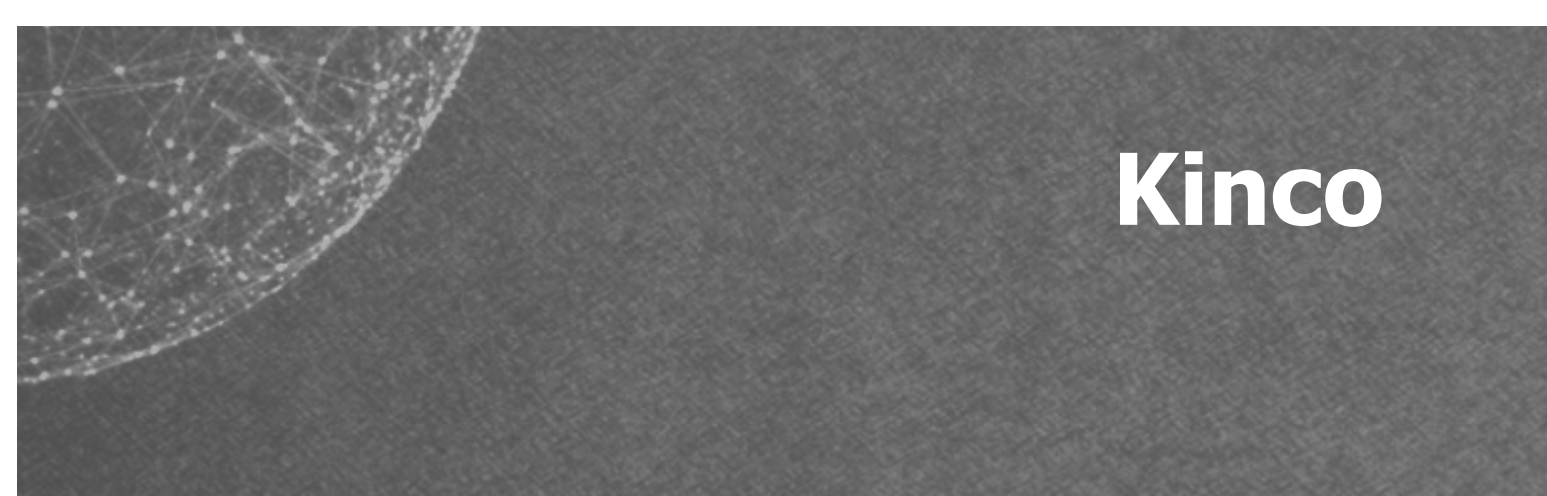


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Motion
Control
Servo System

➔ **Servo System Catalog**

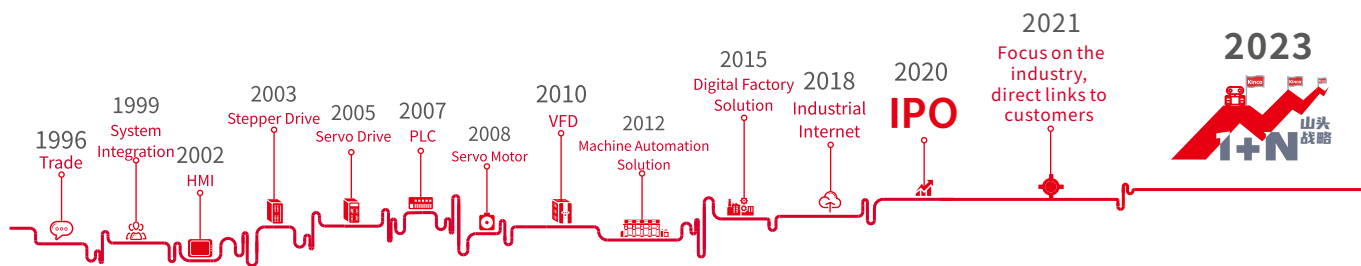
- FD5 Series Servo Drive
- Servo Motor



Kinco® Automation
www.kinco.cn Email: sales@kinco.cn

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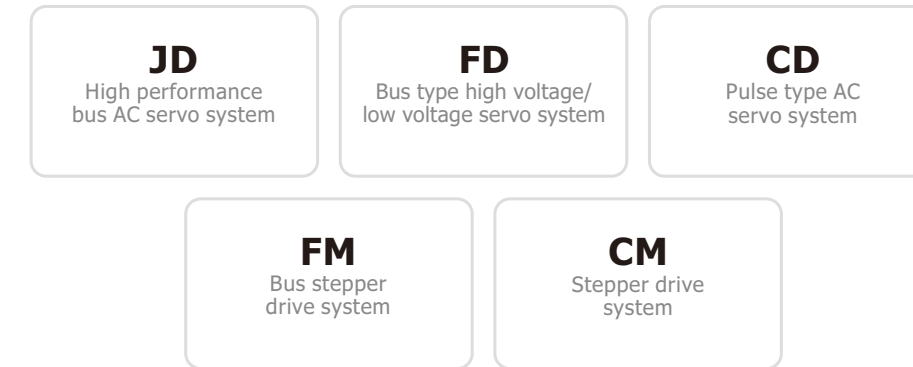
Shanghai Kinco Automation Co., Ltd. focuses on R&D, production, sales and technical services of automation standard products and intelligent hardware products, which is a leading supplier of machine automation and intelligent solutions for factories in China.

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, cable 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
 - Description of external wiring and communication terminals
 - Mechanical dimension
- 21 MOTOR INTRODUCTION
 - Motor characteristics
 - Technical specifications
 - Mechanical dimension
 - 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

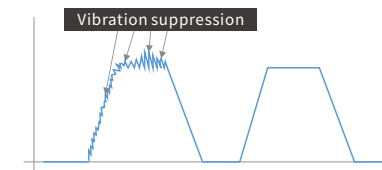


- The power range covers 200W~3KW with compact structure design.
- Significantly improved control performance and response ability to provide customers with more solutions.
- Strong compatibility: 5 generations of products are compatible with 3 generations of product parameters, which can directly update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

FD5 series servo drive with five advantages

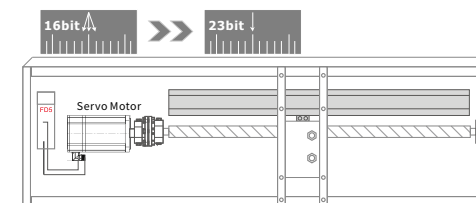
Notch filter

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.



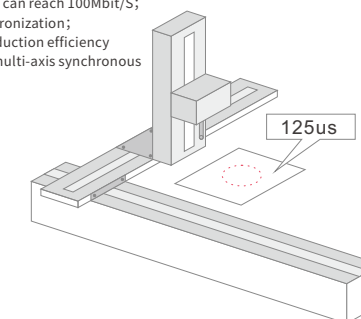
Suitable for high-precision encoder

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



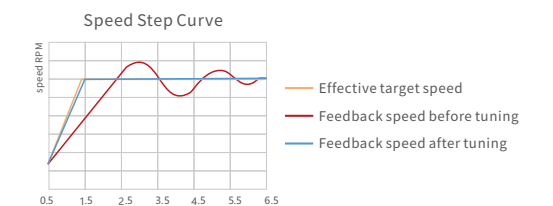
Real-time synchronization control

- 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



Note: These trademarks are owned by their respective companies.

Drive and motor/cable naming rules

Drive: **FD425-PA-000** Note: FD425-□F-000 with fan

① ② ③ ④ ⑤ ⑥



| | | | |
|------------------|--|--------------------|---|
| 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 | | | | | RS485 | | | |
| | FD425-CF-000 | 750/1000 | | 5 | 18 | CANopen | | | |
| | FD425-EF-000 | | | | | EtherCAT | | | |
| | FD425-PF-000 | | | | | Profinet | | | |
| | FD435-LA-000 | | | | | 1500/2000 | 10 | 27.5 | RS485 |
| | FD435-CA-000 | | | | | | | | CANopen |
| | FD435-EA-000 | EtherCAT | | | | | | | |
| | FD435-PA-000 | Profinet | | | | | | | |
| | FD625-LA-000 | 1500/2000/3000 | | 7 | 25 | | | | RS485 |
| | FD625-CA-000 | | | | | CANopen | | | |
| | FD625-EA-000 | | | | | EtherCAT | | | |
| FD625-PA-000 | Profinet | | | | | | | | |

Motor mode list

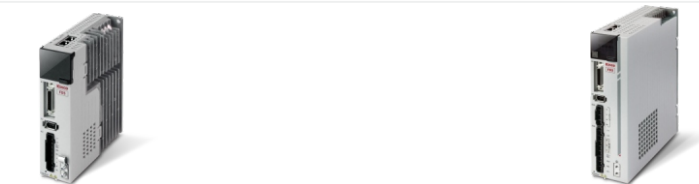
| SMG series | Specification model | Rated wattage Pn(W) | Rated torque Tn(Nm) | Rated speed nN(rpm) | Rated current In(A) | Shaft diameter (mm) | Fuselage length (mm) | |
|------------|------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|-------------------|
| | | | | | | | □=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 | | 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 | | | | | | | |
| | SMC130D-0150-20□K-5LSP | | | | | | | |
| | SMC130D-0200-20□K-5LSP | 2KW | 9.55 | 1000 | 4.6 (ref.) | 22 | 171±1.5 | - |
| | SMC130D-0150-20□K-5HSP | | | | | | | |
| | SMC130D-0150-10MAK-5HSP | | | | | | | |
| | SMC130D-0200-20□K-5HSP | 1.5KW | 7.16 | 2000 | 7.7 (ref.) | 22 | 163.5±1.5 | 223.5±1.5 |
| | SMC130D-0150-20□K-5HSP | | | | | | | |
| | SMC130D-0150-10MAK-5HSP | | | | | | | |
| 130 Flange | SMC130D-0200-20□K-5HSP | 2KW | 9.55 | 2000 | 4.75 (ref.) | 22 | 179.5±1.5 | 239.5±1.5 |
| | SMC130D-0300-20□K-5HSP | | | | | | | |
| | SMC130D-0300-20□K-5HSP | | | | | | | |

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 |
| | Logic power supply | None | | 200-240VAC±10% 50/60Hz±3HZ 0.5A |
| Current | Maximum continuous output current (rms) | 3.9A | 5A | 10A |
| | Peak current (PEAK) | 18Ap | 18Ap | 27.5Ap |
| 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°C | | |
| | Storage temperature | -10°C~70°C | | |
| | 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 | | | | | |
| | | 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 | FD425-PF-000 | FD425-EF-000 | FD425-CF-000 | FD425-LF-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 | ENCDG-LL-GU ENCDG-(4)-GU-BT5 BAT-FD5 | 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 | | | | | |
| | | 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 | FD425-PF-000 | FD425-EF-000 | FD425-CF-000 | FD425-LF-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 | ENCDG-LL-GC0 | FD435-PA-000 | FD435-EA-000 | FD435-CA-000 | FD435-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 | | | | | |
| | | 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 ENCDG-(4)-GU-BT5 BAT-FD5 | FD625-PA-000 | FD625-EA-000 | FD625-CA-000 | FD625-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 | | | | | |
| | | 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 | ENCDG-LL-GC0 ENCDG-(4)-GU-BT5 BAT-FD5 | FD425-PF-000 | FD425-EF-000 | FD425-CF-000 | FD425-LF-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 | | | | | |
| | | 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 | ENCDG-LL-GC0 ENCDG-(4)-GU-BT5 BAT-FD5 | 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-008-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 | | | | | |
| | | 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 | | | | | |
| | | 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 | | | | | |
| | | 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 | | | | | |
| | | 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-PF-000 | FD425-EF-000 | FD425-CF-000 | FD425-LF-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 | ENCDG-LL-GU ENCDG-(4)-GU-BT5 BAT-FD5 | FD425-PA-000 | FD425-EA-000 | FD425-CA-000 | FD425-LA-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 | | | | | | |
| | 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-PF-000 | FD425-EF-000 | D425-CF-000 | FD425-LF-000 | |
| | SMC80S-0075-30QBK-5LSU* | Multiturn communication type magnetoelectric absolute value encoder brake motor | MOT-005-LL-KL-NS/BRA-LL-KL | | | | | | |

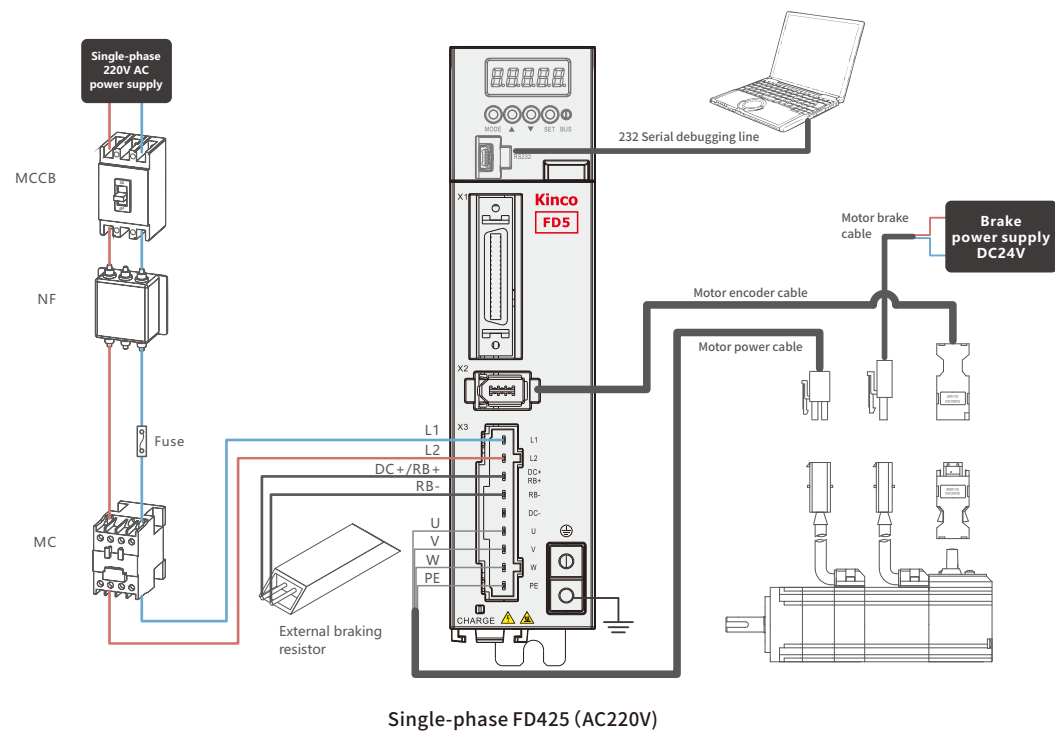
Note: When the drive drives the brake device, an external DC24V/2A relay is required.

FD5 servo drive and motor configuration table (2)

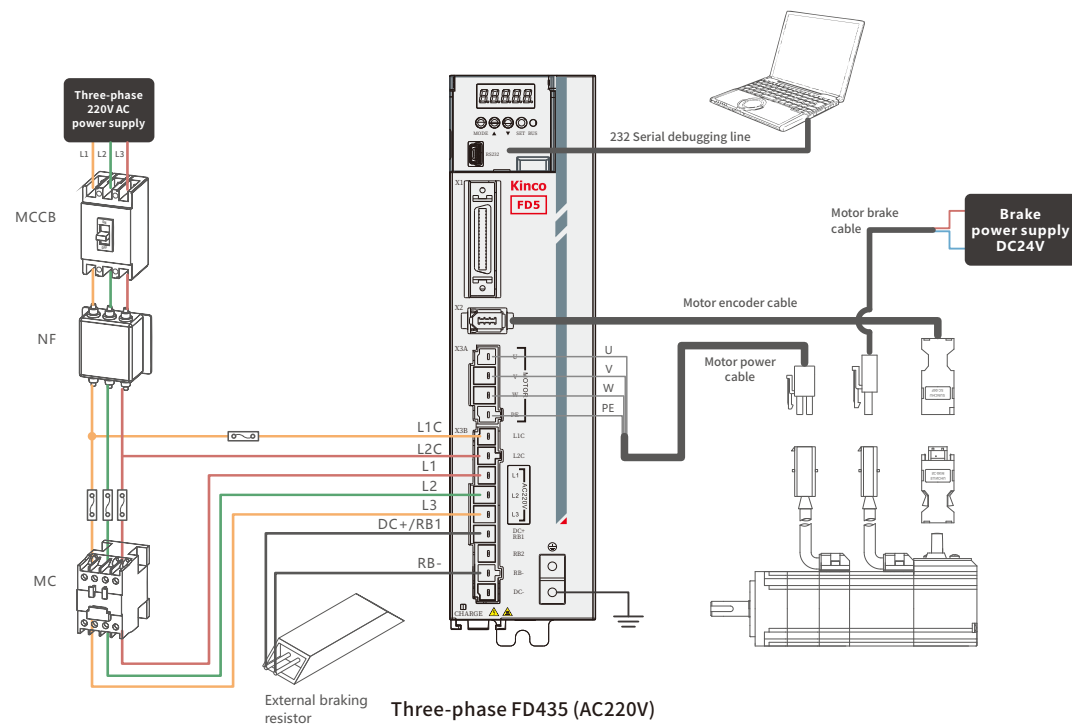
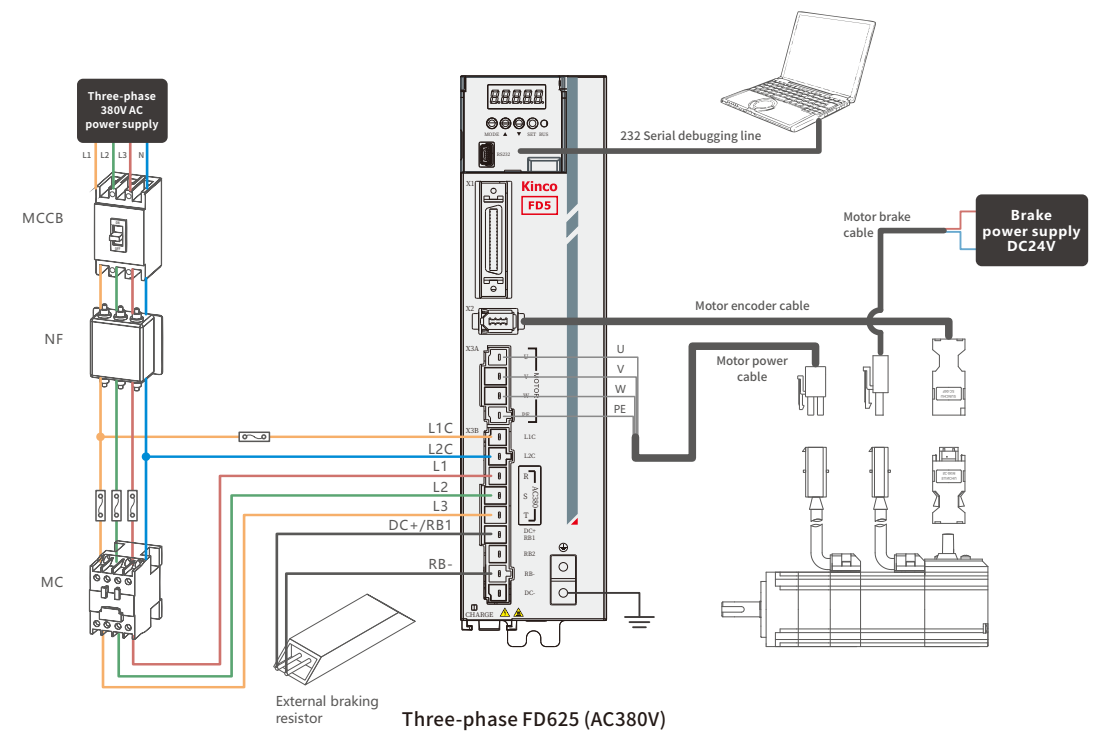
| Series | Rated power/Rated speed/ Rated torque | Servo motor | Description | Power cable Brake cable | Encoder cable | Servo drive | | | |
|----------------------|--|--|--|----------------------------|---|--------------|-------------------|------------------|---------------------|
| | | | | | | Profinet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



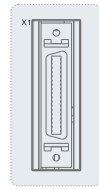
Drive external wiring diagram



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.

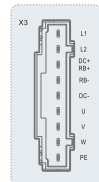
Communication port description of the drive



| 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-, Support maximum frequency 4MHz, voltage range DC 3.3-5V | MA, MB, MZ, MA/, MB/, MZ/ support 5V RS422 differential signal input, maximum pulse frequency 4MHz, optional signal type: ① Pulse+Direction (PLS+DIR) ② Forward and reverse pulses (CW/CCW) ③ A+B phase |
| | | | 21 | MB/ | | |
| | | | 23 | MZ/ | | |
| | | | 25 | NC | | |
| | | | 27 | MA+ / MA | | |
| | | | 29 | MA- | | |
| | | | 31 | MB+ / MB | | |
| | | | 33 | MB- | | |
| | | | 35 | MZ+ / MZ | | |
| | | | 18 | MZ- | | |
| | | | 22 | +5V | | |
| | | | 24 | GND | Internal 5V power output | |
| | | | 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 | | |

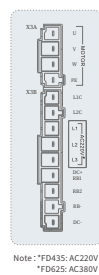
Note: FDXX5-PA-000 supports 5 channels of input and 3 channels of output (ie: DIN5, DIN6, OUT4, OUT5 are empty)

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



| Interface number | Interface name | Interface type | Pin number | Signal marking | Signal Name | Specification description |
|------------------|-----------------|------------------------------------|------------|----------------|-----------------------------------|---|
| X3A | Power terminals | 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- | | |

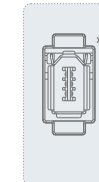
Note: When using the internal braking resistor, please short DC+/RB1 to RB2 (internal braking resistance value: FD435 built-in 100Ω/20W; FD625 built-in 300Ω/20W; When the braking power exceeds the tolerable range of the internal braking resistance, the braking resistance of the alarm drive is abnormal 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



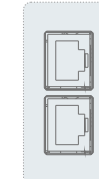
| Interface number | Interface name | Interface type | Pin number | Signal marking | Signal name | Specification description |
|------------------|-------------------------------|------------------------|------------|----------------|----------------------|---|
| RS232 | RS232 communication interface | 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)



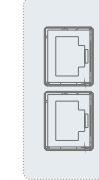
| Interface number | Interface name | Interface type | Pin number | Signal marking | Signal name | Specification description |
|------------------|---------------------------|------------------|------------|----------------|----------------------------------|---------------------------|
| X2 | Motor 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



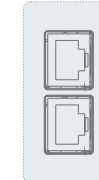
| Interface number | Interface name | Interface type | Pin number | Signal marking | Signal name | Interface number | Interface name | Interface type | Pin number | Signal marking | Signal name |
|------------------|-------------------------------------|--------------------------|------------|----------------|------------------------------|------------------|-------------------------------------|--------------------------|------------|----------------|------------------------------|
| 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



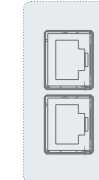
| Interface number | Interface name | Interface type | Pin number | Signal marking | Signal name | Interface number | Interface name | Interface type | Pin number | Signal marking | Signal name |
|------------------|-----------------------------------|--------------------------|------------|----------------|----------------------------|------------------|-----------------------------------|--------------------------|------------|----------------|----------------------------|
| 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

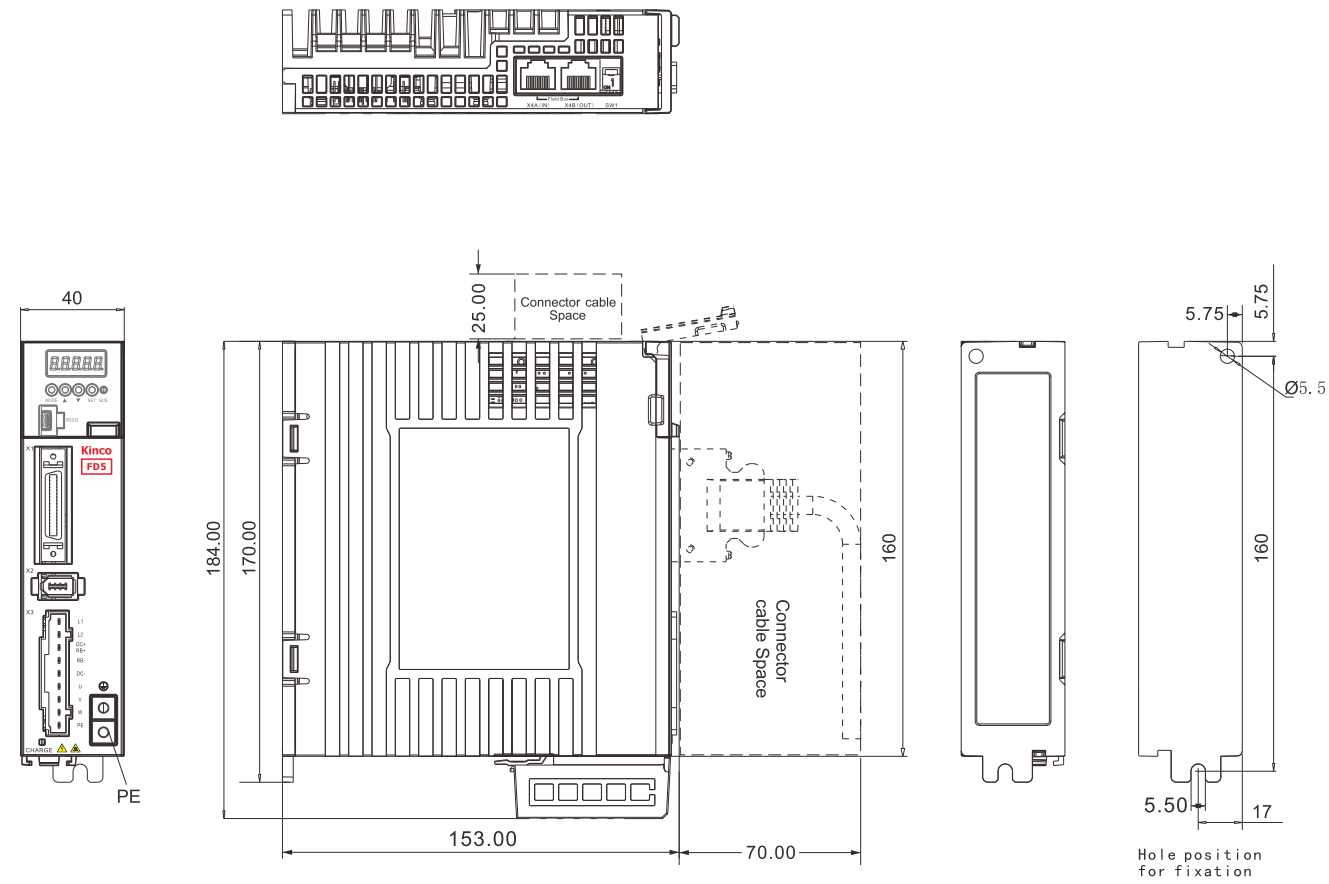


| Interface number | Interface name | Interface type | Pin number | Signal marking | Signal name | Interface number | Interface name | Interface type | Pin number | Signal marking | Signal name |
|------------------|--|--------------------------|------------|----------------|-----------------------------|------------------|--|--------------------------|------------|----------------|-----------------------------|
| 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)

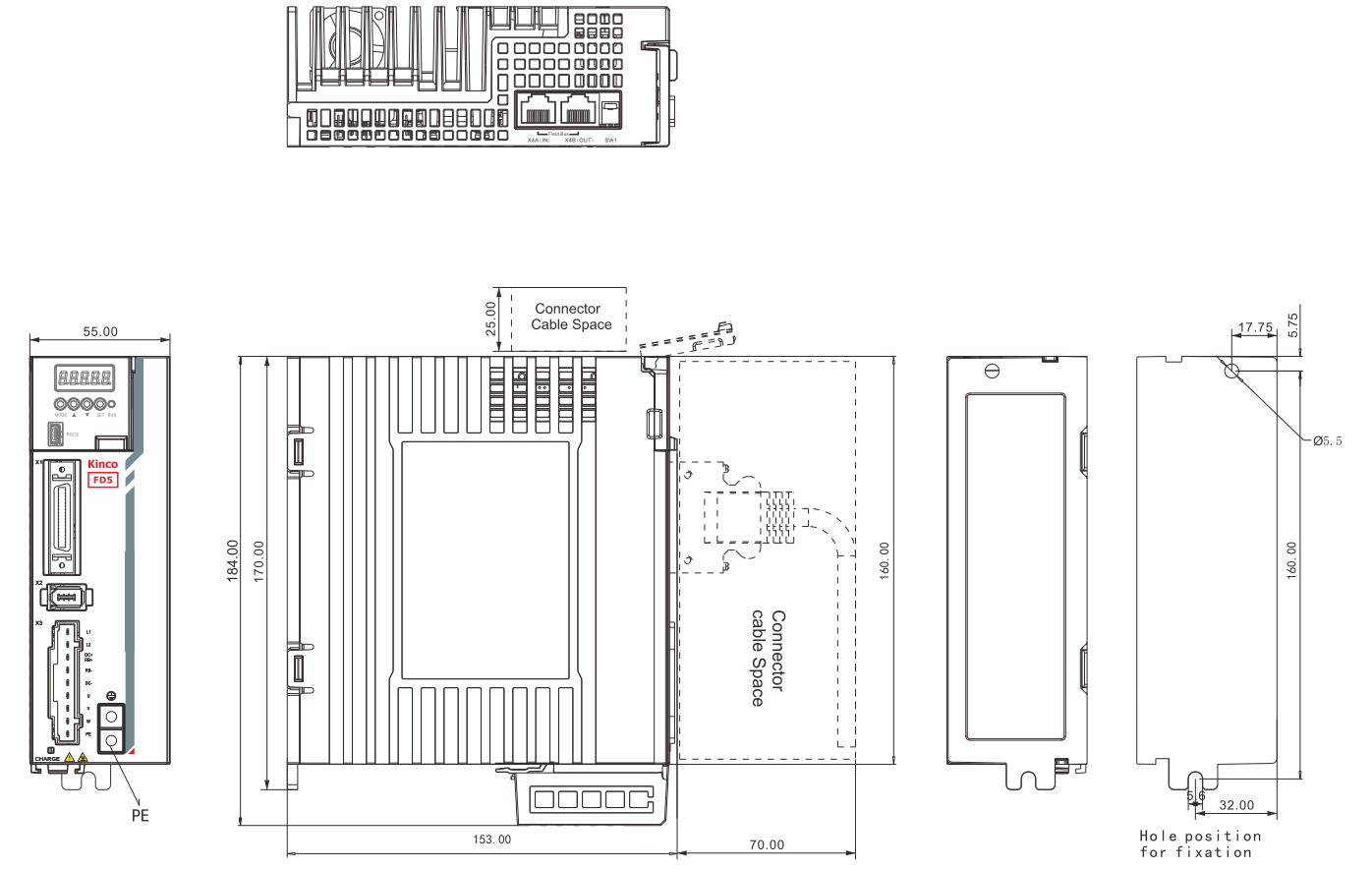
Note: Wiring space needs to be reserved around the drive (recommended > 70 mm)



Servo drive mechanical dimensional diagram

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

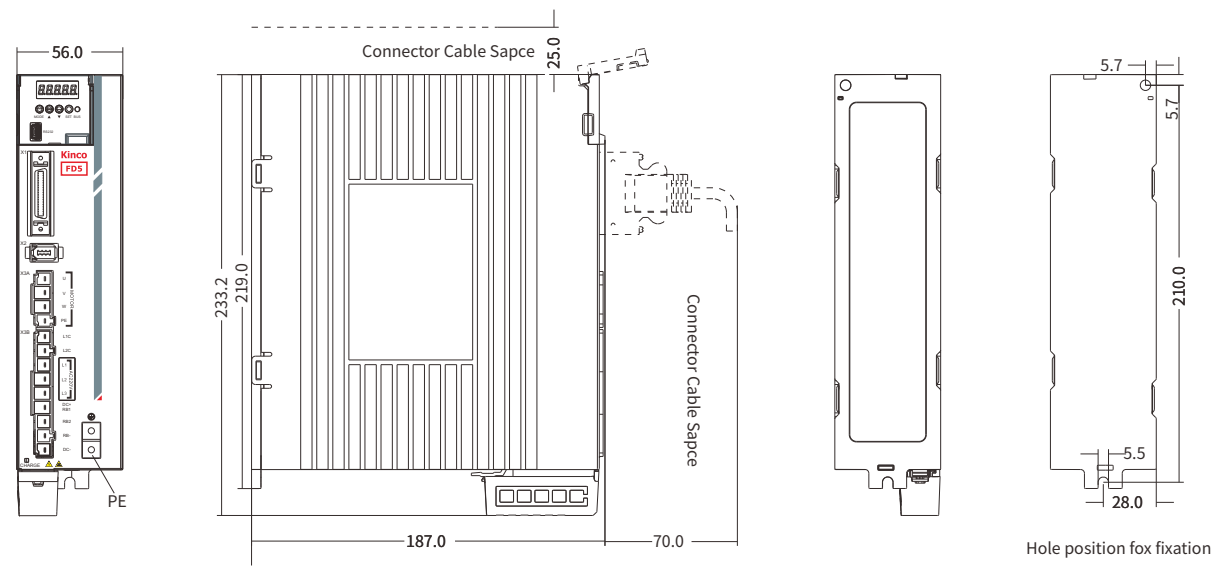
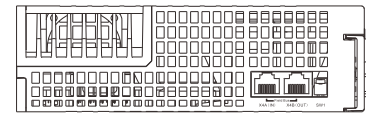
Note: Wiring space needs to be reserved around the drive (recommended > 70 mm)



Servo drive mechanical dimensional diagram

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

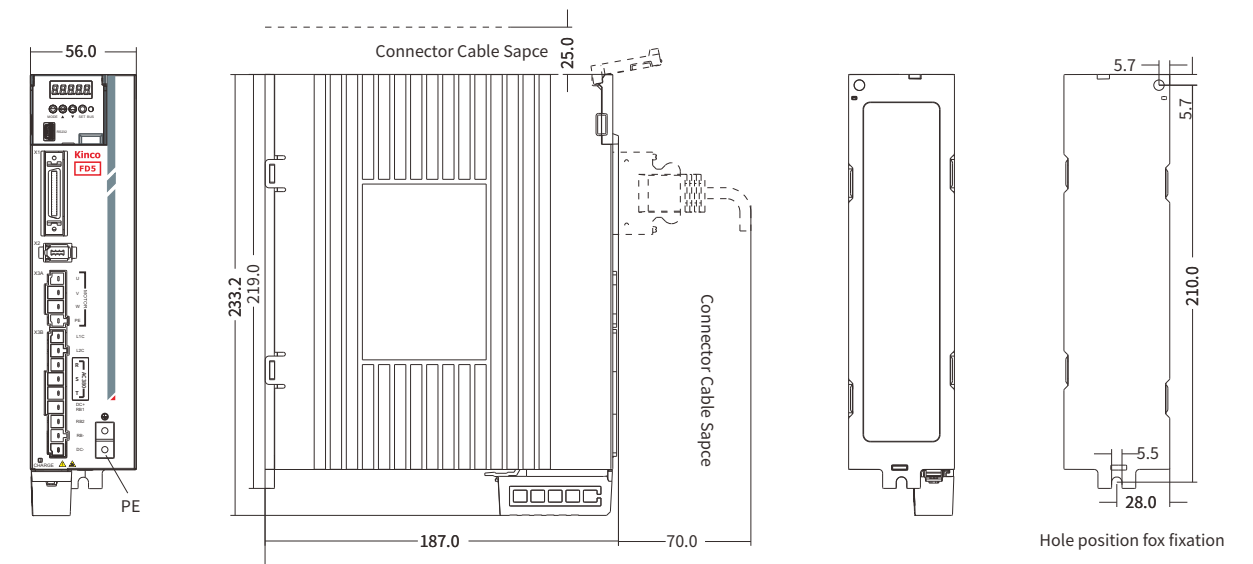
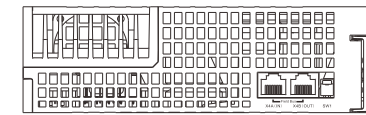
Note: Wiring space needs to be reserved around the drive (recommended > 70 mm)



Servo drive mechanical dimensional diagram

FD625-□A-000 mechanical 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.

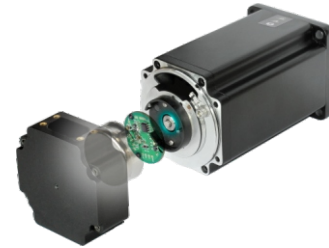
New structure and short fuselage

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

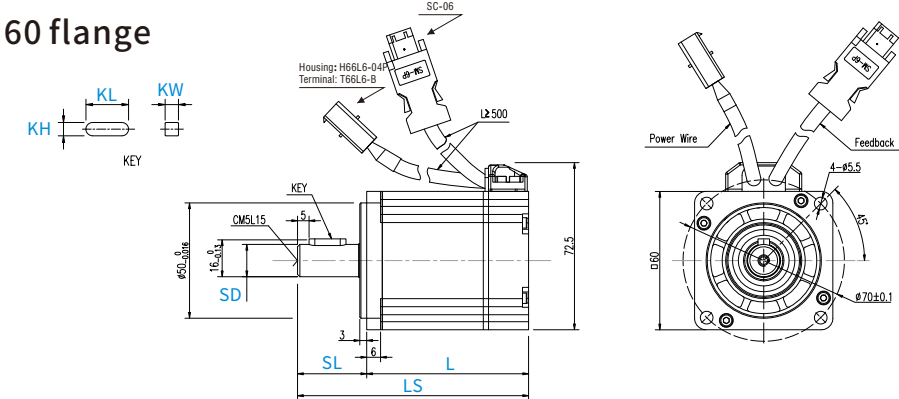


SMG series economical servo motor

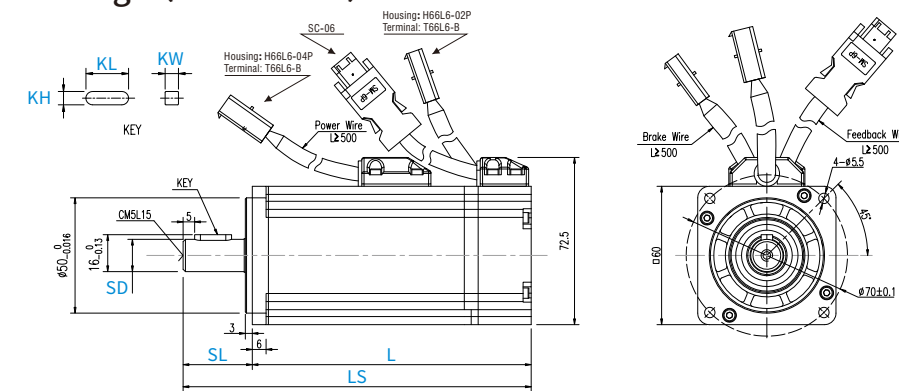


SMC60 series servo motor dimensional diagram

60 flange



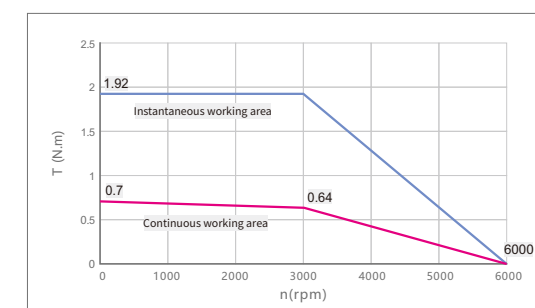
60 flange (with brake)



| 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 | 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 | 174.5±1.5 | 144.5±1.5 | | | | | | |
| | SMC60S-0040-30YAK-5LSU | | | 164.5±1.5 | 134.5±1.5 | | | | | | |
| | SMC60S-0040-30MAK-5LSU | | | | | | | | | | |
| | SMC60S-0040-30MQK-5LSU | | | | | | | | | | |
| | SMC60S-0040-30VBK-5LSU | ✓ | 1.6 | | | | | | | | |
| | SMC60S-0040-30YBK-5LSU | | | | | | | | | | |
| | SMC60S-0040-30MBK-5LSU | | | | | | | | | | |
| | SMC60S-0040-30QBK-5LSU | | | | | | | | | | |

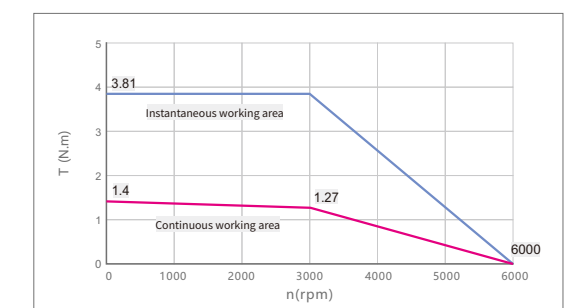
SMC60S-0020-30□□K-5LSU

200W



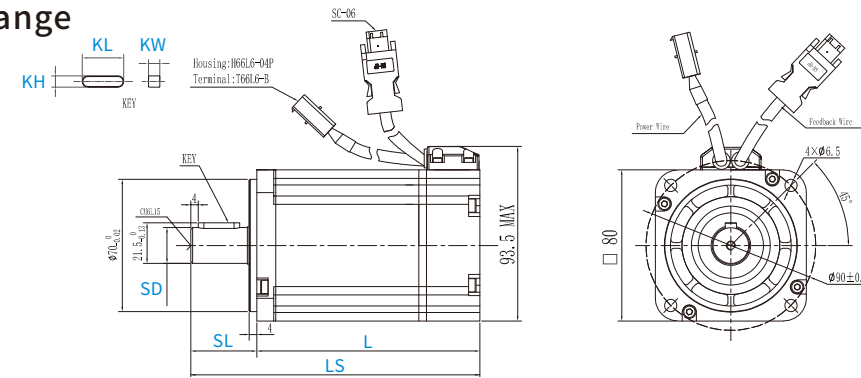
SMC60S-0040-30□□K-5LSU

400W

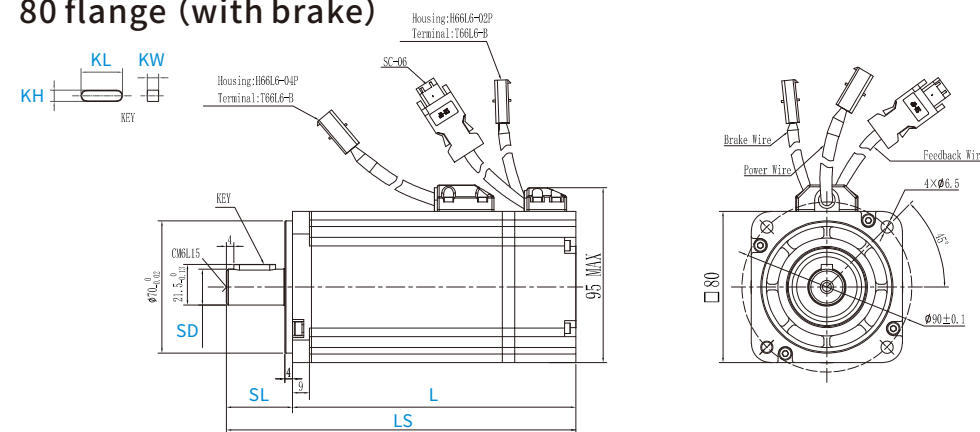


SMC80 series servo motor dimensional diagram

80 flange



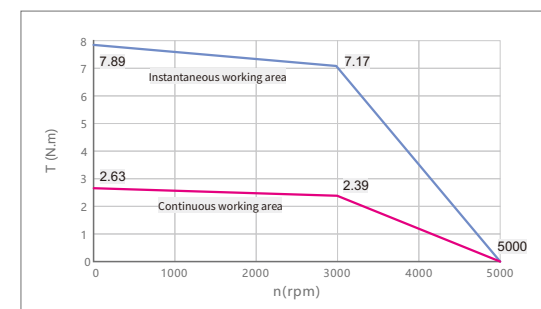
80 flange (with brake)



| 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 | 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 | | | | | | | | | | |
| | SMC80S-0075-30MAK-5LSU | | | | | | | | | | |
| | SMC80S-0075-30QAK-5LSU | | | | | | | | | | |
| | SMC80S-0075-30VBK-5LSU | ✓ | 3 | 185±1.5 | 150±1.5 | | | | | | |
| | SMC80S-0075-30YBK-5LSU | | | | | | | | | | |
| | SMC80S-0075-30MBK-5LSU | | | | | | | | | | |
| | SMC80S-0075-30QBK-5LSU | | | | | | | | | | |

SMC80S-0075-30□□K-5LSU

750W



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



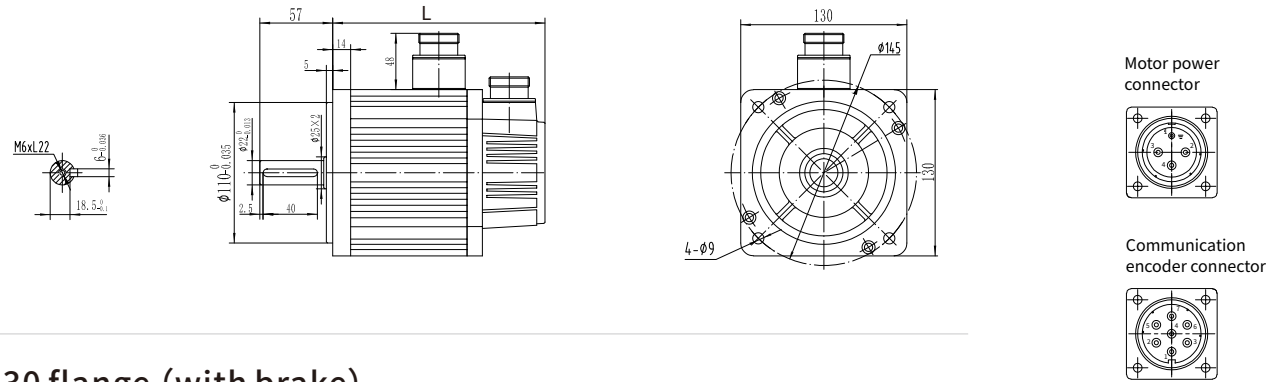
| Model parameters | | Small inertia, 60 flange | | Small inertia, 80 flange |
|--|-----------------------|--|------------------------|--|
| Servo motor model | | SMC60S-0020-30□□K-5LSU | SMC60S-0040-30□□K-5LSU | SMC80S-0075-30□□K-5LSU |
| Adapted drives | | FD425-LA-000, FD425-CA-000 FD425-EA-000, FD425-PA-000 | | FD425-LF-000, FD425-CF-000 FD425-EF-000, FD425-PF-000 |
| Drive power supply voltage | | 300 | 300 | 300 |
| 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 magnetolectric encoder
 □ = A : Motor without holding brake
 □ = Q : Multiturn communication type magnetolectric absolute encoder
 □ = V : Singleturn communication type optical encoder
 □ = Y : Multiturn communication type optical absolute value encoder

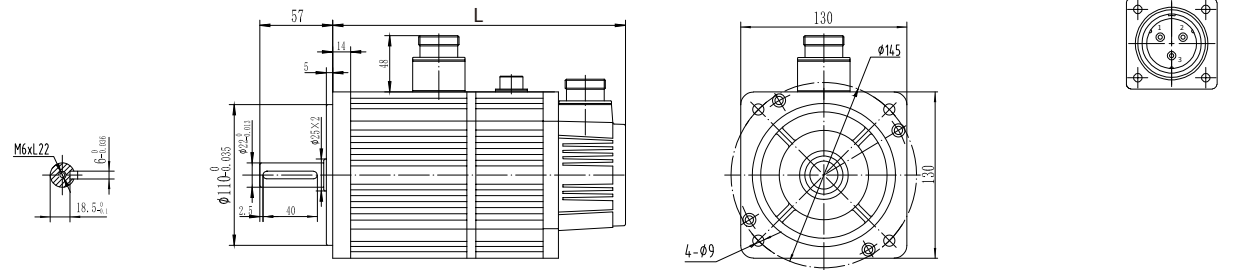
□ = A : Motor without holding brake
 □ = B : Motor with holding brake

SMC130 series servo motor dimensional diagram

130 flange

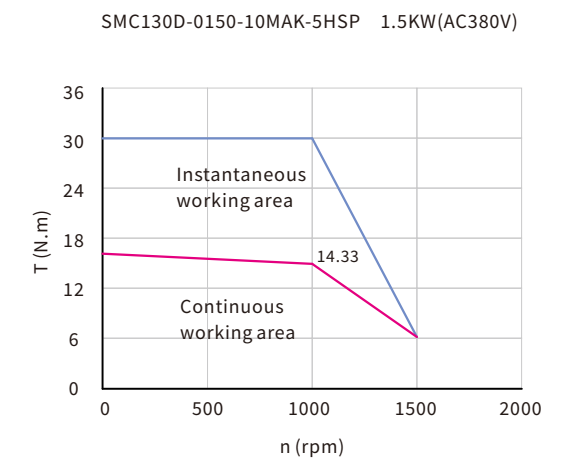
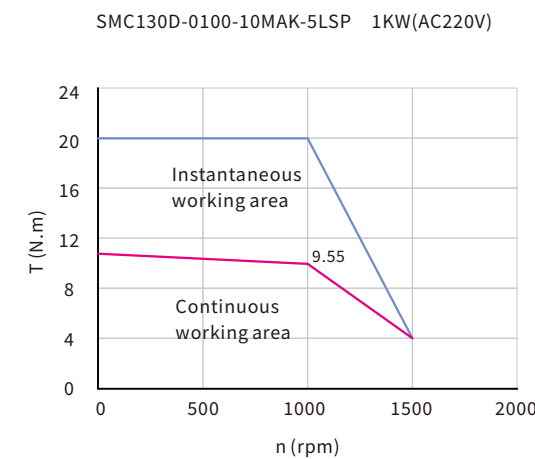
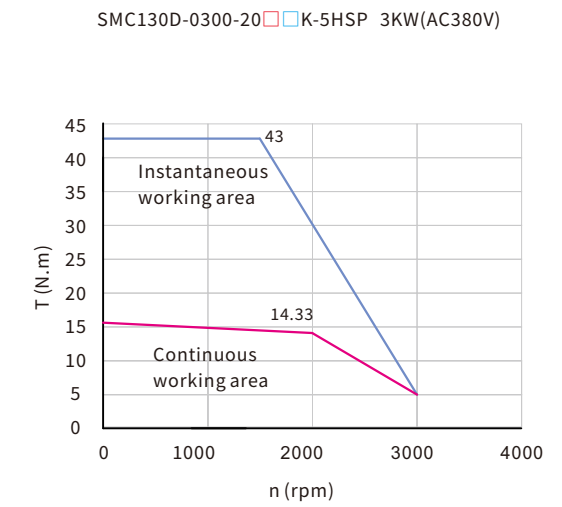
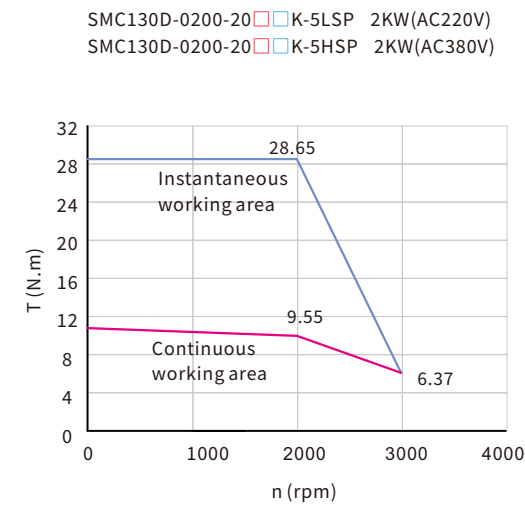
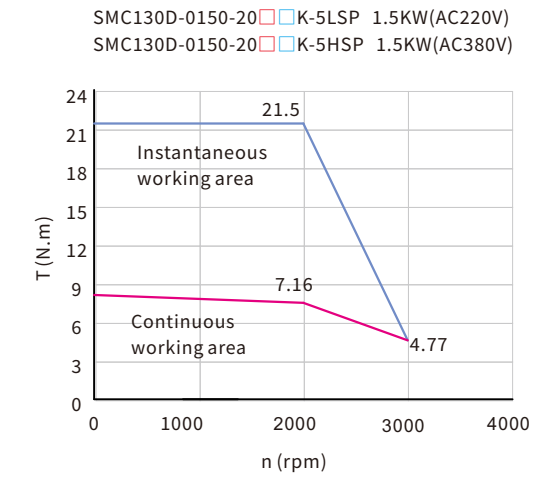
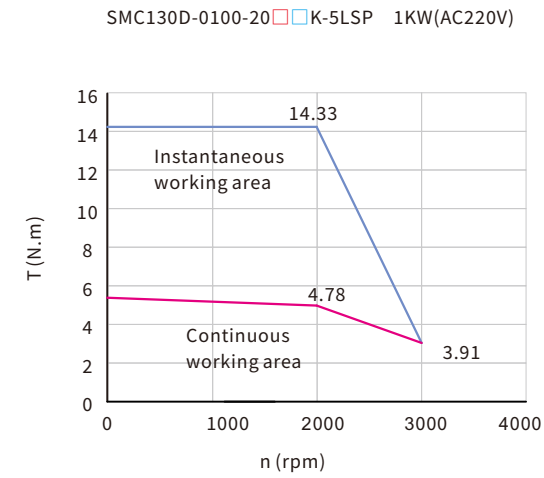


130 flange (with brake)



| 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 | | | | | | |

SMC130 series servo motor size chart



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

Technical specifications of SMC series servo motor (130 flange)

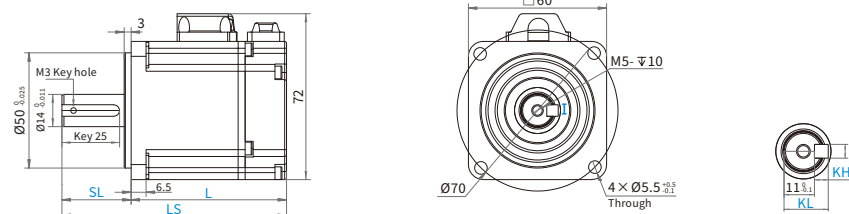


| Model parameters | | Medium inertia, 130 flange | | | | | | | |
|---|---------------------|--|-------------------------|--|-------------------------|--|-------------------------|-------------------------|-------------------------|
| Servo motor model | | SMC130D-0100-20□□K-5LSP | SMC130D-0100-10MAK-5LSP | SMC130D-0150-20□□K-5LSP | SMC130D-0200-20□□K-5LSP | SMC130D-0150-20□□K-5HSP | SMC130D-0150-10MAK-5HSP | SMC130D-0200-20□□K-5HSP | SMC130D-0300-20□□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 | 560 |
| Continuous performance | Rated power Pn(W) | 1 | 1 | 1.5 | 2 | 1.5 | 1.5 | 2 | 3 |
| | Rated torque Tn(Nm) | 4.78 | 9.55 | 7.16 | 9.55 | 7.16 | 14.33 | 9.55 | 14.33 |
| | Rated speed nN(rpm) | 2000 | 1000 | 2000 | 2000 | 2000 | 1000 | 2000 | 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.) | 7 (ref.) |
| MAX torque Tm(Nm) | 14.34 | 20 | 21.5 | 28.65 | 21.5 | 30 | 28.65 | 43 | |
| MAX current Im (A) | 14.5 (ref.) | 10 (ref.) | 25 (ref.) | 30 (ref.) | 12.5 (ref.) | 7.6 (ref.) | 15 (ref.) | 22.7 (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.) | 1.34 (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.) | 18.45 (ref.) | |
| Electrical time constant τe (ms) | 8.96 | 12.3 | 10.95 | 12.08 | 9.13 | 13.3 | 9.69 | 13.75 | |
| Mechanical time constant τm (ms) | | 1.9 | 1.24 | 1.42 | 1.24 | 1.7 | 1.09 | 1.53 | 1.06 |
| | | 2.1(with brake) | - | 1.48(with brake) | 1.3(with brake) | 1.81(with brake) | - | 1.61(with brake) | 1.08(with brake) |
| Reverse voltage constant Ke (V/krpm) | | 73.4 (ref.) | 144 (ref.) | 66.9 (ref.) | 70.35 (ref.) | 121.3 (ref.) | 312 (ref.) | 126.5 (ref.) | 154.8 (ref.) |
| Torque constant Kt (Nm/A) | | 1.21 | 2.38 | 1.1 | 1.16 | 2 | 5.16 | 2.1 | 2.56 |
| Rotor moment of inertia Jm (Kg·cm ²) | | 10.6 | 17.82 | 15.95 | 20.25 | 15.95 | 27 | 20.25 | 30 |
| | | 11.6(with brake) | - | 16.95(with brake) | 21.25(with brake) | 16.95(with brake) | - | 21.25(with brake) | 31(with brake) |
| Brake holding torque T(Nm) | | 15 | - | 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 | 12 |
| | | 8.5(with brake) | - | 10.5(with brake) | 12(with brake) | 10.5(with brake) | - | 12(with brake) | 14.5(with brake) |
| 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 | 213.5±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) | 273.5±1.5 (带抱闸) |
| 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. | | | | | | | |

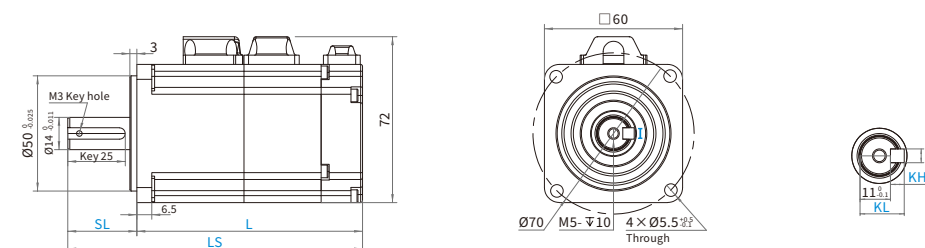
Note: □ = V : Singleturn communication type optical encoder
 Y : Multiturn communication type optical absolute value encoder
 M : Singleturn communication type magnetoelectric encoder
 Q : Multiturn communication type magnetoelectric absolute encoder
 □ = A : Motor without brake
 B : Motor with brake

SMG60 series servo motor dimension

60 flange

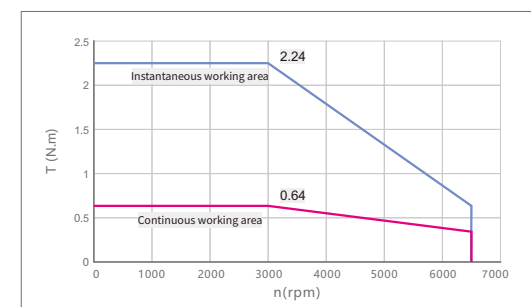


60 flange (with brake)

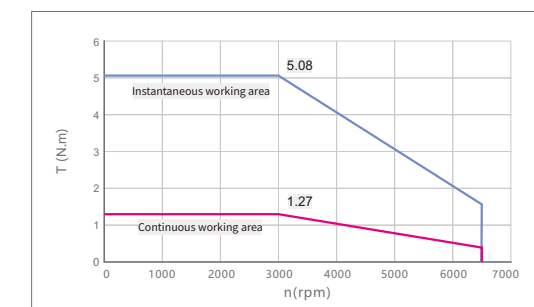


| Flange dimension (mm) | Servo motor | With brake | Weight about (KG) | Overall dimension (mm) | | Shaft dimension (mm) | | | Key dimension (mm) | | |
|-----------------------|------------------------|------------|-------------------|------------------------|----------|----------------------|----|--------------------|--------------------|----|----|
| | | | | 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-0040-30QBK-5LSQ | | | | | | | | | | |

SMG60S-0020-30□□K-5LSQ 200W

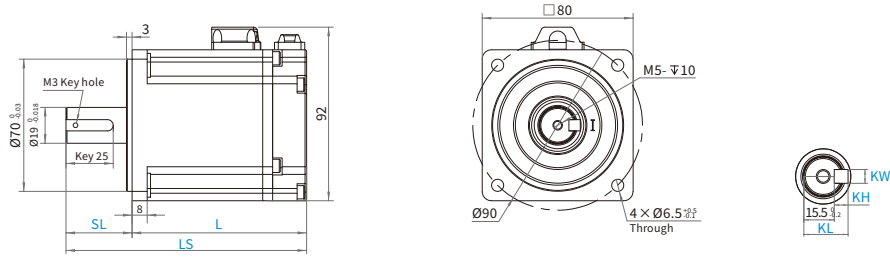


SMG60S-0040-30□□K-5LSQ 400W

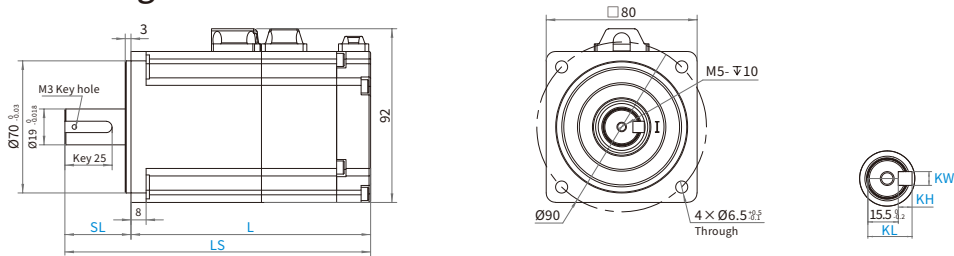


SMG80 series servo motor dimension

80 flange



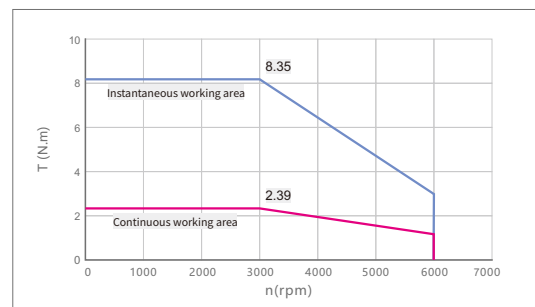
80 flange (with brake)



| 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)



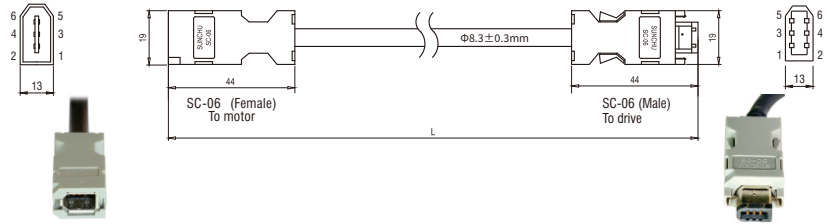
| Model parameter | | Small inertia, 60mm flange | | Small inertia, 80mm flange | |
|--|-----------------------|---|-------------------|----------------------------|--|
| Servo motor | | SMG60S-0020-30□□K-5LSQ | | SMG60S-0040-30□□K-5LSQ | |
| SMG80S-0075-30□□K-5LSQ | | | | | |
| Continuous performance | 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 | |
| | | 1.49 (with brake) | 1.35 (with brake) | 1.34 (with brake) | |
| 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 | |
| | | 0.31 (with brake) | 0.59 (with brake) | 1.63 (with brake) | |
| Brake holding torque T (Nm) | | 1.58 | 1.58 | 3.8 | |
| Pole pair number | | 5 | 5 | 5 | |
| MAX voltage rising du/dt (kv/μs) | | 8 | 8 | 8 | |
| Insulation class | | F | F | F | |
| MAX radial force Fr (N) | | 245 | 245 | 392 | |
| MAX axial force Fa (N) | | 74 | 74 | 147 | |
| Weight G (Kg) | | 0.78 | 1.2 | 2.1 | |
| | | 1.2 (with brake) | 1.6 (with brake) | 2.9 (with brake) | |
| Cooling method | | Forced air cooling of the servo motor from the outside with a cooling fan | | | |
| Protection level | | IP65 (shaft through part) | | | |
| Operation environment | Temperature | 0~40°C (without freezing) | | | |
| | Humidity | 20~80% (no condensation) | | | |
| | Ambient environment | Keep away from corrosion, flammable gas, oil droplets, dust | | | |
| | Altitude | Below 1000m, please derate for use above 1000m | | | |

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

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

Cable wiring instructions (encoder cable)

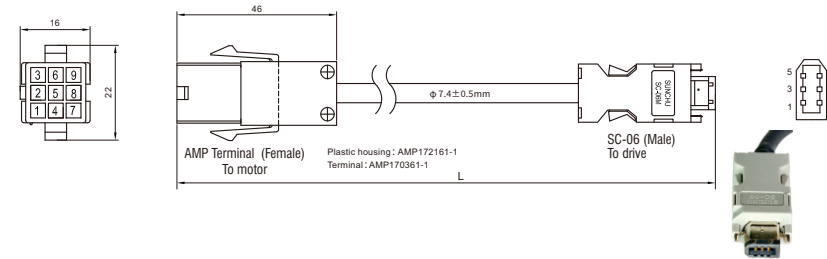
ENC DG-LL-GU
 Wire spec.:UL2661 1P×20AWG+2P×24AWG
 20AWG cross section area is 0.5189mm²
 24AWG cross section area is 0.2047mm²



| 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: ENCDG-GU
 Flexible cable: ENCDGF-LL-GU
 Cable specifications: 1P x 20AWG(72/0.10T)+2P x 24AWG(32/0.10T)
 Cable diameter: 7.4±0.5mm

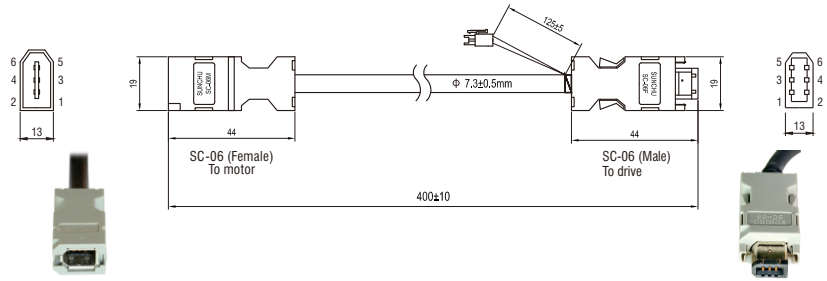
ENC DG-LL-GQ
 Wire spec.:UL2661 1P×20AWG(26/0.16T)+2P×24AWG(11/0.16T)
 20AWG cross section area is 0.5189mm²
 24AWG cross section area is 0.2047mm²



| 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: ENCDG-GQ
 Flexible cable: ENCDGF-LL-GQ
 Cable specifications: 1P×20AWG(72/0.10T)+2P×24AWG(32/0.10T)
 Cable diameter: 7.4±0.5mm

ENC DG-(4)-GU-BT5
 Wire spec.:3×2×0.2mm²

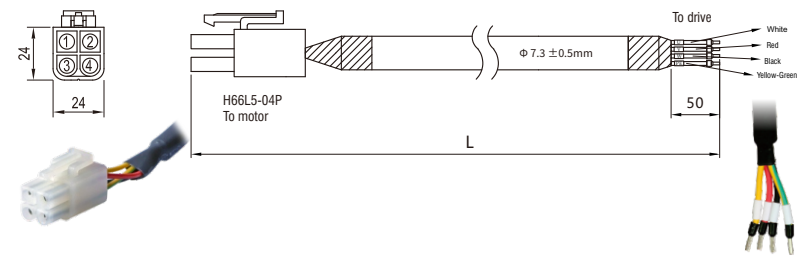


| SC-06F | Color | Signal | SC-06M | Black HSG | External single |
|--------|--------|--------|--------|-----------|-----------------|
| PIN1 | Red | +5V | PIN1 | | |
| PIN2 | Black | GND | PIN2 | | |
| PIN3 | Brown | BAT+ | | PIN1 | Red |
| PIN4 | Blue | BAT- | | PIN2 | Black |
| PIN5 | Yellow | SD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

Optional battery case for FD5
 BAT-FD5, suitable for absolute encoder motor, matching with ENCDG-(4)-GU-BT5

Cable wiring instructions (power cable)

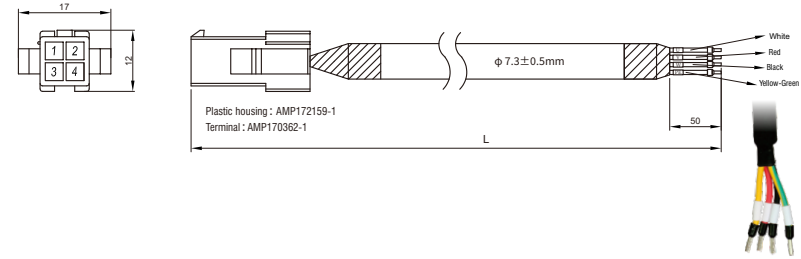
MOT-005-LL-KL-NS
 Wire spec.:UL2517 4 X 18AWG
 18AWG cross section area is 0.8107mm²



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

Note: Corresponding accessory MOT-KL

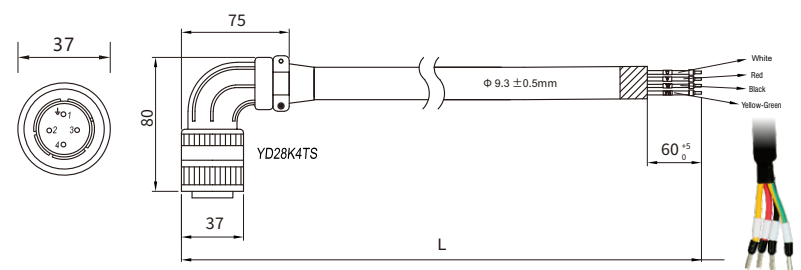
MOT-005-LL-KQ-NS
 Wire spec.:UL2517 4 X 18AWG
 18AWG cross section area is 0.8107mm²



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

Note: Corresponding accessory MOT-KQ

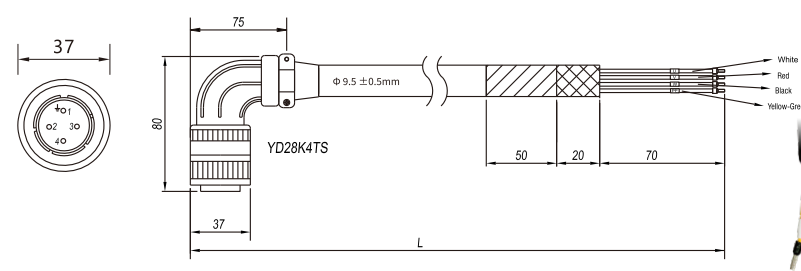
MOT-008-LL-KG1-NS
 Wire spec.: UL2588 4 X 1.5mm²



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

Note: Corresponding accessory MOT-KG1

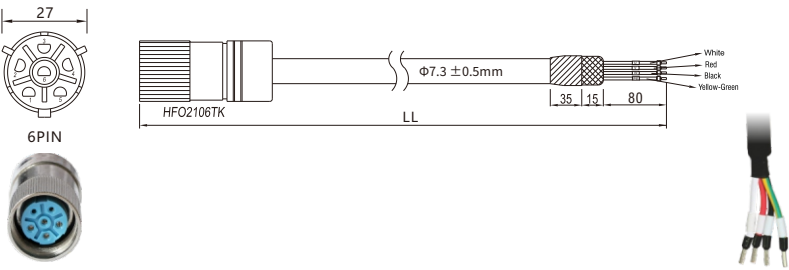
MOT-015-LL-KG1
 Wire spec.:4×14AWG(50/0.25T)
 14AWG cross section area is 2.075mm²



| 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)

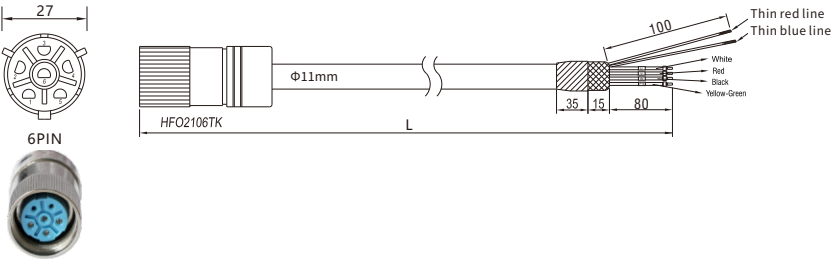
MOT-005-LL-KC4
 Wire spec: 4C*18AWG(41/0.16T)
 18AWG cross section area is 0.8107mm²



| 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

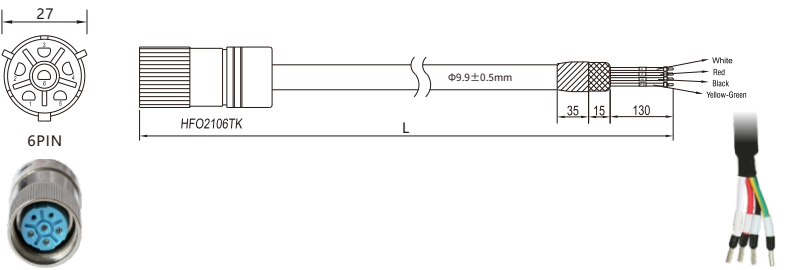
MOT-005-LL-KC4-B
 Wire spec: 4*18AWG+2*20AWG BLACK
 18AWG cross section area is 0.8107mm²
 20AWG cross section area is 0.5189mm²



| 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

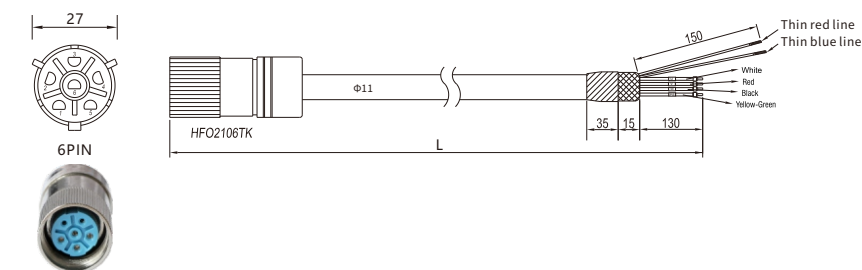
MOT-008-LL-KC4
 Wire spec: 4X16AWG
 16AWG cross section area is 1.318mm²



| 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

MOT-008-LL-KC4-B
 Wire spec: 4*1.5+2*0.5

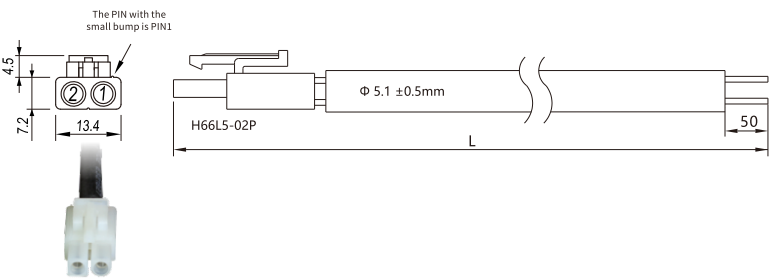


| Color | Signal | HFO2106TK |
|----------------|--------|-----------|
| White | U | PIN2 |
| Red | V | PIN3 |
| Black | W | PIN4 |
| Yellw-Green | PE | PIN6 |
| Thin red line | brake+ | PIN1 |
| Thin blue line | brake- | PIN5 |

Note:
 Accessories: MOT-KC4-B

Cable wiring instructions (brake cable)

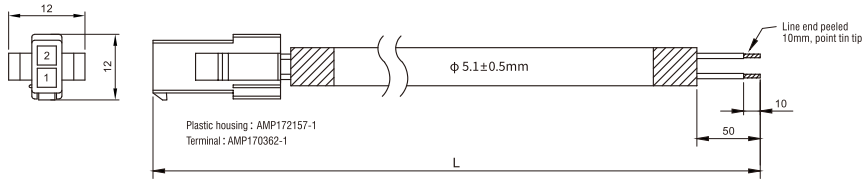
BRA-LL-KL
 Wire spec: 2C*20AWG
 20AWG cross section area is 0.5189mm²



| 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

BRA-LL-KQ
 Wire spec: UL2464 2 X 20AWG
 20AWG cross section area is 0.5189mm²



| 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 diameter: 5.5 ± 0.2mm