Serve our customers wholeheartedly

Coolmay Technology has multiple branches and service outlets around the world.
Professional service team provides customers with high-quality services.
24 hours online to provide you with services.

KOR
OTOMASYON

Coolmay®
Automation Expert

Coolmay motion control products

Open a new concept of automation control

V22.71

www.coolmayplc.com

Factory


Office

BRAND STORY

The predecessor of Coolmay Technology is Coolmay apparel, which initially started with the production of lace machines. This kind of device is low value but it is difficult for users to make after-sales budgets. In addition, they lacked professional maintenance technology, which made after-sales maintenance difficult. If any problem, they had to come to the manufacturer for help, which caused cost increasing for both parties. How great it would be if after-sales problems could be solved without door-to-door service!

Coolmay decided to develop one controller to solve this problem, and created the first HMI/PLC all-in-one in China in 2006. The all-in-one integrates the functions of PLC and HMI, including the highly integration of logic control, analog input and output, high speed counting, high speed pulse, communication, etc.. It supports arc interpolation and linear Interpolation. This device made after-sales maintenance very simple and greatly reduced the maintenance cost of the entire equipment. Users do not need to have professional technology but just simply replace the all-in-one if any problem.

Soon after entering the market, the actual effects of the product emerged. After using the all-in-one machine, the after-sales problem that a certain textile equipment manufacturer could not solve for many years was solved instantly, which reduced 90% after-sale cost.

This made Coolmay dertermine to engage in the all-in-one industry more firm. It is this force that drives Coolmay to embark on a new path of automation control concept.

CONTENTS

Servo PLC drive all-in-one machine

Coolmay servo PLC driven all-in-one machine Fast, accurate and wide range

CoolMay servo PLC integrated machine is a digital servo driver based on DSP, high performance, high precision, multi-function, network type, servo PLC integrated machine also known as "intelligent servo", "programmable servo driver", "programmable servo amplifier", set servo drive technology, PLC technology, motion control technology in one. Its internal ladder diagram programming, complete PLC logic, data operations, through the unique movement control instructions, to achieve multi-axis motor synchronous control function. Intelligent servo is a part of servo system, mainly used in high-end equipment, intelligent machine core control components. Intelligent servo can be widely used in textile machinery, woodworking machinery and other fields.

- Military grade 32-bit chip is adopted, in which PLC has nanosecond running speed and strong anti-interference ability, and the input and output are isolated by optocoupler.

Naming of servo driver

MX3G - C40 - 32MT

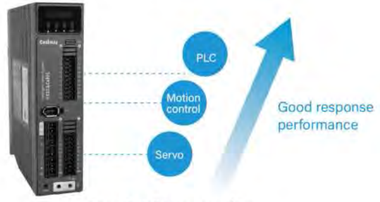
① ② ③

No.	Implication
①	Coolmay Technology MX3G series servo PLC integrated machine
②	The specific power of the servo below 1KW, C40:50W~400W; C75:400W~750W
③	PLC switch, 16 DI/16 DO, MOS tube output

Product features

Good dynamic response performance

- PLC, motion control and servo functions are integrated, servo three loop data and controller data are shared in real time, there is no communication delay, and the dynamic response performance is good, which can solve the problem of high-speed and high-precision motion control.



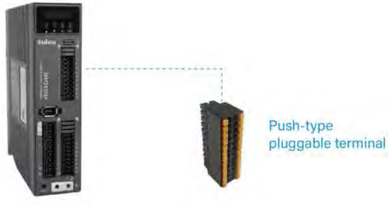
Servo PLCall-in-one machine

USB remote communication (under development)

- It can support USB port remote communication, and the PC terminal directly controls the operation of the servo drive

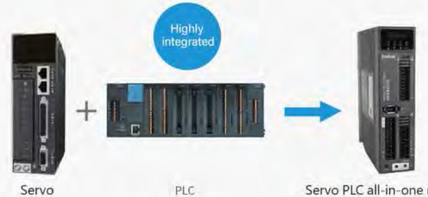
Simple wiring, reducing wiring costs

- It adopts the structure design of press-type pluggable terminal, simple wiring
- Improve wiring complex problem, reduce manpower cost and wiring time



Highly integrated, saving user costs

- Servo PLC all-in-one machine integrates PLC, motion control, internal control and logic control functions
- There is no need for external I/O modules, which saves the shell, reduces wiring, and saves the use cost



Function introduction

Smaller size, saving installation space

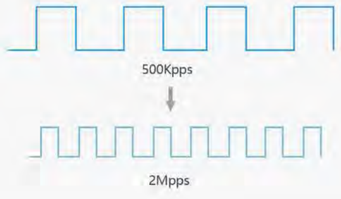
- Size 20% smaller than most servos
- Save installation space

Built in I/O terminal

- With pulse input and output; Support positioning, without saving PLC pulse output points
- Coolmay servo +plc fusion, PLC not only controls this servo, but also reserves pulse points to control other servo

High speed pulse input

- Supports 2Mpps long line reception
- MX3G series drivers support 500Kpps

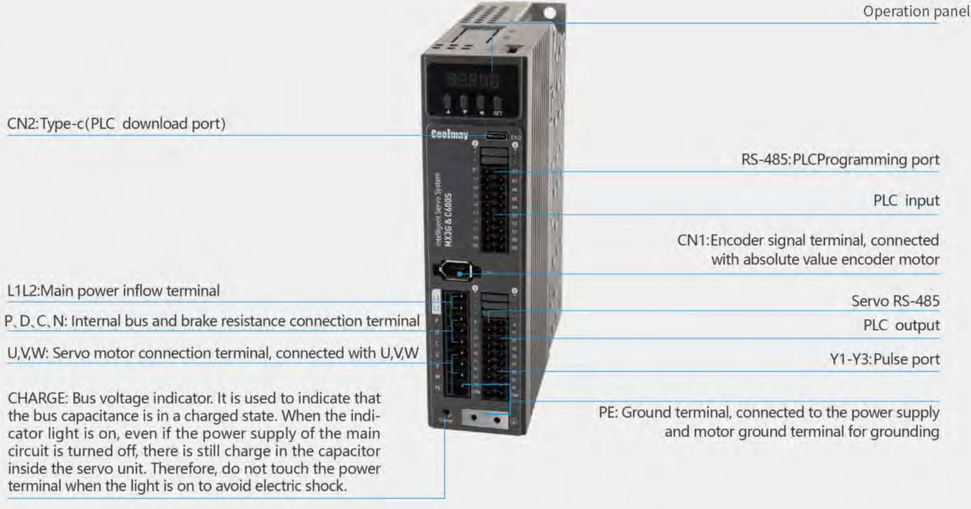


Built-in professional motion control commands

- Such as electronic gears, interpolation, tabulation, etc., can realize the professional algorithm required by the process by themselves

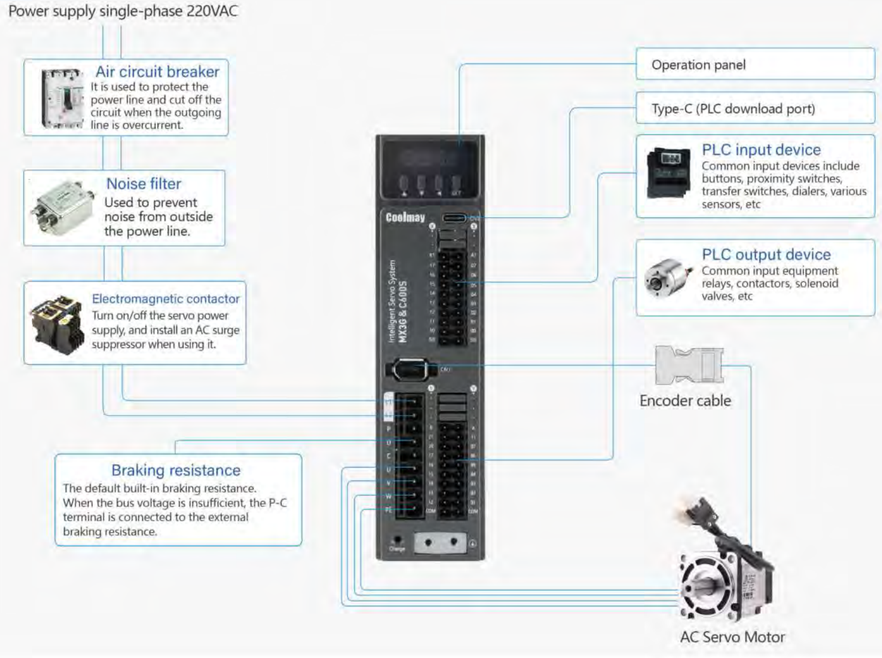
Specification of servo PLC integrated machine

General model: MX3G-C40, MX3G-C75



Wiring diagram of servo PLC integrated machine system

Wiring diagram



Specification and size

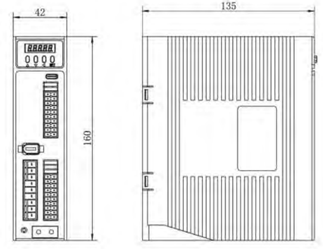
Parameters of servo integrated machine

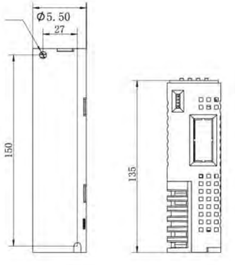
Servo drive series	MX3G-C40/C75Series servo PLC integrated machine
Input power	Main circuit power supply: single phase AC220V, voltage range 200v~240v, 50/60hz Control loop power supply: provided by internal conversion, without external power supply
PLC logic supply voltage	DC24V
Drive motor	Linear (DDL), torque (DDR), voice coil, brush, brushless servo motor
Control model	Motion sequence, point-to-point, electronic gear, position, speed, torque control mode
Encoder feedback	Single turn absolute value 17 bit encoder
Operation mode	Independent programmable control (PLC), external control (step pulse, PWM, encoder a/b), or distributed network control (modbus/rs communication)
Communication type	RS485(Support Modbus protocol , RS protocol)
Input / output signal	16 photoelectric isolated inputs 16 photoelectric isolated outputs, of which three high-speed pulses are programmable and general-purpose
Rated power (kw)	0.4KW/0.75KW
Rated current (A)	2.5A/3.0A
Adaptive motor rating current range (A)	2.0~3.0A/3.0~4.0A
Program capacity	16K/step
High speed processing	I/O refresh command, input interrupt 6 points, timer interrupt 3 points
Data register	D0~D3999,4000 points in total
Operating ambient temperature	-10~55 ℃ non freezing
Operating ambient humidity	10 ~99[RH%] non condensing
Storage temperature	-20℃~60℃(Maximum temperature guarantee: 80 ℃ for 72 hours)
Storage humidity	10 ~99[RH%] non condensing
Height	Normal use below 1000m altitude, derated use above 1000m altitude
Vibration / shock	4.9 (m/s2) /19.6 (m/s2)
Occasion	Indoor, no dust, no corrosive gas, no direct sunlight
Vibration / shock	4.9 (m/s2) /19.6 (m/s2)
Comprehensive protection design	Overcurrent, short circuit, grounding, overvoltage, undervoltage, I2t, control error

Size chart

单位:(mm)

MX3G-C40, MX3G-C75





Introduction to servo drive

servo drive

Servo drives are an important part of modern motion control and are widely used in automation equipment such as industrial robots and CNC machining centers. In particular, the servo drive used to control the AC permanent magnet synchronous motor has become a research hotspot at home and abroad. The current, speed, and position 3 closed-loop control algorithms based on vector control are widely used in the design of current AC servo drives. Whether the speed closed-loop design in this algorithm is reasonable or not plays a key role in the performance of the entire servo control system, especially the speed control performance.

C600S series servo drives have the following features:

- Support pulse command input and RS485 command input.
- Adopt high-speed DSP chip, high servo response, higher precision.
- Rich multi-function ports, support common cathode and common anode connection.
- Support 17-bit single-turn absolute encoder.
- With a new generation of servo motors, it can cover the power range of 50W~3000W.
- Pulse module 24V independent connection, and built-in 24V power supply, effectively reducing signal interference.

Naming rules of servo drive

C600 ① S ② - 40 ③

No.	Implication
①	CookImay Technology C600 series servo drivers
②	S:Simple servo, suitable for 17 bit absolute encoder
③	Specific power of servo power below 1KW, 40:50W~400W; 75:400W~750W

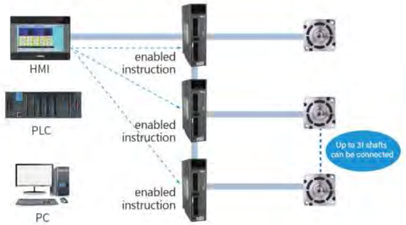
Powerful performance

Excellent performance of adaptive motor

- Intelligently adapt the absolute value motor to optimize the working performance of the motor

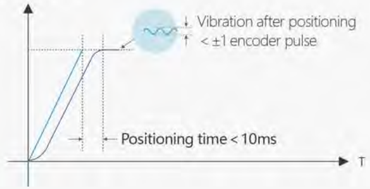
Support multiple communication protocols

- Support pulse command
- Support RS-485 protocol



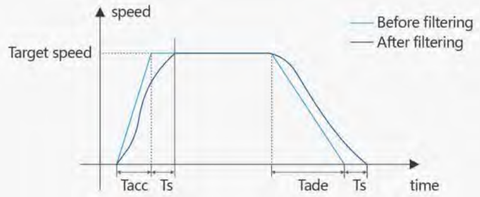
High performance, fast response

- The rigid gain adjustment mode of the servo system is self-tuning mode, which eliminates the complicated adjustment process and greatly saves debugging time.
- Through further gain adjustment, the positioning completion time can be shortened to within 0~10ms.



S-type acceleration and deceleration curve

- The S-type acceleration and deceleration curve can effectively overcome the mechanical vibration caused by the sudden change of speed, making the operation softer and more stable.



*Note: only speed mode is effective

Function introduction

The powerful internal motion control function can complete the control modes of position, speed, torque and homing. It supports I/O control and standard ModbusRTU protocol. It can replace PLC or pulse module in some occasions to reduce the application cost.

Easy connection with touch screen (HMI)

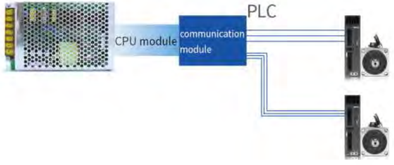
- Simplified control system.
- Save wiring.
- Parameter setting and status monitoring.

Direct control via switch

- Minimalist motion control scheme.
- Ultra low cost design.
- Cyclic control of point position motion.

Controlled by I/O module of PLC

- Requires PLC pulse output module.
- Reduce the user's system design cost.
- Simpler and easier control.



Rich interfaces

- Rich multi-function ports, support common cathode and common anode connection, and the pulse interface can be expanded into a programmable input port in the internal position mode.
- Simple control and convenient programming.

Strong environmental adaptability

The high protection level and high anti vibration ability of the motor ensure the environmental adaptability of servo products

- Standard oil seal design, up to IP67 (except the shaft extension end)
- It meets the national safety standards, and the motor reaches a higher protection level, which is safe and reliable to use

Encoder has high vibration resistance and high temperature resistance

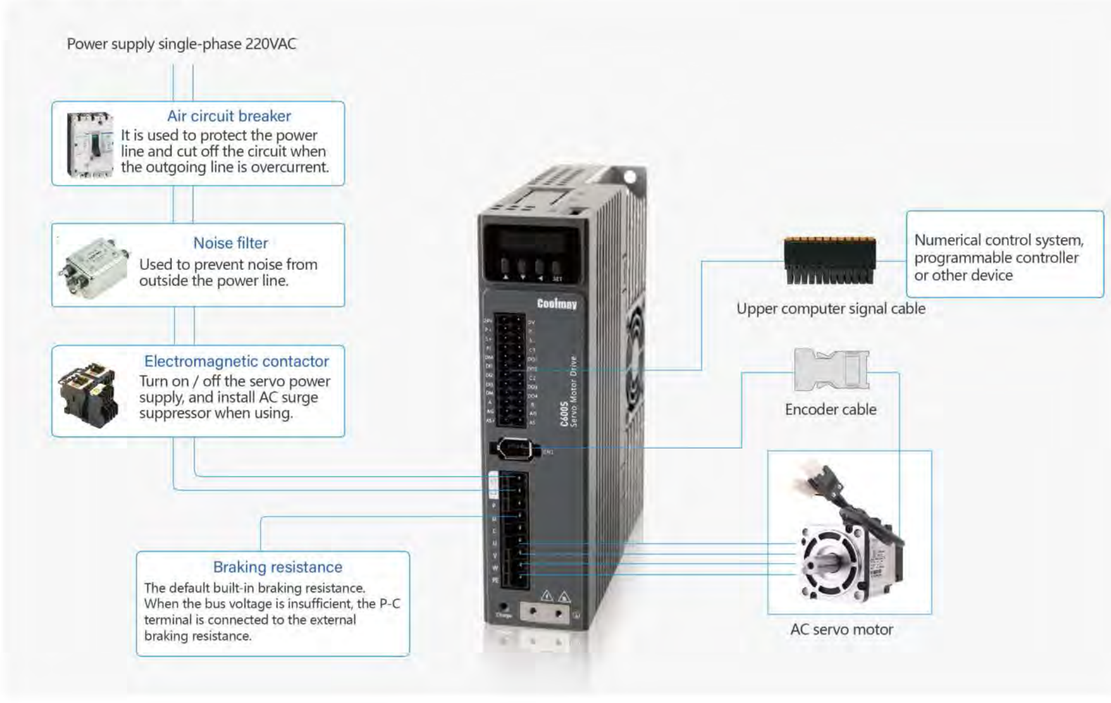
- The anti vibration level of encoder reaches 10G. Used in high vibration occasions
- High temperature resistance up to 120 ℃

Custom made products for special site

- The specially customized three proofing paint thickened driver is suitable for field use with high corrosive gases

Wiring diagram of servo drive system

General model: C600S-40、C600S-75



Specification and size

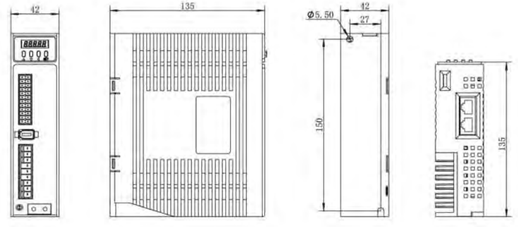
Servo driver parameters

Model	C600S-40	C600S-75
Output power	0.05KW~0.4KW	0.75KW~1KW
Main computer input power	Single-phase AC220V-15%~+10% 50/60Hz	
Control mode	0: position control mode; 1: Speed control mode; 2: Torque control mode; 3: Position and speed mixed control mode; 4: Position torque hybrid control mode; 5: Speed torque hybrid control mode	
Protection function	Overspeed / overvoltage and undervoltage of main power supply / overcurrent / overload / abnormal encoder / abnormal control power supply / position out of tolerance	
Monitoring function	Speed / current position / command pulse accumulation / position deviation / motor torque / motor current / operation status, etc	
Output level	Normally open dry contact output, COM can be connected to positive or negative	
Control input	1: Servo enable 2: alarm clear 3: CCW drive inhibit 4: CW drive inhibit 5: deviation counter reset 6: command pulse inhibit 7: CCW torque limit 8: CW torque limit	
Control output	Servo ready / servo alarm / positioning complete / mechanical braking	
Energy consumption braking	Support built-in and external	
Applicable load	Less than 3 times of motor inertia	
Display operation	5-digit LED digital tube display, 4 operation buttons	
Communication mode	RS485	
Position control	Input mode	0: pulse + direction
		1: CCW/CW pulse
		2: A/B two-phase quadrature pulse
		3: Internal position control
	Input electronic gear ratio	Gear ratio numerator: 1-32767
		Gear ratio denominator: 1-32767

Drive size

C600S-40/C600S-75 (unit: mm)

150*135*42 mm



High performance servo motor

Servomotor refers to the engine that controls the operation of mechanical components in the servo system. It is an indirect speed change device of auxiliary motor. The servo motor can control the speed, and the position accuracy is very accurate. It can convert the voltage signal into torque and speed to drive the control object. The rotor speed of the servo motor is controlled by the input signal and can respond quickly. In the automatic control system, it is used as the actuator, and has the characteristics of small electromechanical time constant and high linearity. It can convert the received electrical signal into the angular displacement or angular speed output on the motor shaft. Its main feature is that when the signal voltage is zero, there is no rotation phenomenon, and the speed decreases uniformly with the increase of torque.

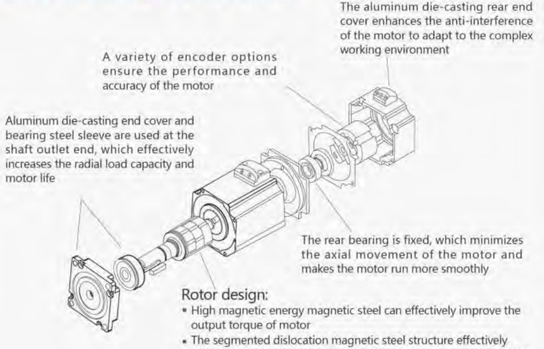
Naming rules for servo motors

CN7J- 60 - 04 - 30 - A - 3K - UAA

① ② ③ ④ ⑤ ⑥ ⑦

No.	Implication
①	Motor type, CN7J series
②	Frame: 60(mm); 80(mm)
③	Power, 04 for 400W, 08 for 750W, and so on
④	Maximum speed(× 100RPM): 30 indicates the rated speed 3000rpm
⑤	Voltage level, A stands for 220V
⑥	Encoder feedback, 3K represents the absolute value of 17bit magnetic single-turn
⑦	Output shaft type, UAA represents keyed and threaded hole, VBA represents keyed threaded hole and brake

Basic structure of servo motor



Rotor design:

- High magnetic energy magnetic steel can effectively improve the output torque of motor
- The segmented dislocation magnetic steel structure effectively reduces the cogging torque, makes the motor run smoothly, and is easy to speed control and precise positioning
- The rotor balance block makes the motor run more smoothly at high speed

Powerful performance

Appearance structure

- A variety of appearance structures, black frosted, silver frosted body, more texture, effectively reduce the sensitive temperature of the motor

Lightweight motor

- The motor models are diverse, and the minimum height of the fuselage is 98mm

Encoder resolution

- Full series standard 17 bit encoder
- The anti oil and vibration strength of magnetic encoder is enhanced
- The servo motor can control the speed, and the position accuracy is very accurate

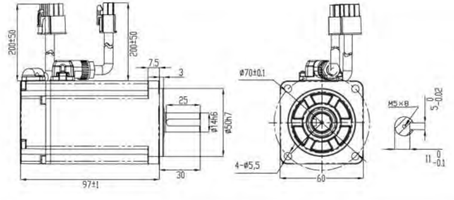
Flexible configuration

- The motor provides low inertia, medium brightness, high brightness and other motors
- Optional motor 3/5 meter wire is available, and independent wiring accessories are provided according to customer needs

Motor Specifications Parameters Dimensions

60 series servo motor

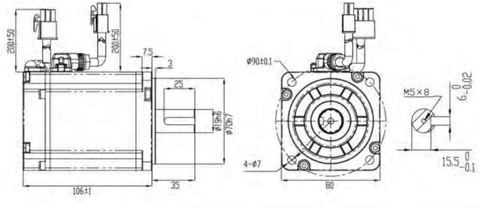
Model	CN7J-060430A3KUAA	CN7J-060430A3KVBA
Rated voltage (V/AC)	220	
Rated power (W)	400	
Rated torque (N.m)	1.27	
Peak torque (N.m)	3.82	
Rated current (Ams)	2.8±10%	
Peak current (Ams)	8.4±10%	
Rated speed (RPM)	3000	
Maximum speed (RPM)	5000	
Torque coefficient (N.m)	0.47±10%	
Back potential constant (V/KRPM)	28±10%	
Line -- line resistance (Ω)	2.9±10%	
Line -- line inductance (mH)	5±10%	
Moment of inertia (kg.m)	0.65±10%	
Polar logarithm (pair)	5	
Feedback element (absolute value)	Single lap 17Bit	



Motor model	Body length L1	
CN7J-060430A3KUAA	98	400W 220V Magnetic absolute 17bit encoder
CN7J-060430A3KVBA	136	400W 220V Magnetic absolute 17bit encoder with brake

80 series servo motor

Model	CN7J-080830A1KUAA	CN7J-080830A1KVBA
Rated voltage (V/AC)	220	
Rated power (W)	750	
Rated torque (N.m)	2.4	
Peak torque (N.m)	7.2	
Rated current (Ams)	4.8±10%	
Peak current (Ams)	14.4±10%	
Rated speed (RPM)	3000	
Maximum speed (RPM)	5000	
Torque coefficient (N.m)	0.58±10%	
Back potential constant V/KRPM)	32±10%	
Line -- line resistance (Ω)	1.5±10%	
Line -- line inductance (MH)	5.2±20%	
Moment of inertia (kg.m)	1.74±10%	
Polar logarithm (pair)	5	
Feedback element (absolute value)	Single lap17Bit	



Motor model	Body length L1	
CN7J-080830A3KUAA	120	750W 220V Magnetic absolute 17bit encoder
CN7J-080830A3KVBA	160	750W 220V Magnetic absolute 17bit encoder with brake

Adaptation table

Servo driver and servo motor adaptation table

	Servo all-in-one		Servo	
	MX3G-C40	MX3G-C75	C600S-40	C600S-75
Driver				
	Servo motor		Servo motor	
model	CN7J-060430A3KUAA CN7J-060430A3KVBA	CN7J-080830A3KUAA CN7J-080830A3KVBA	CN7J-060430A3KUAA CN7J-060430A3KVBA	CN7J-080830A3KUAA CN7J-080830A3KVBA
servo motor