



Servo cable

2022-3-16

Content



Main circuit wiring



Power cable connection



Encoder cable connection



CN2 DI&DO



Communication cable

WECON Servo drive

VD1



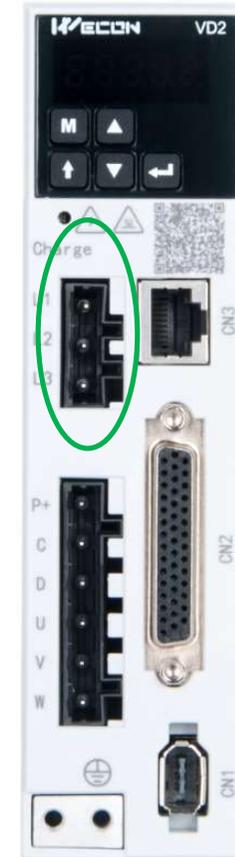
VD2 B type (incremental)



VD2 B type (absolute)



VD2 A type



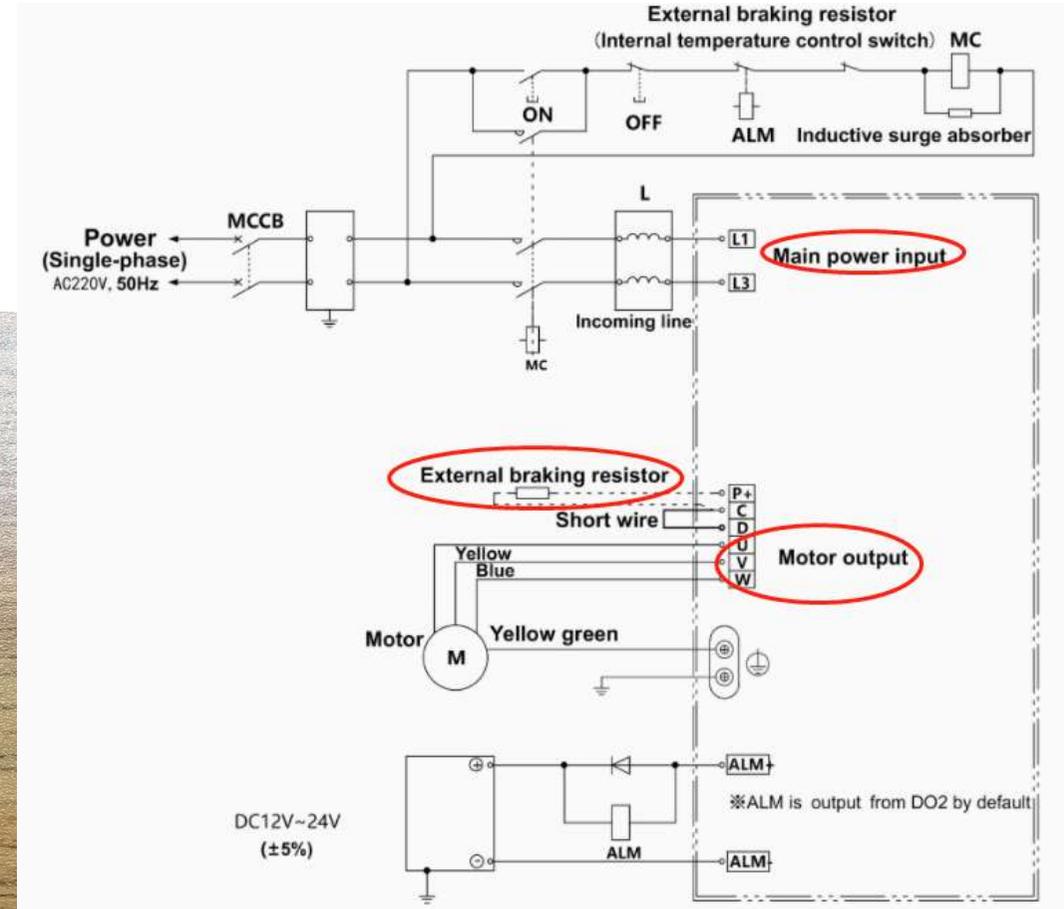
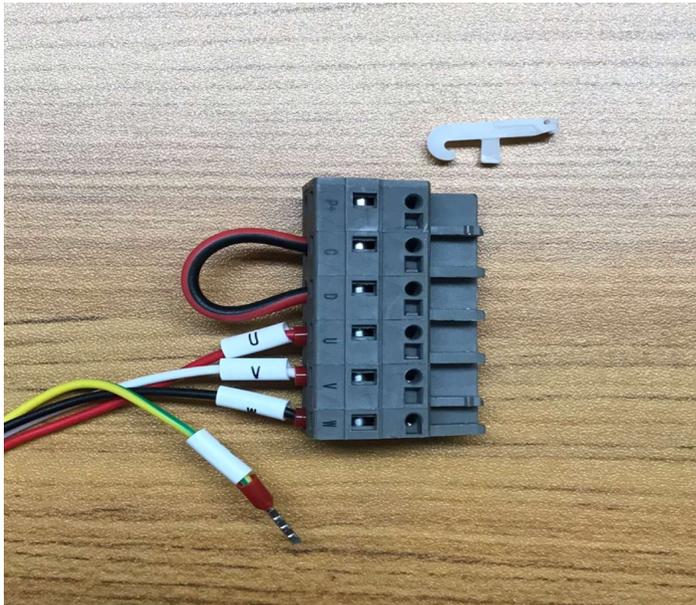
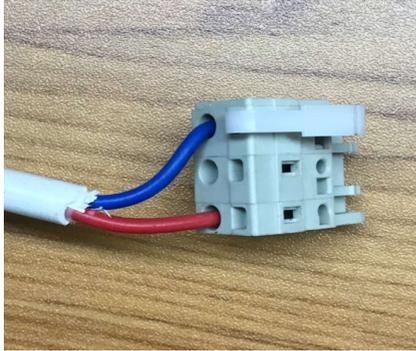
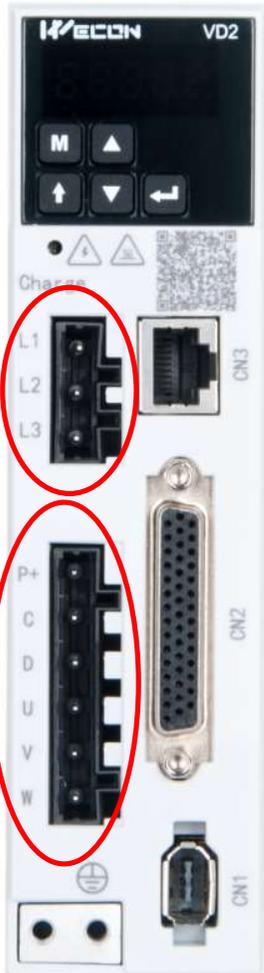
VD2F



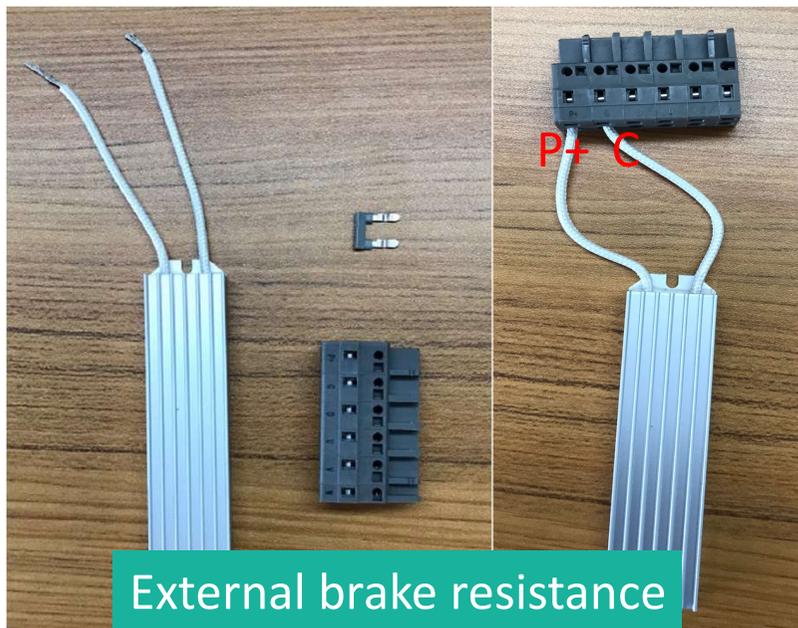
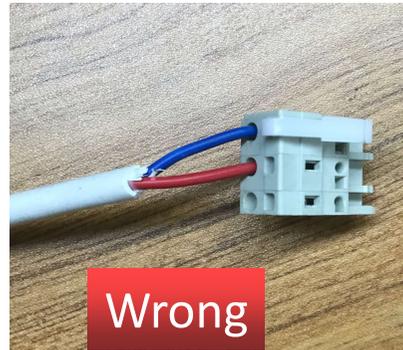
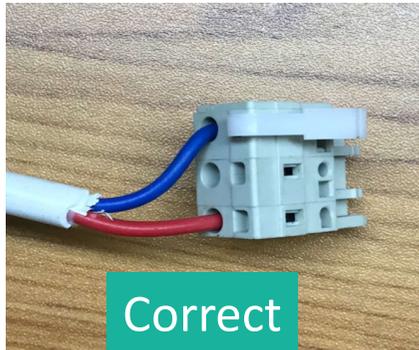
01 Main circuit wiring

- ✓ main power circuit wiring
- ✓ Brake resistance wiring
- ✓ Motor power wiring

VD2 A type drive single-phase 220v circuit



VD2 A type drive single-phase 220v circuit



<http://docs.we-con.com.cn/wiki/servo/view/6.Software/>

5. Software

Last modified by Admin on 2022/03/02 03:56

1. Wecon servo configurator 1.1.2(2021-11-4)

[Download](#)

2. Power calculation tool of WECON servo brake resistor

[Download](#)

brake resistor tool

Power calculation of WECON servo brake resistor V1.03

1. Select motor and driver model

Motor model	WD80M-07530S-E1B
Drive model	VD2-016SA1G

2. Enter the mechanical operating parameters

Cycle of acc. and dec. (s)	0.5
[P03-01]Measured load inertia ratio (%)	500%
Actual operating max. speed (rpm)	2500

3. Please enter the field power supply voltage (The highest AC RMS voltage when the grid voltage fluctuates)

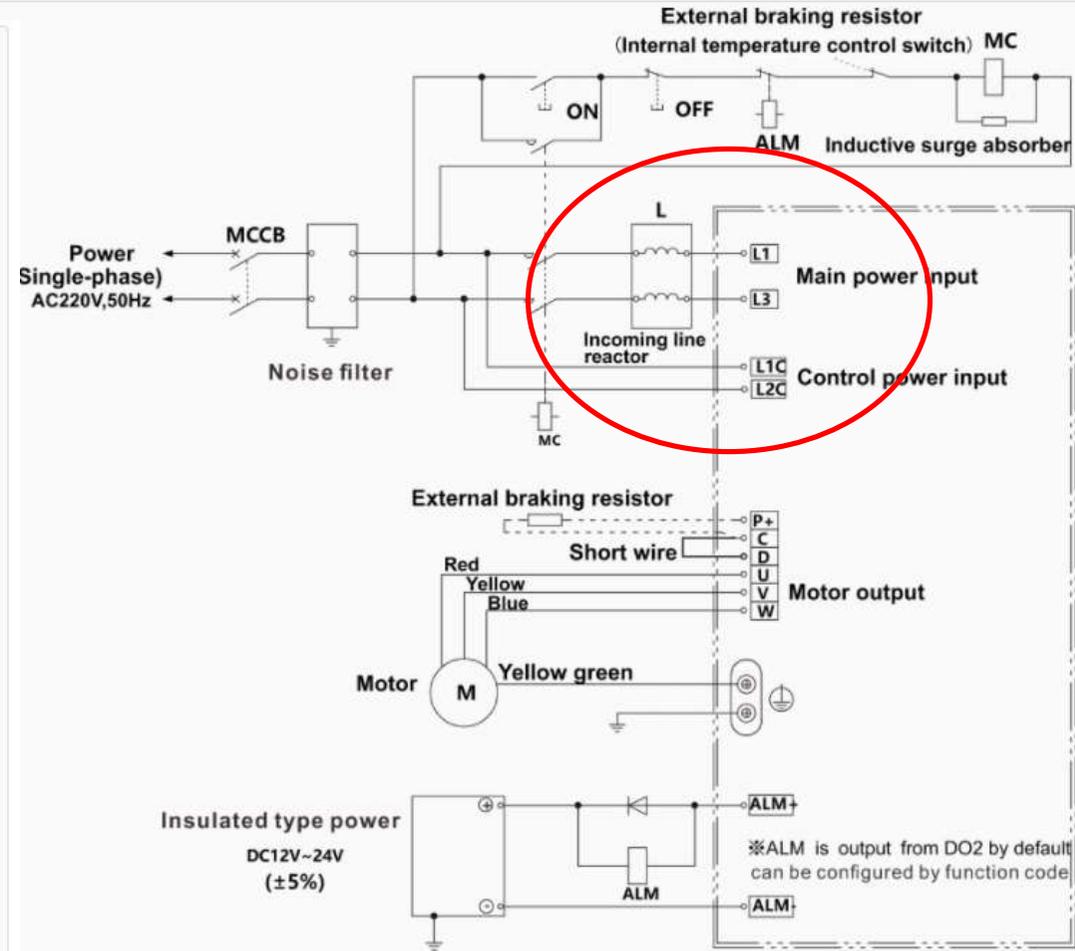
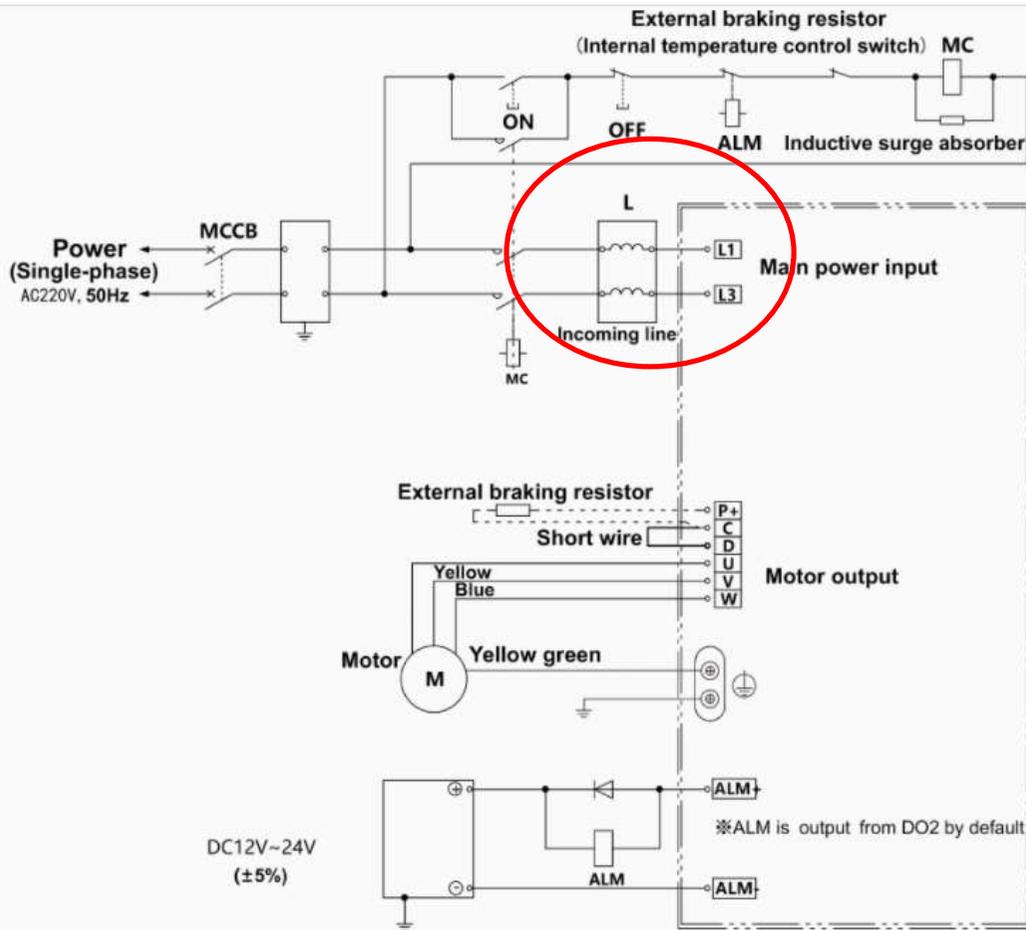
Possible maximum supply voltage RMS (unit: V)	AC 250
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Recommended braking resistor power

152W



VD2 B type drive single-phase 220v circuit



VD2A type single-phase 220v

VD2B type single-phase 220v

VD2 B type drive single-phase 220v circuit

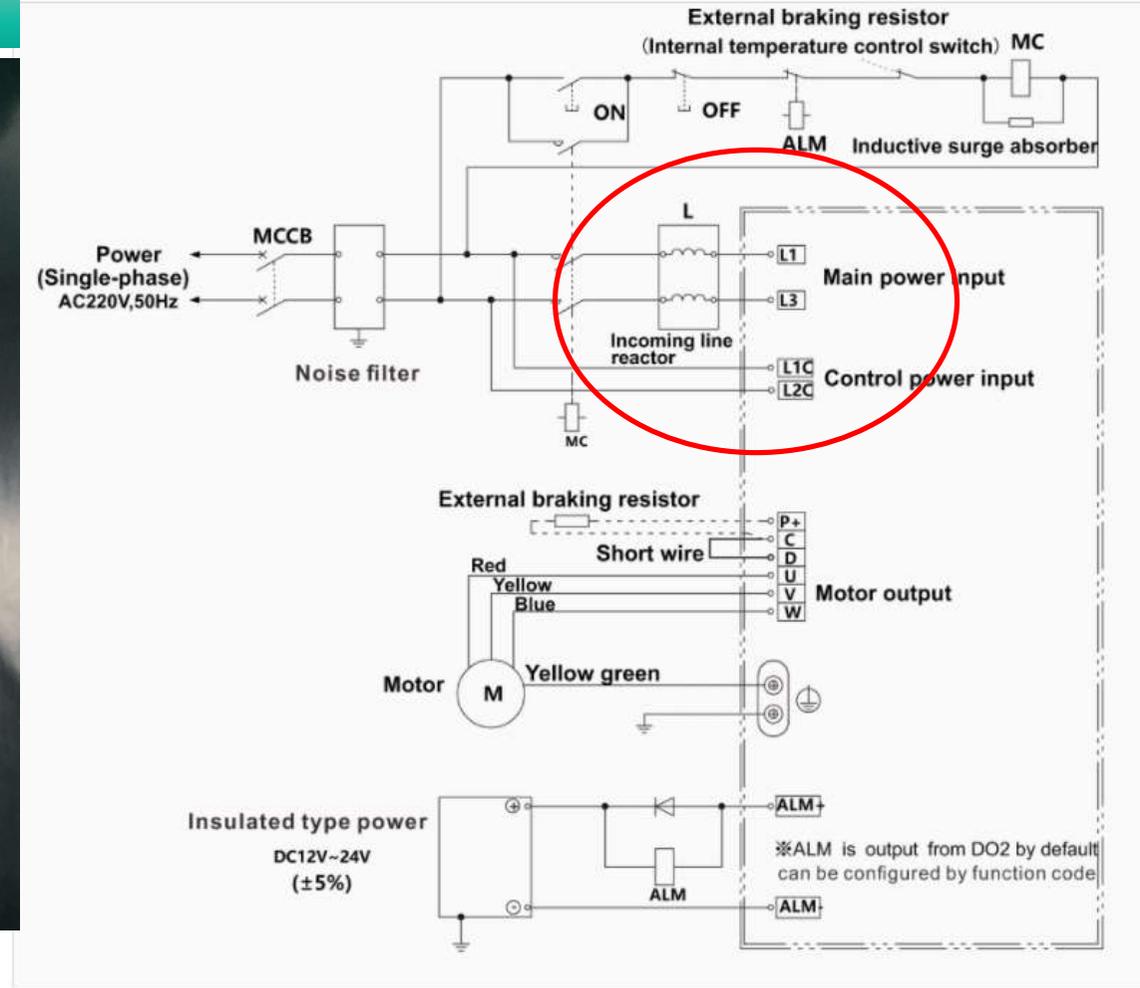
VD1



VD2 B (incremental)



VD2 B (absolute)

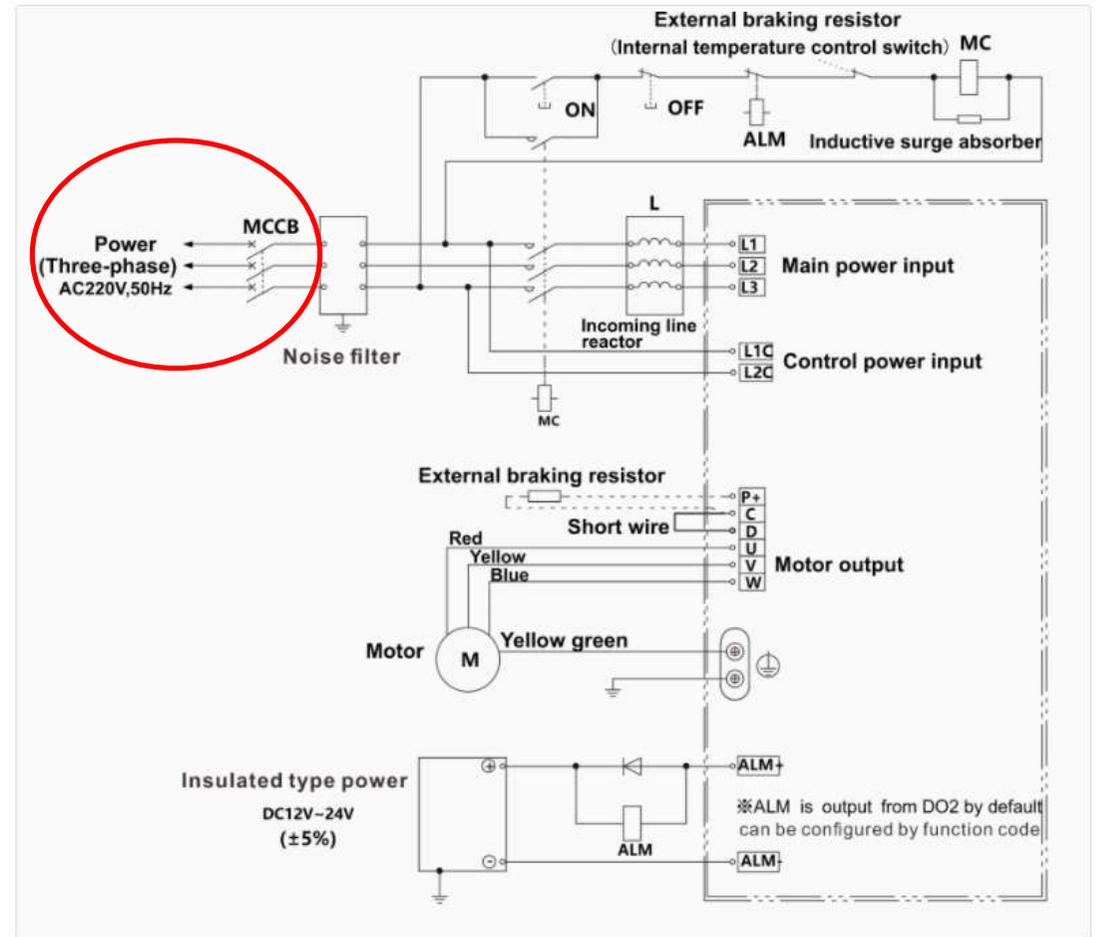


VD2 B type drive single-phase 220v circuit

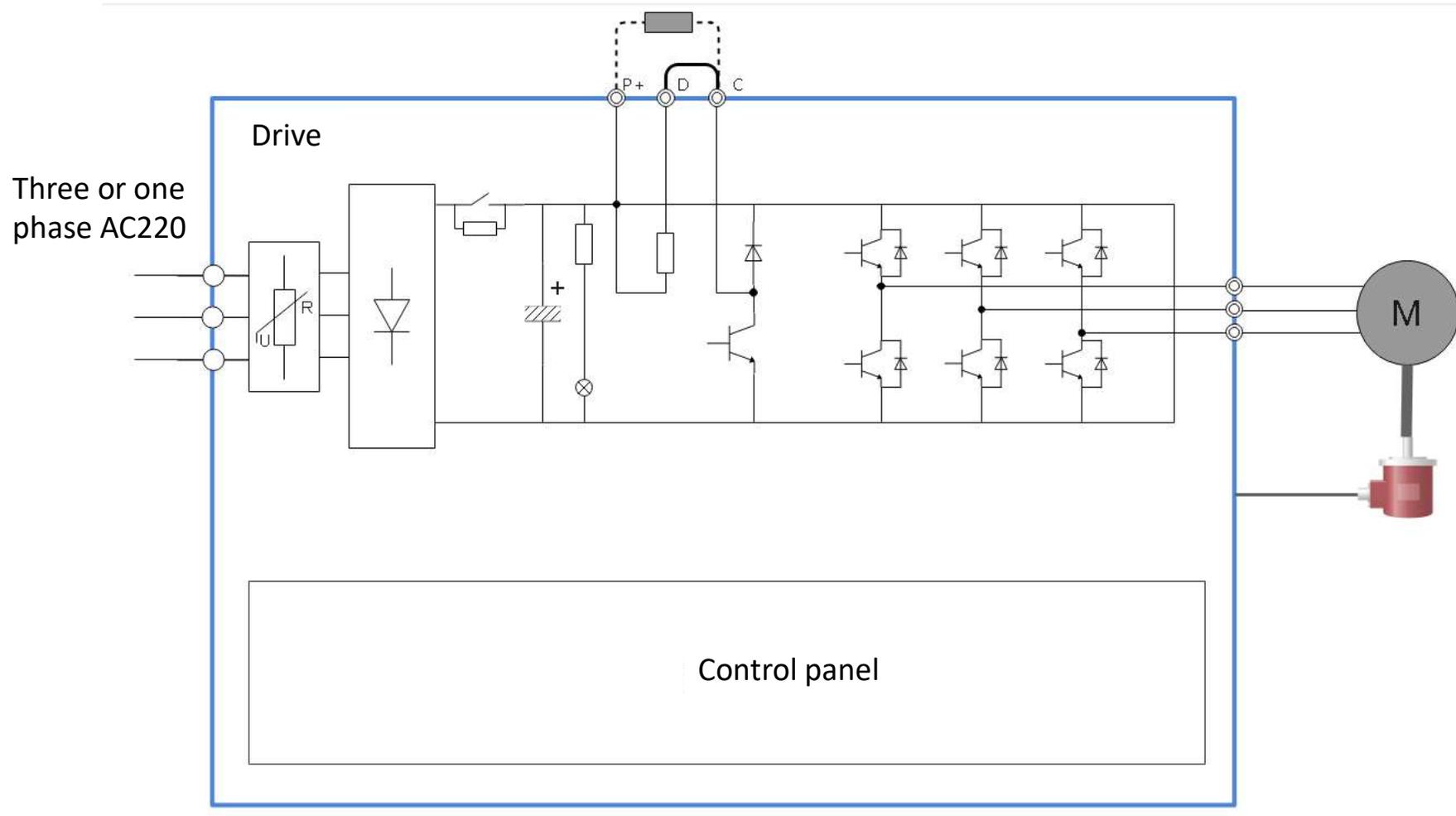
VD2 B type drive three-phase 220v circuit

Our servo supports single-phase 220V and three-phase 220v.

Note: 380V, 440V or other power can not connect with servo recently. If the customer has connected wrong power, which caused the servo drive to burn out.



Servo drive circuit



02 Power cable connection

- ✓ Power cable name rule
- ✓ Connect port show



power cable name rule

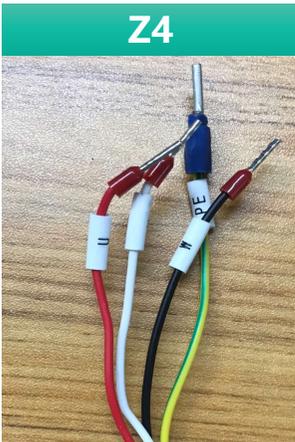
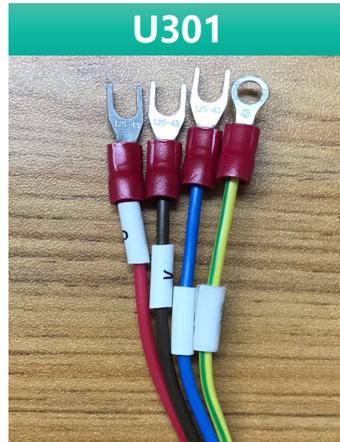
Example:P-Z3O1-R4M-3MX4

Check orange color

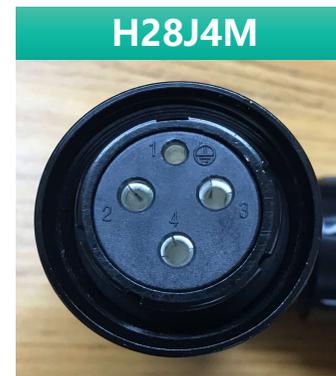
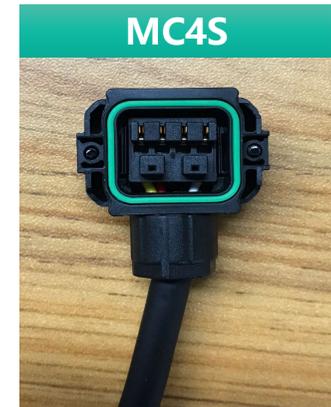
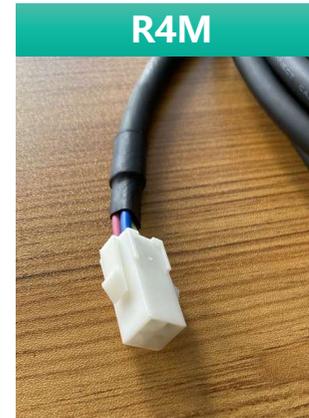
type	Drive side port	Motor side port	Cable length	Cable core number	Wire diameter
E:Encorder patch cord	D15G : DB15 male(B type)	R4M : 4 core rectangular connector female	D5M : 0.5M	X4 : 4 cores	A : 0.2MM
P:Power patch cord	M20G : MDR20 male(A type VD1)	R15M : 15 core rectangular connector female	3M : 3M	X6 : 6 cores	B : 1.0MM
	J1394:1394 plug(A type VD2)	H28J4M : 4 core 28MM aviation plug female	5M : 5M	X15 : 15 cores	A1:0.2MM+battery pack
	U3O1: 3 core U type cold-pressed terminal,1 core O type cold-pressed terminal(B type)	H28J15M : 15 core 28MM aviation plug female	10M : 10M	X5 : 5 cores	C:2.5mm
	Z3O1 : 3 core needle-type cold-pressed terminal,1 core O type cold-pressed terminal(A type VD2)	H32J4M : 4 core 32MM aviation plug female		X7 : 7 cores	D : 0.5mm
	L : L4G (4 core cold-pressed terminal male end)	R9M:9 core rectangular connector female			E:0.75mm
	Z4 : 4 core needle-type cold-pressed terminal	H28K7M : 7 core 28MM aviation plug female			F:1.5mm
	O2:2 core O type cold-pressed terminal	MC7S : 7 core push-pull connector female			
		MC4S : 4 core push-pull connector female			
		R2M : 2 core rectangular connector female			

Power cable port

Drive side port

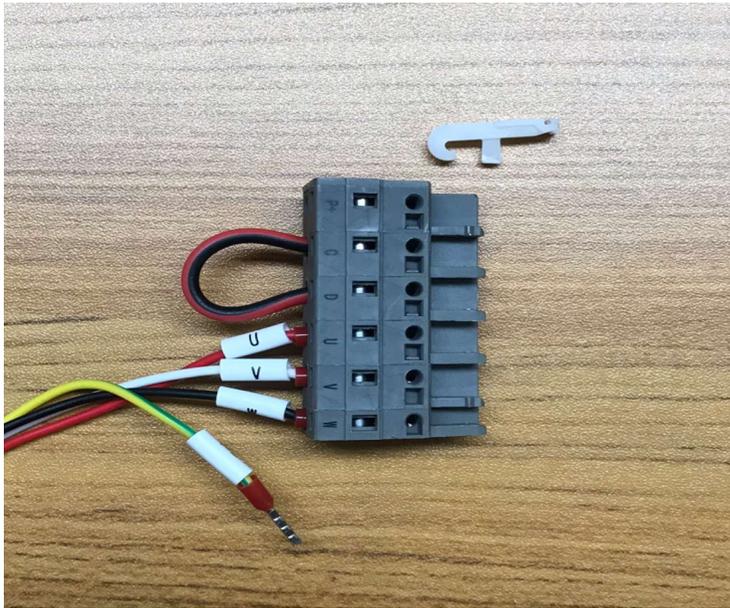


Motor side port

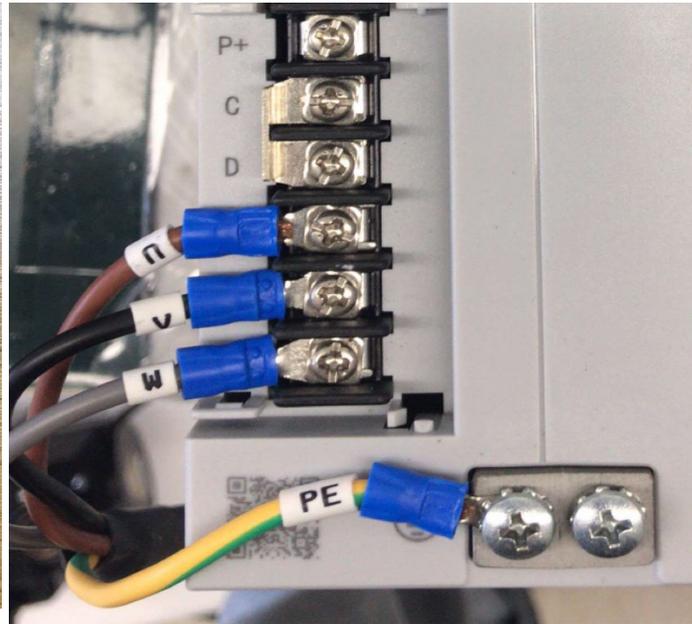


Power cable (drive side)

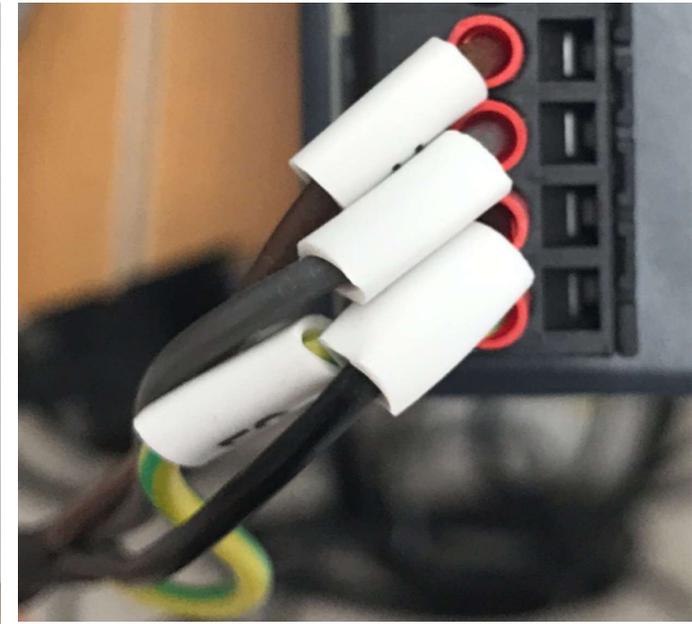
Z301



U301

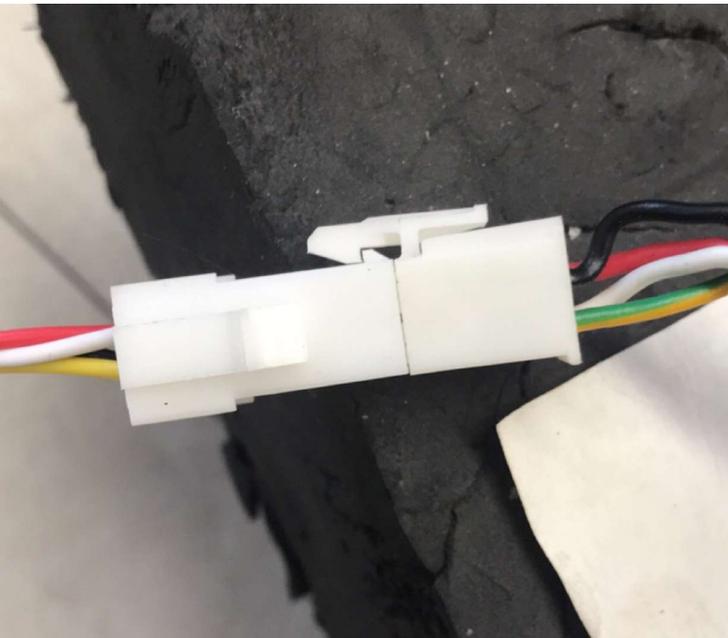


Z4



Power cable (Motor side)

R4M



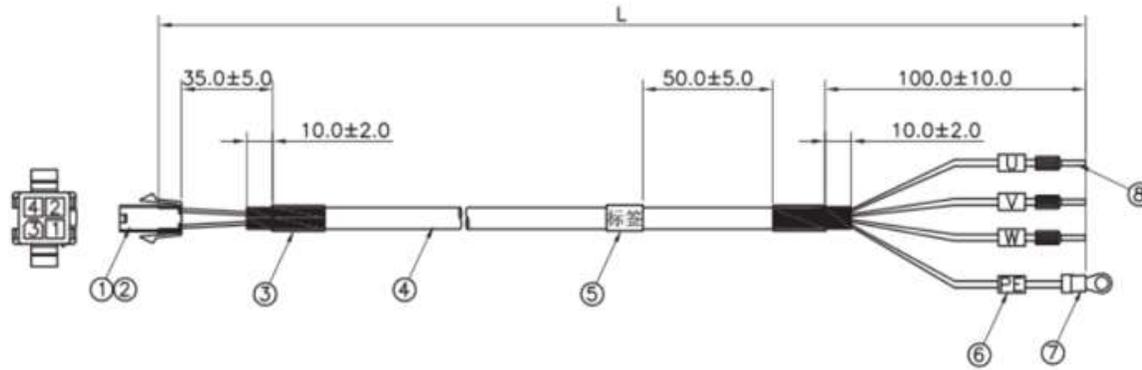
MC4S



H28J4M



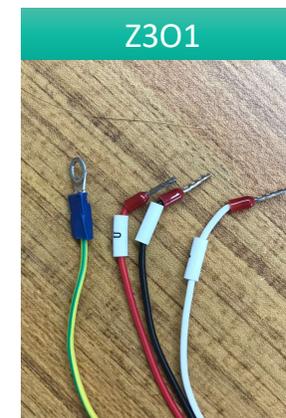
P-Z3O1-R4M (60-80 flange)



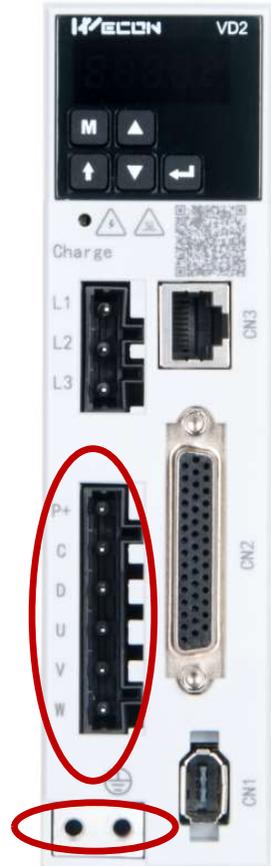
R4M

wiring diagram

Conn.1 (W-172159-1)		Conn.2 Pin definition	
Red	1	U	0.75-8 Needle port (Red)
White	2	V	0.75-8 Needle port (Red)
Black	3	W	0.75-8 Needle port (Red)
Yellow&green	4	PE	1.25-4 O type port (Blue)



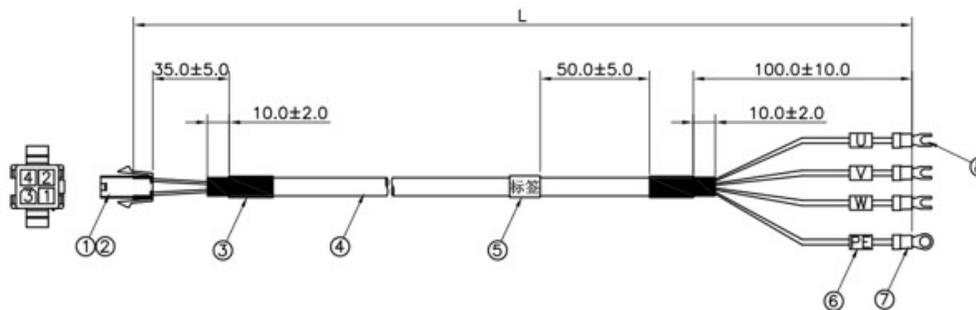
Z3O1



P-U301-R4M (80 flange)

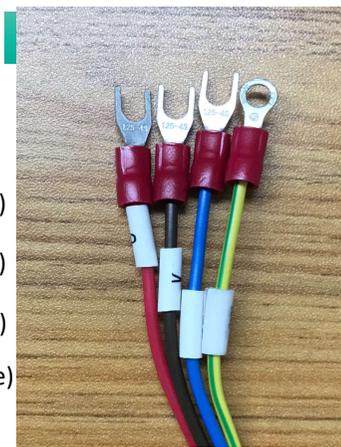


R4M

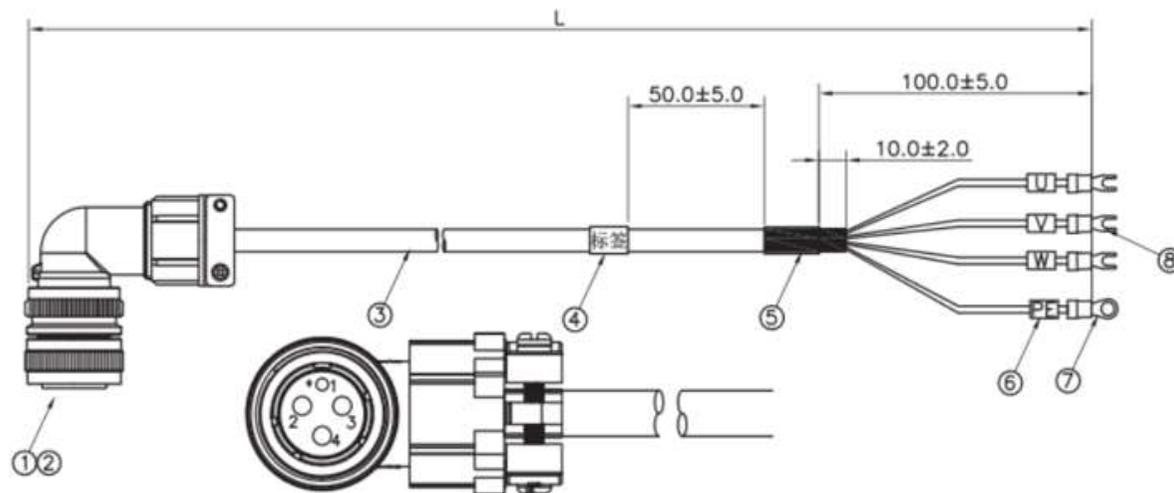
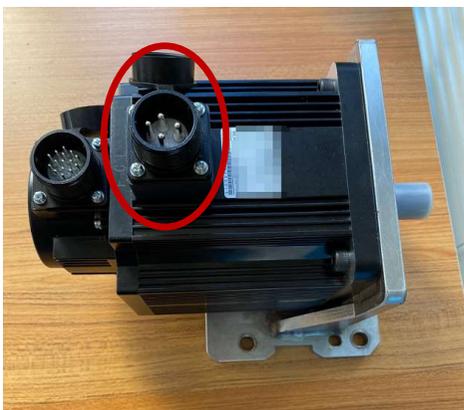


wiring diagram

Conn.1 (W-172159-1)		Conn.2 Pin definition
Red	1 ————— U	1.25-4 U type port (Red)
White	2 ————— V	1.25-4 U type port (Red)
Black	3 ————— W	1.25-4 U type port (Red)
Yellow&green	4 ————— PE	1.25-4 O type port (Blue)



P-U301-H28J4M (110-130 flange)



wiring diagram



H28J4M

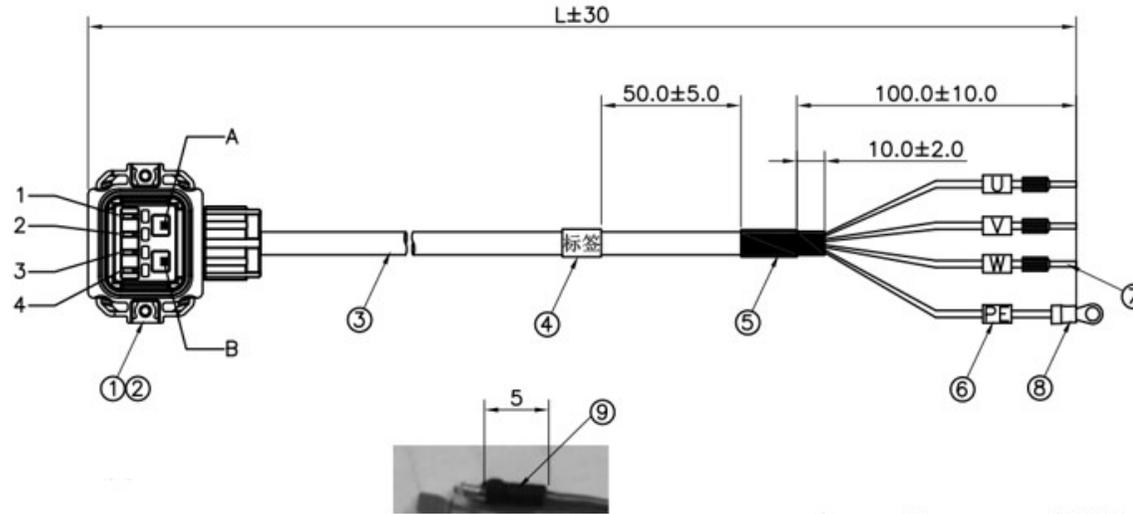
Conn.1		Conn.2	
(KG-YD28K4TSJ)		Pin definition	
Black1	2	U	1.25-4 U type port (Blue)
Black2	4	V	1.25-4 U type port (Blue)
Black3	3	W	1.25-4 U type port (Blue)
Yellow&green	1	PE	1.25-4 O type port (Red)



U301

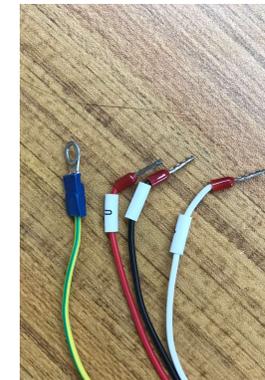


P-Z3O1-MC4S (80 flange)



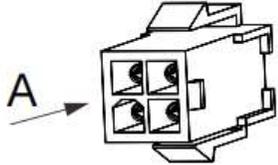
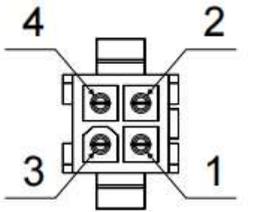
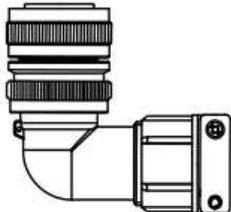
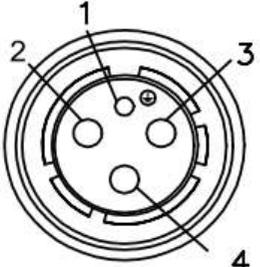
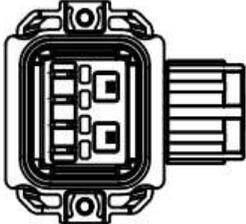
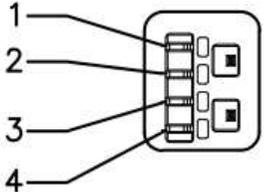
wiring diagram

	Conn.1 (SC-MC6S-AC20-00)		Conn.2 Pin definition	
Red	3	U	0.5-8	Needle port (Red)
White	1	V	0.5-8	Needle port (Red)
Black	2	W	0.5-8	Needle port (Red)
Yellow&green	4	PE	1.25-4	O type port (Blue)





servo drive & servo motor power cable

Connector shape	Terminal pin distribution	Pin description	Adapted motor Flange															
		<table border="1"> <thead> <tr> <th>Pin number</th> <th>Pin name</th> <th>Color</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>U</td> <td>Red</td> </tr> <tr> <td>2</td> <td>V</td> <td>White</td> </tr> <tr> <td>3</td> <td>W</td> <td>Black</td> </tr> <tr> <td>4</td> <td>PE</td> <td>Yellow/Green</td> </tr> </tbody> </table>	Pin number	Pin name	Color	1	U	Red	2	V	White	3	W	Black	4	PE	Yellow/Green	<p>60 80</p>
Pin number	Pin name	Color																
1	U	Red																
2	V	White																
3	W	Black																
4	PE	Yellow/Green																
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Pin number	Pin name	Color																
2	U	Black																
4	V	Yellow/Green																
3	W	Black																
1	PE	Black																
		<table border="1"> <thead> <tr> <th>Pin number</th> <th>Pin name</th> <th>Color</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>U</td> <td>Red</td> </tr> <tr> <td>1</td> <td>V</td> <td>White</td> </tr> <tr> <td>2</td> <td>W</td> <td>Black</td> </tr> <tr> <td>4</td> <td>PE</td> <td>Yellow/Green</td> </tr> </tbody> </table>	Pin number	Pin name	Color	3	U	Red	1	V	White	2	W	Black	4	PE	Yellow/Green	<p>60 80</p>
Pin number	Pin name	Color																
3	U	Red																
1	V	White																
2	W	Black																
4	PE	Yellow/Green																

03 Encoder cable

- ✓Encoder cable name rule
- ✓Connect port show



Encoder cable name rule

For example:E-J1394-R9M-3MX5-A

Check green color

type	Drive side port	Motor side port	Cable length	Cable core number	Wire diameter
E:Encoder patch cord	D15G : DB15 male(B type)	R4M : 4 core rectangular connector female	D5M : 0.5M	X4 : 4 cores	A : 0.2MM
P:Power patch cord	M20G : MDR20 male(A type VD1)	R15M : 15 core rectangular connector female	3M : 3M	X6 : 6 cores	B : 1.0MM
	J1394:1394 plug(A type VD2)	H28J4M : 4 core 28MM aviation plug female	5M : 5M	X15 : 15 cores	A1:0.2MM+battery pack
	U3O1: 3 core U type cold-pressed terminal,1 core O type cold-pressed terminal(B type)	H28J15M : 15 core 28MM aviation plug female	10M : 10M	X5 : 5 cores	C:2.5mm
	Z3O1 : 3 core needle-type cold-pressed terminal,1 core O type cold-pressed terminal(A type VD2)	H32J4M : 4 core 32MM aviation plug female		X7 : 7 cores	D : 0.5mm
	L : L4G (4 core cold-pressed terminal male end)	R9M:9 core rectangular connector female			E:0.75mm
	Z4 : 4 core needle-type cold-pressed terminal	H28K7M : 7 core 28MM aviation plug female			F:1.5mm
	O2:2 core O type cold-pressed terminal	MC7S : 7 core push-pull connector female			
		MC4S : 4 core push-pull connector female			
		R2M : 2 core rectangular connector female			

Encoder cable port

J1394



Drive side

R9M



H28K7M



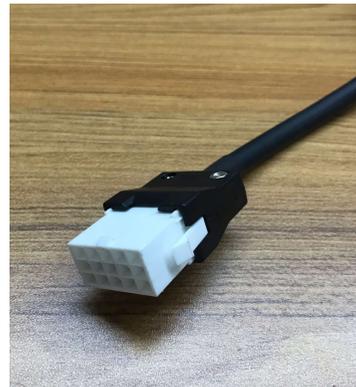
MC7S



D15G



R15M

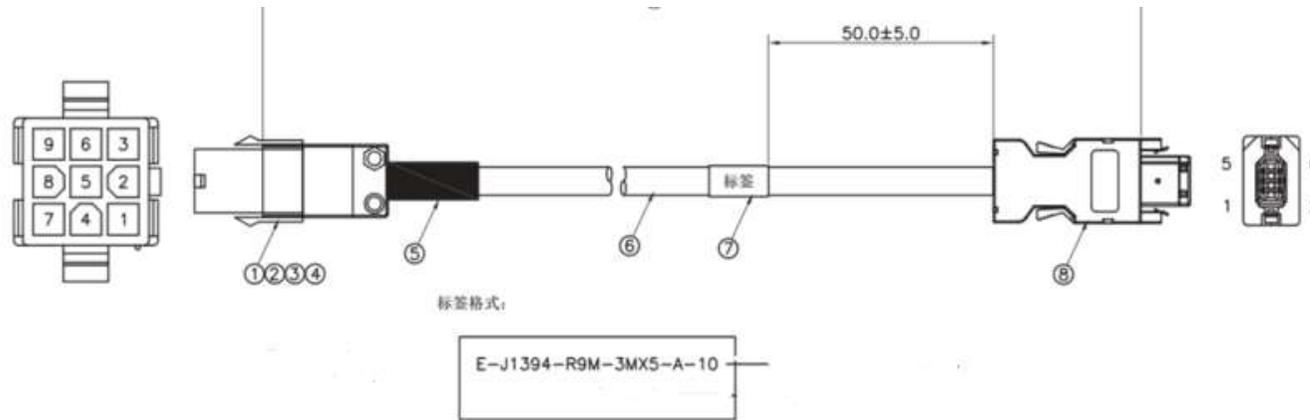


H28J15M

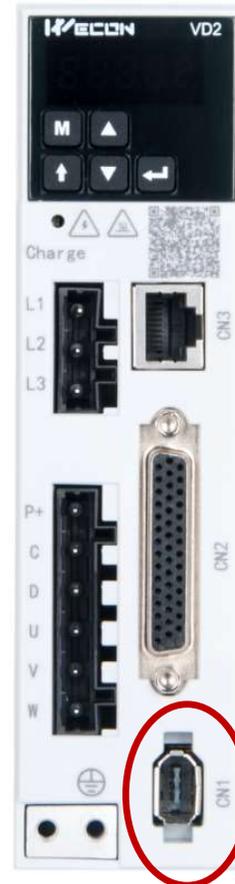
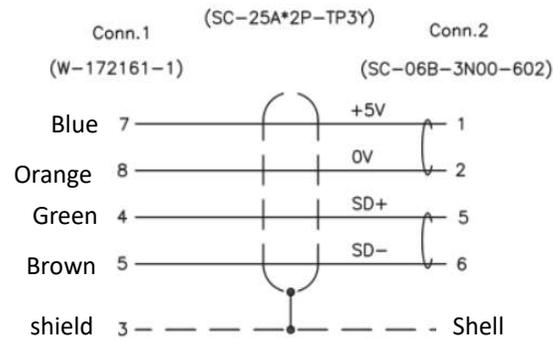


Motor side

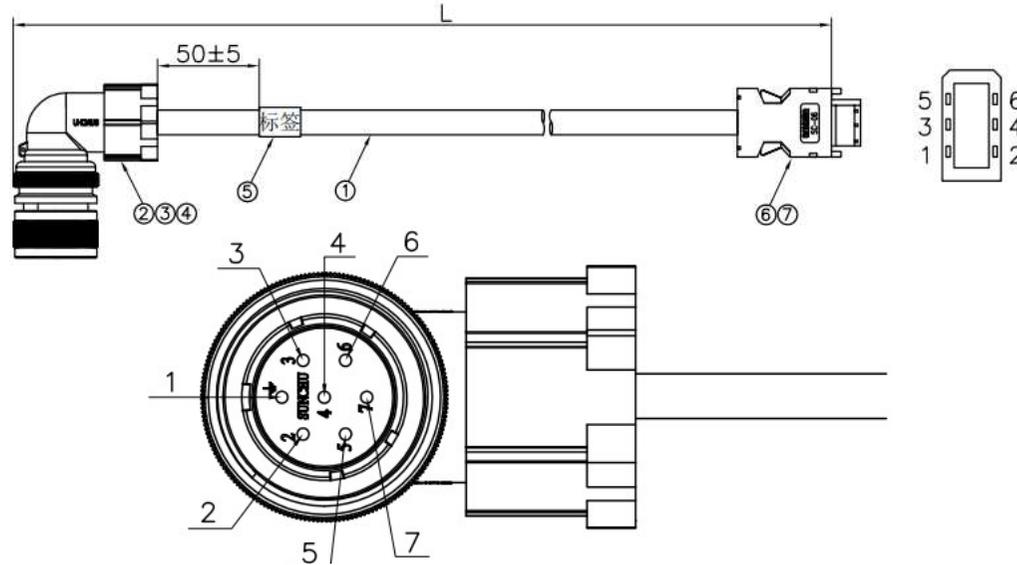
E-J1394-R9M(60-80 flange)



wiring diagram

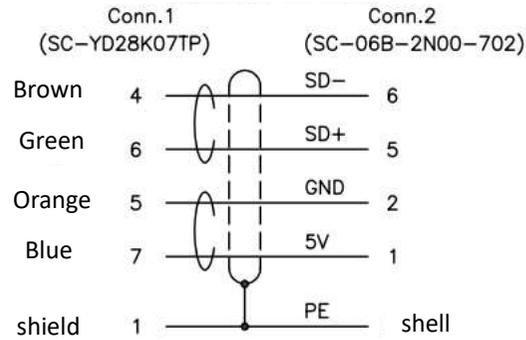


E-J1394-H28K7M (110-130 flange)



H28K7M

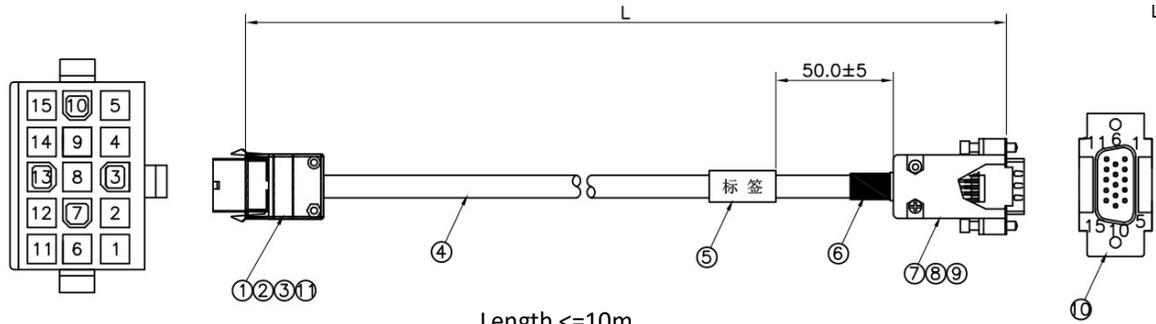
wiring diagram



J1394



E-D15G-R15M(80 flange)



Length <=10m

Pink	2	5V	13
Pink&black	3	GND	14
Green	4	B+	4
Blue	9	A+	5
Yellow	7	Z+	3
Green& black	4	B-	9
Blue&black	13	A-	10
Yellow&black	5	Z-	8
White	6	U+	2
purple	10	V+	1
Grey	11	W+	12
White&black	8	U-	7
Purple&black	12	V-	6
Grey&black	15	W-	11
shield	1	PE	shell



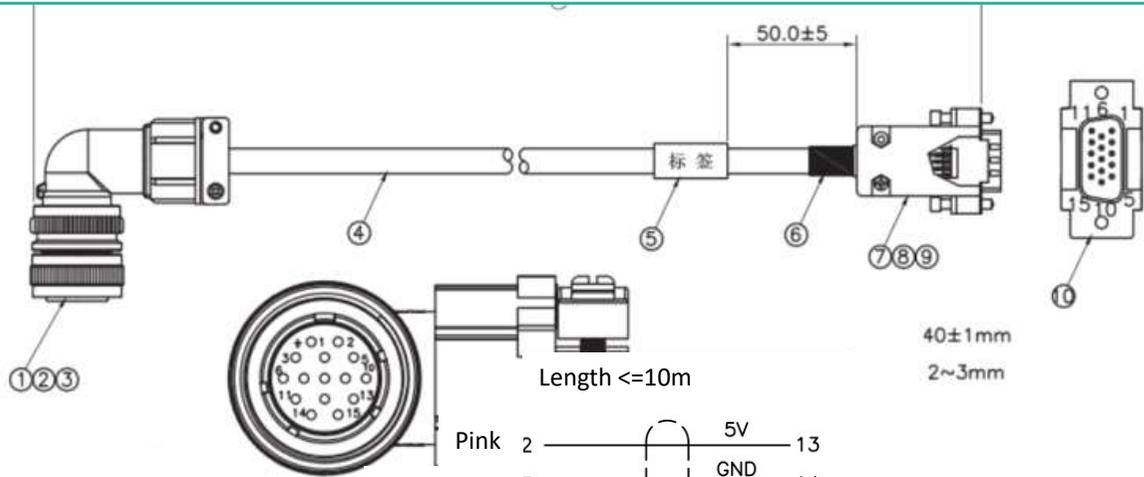
R15M



D15G



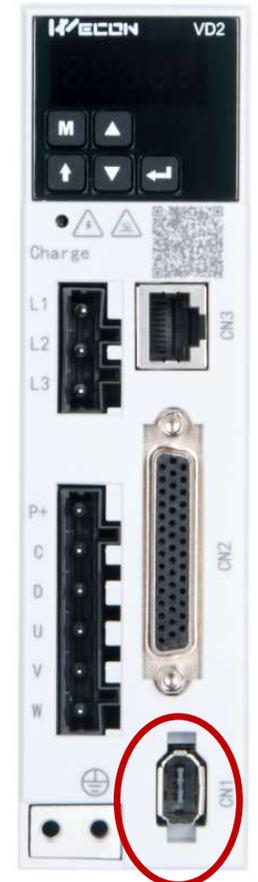
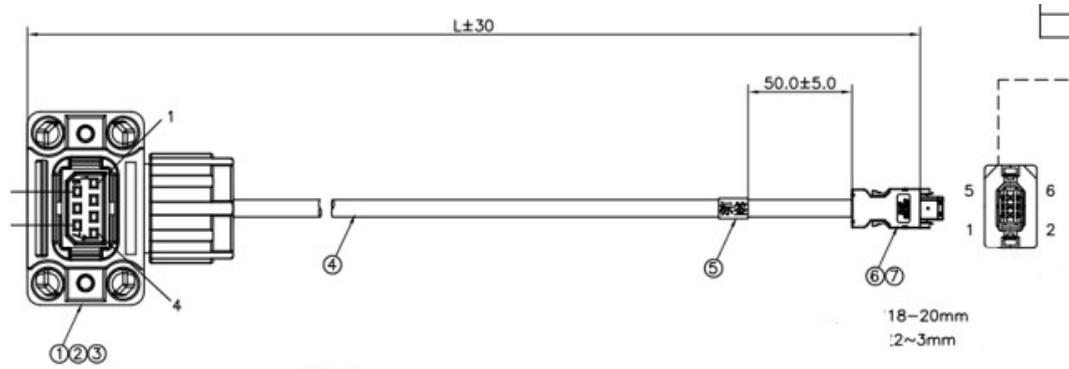
E-D15G-H28J15M (110-130 flange)



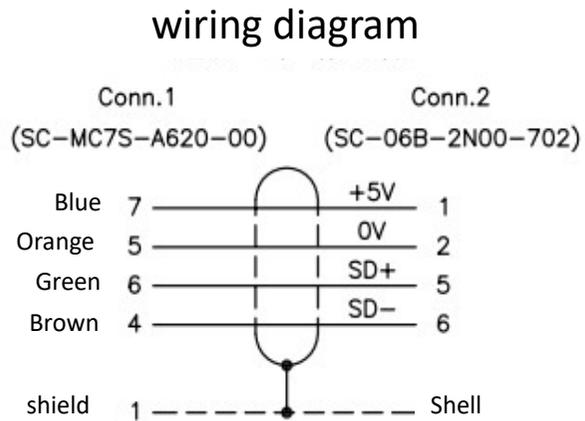
Pink	2	5V	13
Pink&black	3	GND	14
Green	4	B+	4
Blue	9	A+	5
Yellow	7	Z+	3
Green& black	4	B-	9
Blue&black	13	A-	10
Yellow&black	5	Z-	8
White	6	U+	2
purple	10	V+	1
Grey	11	W+	12
White&black	8	U-	7
Purple&black	12	V-	6
Grey&black	15	W-	11
shield	1	PE	shell



E-J1394-MC7S



MC7S

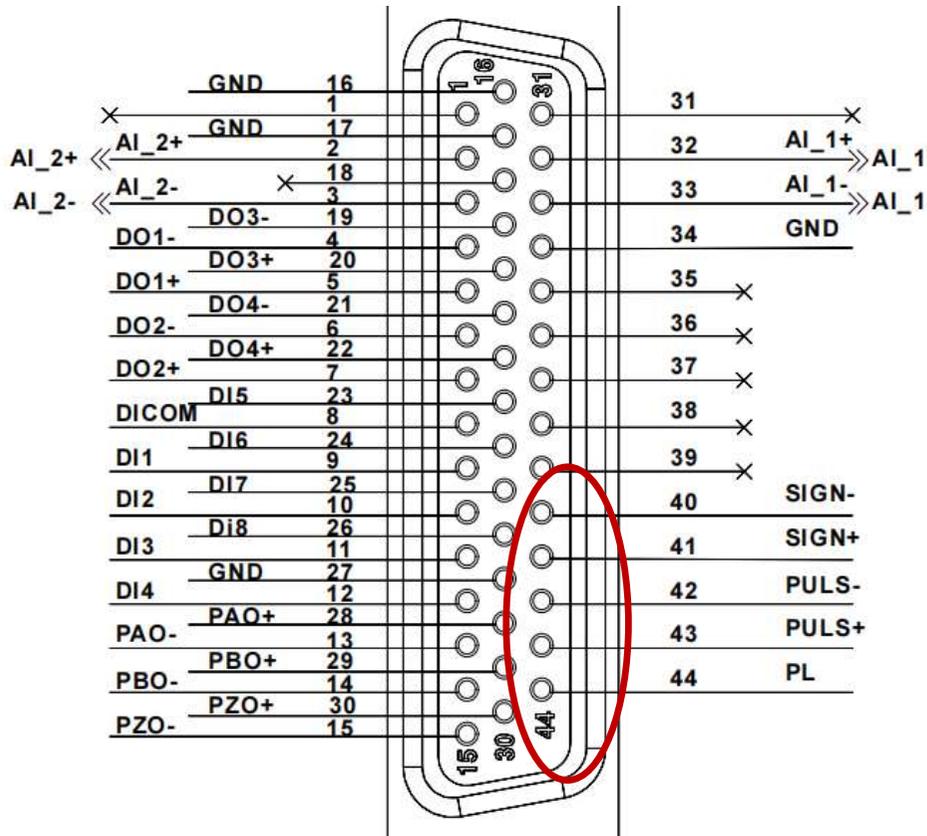


J1394

04 DI DO port in CN2

- ✓CN2 pin
- ✓DI input
- ✓Position contrl
- ✓DO output
- ✓Analog control
- ✓Brake output

VD2 A type、 B type absolute CN2



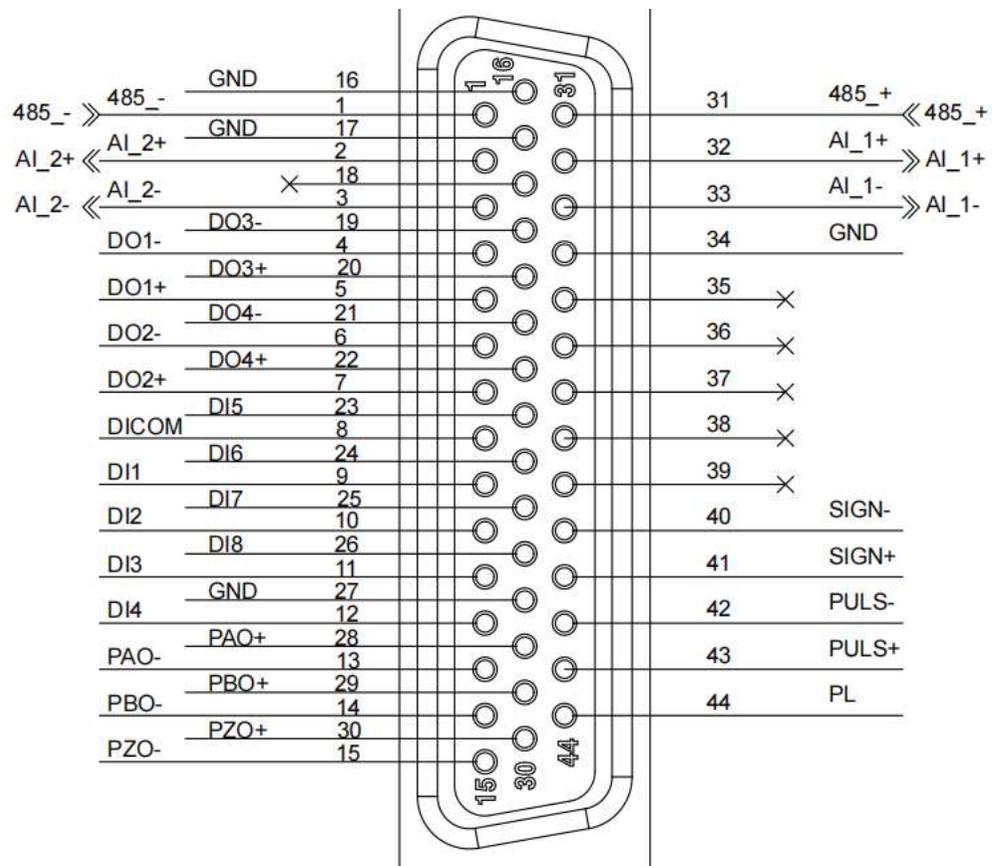
The input and output pin distribution of drive A and B

Pin number	Signal name	Pin number	Signal name	Pin number	Signal name
1		16	GND	31	
2	AI_2+	17	GND	32	AI_1+
3	AI_2-	18	-	33	AI_1-
4	DO1-	19	DO3-	34	GND
5	DO1+	20	DO3+	35	-
6	DO2-	21	DO4-	36	-
7	DO2+	22	DO4+	37	-
8	SS	23	DI5	38	-
9	DI1	24	DI6	39	-
10	DI2	25	DI7	40	SIGN-
11	DI3	26	DI8	41	SIGN+
12	DI4	27	GND	42	PULS-
13	PAO-	28	PAO+	43	PULS+
14	PBO-	29	PBO+	44	PL
15	PZO-	30	PZO+	-	-

VD2 A type、 B type absolute type CN2
Pin figure

CN2 definition of drive A and B

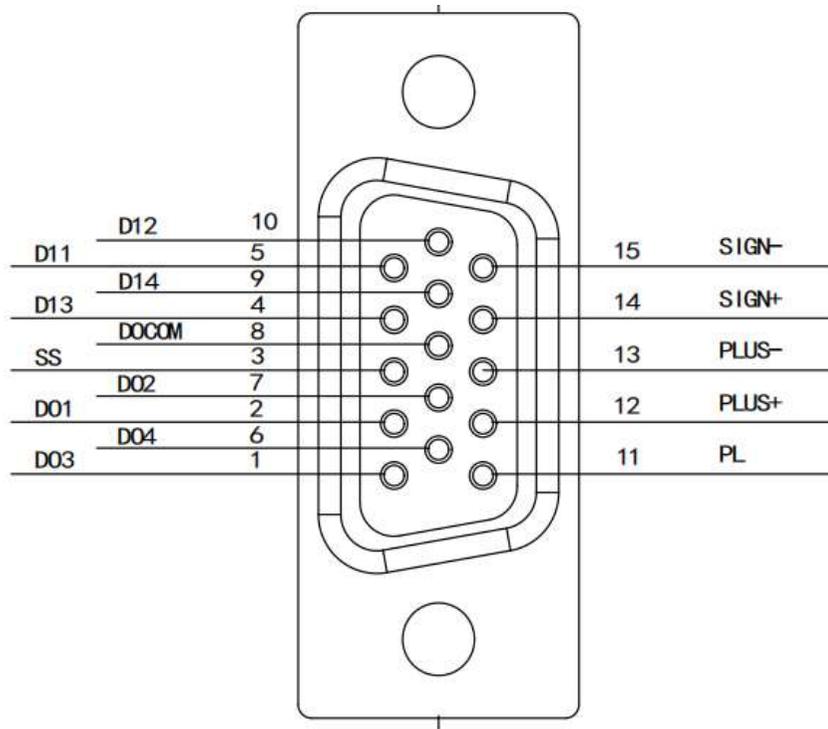
VD2 B type incremental CN2 port



Pin number	Signal name	Pin number	Signal name	Pin number	Signal name
1	485_-	16	GND	31	485_+
2	AI_2+	17	GND	32	AI_1+
3	AI_2-	18	-	33	AI_1-
4	DO1-	19	DO3-	34	GND
5	DO1+	20	DO3+	35	-
6	DO2-	21	DO4-	36	-
7	DO2+	22	DO4+	37	-
8	DICOM	23	DI5	38	-
9	DI1	24	DI6	39	-
10	DI2	25	DI7	40	SIGN-
11	DI3	26	DI8	41	SIGN+
12	DI4	27	GND	42	PULS-
13	PAO-	28	PAO+	43	PULS+
14	PBO-	29	PBO+	44	PL
15	PZO-	30	PZO+		

VD2 B type incremental CN2 port

VD2F type absolute CN2 port

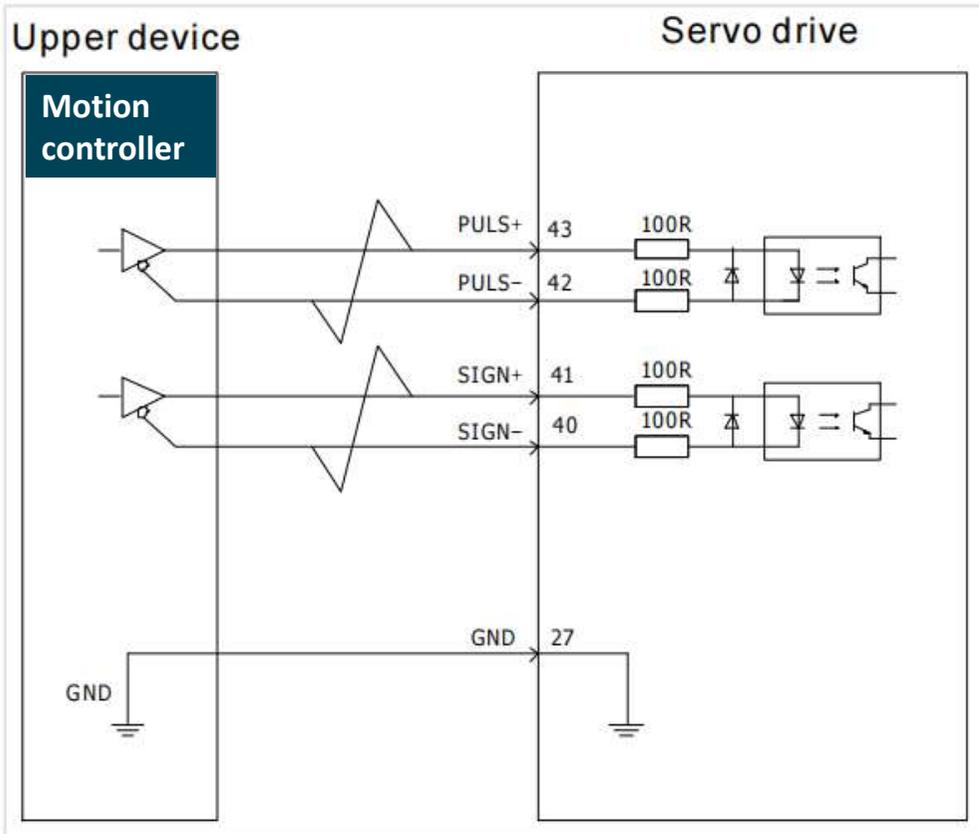


Pin number	Pin name	Pin number	Pin name
1	D03	9	DI4
2	D01	10	DI2
3	SS	11	PL
4	DI3	12	PULS+
5	DI1	13	PULS-
6	D04	14	SIGN+
7	D02	15	SIGN-
8	DOCOM	-	-

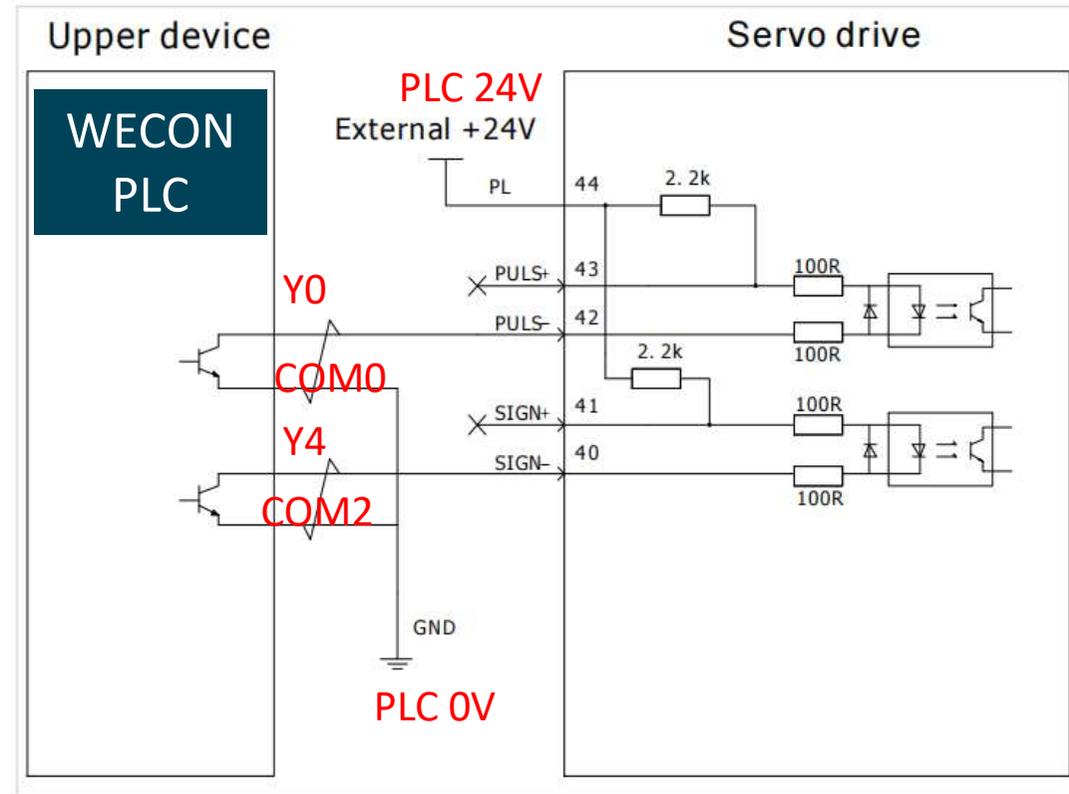
VD2F absolute CN2 port

- 1.Cancelled analog input, frequency difference output
- 2.Only support four DI inputs and four DO outputs
- 3.Reserved pulse input

Position instruction input



Differential input mode, Max 500KHZ



Connection of open collector input. Max 200KHZ

Analog input

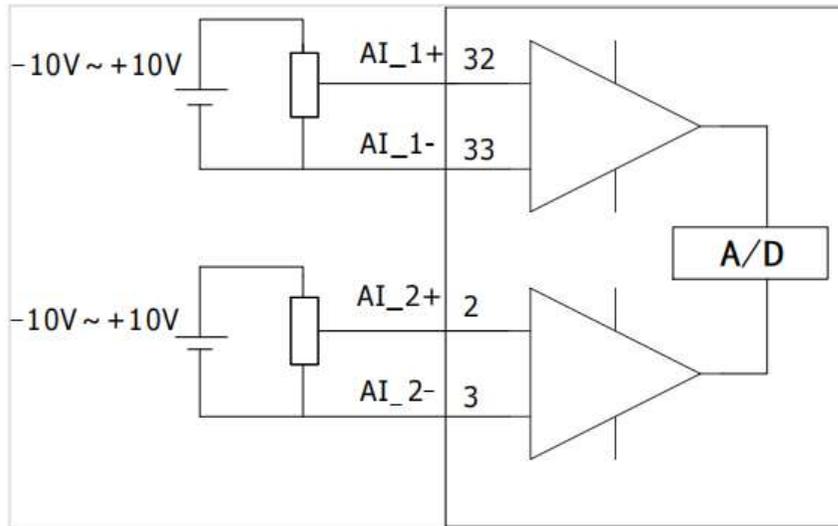


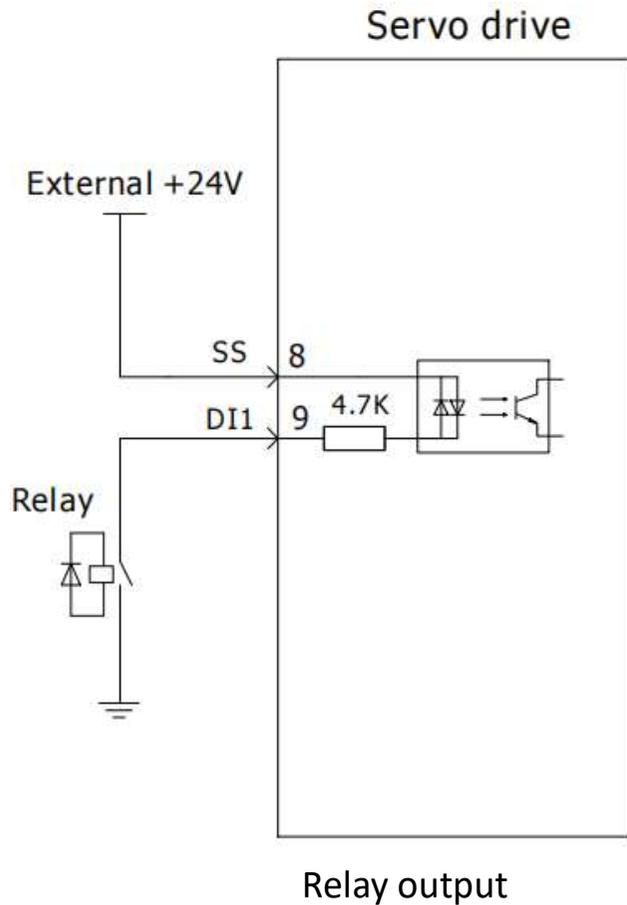
Figure 4- 18 Analog input wiring mode

Pin number	Signal name	Function
32	AI_1+	AI_1 analog input signal, resolution 12 bits, input voltage range. -10V~+10V.
33	AI_1-	
2	AI_2+	AI_2 analog input signal, resolution 12 bits, input voltage range. -10V~+10V.
3	AI_2-	
17	GND	Analog input signal ground.
34	GND	

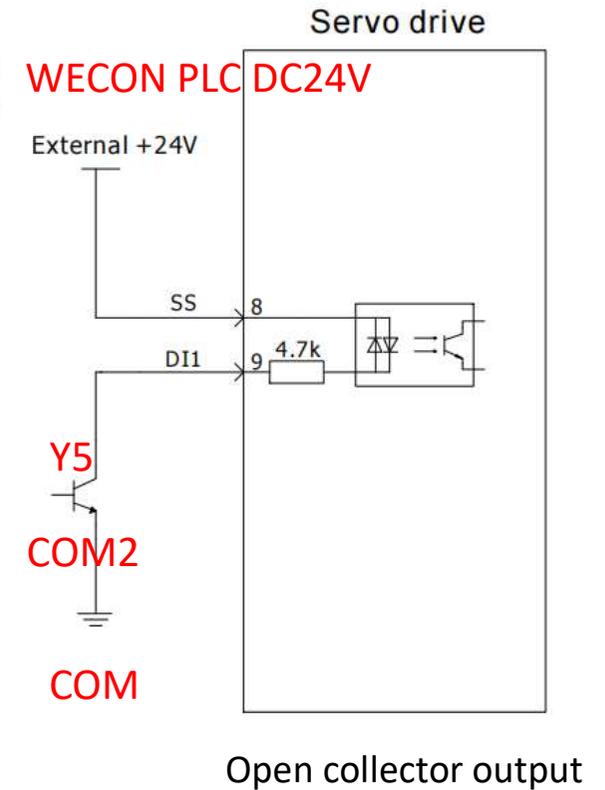
Pin number	Signal name	Default function
9	DI1	Servo enable
10	DI2	Alarm clear
11	DI3	Forward drive prohibited
12	DI4	Reverse drive prohibited
23	DI5	Inverted instruction
24	DI6	Instruction pulse prohibited input

9	<input type="checkbox"/>	P05_09	Analog quantity 10V for speed value	Immediately	Stop setting		rpm
10	<input type="checkbox"/>	P05_10	Analog quantity 10V for torque val...	Immediately	Stop setting		0.1%

DI Input

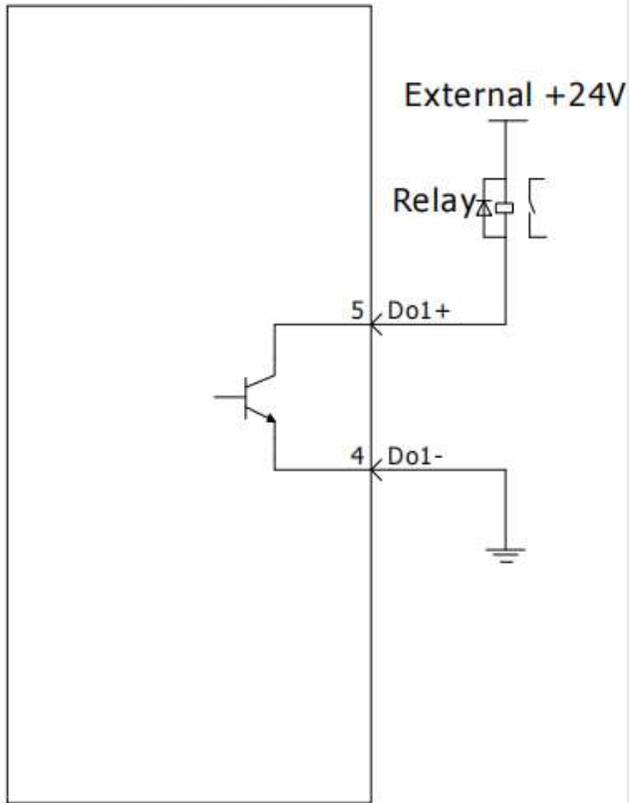


Pin number	Signal name	Default function
9	DI1	Servo enable
10	DI2	Alarm clear
11	DI3	Forward drive prohibited
12	DI4	Reverse drive prohibited
23	DI5	Inverted instruction
24	DI6	Instruction pulse prohibited input
25	DI7	Not used
26	DI8	Not used
8	DICOM	Power input terminal (12-24V)



DO output

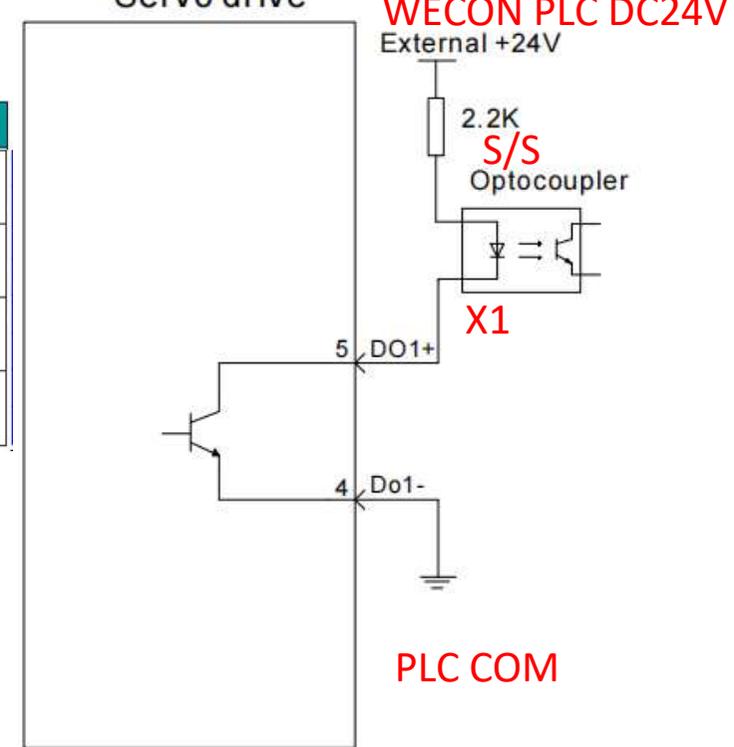
Servo drive



Relay input

Pin number	Signal name	Default function
4	DO1-	Rotation detection
5	DO1+	
6	DO2-	Alarm
7	DO2+	
19	DO3-	Servo ready
20	DO3+	
21	DO4-	Positioning completed
22	DO4+	

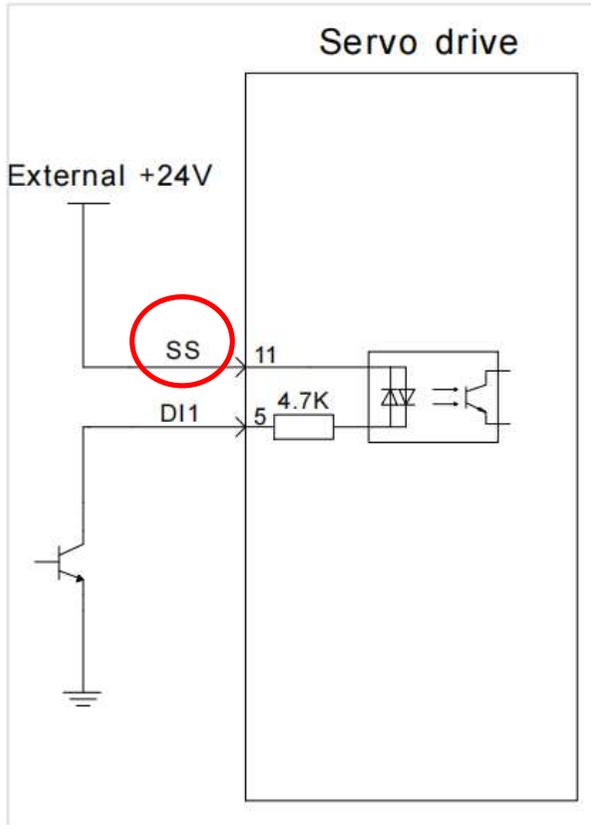
Servo drive



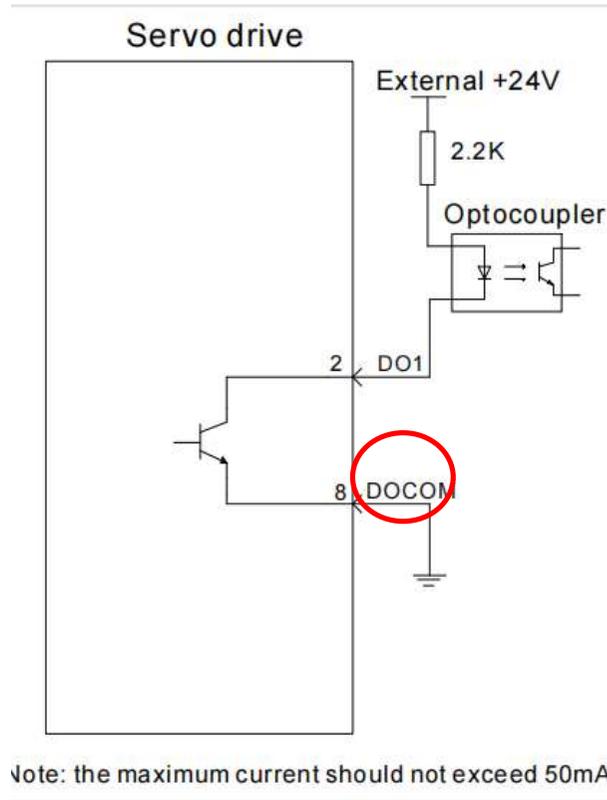
Note: The maximum current shall not exceed 50mA

Optocoupler input

VD2F DI/DO



Open collector output



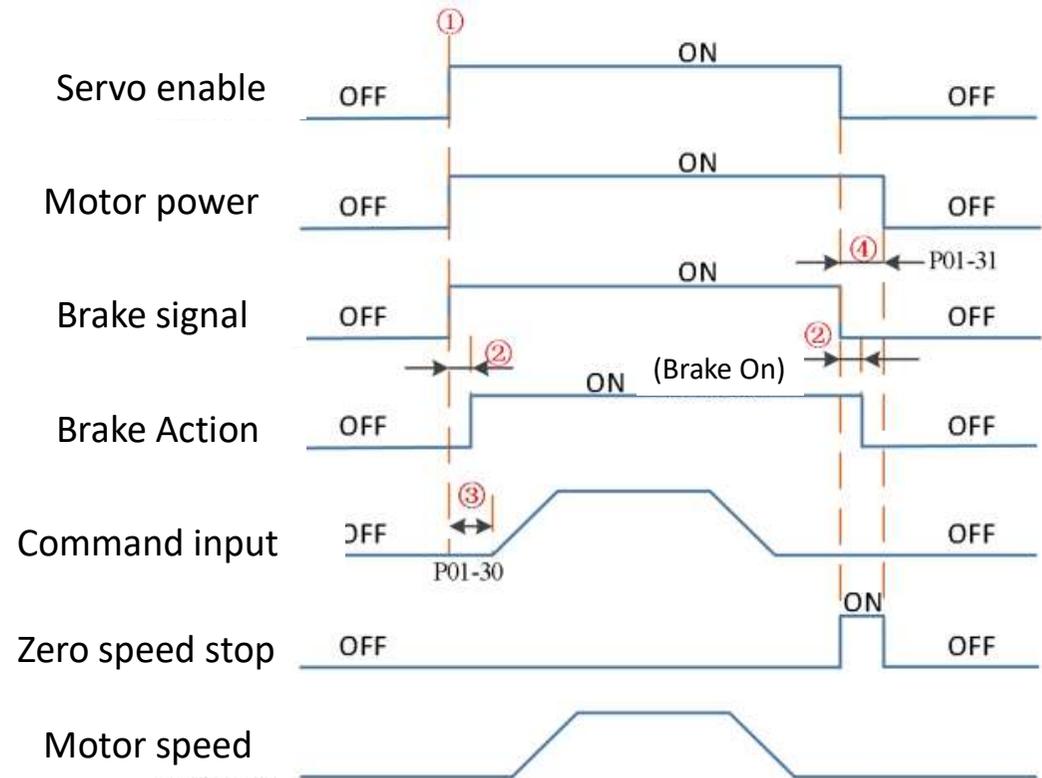
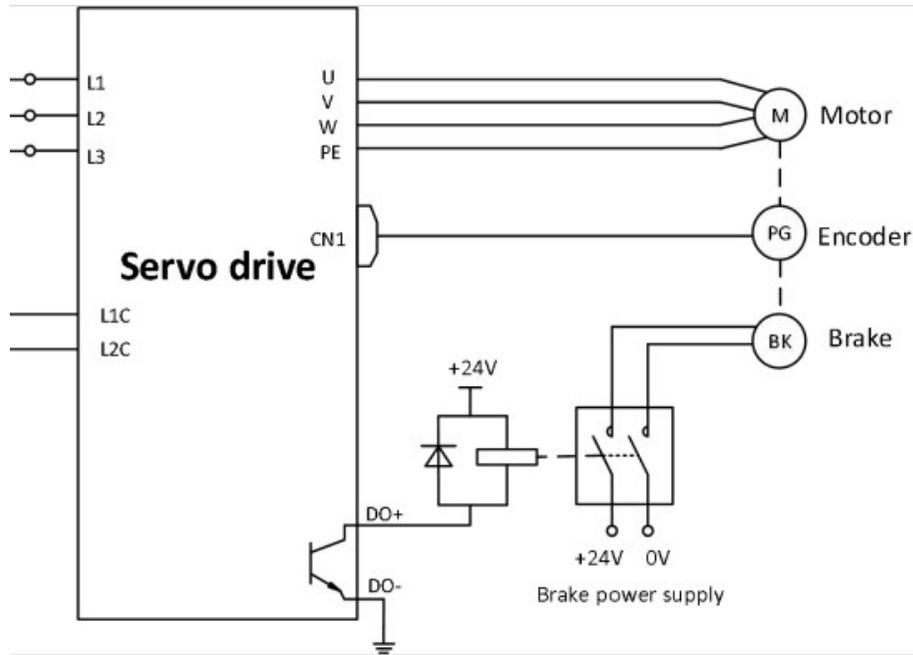
Note: the maximum current should not exceed 50mA

Optocoupler input

Pin number	Pin name	Default function
5	DI1	Servo enable
10	DI2	Alarm clear
4	DI3	Forward drive prohibited
9	DI4	Reverse drive prohibited
11	SS	Power input (24V)
2	DO1	Rotation detection
7	DO2	Fault signal
1	DO3	Servo is ready
6	DO4	Positioning completed
8	DOCOM	Ground

Table 4- 17 DI/DO signal description

Brake output



P01-30	Delay from brake output ON to instruction reception	Operation setting	Effective immediately	250	0~500
P01-31	Static state, delay from the brake output is OFF to the motor is power off.	Operation setting	Effective immediately	150	1~1000

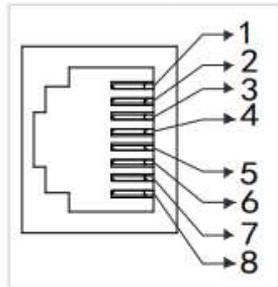
P01-32	Rotation state, when the brake output is OFF, the speed threshold	Operation setting	Effective immediately	30	0~3000
P01-33	Rotation status, delay from servo enable OFF to brake output OFF	Operation setting	Effective immediately	500	1~1000

05 Communication cable

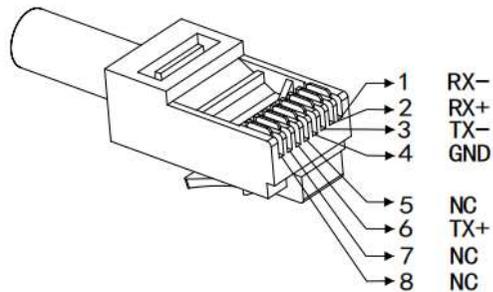
- ✓RS422 communication
- ✓RS485 communication

WECON PC configurator by RS422

The VD2 series servo drivers support rS-422 and RS-485 communication modes. The RJ45 communication port is used as the communication terminal, as shown in Figure 4-18.



Pin	Name	Function description
1	RX-	Computer sends negative terminal (drive receives negative)
2	RX+	Computer sends positive terminal (drive receives positive)
3	TX-	Computer receives negative terminal (drive sends negative)
4	GND	Ground terminal
5	NC	Not used
6	TX+	Computer receives positive terminal (drive sends positive)
7	NC	Not used
8	NC	Not used



Pin definition of CN3



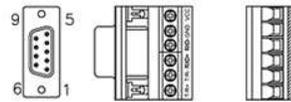
Figure 4-18

RS422 cable wiring

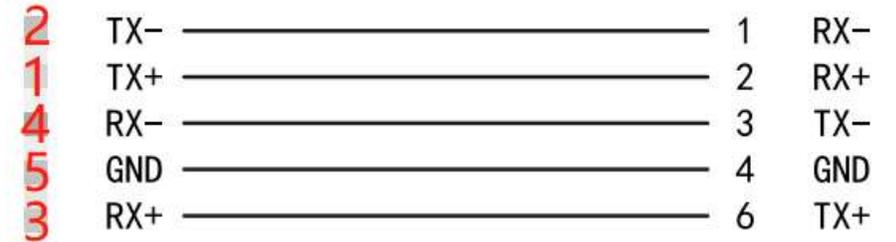
My USB-RS422 PIN define as below

Note: different brand USB-RS422 convertor, PIN define also is different

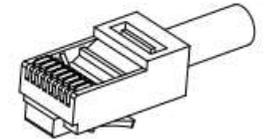
DB9 Port	1	2	3	4	5	6
RS485	D+	D-			GND	+5V
RS422	T+	T-	R+	R-	GND	+5V



RS422
9针 (female)



RJ45
8针 (male)



here recommend to buy below tool

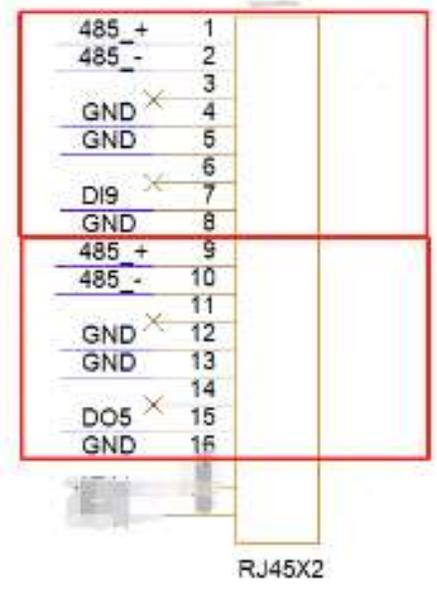
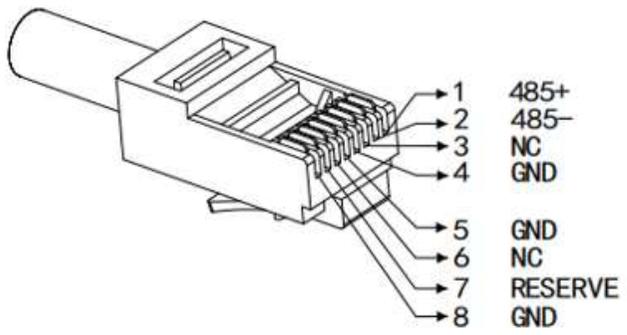
免压水晶头 免网线钳水晶头

粗细网线\单只\多股
线芯都可接



螺丝刀接网线头自己动手不用请人

RS485 communication

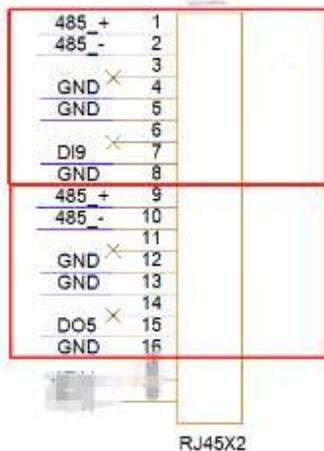
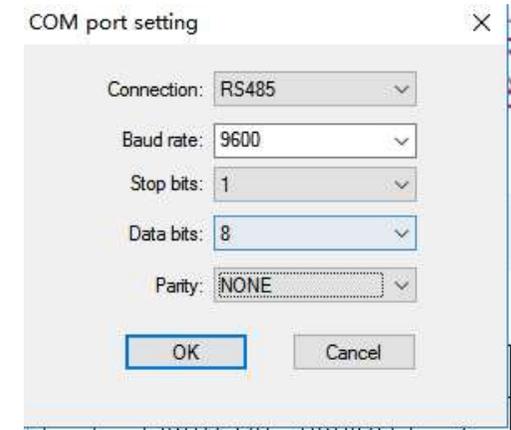
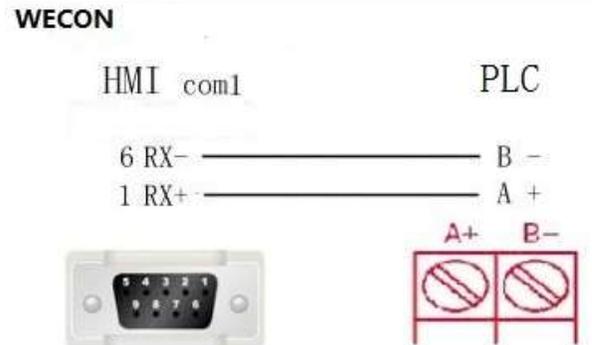
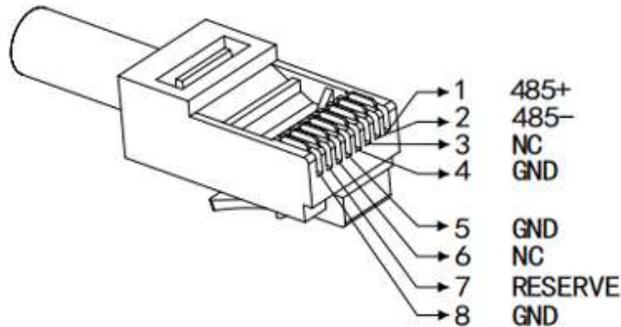


CN5

CN6



RS485 communicate with wecon HMI



CN5

CN6

Function code	Modbus address		Name
	Hexadecimal	Decimal	
P12-1	0x0C01	3073	Servo address
P12-2	0x0C02	3074	Baud rate
P12-3	0x0C03	3075	Serial data format
P12-4	0x0C04	3076	Modbus communication data is written into EEPROM
P12-5	0x0C05	3077	RS422/RS485 function selection



THANK
YOU



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