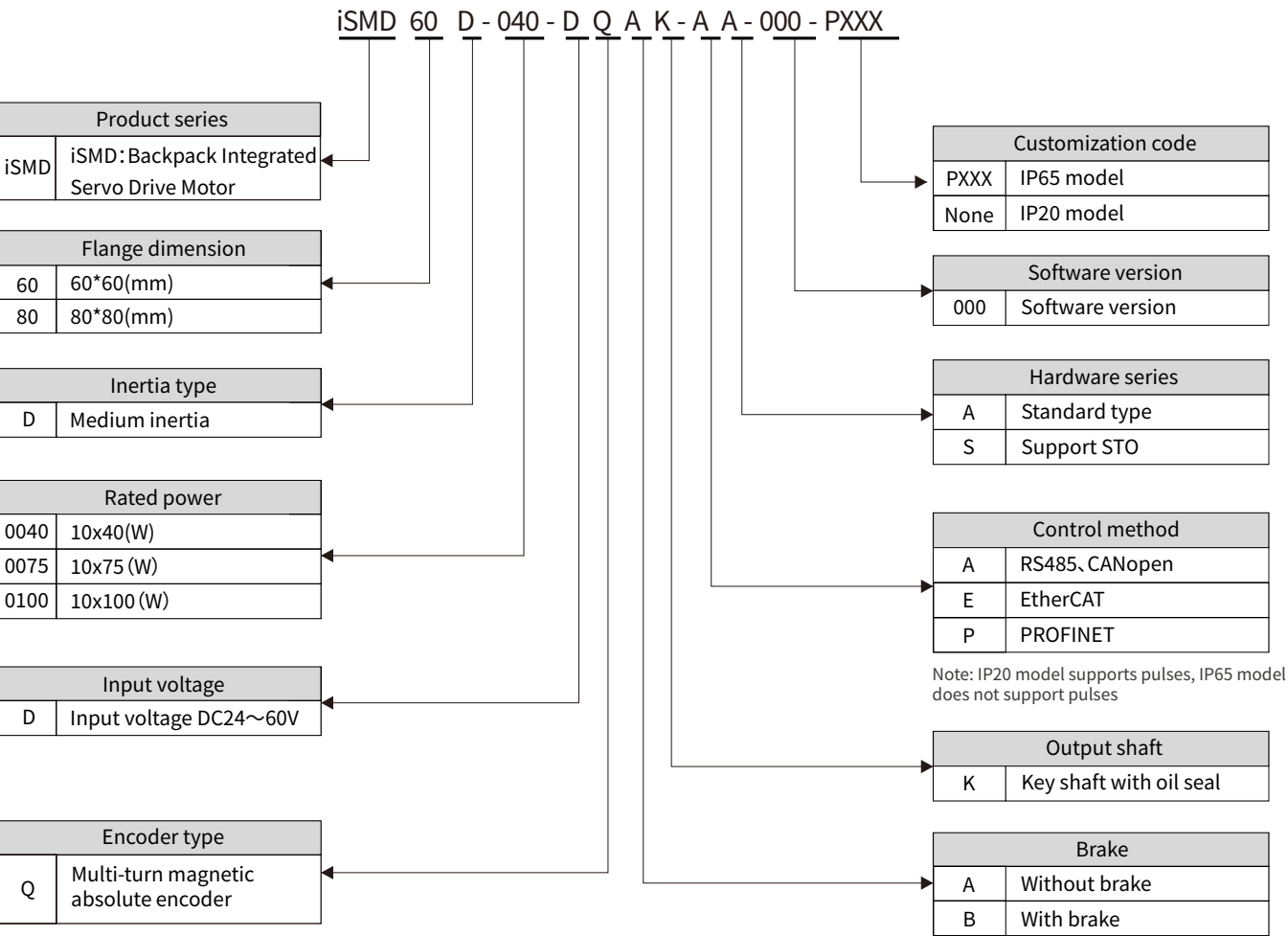


■ Naming rules



iSMD high-performance integrated servo drive motor



Wide voltage input  
DC24V~ DC60V



Integrated design  
On-site distributed installation  
efficient space utilization



Combining the servo driver  
motor and bus interface together  
with a compact appearance.

Seven Major Advantages

1 Integrated Design, Significantly Reducing Overall Operating Costs

Adopting a highly integrated all-in-one structure, the volume is reduced by approximately 20% compared to traditional split-type servos. The compact design perfectly fits various narrow installation spaces. The streamlined hardware structure greatly reduces external cables and assembly procedures, saving time and effort during installation and comprehensively lowering the total cost of ownership (TCO) throughout the equipment lifecycle.

- Integrated & All-in-one Design
- Suitable for various narrow installation spaces
- Time-saving, labor-saving & efficient assembly
- Reduce overall TCO (Total Cost of Ownership)

Approximate volume reduction

20%

2 Robust Power Performance, Stable Heavy-Load Operation Unaffected by Harsh Conditions

The entire iSMD series comes standard with an S1 continuous duty cycle, enabling long-term, stable, full-load operation, thereby laying a solid foundation for prolonged equipment performance. It powerfully supports a 3x short-term overload capacity, with fast response and excellent acceleration/deceleration performance, effectively shortening equipment operation cycles and accelerating production processes, directly boosting overall output and operational efficiency.

S1 Continuous Duty

3X Short-time Overload Capacity

3 High-Precision Encoder Configuration, Accurate Positioning and Smoother Operation

Equipped with a high-performance magnetoelectric encoder (17-bit incremental/absolute encoding specifications, with up to 131,072 pulses per revolution) for maximized positioning accuracy. The high-end configuration features a 23-bit mechanical multi-turn absolute encoder, allowing battery-free, long-term latching of position data. Equipment restart requires no homing or origin seeking, eliminating tedious reset procedures and significantly saving debugging and start/stop time.

High-Performance Magnetoelectric Encoder

Cutaway Schematic

- 17-bit Incremental / Absolute Encoding Specification
- Up to 131072 Pulses Per Revolution
- 23-bit Mechanical Multi-turn Absolute Encoder

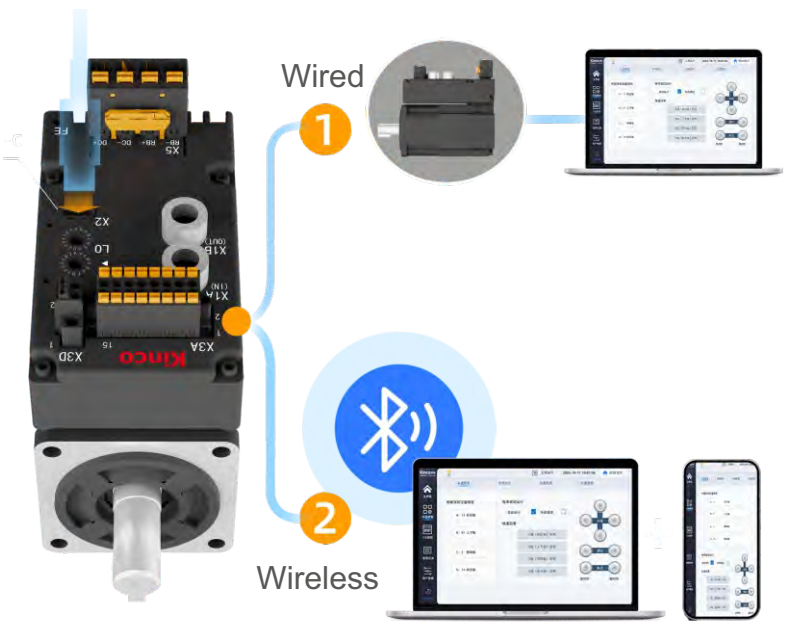
4 Full Support for Mainstream Fieldbuses, Seamless Compatibility with Various Control Systems

Supports mainstream industrial communication buses such as EtherCAT, Modbus, CANopen, and PROFINET. It offers a rich variety of interfaces, allowing rapid connection to various mainstream controllers on the market. The networking is flexible and convenient, easily adapting to multi-scenario coordinated control requirements in automated production lines.



5 Minimalist and Intelligent Debugging, Hassle-Free with Both Wired and Wireless Modes

Comes standard with a Type-C direct-connect debugging interface; a single cable connects to professional debugging software on a computer for easy operation. It features a built-in high-speed Bluetooth wireless debugging module, supporting wireless debugging via both mobile phone and computer, easily overcoming debugging challenges in complex scenarios such as high-altitude or mobile equipment, thereby doubling maintenance and debugging efficiency.



Seven Major Advantages

6 Certified with Authority, Ensuring Safety for Both Domestic and International Market Expansion

Several models feature the STO (Safe Torque Off) function (certification in progress), which can instantly cut off motor torque output in emergency situations. The independent safety control circuit is unaffected by main control system failures, functioning like a one-button emergency stop, comprehensively preventing production safety hazards and ensuring on-site operational safety.



UL



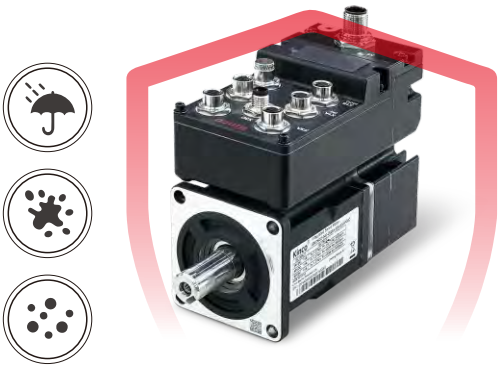
CE

Dual Safety Protection



7 High-Level IP65 Protection, Durable for Harsh Environments

The entire unit achieves an IP65 high protection rating, providing dust, water, and oil resistance. It is unaffected by harsh industrial environments such as dust, moisture, and humidity. With strong adaptability to various working conditions, it operates stably for long periods without damage, significantly extending the equipment's service life.



IP65

iSMD-IP20 series Parameter Table

| Model parameter                                   |                                        | iSMD60D-040-DQ■K-A▲-000<br>iSMD60D-040-DQ■K-EA-000<br>iSMD60D-040-DQ■K-PA-000                                                                                                                                                                                                                                                   | iSMD80D-075-DQ■K-A▲-000<br>iSMD80D-075-DQ■K-EA-000<br>iSMD80D-075-DQ■K-PA-000 | iSMD80D-100-DQ■K-A▲-000<br>iSMD80D-100-DQ■K-EA-000<br>iSMD80D-100-DQ■K-PA-000 |
|---------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Input                                             | Power supply                           | 48VDC,10A<br>Allowable fluctuation range 24V~60V                                                                                                                                                                                                                                                                                | 48VDC,17A<br>Allowable fluctuation range 24V~60V                              | 48VDC,24A<br>Allowable fluctuation range 24V~60V                              |
|                                                   | Logic power                            | Not support STO function mode:24VDC, with fuse 60V@0.5A<br>Supports STO function model:24V, logic power is isolated power supply, isolation voltage 500VDC                                                                                                                                                                      |                                                                               |                                                                               |
| complete machine                                  | Max continuous output current(Arms)    | 10                                                                                                                                                                                                                                                                                                                              | 16.2                                                                          | 21.2                                                                          |
|                                                   | Peak current(Peak)                     | 48AP                                                                                                                                                                                                                                                                                                                            | 100AP                                                                         | 100AP                                                                         |
|                                                   | Rated power Pn(W)                      | 400                                                                                                                                                                                                                                                                                                                             | 750                                                                           | 1000                                                                          |
|                                                   | Rated speed n <sub>n</sub> (rpm)       | 3000                                                                                                                                                                                                                                                                                                                            | 3000                                                                          | 3000                                                                          |
|                                                   | Max speed n <sub>m</sub> (rpm)         | 4000                                                                                                                                                                                                                                                                                                                            | 4000                                                                          | 3500                                                                          |
|                                                   | Max torque T <sub>n</sub> (Nm)         | 1.27                                                                                                                                                                                                                                                                                                                            | 2.39                                                                          | 3.18                                                                          |
|                                                   | Max torque T <sub>m</sub> (Nm)         | 3.81                                                                                                                                                                                                                                                                                                                            | 7.17                                                                          | 9.54                                                                          |
|                                                   | Rotary inertia Jm(Kg·cm <sup>2</sup> ) | 0.48                                                                                                                                                                                                                                                                                                                            | 1.66                                                                          | 2.27                                                                          |
|                                                   |                                        | 0.49 (With brake)                                                                                                                                                                                                                                                                                                               | 1.72 (With brake)                                                             | 2.33 (With brake)                                                             |
|                                                   | Brake holding torque (Nm)              | 2                                                                                                                                                                                                                                                                                                                               | 4                                                                             | 4                                                                             |
|                                                   | Brake rated power (W)                  | 7.6                                                                                                                                                                                                                                                                                                                             | 11.5                                                                          | 11.5                                                                          |
|                                                   | Brake rated voltage (VDC)              | 24                                                                                                                                                                                                                                                                                                                              | 24                                                                            | 24                                                                            |
| Duty                                              |                                        | S1 (Continuous duty), based on the measured value of SMK60D_400W and SMK80D_750W;<br>S3 (60%-10min), based on the measured value of iSMD_1000W                                                                                                                                                                                  |                                                                               |                                                                               |
| Energy consumption brake                          |                                        | Need external brake resistance (iSMD60D≥5Ω/100W;iSMD80D≥5Ω/400W)                                                                                                                                                                                                                                                                |                                                                               |                                                                               |
| Energy consumption brake voltage absorption point |                                        | 63V±2V(default)                                                                                                                                                                                                                                                                                                                 |                                                                               |                                                                               |
| Overvoltage alarm voltage                         |                                        | 68V±2V(default)                                                                                                                                                                                                                                                                                                                 |                                                                               |                                                                               |
| Undervoltage alarm voltage                        |                                        | 16V±2V(default)                                                                                                                                                                                                                                                                                                                 |                                                                               |                                                                               |
| Cooling mode                                      |                                        | Natural cooling                                                                                                                                                                                                                                                                                                                 |                                                                               |                                                                               |
| Input specification                               | Digital input                          | 3-channel DI, Common COM1 port, High level :12.5V~30VDC, Low level: 0~5VDC,Max frequency : 1KHz<br>Min turn-on voltage<11V,Max cut-off voltage>5V,Max input voltage:30V, Complies with IEC61131-2 Type3,<br>DI2 support probe function, Response time ≤10uS,Input impedance:5.1K                                                |                                                                               |                                                                               |
|                                                   | Pulse input                            | 2-channel pulse input,Pulse+direction, CCW+CW,phase A+phase B (12V~24V),Max frequency:500KHz<br>It can be multiplexed as 2-channel DI (DI4 and DI5 ) by software setting<br>Min turn-on voltage<11V,Max cut-off voltage>5V,Max input voltage:30V,Complies with IEC61131-2 Type3                                                 |                                                                               |                                                                               |
|                                                   | Analog input                           | iSMD_AA/AS model:1-channel voltage type analog input, 12bit,-10V~+10V,differential connection method                                                                                                                                                                                                                            |                                                                               |                                                                               |
| Output specification                              |                                        | 2-channel DO, open collector output, Max control voltage:30V, Max load current:100mA                                                                                                                                                                                                                                            |                                                                               |                                                                               |
| Type-C                                            |                                        | Debug special, can use Kinco PC software connection                                                                                                                                                                                                                                                                             |                                                                               |                                                                               |
| STO                                               |                                        | Applicable to models that support STO function;2-channel STO, STO interface can be connected with the safety controller, safety switch, safety sensor, etc., to realize the safety function of the driver.Input voltage range:24VDC±15%,Input current:2.3mA(Type),Logic level standard:IEC61131-2 Type1.Input resistance:10kOhm |                                                                               |                                                                               |
| function                                          | Bus                                    | It supports a maximum 115200bps and can communicate with the controller using Modbus RTU                                                                                                                                                                                                                                        |                                                                               |                                                                               |
|                                                   | CANopen                                | It supports a maximum of 1Mbps and can communicate with the controller using the CANopen                                                                                                                                                                                                                                        |                                                                               |                                                                               |
|                                                   | EtherCAT                               | Support CoE(CiA402 protocol)and CSP/CSV/PP/PV/PT/HM mode,communication speed 100Mbps                                                                                                                                                                                                                                            |                                                                               |                                                                               |
|                                                   | PROFINET                               | Non periodic parameter read and write;<br>Message 1, message 3, message 5, message 9, message 102, message 105, message 111<br>Support IRT synchronous mode;Support absolute value encoder;Support DSC dynamic servo control                                                                                                    |                                                                               |                                                                               |
| environment                                       | Use                                    | Working temperature<br>-20℃ ~ +40℃                                                                                                                                                                                                                                                                                              |                                                                               |                                                                               |
|                                                   |                                        | Storage temperature<br>Short term storage (within 1 month): -20℃~+65℃<br>Long term storage (over 1 month):-10℃ ~ +55℃                                                                                                                                                                                                           |                                                                               |                                                                               |
|                                                   |                                        | Protection class<br>IP20                                                                                                                                                                                                                                                                                                        |                                                                               |                                                                               |
|                                                   |                                        | Installation site<br>Dust-free, dry, lockable                                                                                                                                                                                                                                                                                   |                                                                               |                                                                               |
|                                                   |                                        | Installation method<br>Motor flange installation                                                                                                                                                                                                                                                                                |                                                                               |                                                                               |
|                                                   |                                        | Altitude<br>Less than 3000m,power derating 1.5%/100m between 1000m and 3000m                                                                                                                                                                                                                                                    |                                                                               |                                                                               |
|                                                   |                                        | Atmospheric<br>67kpa~106kpa                                                                                                                                                                                                                                                                                                     |                                                                               |                                                                               |

Note:  
■ = A:Without brake      ▲ = A:Without STO  
=B:With brake              = S:With STO

iSMD\_IP65 series Parameter Table

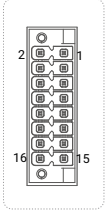
| Model parameter                                   |                                        | iSMD60D-040-DQ■K-E▲-000-PXXX                                                                                                                                                   | iSMD80D-075-DQ■K-E▲-000-PXXX                     |
|---------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Input                                             | Power supply                           | 48VDC,10A<br>Allowable fluctuation range 24V~60V                                                                                                                               | 48VDC,17A<br>Allowable fluctuation range 24V~60V |
|                                                   | Logic power                            | Not support STO function mode:24VDC, with fuse 60V@0.5A<br>Supports STO function model:24V, logic power is isolated power supply, isolation voltage 500VDC                     |                                                  |
|                                                   |                                        |                                                                                                                                                                                |                                                  |
| complete machine                                  | Max continuous output current(Arms)    | 10                                                                                                                                                                             | 16.2                                             |
|                                                   | Peak current(Peak)                     | 48AP                                                                                                                                                                           | 100AP                                            |
|                                                   | Rated power Pn(W)                      | 400                                                                                                                                                                            | 750                                              |
|                                                   | Rated speed n <sub>n</sub> (rpm)       | 3000                                                                                                                                                                           | 3000                                             |
|                                                   | Max speed n <sub>n</sub> (rpm)         | 4000                                                                                                                                                                           | 4000                                             |
|                                                   | Max torque Tn(Nm)                      | 1.27                                                                                                                                                                           | 2.39                                             |
|                                                   | Max torque Tm (Nm)                     | 3.81                                                                                                                                                                           | 7.17                                             |
|                                                   | Rotary inertia Jm(Kg•cm <sup>2</sup> ) | 0.48                                                                                                                                                                           | 1.66                                             |
|                                                   |                                        | 0.49 (With brake)                                                                                                                                                              | 1.72 (With brake)                                |
|                                                   | Brake holding torque (Nm)              | 2                                                                                                                                                                              | 4                                                |
|                                                   | Brake rated power (W)                  | 7.6                                                                                                                                                                            | 11.5                                             |
|                                                   | Brake rated voltage (VDC)              | 24                                                                                                                                                                             | 24                                               |
| Duty                                              |                                        | S1 (Continuous duty), based on the measured value of SMK60D_400W and SMK80D_750W ;<br>S3 (60%-10min), based on the measured value of iSMD_1000W.                               |                                                  |
| Energy consumption brake                          |                                        | Need external brake resistance module (Model: PRC-69-40-20)                                                                                                                    |                                                  |
| Energy consumption brake voltage absorption point |                                        | 63V±2V(default)                                                                                                                                                                |                                                  |
| Overvoltage alarm voltage                         |                                        | 68V±2V(default)                                                                                                                                                                |                                                  |
| Undervoltage alarm voltage                        |                                        | 16V±2V(default)                                                                                                                                                                |                                                  |
| Cooling mode                                      |                                        | Natural cooling                                                                                                                                                                |                                                  |
| Digital input                                     |                                        | 4-channel DI, can be configured with source/sink input, High level :12.5V~30VDC, Low level: 0~5VDC, Max frequency : 1KHz                                                       |                                                  |
|                                                   |                                        | Min turn-on voltage<11V, Max cut-off voltage>5V, Max input voltage:30V;                                                                                                        |                                                  |
|                                                   |                                        | DI2 ,DI3 support probe function, Response time ≤10uS,complies with IEC61131-2 Type3,Input impedance: 2.7K                                                                      |                                                  |
| Output specification                              |                                        | 2-channel digital output, software can set active/passive output . For active output, external 24V logic power supply needs to be connected to the power socket terminal (X5). |                                                  |
|                                                   |                                        | DO1 load current : 200mA, DO2 load current : 100mA, Max control voltage : 30V                                                                                                  |                                                  |
|                                                   |                                        |                                                                                                                                                                                |                                                  |
| Type-C                                            |                                        | Debug special, can use Kinco PC software connection                                                                                                                            |                                                  |
| STO                                               |                                        | Applicable to models that support STO function;                                                                                                                                |                                                  |
|                                                   |                                        | 2-channel STO, STO interface can be connected with the safety controller, safety switch, safety sensor, etc., to realize the safety function of the driver                     |                                                  |
|                                                   |                                        | Input voltage range:24VDC±15%, Input current:2.3mA(Type), Logic level standard:IEC61131-2 Type1                                                                                |                                                  |
| Bus function                                      | EtherCAT                               | Input resistance:10kOhm                                                                                                                                                        |                                                  |
|                                                   |                                        | Support CoE(CIA402 protocol)and CSP/CSV/PP/PV/PT/HM mode, communication speed 100Mbps                                                                                          |                                                  |
|                                                   |                                        | Non periodic parameter read and write;                                                                                                                                         |                                                  |
|                                                   |                                        | Message 1, message 3, message 5, message 9, message 102, message 105, message 111;                                                                                             |                                                  |
|                                                   |                                        |                                                                                                                                                                                |                                                  |
| Bus function                                      | PROFINET                               | Support IRT synchronous mode;                                                                                                                                                  |                                                  |
|                                                   |                                        | Support absolute value encoder;                                                                                                                                                |                                                  |
|                                                   |                                        | Support DSC dynamic servo control                                                                                                                                              |                                                  |
|                                                   |                                        |                                                                                                                                                                                |                                                  |
|                                                   |                                        |                                                                                                                                                                                |                                                  |
| Use environment                                   | Working temperature                    | -20℃ ~ +40℃                                                                                                                                                                    |                                                  |
|                                                   |                                        | Short term storage (within 1 month): -20℃~+65℃.                                                                                                                                |                                                  |
|                                                   |                                        | Storage temperature                                                                                                                                                            |                                                  |
|                                                   |                                        | Long term storage (over 1 month): -10℃ ~ +55℃                                                                                                                                  |                                                  |
|                                                   |                                        | Protection class                                                                                                                                                               |                                                  |
|                                                   |                                        | IP65, shaft end (excluding oil seal) IP54                                                                                                                                      |                                                  |
| Use environment                                   | Installation site                      | Dust-free, dry, lockable                                                                                                                                                       |                                                  |
|                                                   |                                        | Installation method                                                                                                                                                            |                                                  |
|                                                   |                                        | Motor flange installation                                                                                                                                                      |                                                  |
|                                                   |                                        | Altitude                                                                                                                                                                       |                                                  |
|                                                   |                                        | Less than 3000m,power derating 1.5%/100m between 1000m and 3000m                                                                                                               |                                                  |
|                                                   |                                        | Atmospheric                                                                                                                                                                    |                                                  |
|                                                   |                                        | 67kpa~106kpa                                                                                                                                                                   |                                                  |

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

▲ = A: Without STO  
S: With STO

iSMD\_IP20 series interface definition

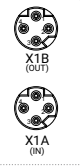
Communication interface



| interface                     | Pin | signal | Description                                                                                                               |
|-------------------------------|-----|--------|---------------------------------------------------------------------------------------------------------------------------|
| X1<br>F8CVM-THR-3.5-16P-7-L30 | 1   | CANH   | CAN high-level signal line                                                                                                |
|                               | 2   |        |                                                                                                                           |
|                               | 3   | CANL   | CAN low-level signal line                                                                                                 |
|                               | 4   |        |                                                                                                                           |
|                               | 5   | GNDC   | CAN signal ground                                                                                                         |
|                               | 6   |        |                                                                                                                           |
|                               | 7   | RS485A | Data send/receive                                                                                                         |
|                               | 8   |        |                                                                                                                           |
|                               | 9   | RS485B | Data send/receive                                                                                                         |
|                               | 10  |        |                                                                                                                           |
|                               | 11  | GNDR   | 485 signal ground                                                                                                         |
|                               | 12  |        |                                                                                                                           |
|                               | 13  | 5VAUX  | Internal 5V DC power supply output, voltage range 4.5 ~ 5.5V, Max output 500mA, only for use with photoelectric sensors ※ |
|                               | 14  | GNDAUX | Internal 5V DC power supply output reference ground                                                                       |
|                               | 15  | 24VAUX | Internal 24V DC power supply output, voltage range 23 ~ 25V, Max output 500mA, only for use with photoelectric sensors ※  |
|                               | 16  | GNDAUX | Internal 24V DC power supply output reference ground                                                                      |

Note: 1. Applied to iSMD\_AA/AS models;  
2. The auxiliary power supply output type depends on the model, please consult local sales for specific information

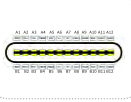
Communication interface



| interface                                              | Pin   | signal   | Description                           |
|--------------------------------------------------------|-------|----------|---------------------------------------|
| X1A(IN)<br>X1B(OUT)<br>EtherCAT&PROFINET<br>M8-S4D-PTT | 1     | TD+      | Send data +                           |
|                                                        | 2     | RD+      | Receive data+                         |
|                                                        | 3     | TD-      | Send data -                           |
|                                                        | 4     | RD-      | Receive data -                        |
|                                                        | Shell | Shielded | Connect to the integrated motor shell |

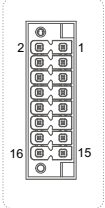
Note: 1. Applied to iSMD\_EA/PA models;  
2. Kinco M8PD4-RJ45-LL-F, M8PD4-M8PD4-LL-F and M8SD4-M8PD4-LL-F external cable can be purchased

PC debugging interface



| interface    | Pin     | signal   | Description              |
|--------------|---------|----------|--------------------------|
| X2<br>TYPE-C | A4/ B4  | VBUS     | USB input power supply   |
|              | A9/B9   | VBUS     |                          |
|              | A1/B1   | GND      |                          |
|              | A12/B12 | GND      | Differential data signal |
|              | A6/B6   | DP+      |                          |
|              | A7/B7   | DP-      |                          |
|              | Shell   | Shielded | -                        |

IO interface and battery interface



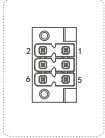
| interface                                      | Pin | signal     | Description                                                                                                                                                                                                                                                            |
|------------------------------------------------|-----|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X3A<br>IO interface<br>F8CVM-THR-3.5-16P-A-L30 | 1   | AI1+       | 1-channel voltage type analog input, 12bit, -10V~-+10V, differential connection method.<br>Note: Applicable to iSMD_IP20_AA/AS models                                                                                                                                  |
|                                                | 2   | AI1-       |                                                                                                                                                                                                                                                                        |
|                                                | 3   | PUL+       |                                                                                                                                                                                                                                                                        |
|                                                | 5   | PUL-       | Pulse+direction, CCW+CW, phase A+phase B (12V~24V)<br>Max frequency:500KHz                                                                                                                                                                                             |
|                                                | 7   | DIR+       | Min turn-on voltage<11V, Max cut-off voltage>5V, Max input voltage:30V,It can be multiplexed as 2-channel DI (DI4 and DI5 ) by software setting                                                                                                                        |
|                                                | 9   | DIR-       |                                                                                                                                                                                                                                                                        |
|                                                | 4   | COMI       | Input common terminal                                                                                                                                                                                                                                                  |
|                                                | 6   | DI1        | 3-channel DI, Common COMI port, High level : 12.5V~30VDC, Low level: 0~5VDC, Max frequency : 1KHz ,<br>Min turn-on voltage<11V, Max cut-off voltage>5V, Max input voltage:30V,<br>DI2 can be configured for probe function, Response time ≤10 uS,Input impedance: 5.1K |
|                                                | 8   | DI2 (Fast) |                                                                                                                                                                                                                                                                        |
|                                                | 10  | DI3        |                                                                                                                                                                                                                                                                        |
|                                                | 11  | DO1+       | Open collector output, Max control voltage:30V, Max load current:100mA                                                                                                                                                                                                 |
|                                                | 12  | DO1-       |                                                                                                                                                                                                                                                                        |
|                                                | 13  | DO2+       |                                                                                                                                                                                                                                                                        |
|                                                | 14  | DO2-       | 24V DC logical power input.voltage range +18 ~ 30V, maximum input current 1A                                                                                                                                                                                           |
|                                                | 15  | 24VS       |                                                                                                                                                                                                                                                                        |
|                                                | 16  | GNDS       | 24V DC logic power input reference ground                                                                                                                                                                                                                              |

Note:1. DIR and PUL can be multiplexed as DI4 and DI5 through software settings( 20101E address). 0: Pulse mode (factorydefault), 1: DI mode  
2. Analog signal only exist in iSMD\_AA/AS模型 model

|                                              |   |      |                  |
|----------------------------------------------|---|------|------------------|
| X3D<br>Battery interface<br>F8A-1M-3.5-02P-A | 1 | BAT+ | Battery positive |
|                                              | 2 | BAT- | Battery negative |

Note: X3D is only applicable to multi-turn magneto-electric encoder model. Kinco accessories BAT-iSMD can be purchased.

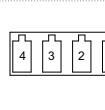
STO interface



| interface                                      | Pin | signal | Description                                                                                                                                                 |
|------------------------------------------------|-----|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X4<br>STO interface<br>F8CVM-THR-3.5-06P-4-L30 | 1   | STOA+  | STO safety interface A, input voltage range 24VDC ± 15%<br>Input current: 2.3mA (Type)<br>Logic level standard: IEC61131-2 Type1<br>Input impedance: 10kOhm |
|                                                | 2   | STOA-  |                                                                                                                                                             |
|                                                | 3   | STOB+  | STO safety interface B, input voltage range 24VDC ± 15%<br>Input current: 2.3mA (Type)<br>Logic level standard: IEC61131-2 Type1<br>Input impedance: 10kOhm |
|                                                | 4   | STOB-  |                                                                                                                                                             |
|                                                | 5   | 24V    | Internal 24V DC power supply output, voltage range 18~ 30V, maximum output current 100mA, only for STO use.                                                 |
|                                                | 6   | GND    | Internal 24V DC power supply output reference ground                                                                                                        |

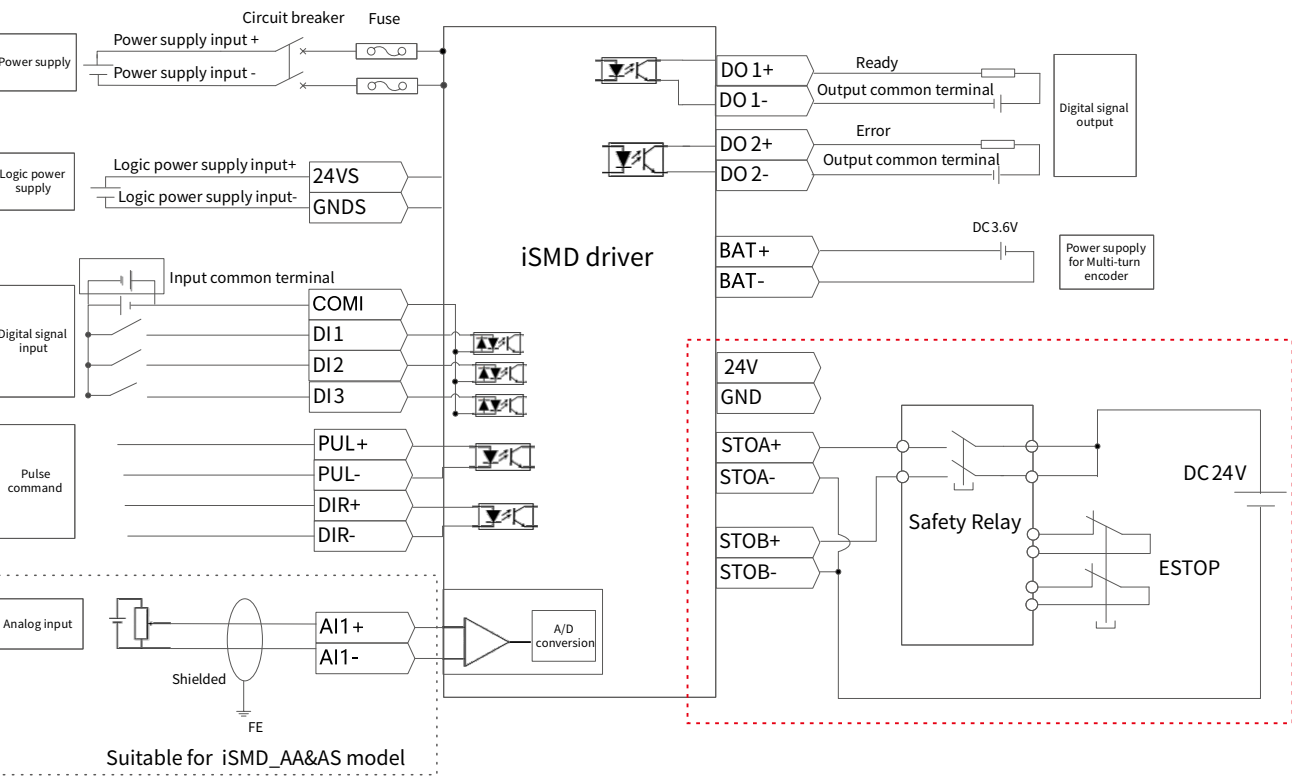
Note: Applied to iSMD60D&iSMD80D-AS model

Power supply and braking resistor interface



| interface              | Pin | signal | Description                     |
|------------------------|-----|--------|---------------------------------|
| X5<br>F9CP-7-7.5-04P-A | 1   | RB-    | External brake resistance input |
|                        | 2   | RB+    |                                 |
|                        | 3   | DC-    | Power supply input              |
|                        | 4   | DC+    |                                 |

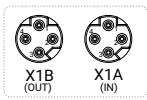
iSMD\_IP20 series electrical wiring diagram



Note: iSMD\_IP20 does not support STO function models, ignore the red box content.

iSMD\_IP65 series interface definition

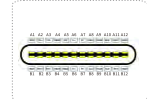
Communication interface



| interface                                              | Pin | signal   | Description                           |
|--------------------------------------------------------|-----|----------|---------------------------------------|
| X1A(IN)<br>X1B(OUT)<br>EtherCAT&PROFINET<br>M8-S4D-PTT | 1   | TD+      | Send data +                           |
|                                                        | 2   | RD+      | Receive data+                         |
|                                                        | 3   | TD-      | Send data -                           |
|                                                        | 4   | RD-      | Receive data -                        |
| Shell                                                  |     | Shielded | Connect to the integrated motor shell |

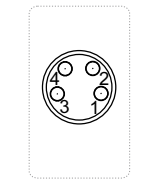
Note: Kinco M8PD4-RJ45-LLF, M8PD4-M8PD4-LL-F and M8SD4-M8PD4-LL-F external cable can be purchased

PC debugging interface

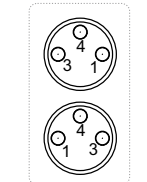


| interface    | Pin     | signal   | Description              |
|--------------|---------|----------|--------------------------|
| X2<br>TYPE-C | A4&B4   | VBUS     | USB input power supply   |
|              | A9&B9   | VBUS     |                          |
|              | A1&B1   | GND      |                          |
|              | A12&B12 | GND      | Differential data signal |
|              | A6&B6   | DP+      |                          |
|              | A7&B7   | DP-      |                          |
| Shell        |         | Shielded | -                        |

IO interface and battery interface



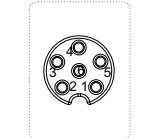
| interface                            | Pin | signal   | Description                                                                                                                  |
|--------------------------------------|-----|----------|------------------------------------------------------------------------------------------------------------------------------|
| X3A<br>DI interface<br>M8-S4A-GPFM11 | 1   | 24V      | Internal 24V DC power supply output, voltage range 18~ 30V, maximum output current 200mA, only for digital input use.        |
|                                      | 2   | DI1      | Digital input 1, which can be configured as NPN/PNP input                                                                    |
|                                      | 3   | DI2      | Digital input 2, which can be configured as NPN/PNP input and can be configured as a probe input                             |
|                                      | 4   | GND      | Internal 24V DC power supply output reference ground; When not connected to logic power, it is the sink type common terminal |
| Shell                                |     | Shielded | Connect to the integrated motor shell                                                                                        |
| X3B<br>DI interface<br>M8-S4A-GPFM11 | 1   | 24V      | Internal 24V DC power supply output, voltage range 18~ 30V, maximum output current 200mA, only for digital input use.        |
|                                      | 2   | DI3      | Digital input 3, which can be configured as NPN/PNP input and can be configured as a probe input                             |
|                                      | 3   | DI4      | Digital input 4, which can be configured as NPN/PNP input                                                                    |
|                                      | 4   | GND      | Internal 24V DC power supply output reference ground; When not connected to logic power, it is the sink type common terminal |
| Shell                                |     | Shielded | Connect to the integrated motor shell                                                                                        |



| interface                                 | Pin   | signal   | Description                                                                                                                                                                                                                                                  |
|-------------------------------------------|-------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X3C<br>DO interface<br>M8-S3A-GPFM11      | 1     | DO1      | 2-channel digital output, software can set active/passive output . For active output, external 24V logic power supply needs to be connected to the power socket terminal (X5). DO1 load current : 200mA, DO2 load current : 100mA, Max control voltage : 30V |
|                                           | 3     | DO2      |                                                                                                                                                                                                                                                              |
|                                           | 4     | COMO     | Output common terminal                                                                                                                                                                                                                                       |
|                                           | Shell | Shielded | Connect to the integrated motor shell                                                                                                                                                                                                                        |
| X3D<br>Battery interface<br>M8-P3A-GPFM11 | 1     | BAT+     | Battery positive                                                                                                                                                                                                                                             |
|                                           | 3     | BAT-     | Battery negative                                                                                                                                                                                                                                             |
|                                           | 4     | /        |                                                                                                                                                                                                                                                              |
|                                           | Shell | Shielded | Connect to the integrated motor shell                                                                                                                                                                                                                        |

Note: X3D is only applicable to multi-turn magneto-electric encoder model. Kinco accessories BAT-iSMD-P can be purchased.  
Note: For the iSMD\_IP65 model, the DI/DO mode is selected through software settings. 20101D set the DO output ( 0:no power output ,default value;1:Power output). 20101F set the DI input ( 0 : PNP input ,default value; 1:PNP input)

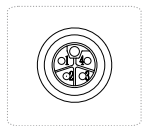
STO interface



| interface                  | Pin | signal   | Description                                                                                                |
|----------------------------|-----|----------|------------------------------------------------------------------------------------------------------------|
| X4<br>STO<br>M8-S6A-GPFM11 | 1   | 24VS     | Internal 24V DC power supply output, voltage range 18~ 30V, maximum output current 100mA, only for STO use |
|                            | 2   | GND      | Internal 24V DC power supply output reference ground                                                       |
|                            | 3   | STOA-    | STO safety interface A, input voltage range 24VDC ± 15%; input current: 2.3mA (Type)                       |
|                            | 4   | STOA+    | Logic level standard: IEC61131-2 Type1; input impedance: 10kOhm                                            |
|                            | 5   | STOB+    | STO safety interface B, input voltage range 24VDC ± 15%; input current: 2.3mA (Type);                      |
|                            | 6   | STOB-    | Logic level standard: IEC61131-2 Type1; input impedance: 10kOhm                                            |
| Shell                      |     | Shielded | Connect to the integrated motor shell                                                                      |

Note: Kinco accessories M8-P6A-MWO can be purchased.

Power supply and power interface



| interface                                           | Pin   | signal   | Description                                                                 |
|-----------------------------------------------------|-------|----------|-----------------------------------------------------------------------------|
| X5Power supply and power interface<br>M12-P51-GTFM6 | 1     | GNDS     | 24V DC logic power input reference ground                                   |
|                                                     | 2     | 24VS     | 24V DC Logical power input.voltage range 18 ~ 30V, maximum input current 1A |
|                                                     | 3     | DC-      | Connect the power supply                                                    |
|                                                     | 4     | DC+      |                                                                             |
|                                                     | Shell | Shielded | Connect to the integrated motor shell                                       |

Note: Applicable to iSMD60D aviation plug models



| interface                                         | Pin   | signal   | Description                                                                 |
|---------------------------------------------------|-------|----------|-----------------------------------------------------------------------------|
| X5Power supply and power interface<br>M923-P6-GCL | 1     | GNDS     | 24V DC logic power input reference ground                                   |
|                                                   | 2     | 24VS     | 24V DC Logical power input.voltage range 18 ~ 30V, maximum input current 1A |
|                                                   | 4     | DC+      | Connect the power supply                                                    |
|                                                   | 5     | DC-      |                                                                             |
|                                                   | Shell | Shielded | Connect to the integrated motor shell                                       |

Note: Applicable to iSMD80D aviation plug models

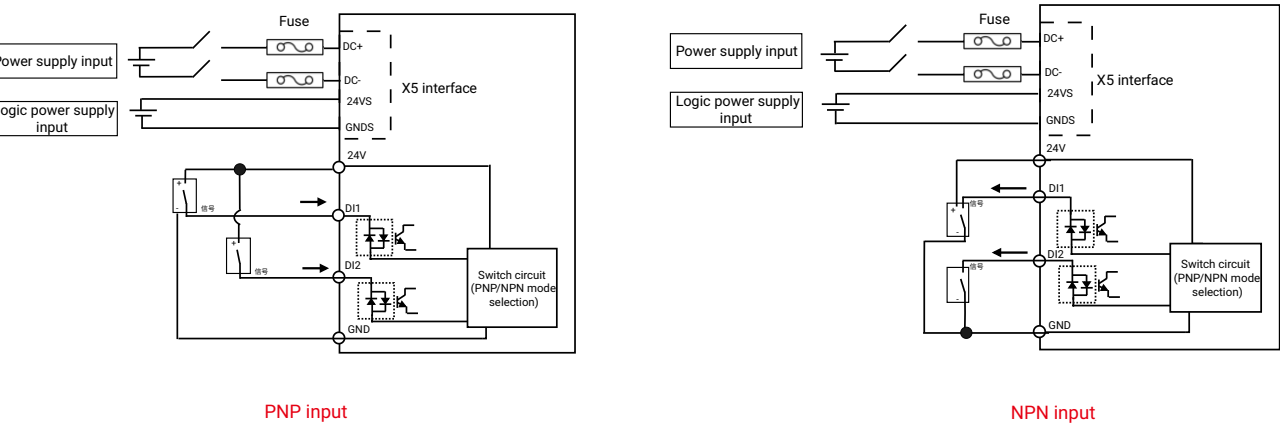
iSMD\_IP65 series electrical wiring diagram

iSMD\_IP65 series electrical wiring diagram

Digital input and output electrical wiring diagram

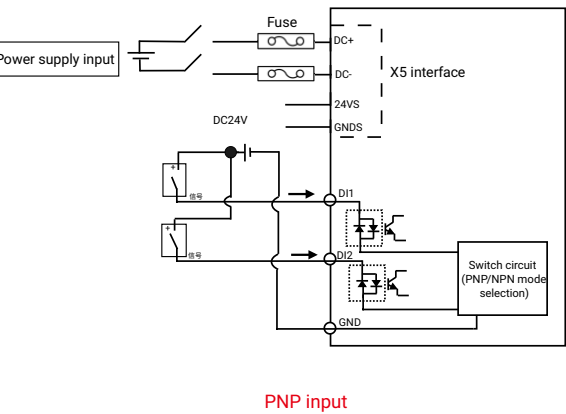
1、X5 interface is connected to a logic power supply:Digital input electrical wiring diagram

The input interface can support PNP input type device and NPN input type device.  
When in use, the input type needs to be selected through software setting and correctly connect the wire:  
When the external device is PNP input type, 20101F (DI input mode) need to be set to 0 (PNP mode) in the software.  
When the external device is NPN input type, 20101F (DI input mode) need to be set to 1 (NPN mode) in the software.  
Note: 24V and GND are the logic power output



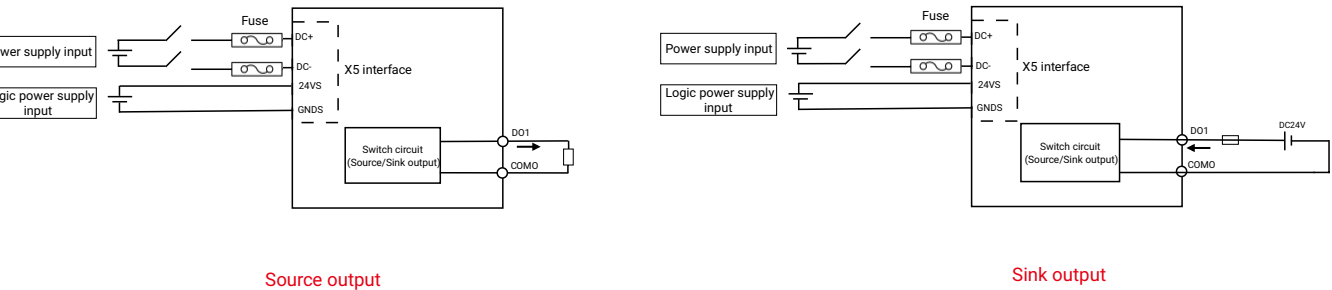
2、X5 interface is not connected to the logic power supply:Digital input electrical wiring diagram

The input interface only supports PNP input type device. User need to set 20101F (DI input mode) to 0 (PNP mode) in the software.



3、X5 interface is connected to a logic power supply:Digital output electrical wiring diagram

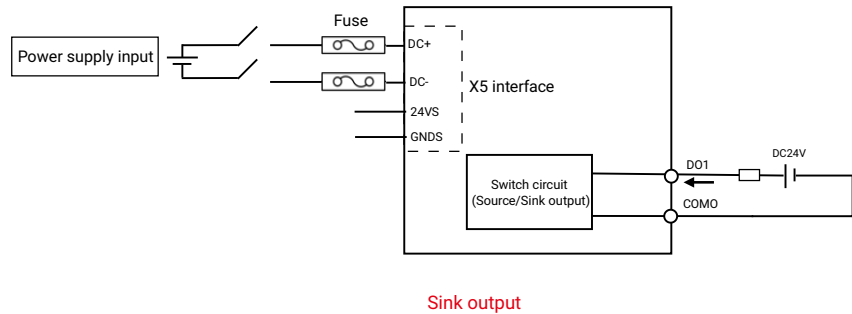
The output interface can support source output type and sink output type. When in use, the input type needs to be selected through software setting and correctly connect the wire:  
When a sink output connection is required, 20101D (DO output mode) need to be set to 0 (sink output) in the software.  
When a source output connection is required, 20101D (DO output mode) need to be set to 1 (source output) in the software.



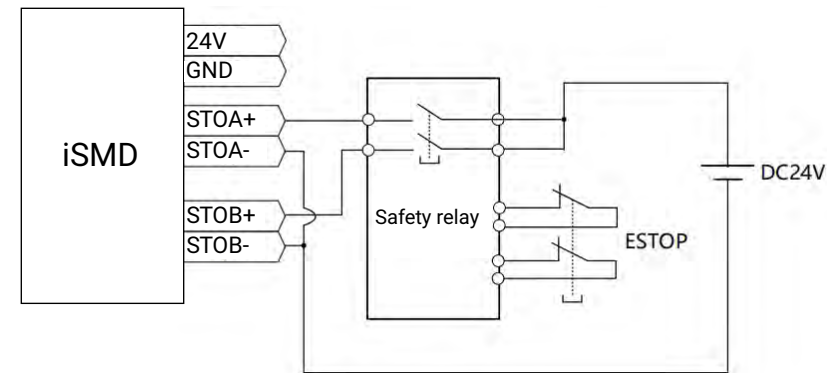
Digital input and output electrical wiring diagram

4、X5 interface is not connected to the logic power supply:Digital output electrical wiring diagram

The output interface only supports sink output connection, 20101D (DO output mode) need to be set to 0 (sink output) in the software.



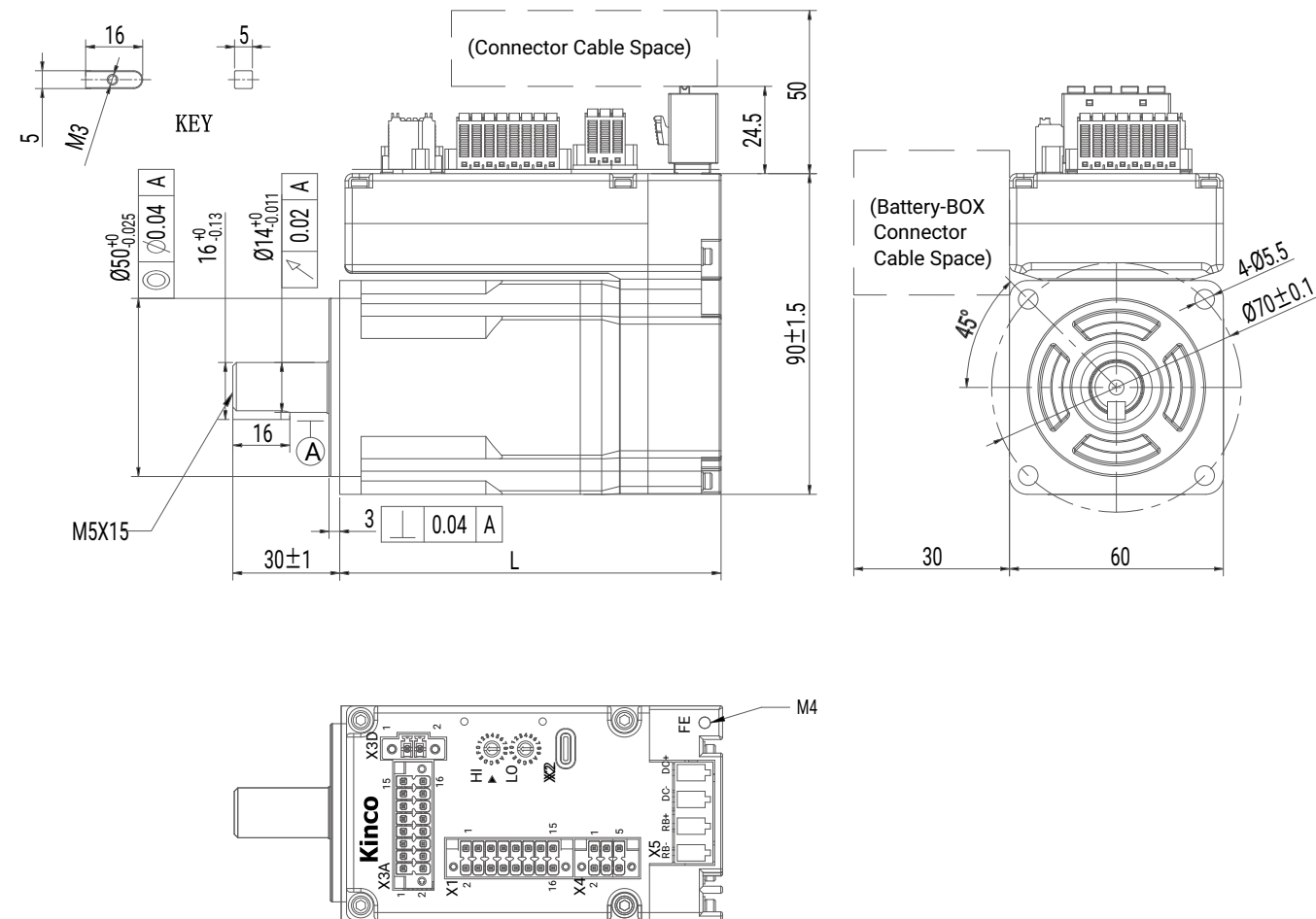
STO electrical wiring diagram



## iSMD high-performance integrated servo drive motor

## ■ iSMD\_IP20 series mechanical dimensions

iSMD60D\_AA&amp;AS (unit:mm)

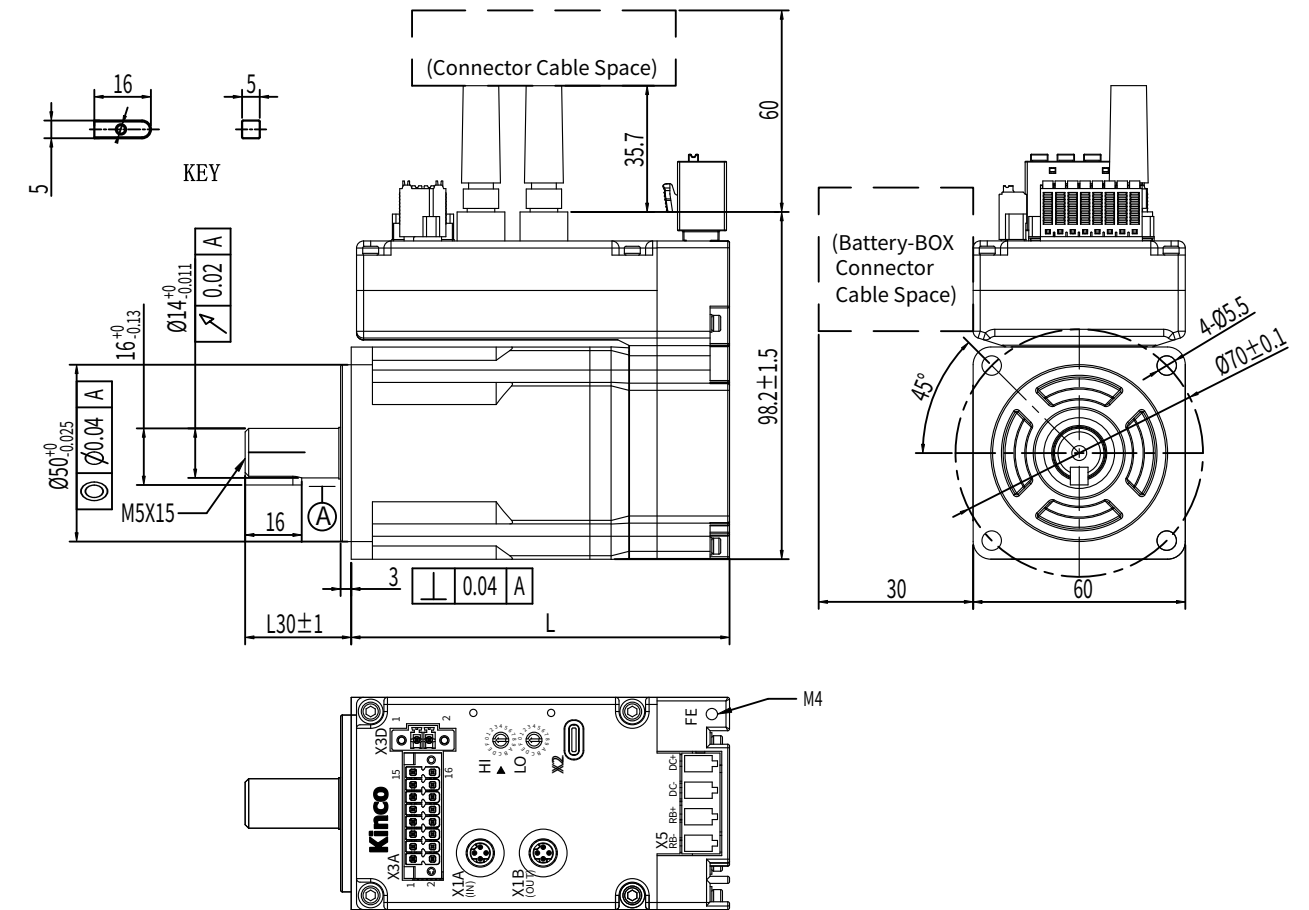


Note:iSMD60D-AA model without X4 port.

## iSMd high-performance integrated servo drive motor

- iSMD\_IP20 series mechanical dimensions

iSMD60D\_EA&amp;PA (unit:mm)



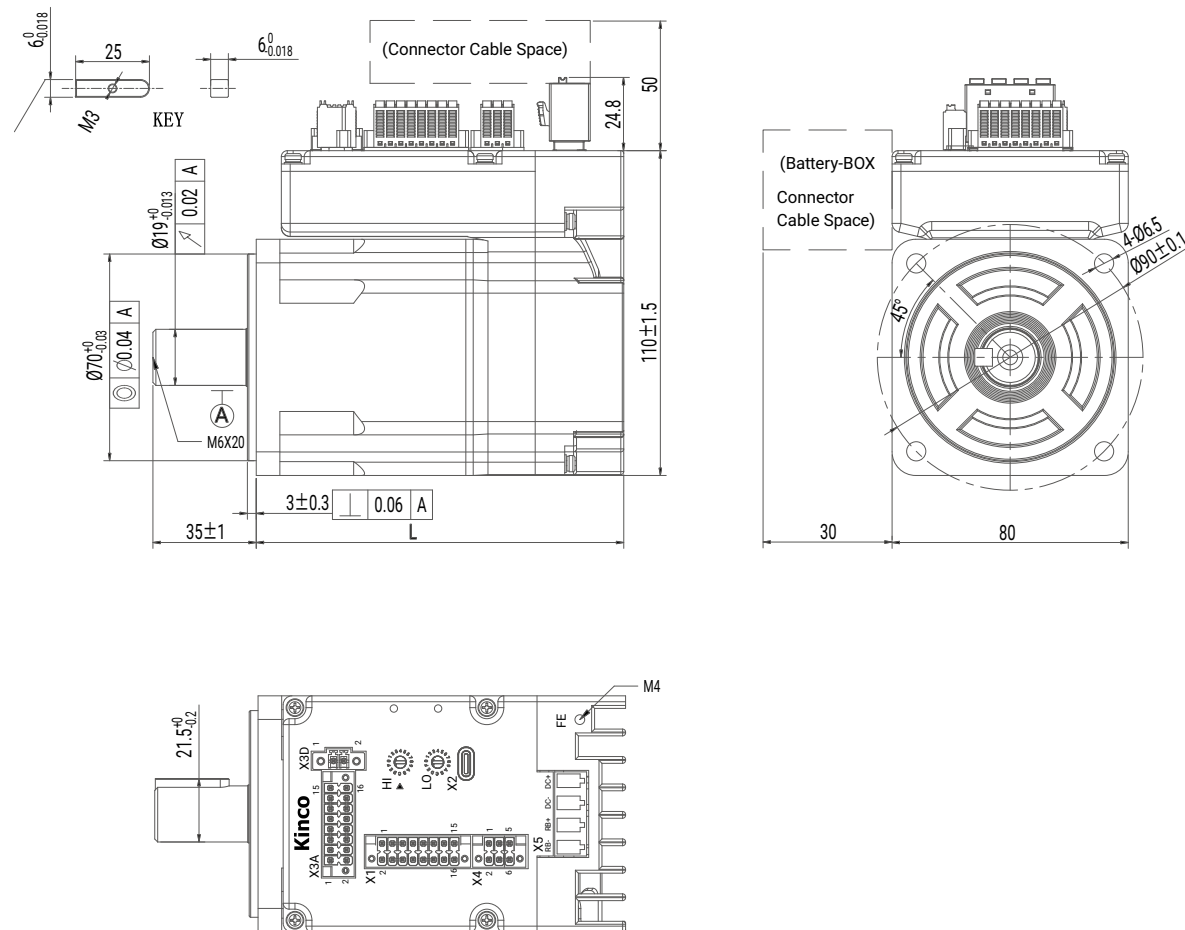
Note: iSMD60D-PA model without rotary dial switch

| iSMD60D                 | With brake | Approx weight (Kg) | Dimension L (mm) |
|-------------------------|------------|--------------------|------------------|
| iSMD60D-040-DQAK-A▲-000 |            | 1.4                | 107±1.5          |
| iSMD60D-040-DQAK-EA-000 |            |                    |                  |
| iSMD60D-040-DQAK-PA-000 |            |                    |                  |
| iSMD60D-040-DQBK-A▲-000 | ✓          | 1.8                | 140.5±1.5        |
| iSMD60D-040-DQBK-EA-000 |            |                    |                  |
| iSMD60D-040-DOBK-PA-000 |            |                    |                  |

## iSMD high-performance integrated servo drive motor

## ■ iSMD\_IP20 series mechanical dimensions

iSMD80D\_AA&amp;AS (unit:mm)

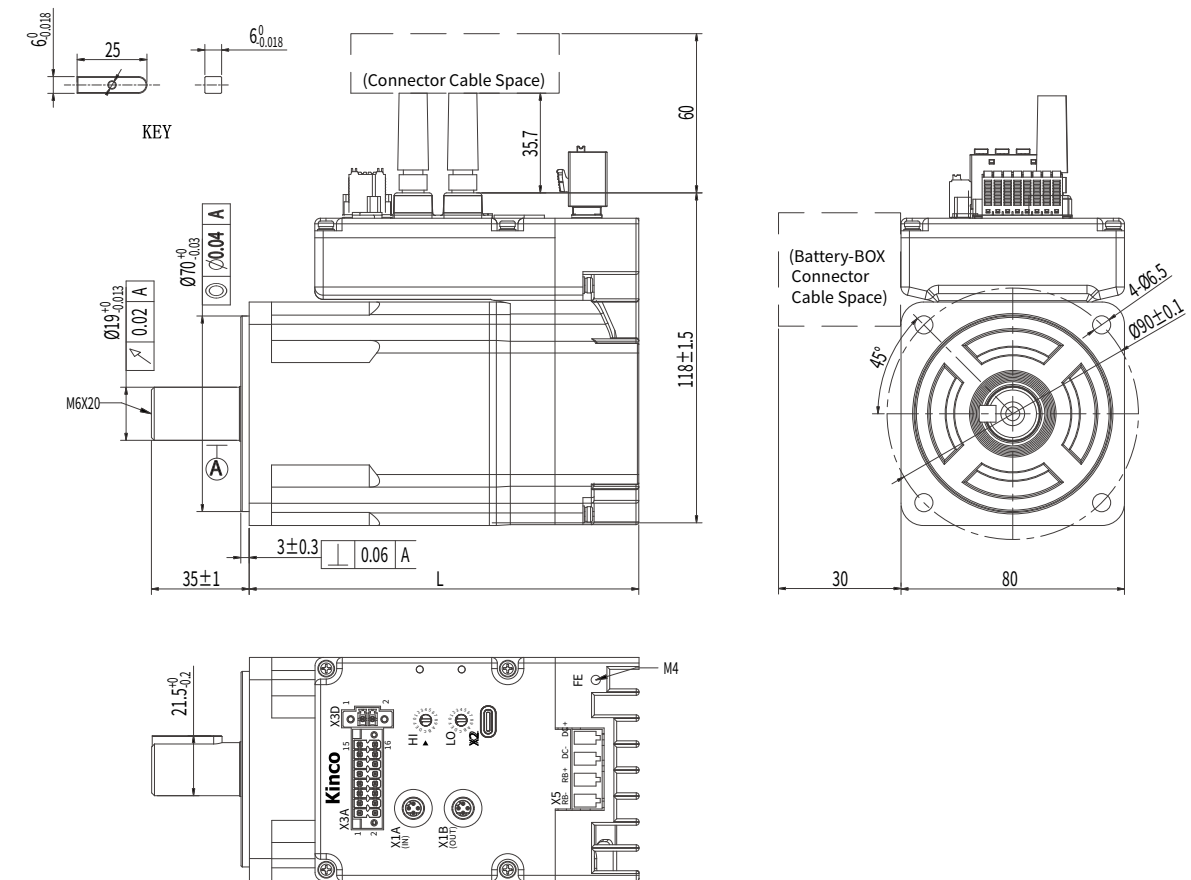


Note:iSMD80D-AA model without X4 port.

## iSMd high-performance integrated servo drive motor

- iSMD\_IP20 series mechanical dimensions

iSMD80D\_EA&amp;PA(unit:mm)



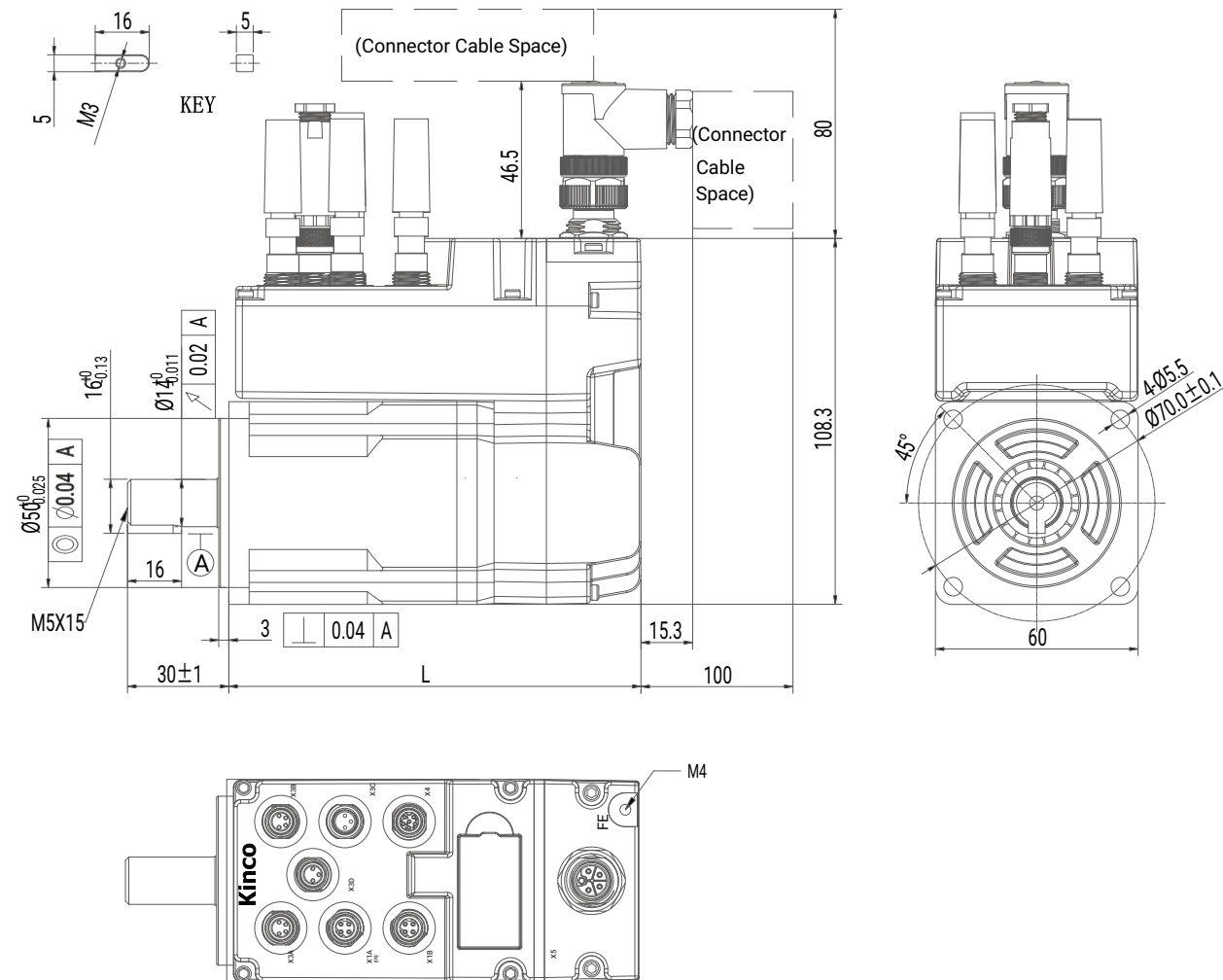
Note: iSMD80D-PA model without rotary dial switch

| iSMD80D                 | With brake | Approx weight (kg) | Dimension L (mm) |
|-------------------------|------------|--------------------|------------------|
| iSMD80D-075-DQAK-A▲-000 |            | 2.4                | 124.5±1.5        |
| iSMD80D-075-DQAK-EA-000 |            |                    |                  |
| iSMD80D-075-DQAK-PA-000 |            |                    |                  |
| iSMD80D-075-DQBK-A▲-000 | ✓          | 3.1                | 157.5±1.5        |
| iSMD80D-075-DQBK-EA-000 |            |                    |                  |
| iSMD80D-075-DQBK-PA-000 |            |                    |                  |
| iSMD80D-100-DQAK-A▲-000 |            | 2.9                | 139.5±1.5        |
| iSMD80D-100-DQAK-E▲-000 |            |                    |                  |
| iSMD80D-100-DQAK-PA-000 |            |                    |                  |
| iSMD80D-100-DQBK-A▲-000 | ✓          | 3.6                | 172.5±1.5        |
| iSMD80D-100-DQBK-E▲-000 |            |                    |                  |
| iSMD80D-100-DQBK-PA-000 |            |                    |                  |

## iSMD high-performance integrated servo drive motor

## ■ iSMD\_IP65 series mechanical dimensions

iSMD60D (unit:mm)



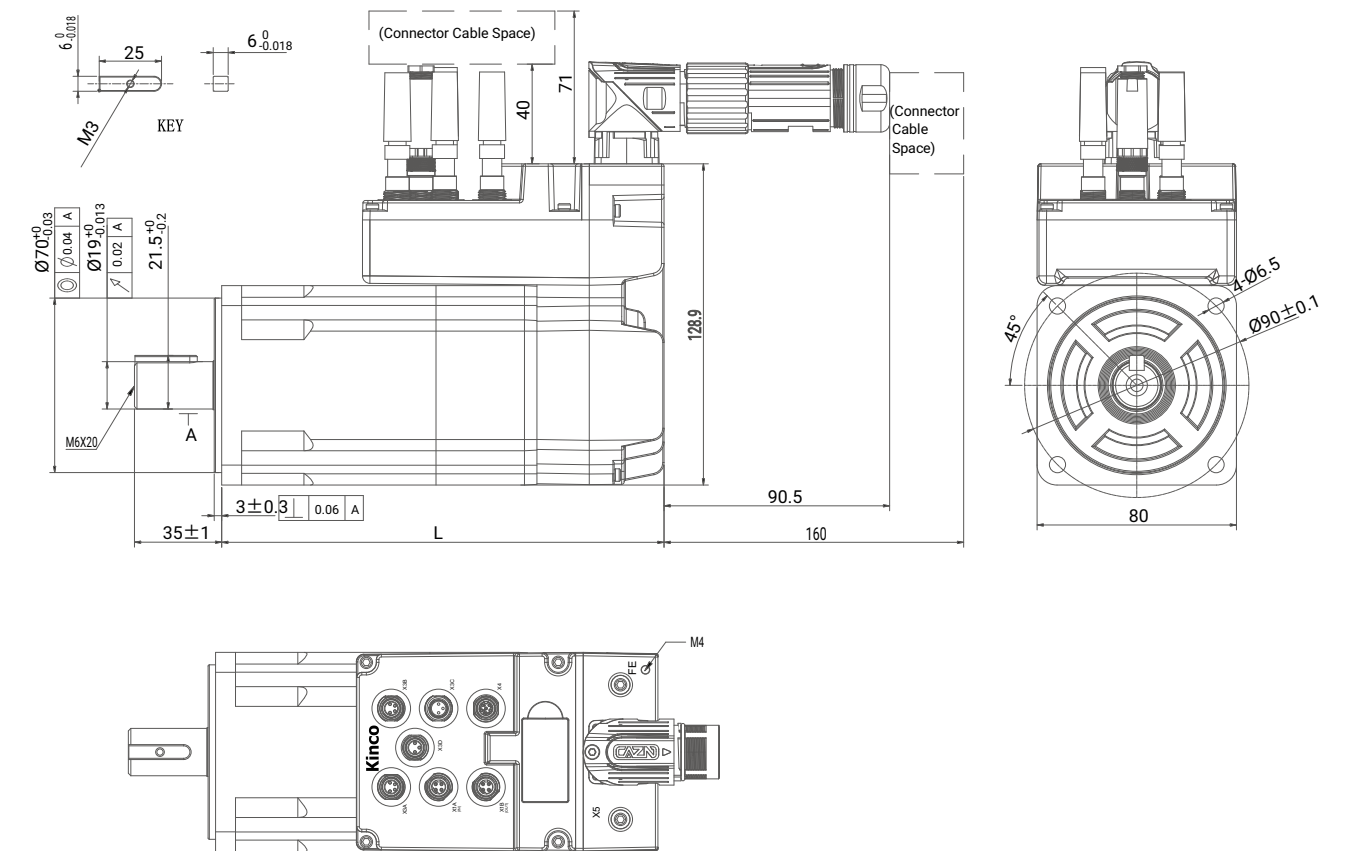
Note: iSMD60D-EA model without X4 port.

| iSMD60D                      | With brake | Approx weight (kg) | Dimension L (mm) |
|------------------------------|------------|--------------------|------------------|
| iSMD60D-040-DQAK-E▲-000-P000 |            | 1.6                | 122±1.5          |
| iSMD60D-040-DQBK-E▲-000-P000 | ✓          | 2                  | 155.5±1.5        |

## iSMd high-performance integrated servo drive motor

- iSMD\_IP65 series mechanical dimensions

iSMD80D (unit:mm)



Note: iSMD80D-EA model without X4 port.

| iSMD80D                      | With brake | Approx weight (kg) | Dimension L (mm) |
|------------------------------|------------|--------------------|------------------|
| iSMD80D-075-DQAK-E▲-000-P000 |            | 2.8                | 129.5±1.5        |
| iSMD80D-075-DQBK-E▲-000-P000 | ✓          | 3.7                | 162.5±1.5        |

iSMD Accessory Selection Guide(Table 1)

| iSMD Frame Terminal                         |                    |                                    |                 | Mating terminal Model       |
|---------------------------------------------|--------------------|------------------------------------|-----------------|-----------------------------|
| Interface                                   | iSMD Model         | Model                              | Interface Image |                             |
| X1<br>Communication interface               | iSMD_AA/AS_IP20    | Socket:<br>F8CVM-THR-3.5-16P-7-L30 |                 | Plug:F7GM-3.5-16P-7         |
|                                             | iSMD_EA/ES/PA/PS   | Aviation socket:M8-S4D-PTT         |                 | Aviation plug:M8-P4D-PWA05  |
| X2<br>TYPE-C<br>USB communication interface | iSMD               | TYPE-C Female                      |                 | /                           |
| X3A<br>IO interface                         | iSMD_IP20          | Socket:<br>F8CVM-THR-3.5-16P-7-L30 |                 | Plug:F7GM-3.5-16P-7         |
| X3D<br>Battery interface                    |                    | Socket:F8A-1M-3.5-02P-A            |                 | Plug:F7EMM-3.5-02P-A-100    |
| X3A<br>DI interface                         | iSMD_IP65          | Aviation socket:M8-S4A-GPFM11      |                 | Aviation plug:M8-P4A-PLA05  |
| X3B<br>DI interface                         |                    |                                    |                 |                             |
| X3C<br>DO interface                         |                    | Aviation socket:M8-S3A-GPFM11      |                 | Aviation plug:M8-P3A-PLA05  |
| X3D<br>Battery interface                    |                    | Aviation socket:M8-P3A-GPFM11      |                 | Aviation plug:M8-S3A-PLA05  |
| X4<br>STO interface                         | iSMD_AS/ES/PS_IP20 | Socket:<br>F8CVM-THR-3.5-06P-4-L30 |                 | Plug:F7GM-3.5-06P-4         |
|                                             | iSMD_ES/PS_IP65    | Aviation socket:M8-S6A-GPFM11      |                 | Aviation plug:M8-P6A-PWA05  |
| X5<br>Power supply and power interface      | iSMD_IP20          | Socket:F9CP-7-7.5-04P-A            |                 | Plug:F9AP-7.5-04P-A         |
| X5<br>Power supply and power interface      | iSMD60D_IP65       | Aviation socket:<br>M12-PSL-GWFM16 |                 | Aviation plug:M12-S5L-PLDP9 |
|                                             | iSMD80D_IP65       | Aviation socket:M923-P6-GCL        |                 | Aviation plug:M923-S6-GCA15 |
| Accessory kit                               | iSMD_AA/EA/PA      | iSMD60-IP65-package                | /               | /                           |
|                                             | iSMD_AS/ES/PS      | iSMD60-IP65-STO-package            | /               | /                           |

iSMD Accessory Selection Guide(Table 2)

| Modle     | Battery box<br>(with battery)<br>Modle | Communication Cable (X1)            |                                        |                                                                   |
|-----------|----------------------------------------|-------------------------------------|----------------------------------------|-------------------------------------------------------------------|
|           |                                        | iSMD-->PLC                          | iSMD-->iSMD                            | iSMD-->iSMK                                                       |
| iSMD_IP20 | BAT-iSMD                               | M8PD4-RJ45-LL-F<br>(M8 male - RJ45) | M8PD4-M8PD4-LL-F<br>(M8 male -M8 male) | M8SD4-M8PD4-LL-F<br>(M8 male -M8 female or<br>M8 female- M8 male) |
| iSMD_IP65 | BAT-iSMD-P                             |                                     |                                        |                                                                   |

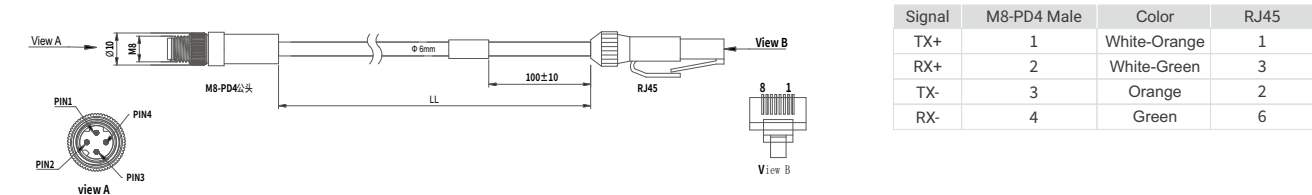
iSMD Model List

| Description                  | STO      | Communication                | Model                   |
|------------------------------|----------|------------------------------|-------------------------|
| Ip20<br>(Battery) multi-turn | \        | CANopen                      | iSMD60D-040-DQAK-AA-000 |
|                              |          |                              | iSMD60D-040-DQBK-AA-000 |
|                              |          |                              | iSMD80D-075-DQAK-AA-000 |
|                              |          |                              | iSMD80D-075-DQBK-AA-000 |
|                              |          |                              | iSMD80D-100-DQAK-AA-000 |
|                              |          |                              | iSMD80D-100-DQBK-AA-000 |
|                              |          | EtherCAT                     | iSMD60D-040-DQAK-EA-000 |
|                              |          |                              | iSMD60D-040-DQBK-EA-000 |
|                              |          |                              | iSMD80D-075-DQAK-EA-000 |
|                              |          |                              | iSMD80D-075-DQBK-EA-000 |
|                              |          |                              | iSMD80D-100-DQAK-EA-000 |
|                              |          |                              | iSMD80D-100-DQBK-EA-000 |
|                              |          | PROFINET                     | iSMD60D-040-DQAK-PA-000 |
|                              |          |                              | iSMD60D-040-DQBK-PA-000 |
|                              |          |                              | iSMD80D-075-DQAK-PA-000 |
|                              |          |                              | iSMD80D-075-DQBK-PA-000 |
|                              |          |                              | iSMD80D-100-DQAK-PA-000 |
|                              |          |                              | iSMD80D-100-DQBK-PA-000 |
|                              | STO      | CANopen                      | iSMD60D-040-DQAK-AS-000 |
|                              |          |                              | iSMD60D-040-DQBK-AS-000 |
|                              |          |                              | iSMD80D-075-DQAK-AS-000 |
|                              |          |                              | iSMD80D-075-DQBK-AS-000 |
|                              |          |                              | iSMD80D-100-DQAK-AS-000 |
|                              |          |                              | iSMD80D-100-DQBK-AS-000 |
| \                            | EtherCAT | iSMD80D-100-DQAK-ES-000      |                         |
|                              |          | iSMD80D-100-DQBK-ES-000      |                         |
|                              |          | iSMD60D-040-DQAK-EA-000-P000 |                         |
|                              |          | iSMD60D-040-DQBK-EA-000-P000 |                         |
|                              |          | iSMD80D-075-DQAK-EA-000-P000 |                         |
|                              |          | iSMD80D-075-DQBK-EA-000-P000 |                         |
|                              |          | iSMD60D-040-DQAK-ES-000-P000 |                         |
|                              |          | iSMD60D-040-DQBK-ES-000-P000 |                         |
| STO                          |          | iSMD80D-075-DQAK-ES-000-P000 |                         |
|                              |          | iSMD80D-075-DQBK-ES-000-P000 |                         |

■ EtherCAT&Profinet communication interface X1 cable

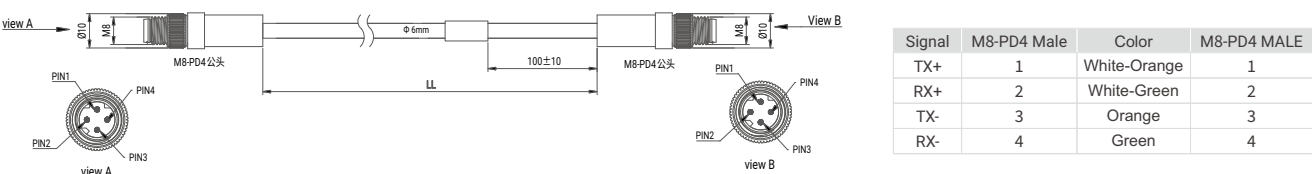
■ M8PD4-RJ45-LL-F

Wire spec:2P\*26AWG,Shielding, drag chain 10 million times  
Optional line length:0.5m,1.5m,3m,5m



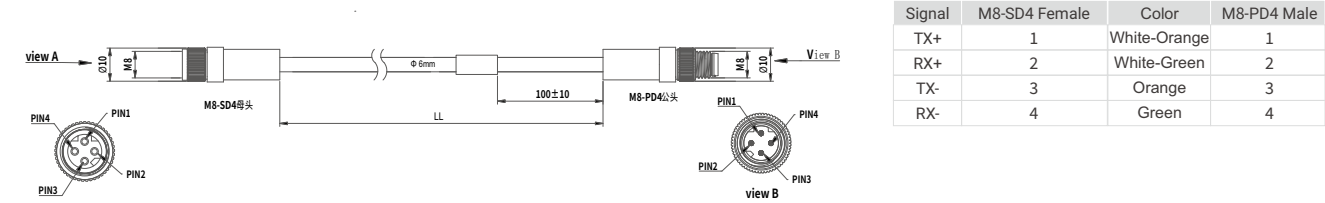
■ M8PD4-M8PD4-LL-F

Wire spec:2P\*26AWG,Shielding, drag chain 10 million times  
Optional line length:0.5m,1.5m,3m,5m



■ M8SD4-M8PD4-LL-F

Wire spec:2P\*26AWG,Shielding, drag chain 10 million times  
Optional line length:0.5m,1.5m,3m,5m



Note: The M8SD4-M8PD4-LL-F is a straight-through cable with a one-to-one pin assignment, enabling direct interchangeability of its connectors.

■ iSMD\_IP65 model STO interface attachment

■ M8-P6A-MWO

Wire spec:26AWG (Single wire)

