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Kinco® Automation

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K1E24-2605

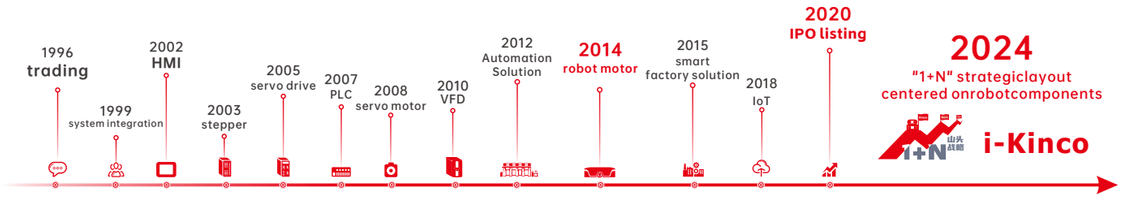
Kinco

Motion Control
Servo System

Servo System Catalog

- FD5P PRO
- SMK Servo Motor

About us



Kinco was founded in 1996, and successfully listed on the Shanghai Stock Exchange in 2020 (abbreviated name: Kinco share, stock code 688160), which is a high-tech, specialized and sophisticated enterprise that attaches great importance to independent research and development and innovation, mainly engaged in the research and development, production, sales and related technical services of industrial automation and robot core components and digital factory hardware and software.Leading Chinese supplier of motion control and human-machine interaction components for robotics and intelligent devices.

After years of continuous research and development and innovation, Kinco has established a complete product line with independent intellectual property rights, covering a series of products from machine iot to human-machine interaction, control, drive and execution, which are widely used in robots, medical equipment, logistics equipment, packaging equipment, food equipment, clothing equipment, environmental protection equipment, etc. New energy equipment, rail transit equipment and other automation equipment industry.

Based on the comprehensive industrial automation and digital technology platform, the company has in-depth application scenarios in the robot industry, providing display, control, drive and other multi-dimensional solutions for industrial mobile robots, collaborative robots, industrial robots, pan-service robots, and bionic robots. Through the insight of the industry pain points, deep links with robot customers, combined with the advantages of product research and development, the company continues to innovate, and launches industry-leading low-voltage servo products for mobile robots, integrated servo wheel, frameless torque motor for collaborative robots, robot human-machine interfaces, robot controllers and other products. The company has formed a relatively complete robot core parts capability, and after nearly 10 years of hard work in the robot industry, it has become a leading enterprise in the field of mobile robot low-voltage servo, and has a high brand influence in the industry.

Kinco has four research and development centers in Shanghai, Shenzhen, Changzhou and Chengdu, and two manufacturing bases in Shenzhen and Changzhou, a total of 10+ domestic marketing centers, 100+ domestic service providers, 40+ global partners, and products are exported to 70+ countries overseas. In terms of after-sales service, Kinco has established after-sales service centers in Shanghai, Shenzhen and Changzhou.

Four R&D centers and two manufacturing bases

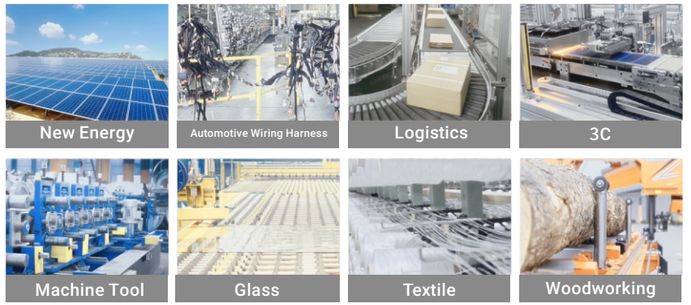
Shanghai | Shenzhen | Changzhou | Chengdu | Shenzhen Manufacturing Center HMI, PLC, and drive systems | Changzhou Manufacturing Base Motor

Kinco High Voltage Servo System

- FD5P PRO series drive is a high-voltage servo product by Kinco that can easily face complex environment, facilitate maintenance, reduce cost and increase efficiency according to the pain points faced by equipment in various industries.
- FD5P PRO support EtherCAT,Modbus, Profinet and other communication protocols, which can match magnetoelectric, photoelectric and other different types of encoder motor. The product configuration is flexible.
- Widely used in logistics,3C electronics, printing and packaging, textile machinery, woodworking machinery, lithium batteries, new energy and other industries.

PROFINET EtherCAT Modbus

Industry application



Contents

FD5P PRO High-performance AC Servo System

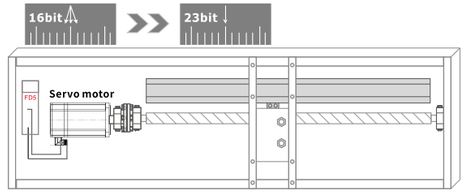
Drive intelligent equipmentto evolve with "newness"

PK series

NEW

- ☑ Suitable for high protection scenarios, motor protection level up to IP65;
- ☑ Vibration suppression, smooth operation, safe and reliable;
- ☑ Reliable quality, automatic production;
- ☑ Power planning covers 50W-7.5kW;
- ☑ High responsiveness, speed loop sampling frequency up to 16KHz.

FD5P PRO Feature

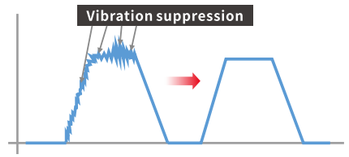


1. Equipped with a brand new platform

Equipped with a new platform, the main frequency of the new chip has increased by 2.4 times. The Current loop can reach 16KHz, the speed loop can reach 8KHz, the position loop can reach 4KHz, and the speed loop response bandwidth can reach 3.5KHz.

2. Accurate positioning

It can be paired with a 23 bit encoder to improve the positioning accuracy and response speed of the entire servo system, effectively improving production yield and efficiency. Among them, the highest positioning accuracy can reach ≤ ± 5 .

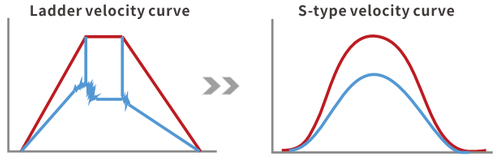


3. Vibration suppression, stable operation

The driver reduces the speed oscillation generated by the motor during operation by using FFT multi-point notch filters (which can be used simultaneously with 4), effectively suppressing the large amplitude vibration generated by equipment operation. It is particularly suitable for high-speed movement, workpiece transportation, precise assembly, cantilever handling, and other occasions, helping the equipment operate quickly and smoothly.

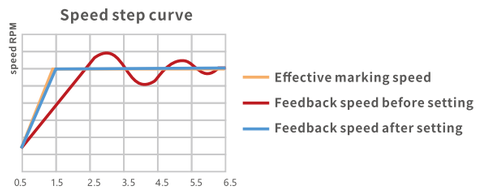
4. Smooth operation, safe and reliable

The drive supports one click activation of S-curve control function without command delay. It can be applied to the positioning control of equipment with large inertia or flexible equipment, ensuring smooth and safe operation of the equipment during sudden acceleration and deceleration, effectively overcoming mechanical vibration caused by sudden speed changes, and reducing impact force.



5. The coverage is larger and wider, supporting multiple bus communication

Based on Kinco's previous generation AC servo driver platform, a new upgrade has been carried out, with a power range of 50W-7.5kW, which is fully compatible and can be replaced. The drive supports EtherCAT,Modbus, Profinet bus control.



6. EASY Tune optimization and upgrading+online Self-tuning

The servo system has a built-in online Self-tuning module. It only takes a few simple steps to set the mechanical stiffness, so that the load change under acceleration and deceleration can be automatically calculated during the operation of the equipment, and the PID parameters can be dynamically adjusted in real time according to the feedback load, the mechanical stiffness set and the application type, without any complicated parameter setting.

SMK Feature

1.New electromagnetic design:

Brand-new electromagnetic solution, with small slot torque and low torque pulsation,which is conducive to reducing the vibration during the operation of the motor and making the torque output more smooth.

2.New structure and short fuselage:

The redesign of the fuselage structure shortens the length of the fuselage, which can save more installation space and reduce the size of the equipment for customers' equipment.

3.Insulation class F:

The motor in the industry is at the highest insulation level, which can maintain high reliability and stability in high temperature extreme environment.

4.Energy efficiency class: Level 1

Drive and motor/cable naming rules

Dirve: FD5P - L A - L 2R9
① ② ③ ④ ⑤

①-Series Name	FD5P:FD5P series
②-Control mode	L:RS232, RS485, Pulse E:RS232, EtherCAT, Pulse P:RS232, Profinet, Pulse
③-Hardware series	A:Standard hardware
④-Supply voltage	L:AC220V H:AC380V
⑤-Drive current	2R9:2.9A 4R0:4A 5R4:5.4A 5R5:5.5A 7R6:7.6A 8R6:8.6A 010:10A 013:13A 017:17A 021:21A 026:26A

Motor: SMK 60 D - 0040 - 30 Q A K - 5 L S R
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

①-Series Name	SMK: SMK series
②-Flange	40 : 40×40 (mm) 60 : 60×60(mm) 80 : 80×80(mm) 130 : 130×130(mm) 180 : 180×180(mm)
③-Inertia type	S: Small inertia D: Medium inertia G: Large inertia
④-Rated power	0005: 10x5(W) 0010:10x10(W) 0040:10x40(W) ..... 0750:10x750(W)
⑤-Rated speed	15:15x100(rpm) 30:30x100(rpm)
⑥-Encoder type	Q:17 bit multi-turn magnetic absolute value encoder Y:23 bit multi-turn communication optical absolute value encoder
⑦-Brake	A:Without brake B:With brake
⑧-Output shaft style	K:With key
⑨-Number of polar pairs	5:5-pole pair
⑩- Supply voltage	L:AC220V H: AC380V
⑪- Motor version number	S:S version
⑫- Motor Outlet Type	R:Standard socket

■ Drive and motor/cable naming rules

Power cable: M - A - 6A - K A0 - LL - BF
① ② ③ ④ ⑤ ⑥ ⑦

①-Cable function type	M：Motor power cable
②-Drive end connector	A：Needle type cold press terminal Y：Fork shaped cold press head
③-Current	6A：Rated current 6A 12A：Rated current 12A 20A：Rated current 20A 30A：Rated current 30A
④ -Motor platform	K：SMK
⑤-Motor end connector	A0:Common body motor front outgoing A1: Common body motor rear outgoing R0:130 Military plug R1:180 Military plug
⑥-Cable length(m)	3:3m 5:5m 10:10m
⑦-Cable property	F：High flexibility cable FS:High flexibility shielded cable BF:High flexible cable with brake BFS:High flexibility shielded cable with brake

Drive and motor/cable naming rules

Encoder cable: E-D-QY-K A0-LL-F

①-Cable function type	E:Motor encoder cable	⑤-Motor end connector	A0:Common body motor front outgoing A1:Common body motor rear outgoing R:Military plug
②-Driver end encoder connector type	D:1394 6-core connector	⑥-Cable length(m)	3:3m 5:5m 10:10m
③-Encoder type	QY:Multiturn communication encoder	⑦-Cable property	F:High flexibility cable
④-Motor platform	K:SMK		

Brake extension cable: BRA-EXT-LL

①-Cable function type	BRA:Motor brake extension cable	③-Cable length(m)	0.5:0.5m 3:3m 5:5m
②-Drive end connector	EXT:Extension connector inside the cabinet		

FD5P Pro Servo drive technical parameters table

Product diagram						
						
Model Parameter		FD5P PRO系列				
		FD5P-▲A-L2R9	FD5P-▲A-L4R0	FD5P-▲A-L5R5	FD5P-▲A-L7R6	FD5P-▲A-L010	FD5P-▲A-L013
Power supply	Power Supply	1PH 200-240VAC±10% 50/60Hz±3Hz			1PH/3PH,200-240VAC±10% 50/60Hz±3Hz	3PH 200-240VAC±10% 50/60Hz±3HZ	3PH 200-240VAC±10% 50/60Hz±3HZ
	Logic power supply	Null			1PH 200VAC-240VAC±10% 50/60Hz±3Hz	1PH 200VAC-240VAC±10% 50/60Hz±3Hz	1PH 200VAC-240VAC±10% 50/60Hz±3Hz
Current	Max continuous output current(Arms)	2.9A	4A	5.5 A	7.6A	10A	13A
	Peak current(Arms)	10.61A	12.73A	16.97A	22.98A	28.29A	32.53A
Rated output power(W)		400	750	1000	1500	2000	2500
Feedback Signal		Communication type encoder					
Energy consumption brake		No built-in brake resistance, limited power 20W	No built-in brake resistance, limited power 20W	No built-in brake resistance, limited power 20W	Built-in brake resistance 50Ω, limited power 60W	Built-in brake resistance 50Ω, limited power 80W	Built-in brake resistance 50Ω, limited power 80W
Energy consumption braking voltage absorption point		DC380V±5V	DC380V±5V	DC380V±5V	DC380V±5V	DC380V±5V	DC380V±5V
Overvoltage alarm voltage		DC400V±5V	DC400V±5V	DC400V±5V	DC400V±5V	DC400V±5V	DC400V±5V
Undervoltage alarm voltage		DC200V±5V	DC200V±5V	DC200V±5V	DC200V±5V	DC200V±5V	DC200V±5V
Cooling method		Natural cooling	Natural cooling	Forced air cooling	Forced air cooling	Forced air cooling	Forced air cooling
Weight(kg)		0.881	1.5	1.5	1.4	2.1	2.1
Location Control Mode	Command control mode	External pulse input control;Control of 8-segment position using DIN signal;Communication setting internal object parameter control					
	Command smoothing mode	Low-pass filtering (set by internal parameters), S-curve smoothing filtering (set by internal parameters in 1 mode)					
	Pulse command mode	Pulse+direction, CCW+CW, A-phase+B-phase (12V~30V ,Max 500KHz)					
	Maximum input pulse frequency	Differential transmission mode: up to 4MHz, open collector transmission mode: 500KHz					
	Electronic gear ratios	Setting range Gear factor:-32768～32767, Gear divider:1～32767, 1/50≤|Gear factor/Gear divider|≤50					
	Torque limit	Internal parameter setting					
	Feedforward gain	0~100.0% (Internal parameter setting)					
	Position loop sampling frequency	8KHz					
Speed Control Mode	Command control mode	8-segment speed control using DIN signals;Communication settings internal object parameter control					
	Command smoothing mode	Low-pass filtering (Internal parameter setting)					
	Speed limit	Internal parameter setting					
	Torque limit	Internal parameter setting					
	Speed loop sampling frequency	16KHz					
Torque Control Mode	Command control mode	Communication setting internal object parameter control					
	Command smoothing mode	Low-pass filtering (Internal parameter setting)					
	Speed limit	Internal parameter setting					
	Current loop sampling frequency	16KHz					
Digital Input	Input specification	7 digital inputs, through the connection of COM1 terminal, it can be valid at high level (12.5~30V) or valid at low level (0~5V). Note: DI1-DI5 are ordinary DI (max input frequency: 1KHz), DI6-DI7 are fast DI (max input frequency: 10KHz)					
	Input function	The following functions can be defined according to your needs: drive enable, drive error reset, drive working mode control, speed loop proportional control, positive limit, negative limit, origin signal, command reverse, internal speed segment control, internal position segment control, emergency stop, pause, start to find the origin, command activation, wheel ratio switching, gain switching, position table function, clear pulse function, etc					
Digital Output	Output specification	5-channel digital output, maximum voltage DC30V, OUT1 and OUT2 differential output, maximum output current 100mA, OUT3~OUT5 single-ended output, maximum output current 20mA, control motor OUT2 brake output through relay.					
	Output function	The following functions can be defined according to your needs:drive ready, drive error, motor position arrives, motor zero speed, motor holding brake, motor speed arrives, index Z signal appears, speed reaches limit, torque reaches setting, motor lock Axis, motor limit, origin found, multi-segment position, etc.					
Encoder signal output function		Output 5V motor A, B, Z signals, frequency division output range 0 ~ 65536; used for multi-axis synchronization, maximum output frequency 5MHz					
Protection function		Over-voltage protection, under-voltage protection, motor overheating (I^2T) protection, short-circuit protection, drive overheating protection, etc.					
RS232		RS232 (connection with PC: RS-232 serial port to Mini_USB)					
RS485		Maximum support 115.2KHz baud rate, can use Modbus RTU protocol to communicate with the controller					
EtherCAT		Support CoE (CiA402 protocol) and CSP/CSV/PP/PV/PT/HM mode, communication rate 100M					
Profinet		Support message 1, message 3, and message 111, process object, aperiodic data read and write					
Operation Environment	Operation temperature	0～40°C					
	Storage temperature	-10°C～+70°C					
	Humidity (no condensation)	5～95%					
	Protection level	IP20; Note: Not including terminal blocks (IP00)					
	Installation site	Dust-free, dry, lockable (e.g. electrical cabinets)					
	Installation method	Vertical installation					
	Installation altitude	The rated working altitude is less than 1000 meters above sea level. When the working altitude is higher than 1000 meters, it is necessary to reduce the rated value by 1.5% for every 100 meters of elevation. The maximum working altitude is 2000 meters above sea level.					
	Atmosphere pressure	86kpa～106kpa					

Note 1:▲= L:RS232,RS485,Pulse E:RS232,EtherCAT,Pulse P:RS232,Profinet,Pulse
Note 2: FD5P-PA series driver has only 3 digital outputs: OUT1, OUT2, OUT3.

FD5P Pro Servo drive technical parameters table

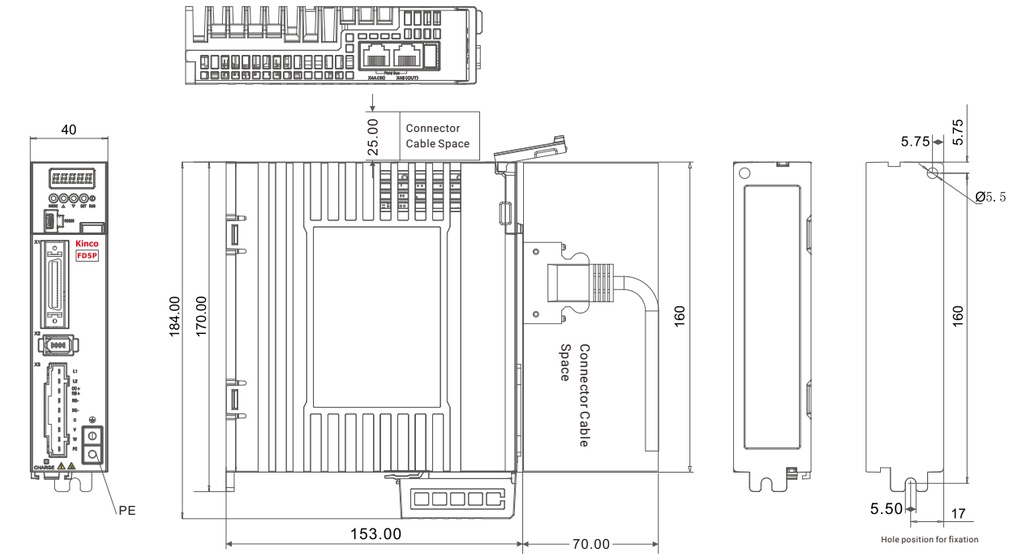
Product diagram							
Model Parameter		FD5P PRO系列					
		FD5P-▲A-H5R4	FD5P-▲A-H8R6	FD5P-▲A-H013	FD5P-▲A-H017	FD5P-▲A-H021	FD5P-▲A-H026
Power supply	Power Supply	3PH 380V-415VAC±10% 50/60Hz±3Hz	3PH 380V-415VAC±10% 50/60Hz±3Hz	3PH 380V-415VAC±10% 50/60Hz±3Hz	3PH 380V-415VAC±10% 50/60Hz±3Hz	3PH 380V-415VAC±10% 50/60Hz±3Hz	3PH 380V-415VAC±10% 50/60Hz±3Hz
	Logic power supply	1PH 380V-415VAC±10% 50/60Hz±3Hz	1PH 380V-415VAC±10% 50/60Hz±3Hz	1PH 380V-415VAC±10% 50/60Hz±3Hz	1PH 380V-415VAC±10% 50/60Hz±3Hz	1PH 380V-415VAC±10% 50/60Hz±3Hz	1PH 380V-415VAC±10% 50/60Hz±3Hz
Current	Max continuous output current(Arms)	5.4A	8.6A	13A	17A	21A	26A
	Peak current(Arms)	16.97A	22.98A	32.53A	42.43A	53.04A	65.06A
Rated output power(W)		1500	2000	3000	4500	5500	7500
Feedback Signal		Communication type encoder					
Energy consumption brake		No built-in brake resistance, limited power 20W	Built-in brake resistance 50Ω, limited power 80W	Built-in brake resistance 50Ω, limited power 80W	Built-in brake resistance 25Ω, limited power 100W	Built-in brake resistance 25Ω, limited power 100W	Built-in brake resistance 25Ω, limited power 100W
Energy consumption braking voltage absorption point		DC680V±5V	DC680V±5V	DC680V±5V	DC680V±5V	DC680V±5V	DC680V±5V
Overvoltage alarm voltage		DC710V±5V	DC710V±5V	DC710V±5V	DC710V±5V	DC710V±5V	DC710V±5V
Undervoltage alarm voltage		DC400V±5V	DC400V±5V	DC400V±5V	DC400V±5V	DC400V±5V	DC400V±5V
Cooling method		Forced air cooling	Forced air cooling	Forced air cooling	Forced air cooling	Forced air cooling	Forced air cooling
Weight(kg)		1.4	2.1	2.1	4	4	4
Location Control Mode	Command control mode	External pulse input control;Control of 8-segment position using DIN signal;Communication setting internal object parameter control					
	Command smoothing mode	Low-pass filtering (set by internal parameters), S-curve smoothing filtering (set by internal parameters in 1 mode)					
	Pulse command mode	Pulse+direction, CCW+CW, A-phase+B-phase (12V~30V ,Max 500KHz)					
	Maximum input pulse frequency	Differential transmission mode: up to 4MHz, open collector transmission mode: 500KHz					
	Electronic gear ratios	Setting range Gear factor：-32768～32767，Gear divider：1～32767，1/50≤|Gear factor/Gear divider|≤50					
	Torque limit	Internal parameter setting					
	Feedforward gain	0~100.0% (Internal parameter setting)					
	Position loop sampling frequency	8KHz					
Speed Control Mode	Command control mode	8-segment speed control using DIN signals;Communication settings internal object parameter control					
	Command smoothing mode	Low-pass filtering (Internal parameter setting)					
	Speed limit	Internal parameter setting					
	Torque limit	Internal parameter setting					
	Speed loop sampling frequency	16KHz					
Torque Control Mode	Command control mode	Communication setting internal object parameter control					
	Command smoothing mode	Low-pass filtering (Internal parameter setting)					
	Speed limit	Internal parameter setting					
	Current loop sampling frequency	16KHz					
Digital Input	Input specification	7 digital inputs, through the connection of COM1 terminal, it can be valid at high level (12.5~30V) or valid at low level (0~5V). Note: DI1-DI5 are ordinary DI (max input frequency: 1KHz), DI6-DI7 are fast DI (max input frequency: 10KHz)					
	Input function	The following functions can be defined according to your needs: drive enable, drive error reset, drive working mode control, speed loop proportional control, positive limit, negative limit, origin signal, command reverse, internal speed segment control, internal position segment control, emergency stop, pause, start to find the origin, command activation, wheel ratio switching, gain switching, position table function, clear pulse function, etc					
Digital Output	Output specification	5-channel digital output, maximum voltage DC30V, OUT1 and OUT2 differential output, maximum output current 100mA, OUT3~OUT5 single-ended output, maximum output current 20mA, control motor OUT2 brake output through relay					
	Output function	The following functions can be defined according to your needs:drive ready, drive error, motor position arrives, motor zero speed, motor holding brake, motor speed arrives, index Z signal appears, speed reaches limit, torque reaches setting, motor lock Axis, motor limit, origin found, multi-segment position, etc.					
Encoder signal output function		Output 5V motor A, B, Z signals, frequency division output range 0 ~ 65536; used for multi-axis synchronization, maximum output frequency 5MHz					
Protection function		Over-voltage protection, under-voltage protection, motor overheating (I^2T) protection, short-circuit protection, drive overheating protection, etc.					
RS232		RS232 (connection with PC: RS-232 serial port to Mini_USB)					
RS485		Maximum support 115.2KHz baud rate, can use Modbus RTU protocol to communicate with the controller					
EtherCAT		Support CoE (CiA402 protocol) and CSP/CSV/PP/PV/PT/HM mode, communication rate 100M					
Profinet		Support message 1, message 3, and message 111, process object, aperiodic data read and write					
Operation Environment	Operation temperature	0～400C					
	Storage temperature	-10°C～+70°C					
	Humidity (no condensation)	5～95%					
	Protection level	IP20;Note: Not including terminal blocks (IP00)					
	Installation site	Dust-free, dry, lockable (e.g. electrical cabinets)					
	Installation method	Vertical installation					
	Installation altitude	The rated working altitude is less than 1000 meters above sea level. When the working altitude is higher than 1000 meters, it is necessary to reduce the rated value by 1.5% for every 100 meters of elevation. The maximum working altitude is 2000 meters above sea level					
	Atmosphere pressure	86kpa～106kpa					

Note 1：▲= L：RS232，RS485，Pulse　E：RS232，EtherCAT，Pulse　P：RS232，Profinet，Pulse
Note 2: FD5P-PA series driver has only 3 digital outputs：OUT1, OUT2, OUT3

Servo drive mechanical dimension

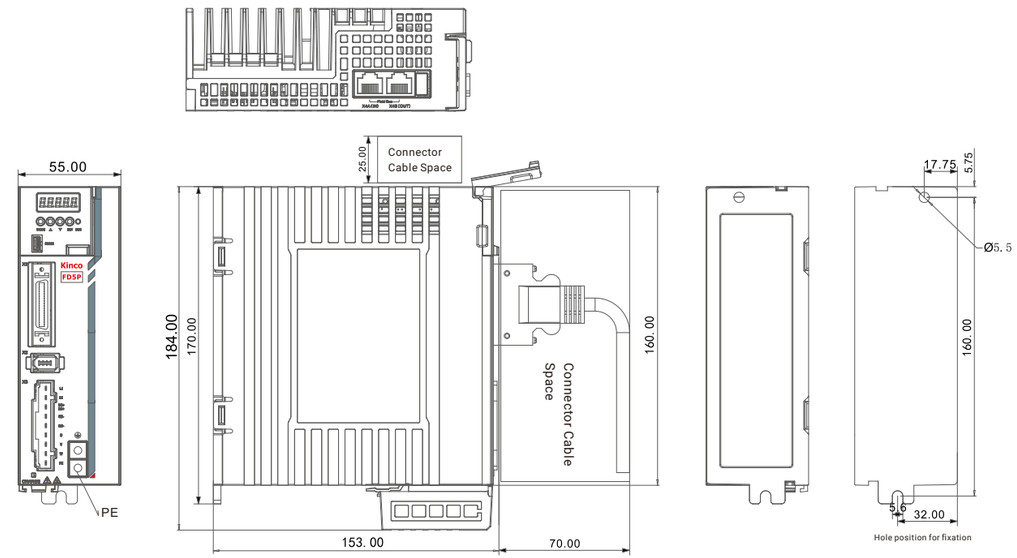
FD5P-▲A-L2R9 Dimensional Drawing（Unit：mm）

Note: Wiring space needs to be reserved around the driver, it is recommended to be greater than 70mm.



FD5P-▲A-L4R0 Dimensional Drawing（Unit：mm）

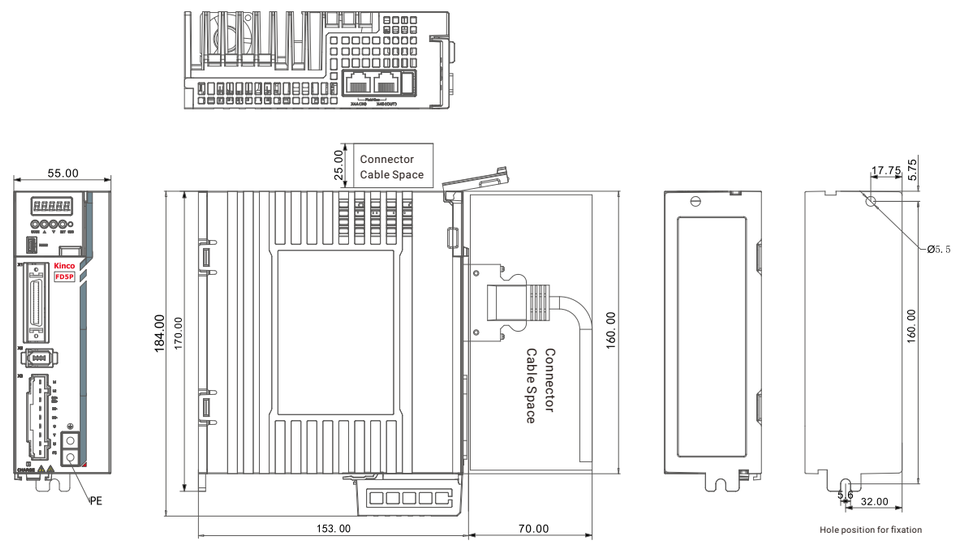
Note 1: Not applicable to FD5P-PA-L4R0
Note2: Wiring space needs to be reserved around the driver, it is recommended to be greater than 70mm.



Servo drive mechanical dimension

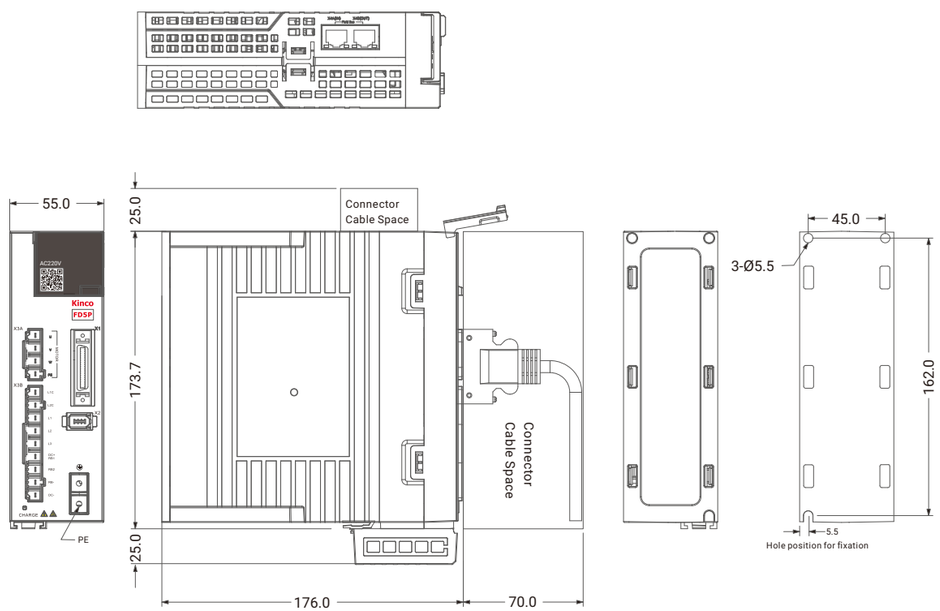
FD5P-▲A-L5R5/FD5P-PA-L4R0 Dimensional Drawing（Unit：mm）

Note: Wiring space needs to be reserved around the driver, it is recommended to be greater than 70mm.



FD5P-▲A-L7R6/H5R4 Dimensional Drawing（Unit：mm）

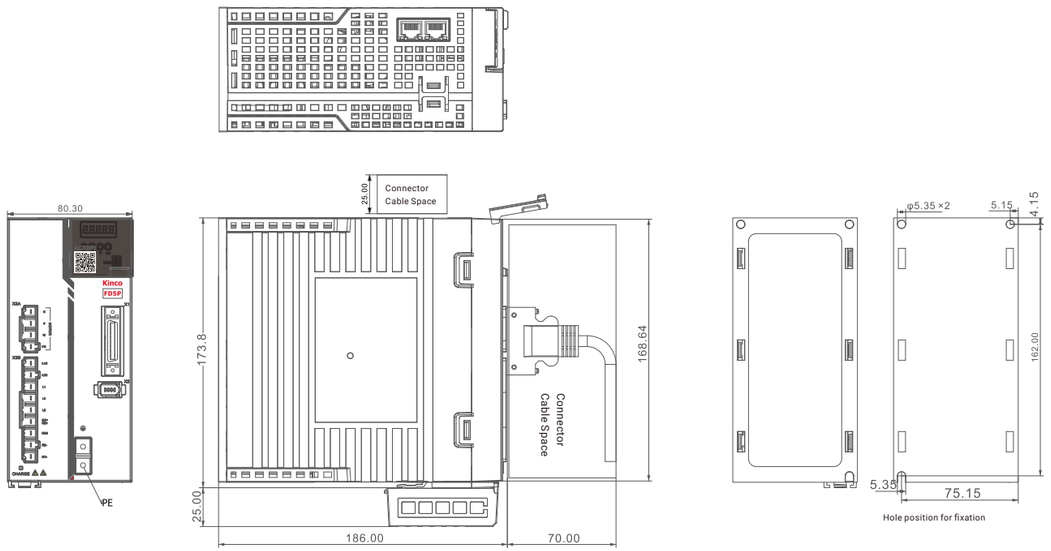
Note: Wiring space needs to be reserved around the driver, it is recommended to be greater than 70mm.



Servo drive mechanical dimension

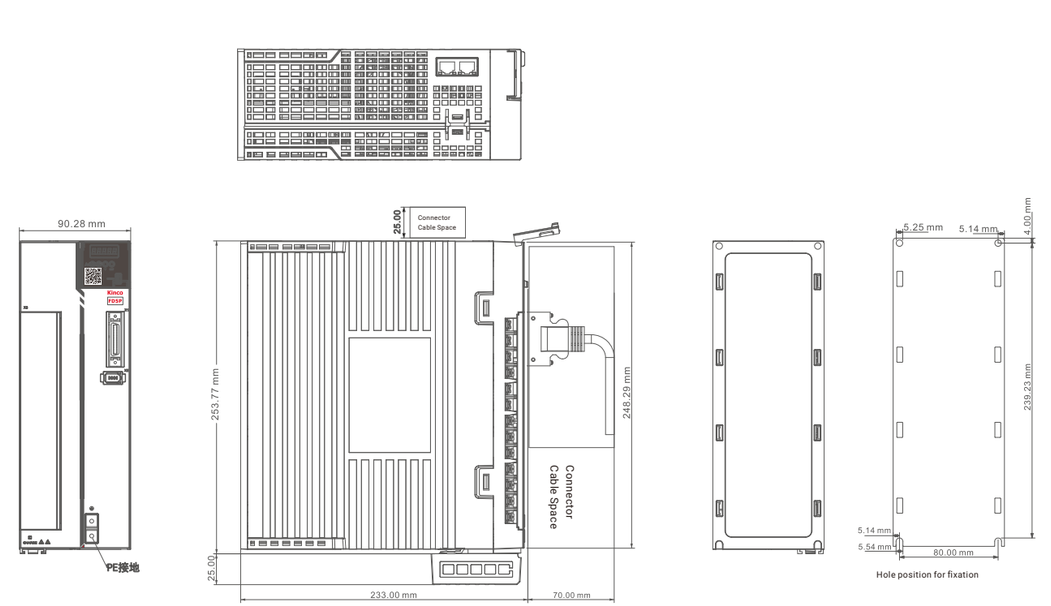
FD5P-▲A-L010/L013/H8R6/H013 Dimensional Drawing（Unit：mm）

Note: Wiring space needs to be reserved around the driver, it is recommended to be greater than 70mm.



FD5P-▲A-H017/H021/H026 Dimensional Drawing（Unit：mm）

Note: Wiring space needs to be reserved around the driver, it is recommended to be greater than 70mm.



FD5P PRO driver and SMK motor configuration table

Servo motor			Servo drive			Brake cable		Power cable(Note 3)			Encoder cable			
Inertia type	Rated parameter	Motor model (Note 1)	Modbus	EtherCAT	Profinet	Extension cable inside the cabinet(Note 2)		Axial out line	Tail out line	Plug accessory kit	Axial out line	Tail out line	Encoder cable (Note 4)	Plug accessory kit
Small inertia	220V/50W/ 3000rpm/0.16Nm	SMK40S-0005-30□AK-5LSR	FD5P-LA-L2R9	FD5P-EA-L2R9	FD5P-PA-L2R9	BRA-EXT-LL		M-A-6A-KA0-LL-F/(-FS) M-A-6A-KA0-LL-BF/(-BFS)	M-A-6A-KA1-LL-F/(-FS) M-A-6A-KA1-LL-BF/(-BFS)	M-KA0 M-KA1	E-D-QY-KA0-LL-F	E-D-QY-KA1-LL-F	BAT-FD5	E-D E-KA
		SMK40S-0005-30□BK-5LSR												
	220V/100W/ 3000rpm/0.32Nm	SMK40S-0010-30□AK-5LSR												
		SMK40S-0010-30□BK-5LSR												
	220V/200W/ 3000rpm/0.64Nm	SMK60S-0020-30□AK-5LSR												
		SMK60S-0020-30□BK-5LSR												
	220V/400W/ 3000rpm/1.27Nm	SMK60S-0040-30□AK-5LSR												
		SMK60S-0040-30□BK-5LSR												
	220V/750W/ 3000rpm/2.39Nm	SMK80S-0075-30□AK-5LSR	FD5P-LA-L4R0	FD5P-EA-L4R0	FD5P-PA-L4R0									
		SMK80S-0075-30□BK-5LSR												
	220V/1000W/ 3000rpm/3.18Nm	SMK80S-0100-30□AK-5LSR	FD5P-LA-L5R5	FD5P-EA-L5R5	FD5P-PA-L5R5									
		SMK80S-0100-30□BK-5LSR												
Medium inertia	220V/200W/ 3000rpm/0.64Nm	SMK60D-0020-30□AK-5LSR	FD5P-LA-L2R9	FD5P-EA-L2R9	FD5P-PA-L2R9									
		SMK60D-0020-30□BK-5LSR												
	220V/400W/ 3000rpm/1.27Nm	SMK60D-0040-30□AK-5LSR												
		SMK60D-0040-30□BK-5LSR												
	220V/750W/ 3000rpm/2.39Nm	SMK80D-0075-30□AK-5LSR	FD5P-LA-L4R0	FD5P-EA-L4R0	FD5P-PA-L4R0									
		SMK80D-0075-30□BK-5LSR												
	220V/1000W/ 3000rpm/3.18Nm	SMK80D-0100-30□AK-5LSR	FD5P-LA-L5R5	FD5P-EA-L5R5	FD5P-PA-L5R5									
		SMK80D-0100-30□BK-5LSR												
Large inertia	220V/850W/ 1500rpm/5.39Nm	SMK130G-0085-15□AK-5LSR	FD5P-LA-L5R5	FD5P-EA-L5R5	FD5P-PA-L5R5	BRA-EXT-LL		M-A-12A-KR0-LL-F/(-FS) M-A-12A-KR0-LL-BF/(-BFS)	-	M-KR0	E-D-QY-KR-LL-F	-	BAT-FD5	E-D E-KR
		SMK130G-0085-15□BK-5LSR	FD5P-LA-H5R4	FD5P-EA-H5R4	FD5P-PA-H5R4									
	220V/1300W/ 1500rpm/8.27Nm	SMK130G-0130-15□AK-5LSR	FD5P-LA-L7R6	FD5P-EA-L7R6	FD5P-PA-L7R6									
		SMK130G-0130-15□BK-5LSR	FD5P-LA-H8R6	FD5P-EA-H8R6	FD5P-PA-H8R6									
	220V/1800W/ 1500rpm/11.45Nm	SMK130G-0180-15□AK-5LSR	FD5P-LA-L010	FD5P-EA-L010	FD5P-PA-L010									
		SMK130G-0180-15□BK-5LSR	FD5P-LA-H013	FD5P-EA-H013	FD5P-PA-H013									
	220V/2400W/ 1500rpm/15.2Nm	SMK130G-0240-15□AK-5LSR	FD5P-LA-L013	FD5P-EA-L013	FD5P-PA-L013									
		SMK130G-0240-15□BK-5LSR	FD5P-LA-H013	FD5P-EA-H013	FD5P-PA-H013									
	380V/3000W/ 1500rpm/19.1Nm	SMK180G-0300-15□AK-5HSR	FD5P-LA-H013	FD5P-EA-H013	FD5P-PA-H013			M-A-12A-KR1-LL-F/(-FS) M-A-12A-KR1-LL-BF/(-BFS)						
		SMK180G-0300-15□BK-5HSR												
	380V/3500W/ 1500rpm/22.3Nm	SMK180G-0350-15□AK-5HSR	FD5P-LA-H017	FD5P-EA-H017	FD5P-PA-H017			M-Y-20A-KR1-LL-F/(-FS) M-Y-20A-KR1-LL-BF/(-BFS)		M-KR1				
		SMK180G-0350-15□BK-5HSR												
	380V/4400W/ 1500rpm/28Nm	SMK180G-0440-15□AK-5HSR												
		SMK180G-0440-15□BK-5HSR												
	380V/5500W/ 1500rpm/35Nm	SMK180G-0550-15□AK-5HSR	FD5P-LA-H021	FD5P-EA-H021	FD5P-PA-H021									
		SMK180G-0550-15□BK-5HSR												
	380V/7500W/ 1500rpm/47.8Nm	SMK180G-0750-15□AK-5HSR	FD5P-LA-H026	FD5P-EA-H026	FD5P-PA-H026			M-Y-30A-KR1-LL-F/(-FS) M-Y-30A-KR1-LL-BF/(-BFS)						
		SMK180G-0750-15□BK-5HSR												

(Note 1): □ indicates the optional encoder type:
Q:17 bit multi-turn magnetic absolute value encoder
Y:23 bit multi-turn communication optical absolute value encoder

(Note 2): The extension cable inside the cabinet is used to match the power cable with a brake
(Note 3): The parentheses behind the power cable indicate the suffix of another cable
(Note 4): Q/Y encoders are used when multi-turn function is required

Driver terminal description and wiring

Interface definition

Interface number	Interface name	Interface type	PIN	Signal	Signal name	Signal name
X1	I/O interface	SCSI-36P-F	1	OUT1+	Differential output port	Open collector output Max voltage DC30V, Max current 100mA
			3	OUT1-		
			5	OUT2+		
			7	OUT2-		
			9	OUT3	Single-ended output port	Max voltage DC30V, Max current 20mA
			11	OUT4(FD5P-PA without OUT4)		
			20	OUT5(FD5P-PA without OUT5)		
			13	COMO	OUT3, OUT4, OUT5 common end	Digital output port common
			15	VDD	Internal 24V power output	Internal 24V power output, voltage range +/-20%, Max current DC200mA
			17	VEE		
			2	COMI	Digital input common end	Digital input port common
			4	DIN1	Digital signal input terminal	High voltage: 12.5V-30V Low level: 0-5V DI1~DI5 Max input frequency: 1KHz DI6~DI7 Max input frequency: 10KHz
			6	DIN2		
			8	DIN3		
			10	DIN4		
			12	DIN5		
			14	DIN6 (fast)		
			16	DIN7 (fast)		
			19	/MA	Pulse signal(Fast): MA,/MA,MB,/MB,MZ,/MZ, Support Max frequency 4MHz, voltage range DC 3.3-5V	Pulse signal input terminal, optional signal type: ①Pulse+Direction (PLS+DIR) ②Forward and reverse pulses (CW/CCW) ③A+B phase
			21	/MB		
			23	/MZ		
			25	NC		
			27	MA+/ (MA)	Pulse signal: MA+,MA-,MB+,MB-,MZ+,MZ-, Support Max frequency 500KHz, voltage rangeDC12-30V	Pulse signal input terminal optional signal type: ①Pulse+Direction (PLS+DIR) ②Forward and reverse pulses (CW/CCW) ③A+B phase
			29	MA-		
			31	MB+/ (MB)		
			33	MB-		
			35	MZ+/ (MZ)		
			18	MZ-		
			22	+5V	Internal 5V power output	Output 5V motor A, B, Z signals, frequency division output range 0~65536; For multi-axis synchronization, Max output frequency is 5MHz
			24	GND		
			26	ENCO_N	Encoder signal output	
			28	ENCO_/N		
			30	ENCO_B		
			32	ENCO_/B		
			34	ENCO_A		
			36	ENCO_/A		

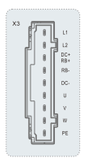
Note: FD5P-PA series does not have OUT4、OUT5

Interface number	Interface name	Interface type	PIN	Signal	Signal name	Signal name
RS232	RS232 Communication Interface	Mini_USB 5pin port	1	NC		It can be connected to the host computer software of the PC to set parameters and monitor the status
			2	RX	Data reception	
			3	TX	Data Send	
			4	NC		
			5	GND	Signal ground	

Note: Customers can choose the Kinco servo debugging cable-MINIUSB, model PDC-USBM-1 (5)

Interface number	Interface name	Interface type	PIN	Signal	Signal name	Signal name
X2	Motor encoder interface	1394 port	1	+5V	+5V	Encoder signal input
			2	GND	GND	
			3	CLOCK+	CLOCK+	
			4	CLOCK-	CLOCK-	
			5	SD	SD	
			6	/SD	/SD	

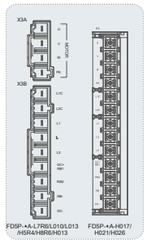
Note: Customers can choose the Kinco servo debugging cable-MINIUSB, model PDC-USBM-1 (5)



Interface number	Interface name	Interface type	PIN	Signal	Signal name	Signal name
X3	Power terminal	9P/5mm plug-in terminal	1	L1	Power supply input	1PH 200-240VAC 50/60Hz
			2	L2		
			3	DC+/RB+	DC bus,Brake resistance interface	1. Default not connected to internal braking resistor. When braking exceeds the power drive, the brake resistance overpower alarm will be reported, and 0100 will be displayed 2. When the motor needs an external braking resistor, connect it between DC+/RB+ and RB- 3. DC+/RB+, DC- are the positive and negative terminals of the DC bus
			4	RB-		
			5	DC-		
			6	U	Motor cable interface	Connect to motor cable U, V, W, PE
			7	V		
			8	W		
			9	PE		

Note: This X3 interface is the FD5P-▲A-L2R9/L4R0/L5R5 power port

Driver terminal description and wiring



Interface number	Interface name	Interface type	PIN	Signal	Signal name	Signal name
X3A	Power terminal	7.5 spacing plug-in terminal	1	U	Motor cable interface	Connect motor cable U,V,W,PE
			2	V		
			3	W		
			4	PE	Motor ground terminal	
X3B		7.5 spacing plug-in terminal	1	L1C	Logic power input	FD5P-▲A-L7R6/L010/L013:1PH200V-240VAC±10%50/60Hz±3Hz FD5P-▲A-H5R4/H8R6/H013/H017/H021/H026:1PH380V-415V AC+10% 50/60Hz+3Hz
			2	L2C		
			3	L1	Power supply input	FD5P-▲A-L7R6:1PH/3PH200V-240V AC+10%50/60Hz+3Hz FD5P-▲A-L010/L013:3PH200V-240VAC+10%50/60Hz+3Hz FD5P-▲A-H5R4/H8R6/H013/H017/H021/H026:3PH380V-415V AC+10% 50/60Hz±3Hz
			4	L2		
			5	L3		
			6	DC+/RB1	DC Bus,Brake resistance interface	1.When using internal braking resistor, RB1 and RB2 are short circuited 2.When using an external brake resistor, disconnect the short cable between RB1 and RB2, and connect the external brake resistor to RB1 and RB- 3.DC+/RB1, DC- are the positive and negative terminals of the DC bus
			7	RB2		
			8	RB-		
			9	DC-	Dc bus input negative end	

Note: This X3 interface is the FD5P-▲A-L7R6/L010/L013/H5R4/H8R6/H013/H017/H021/H026 power port

RS485

Interface number	Interface name	Interface type	PIN	Signal	Signal name
X4A (IN)	RS485 communication interface input	RJ45 Network Port	L1	NC	
			L2	NC	
			L3	NC	
			L4	485-	Data receiving negative end
			L5	485+	Data receiving positive end
			L6	NC	
			L7	NC	
			L8	GND	

Interface number	Interface name	Interface type	PIN	Signal	Signal name
X4B (OUT)	RS485 communication interface output	RJ45 Network Port	R1	NC	
			R2	NC	
			R3	NC	
			R4	485-	Data receiving negative end
			R5	485+	Data receiving positive end
			R6	NC	
			R7	NC	
			R8	GND	

EtherCAT/ Profinet

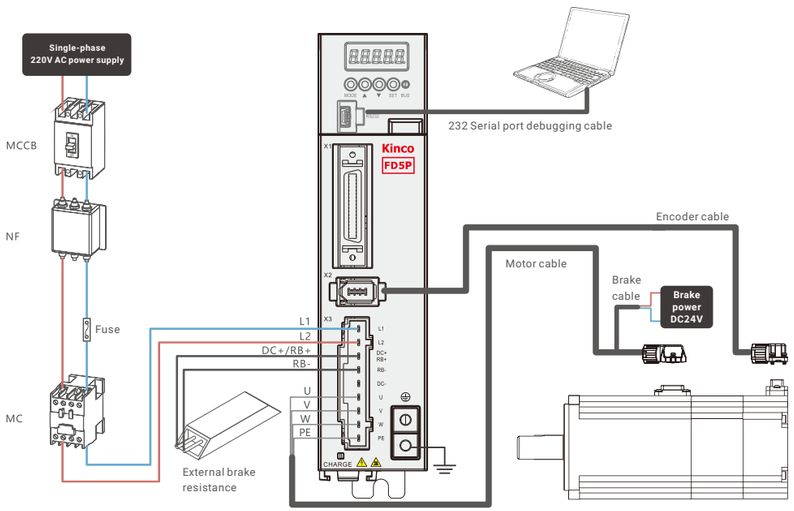
Interface number	Interface name	Interface type	PIN	Signal	Signal name
X4A (IN)	EtherCAT/ Profinet communication interface input	RJ45 Network Port	L1	TD+	Send signal positive end
			L2	TD-	Send signal negative end
			L3	RD+	Data receiving positive end
			L4	NC	
			L5	NC	
			L6	RD-	Data receiving negative end
			L7	NC	
			L8	NC	

Interface number	Interface name	Interface type	PIN	Signal	Signal name
X4B (OUT)	EtherCAT/ Profinet communication interface output	RJ45 Network Port	R1	TD+	Send signal positive end
			R2	TD-	Send signal negative end
			R3	RD+	Data receiving positive end
			R4	NC	
			R5	NC	
			R6	RD-	Data receiving negative end
			R7	NC	
			R8	NC	

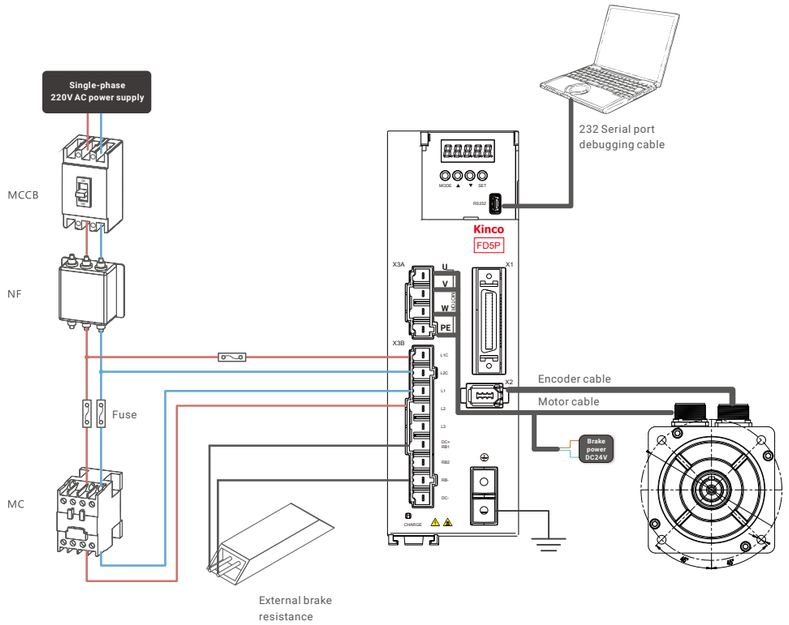
Drive electrical wiring diagram

External wiring diagram

FD5P-▲A-L2R9/L4R0/L5R5 Single-phase 220V power supply



FD5P-▲A-L7R6 Single-phase 220V power supply

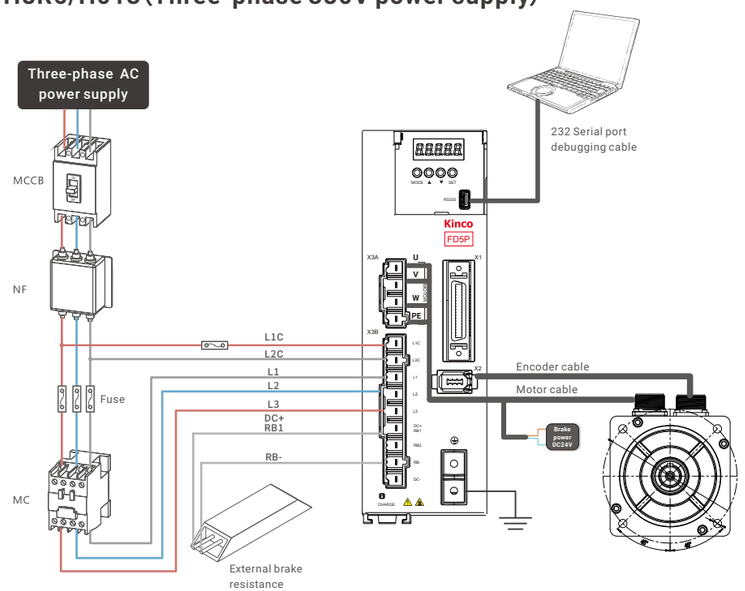


Note: When the FD5P-▲A-L7R6 is connected in single-phase mode,the input phase loss detection is enabled by default upon power-on.

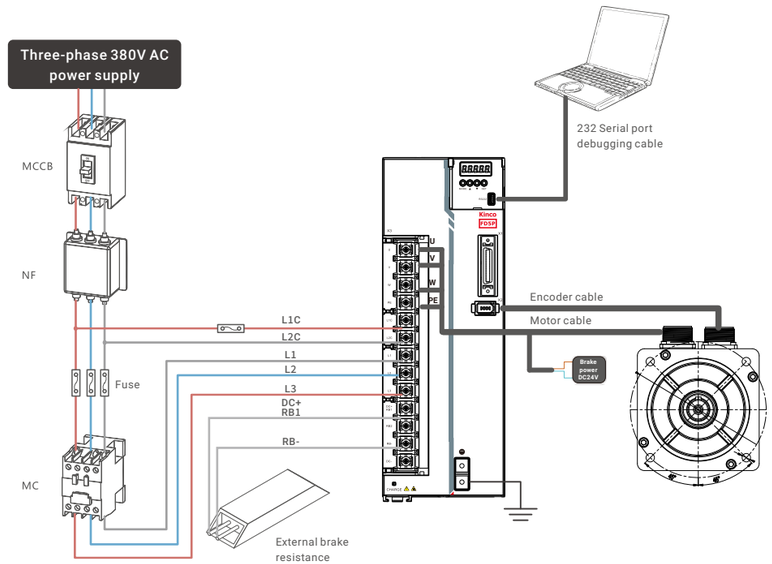
To use it, you need to write 0 to input_Lack_Check(269200)in the KS+ software

Drive electrical wiring diagram

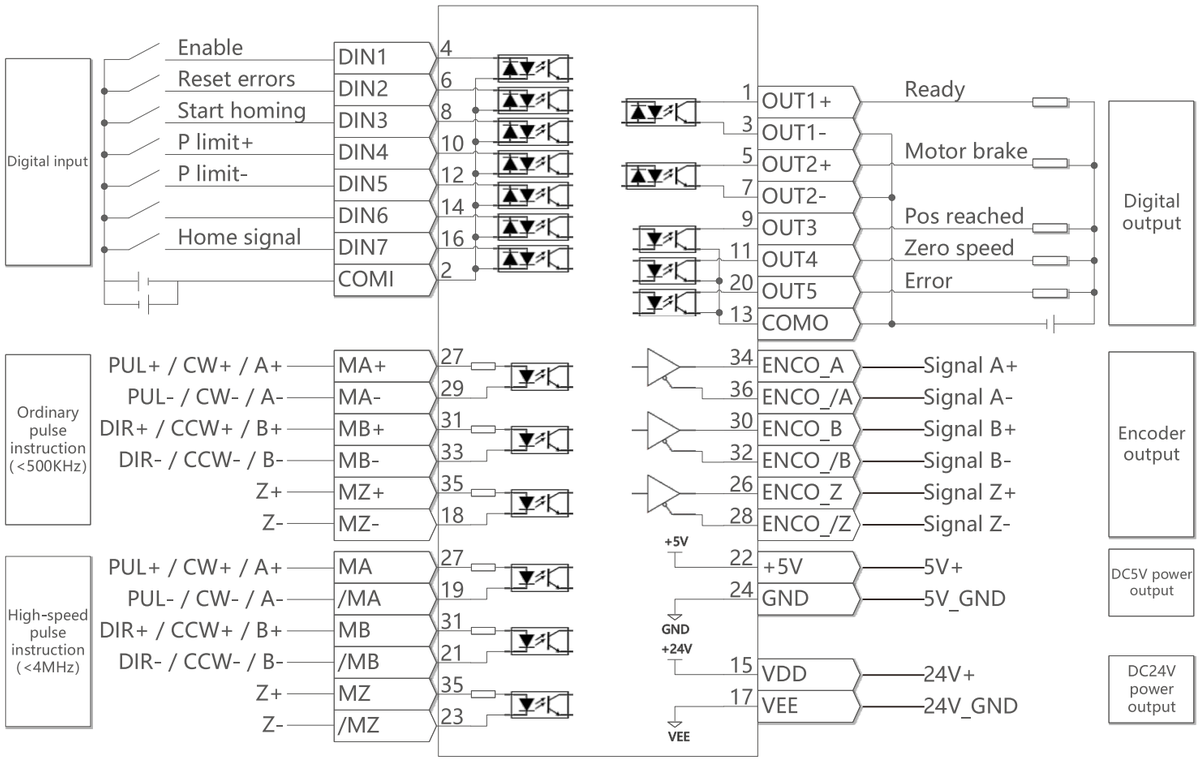
FD5P-▲A-L7R6/L010/L013（Three-phase 220V power supply）
FD5P-▲A-H5R4/H8R6/H013（Three-phase 380V power supply）



FD5P-▲A-H017/H021/H026(Three-phase 380V power supply)



Drive electrical wiring diagram



SMK servo motor technical parameter

Model parameter		Small inertia, 40 flange		Small inertia, 60 flange		Small inertia, 80 flange	
Servo motor model		SMK40S-0005 -30□■K-5LSR	SMK40S-0010 -30□■K-5LSR	SMK60S-0020 -30□■K-5LSR	SMK60S-0040 -30□■K-5LSR	SMK80S-0075 -30□■K-5LSR	SMK80S-0100 -30□■K-5LSR
Adapted drives		FD5P-▲A-L2R9	FD5P-▲A-L2R9	FD5P-▲A-L2R9	FD5P-▲A-L2R9	FD5P-▲A-L4R0	FD5P-▲A-L5R5
Rated voltage (VAC)		220	220	220	220	220	220
Rated power Pn(W)		50	100	200	400	750	1000
Rated torque Tn(Nm)		0.16	0.32	0.64	1.27	2.39	3.18
Rated speed nN (rpm)		3000	3000	3000	3000	3000	3000
Rated current In(A)		0.88	1.2	1.55	2.93	3.9	5.3
Max torque Tm(Nm)		0.56	1.11	1.92	3.81	7.17	9.54
Max current Im (A)		3.3	4.4	5	9.4	12.4	16
Max speed (rpm)		6000	6000	6000	6000	6000	5000
Standstill torque Ts(Nm)		0.176	0.352	0.71	1.4	2.63	3.5
Standstill current Is(A)		0.98	1.32	1.7	3.2	4.3	5.83
Torque constant Kt (Nm/A)		0.2	0.3	0.5	0.51	0.7	0.66
Rotary inertia Jm (Kg·cm^2)		0.023	0.044	0.17	0.274	0.9	1.027
		0.025(with brake)	0.046(with brake)	0.174(with brake)	0.29(with brake)	0.95(with brake)	1.19(with brake)
Brake parameter	Brake holding torque T(Nm)	0.32	0.32	2	2	4	4
	Rated power (W)	6.1	6.1	7.6	7.6	11.5	11.5
	Rated voltage (VDC)	24	24	24	24	24	24
Insulation class		F	F	F	F	F	F
Max radial force Fr(N)		78	78	180	180	335	335
Max axial force Fa(N)		54	54	90	90	167.5	167.5
Weight G(Kg)		0.31	0.382	0.85	1.3	2	2.3
		0.5(with brake)	0.571(with brake)	1.2(with brake)	1.65(with brake)	2.6(with brake)	2.9(with brake)
Cooling method		Totally enclosed, self-cooling					
Protection level		IP67, IP54 at the shaft end (Note: add oil seal IP54 at the shaft end, no oil seal IP50)					
Operation environment	Temperature	-20～+40℃(no icing)					
	Humidity	Below 90% RH (no condensation)					
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust					
	Altitude	The rated working altitude is less than 1000 meters above sea level. When the working altitude is higher than 1000 meters, it is necessary to reduce the rated value by 1.5% for every 100 meters of elevation. The maximum working altitude is 2000 meters above sea level.					

Note: □ = Q：17 bit multi-turn magnetic absolute value encoder
Y：23 bit multi-turn communication optical absolute value encoder
■ = A：Without brake
B：With brake
▲ = L：RS232, RS485, Pulse
E：RS232, EtherCAT, Pulse
P：RS232, Profinet, Pulse

SMK servo motor technical parameter

Model parameter		Medium inertia，60 flange		Medium inertia，80 flange	
Servo motor model		SMK60D-0020 -30□■K-5LSR	SMK60D-0040 -30□■K-5LSR	SMK80D-0075 -30□■K-5LSR	SMK80D-0100 -30□■K-5LSR
Adapted drives		FD5P-▲A-L2R9	FD5P-▲A-L2R9	FD5P-▲A-L4R0	FD5P-▲A-L5R5
Rated voltage（VAC）		220	220	220	220
Rated power Pn(W)		200	400	750	1000
Rated torque Tn(Nm)		0.64	1.27	2.39	3.18
Rated speed nN (rpm)		3000	3000	3000	3000
Rated current In(A)		1.3	2.3	4.1	5.5
Max torque Tm(Nm)		2.26	4.45	8.37	11.3
Max current Im (A)		5	9	16.2	21.8
Max speed (rpm)		6000	6000	6000	6000
Standstill torque Ts(Nm)		0.7	1.4	2.63	3.5
Standstill current Is(A)		1.43	2.8	4.5	6.05
Torque constant Kt (Nm/A)		0.56	0.6	0.645	0.645
Rotary inertia Jm (Kg·cm^2)		0.26	0.49	1.65	2.27
		0.28(with brake)	0.51(with brake)	1.8(with brake)	2.42(with brake)
Brake parameter	Brake holding torque T(Nm)	2	2	4	4
	Rated power（W）	7.6	7.6	11.5	11.5
	Rated voltage（VDC）	24	24	24	24
Insulation class		F	F	F	F
Max radial force Fr(N)		245	245	392	392
Max axial force Fa(N)		74	74	147	147
Weight G(Kg)		0.76	1.1	2	2.5
		1.2(with brake)	1.5(with brake)	2.7(with brake)	3.2(with brake)
Cooling method		Totally enclosed, self-cooling			
Protection level		IP65，IP54 at the shaft end (Note: add oil seal IP54 at the shaft end, no oil seal IP50)			
Operation environment	Temperature	-20～+40℃（no icing）			
	Humidity	Below 90% RH (no condensation)			
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust			
	Altitude	The rated working altitude is less than 1000 meters above sea level. When the working altitude is higher than 1000 meters, it is necessary to reduce the rated value by 1.5% for every 100 meters of elevation. The maximum working altitude is 2000 meters above sea level.			

Note: □ = Q：17 bit multi-turn magnetic absolute value encoder
Y：23 bit multi-turn communication optical absolute value encoder
■ = A：Without brake
B：With brake
▲ = L：RS232，RS485，Pulse
E：RS232，EtherCAT，Pulse
P：RS232，Profinet，Pulse

SMK servo motor technical parameter

Model parameter		Large inertia，130 flange			
Servo motor model		SMK130G-0085 -15□■K-5LSR	SMK130G-0130 -15□■K-5LSR	SMK130G-0180 -15□■K-5LSR	SMK130G-0240 -15□■K-5LSR
Adapted drives		FD5P-▲A-L5R5 FD5P-▲A-H5R4	FD5P-▲A-L7R6 FD5P-▲A-H8R6	FD5P-▲A-L010 FD5P-▲A-H013	FD5P-▲A-L013 FD5P-▲A-H013
Rated voltage（VAC）		220	220	220	220
Rated power Pn(W)		850	1300	1800	2400
Rated torque Tn(Nm)		5.39	8.27	11.45	15.2
Rated speed nN (rpm)		1500	1500	1500	1500
Rated current In(A)		5.4	7.5	10	12.9
Max torque Tm(Nm)		16.2	24.81	28.625	38
Max current Im (A)		16.7	22.8	26	32.3
Max speed (rpm)		3500	3500	3500	3500
Standstill torque Ts(Nm)		5.929	9.1	12.595	16.72
Standstill current Is(A)		5.94	8.25	11	14.19
Torque constant Kt (Nm/A)		1.082	1.197	1.26	1.293
Rotary inertia Jm (Kg·cm^2)		11.56	17.17	22.85	30.37
		12.86(with brake)	18.47(with brake)	24.15(with brake)	31.67(with brake)
Brake parameter	Brake holding torque T(Nm)	20	20	20	20
	Rated power（W）	23	23	23	23
	Rated voltage（VDC）	24	24	24	24
Insulation class		F	F	F	F
Max radial force Fr(N)		686	686	686	686
Max axial force Fa(N)		196	196	196	196
Weight G(Kg)		6.03	7.35	8.7	10.6
		7.38(with brake)	8.6(with brake)	9.95(with brake)	11.85（with brake）
Cooling method		Totally enclosed, self-cooling			
Protection level		IP65，IP54 at the shaft end (Note: add oil seal IP54 at the shaft end, no oil seal IP50)			
Operation environment	Temperature	-20～+40℃（no icing）			
	Humidity	Below 90% RH (no condensation)			
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust			
	Altitude	The rated working altitude is less than 1000 meters above sea level. When the working altitude is higher than 1000 meters, it is necessary to reduce the rated value by 1.5% for every 100 meters of elevation. The maximum working altitude is 2000 meters above sea level.			

Note: □ = Q：17 bit multi-turn magnetic absolute value encoder
Y：23 bit multi-turn communication optical absolute value encoder
■ = A：Without brake
B：With brake
▲ = L：RS232，RS485，Pulse
E：RS232，EtherCAT，Pulse
P：RS232，Profinet，Pulse

SMK servo motor technical parameter

Model parameter		Large inertia，180 flange				
Servo motor model		SMK180G-0300 -15□■K-5HSR	SMK180G-0350 -15□■K-5HSR	SMK180G-0440 -15□■K-5HSR	SMK180G-0550 -15□■K-5HSR	SMK180G-0750 -15□■K-5HSR
Adapted drives		FD5P-▲A-H013	FD5P-▲A-H017	FD5P-▲A-H017	FD5P-▲A-H021	FD5P-▲A-H026
Rated voltage（VAC）		380	380	380	380	380
Rated power Pn(W)		3000	3500	4400	5500	7500
Rated torque Tn(Nm)		19.1	22.3	28	35	47.8
Rated speed nN (rpm)		1500	1500	1500	1500	1500
Rated current In(A)		10.6	12.9	16.5	20.3	25
Max torque Tm(Nm)		57.3	66	70	87.5	119.5
Max current Im (A)		31.8	38.2	41.3	50.8	62.5
Max speed (rpm)		4500	4500	4500	4500	4500
Standstill torque Ts(Nm)		21	24.5	30.8	38.5	52.6
Standstill current Is(A)		11.7	14.2	18.2	22.33	27.5
Torque constant Kt (Nm/A)		1.98	1.9	1.87	1.9	2.18
Rotary inertia Jm (Kg·cm^2)		46	54	67	98	140
		52.43(with brake)	60.5(with brake)	73.5(with brake)	104.43(with brake)	146.43(with brake)
Brake parameter	Brake holding torque T(Nm)	55	55	55	55	55
	Rated power（W）	36	36	36	36	36
	Rated voltage（VDC）	24	24	24	24	24
Insulation class		F	F	F	F	F
Max radial force Fr(N)		1470	1470	1470	1470	1470
Max axial force Fa(N)		490	490	490	490	490
Weight G(Kg)		14	16.1	18.4	23	32
		18.9(with brake)	21(with brake)	23.3(with brake)	27.9(with brake)	36.9(with brake)
Cooling method		Totally enclosed, self-cooling				
Protection level		IP65，IP54 at the shaft end (Note: add oil seal IP54 at the shaft end, no oil seal IP50)				
Operation environment	Temperature	- 20～+40℃（no icing）				
	Humidity	Below 90% RH (no condensation)				
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust				
	Altitude	The rated working altitude is less than 1000 meters above sea level. When the working altitude is higher than 1000 meters, it is necessary to reduce the rated value by 1.5% for every 100 meters of elevation. The maximum working altitude is 2000 meters above sea level.				

Note: □ = Q：17 bit multi-turn magnetic absolute value encoder

Y：23 bit multi-turn communication optical absolute value encoder

■ = A：Without brake

B：With brake

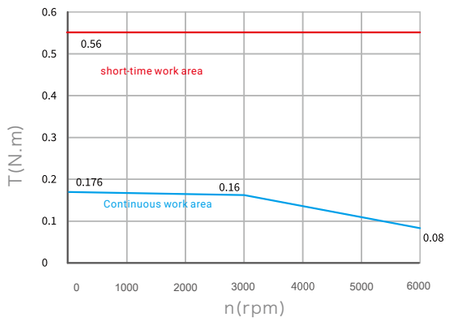
▲ = L：RS232，RS485，Pulse

E：RS232，EtherCAT，Pulse

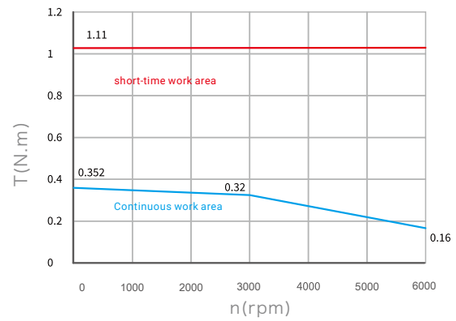
P：RS232，Profinet，Pulse

SMK servo motor torque-speed characteristics

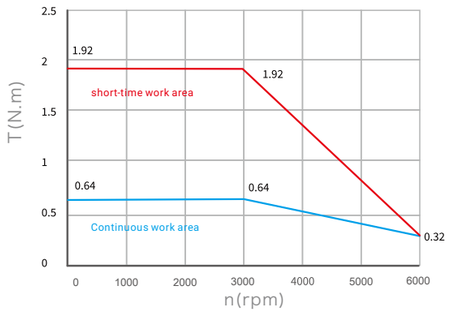
SMK40S-0005-30□■K-5LSR 50W



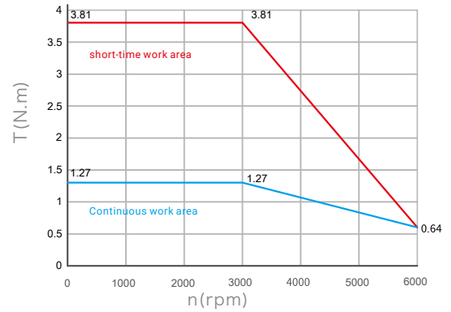
SMK40S-0010-30□■K-5LSR 100W



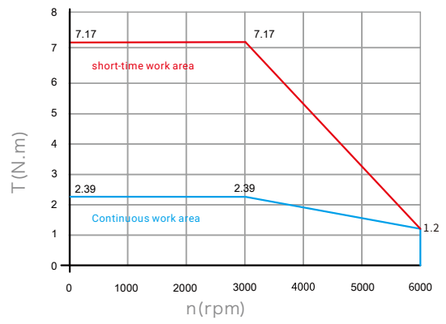
SMK60S-0020-30□■K-5LSR 200W



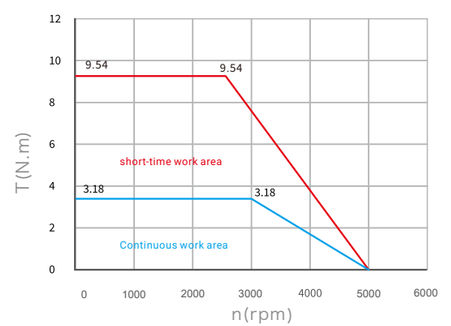
SMK60S-0040-30□■K-5LSR 400W



SMK80S-0075-30□■K-5LSR 750W

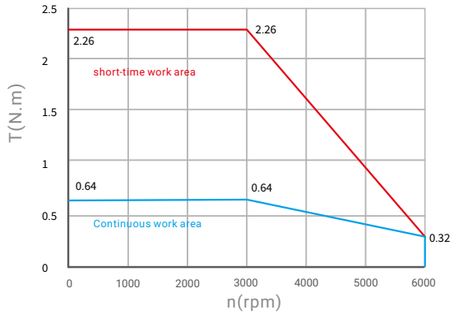


SMK80S-0100-30□■K-5LSR 1000W

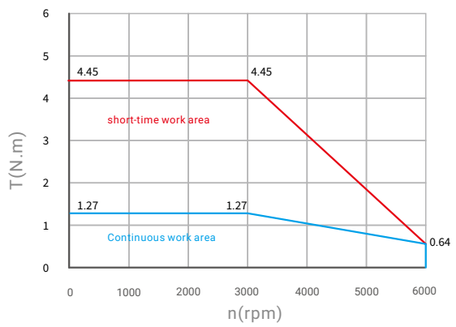


SMK servo motor torque-speed characteristics

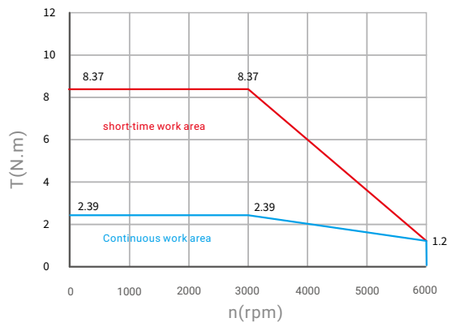
SMK60D-0020-30□■K-5LSR 200W



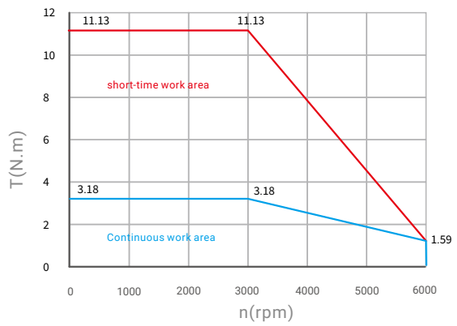
SMK60D-0040-30□■K-5LSR 400W



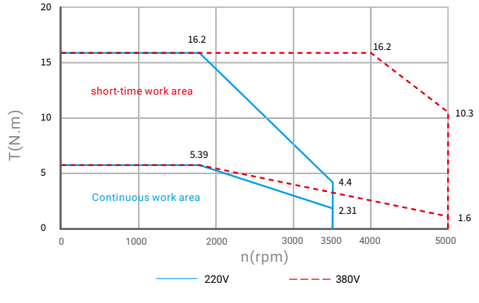
SMK80D-0075-30□■K-5LSR 750W



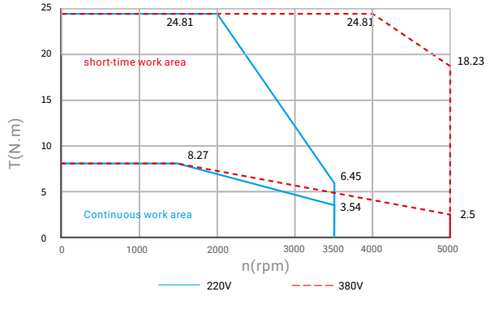
SMK80D-0100-30□■K-5LSR 1000W



SMK130G-0085-15□■K-5LSR 850W

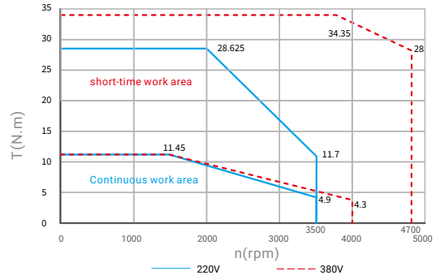


SMK130G-0130-15□■K-5LSR 1300W

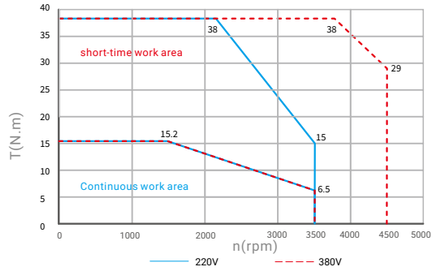


SMK servo motor torque-speed characteristics

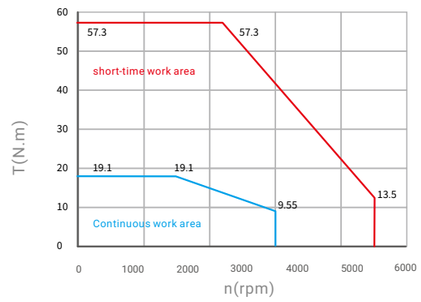
SMK130G-0180-15□■K-5LSR 1800W



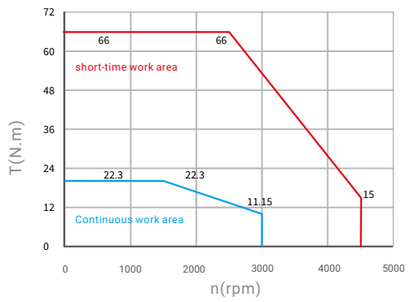
SMK130G-0240-15□■K-5LSR 2400W



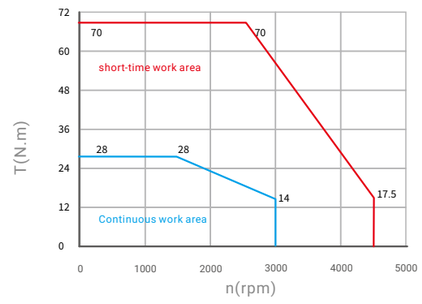
SMK180G-0300-15□■K-5HSR 3000W



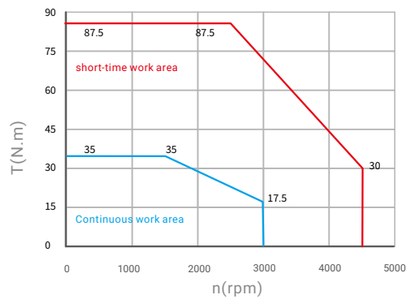
SMK180G-0350-15□■K-5HSR 3500W



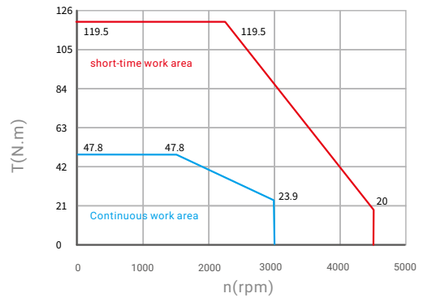
SMK180G-0440-15□■K-5HSR 4400W



SMK180G-0550-15□■K-5HSR 5500W

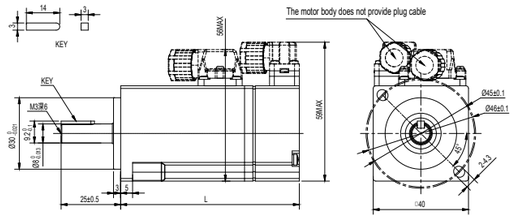


SMK180G-0750-15□■K-5HSR 7500W



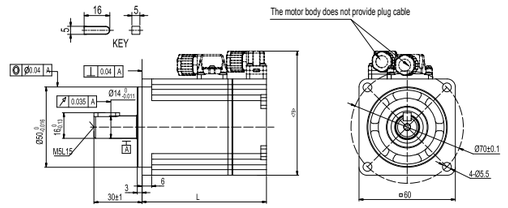
SMK servo motor dimension

SMK40S series



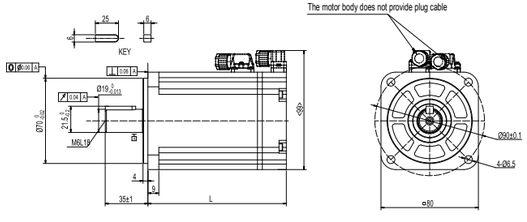
SMK40S series model	Brake	Weight (KG)	Motor body size L (mm)
SMK40S-0005-30□AK-5LSR		0.31	62.5±1
SMK40S-0005-30□BK-5LSR	√	0.5	92.5±1
SMK40S-0010-30□AK-5LSR		0.382	75±1
SMK40S-0010-30□BK-5LSR	√	0.571	105±1

SMK60S series



SMK60S series model	Brake	Weight (KG)	Motor body size L (mm)
SMK60S-0020-30□AK-5LSR		0.85	77±1.5
SMK60S-0020-30□BK-5LSR	√	1.2	109.1±1.5
SMK60S-0040-30□AK-5LSR		1.3	95±1.5
SMK60S-0040-30□BK-5LSR	√	1.65	127.1±1.5

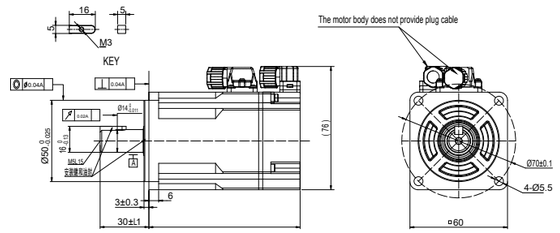
SMK80S series



SMK80S series model	Brake	Weight (KG)	Motor body size L (mm)
SMK80S-0075-30□AK-5LSR		2	103.7±1.5
SMK80S-0075-30□BK-5LSR	√	2.6	133.2±1.5
SMK80S-0100-30□AK-5LSR		2.3	113.7±1.5
SMK80S-0100-30□BK-5LSR	√	2.9	143.2±1.5

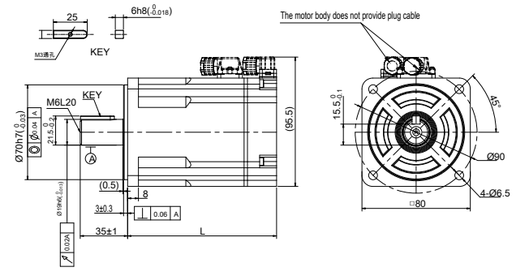
SMK servo motor dimension

SMK60D series



SMK60D series model	Brake	Weight (KG)	Motor body size L (mm)
SMK60D-0020-30□AK-5LSR		0.76	74±1
SMK60D-0020-30□BK-5LSR	√	1.2	107.5±1
SMK60D-0040-30□AK-5LSR		1.1	93±1
SMK60D-0040-30□BK-5LSR	√	1.5	126.5±1

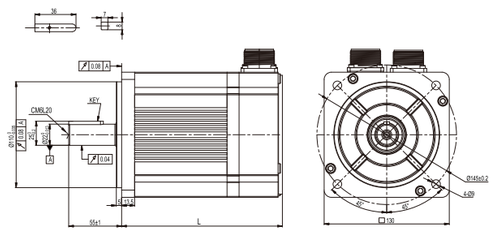
SMK80D series



SMK80D series model	Brake	Weight (KG)	Motor body size L (mm)
SMK80D-0075-30□AK-5LSR		2	95±1
SMK80D-0075-30□BK-5LSR	√	2.7	128±1
SMK80D-0100-30□AK-5LSR		2.5	110±1
SMK80D-0100-30□BK-5LSR	√	3.2	143±1

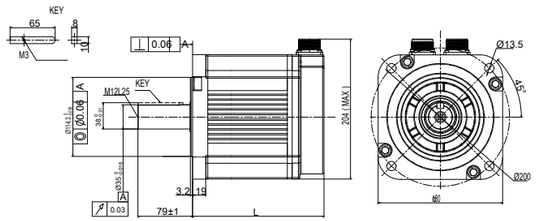
SMK servo motor dimension

SMK130G series



SMK130G series model	Brake	Weight (KG)	Motor body size L (mm)
SMK130G-0085-15□AK-5LSR		6.03	139±1.5
SMK130G-0085-15□BK-5LSR	√	7.38	155±1.5
SMK130G-0130-15□AK-5LSR		7.35	154±1.5
SMK130G-0130-15□BK-5LSR	√	8.6	170±1.5
SMK130G-0180-15□AK-5LSR		8.7	169±1.5
SMK130G-0180-15□BK-5LSR	√	9.95	185±1.5
SMK130G-0240-15□AK-5LSR		10.6	189±1.5
SMK130G-0240-15□BK-5LSR	√	11.85	205±1.5

SMK180G series

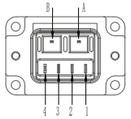


SMK180G series model	Brake	Weight (KG)	Motor body size L (mm)
SMK180G-0300-15□AK-5HSR		14	165±1
SMK180G-0300-15□BK-5HSR	√	18.9	215±1
SMK180G-0350-15□AK-5HSR		16.1	175±1
SMK180G-0350-15□BK-5HSR	√	21	225±1
SMK180G-0440-15□AK-5HSR		18.4	190±1
SMK180G-0440-15□BK-5HSR	√	23.3	240±1
SMK180G-0550-15□AK-5HSR		23	225±1
SMK180G-0550-15□BK-5HSR	√	27.9	275±1
SMK180G-0750-15□AK-5HSR		32	275±1
SMK180G-0750-15□BK-5HSR	√	36.9	325±1

Motor connector specification

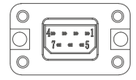
SMK series, 40, 60, 80 flange

Power connector



PIN	Definition
1	U
2	V
3	W
4	PE
A	BR+
B	BR-

Encoder connector

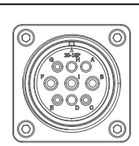


PIN	Multi-turn encoder definition
1	+5V
2	GND
3	VB+
4	VB-
5	SD+
6	SD-

Note: PINA and PINB pin signals are used for motor with brake

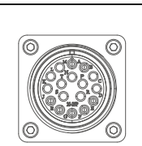
SMK series, 130 flange

Power connector



PIN	Definition
B	U
I	V
F	W
G	PE
C	BR+
E	BR-

Encoder connector

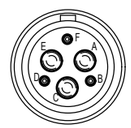


PIN	Multi-turn encoder definition
G	+5V
H	GND
E	VB+
F	VB-
A	SD+
B	SD-
J	PE

Note: PINC and PINE pin signals are used for motor with brake

SMK series, 180 flange

Power connector



PIN	Definition
A	U
C	V
E	W
F	PE
B	BR+
D	BR-

Encoder connector

PIN	Multi-turn encoder definition
G	+5V
H	GND
E	VB+
F	VB-
A	SD+
B	SD-
J	PE

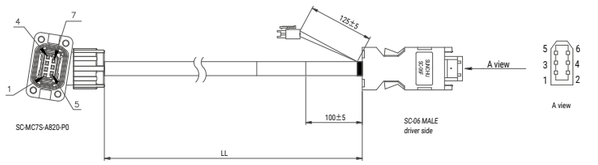
Note: PINB and PIND pin signals are used for motor with brake

Attachment

SMK series 40,60,80 flange motor encoder wire

E-D-QY-KA0-LL-F

Cable specification:
3P×26AWG with shielding, flexible cable (Specifications for cables of length 0-14m) .
1P×22AWG+2P×26AWG with shielding, flexible cable (Specifications for cables of length 15-39m)

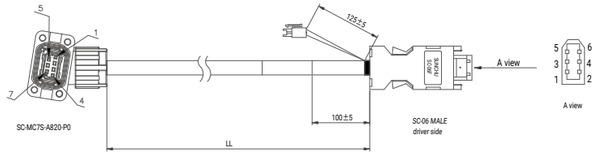


Signal	Motor end	Color	Drive end	
	SC-MC7S-A820-P0		Battery	SC-06 male
+5V	PIN1	Red	/	PIN1
GND	PIN2	Orange	/	PIN2
VB+	PIN3	Brown	PIN1	/
VB-	PIN4	Black	PIN2	/
SD+	PIN5	Blue	/	PIN5
SD-	PIN6	Purple	/	PIN6
Shield	PIN7	Shield	/	Metal button

Note:
Cable diameter:6.5±0.5mm
E-D-QY-KA0-LL-Faccessory package:E-KA and E-D

E-D-QY-KA1-LL-F

Cable specification:
3P×26AWG with shielding, flexible cable (Specifications for cables of length 0-14m).
1P×22AWG+2P×26AWG with shielding, flexible cable (Specifications for cables of length 15-39m)



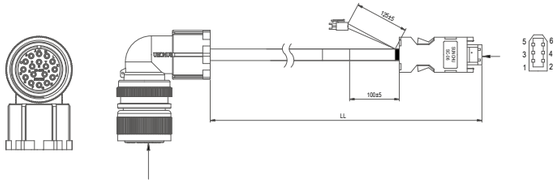
Signal	Motor end	Color	Drive end	
	SC-MC7S-A820-P0		Battery	SC-06 male
+5V	PIN1	Red	/	PIN1
GND	PIN2	Orange	/	PIN2
VB+	PIN3	Brown	PIN1	/
VB-	PIN4	Black	PIN2	/
SD+	PIN5	Blue	/	PIN5
SD-	PIN6	Purple	/	PIN6
Shield	PIN7	Shield	/	Metal button

Note:
Cable diameter:6.5±0.5mm
E-D-QY-KA1-LL-Faccessory package:E-KA and E-D

SMK series 130,180 flange motor encoder wire

E-D-QY-KR-LL-F

Cable specification:
3P×26AWG with shielding, flexible cable (Specifications for cables of length 0-14m).
1P×22AWG+2P×26AWG with shielding, flexible cable (Specifications for cables of length 15-39m)



Signal	Motor end	Color	Drive end	
	SUNCHU CMS3108A20-29SI aviation socket		Battery	SC-06 male
+5V	PIN G	Red	/	PIN1
GND	PIN H	Orange	/	PIN2
VB+	PIN E	Brown	PIN1	/
VB-	PIN F	Black	PIN2	/
SD+	PIN A	Blue	/	PIN5
SD-	PIN B	Purple	/	PIN6
Shield	PIN J	Shield	/	Metal button

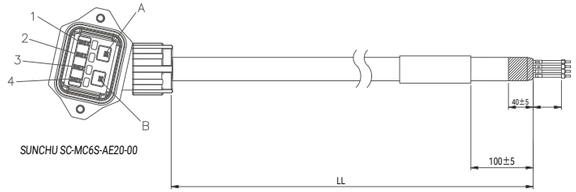
Note:
Cable diameter:6.5±0.5mm
E-D-QY-KR-LL-Faccessory package:E-D and E-KR

Attachment

SMK series 40, 60, 80 flange motor power wire

M-A-6A-KA0-LL-F

Cable specification:4C×20AWG without shielding, flexible cable

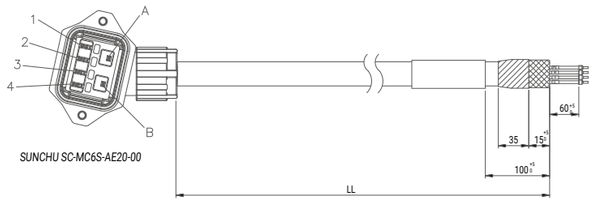


Signal	Motor end	Color
	SC-MC6S-AE20-00	
U	PIN1	White
V	PIN2	Red
W	PIN3	Black
PE	PIN4	yellow-green

Note:
Cable diameter:8.5±0.5mm
M-A-6A-KA0-LL-Faccessory package:M-KA0

M-A-6A-KA0-LL-FS

Cable specification:4C×20AWG with shielding, flexible cable

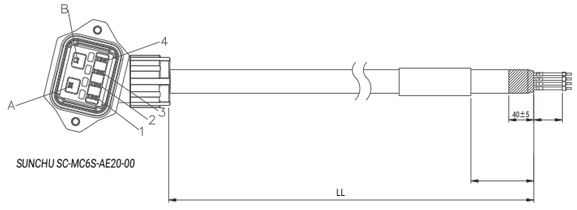


Signal	Motor end	Color
	SC-MC6S-AE20-00	
U	PIN1	White
V	PIN2	Red
W	PIN3	Black
PE	PIN4	yellow-green

Note:
Cable diameter:8.5±0.5mm
M-A-6A-KA0-LL-FSaccessory package:M-KA0

M-A-6A-KA1-LL-F

Cable specification:4C×20AWG without shielding, flexible cable

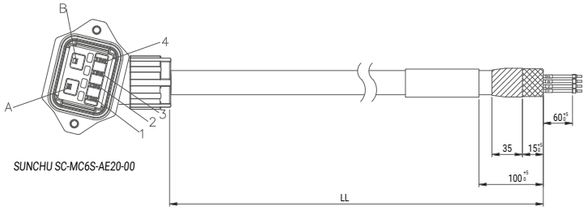


Signal	Motor end	Color
	SC-MC6S-AE20-00	
U	PIN1	White
V	PIN2	Red
W	PIN3	Black
PE	PIN4	yellow-green

Note:
Cable diameter:10±0.5mm
M-A-6A-KA1-LL-Faccessory package:M-KA1

M-A-6A-KA1-LL-FS

Cable specification:4C×20AWG with shielding, flexible cable



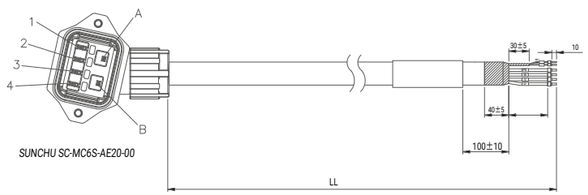
Signal	Motor end	Color
	SC-MC6S-AE20-00	
U	PIN1	White
V	PIN2	Red
W	PIN3	Black
PE	PIN4	yellow-green

Note:
Cable diameter:10±0.5mm
M-A-6A-KA1-LL-FSaccessory package:M-KA1

Attachment

M-A-6A-KA0-LL-BF

Cable specification：4C×20AWG+1P*24AWG without shielding, flexible cable

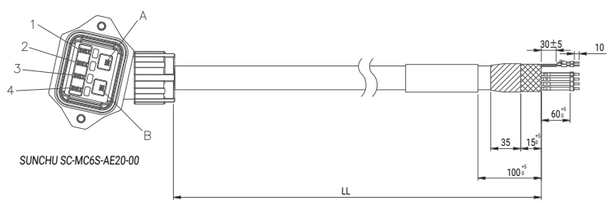


Signal	Motor end SC-MC6S-AE20-00	Color	Drive end C2505HM-02P
U	PIN1	White	\
V	PIN2	Red	\
W	PIN3	Black	\
PE	PIN4	yellow-green	\
BR+	PINA	Brown	PIN1
BR-	PINB	Blue	PIN2

Note:
Cable diameter：8.5±0.5mm
M-A-6A-KA0-LL-BFaccessory package：M-KA0

M-A-6A-KA0-LL-BFS

Cable specification：4C×20AWG+1P*24AWG with shielding, flexible cable

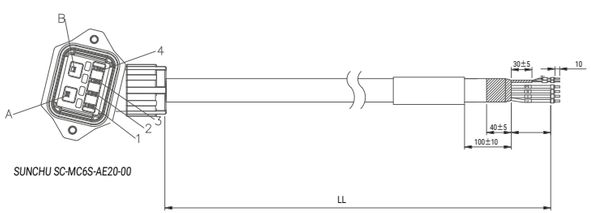


Signal	Motor end SC-MC6S-AE20-00	Color	Drive end C2505HM-02P
U	PIN1	White	\
V	PIN2	Red	\
W	PIN3	Black	\
PE	PIN4	yellow-green	\
BR+	PINA	Brown	PIN1
BR-	PINB	Blue	PIN2

Note:
Cable diameter：8.5±0.5mm
M-A-6A-KA0-LL-BFSaccessory package：M-KA0

M-A-6A-KA1-LL-BF

Cable specification：4C×20AWG+1P*24AWG without shielding, flexible cable

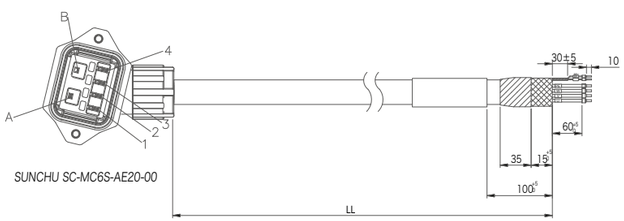


Signal	Motor end SC-MC6S-AE20-00	Color	Drive end C2505HM-02P
U	PIN1	White	\
V	PIN2	Red	\
W	PIN3	Black	\
PE	PIN4	yellow-green	\
BR+	PINA	Brown	PIN1
BR-	PINB	Blue	PIN2

Note:
Cable diameter：10±0.5mm
M-A-6A-KA1-LL-BFaccessory package：M-KA1

M-A-6A-KA1-LL-BFS

Cable specification：4C×20AWG+1P*24AWG with shielding, flexible cable



Signal	Motor end SC-MC6S-AE20-00	Color	Drive end C2505HM-02P
U	PIN1	White	\
V	PIN2	Red	\
W	PIN3	Black	\
PE	PIN4	yellow-green	\
BR+	PINA	Brown	PIN1
BR-	PINB	Blue	PIN2

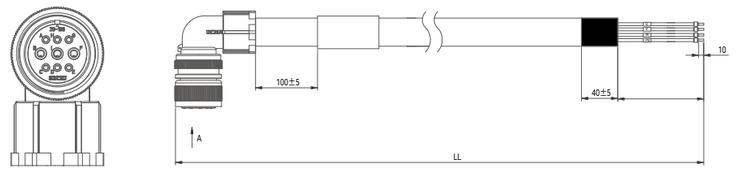
Note:
Cable diameter：10±0.5mm
M-A-6A-KA1-LL-BFSaccessory package：M-KA1

Attachment

SMK series 130 flange motor power wire

M-A-12A-KR0-LL-F

Cable specification：4×16AWG without shielding, flexible cable

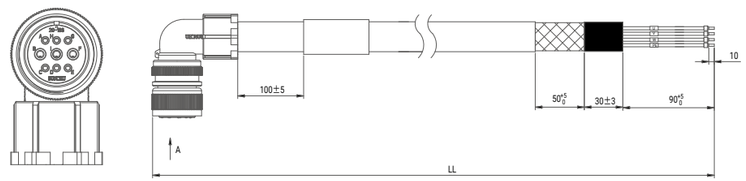


Signal	Motor end CMS3108A20-18SI aviation socket	Color
U	PINB	White
V	PINI	Red
W	PINF	Black
PE	PING	yellow-green

Note:
Cable diameter：8.5±0.5mm
M-A-12A-KR0-LL-Faccessory package：M-KR0

M-A-12A-KR0-LL-FS

Cable specification：4×16AWG with shielding, flexible cable

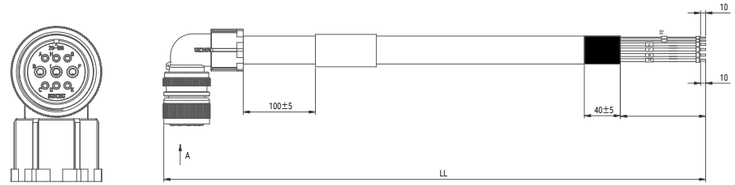


Signal	Motor end CMS3108A20-18SI aviation socket	Color
U	PINB	White
V	PINI	Red
W	PINF	Black
PE	PING	yellow-green

Note:
Cable diameter：8.5±0.5mm
M-A-12A-KR0-LL-FSaccessory package：M-KR0

M-A-12A-KR0-LL-BF

Cable specification：4×16AWG+2×20AWG without shielding, flexible cable

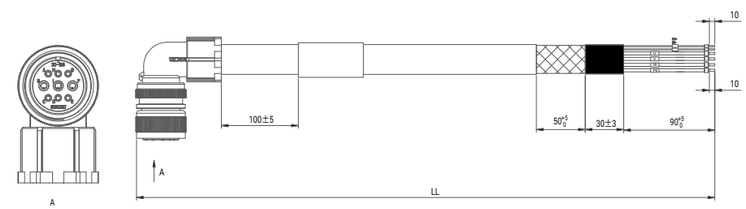


Signal	Motor end CMS3108A20-18SI aviation socket	Color
U	PINB	White
V	PINI	Red
W	PINF	Black
PE	PING	yellow-green
BR+	PINC	Brown
BR-	PINE	Blue

Note:
Cable diameter：10±0.5mm
M-A-12A-KR0-LL-BFaccessory package：M-KR0

M-A-12A-KR0-LL-BFS

Cable specification：4×16AWG+2×20AWG with shielding, flexible cable



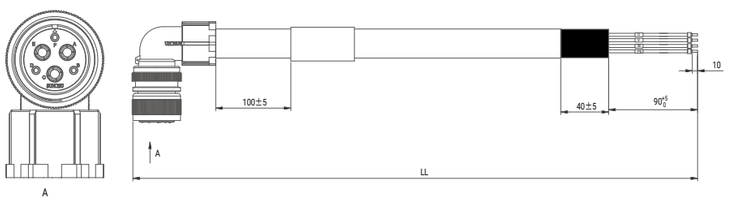
Signal	Motor end CMS3108A20-18SI aviation socket	Color
U	PINB	White
V	PINI	Red
W	PINF	Black
PE	PING	yellow-green
BR+	PINC	Brown
BR-	PINE	Blue

Note:
Cable diameter：10±0.5mm
M-A-12A-KR0-LL-BFSaccessory package：M-KR0

SMK series 180 flange motor power wire

M-A-12A-KR1-LL-F

Cable specification:4×16AWG without shielding, flexible cable

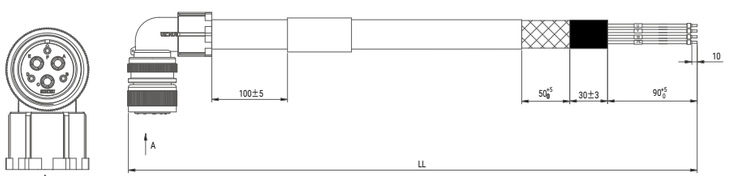


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green

Note:
Cable diameter:8.5±0.5mm
M-A-12A-KR1-LL-Faccessory package:M-KR1

M-A-12A-KR1-LL-FS

Cable specification:4×16AWG with shielding, flexible cable

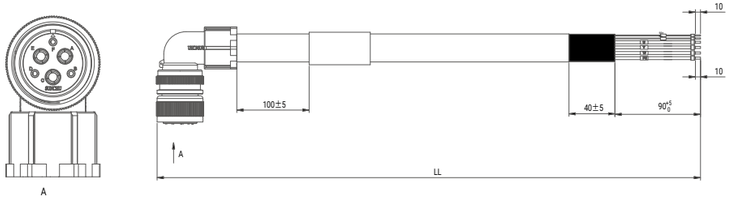


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green

Note:
Cable diameter:8.5±0.5mm
M-A-12A-KR1-LL-FSaccessory package:M-KR1

M-A-12A-KR1-LL-BF

Cable specification:4×16AWG+2×20AWG without shielding, flexible cable

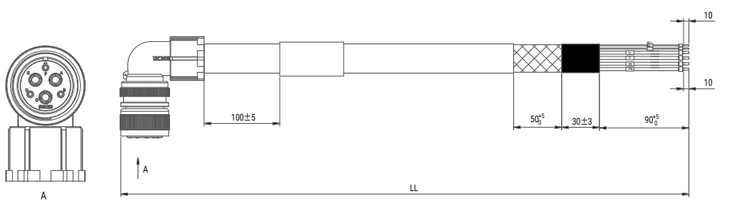


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green
BR+	PINB	Brown
BR-	PIND	Blue

Note:
Cable diameter:10±0.5mm
M-A-12A-KR1-LL-BFaccessory package:M-KR1

M-A-12A-KR1-LL-BFS

Cable specification:4×16AWG+2×20AWG with shielding, flexible cable

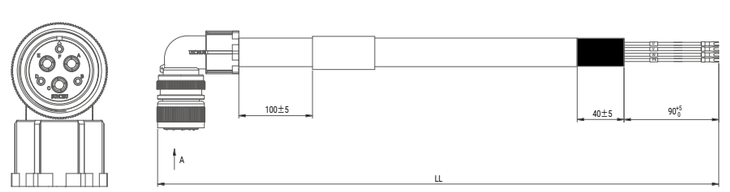


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green
BR+	PINB	Brown
BR-	PIND	Blue

Note:
Cable diameter:10±0.5mm
M-A-12A-KR1-LL-BFSaccessory package:M-KR1

M-Y-20A-KR1-LL-F

Cable specification:4×14AWG without shielding, flexible cable

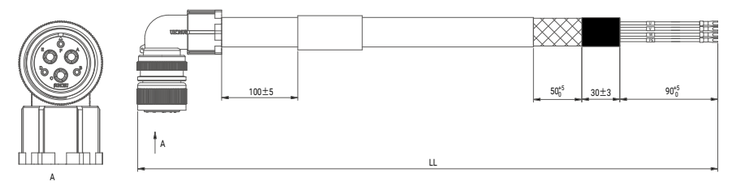


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green

Note:
Cable diameter:10±1mm
M-Y-20A-KR1-LL-Faccessory package:M-KR1

M-Y-20A-KR1-LL-FS

Cable specification:4×14AWG with shielding, flexible cable

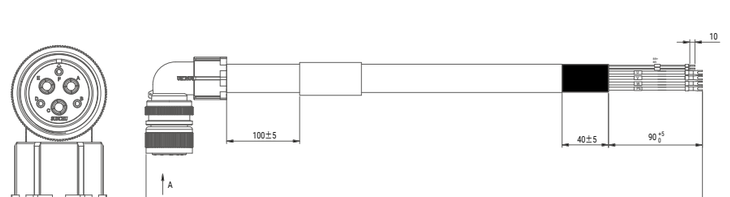


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green

Note:
Cable diameter:10±1mm
M-Y-20A-KR1-LL-FSaccessory package:M-KR1

M-Y-20A-KR1-LL-BF

Cable specification:4×14AWG+2×20AWG without shielding, flexible cable

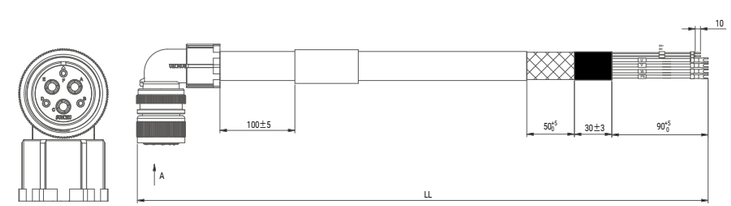


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green
BR+	PINB	Brown
BR-	PIND	Blue

Note:
Cable diameter:11.6±1mm
M-Y-20A-KR1-LL-BFaccessory package:M-KR1

M-Y-20A-KR1-LL-BFS

Cable specification:4×14AWG+2×20AWG with shielding, flexible cable

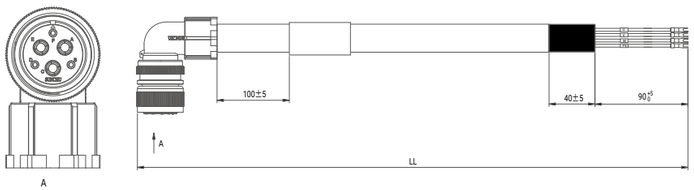


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green
BR+	PINB	Brown
BR-	PIND	Blue

Note:
Cable diameter:11.6±1mm
M-Y-20A-KR1-LL-BFSaccessory package:M-KR1

M-Y-30A-KR1-LL-F

Cable specification：4×12AWG without shielding, flexible cable

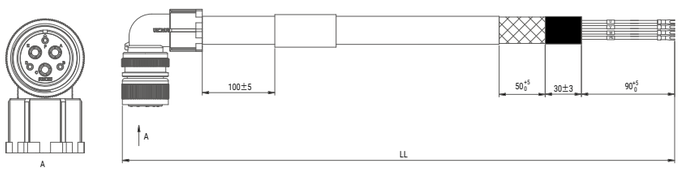


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green

Note:
Cable diameter：12.5±1mm
M-Y-30A-KR1-LL-Faccessory package：M-KR1

M-Y-30A-KR1-LL-FS

Cable specification：4×12AWG with shielding, flexible cable

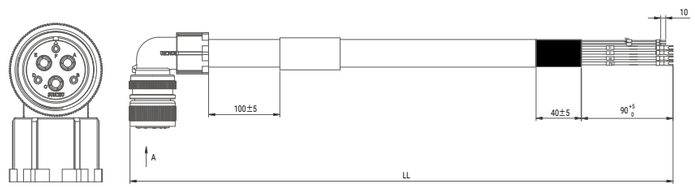


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green

Note:
Cable diameter：12.5±1mm
M-Y-30A-KR1-LL-FSaccessory package：M-KR1

M-Y-30A-KR1-LL-BF

Cable specification：4×12AWG without shielding, flexible cable

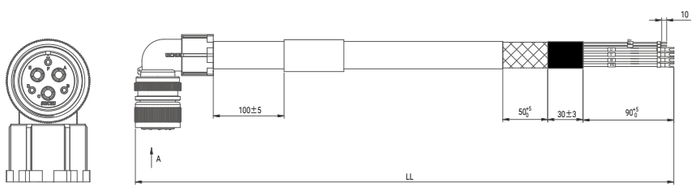


Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green
BR+	PINB	Brown
BR-	PIND	Blue

Note:
Cable diameter：13±1mm
M-Y-30A-KR1-LL-BFaccessory package：M-KR1

M-Y-30A-KR1-LL-BFS

Cable specification：4×12AWG+2×20AWG with shielding, flexible cable



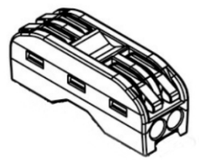
Signal	Motor end CMS3108A20-22SI aviation socket	Color
U	PINA	White
V	PINC	Red
W	PINE	Black
PE	PINF	yellow-green
BR+	PINB	Brown
BR-	PIND	Blue

Note:
Cable diameter：13±1mm
M-Y-30A-KR1-LL-BFaccessory package：M-KR1

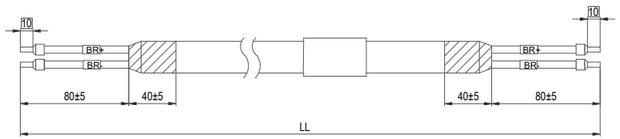
Brake extension cable

BRA-EXT-LL

Cable specification：2×20AWG without shielding



Fast-wiring terminal



Signal	Color
BR+	Brown
BR-	Blue

Note:
Cable diameter：5.5±0.5mm

Battery case

BAT-FD5

Note：BAT-FD5 battery is suitable for absolute encoder motor

FD5P Battery optional pack