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Kinco

Motion
Control
Servo System

➡ **Servo System Catalog**

- JD/FD2S/CD2S
- Series Servo Driver
- Servo Motor



02 Model Description of Servo Driver and Motor

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- Kinco Servo Motor
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08 Servo Driver Introduction

Panel and Interface Description, Port Description, Technical Specifications, Wiring Diagram, Mechanical Dimension Diagram

- JD servo driver
(port description, Communication interface description, Technical specifications,wiring diagram,mechanical dimension diagram)
- FD2S servo driver
(port description, Communication interface description, Technical specifications,wiring diagram,mechanical dimension diagram)
- CD2S servo driver
(port description, Communication interface description, Technical specifications,wiring diagram,mechanical dimension diagram)

21 Servo Motor Introduction

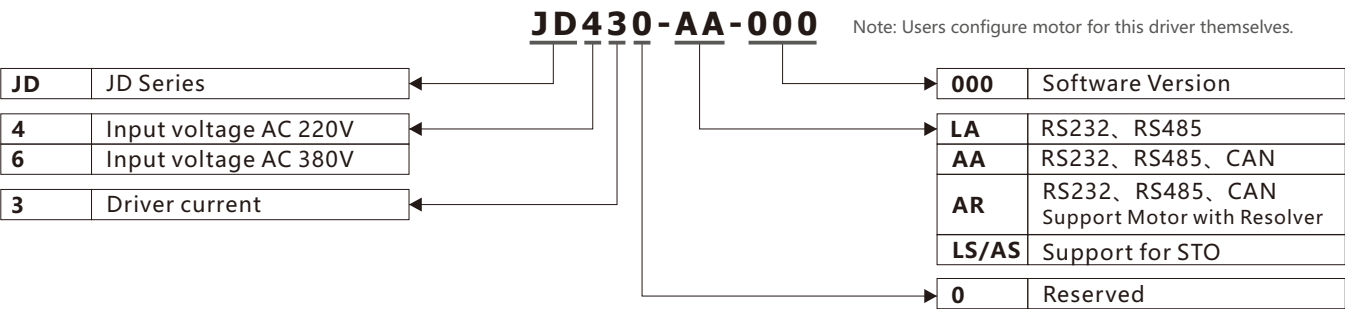
- Table of SMH series servo motor technical parameteres (60, 80, 110, 130, 150, 180 flange)
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53 Wiring Diagram for Cable

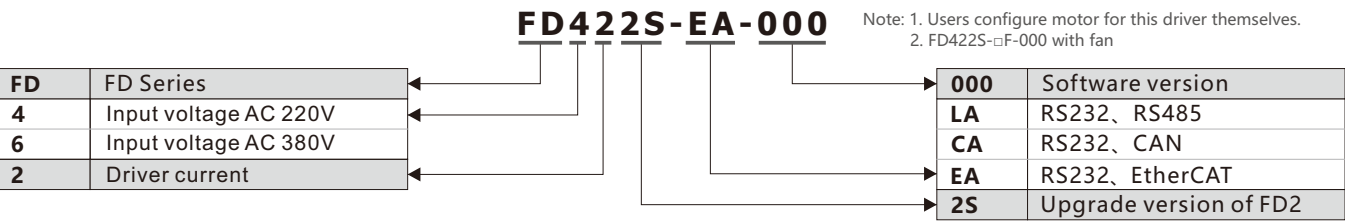
- Wiring Diagram for The Power Cable
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Model Description of Servo Driver and Motor

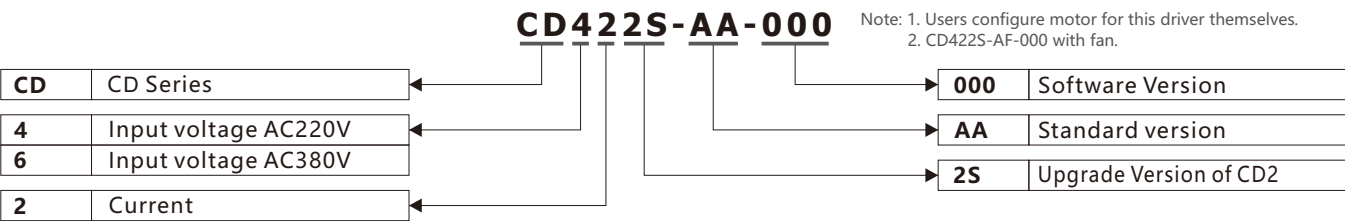
Kinco JD Series Servo Driver



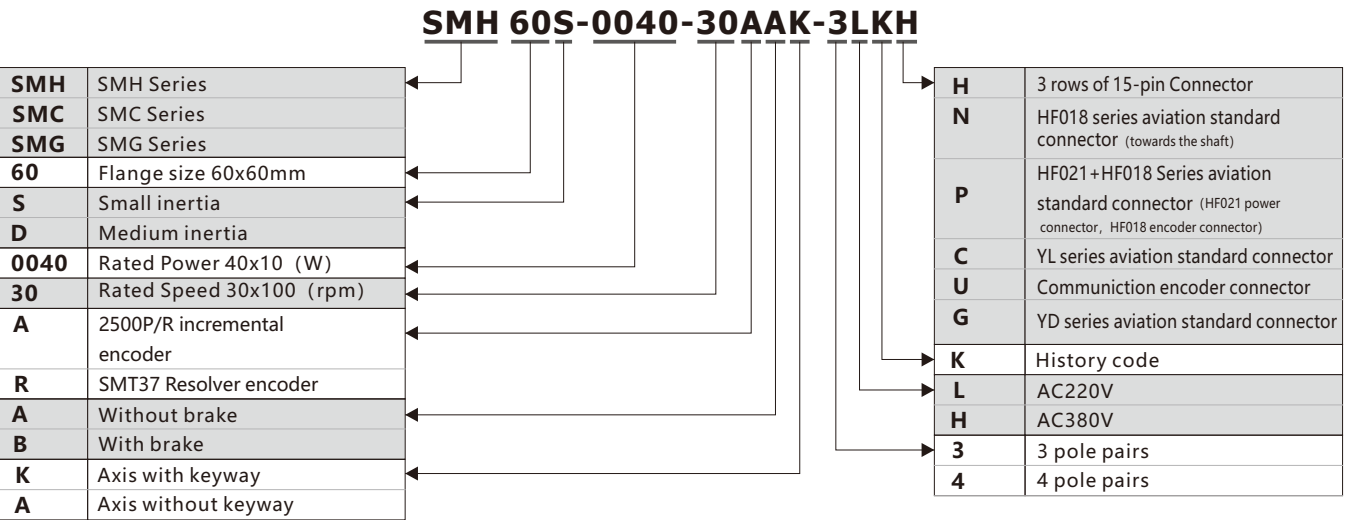
Kinco FD2S Series Servo Driver



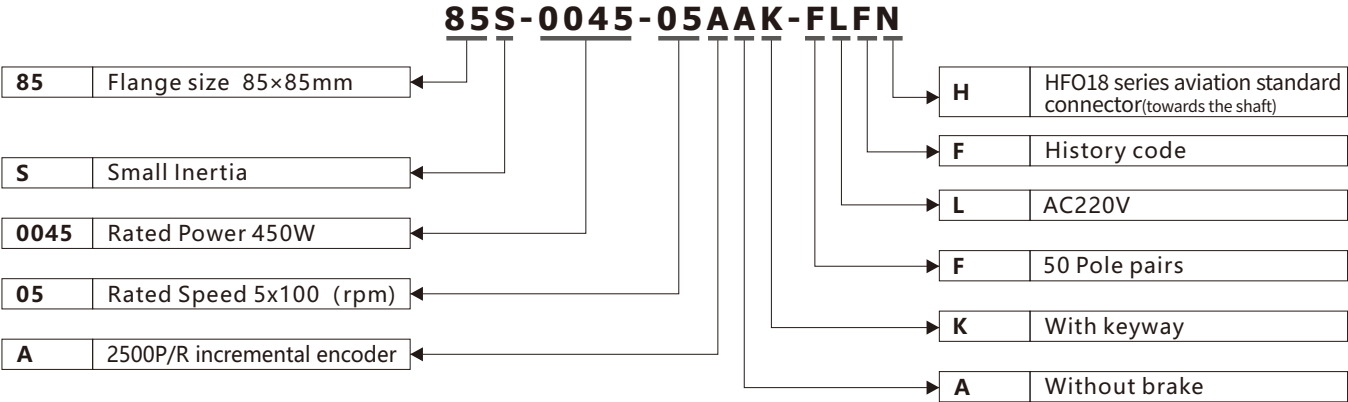
Kinco CD2S Series Servo Driver



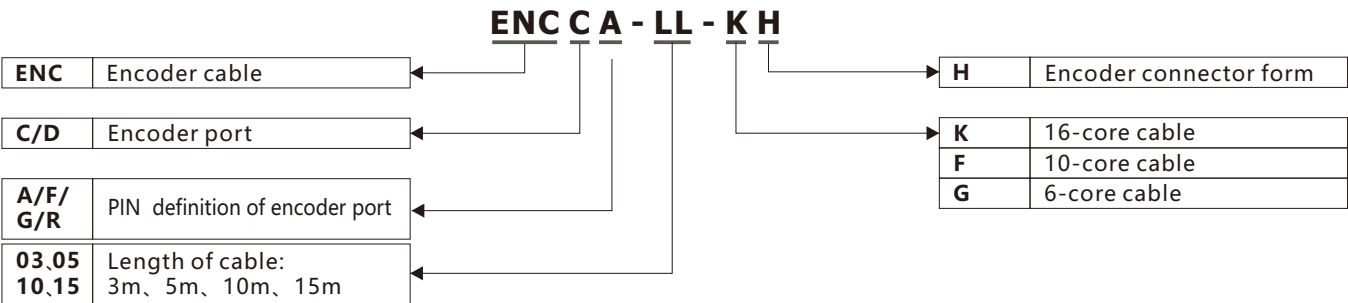
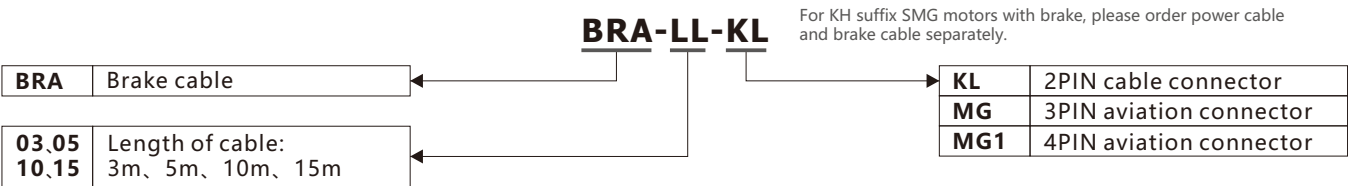
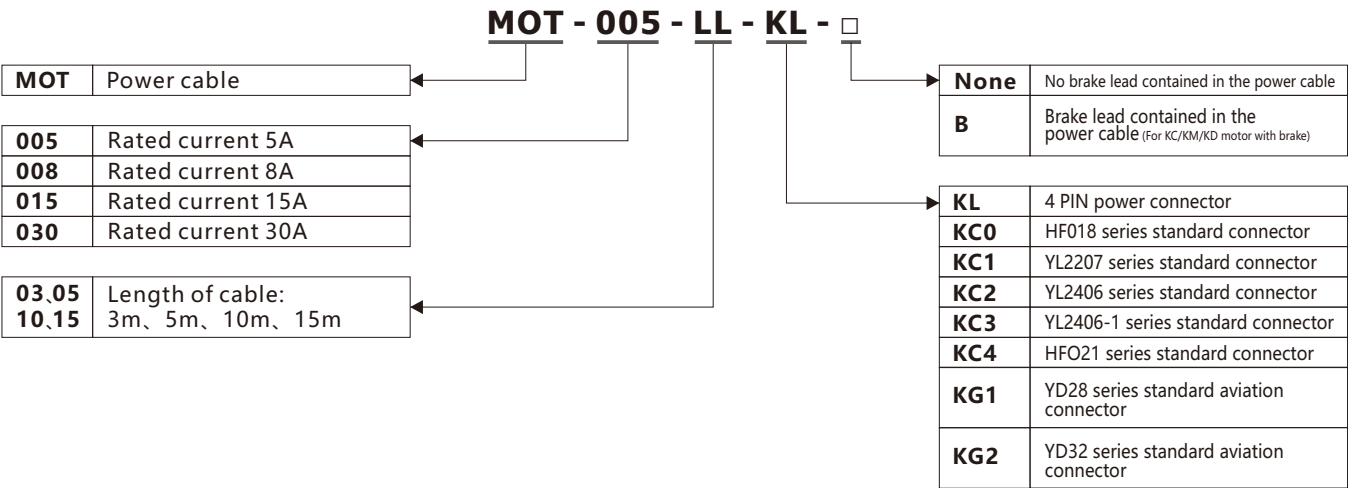
Kinco Servo Motor



Kinco Multi-pole Servo Motor



Power, Brake and Encoder Cable of Motors



JD/FD2S/CD2S Servo Driver and Motor Selection Table (1)

Series	Rated Power / Rated Speed / Rated Torque	Servo Motor	Description	Power/ Brake Cable	Encoder Cable	Servo Driver	
Small Inertia 220V	200W 3000rpm/0.64Nm	SMH60S-0020-30AAK-3LKH	2500P/R incremental connector	MOT-005-LL-KL	ENCCA-LL-KH	JD430-AA-000* ^{s1} FD422S-CA-000* ^{s1} FD422S-LA-000* ^{s2} FD422S-EA-000* ^{s3} CD422S-AA-000* ^{s4}	
		SMH60S-0020-30ABK-3LKH ●	2500P/R incremental connector with brake	MOT-005-LL-KL/BRA-LL-KL			
		SMH60S-0020-30AAK-3LKN	2500P/R HFO18 (Towards the shaft) series connector	MOT-005-LL-KC0	ENCCA-LL-KC0		
		SMH60S-0020-30ABK-3LKP ●	2500P/R HFO18+HFO21 series connector with brake	MOT-005-LL-KC4-B			
	400W 3000rpm/1.27Nm	SMH60S-0040-30AAK-3LKH	2500P/R incremental connector	MOT-005-LL-KL	ENCCA-LL-KH		
		SMH60S-0040-30ABK-3LKH ●	2500P/R incremental connector with brake	MOT-005-LL-KL/BRA-LL-KL			
		SMH60S-0040-30AAK-3LKN	2500P/R HFO18 (Towards the shaft) series connector	MOT-005-LL-KC0	ENCCA-LL-KC0		
		SMH60S-0040-30ABK-3LKP ●	2500P/R HFO18+HFO21 series connector with brake	MOT-005-LL-KC4-B			
	750W 3000rpm/2.39Nm	SMH80S-0075-30AAK-3LKH	2500P/R incremental connector	MOT-005-LL-KL	ENCCA-LL-KH		
		SMH80S-0075-30ABK-3LKH ●	2500P/R incremental connector with brake	MOT-005-LL-KL/BRA-LL-KL			
		SMH80S-0075-30AAK-3LKN	2500P/R HFO18 (Towards the shaft) series connector	MOT-005-LL-KC0	ENCCA-LL-KC0		
		SMH80S-0075-30ABK-3LKP ●	2500P/R HFO18+HFO21 series connector with brake	MOT-005-LL-KC4-B			
	4.18Nm	85S-0025-05AAK-FLFN-02	2500P/R Multi-pole servo motor	MOTE-005-LL-KC0	ENCCF-LL-FC0	FD422S-CA-000* ^{s1} FD422S-LA-000* ^{s2} FD422S-EA-000* ^{s3} CD422S-AA-000* ^{s4}	
	6Nm	85S-0035-05AAK-FLFN-02	2500P/R Multi-pole servo motor				
	7.5Nm	85S-0045-05AAK-FLFN-02	2500P/R Multi-pole servo motor				
	1kW 3000rpm/3.18Nm	SMH80S-0100-30AAK-3LKH	2500P/R incremental connector	MOT-008-LL-KL	ENCCA-LL-KH	JD430-AA-000* ^{s1} FD432S-CA-000* ^{s1} FD432S-LA-000* ^{s2} FD432S-EA-000* ^{s3} CD432S-AA-000* ^{s4}	
		SMH80S-0100-30ABK-3LKH ●	2500P/R incremental connector with brake	MOT-008-LL-KL/BRA-LL-KL			
	Medium Inertia 220V	1.05kW 2000rpm/5Nm	SMH110D-0105-20AAK-4LKC	2500P/R YL series connector	MOT-008-LL-KC1		ENCCA-LL-KC1
			SMH110D-0105-20ABK-4LKC ●	2500P/R YL series connector with brake	MOT-008-LL-KC2-B		
		1.26kW 2000rpm/6Nm	SMH110D-0126-20AAK-4LKC	2500P/R YL series connector	MOT-008-LL-KC1		
SMH110D-0126-20ABK-4LKC ●			2500P/R YL series connector with brake	MOT-008-LL-KC2-B			
1.25kW 3000rpm/4Nm	SMH110D-0125-30AAK-4LKC	2500P/R YL series connector	MOT-008-LL-KC1				
	SMH110D-0125-30ABK-4LKC ●	2500P/R YL series connector with brake	MOT-008-LL-KC2-B				
Medium Inertia 380V	1.26kW 3000rpm/4Nm	SMH110D-0126-30AAK-4HKC	2500P/R YL series connector	MOT-008-LL-KC1	JD620-AA-000 FD622S-CA-000 FD622S-LA-000 CD622S-AA-000		
		SMH110D-0126-30ABK-4HKC ●	2500P/R YL series connector with brake	MOT-008-LL-KC2-B			
	1.57kW 3000rpm/5Nm	SMH110D-0157-30AAK-4HKC	2500P/R YL series connector	MOT-008-LL-KC1			
		SMH110D-0157-30ABK-4HKC ●	2500P/R YL series connector with brake	MOT-008-LL-KC2-B			
	1.88kW 3000rpm/6Nm	SMH110D-0188-30AAK-4HKC	2500P/R YL series connector	MOT-008-LL-KC1			
		SMH110D-0188-30ABK-4HKC ●	2500P/R YL series connector with brake	MOT-008-LL-KC2-B			

Servo Driver and Motor Selection Table

Servo Driver and Motor Selection Table

JD/FD2S/CD2S Servo Driver and Motor Selection Table (2)

Series	Rated Power/ Rated Speed/ Rated Torque	Servo Motor	Description	Power/ Brake Cable	Encoder Cable	Servo Driver
Medium inertia 220V or 380V	1.05kW 2000rpm/5Nm	SMH130D-0105-20AAK-4HKC	2500P/R YL series connector	MOT-008-LL-KC2	ENCCA-LL-KC1	JD430-AA-000 ^{*1} JD620-AA-000 ^{*1} FD432S-CA-000 ^{*1} FD622S-CA-000 ^{*1} FD432S-LA-000 ^{*2} FD622S-LA-000 ^{*2} FD432S-EA-000 ^{*3} FD622S-EA-000 ^{*3} CD432S-AA-000 ^{*4} CD622S-AA-000 ^{*4}
		SMH130D-0105-20ABK-4HKC •	2500P/R YL series connector with brake	MOT-008-LL-KC2-B		
	1.57kW 2000rpm/7.5Nm	SMH130D-0157-20AAK-4HKC	2500P/R YL series connector	MOT-008-LL-KC2		
		SMH130D-0157-20ABK-4HKC •	2500P/R YL series connector with brake	MOT-008-LL-KC2-B		
	2.1kW 2000rpm/10Nm	SMH130D-0210-20AAK-4HKC	2500P/R YL series connector	MOT-008-LL-KC2		
		SMH130D-0210-20ABK-4HKC •	2500P/R YL series connector with brake	MOT-008-LL-KC2-B		
	2.3kW 2000rpm/11.1Nm	SMH150D-0230-20AAK-4HKC	2500P/R YL series connector	MOT-008-LL-KC2		
		SMH150D-0230-20ABK-4HKC •	2500P/R YL series connector with brake	MOT-008-LL-KC2-B		
	3kW 2000rpm/14.3Nm	SMH130D-0300-20AAK-4HKC	2500P/R YL series connector	MOT-008-LL-KC2		
		SMH130D-0300-20ABK-4HKC •	2500P/R YL series connector with brake	MOT-008-LL-KC2-B		
	3kW 2000rpm/14.3Nm	SMH150D-0300-20AAK-4HKC	2500P/R YL series connector	MOT-008-LL-KC2	ENCCA-LL-KC1	JD630-AA-000 ^{*1} JD630-LA-000 ^{*2}
		SMH150D-0300-20ABK-4HKC •	2500P/R YL series connector with brake	MOT-008-LL-KC2-B		
	3.8kW 2000rpm/18Nm	SMH150D-0380-20AAK-4HKC	2500P/R YL series connector	MOT-015-LL-KC2		
		SMH150D-0380-20ABK-4HKC •	2500P/R YL series connector with brake	MOT-015-LL-KC2-B		
	3.5kW 1500rpm/22Nm	SMH180D-0350-15AAK-4HKC	2500P/R YL series connector	MOT-015-LL-KC2		
		SMH180D-0350-15ABK-4HKC •	2500P/R YL series connector with brake	MOT-015-LL-KC2-B		
	4.4kW 1500rpm/28Nm	SMH180D-0440-15AAK-4HKC	2500P/R YL series connector	MOT-015-LL-KC2	ENCCR-LL-FC1	JD640-AA-000 ^{*1} JD640-LA-000 ^{*2}
		SMH180D-0440-15ABK-4HKC •	2500P/R YL series connector with brake	MOT-015-LL-KC2-B		
	5.5kW 1500rpm/35Nm	SMH180D-0550-15RAK-4HKC	STM37 resolver YL series connector	MOT-015-LL-KC2		
		SMH180D-0550-15RBK-4HKC	STM37 resolver YL series connector with brake	MOT-015-LL-KC2-B		
	7.5kW 1500rpm/48Nm	SMH180D-0750-15RAK-4HKC	STM37 resolver YL series connector	MOT-030-LL-KC3		

Note: 1. This drive requires the user to select the motor by himself.
2. *1--Support CANopen bus control mode
*2--Support pulse and MODBUS 485 control mode
*3--Support EtherCAT control mode
*4--Support pulse control mode
3. • When the driver drives the brake holding device, the DC24V / 2A relay shall be externally connected.

JD/FD2S/CD2S Servo Driver and Motor Selection Table (3)

Series	Rated Power/ Rated Speed/ Rated Torque	Servo Motor	Description	Power/ Brake Cable	Encoder Cable	Servo Driver
Medium inertia 380V	1.0kW 1000rpm/10Nm	SMG130D-0100-10AAK-4LKG	2500P/R YD series connector	MOT-005-LL-KG1	ENCCA-LL-KG1	JD430-AA-000 ^{*1} FD422S-CF-000 ^{*1} FD422S-LF-000 ^{*2} FD422S-EF-000 ^{*3} CD422S-AF-000 ^{*4}
		SMG130D-0100-10ABK-4LKG •	2500P/R YD series connector with brake	MOT-005-LL-KG1/BRA-LL-MG		
	1.0kW 2000rpm/5Nm	SMG130D-0100-20AAK-4LKG	2500P/R YD series connector	MOT-005-LL-KG1		
		SMG130D-0100-20ABK-4LKG •	2500P/R YD series connector with brake	MOT-005-LL-KG1/BRA-LL-MG		
	1.5kW 2000rpm/7.7Nm	SMG130D-0150-20AAK-4LKG	2500P/R YD series connector	MOT-008-LL-KG1		JD430-AA-000 ^{*1} FD432S-CA-000 ^{*1} FD432S-LA-000 ^{*2} FD432S-EA-000 ^{*3} CD432S-AA-000 ^{*4}
		SMG130D-0150-20ABK-4LKG •	2500P/R YD series connector with brake	MOT-008-LL-KG1/BRA-LL-MG		
		SMG130D-0150-20AAK-4HKG	2500P/R YD series connector	MOT-005-LL-KG1		JD620-AA-000 ^{*1} FD612S-CA-000 ^{*1} FD612S-LA-000 ^{*2} FD612S-EA-000 ^{*3} CD612S-AA-000 ^{*4}
		SMG130D-0150-20ABK-4HKG •	2500P/R YD series connector with brake	MOT-005-LL-KG1/BRA-LL-MG		
	2.0kW 2000rpm/10Nm	SMG130D-0200-20AAK-4LKG	2500P/R YD series connector	MOT-015-LL-KG1	ENCCA-LL-KG1	FD432S-CA-000 ^{*1} JD430-AA-000 ^{*1} FD432S-LA-000 ^{*2} FD432S-EA-000 ^{*3} CD432S-AA-000 ^{*4}
		SMG130D-0200-20ABK-4LKG •	2500P/R YD series connector with brake	MOT-015-LL-KG1/BRA-LL-MG		
		SMG130D-0200-20AAK-4HKG •	2500P/R YD series connector	MOT-008-LL-KG1		FD612S-CA-000 ^{*1} JD620-AA-000 ^{*1} FD612S-LA-000 ^{*2} FD612S-EA-000 ^{*3} CD612S-AA-000 ^{*4}
		SMG130D-0200-20ABK-4HKG •	2500P/R YD series connector with brake	MOT-008-LL-KG1/BRA-LL-MG		
	3.0kW 2000rpm/15Nm	SMG130D-0300-20AAK-4HKG	2500P/R YD series connector	MOT-008-LL-KG1	ENCCA-LL-KG1	JD620-AA-000 ^{*1} FD622S-CA-000 ^{*1} FD622S-LA-000 ^{*2} FD622S-EA-000 ^{*3} CD622S-AA-000 ^{*4}
		SMG130D-0300-20ABK-4HKG •	2500P/R YD series connector with brake	MOT-008-LL-KG1/BRA-LL-MG		
	4.4kW 1500rpm/27Nm	SMG180D-0440-15AAK-4HKG	2500P/R YD series connector	MOT-015-LL-KG2		JD640-AA-000 ^{*1} JD640-LA-000 ^{*2}
		SMG180D-0440-15ABK-4HKG •	2500P/R YD series connector with brake	MOT-015-LL-KG2/BRA-LL-MG1		
	5.5kW 1500rpm/35Nm	SMG180D-0550-15AAK-4HKG	2500P/R YD series connector	MOT-015-LL-KG2		
		SMG180D-0550-15ABK-4HKG •	2500P/R YD series connector with brake	MOT-015-LL-KG2/BRA-LL-MG1		
	7.5kW 1500rpm/48Nm	SMG180D-0750-15AAK-4HKG	2500P/R YD series connector	MOT-030-LL-KG2		JD650-AA-000 ^{*1}
		SMG180D-0750-15ABK-4HKG	2500P/R YD series connector with brake	MOT-030-LL-KG2/BRA-LL-MG1		

Note: 1. This drive requires the user to select the motor by himself.
2. *1--Support CANopen bus control mode
*2--Support pulse MODBUS 485 control mode
*3--Support EtherCAT control mode
*4--Support pulse control mode
3. • When the driver drives the brake holding device, the DC24V / 2A relay shall be externally connected.

FD2S/CD2S Servo Driver and Motor Selection Table (4)

Series	Rated Power/ Rated Speed/ Rated Torque	Servo Motor	Description	Power/ Brake Cable	Encoder Cable	Servo Driver
Small inertia 220V	200W 3000rpm/0.64Nm	SMC60S-0020-30AAK-3LKH	2500P/R Cable connector	MOT-005-LL-KL	ENCCA-LL-KH	FD422S-CA-000 ¹ FD422S-LA-000 ² FD422S-EA-000 ³ CD422S-AA-000 ⁴
		SMC60S-0020-30ABK-3LKH •	2500P/R Cable connector with brake	MOT-005-LL-KL/BRA-LL-KL		
		SMC60S-0020-30AAK-3LKN	2500P/R HFO18 series connector	MOT-005-LL-KC0	ENCCA-LL-KC0	
		SMC60S-0020-30ABK-3LKP •	2500P/R HFO18+HFO21 series connector with brake	MOT-005-LL-KC4-B		
	400W 3000rpm/1.27Nm	SMC60S-0040-30AAK-3LKH	2500P/R Cable connector	MOT-005-LL-KL	ENCCA-LL-KH	
		SMC60S-0040-30ABK-3LKH •	2500P/R Cable connector with brake	MOT-005-LL-KL/BRA-LL-KL		
		SMC60S-0040-30AAK-3LKN	2500P/R HFO18 series connector	MOT-005-LL-KC0	ENCCA-LL-KC0	
		SMC60S-0040-30ABK-3LKP •	2500P/R HFO18+HFO21 series connector with brake	MOT-005-LL-KC4-B		
	750W 3000rpm/2.39Nm	SMC80S-0075-30AAK-3LKH	2500P/R Cable connector	MOT-005-LL-KL	ENCCA-LL-KH	
		SMC80S-0075-30ABK-3LKH •	2500P/R Cable connector with brake	MOT-005-LL-KL/BRA-LL-KL		
		SMC80S-0075-30AAK-3LKN	2500P/R HFO18 series connector	MOT-005-LL-KC0	ENCCA-LL-KC0	
		SMC80S-0075-30ABK-3LKP •	2500P/R HFO18+HFO21 series connector with brake	MOT-005-LL-KC4-B		
Medium inertia 220V or 380V	1kW 2000rpm/4.8Nm	SMC130D-0100-20AAK-4LKP	2500P/R HFO18+HFO21 series connector	MOT-005-LL-KC4	ENCCA-LL-KC0	FD422S-CF-000 ¹ FD422S-LF-000 ² FD422S-EF-000 ³ CD422S-AF-000 ⁴
		SMC130D-0100-20ABK-4LKP •	2500P/R HFO18+HFO21 series connector with brake	MOT-005-LL-KC4-B		
	1.5kW 2000rpm/7.2Nm	SMC130D-0150-20AAK-4LKP	2500P/R HFO18+HFO21 series connector	MOT-008-LL-KC4	ENCCA-LL-KC0	FD432S-CA-000 ¹ FD432S-LA-000 ² FD432S-EA-000 ³ CD432S-AA-000 ⁴
		SMC130D-0150-20ABK-4LKP •	2500P/R HFO18+HFO21 series connector with brake	MOT-008-LL-KC4-B		
	2kW 2000rpm/10Nm	SMC130D-0200-20AAK-4LKP	2500P/R HFO18+HFO21 series connector	MOT-008-LL-KC4	ENCCA-LL-KC0	FD612S-CA-000 ¹ FD612S-LA-000 ² FD612S-EA-000 ³ CD612S-AA-000 ⁴
		SMC130D-0200-20ABK-4LKP •	2500P/R HFO18+HFO21 series connector with brake	MOT-008-LL-KC4-B		
	1.5kW 2000rpm/7.2Nm	SMC130D-0150-20AAK-4HKP	2500P/R HFO18+HFO21 series connector	MOT-005-LL-KC4	ENCCA-LL-KC0	FD622S-CA-000 ¹ FD622S-LA-000 ² FD622S-EA-000 ³ CD622S-AA-000 ⁴
		SMC130D-0150-20ABK-4HKP •	2500P/R HFO18+HFO21 series connector with brake	MOT-005-LL-KC4-B		
	2kW 2000rpm/10Nm	SMC130D-0200-20AAK-4HKP	2500P/R HFO18+HFO21 series connector	MOT-008-LL-KC4	ENCCA-LL-KC0	FD622S-CA-000 ¹ FD622S-LA-000 ² FD622S-EA-000 ³ CD622S-AA-000 ⁴
		SMC130D-0200-20ABK-4HKP •	2500P/R HFO18+HFO21 series connector with brake	MOT-008-LL-KC4-B		
	3kW 2000rpm/14.3Nm	SMC130D-0300-20AAK-4HKP	2500P/R HFO18+HFO21 series connector	MOT-008-LL-KC4	ENCCA-LL-KC0	FD622S-CA-000 ¹ FD622S-LA-000 ² FD622S-EA-000 ³ CD622S-AA-000 ⁴
		SMC130D-0300-20ABK-4HKP •	2500P/R HFO18+HFO21 series connector with brake	MOT-008-LL-KC4-B		



X9 Enable input Connector

24V , GND : 24V Power supply
ENA+ , ENA- : Enable input port A
ENB+ , ENB- : Enable input port B

Models that support STO:
X9 STO Connector

24V , GND : 24V Power supply
STOA+ , STOA- : Safe port A
STOB+ , STOB- : Safe port B

Driver Shell

X1

Encoder output port

X7 Column A

24VS and GNDS:
Power supply for control
DIN1...DIN8:
8 Digital programmable
input ports
COMI1:
Common port of DIN1~DIN4
COMI2:
Common port of DIN5~DIN8

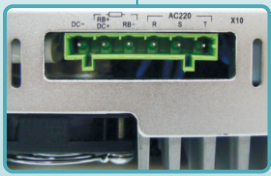
X7 Column B

GA, AIN1 and AIN2:
2 analog input channels
24VO and COMO:
24V power supply for OUT6
OUT1...OUT7:
7 digital programmable output ports
OUT6 can drive brake device directly



GND
Terminal

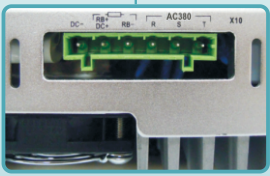
Bottom



JD430(AC220V)

X10

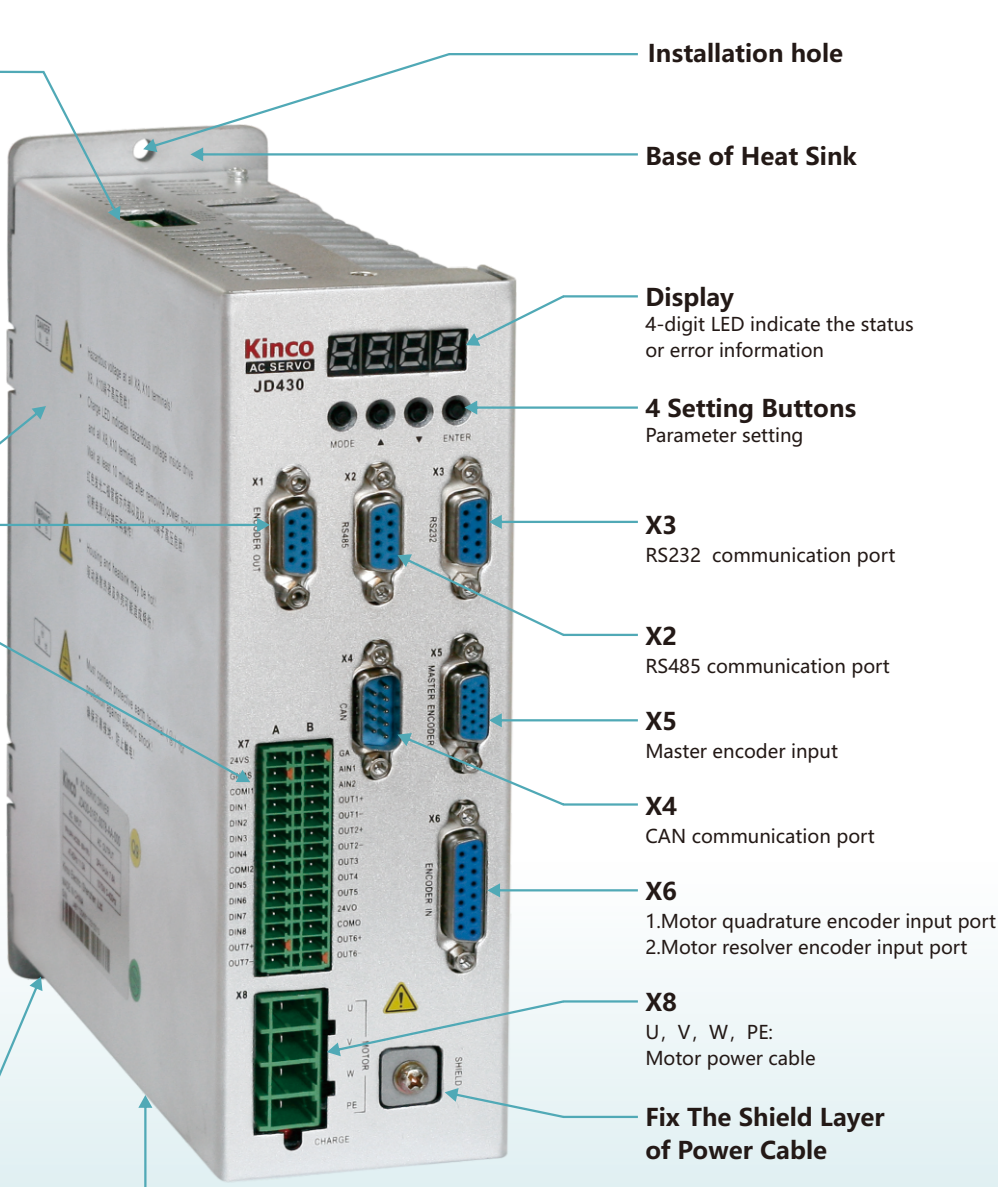
DC+ , DC- :
DC bus port
RB+ , RB- :
External brake resistor
R, S, T :
AC power supply input
(220V AC)



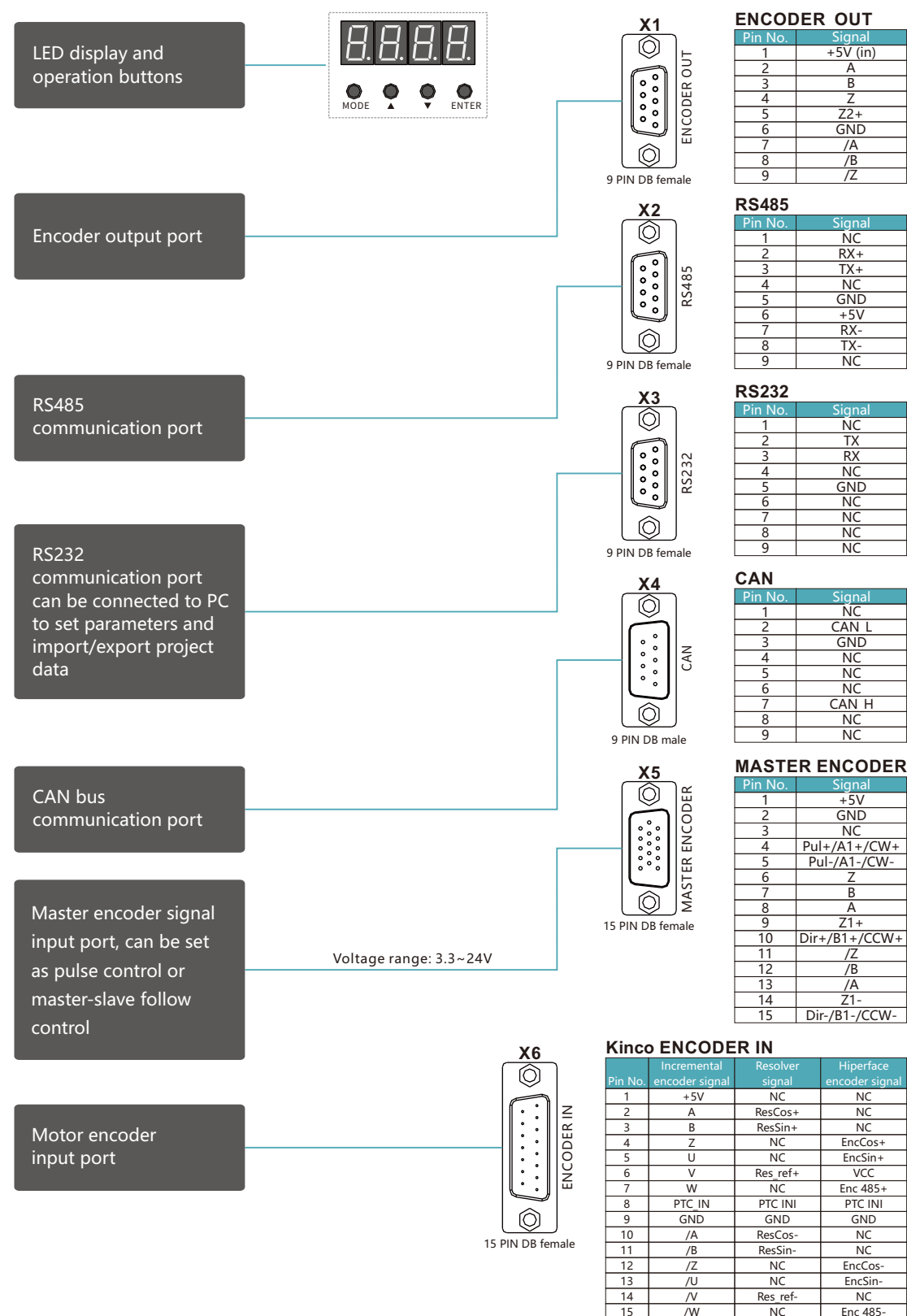
JD620(AC380V)

X10

DC+ , DC- :
DC bus port
RB+ , RB- :
External brake resistor
R, S, T :
AC power supply input
(380V AC)



Note: 1. JD430/JD620 drivers share the same interface definition, except for X10 power interfaces.
2. Suggest brake resistor: JD430 39Ω/200W or 75Ω/100W、JD620 75Ω/200W、JD630&JD640 47Ω/500W、JD650 27Ω/1000W,he customer should chose the power brake resistor according to the actual application.



Technical Specifications of **JD** Servo Driver

Technical Specifications of JD Servo Driver

Model Parameter		JD430-AA-000	JD620-AA-000	JD630-□A-000	JD640-□R-000	JD650-AR-000
Power	Main supply voltage	1PH, 3PH, 20VAC-20/ +15% 47 ~ 63Hz	3-phase AC380V -20/+15% 47~63Hz			
	Control circuit voltage	18VDC~30VDC 1A	18VDC~30VDC 1A	18VDC~30VDC 1A	18VDC~30VDC 1A	18VDC~30VDC 1A
Current	Rated current (RMS)	10A	7A	10A	13A	18A
	Peak current (PEAK)	27.5A	25A	35A	45A	65A
Brake chopper threshold		DC380V±5V	DC680V±5V	DC680V±5V	DC680V±5V	DC680V±5V
Over-voltage alarming threshold		DC400V±5V	DC700V±5V	DC700V±5V	DC700V±5V	DC700V±5V
Under-voltage alarming threshold		DC200V±5V	DC400V±5V	DC400V±5V	DC400V±5V	DC400V±5V
Cooling method		Forced air cooling			Forced air cooling	
Weight (Kg)		2.51			6.7	
Size(W*H*D, mm)		220×195×66			320×280.5×95	
General Functions	Digital operation panel	4 buttons and 4 LED display				
	External I/O	7 digital outputs(OUT1, OUT2, OUT7 are 0.1A and OUT3~OUT6 are 0.5A, can define driver ready and other functions freely; 8 digital inputs(12.5~30V), can define driver enables and other functions freely.				
	Analog input	2 analog inputs, can be used to control speed and torque, the input range is -10V~10V				
	Encoder signal output function	Used for Multi-axis synchronization. The maximum output frequency is 2MHz Servo drive that matches rotary encoder motor does not support this function.				
	Master encoder input function	Can receive 3.3V~24V pulse/direction signal, CW/CCW signal, and the RS422 difference signal, the max. input frequency is 4MHz.				
	Feedback signal	Incremental encoder 2500P/R Resolver、Hiperface/sincos® Encoder				
	RS232	The max. baudrate is 115.2KHz, use JD-PC software to communicate with PC, or via free protocol to communicate with controller				
	RS485	The max. baudrate is 115.2KHz, use Modbus RTU protocol to communicate with controller				
	CAN BUS	The max. baudrate is 1MHz, use CANopen protocol to communicate with controller				
	STO function	STO port can be connected to safe controller, switch, and sensor to protect the system				
Operation Environment	Operating temperature	0 ~ 40℃				
	Storage temperature	-10 ~ 70℃				
	Humidity (non-condensing)	Below 90% RH				
	Protection class	IP20				
	Installation environment	Installed in a dust-free,dry and lockable environment (such as in a electrical cabinet)				
	Installation mode	Vertical installation				
	Height	No power limitation below 1000m				
Atmospheric pressure		86 ~ 106kpa				

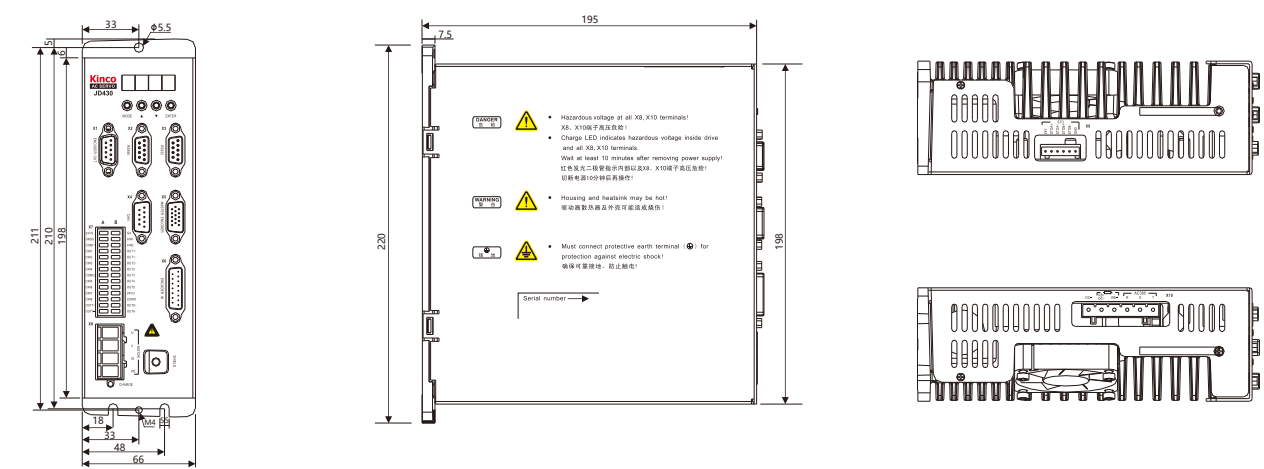
Note①: □=LA: Communication port RS232、RS485

□=AA: Communication port RS232, RS485, CANopen

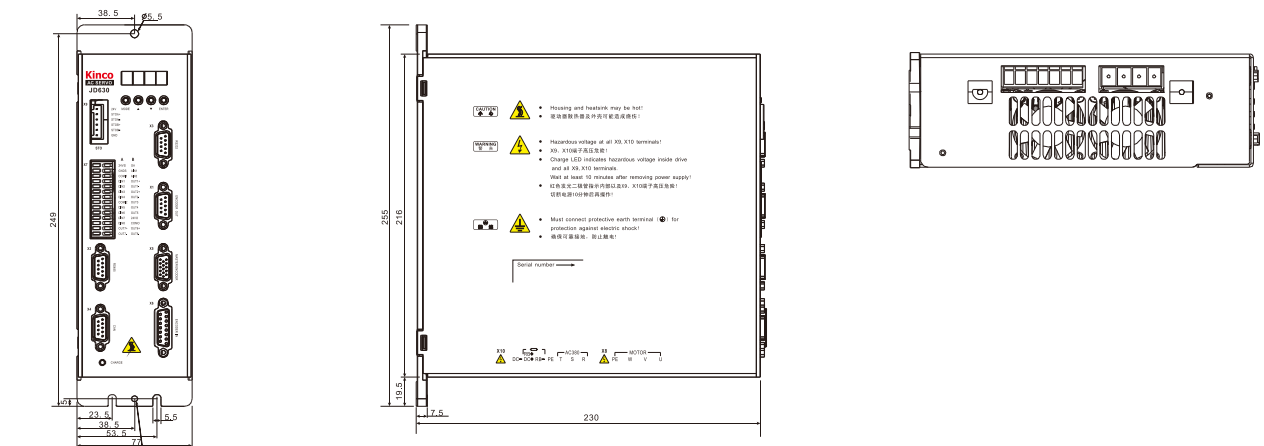
☐=AR: Communication port RS232, RS485, CANOpen, support motor with Resolver

Note②: AA is a direct driving servo system

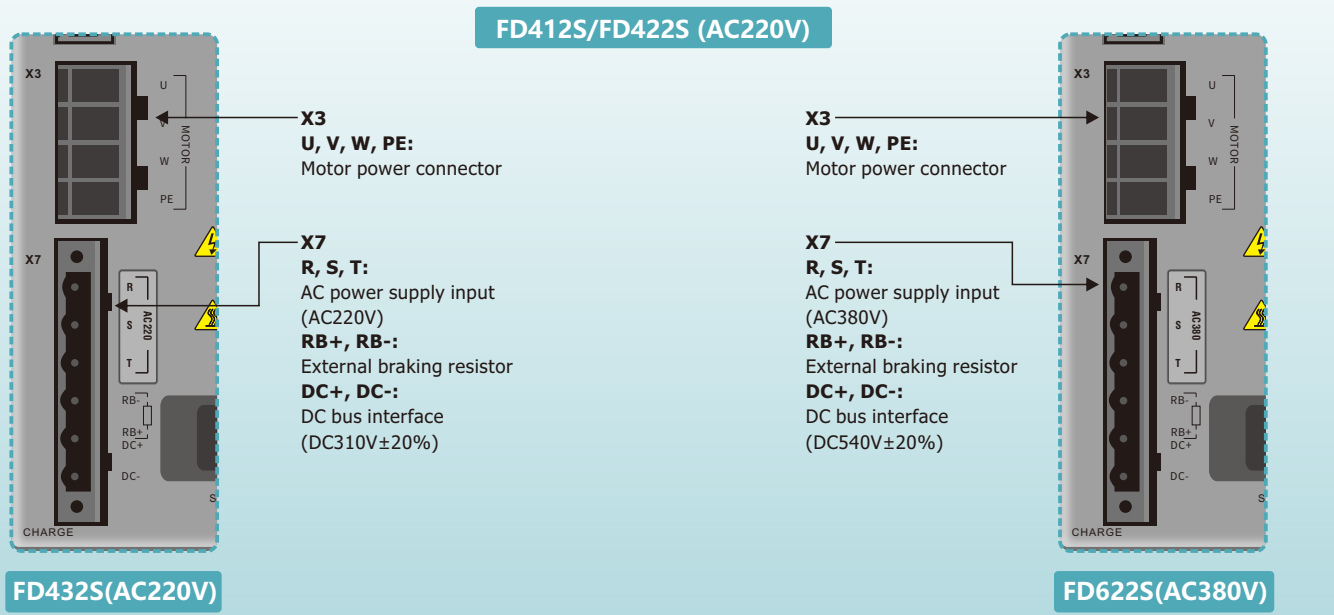
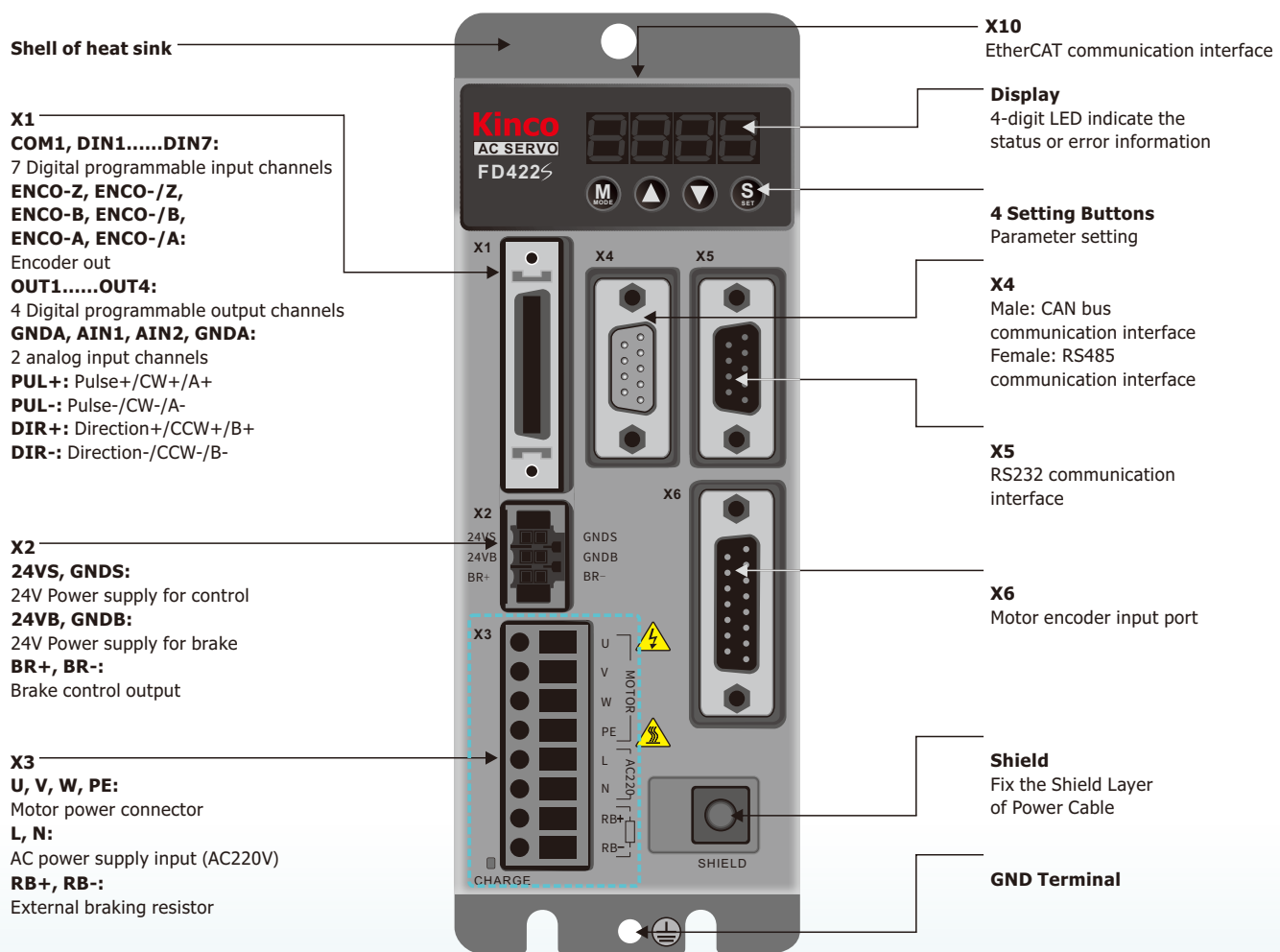
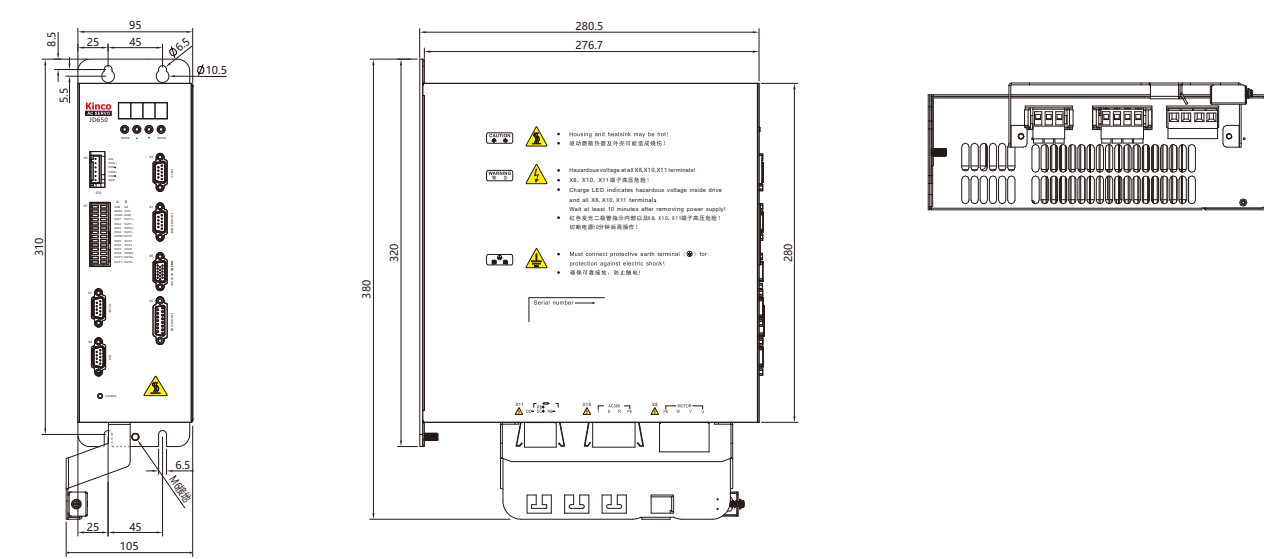
Mechanical Dimension Diagram of JD430/JD620



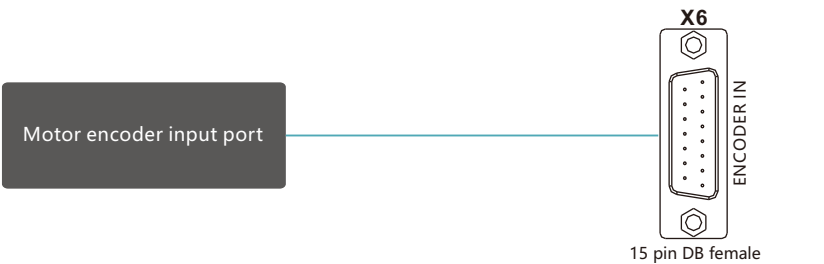
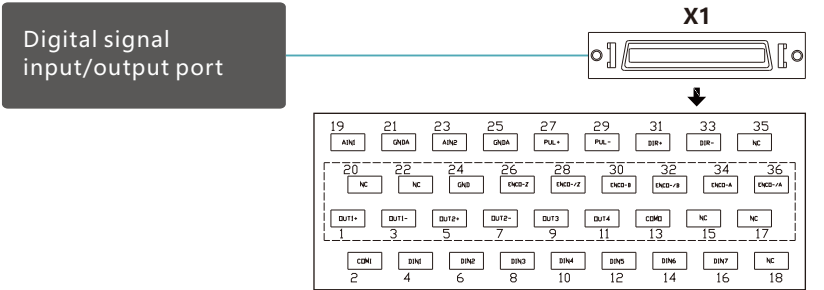
Mechanical Dimension Diagram of JD630/JD640



Mechanical Dimension Diagram of JD650



Note: 1. FD412S/FD422S/FD432S/FD622S share the same interface definition except the X3 and X7 power interfaces;
2. Suggested brake resistor: FD412S/FD422S 75Ω/100W, FD432S 39Ω/200W, FD622S 75Ω/200W. The customer should choose the power of brake resistor according to the actual application.



X1

Pin No.	Signal	Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
2	COM1	1	OUT1+	20	NC	19	AIN1
4	DIN1	3	OUT1-	22	NC	21	GNDA
6	DIN2	5	OUT2+	24	GND	23	AIN2
8	DIN3	7	OUT2-	26	ENCO-Z	25	GNDA
10	DIN4	9	OUT3	28	ENCO-/Z	27	PUL+
12	DIN5	11	OUT4	30	ENCO-B	29	PUL-
14	DIN6	13	COM0	32	ENCO-/B	31	DIR+
16	DIN7	15	NC	34	ENCO-A	33	DIR-
18	NC	17	NC	36	ENCO-/A	35	NC

CAN		RS485	
Pin No.	Signal	Pin No.	Signal
1	NC	1	NC
2	CAN L	2	RX+
3	GND	3	TX+
4	NC	4	NC
5	NC	5	GND
6	NC	6	+5V
7	CAN H	7	RX-
8	NC	8	TX-
9	NC	9	NC

RS232

Pin No.	Signal
1	NC
2	TX
3	RX
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

ENCODER IN

Pin No.	Incremental encoder signal	Communication encoder signal
1	+5V	+5V
2	A	NC
3	B	NC
4	Z	NC
5	U	NC
6	V	NC
7	W	SD
8	PTC IN	NC
9	GND	GND
10	/A	NC
11	/B	NC
12	/Z	NC
13	/U	NC
14	/V	NC
15	/W	/SD

EtherCAT

pin	X10A signal	X10B signal
1	TD+	TD+
2	TD-	TD-
3	RD+	RD+
4	NC	NC
5	NC	NC
6	RD-	RD-
7	NC	NC
8	NC	NC

Technical Specifications of FD2S Servo Motor

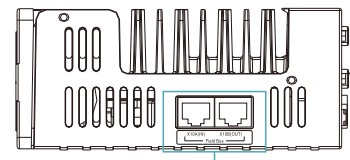
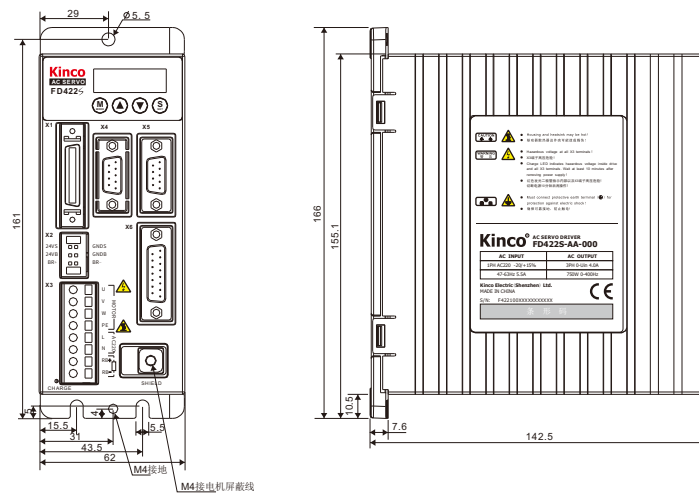
Model Parameter		FD412S- □A-000	FD422S- □A-000	FD422S- □F-000	FD432S- □A-000	FD612S- □A-000	FD622S- □A-000
Power	Main supply voltage	1PH, AC220V-20/+15% 47 ~ 63Hz			1PH, 3PH, AC220V-20/+15% 47 ~ 63Hz	3PH, AC380V-20/+15% 47 ~ 63Hz	
	Control circuit voltage	18VDC ~ 30VDC 1A					
Current	Rated current(RMS)	2A	4A	5A	11A	5.5A	7A
	Peak current(PEAK)	7A	15A	15A	27.5A	15A	25A
Feedback signal		2500 P/R (incremental encoder with 5V supply)					
Brake chopper		Use an external braking resistor according to application, mainly in occasion of quick stop .					
Brake chopper threshold		DC380V±5V					
Over-voltage alarming threshold		DC400V±5V					
Under-voltage alarming threshold		DC200V±5V					
Cooling method		Natural air cooling		Fan	Fan		
Weight(Kg)		1.2		1.2	2.4		
General Functions	Digital input specification	7 digital inputs, with COM1 terminal for PNP (high level valid 12.5V~30V) or NPN (low level valid) connection					
	Digital input function	Define freely according to requirement, supporting following functionsDriver enable, driver fault reset, driver mode control, proportional control, positive limit, negative limit, homing signal, reverse command, internal speedsection control, internal positive section control, quick stop, start homing, active command, switch electronic gear ratio, switch gain .					
	Digital output specification	5 digital outputs, out 1~out 4 current is 100 mA, BR+/BR- (brake control output) current is 500 mA, can drive brake device directly.					
	Digital output function	Define freely according to the requirement, supporting following functions: driver ready, driver fault, position reached, motor at zero speed, motor brake, motor speed reached, Z signal, maximum speed obtained in torque mode, motor brake, position limiting, reference found.					
	Analog input	2 analog inputs, can be used to control speed and torque, the input range is -10V ~ 10V"					
	Encoder signal output function	Used for Multi-axis synchronization. The maximum output frequency is 2MHZ Motor A, B, Z signal, pulse signal ((PLS+DIR, CW/CCW, A+B)					
	Protection functions	Over-voltage protection, under-voltage protection, motor over-heat protection (I2T), short-circuit protection, drive over-heat protection, etc					
RS232		The maximum baudrate is 115.2KHz, use JD-PC software to communicate with PC, or via free protocol to communictr with controller					
RS485		The maximum baudrate is 115.2KHz, use Modbus RTU protocol to communicate with controler					
CAN BUS		The maximum baudrate is 1MHz, use CANopen protocol to communicate with controler					
EtherCAT		The maximum baudrate is 100MHz, support COE (CIA 402 protocol) and CSP / CSV / PP / PV / PT / HM mode					
Environment conditions for operatio	Operating temperature	0 ~ 400C					
	Storage temperature	-100C ~ 700C					
	Humidity(non-condensing)	Below 90% RH					
	Protection class	IP20					
	Installation environment	Installed in a dust-free, dry, lockable environment (such as in a electric cabinet)					
	Installation mode	Vertical installation					
	Height	No power limit below 1000 m					
Atmospheric pressure		86kpa ~ 106kpa					

Note①: □=L ——Communication port RS232, RS485
□=A/C ——Communication port RS232, CANopen

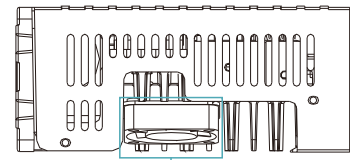
Note②: AA is a direct driving servo system

Mechanical Dimension Diagram of FD412S/FD422S

(Unit: mm)



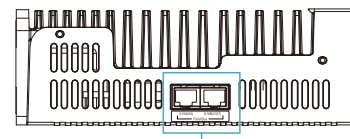
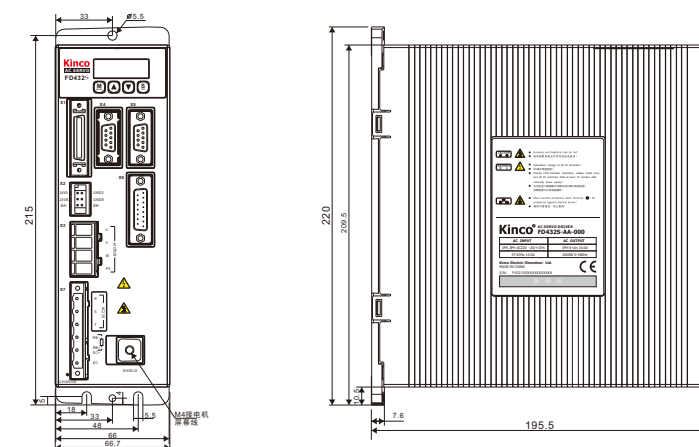
Note: FD412S-EA-000, FD422S-EA-000
With EtherCAT extension interface.



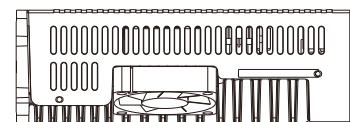
Note: FD412S-□ A-000, FD422S-□ A-000 without fan;
FD422S-□ F-000 with fan.

Mechanical Dimension Diagram of FD432S

(Unit: mm)

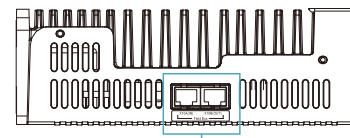
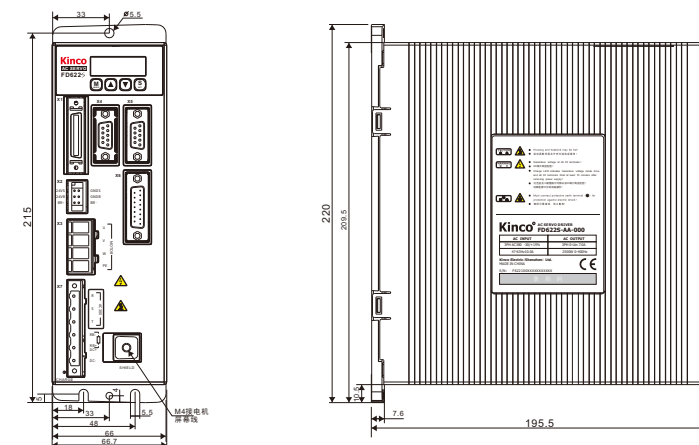


Note: with extension interface FD432S-EA-000
EtherCAT.

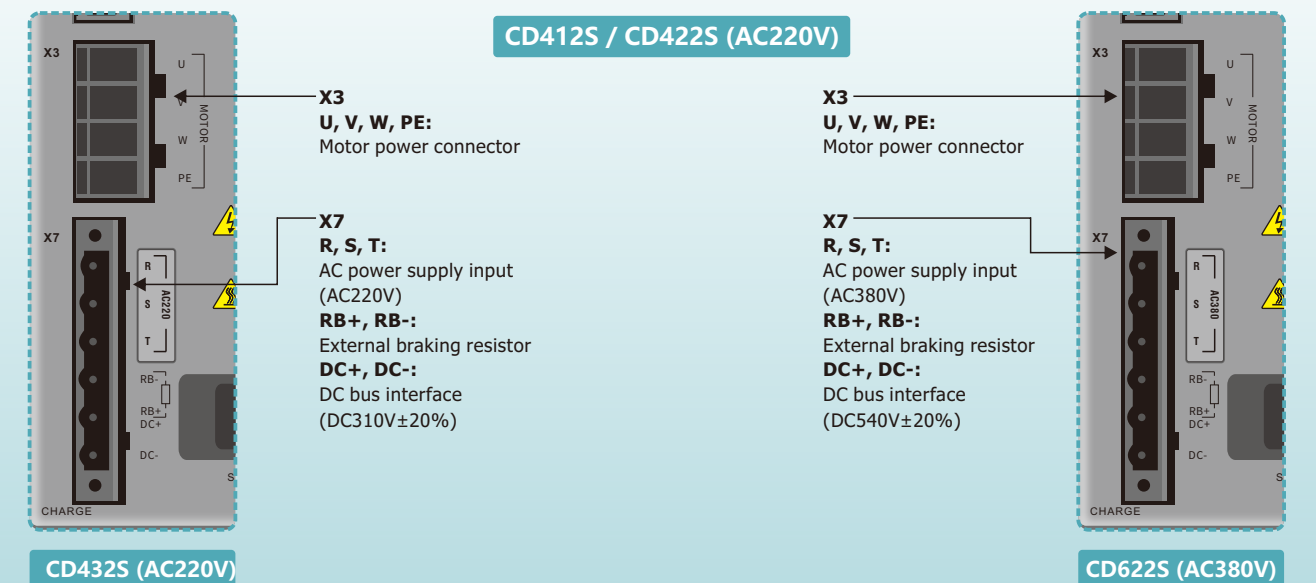
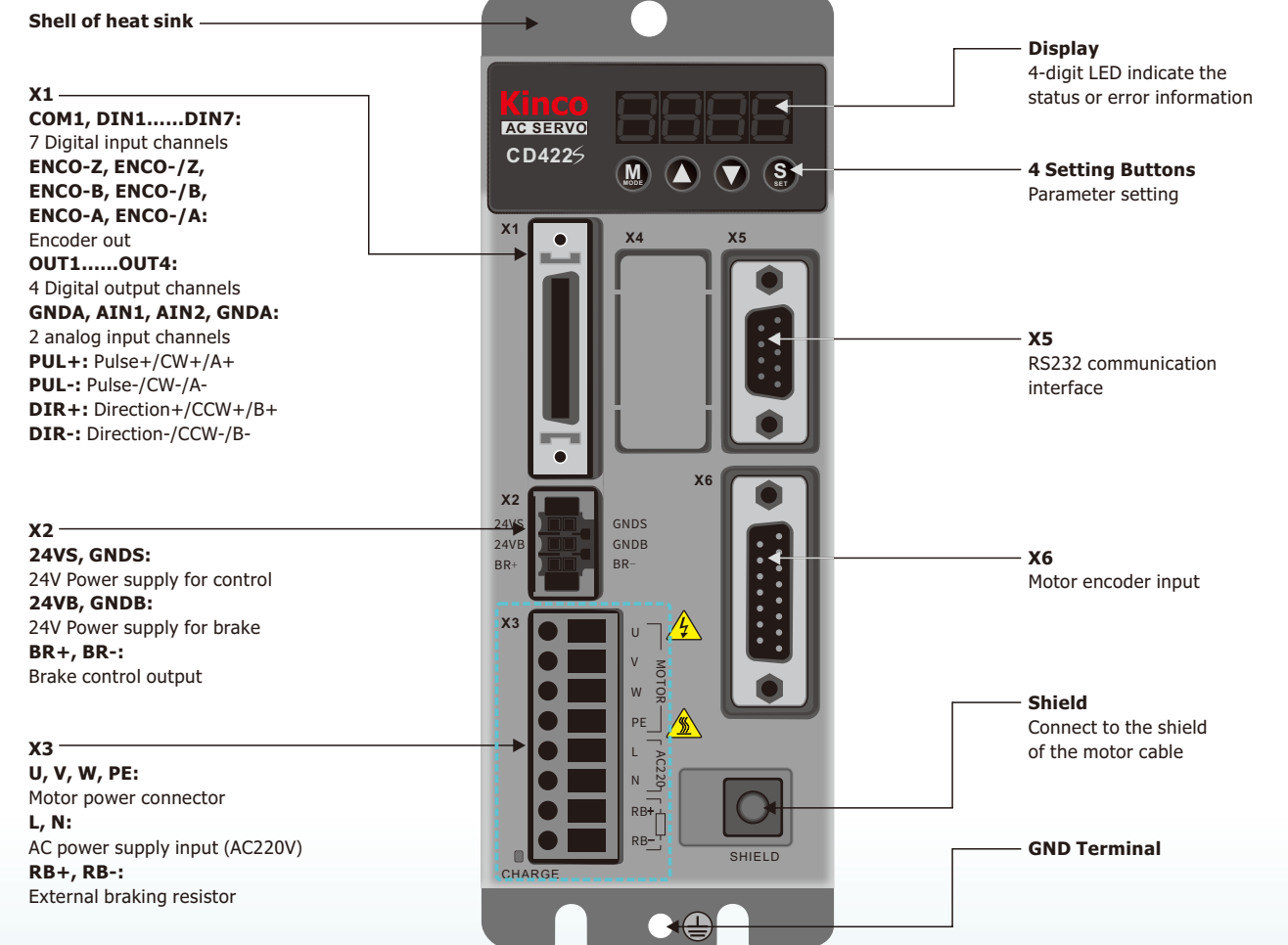
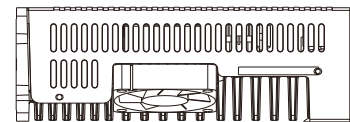


Mechanical Dimension Diagram of FD612S/FD622S

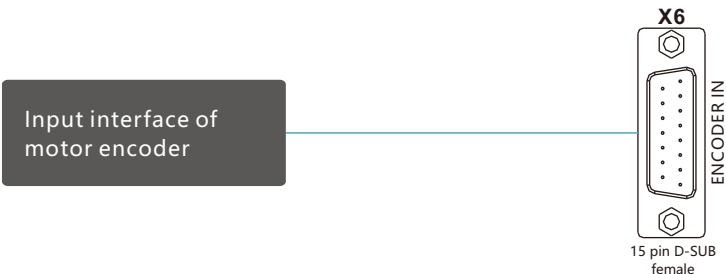
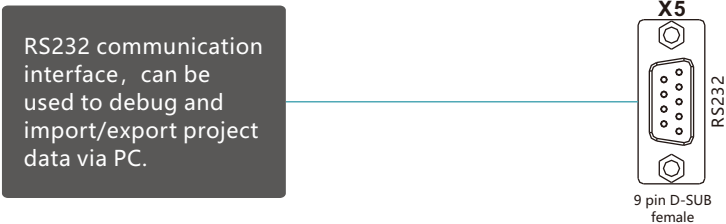
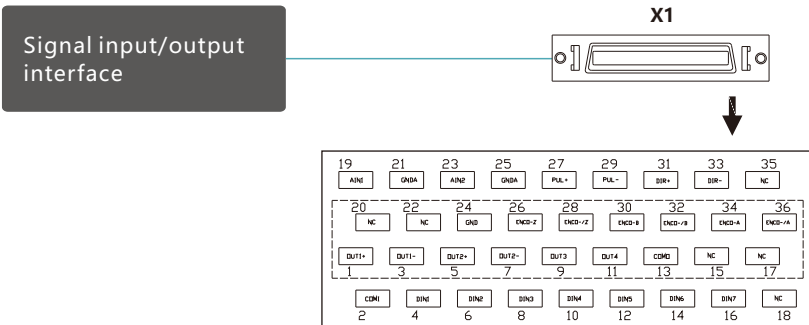
(Unit: mm)



Remarks: FD612S-RA-000, FD622S-EA-000
With EtherCAT extension interface.



Note: 1. CD412S/CD422S/CD432S/CD622S drivers share the same interface definition, except for X3 and X7 power interfaces.
2. Suggested brake resistor: CD412S/CD422S 75Ω/100W, CD432S 39Ω/200W, CD622S 75Ω/200W, The customer should chose the power of brake resister according to the actual application.



X1

Pin No.	Signal	Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
2	COM1	1	OUT1+	20	NC	19	AIN1
4	DIN1	3	OUT1-	22	NC	21	GND
6	DIN2	5	OUT2+	24	GND	23	AIN2
8	DIN3	7	OUT2-	26	ENCO-Z	25	GND
10	DIN4	9	OUT3	28	ENCO-/Z	27	PUL+
12	DIN5	11	OUT4	30	ENCO-B	29	PUL-
14	DIN6	13	COM0	32	ENCO-/B	31	DIR+
16	DIN7	15	NC	34	ENCO-A	33	DIR-
18	NC	17	NC	36	ENCO-/A	35	NC

RS232

Pin No.	Signal
1	NC
2	TX
3	RX
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

ENCODER IN

Pin No.	Signal
1	+5V
2	A
3	B
4	Z
5	U
6	V
7	W
8	PTC IN
9	GND
10	/A
11	/B
12	/Z
13	/U
14	/V
15	/W

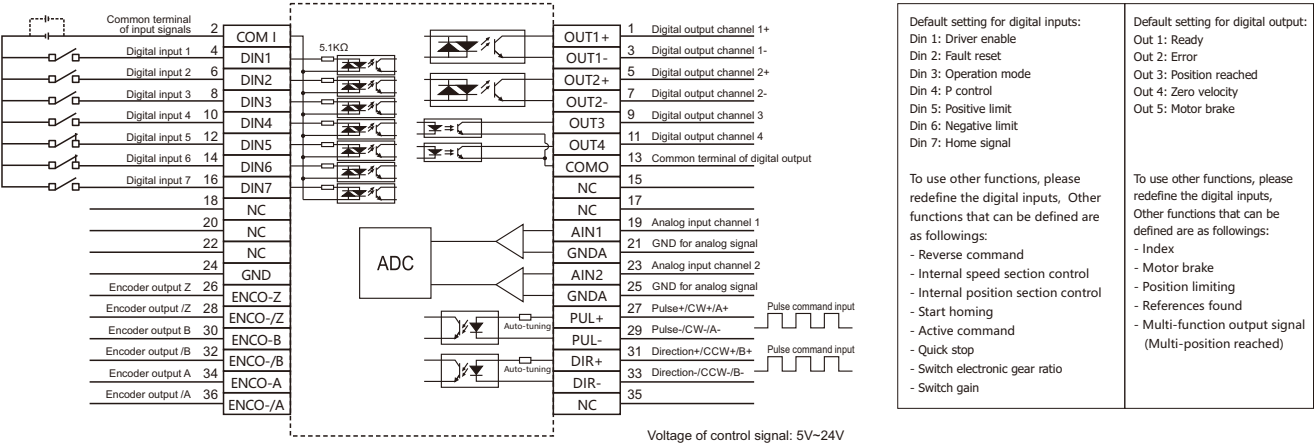
Technical Specifications of CD2S Servo Driver

Model parameter		CD412S-AA-000	CD422S-AA-000	CD422S-AF-000	CD432S-AA-000	CD612S-AA-000	CD622S-AA-000
Power	Main supply voltage	1PH , AC220V -20/+15% 47 ~ 63Hz			1PH, 3PH, AC220V -20/+15% 47~63Hz	3PH, AC380V -20/+15% 47~63Hz	
	Control circuit voltage	18VDC~30VDC 1A					
Current	Max. continuous current	2A	4A	4.6A	11A	5.5A	7A
	Peak current(PEAK)	7A	15A	15A	27.5A	15A	25A
Feedback signal		2500 P/R (incremental encoder with 5V supply)					
Brake chopper		Use an external braking resistor according to application, mainly in occasion of quick stop .					
Brake chopper threshold		DC380V±5V				DC680V±5V	
Over-voltage alarming threshold		DC400V±5V				DC700V±5V	
Under-voltage alarming threshold		DC200V±5V				DC400V±5V	
Cooling method		Natural air cooling		Fan	Fan		
Weight (Kg)		1.2		1.2	2.4		
Position Mode	Maximum frequency of input pulse	Differential signal: 500 KPPS, open-collector signal: 200 KPPS					
	Pulse command mode	Pulse+direction, CCW + CW, A+B Phase(5V - 24V)					
	Command smoothing	Low-pass filtering (adjustable by internal parameter setting)					
	Feedforward gain	Adjustable by internal parameter setting					
	Electronic gear ratio	Setting range, Gear factor: -32768 ~ 32767 , Gear divider: 1 ~ 32767 , 1/50≤ Gear factor/Gear divider ≤50					
	Electronic gear ratio	1KHz					
Speed Mode	Position loop sampling frequency	- 10 ~ 10V (resolution 12 bit)					
	Analog input voltage range	200K					
	Input impedance	4KHz					
	Analog input sampling frequency	External analog command / internal command					
	Command source	Low-pass filtering (adjustable by internal parameter setting)					
	Command smoothing	Adjustable by internal parameter setting					
	Input voltage dead-zone setting	Adjustable by internal parameter setting					
	Input voltage offset setting	Adjustable by internal parameter setting					
	Speed limit	Adjustable by internal parameter setting/external analog command					
	Torque limit	4KHz					
Torque Mode	Speed loop sampling frequency	-10 ~ 10V (Resolution 12 bit)					
	Analog voltage input range	200K					
	Input impedance	4KHz					
	Input sampling frequency	External analog command / internal command					
	Command source	Low-pass filtering (adjustable by internal parameter setting)					
	Command smoothing	Adjustable by internal parameter setting/external analog command					
	Speed limit	Adjustable by internal parameter setting					
	Input voltage dead-zone setting	Adjustable by internal parameter setting					
	Input voltage offset setting	16KHz					
Digital Input	Current sampling frequency	7 digital inputs, with COM1 terminal for PNP (high level valid 12.5V~30V) or NPN (low level valid) connection					
	Digital input specification	Define freely according to requirement, supporting following functions. Driver enable, driver fault reset, driver mode control, proportional control, positive limit, negative limit, homing signal, reverse command, internal speed section control, internal positive section control, quick stop, start homing, active command, switch electronic gear ratio, switch gain					
	Digital input function	5 digital outputs,out 1~out 4 current is 100 mA, BR+/BR-(brake control output) current is 500 mA,can drive brake device directly					
Digital Output	Digital output specification	Define freely according to the requirement, supporting following functions: driver ready, driver fault, position reached, motor at zero speed, motor brake, motor speed reached, Z signal, maximum speed obtained in torque mode, motor brake, position limiting, reference found					
	Digital output function	Over-voltage protection, under-voltage protection, motor over-heat protection (I2T), short-circuit protection, drive over-heat protection, etc					
Communication interface		RS232 (Connections with PC: 2-2, 3-3, 5-5)					
Operation Environment		0 ~ 400C					
		- 100C ~ 700C					
	Operation temperature	Below 90% RH					
	Storage temperature	IP20					
	Humidity (non- condensation)	Installed in a dust-free, dry, lockable environment (such as in a electric cabinet)					
	Protection class	Vertical installation					
	Installation mode	No power limit below 1000 m					
	Installation method	86kpa ~ 106kpa					

Wiring Diagram of CD2S Servo Driver

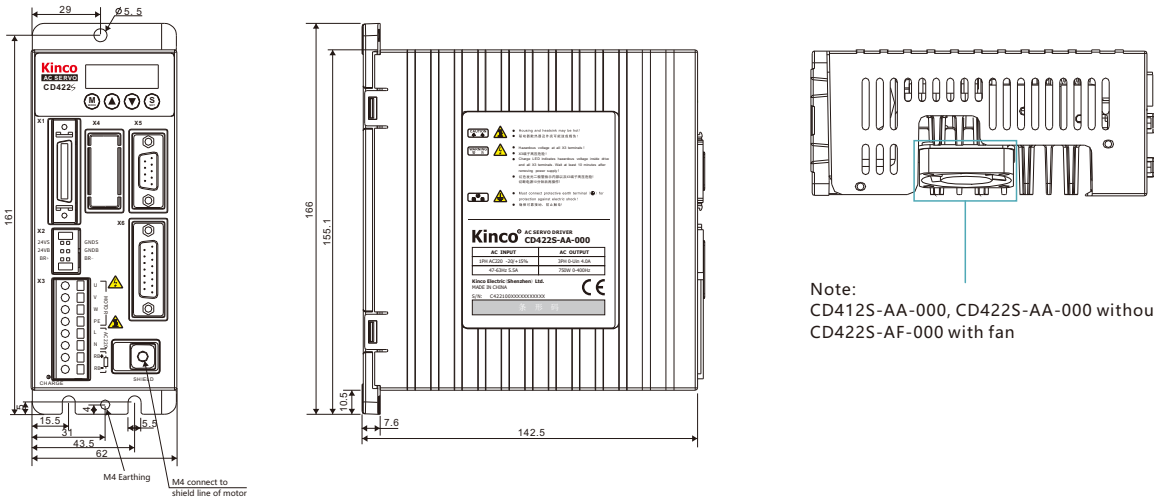
Mechanical Dimension Diagram of CD2S Servo Driver

Wiring Diagram for Position Control Mode

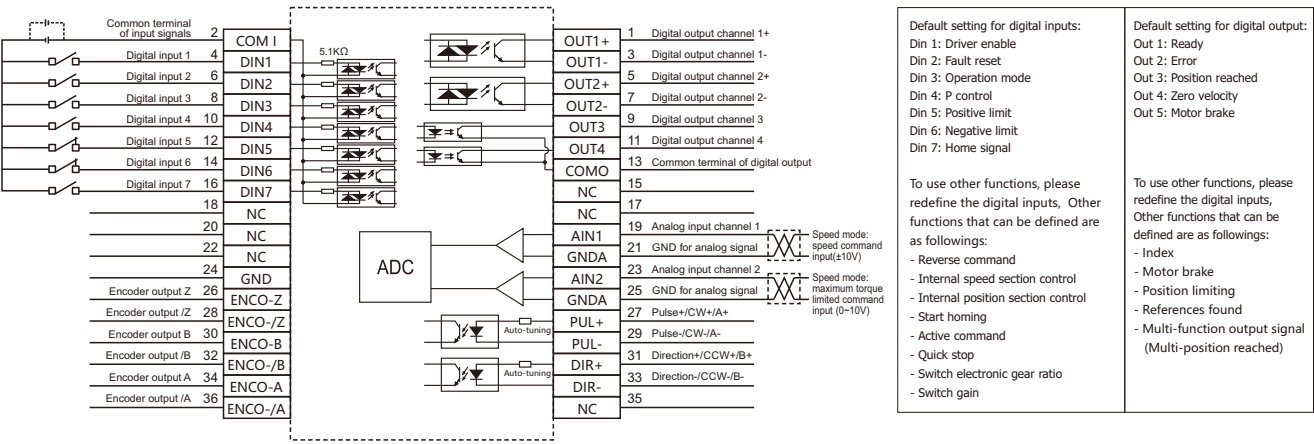


Mechanical Dimension Diagram of CD412S/CD422S

(Unit: mm)

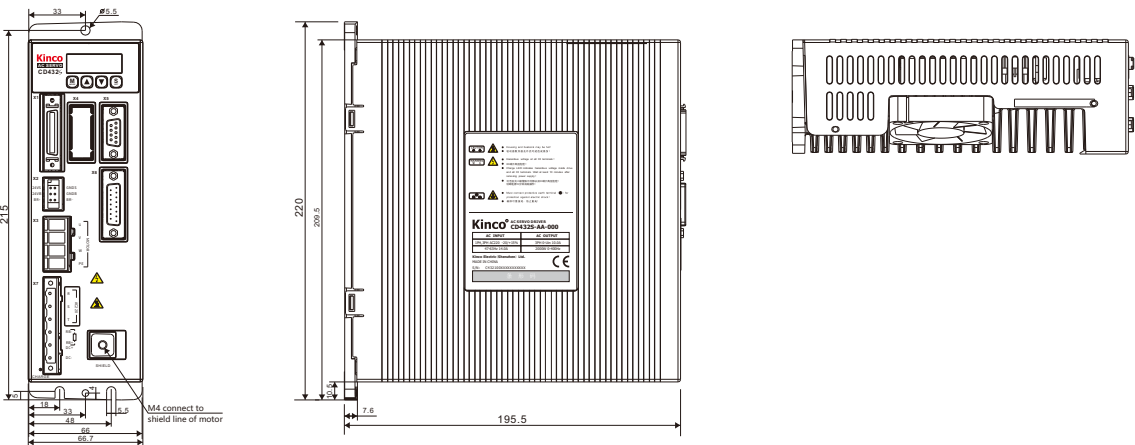


Wiring Diagram for Speed Control Mode

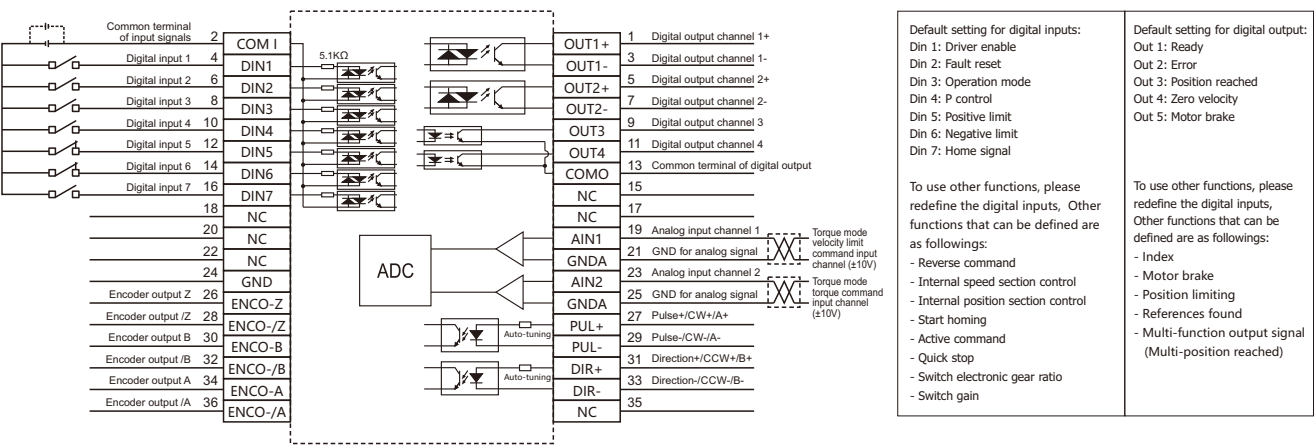


Mechanical Dimension Diagram of CD432S

(Unit: mm)

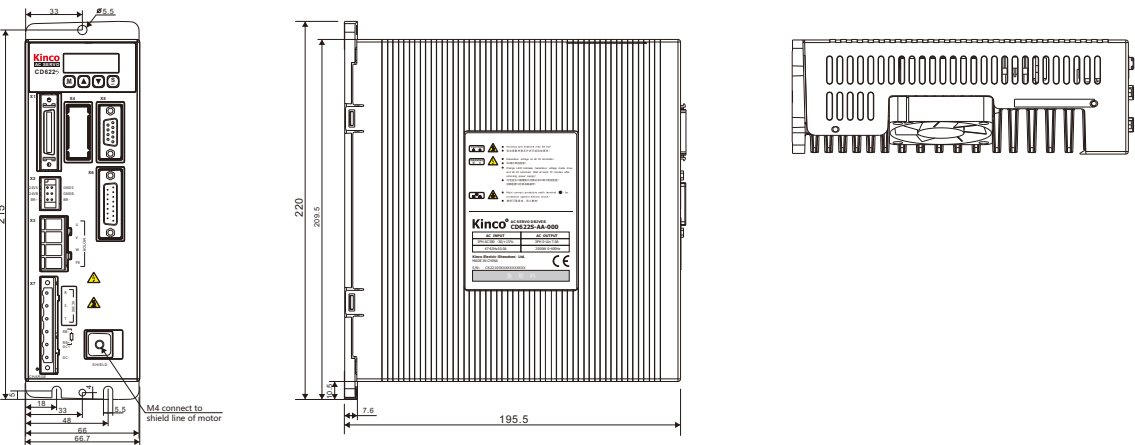


Wiring Diagram for Torque Control Mode



Mechanical Dimension Diagram of CD612S/CD622S

(Unit: mm)



Technical Specifications of SMH Servo Motor(1)



Motor series		SMH Servo Motor			
		Small inertia flange size 60mm		Small inertia flange size 80mm	
Model		SMH60S-0020-30A□K-3LK□	SMH60S-0040-30A□K-3LK□	SMH80S-0075-30A□K-3LK□	SMH80S-0100-30A□K-3LK□
Driver matching		JD430-AA-000 FD422S-CA-000 FD422S-LA-000 FD422S-EA-000 CD422S-AA-000		JD430-AA-000 FD432S-CA-000 FD432S-LA-000 FD432S-EA-000 CD432S-AA-000	
DC link voltage UDC		300	300	300	300
Continuous performance	Rated power P _N (W)	200	400	750	1000
	Rated torque T _N (Nm)	0.64	1.27	2.39	3.18
	Rated speed n _N (rpm)	3000	3000	3000	3000
	Rated current I _N (A)	1.6	3.1	3.9	6.3
Maximum torque T _m (Nm)		1.92	3.82	7.17	9.48
Maximum current I _m (A)		4.8	9.3	11.7	18.9
Standstill torque T _s (Nm)		0.7	1.39	2.63	3.3
Standstill current I _s (A)		1.79	3.38	4.4	6.93
Resistance line-line R _L (Ω)		8.02	3.52	1.4	0.86
Inductance line-line L _L (mH)		16.3	7.8	7.5	4.5
Electrical time constant τ _e (ms)		2.03	2.22	5.35	5.23
Mechanical time constant τ _m (ms)		2.26	1.35	0.75	0.89
Reverse voltage constant K _e (V/krpm)		29	29	40	34
Torque constant K _t (Nm/A)		0.48	0.48	0.662	0.562
Rotor moment of inertia J _m (Kg·cm ²)		0.375	0.51	1.36	1.9
		0.379 (with brake)	0.514 (with brake)	1.385 (with brake)	1.925 (with brake)
Pole pair number		3	3	3	3
Maximum voltage rising du/dt (KV/μs)		8	8	8	8
Insulation class		F	F	F	F
Maximum radial force F _r (N)		180	180	335	335
Maximum axial force F _a (N)		90	90	167.5	167.5
Weight G(Kg)		1.3	1.8	3.3	3.9
		1.8 (with brake)	2.3 (with brake)	4 (with brake)	4.6 (with brake)
Length of motor L(mm)		120	150	147	167
		159±1.5(with brake)	189±1.5(with brake)	197±1.5(with brake)	217±1.5(with brake)
Position feedback device		2500 P/R Incremental encoder			
Cooling method		Totally enclosed, non - ventilated			
Protection level		IP65, shaft sealing IP54			
Environmental conditions for operation	Temperature	-20℃ ~ 40℃ (Non-freezing)			
	Humidity	Below 90 % RH (no condensation)			
	Ambient environment	Away from active gas, combustible gas, oil drops and dust			
	Altitude	Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise			

Note: □=A —without brake □=H —3 rows of 15-pin Connector
□=B —with brake □=N —HFO18 series aviation standard connector(towards the shaft)
□=P —HFO21+HFO18 series aviation standard connector(HFO21 power connector,HFO18 encoder connector)

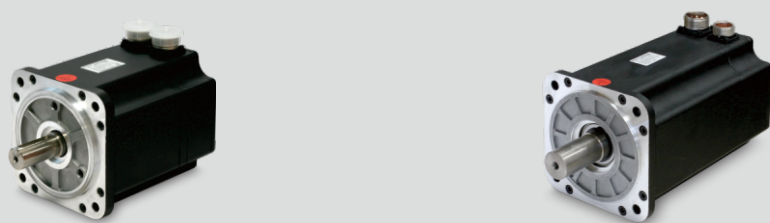
Technical Specifications of SMH Servo Motor(2)



Motor series		SMH Servo Motor					
		Medium inertia flange size 110mm					
Model		SMH110D-0125-30A□K-4LKC	SMH110D-0126-30A□K-4HKC	SMH110D-0105-20A□K-4LKC	SMH110D-0157-30A□K-4HKC	SMH110D-0126-20A□K-4LKC	SMH110D-0188-30A□K-4HKC
Driver matching		JD430-AA-000 FD432S-CA-000 FD432S-LA-000 FD432S-EA-000 CD432S-AA-000	JD620-AA-000 FD622S-CA-000 FD622S-LA-000 FD622S-EA-000 CD622S-AA-000	JD430-AA-000 FD432S-CA-000 FD432S-LA-000 FD432S-EA-000 CD432S-AA-000	JD620-AA-000 FD622S-CA-000 FD622S-LA-000 FD622S-EA-000 CD622S-AA-000	JD430-AA-000 FD432S-CA-000 FD432S-LA-000 FD432S-EA-000 CD432S-AA-000	JD620-AA-000 FD622S-CA-000 FD622S-LA-000 FD622S-EA-000 CD622S-AA-000
DC link voltage UDC		300	560	300	560	300	560
Continuous performance	Rated power P _N (W)	1250	1260	1050	1570	1260	1880
	Rated torque T _N (Nm)	4	4	5.0	5.0	6.0	6.0
	Rated speed n _N (rpm)	2000	3000	2000	3000	2000	3000
	Rated current I _N (A)	6.5	4.3	5.9	5.9	6.2	6.2
Maximum torque T _m (Nm)		12	12	15.0	15.0	18.0	18.0
Maximum current I _m (A)		19.5	12.9	17.7	17.7	18.6	18.6
Standstill torque T _s (Nm)		4.4	4.4	5.5	5.5	6.6	6.6
Standstill current I _s (A)		6.82	4.73	6.49	6.49	6.765	6.765
Resistance line-line R _L (Ω)		0.8	1.83	1.03	1.03	1.258	1.258
Inductance line-line L _L (mH)		6.4	13.5	7.8	7.8	9.62	9.62
Electrical time constant τ _e (ms)		7.9	7.37	7.57	7.57	7.64	7.64
Mechanical time constant τ _m (ms)		1.4	1.63	1.55	1.55	1.65	1.65
Reverse voltage constant K _e (V/krpm)		45	64	55	55	64	64
Torque constant K _t (Nm/A)		0.744	1.058	0.910	0.910	1.058	1.058
Rotor moment of inertia J _m (Kg·cm ²)		5.8	5.8	7.2	7.2	8.5	8.5
		5.85 (with brake)	5.85 (with brake)	7.25 (with brake)	7.25 (with brake)	8.55 (with brake)	8.55 (with brake)
Pole pair number		4	4	4	4	4	4
Maximum voltage rising du/dt (KV/μs)		8	8	8	8	8	8
Insulation class		F	F	F	F	F	F
Maximum radial force F _r (N)		630	630	630	630	630	630
Maximum axial force F _a (N)		315	315	315	315	315	315
Weight G(Kg)		6.2	6.2	7.2	7.2	8.2	8.2
		8.2 (with brake)	8.2 (with brake)	9.2 (with brake)	9.2 (with brake)	10.2 (with brake)	10.2 (with brake)
Length of motor L(mm)		168	168	185	185	202	202
		228±1 (with brake)	228±1 (with brake)	245±1 (with brake)	245±1 (with brake)	262±1 (with brake)	262±1 (with brake)
Position feedback device		2500 P/R Incremental encoder					
Cooling method		Totally enclosed, non - ventilated					
Protection level		IP65, shaft sealing IP54					
Environmental conditions for operation	Temperature	- 20 ~ 40℃ (non-freezing)					
	Humidity	Below 90 % RH (no condensation)					
	Ambient environment	Away from active gas,combustible gas,oil drops and dust					
	Altitude	Maximum altitude 4000 m, rated power at 1000 m or below. Above 1000m, decreasing 1.5 % per every 100m rise					

Note: □=A —without brake
□=B —with brake

Technical Specifications of SMH Servo Motor(3)



Motor series		SMH Series Motor						
		Medium inertia flange size 130mm				Medium inertia flange size 150mm		
Model		SMH130D-0105 -20A□K-4HKC	SMH130D-0157 -20A□K-4HKC	SMH130D-0210 -20A□K-4HKC	SMH130D-0300 -20A□K-4HKC	SMH150D-0230 -20A□K-4HKC	SMH150D-0300 -20A□K-4HKC	SMH150D-0380 -20A□K-4HKC
Driver matching		JD430-AA-000 JD620-AA-000 FD622S-CA-000 FD622S-LA-000 FD622S-EA-000 CD622S-AA-000	FD432S-CA-000 FD432S-LA-000 FD432S-EA-000 CD432S-AA-000	JD620-AA-000 FD622S-CA-000 FD622S-LA-000 FD622S-EA-000 CD622S-AA-000	JD630-AA-000 JD630-LA-000	JD620-AA-000 FD622S-CA-000 FD622S-LA-000 FD622S-EA-000 CD622S-AA-000	JD630-LA-000 JD630-AA-000	
DC link voltage UDC		560	560	560	560	560	560	560
Continuous performance	Rated power P_N (W)	1050	1570	2100	3000	2300	3000	3800
	Rated torque T_N (Nm)	5	7.5	10	14.3	11.1	14.3	18
	Rated speed n_N (rpm)	2000	2000	2000	2000	2000	2000	2000
	Rated current I_N (A)	4.3	6.3	7.6	7.9	7.1	8.5	9.3
Maximum torque T_m (Nm)		12.5	18.75	25	35.75	27.5	35.75	45
Maximum current I_m (A)		10.75	15.75	19	19.75	17.75	21.25	23.25
Standstill torque T_s (Nm)		5.5	8.25	11	15.73	12.1	15.73	19.8
Standstill current I_s (A)		4.73	6.93	8.36	8.7	7.81	9.35	10.23
Resistance line-line R_L (Ω)		1.85	1.17	0.98	0.84	2.2	1.4	1.3
Inductance line-line L_L (mH)		23.7	16.2	14.3	12.7	14(AVG)	10.6(AVG)	10.5(AVG)
Electrical time constant τ_e (ms)		12.81	13.846	14.592	14.94	6.36	7.57	8.08
Mechanical time constant τ_m (ms)		2.868	2.529	2.268	1.53	4.68	3.68	3.32
Reverse voltage constant K_e (V/krpm)		70	72	80	110	100	107	125
Torque constant K_t (Nm/A)		1.1578	1.191	1.3232	1.82	1.65	1.77	2.07
Rotor moment of inertia J_m (Kg-cm ²)		12	17.7	23.4	34.8	33.5	47.6	63.1
		12.0(with brake)	17.74(with brake)	23.44(with brake)	34.9(with brake)	33.6(with brake)	47.7(with brake)	63.2(with brake)
Pole pair number		4	4	4	4	4	4	4
Maximum voltage rising du/dt (KV/ μ s)		8	8	8	8	8	8	8
Insulation class		F	F	F	F	F	F	F
Maximum radial force F (N)		900	900	900	900	1200	1200	1200
Maximum axial force F (N)		450	450	450	450	600	600	600
Weight G (Kg)		7.5	9.1	10.7	13.9	12	15	18
		9.7(with brake)	11.3(with brake)	12.9(with brake)	14.9(with brake)	15.5(with brake)	18.5(with brake)	22.5(with brake)
Length of motor L (mm)		159±1.5	179±1.5	199±1.5	239±0.15	226±1.5	254±1.5	282±1.5
		220±1.5(with brake)	240±1.5(with brake)	260±1.5(with brake)	280±1.5(with brake)	292±1.5(with brake)	320±1.5(with brake)	352±1.5(with brake)
Position feedback device		2500 P/R Incremental encoder						
Cooling method		Totally enclosed, non - ventilated						
Protection level		IP65, shaft sealing IP54						
Environmental conditions for operation	Temperature	- 20 ~ 40°C (non-freezing)						
	Humidity	Below 90 % RH (no condensation)						
	Ambient environment	Away from active gas,combustible gas,oil drops and dust						
	Altitude	Maximum altitude 4000 m, rated power at 1000 m or below. Above 1000m, decreasing 1.5 % per every 100m rise						

Note: □=A —without brake
□=B —with brake

Technical Specifications of SMH Servo Motor(4)

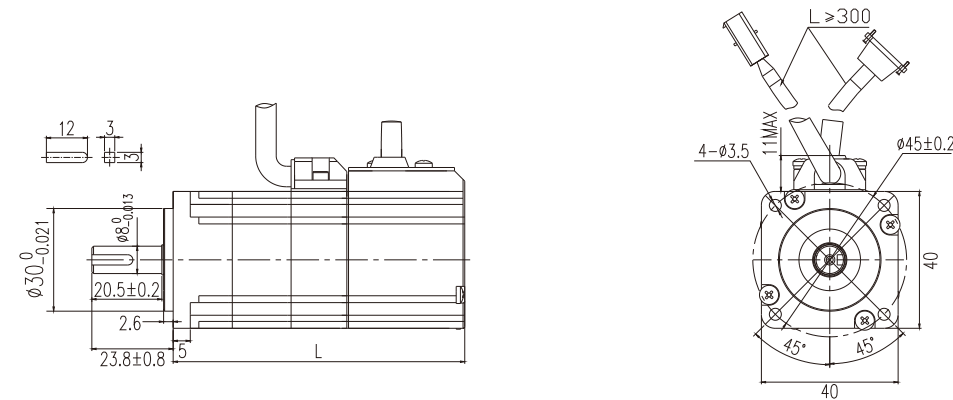


Motor series		SMH Series Motor			
		Medium inertia flange size 180mm			
Model		SMH180D-0350 -15A□K-4HKC	SMH180D-0440 -15A□K-4HKC	SMH180D-0550 -15R□K-4HKC	SMH180D-0750 -15R□K-4HKC
Driver matching		JD630-LA-000 JD630-AA-000	JD640-LA-000 JD640-AA-000	JD640-AR-000	JD650-AR-000
DC link voltage UDC		560	560	560	560
Continuous performance	Rated power P _N (W)	3500	4400	4400	7500
	Rated torque T _N (Nm)	22	28	28	48
	Rated speed n _N (rpm)	1500	1500	1500	1500
	Rated current I _N (A)	10.3	11.9	11.9	19.2(REF)
Maximum torque T _m (Nm)		55	70	70	120
Maximum current I _m (A)		25.75	29.75	29.75	47.9(REF)
Standstill torque T _s (Nm)		24.2	30.8	30.8	52.8
Standstill current I _s (A)		11.33	13.09	13.09	21.1(REF)
Resistance line-line R _L (Ω)		1.2	0.65	0.65	0.38
Inductance line-line L _L (mH)		12.7(AVG)	8.5	8.5	5.89
Electrical time constant τ _e (ms)		10.58	13.08	13.08	15.5
Mechanical time constant τ _m (ms)		3.42	2.16	2.16	1.81
Reverse voltage constant K _e (V/krpm)		135	150	150	159
Torque constant K _t (Nm/A)		2.23	2.48	2.48	2.63
Rotor moment of inertia J _m (Kg·cm ²)		82	118	118	190
		82.2 (with brake)	118.2 (with brake)	118.2 (with brake)	190.3 (with brake)
Pole pair number		4	4	4	4
Maximum voltage rising du/dt (KV/μs)		8	8	8	8
Insulation class		F	F	F	F
Maximum radial force F (N)		1600	1600	1600	1600
Maximum axial force F (N)		800	800	800	800
Weight G(Kg)		22.7	28.6	28.6	40
		27.9 (with brake)	33.8 (with brake)	33.8 (with brake)	47 (with brake)
Length of motor L(mm)		260±1.5	298±1.5	298±1.5	374±1.5
		332±1.5 (with brake)	370±1.5 (with brake)	370±1.5 (with brake)	451±1.5 (with brake)
Position feedback device		Incremental encoder 2500P/R			SMT37 rotary transformer
Cooling method		Totally enclosed, non-ventilated			
Protection level		IP65 for body, shaft sealing IP54			
Environmental conditions for operation	Temperature	-20°C ~ 40°C (Non-freezing)			
	Humidity	Below 90% RH (Non-condensing)			
	Ambient environment	Away from active gas, combustible gas, oil drops and dust			
	Altitude	Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise			

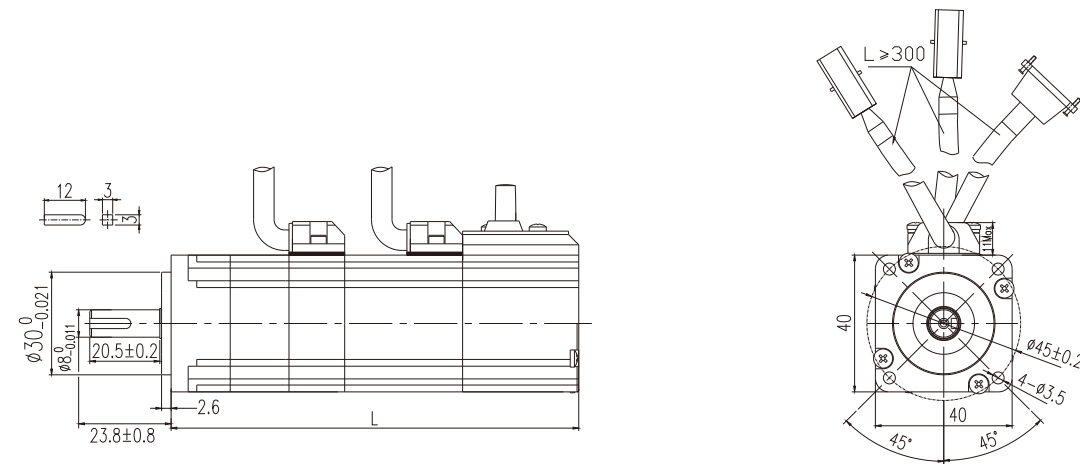
Note: □=A —without brake
□=B —with brake

Mechanical Dimensions of SMH Servo Motors (40 flanges)

SMH Series 40 Flange Outlet Motor

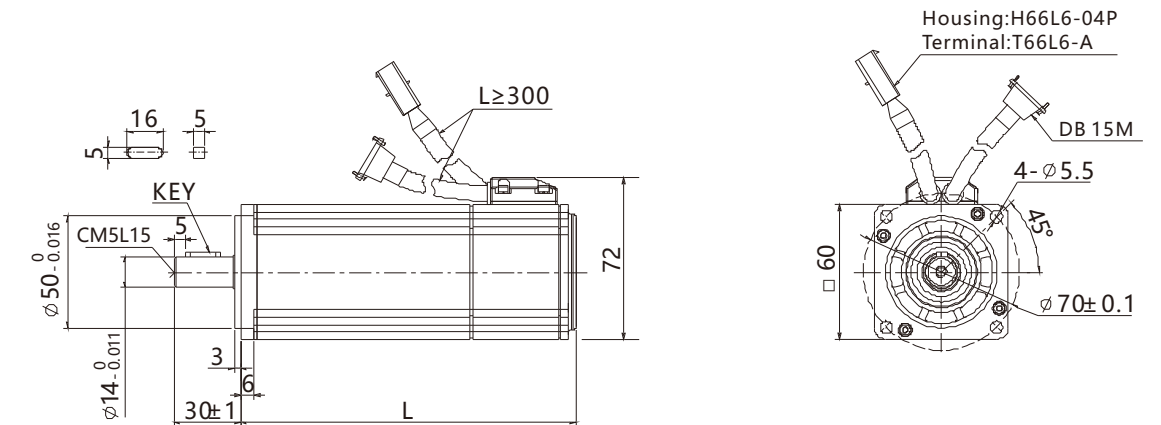


SMH Series 40 Flange Outlet Motor (with brake)

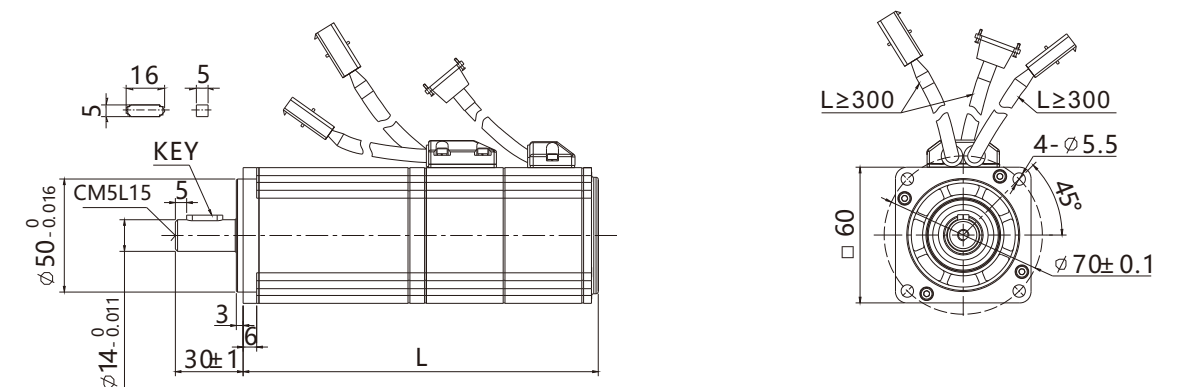


Mechanical Dimensions of SMH Servo Motors (60 flanges)

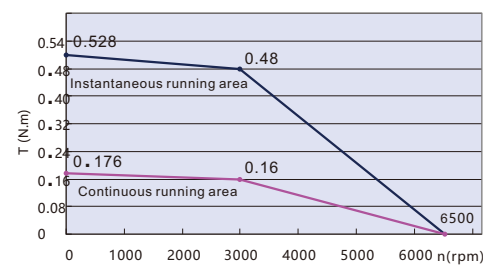
SMH Series 60 Flange Outlet Motor



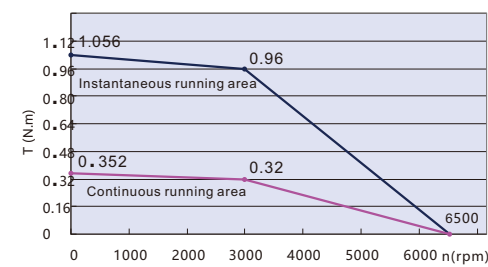
SMH Series 60 Flange Outlet Motor (with brake)



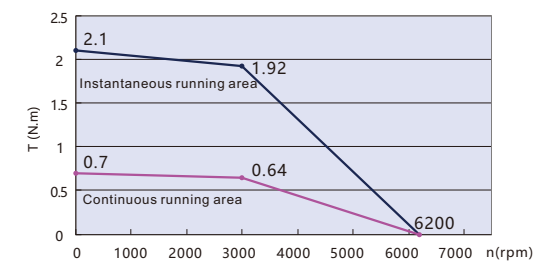
SMH40S-0005-30A K-4LKH 50W



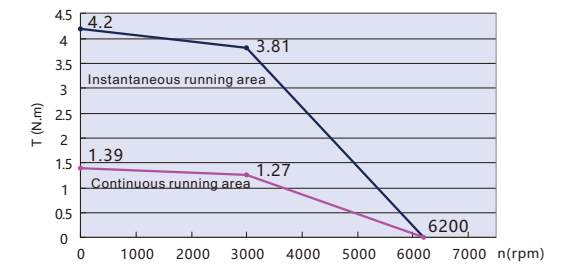
SMH40S-0010-30A K-4LKH 100W



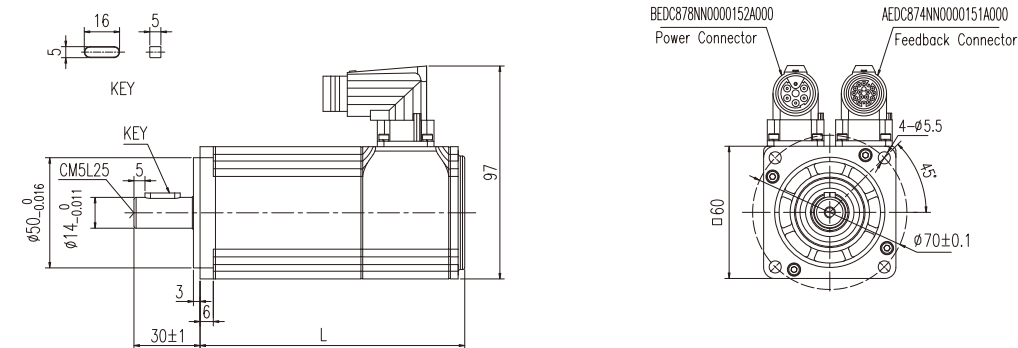
SMH60S-0020-30A K-3LK 200W



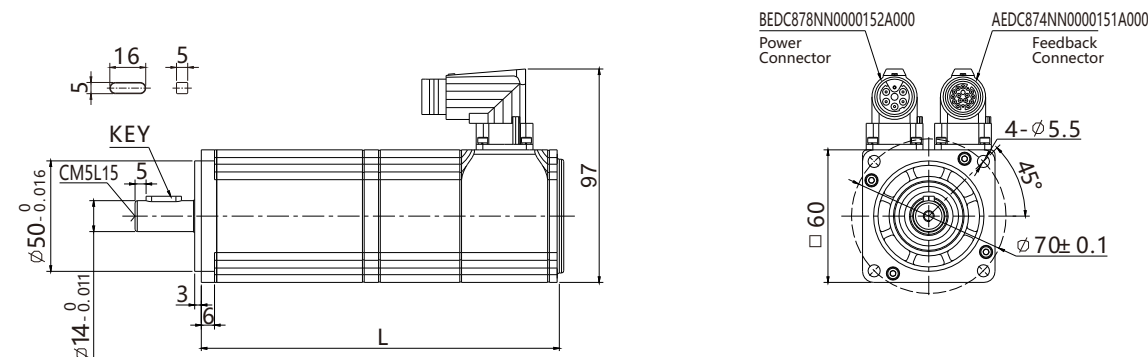
SMH60S-0040-30A K-3LK 400W



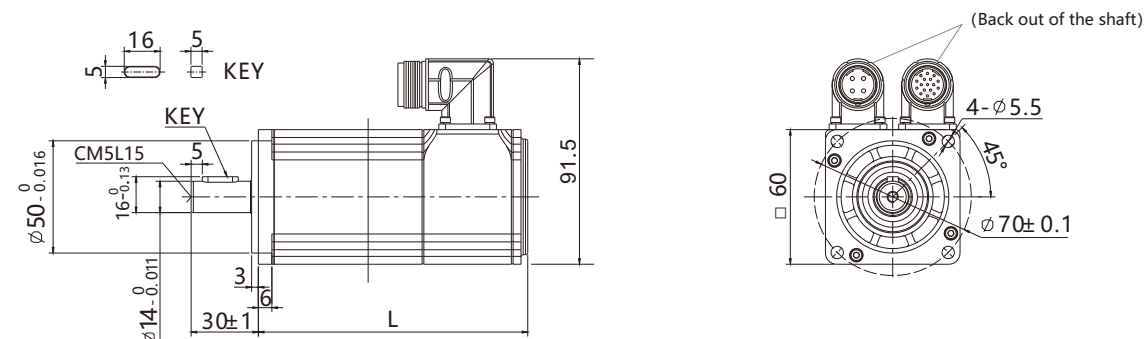
SMH Series 60 flange inlet aviation socket motor



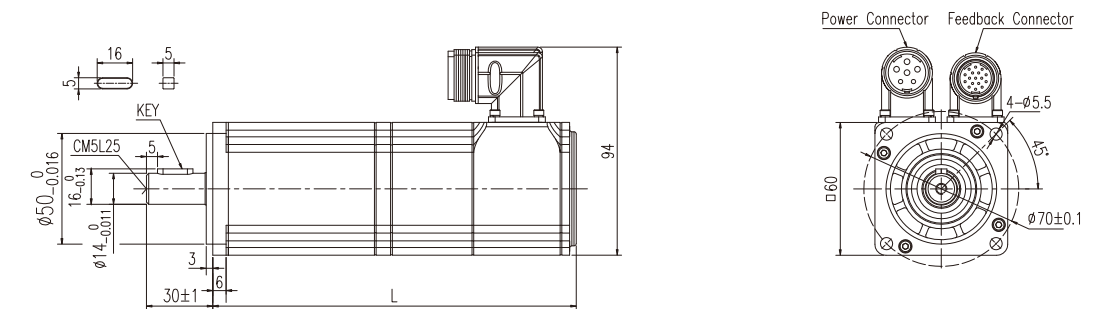
SMH Series 60 flange inlet aviation socket motor (with brake)



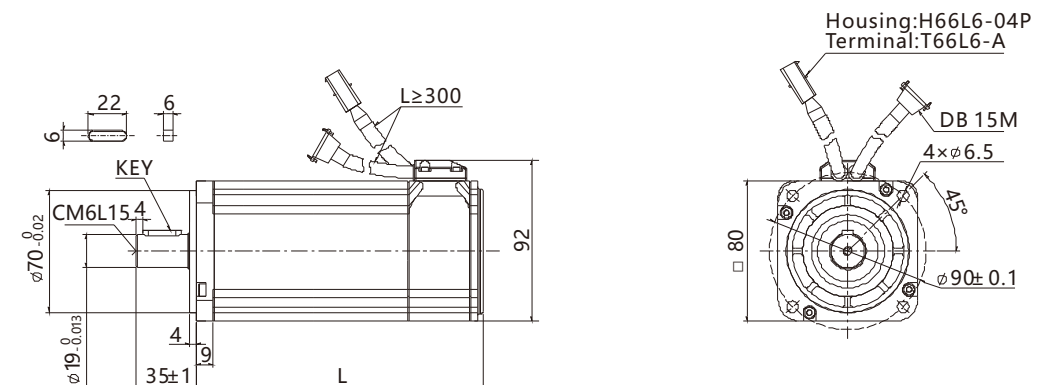
SMH Series 60 flange HFO aviation socket motor



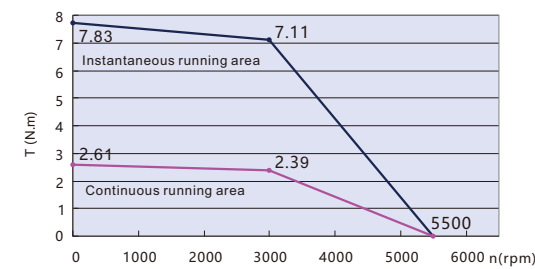
SMH Series 60 flange HFO aviation socket motor(with brake)



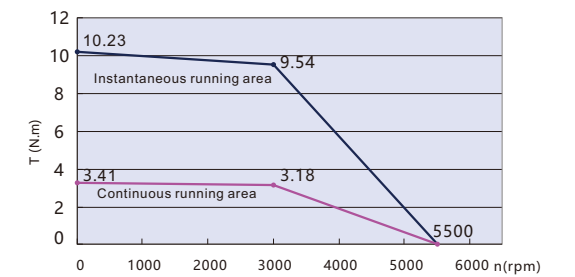
SMH Series 80 Flange Outlet Motor



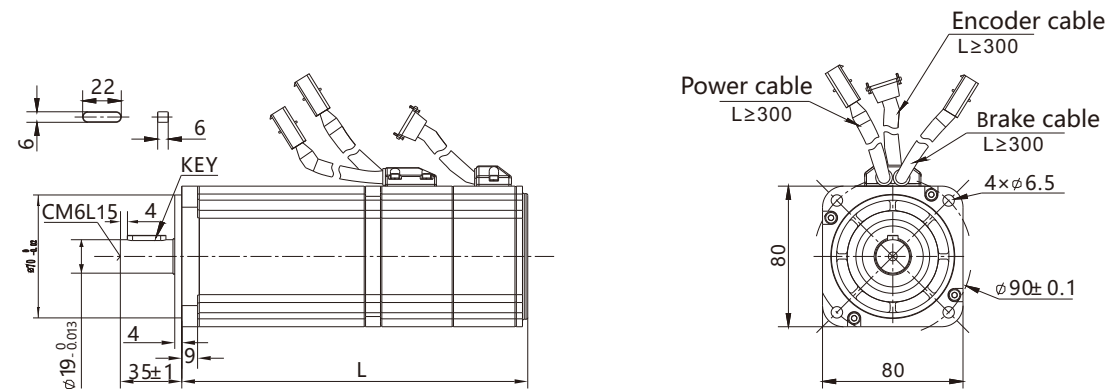
SMH80S-0075-30A K-3LK 750W



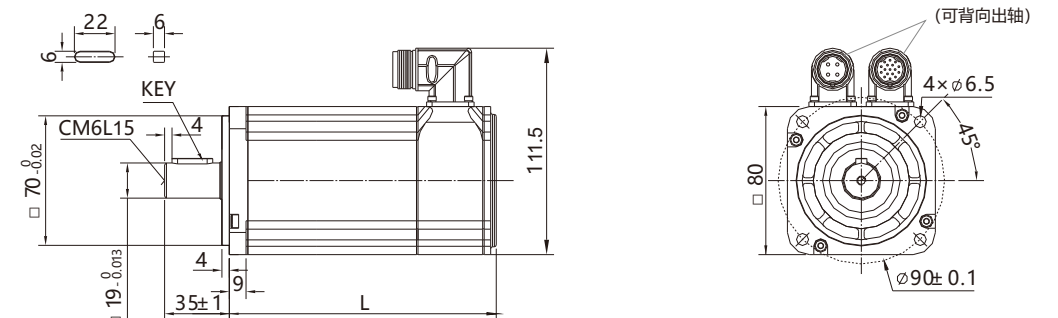
SMH80S-0100-30A K-3LK 1000W



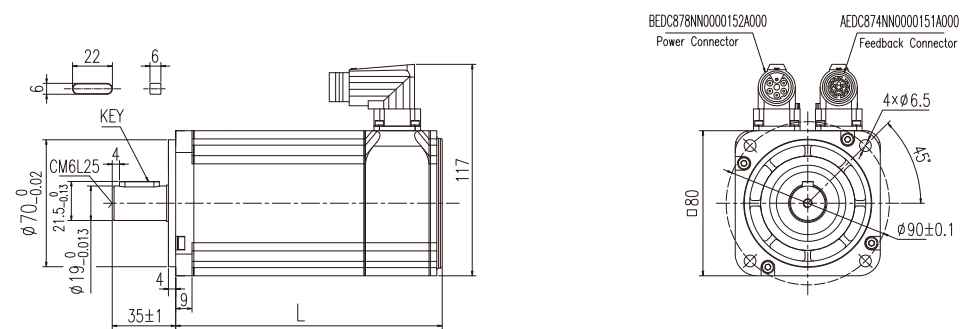
SMH Series 80 Flange Outlet Motor (with brake)



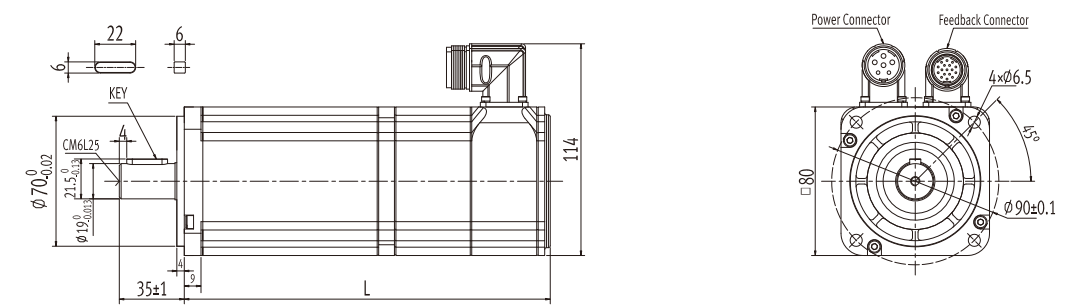
SMH Series 80 Flange HFO Aviation Socket Motor



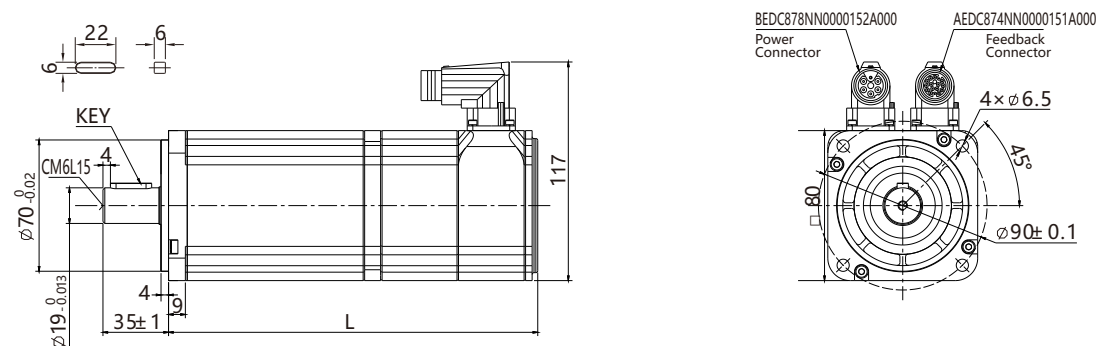
SMH Series 80 Flange Inlet Aviation Socket Motor



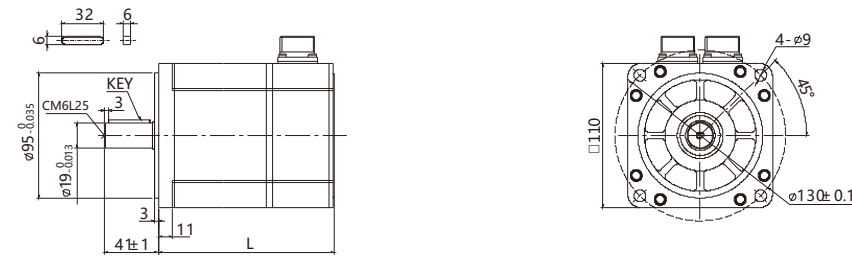
SMH Series 80 Flange HFO Aviation Socket Motor (with brake)



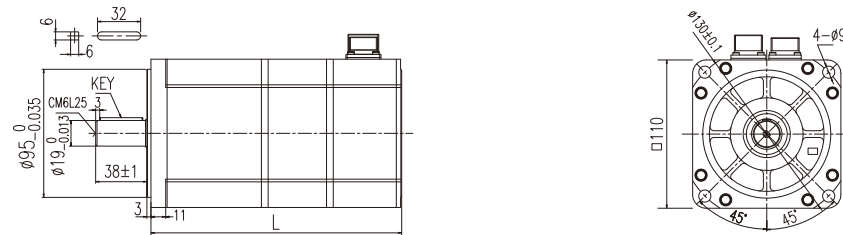
SMH Series 80 Flange Inlet Aviation Socket Motor (with brake)



SMH Series 110 Flange General Aviation Socket Motor

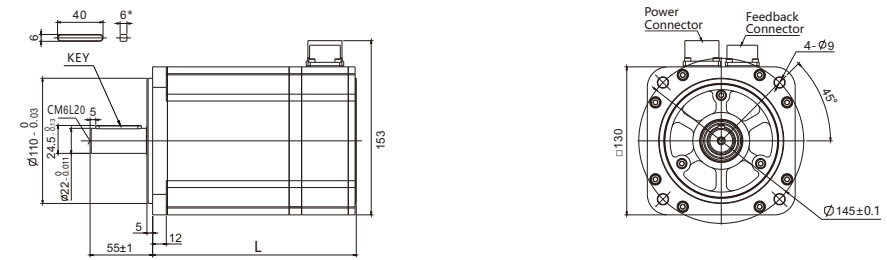


SMH Series 110 Flange General Aviation Socket Motor (with brake)

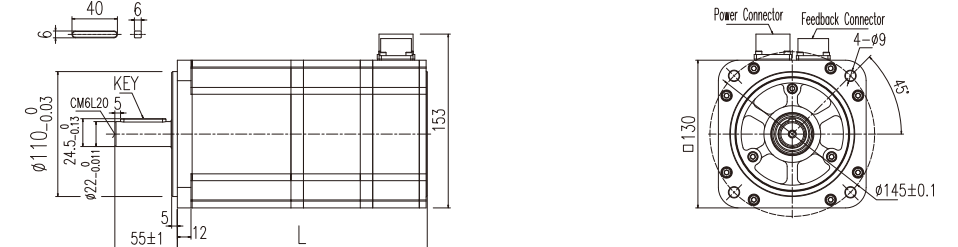


SMH Series 130 Flange General Aviation Socket Motor

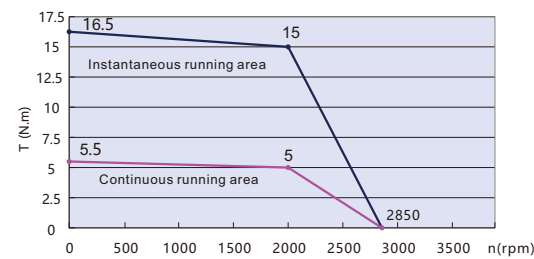
*Note: the SMH130D-0300-20A □ K-4HKC key is 8.



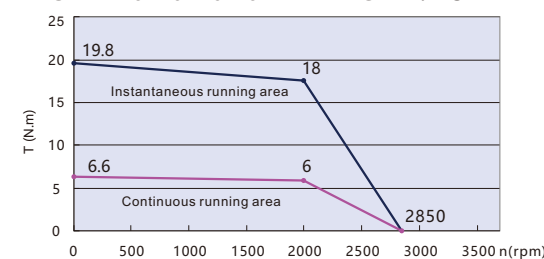
SMH Series 130 Flange General Aviation Socket Motor (with brake)



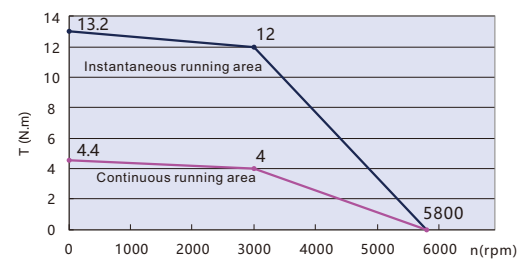
SMH110D-0105-20A □ K-4LKC 1.05KW



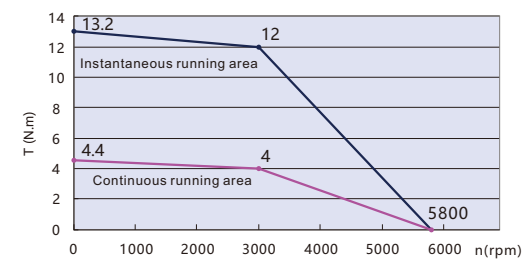
SMH110D-0126-20A □ K-4LKC 1.26KW



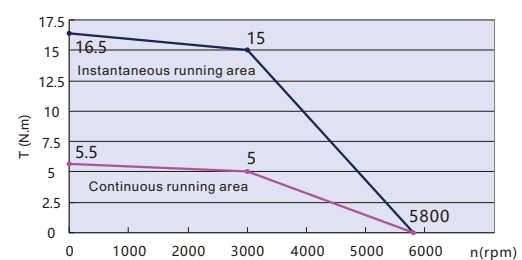
SMH110D-0125-30A □ K-4LKC 1.25KW



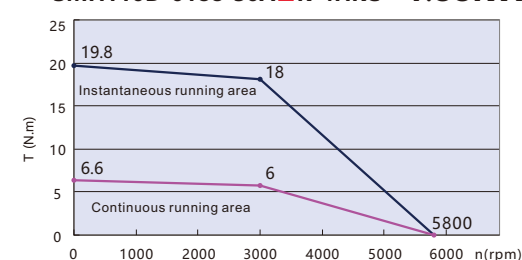
SMH110D-0126-30A □ K-4HKC 1.26KW



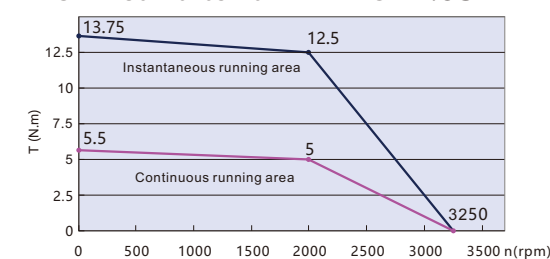
SMH110D-0157-30A □ K-4HKC 1.57KW



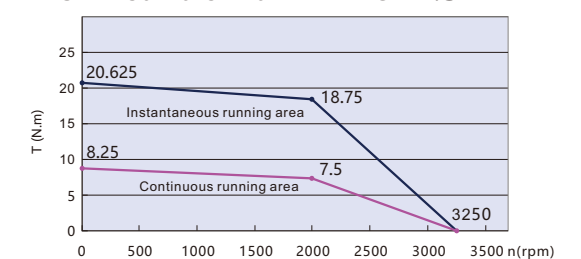
SMH110D-0188-30A □ K-4HKC 1.88KW



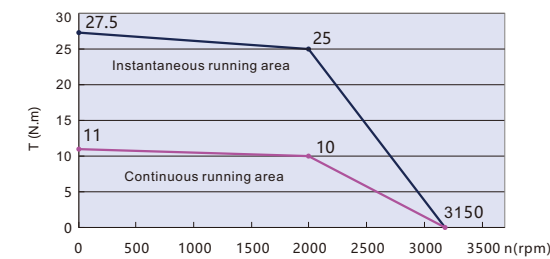
SMH130D-0105-20A □ K-4HKC 1.05KW



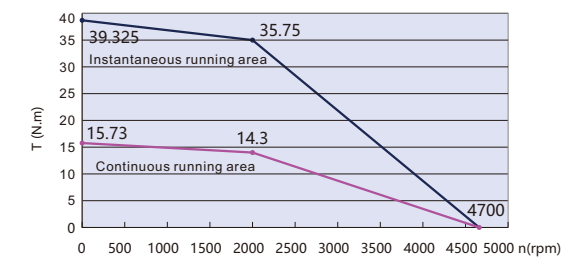
SMH130D-0157-20A □ K-4HKC 1.57KW



SMH130D-0210-20A □ K-4HKC 2.1KW



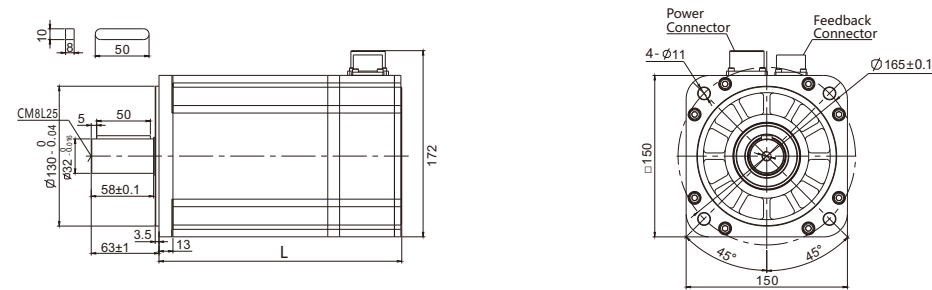
SMH130D-0300-20A □ K-4HKC 3KW



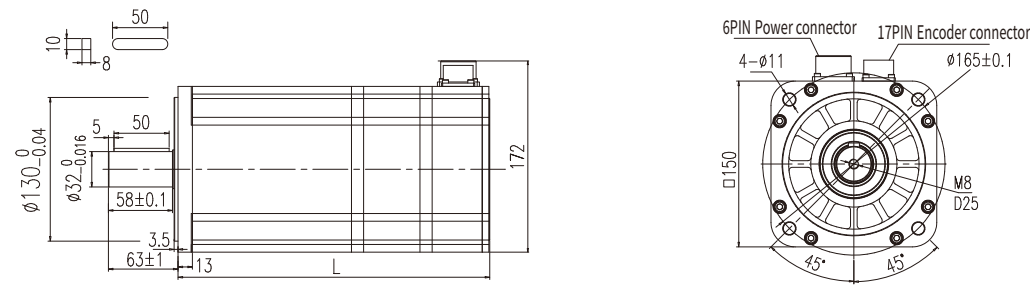
Mechanical Dimensions of SMH Servo Motors (150 flanges)

Mechanical Dimensions of SMH Servo Motors (180 flanges)

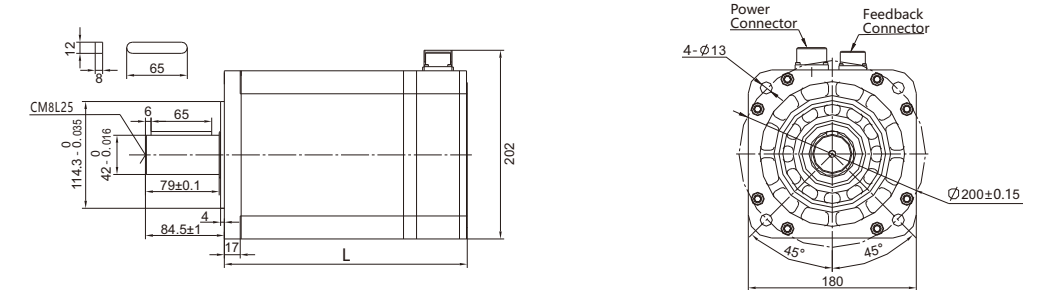
SMH Series 150 Flange General Aviation Socket Motor



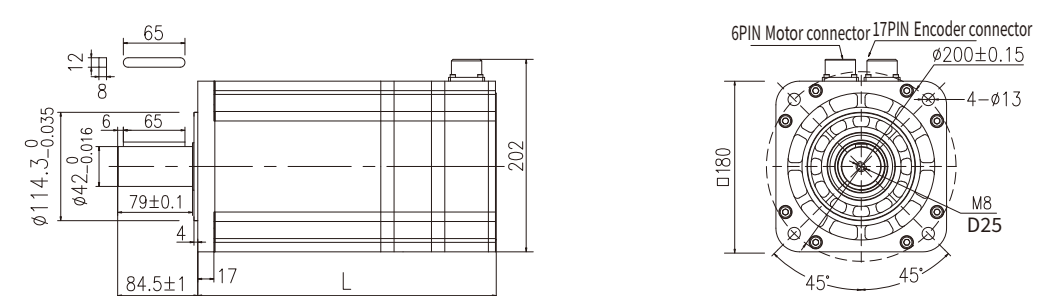
SMH Series 150 Flange General Aviation Socket Motor (with brake)



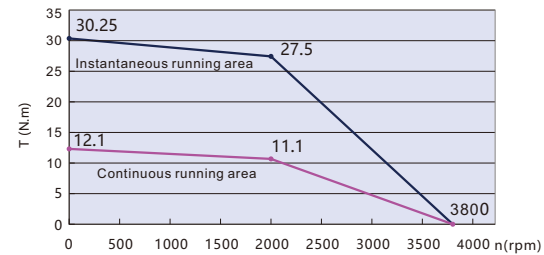
SMH Series 180 Flange General Aviation Socket Motor



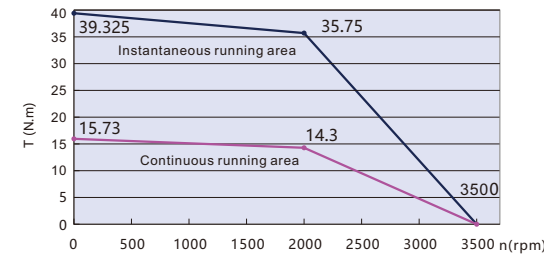
SMH Series 180 Flange General Aviation Socket Motor (with brake)



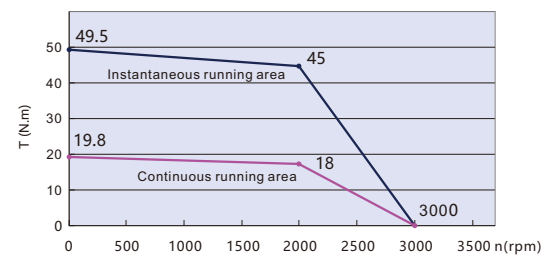
SMH150D-0230-20A K-4HKC 2.3KW



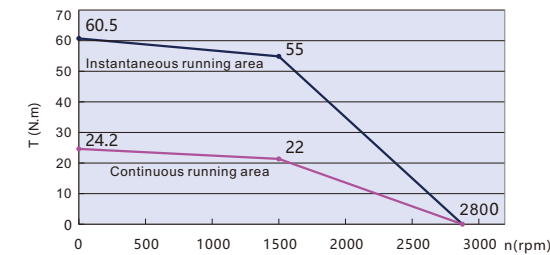
SMH150D-0300-20A K-4HKC 3KW



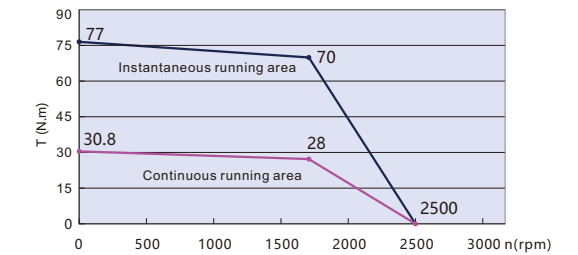
SMH150D-0380-20A K-4HKC 3.8KW



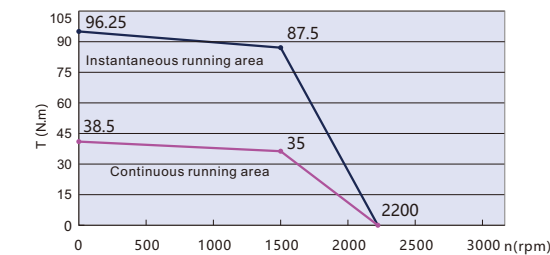
SMH180D-0350-15A K-4HKC 3.5KW



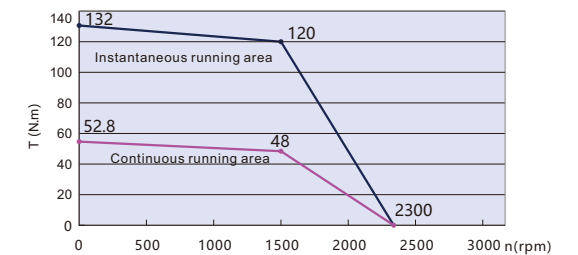
SMH180D-0440-15A K-4HKC 4.4KW



SMH180D-0550-15R K-4HKC 5.5KW



SMH180D-0750-15R K-4HKC 7.5KW



Technical Specifications of SMG Servo Motor (1)



Motor Series	SMG Series Motor						
	Medium inertia flange size 130mm						
Model	SMG130D-0100 -10A□K-4LKG	SMG130D-0100 -20A□K-4LKG	SMG130D-0150 -20A□K-4LKG	SMG130D-0150 -20A□K-4HKG	SMG130D-0200 -20A□K-4LKG	SMG130D-0200 -20A□K-4HKG	SMG130D-0300 -20A□K-4HKG
Driver matching	FD422S-LF-000 FD422S-CF-000 FD422S-EF-000 CD422S-AF-000 JD430-AA-000		CD432S-AA-000 FD432S-LA-000 FD432S-CA-000 FD432S-EA-000 CD612S-AA-000 JD430-AA-000	FD612S-LA-000 FD612S-CA-000 FD612S-EA-000 CD612S-AA-000 JD620-AA-000	CD432S-AA-000 FD432S-LA-000 FD432S-CA-000 FD432S-EA-000 CD612S-AA-000 JD430-AA-000	FD612S-LA-000 FD612S-CA-000 FD612S-EA-000 CD612S-AA-000 JD620-AA-000	FD622S-LA-000 FD622S-CA-000 FD622S-EA-000 CD622S-AA-000 JD620-AA-000
Rated Power (kW)	1	1	1.5	1.5	2	2	3
Rated voltage (V)	220	220	220	380	220	380	380
Rated current (A)	4.5	5	7.5	4.7	10	5.9	7.4
Rated speed (RPM)	1000	2000	2000	2000	2000	2000	2000
Rated torque (Nm)	10	5	7.7	7.7	10	10	15
Peak torque (Nm)	20	12.5	19.25	19.25	25	25	30
Peak current (A)	9	12.5	18.75	11.75	25	14.75	18.5
Reverse voltage	140	68	68	111	70	115	125
constant K _e (V/1000r/min) Torque constant k _t (Nm/A)	2.2	1	1.03	1.64	1	1.69	2.03
Rotor moment of inertia J _m (Kg•m ²)	1.94×10 ⁻³	1.06×10 ⁻³	1.53×10 ⁻³	1.53×10 ⁻³	1.94×10 ⁻³	1.94×10 ⁻³	2.77×10 ⁻³
	1.95×10 ⁻³ (with brake)	1.07×10 ⁻³ (with brake)	1.54×10 ⁻³ (with brake)	1.54×10 ⁻³ (with brake)	1.95×10 ⁻³ (with brake)	1.95×10 ⁻³ (with brake)	2.78×10 ⁻³ (with brake)
Resistance Line-Line R _L (Ω)	2.7	1.84	1.01	2.49	0.73	1.986	1.41
Inductance Line-Line L _L (mH)	8.8	4.9	2.94	7.08	2.45	6.2	5.5
Electrical time constant τ _e (ms)	3.26	2.66	2.91	2.84	3.36	3.12	3.9
Length of motor L (mm)	213±1	171±1	192±1	192±1	209±1	209±1	231±1
	294±1 (with brake)	228±1 (with brake)	249±1 (with brake)	249±1 (with brake)	290±1 (with brake)	290±1 (with brake)	312±1 (with brake)
Weight (Kg)	10.2±0.7	6.6±0.7	8.3±0.7	8.3±0.7	9.8±0.7	9.8±0.7	11.7±0.7
	12.5±0.7 (with brake)	8.9±0.7 (with brake)	10.6±0.7 (with brake)	10.6±0.7 (with brake)	12.1±0.7 (with brake)	12.1±0.7 (with brake)	14±0.7 (with brake)
Maximum radial force F _r (N)	900	900	900	900	900	900	900
Maximum axial force F _a (N)	300	300	300	300	300	300	300
Pole pair number	4						
Encoder	2500 P/R Incremental encoder						
Insulation class	F						
Protection level	IP65						
Environment conditions for operation	Temperature: - 20~40℃ (non-freezing) ;Humidity: Below 90 % RH (no condensation)						

Note: □=A —without brake
□=B —with brake

Technical Specifications of SMG Servo Motor(2)



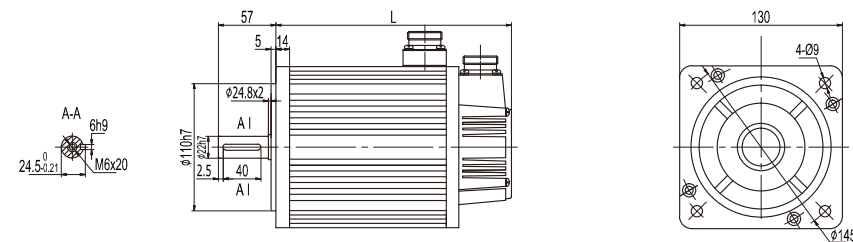
Motor Series	SMG Series Motor		
	Medium inertia flange size 180mm		
Model	SMG180D-0440-15A□K-4HKG	SMG180D-0550-15A□K-4HKG	SMG180D-0750-15A□K-4HKG
Driver matching	JD640-LA-000 JD640-AA-000		JD650-AA-000
Rated Power (kW)	4.4	5.5	7.5
Rated voltage (V)	380	380	380
Rated current (A)	10	12	20
Rated speed (RPM)	1500	1500	1500
Rated torque (Nm)	27	35	48
Peak torque (Nm)	67	70	96
Peak current (A)	24.81	30	50
Reverse voltage constant K _e (V/1000r/min)	172	181	156
Torque constant k _t (Nm/A)	2.7	2.9	2.4
Rotor moment of inertia J _m (Kg•m ²)	9.64 × 10 ⁻³	12.25 × 10 ⁻³	16.72 × 10 ⁻³
	9.66 × 10 ⁻³ (with brake)	12.28 × 10 ⁻³ (with brake)	16.75 × 10 ⁻³ (with brake)
Resistance Line - Line R _L (Ω)	0.796	0.62	0.273
Inductance Line - Line L _L (mH)	4.83	4	2.14
Electrical time constant τ _e (ms)	6	6.45	7.8
Length of motor L (mm)	262±1.4	292±1.4	346±1.4
	334±1.4 (with brake)	365±1.4 (with brake)	418±1.4 (with brake)
Weight (Kg)	25.5±0.7	30.5±0.7	40±0.7
	30.7±0.7 (with brake)	37.5±0.7 (with brake)	47±0.7 (with brake)
Maximum radial force F _r F(N)	1500	1500	1500
Maximum axial force F (N)	600	600	600
Pole pair number	4		
Encoder	2500 P/R Incremental encoder		
Insulation class	F		
Protection level	IP65		
Environment conditions for operation	Temperature: - 20~40℃ (non-freezing) ;Humidity: Below 90 % RH (no condensation)		

Note: □=A —without brake
□=B —with brake

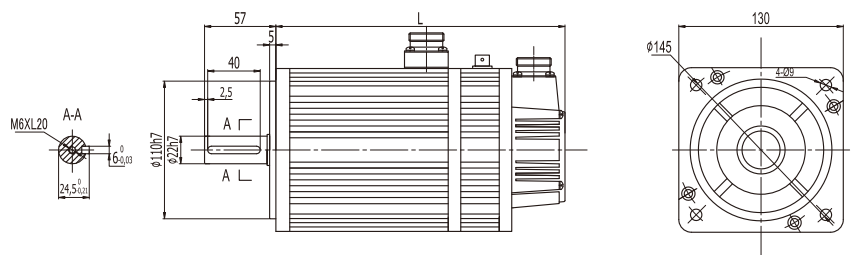
Mechanical Dimensions of SMH Servo Motors (130 flanges)

Mechanical Dimensions of SMH Servo Motors (180 flanges)

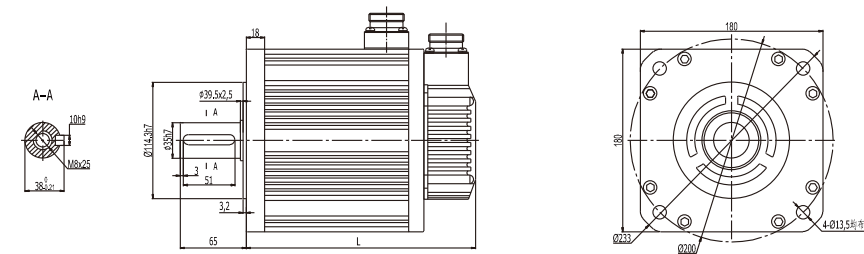
SMG Series 130 Flange General Aviation Socket Motor



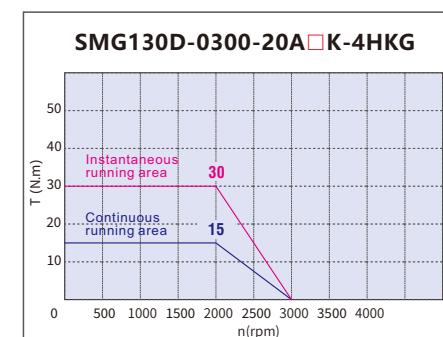
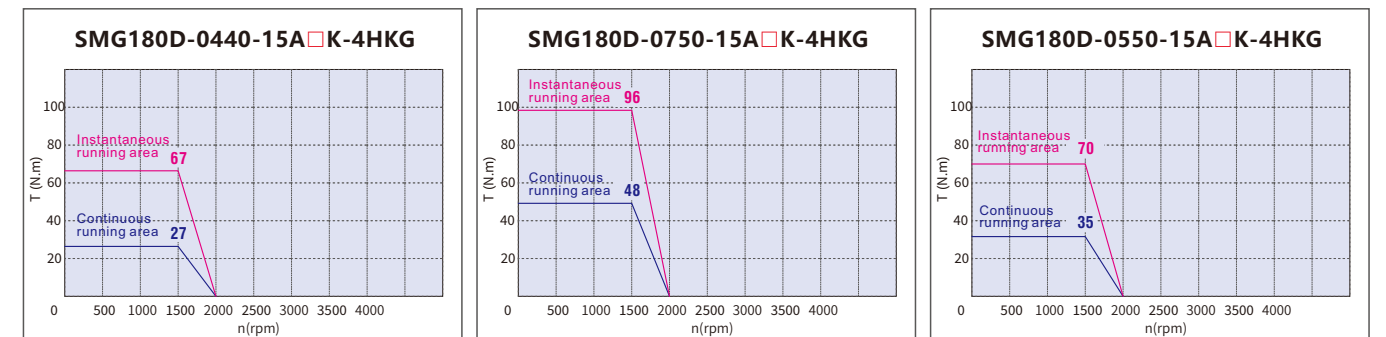
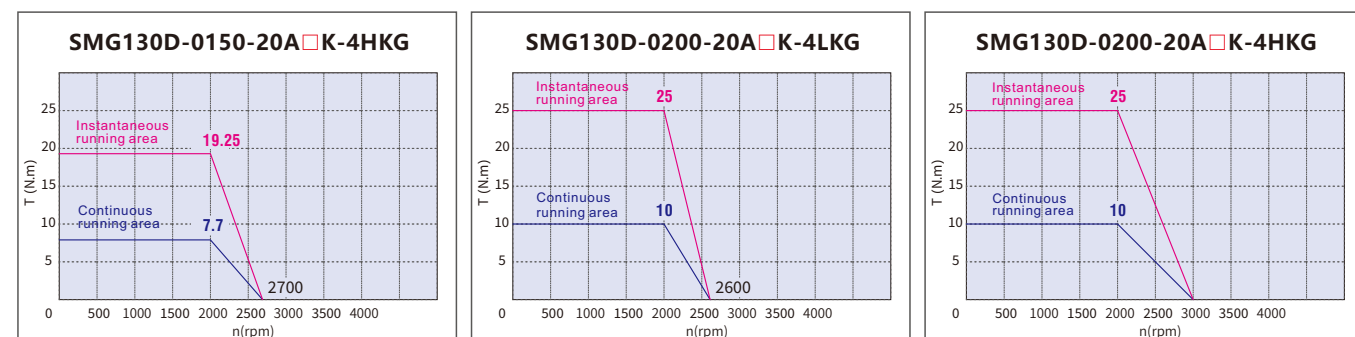
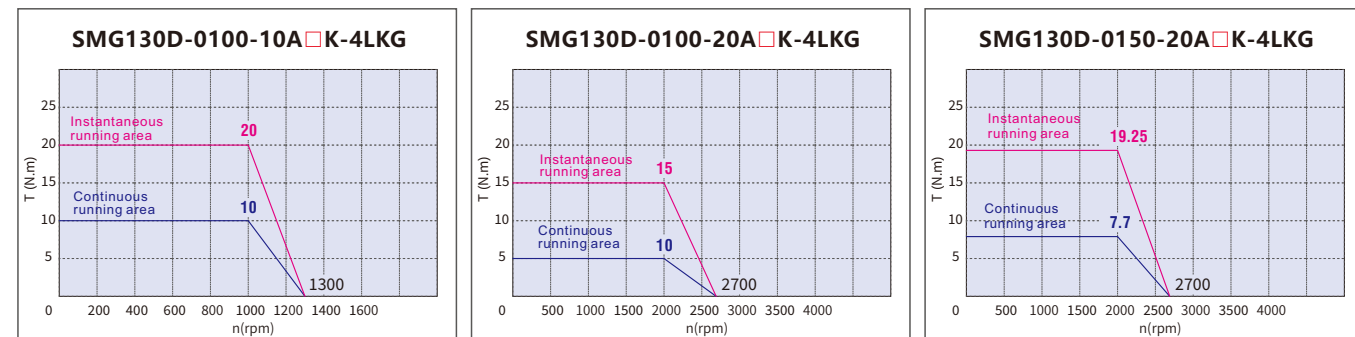
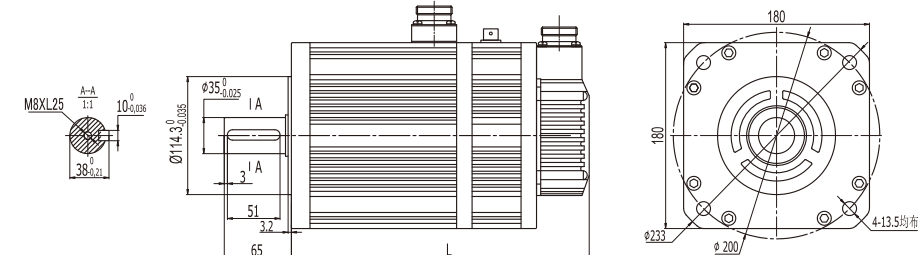
SMG Series 130 Flange General Aviation Socket Motor (with brake)

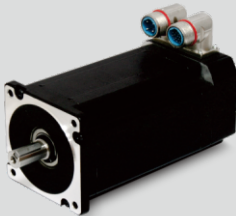


SMG Series 180 Flange General Aviation Socket Motor

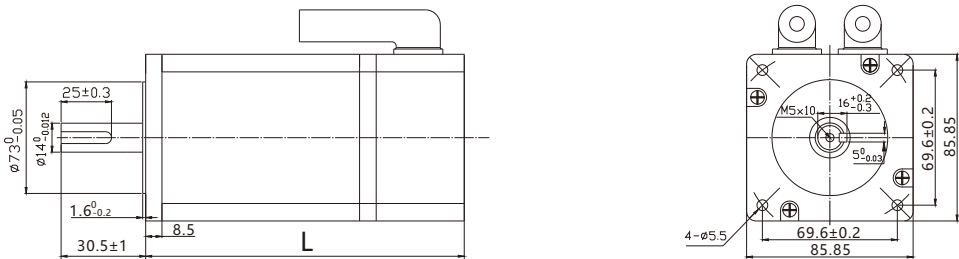


SMG Series 180 Flange General Aviation Socket Motor (with brake)

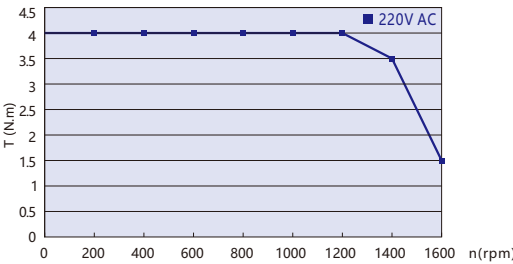


			
Multi-pole servo motor	Multipole servo motor		
	Small inertia flange size 85mm		
Model	85S-0025-05AAK-FLFN-02	85S-0035-05AAK-FLFN-02	85S-0045-05AAK-FLFN-02
Driver matching	FD422S-CA-000 FD422S-LA-000 FD422S-EA-000 CD422S-AA-000		
Rated phase current (A)	4	4	4
Holding torque (Nm)	4.18	6	7.5
Damping torque (Nm)	0.3	0.4	0.45
Resistance line-line (Ω)	1.13	2.3	1.78
Inductance line-line (mH)	5.75	12.4	17.1
Rotor moment of inertia J _m (Kg·cm2)	0.232	0.33	0.44
Length L (mm)	142±1	172±1	202±1
Maximum radial force F _r (N)	60	60	60
Maximum axial force F _a (N)	220	220	220
weight (Kg)	2.7	3.8	5.3
Dielectric strength	1500V AC 1S 5mA		
Insulation class	B		
operation teperature	- 20 ~ 50°C		
Surface temperature rising	Max,80°C		
Insulation impedance	Min.100MΩ, 500V DC		

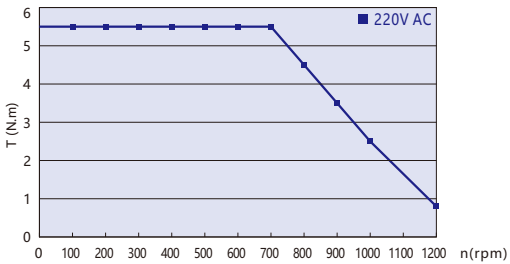
Multipole 85S Aviation Socket Motor



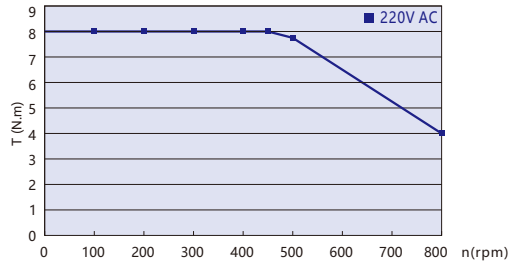
85S-0025-05AAK-FLFN-02 **4.18NM**



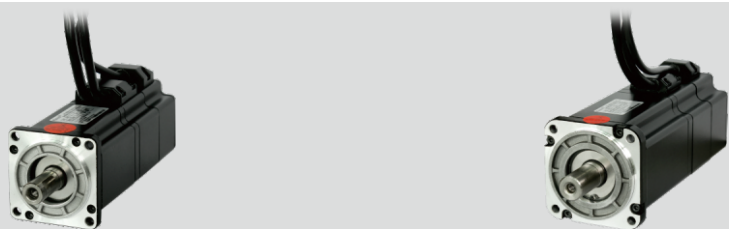
85S-0035-05AAK-FLFN-02 **6NM**



85S-0045-05AAK-FLFN-02 **8NM**



Technical Specifications of SMC Magnetolectric Encoder Motor (1)



Model		SMC Series Motor		
		Small inertia flange size 60mm		Small inertia flange size 80mm
Driver matching		SMC60S-0020-30A□K-3LK□	SMC60S-0040-30A□K-3LK□	SMC80S-0075-30A□K-3LK□
DC link voltage UDC		FD422S-CA-000 FD422S-LA-000 FD422S-EA-000 CD422S-AA-000		
DC link voltage UDC		300	300	300
Maintain torque	Rated power P_N (W)	200	400	750
	Rated torque T_N (Nm)	0.64	1.27	2.39
	Rated speed n_N (rpm)	3000	3000	3000
	Rated current I_N (A)	1.4	2.4	3.8
maximum torque T_m (Nm)		1.92	3.81	7.17
maximum current I_m (A)		4.2	7.2	11.4
Standstill torque T_s (Nm)		0.7	1.4	2.63
Standstill current I_s (A)		1.5	2.6	4.2
Resistance Line - Line R_L (Ω)		11.2	5.8	2.1
Inductance Line - Line L_L (mH)		20.9	11.5	10.5
Electrical time constant τ_e (ms)		1.87	1.98	5
Mechanical time constant τ_m (ms)		1.8	1.29	0.9
Reverse voltage constant K_e (V/krpm)		29	34	40
Torque constant K_t (Nm/A)		0.48	0.562	0.662
Rotor moment of inertia J_m (Kg·cm ²)		0.214	0.405	1.087
		0.218(with brake)	0.409(with brake)	1.099(with brake)
Maintain torque T (Nm)		1.3	1.3	3.2
pole pair number		3	3	3
Maximum voltage rising du/dt (KV/ μ s)		8	8	8
Insulation class		F	F	F
Maximum radial force F_r (N)		180	180	335
Maximum axial force F_a (N)		90	90	167.5
Weight G (Kg)		1.1	1.6	2.8
		1.6(with brake)	2.1(with brake)	3.4(with brake)
Length of motor L (mm)		109±1.5	135±1.5	139±1.5
		150±1.5(with brake)	176±1.5(with brake)	182±1.5(with brake)
Position feedback device		2500 P/R Incremental encoder		
Cooling method		Totally enclosed, non - ventilated		
Protection level		IP65, shaft sealing IP54		
Environment conditions for operation	Temperature	- 20 ~ 40°C (non-freezing)		
	Humidity	Below 90 % RH (no condensation)		
	Ambient environment	Away from active gas,combustible gas,oil drops and dust		
	Altitude	Maximum altitude 4000 m, rated power at 1000 m or below. Above 1000m, decreasing 1.5 % per every 100m rise		

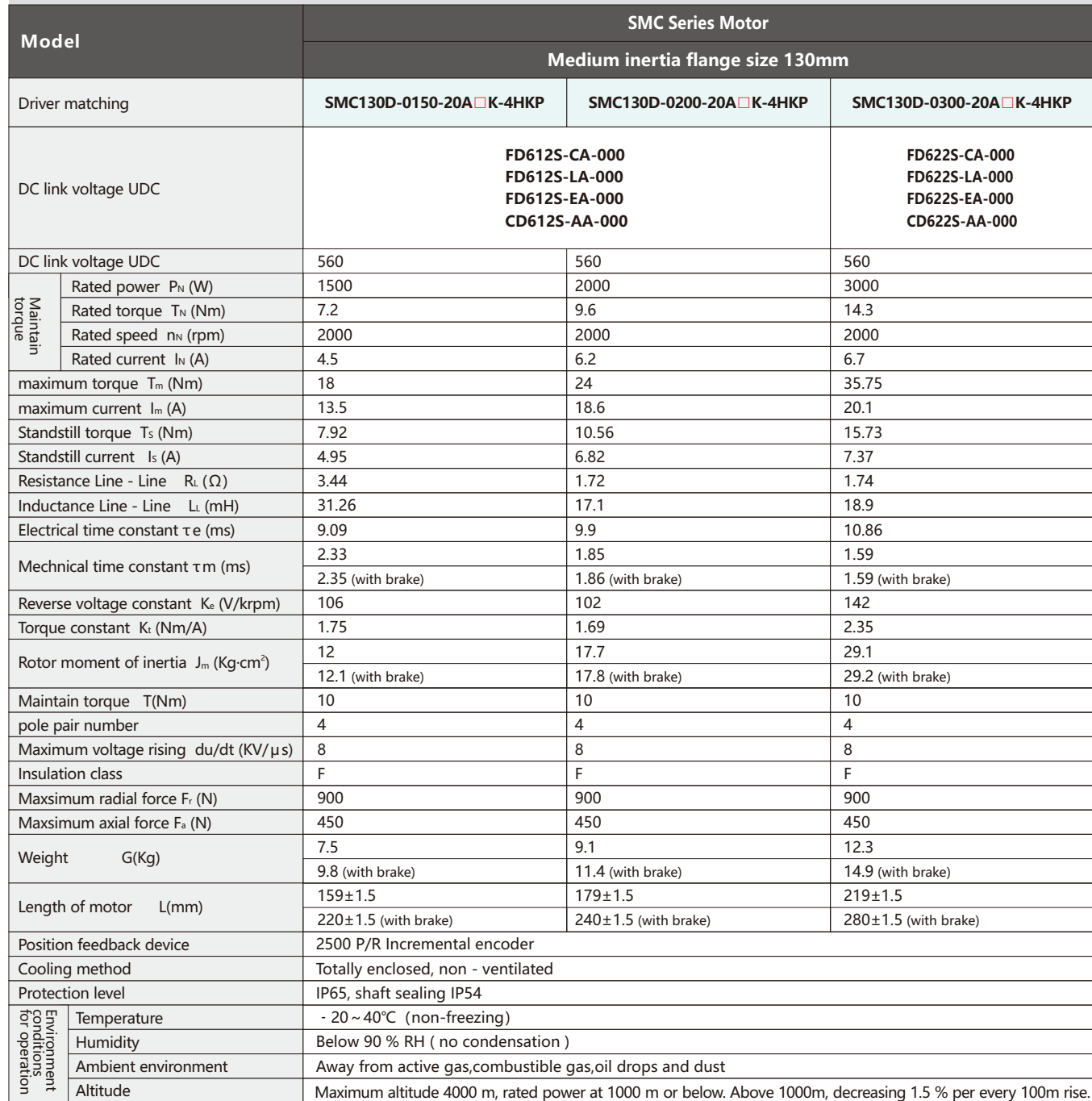
Note: □=A — without brake □=H — 3 rows of 15-pin Connector
□=B — with brake □=N — HFO18 series aviation standard connector(towards the shaft)
□=P — HFO21+HFO18 series aviation standard connector(HFO21 power connector,HFO18 encoder connector)

Technical Specifications of SMC Magnetolectric Encoder Motor (2)



Model		SMC Series Motor		
		Medium inertia flange size 130mm		
Driver matching		SMC130D-0100-20A□K-4LKP	SMC130D-0150-20A□K-4LKP	SMC130D-0200-20A□K-4LKP
DC link voltage UDC		FD422S-CF-000 FD422S-LF-000 FD422S-EF-000 CD422S-AF-000	FD432S-CA-000 FD432S-LA-000 FD432S-EA-000 CD432S-AA-000	
DC link voltage UDC		300	300	300
Maintain torque	Rated power P_N (W)	1000	1500	2000
	Rated torque T_N (Nm)	4.8	7.2	9.6
	Rated speed n_N (rpm)	2000	2000	2000
	Rated current I_N (A)	4.4	6.8	8.8
maximum torque T_m (Nm)		12	18	24
maximum current I_m (A)		13.2	20.4	26.4
Standstill torque T_s (Nm)		5.28	7.92	10.56
Standstill current I_s (A)		4.84	7.48	9.68
Resistance Line - Line R_L (Ω)		3.1	1.51	0.93
Inductance Line - Line L_L (mH)		24.07	13.8	8.8
Electrical time constant τ_e (ms)		7.76	9.14	9.46
Mechanical time constant τ_m (ms)		2.72	2.28	1.97
		2.76 (with brake)	2.3 (with brake)	1.98 (with brake)
Reverse voltage constant K_e (V/krpm)		73	71	72.8
Torque constant K_t (Nm/A)		1.21	1.17	1.2
Rotor moment of inertia J_m (Kg·cm ²)		7.4	12	17.7
		7.5 (with brake)	12.1 (with brake)	17.8 (with brake)
Maintain torque T (Nm)		10	10	10
pole pair number		4	4	4
Maximum voltage rising du/dt (KV/ μ s)		8	8	8
Insulation class		F	F	F
Maximum radial force F_r (N)		900	900	900
Maximum axial force F_a (N)		450	450	450
Weight G (Kg)		6.2	7.5	9.1
		8.5 (with brake)	9.8 (with brake)	11.4 (with brake)
Length of motor L (mm)		143±1.5	159±1.5	179±1.5
		204±1.5 (with brake)	220±1.5 (with brake)	240±1.5 (with brake)
Position feedback device		2500 P/R Incremental encoder		
Cooling method		Totally enclosed, non - ventilated		
Protection level		IP65, shaft sealing IP54		
Environment conditions for operation	Temperature	- 20 ~ 40°C (non-freezing)		
	Humidity	Below 90 % RH (no condensation)		
	Ambient environment	Away from active gas,combustible gas,oil drops and dust		
	Altitude	Maximum altitude 4000 m, rated power at 1000 m or below. Above 1000m, decreasing 1.5 % per every 100m rise		

Note: □=A — without brake
□=B — with brake



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Technical drawing of the 1000W motor, showing side and front views with dimensions and labels.

Side View Dimensions:

- Shaft diameter: $\phi 50.00_{+0.008}^{-0}$
- Shaft length: 16
- Shaft key width: 5
- Motor body length: 30 ± 1
- Motor body diameter: $\phi 114.2_{+0.1}^{-0}$
- Motor body height: 94
- Motor body width: 6
- Motor body depth: 3
- Motor body material: CML25
- Motor body key: KEY
- Motor body key width: 5
- Motor body key depth: 16
- Motor body key material: 6

Front View Dimensions:

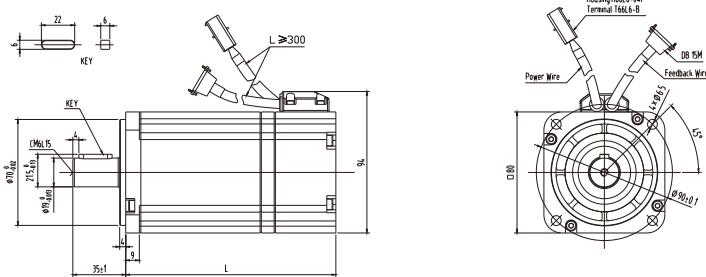
- Motor body diameter: $\phi 114.2$
- Motor body height: 94
- Motor body width: 6
- Motor body depth: 3
- Motor body material: CML25
- Motor body key: KEY
- Motor body key width: 5
- Motor body key depth: 16
- Motor body key material: 6

Labels:

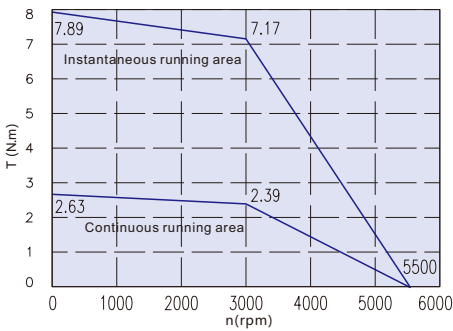
- Power Connector
- Feedback Connector
- Motor Body
- Motor Key
- Motor Key Material
- Motor Key Width
- Motor Key Depth
- Motor Key Material



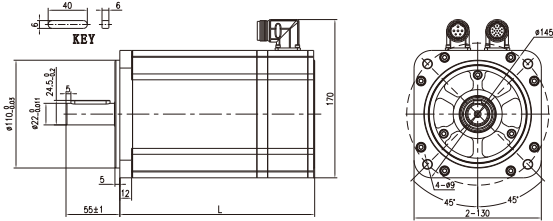
SMC Series 80 Lange Lead - Out Motor



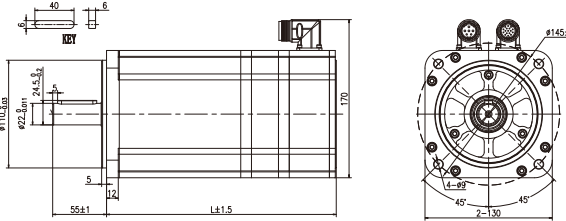
SMC80S-0075-30A K-3LK 750W



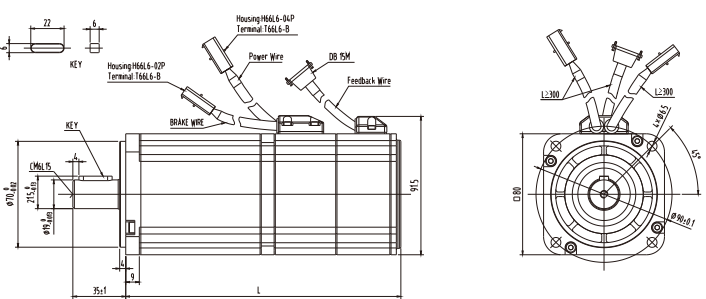
SMC Series 130 Flange General Aviation Socket Motor



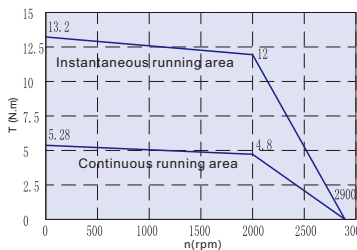
SMC Series 130 Flange General Aviation Socket Motor (with brake)



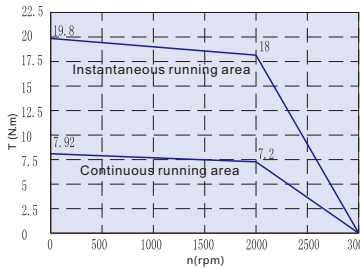
SMC Series 80 Flange Lead - Out Motor (with brake)



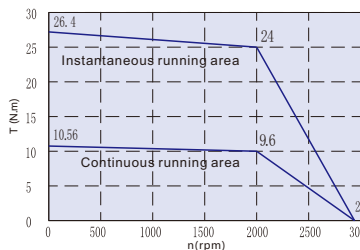
SMC130D-0100-20A K-4LKP



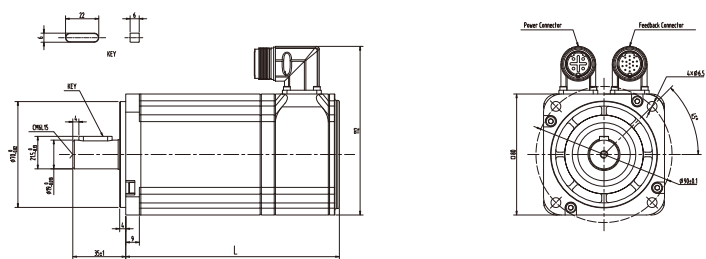
SMC130D-0150-20A K-4LKP



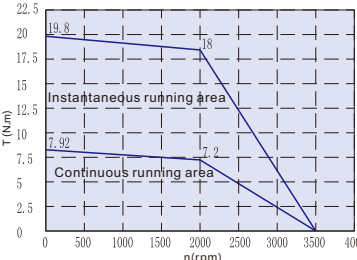
SMC130D-0200-20A K-4LKP



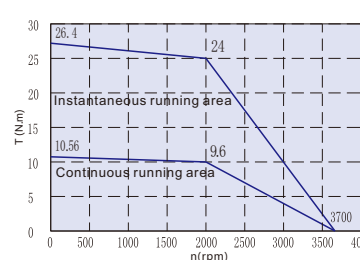
SMC Series 80 Flange HFO Aviation Socket Motor



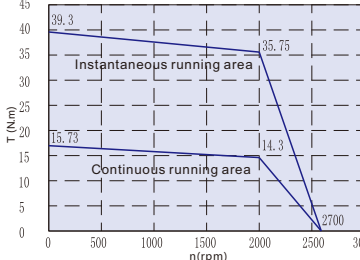
SMC130D-0150-20A K-4HKP



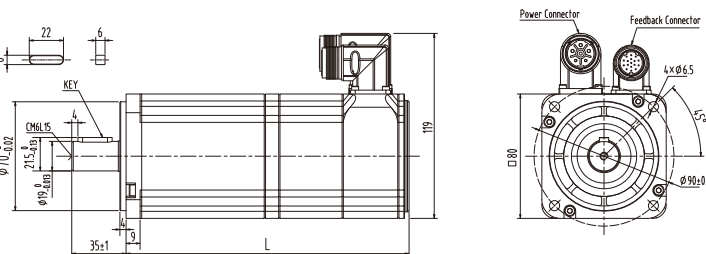
SMC130D-0200-20A K-4HKP



SMC130D-0300-20A K-4HKP



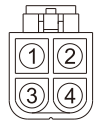
SMC Series 80 Flange HFO Aviation Socket Motor (with brake)



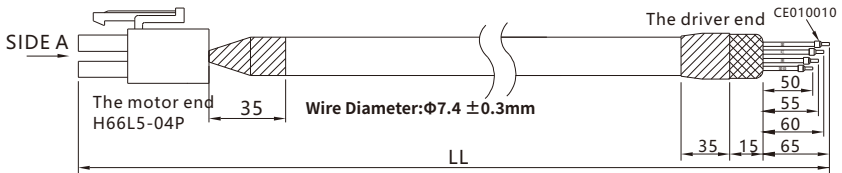
Power Cable Wiring List

MOT-005-LL-KL

Wire Spec: UL2586 4C*18AWG(41/0.16T)
18AWG cross sectional area=0.8107mm²



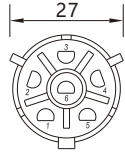
Side A
4 pin connector



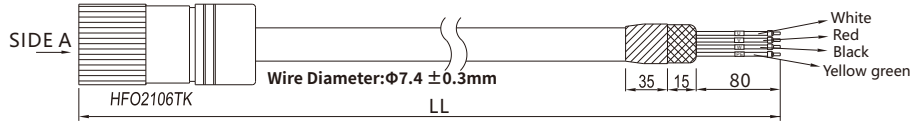
MOT-005-LL-KL		
Wire color	Signal	4PIN Terminal
White	U	PIN1
Red	V	PIN2
Black	W	PIN3
Yellow green	PE	PIN4

MOT-005-LL-KC4

Wire Spec: UL2586 4C*18AWG(41/0.16T)
18AWG cross sectional area=0.8107mm²



SIDE A
6PIN



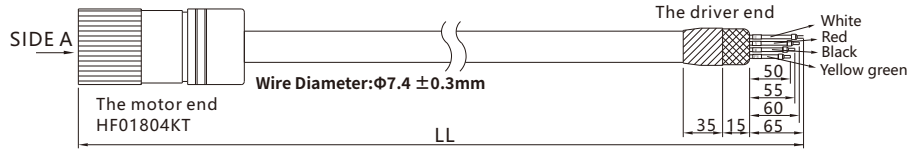
MOT-005-LL-KC4		
Wire color	Signal	HFO2106TK
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow green	PE	PIN6

MOT-005-LL-KC0

Wire Spec: UL2586 4C*18AWG(41/0.16T)
18AWG cross sectional area=0.8107mm²



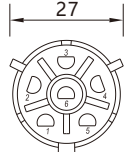
SIDE A
4 PIN



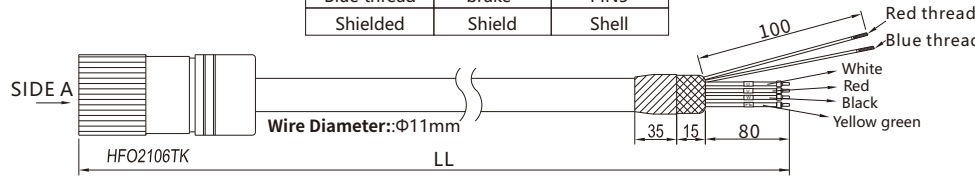
MOT-005-LL-KC0		
Wire color	Signal	4PIN Terminal
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow green	PE	PIN1
Metal ring	Shield	Shielded

MOT-005-LL-KC4-B

Wire Spec: RVVYP 4*18AWG+2*20AWG BLACK
18AWG cross sectional area=0.8107mm²
20AWG cross sectional area=0.5189mm²



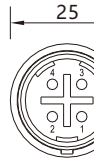
SIDE A
6PIN



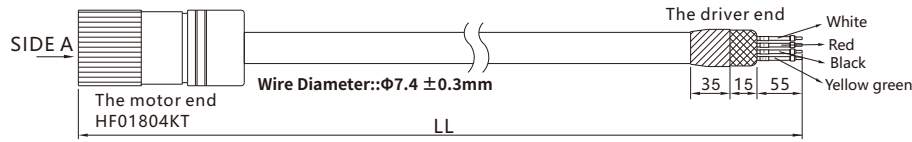
MOT-005-LL-KC4-B		
Wire color	Signal	HFO2106TK
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow green	PE	PIN6
Red thread	brake+	PIN1
Blue thread	brake-	PIN5
Shielded	Shield	Shell

MOTE-005-LL-KC0

Wire Spec: UL2586 4C*18AWG(41/0.16T)
18AWG cross sectional area=0.8107mm²



SIDE A
4 PIN



MOTE-005-LL-KC0		
Wire color	Signal	4PIN Terminal
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow green	PE	PIN1
Metal ring	Shield	Shielded

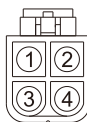
Power Cable Wiring List

Power Cable Wiring List

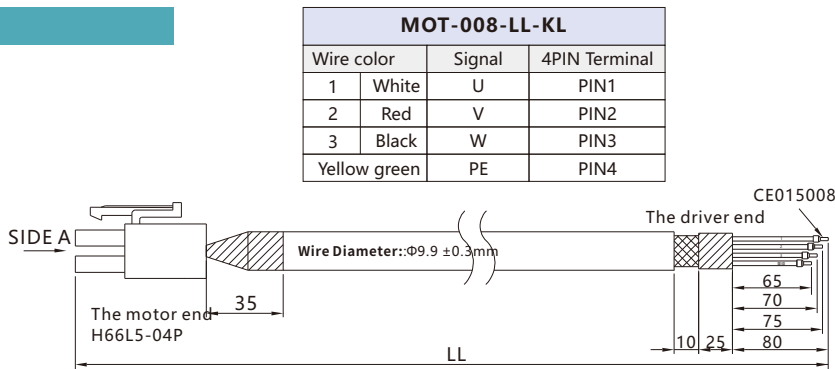
Power Cable Wiring List

MOT-008-LL-KL

Wire Spec: UL2586 4*16AWG
16AWG cross sectional area=1.318mm²



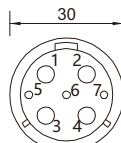
SIDE A
4PIN



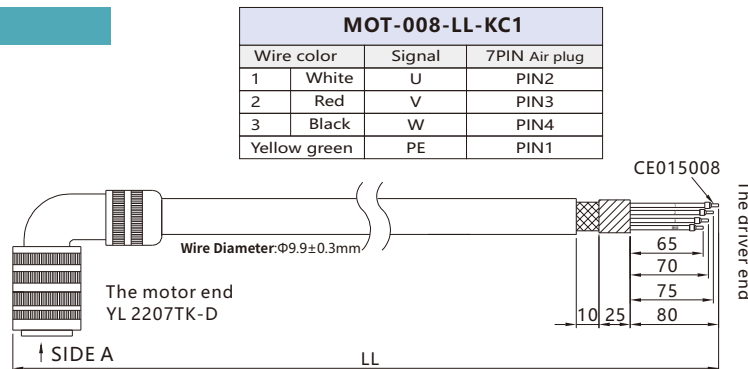
MOT-008-LL-KL			
Wire color	Signal	4PIN Terminal	
1	White	U	PIN1
2	Red	V	PIN2
3	Black	W	PIN3
Yellow green	PE	PIN4	

MOT-008-LL-KC1

Wire Spec: UL2586 4*16AWG
16AWG cross sectional area=1.318mm²



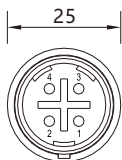
SIDE A
The driver end



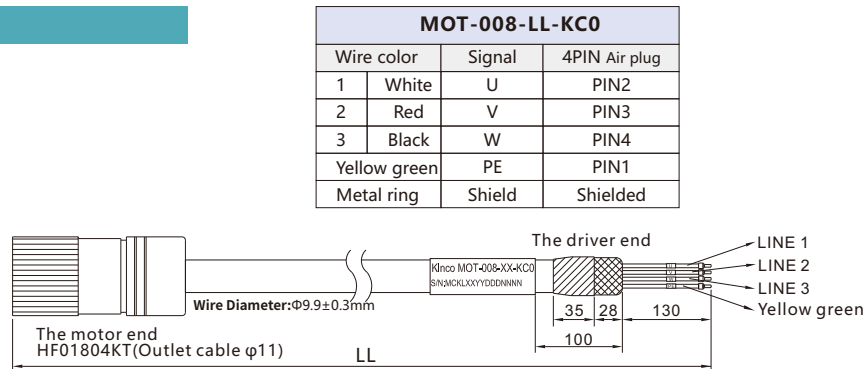
MOT-008-LL-KC1			
Wire color	Signal	7PIN Air plug	
1	White	U	PIN2
2	Red	V	PIN3
3	Black	W	PIN4
Yellow green	PE	PIN1	

MOT-008-LL-KC0

Wire Spec: UL2586 4*16AWG
16AWG cross sectional area=1.318mm²



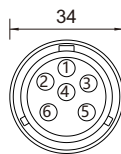
SIDE A
4 PIN



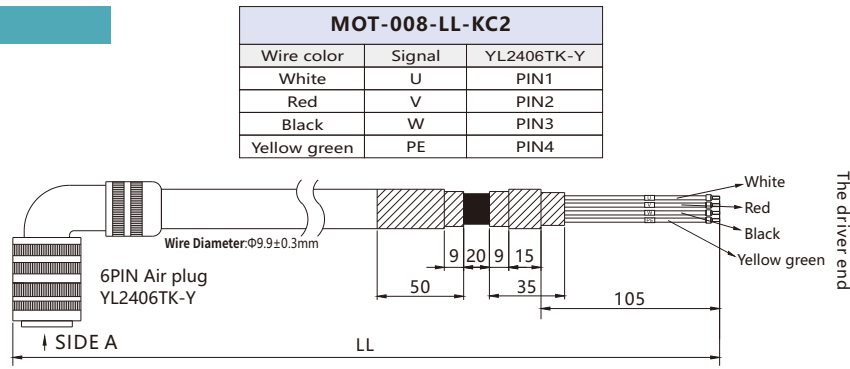
MOT-008-LL-KC0			
Wire color	Signal	4PIN Air plug	
1	White	U	PIN2
2	Red	V	PIN3
3	Black	W	PIN4
Yellow green	PE	PIN1	
Metal ring	Shield	Shielded	

MOT-008-LL-KC2

Wire Spec: UL2586 4*16AWG
16AWG cross sectional area=1.318mm²



SIDE A
The driver end

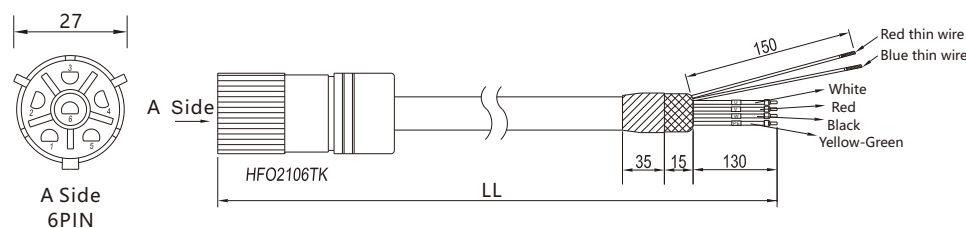


MOT-008-LL-KC2			
Wire color	Signal	YL2406TK-Y	
White	U	PIN1	
Red	V	PIN2	
Black	W	PIN3	
Yellow green	PE	PIN4	

Power Cable Wiring List

MOT-008-LL-KC4-B

Wire Spec. 4×1.5mm²+2×0.5mm²

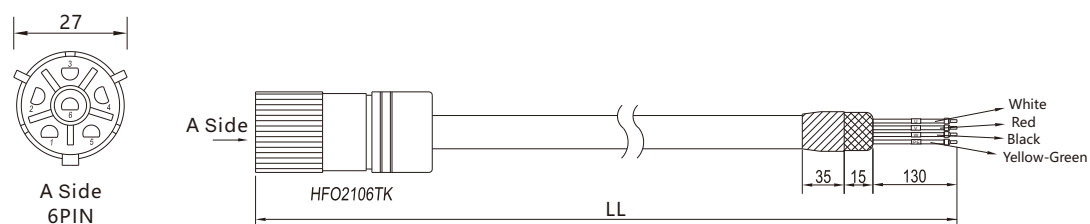


MOT-008-LL-KC4-B		
Cable color	Signal	HFO2106TK
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow-Green	PE	PIN6
Red thin wire	brake+	PIN1
Blue thin wire	brake-	PIN5

MOT-008-LL-KC4

Wire Spec. UL2586 4×16AWG

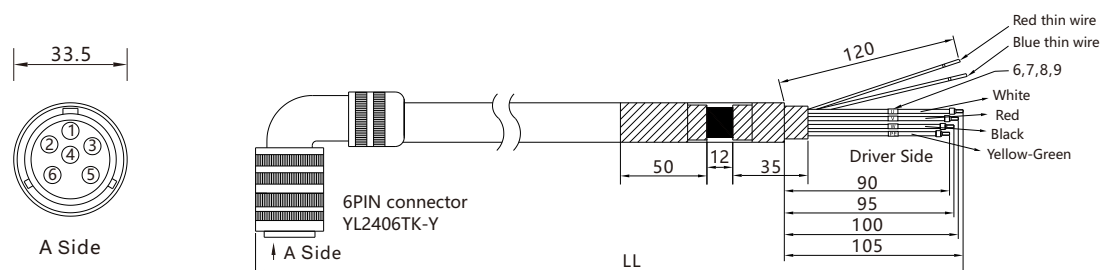
The sectional area of 16AWG is 1.318mm^2



MOT-008-LL-KC4		
Cable color	Signal	HFO2106TK
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow-Green	PE	PIN6

MOT-008-LL-KC2-B

Wire Spec. ECHU RVVYP 4x1.5mm²+2x0.5mm²



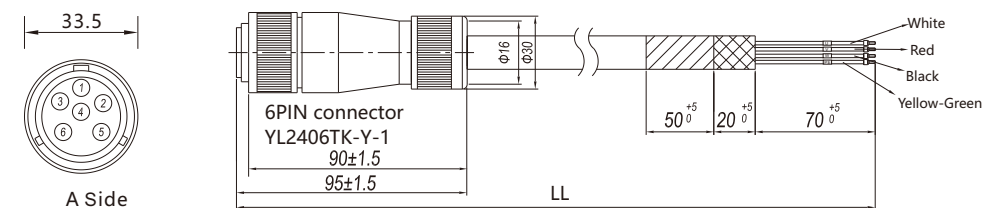
MOT-008-LL-KC2-B		
Cable color	Signal	YL2406TK-Y
White	U	PIN1
Red	V	PIN2
Black	W	PIN3
Yellow-Green	PE	PIN4
Red thin wire	brake+	PIN5
Blue thin wire	brake-	PIN6
Shield terminal	Shield	Metal ring

Power Cable Wiring List

MOT-015-LL-KC2

Power Cable Cableplus UL2856 4×14AWG(50/0.25T)

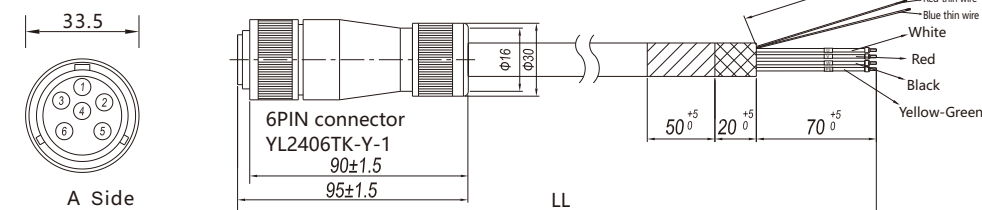
The sectional area of 14AWG is 2.075mm^2



MOT-015-LL-KC2		
Cable color	Signal	YL2406TK-Y-1
White	U	PIN1
Red	V	PIN2
Black	W	PIN3
Yellow-Green	PE	PIN4
Shield terminal	Shield	Metal ring

MOT-015-LL-KC2-B

Power Cable Cableplus

EKM715734x2.5mm²+2x0.5mm²

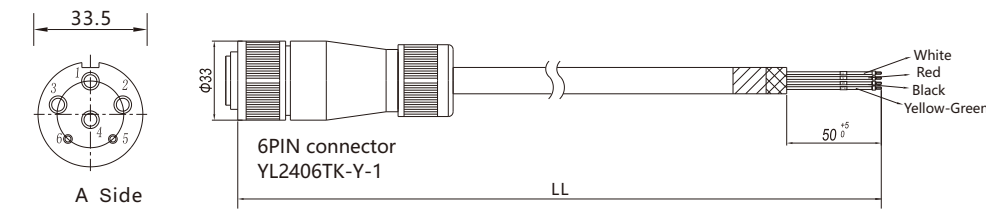
MOT-015-LL-KC2-B		
Cable color	Signal	YL2406TK-Y1
White	U	PIN1
Red	V	PIN2
Black	W	PIN3
Yellow-Green	PE	PIN4
Red thin wire	brake+	PIN5
Blue thin wire	brake-	PIN6
Shield terminal	Shield	Metal ring

Power Cable Wiring List

Power Cable Wiring List

MOT-030-LL-KC3

Wire Spec. ECHU RVVYP 4×4mm²

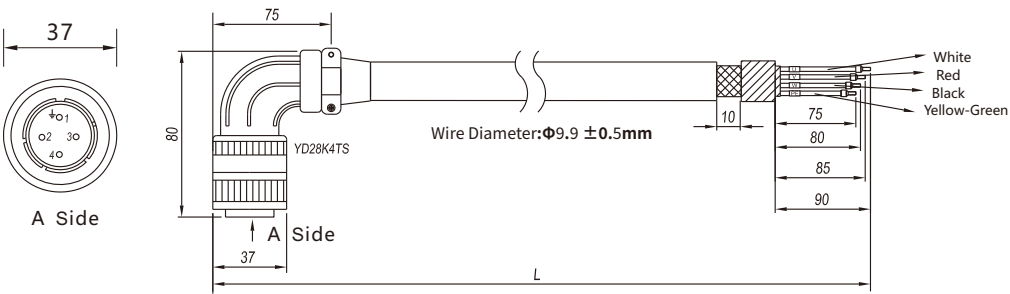


MOT-030-LL-KC3		
Cable color	Signal	YL2406TK-Y-1
White	U	PIN1
Red	V	PIN2
Green	W	PIN3
Yellow-Green	PE	PIN4
Shield terminal	Shield	Metal ring

MOT-008-LL-KG1

Wire specifications: 4C*16AWG

16AWG Corresponding sectional area 1.318mm²

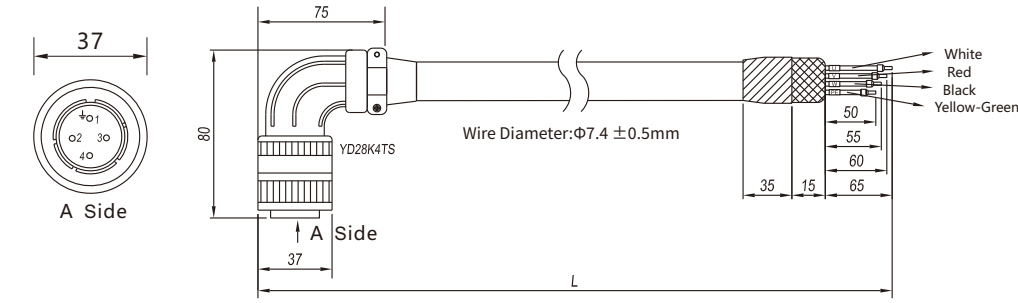


MOT-008-LL-KG1		
Color	Signal	YD28K4TS aviation plug
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellowgreen	PE	PIN1
shield	shielding	PIN1

MOT-005-LL-KG1

Wire specifications: 4C*18AWG(41/0.16T)

18AWGCorresponding sectional area 0.8107mm²

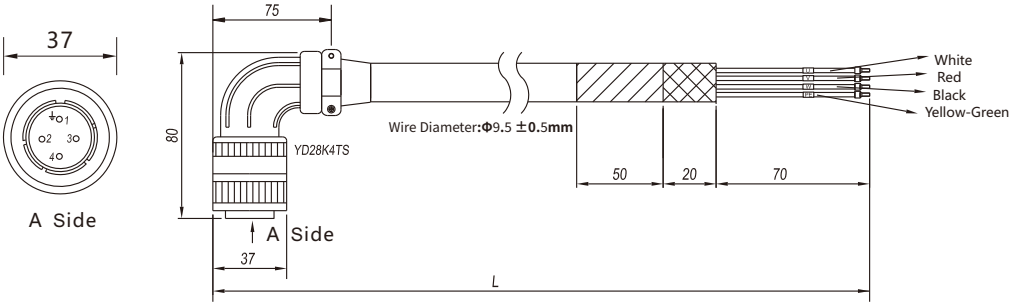


MOT-005-LL-KG1		
Color	Signal	YD32K4TS aviation plug
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellowgreen	PE	PIN1
shield	shielding	PIN1

MOT-015-LL-KG1

Wire specifications: 4*14AWG(50/0.25T)

14AWG Corresponding sectional area 2.075mm²



MOT-015-LL-KG1		
Color	Signal	YD28K4TS aviation plug
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellowgreen	PE	PIN1
shield	shielding	PIN1

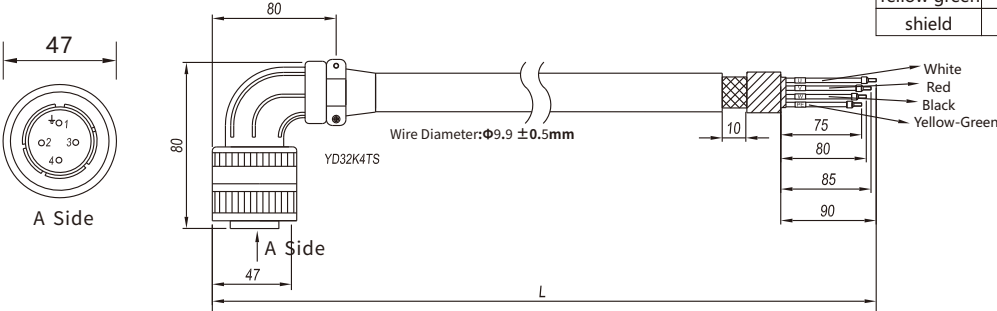
Power Cable Wiring List

Brake Cable Wiring Diagram

MOT-008-LL-KG2

Wire specifications: 4*16AWG
16AWG Corresponding sectional area 1.318mm²

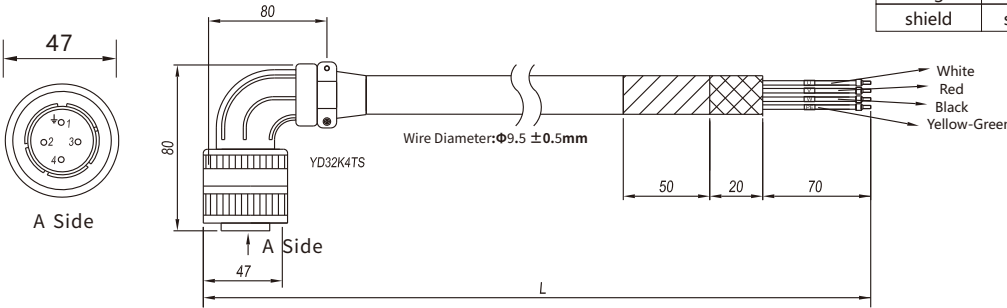
MOT-008-LL-KG2		
Color	Signal	YD32K4TS aviation plug
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow green	PE	PIN1
shield	shielding	PIN1



MOT-015-LL-KG2

Wire specifications: 4*14AWG(50/0.25T)
14AWG Corresponding sectional area 2.075mm²

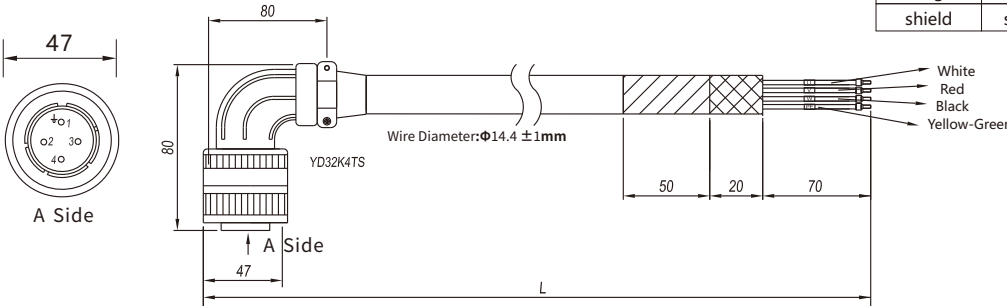
MOT-015-LL-KG2		
Color	Signal	YD32K4TS aviation plug
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow green	PE	PIN1
shield	shielding	PIN1



MOT-030-LL-KG2

Wire specifications: 4*4mm²

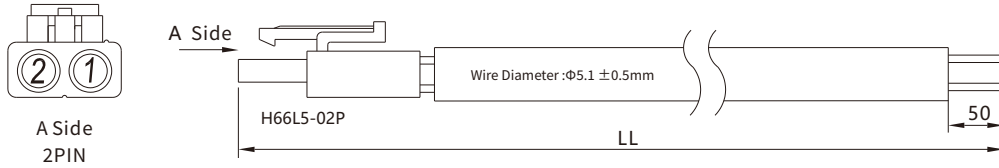
MOT-030-LL-KG2		
Color	Signal	YD32K4TS aviation plug
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow green	PE	PIN1
shield	shielding	PIN1



BRA-LL-KL

Wire specifications: 2C*20AWG
20AWG Corresponding sectional area 0.5189mm²

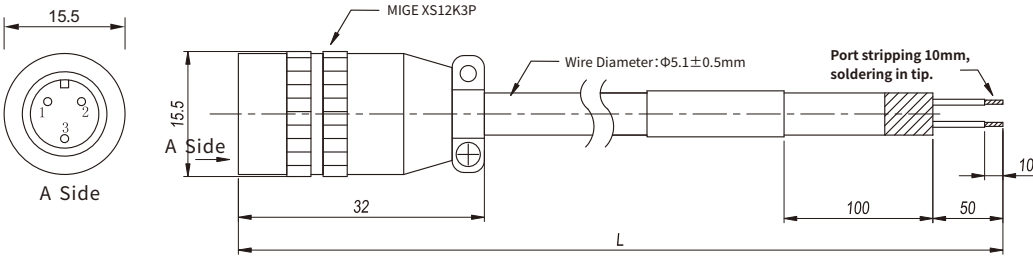
BRA-LL-KL		
Color	Signal	2PIN plug
Red	brake+	PIN1
Blue	brake-	PIN2



BRA-LL-MG

Wire specifications: 2*20AWG
20AWG Corresponding sectional area 0.5189mm²

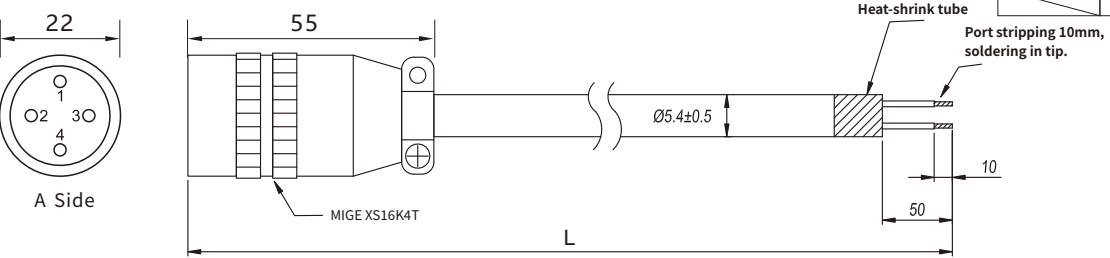
BRA-LL-MG		
Color	Signal	PIN
Red	brake+	PIN1
Blue	brake-	PIN2



BRA-LL-MG1

Wire specifications: 2*20AWG
20AWG Corresponding sectional area 0.5189mm²

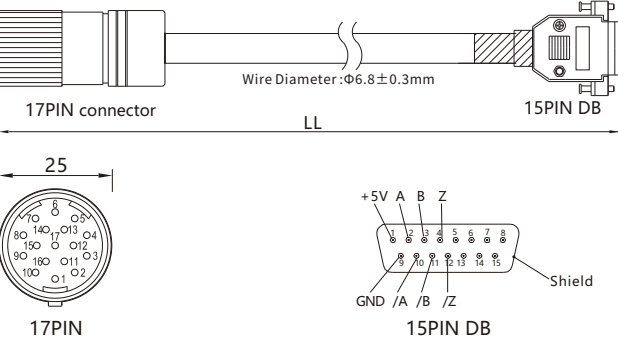
BRA-LL-MG1		
Color	Signal	PIN
Red	brake+	PIN1
Blue	brake-	PIN2
		PIN3
		PIN4



Wiring Diagram for The Encoder Cable

ENCCF-LL-FC0

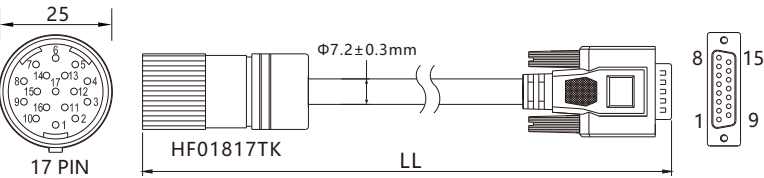
Wire specifications: 24AWG/1P+28AWG/4P+AB(85%) 1061
The sectional area of 24AWG is 0.2047mm²
The sectional area of 28AWG is 0.0804mm²



ENCCF-LL-FC0				
17PIN connector	15PIN DB	Signal	External wire colour	Motor wire colour
PIN1	PIN1	+5V	Red(thick)	Red
PIN3	PIN2	A	Brown	Blue-black
PIN5	PIN3	B	Yellow	Green
PIN14	PIN4	Z	Green	Yellow
PIN2	PIN9	GND	Black(thick)	Black
PIN4	PIN10	/A	Brown-white	Blue
PIN6	PIN11	/B	Yellow-white	Green-black
PIN15	PIN12	/Z	Green-white	Yellow-black
Other pins empty	Other pins empty			
Metal coil	Shell	Shield	Shield	Shield

ENCCA-LL-KC0

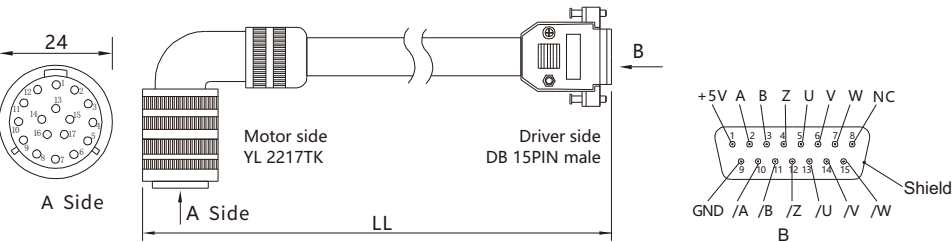
Wire specifications: 24AWG/1P+28AWG/7P+AB 1061
The sectional area of 24AWG is 0.2047mm²
The sectional area of 28AWG is 0.0804mm²



ENCCA-LL-KC0/ENCCA-LL-KC1				
17PIN	15PIN DB	Signal	External wire colour	Motor wire colour
PIN1	PIN1	+5V	Red(thick)	Red
PIN3	PIN2	A	Orange	Blue
PIN5	PIN3	B	Yellow	Green
PIN14	PIN4	Z	Green	Yellow
PIN9	PIN5	U	Brown	Brown
PIN11	PIN6	V	Purple	Gray
PIN16	PIN7	W	Blue	White
PIN2	PIN9	GND	Black(thick)	Black
PIN4	PIN10	/A	Orange-white	Blue-black
PIN6	PIN11	/B	Yellow-white	Green-black
PIN15	PIN12	/Z	Green-white	Yellow-black
PIN10	PIN13	/U	Brown-white	Brown-black
PIN12	PIN14	/V	Purple-white	Gray-black
PIN17	PIN15	/W	Blue-white	White-black
Internal metal ring	DB metal shell	Shield	Shield	Shield

ENCCA-LL-KC1

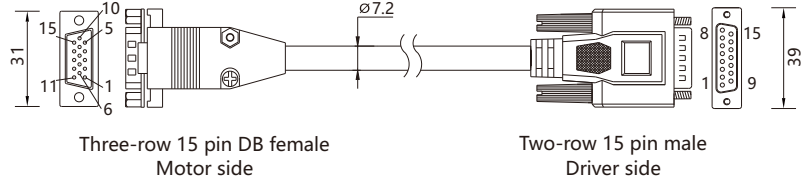
Wire specifications: 24AWG/1P+28AWG/7P+AB 1061
The sectional area of 24AWG is 0.2047mm²
The sectional area of 28AWG is 0.0804mm²



Wiring Diagram for The Encoder Cable

ENCCA-LL-KH

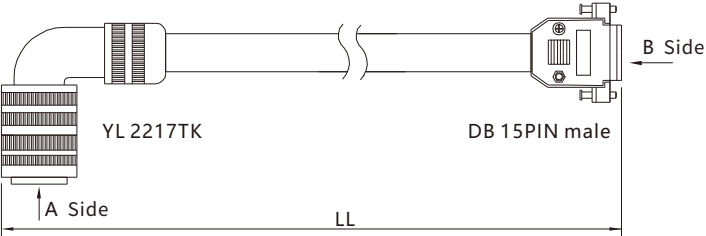
Wire Spec. 1P×24AWG(7/0.20T)+7P×28AWG(7/0.127T)
The sectional area of 24AWG is 0.2047mm²
The sectional area of 28AWG is 0.0804mm²



ENCCA-LL-KH				
Three-row 15 pin DB	Two-row 15 pin DB	Signal	External wire color	Motor wire color
PIN1	PIN1	+5V	Red(thick)	Red
PIN8	PIN2	A	Orange	Blue-black
PIN7	PIN3	B	Yellow	Green
PIN6	PIN4	Z	Green	Yellow
PIN4	PIN5	U	Brown	Brown-black
PIN10	PIN6	V	Purple	White-black
PIN9	PIN7	W	Blue	Gray-black
PIN2	PIN9	GND	Black(thick)	Black
PIN13	PIN10	/A	Orange-white	Blue
PIN12	PIN11	/B	Yellow-white	Green-black
PIN11	PIN12	/Z	Green-white	Yellow-black
PIN5	PIN13	/U	Brown-white	Brown
PIN15	PIN14	/V	Purple-white	White
PIN14	PIN15	/W	Blue-white	Gray
PIN3 empty	PIN8 empty			
Metal shell	DB metal shell	Shield	Shield	Metal shell

ENCCR-LL-FC1

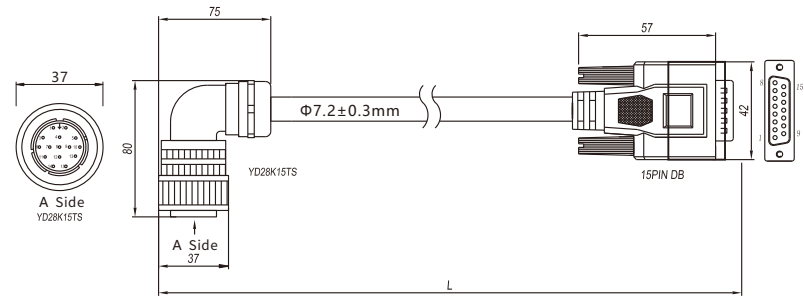
Wire Spec. UL2464 24AWG/1P+28AWG/4P
The sectional area of 24AWG is 0.2047mm²
The sectional area of 28AWG is 0.0804mm²



ENCCR-LL-FC1			
YL2217TK	15PIN DB	Signal	Wire color
PIN1	PIN6	ref+	Brown
PIN2	PIN14	ref-	Brown-white
PIN3	PIN2	cos+	Green
PIN4	PIN10	cos-	Green-white
PIN5	PIN3	sin+	Yellow
PIN6	PIN11	sin-	Yellow-white
PIN7	PIN8	KTY+	Blue
PIN8	PIN9	KTY-	Blue-white
Metal ring	Metal shell	Shield	Shield

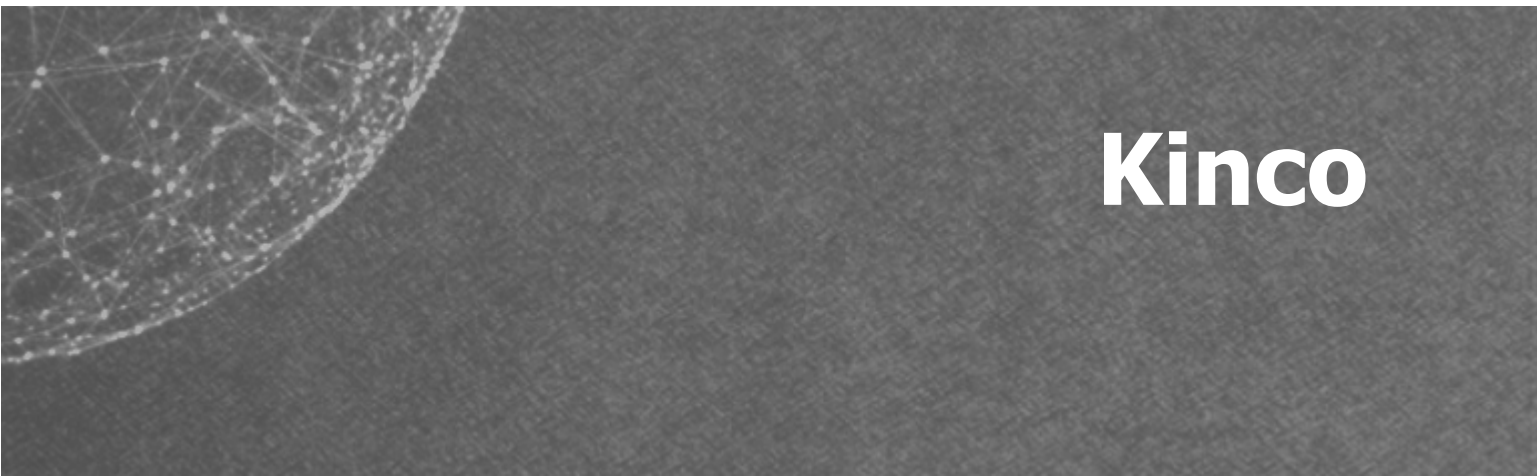
ENCCA-LL-KG1

Wire specifications: 24AWG/1P+28AWG/7P+AB 1061
24AWG Corresponding sectional area 0.2047mm²
28AWG Corresponding sectional area 0.0804mm²



ENCCA-LL-KG1			
YD28K15TS	15PIN DB	Signal	Color
PIN2	PIN1	+5V	Red (thick)
PIN4	PIN2	A	Orange
PIN5	PIN3	B	Yellow
PIN6	PIN4	Z	Green
PIN10	PIN5	U	Brown
PIN11	PIN6	V	Purple
PIN12	PIN7	W	Blue
PIN3	PIN9	GND	Black (thick)
PIN7	PIN10	/A	Orangethite
PIN8	PIN11	/B	Yellowwhite
PIN9	PIN12	/Z	Greenwhite
PIN13	PIN13	/U	Brownwhite
PIN14	PIN14	/V	Purplewhite
PIN15	PIN15	/W	Bluewhite
PIN1	DB metal part	PE	Shield

PROVEN PERFORMANCE
Customers in over 60 countries and in diverse markets and sectors.



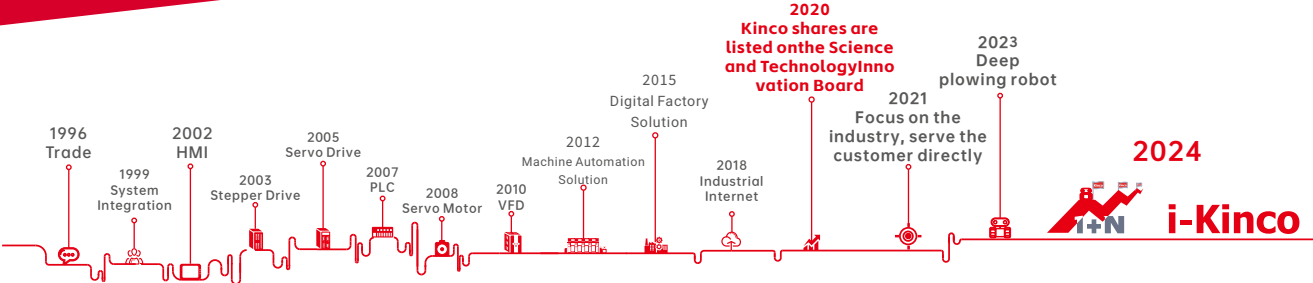
Motion Control Servo System

➔

Low-voltage Servo System Catalog

-FD1X5 Servo Drive
-Low-voltage servo motor





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. It is a leading supplier of automation control, robot power and digital factory solutions in China. 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



FD1X5 series

New design platform, high-performance low-voltage fifth generation servo driver

FD1X5

New design platform

NEW



- ✓ Support RS485,CANopen, EtherCAT communication;
- ✓ Automatically identify motor parameters;
- ✓ Motor temperature monitoring and over temperature protection;
- ✓ Equipped with S-curve and parameter self-tuning function;
- ✓ Motor overspeed protection;
- ✓ Use Type-C debugging port.

Drive naming rule

Model: **FD 1 2 5 - AB - 0 0 0**

①

②

③

④

⑤

⑥

①-Series Name	FD: FD series	④-Drive version	5: Fifth generation low-voltage drive
②-Upply voltage	1: Input Voltage DC24~60V 2: Input voltage: DC 72 - 110V	⑤ -Control mode	AB:RS485, CANopen、 Have pulse、 24V logic power supply EB:EtherCAT、 Have pulse、 24V logic power supply
③-Drive current	2:15Arms 3:30Arms 4:50Arms 5:65Arms	⑥Software Version	000: Software Version Number

FD1X5 Servo driver configuration table

Rated power/ Rated current	Servo motor	Description	Power cable Brake cable	Encoder cable	Servo Drive	
					CANopen+RS485 Pulse	EtherCAT Pulse
200W/5.7A	SMK60S-0020 -30SAK-5DSA	Singleturn communication type magnetoelectric encoder motor	MOT-005-LL-KA-D or MOT-005-LL-KA-DF	ENCHG-LL-GA 或 ENCHG-LL-GA-F	FD125-AB-000	FD125-EB-000
	SMK60S-0020 -30SBK-5DSA	Singleturn communication type magnetoelectric encoder brake motor	MOT-005-LL-KAB-Dor MOT-005-LL-KAB-DF			
400W/10.6A	SMK60S-0040 -30SAK-5DSA	Singleturn communication type magnetoelectric encoder motor	MOT-011-LL-KA-D or MOT-011-LL-KA-DF		FD135-AB-000	FD135-EB-000
	SMK60S-0040 -30SBK-5DSA	Singleturn communication type magnetoelectric encoder brake motor	MOT-011-LL-KAB-D or MOT-011-LL-KAB-DF			
750W/19.2A	SMK80S-0075 -30SAK-5DKA	Singleturn communication type magnetoelectric encoder motor	MOT-020-LL-KA-D	ENCDG-LL-GA/ ★ENCHG-(4)-GU-DC	FD125-AB-000	FD125-EB-000
	SMK80S-0075 -30SBK-5DKA	Singleturn communication type magnetoelectric encoder brake motor	MOT-020-LL-KAB-D			
1000W/25.8A	SMK80S-0100 -30SAK-5DKA	Singleturn communication type magnetoelectric encoder motor	MOT-030-LL-KA-D		FD135-AB-000	FD135-EB-000
	SMK80S-0100 -30SBK-5DKA	Singleturn communication type magnetoelectric encoder brake motor	MOT-030-LL-KAB-D			
200W/5.7A	SMK60S-0020 -30QAK-5DSA	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-005-LL-KA-D or MOT-005-LL-KA-DF	ENCDG-LL-GU/ ★ENCHG-(4)-GU-DC	FD125-AB-000	FD125-EB-000
	SMK60S-0020 -30QAK-5DSA	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-005-LL-KAB-D or MOT-005-LL-KAB-DF			
400W/10.6A	SMK60S-0040 -30QAK-5DSA	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-011-LL-KA-D or MOT-011-LL-KA-DF		FD135-AB-000	FD135-EB-000
	SMK60S-0040 -30QAK-5DSA	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-011-LL-KAB-D or MOT-011-LL-KAB-DF			
750W/19.2A	SMK80S-0075 -30QAK-5DKA	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-020-LL-KA-D		FD145-AB-000	FD145-EB-000
	SMK80S-0075 -30QAK-5DKA	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-020-LL-KAB-D			
1000W/25.8A	SMK80S-0100 -30QAK-5DKA	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-030-LL-KA-D	ENCHG-LL-GH/ ★ENCHG-(4)-GH-DC	FD255-AB-000	-
	SMK80S-0100 -30QAK-5DKA	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-030-LL-KAB-D			
600W/16.5A	SMC60S-0060 -30QAK-5DSU	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-020-LL-KL-SP		FD145-AB-000	FD145-EB-000
	SMC60S-0060 -30QAK-5DSU	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-020-LL-KL-SP/ BRA-LL-KL			
1200W/34A	SMC80S-0120 -30QAK-5DSU	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-040-LL-LJ51		FD145-AB-000	FD145-EB-000
	SMC80S-0120 -30QAK-5DSU	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-040-LL-LJ51/ BRA-LL-KL			
1500W/36A	SMC80S-0150 -30QAK-5DSU	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-040-LL-LJ51	ENCHG-LL-GH/ ★ENCHG-(4)-GH-DC	FD255-AB-000	-
	SMC80S-0150 -30QAK-5DSU	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-040-LL-LJ51/ BRA-LL-KL			
3000W/37.5A	SMK180G-0300 -20QAK-4GSH	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-040-LL-LS		FD255-AB-000	-
	SMK180G-0300 -20QAK-4GSH	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-040-LL-LS/ BRA-LL-KL			
4000W/50A	SMK180G-0400 -20QAK-4GSH	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-080-LL-LS		FD255-AB-000	-
	SMK180G-0400 -20QAK-4GSH	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-080-LL-LS/ BRA-LL-KL			
5000W/62.5A	SMK180G-0500 -20QAK-4GSH	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-080-LL-LS	ENCHG-LL-GH/ ★ENCHG-(4)-GH-DC	FD255-AB-000	-
	SMK180G-0500 -20QAK-4GSH	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-080-LL-LS/ BRA-LL-KL			

Note:1、"LL" in the power line/brake line/encoder line listindicates the cable length, please refer to the model description.
Note:2、★ENCHG - (4) - GU-DC and ENCHG-(4)-GH-DC are essential power cable for multi turn absolute encoder motors, with a length of 40CM.
(If the battery cable length cannot meet the requirements of the site application, extension cables can be selected.)
Note:3、SMK80S-0100-30K-5DKA is recommended to match FD135, If 3 times overload is required, it needs to be matched with FD145.

FD1X5 servo driver technical parameters table

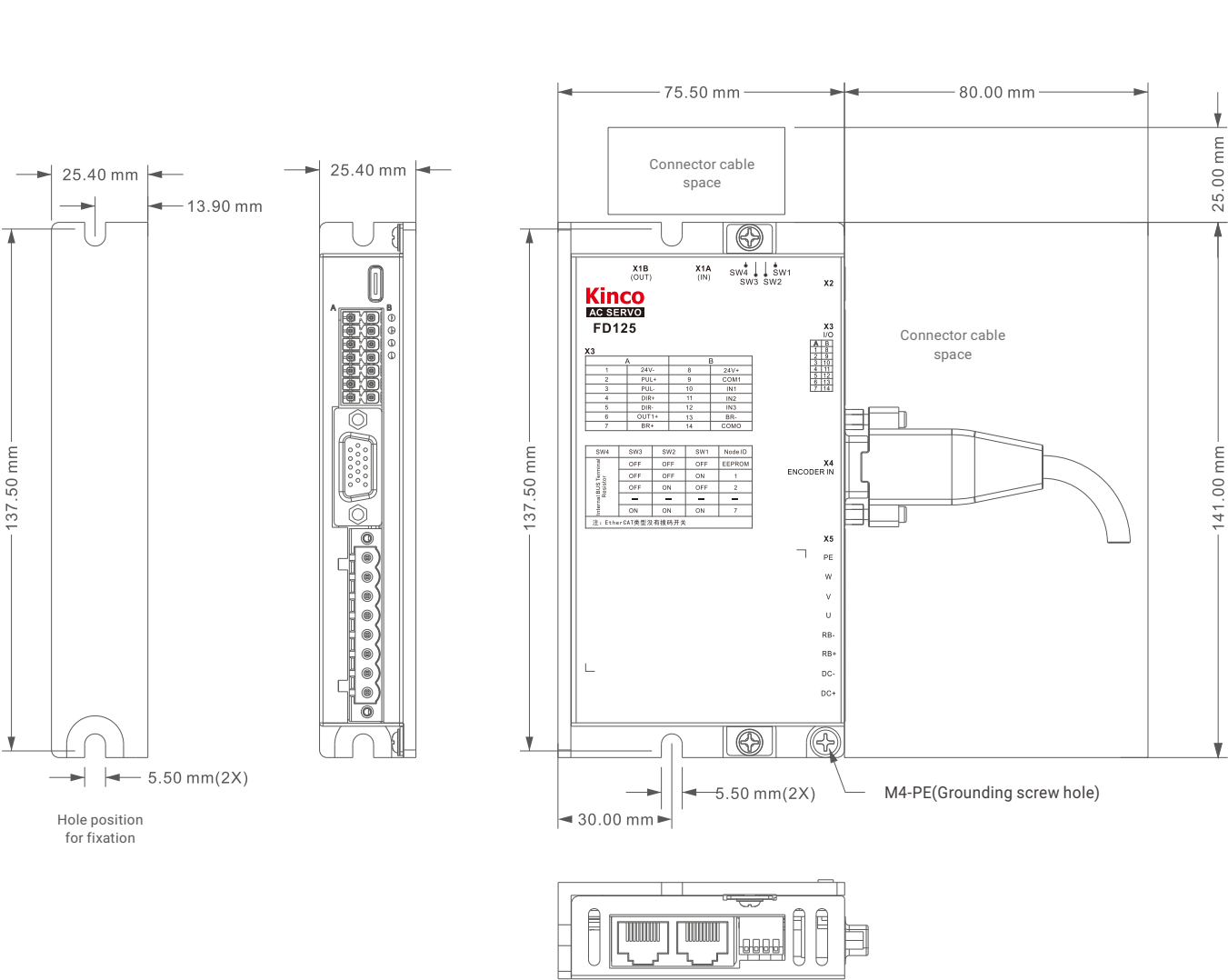
				
Model parameter		Servo driver		
		FD125-□B-000	FD135-□B-000	FD145-□B-000
Rated input voltage	Power	24VDC~60VDC		
	Logic power	24VDC 1A (Optional connection or not)		
Rated output current	Maximum continuous output current (rms)	15A (Up to 12A without auxiliary cooling plate)	30A (Up to 22A without auxiliary cooling plate)	50A (Up to 35A without auxiliary cooling plate)
	Peak current (AP)	48A	100A	160A
Feedback signal		Tamagawa protocol single-turn, multi-turn encoder		
Energy consumption brake		Need external brake resistance (depending on the operation condition, mainly used in rapid start-stop occasions)		
Energy consumption brake voltage absorption point		The default is 63V		
Overvoltage alarm voltage		The default is 70V		
Undervoltage alarm voltage		The default is 18V		
Cooling mode		Natural cooling		
Weight (kg)		0.322	0.657	0.861
Logic loss power (mW)		1000	1200	1300
General function	General function	3 channels digital input, COMI terminal; High level: 12.5~30VDC; Low level: 0~5VDC; Maximum frequency: 1KHz; Input impedance: 5KΩ.		
	Input function	Freely defined as required, the functions are as follows: drive enable, drive error reset, drive mode control, speed loop proportional control, positive limit, negative limit, origin signal, command reverse, internal speed segment control, internal position segment control, emergency stop, start to find the origin, command activation, electronic gear ratio switching, gain switching		
	Pulse control	Pulse+direction, phase A+phase B (3.3V~24V)		
	Output specification	1 digital output, OUT1 is an open collector output, up to 30V, 100mA drive capability, The brake 24V DC output, with FD125, FD135, and FD145 brake ports having output current of 0.5A, 0.8A, and 1A, respectively		
	Output function	Freely defined as required, the functions are as follows:drive ready, drive error, motor position reached, motor zero speed, motor holding brake, motor speed reached, index Z signal present, maximum limit speed in torque mode, motor locked axis, motor in limit, home position found.		
	Type-C	Debug special, can use Kinco PC software connection		
	Protect function	Overvoltage protection, undervoltage protection, motor overheat (I²T) protection, short circuit protection, drive overheat protection		
Bus function	Modbus/RS485	It supports a maximum 115.2K baud rate and can communicate with the controller using Modbus RTU		
	CANopen	It supports a maximum of 1 M baud rate and can communicate with the controller using the CANopen		
	EtherCAT	Support CoE(CiA402 protocol)and CSP/CSV/PP/PV/PT/HM mode, communication speed 100M		
Installation site		Dust-free, dry, lockable (e.g. electrical cabinet)		
Installation method		Install vertically or horizontally		
Application environment	Working Temperature	-20℃~40℃ (no freezing) ,When the operating temperature exceeds 40℃, the driver needs to be derated		
	Storage temperature	-40℃~70℃ (no freezing)		
	Humidity (no condensation)	Less than 90%RH		
	Protection class	IP20		
	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.		
	Atmospheric pressure	86kpa~106kpa		
Note :□=A: RS485, CANopen □=E: EtherCAT				

FD1X5 servo driver technical parameters table

		
Model parameter		Servo driver
		FD255-AB-000
Input	Power	Rated 96V(Support 72VDC~110VDC input)
	Logic power	Rated 24V/3A
Output	Maximum continuous output current (rms)	65 A(Up to 40A without auxiliary cooling plate)
	Peak current (AP)	230A
Motor Encoder		Tamagawa Protocol, Incremental
Second encoder		BISS, Nikon encoder protocol, Tamagawa Protocol, AB Incremental
Energy consumption brake		Need external brake resistance (depending on the operation condition, mainly used in rapid start-stop occasions)
Energy consumption brake voltage absorption point		Default 105V
Overvoltage alarm voltage		Default 115V
Undervoltage alarm voltage		Default 72V
Cooling mode		Natural cooling Note:The output current for the FD165 is 65Arms,which is measured with the drive mounted on a 400mm*400mm*10mm (L*W*H) black oxide 6063 aluminum plate auxiliary heatsink.
Logic loss power (mW)		4000
General function	Input specification	8 channel digital input, COMI terminal; High level: 12.5~30VDC; Low level: 0~5VDC;Maximum frequency: 1KHz; Input impedance: 5KΩ.
	Input function	Freely defined as required, the functions are as follows: drive enable, drive error reset, drive mode control, speed loop proportional control, positive limit, negative limit, origin signal, command reverse, internal speed segment control, internal position segment control, emergency stop, start to find the origin, command activation, electronic gear ratio switching, gain switching
	Output specification	4 channel digital output,open collector output,maximum voltage 30V, 100mA drive capability
	Output function	Freely defined according to needs, the functions are as follows: driver ready, driver error, motor position to, motor zero speed, motor lock brake, motor speed reach, index Z signal appears, maximum limit speed in torque mode, motor lock shaft, motor limit medium, origin finding
	Pulse input	Pulse + Direction, A phase + B phase (3.3V~24V)
	Brake	Brake interface BR+/BR-, the voltage effective value is 24V, the output capacity is 2A, no external power supply required , can be directly drive the brake device
	Protect function	Overvoltage protection, undervoltage protection, motor overheat (I ² T) protection, short circuit protection, drive overheat protection
	Analog input	Dual input, can achieve analog control speed and torque, input range -10 ~10V
	Encoder output	5V motor A, B, Z signal, frequency division output range 0 ~ 65536; For multi-axis synchronization, the maximum output frequency is 5MHz
	Type-C	Debug special, can use Kinco PC software connection
Bus function	RS485	It supports a maximum 115.2K baud rate and can communicate with the controller using Modbus RTU
	CANopen	It supports a maximum of 1 M baud rate and can communicate with the controller using the CANopen
Installation site		Dust-free, dry, lockable (e.g. electrical cabinet)
Installation method		Install vertically or horizontally
Environment	Working Temperature	-20℃~40℃
	Storage temperature	-20℃~70℃
	Humidity (no condensation)	10%-95%RH
	Protection class	IP20
	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.
	Atmospheric pressure	86kpa~106kpa

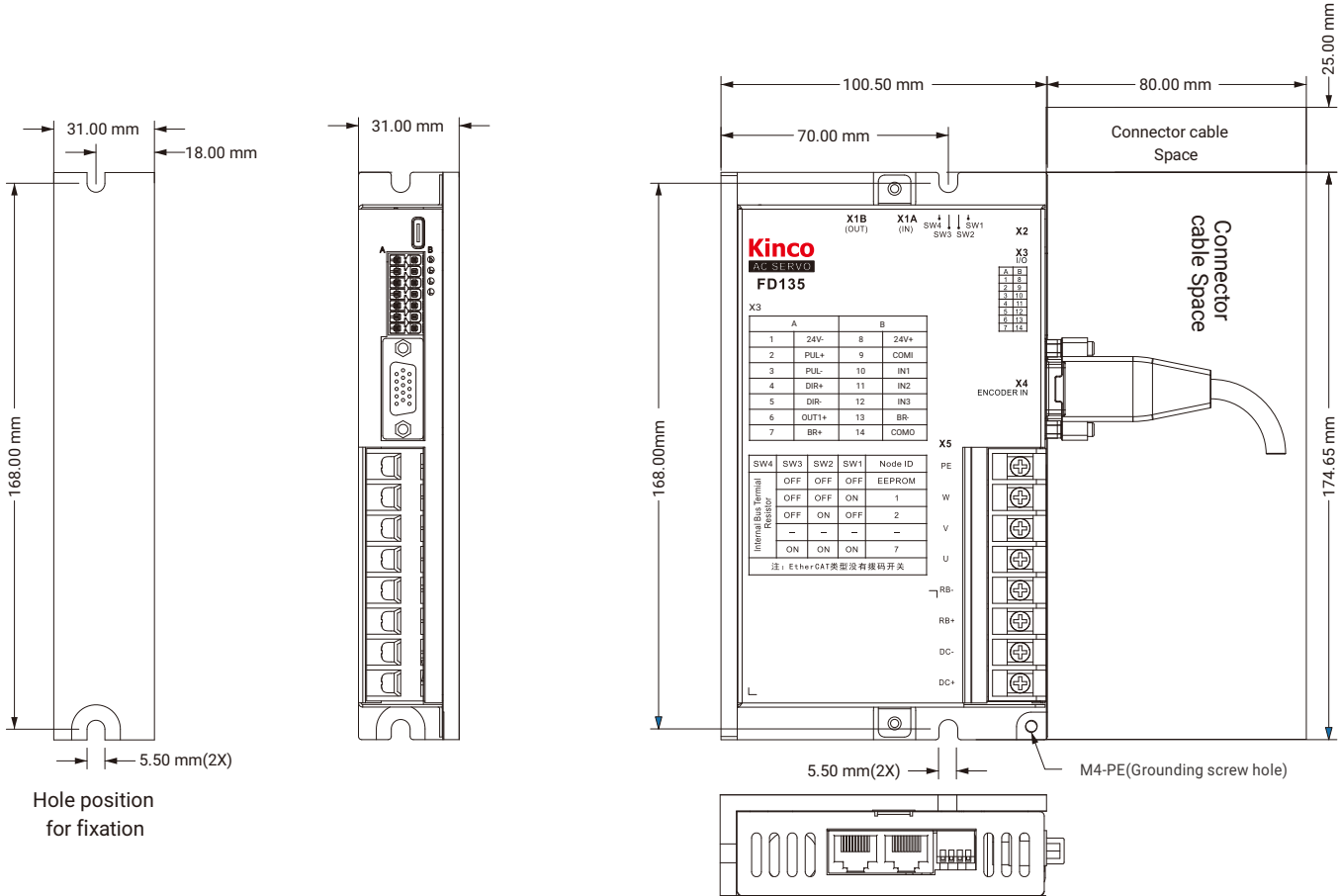
FD125 mechanical dimension drawing

Note1: wiring is needed around the driver, so it is recommended to keep a space of > 80 mm.
Note2:FD125-EB-000 has no dip switch



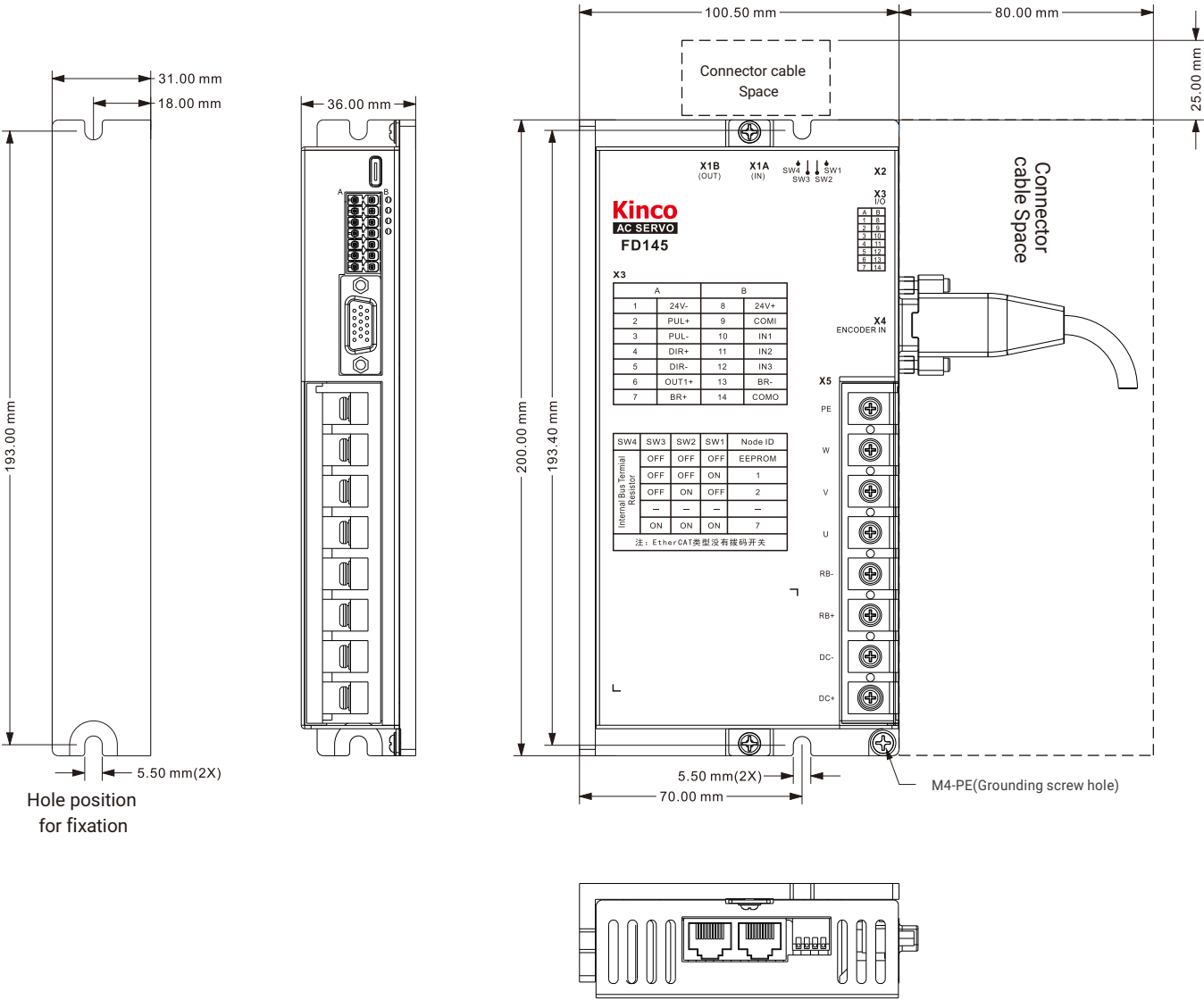
FD135 mechanical dimension drawing

Note1: wiring is needed around the driver, so it is recommended to keep a space of > 80 mm.
Note2:FD135-EB-000 has no dip switch



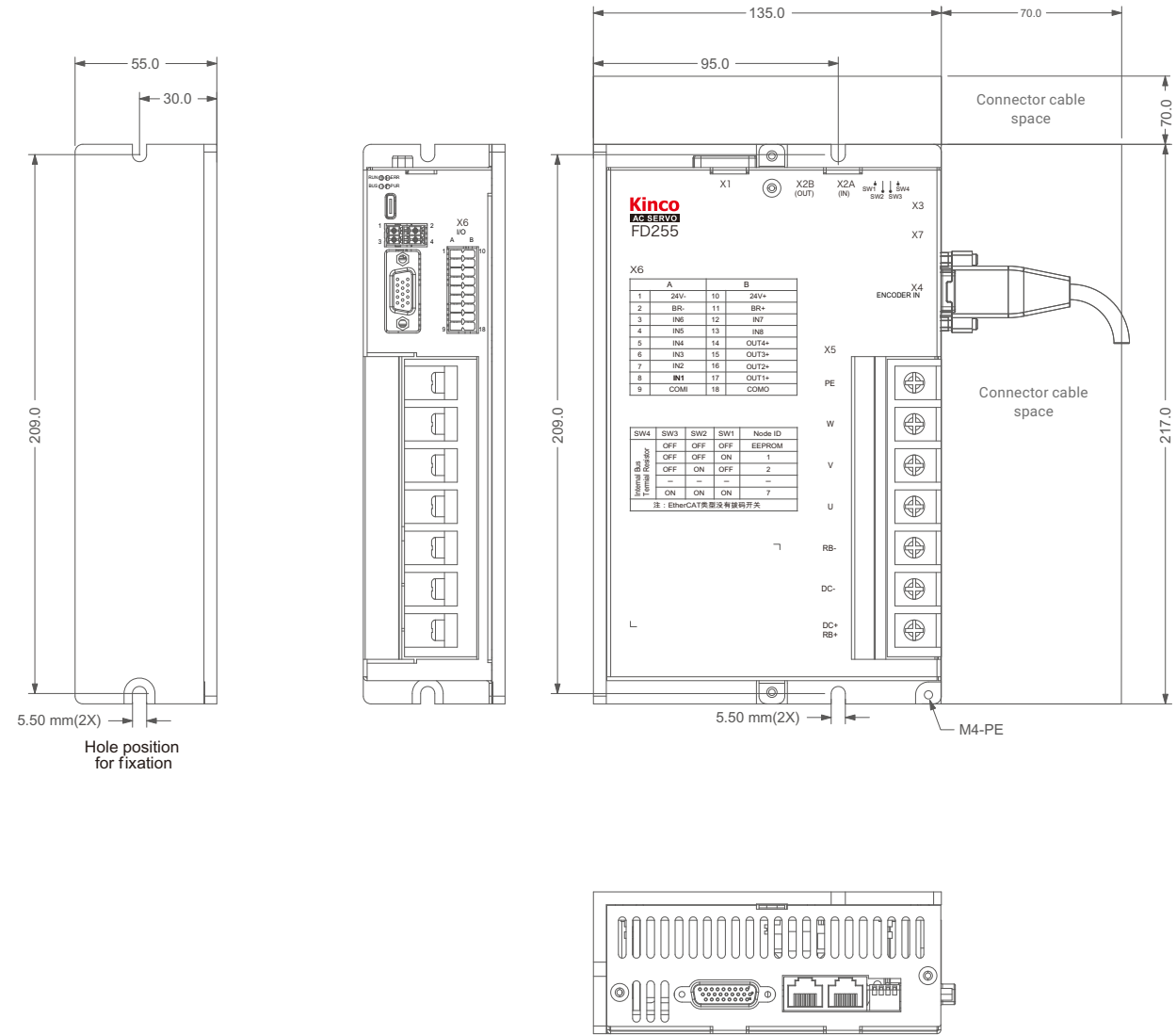
FD145 mechanical dimension drawing

Note1: wiring is needed around the driver, so it is recommended to keep a space of > 80 mm.
Note2:FD145-EB-000 has no dip switch

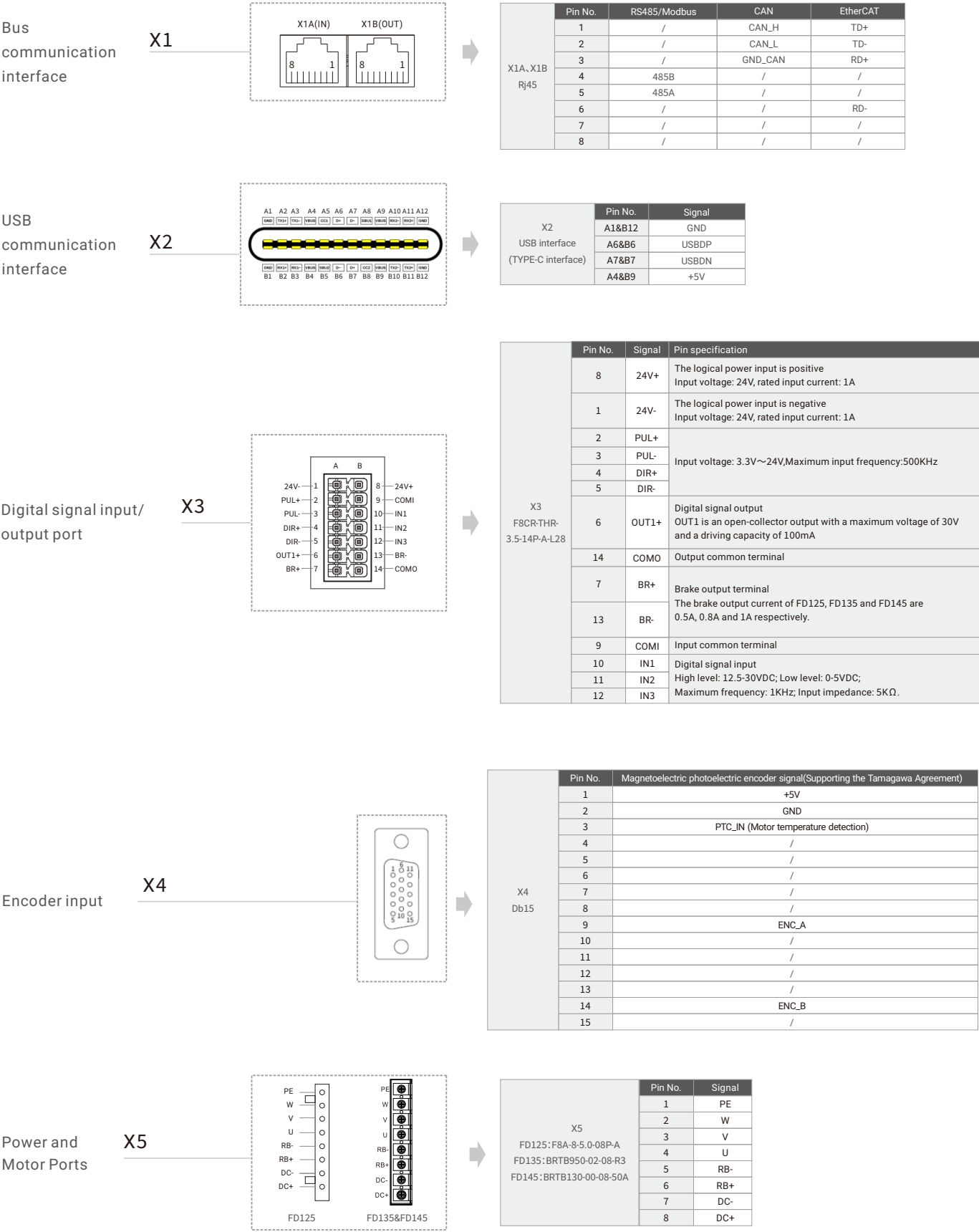


FD255 mechanical dimension drawing

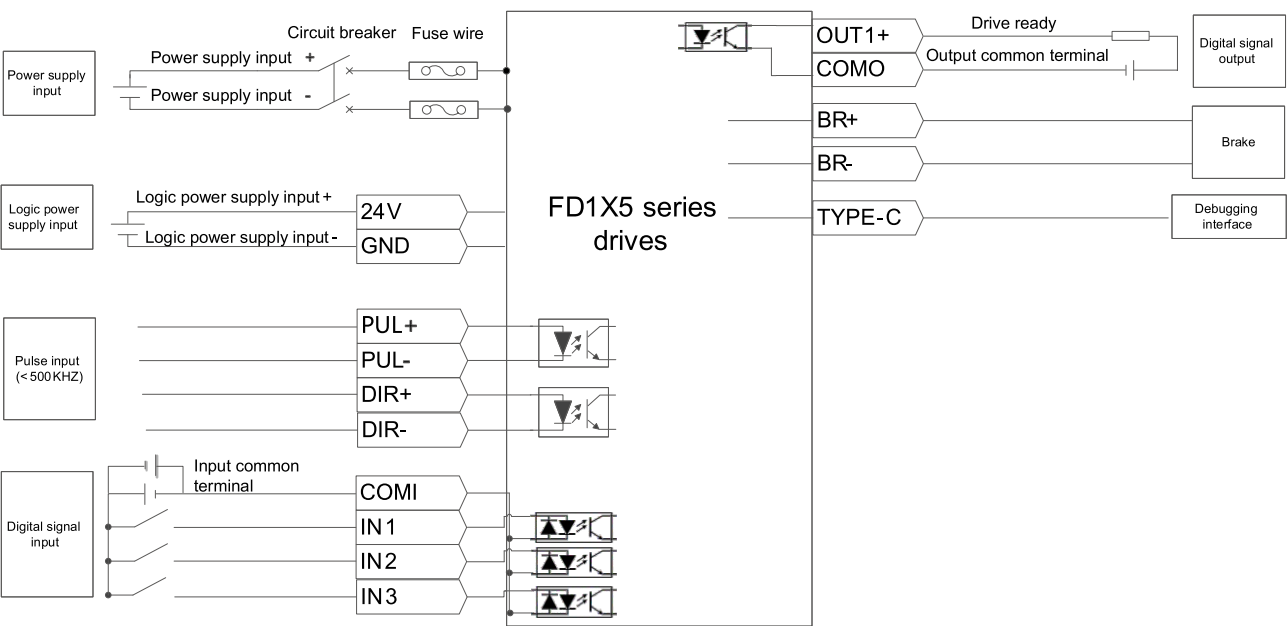
Notel:wiring is needed around the driver, so it is recommended to keep a space of> 80 mm



FD125/135/145 servo driver wiring port description



FD125/135/145 driver electrical wiring



FD255 servo driver wiring port description

X1 DB26
Control signal interface

Pin No.	Signal	BISS Protocol	Tamagawa/Nikon Agreement	Incremental
1	+5V	Second encoder 5V power positive		
2	MA_N-	MA_N-	/	/
3	MA_P+	MA_P+	/	/
4	/SD/SLO_N-	SLO_N-	/SD	/
5	SD/SLO_P+	SLO_P+	SD	/
6	MASTER_A	/	/	SECOND ENCODER A-
7	MASTER_A	/	/	SECOND ENCODER A+
8	MASTER_B	/	/	SECOND ENCODER B-
9	MASTER_B	/	/	SECOND ENCODER B+
10	GND	Second encoder 5V power supply negative		
11	ENCOUT_A	Encoder output A-		
12	ENCOUT_A	Encoder output A+		
13	ENCOUT_B	Encoder output B-		
14	ENCOUT_B	Encoder output B+		
15	ENCOUT_Z	Encoder output Z-		
16	ENCOUT_Z	Encoder output Z+		
17	GND	Internal 5V power supply output		
18	+5V_O	Internal 5V power supply output		
19	AIN1-	Analog input 1-		
20	AIN1+	Analog input 1+		
21	AIN2-	Analog input 2-		
22	AIN2+	Analog input 2+		
23	PUL-	Pulse Input terminal		
24	PUL+	Input Voltage: 3.3V~24V		
25	DIR-	Maximum Input Frequency: 500K		
26	DIR+	Maximum Input Frequency: 500K		

X4 DB15
Encoder input

Pin No.	incremental	Magnetoelectric photoelectric encoder signal (Supporting the Tamagawa Agreement)
1	+5V	+5V
2	GND	GND
3	/	/
4	U	/
5	/U	/
6	Z	/
7	B	/
8	A	/
9	W	ENC_A
10	V	/
11	/Z	/
12	/B	/
13	/A	/
14	/W	ENC_B
15	/V	/

X6 F8CR-THR-3.5-18P-A-L28
Digital signal input/output port

Pin No.	Signal	Description
1	24V-	Logic power input -:Input voltage: 24V, Rated input current: 3A
10	24V+	Logic power input +:Input voltage: 24V, Rated input current: 3A
2	BR-	Brake output -:The brake port output current is 2A.
11	BR+	Brake output +:The brake port output current is 2A.
3	IN6	Digital signal input terminal High level: 12.5-30VDC; Low level: 0-5VDC; Maximum frequency: 1KHz; Input impedance: 5KΩ.
4	IN5	
5	IN4	
6	IN3	
7	IN2	
8	IN1	Input common terminal
12	IN7	
13	IN8	
9	COMI	Digital signal output
14	OUT4+	
15	OUT3+	
16	OUT2+	Output common terminal
17	OUT1+	
18	COMO	Output common terminal

X2A, X2B RJ45
Bus communication interface

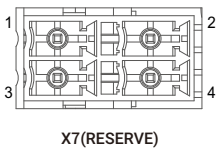
Pin No.	RS485/Modbus	CAN
1	/	CAN_H
2	/	CAN_L
3	/	GND_CAN
4	485B	/
5	485A	/
6	/	/
7	/	/
8	/	/

X3 TYPE-C
USB communication interface

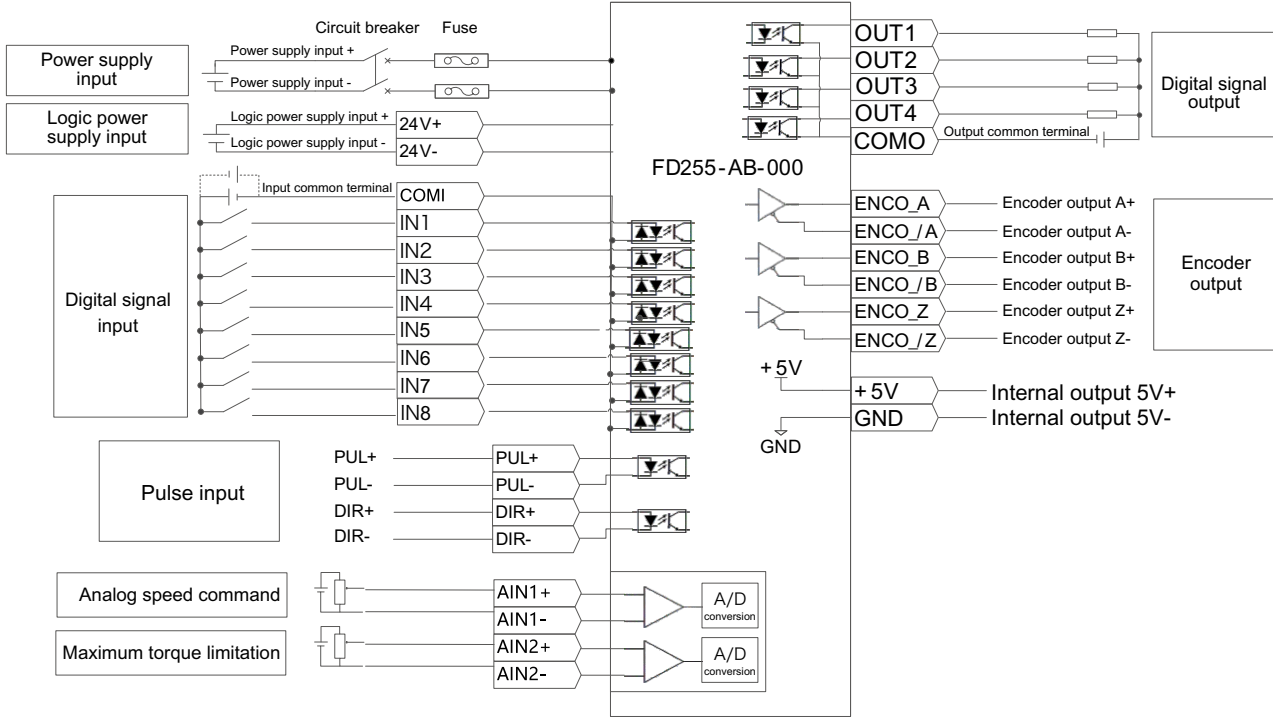
Pin No.	RS485/Modbus
A1&B12	GND
A6&B6	USBDP
A7&B7	USBDN
A4&B9	+5V

X5 BA8-07-16.0-01-C
Power and Motor Ports

Pin No.	Signal	Description
1	PE	Servo motor power output terminal and motor grounding terminal
2	W	
3	V	
4	U	
5	RB-	Braking resistor -
6	DC-	Power input -
7	DC+/RB+	Power input +/Braking resistor +



FD255 servo driver electrical wiring



Low-voltage servo motor

Product features:

New electromagnetic design
Adopting 12-slot and 10-pole design, 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.
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.
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.
Energy efficiency class: 2



Servo motor naming rules

Model: **SMK 60 S - 0040 - 30 S A K - 5 D S A**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

①-Series name	SMK:Common body series SMC:SMCseries	⑦-Brake	A:Without brake B:With brake
②-Flange	60:60x60(mm) 80:80x80(mm) 180:180x180(mm)	⑧-Output axis style	K:Withkey
③-Inertia type	S:Small inertia G:High inertia	⑨-Number of polar pairs	4:4-pole pair 5:5-pole pair
④-Rated power	0020:10x20(W) 0040:10x40(W) 0075:10x75(W) 0500:10×500(W)	⑩- Supply voltage	D:DC48V G:DC96V
		⑪- Motor version number	S:S version K:K version
⑤-Rated speed	20:20x100(rpm) 30:30x100(rpm)	⑫- Motor Outlet Type	A: Special socketfor common body motor U: Communication encoder socket H: Three-row 15-pin encoder socket
⑥-Encoder type	S:Singleturn communication type magnetoelectric encoder Q: Multiturn communication type magnetoelectric absolute encoder		

Note: The oil seal is an optional accessory, and it can be omitted if it is not necessary.

SMK series servo motor technical parameters table

Servo motor model		SMK series servo motor			
		SMK60S-0020-30□■K-5DSA	SMK60S-0040-30□■K-5DSA	SMK80S-0075-30□■K-5DKA	SMK80S-0100-30□■K-5DKA
Drive power supply voltage		48	48	48	48
Intermediate link DC voltage VDC					
Continuous Characteristics	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)	5.7	10.6	19.2	25.8
Max torqueTm(Nm)		1.92	3.81	7.17	9.54
Max current Im (A)		18.2	33.9	62.7	81
Max speed (rpm)		4300	4000	3900	3960
Standstill torque Ts(Nm)		0.7	1.4	2.63	3.5
Standstill current Is(A)		6.27	11.7	21.1	28.4
Torque constant Kt (Nm/A)		0.124	0.132	0.137	0.136
Rotor moment of inertia Jm (Kg·cm2)		0.17	0.31	0.85	1.16
		0.174(with brake)	0.314(with brake)	0.91(with brake)	1.22(with brake)
Brake	Brake holding torque (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)		40	40	392	392
Max axial force Fa(N)		30	30	147	147
Cooling method		Totally enclosed, self-cooling			
Protection level		IP65, IP54 at the shaft end			
Operation environment	Temperature	- 20~40℃			
	Humidity	Below 90% RH (no condensation)			
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust			
	Altitude	The highest altitude is 2000m. From 1000 to 2000m, the power decreases by 1.5% per 100m increase			

Note: □ = S : Singleturn communication type magnetoelectric encoder ■ = A : Without brake
Q : Multiturn communication type magnetoelectric absolute encoder B : With brake

SMK series servo motor technical parameters table

Servo motor model		SMK series servo motor		
		SMK180G-0300-20Q■K-4GSH	SMK180G-0400-20Q■K-4GSH	SMK180G-0500-20Q■K-4GSH
Drive power supply voltage Intermediate link DC voltage VDC		96	96	96
Continuous Characteristics	Rated power Pn(W)	3000	4000	5000
	Rated torque Tn(Nm)	14.33	19.1	23.88
	Rated speed Nn (rpm)	2000	2000	2000
	Rated current In(A)	37.5	50	62.5
Max torqueTm(Nm)		43	57.3	59.7
Max current Im (A)		120	160	156
Max speed (rpm)		2631	2425	2631
Standstill torque Ts(Nm)		15.76	21	26.27
Standstill current Is(A)		41.3	55	65.75
Torque constant Kt (Nm/A)		0.43	0.42	0.42
Rotor moment of inertia Jm (Kg·cm2)		47.34	62.34	81
		51.43(with brake)	66.43(with brake)	85.09(with brake)
Brake	Brake holding torque (Nm)	55	55	55
	Rated power (W)	36	36	36
	Rated voltage (VDC)	24	24	24
Insulation class		F	F	F
Max radial force Fr(N)		1470	1470	1470
Max axial force Fa(N)		490	490	490
Cooling method		Totally enclosed, self-cooling		
Protection level		IP54		
Operation environment	Temperature	-20~40℃		
	Humidity	Below 90% RH (no condensation)		
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust		
	Altitude	The highest altitude is 2000m. From 1000 to 2000m, the power decreases by 1.5% per 100m increase		

Note: □ = S : Singleturn communication type magnetoelectric encoder ■ = A : Without brake
Q : Multiturn communication type magnetoelectric absolute encoder B : With brake

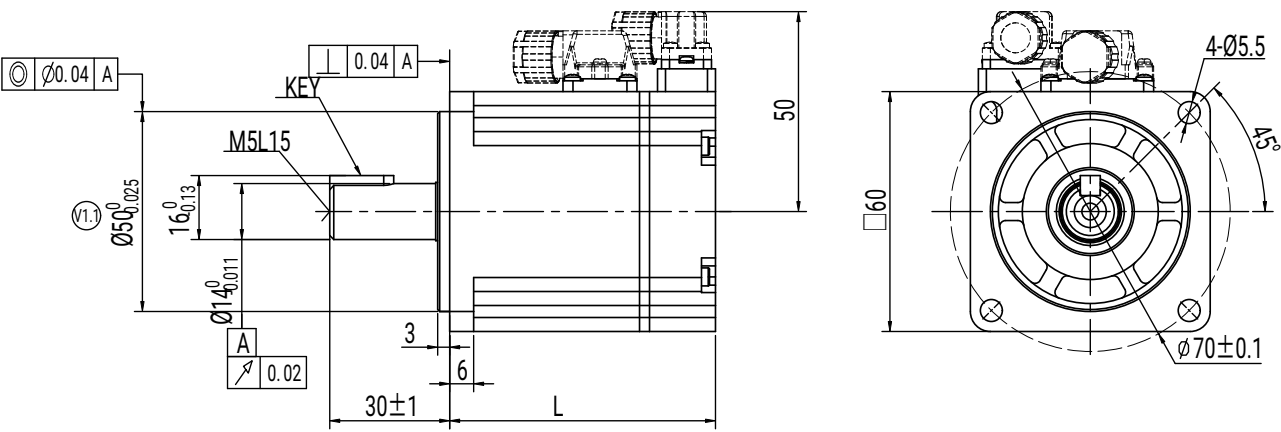
SMC series servo motor technical parameters table

Servo motor model		SMC series servo motor		
		SMC60S-0060-30Q■K-5DSU	SMC80S-0120-30Q■K-5DSU	SMC80S-0150-30Q■K-5DSU
Drive power supply voltage Intermediate link DC voltage VDC		48	48	48
Continuous Characteristics	Rated power Pn(W)	600	1200	1500
	Rated torque Tn(Nm)	1.91	3.82	4.77
	Rated speed Nn (rpm)	3000	3000	3000
	Rated current In(A)	16.5	34	37.4
Max torqueTm(Nm)		5.73	11.5	14.31
Max current Im (A)		52.8	107.1	112.2
Max speed (rpm)		4000	4000	3400
Standstill torque Ts(Nm)		2.1	4.2	5.247
Standstill current Is(A)		18.1	37.4	41.14
Torque constant Kt (Nm/A)		0.124	0.127	0.14
Rotor moment of inertia Jm (Kg·cm2)		0.65	1.36	1.64
		0.654 (带抱闸)	1.41 (带抱闸)	1.901带抱闸)
Brake	Brake holding torque (Nm)	2	4	5
	Rated power (W)	7.6	11.5	11.5
	Rated voltage (VDC)	24	24	24
Insulation class		F	F	F
Max radial force Fr(N)		180	335	335
Max axial force Fa(N)		90	167.5	167.5
Cooling method		Totally enclosed, self-cooling		
Protection level		IP54		
Operation environment	Temperature	- 20~40℃		
	Humidity	Below 90% RH (no condensation)		
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust		
	Altitude	The highest altitude is 2000m. From 1000 to 2000m, the power decreases by 1.5% per 100m increase		

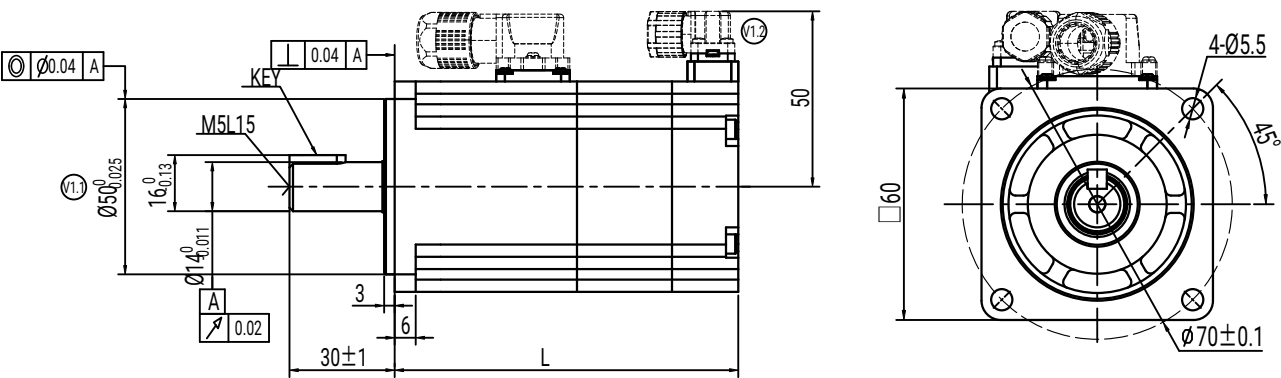
Note: ■ = A : Without brake
B : With brake

SMK series servo motor dimensions

60 flange



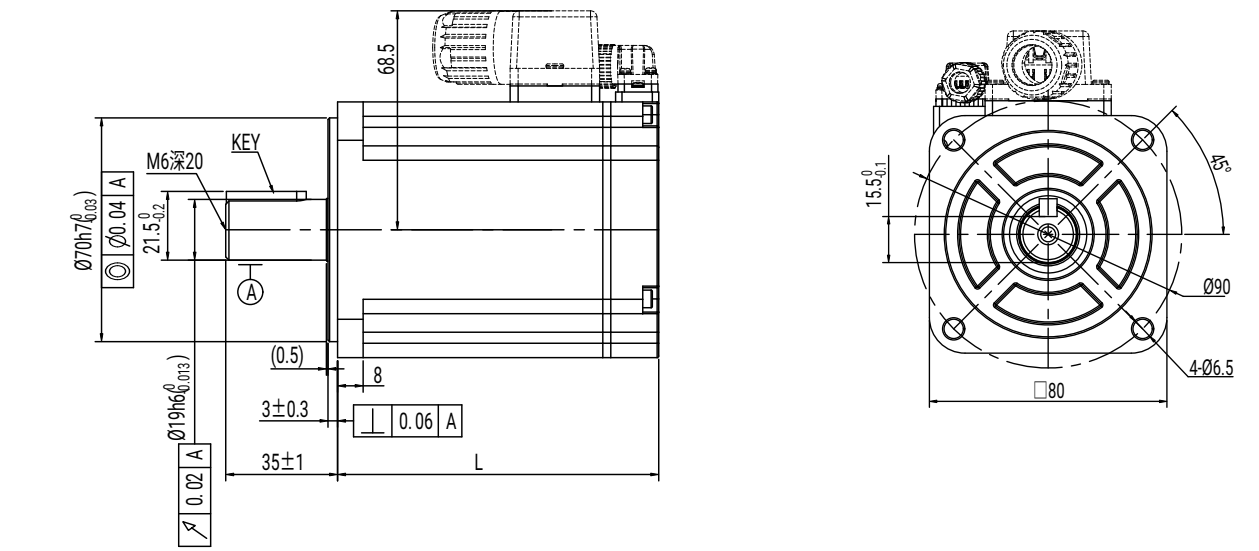
60 flange (with brake)



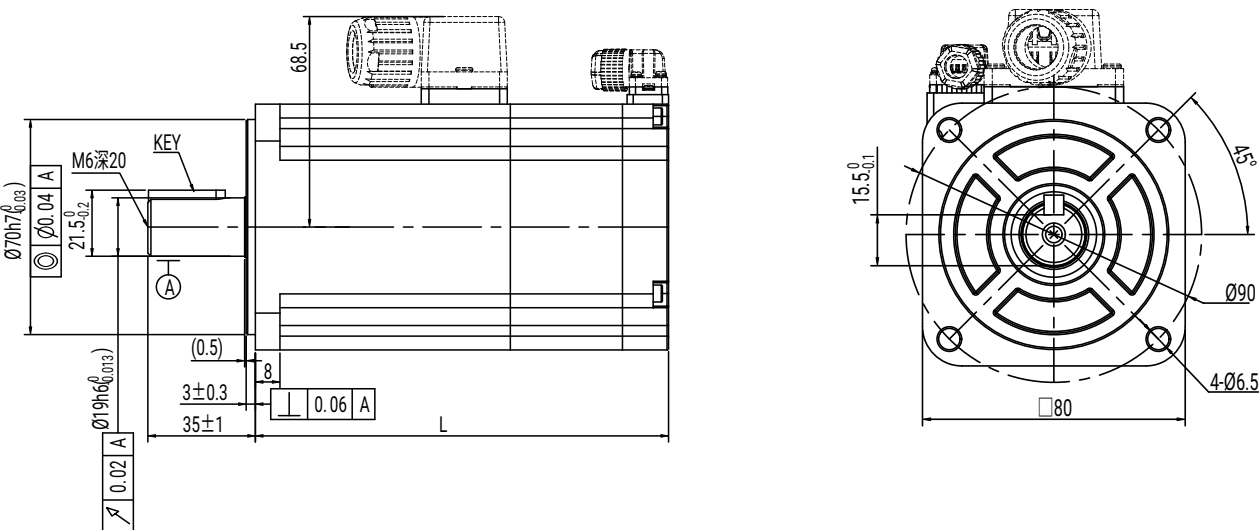
SMK60 series models	With brake	Weight (KG)	Motor body size L (mm)
SMK60S-0020-30SAK-5DSA		0.9	66.5±1.5
SMK60S-0020-30QAK-5DSA			
SMK60S-0020-30SBK-5DSA	√	1.3	98±1.5
SMK60S-0020-30QBK-5DSA			
SMK60S-0040-30SAK-5DSA		1.1	89±1.5
SMK60S-0040-30QAK-5DSA			
SMK60S-0040-30SBK-5DSA	√	1.5	116±1.5
SMK60S-0040-30QBK-5DSA			

SMK series servo motor dimensions

80 flange



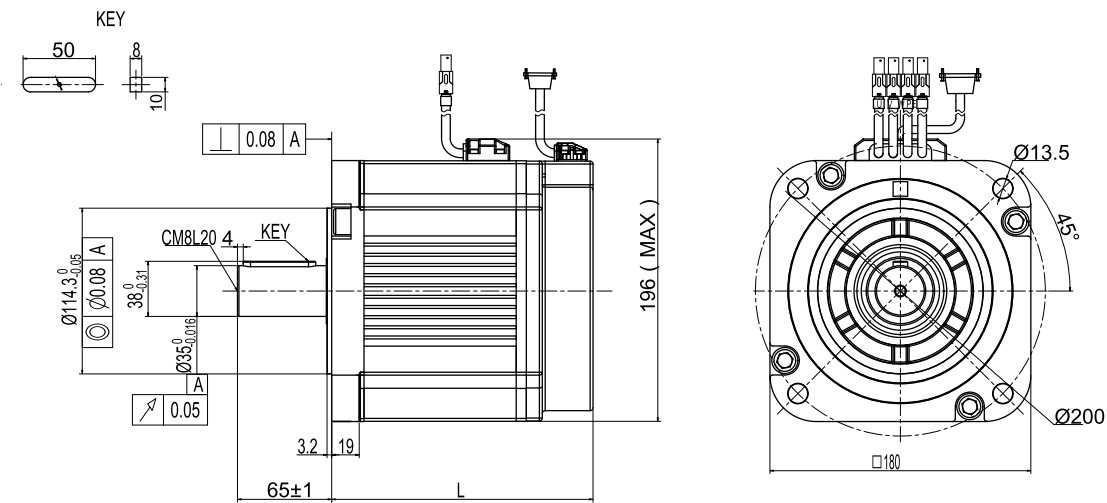
80 flange (with brake)



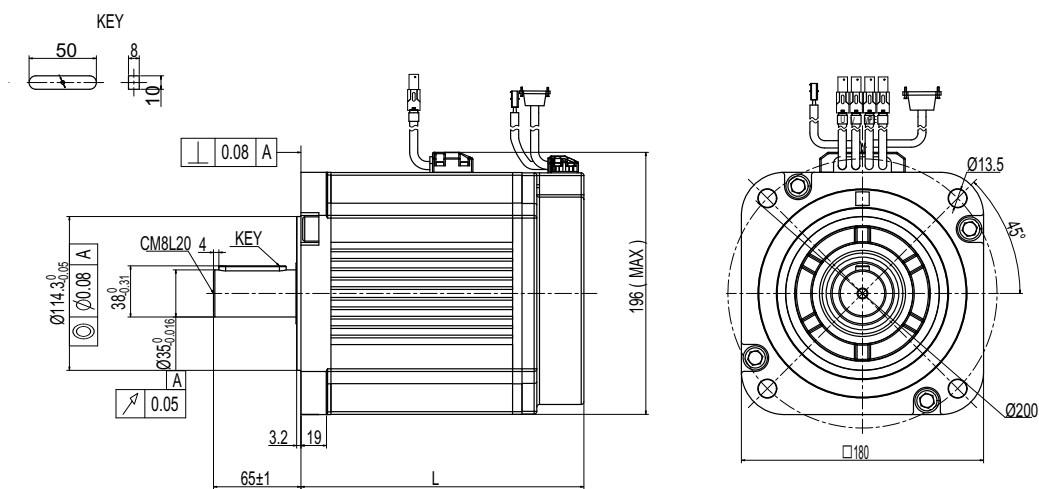
SMK80 series models	With brake	Weight (KG)	Motor body size L (mm)
SMK80S-0075-30SAK-5DKA		1.9	100.5±1
SMK80S-0075-30QAK-5DKA			
SMK80S-0075-30SBK-5DKA	√	2.6	134.5±1
SMK80S-0075-30QBK-5DKA			
SMK80S-0100-30SAK-5DKA		2.4	112.5±1
SMK80S-0100-30QAK-5DKA			
SMK80S-0100-30SBK-5DKA	√	3.1	146.5±1
SMK80S-0100-30QBK-5DKA			

SMK series servo motor dimensions

180 flange



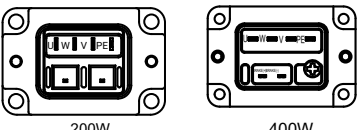
180 flange (with brake)



SMK180 series models	With brake	Weight (KG)	Motor body size L (mm)
SMK180G-0300-20QAK-4GSH	√	14.6	180.5±1
SMK180G-0300-20QBK-4GSH		18.4	210.5±1
SMK180G-0400-20QAK-4GSH	√	17.2	195.5±1
SMK180G-0400-20QBK-4GSH		21	225.5±1
SMK180G-0500-20QAK-4GSH	√	21.8	215.5±1
SMK180G-0500-20QBK-4GSH		25.6	245.5±1

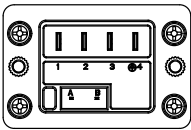
SMK series servo motor end connectors and wiring

Num	Definition
1	U
2	W
3	V
4	PE



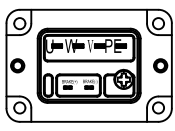
SMK60 power socket without brake

Num	Definition
1	U
2	W
3	V
4	PE



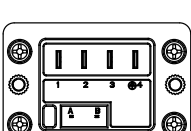
SMK80 power socket without brake

Num	Definition
1	U
2	W
3	V
4	PE
5	BR+
6	BR-



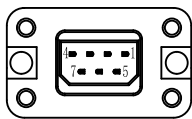
SMK60 power socket with brake

Num	Definition
1	U
2	W
3	V
4	PE
5	BR+
6	BR-



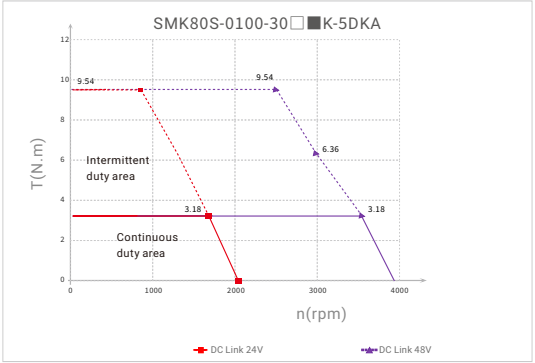
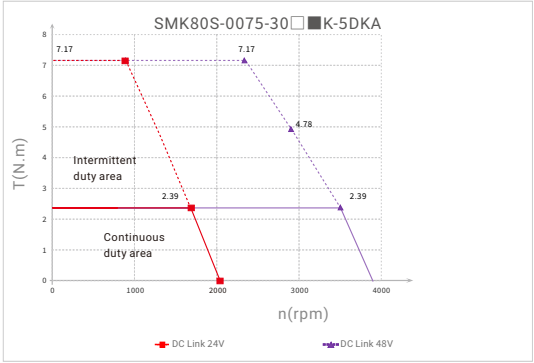
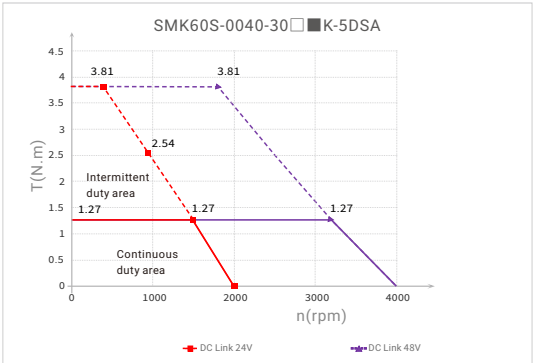
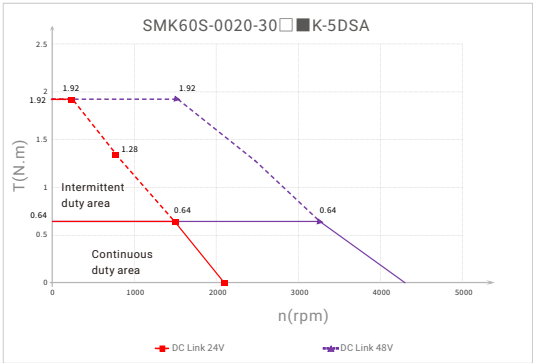
SMK80 power socket with brake

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

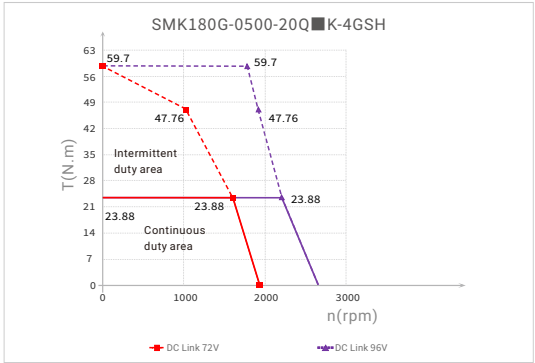
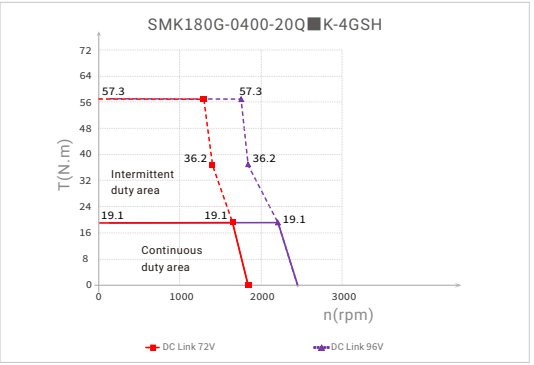
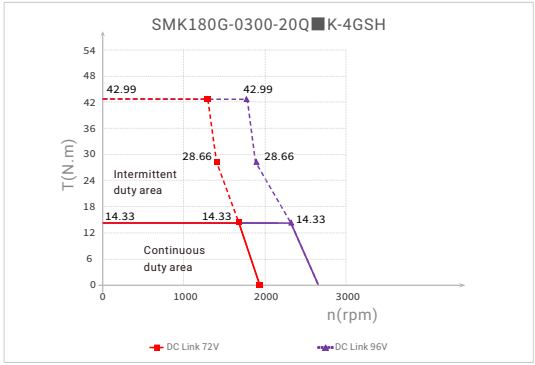


SMK60&80 encoder socket

SMK series servo motor curve

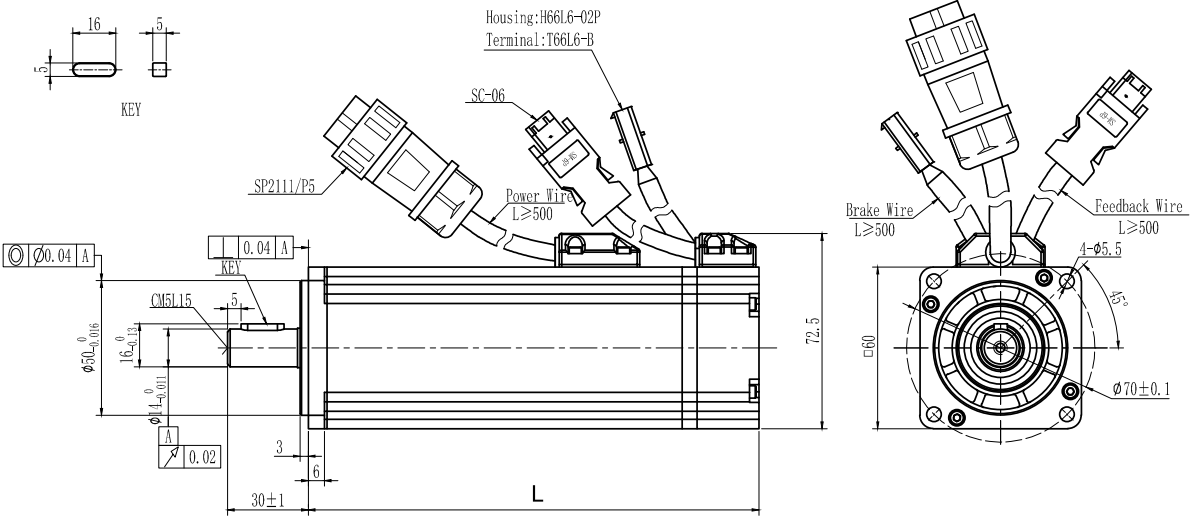


SMK series servo motor curve



SMC series servo motor dimensions

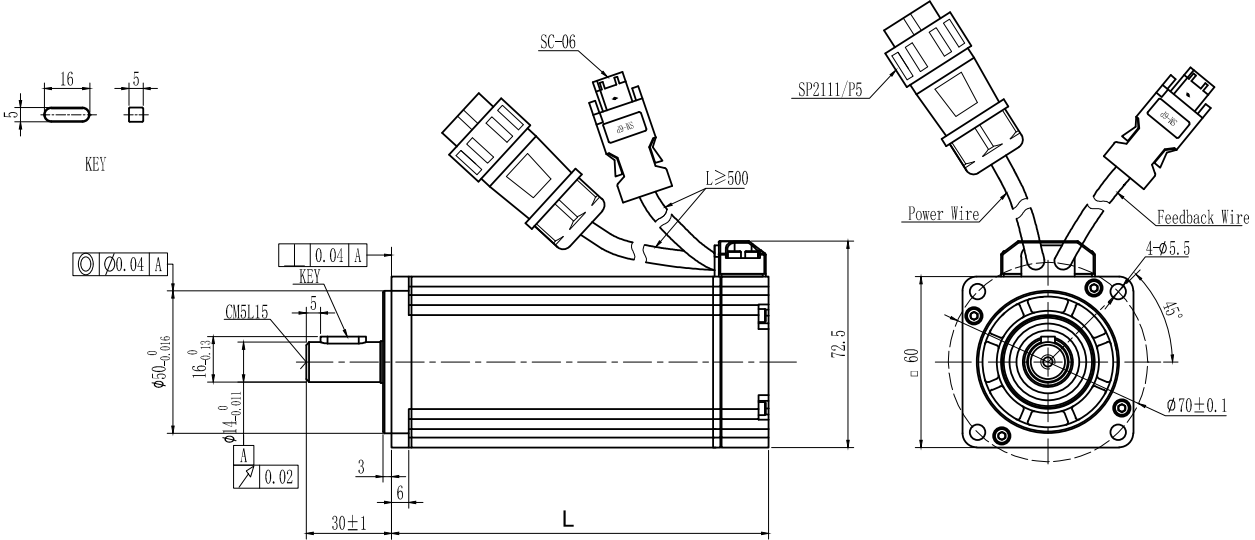
60 flange (with brake)



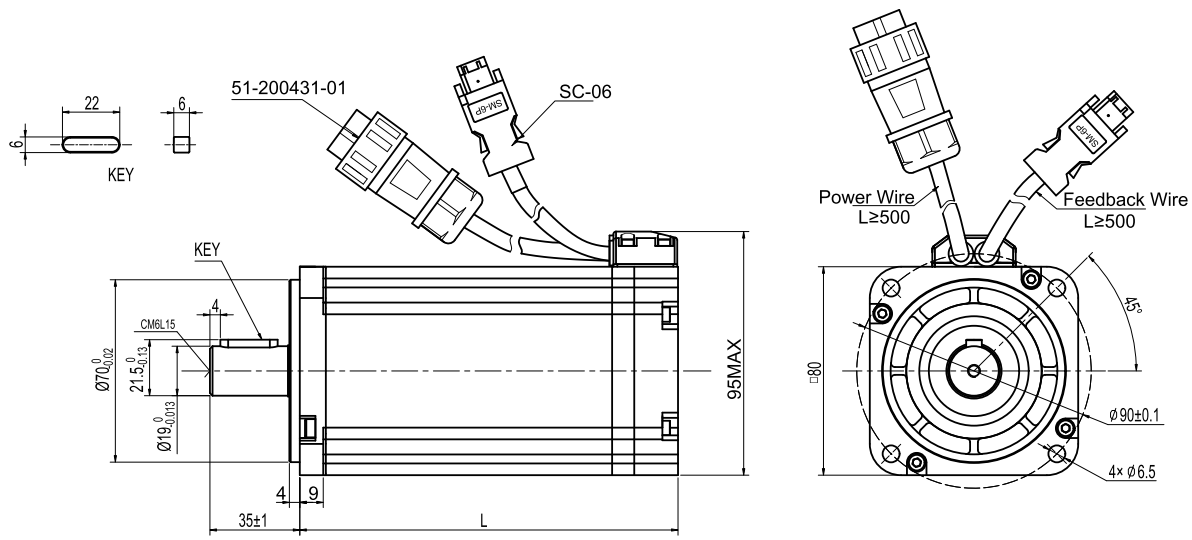
SMC60 series models	With brake	Weight (KG)	Motor body size L (mm)
SMC60S-0060-30QAK-5DSU		1.9	132.5±1.5
SMC60S-0060-30QBK-5DSU	√	2.3	167.5±1.5

SMC series servo motor dimensions

60 flange

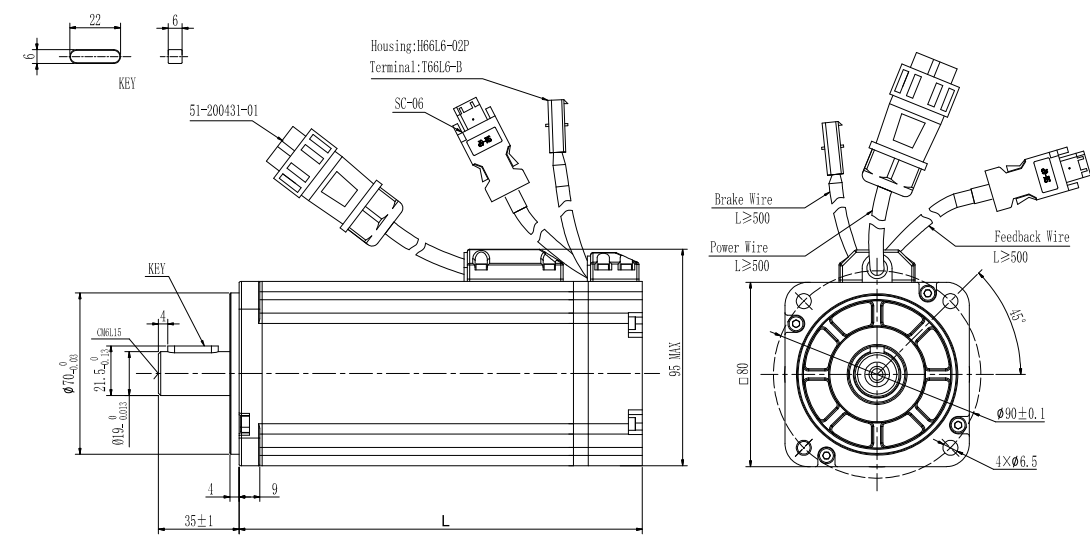


80 flange



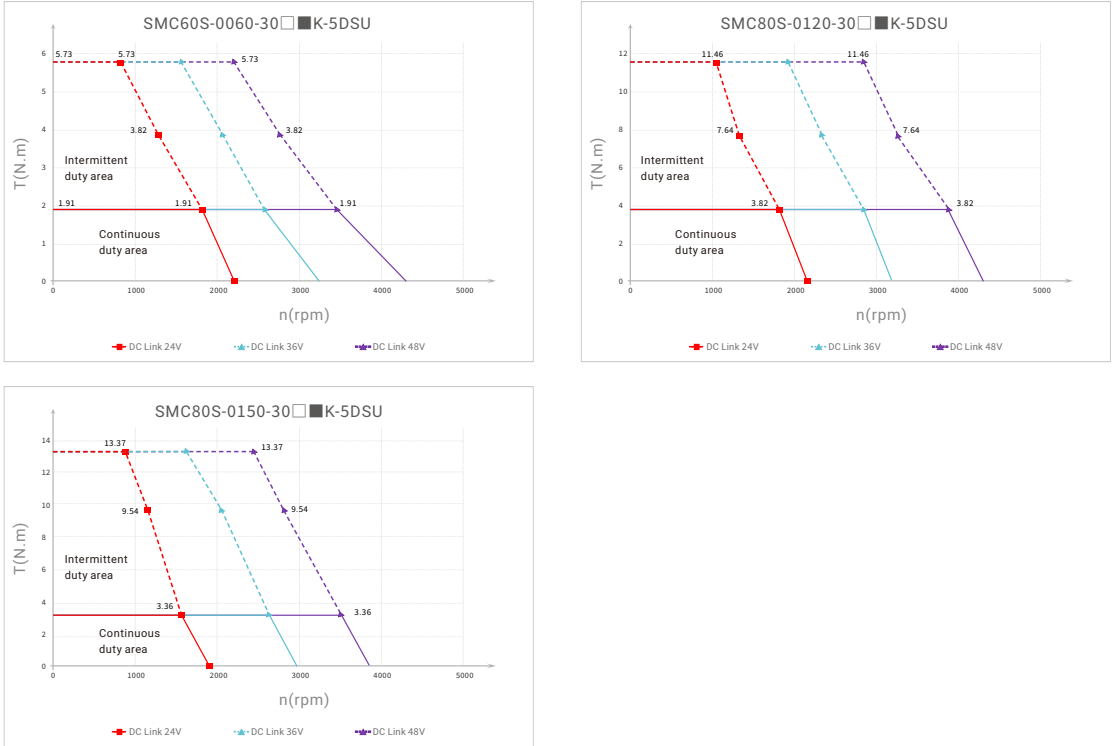
SMC series servo motor dimensions

80 flange (with brake)



SMC60 series models	With brake	Weight (KG)	Motor body size L (mm)
SMC80S-0120-30QAK-5DSU		3	122.7±1.5
SMC80S-0120-30QBK-5DSU	√	3.3	157±1.5
SMC80S-0150-30QAK-5DSU		3.9	145.2±1.5
SMC80S-0150-30QBK-5DSU	√	4.2	175±1.5

SMC series servo motor curve



Cable naming rules

Power cable

MOT F - 005 - LL - KAB - D

①-Cable function type	MOT:Motor power cable	④ -Cable length	(5) :0.5m 01:1m 02:2m 03:3m
②-Cable type	F:Flexible cable empty:Common cable	⑤-Motor outlet type	KA: Pluggable motor connector (power) KAB:Pluggable motor connector (power and brake) LS:LCA series connector LJ51:JNICON 51series connector
③-Rated current	005:5A 011:11A 020:20A 030:30A 040:40A 080:80A	⑥-Connector types	D: Common body motor front outgoing DF:Common body motor rear outgoing

Encoder cable/encoder battery cable

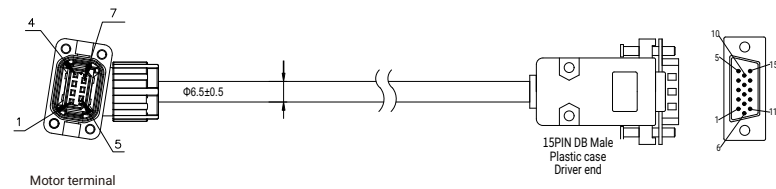
ENC D G F - LL - G A - DC

①-Cable function type	ENC:Motor encoder cable	⑤-Cable length	(5) :0.5m 01:1m 02:2m 03:3m
②-Drive encoder connector type	D:1394 connector H:Three rows of 15DB connectors	⑥-Core cable type	G:6-core cable
③-Drive connector definition	G:Communication type connector	⑦-Type of encoder connector to the motor end	A: Pluggable encoder connector U:1394 connector H: Three-row DB15 connector
④-Cable type	F:Flexible cable Empty:Common cable	⑧-Cable accessories	DC: With battery box outlet wire F: Without battery,Common body motor rear outgoing Empty: Without battery,Common body motor front outgoing

Wiring drawing

ENCHG-LL-GA

Wire Specification: 1P*22AWG+2P*26AWG standard cable
22AWG cross sectional area 0.3247mm²
26AWG cross sectional area 0.1281mm²

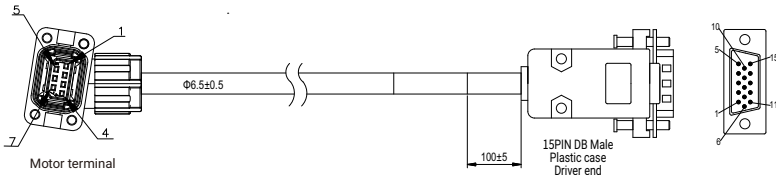


ENCHG-LL-GA			
Signal	Motor side	Color	Driver side 15PIN DB male
+5V	PIN1	red	PIN1
GND	PIN2	orange	PIN2
/	PIN3	/	/
/	PIN4	/	/
SD+	PIN5	blue	PIN9
SD-	PIN6	purple	PIN14
Shielding	PIN7	Shielding wire	Shielding

Correspondingaccessory:ENCHG-GA
Correspondingflexible cable : ENCHGF-LL-GA
Wire spec:1P*22AWG+2P*26AWG flexible drag chain cable
Wire diameter:6.5±0.5mm

ENCHG-LL-GA-F

Wire Specification:1P*22AWG+2P*26AWG,standard cable
22AWG cross sectional area 0.3247mm²
26AWG cross sectional area 0.1281mm²

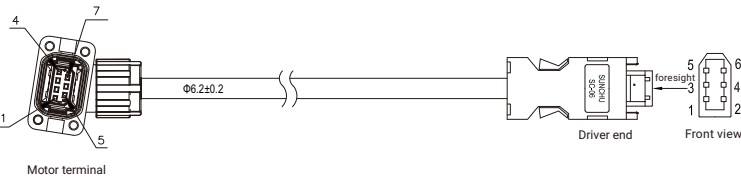


ENCHG-LL-GA-F			
Signal	Motor side	Color	Driver side 15PIN DB male
+5V	PIN1	red	PIN1
GND	PIN2	orange	PIN2
/	PIN3	/	/
/	PIN4	/	/
SD+	PIN5	blue	PIN9
SD-	PIN6	purple	PIN14
Shielding	PIN7	Shielding wire	Shielding

Correspondingaccessory:ENCHG-GA-F

ENCDG-LL-GA

Wire Specification: 1P22AWG+2P26AWG standard cable
22AWG cross sectional area 0.3247mm²
26AWG cross sectional area 0.1281mm²



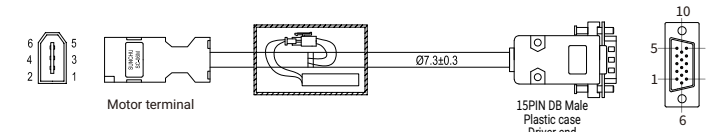
ENCDG-LL-GA			
Signal	Motor side	Color	Driver side SC06 male
+5V	PIN1	red	PIN1
GND	PIN2	orange	PIN2
/	PIN3	brown	PIN3
/	PIN4	black	PIN4
SD+	PIN5	blue	PIN5
SD-	PIN6	purple	PIN6
Shielding	PIN7	Shielding wire	Shell

Correspondingaccessory:ENCDG/ENCDGF-GA
Correspondingflexible cable : ENCDGF-LL-GA
Wire spec:1P*22AWG+2P*26AWG flexible drag chain cable
Wire diameter:6.2±0.2mm

Wiring drawing

ENCHG-(4)-GU-DC

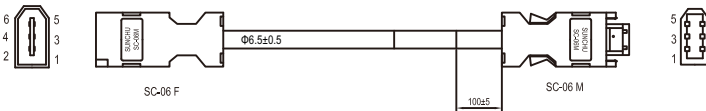
Wire Specification:3×2 ×0 .2mm²



ENCHG-(4)-GU-DC					
Signal	Motor side SC-06 female	black HSG	Color	External single wire	Driver side 15PIN DBmale
+5V	PIN1	/	red	/	PIN1
GND	PIN2	/	black	/	PIN2
VB+	PIN3	PIN1	brown	red	/
VB-	PIN4	PIN2	blue	black	/
SD+	PIN5	/	yellow	/	PIN9
SD-	PIN6	/	green	/	PIN14
Shielding	Shell	/	Shielding wire	/	Shell

ENCDG-LL-GU

Wire Specification:1P*20AWG+2P*24AWG standard cable
20AWG cross sectional area 0.5189mm²
24AWG cross sectional area 0.2047mm²

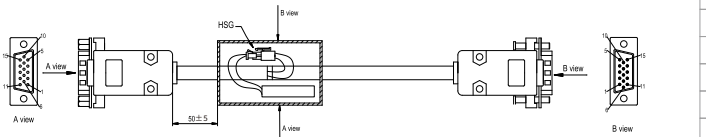


ENCDG-LL-GU			
Signal	Motor side	Color	Driver side SC06 male
+5V	PIN1	red	PIN1
GND	PIN2	black	PIN2
VB+	PIN3	brown	PIN3
VB-	PIN4	blue	PIN4
SD+	PIN5	yellow	PIN5
SD-	PIN6	green	PIN6
Shielding	Shell	Shielding wire	Shell

Correspondingaccessory:ENCDG-GU
Correspondingflexible cable : ENCDGF-LL-GU
Wire spec:1P*20AWG+2P*24AWG flexible drag chain cable
Wire diameter:6.5±0.5mm

ENCHG-(4)-GH-DC

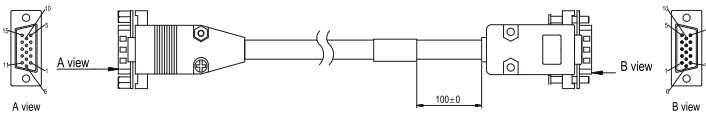
Wire Specification:3×2 ×0 .2mm²



ENCHG-(4)-GH-DC					
Signal	Motor side 15PIN DB female	black HSG	Color	External single wire	Driver side 15PIN DB male
+5V	PIN1	/	red	/	PIN1
GND	PIN2	/	black	/	PIN2
VB+	PIN10	PIN1	brown	red	/
VB-	PIN15	PIN2	blue	black	/
SD+	PIN9	/	yellow	/	PIN9
SD-	PIN14	/	green	/	PIN14
Shielding	Shell	/	Shielding wire	/	Shell

ENCHG-LL-GH

Wire Specification:1P*22AWG+2P*26AWG standardcable
22AWG cross sectional area 0.3247mm²
26AWG cross sectional area 0.1281mm²



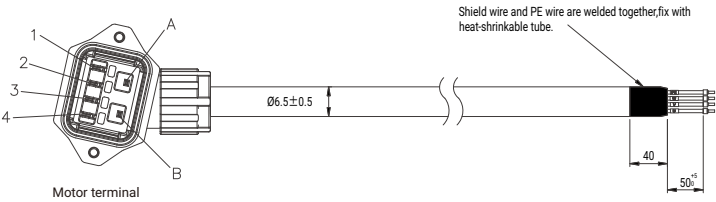
ENCHG-LL-GH			
Signal	Motor side 15PIN DB female	Color	Driver side 15PIN DB male
+5V	PIN1	red	PIN1
GND	PIN2	orange	PIN2
VB+	PIN10	brown	PIN10
VB-	PIN15	black	PIN15
SD+	PIN9	blue	PIN9
SD-	PIN14	purple	PIN14
Shielding	Shell	Shielding wire	Shell

Correspondingaccessory:ENCHA-KH

Wiring drawing

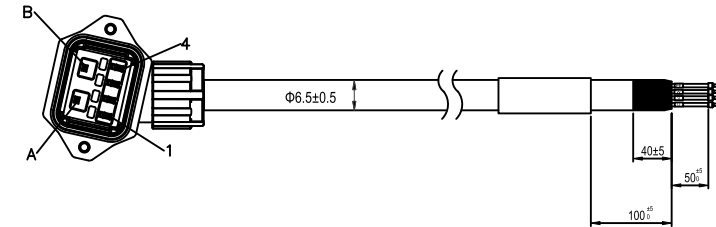
MOT-005-LL-KA-D

Wire Specification:4C*20AWG 300V standard cable
20AWG cross sectional area 0.5189mm²



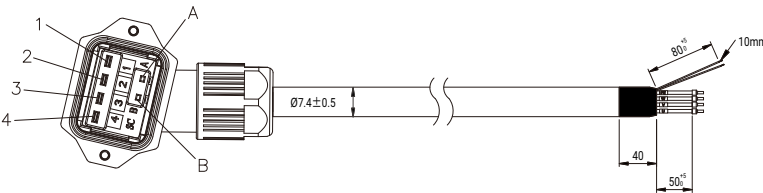
MOT-005-LL-KA-DF

Wire Specification:4C*20AWG 300V standard cable shield
20AWG cross sectional area 0.5189mm²



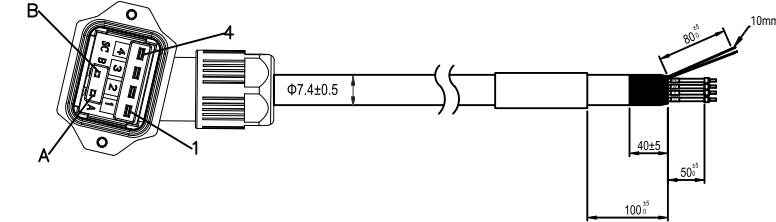
MOT-005-LL-KAB-D

Wire Specification:4C*18AWG+1P*24AWG standard cable
18AWG cross sectional area 0.8107mm²
24AWG cross sectional area 0.2047mm²



MOT-005-LL-KAB-DF

Wire Specification:4C*18AWG+1P*24AWG standard cable
18AWG cross sectional area 0.8107mm²
24AWG cross sectional area 0.2047mm²



MOT-005-LL-KA-DF		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellowgreen+Shielding

Correspondingaccessory:MOT/MOTF-005-KA
Correspondingflexible cable:MOTF-005-LL-KA-D
Wire spec:4C*20AWG 300V flexible drag chain cable
Wire diameter:6.5±0.5mm

MOT-005-LL-KA-DF		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellowgreen+Shielding

Correspondingaccessory:MOT-005-KA-DF

MOT-005-LL-KAB-D		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellowgreen+Shielding
BR+	PINA	brown
BR-	PINB	blue

Correspondingaccessory:MOT-011-KA
Correspondingflexible cable:MOTF-005-LL-KAB-D
Wire spec:4C*18AWG+1P*24AWG flexible drag chain cable, shield flex
Wire diameter:7.4±0.5mm

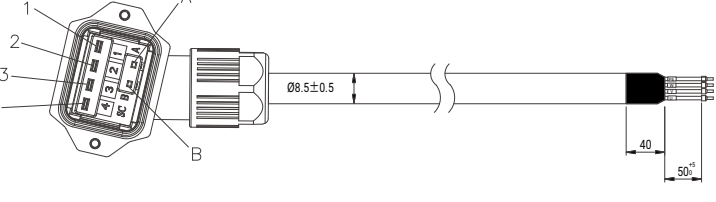
MOT-005-LL-KAB-DF		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellowgreen+Shielding
BR+	PINA	brown
BR-	PINB	blue

Correspondingaccessory:MOT-005-KAB-DF

Wiring drawing

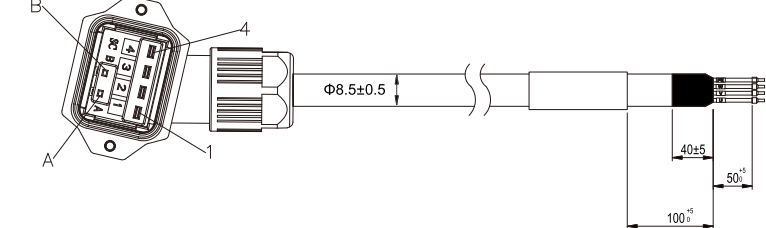
MOT-011-LL-KA-D

Wire Specification:4C*16AWG 300V standard cable
16AWG cross sectional area 1.318mm²



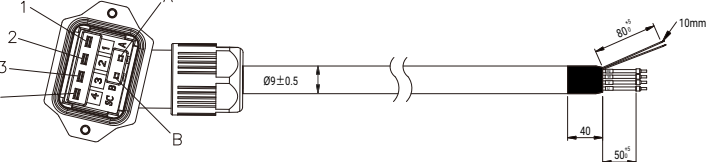
MOT-011-LL-KA-DF

Wire Specification:4C*16AWG 300V Shielding,standard cable shield(OD<9mm)
16AWG cross sectional area 1.318mm²



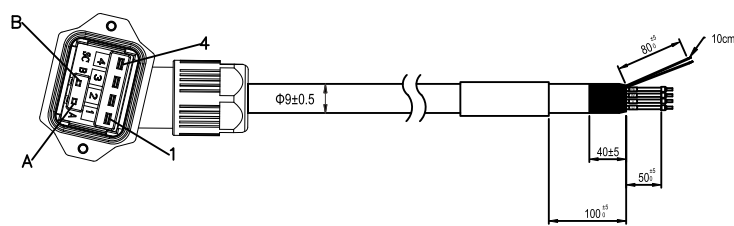
MOT-011-LL-KAB-D

Wire Specification:4C*16AWG+1P*24AWG standard cable
16AWG cross sectional area 1.318mm²
24AWG cross sectional area 0.2047mm²



MOT-011-LL-KAB-DF

Wire Specification: 4C*16AWG+1P*24AWG Shielding, standard cable, shield(OD<9mm)
16AWG cross sectional area 1.318mm²
24AWG cross sectional area 0.2047mm²



MOT-011-LL-KA-D		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellowgreen+Shielding

Correspondingaccessory:MOT-011-KA
Correspondingflexible cable:MOTF-011-LL-KA-D
Wire spec:4C*16AWG 300V flexible drag chain cable
Wire diameter:8.5±0.5mm

MOT-011-LL-KA-DF		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellowgreen+Shielding

Correspondingaccessory:MOT-011-KA-DF

MOT-011-LL-KAB-D		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellowgreen+Shielding
BR+	PINA	brown
BR-	PINB	blue

Correspondingaccessory:MOT-011-KA
Correspondingflexible cable:MOTF-011-LL-KAB-D
Wire spec:4C*16AWG+1P*24AWG flexible drag chain cable
Wire diameter:9±0.5mm

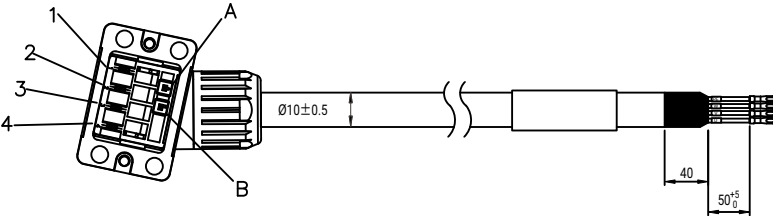
MOT-011-LL-KAB-DF		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellowgreen+Shielding
BR+	PINA	brown
BR-	PINB	blue

Correspondingaccessory:MOT-011-KAB-DF

Wiring drawing

MOT-020-LL-KA-D

Wire Specification:4*13AWG standard cable
13AWG cross sectional area 2.627mm²

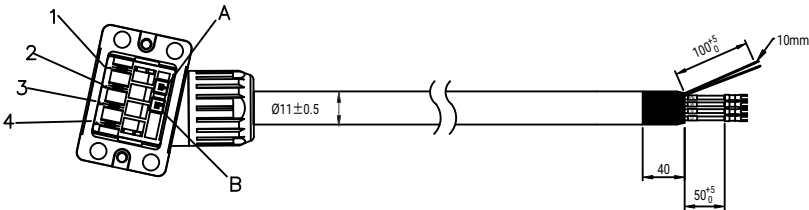


MOT-020-LL-KA-D		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellow green+Shielding

Correspondingaccessory:MOT-KA(OD<11mm)
Correspondingflexible cable:MOTF-020-LL-KA-D
Wire spec:4*13AWG flexible drag chain cable
Wire diameter:10±0.5mm

MOT-020-LL-KAB-D

Wire Specification:4C*13AWG+1P*20AWG standard cable
13AWG cross sectional area 2.627mm²
20AWG cross sectional area 0.5189mm²

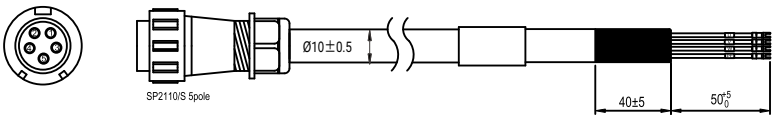


MOT-020-LL-KAB-D		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellow green+Shielding
BR+	PINA	brown
BR-	PINB	blue

Correspondingaccessory:MOT-KA(OD≥11mm)
Correspondingflexible cable:MOTF-020-LL-KA-D
Wire spec:4C*13AWG+1P*20AWG flexible drag chain cable
Wire diameter:11±0.5mm

MOT-020-LL-KL-SP

Wire Specification:UL2586 4x13AWG standard cable
13AWG cross sectional area 2.627mm²

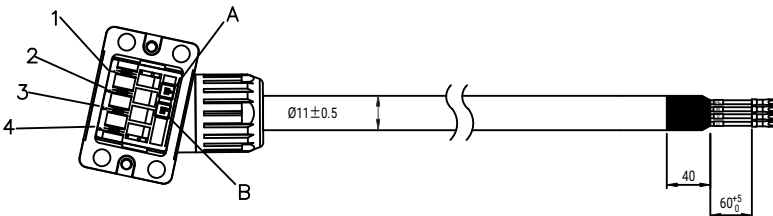


MOT-020-LL-KL-SP		
Signal	Motor side SP2110/S Spole	Color
U	PIN1	white
V	PIN2	red
W	PIN3	black
PE+Shielding	PIN4	Yellow green +shielding
NC	PIN5	NC

Correspondingaccessory:MOT-020-KL-SP
Correspondingflexible cable:MOTF-020-LL-KL-SP
Wire spec:4*13AWG flexible drag chain cable
Wire diameter:10±0.5mm

MOT-030-LL-KA-D

Wire Specification:4*12AWG standard cable
12AWG cross sectional area 3.332mm²



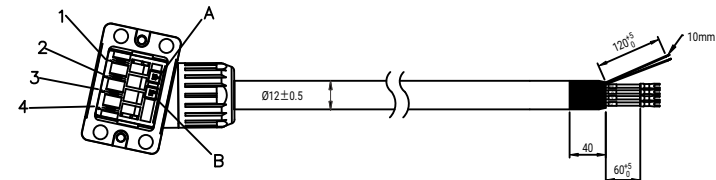
MOT-030-LL-KA-D		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellow green+Shielding

Correspondingaccessory:MOT-KA(OD≥11mm)
Correspondingflexible cable:MOTF-030-LL-KA-D
Wire spec:4*12AWG flexible drag chain cable
Wire diameter:11±0.5mm

Wiring drawing

MOT-030-LL-KAB-D

Wire Specification:4C*12AWG+1P*20AWG standard cable
12AWG cross sectional area 3.332mm²
20AWG cross sectional area 0.5189mm²

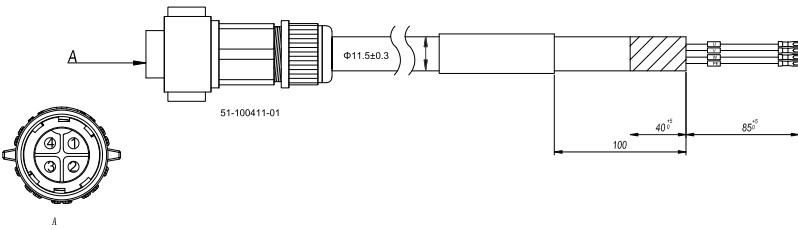


MOT-030-LL-KAB-D		
Signal	Motor side	Color
U	PIN1	white
W	PIN2	black
V	PIN3	red
PE	PIN4	Yellow green+Shielding
BR+	PINA	brown
BR-	PINB	blue

Correspondingaccessory:MOT-KA(OD≥11mm)
Correspondingflexible cable:MOTF-030-LL-KAB-D
Wire Specification:4C*12AWG+1P*20AWG flexible
drag chain cable
Wire diameter:12±0.5mm

MOT-040-LL-LJ51

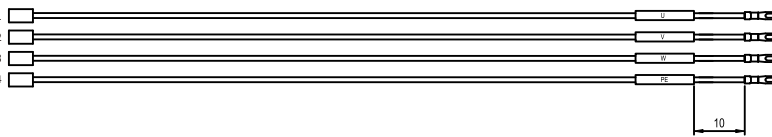
Wire Specification: 3C*10AWG+3*19AWG
10AWG cross sectional area 5.26mm²
19AWG cross sectional area 0.5667mm²



MOT-040-LL-LJ51		
Signal	Motor side	Color
U	PIN1	white
V	PIN4	red
W	PIN3	black
PE+Shielding wire	PIN2	Yellowgreen+Shielding

MOT-040-LL-LS/MOT-080-LL-LS

Wire Specification:8AWG (Single wire)
8AWG cross sectional area 8.37mm²

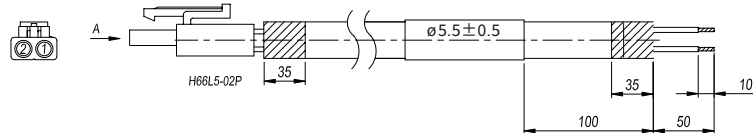


MOT-040-LL-LS/MOT-080-LL-LS		
Signal	Motor side LCA/060 F	Color
U	PIN1	white
V	PIN2	red
W	PIN3	black
PE	PIN4	Yellow green

Correspondingaccessory:MOT-040-LS

BRA-LL-KL

Wire Specification:2C*20AWG
20AWG cross sectional area 0.5189mm²



BRA-LL-KL		
Signal	Motor side H66L5-02P	Color
BR+	PIN1	red
BR-	PIN2	blue

Correspondingaccessory:BRA-KL
Correspondingflexible cable:BRAF-LL-KL
Wire spec:2C*20AWG(72/0.10T) 5 million times
Wire diameter:5.5±0.5mm

Customers in over 60 countries and in diverse markets and sectors.



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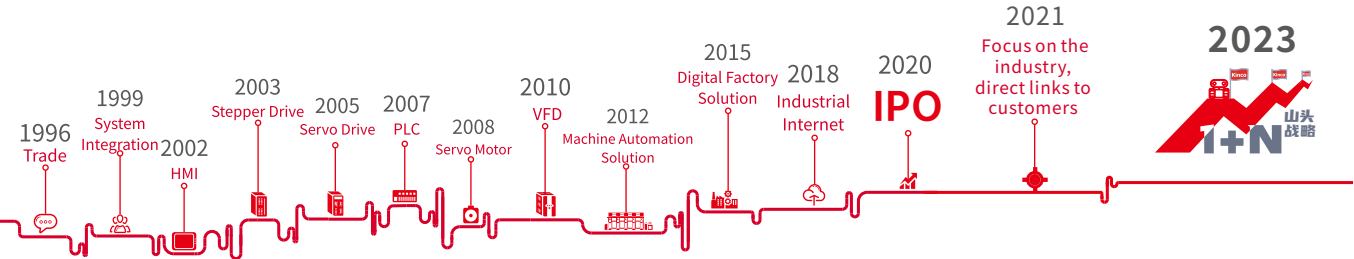
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Kinco

 **Servo System Catalog**

- FD5 Series Servo Drive
- Servo Motor





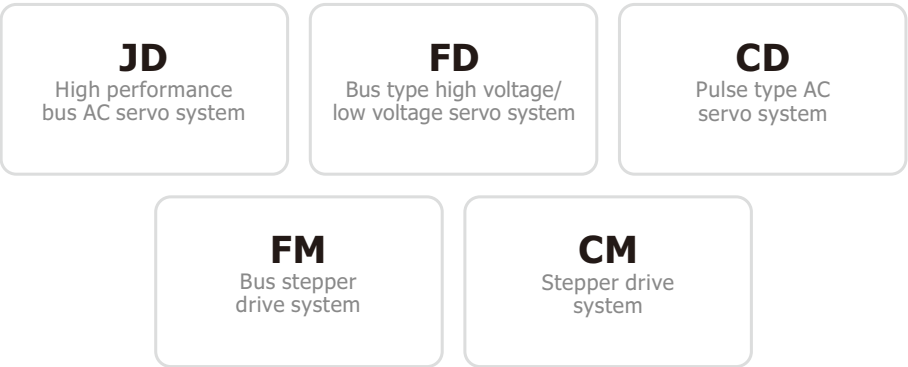
Shanghai Kinco Automation Co., Ltd. focuses on R&D, production, sales and technical services of automation standard products and intelligent hardware products, which is a leading supplier of machine automation and intelligent solutions for factories in China.

In 1996, Kinco has been providing total automation solutions for global industrial automation equipment manufacturers by relying on standard automation products such as HMI, servo system, stepping system, PLC, low-voltage inverter, etc. to penetrate into the industry, making China's automation solutions prevail all over the world. The company's HMI products have led the wave of HMI popularization in China, and its market share has maintained a leading position among local brand manufacturers for many years.

With the mission of "Making China's manufacturing become the top manufacturing in the world", Kinco company insists on investing a large amount of resources in the research and development of automated technology platforms, and sets up R&D facilities in Shanghai, Shenzhen and Changzhou. Kinco company has an automated technology platform that covers all aspects of control, drive, human-machine interaction, communication and electromechanical integration design. In the field of machine automation, Kinco focuses on the industry and has developed special solutions for logistics automation, service robots, medical instruments, professional drones, 3C machine tools, ozone and other industries.

In the field of smart factory, Kinco provides customers with the most easy-to-implement smart factory solutions for manufacturing companies at the field implementation level, PLC control and communication level, Scada and system integration level, and MES management level through its comprehensive automation technology platform and software system developed for smart factory.

With the vision of "creating a better life intelligently" and adhering to the values of "maintain conscience in growth and hold ingenuity in innovation", Kinco is a platform to help employees maximize their creative potential and a partner to help customers succeed in innovative management. We develop products and operate businesses with innovative thinking and practical spirit, adhere to ideals, and expect human creativity to make the world more wonderful.



· Our design concept originated in Germany; support a variety of communication options such as pulse and Modbus/CANopen/EtherCAT/Profinet bus. It can drive all kinds of servo motors and stepper motors, including rotary servo motors, cablear motors, direct drive motors, etc.

· It is widely used in the logistics AGV, 3C, medical, new energy, and machine registry industries.

· The product meets international quality and design standards, which is the first choice for international brand servo ODM.

- 02 SUMMARIZE
 - Drive characteristics
 - Naming rules for drives and motors/cables
 - Drive and motor configuration table
 - Drive/motor model table
- 08 DRIVE INTRODUCTION
 - Technical specifications
 - Drive and motor configuration table
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 - Motor characteristics
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 - Torque-velocity curve
- 31 MOTOR CABLE CONNECTION TABLE
 - Encoder cable
 - Motor power cable
 - Brake cable

FD5 high performance AC servo

New support for Profinet bus communication



FD5 feature

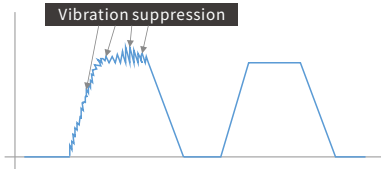


- The power range covers 200W~3KW with compact structure design.
- Significantly improved control performance and response ability to provide customers with more solutions.
- Strong compatibility: 5 generations of products are compatible with 3 generations of product parameters, which can directly update the parameters to replace.

FD5 series servo drive with five advantages

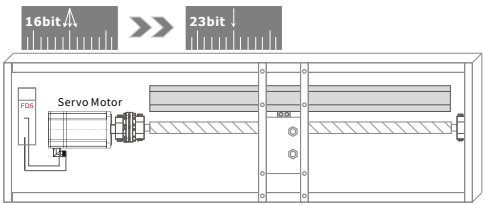
Notch filter

For vibration suppression. Up to 4 notch filters can be used simultaneously. The mechanical resonance frequency of the load is automatically measured and the notch frequency is automatically set based on the measurement results.



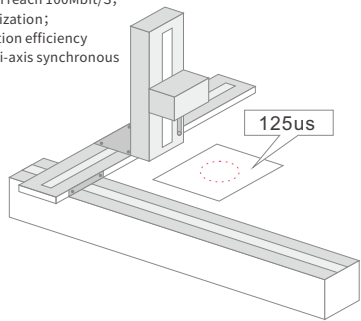
Suitable for high-precision encoder

Higher sampling frequency with high precision encoder helps to improve overall servo responsiveness and positioning accuracy.



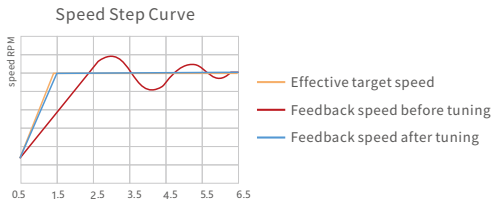
Real-time synchronization control

- Supports 125us synchronization cycles;
- EtherCAT communication rate can reach 100Mbit/S;
- Adopt distributed clock synchronization;
- It can effectively improve production efficiency and improve the accuracy of multi-axis synchronous control.



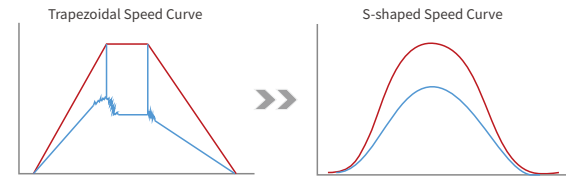
Easy tune optimized upgrade and online self-tuning

The self-tuning module calculates the load amount by changing the state of the load under acceleration and deceleration. By adding monitoring signals to the PWM for measurement during motor operation, the load inertia is obtained and then the PID controller is dynamically adjusted according to the set rigidity and application type.



S-curve control

S-type curve control opens with one key; no command delay; suitable for long distance positioning control. The speed step of trapezoidal speed curve is large. For mechanical equipment with large inertia or flexible connection equipment, vibration may be caused by sudden change of trapezoidal speed. S-type speed curve is more flexible, smooth acceleration and deceleration, which can effectively overcome the mechanical vibration caused by sudden change of speed.



Support for multiple bus communication

PROFINET EtherCAT CANopen Modbus

Note: These trademarks are owned by their respective companies.

Drive and motor/cable naming rules

Drive: **FD425-PA-000**
① ② ③ ④ ⑤ ⑥

Note:FD425-□F-000 with fan



①-Series name	FD: FD series	④ -Drive version	5: Fifth generation drive
②-Supply voltage	4:Input Voltage AC220V 6:Input Voltage AC380V	⑤-Controlled type	EA: RS232, EtherCAT, Pulse CA: RS232, CAN, Pulse LA: RS232, RS485, Pulse PA: RS232, Profinet
③-Drive current	1: AC220V 2A 2: AC220V 3.9A or AC380V 7A 3: AC220V 10A	⑥-Software version	000: Software version number

Motor: **SMC60S-0020-30MAK-5LSU**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫



①-Series name	SMC: SMC series SMG: SMG series	⑦-Brake holder	A: Without brake B: With brake
②-Flange	60:60x60(mm) 80:80x80(mm) 130:130x130(mm)	⑧-Output shaft style	K: With key
③-Inertia type	S:Small inertia D: Medium inertia	⑨-Number of polar pairs	4:4 polar pairs 5:5 polar pairs
④-Rated power:	0020:20x10(W) 0040:10x40(W)	⑩-Supply voltage:	L: AC220V H: AC380V
⑤-Rated speed:	10:10x100(rpm) 20:20x100(rpm) 30:30x100(rpm)	⑪-Motor version number	S: S version K: K version
⑥-Encoder type: M: Singleturn communication type magnetoelectric encoder Q: Multiturn communication type magnetoelectric absolute value encoder V: Singleturn communication type photoelectric encoder Y: Multiturn communication type photoelectric absolute value encoder	⑫- Motor outlet type: U: Communication encoder socket Q: AMP17 series sockets P: HFO21+HFO18 series general aviation socket Note: Kinetic aerial plug HFO21, encoder aerial plug HFO18		

Drive and motor/cable naming rules

Power cable: **MOTF-005-LL-KL-NS**
① ② ③ ④ ⑤ ⑥

①-Cable function type MOT: Motor power cable	④ -Cable length 03:3m/05:5m/ 10:10m/15:15m/20:20m
②-Cable type F: Flexible cable Empty: Common Cable	⑤-Motor outlet type KL: 4PIN power plug KC4:HFO21 series of general aviation plug KQ: 4PIN AMP17 series power plug
③-Rated current 005: 5A 008: 8A 015: 15A	⑥-Cable note NS:General Cable Empty:Highly shielded cable B:The power cable includes the holding brake cable(Suitable for KC4 aviation socket brake motor)

Encoder cable: **ENC DGF-LL-GU-BT5**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①-Cable function type ENC:Motor encoder cable	⑤-Cable length 03:3m/05:5m/ 10:10m 15:15m/20:20m
②-Drive encoder connector type D:1394 connector	⑥-Core cable type G:6 core cable
③-Drive connection definition G:Communication type connector	⑦-Type of encoder connector to the motor end U:Communication type encoder connector C0:HFO series of general aviation plugs Q:9PIN AMP17 series encoder plugs
④-Cable type F: Flexible cable Empty: Common Cable	⑧-Cable accessories BT5:Encoder cable for battery connection Empty:No battery

Brake cable: **BRAF-LL-KL**
① ② ③ ④

①-Cable function type BRA: Motor holding brake cable	③-Cable length 03:3m/05:5m/ 10:10m 15:15m/20:20m
②-Cable type F: Flexible cable Empty: Common Cable	④ -Connector type KL:2PIN brake plug KQ:2PIN AMP17 series brake plug

Drive model list

Series	Specification model	Wattage (W)	Supply voltage	MAX continuous output current (rms) (A)	Peak current (A)	Control model	Weight (Kg)	Dimension L*W*H (mm)	
FD5 series	FD425-LA-000	200/400	AC220V	3.9	18	RS485	0.881	160*153*40	
	FD425-CA-000					CANopen			
	FD425-EA-000					EtherCAT			
	FD425-PA-000					Profinet			
	FD425-LF-000	750/1000		5	18	RS485	1.5	160*153*55	
	FD425-CF-000					CANopen			
	FD425-EF-000					EtherCAT			
	FD425-PF-000					Profinet			
	FD435-LA-000	1500/2000		10	27.5	RS485	1.5	219*187*56	
	FD435-CA-000					CANopen			
	FD435-EA-000					EtherCAT			
	FD435-PA-000					Profinet			
	FD625-LA-000	1500/2000/3000		AC380V	7	25			RS485
	FD625-CA-000								CANopen
	FD625-EA-000								EtherCAT
	FD625-PA-000								Profinet

Motor mode list

SMG series	Specification model	Rated wattage Pn(W)	Rated torque Tn(Nm)	Rated speed nN(rpm)	Rated current In(A)	Shaft diameter (mm)	Fuselage length (mm)	
							□=A	□=B (Brake motor)
60 Flange	SMG60S-0020-30M□K-5LSQ	200	0.64	3000	1.6	14	67.5±1.5	98±1.5
	SMG60S-0020-30Q□K-5LSQ							
	SMG60S-0040-30M□K-5LSQ	400	1.27		2.6		85.5±1.5	116±1.5
	SMG60S-0040-30Q□K-5LSQ							
80 Flange	SMG80S-0075-30M□K-5LSQ	750	2.39		4.6	19	92.5±1.5	127±1.5
	SMG80S-0075-30Q□K-5LSQ							

Note: □=A : Motor without brake
B : Motor with brake

SMC series	Specification model	Rated wattage Pn(W)	Rated torque Tn(Nm)	Rated speed nN(rpm)	Rated current In(A)	Shaft diameter (mm)	Fuselage length (mm)			
							□=A	□=B (Brake motor)		
60 Flange	SMC60S-0020-30M□K-5LSU	200	0.64	3000	1.5	14	75±1.5	112.5±1.5		
	SMC60S-0020-30Q□K-5LSU									
	SMC60S-0020-30□□K-5LSU									
	SMC60S-0040-30M□K-5LSU	400	1.27		2.9		97±1.5	134.5±1.5		
	SMC60S-0040-30Q□K-5LSU									
	SMC60S-0040-30□□K-5LSU									
80 Flange	SMC80S-0075-30M□K-5LSU	750	2.39		4	19	106.7±1.5	141±1.5		
	SMC80S-0075-30Q□K-5LSU									
	SMC80S-0075-30□□K-5LSU									
130 Flange	SMC130D-0100-20□□K-5LSP	1KW	4.78	2000	4.5 (ref.)	22	143.5±1.5	203.5±1.5		
	SMC130D-0100-10MAK-5LSP	1KW	9.55	1000	4.6 (ref.)		171±1.5	-		
	SMC130D-0150-20□□K-5LSP	1.5KW	7.16		7.7 (ref.)		163.5±1.5	223.5±1.5		
	SMC130D-0200-20□□K-5LSP	2KW	9.55	2000	9.5 (ref.)		179.5±1.5	239.5±1.5		
	SMC130D-0150-20□□K-5HSP	1.5KW	7.16		3.85 (ref.)		163.5±1.5	223.5±1.5		
	SMC130D-0150-10MAK-5HSP	1.5KW	14.33	1000	3.8 (ref.)		203.5±1.5	-		
	SMC130D-0200-20□□K-5HSP	2KW	9.55	2000	4.75 (ref.)		179.5±1.5	239.5±1.5		
	SMC130D-0300-20□□K-5HSP	3KW	14.33		7 (ref.)		213.5±1.5	273.5±1.5		

Note: □=V : Singleturn communication type optical encoder
Y : Multiturn communication type optical absolute value encoder
M : Singleturn communication type magnetoelectric encoder
Q : Multiturn communication type magnetoelectric absolute encoder

□=A : Motor without brake
B : Motor with brake

Technical specifications of FD5 servo drive

					
Model parameter		FD5 series			
		FD425-□A-000	FD425-□F-000	FD435-□A-000	FD625-□A-000
Power supply	Power supply	1PH 200-240VAC±10% 50/60Hz±3HZ		1PH,3PH, 200-240VAC±10% 50/60Hz±3HZ	3PH, 380-415VAC±10% 50/60Hz±3HZ
	Logic power supply	None		200-240VAC±10%	50/60Hz±3HZ 0.5A
Current	Maximum continuous output current (rms)	3.9A	5A	10A	7A
	Peak current (PEAK)	18Ap	18Ap	27.5Ap	25Ap
Feedback signal		Singleturn communication type magnetoelectric encoder;Photoelectric singleturn encoder motor;Photoelectric multiturn absolute value encoder			
Energy consumption brake		Fd425 drive has no built-in braking resistor, FD435 has built-in 100Ω, limited power of 20W; FD625 built-in 300Ω, limited power 20W;The actual power exceeds the limit power and requires an external braking resistor (depending on the operating conditions, mainly used in the case of rapid start and stop).			
Energy consumption braking voltage absorption point		DC380V±5V			DC680V±5V
Overvoltage alarm voltage		DC400V±5V			DC710V±5V
Undervoltage alarm voltage		DC200V±5V			DC400V±5V
Cooling method		Natural cooling	Forced air cooling	Forced air cooling	Forced air cooling
Weight (KG)		0.881		1.5	
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 (3.0V~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	2KHz			
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	8KHz			
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).			
	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 (I2T) protection, short-circuit protection, drive overheating protection, etc.			
Standard		CE, IEC61800-5-1			
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			
CANopen		Maximum support 1MHz baud rate, can use CANopen 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, message 111, process objects, acyclic data read/write, etc.			
Use environment	Operation temperature	0~40℃			
	Storage temperature	-10℃~70℃			
	Humidity (no condensation)	5~95%			
	Protection level	IP20			
	Installation site	Dust-free, dry, lockable (e.g. electrical cabinets)			
	Installation method	vertical installation			
	Installation altitude	The rated working altitude is below 1000m.When the working altitude is above 1000m, every 100 meters of ascent is required, and the maximum working altitude is 4000 meters above sea level			
Atmosphere pressure		86kpa~106kpa			

Note : □=L: RS232, RS485, Pulse
□=P: RS232, Profinet
□=C: RS232, CAN, Pulse
□=E: RS232, EtherCAT, Pulse

FD5 servo drive and motor configuration table (1)

Series	Rated power/Rated speed/ Rated torque	Servo motor	Description	Power cable Brake cable	Encoder cable	Servo drive			
						Profinet	Pulse EtherCAT	Pulse CANopen	Pulse Modbus 485
SMC series	200W/3000rpm/0.64Nm	SMC60S-0020-30VAK-5LSU	Singleturn communication type photoelectric encoder motor	MOT-005-LL-KL-NS	ENCDG-LL-GU	FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC60S-0020-30VBK-5LSU*	Singleturn communication type photoelectric encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	400W/3000rpm/1.27Nm	SMC60S-0040-30VAK-5LSU	Singleturn communication type photoelectric encoder motor	MOT-005-LL-KL-NS		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
		SMC60S-0040-30VBK-5LSU*	Singleturn communication type photoelectric encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	750W/3000rpm/2.39Nm	SMC80S-0075-30VAK-5LSU	Singleturn communication type photoelectric encoder motor	MOT-005-LL-KL-NS	ENCDG-LL-GU ENCDG-(4)-GU-BT5 BAT-FD5	FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC80S-0075-30VBK-5LSU*	Singleturn communication type photoelectric encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	200W/3000rpm/0.64Nm	SMC60S-0020-30YAK-5LSU	Multiturn communication type photoelectric absolute value encoder motor	MOT-005-LL-KL-NS		FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC60S-0020-30YBK-5LSU*	Multiturn communication type photoelectric absolute value encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	400W/3000rpm/1.27Nm	SMC60S-0040-30YAK-5LSU	Multiturn communication type photoelectric absolute value encoder motor	MOT-005-LL-KL-NS		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
		SMC60S-0040-30YBK-5LSU*	Multiturn communication type photoelectric absolute value encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	750W/3000rpm/2.39Nm	SMC80S-0075-30YAK-5LSU	Multiturn communication type photoelectric absolute value encoder motor	MOT-005-LL-KL-NS	ENCDG-LL-GC0	FD435-PA-000	FD435-EA-000	FD435-CA-000	FD435-LA-000
		SMC80S-0075-30YBK-5LSU*	Multiturn communication type photoelectric absolute value encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	1kW/2000rpm/4.78Nm	SMC130D-0100-20VAK-5LSP	Singleturn communication type photoelectric absolute value encoder motor	MOT-005-LL-KC4		FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC130D-0100-20VBK-5LSP*	Singleturn communication type photoelectric absolute value encoder brake motor	MOT-005-LL-KC4-B					
	1.5kW/2000rpm/7.16Nm	SMC130D-0150-20VAK-5LSP	Singleturn communication type photoelectric encoder aviation socket motor	MOT-008-LL-KC4		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
		SMC130D-0150-20VBK-5LSP*	Singleturn communication type photoelectric encoder aviation socket brake motor	MOT-008-LL-KC4-B					
	2kW/2000rpm/9.55Nm	SMC130D-0200-20VAK-5LSP	Singleturn communication type photoelectric encoder aviation socket motor	MOT-008-LL-KC4	ENCDG-LL-GC0	FD435-PA-000	FD435-EA-000	FD435-CA-000	FD435-LA-000
		SMC130D-0200-20VBK-5LSP*	Singleturn communication type photoelectric encoder aviation socket brake motor	MOT-008-LL-KC4-B					
	1.5kW/2000rpm/7.16Nm	SMC130D-0150-20VAK-5HSP	Singleturn communication type photoelectric encoder aviation socket motor	MOT-005-LL-KC4		FD625-PA-000	FD625-EA-000	FD625-CA-000	FD625-LA-000
		SMC130D-0150-20VBK-5HSP*	Singleturn communication type photoelectric encoder aviation socket brake motor	MOT-005-LL-KC4-B					
	2kW/2000rpm/9.55Nm	SMC130D-0200-20VAK-5HSP	Singleturn communication type photoelectric encoder aviation socket motor	MOT-005-LL-KC4		FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC130D-0200-20VBK-5HSP*	Singleturn communication type photoelectric encoder aviation socket brake motor	MOT-005-LL-KC4-B					
	3kW/2000rpm/14.33Nm	SMC130D-0300-20VAK-5HSP	Singleturn communication type photoelectric encoder aviation socket motor	MOT-008-LL-KC4	ENCDG-LL-GC0 ENCDG-(4)-GU-BT5 BAT-FD5	FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
		SMC130D-0300-20VBK-5HSP*	Singleturn communication type photoelectric encoder aviation socket brake motor	MOT-008-LL-KC4-B					
	1kW/2000rpm/4.78Nm	SMC130D-0100-20YAK-5LSP	Multiturn communication type photoelectric encoder aviation socket motor	MOT-005-LL-KC4		FD435-PA-000	FD435-EA-000	FD435-CA-000	FD435-LA-000
		SMC130D-0100-20YBK-5LSP*	Multiturn communication type photoelectric encoder aviation socket brake motor	MOT-005-LL-KC4-B					
	1.5kW/2000rpm/7.16Nm	SMC130D-0150-20YAK-5LSP	Multiturn communication type photoelectric absolute value encoder aviation socket motor	MOT-008-LL-KC4		FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC130D-0150-20YBK-5LSP*	Multiturn communication type photoelectric absolute value encoder aviation socket brake motor	MOT-008-LL-KC4-B					
	2kW/2000rpm/9.55Nm	SMC130D-0200-20YAK-5LSP	Multiturn communication type photoelectric absolute value encoder aviation socket motor	MOT-008-LL-KC4	ENCDG-LL-GC0 ENCDG-(4)-GU-BT5 BAT-FD5	FD625-PA-000	FD625-EA-000	FD625-CA-000	FD625-LA-000
		SMC130D-0200-20YBK-5LSP*	Multiturn communication type photoelectric absolute value encoder aviation socket brake motor	MOT-008-LL-KC4-B					
	1.5kW/2000rpm/7.16Nm	SMC130D-0150-20YAK-5HSP	Multiturn communication type photoelectric absolute value encoder aviation socket motor	MOT-005-LL-KC4		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
		SMC130D-0150-20YBK-5HSP*	Multiturn communication type photoelectric absolute value encoder aviation socket brake motor	MOT-005-LL-KC4-B					
	2kW/2000rpm/9.55Nm	SMC130D-0200-20YAK-5HSP	Multiturn communication type photoelectric absolute value encoder aviation socket motor	MOT-005-LL-KC4	ENCDG-LL-GU	FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC130D-0200-20YBK-5HSP*	Multiturn communication type photoelectric absolute value encoder aviation socket brake motor	MOT-005-LL-KC4-B					
	3kW/2000rpm/14.33Nm	SMC130D-0300-20YAK-5HSP	Multiturn communication type photoelectric absolute value encoder aviation socket motor	MOT-008-LL-KC4		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
		SMC130D-0300-20YBK-5HSP*	Multiturn communication type photoelectric absolute value encoder aviation socket brake motor	MOT-008-LL-KC4-B					
	200W/3000rpm/0.64Nm	SMC60S-0020-30MAK-5LSU	Singleturn communication type magnetoelectric encoder motor	MOT-005-LL-KL-NS	ENCDG-LL-GU	FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC60S-0020-30MBK-5LSU*	Singleturn communication type magnetoelectric encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	400W/3000rpm/1.27Nm	SMC60S-0040-30MAK-5LSU	Singleturn communication type magnetoelectric encoder motor	MOT-005-LL-KL-NS		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
		SMC60S-0040-30MBK-5LSU*	Singleturn communication type magnetoelectric encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	750W/3000rpm/2.39Nm	SMC80S-0075-30MAK-5LSU	Singleturn communication type magnetoelectric encoder motor	MOT-005-LL-KL-NS	ENCDG-LL-GU ENCDG-(4)-GU-BT5 BAT-FD5	FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC80S-0075-30MBK-5LSU*	Singleturn communication type magnetoelectric encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	200W/3000rpm/0.64Nm	SMC60S-0020-30QAK-5LSU	Singleturn communication type magnetoelectric encoder motor	MOT-005-LL-KL-NS		FD425-PF-000	FD425-EF-000	D425-CF-000	FD425-LF-000
		SMC60S-0020-30QBK-5LSU*	Singleturn communication type magnetoelectric encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	400W/3000rpm/1.27Nm	SMC60S-0040-30QAK-5LSU	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-005-LL-KL-NS		FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC60S-0040-30QBK-5LSU*	Multiturn communication type magnetoelectric absolute value encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					
	750W/3000rpm/2.39Nm	SMC80S-0075-30QAK-5LSU	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-005-LL-KL-NS	ENCDG-LL-GU ENCDG-(4)-GU-BT5 BAT-FD5	FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMC80S-0075-30QBK-5LSU*	Multiturn communication type magnetoelectric absolute value encoder brake motor	MOT-005-LL-KL-NS/BRA-LL-KL					

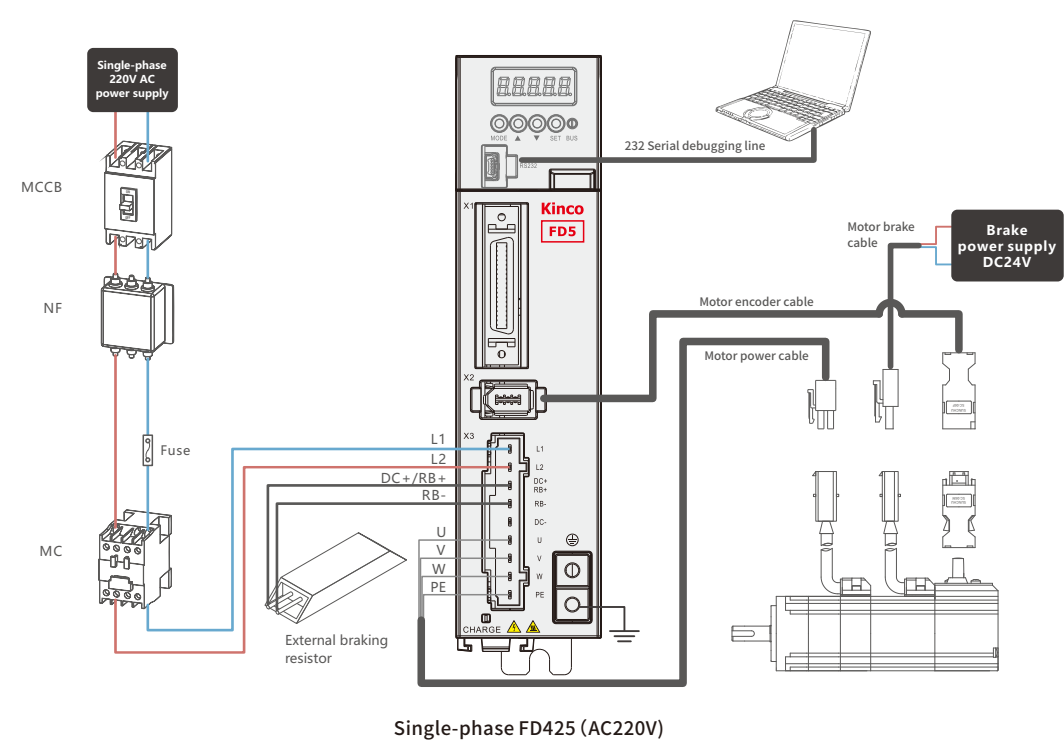
Note: When the drive drives the brake device, an external DC24V/2A relayis required.

FD5 servo drive and motor configuration table (2)

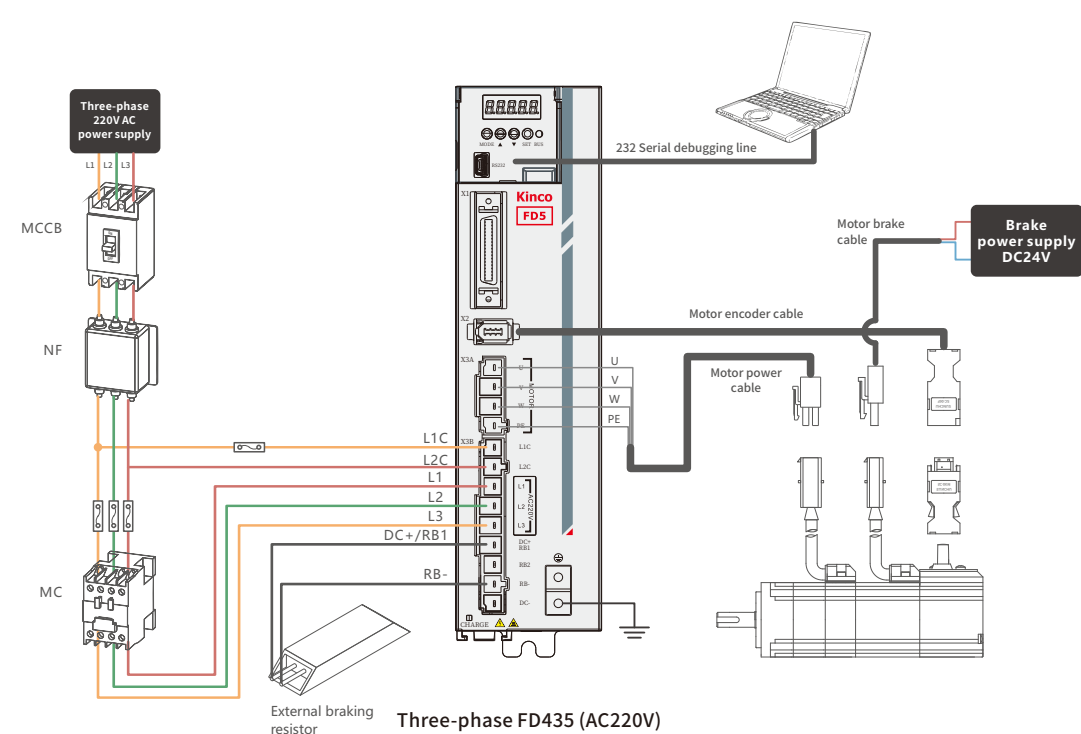
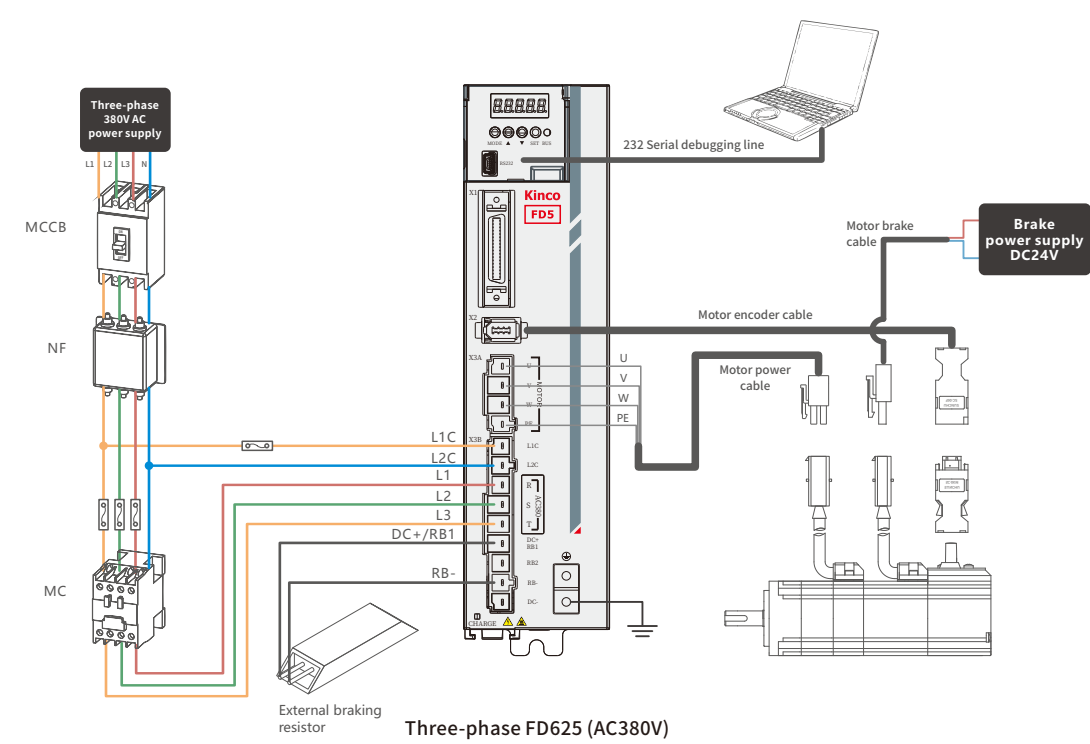
Series	Rated power/Rated speed/ Rated torque	Servo motor	Description	Power cable Brake cable	Encoder cable	Servo drive			
						Profinet	Pulse EtherCAT	Pulse CANopen	Pulse Modbus 485
SMC series	1KW/1000rpm/9.55Nm	SMC130D-0100-10MAK-5LSP	Singleturn communication type magnetoelectric encoder aviation socket motor	MOT-005-LL-KC4	ENC DG-LL-GC0	FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
	1KW/2000rpm/4.78Nm	SMC130D-0100-20MAK-5LSP	Singleturn communication type magnetoelectric encoder aviation socket motor	MOT-005-LL-KC4					
		SMC130D-0100-20MBK-5LSP*	Singleturn communication type magnetoelectric encoder aviation socket brake motor	MOT-005-LL-KC4-B		FD435-PA-000	FD435-EA-000	FD435-CA-000	FD435-LA-000
	1.5KW/2000rpm/7.16Nm	SMC130D-0150-20MAK-5LSP	Singleturn communication type magnetoelectric encoder aviation socket moto	MOT-008-LL-KC4					
		SMC130D-0150-20MBK-5LSP*	Singleturn communication type magnetoelectric encoder aviation socket brake motor	MOT-008-LL-KC4-B		FD625-PA-000	FD625-EA-000	FD625-CA-000	FD625-LA-000
	2KW/2000rpm/9.55Nm	SMC130D-0200-20MAK-5LSP	Singleturn communication type magnetoelectric encoder aviation socket motor	MOT-008-LL-KC4					
		SMC130D-0200-20MBK-5LSP*	Singleturn communication type magnetoelectric encoder aviation socket brake motor	MOT-008-LL-KC4-B		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
	1.5KW/1000rpm/14.33Nm	SMC130D-0150-10MAK-5HSP	Singleturn communication type magnetoelectric encoder aviation socket motor	MOT-005-LL-KC4					
		SMC130D-0150-20MAK-5HSP	Singleturn communication type magnetoelectric encoder aviation socket motor	MOT-005-LL-KC4		FD435-PA-000	FD435-EA-000	FD435-CA-000	FD435-LA-000
	1.5KW/2000rpm/7.16Nm	SMC130D-0150-20MBK-5HSP*	Singleturn communication type magnetoelectric encoder aviation socket brake motor	MOT-005-LL-KC4-B					
		SMC130D-0200-20MAK-5HSP	Singleturn communication type magnetoelectric encoder aviation socket motor	MOT-005-LL-KC4		FD625-PA-000	FD625-EA-000	FD625-CA-000	FD625-LA-000
	2KW/2000rpm/9.55Nm	SMC130D-0200-20MBK-5HSP*	Singleturn communication type magnetoelectric encoder aviation socket brake motor	MOT-005-LL-KC4-B					
		SMC130D-0300-20MAK-5HSP	Singleturn communication type magnetoelectric encoder aviation socket motor	MOT-008-LL-KC4	ENC DG-LL-GC0 ENC DG-(4)-GU-BT5 BAT-FD5	FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
	3KW/2000rpm/14.33Nm	SMC130D-0300-20MBK-5HSP*	Singleturn communication type magnetoelectric encoder aviation socket brake motor	MOT-008-LL-KC4-B					
		SMC130D-0100-20QAK-5LSP	Multiturn communication type magnetoelectric absolute value encoder aviation socket motor	MOT-005-LL-KC4		FD435-PA-000	FD435-EA-000	FD435-CA-000	FD435-LA-000
	1KW/2000rpm/4.78Nm	SMC130D-0100-20QBK-5LSP*	Multiturn communication type magnetoelectric absolute value encoder aviation socket brake motor	MOT-005-LL-KC4-B					
		SMC130D-0150-20QAK-5LSP	Multiturn communication type magnetoelectric absolute value encoder aviation socket motor	MOT-008-LL-KC4		FD625-PA-000	FD625-EA-000	FD625-CA-000	FD625-LA-000
	1.5KW/2000rpm/7.16Nm	SMC130D-0150-20QBK-5LSP*	Multiturn communication type magnetoelectric absolute value encoder aviation socket brake motor	MOT-008-LL-KC4-B					
		SMC130D-0200-20QAK-5LSP	Multiturn communication type magnetoelectric absolute value encoder aviation socket motor	MOT-008-LL-KC4		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
	2KW/2000rpm/9.55Nm	SMC130D-0200-20QBK-5LSP*	Multiturn communication type magnetoelectric absolute value encoder aviation socket brake motor	MOT-008-LL-KC4-B					
		SMC130D-0150-20QAK-5HSP	Multiturn communication type magnetoelectric absolute value encoder aviation socket motor	MOT-005-LL-KC4	ENC DG-LL-GQ	FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
	1.5KW/2000rpm/7.16Nm	SMC130D-0150-20QBK-5HSP*	Multiturn communication type magnetoelectric absolute value encoder aviation socket brake motor	MOT-005-LL-KC4-B					
		SMC130D-0200-20QAK-5HSP	Multiturn communication type magnetoelectric absolute value encoder aviation socket motor	MOT-005-LL-KC4		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
	2KW/2000rpm/9.55Nm	SMC130D-0200-20QBK-5HSP*	Multiturn communication type magnetoelectric absolute value encoder aviation socket brake motor	MOT-005-LL-KC4-B					
		SMC130D-0300-20QAK-5HSP	Multiturn communication type magnetoelectric absolute value encoder aviation socket motor	MOT-008-LL-KC4	ENC DG-LL-GQ ENC DG-(4)-GU-BT5 BAT-FD5	FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
	3KW/2000rpm/14.33Nm	SMC130D-0300-20QBK-5HSP*	Multiturn communication type magnetoelectric absolute value encoder aviation socket brake motor	MOT-008-LL-KC4-B					
SMG series	200W/3000rpm/0.64Nm	SMG60S-0020-30MAK-5LSQ	Singleturn communication type magnetoelectric encoder motor	MOT-005-LL-KQ-NS	ENC DG-LL-GQ	FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMG60S-0020-30MBK-5LSQ*	Singleturn communication type magnetoelectric encoder brake motor	MOT-005-LL-KQ-NS/BRA-LL-KQ					
	400W/3000rpm/1.27Nm	SMG60S-0040-30MAK-5LSQ	Singleturn communication type magnetoelectric encoder motor	MOT-005-LL-KQ-NS		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
		SMG60S-0040-30MBK-5LSQ*	Singleturn communication type magnetoelectric encoder brake motor	MOT-005-LL-KQ-NS/BRA-LL-KQ					
	750W/3000rpm/2.39Nm	SMG80S-0075-30MAK-5LSQ	Singleturn communication type magnetoelectric encoder motor	MOT-005-LL-KQ-NS	ENC DG-LL-GQ ENC DG-(4)-GU-BT5 BAT-FD5	FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMG80S-0075-30MBK-5LSQ*	Singleturn communication type magnetoelectric encoder brake motor	MOT-005-LL-KQ-NS/BRA-LL-KQ					
	200W/3000rpm/0.64Nm	SMG60S-0020-30QAK-5LSQ	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-005-LL-KQ-NS		FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
		SMG60S-0020-30QBK-5LSQ*	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-005-LL-KQ-NS/BRA-LL-KQ					
	400W/3000rpm/1.27Nm	SMG60S-0040-30QAK-5LSQ	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-005-LL-KQ-NS		FD425-PA-000	FD425-EA-000	FD425-CA-000	FD425-LA-000
		SMG60S-0040-30QBK-5LSQ*	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-005-LL-KQ-NS/BRA-LL-KQ					
	750W/3000rpm/2.39Nm	SMG80S-0075-30QAK-5LSQ	Multiturn communication type magnetoelectric absolute value encoder motor	MOT-005-LL-KQ-NS	ENC DG-LL-GQ ENC DG-(4)-GU-BT5 BAT-FD5	FD425-PF-000	FD425-EF-000	FD425-CF-000	FD425-LF-000
		SMG80S-0075-30QBK-5LSQ*	Multiturn communication type magnetoelectric absolute value encoder holding motor	MOT-005-LL-KQ-NS/BRA-LL-KQ					

Note: When the drive drives the brake device, an external DC24V/2A relay is required.

Drive external wiring diagram



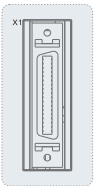
Drive external wiring diagram



Note: When using the internal braking resistor, please short DC+/RB1 to RB2 (internal braking resistance value: FD435 built-in 100Ω/20W; FD625 built-in 300Ω/20W; When the braking power exceeds the tolerable range of the internal braking resistance, the drive will be alarmed for abnormal braking resistor and "0100" will be displayed. When the actual braking power demand exceeds the limit power, please choose the external braking resistor to be connected between DC+/RB1 and RB-, and be sure to disconnect the DC+/RB1 and RB2 short cables. Please refer to the user manual for the selection of external braking resistors.

Note: When using the internal braking resistor, please short DC+/RB1 to RB2 (internal braking resistance value: FD435 built-in 100Ω/20W; FD625 built-in 300Ω/20W; When the braking power exceeds the tolerable range of the internal braking resistance, the drive will be alarmed for abnormal braking resistor and "0100" will be displayed. When the actual braking power demand exceeds the limit power, please choose the external braking resistor to be connected between DC+/RB1 and RB-, and be sure to disconnect the DC+/RB1 and RB2 short cables. Please refer to the user manual for the selection of external braking resistors.

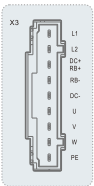
Communication port description of the drive



Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name	Specification description
X1	I/O Interface	SCSI-36P-F	1	OUT1+	Digital output port 1 positive	Open-collector output, maximum voltage DC30V, maximum current 100mA
			3	OUT1-	Digital output port 1 negative	
			5	OUT2+	Digital output port 2 positive	
			7	OUT2-	Digital output port 2 negative	
			9	OUT3	Digital output port 3	
			11	OUT4	Digital output port 4	The maximum voltage is DC30V, and the maximum current is 30mA
			20	OUT5	Digital output port 5	
			13	COMO	Digital output port 3, 4, 5 common site	
			15	VDD	External output power supply positive	Internal 24V power output, voltage range +/-20%, maximum current DC200mA
			17	VEE	External output power supply negative	
			2	COMI	Digital input common	Digital input to common positive terminal, accepts power supplies from 18 ~ 30 VDC
			4	DIN1	Digital input port 1	The COMI-DINx signal is valid if the difference is greater than 12.5V, and is not valid if it is less than 5V. Receives relay output signals as well as NPN signals, maximum input frequency: 1 KHz
			6	DIN2	Digital input port 2	
			8	DIN3	Digital input port 3	
			10	DIN4	Digital input port 4	
			12	DIN5	Digital input port 5	
			14	DIN6	Digital input port 6	
			16	DIN7	Digital input port 7	
			19	MA/	TTL signal: MA+,MA-MB+,MB-,MZ+,MZ-, Support the highest frequency 500KHz, voltage range DC3.3-30V Differential signal: MA,MA,MB,MB,MZ,MZ,MZ, Support maximum frequency 4MHz, voltage range DC 3.3-5V	
			21	MB/		
			23	MZ/		
			25	NC		
			27	MA+ / MA		
			29	MA-		
			31	MB+ / MB		
			33	MB-		
			35	MZ+ / MZ		
			18	MZ-		
			22	+5V	Internal 5V power output	Pulse signal input terminal, supports TTL/differential signal.Signal type optional: ①Pulse+Direction (PLS+DIR) ②Forward and reverse pulses (CW/CCW) ③A+B phase
			24	GND		
			26	ENCO_N	Encoder signal output	Output 5V motor A, B, Z signals, frequency division output range 0~65536; For multi-axis synchronization, the maximum output frequency is 5MHz
			28	ENCO_/N		
			30	ENCO_B		
			32	ENCO_/B		
			34	ENCO_A		
			36	ENCO_/A		

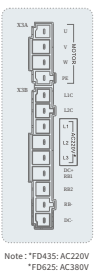
Note: FDXX5-PA-000 supports 5 channels of input and 3 channels of output (ie: DIN5, DIN6, OUT4, OUT5 are empty)

Suitable for FD425 drive



Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name	Specification description
X3	Power terminals	9P/5mm Plug-in terminals	1	L1	Power supply input	1PH 200-240VAC 50/60Hz
			2	L2		
			3	DC+/RB+	DC bus,Braking resistance interface	1. The factory default does not connect the internal brake resistance. 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-	Motor cable interface	Connect to motor cable U, V, W, PE
			6	U		
			7	V		
			8	W		
			9	PE		

Suitable for FD435, FD625 drive

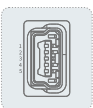


Note: *FD435: AC220V
*FD625: AC380V

Interface number	Interface name	Interface type	Pin number	Signal marking	Signal Name	Specification description
X3A		DEGSON 9EDGRC -7.5-04P-13-1000A(H)	1	U	Motor cable interface	Connect the motor cable U,V,W,PE
			2	V		
			3	W		
			4	PE		
X3B	Power terminals	DEGSON 9EDGRC -7.5-09P-13-1000A(H)	1	L1C	Logic power supply input	1PH 200-240VAC±10% 50/60Hz±3HZ
			2	L2C		
			3	L1	Power supply input	1PH,3PH, 200-240VAC 50/60Hz (FD435 14A) 3PH, 380-415VAC±10% 50/60Hz±3HZ (FD625 12A)
			4	L2		
			5	L3		
			6	DC+/RB1	DC bus braking resistor interface	DC+/RB1, DC- are the positive and negative terminals of the DC bus
			7	RB2		
			8	RB-		
			9	DC-		

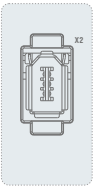
Note: When using the internal braking resistor, please short DC+/RB1 to RB2 (internal braking resistance value: FD435 built-in 100Ω/20W; FD625 built-in 300Ω/20W; When the braking power exceeds the tolerable range of the internal braking resistance, the braking resistance of the alarm drive is abnormal and "0100" is displayed. When the actual braking power demand exceeds the limit power, choose to use an external braking resistor, connect between DC+/RB1 and RB-, and be sure to disconnect the short wiring between DC+/RB1 and RB2. Please refer to the user manual for the selection of external braking resistors.

Drive communication interface description



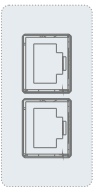
Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name	Specification description
RS232	RS232 communication interface	Mini_USB 5pin terminal	1	NC		It can be connected to the host computer software of the PC side to set parameters and monitor the status
			2	RX	Drive data reception	
			3	TX	Drive data sending	
			4	NC		
			5	GND	Signal site	

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



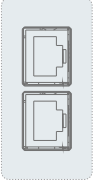
Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name	Specification description
X2	Motor encoder interface F	1394 Master saet	1	+5V	5V positive power supply output	Encoder signal input
			2	GND	5V negative power supply output	
			3	CLOCK+	Positive end of the clock signal	
			4	CLOCK-	Negative end of the clock signal	
			5	SD	Data signal	
			6	/SD	Data signal	

RS485



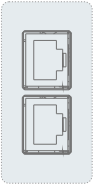
Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name	Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name
X4A	RS485 communication interface input	RJ45 Master Network Port	L1	NC		X4B	RS485 communication interface input	RJ45 Master network port	R1	NC	
			L2	NC					R2	NC	
			L3	NC					R3	NC	
			L4	485-	Data acceptance negative end				R4	485-	Data acceptance negative end
			L5	485+	Data receiving positive end				R5	485+	Data receiving positive end
			L6	NC					R6	NC	
			L7	NC					R7	NC	
			L8	GND					R8	GND	

CAN



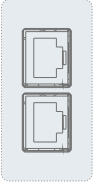
Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name	Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name
X4A	CAN communication interface input	RJ45 Master Network Port	L1	CAN_H	Positive end of the signal	X4B	CAN communication interface input	RJ45 Master network port	R1	CAN_H	Positive end of the signal
			L2	CAN_L	Negative end of the signal				R2	CAN_L	Negative end of the signal
			L3	GNDB	Signal site				R3	GNDB	Signal site
			L4	NC					R4	NC	
			L5	NC					R5	NC	
			L6	NC					R6	NC	
			L7	NC					R7	NC	
			L8	NC					R8	NC	

EtherCAT



Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name	Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name
X4A	EtherCAT communication interface input	RJ45 Master network port	L1	TD+	Receive signal positive end	X4B	EtherCAT communication interface input	RJ45 Master network port	R1	TD+	Data receiving positive end
			L2	TD-	Receive signal negative end				R2	TD-	Data receiving Negative end
			L3	RD+	Sending signal positive end				R3	RD+	Send signal positive terminal
			L4	NC					R4	NC	
			L5	NC					R5	NC	
			L6	RD-	Sending signal negative end				R6	RD-	Send signal negative terminal
			L7	NC					R7	NC	
			L8	NC					R8	NC	

Profinet

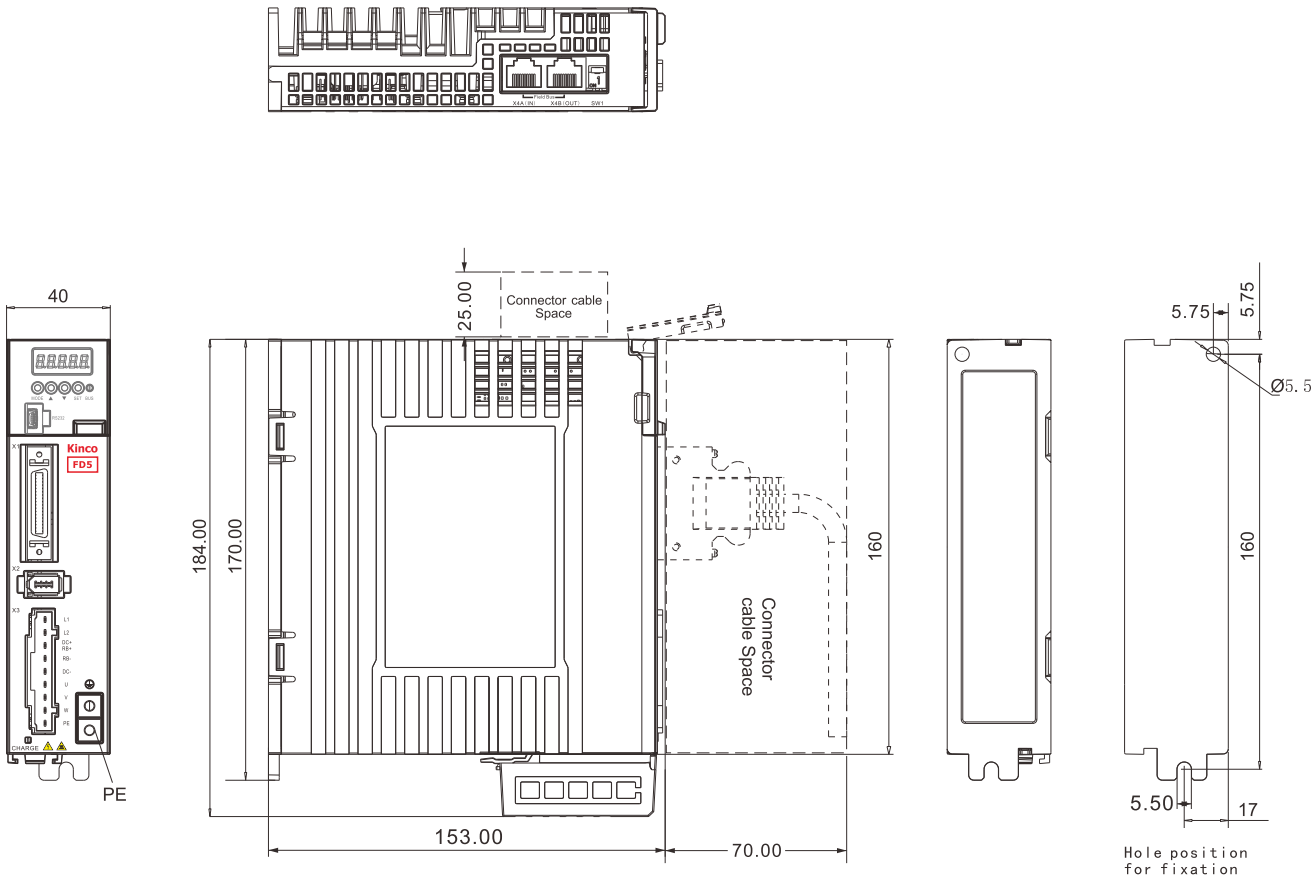


Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name	Interface number	Interface name	Interface type	Pin number	Signal marking	Signal name
X4A	Profinet communication interface input	RJ45 Master network port	L1	TD+	Receive signal positive end	X4B	Profinet communication interface input	RJ45 Master network port	R1	TD+	Receive signal positive end
			L2	TD-	Receive signal negative end				R2	TD-	Receive signal negative end
			L3	RD+	Sending signal positive end				R3	RD+	Sending signal positive end
			L4	NC					R4	NC	
			L5	NC					R5	NC	
			L6	RD-	Sending signal negative end				R6	RD-	Sending signal negative end
			L7	NC					R7	NC	
			L8	NC					R8	NC	

Servo drive mechanical dimensional diagram

FD425-□A-000 mechanical dimensional diagram (unit:mm)

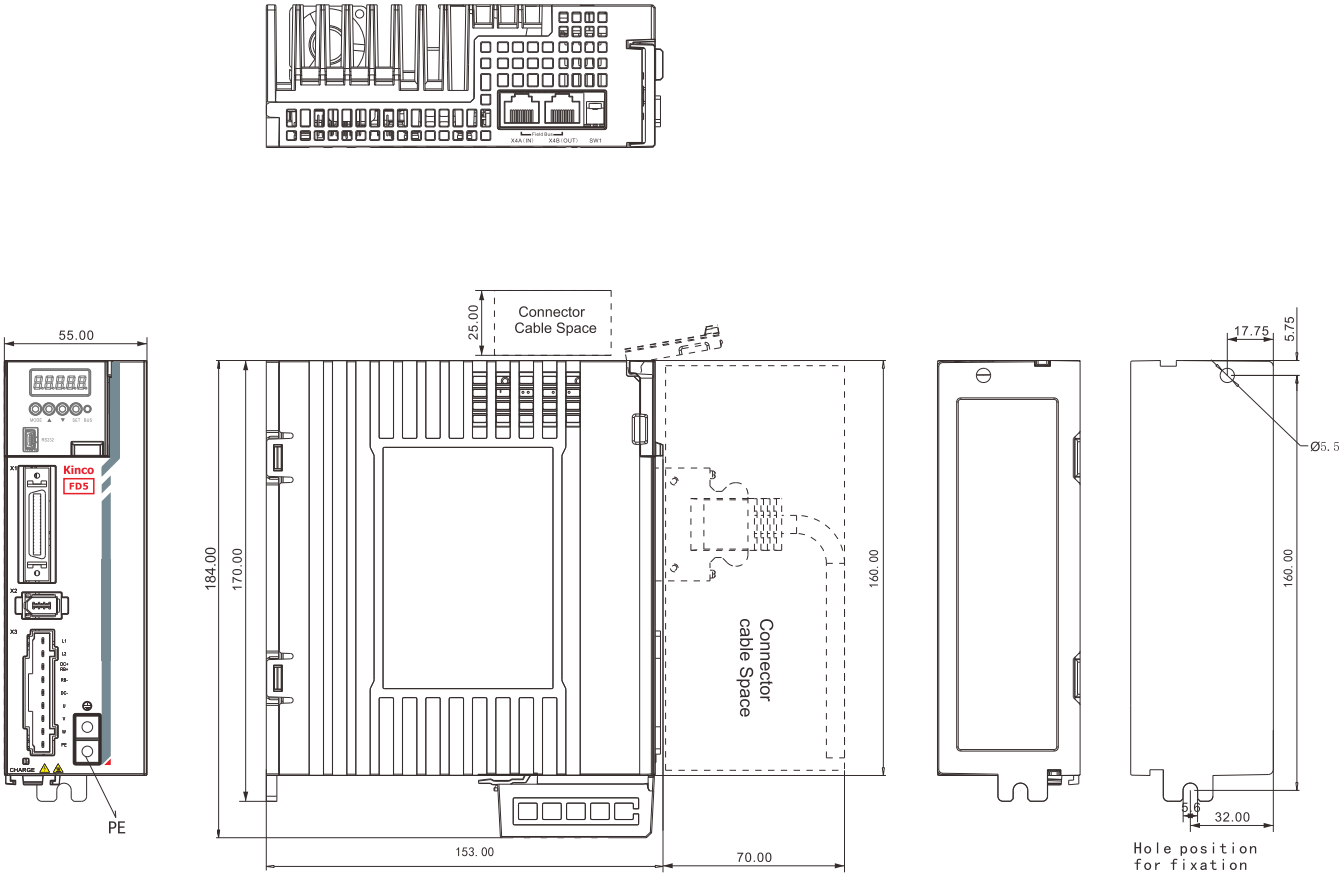
Note: Wiring space needs to be reserved around the drive (recommended > 70 mm)



■ Servo drive mechanical dimensional diagram

FD425-□F-000mechanical dimensional diagram (unit:mm)

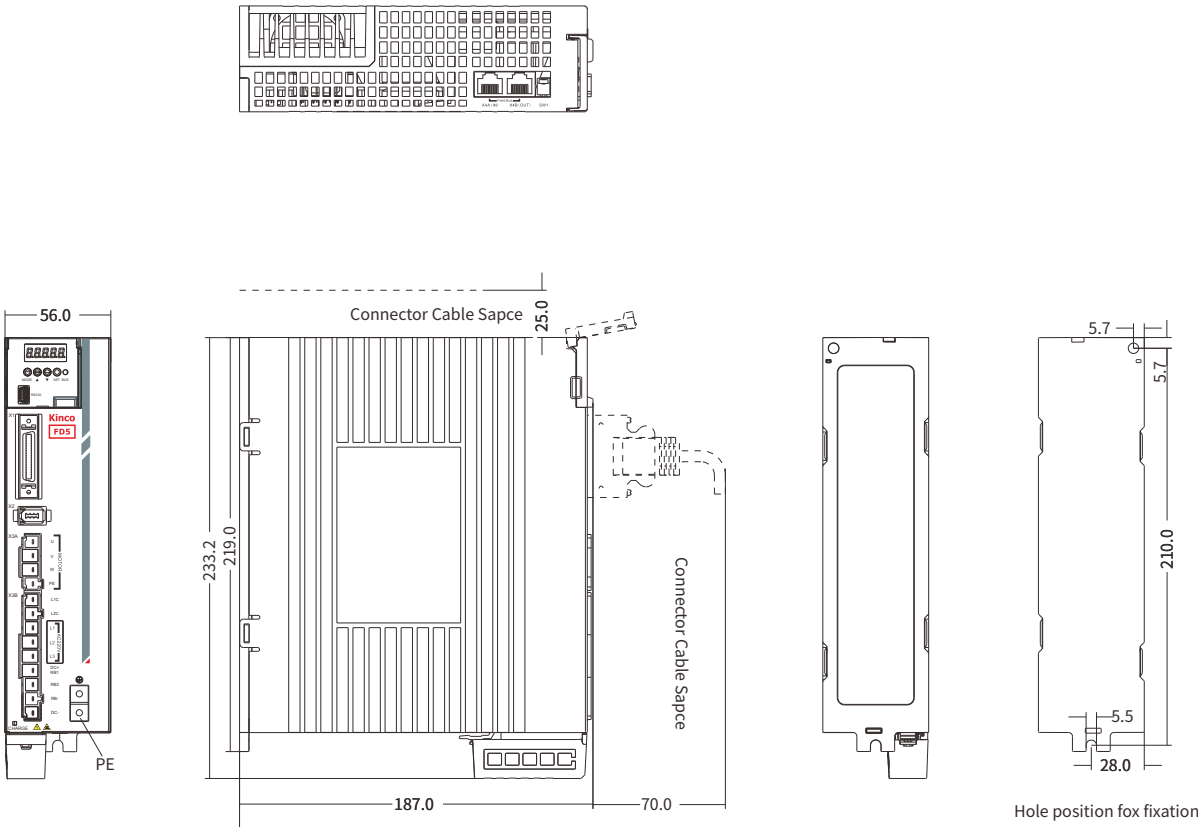
Note: Wiring space needs to be reserved around the drive (recommended > 70 mm)



Servo drive mechanical dimensional diagram

FD435-□A-000mechanical dimensional drawing (unit: mm)

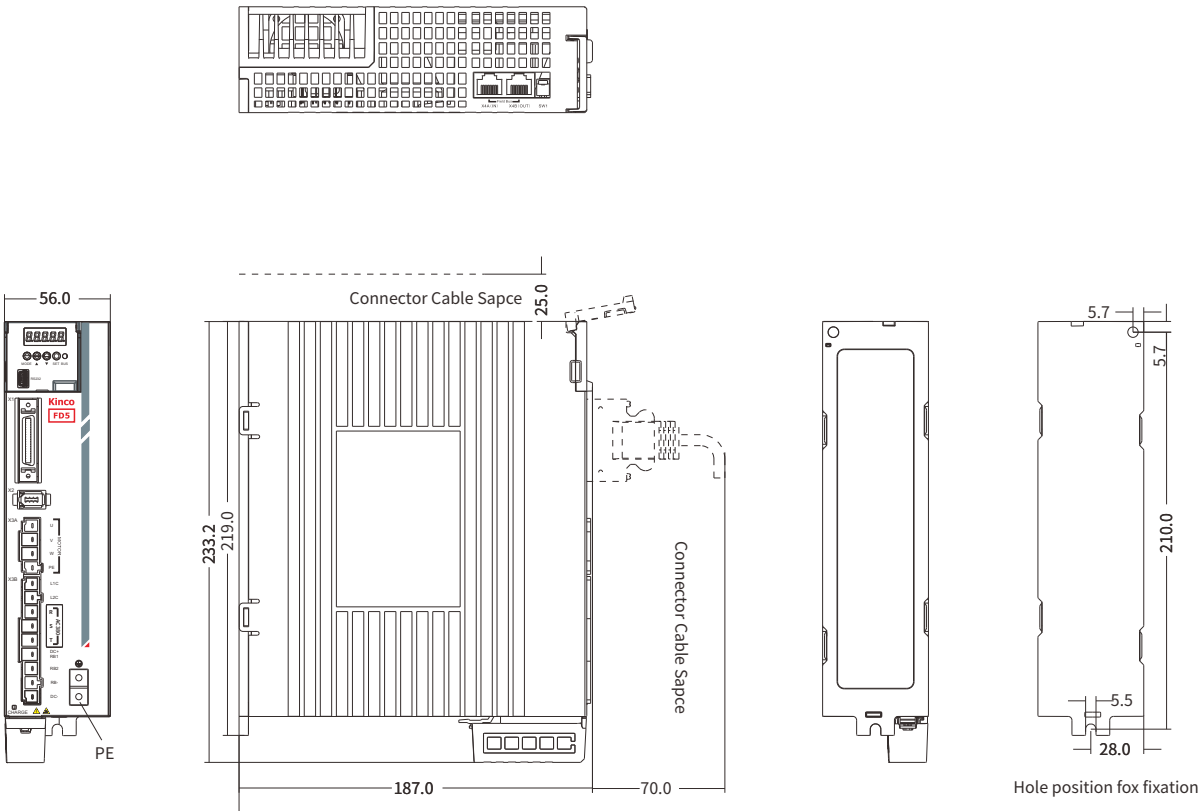
Note: Wiring space needs to be reserved around the drive (recommended > 70 mm)



Servo drive mechanical dimensional diagram

FD625-□A-000mechanical dimensional diagram (unit:mm)

Note: Wiring space needs to be reserved around the drive (recommended > 70 mm)



SMC-G2 series high performance servo motor

New electromagnetic design
Adopting 12-slot and 10-pole design, 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.

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.



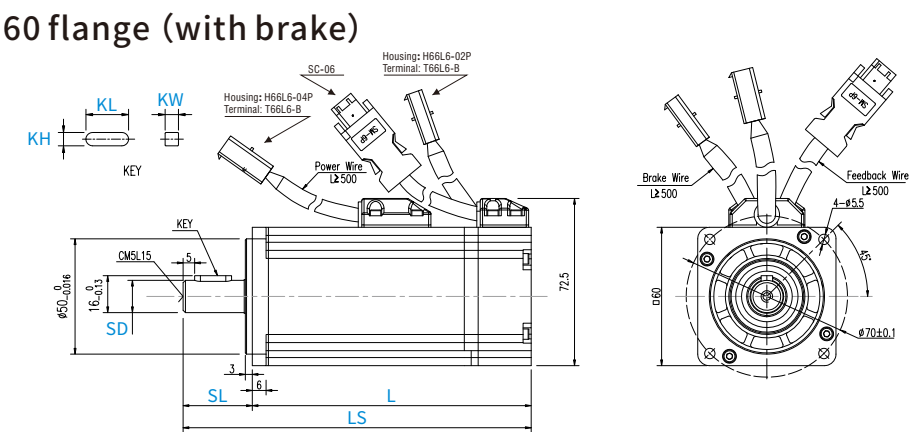
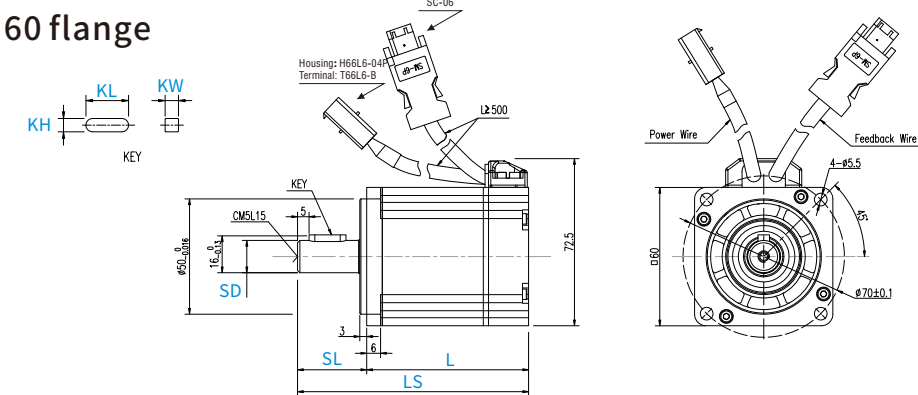
Insulation class F
The motor in the industry is at the higher insulation level, which can maintain high reliability and stability in high temperature extreme environment.

Energy efficiency class: 2

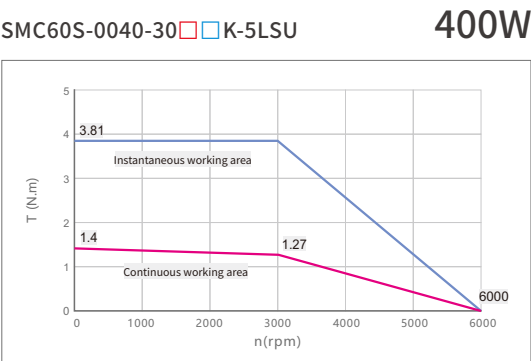
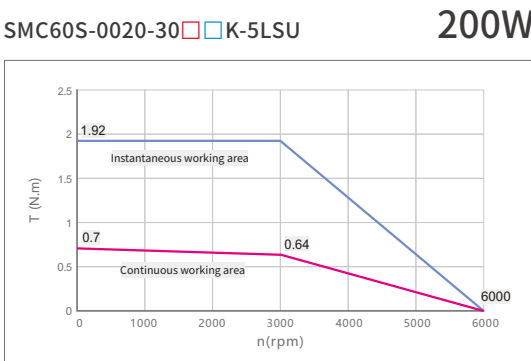
SMG series economical servo motor



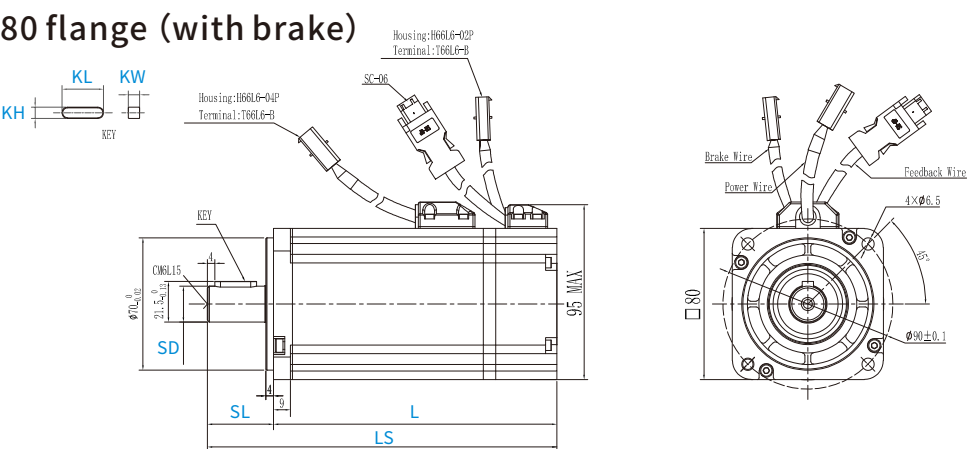
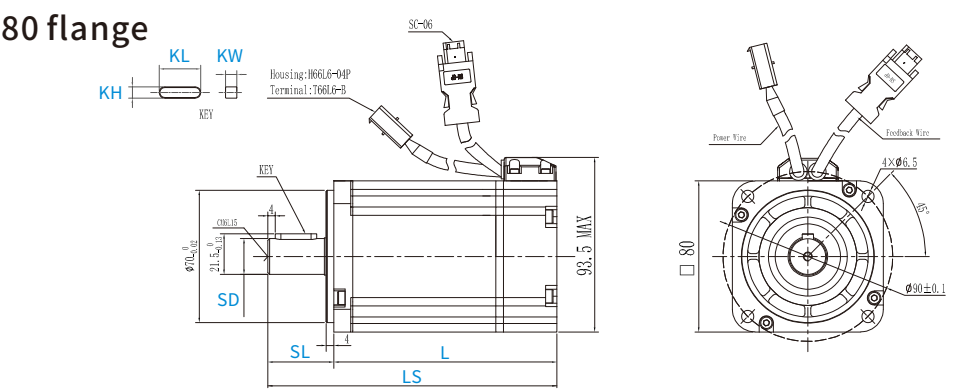
SMC60 series servo motor dimensional diagram



Flange dimension (mm)	Servo motor	With brake	Weight about (KG)	Overall dimension (mm)		Shaft dimension (mm)			Key dimension (mm)		
				LS	L	SL	SD	Screw hole x depth	KL	KW	KH
60x60	SMC60S-0020-30VAK-5LSU	✓	0.9	116.5±1.5	86.5±1.5	30±1	14	M5x15	16	5	5
	SMC60S-0020-30YAK-5LSU			105±1.5	75±1.5						
	SMC60S-0020-30MAK-5LSU			152±1.5	122±1.5						
	SMC60S-0020-30QAK-5LSU			142.5±1.5	112.5±1.5						
	SMC60S-0020-30VBK-5LSU	✓	1.2	138.5±1.5	108.5±1.5						
	SMC60S-0020-30YBK-5LSU			127±1.5	97±1.5						
	SMC60S-0020-30MBK-5LSU			174.5±1.5	144.5±1.5						
	SMC60S-0020-30QBK-5LSU			164.5±1.5	134.5±1.5						
	SMC60S-0040-30VAK-5LSU	✓	1.2	138.5±1.5	108.5±1.5						
	SMC60S-0040-30MAK-5LSU			127±1.5	97±1.5						
	SMC60S-0040-30MQK-5LSU			174.5±1.5	144.5±1.5						
	SMC60S-0040-30VBK-5LSU			164.5±1.5	134.5±1.5						
	SMC60S-0040-30YBK-5LSU	✓	1.6	174.5±1.5	144.5±1.5						
	SMC60S-0040-30MBK-5LSU			164.5±1.5	134.5±1.5						
	SMC60S-0040-30QBK-5LSU			164.5±1.5	134.5±1.5						
	SMC60S-0040-30QBK-5LSU			164.5±1.5	134.5±1.5						

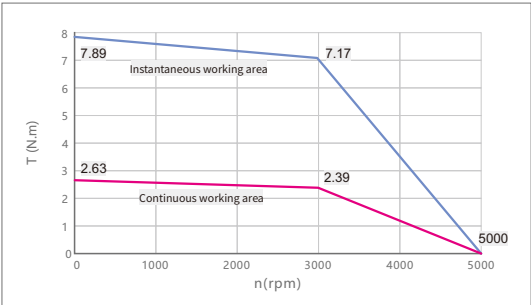


SMC80 series servo motor dimensional diagram



Flange dimension (mm)	Servo motor	With brake	Weight about (KG)	Overall dimension (mm)		Shaft dimension (mm)			Key dimension (mm)		
				LS	L	SL	SD	Screw hole x depth	KL	KW	KH
80x80	SMC80S-0075-30VAK-5LSU	✓	2.3	153.2±1.5	118.2±1.5	35±1	19	M6x15	22	6	6
	SMC80S-0075-30YAK-5LSU			141.7±1.5	106.7±1.5						
	SMC80S-0075-30MAK-5LSU										
	SMC80S-0075-30QAK-5LSU										
	SMC80S-0075-30VBK-5LSU	✓	3	185±1.5	150±1.5						
	SMC80S-0075-30YBK-5LSU			176±1.5	141±1.5						
	SMC80S-0075-30MBK-5LSU										
	SMC80S-0075-30QBK-5LSU										

SMC80S-0075-30□□K-5LSU 750W



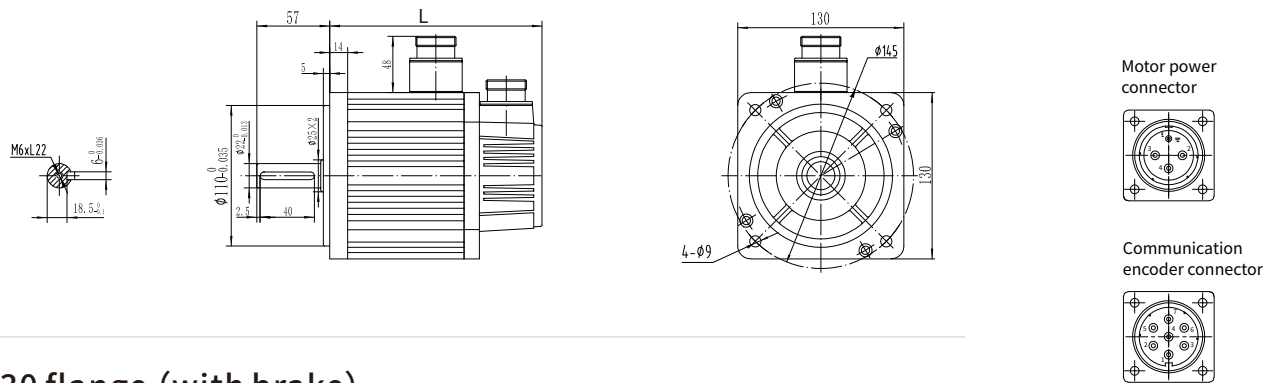
Technical specifications of SMC series servo motor (60/80 flange)

					
Model parameters			Small inertia, 60 flange		Small inertia, 80 flange
Servo motor model			SMC60S-0020-30□□K-5LSU	SMC60S-0040-30□□K-5LSU	SMC80S-0075-30□□K-5LSU
Adapted drives			FD425-LA-000, FD425-CA-000 FD425-EA-000, FD425-PA-000		FD425-LF-000, FD425-CF-000 FD425-EF-000, FD425-PF-000
Drive power supply voltage					
Intermediate link DC voltage UDC			300	300	300
Continuous characteristics	Rated power	Pn (W)	200	400	750
	Rated torque	Tn (N.m)	0.64	1.27	2.39
	Rated speed	nN (rpm)	3000	3000	3000
	Rated current	In (A)	1.5	2.9	4
MAX torque		Tm (N.m)	1.92	3.81	7.17
MAX current		Im (A)	4.8	9.3	12.6
Standstill torque		Ts (N.m)	0.7	1.4	2.63
Standstill current		Is (A)	1.65	3.2	4.4
Resistance cable--cable		RL (Ω)	9.6	3.72	1.75
Inductance cable--cable		LL (mH)	18.2	8.4	8.1
Electrical time constant		τe (ms)	1.9	2.26	4.63
Mechanical time constant		τm (ms)	1.44	1.06	0.711
			1.47 (with brake)	1.07 (with brake)	0.76 (with brake)
Reverse voltage constant		Ke (V/krpm)	29	29	40
Torque constant		Kt (N.m/A)	0.48	0.48	0.662
Rotor moment of inertia		Jm (Kg·cm ²)	0.2	0.38	1.027
			0.204 (with brake)	0.384 (with brake)	1.099 (with brake)
Brake holding torque		T (Nm)	1.5	1.5	3.2
Number of pole pairs			5	5	5
MAX voltage rising		du/dt (kv/μs)	8	8	8
Insulation class			F	F	F
MAX radial force		Fr (N)	180	180	335
MAX axial force		Fa (N)	90	90	167.5
Weight		G (Kg)	0.9	1.2	2.3
			1.2 (with brake)	1.6 (with brake)	3 (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°C (no icing)		
	Humidity		Below 90% RH (no condensation)		
	Ambient environment		Keep away from corrosion, flammable gases, oil droplets, dust		
	Altitude		The highest altitude is 4000m. Above 1000m, the power will decrease by 1.5% for every100m rise		

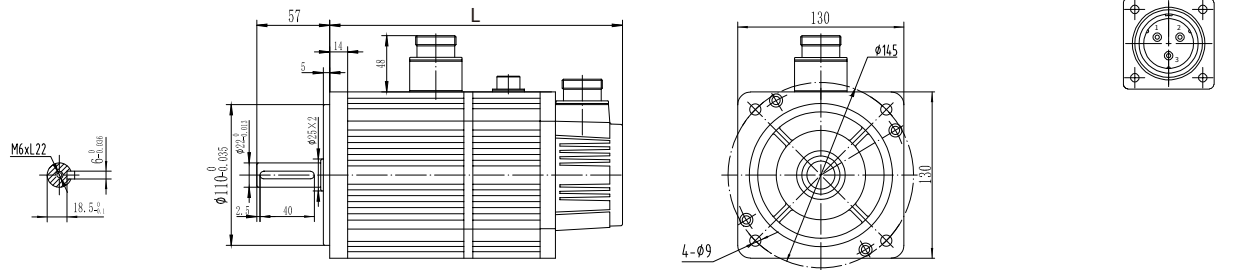
Note : □ = M : Singleturn communication type magnetoelectric encoder
Q : Multiturn communication type magnetoelectric absolute encoder
V : Singleturn communication type optical encoder
Y : Multiturn communication type optical absolute value encoder
□ = A : Motor without holding brake
B : Motor with holding brake

SMC130 series servo motor dimensional diagram

130 flange



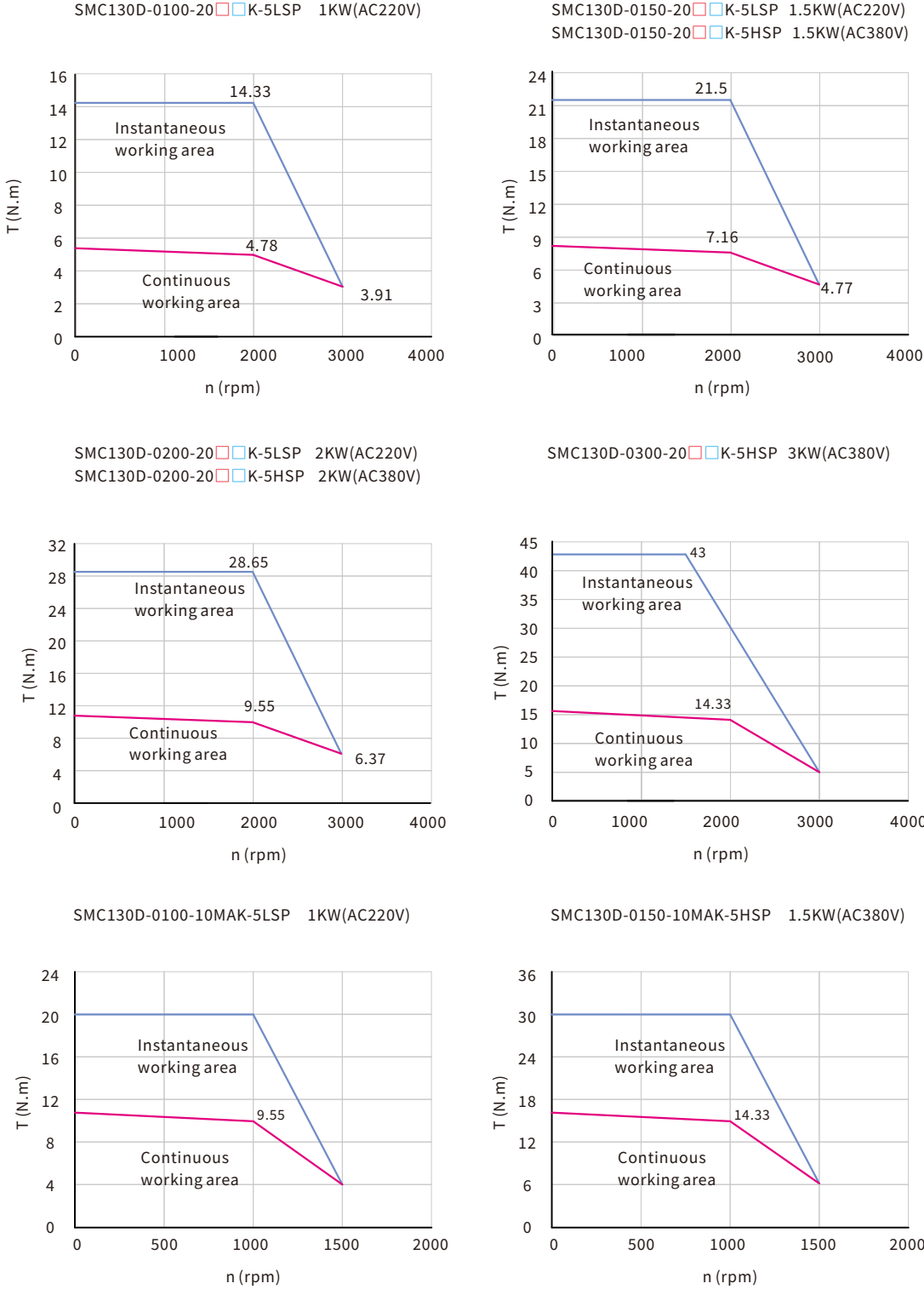
130 flange (with brake)



Flange dimension (mm)	Servo motor	With brake	Weight about (KG)	Overall dimension (mm)		Shaft dimension (mm)			Key dimension (mm)		
				LS	L	SL	SD	Screw hole x depth	KL	KW	KH
130x130	SMC130D-0100-10MAK-5LSP		9	226±1.5	171±1.5	55±1	22	M6x18	40	6	6
	SMC130D-0100-20 AK-5LSP		6	198.5±1.5	143.5±1.5						
	SMC130D-0100-20 BK-5LSP	✓	8.5	258.5±1.5	203.5±1.5						
	SMC130D-0150-20 AK-5LSP		8	218.5±1.5	163.5±1.5						
	SMC130D-0150-20 BK-5LSP	✓	10.5	278.5±1.5	223.5±1.5						
	SMC130D-0200-20 AK-5LSP		9.5	234.5±1.5	179.5±1.5						
	SMC130D-0200-20 BK-5LSP	✓	12	294.5±1.5	239.5±1.5						
	SMC130D-0150-20 AK-5HSP		8	258.5±1.5	203.5±1.5						
	SMC130D-0150-20 BK-5HSP	✓	10.5	218.5±1.5	163.5±1.5						
	SMC130D-0150-10MAK-5HSP		12	278.5±1.5	223.5±1.5						
	SMC130D-0200-20 AK-5HSP		9.5	234.5±1.5	179.5±1.5						
	SMC130D-0200-20 BK-5HSP	✓	12	294.5±1.5	239.5±1.5						
	SMC130D-0300-20 AK-5HSP		12	268.5±1.5	213.5±1.5						
	SMC130D-0300-20 BK-5HSP	✓	14.5	328.5±1.5	273.5±1.5						

Note : = M : Singleturn communication type magnetoelectric encoder
Q : Multiturn communication type magnetoelectric absolute encoder
V : Singleturn communication type optical encoder
Y : Multiturn communication type optical absolute value encoder

SMC130 series servo motor size chart



Technical specifications of SMC series servo motor (130 flange)



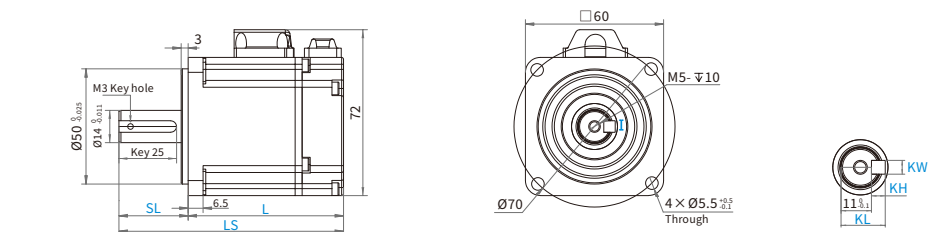
Model parameters		Medium inertia, 130 flange						
Servo motor model		SMC130D-0100-20□□K-5LSP	SMC130D-0100-10MAK-5LSP	SMC130D-0150-20□□K-5LSP	SMC130D-0200-20□□K-5LSP	SMC130D-0150-20□□K-5HSP	SMC130D-0150-10MAK-5HSP	SMC130D-0200-20□□K-5HSP
Adapted drives		FD425-LF-000, FD425-CF-000 FD425-EF-000, FD425-PF-000		FD435-LA-000, FD435-CA-000 FD435-EA-000, FD435-PA-000		FD625-LA-000, FD625-CA-000 FD625-EA-000, FD625-PA-000		
Drive power supply voltage Intermediate link DC voltage UDC		320	320	320	320	560	560	560
Continuous performance	Rated power Pn(W)	1	1	1.5	2	1.5	1.5	3
	Rated torque Tn(Nm)	4.78	9.55	7.16	9.55	7.16	14.33	14.33
	Rated speed nN(rpm)	2000	1000	2000	2000	2000	1000	2000
	Rated current In(A)	4.5 (ref.)	4.6 (ref.)	7.7 (ref.)	9.5 (ref.)	3.85 (ref.)	3.8 (ref.)	4.75 (ref.)
MAX torque Tm(Nm)		14.34	20	21.5	28.65	21.5	30	28.65
MAX current Im (A)		14.5 (ref.)	10 (ref.)	25 (ref.)	30 (ref.)	12.5 (ref.)	7.6 (ref.)	15 (ref.)
Resistance cable-cable RL(Ω)		1.54 (ref.)	2.27 (ref.)	0.63 (ref.)	0.48 (ref.)	2.48 (ref.)	6.23 (ref.)	1.92 (ref.)
Inductance cable-cable LL(mH)		13.8 (ref.)	27.9 (ref.)	6.9 (ref.)	5.8 (ref.)	22.65 (ref.)	83 (ref.)	18.6 (ref.)
Electrical time constant τe (ms)		8.96	12.3	10.95	12.08	9.13	13.3	9.69
Mechanical time constant τm (ms)		1.9	1.24	1.42	1.24	1.7	1.09	1.53
Reverse voltage constant Ke (V/krpm)		2.1(with brake)	-	1.48(with brake)	1.3(with brake)	1.81(with brake)	-	1.61(with brake)
Torque constant Kt (Nm/A)		1.08(with brake)	1.08(with brake)	1.08(with brake)	1.08(with brake)	1.08(with brake)	1.08(with brake)	1.08(with brake)
Rotor moment of inertia Jm (Kg·cm ²)		11.6(with brake)	-	16.95(with brake)	21.25(with brake)	16.95(with brake)	-	21.25(with brake)
Brake holding torque T(Nm)		15	-	15	15	15	-	15
Number of pole pairs		5	5	5	5	5	5	5
Insulation class		F	F	F	F	F	F	F
Max radial force Fr(N)		980	900	980	980	980	980	980
Max axial force Fa(N)		392	450	392	392	392	392	392
Weight G(Kg)		6	9	8	9.5	8	12	9.5
Fuselage length L(mm)		143.5±1.5	171±1.5	163.5±1.5	179.5±1.5	163.5±1.5	203.5±1.5	179.5±1.5
		203.5±1.5(with brake)	-	223.5±1.5(with brake)	239.5±1.5(with brake)	223.5±1.5(with brake)	-	239.5±1.5(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°C (no icing)						
	Humidity	Below 90% RH (no condensation)						
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust						
	Altitude	The highest altitude is 4000m. Above 1000m, the power will decrease by 1.5% for every 100m rise.						

Note: □ = V : Singleturn communication type optical encoder
Y : Multiturn communication type optical absolute value encoder
M : Singleturn communication type magnetoelectric encoder
Q : Multiturn communication type magnetoelectric absolute encoder

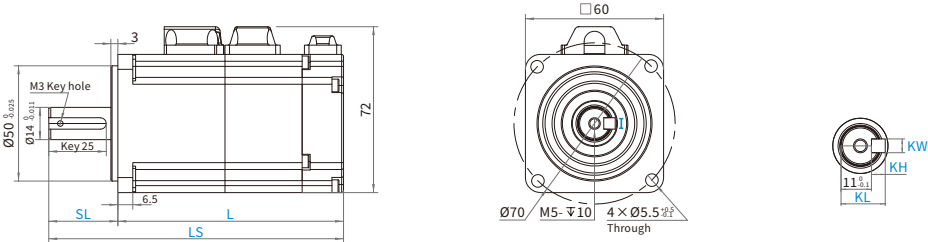
□ = A : Motor without brake
B : Motor with brake

SMG60 series servo motor dimension

60 flange



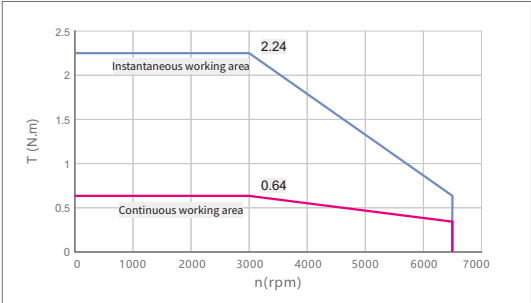
60 flange (with brake)



Flange dimension (mm)	Servo motor	With brake	Weight about (KG)	Overall dimension (mm)		Shaft dimension (mm)			Key dimension (mm)		
				LS	L	SL	SD	Screw hole x depth	KL	KW	KH
60x60	SMG60S-0020-30MAK-5LSQ		0.78	97.5±1.5	67.5±1.5	30±1	14	M5x10	16	5	5
	SMG60S-0020-30QAK-5LSQ										
	SMG60S-0020-30MBK-5LSQ	✓	1.2	128±1.5	98±1.5						
	SMG60S-0020-30QBK-5LSQ										
	SMG60S-0040-30MAK-5LSQ		1.2	115.5	85.5±1.5						
	SMG60S-0040-30QAK-5LSQ										
	SMG60S-0040-30MBK-5LSQ	✓	1.6	146±1.5	116±1.5						

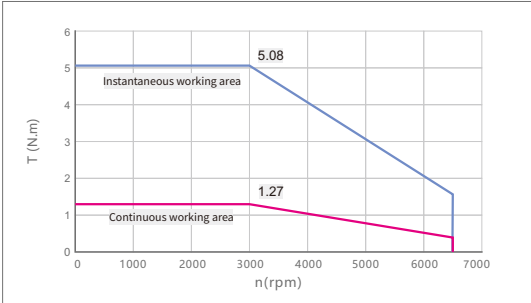
SMG60S-0020-30□□K-5LSQ

200W



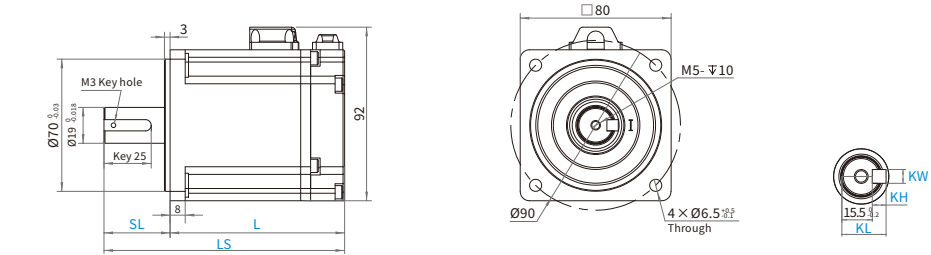
SMG60S-0040-30□□K-5LSQ

400W

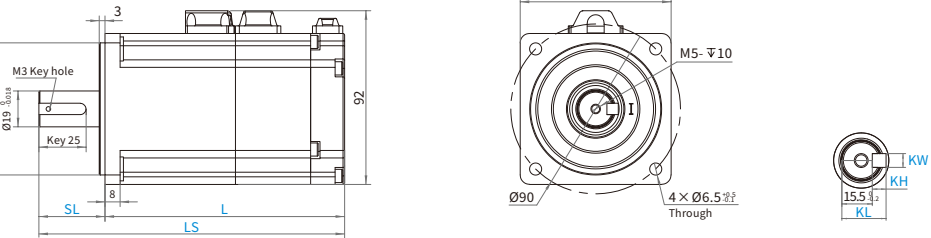


SMG80 series servo motor dimension

80 flange



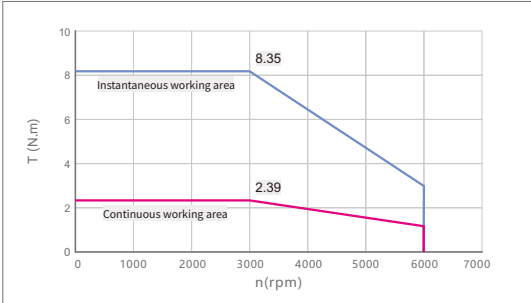
80 flange (with brake)



Flange dimension (mm)	Servo motor	With brake	Weight about (KG)	Overall dimension (mm)		Shaft dimension (mm)			Key dimension (mm)		
				LS	L	SL	SD	Screw hole x depth	KL	KW	KH
80x80	SMG80S-0075-30MAK-5LSQ	✓	2.1	127.5±1.5	92.5±1.5	35±1	19	M5x10	21.5	6	6
	SMG80S-0075-30QAK-5LSQ										
	SMG80S-0075-30MBK-5LSQ		2.9	162±1.5	127±1.5						
	SMG80S-0075-30QBK-5LSQ										

SMG80S-0075-30□□K-5LSQ

750W



Technical specifications of SMG series servo motor (60/80 flange)

Model parameter			Small inertia, 60mm flange		Small inertia, 80mm flange
Servo motor			SMG60S-0020-30□□K-5LSQ	SMG60S-0040-30□□K-5LSQ	SMG80S-0075-30□□K-5LSQ
Continuous performance	Rated power	Pn (W)	200	400	750
	Rated torque	Tn (N.m)	0.64	1.27	2.39
	Rated speed	nN (rpm)	3000	3000	3000
	Rated current	In (A)	1.6	2.6	4.6
MAX torque		Tm (N.m)	2.24	5.08	8.35
MAX current		Im (A)	5.6	10.9	17.5
Standstill torque		Ts (N.m)	0.76	1.4	2.86
Standstill current		Is (A)	1.9	2.86	5.5
Resistance Line - Line		RL (Ω)	7.3	4.2	1.3
Inductance Line - Line		LL (mH)	14.7	9.8	6.8
Electrical time constant		τe (ms)	2	2.4	5.2
Mechanical time constant		τm (ms)	1.39	1.3	1.26
Reverse voltage constant		Ke (V/krpm)	26.9	34.1	33.5
Torque constant		Kt (N.m/A)	0.4	0.488	0.519
Rotor moment of inertia		Jm (Kg·cm ²)	0.28	0.56	1.56
Brake holding torque		T (Nm)	0.31 (with brake)	0.59 (with brake)	1.63 (with brake)
Pole pair number			5	5	5
MAX voltage rising		du/dt (kv/μs)	1.58	1.58	3.8
Insulation class			8	8	8
MAX radial force		Fr (N)	F	F	F
MAX axial force		Fa (N)	245	245	392
Weight		G (Kg)	74	74	147
Cooling method			0.78	1.2	2.1
Protection level			1.2 (with brake)	1.6 (with brake)	2.9 (with brake)
Operation environment			Forced air cooling of the servo motor from the outside with a cooling fan		
Temperature			IP65 (shaft through part)		
Humidity			0~40°C (without freezing)		
Ambient environment			20~80% (no condensation)		
Altitude			Keep away from corrosion, flammable gas, oil droplets, dust		
			Below 1000m, please derate for use above 1000m		

Note: 1. □ = M : Magnetic single-turn absolute encoder
□ = A : Motor without holding brake
Q : Magnetic multi-turn absolute encoder
B : Motor with brake

2. The motor is installed on the aluminum heat sink (size: 400x400x20mm), and the data when it runs to a stable state.
3. Data of winding temperature at 20°C.
4. Forced air cooling of the servo motor from the outside with a cooling fan.

Cable wiring instructions (encoder cable)

ENC DG-LL-GU

Wire spec.:UL2661 1P×20AWG+2P×24AWG
20AWG cross section area is 0.5189mm²
24AWG cross section area is 0.2047mm²

SC-06	Color	Signal 1	Signal 2
PIN1	Red	VDD	+5V
PIN2	Black	GND	GND
PIN3	Brown	MA_P+	BAT+
PIN4	Blue	MA_N-	BAT-
PIN5	Yellow	SLO_P+	SD
PIN6	Green	SLO_N-	/SD
Shell	Shield	Shield	Shield

Note: Signal 1 is suitable for magneto-electric encoder;
signal 2 is suitable for absolute encoder;
Cable: ENC DG-GU
Flexible cable: ENC DGF-LL-GU
Cable specifications: 1P x 20AWG(72/0.10T)+2P x 24AWG(32/0.10T)
Cable diameter: 7.4±0.5mm

Color	AMP	SC-06	Signal
Red	PIN2	PIN1	+5V
Black	PIN3	PIN2	0V
Brown	PIN6	PIN3	BAT+
Blue	PIN7	PIN4	BAT-
Yellow	PIN4	PIN5	PS
Green	PIN5	PIN6	/PS
Shield	PIN1	Shell	Shield

Note : corresponding accessories :ENC DG-GQ
Flexible cable:ENC DGF-LL-GQ
Cable specifications:1P*20AWG(72/0.10T)+2P*24AWG(32/0.10T)
Cable diameter: 7.4±0.5mm

ENC DG-LL-GQ

Wire spec.:UL2661 1P*20AWG(26/0.16T)+2P*24AWG(11/0.16T)
20AWG cross section area is 0.5189mm²
24AWG cross section area is 0.2047mm²

SC-06F	Color	Signal	SC-06M	Black HSG	External single
PIN1	Red	+5V	PIN1		
PIN2	Black	GND	PIN2		
PIN3	Brown	BAT+		PIN1	Red
PIN4	Blue	BAT-		PIN2	Black
PIN5	Yellow	SD	PIN5		
PIN6	Green	/SD	PIN6		
Shell	Shield	Shield	Shell		



Optional battery case for FD5

BAT-FD5, suitable for absolute encoder motor, matching with ENC DG-(4)-GU-BT5

ENC DG-(4)-GU-BT5

Wire spec.:3×2×0.2mm²

Cable wiring instructions (power cable)

MOT-005-LL-KL-NS

Wire spec.:UL2517 4 X 18AWG
18AWG cross section area is 0.8107mm²

Color	Signal	4PIN
White	U	PIN1
Red	V	PIN3
Black	W	PIN2
Yellow-Green	PE	PIN4

Note: Corresponding accessory MOT-KL

MOT-005-LL-KQ-NS

Wire spec.:UL2517 4 X 18AWG
18AWG cross section area is 0.8107mm²

Color	Signal	AMP
White	U	PIN1
Red	V	PIN3
Black	W	PIN2
Yellow-Green	PE	PIN4

Note: Corresponding accessory MOT-KQ

MOT-008-LL-KG1-NS

Wire spec.:UL2588 4 X 1.5mm²

Color	Signal	YD28K4TS
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow-Green	PE	PIN1

Note: Corresponding accessory MOT-KG1

MOT-015-LL-KG1

Wire spec.:4*14AWG(50/0.25T)
14AWG cross section area is 2.075mm²

Color	Signal	YD28K4TS
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow-Green	PE	PIN1
Shielded wire	Shield	PIN1

Cable wiring instructions (power cable)

MOT-005-LL-KC4

Wire spec: 4C*18AWG(41/0.16T)
18AWG Gcross section area is 0.8107mm²

Color	Signal	HFO2106TK
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellw-Green	PE	PIN6

Note:
Accessories: **MOT-005-KC4**
Flexible cable: **MOTF-005-LL-KC4**
Flexible cable: 4C*18AWG(7/18/0.10T) 500万次
Cablediameter: 7.3±0.5mm

Color	Signal	HFO2106TK
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellw-Green	PE	PIN6
Thin red line	brake+	PIN1
Thin blue line	brake-	PIN5
Shielded wire	Shielded	Shell

Note:
Accessories: MOT-KC4-B

Color	Signal	HFO2106TK
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellw-Green	PE	PIN6

Note:
Accessories: **MOT-KC4-B**
Flexible cable: **MOTF-008-LL-KC4**
Cablespecifications: 4X1.5mm², BLACK
Cablediameter: 9.3±0.5mm

Color	Signal	HFO2106TK
White	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellw-Green	PE	PIN6
Thin red line	brake+	PIN1
Thin blue line	brake-	PIN5

Note:
Accessories: **MOT-KC4-B**

Cable wiring instructions (brake cable)

BRA-LL-KL

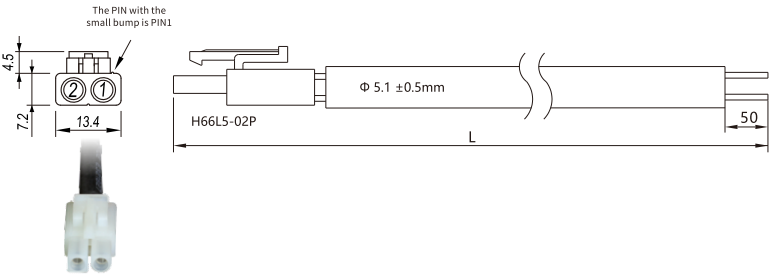
Wire spec.: 2C*20AWG
20AWG cross section area is 0.5189mm²

Color	Signal	2PIN
Red	brake+	PIN1
Blue	brake-	PIN2

Note:
Accessories: BRA-KL
Flexible cable: BRAF-LL-KL
Cable specifications: 2C*20AWG(72/0.10T)
Cable diameter: 5.5±0.2mm

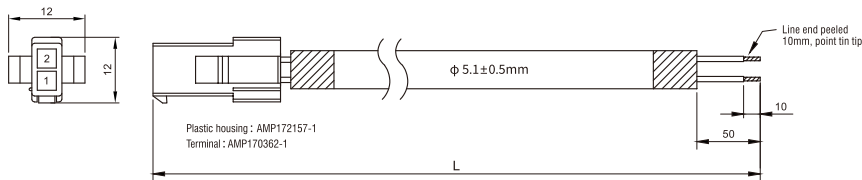
Color	Signal	AMP
Blue	0V	PIN1
Red	24V	PIN2

Note: corresponding accessories: BRA-KQ
Flexible cable: ARAF-LL-KQ
Cable specifications: 2C*20AWG(72/0.10T)
Cable dliameter: 5.5±0.2mm



BRA-LL-KQ

Wire spec.: UL2464 2 X 20AWG
20AWG cross section area is 0.5189mm²



Customers in over 60 countries and in diverse markets and sectors.



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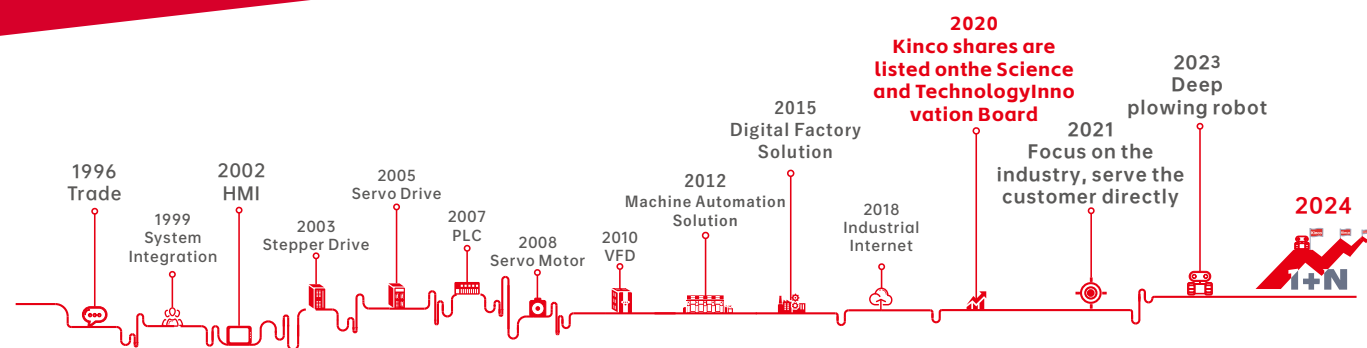
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Kinco

 **Kinco i Series**
General Catalog

- iWMC Integrated Servo Wheel
- iSMK drive and motor integrated machine





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. It is a leading supplier of automation control, robot power and digital factory solutions in China.

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.

i-Kinco is a new integration concept proposed by Kinco based on the technology trend.

The core of i-Kinco is the integration, and compatibility of power components, it takes motor technology as the core, and integrates with drive, reducer, encoder, sensor and other technologies as a whole, developing small volume, lightweight, high protection, easy maintenance of power module. With the ultimate integrated innovative solution, it reduces the comprehensive use cost including hardware, debugging, maintenance, etc. for customers.

In addition, i-Kinco will focus on the robot power standardization construction, deeply explore common needs, and develop standardized products with the universality of subdivided industries, as far as possible to reduce the additional costs caused by customer customization, while improving delivery efficiency. iWMC, iSMK and other products have been launched, will continue to launch more i integrated product.



- Reduce space occupation
- Reduce design difficulty
- Simplify installation process
- Release cost reduction space
- Energy saving and efficiency improvement

Improve space utilization: The integrated product structure is compact, which is conducive to the miniaturization of the vehicle body;

Improve installation efficiency: Modular vehicle power components, high reliability and can be quickly assemble and disassemble, installation time saving 50%;

Reduce costs: Integrated and modular products reduce procurement communication costs and overall equipment manufacturing costs;

Assist in going global: With CE/UL/STO/dual encoder and other safety certifications, it can meet the safety standard requirements of different markets at domestic and international.

Contents

03	iWMC Integrated Servo Wheel
	Naming Rules
	Parameter Specifications
	Dimension Diagram
	External Wiring Diagram
	Explanation of Wiring Ports
07	Integrated Servo Motor
	Naming Rules
	Technical Parameters
	Dimension Diagram
	Explanation of Wiring Ports

iWMC Integrated Servo Wheel

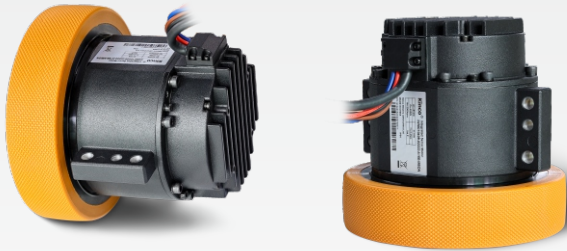
Highly integrated: The four main components of the driver, motor, gearhead, and wheel are highly integrated, resulting in a compact structure that facilitates downsizing;

High mounting accuracy: Supported mounting, simple and convenient mounting method, high mounting accuracy, and high control accuracy;

High reliability: The integrated module, with only external power supply and communication cables, is resistant to nickel-contacts and improves the stability and reliability of the entire system;

Compatible design & seamless switching: the communication and usage modes of the servo wheel products are no different from those of the standard Kinco products, allowing seamless switching;

Good maintainability: A single supplier for the integrated product facilitates the maintenance of the product at a later stage and reduces supply chain and after-sale costs.



☑ Design of dual power supply for driver

☑ Standard CANopen communication protocol

☑ Support external forced unlocking

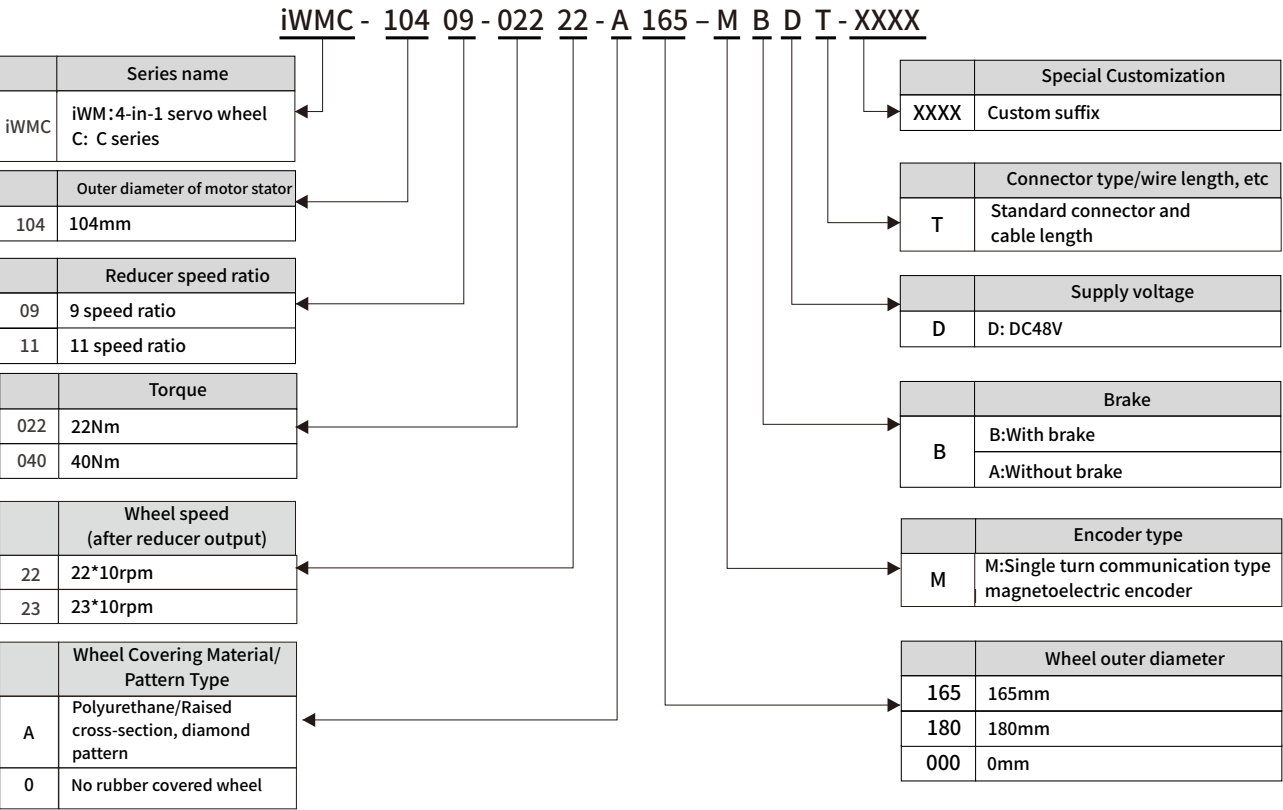
☑ The reducer has low back seam and high precision

■ Application Scenario

Power Servo Wheel Module for Mobile Machines with Loads up to 600 kg

Power Servo Wheel Module for Mobile Machines with Loads up to 1 T

■ Naming convention



Parameter Specifications

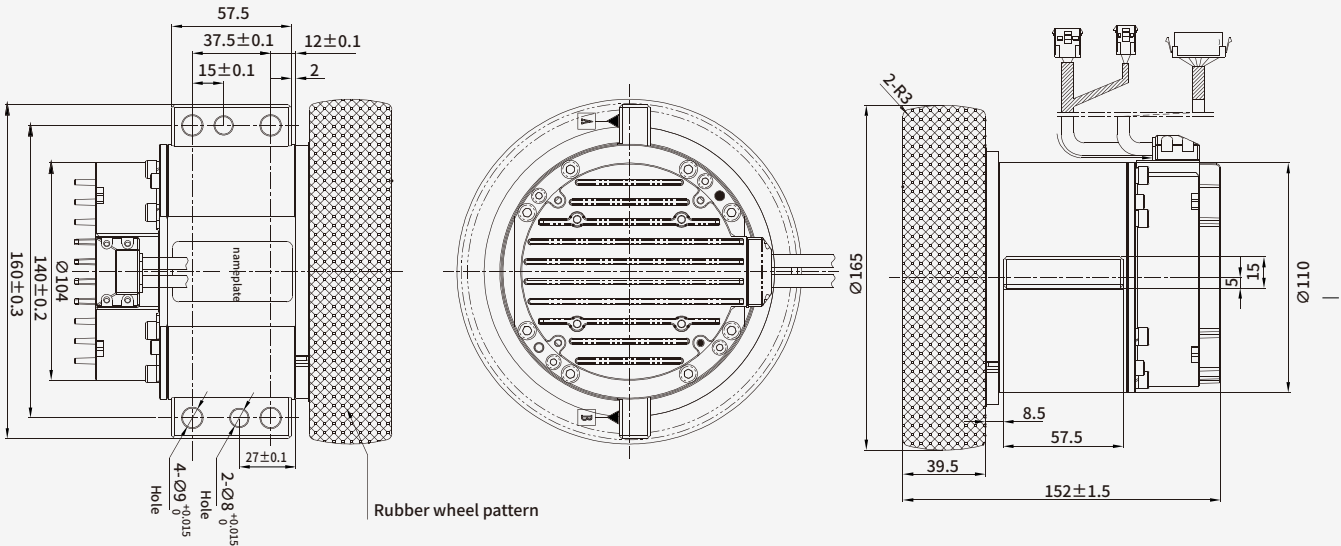
■ Product Parameters

iWMC Integrated Servo Wheel Model Number		iWMC10409-02222-A165-M■DT	iWMC10411-04023-A180-M■DT
Power	Power Supply	24VDC~60VDC	
	Logic Supply	24VDC	
Rated Linear Speed (m/s)		1.9	2.14
Rated Torque Tn(Nm)		21	40
Peak Torque Tn(Nm)		60	99
Tire Diameter (mm)		165	180
Tire Width(mm)		39.5	50
Tire Material		Polyurethane (optional)	
Tire Hardness Rating		85A	90A
Energy Consumption Braking		External braking resistor is required (depending on the operating conditions, mainly used for rapid starting and stopping)	
Energy Consumption Braking Voltage Absorption Point		DC63V ± 2V(Default, settable)	
Overvoltage alarm point		DC68V ± 2V	
Undervoltage alarm point		DC18V ± 2V	
Input Specifications		2 digital inputs / Common COM1 terminal / High level: 12.5-30VDC / Low level: 0-5VDC / Maximum frequency: 1KHz / Input impedance: 5KΩ.	
Output Specifications		1 digital output common COMO terminal / Maximum output current: 100mA	
Brake		Built-in brake and control circuit	
Forced Unlock Interface		1-way forced unlock interface, only for use when there is no power input to the servo wheel	
RS485 Debug Port		Maximum support for 115.2Kbps baud rate	
CAN BUS		Maximum support for 1Mbps baud rate, CANopen protocol can be used to communicate with the controller	
Drive Current	Max. continuous output current (rms)	16A	26A
	Peak Current (PEAK)	100Ap(<2s)	100Ap(<2s)
Motor	Rated RPM nN(rpm)	2000	2500
	Rated Torque Tn(Nm)	2.4	4
	Brake Holding Torque T(Nm)	4	
Noise		<65dB	
Cooling Methods		Natural cooling & Body-assisted cooling	
Operating Environment	Operating Temperature	0~40°C	
	Storage Temperature	-20°C~60°C	
	Humidity (non-condensing)	90%RH below	
	Protection Level	IP54	
	Altitude	The rated working altitude is up to 1000m above sea level. For working altitudes above 1000m, a reduction of 1.5% is required for every 100 meters of rise in altitude, with a maximum working altitude of 2000 meters above sea level.	
	Atmospheric Pressure	86kpa~106kpa	

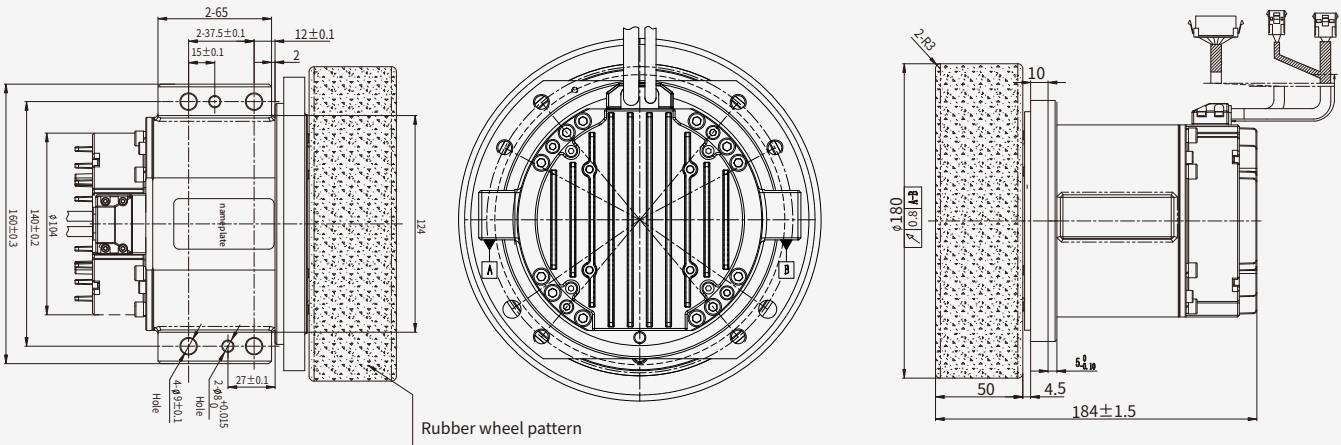
Note: ■ = A : Without brake B : With brake

Dimension Diagram & External Wiring Diagram

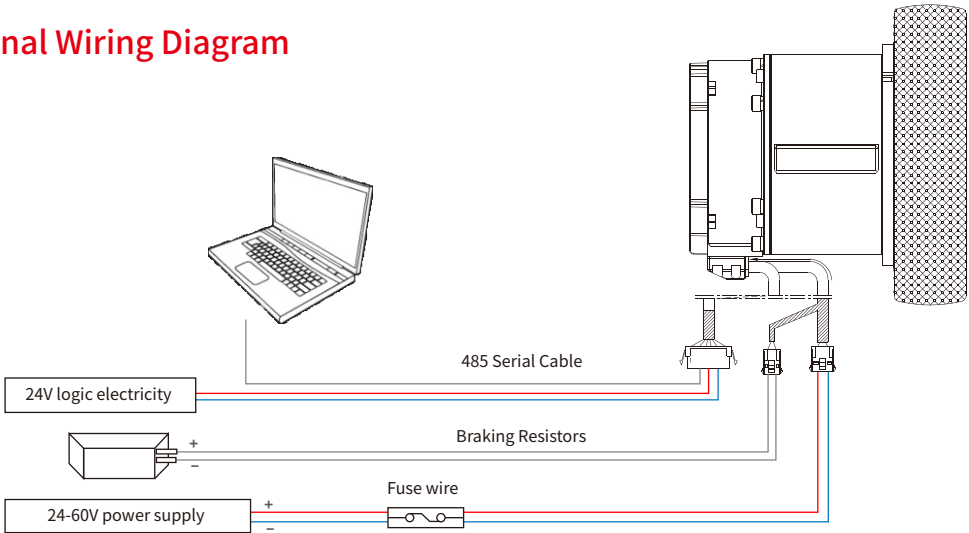
■ iWMC10409-02222-A165-M■DT



■ iWMC10411-04023-A180-M■DT

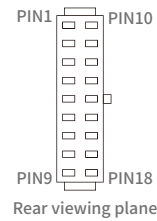


■ External Wiring Diagram



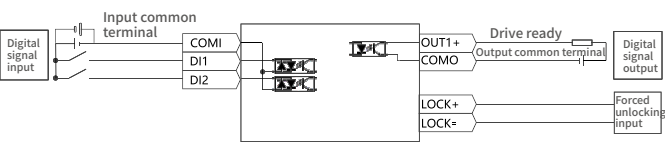
Explanation of Wiring Ports

■ Terminal definition

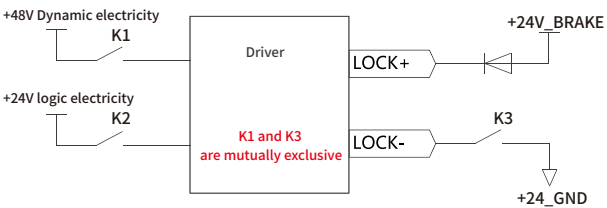


PIN	signal	PIN	signal
1	24V	10	GND
2	LOCK+	11	LOCK-
3	CANH	12	CANL
4	CANH	13	CANL
5	485A	14	485B
6	485A	15	485B
7	OUT1+	16	COMO
8	COMI	17	DI1
9	Empty	18	DI2

iWMC Integrated Servo Wheel Control Wiring Diagram

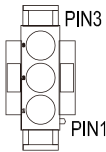


Wiring Diagram of Recommended Circuit for Forced Unlocking Brake



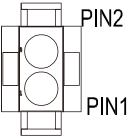
Note: The forced unlocking function needs to be used after the power supply of the servo wheel is cut off.

Power port



Pin number	Pin name	Pin function
3	DC-	The input end of the power supply of the driver must be connected
1	DC+	Input voltage: 24~60VDC

Brake resistance port



Pin number	Pin name	Pin function
1	RB+	External braking resistor input terminal
2	RB-	

iSMK drive and motor integrated machine

Product features:

Compact body, highly integrated motor, driver, encoder and brake in one;

Support 24 ~ 60VDC wide voltage.
Supports CANopen, Modbus RTU, EtherCAT, etc.
A variety of safety protection measures such as overvoltage protection, under pressure protection, short-circuit protection, motor overheating (IIT) protection, and driver overheating protection;

Can be equipped with a standard reducer, suitable for rotary jacking and other scenes.



iSMK naming rules

型号: iSMK60-040-DMAK-AA-000

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①-Series name	iSMK:iSMK Integrated servo motor	⑥-Brake	A:Without brake B:With brake
②-Flange	40:40x40(mm) 60:60x60(mm) 80:80x80(mm)	⑦-Output axis style	K: With key
③-Rated power	010:10x10(W) 020:20x10(W) 040:40x10(W) 075:75x10(W)	⑧-Contro mode	AA: RS485、CANopen、Not pulse、24V logic power supply EA: RS485、EtherCAT、Not pulse、24V logic power supply
④-Supply voltage	D: Input Voltage DC24~60V		
⑤-Encoder type	M: Singleturn communication type magnetoelectric encoder	⑨-Software version number	000: Software version number

Note: The oil seal is an optional accessory, and it can be omitted if it is not necessary.

iSMK integrated servo drive motor technical parameters



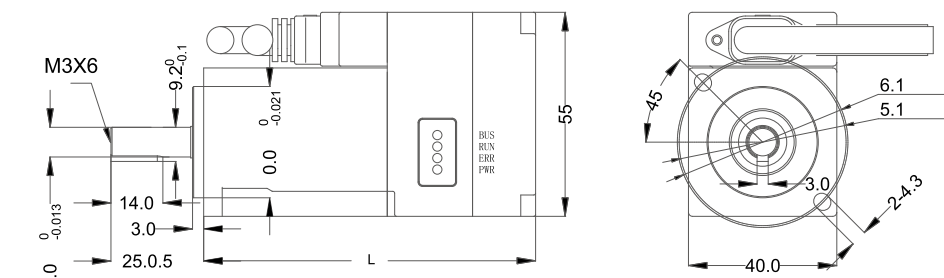
Model parameter		iSMK drive and motorintegrated machine			
		iSMK40-010-DM■K-□A-000	iSMK60-020-DM■K-□A-000	iSMK60-040-DM■K-□A-000	iSMK80-075-DM■K-□A-000
Input	power	24VDC~60VDC			
	Built-in fuse	Null			
	Logic power	24V			
Rated power Pn(W)		100	200	400	750
Rated speed nN(rpm)		3000	3000	3000	3000
Rated torque Ts(Nm)		0.32	0.64	1.27	2.39
Maximum torque Tm(Nm)		0.96	1.92	3.81	7.17
Rotational inertia Jm(Kg·cm ²)		0.044	0.17	0.31	0.85
		0.046 (With brake)	0.174 (With brake)	0.314 (With brake)	0.91 (With brake)
Logic loss power (mW)		900	900	900	900
Energy consumption brake		There is no brake circuit inside the driver, and an external brake module is required			
Overvoltage alarm voltage		The default is 70V			
Undervoltage alarm voltage		The default is 18V			
Cooling mode		Natural cooling			
General function	Input specification	2 digital inputs, high: 12.5VDC ~ 30VDC Low: 0VDC ~5VDC Input impedance: 5KΩ Input frequency: <1KHz			
	Input function	Freely defined as required, the functions are as follows: drive enable, drive error reset, drive mode control, speed loop proportional control, positive limit, negative limit, origin signal, command reverse, internal speed segment control, internal position segment control, emergency stop, start to find the origin, command activation, electronic gear ratio switching, gain switching			
	Output specification	1 digital output, OUT1 for the open collector output, the highest voltage 30V, driving capacity of 100mA			
	Output function	Freely defined according to needs, the functions are as follows: driver ready, driver error, motor position to, motor zero speed, motor lock brake, motor speed to, index Z signal appears, maximum limit speed in torque mode, motor lock shaft, motor limit medium, origin finding			
Bus function	RS485	It supports a maximum 115.2Kbps baud rate and can communicate with the controller using the Modbus RTU			
	CANopen	It supports a maximum 1Mbps baud rate and can communicate with the controller using the CANopen			
	EtherCAT	Support CoE(CiA402 protocol)and CSP/CSV/PP/PV/PT/HM mode, communication speed 100M			
Apply environment	Operation temperature	-20℃~40℃ (no freezing) ,When the operating temperature exceeds 40℃, the driver needs to be derated			
	Operating humidity	Less than 90%RH (no condensation)			
	Storage temperature	-40℃~70℃ (no freezing)			
	Storage humidity	90%RH (no condensation)			
	Installation method	Motor flange installation (vertical side installation)			
	Protection grade	IP65, shaft end IP54			
	Atmospheric pressure	86kpa~106kpa			
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.			

Note1:■=A: Without brake
=B: With brake (Power supply conversion, external unlocking.)

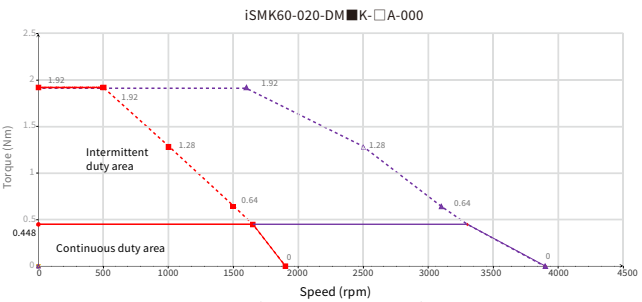
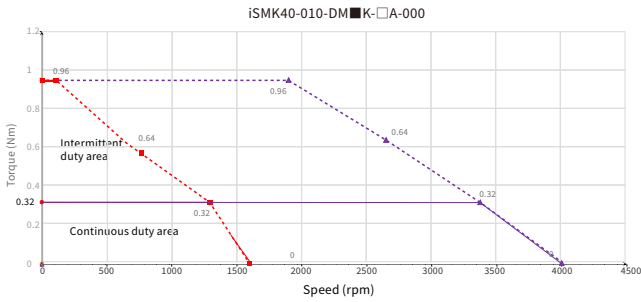
Note2: □=A: RS485、CANopen
=E: RS485、EtherCAT

iSMK integrated servo drive motor mechanical dimensions

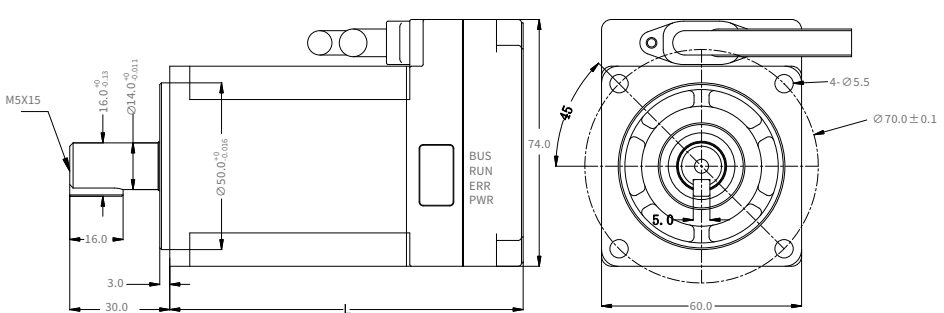
iSMK40 series mechanical dimension diagram (unit: mm)



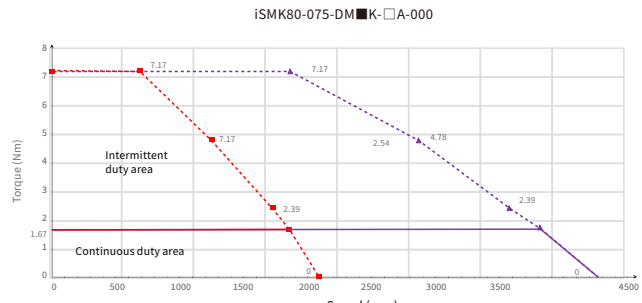
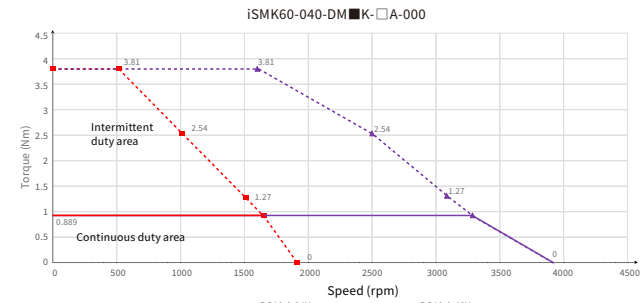
iSMK40 series model	With brake	Weight(kg)	Motor body size L (mm)
iSMK40-010-DMAK-AA-000		0.6	92
iSMK40-010-DMBK-AA-000	✓	0.8	126
iSMK40-010-DMAK-EA-000		0.7	92
iSMK40-010-DMBK-EA-000	✓	0.9	126



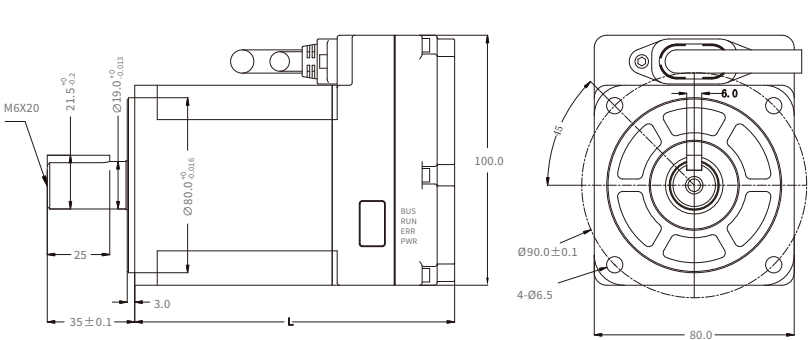
iSMK60 series mechanical dimension diagram (unit: mm)



iSMK60 series model	With brake	Weight(kg)	Motor body size L (mm)
iSMK60-020-DMAK-AA-000		1.1	88
iSMK60-020-DMBK-AA-000	✓	1.6	127.5
iSMK60-020-DMAK-EA-000		1.2	88
iSMK60-020-DMBK-EA-000	✓	1.7	127.5
iSMK60-040-DMAK-AA-000		1.3	106
iSMK60-040-DMBK-AA-000	✓	1.8	145.5
iSMK60-040-DMAK-EA-000		1.4	106
iSMK60-040-DMBK-EA-000	✓	1.9	145.5



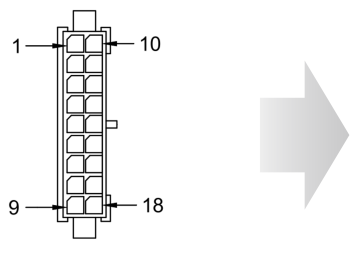
iSMK80 series mechanical dimension diagram (unit: mm)



iSMK80 series model	With brake	Weight(kg)	Motor body size L (mm)
iSMK80-075-DMAK-AA-000		2.5	128
iSMK80-075-DMBK-AA-000	✓	3	158
iSMK80-075-DMAK-EA-000		2.6	128
iSMK80-075-DMBK-EA-000	✓	3.1	158

iSMK integrated servo drive motor connection port description

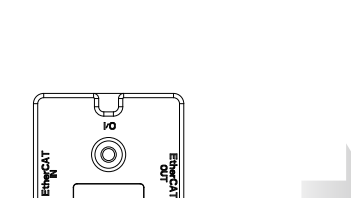
iSMK-AA communication terminal definition



A			B		
Pin	Name	Cable color	Pin	Name	Cable color
1	24V	Red	10	GND	Black
2	LOCK+	Purple	11	LOCK-	Purple and black
3	CANH	Blue and black	12	CANL	Blue
4	CANH	Blue and black	13	CANL	Blue
5	RS485A	Orange and black	14	RS485B	Orange
6	RS485A	Orange and black	15	RS485B	Orange
7	OUT1+	Yellow and black	16	COMO	Yellow
8	COMI	White	17	DI1	Green
9	GND	Green and black	18	DI2	White and black

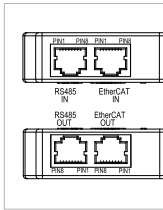
Note: This definition applies to iSMK40&60&80AA.
EXC-iSMK-AA-LL external cable can be purchased.

iSMK-EA communication terminal definition



A		B	
PIN	Signal	PIN	Signal
1	24V	10	GND
2	LOCK+	11	LOCK-
3	/	12	/
4	/	13	/
5	RS485A	14	RS485B
6	RS485A	15	RS485B
7	OUT1+	16	COMO
8	COMI	17	DI1
9	GND	18	DI2

Note:Kinco EXC-iSMK-AA-LL external cable can be purchased
(Pins 3, 4, 12, 13 of the iSMK-EA series are empty, and the corresponding color cable of these four pins of the external cable can be ignored)



PIN	Rs485 IN/RS485 OUT	EtherCAT IN	EtherCAT OUT
1	/	IN TX+	OUT TX+
2	/	IN TX-	OUT TX-
3	/	IN RX+	OUT RX+
4	GND_C	/	/
5	RS485B	/	/
6	RS485A	IN RX-	OUT RX-
7	/	/	/
8	/	/	/

IO signal description

Signal	Function description
24V	The logic power supply is an optional option. When using the logic power supply, ensure that the power supply and logic are completely isolated. If the system power supply is not isolated, the logical ground cable is not connected. The logic power supply is connected at DC- and 24V
GND	Logic electrical reference ground
LOCK+	External release beake input The input voltage is 24V, the maximum input current is 0.7A, only when the AGV body battery is out of emergency use;
LOCK-	Only when both the logic power supply and the power supply are powered off, the external lock can be unlocked. Do not short-circuit or connect to other signals and enclosures during normal operation
CANH	CAN signal positive end(Only the iSMK-AA series has this terminal)
CANL	CAN signal negative end(Only the iSMK-AA series has this terminal)
485A	RS485 data positive end
485B	RS485 data negative end
GND_C	Signal ground
DIN1 DIN2	Digital signal input;High level: 12.5VDC~30VDC Low level: 0VDC~5VDC Input impedance: 5KΩ Input frequency: <1KHz
COMI	Digital signal input to the common end
OUT1+	Digital signal output;1 digital output, maximum output current: 100mA
COMO	Digital signal output common terminal