

LIMON
PRECISION & SPEED

LIMON AUTO TECH CO., LTD.

LINEAR PRECISION LINEAR SPEED

RD3 series Servo motor & drives



www.limonrobot.com

Limon

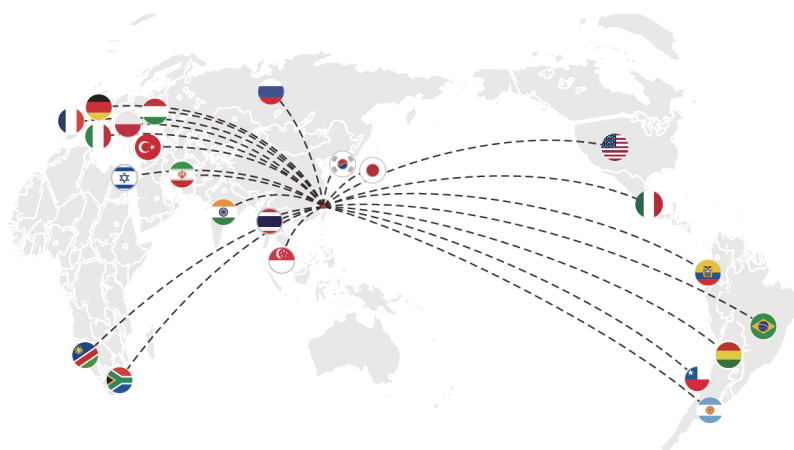
Pioneering Smart Manufacturing in China



Established in 2013, Limon headquartered in the port city of Ningbo, China, specializes in smart manufacturing. With robust independent research and development capabilities, Limon has successfully introduced automation system solutions widely applied in key sectors such as new energy batteries, new energy vehicles, photovoltaics, 3C electronics, semiconductors, LCD panels, biomedicine, and engineering machinery, demonstrating strong market competitiveness.

Global Business Deployment

Limon adheres to a customer-centric service philosophy, establishing service points nationwide to provide customers with prompt and professional technical support and services. Moreover, Limon actively expands into international markets, with business operations covering over 30 countries and regions globally, delivering more than 2300 innovative solutions to customers worldwide and earning extensive international acclaim.



Gathering Elite Talent in the Intelligent Equipment Industry

Driven by innovation, Limon has assembled a core technical team composed of renowned experts from both domestic and international arenas, focusing on underlying automation technologies, continually innovating and iterating to deliver products with outstanding performance, excellent quality, and high cost-effectiveness to customers.



"Full-Cycle, Full-Process, All-Around" Service

○ Project Manager Service System

Limon implements a project manager service system, taking full responsibility for pre-sales consultations, product selection, order processing, logistics, and other aspects to ensure on-time delivery.

○ Professional After-Sales Customer Service Team

Limon boasts a professional customer service team, promptly responding to customers' after-sales needs to ensure efficient and high-quality service.

○ 30-Day Free Sample Loan

Customers interested in showcasing and testing products can consult Limon's sales engineers for complimentary sample loans.

○ Exhibitions/Networking Events

Limon regularly participates in industry exhibitions and hosts peer networking events, actively engaging in industry technical discussions and knowledge sharing.



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AC Servo Drive

Product Introduction

A new generation of high-performance servo drive that can achieve sub-micron level position control accuracy, significantly improving the precision, speed, efficiency, and stability of industrial automation equipment. It features universality and platformization, supporting communication protocols such as RS485, CANopen, EtherCAT, with a power range covering 100W to 2000W.



Typical Applications

Widely used in industrial automation scenarios such as laser, printing, semiconductor, etc.



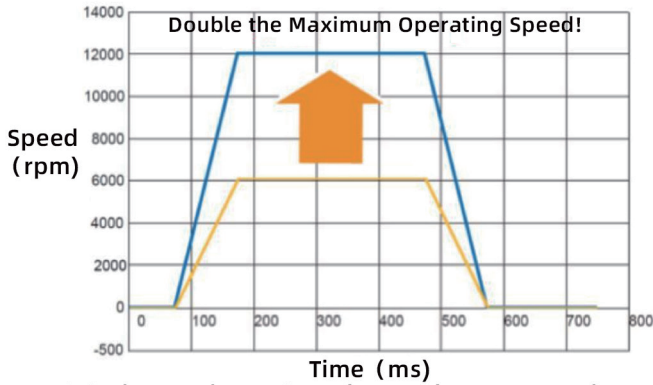
AC Servo Application Scenario One:
Laser Cutting



AC Servo Application Scenario Two:
Printing Equipment

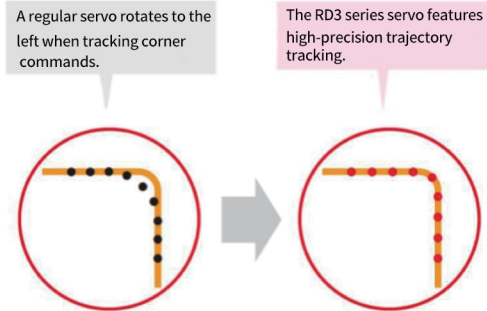
One、Basic Features of

1 High Speed



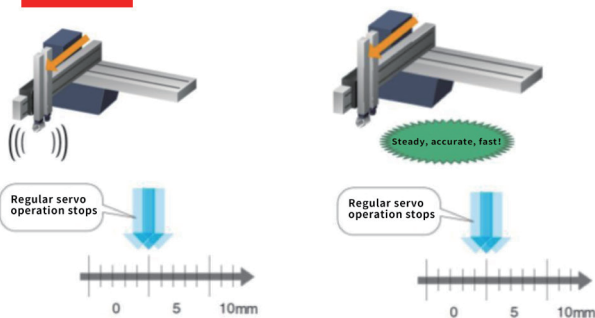
—RD3 Series Maximum Speed—Regular servo Maximum speed
The maximum operating speed can reach 12,000 rpm, which is double the speed of a regular servo.

2 High Precision



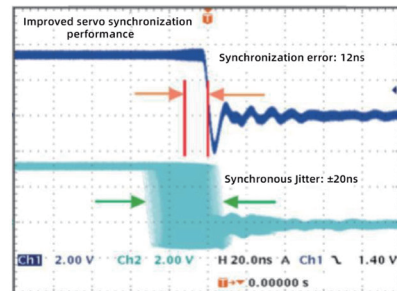
With built-in high-precision trajectory tracking algorithms, it offers high dynamic response and significantly enhances trajectory tracking performance. It supports 17-bit to 23-bit single-turn/multi-turn absolute encoders, greatly improving equipment positioning accuracy.

3 High Efficiency



Smooth operation enhances processing speed, increasing production efficiency.

4 High Synchronianduion



With high synchronization characteristics, it comes with a distributed clock module. Its synchronization jitter is in the sub-microsecond level, with jitter error within 1 μ s, meeting the requirements of various on-site multi-axis synchronous control.

5 High-speed communiacion

EtherCAT Operation Mode	Min. synchronization period
Profile Position Mode (pp)	1ms
Cyclic Synchronous Position Mode (csp)	1ms
Homing Mode (hm)	1ms
Profile Velocity Mode (pv)	500 μ s
Profile Torque Mode (pt)	125 μ s
Cyclic Synchronous Velocity Mode (csv)	500 μ s
Cyclic Synchronous Torque Mode (cst)	125 μ s

The entire series adopts high-performance main control chips, further enhancing communication interac

6 Control Performance

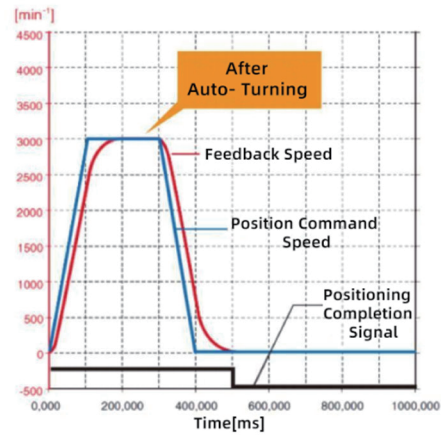
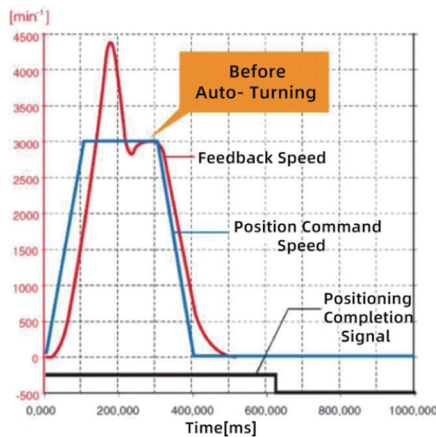
Specifications	Refresh Frequency
Carrier Frequency	8kHz
Current Loop Frequency	16kHz
Speed Loop Frequency	16kHz
Position Loop Frequency	4kHz

Using a new ARM+FPGA architecture, the control delay is minimized, the current loop response bandwidth reaches up to 3kHz, achieving faster command following, and effectively shortens the setting time for accurate positioning. The servo drive performance featuring ultra-high speed and ultra-precision control will give greater play to the mechanical equipment performance

7 Automatic Gain Turning



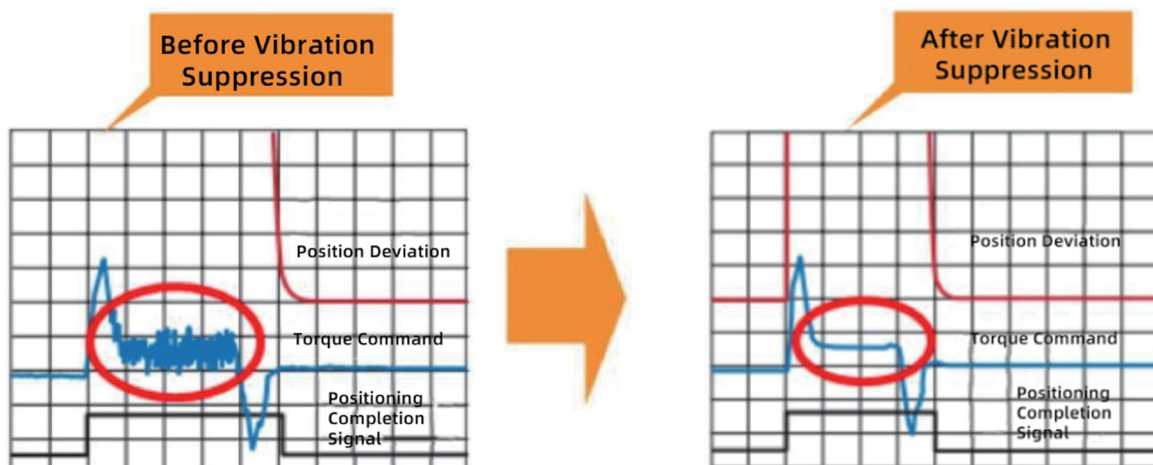
One-key Gain Turning



- Automatic Turning of Loop Gain
- Reducing positioning time and improving production cycle

Equipped with two automatic tuning loop parameter functions, "Single Parameter" and "Auto- Turning ", greatly reducing servo tuning time and significantly improving usability.

8 Enhanced Vibration Suppression



Equipped with enhanced vibration suppression function, incorporating four resonance suppression filters, second-order torque low-pass filters, input shaping filters, and position notch filters, capable of perfectly addressing vibration issues across low-frequency, mid-frequency, and high-frequency bands.

Two、 Servo Drive Model

1、 Servo Drive Naming Rules

RD3 - 5D5 S2 R P
 ① ② ③ ④ ⑤

①: Product Series Number

RD3: RD3 Series Servo

③: Rated Voltage

S2: Single-phase 220V

⑤: Command Type

P: Pulse/Analog/RS485

C: CANopen

E: EtherCAT

②: Rated Output

	001	1D6	2D8	5D5	7D6	012*	014*
Rated Current	1.0A	1.6A	2.8A	5.5A	7.6A	11.6A	14.0A
Rated Power	100W	200W	400W	750W	1000W	1500W	2000W

④: Drive Motor Type

R: General Servo Motor

Note: Models 012 and 014 support single-phase/three-phase 220V, soon to be released.

2、 Servo Drive Electrical Specifications

Structural Dimensions	SIZE-A model			SIZE-B model		SIZE-C model ²	
Model RD3-XX	001S2	1D6S2	2D8S2	5D5S2	7D6S2	012S2	014S2
Rated Output Current (Arms)	1.0	1.6	2.8	5.5	7.6	11.6	14.0
Maximum Output Current (Arms)	3.9	5.8	10.1	16.9	23.0	32.0	42.0
Rated Input Current (Arms)	1.3	2.3	4.0	7.9	9.6	Single-phase 12.8/ Three-phase 8.0	Single-phase 16.0/ Three-phase 10.2
Main Circuit Current	Single-phase AC200V~240V, -10~+10%, 50/60Hz					Single-phase/Three-phase AC200V~240V -10~+10%, 50/60Hz	
Regeneration Function ¹	No standard regenerative resistor			Optional 50Ω/50W regenerative resistor	Optional 25Ω/80W regenerative resistor		

Note 1: All models support external regenerative resistor.

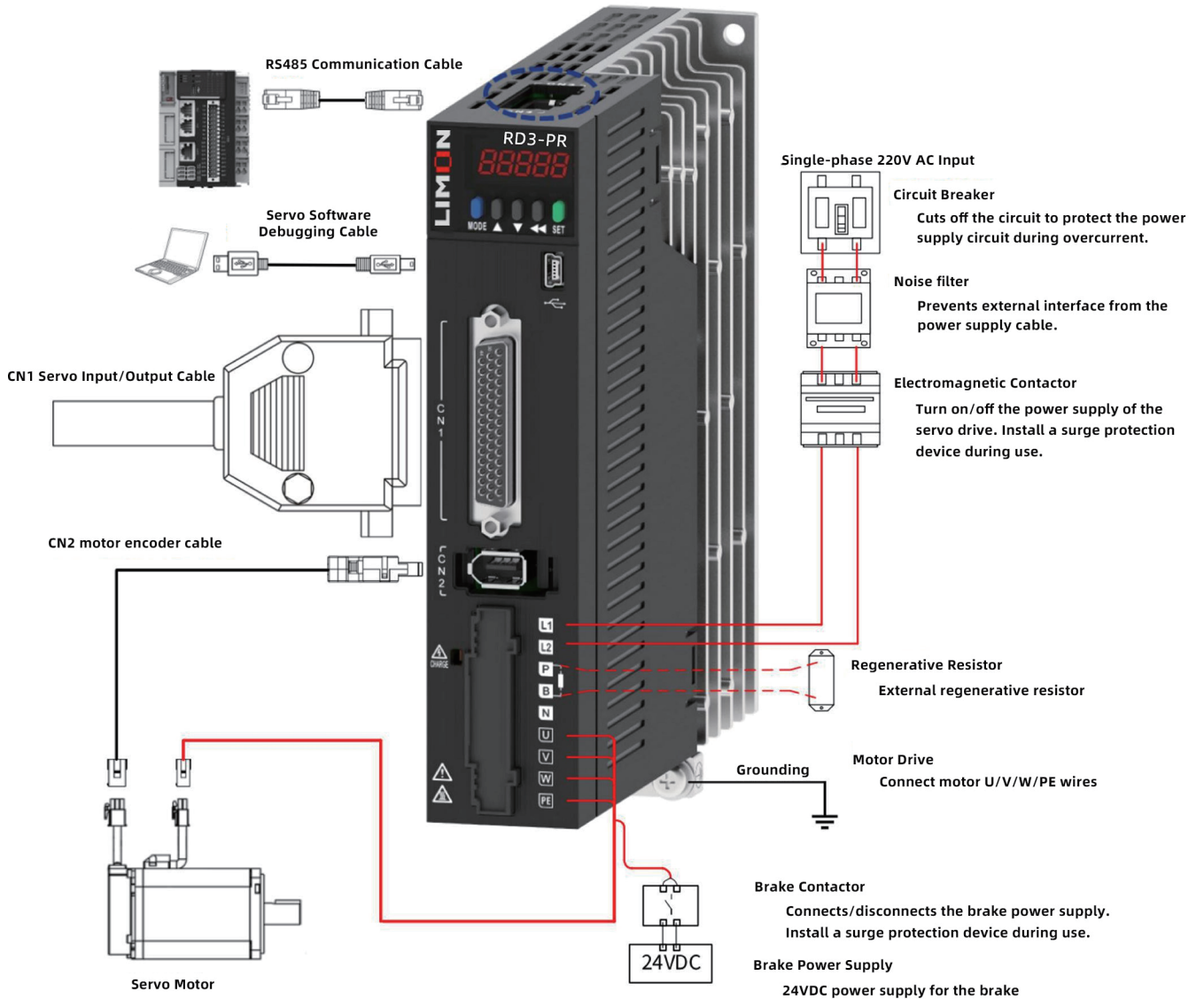
Note 2: SIZE-C model will be available soon.

3、 Servo Drive General

Item		Description	
Basic Specifications	Control Method		
	IGBT PWM control, sine wave current drive mode 220V: Single-phase/Three-phase full bridge rectification		
	Operating Conditions	Ambient/Storage temperature	0~+40°C / -20~+70°C
		Ambient/Storage humidity	Below 90% RH (without condensation)
		Vibration/Impact Resistance	4.9m/S ² / 19.6m/S ²
		IP rating	IP20
Pollution Level		PD2 Level	
Altitude		Up to 5000m. 1000m and below: No derating. Above 1000 m: derate 1% for every additional 100 m. Above 2000 m: contact LIMON.	
Position Control Mode	Performance	Performance	Supports speed feedforward (0-100.0%) setting to eliminate tracking deviation
		Instruction Shaping	Position command filtering, averaging filtering
	Frequency Division Output	Output Form	Phase A、 Phase B、 Phase Z: Differential output
		Frequency Range	Motor can output any pulse in the range of 140 to 104857 per cycle of rotation
Speed-Torque Control Mode	Performance	Current Loop Dynamic Characteristics	Step response: 187.5us(0~100%) Frequency response:3dB amplitude attenuation bandwidth,2000Hz(reference signal:±25%) ; -90°phase shift bandwidth, 3500Hz(reference signal,±25%)
		Speed Control Range	0~12000rpm,If the speed demands over 6000rpm, pls contact LIMON
		Speed Loop Dynamic Characteristics	Step response:562.5us(0~1000rpm) Frequency response:-3dBamplitude attenuation bandwidth,1000Hz(reference signal:±500rpm); -90°phase shift bandwidth, 630Hz (phase shift bandwidth: ±500rpm)
		Torque Control Accuracy	±2%
Input-Output	Digital Input Signals		
	Configurable Functions: Forward limit switch, Reverse limit switch, home switch, etc.		
Digital Output Signals		Configurable Functions: Servo ready, zero speed signal, speed reached, position reached, positioning approach signal, torque limit engaged, warning, servo fault, etc.	
Supported Functions	Electronic Gear Ratio		
	Built-in two sets of electronic gear ratios, supporting gear ratio switching function		
	Limit Protection		
	Emergency stop when forward limit switch or reverse limit switch is triggered		
	Fault Monitoring		
	Including protections against overcurrent, overvoltage, undervoltage, overload, main circuit detection error, heatsink overheat, overspeed, encoder error, parameter error		
	Display Functionality		
5-digit LED display and power indicator CHARGE			
Vibration Suppression			
4 notches (including four adaptive notches) available, 50 Hz to 5000 Hz			
Usability			
Auto-tuning, speed observer, model tracking USB			
Debugging Interface			
USB			
Others			
Status display, alarm recording, JOG operation, etc.			
Attention			
Note 1: Please install or store the servo drive within this temperature range.			

Three、 Servo Drive Wiring and Port Definitions

1、 Wiring for Pulse Type Servo Drives



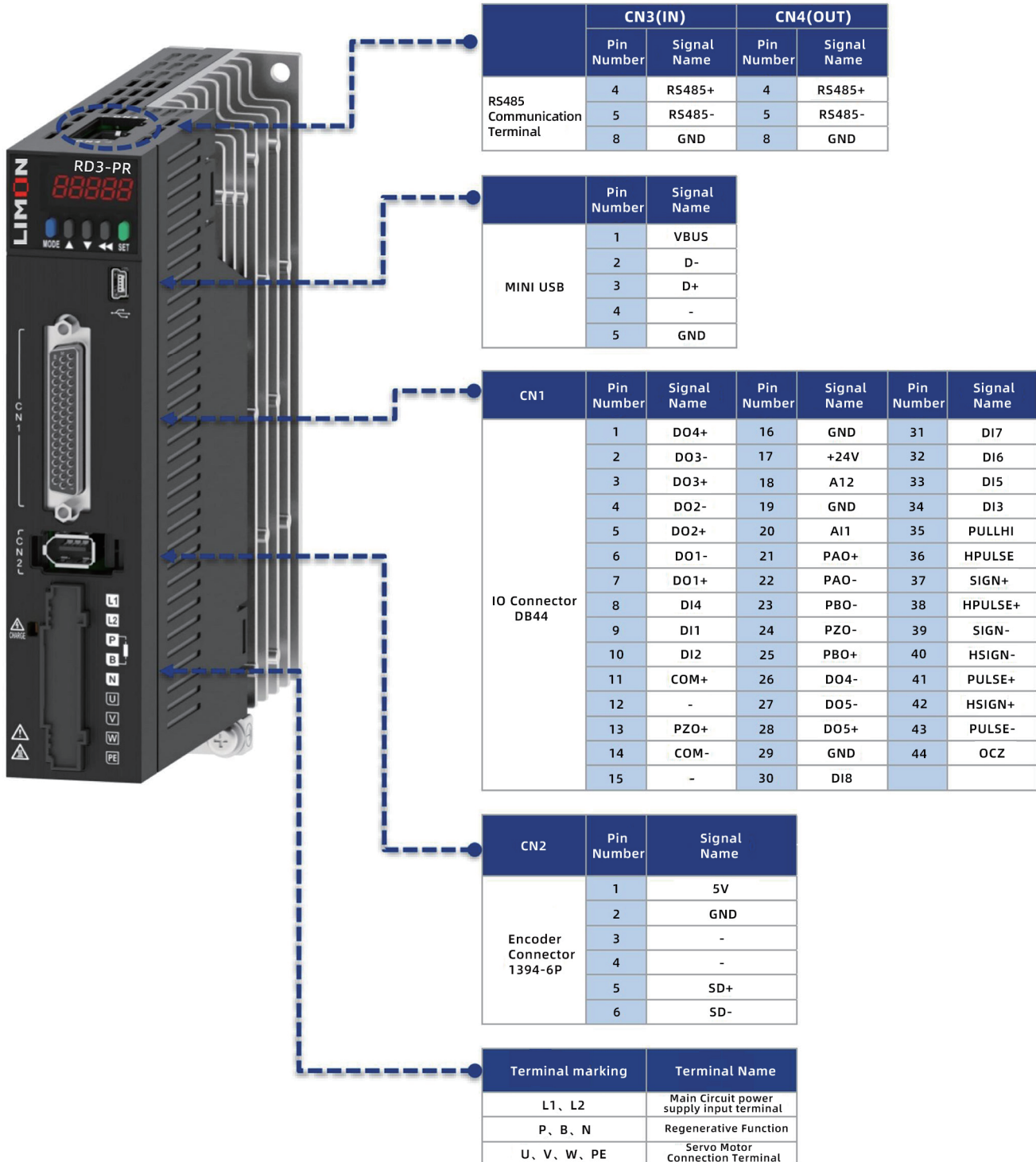
Model Description:

RD3 General Standard Type

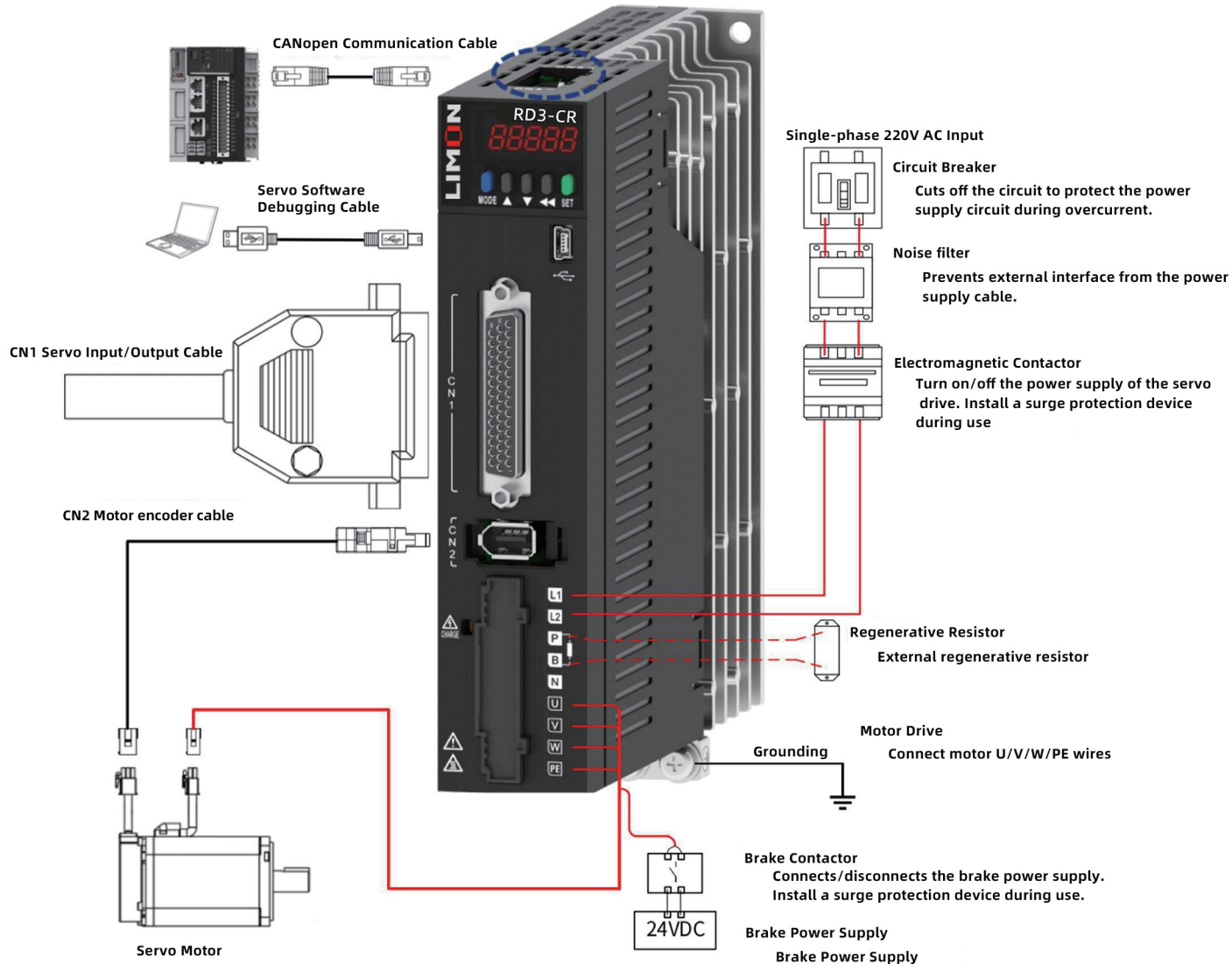
P - Pulse/Analog/RS485

R - General Rotating Servo

2、Port Definitions for Pulse Type Servo Drives



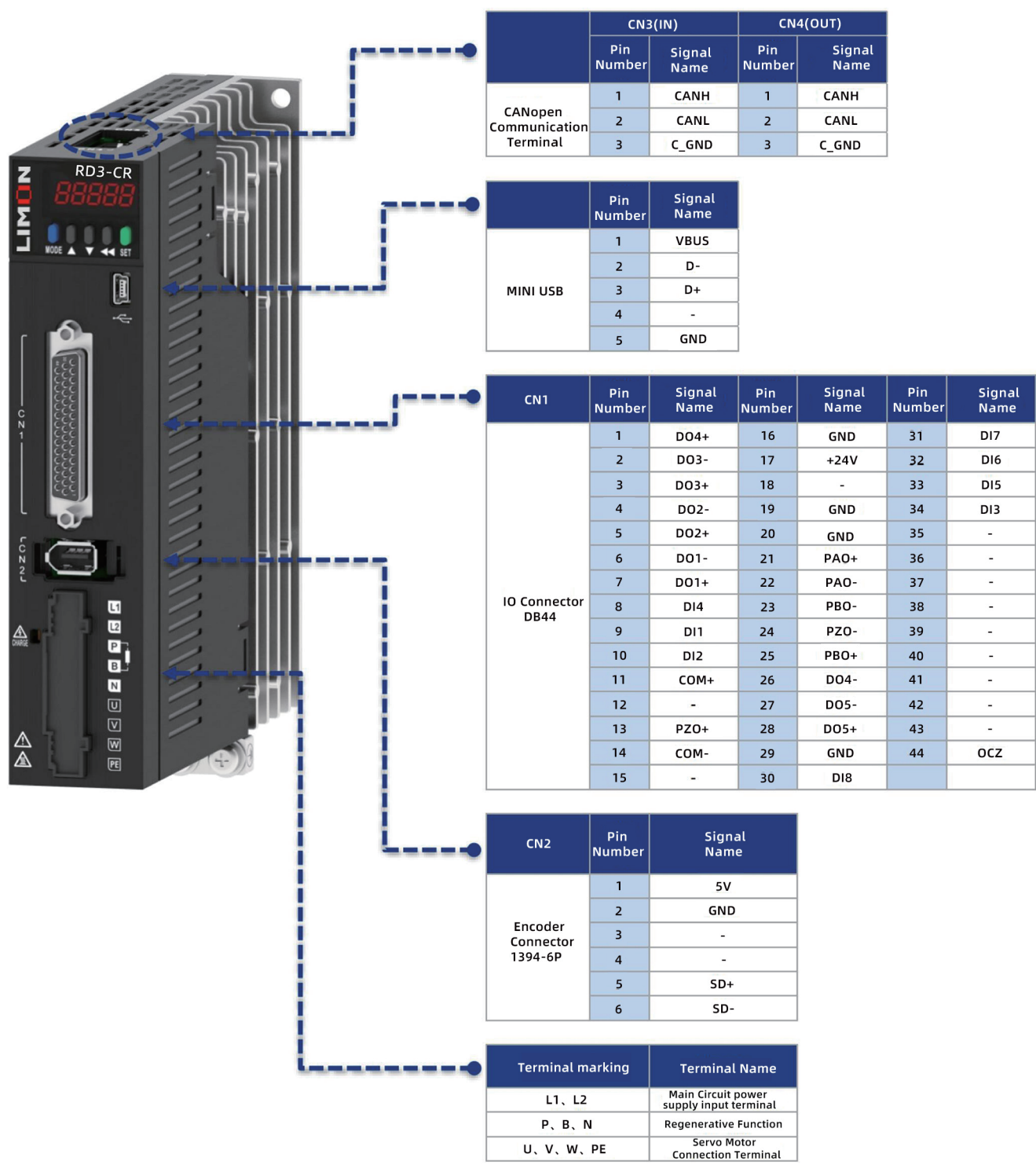
3、Wiring for CANopen Bus Type Servo Drives



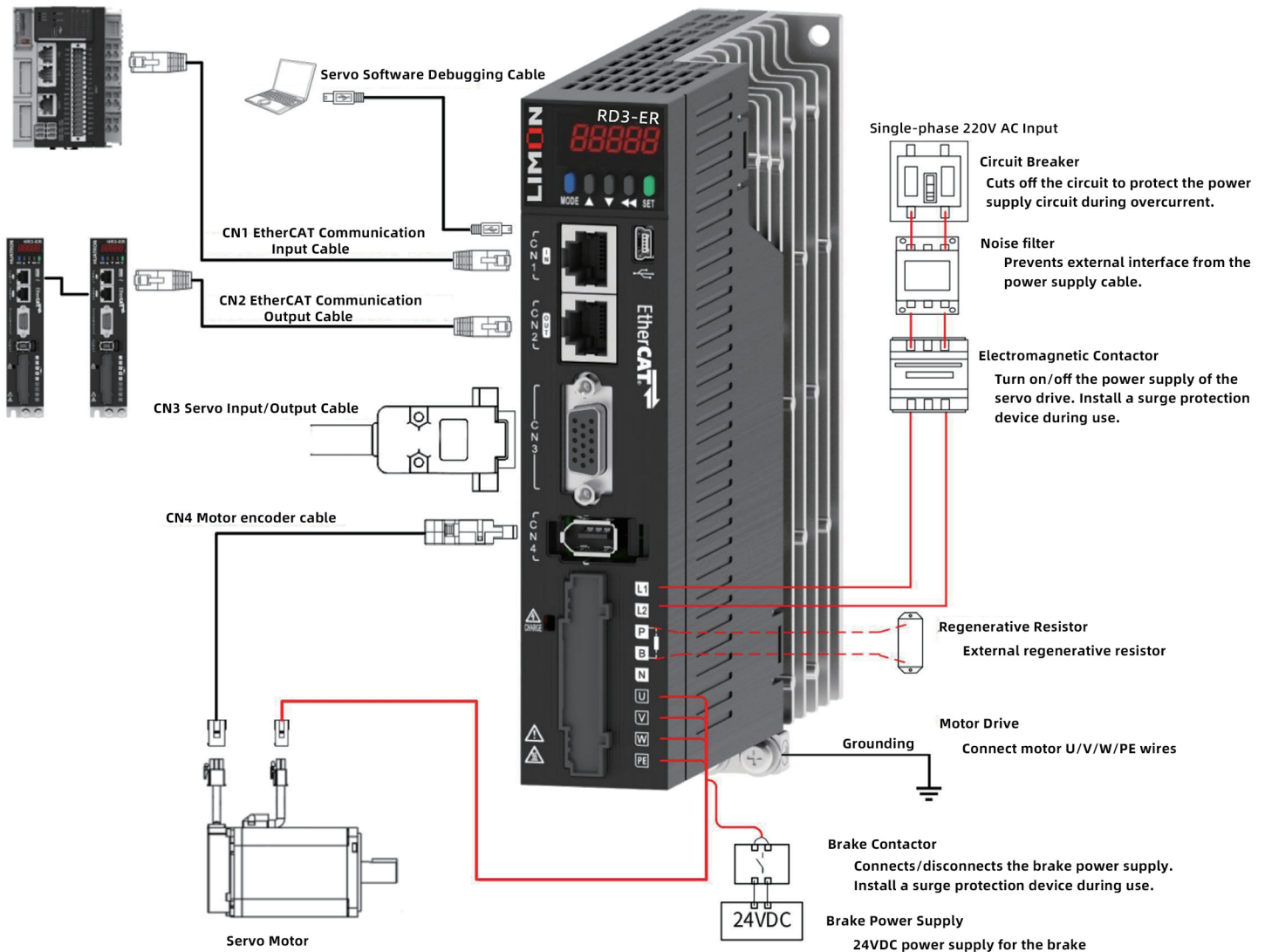
Model Description:

- RD3 General Standard type
- C-CANopen Type
- R - General Rotating Servo

4、Port Definitions for CANopen Bus Type Servo Drives



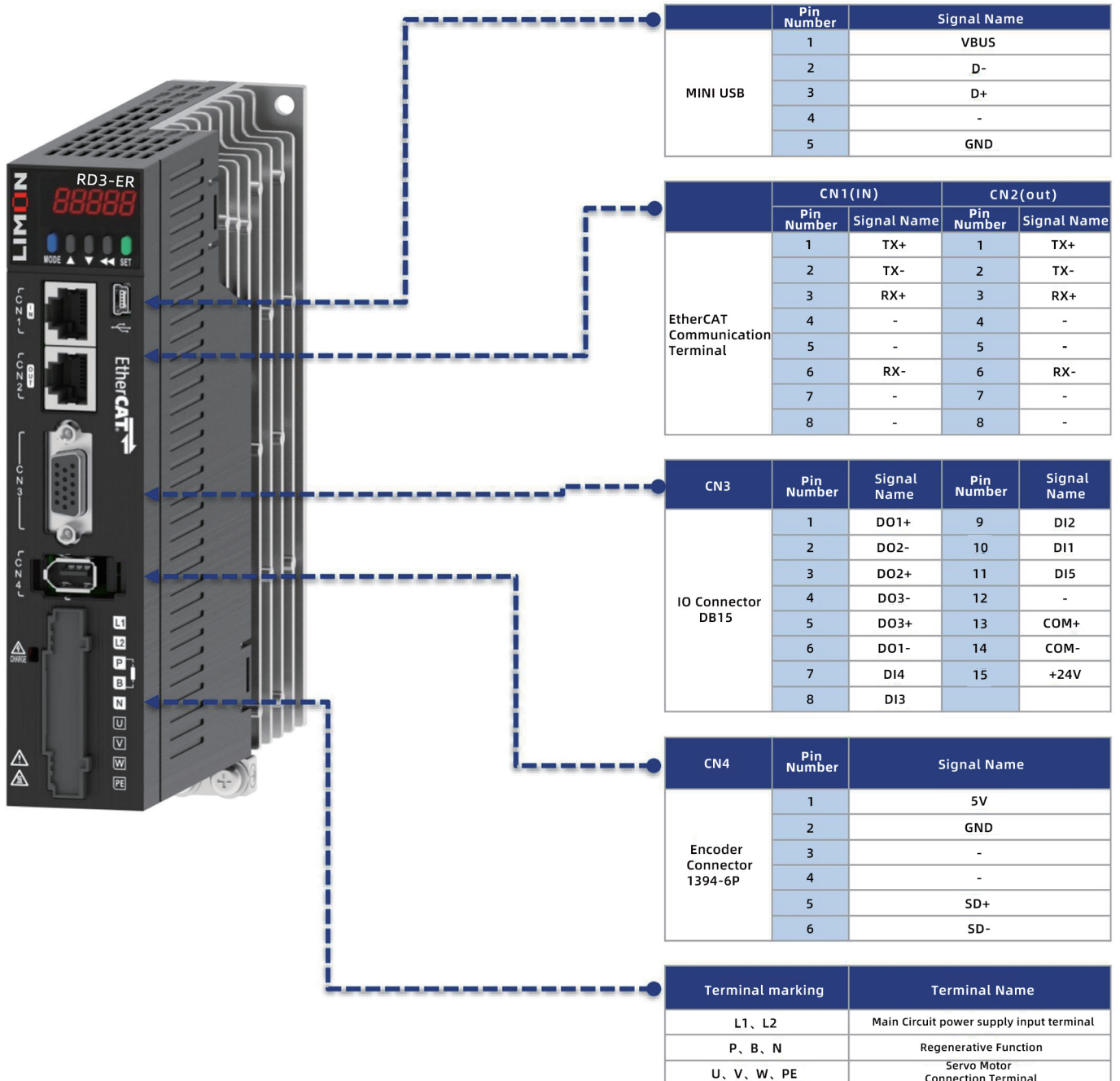
5、Wiring for EtherCAT Bus Type Servo Drives



Model Description:

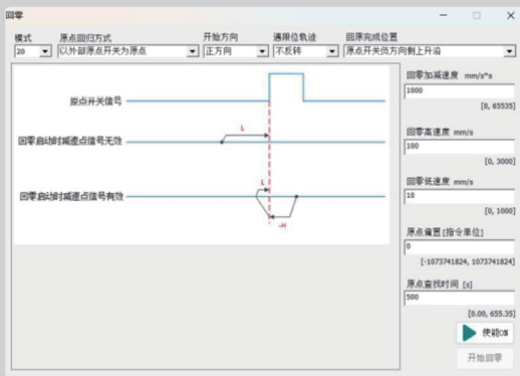
- RD3 General Standard Type
- E-Ether type
- R - General Rotating Servo

6、Port Definitions for EtherCAT Bus Type Servo Drives

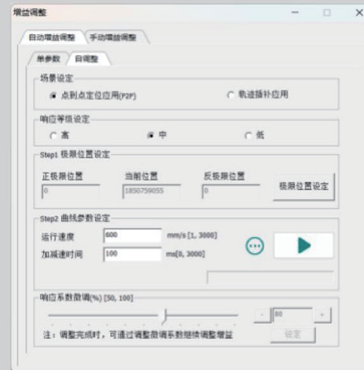


Four、 Servo Drive Commissioning Software

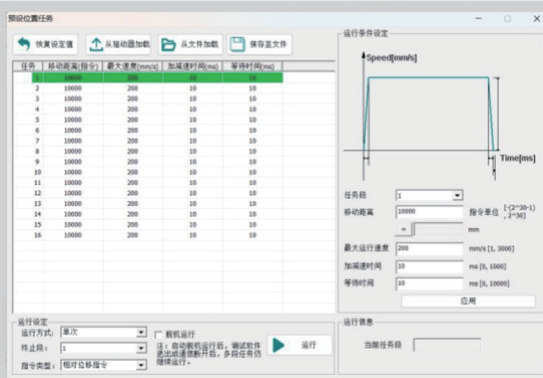
1、 Visualization



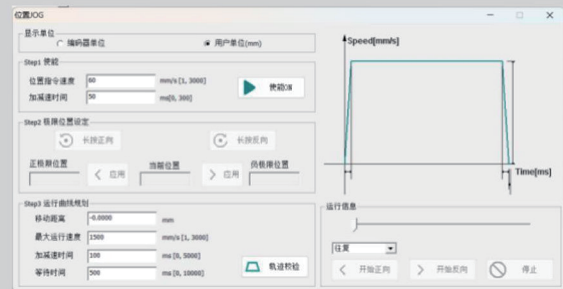
Configurable Homing Trajectory



Matching Tuning Scene



Multi-Segment Trajectory Planning



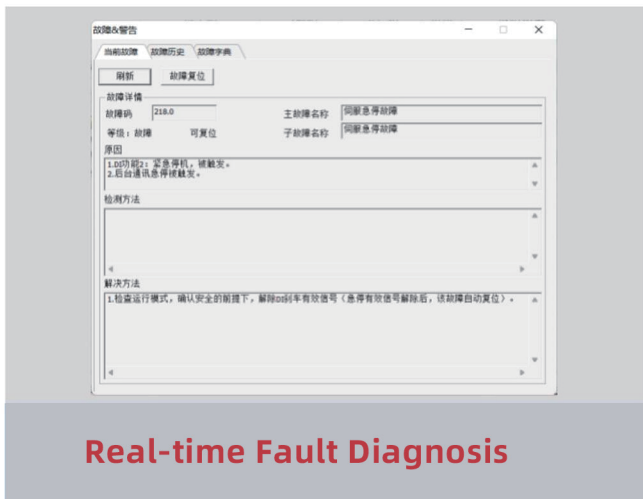
Visualization of Position JOG

2、Fault Diagnosis

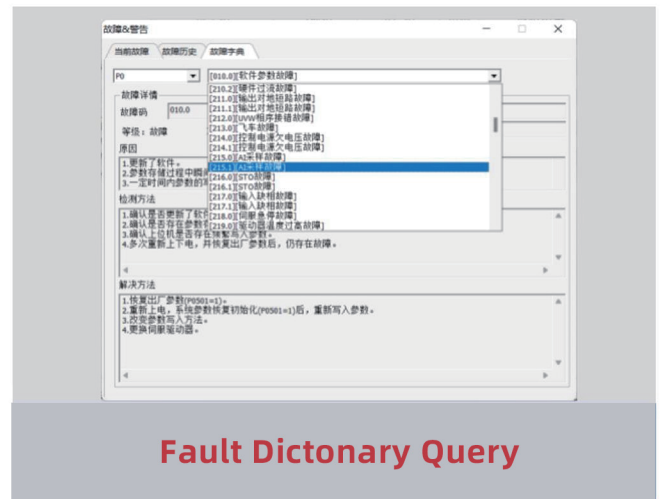
- Real-time Alerting of Fault Information, and Providing Fault Troubleshooting Methods
- Historical Fault Traceback, Supporting Viewing of Parameter Information for 10 Historical Fault Occurrences, Facilitating Problem Localization.
- Fault Dictionary Covers All RD3 Series Fault Information, Allowing for Quick Fault Query.



Historical Fault Traceback



Real-time Fault Diagnosis

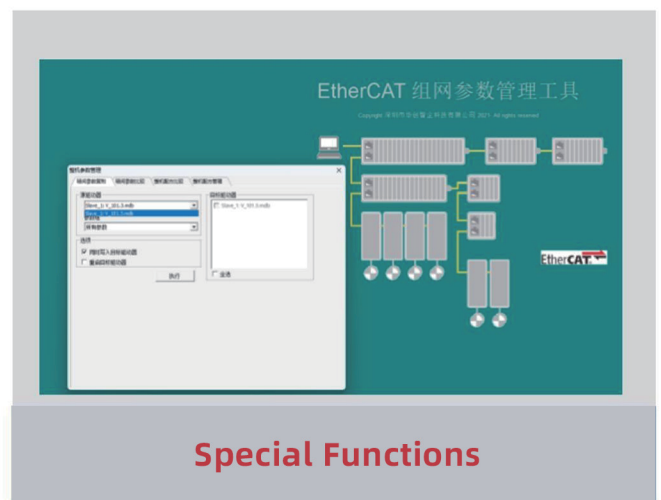


Fault Dictionary Query

3、Multi-axis recipes

In the context of multi-axis EtherCAT serVo networking

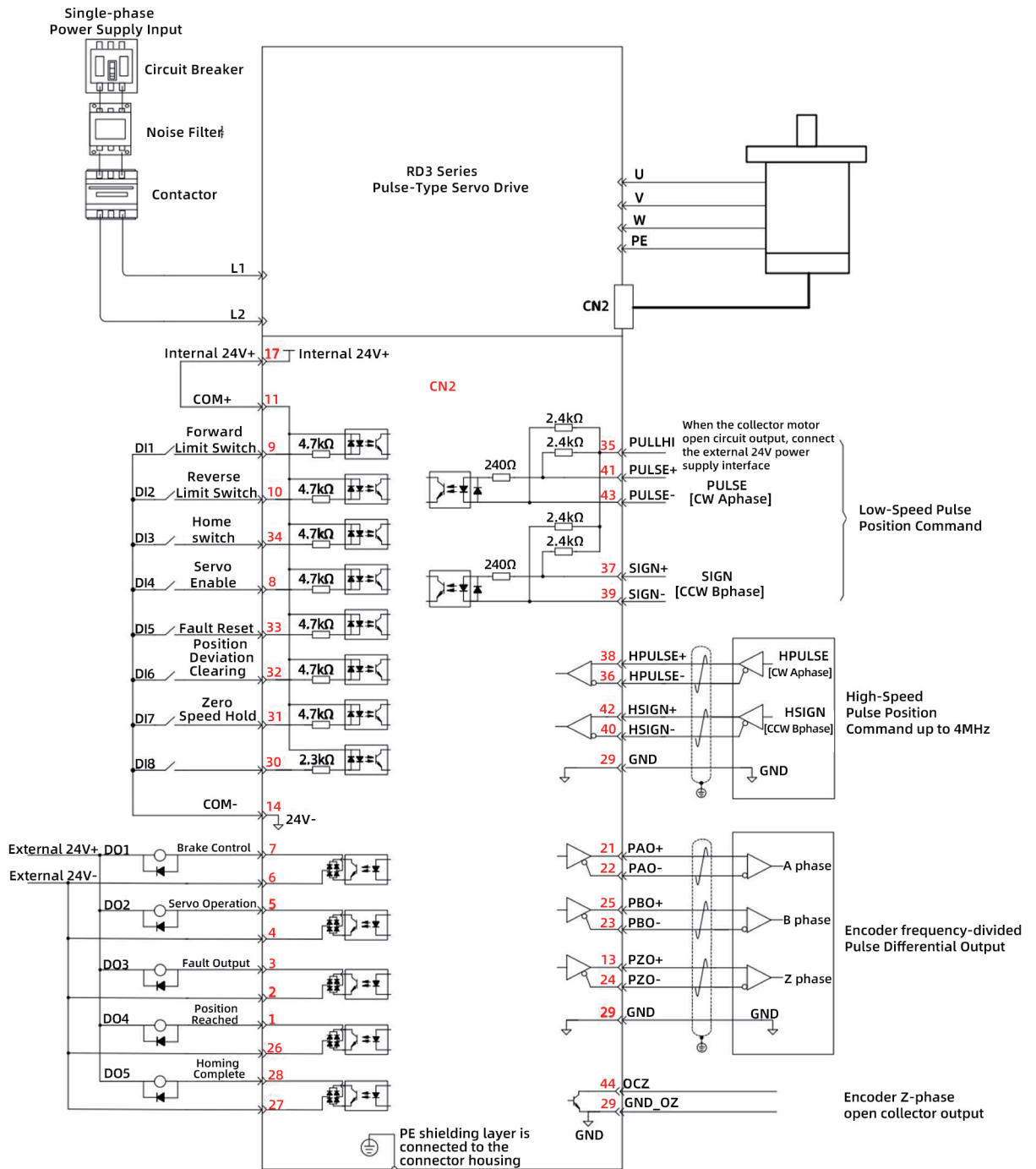
- Support multi-axis parameter modification
- Multi-axis recipe saving
- Axis parameter comparison
- Axis parameter copying



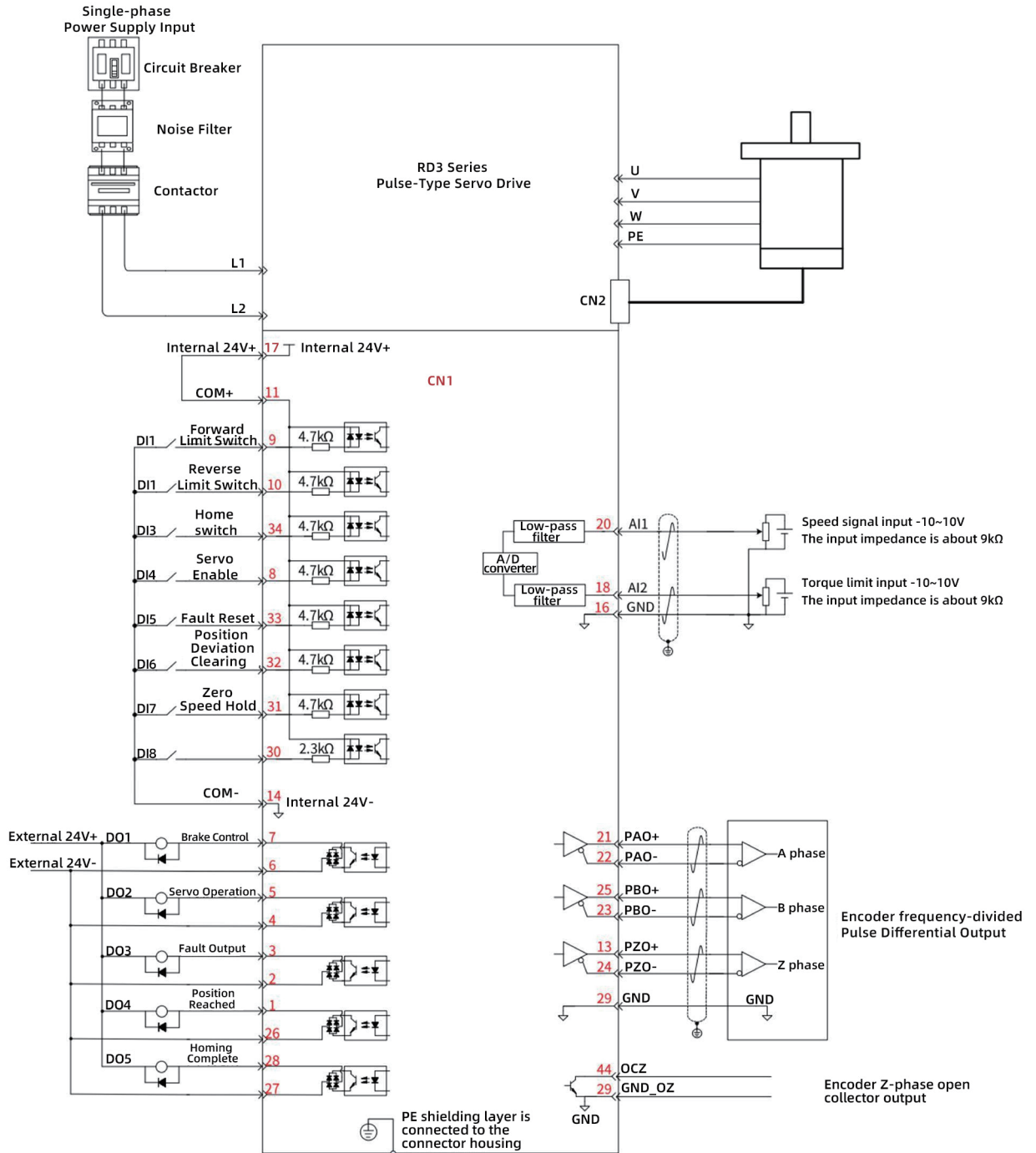
Special Functions

Five、Wiring Diagrams for Servo Drives Control Modes

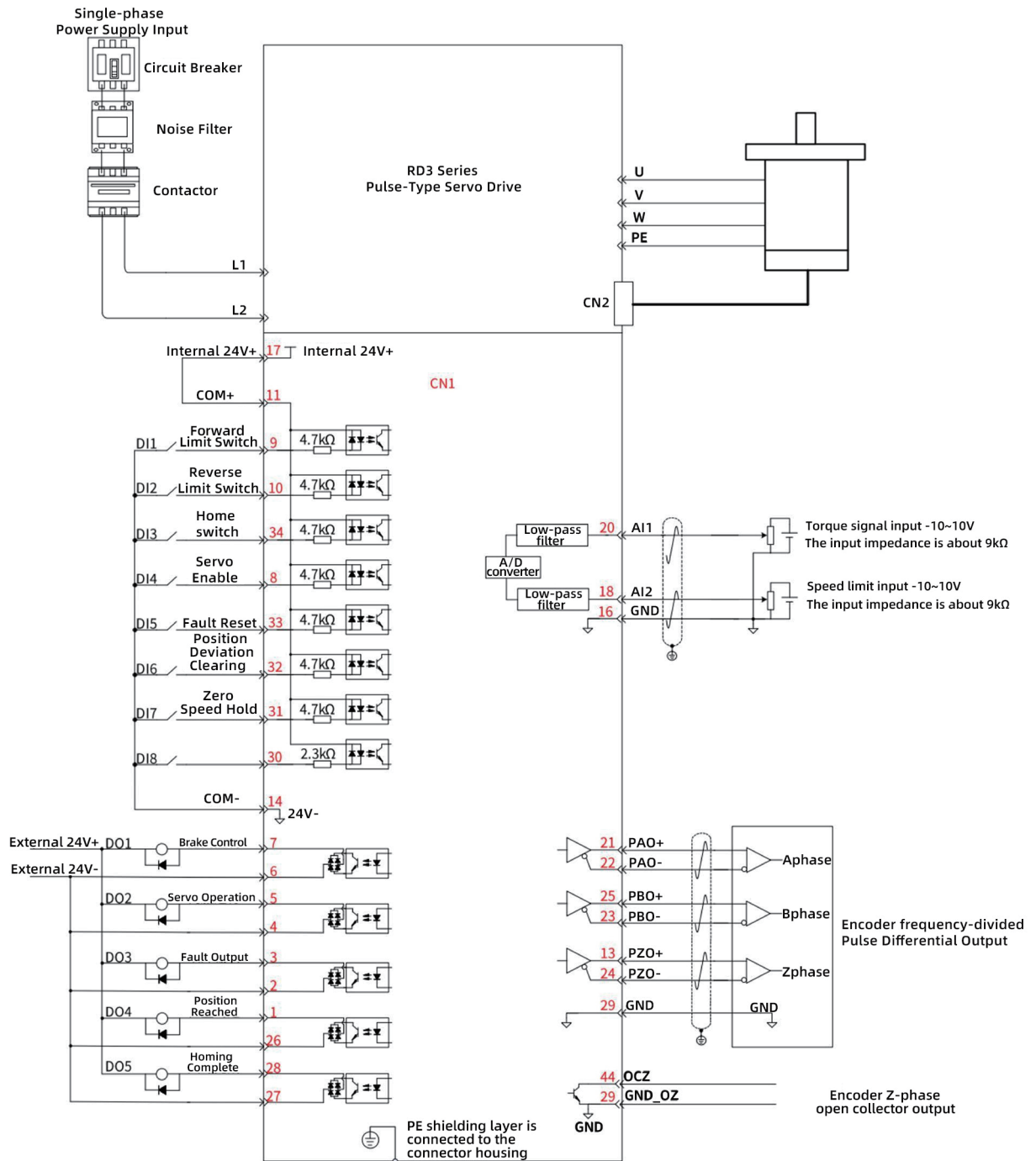
1、Wiring Diagram for Position Mode Control



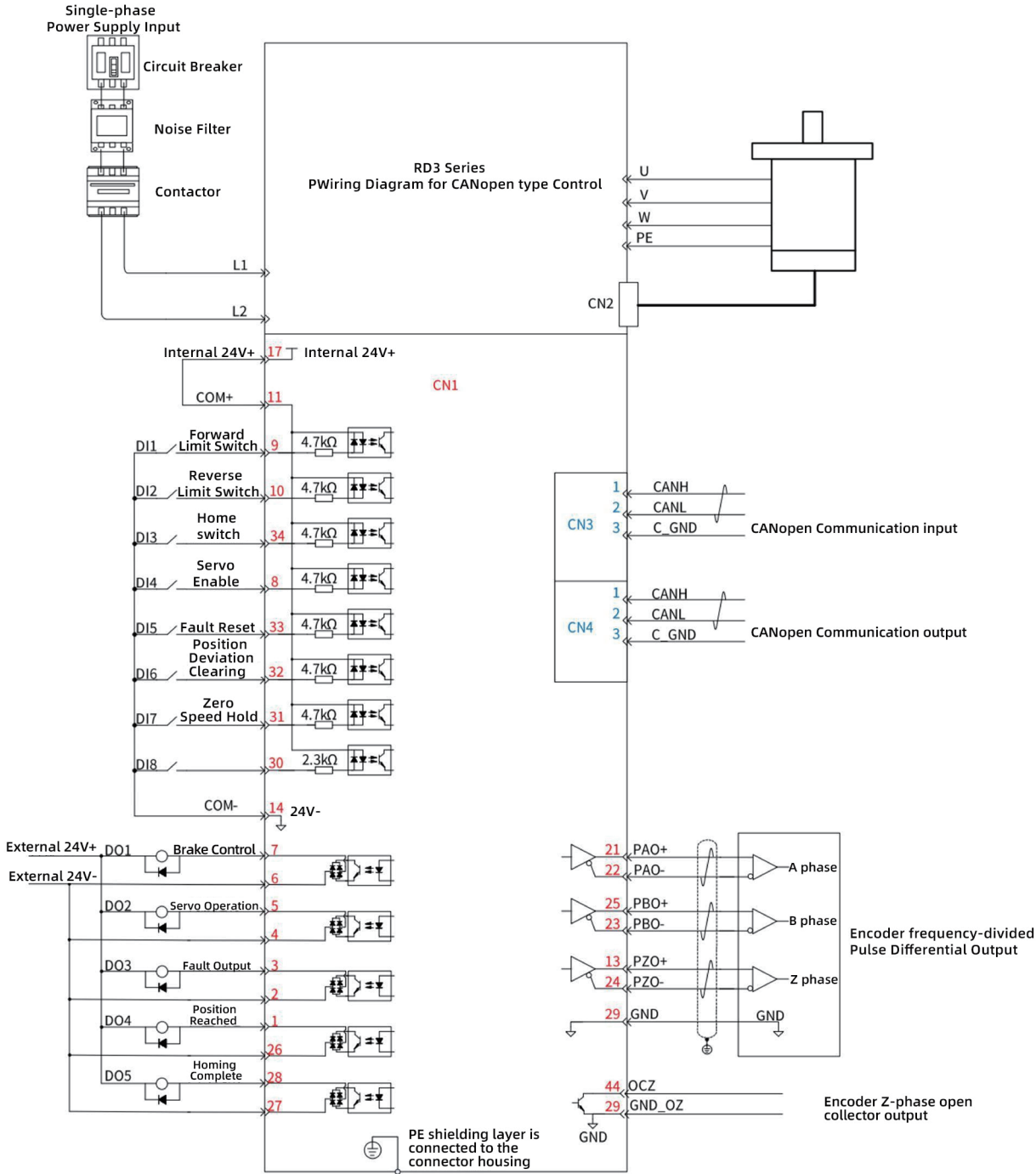
2、Wiring Diagram for Velocity Mode Control



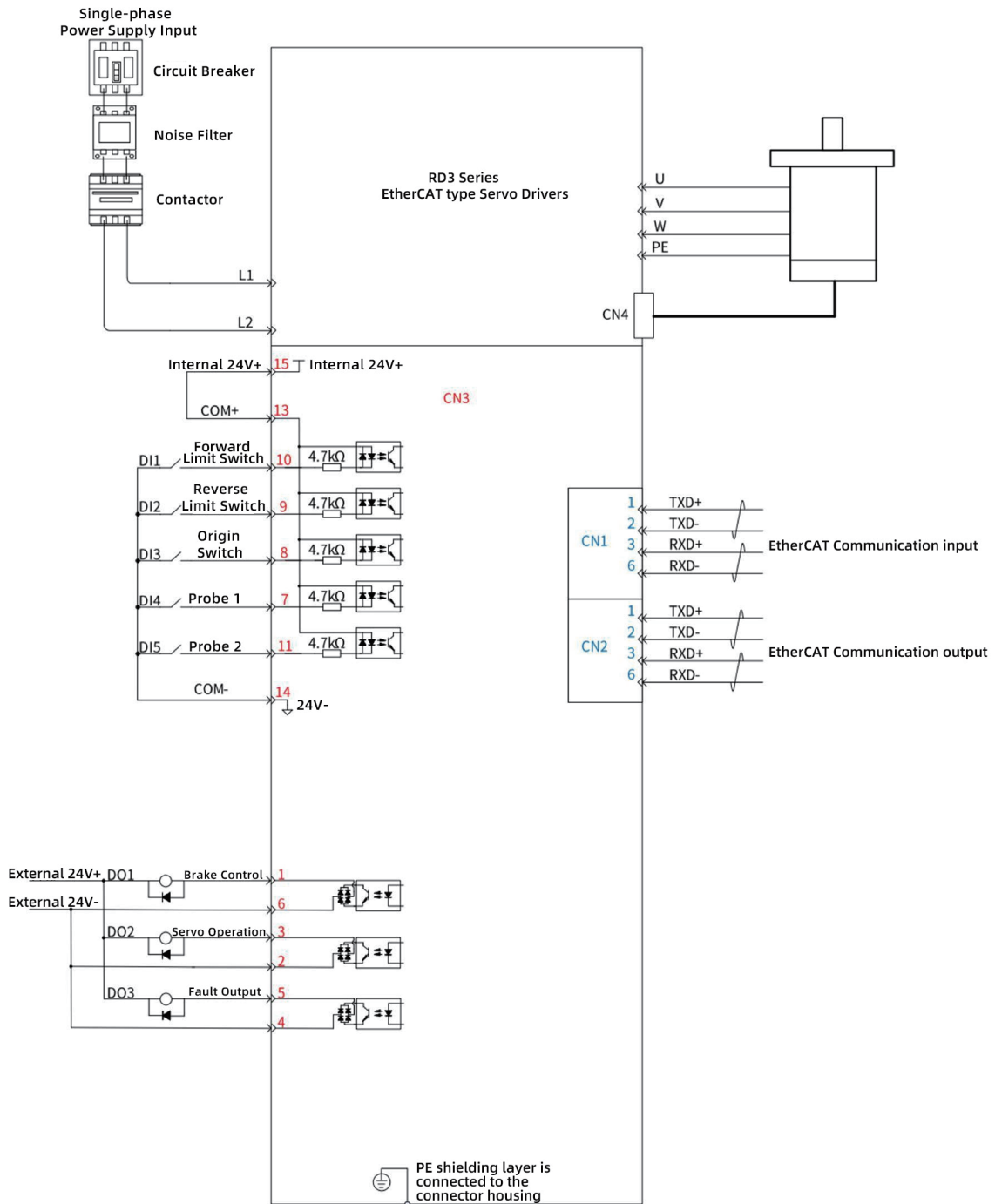
3、Wiring Diagram for Torque Mode Control



4、Wiring Diagram for CANopen type Control

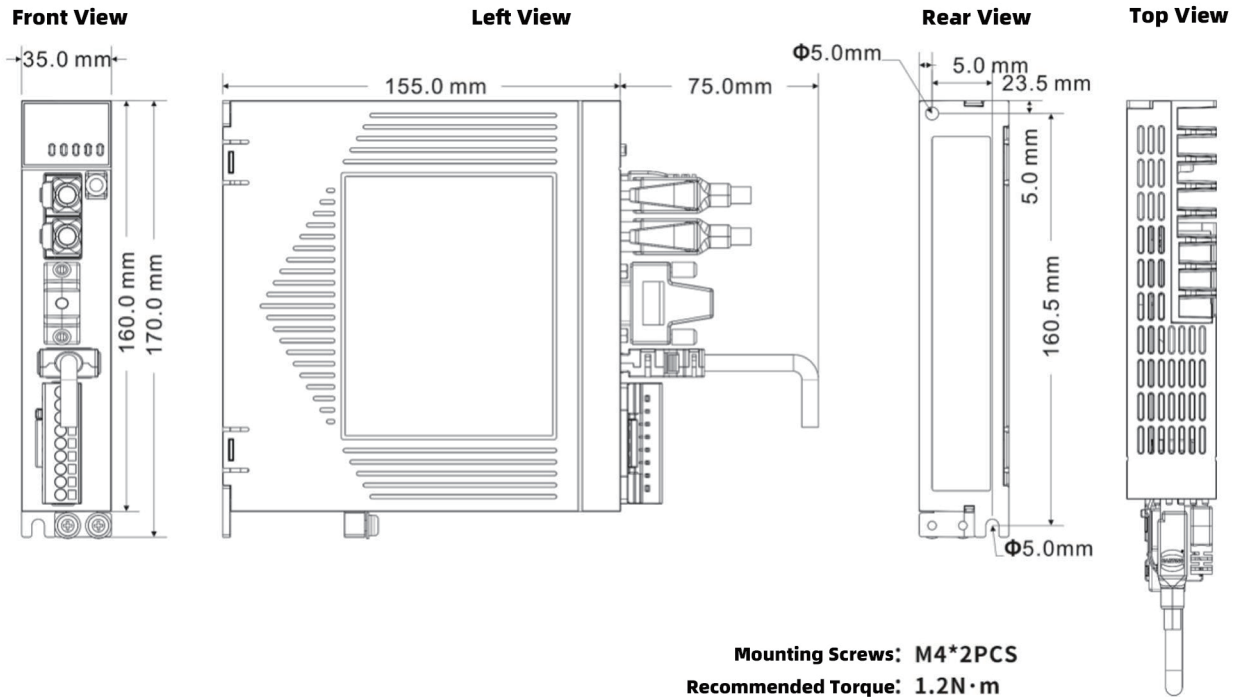


5、Wiring Diagram for EtherCAT Control

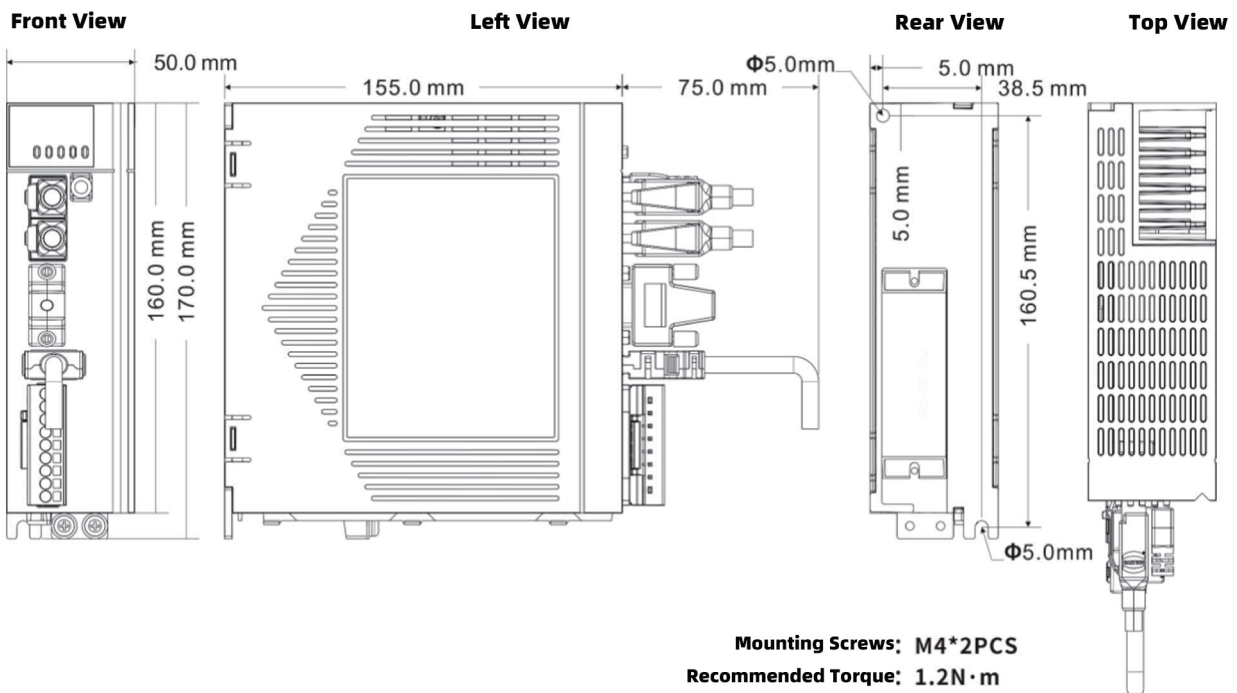


Six、 Servo Drives Installation Dimensions

SIZE-A Dimensional Drawing:



SIZE-B Dimensional Drawing:



Seven、 Servo Motor Products

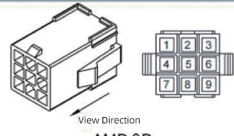
1、 R2 Series Servo Motor Model Specifications

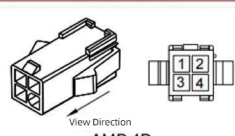
R2 H 080 - S 75B 30C - M C 1 N 1
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

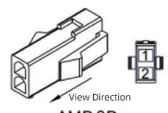
①: Product Series R2: R2 Series Servo Motor	④: Rated Voltage S: AC 220V	⑥: Rated Speed 15C: 1500RPM 20C: 2000RPM 30C: 3000RPM	⑨: Shaft Connection Method 0: Shaft output 1: Shaft output (keyed)
②: Inertia Capacity A: Low inertia M: Medium inertia H: High inertia	⑤: Rated Power 05B: 50W 10B: 100W 20B: 200W 40B: 400W 75B: 750W 85B: 850W 10C: 1000W 13C: 1300W 18C: 1800W	⑦: Encoder Type M: 17bit Single-Turn Absolute type N: 17bit Single-Turn Absolute type O: 23bit Single-Turn Absolute type P: 23bit Multi-Turn Absolute type	⑩: Brake N: Without Brake B: With Brake
③: Motor Flange 040: 40Flange 060: 60Flange 080: 80Flange 130: 130Flange		⑧: Interface Type C: Wire Type H: Aviation Plug Type	⑪: Oil Seal 0: Without Oil Seal 1: With Oil Seal

2、Connector Wiring Standards for R2 Series Servo Motors

40、60、80 Flange


Encoder Connector	
 <p>View Direction AMP 9P Cable Side</p>	
Pin Number	Function
1	SD+
2	SD-
3	E+
4	-
5	-
6	+5V
7	GND
8	E-
9	PE

Power Connector	
 <p>View Direction AMP 4P Cable Side</p>	
Pin Number	Function
1	U
2	V
3	W
4	PE

Brake Connector	
 <p>View Direction AMP 2P Cable Side</p>	
Pin Number	Function
1	BK+
2	BK-

130 Flange

Encoder Connector	
 <p>View Direction YDB28K7TSLa Cable Side</p>	
Pin Number	Function
1	PE
2	E-
3	E+
4	SD-
5	GND
6	SD+
7	+5V

Power Connector (without brake)	
 <p>View Direction YD28K4TSL Cable Side</p>	
Pin Number	Function
1	PE
2	U
3	V
4	W

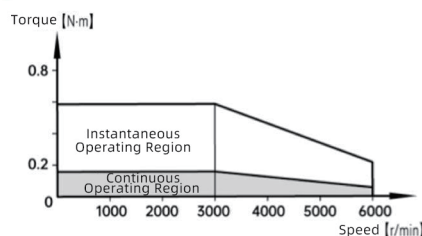
Brake Connector (with brake)	
 <p>View Direction YD28K7TSL Cable Side</p>	
Pin Number	Function
1	PE
2	U
3	V
4	W
5	BK+
6	BK-
7	-

3、 Technical Parameters of R2 Series H040 Serv Motors 220V (50W-100W)

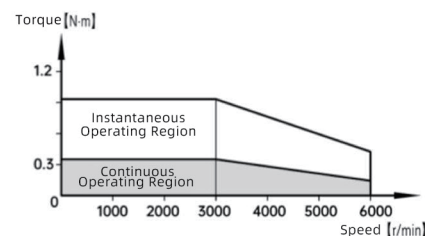
Motor Specifications	R2H040- S05B30C-xxxxx	R2H040- S10B30C-xxxxx
Rated Power(w)	50	100
Rated Voltage(v)	220	220
Rated Current(A)	0.6	1.0
Rated Torque(N.m)	0.16	0.32
Rated Speed(r/min)	3000	3000
Instantaneous Maximum Current(A)	1.8	3.0
Instantaneous Maximum Torque(N.m)	0.48	0.96
Instantaneous Maximum Speed(r/min)	6000	6000
Back Electromotive Force(v/1000r/min)	18	19
Torque Coefficient(N.m/A)	0.27	0.32
Phase Resistance(Ω)	13	7.25
Q-axis Inductance(mH)	10	6.85
D-axis Inductance(mH)	10	6.85
Electrical Time Constant(ms)	0.77	0.94
Rotor Inertia(kg.m ² X10 ⁻⁴)	0.035 (0.038)	0.05 (0.053)
Weight(kg)	0.4 (0.9)	0.5 (1.0)
Number of Poles	5-pole	
Motor Insulation Class	F	
Protection Level	IP65	
Operating Environment	Operating Temperature: -20°C to 40°C; Operating Humidity: Relative humidity less than 90% (non frost conditions).	

Note: Parameters in () are for motors with brake.

Torque Characteristics Chart:



R2H040-S05B30C-xxxxx

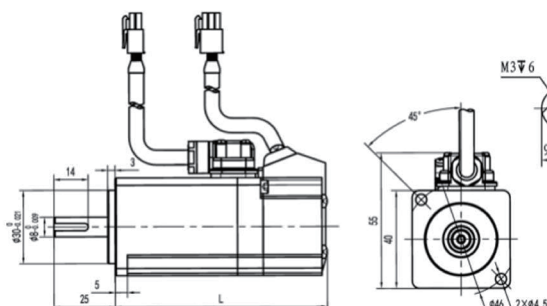


R2H040-S10B30C-xxxxx

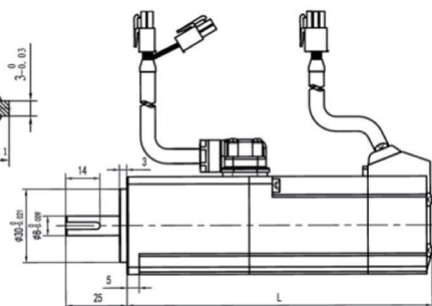
Outline Dimensions Diagram:

Outline Dimensions Diagram	50W	100W
L Without Brake	68.5	79.5
L With Brake	101.5	112.5

<Without Brake>



<With Brake>

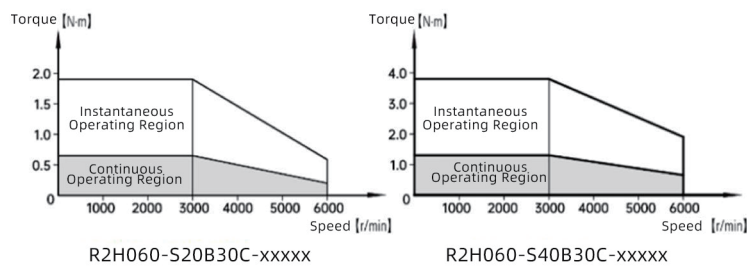


4、 Technical Parameters of R2 Series H060 Servo Motors 220V (200W-400W)

Motor Specifications	R2H060- S20B30C-xxxxx	R2H060- S40B30C-xxxxx
Rated Power(w)	200	400
Rated Voltage(v)	220	220
Rated Current(A)	1.4	2.8
Rated Torque(N.m)	0.64	1.27
Rated Speed(r/min)	3000	3000
Instantaneous Maximum Current(A)	4.2	8.4
Instantaneous Maximum Torque(N.m)	1.92	3.81
Instantaneous Maximum Speed(r/min)	6000	6000
Back Electromotive Force(v/1000r/min)	31.7	31.4
Torque Coefficient(N.m/A)	0.46	0.45
Phase Resistance(Ω)	4	1.85
Q-axis Inductance(mH)	7.5	3.8
D-axis Inductance(mH)	7.5	3.8
Electrical Time Constant(ms)	1.88	2.05
Rotor Inertia(kg.m ² X10 ⁻⁴)	0.29 (0.32)	0.53 (0.56)
Weight(kg)	1.0 (1.4)	1.3 (1.7)
Number of Poles	5-pole	
Motor Insulation Class	F	
Protection Level	IP65	
Operating Environment	Operating Temperature: -20°C to 40°C; Operating Humidity: Relative humidity less than 90% (non-condensing conditions).	

Note: Parameters in () are for motors with brake.

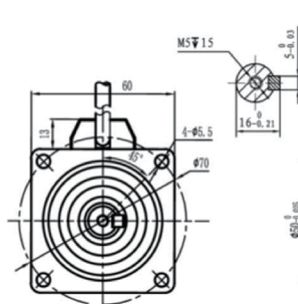
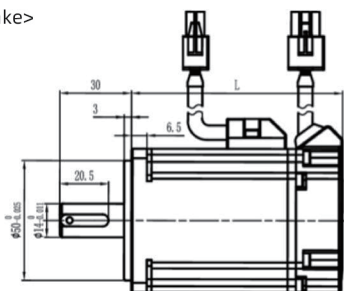
Torque Characteristics Chart:



Outline Dimensions Diagram:

Outline Dimensions Diagram	200W	400W
L Without Brake	77.2	93.7
L With Brake	109.2	125.7

<Without Brake>



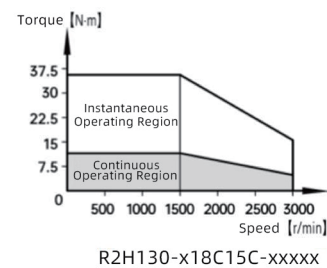
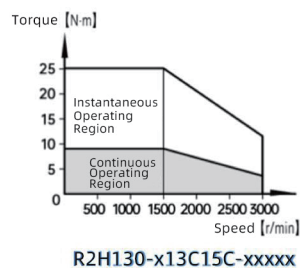
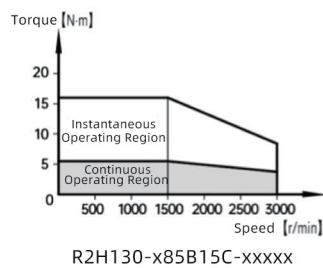
<With Brake>

6、 Technical Parameters of R2 Series H130 Servo Motors 220V (850W-1800W)

Motor Specifications	R2H130- S85B15C-xxxxx	R2H130- S13C15C-xxxxx	R2H130- S18C15C-xxxxx
Rated Power(w)	850	1300	1800
Rated Voltage(v)	220	220	220
Rated Current(A)	6.9	10.7	13.8
Rated Torque(N.m)	5.39	8.34	11.5
Rated Speed(r/min)	1500	1500	1500
Instantaneous Maximum Current(A)	20.7	32.1	41.4
Instantaneous Maximum Torque(N.m)	16.17	25.02	34.5
Instantaneous Maximum Speed(r/min)	3000	3000	3000
Back Electromotive Force(v/1000r/min)	50	52	52
Torque Coefficient(N.m/A)	0.78	0.78	0.83
Phase Resistance(Ω)	0.5	0.25	0.175
Q-axis Inductance(mH)	2.5	1.6	1.25
D-axis Inductance(mH)	2.5	1.6	1.25
Electrical Time Constant(ms)	5	6.4	7.14
Rotor Inertia($\text{kg}\cdot\text{m}^2\times 10^{-4}$)	10.9 (12.13)	16.9 (18.13)	21.4 (22.63)
Weight(kg)	5.7 (7.4)	8.0 (9.1)	9.3 (11.3)
Number of Poles	5-pole		
Motor Insulation Class	F		
Protection Level	IP65		
Operating Environment	Operating Temperature: -20°C to 40°C; Operating Humidity: Relative humidity less than 90% (non-condensing conditions).		

Note: Parameters in () are for motors with brake.

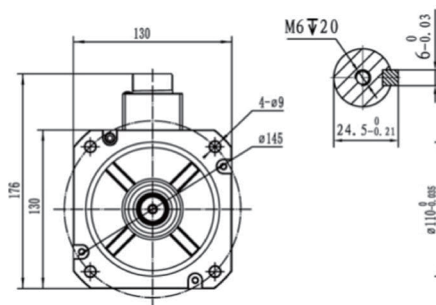
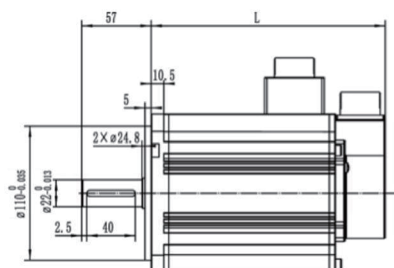
■ Torque Characteristics Chart:



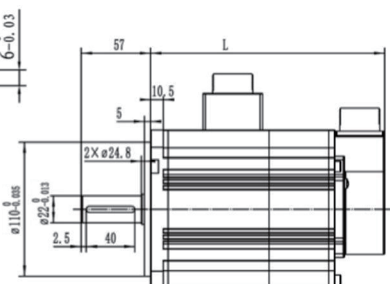
■ Outline Dimensions Diagram:

Outline Dimensions Diagram	850W	1300W	1800W
L Without Brake	135	152.5	170
L With Brake	187	204.5	222

<Without Brake>



<With Brake>

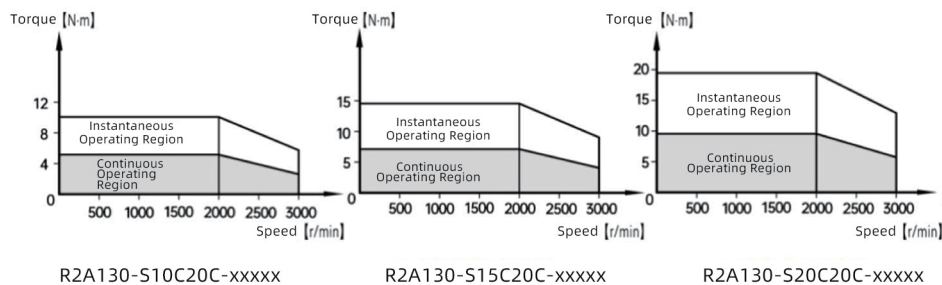


7、 Technical Parameters of R2A130 Servo Motors 220V (1KW-2KW)

Motor Specifications	R2A130-S10C20C-xxxxx	R2A130-S15C20C-xxxxx	R2A130-S20C20C-xxxxx
Rated Power(w)	1	1.5	2
Rated Voltage(v)	220	220	220
Rated Current(A)	5.8	8.0	10.2
Rated Torque(N.m)	4.77	7.16	9.55
Rated Speed(r/min)	2000	2000	2000
Instantaneous Maximum Current(A)	11.6	16.0	20.4
Instantaneous Maximum Torque(N.m)	9.6	14.32	19.1
Instantaneous Maximum Speed(r/min)	3000	3000	3000
Back Electromotive Force(v/1000r/min)	53	58.5	60
Torque Coefficient(N.m/A)	0.82	0.92	0.94
Phase Resistance(Ω)	0.425	0.325	0.29
Q-axis Inductance(mH)	6.25	4.75	3.75
D-axis Inductance(mH)	6.25	4.75	3.75
Electrical Time Constant(ms)	14.7	14.6	12.9
Rotor Inertia(kg.m ² X10 ⁻⁴)	6.2 (7.41)	9.16 (10.39)	12.3 (13.33)
Weight(kg)	5.4 (7.4)	7.1 (9.1)	8.3 (10.3)
Number of Poles	5-pole		
Motor Insulation Class	F		
Protection Level	IP65		
Operating Environment	Operating Temperature: -20°C to 40°C; Operating Humidity: Relative humidity less than 90% (non-condensing conditions).		

Note: Parameters in () are for motors with brake.

Torque Characteristics Chart:

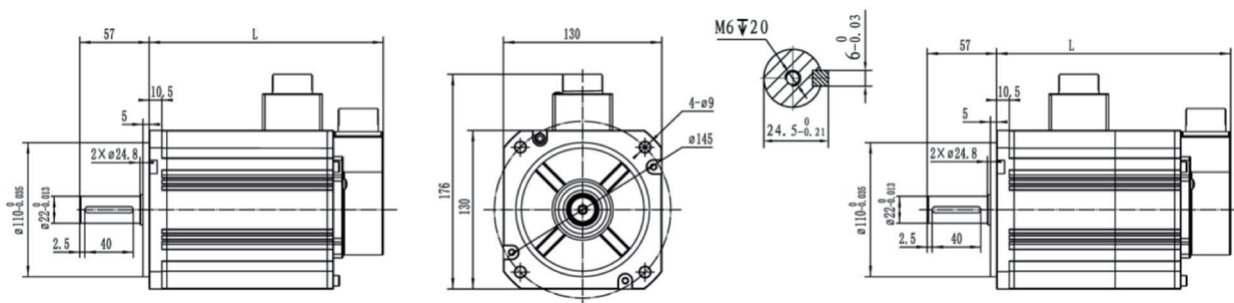


Outline Dimensions Diagram:

Outline Dimensions Diagram	1 kW	1.5 kW	2 kW
L Without Brake	135	152.5	170
L With Brake	187	204.5	222

<Without Brake>

<With Brake>



8、 Selection Comparison Table of R2H040 and RD3 Servo drive 220V/(50W-100W)

Motor Power	Inertia	Model	23bit		17bit		With Brake		Oil Seal	Flange	Shaft Diameter	Wiring Form	Suitable Servo Drive
			Single-Turn	Multi-Turn	Single-Turn	Multi-Turn	Yes	No					
50W	High Inertia	R2H040-S05B30C-MC1N0			●					40	Φ8	Wire Type	RD3-PR001S2 RD3-ER001S2 RD3-CR001S2
		R2H040-S05B30C-NC1N0				●		●					
		R2H040-S05B30C-OC1N0	●										
		R2H040-S05B30C-PC1N0		●									
		R2H040-S05B30C-MC1B0			●								
		R2H040-S05B30C-NC1B0				●		●					
		R2H040-S05B30C-OC1B0	●										
100W	High Inertia	R2H040-S10B30C-MC1N0			●					40	Φ8	Wire Type	RD3-PR001S2 RD3-ER001S2 RD3-CR001S2
		R2H040-S10B30C-NC1N0				●		●					
		R2H040-S10B30C-OC1N0	●										
		R2H040-S10B30C-PC1N0		●									
		R2H040-S10B30C-MC1B0			●								
		R2H040-S10B30C-NC1B0				●		●					
		R2H040-S10B30C-OC1B0	●										
		R2H040-S10B30C-PC1B0		●									

9、 Selection Comparison Table of R2H060 and RD3 Servo drive 220V/(200W-400W)

Motor Power	Inertia	Model	23bit		17bit		With Brake		Oil Seal	Flange	Shaft Diameter	Wiring Form	Suitable Servo Drive
			Single-Turn	Multi-Turn	Single-Turn	Multi-Turn	Yes	No					
200W	High Inertia	R2H060-S20B30C-MC1N1			●					60	Φ14	Wire Type	RD3-PR1R6S2 RD3-ER1R6S2 RD3-CR1R6S2
		R2H060-S20B30C-NC1N1				●							
		R2H060-S20B30C-OC1N1	●					●					
		R2H060-S20B30C-PC1N1		●									
		R2H060-S20B30C-MC1B1			●								
		R2H060-S20B30C-NC1B1				●	●						
		R2H060-S20B30C-OC1B1	●										
		R2H060-S20B30C-PC1B1		●									
400W	High Inertia	R2H060-S40B30C-MC1N1			●					60	Φ14	Wire Type	RD3-PR2R8S2 RD3-ER2R8S2 RD3-CR2R8S2
		R2H060-S40B30C-NC1N1				●							
		R2H060-S40B30C-OC1N1	●					●					
		R2H060-S40B30C-PC1N1		●									
		R2H060-S40B30C-MC1B1			●								
		R2H060-S40B30C-NC1B1				●	●						
		R2H060-S40B30C-OC1B1	●										
		R2H060-S40B30C-PC1B1		●									

10、 Selection Comparison Table of R2H080 and RD3 Servo drive 220V / (750W-1000W)

Motor Power	Inertia	Model	23bit		17bit		With Brake		Oil Seal	Flange	Shaft Diameter	Wiring Form	Suitable Servo Drive
			Single-Turn	Multi-Turn	Single-Turn	Multi-Turn	Yes	No					
750W	High Inertia	R2H080-S75B30C-MC1N1			●					80	Φ19	Wire Type	RD3-PR5R5S2 RD3-ER5R5S2 RD3-CR5R5S2
		R2H080-S75B30C-NC1N1				●		●					
		R2H080-S75B30C-OC1N1	●										
		R2H080-S75B30C-PC1N1		●									
		R2H080-S75B30C-MC1B1			●								
		R2H080-S75B30C-NC1B1				●	●						
		R2H080-S75B30C-OC1B1	●										
		R2H080-S75B30C-PC1B1		●									
1000W	High Inertia	R2H080-S10C30C-MC1N1			●					80	Φ19	Wire Type	RD3-PR7R6S2 RD3-ER7R6S2 RD3-CR7R6S2
		R2H080-S10C30C-NC1N1				●		●					
		R2H080-S10C30C-OC1N1	●										
		R2H080-S10C30C-PC1N1		●									
		R2H080-S10C30C-MC1B1			●								
		R2H080-S10C30C-NC1B1				●	●						
		R2H080-S10C30C-OC1B1	●										
		R2H080-S10C30C-PC1B1		●									

11、 Selection Comparison Table of R2H130 and RD3 Servo drive 220V / (850W-1800W)

Motor Power	Inertia	Model	23bit		17bit		With Brake		Oil Seal	Flange	Shaft Diameter	Wiring Form	Suitable Servo Drive
			Single-Turn	Multi-Turn	Single-Turn	Multi-Turn	Yes	No					
850W	High Inertia	R2H130-S85B15C-MH1N1			●					130	Φ 22	Aviation Plug Type	RD3-PR7R6S2 RD3-ER7R6S2 RD3-CR7R6S2
		R2H130-S85B15C-NH1N1				●							
		R2H130-S85B15C-OH1N1	●					●					
		R2H130-S85B15C-PH1N1		●									
		R2H130-S85B15C-MH1B1			●								
		R2H130-S85B15C-NH1B1				●							
		R2M130-S85B15C-OH1B1	●				●						
		R2H130-S85B15C-PH1B1		●									
1300W	High Inertia	R2H130-S13C15C-MH1N1			●					130	Φ 22	Aviation Plug Type	RD3-PR012S2 RD3-ER012S2 RD3-CR012S2
		R2H130-S13C15C-NH1N1				●							
		R2H130-S13C15C-OH1N1	●					●					
		R2H130-S13C15C-PH1N1		●									
		R2H130-S13C15C-MH1B1			●								
		R2H130-S13C15C-NH1B1				●							
		R2H130-S13C15C-OH1B1	●				●						
		R2H130-S13C15C-PH1B1		●									
1800W	High Inertia	R2H130-S18C15C-MH1N1			●					130	Φ 22	Aviation Plug Type	RD3-PR014S2 RD3-ER014S2 RD3-CR014S2
		R2H130-S18C15C-NH1N1				●							
		R2H130-S18C15C-OH1N1	●					●					
		R2H130-S18C15C-PH1N1		●									
		R2H130-S18C15C-MH1B1			●								
		R2H130-S18C15C-NH1B1				●							
		R2H130-S18C15C-OH1B1	●				●						
		R2H130-S18C15C-PH1B1		●									

12、 Selection Comparison Table of R2A130 and RD3 Servo drive 220V/(1KW-2KW)

Motor Power	Inertia	Model	23bit		17bit		With Brake		Oil Seal	Flange	Shaft Diameter	Wiring Form	Suitable Servo Drive
			Single-Turn	Multi-Turn	Single-Turn	Multi-Turn	Yes	No					
1kW	Low Inertia	R2A130-S10C20C-MH1N1			●					130	Φ 22	Aviation Plug Type	RD3-PR7R6S2 RD3-ER7R6S2 RD3-CR7R6S2
		R2A130-S10C20C-NH1N1				●							
		R2A130-S10C20C-OH1N1	●					●					
		R2A130-S10C20C-PH1N1		●									
		R2A130-S10C20C-MH1B1			●								
		R2A130-S10C20C-NH1B1				●							
		R2A130-S10C20C-OH1B1	●				●						
R2A130-S10C20C-PH1B1		●											
1.5kW	Low Inertia	R2A130-S15C20C-MH1N1			●					130	Φ 22	Aviation Plug Type	RD3-PR012S2 RD3-ER012S2 RD3-CR012S2
		R2A130-S15C20C-NH1N1				●							
		R2A130-S15C20C-OH1N1	●					●					
		R2A130-S15C20C-PH1N1		●									
		R2A130-S15C20C-MH1B1			●								
		R2A130-S15C20C-NH1B1				●							
		R2A130-S15C20C-OH1B1	●				●						
R2A130-S15C20C-PH1B1		●											
2kW	Low Inertia	R2A130-S20C20C-MH1N1			●					130	Φ 22	Aviation Plug Type	RD3-PR014S2 RD3-ER014S2 RD3-CR014S2
		R2A130-S20C20C-NH1N1				●							
		R2A130-S20C20C-OH1N1	●					●					
		R2A130-S20C20C-PH1N1		●									
		R2A130-S20C20C-MH1B1			●								
		R2A130-S20C20C-NH1B1				●							
		R2A130-S20C20C-OH1B1	●				●						
R2A130-S20C20C-PH1B1		●											

13、 Naming Rules of R3 Series Servo Motors

R3 H 080 - S 75B 30C - M T 1 N 1

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

①: Product Series	③: Motor Flange	⑤: Rated Power	⑦: Encoder Type	⑨: Shaft Connection Method	⑪: Oil Seal
R3 Series Servo Motor	040: 40Flange 060: 60Flange 080: 80Flange	10B:100W 20B:200W 40B:400W 75B:750W 10C:1000W	M:17bit Single-Turn Absolute type N:17bit Multi-Turn Absolute type O:23bit Single-Turn Absolute type P:23bit Multi-Turn Absolute type	0:Shaft output 1:Shaft output (keyed)	0:With Oil Seal 1:Without Oil Seal
②: Inertia Capacity	④: Rated Voltage	⑥: Rated Speed	⑧: Interface Type	⑩: Brake	
A:Low inertia M:Medium inertia H:High inertia	S: AC 220W	30C: 3000RPM	T: Terminal connector	N:Without Brake B:With Brake	

14、 Connector Wiring Standards of R3 Series Servo Motors

40、 60、 80 Flange

Encoder Connector

Motor Side

Pin Number	Function
1	SD+
2	SD-
3	E+
4	E-
5	+5V
6	GND
7	PE

Power Connector (without brake)

Motor Side

Pin Number	Function
1	V
2	U
3	W
4	PE

Power Connector (with brake)

Motor Side

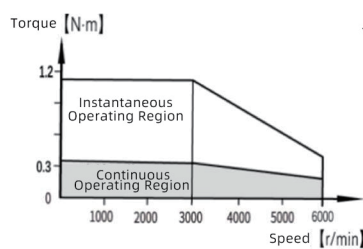
Pin Number	Function
1	V
2	U
3	W
4	PE
A	BK+
B	BK-

15、 Technical Parameters of R3 Series Servo Motors

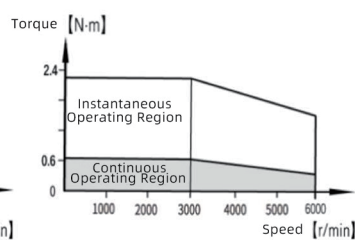
Motor Specifications	R3H040-S10B30C-xxxxx	R3H060-S20B30C-xxxxx	R3H060-S40B30C-xxxxx	R3H080-S75B30C-xxxxx	R3H080-S10C30C-xxxxx
Rated Power(w)	100	200	400	750	1000
Rated Voltage(v)	220	220	220	220	220
Rated Current(A)	0.98	1.3	2.6	4.6	6.3
Rated Torque(N.m)	0.32	0.64	1.27	2.39	3.18
Rated Speed(r/min)	3000	3000	3000	3000	3000
Instantaneous Maximum Current(A)	3.9	4.4	8.6	16.3	20.9
Instantaneous Maximum Torque(N.m)	1.12	2.23	4.445	8.36	11.13
Instantaneous Maximum Speed(r/min)	6000	6000	6000	6000	6000
Back Electromotive Force(v/1000r/min)	20	31.98	34.09	34.4	33.9
Torque Coefficient(N.m/A)	0.327	0.492	0.49	0.52	0.505
Phase Resistance(Ω)	13.186	8.286	3.33	0.936	0.638
Q-axis Inductance(mH)	7.81	9.35	5.09	2.8	2.04
D-axis Inductance(mH)	5.39	7.8	4.13	2.25	1.675
Electrical Time Constant(ms)	1.01	2.07	2.77	5.4	11.646
Rotor Inertia(kg.m ² X10 ⁻⁴)	0.031(0.034)	0.34(0.35)	0.59(0.60)	1.72(1.77)	2.23(2.28)
Weight(kg)	0.36(0.55)	0.8(1.17)	1.14(1.51)	2.15(2.83)	2.59(3.27)
Number of Poles	5				
Motor Insulation Class	F				
Protection Level	IP67 with oil seal (oil seal installed at shaft end)				
Operating Environment	Operating Temperature: -20°C to 40°C; Operating Humidity: Relative humidity less than 90% (non-condensing conditions).				

Note: Parameters in () are for motors with brake.

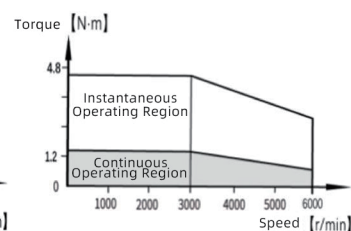
Torque Characteristics Chart:



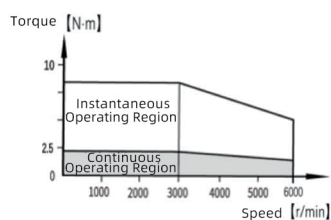
R3H040-S10B30C-xxxxx



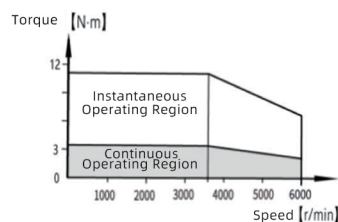
R3H060-S20B30C-xxxxx



R3H060-S40B30C-xxxxx



R3H080-S75B30C-xxxxx



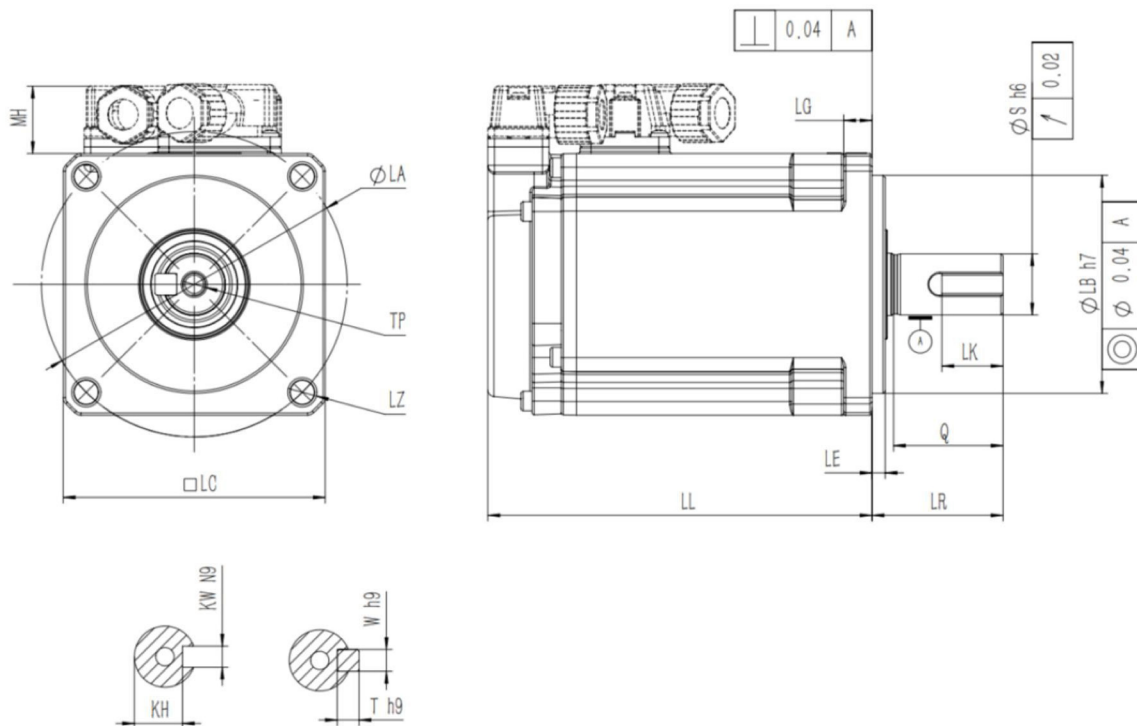
R3H080-S10C30C-xxxxx

■ Outline Dimensions Diagram:

Model	LC	LL	LR	LA	LZ	MH	LG	LE	Q
R3H040-S10B30C-xxxxx	40	73.4 (100.1)	25	46	4.3	16.8	5.5	3	20
R3H060-S20B30C-xxxxx	60	70.5 (99.7)	30	70	5.5	15.8	6.5	3	25.5
R3H060-S45B30C-xxxxx	60	88 (117.2)	30	70	5.5	15.8	6.5	3	25.5
R3H080-S75B30C-xxxxx	80	94.4 (128.6)	35	90	6.4	15.5	8	3	30.2
R3H080-S10C30C-xxxxx	80	107.9 (142.1)	35	90	6.4	15.5	8	3	30.2

Note: Parameters in () are for motors with brake.

Model	LB	S	TP	LK	KH	KW	W	T
R3H040-S10B30C-xxxxx	30	8	M3 Depth7	14	6.2	3	3	3
R3H060-S20B30C-xxxxx	50	14	M5 Depth10	14	10.5	5	5	5
R3H060-S45B30C-xxxxx	50	14	M5 Depth10	14	10.5	5	5	5
R3H080-S75B30C-xxxxx	70	19	M6 Depth12	22	15	6	6	6
R3H80-S10C30C-xxxxx	70	19	M6 Depth12	22	15	6	6	6



16、 Selection Comparison Table of R3 Series and RD3 Servo drive 220V /(100W-400W)

Motor Power	Inertia	Model	23bit		17bit		With Brake		Oil Seal	Flange	Shaft Diameter	Wiring Form	Suitable Servo Drive
			Single-Turn	Multi-Turn	Single-Turn	Multi-Turn	Yes	No					
100W	High Inertia	R3H040-S10B30C-MT1N0			●					40	Φ 8	Terminal type	RD3-PR001S2 RD3-ER001S2 RD3-CR001S2
		R3H040-S10B30C-NT1N0				●							
		R3H040-S10B30C-OT1N0	●					●					
		R3H040-S10B30C-PT1N0		●									
		R3H040-S10B30C-MT1B0			●								
		R3H040-S10B30C-NT1B0				●							
		R3H040-S10B30C-OT1B0	●				●						
200W	High Inertia	R3H060-S20B30C-MT1N1			●					60	Φ 14	Terminal type	RD3-PR1R6S2 RD3-ER1R6S2 RD3-CR1R6S2
		R3H060-S20B30C-NT1N1				●		●					
		R3H060-S20B30C-OT1N1	●										
		R3H060-S20B30C-PT1N1		●									
		R3H060-S20B30C-MT1B1			●								
		R3H060-S20B30C-NT1B1				●							
		R3H060-S20B30C-OT1B1	●				●						
400W	High Inertia	R3H060-S40B30C-MT1N1			●					60	Φ 14	Terminal type	RD3-PR2R8S2 RD3-ER2R8S2 RD3-CR2R8S2
		R3H060-S40B30C-NT1N1				●		●					
		R3H060-S40B30C-OT1N1	●										
		R3H060-S40B30C-PT1N1		●									
		R3H060-S40B30C-MT1B1			●								
		R3H060-S40B30C-NT1B1				●							
		R3H060-S40B30C-OT1B1	●				●						
R3H060-S40B30C-PT1B1		●											

17、 Selection Comparison Table of R3 Series and RD3 Servo drive 220V / (750W-1000W)

Motor Power	Inertia	Model	23bit		17bit		With Brake		Oil Seal	Flange	Shaft Diameter	Wiring Form	Suitable Servo Drive
			Single-Turn	Multi-Turn	Single-Turn	Multi-Turn	Yes	No					
750W	High Inertia	R3H080-S75B30C-MT1N1			●					80	Φ 19	Terminal type	RD3-PR5R5S2 RD3-ER5R5S2 RD3-CR5R5S2
		R3H080-S75B30C-NT1N1				●							
		R3H080-S75B30C-OT1N1	●					●					
		R3H080-S75B30C-PT1N1		●									
		R3H080-S75B30C-MT1B1			●								
		R3H080-S75B30C-NT1B1				●	●						
		R3H080-S75B30C-OT1B1	●										
R3H080-S75B30C-PT1B1		●											
1000W	High Inertia	R3H080-S10C30C-MT1N1			●					80	Φ 19	Terminal type	RD3-PR7R6S2 RD3-ER7R6S2 RD3-CR7R6S2
		R3H080-S10C30C-NT1N1				●							
		R3H080-S10C30C-OT1N1	●					●					
		R3H080-S10C30C-PT1N1		●									
		R3H080-S10C30C-MT1B1			●								
		R3H080-S10C30C-NT1B1				●	●						
		R3H080-S10C30C-OT1B1	●										
R3H080-S10C30C-PT1B1		●											

18. Adapter Cable Naming Rules for R2/R3 Series Servo Motors and RD3 Series

SC - M 1 1 7 7 - 3.0
 ① ② ③ ④ ⑤ ⑥ ⑦

①: Product Series	②: Cable Type	③: Servo side Terminal Type	④: Cable Current Specification / Encoder Type	⑤: Motor Side Terminal Type	⑥: Cable Flexibility	⑦: Cable Length
ServoCable	M: Non-brake power cable B: Brake power cable	1: UVW pin type, PE circular 2: All terminals are pin type 3: PE circular. All other terminals are U type	1: Cable current rating 1 (18AWG) 2: Cable current rating 2 (14AWG) 3: Cable current rating 3 (12AWG)	1: AMP 4P connector 2: 130 flange non-brake aviation plug (4-holes aviation plug YD28K4TSL) 3: 180 flange aviation plug (4-holes aviation plug YD32K4TSL) 4: 130 flange brake aviation plug (7-holes aviation plug YD28K7TSL) 5: Terminal connector (front outlet) 6: Terminal connector (rear outlet)	B: Standard cable H: High-flex cable S: High-flex with shielding	3.0: 3m 5.0: 5m 10.0: 10m
	E: Encoder cable	1: 1394-10P 2: 1394-6P	1: Single-turn absolute value 2: Multi-turn absolute value (with battery box) 3: Multi-turn absolute value (with outbattery box)	1: AMP 9P connector 2: 130/180 flange aviation plug (7-holes aviation plug YD28K7TSL) 3: Terminal connector (front outlet) 4: Terminal connector (rear outlet)	B: Standard cable H: High-flex cable	
	H: Brake cable	1: All terminals are pin type 2: All terminals are U type	1: Cable current rating 1 (18AWG) 2: Cable current rating 2 (14AWG) 3: Cable current rating 3 (12AWG)	1: AMP 2P connector 2: 180 flange brake aviation plug (4-holes aviation plug X516K4TM)	B: Standard cable H: High-flex cable	

19、Adapter Cable Model Specifications

Adapter motor	Wiring Type	Cable Type	Cable Flexibility	Cable Model	Cable Diagram
R2 Series Motors (40, 60, 80) Flange 220V/(50W-1kW)	AMP Connector	Single-turn Encoder Cable	Standard Cable	SC-E211B-□	
			High-flex Cable	SC-E211H-□	
		Multi-turn Encoder Cable	Standard Cable	SC-E221B-□	
			High-flex Cable	SC-E221H-□	
		Power Cable	Standard Cable	SC-M211B-□	
			High-flex Cable	SC-M211H-□	
		Brake Cable	Standard Cable	SC-H311B-□	
			High-flex Cable	SC-H311H-□	
R2 Series Motors (130) Flange 220V/(850W-1.8kW)	Aviation Plug Type Connector	Single-turn Encoder Cable	Standard Cable	SC-E214B-□	
			High-flex Cable	SC-E214H-□	
		Multi-turn Encoder Cable	Standard Cable	SC-E224B-□	
			High-flex Cable	SC-E224H-□	
		Power Cable	Standard Cable	SC-M222B-□	
			High-flex Cable	SC-M222H-□	
		Power cable with brake	Standard Cable	SC-B225B-□	
			High-flex Cable	SC-B225H-□	

□ Motor side: If □=3.0, Cable Length is 3 meters. Standard Specifications: 3.0m/5.0m/10.0m;

Adapter motor	Wiring Type	Cable Type	Cable Flexibility	Cable Model	Cable Diagram	
R3 Series Motors (40, 60, 80) Flange	Front outlet Terminal type	Single-turn Encoder Cable	Standard Cable	SC-E217B-□		
			High-flex Cable	SC-E217H-□		
		Multi-turn Encoder Cable	Standard Cable	SC-E227B-□		
			High-flex Cable	SC-E227H-□		
		Power Cable	Standard Cable	SC-M217B-□		
			High-flex Cable	SC-M217H-□		
	Power cable with brake	Standard Cable	SC-B217B-□			
		High-flex Cable	SC-B217H-□			
	220V/(100W-1kW)	Rear outlet Terminal type	Single-turn Encoder Cable	Standard Cable	SC-E218B-□	
				High-flex Cable	SC-E218H-□	
			Multi-turn Encoder Cable	Standard Cable	SC-E228B-□	
				High-flex Cable	SC-E228H-□	
Power Cable			Standard Cable	SC-M218B-□		
			High-flex Cable	SC-M218H-□		
Power cable with brake	Standard Cable	SC-B218B-□				
	High-flex Cable	SC-B218H-□				

□ Motor side: If □=3.0, Cable Length is 3meters. Standard Specifications: 3.0m/5.0m/10.0m;

Other accessories

Battery box	Model	ST-B1
EtherCAT Cable	Cable Type	SC-C2-□ □ Motor side: If □=3.0, Cable Length is 0.3meters. Standard Specifications: 0.3m/0.5m/1.0m/1.5m/2.0m;

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