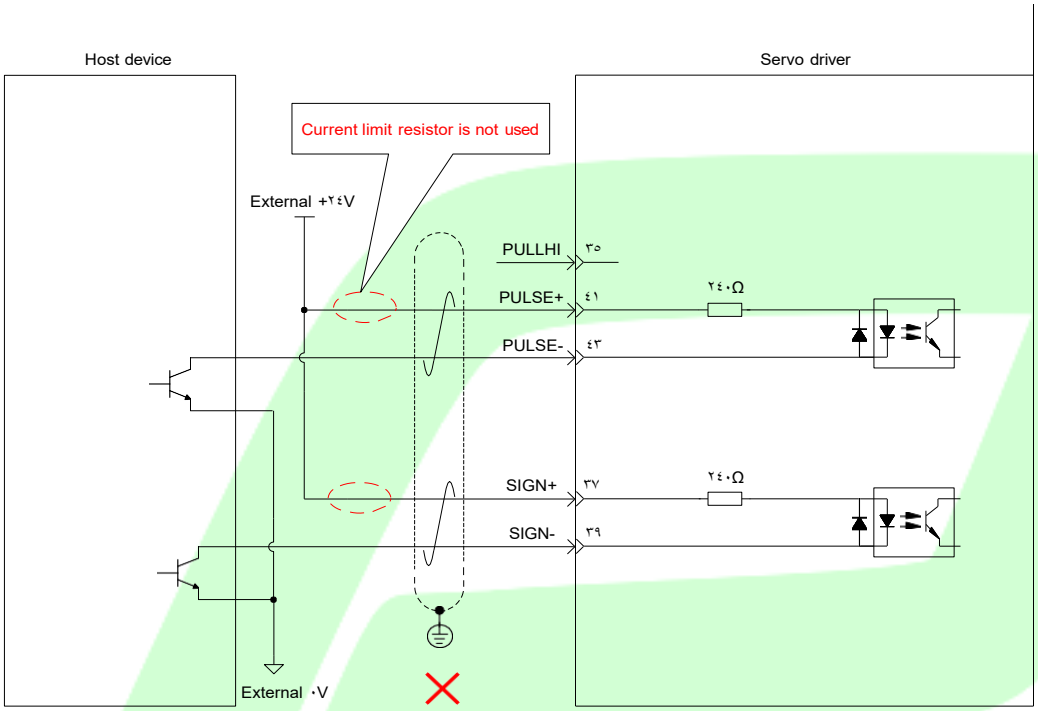
Select resistor R١ based on the following formula : $\frac{Vcc-1.5}{R1+240}=١٠mA$

Table٢-٦ Recommended resistance of R١

Vcc voltage	R١ resistance	R١ power
٢٤V	٢,٤kΩ	٠,٥kΩ
١٢V	١,٥kΩ	٠,٥kΩ

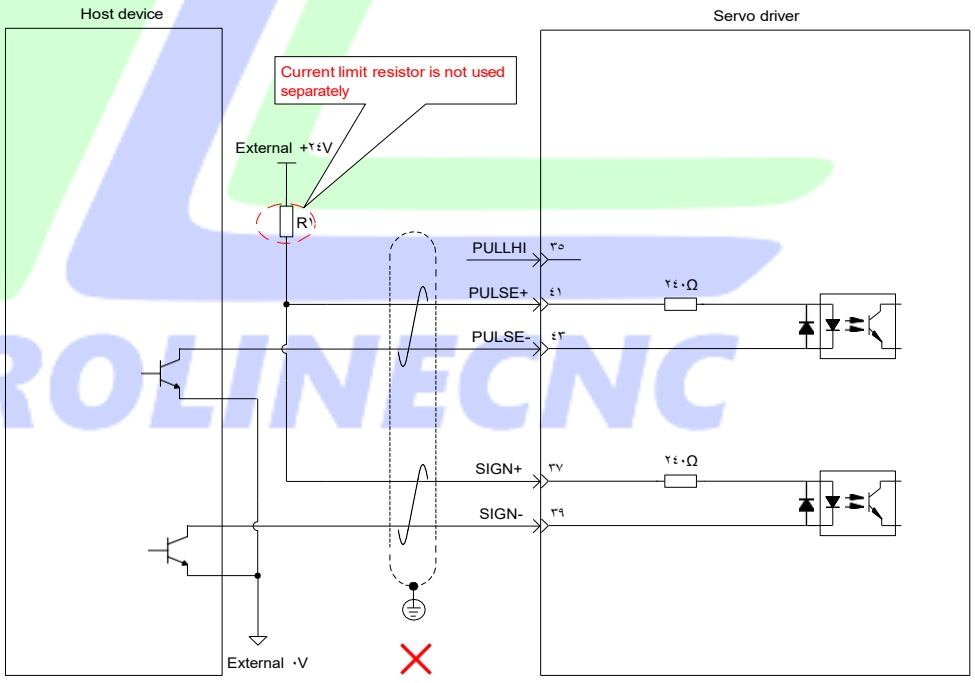
- Incorrect wiring ١:

The current limiting resistor is not connected, resulting in terminal burnout.



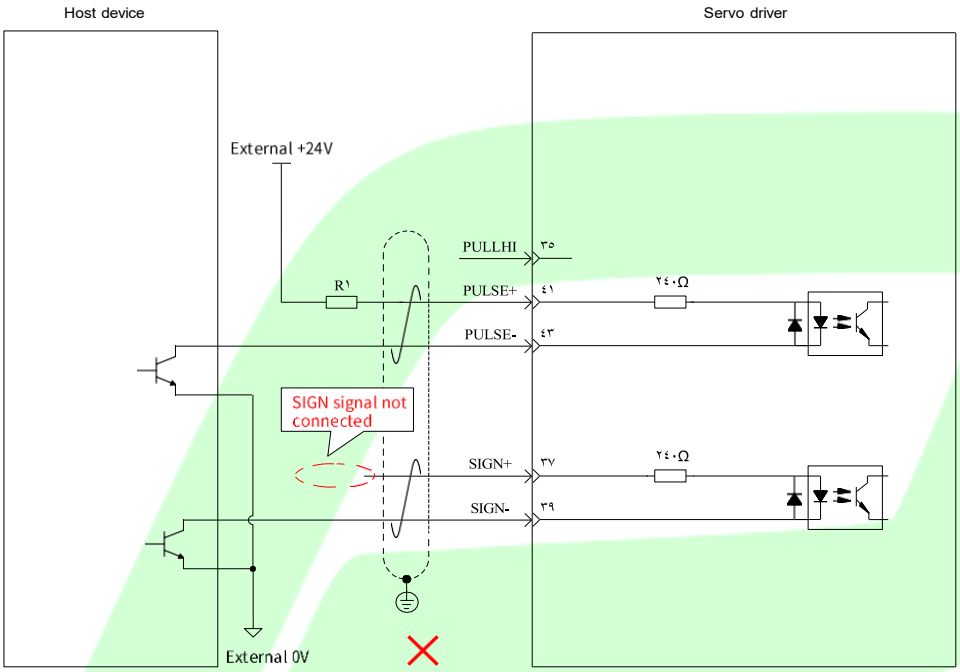
- Incorrect wiring ٢:

Multiple terminals share the same current limiting resistor, resulting in pulse receiving error.



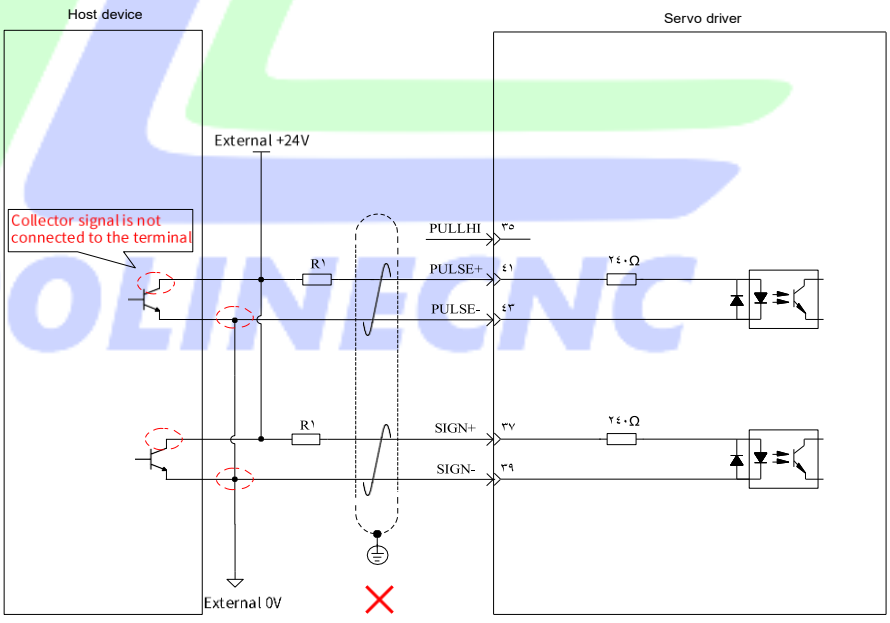
- Incorrect wiring ٣:

The SIGN port is not connected, preventing these two ports from receiving pulses.



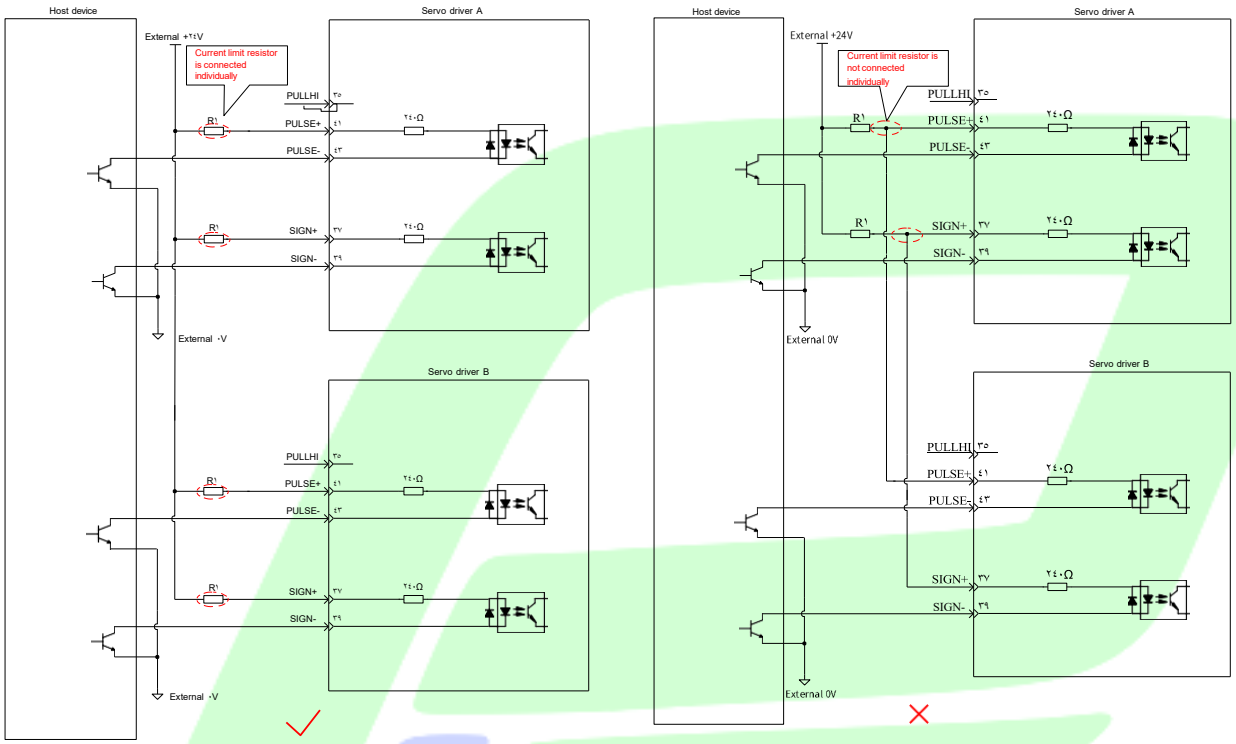
- Incorrect wiring ٤:

Terminals are connected incorrectly, resulting in terminal burnout.



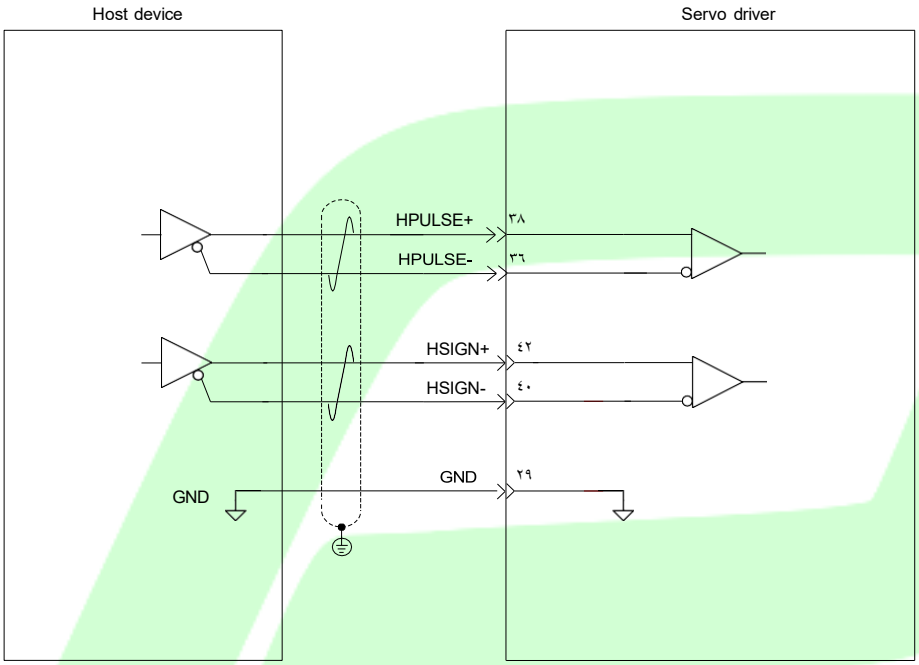
- Incorrect wiring ٥:

Multiple terminals share the same current limiting resistor, resulting in pulse receiving error.



(٢) High speed pulse reference input

High-speed reference pulses and signs on the host controller side can be outputted to the servo drive through the differential drive only.



NOTE:

- Please ensure that the differential input is a ٥V system, otherwise the input pulse of the servo drive will be unstable. This can lead to the following situations:
- When inputting pulse reference, there is a phenomenon of pulse loss;
- When inputting instruction direction, there is a phenomenon of instruction reversal;
- Please make sure to connect the ٥V system ground of the host device to the GND of the servo driver to reduce noise interference.

٢,٥,٦ Wiring of Analog input

The input terminal for analog speed and torque signals is AI١ and AI٢.

- Voltage input range: -١٠V~+١٠V;
- Maximum permissible voltage: ± ١٢V;
- Input impedance: approx. ٩kΩ.

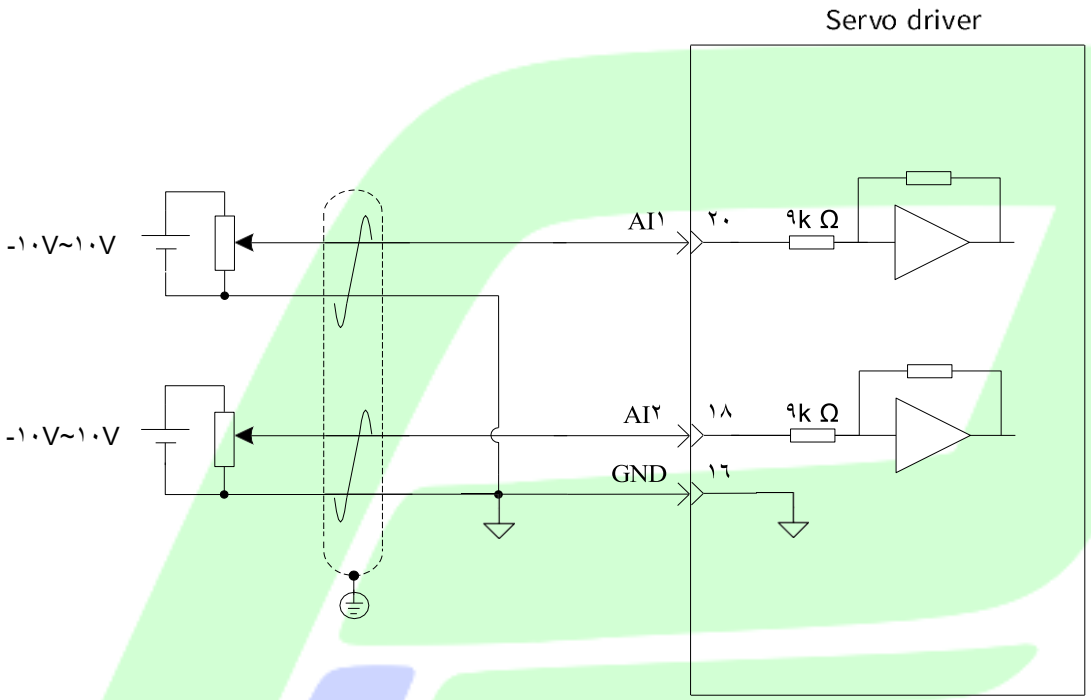
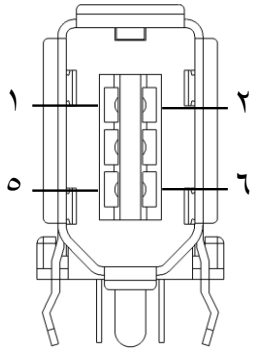


Figure2-9 Analog Input Wiring Diagram

٢,٦ Port definition and wiring of encoder terminal (CN٢)

٢,٦,١ Motor encoder

Table٢-٧ Definition of the motor encoder interface

Motor encoder CN٢	Signal Name	Pin No	Wiring method	Function
 IEEE ١٣٩٤ ٦P	٥V	١	Twisted pair	٥V power supply
	GND	٢		
	—	٣		—
	—	٤		—
	SD+	٥	Twisted pair	Encoder signal
	SD-	٦		
	PE	enclosure	Shield layer	shield

- This terminal is used for the connection of the driver and the motor encoder , the cable and the main circuit wiring need to be ٣٠cm away during use;
- Use a twisted pair shielded cable of ٢٦AWG or above according to UL٢٤٦٤ for encoder cable;
- The encoder cable length needs to consider the voltage drop caused by line resistance and signal attenuation caused by distributed capacitance, and the recommended cable length is within ١٠m.

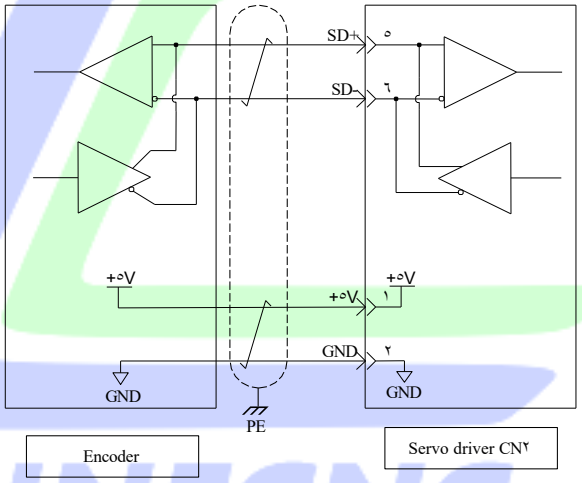
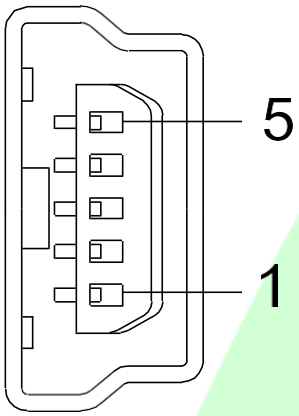


Figure2-10 Motor encoder signal input

٢,٧ Definition of Communication Terminal (MINI USB)

٢,٧,١ Communication terminal (MINI USB)

Table٢-٨ Definition of communication terminal MINI USB

Communication Terminal	Signal Name	Pin No	Function
 MINI USB	VBUS	١	PC communication
	D-	٢	
	D+	٣	
	—	٤	
	GND	٥	
	PE	Enclosure	

- This terminal is a commissioning port connected with the PC. Supports online trial operation and download and upload of parameters, and driver firmware update ex.

٢,٨ Wiring diagram in control mode

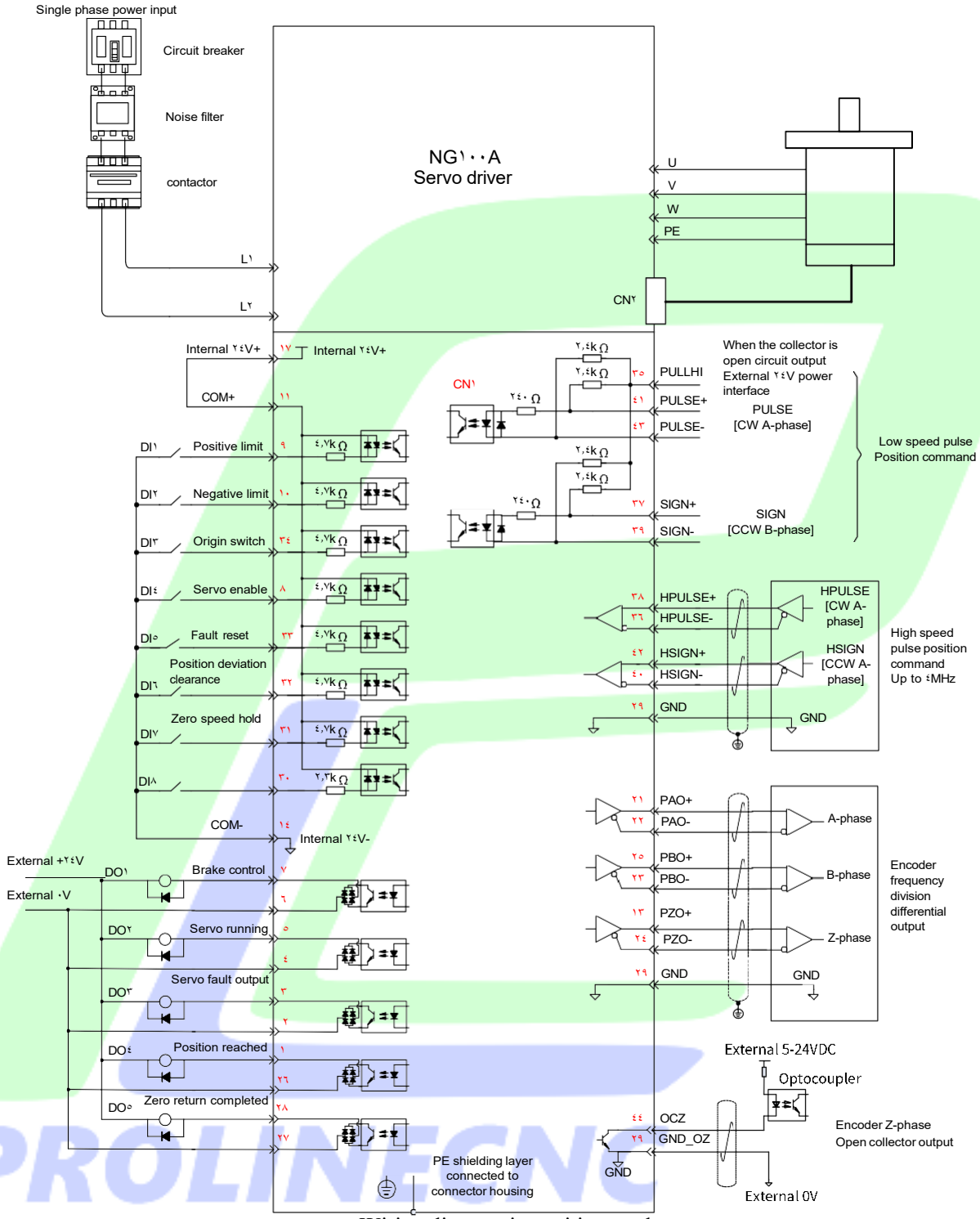


Figure2-11 Wiring diagram in position mode

- Internal +٢٤V power supply, voltage range: ٢٠ to ٢٨ V, maximum output current: ٢٠٠ mA.
- Use the shielded twisted pair as the cables of the pulse terminals, with both ends of the shielded layer tied to PE. Connect GND to the signal ground of the host controller reliably.
- A user needs to provide the power supply for DOs, with voltage range ٥ ~ ٢٤ V. The DO terminals support ٣٠ VDC voltage and ٥٠ mA current to the maximum.
- Use the shielded twisted pair as the encoder fre-quency-division cables, with both ends of the shielded layer tied to PE. Connect GND to the signal ground of the host controller reliably.

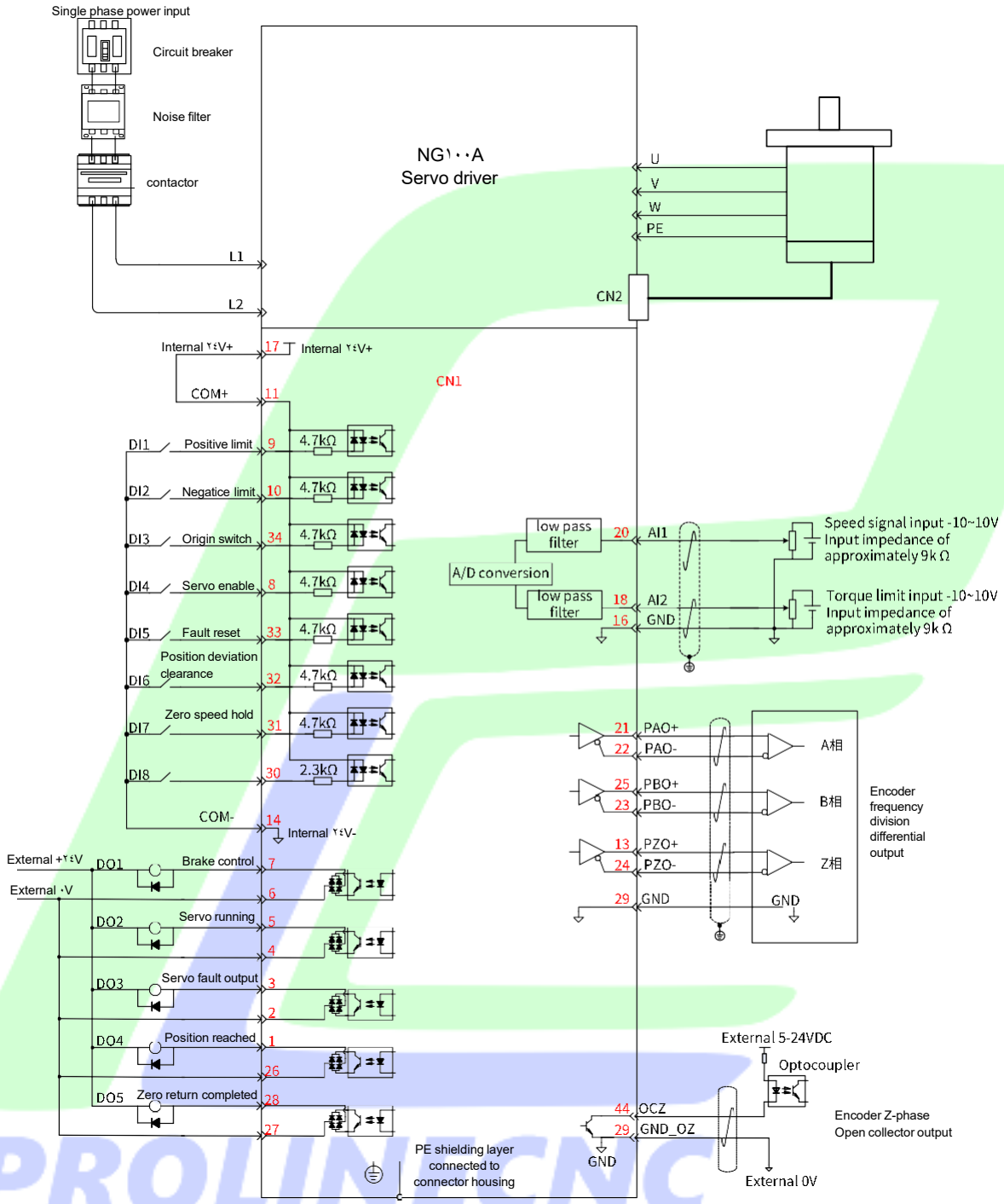


Figure2-12 Wiring diagram in speed mode

- Internal +٢٤V power supply, voltage range: ٢٠ to ٢٨ V, maximum output current: ٢٠٠ mA.
- Use the shielded twisted pair as the cables of the pulse terminals, with both ends of the shielded layer tied to PE. Connect GND to the signal ground of the host controller reliably.
- A user needs to provide the power supply for DOs, with voltage range ٥ ـ٢٤ V. The DO terminals support ٣٠ VDC voltage and ٥٠ mA current to the maximum.
- Use the shielded twisted pair as the encoder fre-quency-division cables, with both ends of the shielded layer tied to PE. Connect GND to the signal ground of the host controller reliably.

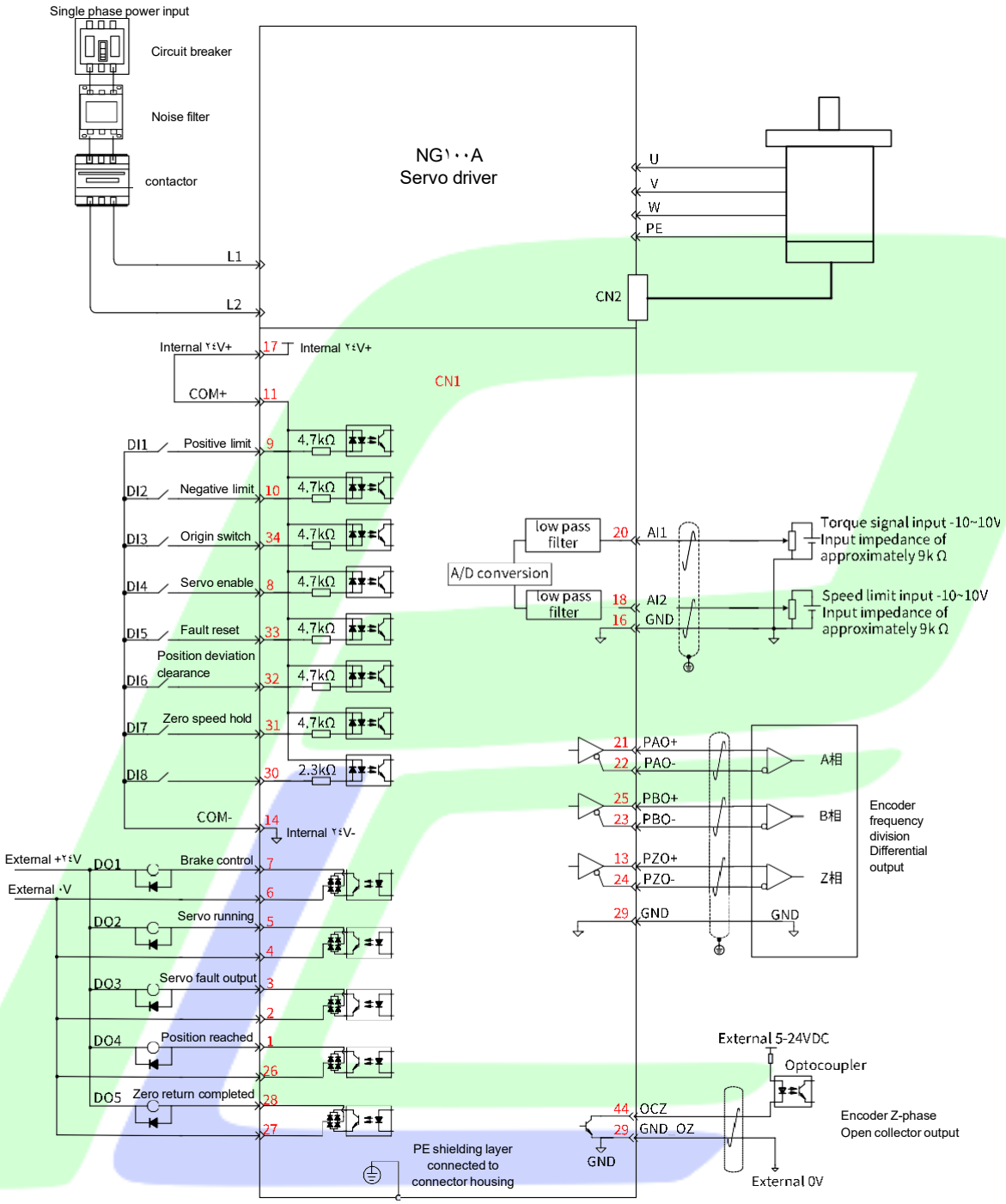


Figure2-13 Wiring diagram in torque mode

- Internal +٢٤V power supply, voltage range: ٢٠ to ٢٨ V, maximum output current: ٢٠٠ mA.
- Use the shielded twisted pair as the cables of the pulse terminals, with both ends of the shielded layer tied to PE. Connect GND to the signal ground of the host controller reliably.
- A user needs to provide the power supply for DOs, with voltage range ٥ ـ٢٤ V. The DO terminals support ٣٠ VDC voltage and ٥٠ mA current to the maximum.
- Use the shielded twisted pair as the encoder fre-quency-division cables, with both ends of the shielded layer tied to PE. Connect GND to the signal ground of the host controller reliably.

3 Keypad Display and Operations

- The keypad of the drive consists of a ٥-digit, ٨-segment LED screen .
- The keypad is used for value display, parameter setting, user password setting and general function execution.

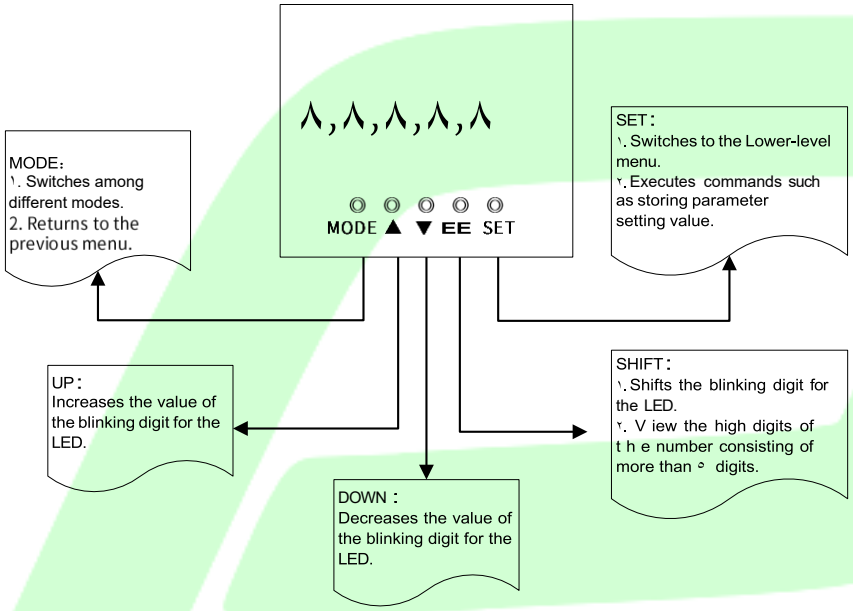
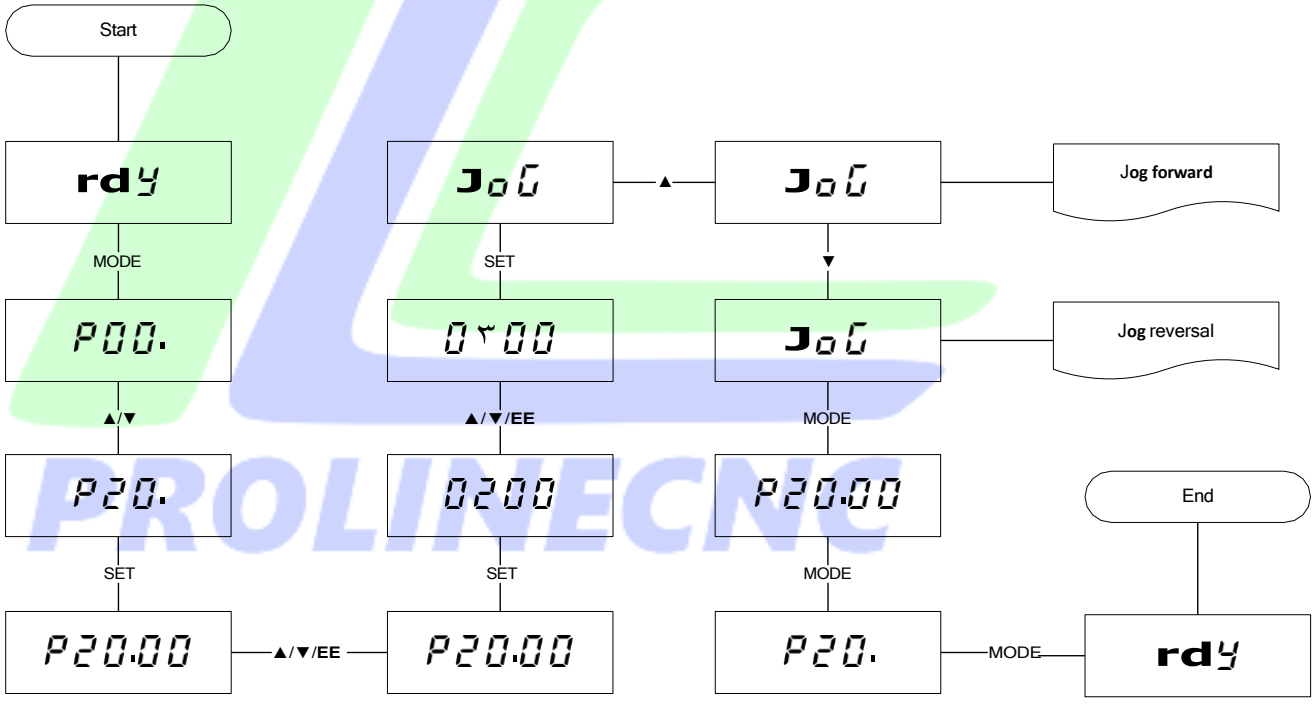


Figure3-1 Functions of keys

Ex: Use panel keys to jog at a speed of ٣٠٠rpm.



4 Fault and Warning

Fault Code	Fault Name	Faule Cause	Solution Measure
E.٠١٠,٠	Software Parameter Fault	١. Upgraded the new firmware. ٢. Wrote abnormal parameters	Restore factory parameters (P٠٥٠١=١) and check if the "manufacturer parameters" are abnormal.
E.٠١٣.X	Software Internal Interrupt Timeout Fault	١. FPGA fault. ٢. Internal hardware abnormality	Replace the servo drive.
E.٠١٥.X	Current Sampling Timeout Fault	١. Power line output disconnection or poor contact. ٢. Current sampling fault.	١. Check the Power line connection for damage. ٢. Replace servo drive.
E.٠١٨.X	Parameter Out of Range Fault	١. Software has been updated ٢. EEPROM fault.	١. Restore factory parameters (P٠٥٠١=١) and check if the "manufacturer parameters" are abnormal. ٢. Replace servo drive.
E.٠١٩.X	Product Matching Fault	١. Product number (encoder or motor or drive) does not exist. ٢. The rated current of the motor is greater than the rated current of the driver.	١. Set the correct encoder type (P٠١٠٠). ٢. Replace with a higher power driver.
E.٢١٠.X	Hardware Overcurrent Fault	١. Driver fault. ٢. The motor is burnt out. ٣. Unreasonable gain parameter settings and motor vibration Dang.	١. Replace the drive. ٢. Replace the motor. ٣. Perform gain adjustment again.
E.٢١١.X	Ground Short Circuit Fault	١. Short circuit between the motor and ground. ٢. Servo drive fault. ٣. The main line voltage release point (P٠٢١٩) is set too low.	١. Check the insulation of the drive power cable. ٢. Replace the drive. ٣. Correctly set the main line voltage release point (P٠٢١٩).
E.٢١٢,٠	UVW Phase Sequence Error	The UVW phase sequence of the driver and motor does not match.	Correctly connect the UVW cables in the right phase sequence.
E.٢١٣,٠	Overcurrent Fault	١. Incorrect UVW phase sequence wiring. ٢. incorrect initial rotor phase of the motor. ٣. The vertical axis is overloaded.	١. Correctly connect the UVW cables in the right phase sequence. ٢. Redo the angle self-learning. ٣. Reduce the vertical axis load or shield the fault without compromising safety.
E.٩١٠.X	Encoder Parameter Fault	١. The type of the driver and motor do not match. ٢. Parameter error or not stored in encoder.	١. Set the correct motor type. ٢. Write the correct motor parameters.
E.٩١١.X	Encoder Communication Fault	١. Encoder wiring error. ٢. Encoder cable loose. ٣. Encoder signal interference (related to EMC issues).	١. Reconnect according to the correct wiring diagram. ٢. Ensure tight connection of encoder wiring terminals. ٣. Use our standard encoder cable.
E.٩١٢,٠	Encoder Parameter Verification Error	١. Encoder disconnected or loose. ٢. Encoder parameter read/write abnormality.	١. Check the encoder wiring. ٢. Rewrite the motor parameters.

Fault Code	Fault Name	Faule Cause	Solution Measure
E.٢١٩,٠	Driver Overtemperature Fault	١. After the overload is cleared, the drive runs repeatedly. ٢. Fan damaged.	١. wait ٣٠ seconds after overload before resetting,deceleration times and reduce the load. ٢. Check the fan.
E.٤١١.X	DI Function Allocation Fault	١. DI function number exceeds. ٢.Duplicate DI Function Assignment.	١. After restoring system parameters to default (P٠٥٠١=١), power on again. ٢. Do not assign DI function numbers beyond the DI function definition table.
E.٤١٢,٠	DO Function Allocation Fault	DO function number exceeds.	Do not assign DO function numbers beyond the DO function definition table.
E.٤١٤,٠	DC Bus Undervoltage Fault	١. Momentary power outage occurs. ٢. Voltage drop in power supply during operation. ٣. Three phase input only connected to single-phase	Check the input power supply.
E.٤١٥,٠	DC Bus Overvoltage Fault	١. Main circuit input voltage too high. ٢. The motor is in a rapid deceleration state, and the brake resistor has failed.	١. Check the input power supply. ٢. Replace the brake resistor.
E.٤١٦,٠	Overspeed Fault	١. Incorrect phase sequence of motor cables U, V, W. ٢. Incorrect motor or encoder parameter settings. ٣. Initial angle identification error of motor. ٤. Motor speed closed-loop overshoot.	١. Wire the U, V, W phases correctly. ٢. Set motor parameters or encoder resolution correctly. ٣. Re angle identification. ٤. Perform gain adjustment again.
E.٧١١.X	Inertia Identification Fault	Offline inertia identification is not completed.	Contact the manufacturer's technical support.
E.٧١٢,٠	Pole Identification Fault	Failure in identifying the initial magnetic pole angle of the motor.	Disconnect the motor shaft and re-identify the angle.
E.B١٠,٠	Motor Overload Fault	١. The processing cycle is frequent, the acceleration and deceleration time is set too short, and the load is too heavy. ٢. The motor power model has been selected too small.	١. Reduce processing speed and increase acceleration and deceleration time. ٢. Replace with a higher power motor.
E.B١١,٠	Motor Stall Fault	١. Incorrect phase sequence of motor cables U, V, W. ٢. Motor angle error。 ٣. The encoder communication protocol (P٠١٠٠) is set incorrectly. ٤. Motor stalling caused by mechanical factors, resulting in excessive load during operation.	١. Wire the U, V, W phases correctly. ٢. Re angle identification. ٣. Set the correct P٠١٠٠ parameter. ٤. Check the mechanical structure.
E.٠١٧.X	Parameter Storage Fault	Abnormal storage of drive parameters	١. After restoring initialization (P٠٥٠١=١), set P٠٥١٠=٠. ٢. Replace servo drive.
E.٢١٧.X	Input Phase Loss Fault	١. Three-phase drive connected to single-phase input. ٢. Poor wiring of three-phase input. ٣.Unbalanced or low three-phase voltage.	١. Connect three-phase input power supply. ٢. Check the three-phase power supply wiring. ٣. For three-phase rated drives that allow single-phase operation (below ١kW), disable alarms (set P٠٨٠٠=٢).
E.٢١٨,٠	Servo Emergency Stop Fault	Emergency stop triggered.	Under the premise of confirming safety, the emergency stop function can be released (emergency stop release, automatic reset of

Fault Code	Fault Name	Faule Cause	Solution Measure
			emergency stop fault)
E.٢٢٧.X	Output Phase Loss Fault	١. Motor U or V or W phase power line disconnected. ٢. Hardware damage	١. Check the motor power cable connection. ٢. Replace the drive.
E.٤١٨.X	Servo Repeated Enable Fault	When the servo is internally enabled, it is externally repeatedly enabled.	Close the internal enable of the servo.
E.٤١٩,٠	Driver Overload Fault	١. The processing cycle is frequent, the acceleration and deceleration time is set too short, and the load is too heavy. ٢. The power model of the driver has been selected too small.	١. Reduce processing speed and increase acceleration and deceleration time. ٢. Replace with a higher power driver.
E.٤٢١.X	Electronic Gear Ratio Setting Error	The set value of electronic gear ratio exceeds the range.	Set the gear ratio according to the range of the electronic gear ratio.
E.٤٢٣.X	Excessive Position Deviation Fault	١. The U, V, W outputs of the driver lack phase or disconnection. ٢. The encoder is inserted incorrectly. ٣. Motor stalling due to mechanical factors. ٤. The gain of the servo drive is low. ٥. The incremental position command is too large. ٦. The deviation threshold ٦٠٦٥h/ P٠٨٠٦ is too small.	١. Check the UVW output cable. ٢. Check the encoder cable. ٣.Investigate mechanical factors. ٤. Perform manual or automatic gain adjustment. ٥. Increase the acceleration and deceleration ramps of the position command. ٦. Increase the deviation threshold ٦٠٦٥h/P٠٨٠٦.
E.٤٢٤.X	Position Command Overspeed Fault	١. The position command increment received by the servo is too large. ٢. The motor speed limit is set incorrectly.	١. Decrease the target position command increment. ٢. Set the planned speed of the upper computer to be less than the maximum speed of the motor.
E.٩١٧,٠	Encoder Battery Fault	١. Absolute encoder is not connected to the battery. ٢. Encoder battery voltage is too low.	١. Reconnect the battery or replace it with a new one. ٢. Set P٢٠٠٥=١ to clear the fault.
E.٩١٨,٠	Encoder Multi-turn Counting Error	Encoder internal fault.	Set P٢٠٠٥=٢ to clear the fault and power on again. If the fault cannot be eliminated, the motor needs to be replaced.
E.٩١٩.X	Encoder multi turn counter overflow fault	The multi circle data is ٣٢٧٦٧ or ٣٢٧٦٨.	Set P٢٠٠٥=٢ to clear the encoder's multi turn data and power on again.
E.B١٣,٠	Motor Vibration Fault	Motor vibration occurs	١. Adjust the gain parameters. ٢. Enable vibration suppression.
E.D٢٦.X	EtherCAT Communication Abnormality	١. When the servo is enabled, the EtherCAT network switches out of the OP state. ٢. The synchronization signal SYNC is abnormal.	Check the upper computer network status switching program. Contact manufacturer technical support.
E.D٢٩,٠	EtherCAT XML File Not Burned	١. The XML file has not been burned. ٢. The internal XML file of the drive is damaged.	Re burn the XML file.
E.D٣١,٠	EtherCAT Sync Period Setting Error	Synchronization period setting error.	The synchronization period needs to be set as an integer multiple of the position loop period (٢٥٠us).

Fault Code	Fault Name	Faule Cause	Solution Measure
E.D٣٢,٠	EtherCAT Sync Signal Deviation Too Large	Sync period error value exceeds the threshold	Increase the synchronization deviation threshold (P٠A٣٢).
A.٢٢٠,٠	PositiveTravel Exceeding Warning	Positive limit input active	Under confirmed safety, give the motor a nagative command to invalidate the forward limit.
A.٢٢١,٠	Negative Travel Exceeding Warning	Nagative limit input active	Under confirmed safety, give the motor a forward rotation command to invalidate the negative limit.
A.٢٢٢,٠	Input Phase Loss Warning	Missing phase in three-phase power input.	١. Check the three-phase power supply connection. ٢. For three-phase rated drives that allow single-phase operation (below ١ kW), disable alarms (set P٠٨٠٠=٢).
A.٢٢٤,٠	Regenerative Resistor Overload Warning	١. Regeneration resistor is not connected or connected incorrectly. ٢. The power of the connected regenerative resistor is too low. ٣. Incorrect parameter settings for regenerative resistors: type, resistance, power, etc.	١. Check the wiring of the regeneration resistor. ٢. Replace with a higher power regeneration resistor. ٣. Set the regeneration resistor parameters correctly.
A.٢٢٥.X	Regenerative Resistor Not Connected Warning	No regeneration resistor connected.	Refer to the user manual to check the connection of the regeneration resistor.
A.٢٢٦,٠	Regenerative Resistor Not Connected Warning	The value of the external regeneration resistor is less than the minimum allowable value specified in the specifications.	Correctly set the parameters related to the external regeneration resistor.
A.٤٢٥,٠	Origin Return Timeout Warning	١. The itinerary is too long, and the time limit for finding the origin is too short. ٢. The speed of searching for the origin switch signal is too slow. ٣. Switch abnormality: Positive limit or negative limit or origin switch are simultaneously activated or the switch signal cannot be detected.	١. Increase the origin search time P١٣٤٩. ٢. Increase the homing high speed ٦٠٩٩-٠١h. ٣. Check the switch signal.
A.٤٢٦,٠	Require Reboot Warning	Modified the parameters that need to be re powered on to take effect.	Power on again or reset the software.
A.٩٢١,٠	Encoder Battery Low Voltage Warning	The voltage of the absolute value encoder battery is below ٣,٠V	Check the power supply cable of the encoder or replace it with a new battery.
A.D٣٥,٠	Zero Return Method Setting Error Warning	The reset method is set incorrectly.	Correctly set ٦٠٩٨h (does not support zeroing methods such as ١٥/١٦/٣١/٣٢).

Note:

١. The 'X' in the fault code represents a sub fault code;

5 Parameter List

Param.	Name	Unit	Value	Data Type	Default	Change
٠٠ Motor Parameters						
P٠٠٠٣	Motor SN	-	٠~٦٥٥٣٥	UINT١٦	٠	At stop
P٠٠١٠	Rated voltage	V	٠-٢٢٠V	UINT١٦	٠	At stop
P٠٠١١	Rated current	٠,٠١A	٠~٦٥٥٣٥	UINT١٦	٤٧٠	At stop
P٠٠١٢	Rated power	٠,٠١kW	٠~٦٥٥٣٥	UINT١٦	٧٥	At stop
P٠٠١٣	Rated torque	٠,٠١Nm	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	٢٣٩	At stop
P٠٠١٧	Rated speed	rpm	٠~٦٥٥٣٥	UINT١٦	٣٠٠٠	At stop
٠١ Encoder Parameters						
P٠١٠٠	Bus encoder type	-	٠~٦٥٥٣٥	UINT١٦	١١٢٣٣	At stop
P٠١٠٣	Encoder version	-	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠١٠٥	Customized No.	-	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	١٠٤٨٥٧٦	At stop
٠٢ Servo Drive Parameters						
P٠٢٠٠	MCU software version	-	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٢٠١	FPGA software version	-	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٢٠٢	MCU Customized No.	-	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	٠	Unchangeable
P٠٢٠٤	FPGA Customized No.	-	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	٠	Unchangeable
P٠٢١٢	Voltage class	-	٠~٦٥٥٣٥	UINT١٦	٢٢٠	Unchangeable
P٠٢١٣	Rated power	٠,٠١kW	١~٦٥٥٣٥	UINT١٦	٧٥	Unchangeable
P٠٢١٥	Rated current	٠,٠١A	١~٦٥٥٣٥	UINT١٦	٥٥٠	Unchangeable
P٠٢٣٤	Regenerative resistor type	-	٠- Built-in ١- External, natural ventilated ٢- External, forced air cooling ٣- Not needed	UINT١٦	٠	At stop
P٠٢٣٥	Resistor heat dissipation coefficient	-	١٠~١٠٠	UINT١٦	٣٠	At stop
P٠٢٣٦	Power of built-in regenerative resistor	W	١~٦٥٥٣٥	UINT١٦	٤٠	Unchangeable
P٠٢٣٧	Resistance of builtin regenerative resistor	Ω	١~١٠٠٠	UINT١٦	٥٠	Unchangeable
P٠٢٣٨	Min.Resistance of external regenerative resistor	Ω	١~١٠٠٠	UINT١٦	٤٠	Unchangeable
P٠٢٣٩	Power capacity of external regenerative resistor	W	١~٦٥٥٣٥	UINT١٦	٤٠	At stop
P٠٢٤٠	Resistance of external regenerative resistor	Ω	١~١٠٠٠	UINT١٦	٥٠	At stop
٠٣ IO Parameters						
P٠٣٠٠	DI١ function	-	٠- null ١-SON ٢- Emergency stop	UINT١٦	٩	At stop

Param.	Name	Unit	Value	Data Type	Default	Change
			٣- Position reference inhibited			
			٤- ClrPosErr			
			٥- ALM-RST			
			٦- ZCLAMP			
			٧- JOGCMD+			
			٨- JOGCMD-			
			٩- P-OT			
			١٠- N-OT			
			١١- HomeSwitch			
			١٢- HomingStart			
			١٣- speed limit source			
			١٤- Positive external torque limit			
			١٥- Negative external torque limit			
			١٦- Multi-position reference enable			
			١٩- Torque reference direction			
			٢٠- Speed reference direction			
			٢١- Position reference direction			
			٢٢- Gain switchover switch			
			٢٣- Switchover between main and auxiliary commands			
			٢٤- Mode switchover ١			
			٢٥- Mode switchover ٢			
			٢٦- Electronic gear ratio selection			
			٢٧- Multi-reference switchove ١			
			٢٨- Multi-reference switchove ٢			
			٢٩- Multi-reference switchove ٣			
			٣٠- Multi-reference switchove ٤			
			٣١- through DI in Home switch			
P٠٣٠١	DI١ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣٠٢	DI٢ function selection	-	See P٠٣٠٠	UINT١٦	١٠	At stop
P٠٣٠٣	DI٢ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣٠٤	DI٣ function selection	-	See P٠٣٠٠	UINT١٦	١١	At stop
P٠٣٠٥	DI٣ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣٠٦	DI٤ function selection	-	See P٠٣٠٠	UINT١٦	١	At stop
P٠٣٠٧	DI٤ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣٠٨	DI٥ function selection	-	See P٠٣٠٠	UINT١٦	٥	At stop
P٠٣٠٩	DI٥ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop

Param.	Name	Unit	Value	Data Type	Default	Change
P٠٣١٠	DI٦ function selection	-	See P٠٣٠٠	UINT١٦	٤	At stop
P٠٣١١	DI٦ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣١٢	DI٧ function selection	-	See P٠٣٠٠	UINT١٦	٦	At stop
P٠٣١٣	DI٧ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣١٤	DI٨ function selection	-	See P٠٣٠٠	UINT١٦	٠	At stop
P٠٣١٥	DI٨ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣١٨	DI function allocation ١ (activated upon power-on)	-	٠- null ١-SON ٢- Emergency stop ٣- Position reference inhibited ٤- ClrPosErr ٥- ALM-RST ٦- ZCLAMP ٧- JOGCMD+ ٨- JOGCMD- ٩- P-OT ١٠- N-OT ١١- HomeSwitch ١٢- HomingStart ١٣- speed limit source ١٤- Positive external torque limit ١٥- Negative external torque limit ١٦- Multi-position reference enable	UINT١٦	٠	At stop
P٠٣١٩	DI function allocation ٢ (activated upon power-on)	-	٠- null ١٩- Torque reference direction ٢٠- Speed reference direction ٢١- Position reference direction ٢٢- Gain switchover switch ٢٣- Switchover between main and auxiliary commands ٢٤- Mode switchover ١ ٢٥- Mode switchover ٢ ٢٦- Electronic gear ratio selection ٢٧- Multi-reference switchove ١ ٢٨- Multi-reference switchove ٢ ٢٩- Multi-reference switchove ٣ ٣٠- Multi-reference switchove ٤ ٣١- through DI in Home switch	UINT١٦	٠	At stop
P٠٣٢٠	DO١function selection	-	٠-null ١-rdy ٢-Run	UINT١٦	١٧	At stop

Param.	Name	Unit	Value	Data Type	Default	Change
			٣-Warn			
			٤-Alm			
			٥-TGon			
			٦-Zero			
			٧-VCmp			
			٨-VArr			
			٩-TArr			
			١٠-(Near			
			١١-Coin			
			١٢-Clt			
			١٣-Vlt			
			١٤-HomeOK			
			١٥-eHomeOK			
			١٧-BK			
			١٨-DB			
			١٩-AngRdy			
P٠٣٢١	DO١ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣٢٢	DO٢ function selection	-	See P٠٣٢٠	UINT١٦	٢	At stop
P٠٣٢٣	DO٢ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣٢٤	DO٣ function selection	-	See P٠٣٢٠	UINT١٦	٤	At stop
P٠٣٢٥	DO٣ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣٢٦	DO٤ function selection	-	See P٠٣٢٠	UINT١٦	١١	At stop
P٠٣٢٧	DO٤ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣٢٨	DO٥ function selection	-	See P٠٣٢٠	UINT١٦	١٤	At stop
P٠٣٢٩	DO٥ logic selection	-	٠- Active low ١- Active high	UINT١٦	٠	At stop
P٠٣٣٠	Forced DI/DO selection	-	٠- No operation ١- Forced DI enabled, forced DO disabled ٢- Forced DO enabled, forced DI disabled ٣- Forced DI and DO enabled	UINT١٦	٠	Immediate
P٠٣٣١	Forced DI setting	-	٠~٥١١	UINT١٦	٥١١	Immediate
P٠٣٣٢	Forced DO setting	-	٠~٣١	UINT١٦	٠	Immediate
P٠٣٣٤	Communication Forced DO selection	-	٠~٧	UINT١٦	٠	At stop
P٠٣٤٤	AI١ input filter time	٠,٠١ms	٠~٦٥٥٣٥	UINT١٦	٢٠٠	Immediate
P٠٣٤٥	AI١ input filter enable	-	٠~١	UINT١٦	١	Immediate
P٠٣٤٨	AI٢ input filter time	٠,٠١ms	٠~٦٥٥٣٥	UINT١٦	٢٠٠	Immediate
P٠٣٤٩	AI١ input filter enable	-	٠~١	UINT١٦	١	Immediate
P٠٣٦٢	Speed corresponding to AI ١٠V	rpm	٠~٦٠٠٠	UINT١٦	٣٠٠٠	At stop

Param.	Name	Unit	Value	Data Type	Default	Change
P٠٣٦٣	torque corresponding to AI ١٠V	倍	٠~٨٠٠	UINT١٦	١٠٠	At stop
٠٤ Motion Control Parameters						
P٠٤٠٠	Control Mode	-	٠- Speed Control Mode ١- Position control mode ٢- Torque Control Mode ٣- Torque Control Mode -> Speed Control Mode ٤- Speed Control Mode -> Position control mode ٥- Torque Control Mode -> Position control mode ٦- Torque Control Mode -> Speed Control Mode -> Position control mode	UINT١٦	١	At stop
P٠٤٠١	Forward direction	-	٠- Counterclockwise (CCW) as forward direction ١- Clockwise (CW) as forward direction	UINT١٦	٠	At stop
P٠٤٠٢	Absolute position detection system	-	٠- Incremental position mode ١- Absolute position linear mode ٢- Absolute position rotation mode	UINT١٦	٠	At stop
P٠٤١٠	Stop mode at No.١ fault	-	٠- Coast to stop, keeping deenergized state ١- DB stop, keeping de-energized state ٢- DB stop, keeping DB state	UINT١٦	٢	At stop
P٠٤١١	Stop mode at No.٢ fault	-	٠- Coast to stop, keeping deenergized state ١- Stop at zero speed, keeping deenergized state ٢- Stop at zero speed, keeping dynamic braking state ٣- DB stops, keeping operation state ٤- DB stop, keeping DB state	UINT١٦	٢	At stop
P٠٤١٢	Stop mode at S-OFF	-	٠- Coast to stop ١- DB stops ٢- Stop at zero speed	UINT١٦	٢	At stop
P٠٤١٣	Stop state at S-OFF	-	٠- keeping operation state ١- keeping DB state	UINT١٦	١	At stop
P٠٤١٤	Stop mode upon main circuit power-off	-	٠-P٠٤١٢ ١- Forced zero speed	UINT١٦	٠	At stop
P٠٤١٥	Stop mode at overtravel	-	٠- Coast to stop, keeping deenergized state ١- Stop at zero speed, keeping position lock state ٢- Stop at zero speed, keeping deenergized state	UINT١٦	١	At stop
P٠٤٢٣	Torque at T-OFF	٠,١٪	٠~٣٠٠٠	UINT١٦	١٠٠٠	At stop
٠٥ Function Parameters						
P٠٥٠٠	Manufacturer password	-	٠~٦٥٥٣٥	UINT١٦	٠	Immediate
P٠٥٠١	Parameter	-	٠- No operation	UINT١٦	٠	At stop

Param.	Name	Unit	Value	Data Type	Default	Change
			١- Restore default settings			
P٠٥١٠	Communication memory	-	٠- Disabled ١- Enabled	UINT١٦	١	Immediate
P٠٥١١	Power-off memory	-	٠- Disabled ١- Enabled	UINT١٦	٠	Immediate
P٠٥١٢	BK switch	-	٠- Disabled ١- Enabled	UINT١٦	١	At stop
P٠٥١٣	S-ON brake open delay	ms	٠~٥٠٠	UINT١٦	٢٥٠	Immediate
P٠٥١٤	S-ON brake zero speed time	ms	١~١٠٠٠	UINT١٦	١٥٠	Immediate
P٠٥١٥	S-ON brake speed	rpm	٠~٣٠٠٠	UINT١٦	٣٠	Immediate
P٠٥١٦	S-ON brake time	ms	١~١٠٠٠	UINT١٦	٥٠٠	Immediate
P٠٥١٩	power-on test	-	٠- Disabled ١- Enabled	UINT١٦ UINT١٦	١	At stop
P٠٥٢٣	Output pulse phase	-	٠-Phase A leads phase B ١-Phase A lags behind phase B	UINT١٦	٠	At stop
P٠٥٤٣	Software limit selection	-	٠-No operation ١-Activated immediately ٢-Activated after homing is done	UINT١٦	٠	At stop
٠٦ Gain Parameters						
P٠٦٠٠	Speed loop gain	٠,١Hz	١~٢٠٠٠٠	UINT١٦	٢٥٠	Immediate
P٠٦٠١	Speed loop integral time constant	٠,٠١ms	١٥~٥١٢٠٠	UINT١٦	٣١٨٣	Immediate
P٠٦٠٢	Position loop gain	٠,١Hz	٠~٢٠٠٠٠	UINT١٦	٤٠٠	Immediate
P٠٦٠٨	Speed feedforward gain	٠,١٪	٠~١٠٠٠	UINT١٦	٠	Immediate
P٠٦٠٩	Torque feedforward gain	٠,١٪	٠~٢٠٠٠	UINT١٦	٠	Immediate
P٠٦١٠	Load moment of inertia ratio	-	٠~١٢٠٠٠	UINT١٦	٢٠٠	Immediate
٠٧ Filter time Parameters						
P٠٧٠٠	Position FIR filter	٠,١ms	٠~٦٥٥٣٥	UINT١٦	٠	At stop
P٠٧٠١	Time constant of moving average filter	٠,١ms	٠~١٢٨٠	UINT١٦	٠	At stop
P٠٧٠٢	Torque filter ١	٠,٠١ms	٠~٣٠٠٠	UINT١٦	٧٩	Immediate
P٠٧٠٦	Speed feedforward filter	٠,٠١ms	٠~٦٤٠٠	UINT١٦	٥٠	Immediate
P٠٧٠٧	Torque feedforward filter	٠,٠١ms	٠~٦٤٠٠	UINT١٦	٥٠	Immediate
P٠٧١٠	Frequency of the ١st notch	Hz	٥٠~٥٠٠٠	UINT١٦	٥٠٠٠	Immediate
P٠٧١١	Width level of the ١st notch	-	٠~٢٠	UINT١٦	٢	Immediate
P٠٧١٢	Depth level of the ١st notch	-	٠~٩٩	UINT١٦	٠	Immediate
P٠٧١٣	Frequency of the ٢st notch	Hz	٥٠~٥٠٠٠	UINT١٦	٥٠٠٠	Immediate
P٠٧١٤	Width level of the ٢st notch	-	٠~٢٠	UINT١٦	٢	Immediate
P٠٧١٥	Depth level of the ٢st notch	-	٠~٩٩	UINT١٦	٠	Immediate
P٠٧١٦	Frequency of the ٣st notch	Hz	٥٠~٥٠٠٠	UINT١٦	٥٠٠٠	Immediate

Param.	Name	Unit	Value	Data Type	Default	Change
P۰۷۱۷	Width level of the ۳st notch	-	۰~۲۰	UINT۱۶	۲	Immediate
P۰۷۱۸	Depth level of the ۳st notch	-	۰~۹۹	UINT۱۶	۰	Immediate
P۰۷۱۹	Frequency of the ٤st notch	Hz	۵۰~۵۰۰۰	UINT۱۶	۵۰۰۰	Immediate
P۰۷۲۰	Width level of the ٤st notch	-	۰~۲۰	UINT۱۶	۲	Immediate
P۰۷۲۱	Depth level of the ٤st notch	-	۰~۹۹	UINT۱۶	۰	Immediate
P۰۷٤۷	Frequency of the A notch	Hz	۱۰~۱۰۰۰	UINT۱۶	۱۰۰۰	At stop
P۰۷۷٤	Low-speed filter	۲۵ns	۰~۲۵۵	UINT۱۶	۳۰	At stop
P۰۷۷۵	High -speed filter	۲۵ns	۰~۲۵۵	UINT۱۶	۳	At stop
P۰۷۷٦	speed reach filter	ms	۰~۵۰۰۰	UINT۱۶	۱۰	At stop
۰۸ Protection Parameters						
P۰۸۰۰	Power input phase loss protection	-	۰- Enable phase loss fault ۱- Enable phase loss fault and warning ۲- Disabled	UINT۱۶	۰	Immediate
P۰۸۰۱	Encoder multi-turn overflow fault	-	۰- Disabled ۱- Enabled	UINT۱۶	۱	At stop
P۰۸۰۳	Runaway speed threshold	rpm	۰~۱۰۰۰	UINT۱۶	۰	Immediate
P۰۸۰۸	Clear action	-	۰- Clear position deviation upon SOFF ۱- Clear position deviation upon SOFF and Clear position deviation by ClrPosErr signal input from DI	UINT۱۶	۰	At stop
P۰۸۰۹	Runaway protection	-	۰- Disabled ۱- Enabled	UINT۱۶	۱	Immediate
P۰۸۱۰	Runaway current threshold	۰,۱٪	۱۰۰۰~٤۰۰۰	UINT۱۶	۲۰۰۰	Immediate
P۰۸۱۱	Runaway speed threshold	rpm	۱~۱۰۰۰	UINT۱۶	۱۰	Immediate
P۰۸۱۲	Runaway Speed feedback filtering time	۰,۱ms	۱~۱۰۰۰	UINT۱۶	۲۰	Immediate
P۰۸۱۳	Runaway protection detection time	ms	۱۰~۱۰۰۰	UINT۱۶	۳۰	Immediate
P۰۸۱٤	Motor overload protection gain	%	۵۰~۳۰۰	UINT۱۶	۱۰۰	At stop
P۰۸۱٦	Motor overload detection	-	۰- Disabled ۱- Enabled	UINT۱۶	۱	At stop
P۰۸۱۷	Motor stall detection	-	۰- Disabled ۱- Enabled		۱	Immediate
P۰۸۱۸	Motor stall overtemperature protection time	ms	۱۰~٦۵۵۳۵	UINT۱۶	۲۰۰	Immediate
P۰۸۲۱	Over temperature threshold	°C	۰~۱۰۰	UINT۱۶	۰	At stop
۰۹ Display Parameters						
P۰۹۰۰	Position speed reference	rpm	-۳۲۷٦۷~۳۲۷٦۷	INT۱۶	۰	Unchangeable
P۰۹۰۱	Speed reference	rpm	-۳۲۷٦۷~۳۲۷٦۷	INT۱۶	۰	Unchangeable
P۰۹۰۲	torque reference	۰,۱٪	-۳۲۷٦۷~۳۲۷٦۷	INT۱۶	۰	Unchangeable

Param.	Name	Unit	Value	Data Type	Default	Change
P٠٩٠٣	Motor speed feedback	rpm	-٣٢٧٦٧~٣٢٧٦٧	INT١٦	٠	Unchangeable
P٠٩٠٤	speed actual value	rpm	-٣٢٧٦٧~٣٢٧٦٧	INT١٦	٠	Unchangeable
P٠٩٠٦	speed actual value (٠,١rpm)	rpm	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable
P٠٩١٠	Bus voltage	٠,١V	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٩١١	Ctr voltage	٠,١V	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٩١٢	RMS value of phase current (U)	٠,٠١A	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٩١٣	RMS value of line voltage	٠,١V	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٩١٤	Average load rate	٠,١٪	٠~٨٠٠٠	UINT١٦	٠	Unchangeable
P٠٩١٥	temperature	°C	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٩١٧	Electrical angle	٠,١°	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٩١٨	Monitored DI status	-	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٩٢٠	Monitored DO status	-	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٩٢٢	value of AI١ voltage	V	-٣٢٧٦٧~٣٢٧٦٧	INT١٦	٠	Unchangeable
P٠٩٢٣	value of AI٢ voltage	V	-٣٢٧٦٧~٣٢٧٦٧	INT١٦	٠	Unchangeable
P٠٩٢٥	Total power-on time	٠,١s	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	٠	Unchangeable
P٠٩٢٧	Current power on time	-	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	٠	Unchangeable
P٠٩٣٠	Input position reference counter	Reference unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable
P٠٩٣٢	Position reference counter	Reference unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable
P٠٩٣٤	Position feedback counter	Reference unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable
P٠٩٣٦	Encoder Position feedback counter	Encoder unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable
P٠٩٣٨	position deviation counter	Reference unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable
P٠٩٤٠	Encoder position deviation counter	Encoder unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable
P٠٩٤٢	Number of revolutions recorded in the absolute encoder	Reference unit	٠~٦٥٥٣٥	UINT١٦	٠	Unchangeable
P٠٩٤٣	Single-turn position fed back by the absolute encode	p	٠~٢١٤٧٤٨٣٦٤٧	UINT٣٢	٠	Unchangeable
P٠٩٤٥	Absolute position fed back by the absolute encoder (low ٣٢ bits)	Encoder unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable
P٠٩٤٧	Absolute position fed back	Encoder unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable

Param.	Name	Unit	Value	Data Type	Default	Change
	by the absolute encoder (high ٣٢ bits)					
P٠٩٤٩	Mechanical absolute position (low ٣٢ bits)	Encoder unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable
P٠٩٥١	Mechanical absolute position (high ٣٢ bits)	Encoder unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٠	Unchangeable
P٠٩٥٣	Load position within one turn in absolute position rotation mode (low ٣٢ bits)	Encoder unit	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	٠	Unchangeable
P٠٩٥٥	Load position within one turn in absolute position rotation mode (high ٣٢ bits)	Encoder unit	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	٠	Unchangeable
P٠٩٥٧	Load position within one turn in absolute position rotation mode	Refer ence unit	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	٠	Unchangeable
٠A Communication Parameters						
P٠A٠٠	Drive axis address	-	١~٢٤٧	UINT١٦	١	Immediate
P٠A٠٢	Serial baud rate	-	٠-٢٤٠٠bps ١-٤٨٠٠bps ٢-٩٦٠٠bps ٣-١٩٢٠٠bps ٤-٣٨٤٠٠bps ٥-٥٧٦٠٠bps ٦-١١٥٢٠٠bps	UINT١٦ UINT٣٢	٦	Immediate
P٠A٠٣	Modbus data format	-	٠- No parity, ٢ stop bits (٨-N-٢) ١- Even parity, ١ stop bit (٨-E-١) ٢- Odd parity, ١ stop bit (٨-O-١) ٣- No parity, ١ stop bit (٨-N-١)	UINT١٦	٠	Immediate
١٣ Position Control Parameters						
P١٣٠٠	Torque Control Parameters	-	٠- Pulse reference ١- Pulse reference	UINT١٦	٠	At stop
P١٣٠١	Pulses per revolution	١P/REV	٠~١٠٤٨٥٧٦	UINT٣٢	٠	At stop
P١٣٠٣	Electronic gear ratio ١ (numerator)	-	١~١٠٧٣٧٤١٨٢٤	UINT٣٢	٤	Immediate
P١٣٠٥	Electronic gear ratio ١ (denominator)	-	١~١٠٧٣٧٤١٨٢٤	UINT٣٢	١	Immediate
P١٣٠٧	Condition for positioning completed signal output	-	٠- Absolute position deviation lower than the setpoint of P١٣,٠٨ ١- Absolute position deviation lower than the setpoint of P١٣,٠٨ and the	UINT١٦	٠	Immediate

Param.	Name	Unit	Value	Data Type	Default	Change
			filtered position reference is ۰			
			۲- Absolute position deviation lower than the setpoint of P۱۳,۰۸ and the unfiltered position reference is ۰			
			۳- Absolute position deviation kept lower than the setpoint of P۱۳,۰۸ within the time defined by P۱۳,۱۰ and the unfiltered position reference is ۰			
P۱۳۰۸	Threshold of positioning completed	Encoder unit	۱~۶۵۵۳۵	UINT۱۶	۷	Immediate
P۱۳۰۹	Proximity threshold	Encoder unit	۱~۶۵۵۳۵	UINT۱۶	۶۵۵۳۵	Immediate
P۱۳۱۰	Hold time of positioning completed	ms	۰~۳۰۰۰۰	UINT۱۶	۰	Immediate
P۱۳۱۲	Speed feedforward control	-	۰- No speed feedforward ۱- Internal speed feedforward ۲-AI۱ ۳-AI۲	UINT۱۶	۱	At stop
P۱۳۱۳	Position pulse reference input terminal	-	۰- Low speed ۱- High speed	UINT۱۶	۰	At stop
P۱۳۱۴	Pulse reference form	-	۰- Direction + Pulse, positive logic ۱- Direction + Pulse, negative logic ۲- Phase A + phase B quadrature pulse, quadrupled frequency ۳-CW+CCW	UINT۱۶	۰	At stop
P۱۳۱۵	Servo pulse output source	-	۰- Encoder frequency division output ۱- Pulse reference synchronous output ۲- Frequency division or synchronous output inhibited	UINT۱۶	۰	At stop
P۱۳۱۶	Number of encoder frequency-division pulses	P/REV	۳۵~۱۰۷۳۷۴۱۸۲۴	UINT۳۲	۲۵۰۰	At stop
P۱۳۱۸	Position pulse edge	-	۰- Falling edge-triggered ۱- Rising edge-triggered	UINT۱۶	۰	Immediate
P۱۳۲۳	Encoder multi-turn data offset L۳۲	Encoder unit	-۲۱۴۷۴۸۳۶۴۸~۲۱۴۷۴۸۳۶۴۷	INT۳۲	۰	At stop
P۱۳۲۵	Encoder multi-turn absolute position NG۳۲	Encoder unit	-۲۱۴۷۴۸۳۶۴۸~۲۱۴۷۴۸۳۶۴۷	INT۳۲	۰	At stop
P۱۳۲۷	Mechanical gear ratio in absolute position rotation mode (numerator)	-	۱~۶۵۵۳۵	UINT۱۶	۱	At stop
P۱۳۲۸	Mechanical gear ratio in absolute	-	۱~۶۵۵۳۵	UINT۱۶	۱	At stop

Param.	Name	Unit	Value	Data Type	Default	Change
	position rotation mode (denominator)					
P١٣٢٩	Mechanical position L٣٢	Encoder unit	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	٠	At stop
P١٣٣١	Mechanical position NG٣٢	Encoder unit	٠~٤٢٩٤٩٦٧٢٩٥	UINT٣٢	٠	At stop
P١٣٤٤	homing function	-	٠- Disabled ١-DI ٢- real time	UINT١٦	٠	Immediate
P١٣٤٥	Homing mode	-	-٢~٣٥	INT١٦	١	At stop
P١٣٤٦	Speed of highspeed search for home switch signal	rpm	٠~٣٠٠٠	UINT١٦	١٠٠	Immediate
P١٣٤٧	Speed of lowspeed search for home switch signal	rpm	٠~١٠٠٠	UINT١٦	١٠	Immediate
P١٣٤٨	Speed of lowspeed search for home switch signal	rpm/s	٠~٦٥٥٣٥	UINT١٦	١٠٠٠	Immediate
P١٣٤٩	Home search time limit	s	٠~٦٥٥,٣٥	UINT١٦	٥٠٠,٠٠	Immediate
P١٣٥١	Mechanical home offset	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	٠	Immediate
P١٣٥٦	Mechanical torque limit	-	٠~٣٠٠٠	UINT١٦	١٠٠٠	Immediate
P١٣٥٩	Electronic gear ratio switchover condition	-	٠- position reference is kept ٠ ١- Switched in real time	UINT١٦	٠	At stop
P١٣٦٠	Positioning window time	ms	٠~٣٠٠٠٠	UINT١٦	٠	Immediate
P١٣٦٣	Forward position of software limit	Reference unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	٢١٤٧٤٨٣٦٤٧	At stop
P١٣٦٥	Reverse position of software limit	Reference unit	-٢١٤٧٤٨٣٦٤٨~٢١٤٧٤٨٣٦٤٧	INT٣٢	-٢١٤٧٤٨٣٦٤٨	At stop
١٤ Speed Control Parameters						
P١٤٠٠	Speed reference source	-	٠- A ١- B ٢- A+B ٣- Switched between A\B DI ٤- Communication	UINT١٦	٠	Keyboard At stop
P١٤٠١	Source of main speed reference A	-	٠- keypad ١- Multi-speed ٢-AI١ ٣-AI٢	UINT١٦	٠	At stop
P١٤٠٢	Source of main speed reference B	-	٠- keypad ١- Multi-speed ٢-AI١ ٣-AI٢	UINT١٦	١	At stop
P١٤٠٣	Maximum speed limit	rpm	٠~٦٠٠٠٠	UINT١٦	١٠٠٠٠	Immediate
P١٤٠٤	Forward speed threshold	rpm	٠~٦٠٠٠٠	UINT١٦	١٠٠٠٠	Immediate

Param.	Name	Unit	Value	Data Type	Default	Change
P١٤٠٥	Reverse speed threshold	rpm	٠~٦٠٠٠	UINT١٦	١٠٠٠٠	Immediate
P١٤٠٦	Jog speed setpoint	rpm	٠~٦٠٠٠	UINT١٦	١٠٠	Immediate
P١٤٠٧	Speed reference set through keypad	rpm	-٩٩٩٩~٣٠٠٠٠	INT١٦	٢٠٠	Immediate
P١٤٠٨	Acceleration ramp time constant of speed reference	ms	٠~٦٥٥٣٥	UINT١٦	٠	Immediate
P١٤٠٩	Deceleration ramp time constant of speed reference	ms	٠~٦٥٥٣٥	UINT١٦	٠	Immediate
P١٤١٠	Zero clamp speed threshold	rpm	٠~٦٠٠٠	UINT١٦	١٠	Immediate
P١٤١١	Torque feedforward control	-	٠- No torque feedforward ١- Internal torque feedforward	UINT١٦	١	Immediate
P١٤١٢	Threshold of TGON (motor rotation) signal	rpm	٠~١٠٠٠	UINT١٦	٢٠	Immediate
P١٤١٣	Threshold of VCmp (speed matching) signal	rpm	٠~١٠٠	UINT١٦	١٠	Immediate
P١٤١٤	Threshold of speed reach signal	rpm	١٠~٦٠٠٠	UINT١٦	١٠٠٠	Immediate
P١٤١٥	Threshold of zero speed output signal	rpm	١~٦٠٠٠	UINT١٦	١٠	Immediate
١٥ Torque Control Parameters						
P١٥٠٠	Torque reference source	-	٠-A ١-B ٢-A+B ٣- Switched between A\B DI ٤- Communication	UINT١٦	٠	At stop
P١٥٠١	Source of main torque reference A	-	٠- Keypad ١-AI١ ٢-AI٢	UINT١٦	٠	At stop
P١٥٠٢	Source of main torque reference B	-	٠- Keypad ١-AI١ ٢-AI٢	UINT١٦	٠	At stop
P١٥٠٣	Torque limit source	-	٠- internal torque limit ١ ١- external torque limit AI ٢-Switched between external torque limit ١ and ٢ selected by DI ٣-Switched between external torque limit ١ and AI selected by DI ٤- internal torque limit ١ and external torque limit AI	UINT١٦	٠	Immediate
P١٥٠٤	Torque limit AI	-	١-AI١ ٢-AI٢	UINT١٦	٠	Immediate
P١٥٠٥	Positive internal torque limit ١	%	٠~٣٠٠٠	UINT١٦	٣٠٠٠	Immediate
P١٥٠٦	Negative internal torque limit ١	%	٠~٣٠٠٠	UINT١٦	٣٠٠٠	Immediate

Param.	Name	Unit	Value	Data Type	Default	Change
P١٥٠٧	Positive internal torque limit ٢	%	٠~٣٠٠٠	UINT١٦	٣٠٠٠	Immediate
P١٥٠٨	Negative internal torque limit ٢	%	٠~٣٠٠٠	UINT١٦	٣٠٠٠	Immediate
P١٥٠٩	Speed limit source	-	٠- Internal speed limit (in torque control) ١- DI ٢- AI	UINT١٦	١	Immediate
P١٥١٠	Speed limit AI	-	١-AI١ ٢-AI٢	UINT١٦	١	Immediate
P١٥١١	Forward speed limit/١st speed limit in torque control	rpm	٠~٦٠٠٠	UINT١٦	٣٠٠٠	Immediate
P١٥١٢	Reverse speed limit/٢nd speed limit in torque control	rpm	٠~٦٠٠٠	UINT١٦	٣٠٠٠	Immediate
P١٥١٣	Keypad reference in torque control	%	-٣٠٠٠~٣٠٠٠	INT١٦	٠	Immediate
P١٥١٦	Base value for torque reach	-	٠~٣٠٠٠	UINT١٦	٠	Immediate
P١٥١٧	Torque reach valid value	-	١٠٠~٣٠٠٠	UINT١٦	٢٠٠	Immediate
P١٥١٨	Torque reach invalid value	-	٠~٥٣٩٣	UINT١٦	١٠٠	Immediate
P١٥٢٣	Field weakening selection	-	٠~١	UINT١٦	٠	Immediate
P١٥٢٤	Speed limit window in the torque control mode	-	٥~٣٠٠	UINT١٦	١٠	Immediate
١٦ Multi- Speed Function Parameters						
P١٦٠٠	Multi-speed operation mode	-	٠- Single run ١- Cyclic operation ٢- DI-based operation	UINT١٦	١	At stop
P١٦٠١	Number of speed references in multispeed mode	-	١~١٦	UINT١٦	١٦	At stop
P١٦٠٢	Operating time unit	-	٠-s ١-min	UINT١٦	٠	At stop
P١٦٠٣	Acceleration time ١	ms	٠~٦٥٥٣٥	UINT١٦	١٠	At stop
P١٦٠٤	Deceleration Time١	ms	٠~٦٥٥٣٥	UINT١٦	١٠	At stop
P١٦٠٥	Acceleration time ٢	ms	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٠٦	Deceleration Time٢	ms	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٠٧	Acceleration time ٣	ms	٠~٦٥٥٣٥	UINT١٦	١٠٠	At stop
P١٦٠٨	Deceleration Time٣	ms	٠~٦٥٥٣٥	UINT١٦	١٠٠	At stop
P١٦٠٩	Acceleration time ٤	ms	٠~٦٥٥٣٥	UINT١٦	١٥٠	At stop
P١٦١٠	Deceleration Time٤	ms	٠~٦٥٥٣٥	UINT١٦	١٥٠	At stop
P١٦٢٠	Speed reference ١	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	٠	At stop

Param.	Name	Unit	Value	Data Type	Default	Change
P١٦٢١	Operating time of speed ١	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٢٢	cceleration/ Deceleration time of speed ١	-	٠- Zero acceleration/deceleration time ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٢٣	Reference t ٢	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	١٠٠	At stop
P١٦٢٤	Operating time of speed ٢	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٢٥	Acceleration/ Deceleration time of speed ٢	-	٠.٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٢٦	Reference ٣	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	٣٠٠	At stop
P١٦٢٧	Operating time of speed ٣	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٢٨	Acceleration/ Deceleration time of speed ٣	-	٠.٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٢٩	Reference ٤	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	٥٠٠	At stop
P١٦٣٠	Operating time of speed ٤	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٣١	Acceleration/ Deceleration time of speed t ٤	-	٠.٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٣٢	Reference ٥	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	٧٠٠	At stop
P١٦٣٣	Operating time of speed ٥	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٣٤	Acceleration/ Deceleration time of speed t ٥	-	٠.٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٣٥	Reference ٦	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	٩٠٠	At stop
P١٦٣٦	Operating time of speed ٦	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٣٧	Acceleration/ Deceleration time of speed t ٦	-	٠.٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٣٨	Reference ٧	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	٦٠٠	At stop
P١٦٣٩	Operating time of speed ٧	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٤٠	Acceleration/ Deceleration time of speed t ٧	-	٠.٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٤١	Reference ٨	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	٣٠٠	At stop

Param.	Name	Unit	Value	Data Type	Default	Change
P١٦٤٢	Operating time of speed ٨	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٤٣	Acceleration/ Deceleration time of speed t ٨	-	٠-٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٤٤	Reference ٩	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	١٠٠	At stop
P١٦٤٥	Operating time of speed ٩	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٤٦	Acceleration/ Deceleration time of speed t ٩	-	٠-٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٤٧	Reference ١٠	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	-١٠٠	At stop
P١٦٤٨	Operating time of speed ١٠	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٤٩	Acceleration/ Deceleration time of speed t ١٠	-	٠-٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٥٠	Reference ١١	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	-٣٠٠	At stop
P١٦٥١	Operating time of speed ١١	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٥٢	Acceleration/ Deceleration time of speed t ١١	-	٠-٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٥٣	Reference ١٢	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	-٥٠٠	At stop
P١٦٥٤	Operating time of speed ١٢	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٥٥	Acceleration/ Deceleration time of speed t ١٢	-	٠-٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٥٦	Reference ١٣	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	-٧٠٠	At stop
P١٦٥٧	Operating time of speed ١٣	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٥٨	Acceleration/ Deceleration time of speed t ١٣	-	٠-٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٥٩	Reference ١٤	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	-٩٠٠	At stop
P١٦٦٠	Operating time of speed ١٤	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٦١	Acceleration/ Deceleration time of speed t ١٤	-	٠-٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
P١٦٦٢	Reference ١٥	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	-٦٠٠	At stop
P١٦٦٣	Operating time of speed ١٥	P١٦.٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٦٤		-	٠-٠S	UINT١٦	٠	At stop

Param.	Name	Unit	Value	Data Type	Default	Change
	Acceleration/ Deceleration time of speed t ١٥		١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤			
P١٦٦٥	Reference ١٦	rpm	-٦٠٠٠~٦٠٠٠	INT١٦	-٣٠٠	At stop
P١٦٦٦	Operating time of speed ١٦	P١٦٠٢	٠~٦٥٥٣٥	UINT١٦	٥٠	At stop
P١٦٦٧	Acceleration/ Deceleration time of speed t ١٦	-	٠.٠S ١- Acc/Dec time ١ ٢- Acc/Dec time ٢ ٣- Acc/Dec time ٣ ٤- Acc/Dec time ٤	UINT١٦	٠	At stop
١٧ Multi- Position Operation References						
P١٧٠٠	Multi-position operation mode	-	٠- Individual operation ١- Cyclic operation ٢- DI-based operation ٣- Sequential operation	UINT١٦	١	At stop
P١٧٠١	Number of displacement references in multiposition mode	-	١~١٦	UINT١٦	١	At stop
P١٧٠٢	Starting displacement No. after pause	-	٠- Continue to execute the unexecuted displacements ١- Start from displacement ١	UINT١٦	٠	At stop
P١٧٠٣	Interval time unit	-	٠-ms ١-s	UINT١٦	٠	At stop
P١٧٠٤	Displacement reference type	-	٠- Relative displacement reference ١- Absolute displacement reference	UINT١٦	٠	At stop
P١٧٠٥	Starting displacement No. in sequential operation	-	٠~١٦	UINT١٦	٠	At stop
P١٧١٢	Displacement ١	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧١٤	Speed of displacement ١	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧١٥	Acc/Dec time of displacement ١	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧١٦	Interval time after displacement ١	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧١٧	Displacement ٢	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧١٩	Speed of displacement ٢	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٢٠	Acc/Dec time of displacement ٢	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٢١	Interval time after displacement ٢	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٢٢	Displacement ٣	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٢٤	Speed of displacement ٣	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate

Param.	Name	Unit	Value	Data Type	Default	Change
P١٧٢٥	Acc/Dec time of displacement ٣	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٢٦	Interval time after displacement ٣	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٢٧	Displacement ٤	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٢٩	Speed of displacement ٤	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٣٠	Acc/Dec time of displacement ٤	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٣١	Interval time after displacement ٤	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٣٢	Displacement ٥	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٣٤	Speed of displacement ٥	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٣٥	Acc/Dec time of displacement ٥	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٣٦	Interval time after displacement ٥	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٣٧	Displacement ٦	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٣٩	Speed of displacement ٦	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٤٠	Acc/Dec time of displacement ٦	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٤١	Interval time after displacement ٦	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٤٢	Displacement ٧	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٤٤	Speed of displacement ٧	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٤٥	Acc/Dec time of displacement ٧	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٤٦	Interval time after displacement ٧	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٤٧	Displacement ٨	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٤٩	Speed of displacement ٨	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٥٠	Acc/Dec time of displacement ٨	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٥١	Interval time after displacement ٨	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٥٢	Displacement ٩	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٥٤	Speed of displacement ٩	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٥٥	Acc/Dec time of displacement ٩	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate

Param.	Name	Unit	Value	Data Type	Default	Change
P١٧٥٦	Interval time after displacement ١	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٥٧	Displacement ١٠	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٥٩	Speed of displacement ١٠	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٦٠	Acc/Dec time of displacement ١٠	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٦١	Interval time after displacement ١٠	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٦٢	Displacement ١١	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٦٤	Speed of displacement ١١	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٦٥	Acc/Dec time of displacement ١١	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٦٦	Interval time after displacement ١١	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٦٧	Displacement ١٢	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٦٩	Speed of displacement ١٢	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٧٠	Acc/Dec time of displacement ١٢	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٧١	Interval time after displacement ١٢	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٧٢	Displacement ١٣	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٧٤	Speed of displacement ١٣	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٧٥	Acc/Dec time of displacement ١٣	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٧٦	Interval time after displacement ١٣	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٧٧	Displacement ١٤	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٧٩	Speed of displacement ١٤	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٨٠	Acc/Dec time of displacement ١٤	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٨١	Interval time after displacement ١٤	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٨٢	Displacement ١٥	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٨٤	Speed of displacement ١٥	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٨٥	Acc/Dec time of displacement ١٥	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٨٦	Interval time after displacement ١٥	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate

Param.	Name	Unit	Value	Data Type	Default	Change
P١٧٨٧	Displacement ١٦	Reference unit	-١٠٧٣٧٤١٨٢٤~١٠٧٣٧٤١٨٢٤	INT٣٢	١٠٠٠٠	Immediate
P١٧٨٩	Speed of displacement ١٦	rpm	١~٦٠٠٠	UINT١٦	٢٠٠	Immediate
P١٧٩٠	Acc/Dec time of displacement ١٦	ms	٠~٦٥٥٣٥	UINT١٦	١٠	Immediate
P١٧٩١	Interval time after displacement ١٦	P١٧٠٣	٠~١٠٠٠٠	UINT١٦	١٠	Immediate
P١٧٩٢	Current number of segments	-	٠~١٦	UINT١٦	٠	At stop