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# Kinco

Motion  
Control  
Servo System

## Servo System Catalog

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



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KIE05-1605

## 02 Model Description of Servo Driver and Motor

Kinco JD Series Servo Driver  
Kinco FD2S Series Servo Driver  
Kinco CD2S Series Servo Driver  
Kinco Servo Motor  
Kinco Multi-pole Servo Motor  
Power, Brake, Encoder cable of Motor

## 04 Servo Driver and Motor Selection Table

JD/FD2S/CD2S Servo Driver and Motor Selection Table ( 1 )  
JD/FD2S/CD2S Servo Driver and Motor Selection Table ( 2 )  
FD2S/CD2S Servo Driver and Motor Selection Table

## 07 Servo Driver Introduction

Panel and Interface Description, Port Description, Technical Specifications,  
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JD Servo Driver  
FD2S Servo Driver  
FD122 Servo Driver  
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## 23 Servo Motor Introduction

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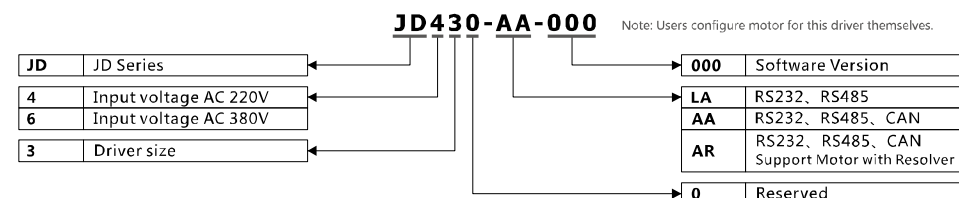
Dimension/Torque curve of SMH Series Servo Motor  
Dimension/Torque curve of Multi-pole Servo Motor  
Dimension/Torque curve of Low-voltage Series Servo Motor  
Dimension/Torque curve of SMC Series Servo Motor  
Dimension/Torque curve of SMS Series Servo Motor

## 39 Wiring Diagram for Cable

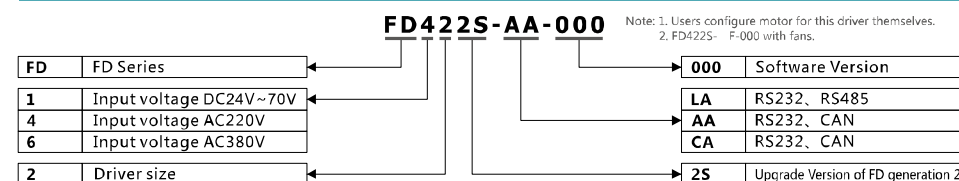
Wiring Diagram for The Power Cable  
Wiring Diagram for The Encoder Cable

# Model Description of Servo Driver and Motor

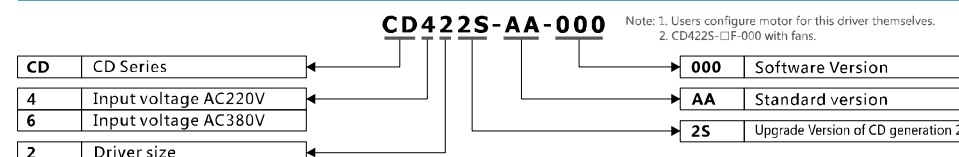
## Kinco JD Series Servo Driver



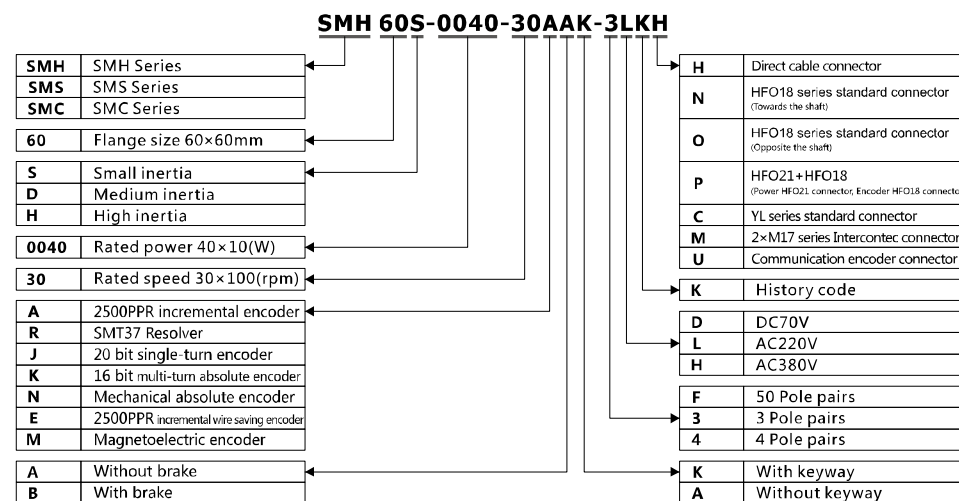
## Kinco FD2S Series Servo Driver



## Kinco CD2S Series Servo Driver



## Kinco Servo Motor



20 bit single-turn encoder and 16 bit multi-turn absolute encoder are a kind of communication encoder.

# Model Description of Servo Driver and Motor

# Servo Driver and Motor Selection Table

## Kinco Multi-pole Servo Motor

| 57S-0010-10AAK-FDFH |                             |   |                               |
|---------------------|-----------------------------|---|-------------------------------|
| 57                  | Flange size 57×57mm         | H | Direct cable connector        |
| 85                  | Flange size 85×85mm         | N | HFO series standard connector |
| S                   | Small Inertia               | F | History code                  |
| 0010                | Rated Power 100W            | D | DC60V                         |
| 10                  | Rated Speed 1000(rpm)       | F | 50 Pole pairs                 |
| A                   | 2500ppr incremental encoder | K | With keyway                   |
|                     |                             | A | Without brake                 |

## Model Description of Cable

### Power, Brake and Encoder Cable of Motors

| MOT - 005 - LL - KL - B |                                   |      |                                                                         |
|-------------------------|-----------------------------------|------|-------------------------------------------------------------------------|
| MOT                     | Power cable                       | None | No brake lead contained in the power cable                              |
| 005                     | Rated current 5A                  | B    | Brake lead contained in the power cable (for KC/AM/KD motor with brake) |
| 008                     | Rated current 8A                  | D    | Specialized power cable for low-voltage servo                           |
| 015                     | Rated current 15A                 |      |                                                                         |
| 030                     | Rated current 30A                 | KL   | 4 PIN power connector                                                   |
| 03.05                   | Length of cable: 3m, 5m, 10m, 15m | KC0  | HFO18 series standard connector                                         |
|                         |                                   | KC1  | YL2207 series standard connector                                        |
|                         |                                   | KC2  | YL2406 series standard connector                                        |
|                         |                                   | KC3  | YL2406-1 series standard connector                                      |
|                         |                                   | KC4  | HFO21 series standard connector                                         |
|                         |                                   | KM1  | M17 series Intercontec connector                                        |

| BRA-LL-KL |                                   |    |                      |
|-----------|-----------------------------------|----|----------------------|
| BRA       | Brake cable                       | KL | 2PIN cable connector |
| 03.05     | Length of cable: 3m, 5m, 10m, 15m |    |                      |
| 10.15     |                                   |    |                      |

| ENC C A - LL - K H - BT |                                   |    |                                                       |
|-------------------------|-----------------------------------|----|-------------------------------------------------------|
| ENC                     | Encoder cable                     | BT | With battery (for 16 bit multi-turn absolute encoder) |
| C/D                     | Encoder port                      | H  | Encoder connector form                                |
| A/F/G/R                 | PIN definition of encoder port    | K  | 16-core cable                                         |
|                         |                                   | F  | 10-core cable                                         |
|                         |                                   | G  | 6-core cable                                          |
| 03.05                   | Length of cable: 3m, 5m, 10m, 15m |    |                                                       |
| 10.15                   |                                   |    |                                                       |

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

| Catagory              | Rated Power/<br>Rated Speed/<br>Rated Torque | Servo Motor                              | Description                              | Power/<br>Brake Cable          | Encoder<br>Cable | Servo Driver                                                                     |              |
|-----------------------|----------------------------------------------|------------------------------------------|------------------------------------------|--------------------------------|------------------|----------------------------------------------------------------------------------|--------------|
| Small Inertia 220V    | 50W<br>3000rpm/0.16Nm                        | SMH40S-0005-30AAK-4LKH                   | 2500P/R Cable connector                  | MOT-005-LL-KL                  | ENCCA-LL-KH      | FD412S-CA-000                                                                    |              |
|                       |                                              | SMH40S-0005-30ABK-4LKH                   | 2500P/R Cable connector with brake       | MOT-005-LL-KL/BRA-LL-KL        |                  | FD412S-AA-000                                                                    |              |
|                       | 100W<br>3000rpm/0.32Nm                       | SMH40S-0010-30AAK-4LKH                   | 2500P/R Cable connector                  | MOT-005-LL-KL                  |                  | FD412S-LA-000                                                                    |              |
|                       |                                              | SMH40S-0010-30ABK-4LKH                   | 2500P/R Cable connector with brake       | MOT-005-LL-KL/BRA-LL-KL        |                  | CD412S-AA-000                                                                    |              |
|                       | 200W<br>3000rpm/0.64Nm                       | SMH60S-0020-30AAK-3LKH                   | 2500P/R Cable connector                  | MOT-005-LL-KL                  | ENCCA-LL-KC0     | JD430-AA-000<br>FD422S-CA-000<br>FD422S-AA-000<br>FD422S-LA-000<br>CD422S-AA-000 |              |
|                       |                                              | SMH60S-0020-30ABK-3LKH                   | 2500P/R Cable connector with brake       | MOT-005-LL-KL/BRA-LL-KL        |                  |                                                                                  |              |
|                       |                                              | SMH60S-0020-30AAK-3LKN                   | 2500P/R HFO18 series standard connector  | MOT-005-LL-KC0                 |                  |                                                                                  |              |
|                       |                                              | SMH60S-0020-30ABK-3LKP                   | 2500P/R HFO18+HFO21 connector with brake | MOT-005-LL-KC4-B               |                  |                                                                                  |              |
|                       |                                              | SMH60S-0020-30AAK-3LKO                   | 2500P/R HFO18 series standard connector  | MOT-005-LL-KC0                 |                  |                                                                                  |              |
|                       |                                              | SMH60S-0020-30AAK-3LKM                   | 2500P/R Intercontec connector            | MOT-005-LL-KM1                 |                  |                                                                                  |              |
|                       |                                              | SMH60S-0020-30ABK-3LKM                   | 2500P/R Intercontec connector with brake | MOT-005-LL-KM1-B               | ENCCA-LL-KM1     |                                                                                  |              |
|                       |                                              | 400W<br>3000rpm/1.27Nm                   | SMH60S-0040-30AAK-3LKH                   | 2500P/R Cable connector        | MOT-005-LL-KL    |                                                                                  | ENCCA-LL-KH  |
|                       | SMH60S-0040-30ABK-3LKH                       |                                          | 2500P/R Cable connector with brake       | MOT-005-LL-KL/BRA-LL-KL        |                  |                                                                                  |              |
|                       | SMH60S-0040-30AAK-3LKN                       |                                          | 2500P/R HFO18 series standard connector  | MOT-005-LL-KC0                 |                  |                                                                                  |              |
|                       | SMH60S-0040-30ABK-3LKP                       |                                          | 2500P/R HFO18+HFO21 connector with brake | MOT-005-LL-KC4-B               |                  |                                                                                  |              |
|                       | SMH60S-0040-30AAK-3LKO                       |                                          | 2500P/R HFO18 series standard connector  | MOT-005-LL-KC0                 |                  |                                                                                  |              |
|                       | SMH60S-0040-30ABK-3LKM                       |                                          | 2500P/R Intercontec connector            | MOT-005-LL-KM1                 | ENCCA-LL-KM1     |                                                                                  |              |
|                       | SMH60S-0040-30ABK-3LKM                       |                                          | 2500P/R Intercontec connector with brake | MOT-005-LL-KM1-B               | ENCCA-LL-KH      |                                                                                  |              |
|                       | 750W<br>3000rpm/2.39Nm                       |                                          | SMH80S-0075-30AAK-3LKH                   | 2500P/R Cable connector        | MOT-005-LL-KL    |                                                                                  | ENCCA-LL-KH  |
|                       |                                              | SMH80S-0075-30ABK-3LKH                   | 2500P/R Cable connector with brake       | MOT-005-LL-KL/BRA-LL-KL        |                  |                                                                                  |              |
|                       |                                              | SMH80S-0075-30AAK-3LKN                   | 2500P/R HFO18 series standard connector  | MOT-005-LL-KC0                 |                  |                                                                                  |              |
|                       |                                              | SMH80S-0075-30ABK-3LKP                   | 2500P/R HFO18+HFO21 connector with brake | MOT-005-LL-KC4-B               |                  |                                                                                  |              |
|                       |                                              | SMH80S-0075-30AAK-3LKO                   | 2500P/R HFO18 series standard connector  | MOT-005-LL-KC0                 |                  |                                                                                  |              |
|                       |                                              | SMH80S-0075-30AAK-3LKM                   | 2500P/R Intercontec connector            | MOT-005-LL-KM1                 | ENCCA-LL-KC0     |                                                                                  |              |
|                       |                                              | SMH80S-0075-30ABK-3LKM                   | 2500P/R Intercontec connector with brake | MOT-005-LL-KM1-B               | ENCCA-LL-KM1     |                                                                                  |              |
|                       |                                              | 1kW<br>3000rpm/3.18Nm                    | 85S-0025-05AAK-FLFN-02                   | 2500P/R Multi-pole servo motor | MOTE-005-LL-KC0  |                                                                                  | ENCCF-LL-FC0 |
|                       | 6Nm                                          |                                          | 85S-0035-05AAK-FLFN-02                   | 2500P/R Multi-pole servo motor |                  |                                                                                  |              |
|                       | 7.5Nm                                        |                                          | 85S-0045-05AAK-FLFN-02                   | 2500P/R Multi-pole servo motor |                  |                                                                                  |              |
| 1kW<br>3000rpm/3.18Nm | SMH80S-0100-30AAK-3LKH                       |                                          | 2500P/R Cable connector                  | MOT-008-LL-KL                  | ENCCA-LL-KH      |                                                                                  |              |
|                       | SMH80S-0100-30ABK-3LKH                       |                                          | 2500P/R Cable connector with brake       | MOT-008-LL-KL/BRA-LL-KL        |                  |                                                                                  |              |
|                       | SMH80S-0100-30AAK-3LKM                       |                                          | 2500P/R Intercontec connector            | MOT-008-LL-KM1                 |                  |                                                                                  |              |
|                       | SMH80S-0100-30ABK-3LKM                       | 2500P/R Intercontec connector with brake | MOT-008-LL-KM1-B                         |                                |                  |                                                                                  |              |
| Medium Inertia 220V   | 1.05kW<br>2000rpm/5Nm                        | SMH110D-0105-20AAK-4LKC                  | 2500P/R HFO18 series standard connector  | MOT-008-LL-KC1                 | ENCCA-LL-KM1     |                                                                                  |              |
|                       |                                              | SMH110D-0105-20ABK-4LKC                  | 2500P/R HFO18+HFO21 connector with brake | MOT-008-LL-KC2-B               |                  |                                                                                  |              |
|                       |                                              | SMH110D-0126-20AAK-4LKC                  | 2500P/R HFO18 series standard connector  | MOT-008-LL-KC1                 |                  |                                                                                  |              |
|                       |                                              | SMH110D-0126-20ABK-4LKC                  | 2500P/R HFO18+HFO21 connector with brake | MOT-008-LL-KC2-B               |                  |                                                                                  |              |
|                       | 1.25kW<br>3000rpm/4Nm                        | SMH110D-0125-30AAK-4LKC                  | 2500P/R HFO18 series standard connector  | MOT-008-LL-KC1                 |                  | ENCCA-LL-KC1                                                                     |              |
|                       |                                              | SMH110D-0125-30ABK-4LKC                  | 2500P/R HFO18+HFO21 connector with brake | MOT-008-LL-KC2-B               |                  |                                                                                  |              |
| Medium Inertia 380V   | 1.26kW<br>3000rpm/4Nm                        | SMH110D-0126-30AAK-4HKC                  | 2500P/R HFO18 series standard connector  | MOT-008-LL-KC1                 | ENCCA-LL-KC1     |                                                                                  |              |
|                       |                                              | SMH110D-0126-30ABK-4HKC                  | 2500P/R HFO18+HFO21 connector with brake | MOT-008-LL-KC2-B               |                  |                                                                                  |              |
|                       | 1.57kW<br>3000rpm/5Nm                        | SMH110D-0157-30AAK-4HKC                  | 2500P/R HFO18 series standard connector  | MOT-008-LL-KC1                 |                  |                                                                                  |              |
|                       |                                              | SMH110D-0157-30ABK-4HKC                  | 2500P/R HFO18+HFO21 connector with brake | MOT-008-LL-KC2-B               |                  |                                                                                  |              |
|                       | 1.88kW<br>3000rpm/6Nm                        | SMH110D-0188-30AAK-4HKC                  | 2500P/R HFO18 series standard connector  | MOT-008-LL-KC1                 |                  |                                                                                  |              |
|                       |                                              | SMH110D-0188-30ABK-4HKC                  | 2500P/R HFO18+HFO21 connector with brake | MOT-008-LL-KC2-B               |                  |                                                                                  |              |

Note: User select the compatible motors themselves.  
 • It needs CD24V/2A delay when driver drive the brake device.

# Servo Driver and Motor Selection Table

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

| Catagory                    | Rated Power/<br>Rated Speed/<br>Rated Torque | Servo Motor                        | Description                                            | Power/<br>Brake Cable         | Encoder<br>Cable | Servo Driver                                                                                                                                                         |
|-----------------------------|----------------------------------------------|------------------------------------|--------------------------------------------------------|-------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Medium Inertia<br>220V/380V | 1.05kW<br>2000rpm/5Nm                        | SMH130D-0105-20AAK-4HKC            | 2500P/R YL series standard connector                   | MOT-008-LL-KC2                | ENCCA-LL-KC1     | JD430-AA-000<br>JD620-AA-000<br>FD432S-CA-000<br>FD432S-AA-000<br>FD622S-CA-000<br>FD622S-AA-000<br>FD432S-LA-000<br>FD622S-LA-000<br>CD432S-AA-000<br>CD622S-AA-000 |
|                             |                                              | SMH130D-0105-20ABK-4HKC            | 2500P/R YL series standard connector with brake        | MOT-008-LL-KC2-B              |                  |                                                                                                                                                                      |
|                             | 1.57kW<br>2000rpm/7.5Nm                      | SMH130D-0157-20AAK-4HKC            | 2500P/R YL series standard connector                   | MOT-008-LL-KC2                |                  |                                                                                                                                                                      |
|                             |                                              | SMH130D-0157-20ABK-4HKC            | 2500P/R YL series standard connector with brake        | MOT-008-LL-KC2-B              |                  |                                                                                                                                                                      |
| Medium Inertia<br>380V      | 2.1kW<br>2000rpm/10Nm                        | SMH130D-0210-20AAK-4HKC            | 2500P/R YL series standard connector                   | MOT-008-LL-KC2                | ENCCA-LL-KC1     | JD620-AA-000<br>FD622S-CA-000<br>FD622S-AA-000<br>FD622S-LA-000<br>CD622S-AA-000                                                                                     |
|                             |                                              | SMH130D-0210-20ABK-4HKC            | 2500P/R YL series standard connector with brake        | MOT-008-LL-KC2-B              |                  |                                                                                                                                                                      |
|                             | 2.3kW<br>2000rpm/11.1Nm                      | SMH150D-0230-20AAK-4HKC            | 2500P/R YL series standard connector                   | MOT-008-LL-KC2                |                  |                                                                                                                                                                      |
|                             |                                              | SMH150D-0230-20ABK-4HKC            | 2500P/R YL series standard connector with brake        | MOT-008-LL-KC2-B              |                  |                                                                                                                                                                      |
|                             | 3kW<br>2000rpm/14.3Nm                        | SMH130D-0300-20AAK-4HKC            | 2500P/R YL series standard connector                   | MOT-008-LL-KC2                | ENCCA-LL-KC1     | JD630-AA-000<br>JD630-LA-000                                                                                                                                         |
|                             |                                              | SMH130D-0300-20ABK-4HKC            | 2500P/R YL series standard connector with brake        | MOT-008-LL-KC2-B              |                  |                                                                                                                                                                      |
|                             | 3kW<br>2000rpm/14.3Nm                        | SMH150D-0300-20AAK-4HKC            | 2500P/R YL series standard connector                   | MOT-008-LL-KC2                |                  |                                                                                                                                                                      |
|                             |                                              | SMH150D-0300-20ABK-4HKC            | 2500P/R YL series standard connector with brake        | MOT-008-LL-KC2-B              |                  |                                                                                                                                                                      |
|                             | 3.8kW<br>2000rpm/18Nm                        | SMH150D-0380-20AAK-4HKC            | 2500P/R YL series standard connector                   | MOT-015-LL-KC2                | ENCCR-LL-FC1     | JD640-AA-000<br>JD640-LA-000<br>JD640-AR-000<br>JD650-AR-000                                                                                                         |
|                             |                                              | SMH150D-0380-20ABK-4HKC            | 2500P/R YL series standard connector with brake        | MOT-015-LL-KC2-B              |                  |                                                                                                                                                                      |
|                             | 3.5kW<br>1500rpm/22Nm                        | SMH180D-0350-15AAK-4HKC            | 2500P/R YL series standard connector                   | MOT-015-LL-KC2                |                  |                                                                                                                                                                      |
|                             |                                              | SMH180D-0350-15ABK-4HKC            | 2500P/R YL series standard connector with brake        | MOT-015-LL-KC2-B              |                  |                                                                                                                                                                      |
|                             | 4.4kW<br>1500rpm/28Nm                        | SMH180D-0440-15AAK-4HKC            | 2500P/R YL series standard connector                   | MOT-015-LL-KC2                |                  |                                                                                                                                                                      |
|                             |                                              | SMH180D-0440-15ABK-4HKC            | 2500P/R YL series standard connector with brake        | MOT-015-LL-KC2-B              |                  |                                                                                                                                                                      |
|                             | 5.5kW<br>1500rpm/35Nm                        | SMH180D-0550-15RAK-4HKC            | SMT37 Resolver YL series standard connector            | MOT-015-LL-KC2                |                  |                                                                                                                                                                      |
|                             |                                              | SMH180D-0550-15RBK-4HKC            | SMT37 Resolver YL series standard connector with brake | MOT-015-LL-KC2-B              |                  |                                                                                                                                                                      |
|                             | 7.5kW<br>1500rpm/48Nm                        | SMH180D-0750-15RAK-4HKC            | SMT37 Resolver YL series standard connector            | MOT-030-LL-KC3                |                  |                                                                                                                                                                      |
|                             |                                              | SMH40S-0005-30AAK-4DKH             | 2500P/R Cable connector                                | MOT-005-LL-KL-D               | ENCCA-LL-KH      | FD122-CA-000<br>FD122-AA-000<br>FD122-LA-000                                                                                                                         |
| 50W<br>3000rpm/0.16Nm       | SMH40S-0005-30ABK-4DKH                       | 2500P/R Cable connector with brake | MOT-005-LL-KL-D<br>BRA-LL-KL                           |                               |                  |                                                                                                                                                                      |
|                             | 100W<br>3000rpm/0.32Nm                       | SMH40S-0010-30AAK-4DKH             | 2500P/R Cable connector                                | MOT-005-LL-KL-D               |                  |                                                                                                                                                                      |
| SMH40S-0010-30ABK-4DKH      |                                              | 2500P/R Cable connector with brake | MOT-005-LL-KL-D<br>BRA-LL-KL                           |                               |                  |                                                                                                                                                                      |
| 1Nm                         | 57S-0010-10AAK-FDFH                          | 2500P/R Multi-pole servo motor     | MOT-005-LL-KL-D                                        | ENCCF-LL-FH                   |                  |                                                                                                                                                                      |
|                             | 57S-0015-08AAK-FDFH                          |                                    |                                                        |                               |                  |                                                                                                                                                                      |
| 2.4Nm                       | 85S-0020-05AAK-FLFN-02                       | 2500P/R Multi-pole servo motor     | MOTE-005-LL-KC0                                        | ENCCF-LL-FC0                  |                  |                                                                                                                                                                      |
| 8Nm                         | 85S-0050-10AAK-FLFN-03                       |                                    |                                                        |                               |                  |                                                                                                                                                                      |
| Small Inertia DC60V         | 200W<br>3000rpm/0.64Nm                       | SMC60S-0020-30EAK-3DKH             | 2500P/R Wire saving encoder Cable connector            | MOT-005-LL-KL-D               | ENCCF-LL-FH      |                                                                                                                                                                      |
|                             |                                              | SMC60S-0020-30EBK-3DKH             | 2500P/R Wire saving encoder Cable connector with brake | MOT-005-LL-KL-D/<br>BRA-LL-KL |                  |                                                                                                                                                                      |
|                             | 400W<br>3000rpm/1.27Nm                       | SMC60S-0040-30EAK-3DKH             | 2500P/R Wire saving encoder Cable connector            | MOT-008-LL-KL-D               |                  |                                                                                                                                                                      |
|                             |                                              | SMC60S-0040-30EBK-3DKH             | 2500P/R Wire saving encoder Cable connector with brake | MOT-008-LL-KL-D/<br>BRA-LL-KL |                  |                                                                                                                                                                      |
|                             | 400W<br>3000rpm/1.27Nm                       | SMC80S-0040-30EAK-3DKH             | 2500P/R Wire saving encoder Cable connector            | MOT-008-LL-KL-D               |                  |                                                                                                                                                                      |
|                             |                                              | SMC80S-0040-30EBK-3DKH             | 2500P/R Wire saving encoder Cable connector with brake | MOT-008-LL-KL-D/<br>BRA-LL-KL |                  |                                                                                                                                                                      |

Note: User select the compatible motors themselves.  
 • It needs CD24V/2A delay when driver drive the brake device.

# Servo Driver and Motor Selection Table

FD2S/CD2S Servo Driver and Motor Selection Table

| Catagory               | Rated Power/<br>Rated Speed/<br>Rated Torque | Servo Motor                                   | Description                                                   | Power/<br>Brake Cable   | Encoder<br>Cable | Servo Driver                                                     |               |               |
|------------------------|----------------------------------------------|-----------------------------------------------|---------------------------------------------------------------|-------------------------|------------------|------------------------------------------------------------------|---------------|---------------|
| SMC<br>Series          | 200W<br>3000rpm/0.64Nm                       | SMC60S-0020-30EAK-3LKH                        | 2500P/R Wire saving e-coder Cable connector                   | MOT-005-LL-KL           | ENCCF-LL-FH      | FD422S-CA-000                                                    |               |               |
|                        |                                              | SMC60S-0020-30EBK-3LKH                        | 2500P/R Wire saving encoder Cable connector with brake        | MOT-005-LL-KL/BRA-LL-KL |                  | FD422S-AA-000                                                    |               |               |
|                        | 400W<br>3000rpm/1.27Nm                       | SMC60S-0040-30EAK-3LKH                        | 2500P/R Wire saving e-coder Cable connector                   | MOT-005-LL-KL           |                  | FD422S-LA-000                                                    |               |               |
|                        |                                              | SMC60S-0040-30EBK-3LKH                        | 2500P/R Wire saving encoder Cable connector with brake        | MOT-005-LL-KL/BRA-LL-KL |                  | CD422S-AA-000                                                    |               |               |
|                        | 750W<br>3000rpm/2.39Nm                       | SMC80S-0075-30EAK-3LKH                        | 2500P/R Wire saving e-coder Cable connector                   | MOT-005-LL-KL           | ENCCF-LL-FH      |                                                                  |               |               |
|                        |                                              | SMC80S-0075-30EBK-3LKH                        | 2500P/R Wire saving encoder Cable connector with brake        | MOT-005-LL-KL/BRA-LL-KL |                  |                                                                  |               |               |
|                        | 1kW<br>2000rpm/4.8Nm                         | SMC130D-0100-20EAK-4LKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector            | MOT-005-LL-KC4          |                  |                                                                  | ENCCF-LL-FC0  | FD422S-CF-000 |
|                        |                                              | SMC130D-0100-20EBK-4LKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector with brake | MOT-005-LL-KC4-B        |                  |                                                                  |               | FD422S-AF-000 |
|                        | 1.5kW<br>2000rpm/7.2Nm                       | SMC130D-0150-20EAK-4LKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector            | MOT-008-LL-KC4          | FD422S-LF-000    |                                                                  |               |               |
|                        |                                              | SMC130D-0150-20EBK-4LKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector with brake | MOT-008-LL-KC4-B        | CD422S-AF-000    |                                                                  |               |               |
|                        | 2kW<br>2000rpm/10Nm                          | SMC130D-0200-20EAK-4LKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector            | MOT-008-LL-KC4          | ENCCF-LL-FC0     | FD432S-CA-000                                                    |               |               |
|                        |                                              | SMC130D-0200-20EBK-4LKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector with brake | MOT-008-LL-KC4-B        |                  | FD432S-AA-000                                                    |               |               |
|                        | 1.5kW<br>2000rpm/7.2Nm                       | SMC130D-0150-20EAK-4HKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector            | MOT-005-LL-KC4          |                  | FD432S-LA-000                                                    |               |               |
|                        |                                              | SMC130D-0150-20EBK-4HKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector with brake | MOT-005-LL-KC4-B        |                  | CD432S-AA-000                                                    |               |               |
|                        | 2kW<br>2000rpm/10Nm                          | SMC130D-0200-20EAK-4HKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector            | MOT-008-LL-KC4          | ENCCF-LL-FC0     | FD612S-CA-000                                                    |               |               |
|                        |                                              | SMC130D-0200-20EBK-4HKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector with brake | MOT-008-LL-KC4-B        |                  | FD612S-AA-000                                                    |               |               |
|                        | 3kW<br>3000rpm/10Nm                          | SMC130D-0300-30EAK-4HKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector            | MOT-008-LL-KC4          |                  | FD612S-LA-000                                                    |               |               |
|                        |                                              | SMC130D-0300-30EBK-4HKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector with brake | MOT-008-LL-KC4-B        |                  | CD612S-AA-000                                                    |               |               |
|                        | 3kW<br>2000rpm/14.3Nm                        | SMC130D-0300-20EAK-4HKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector            | MOT-008-LL-KC4          | ENCCF-LL-FC0     | FD622S-CA-000                                                    |               |               |
|                        |                                              | SMC130D-0300-20EBK-4HKP                       | 2500P/R Wire saving encoder, HFO28+FHQ21 connector with brake | MOT-008-LL-KC4-B        |                  | FD622S-AA-000                                                    |               |               |
| SMH<br>Series          | 50W<br>3000rpm/0.16Nm                        | SMH40S-0005-30JAK-4LKU                        | 20 bit single-turn encoder                                    | MOT-005-LL-KL           |                  | ENCCG-LL-GU                                                      | FD412S-CA-000 |               |
|                        |                                              | SMH40S-0005-30KAK-4LKU                        | 16 bit multi-turn absolute encoder                            | MOT-005-LL-KL           |                  | ENCCG-(4)-GU-BT                                                  | FD412S-AA-000 |               |
|                        | 100W<br>3000rpm/0.32Nm                       | SMH40S-0010-30JAK-4LKU                        | 20 bit single-turn encoder                                    | MOT-005-LL-KL           | ENCCG-LL-GU      | FD412S-LA-000                                                    |               |               |
|                        |                                              | SMH40S-0010-30KAK-4LKU                        | 16 bit multi-turn absolute encoder                            | MOT-005-LL-KL           | ENCCG-(4)-GU-BT  | CD412S-AA-000                                                    |               |               |
| SMS<br>Series          | 200W<br>3000rpm/0.64Nm                       | SM560S-0020-30JAK-3LKU                        | 20 bit single-turn encoder                                    | MOT-005-LL-KL           | ENCCG-LL-GU      | FD422S-CA-000<br>FD422S-AA-000<br>FD422S-LA-000<br>CD422S-AA-000 |               |               |
|                        |                                              | SM560S-0020-30BK-3LKU                         | 20 bit single-turn encoder with brake                         | MOT-005-LL-KL/BRA-LL-KL |                  |                                                                  |               |               |
|                        |                                              | SM560S-0020-30KAK-3LKU                        | 16 bit multi-turn absolute encoder                            | MOT-005-LL-KL           |                  |                                                                  |               |               |
|                        |                                              | SM560S-0020-30KBK-3LKU                        | 16 bit multi-turn absolute encoder with brake                 | MOT-005-LL-KL/BRA-LL-KL |                  |                                                                  |               |               |
|                        | 400W<br>3000rpm/1.27Nm                       | SM560S-0040-30JAK-3LKU                        | 20 bit single-turn encoder                                    | MOT-005-LL-KL           | ENCCG-LL-GU      |                                                                  |               |               |
|                        |                                              | SM560S-0040-30BK-3LKU                         | 20 bit single-turn encoder with brake                         | MOT-005-LL-KL/BRA-LL-KL | ENCCG-LL-GU      |                                                                  |               |               |
|                        |                                              | SM560S-0040-30KAK-3LKU                        | 16 bit multi-turn absolute encoder                            | MOT-005-LL-KL           | ENCCG-(4)-GU-BT  |                                                                  |               |               |
|                        |                                              | SM560S-0040-30KBK-3LKU                        | 16 bit multi-turn absolute encoder with brake                 | MOT-005-LL-KL/BRA-LL-KL | ENCCG-(4)-GU-BT  |                                                                  |               |               |
| 750W<br>3000rpm/2.39Nm | SM580S-0075-30JAK-3LKU                       | 20 bit single-turn encoder                    | MOT-005-LL-KL                                                 | ENCCG-LL-GU             |                  |                                                                  |               |               |
|                        | SM580S-0075-30BK-3LKU                        | 20 bit single-turn encoder with brake         | MOT-005-LL-KL/BRA-LL-KL                                       |                         |                  |                                                                  |               |               |
|                        | SM580S-0075-30KAK-3LKU                       | 16 bit multi-turn absolute encoder            | MOT-005-LL-KL                                                 |                         |                  |                                                                  |               |               |
|                        | SM580S-0075-30KBK-3LKU                       | 16 bit multi-turn absolute encoder with brake | MOT-005-LL-KL/BRA-LL-KL                                       |                         |                  |                                                                  |               |               |

Note: User select the compatible motors themselves.  
 • It needs CD24V/2A delay when driver drive the brake device.

## Installation hole



## X9 STO Connector

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

## Driver Shell

## X1

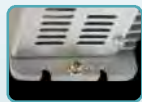
Encoder output port

## X7 Column A

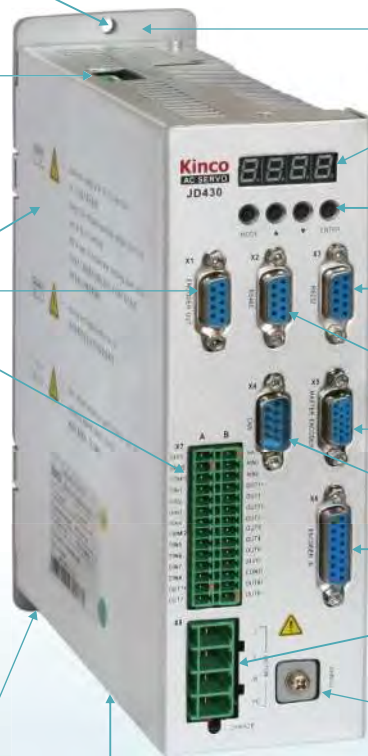
24V5 and GND5:  
Power supply for control  
DIN1...DIN8:  
8 Digital programmable  
input ports  
COM1:  
Common port of DIN1~DIN4  
COM2:  
Common port of DIN5~DIN8

## X7 Column B

GA, AIN1 and AIN2:  
2 analog input channels  
24V0 and COM0:  
24V power supply for OUT6  
OUT1...OUT7:  
7 digital programmable output ports  
OUT6 can drive brake device directly



GND  
Terminal



## Base of Heat Sink

## Display

4-digit LED indicate the status  
or error information

## 4 Setting Buttons

Parameter setting

## X3

RS232 communication port

## X2

RS485 communication port

## X5

Master encoder input

## X4

CAN communication port

## X6

1.Motor quadrature encoder input port  
2.Motor resolver encoder input port

## X8

U, V, W, PE:  
Motor power cable

Fix The Shield Layer  
of Power Cable

Bottom



JD430(AC220V)

## X10

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

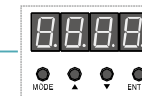


JD620(AC380V)

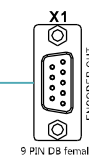
## X10

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

LED display and  
operation buttons



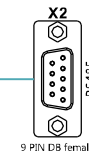
Encoder output port



## ENCODER OUT

| Pin No. | Signal   |
|---------|----------|
| 1       | NC       |
| 2       | +5V (in) |
| 3       | A        |
| 4       | B        |
| 5       | Z        |
| 6       | ZZ+      |
| 7       | GND      |
| 8       | /A       |
| 9       | /B       |

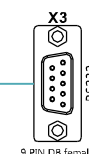
RS485  
communication port



## RS485

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

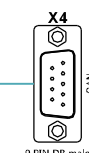
RS232  
communication port  
can be connected to PC  
to set parameters and  
import/export project  
data



## RS232

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

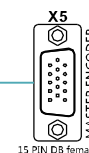
CAN bus  
communication port



## CAN

| Pin No. | Signal |
|---------|--------|
| 1       | NC     |
| 2       | CAN_L  |
| 3       | GND    |
| 4       | NC     |
| 5       | NC     |
| 6       | NC     |
| 7       | CAN_H  |
| 8       | NC     |
| 9       | NC     |

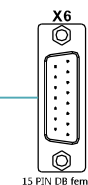
Master encoder signal  
input port, can be set  
as pulse control or  
master-slave follow  
control



## MASTER ENCODER

| Pin No. | Signal        |
|---------|---------------|
| 1       | +5V           |
| 2       | GND           |
| 3       | NC            |
| 4       | Pul+/A1+/CW+  |
| 5       | Pul-/A1-/CW-  |
| 6       | Z             |
| 7       | B             |
| 8       | A             |
| 9       | Z1+           |
| 10      | Dir-/B1-/CCW+ |
| 11      | /Z            |
| 12      | /B            |
| 13      | /A            |
| 14      | Z1-           |
| 15      | Dir-/B1-/CCW- |

Motor encoder  
input port



## ENCODER IN

| Pin No. | Incremental<br>encoder signal | Resolver<br>signal | Hiperface<br>encoder signal |
|---------|-------------------------------|--------------------|-----------------------------|
| 1       | +5V                           | NC                 | NC                          |
| 2       | A                             | ResCos+            | NC                          |
| 3       | B                             | ResSin+            | NC                          |
| 4       | Z                             | NC                 | EncCos+                     |
| 5       | U                             | NC                 | EncSin+                     |
| 6       | V                             | Res.ref+           | VCC                         |
| 7       | NC                            | PTC IN             | Enc 485+                    |
| 8       | PTC IN                        | GND                | PTC IN                      |
| 9       | GND                           | NC                 | GND                         |
| 10      | /A                            | ResCos-            | NC                          |
| 11      | /B                            | ResSin-            | NC                          |
| 12      | /Z                            | NC                 | EncCos-                     |
| 13      | /U                            | NC                 | EncSin-                     |
| 14      | /V                            | Res.ref-           | NC                          |
| 15      | /W                            | NC                 | Enc 485-                    |

Note: 1. JD430/JD620 drivers share the same interface definition, except for X10 power interfaces.

2. Suggested brake resistor: JD430 39ohms/200W or 75ohms/100W, JD620 75ohms/200W, JD630 & JD640 47ohms/500W.  
The customer should chose the power of brake resistor according to the actual application.

# Technical Specifications of JD Servo Driver

# Mechanical Dimension Diagram of JD Servo Driver

Technical Specifications of JD Servo Driver

| Model Parameter       | JD430-AA-000                     | JD620-AA-000                                                                                                                                                                                                              | JD630-□A-000                    | JD640-□R-000                    | JD650-AR-000                    |
|-----------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Power                 | Main supply voltage              | Single-phase or 3-phase AC220V -20/+15% 47~63Hz                                                                                                                                                                           | 3-phase AC380V -20/+15% 47~63Hz | 3-phase AC380V -20/+15% 47~63Hz | 3-phase AC380V -20/+15% 47~63Hz |
|                       | Control circuit voltage          | 18VDC~30VDC 1A                                                                                                                                                                                                            | 18VDC~30VDC 1A                  | 18VDC~30VDC 1A                  | 18VDC~30VDC 1A                  |
| Current               | Rated current (RMS)              | 10A                                                                                                                                                                                                                       | 7A                              | 10A                             | 13A                             |
|                       | Peak current (PEAK)              | 27.5A                                                                                                                                                                                                                     | 25A                             | 35A                             | 45A                             |
| Brake                 | Brake chopper threshold          | DC380V±5V                                                                                                                                                                                                                 | DC680V±5V                       | DC680V±5V                       | DC680V±5V                       |
|                       | Over-voltage alarming threshold  | DC400V±5V                                                                                                                                                                                                                 | DC700V±5V                       | DC700V±5V                       | DC700V±5V                       |
| Under-voltage         | Under-voltage alarming threshold | DC200V±5V                                                                                                                                                                                                                 | DC400V±5V                       | DC400V±5V                       | DC400V±5V                       |
|                       | Cooling method                   | Forced air cooling                                                                                                                                                                                                        | Forced air cooling              | Forced air cooling              | Forced air cooling              |
| Weight                | Weight (Kg)                      | 2.51                                                                                                                                                                                                                      | 3.62                            | 6.7                             | 6.7                             |
|                       | Size(W*H*D, mm)                  | 220×195×66                                                                                                                                                                                                                | 255×230×77                      | 320×280.5×95                    | 320×280.5×95                    |
| General Functions     | Digital operation panel          | 4 buttons and 4 LED display                                                                                                                                                                                               |                                 |                                 |                                 |
|                       | External I/O                     | 7 digital outputs(OUT1, OUT2, OUT7 are 0.1A and OUT3~OUT6 are 0.5A, can define driver ready and other functions freely;<br>8 digital inputs(12.5~30V), can define driver enables and other functions freely.              |                                 |                                 |                                 |
|                       | Analog input                     | 2 analog inputs, can be used to control speed and torque, the input range is -10V~10V                                                                                                                                     |                                 |                                 |                                 |
|                       | Encoder signal output function   | Output encoder signal and master encoder signal are optional, can be used in the multiple axes synchronization, the max. output frequency is 2MHz. Do not support this function if driver is matched with resolver motor. |                                 |                                 |                                 |
|                       | Master encoder input function    | Can receive 3.3V~24V pulse/direction signal, CW/CCW signal, and the RS422 difference signal, the max. input frequency is 4MHz.                                                                                            |                                 |                                 |                                 |
|                       | Feedback signal                  | Incremental encoder 2500P/R<br>Resolver, Hiperface/sincos ® Encoder<br>16 bit multi-turn absolute encoder, 20 bit single-turn absolute encoder                                                                            |                                 |                                 |                                 |
|                       | RS232                            | The max. baudrate is 115.2KHz, use JD-PC software to communicate with PC, or via free protocol to communicate with controller                                                                                             |                                 |                                 |                                 |
|                       | RS485                            | The max. baudrate is 115.2KHz, use Modbus RTU protocol to communicate with controller                                                                                                                                     |                                 |                                 |                                 |
|                       | CAN BUS                          | The max. baudrate is 1MHz, use CANopen protocol to communicate with controller                                                                                                                                            |                                 |                                 |                                 |
|                       | STO function                     | STO port can be connected to safe controller, switch, and sensor to protect the system                                                                                                                                    |                                 |                                 |                                 |
| Operation Environment | Operating temperature            | 0~40°C                                                                                                                                                                                                                    |                                 |                                 |                                 |
|                       | Storage temperature              | -10~70°C                                                                                                                                                                                                                  |                                 |                                 |                                 |
|                       | Humidity (non-condensing)        | Below 90% RH                                                                                                                                                                                                              |                                 |                                 |                                 |
|                       | Protection class                 | IP20                                                                                                                                                                                                                      |                                 |                                 |                                 |
|                       | Installation environment         | Installed in a dust-free,dry and lockable environment (such as in a electrical cabinet)                                                                                                                                   |                                 |                                 |                                 |
|                       | Installation mode                | Vertical installation                                                                                                                                                                                                     |                                 |                                 |                                 |
| Height                | Height                           | No power limitation below 1000m                                                                                                                                                                                           |                                 |                                 |                                 |
|                       | Atmospheric pressure             | 86~106kpa                                                                                                                                                                                                                 |                                 |                                 |                                 |

Note①: □=LA : Communication port RS232, RS485

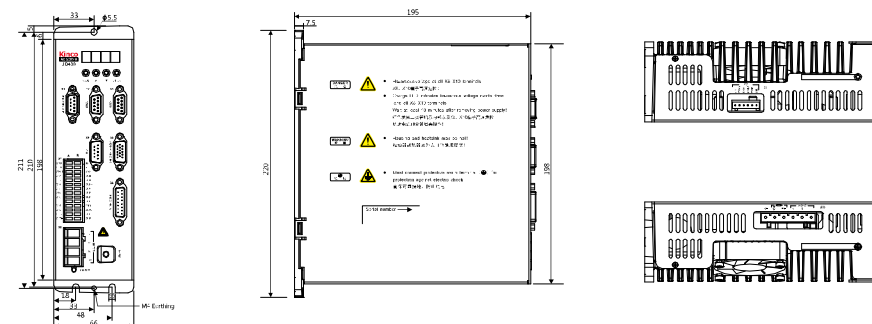
□=AA: Communication port RS232, RS485, CANopen

□=AR : Communication port RS232, RS485, CANopen , support motor with Resolver

Note②: AA is a direct driving servo system

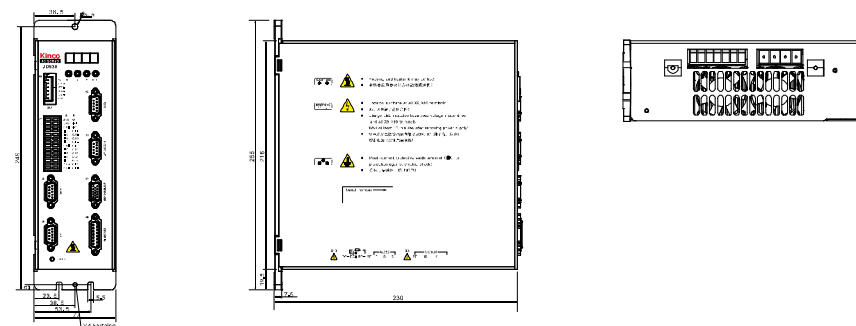
Mechanical Dimension Diagram of JD430/JD620

(Unit: mm)



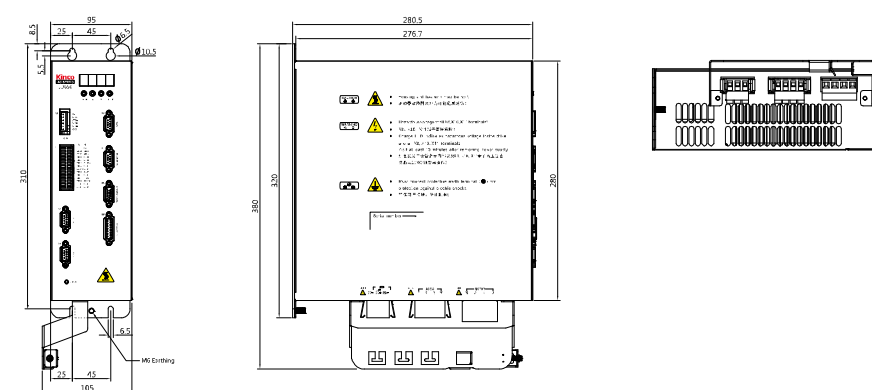
Mechanical Dimension Diagram of JD630/JD640

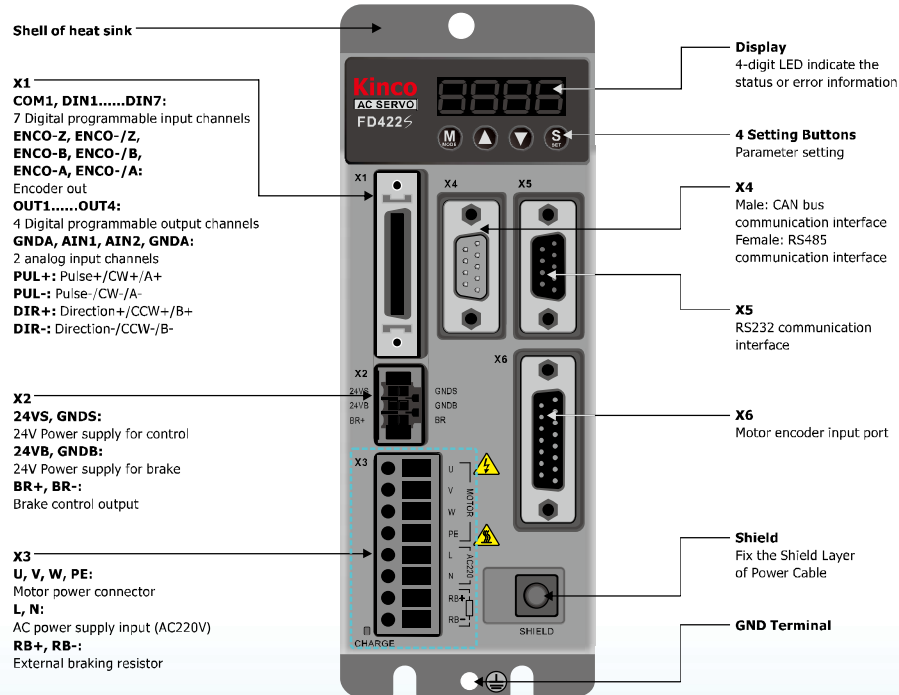
(Unit: mm)



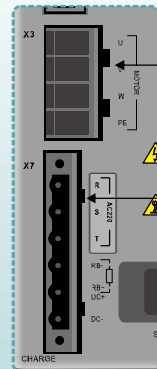
Mechanical Dimension Diagram of JD650

(Unit: mm)

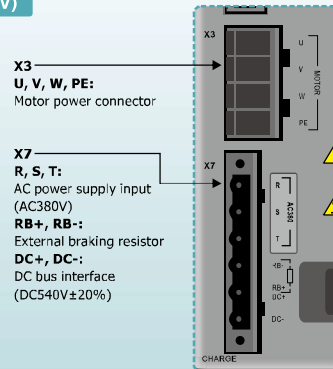




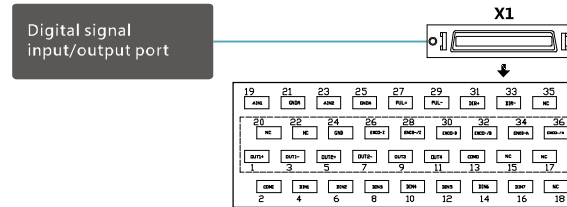
FD412S/FD422S (AC220V)



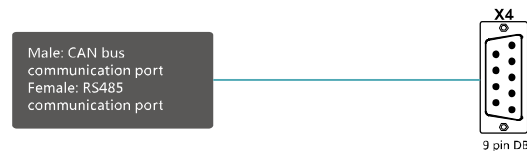
FD432(AC220V)



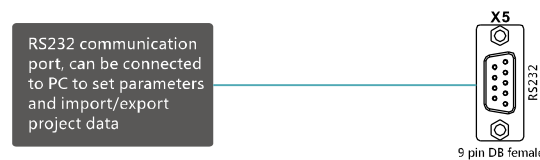
FD622(AC380V)



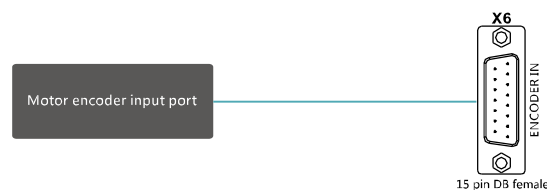
| Pin No. | Signal | Pin No. | Signal | Pin No. | Signal  | Pin No. | Signal |
|---------|--------|---------|--------|---------|---------|---------|--------|
| 2       | COM1   | 1       | OUT1+  | 20      | NC      | 19      | AIN1   |
| 4       | DIN1   | 3       | OUT1-  | 22      | NC      | 21 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



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



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



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

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

# Technical Specifications of FD2S Servo Driver

# Mechanical Dimension Diagram of FD2S Servo Driver

Technical Specifications of FD2S Servo Driver

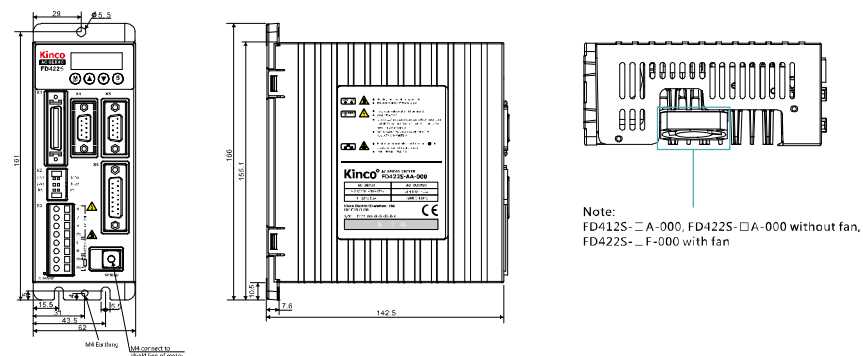
| Model Parameter                  |                                | FD412S-<br>□A-000                                                                                                                                                                                                                                                                                                                                                         | FD422S-<br>□A-000 | FD422S-<br>□F-000 | FD432S-<br>□A-000                                     | FD612S-<br>□A-000                  | FD622S-<br>□A-000 |
|----------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-------------------------------------------------------|------------------------------------|-------------------|
| Power                            | Main supply voltage            | Single-phase AC220V<br>-20/+15% 47~63Hz                                                                                                                                                                                                                                                                                                                                   |                   |                   | Single-phase or<br>3-phase AC220V<br>-20/+15% 47~63Hz | 3-phase AC380V<br>-20/+15% 47~63Hz |                   |
|                                  | Control circuit voltage        | 18VDC~30VDC 1A                                                                                                                                                                                                                                                                                                                                                            |                   |                   |                                                       |                                    |                   |
| Current                          | Rated current(RMS)             | 2A                                                                                                                                                                                                                                                                                                                                                                        | 4A                | 5A                | 11A                                                   | 5.5A                               | 7A                |
|                                  | Peak current(PEAK)             | 7A                                                                                                                                                                                                                                                                                                                                                                        | 15A               | 15A               | 27.5A                                                 | 15A                                | 25A               |
| Feedback signal                  |                                | 2500PPR (incremental encoder with 5V supply), 16 bit multi-turn absolute encoder, 20 bit single-turn absolute encoder                                                                                                                                                                                                                                                     |                   |                   |                                                       |                                    |                   |
| Brake chopper                    |                                | Use an external braking resistor according to application, mainly in occasion of quick stop.                                                                                                                                                                                                                                                                              |                   |                   |                                                       |                                    |                   |
| Brake chopper threshold          |                                | DC380V±5V                                                                                                                                                                                                                                                                                                                                                                 |                   |                   | DC380V±5V                                             | DC680V±5V                          |                   |
| Over-voltage alarming threshold  |                                | DC400V±5V                                                                                                                                                                                                                                                                                                                                                                 |                   |                   | DC400V±5V                                             | DC700V±5V                          |                   |
| Under-voltage alarming threshold |                                | DC200V±5V                                                                                                                                                                                                                                                                                                                                                                 |                   |                   | DC200V±5V                                             | DC400V±5V                          |                   |
| Cooling method                   |                                | Natural air cooling                                                                                                                                                                                                                                                                                                                                                       |                   | Fan               | Fan                                                   |                                    |                   |
| Weight(Kg)                       |                                | 1.2                                                                                                                                                                                                                                                                                                                                                                       |                   | 1.2               | 2.4                                                   |                                    |                   |
| General Functions                | Digital input specification    | 7 digital inputs, with COM1 terminal for PNP (high level valid 12.5-30V) or NPN (low level valid) connection.                                                                                                                                                                                                                                                             |                   |                   |                                                       |                                    |                   |
|                                  | Digital input function         | Define freely according to requirement, supporting following functions: Driver enable,driver fault reset,driver mode control, proportional control, positive limit, negative limit, homing signal,reverse command, internal speed section control, internal positive section control, quick stop, start homing, active command, switch electronic gear ratio, switch gain |                   |                   |                                                       |                                    |                   |
|                                  | Digital output specification   | 5 digital outputs,OUT1 ~ OUT4 current is 100mA, BR+ /BR- (Brake control ourtput ) current is 500mA, can drive brake device directly                                                                                                                                                                                                                                       |                   |                   |                                                       |                                    |                   |
|                                  | Digital output function        | Define freely according to requirement, supporting following functions: Driver ready, driver fault, position reached, motor at zero speed, motor brake, motor speed reached, Z signal, maximum speed obtained in torque mode, motor brake, position limiting, reference found, multi-position reached.                                                                    |                   |                   |                                                       |                                    |                   |
|                                  | Analog input                   | 2 analog input, can be used to control speed and torque, the input range is -10V~10V.                                                                                                                                                                                                                                                                                     |                   |                   |                                                       |                                    |                   |
|                                  | Encoder signal output function | Output encoder signal is optional, can be used in the multiple axes synchronization, the max. output frequency is 2MHz. Motor A、B、Z signal, Plus signal (PLS+DIR、CW/CCW、A+B)                                                                                                                                                                                              |                   |                   |                                                       |                                    |                   |
|                                  | RS232                          | The max. baudrate is 115.2KHz, use JD-PC software to communicate with PC, or via free protocol to communicate with controller.                                                                                                                                                                                                                                            |                   |                   |                                                       |                                    |                   |
|                                  | Protection functions           | Over-voltage protection,under-voltage protection,motor over-heat protection(I <sup>2</sup> T),short-circuit protection,drive over-heat protection,etc.                                                                                                                                                                                                                    |                   |                   |                                                       |                                    |                   |
| RS485                            |                                | The max. baudrate is 115.2KHz, use Modbus RTU protocol to communicate with controller.                                                                                                                                                                                                                                                                                    |                   |                   |                                                       |                                    |                   |
| CAN BUS                          |                                | The max. baudrate is 1MHz, use CANopen protocol to communicate with controller.                                                                                                                                                                                                                                                                                           |                   |                   |                                                       |                                    |                   |
| Operation Environment            | Operating temperature          | 0~40℃                                                                                                                                                                                                                                                                                                                                                                     |                   |                   |                                                       |                                    |                   |
|                                  | Storage temperature            | -10℃~70℃                                                                                                                                                                                                                                                                                                                                                                  |                   |                   |                                                       |                                    |                   |
|                                  | Humidity(non-condensing)       | Below 90%RH                                                                                                                                                                                                                                                                                                                                                               |                   |                   |                                                       |                                    |                   |
|                                  | Protection class               | IP20                                                                                                                                                                                                                                                                                                                                                                      |                   |                   |                                                       |                                    |                   |
|                                  | Installation environment       | Installed in a dust-free,dry and lockable environment(such as in a electrical cabinet)                                                                                                                                                                                                                                                                                    |                   |                   |                                                       |                                    |                   |
|                                  | Installation mode              | Vertical installation                                                                                                                                                                                                                                                                                                                                                     |                   |                   |                                                       |                                    |                   |
|                                  | Height                         | No power limitation below 1000m                                                                                                                                                                                                                                                                                                                                           |                   |                   |                                                       |                                    |                   |
| Atmospheric pressure             |                                | 86kpa~106kpa                                                                                                                                                                                                                                                                                                                                                              |                   |                   |                                                       |                                    |                   |

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

Note②: AA is a direct driving servo system

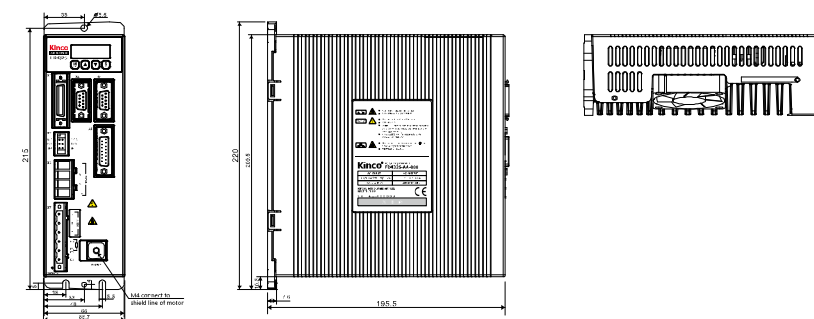
Mechanical Dimension Diagram of FD412S/FD422S

(Unit: mm)



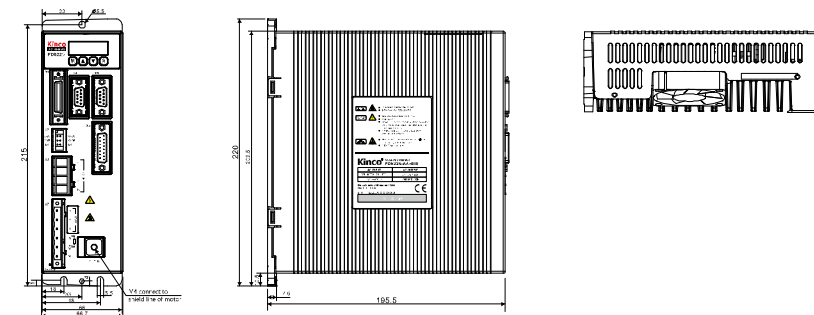
Mechanical Dimension Diagram of FD432S

(Unit: mm)

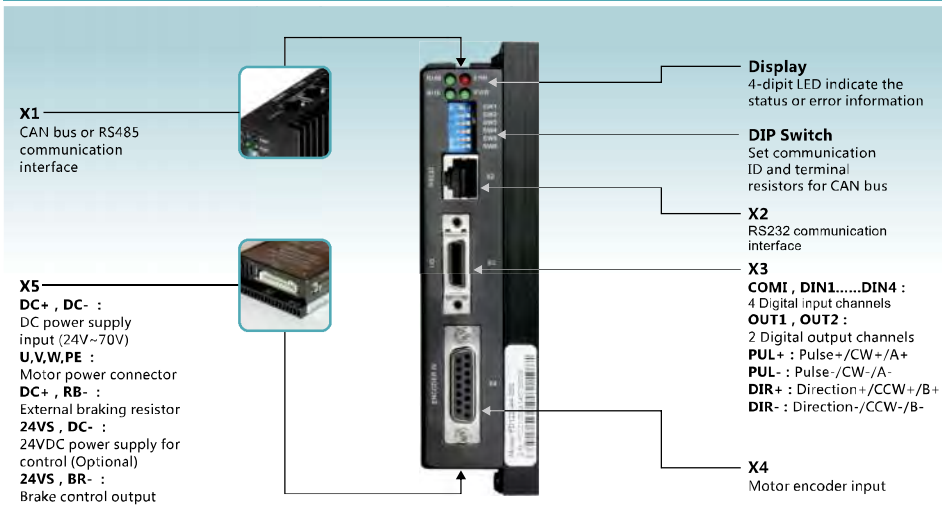


Mechanical Dimension Diagram of FD612S/FD622S

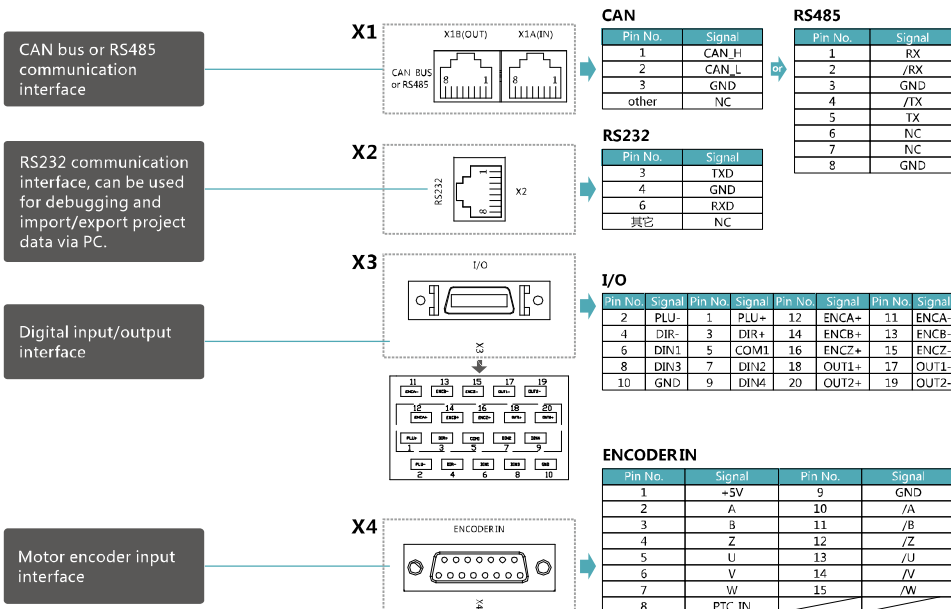
(Unit: mm)



## Panel and Interface Description of FD122 Servo Driver



## Port Description of FD122 Servo Driver



## Technical Specifications Table of FD122 Servo Driver

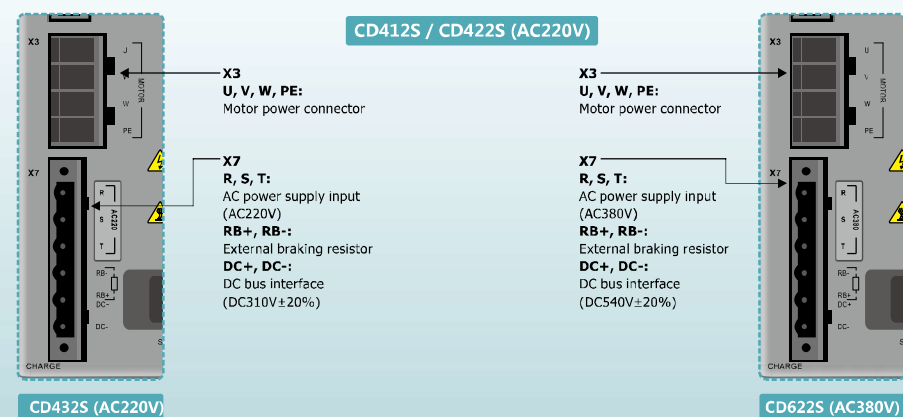
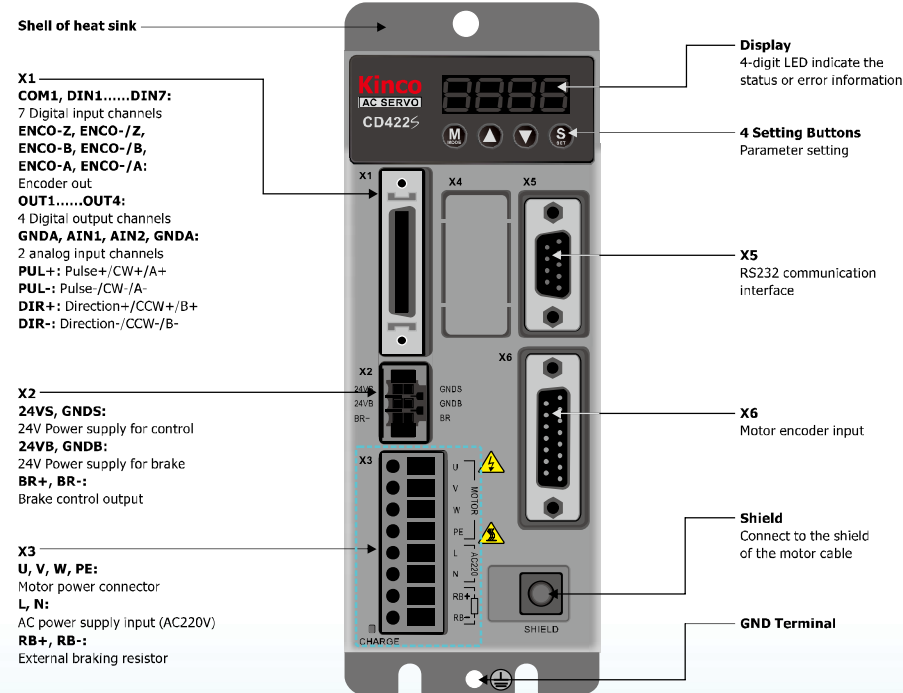
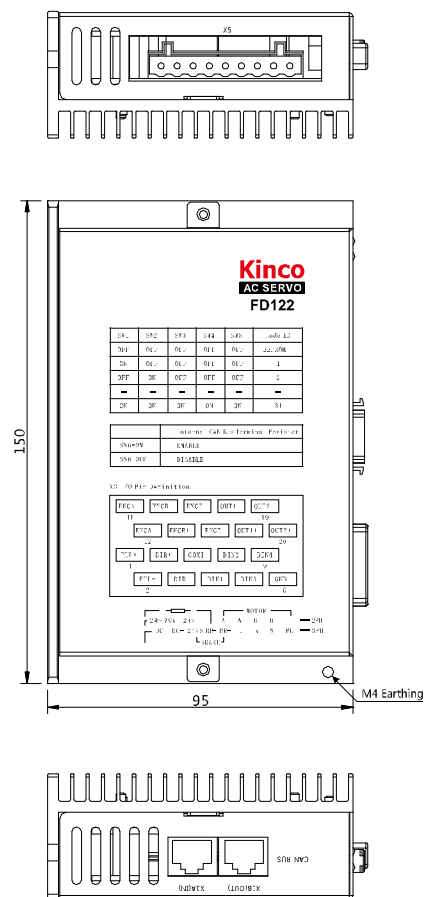
| Model parameter       |                                  | FD122-LA-000                                                                                                                                                                                                                                                                                                                                                                 | FD122-CA-000 | FD122-AA-000 |
|-----------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|
| Power                 | Main supply voltage              | 24VDC ~ 70VDC                                                                                                                                                                                                                                                                                                                                                                |              |              |
|                       | Control circuit voltage          | DC24V 1A ( Optional )                                                                                                                                                                                                                                                                                                                                                        |              |              |
|                       | Rated current(RMS)               | 10A                                                                                                                                                                                                                                                                                                                                                                          |              |              |
|                       | Peak current(PEAK)               | 30A                                                                                                                                                                                                                                                                                                                                                                          |              |              |
| Current               | Feedback signal                  | 2500PPR (incremental encoder with 5V supply)                                                                                                                                                                                                                                                                                                                                 |              |              |
|                       | Brake chopper                    | Use an external braking resistor according to application, mainly in high speed start and stop application.                                                                                                                                                                                                                                                                  |              |              |
|                       | Brake chopper threshold          | DC79V ± 2V                                                                                                                                                                                                                                                                                                                                                                   |              |              |
|                       | Over-voltage alarming threshold  | DC86V ± 2V                                                                                                                                                                                                                                                                                                                                                                   |              |              |
| Feedback signal       | Under-voltage alarming threshold | 18V± 2V                                                                                                                                                                                                                                                                                                                                                                      |              |              |
|                       | Cooling method                   | Natural air cooling                                                                                                                                                                                                                                                                                                                                                          |              |              |
|                       | Weight (Kg)                      | 0.565                                                                                                                                                                                                                                                                                                                                                                        |              |              |
|                       | Input specification              | 4 digital inputs, with COM1 terminal for PNP (high level valid 12.5-30V) or NPN (low level valid) connection.                                                                                                                                                                                                                                                                |              |              |
| General Functions     | Input function                   | Define freely according to requirement, supporting following functions: Driver enable, driver fault reset, driver mode control, proportional control, positive limit, negative limit, homing signal, reverse command, internal speed section control, internal positive section control, quick stop, start homing, active command, switch electronic gear ratio, switch gain |              |              |
|                       | Output specification             | 3 digital outputs, OUT1-OUT2 current is 100mA, BR+/BR- (Brake control output ) current is 500mA, can drive brake device directly                                                                                                                                                                                                                                             |              |              |
|                       | Output function                  | Define freely according to requirement, supporting following functions: Driver ready, driver fault, position reached, motor at zero speed, motor brake, motor speed reached, N signal, maximum speed obtained in torque mode, motor brake, position limiting, reference found, multi-position reached                                                                        |              |              |
|                       | Encoder Signal Output            | Output the encoder signal of motor, Used in multiple axis synchronous control, supports 2MHz at most                                                                                                                                                                                                                                                                         |              |              |
| CAN BUS               | RS232                            | The max. baud rate is 115.2KHz, use JD-PC software to communicate with PC, or via free protocol to communicate with controller.                                                                                                                                                                                                                                              |              |              |
|                       | Protection Functions             | Over-voltage protection, under-voltage protection, motor over-heat protection(I <sup>2</sup> T), short-circuit protection, drive over-heat protection, etc                                                                                                                                                                                                                   |              |              |
|                       | Operating temperature            | 0 ~ 40°C                                                                                                                                                                                                                                                                                                                                                                     |              |              |
|                       | Storage temperature              | -10°C ~ 70°C                                                                                                                                                                                                                                                                                                                                                                 |              |              |
| Operation Environment | Humidity(non-condensing)         | Below 90%RH                                                                                                                                                                                                                                                                                                                                                                  |              |              |
|                       | Protection class                 | IP20                                                                                                                                                                                                                                                                                                                                                                         |              |              |
|                       | Installation environment         | Installed in a dust-free, dry and lockable environment(such as in a electrical cabinet)                                                                                                                                                                                                                                                                                      |              |              |
|                       | Installation mode                | Vertical installation                                                                                                                                                                                                                                                                                                                                                        |              |              |
| Altitude              | Altitude                         | No power limitation below 1000m                                                                                                                                                                                                                                                                                                                                              |              |              |
|                       | Atmospheric pressure             | 86kpa ~ 106kpa                                                                                                                                                                                                                                                                                                                                                               |              |              |

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

Note②: AA is a direct driving servo system

Mechanical Dimension Diagram of FD122

(Unit: mm)



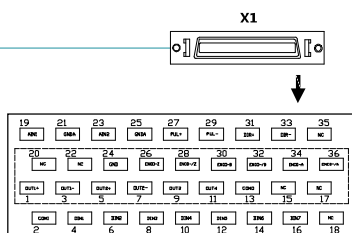
**Note:** 1. CD412S/CD422S/CD432S/CD622S drivers share the same interface definition, except for X3 and X7 power interfaces.  
2. Suggested brake resistor: CD412S/CD422S 75ohms/100W, CD432S 39ohms/200W, CD622S 75ohms/200W. The customer should choose the power of brake resistor according to the actual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

## Port Description of CD2S Servo Driver

LED display and  
Setting Buttons



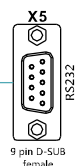
Signal input/output  
interface



X1

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

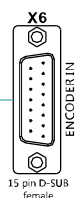
RS232 communication  
interface, can be  
used to debug and  
import/export project  
data via PC.



RS232

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

Input interface of  
motor encoder



ENCODER IN

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

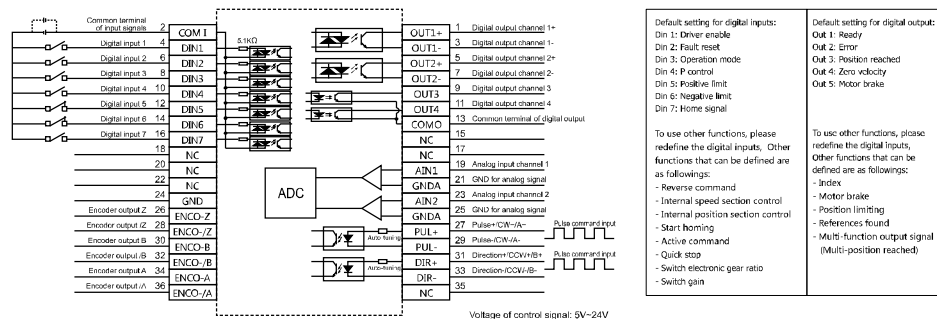
## Technical Specifications of CD2S Servo Driver

### Technical Specifications of CD2S Servo Driver

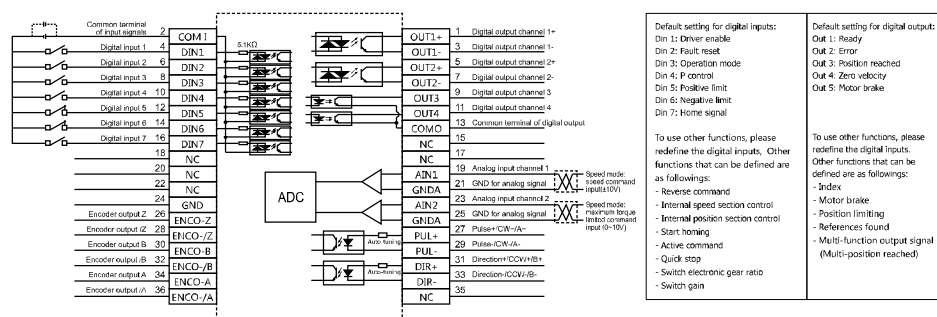
| Model parameter                  |                                  | CD412S-AA-000                                                                                                                                                                                                                                                                                                                                                             | CD422S-AA-000 | CD422S-AF-000 | CD432S-AA-000                                      | CD612S-AA-000                      | CD622S-AA-000 |
|----------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|----------------------------------------------------|------------------------------------|---------------|
| Power                            | Main supply voltage              | Single-phase AC220V<br>-20/+15% 47~63Hz                                                                                                                                                                                                                                                                                                                                   |               |               | Single-phase or 3-phase<br>AC220V -20/+15% 47~63Hz | 3-phase AC380V<br>-20/+15% 47~63Hz |               |
|                                  | Control circuit voltage          | 18VDC~30VDC 1A                                                                                                                                                                                                                                                                                                                                                            |               |               |                                                    |                                    |               |
| Current                          | Max. continuous current          | 2A                                                                                                                                                                                                                                                                                                                                                                        | 4A            | 5A            | 11A                                                | 5.5A                               | 7A            |
|                                  | Peak current(PEAK)               | 7A                                                                                                                                                                                                                                                                                                                                                                        | 15A           | 15A           | 27.5A                                              | 15A                                | 25A           |
| Feedback signal                  |                                  | 2500PPR (incremental encoder with 5V supply)<br>16 bit multi-turn absolute encoder, 20 bit single-turn absolute encoder                                                                                                                                                                                                                                                   |               |               |                                                    |                                    |               |
| Brake chopper                    |                                  | Use an external braking resistor according to application, mainly in occasion of quick stop.                                                                                                                                                                                                                                                                              |               |               |                                                    |                                    |               |
| Brake chopper threshold          |                                  | DC380V±5V                                                                                                                                                                                                                                                                                                                                                                 |               |               |                                                    | DC680V±5V                          |               |
| Over-voltage alarming threshold  |                                  | DC400V±5V                                                                                                                                                                                                                                                                                                                                                                 |               |               |                                                    | DC700V±5V                          |               |
| Under-voltage alarming threshold |                                  | DC200V±5V                                                                                                                                                                                                                                                                                                                                                                 |               |               |                                                    | DC400V±5V                          |               |
| Cooling method                   |                                  | Natural air cooling                                                                                                                                                                                                                                                                                                                                                       |               | Fan           | Fan                                                |                                    |               |
| Weight (Kg)                      |                                  | 1.2                                                                                                                                                                                                                                                                                                                                                                       |               | 1.2           | 2.4                                                |                                    |               |
| Position Mode                    | Max. frequency of input pulse    | Differential signal: 500KPPS, Open-collector signal: 200KPPS                                                                                                                                                                                                                                                                                                              |               |               |                                                    |                                    |               |
|                                  | Pulse command mode               | Pulse+ direction, CCW+CW, A+B phase(5V-24V)                                                                                                                                                                                                                                                                                                                               |               |               |                                                    |                                    |               |
|                                  | Command smoothing                | Low-pass filtering(Adjustable by internal parameter setting)                                                                                                                                                                                                                                                                                                              |               |               |                                                    |                                    |               |
|                                  | Feedforward gain                 | Adjustable by internal parameter setting                                                                                                                                                                                                                                                                                                                                  |               |               |                                                    |                                    |               |
|                                  | Electronic gear ratio            | Setting range, Gear factor: -32768~32767, Gear divider: 1~32767, 1/50≤ Gear factor/Gear divider ≤50                                                                                                                                                                                                                                                                       |               |               |                                                    |                                    |               |
|                                  | Position loop sampling frequency | 1KHz                                                                                                                                                                                                                                                                                                                                                                      |               |               |                                                    |                                    |               |
| Speed Mode                       | Analog input voltage range       | -10V~-+10V(Resolution 12bit)                                                                                                                                                                                                                                                                                                                                              |               |               |                                                    |                                    |               |
|                                  | Input impedance                  | 200K                                                                                                                                                                                                                                                                                                                                                                      |               |               |                                                    |                                    |               |
|                                  | Analog input sampling frequency  | 4KHz                                                                                                                                                                                                                                                                                                                                                                      |               |               |                                                    |                                    |               |
|                                  | Command source                   | External analog command / internal command                                                                                                                                                                                                                                                                                                                                |               |               |                                                    |                                    |               |
|                                  | Command smoothing                | Low-pass filtering(Adjustable by internal parameter setting)                                                                                                                                                                                                                                                                                                              |               |               |                                                    |                                    |               |
|                                  | Input voltage dead-zone setting  | Adjustable by internal parameter setting                                                                                                                                                                                                                                                                                                                                  |               |               |                                                    |                                    |               |
|                                  | Input voltage offset setting     | Adjustable by internal parameter setting                                                                                                                                                                                                                                                                                                                                  |               |               |                                                    |                                    |               |
|                                  | Speed limit                      | Adjustable by internal parameter setting                                                                                                                                                                                                                                                                                                                                  |               |               |                                                    |                                    |               |
|                                  | Torque limit                     | Adjustable by internal parameter setting / External analog command control                                                                                                                                                                                                                                                                                                |               |               |                                                    |                                    |               |
| Torque Mode                      | Speed loop sampling frequency    | 4KHz                                                                                                                                                                                                                                                                                                                                                                      |               |               |                                                    |                                    |               |
|                                  | Analog voltage input range       | -10V~-+10V(Resolution 12bit)                                                                                                                                                                                                                                                                                                                                              |               |               |                                                    |                                    |               |
|                                  | Input impedance                  | 200K                                                                                                                                                                                                                                                                                                                                                                      |               |               |                                                    |                                    |               |
|                                  | Input sampling frequency         | 4KHz                                                                                                                                                                                                                                                                                                                                                                      |               |               |                                                    |                                    |               |
|                                  | Command source                   | External analog command / internal command                                                                                                                                                                                                                                                                                                                                |               |               |                                                    |                                    |               |
|                                  | Command smoothing                | Low-pass filtering(Adjustable by internal parameter setting)                                                                                                                                                                                                                                                                                                              |               |               |                                                    |                                    |               |
|                                  | Speed limit                      | Adjustable by internal parameter setting / External analog command control                                                                                                                                                                                                                                                                                                |               |               |                                                    |                                    |               |
|                                  | Input voltage dead-zone setting  | Adjustable by internal parameter setting                                                                                                                                                                                                                                                                                                                                  |               |               |                                                    |                                    |               |
|                                  | Input voltage offset setting     | Adjustable by internal parameter setting                                                                                                                                                                                                                                                                                                                                  |               |               |                                                    |                                    |               |
| Digital Input                    | Input specification              | 7 digital inputs, with COM1 terminal for PNP (high level valid 12.5-30V) or NPN (low level valid) connection.                                                                                                                                                                                                                                                             |               |               |                                                    |                                    |               |
|                                  | Input function                   | Define freely according to requirement, supporting following functions: Driver enable,driver fault reset,driver mode control, proportional control, positive limit, negative limit, homing signal,reverse command, internal speed section control, internal positive section control, quick stop, start homing, active command, switch electronic gear ratio, switch gain |               |               |                                                    |                                    |               |
| Digital Output                   | Output specification             | 5 digital outputs,OUT1~OUT4 current is 100mA,OUT5 current is 800mA, can drive brake device directly                                                                                                                                                                                                                                                                       |               |               |                                                    |                                    |               |
|                                  | Output function                  | Define freely according to requirement, supporting following functions: Driver ready, driver fault, position reached, motor at zero speed, motor brake, motor speed reached, Z signal, maximum speed obtained in torque mode, motor brake, position limiting, reference found, multi-position reached                                                                     |               |               |                                                    |                                    |               |
| Protection functions             |                                  | Over-voltage protection,under-voltage protection,motor over-heat protection(°F),short-circuit protection,drive over-heat protection,etc.                                                                                                                                                                                                                                  |               |               |                                                    |                                    |               |
| Communication interface          |                                  | RS232 (Connections with PC: 2-2, 3-3, 5-5)                                                                                                                                                                                                                                                                                                                                |               |               |                                                    |                                    |               |
| Operation Environment            | Operating temperature            | 0~40°C                                                                                                                                                                                                                                                                                                                                                                    |               |               |                                                    |                                    |               |
|                                  | Storage temperature              | -10°C~70°C                                                                                                                                                                                                                                                                                                                                                                |               |               |                                                    |                                    |               |
|                                  | Humidity(non-condensing)         | Below 90%RH                                                                                                                                                                                                                                                                                                                                                               |               |               |                                                    |                                    |               |
|                                  | Protection class                 | IP20                                                                                                                                                                                                                                                                                                                                                                      |               |               |                                                    |                                    |               |
|                                  | Installation environment         | Installed in a dust-free,dry and lockable environment(such as in a electrical cabinet)                                                                                                                                                                                                                                                                                    |               |               |                                                    |                                    |               |
|                                  | Installation mode                | Vertical installation                                                                                                                                                                                                                                                                                                                                                     |               |               |                                                    |                                    |               |
|                                  | Altitude                         | No power limitation below 1000m                                                                                                                                                                                                                                                                                                                                           |               |               |                                                    |                                    |               |
|                                  | Atmospheric pressure             | 86kpa~106kpa                                                                                                                                                                                                                                                                                                                                                              |               |               |                                                    |                                    |               |

# Wiring Diagram of CD2S Servo Driver

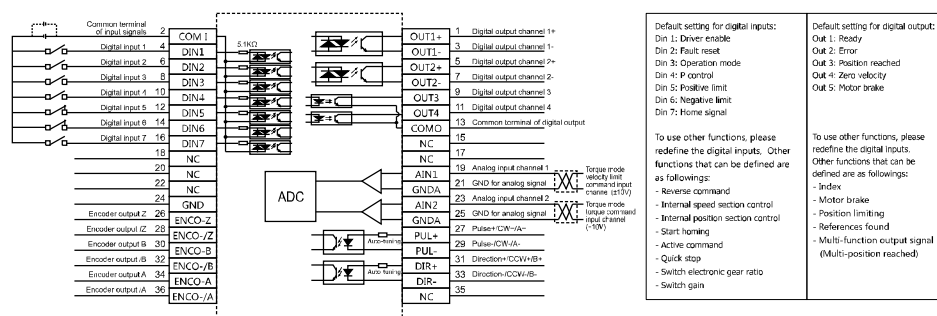
Wiring Diagram for Position Control Mode



Wiring Diagram for Speed Control Mode



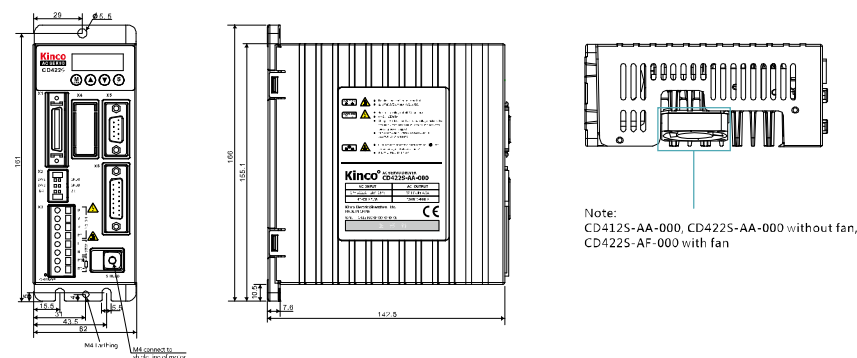
Wiring Diagram for Torque Control Mode



# Mechanical Dimension Diagram of CD2S Servo Driver

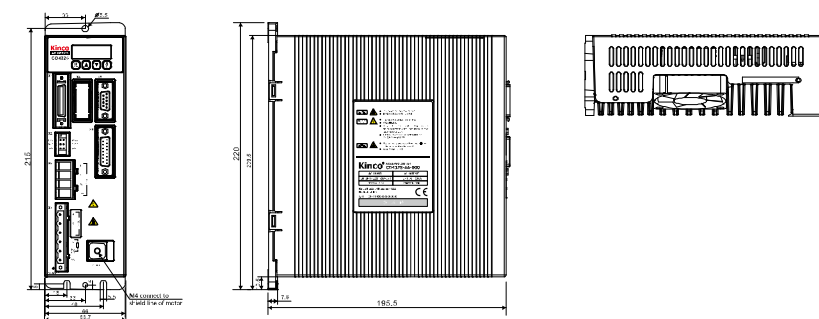
Mechanical Dimension Diagram of CD412S/CD422S

(Unit: mm)



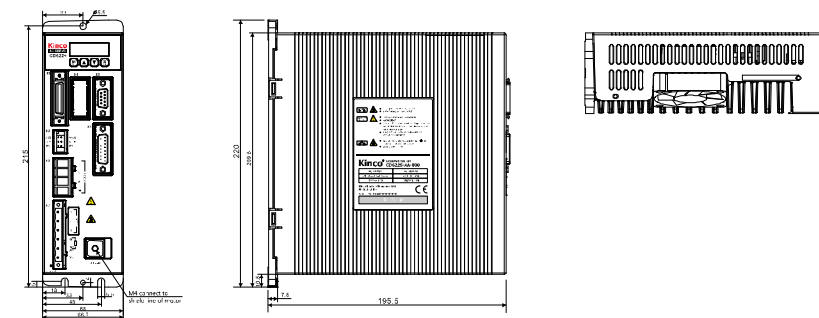
Mechanical Dimension Diagram of CD432S

(Unit: mm)



Mechanical Dimension Diagram of CD612S/CD622S

(Unit: mm)



# Technical Specifications of SMH Servo Motor

# Technical Specifications of SMH Servo Motor

Technical Specifications of SMH Servo Motor (1)

| Motor series                                        | Small inertia flange size 40mm                                   |                                                                                                   | Small inertia flange size 60mm                                                   |                        | Small inertia flange size 80mm                                                   |                        |
|-----------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------|----------------------------------------------------------------------------------|------------------------|
| Model                                               | SMH40S-000S-30A□K-4LKH                                           | SMH40S-0010-30A□K-4LKH                                                                            | SMH60S-0020-30A□K-3LK□                                                           | SMH60S-0040-30A□K-3LK□ | SMH80S-0075-30A□K-3LK□                                                           | SMH80S-0100-30A□K-3LK□ |
| Driver matching                                     | FD412S-CA-000<br>FD412S-AA-000<br>FD412S-LA-000<br>CD412S-AA-000 |                                                                                                   | JD430-AA-000<br>FD422S-CA-000<br>FD422S-AA-000<br>FD422S-LA-000<br>CD422S-AA-000 |                        | JD430-AA-000<br>FD432S-CA-000<br>FD432S-AA-000<br>FD432S-LA-000<br>CD432S-AA-000 |                        |
| DC link voltage UDC                                 | 300                                                              | 300                                                                                               | 300                                                                              | 300                    | 300                                                                              | 300                    |
| Continuous performance                              | Rated power $P_n$ (W)                                            | 50                                                                                                | 100                                                                              | 200                    | 400                                                                              | 750                    |
|                                                     | Rated torque $T_n$ (Nm)                                          | 0.16                                                                                              | 0.32                                                                             | 0.64                   | 1.27                                                                             | 2.39                   |
|                                                     | Rated speed $n_n$ (rpm)                                          | 3000                                                                                              | 3000                                                                             | 3000                   | 3000                                                                             | 3000                   |
|                                                     | Rated current $I_N$ (A)                                          | 0.7                                                                                               | 1.4                                                                              | 1.6                    | 3.1                                                                              | 3.9                    |
| Maximum torque $T_m$ (Nm)                           | 0.48                                                             | 0.96                                                                                              | 1.92                                                                             | 3.82                   | 7.17                                                                             | 9.48                   |
| Maximum current $I_m$ (A)                           | 2.1                                                              | 4.2                                                                                               | 4.8                                                                              | 9.3                    | 11.7                                                                             | 18.9                   |
| Standstill torque $T_s$ (Nm)                        | 0.176                                                            | 0.352                                                                                             | 0.7                                                                              | 1.39                   | 2.63                                                                             | 3.3                    |
| Standstill current $I_S$ (A)                        | 0.77                                                             | 1.54                                                                                              | 1.79                                                                             | 3.38                   | 4.4                                                                              | 6.93                   |
| Resistance line-line $R_L$ ( $\Omega$ )             | 16.6                                                             | 5.53                                                                                              | 8.02                                                                             | 3.52                   | 1.4                                                                              | 0.86                   |
| Inductance line-line $L_L$ (mH)                     | 14                                                               | 6                                                                                                 | 16.3                                                                             | 7.8                    | 7.5                                                                              | 4.5                    |
| Electrical time constant $\tau_e$ (ms)              | 0.84                                                             | 1.08                                                                                              | 2.03                                                                             | 2.22                   | 5.35                                                                             | 5.23                   |
| Mechanical time constant $\tau_m$ (ms)              | 1.28                                                             | 0.86                                                                                              | 2.26                                                                             | 1.35                   | 0.75                                                                             | 0.89                   |
| Reverse voltage constant $K_e$ (V/krpm)             | 16                                                               | 14                                                                                                | 29                                                                               | 29                     | 40                                                                               | 34                     |
| Torque constant $K_t$ (Nm/A)                        | 0.265                                                            | 0.265                                                                                             | 0.48                                                                             | 0.48                   | 0.662                                                                            | 0.562                  |
| Rotor moment of inertia $J_m$ (Kg-cm <sup>2</sup> ) | 0.031                                                            | 0.059                                                                                             | 0.375                                                                            | 0.51                   | 1.36                                                                             | 1.9                    |
|                                                     | 0.031 (with brake)                                               | 0.061 (with brake)                                                                                | 0.379 (with brake)                                                               | 0.514 (with brake)     | 1.385 (with brake)                                                               | 1.925 (with brake)     |
| Pole pair number                                    | 4                                                                | 4                                                                                                 | 3                                                                                | 3                      | 3                                                                                | 3                      |
| Maximum voltage rising $du/dt$ (KV/ $\mu$ s)        | 8                                                                | 8                                                                                                 | 8                                                                                | 8                      | 8                                                                                | 8                      |
| Insulation class                                    | F                                                                | F                                                                                                 | F                                                                                | F                      | F                                                                                | F                      |
| Maximum radial force $F_r$ (N)                      | 120                                                              | 120                                                                                               | 180                                                                              | 180                    | 335                                                                              | 335                    |
| Maximum axial force $F_a$ (N)                       | 60                                                               | 60                                                                                                | 90                                                                               | 90                     | 167.5                                                                            | 167.5                  |
| Weight $G$ (Kg)                                     | 0.5                                                              | 0.8                                                                                               | 1.3                                                                              | 1.8                    | 3.3                                                                              | 3.9                    |
|                                                     | 0.8 (with brake)                                                 | 1.0 (with brake)                                                                                  | 1.8 (with brake)                                                                 | 2.3 (with brake)       | 4 (with brake)                                                                   | 4.6 (with brake)       |
| Length of motor $L$ (mm)                            | 85.3±1                                                           | 110.8±1                                                                                           | 120                                                                              | 150                    | 147                                                                              | 167                    |
|                                                     | 119±1.5 (with brake)                                             | 145±1.5 (with brake)                                                                              | 159±1.5 (with brake)                                                             | 189±1.5 (with brake)   | 197±1.5 (with brake)                                                             | 217±1.5 (with brake)   |
| Position feedback device                            | Incremental encoder 2500ppr                                      |                                                                                                   |                                                                                  |                        |                                                                                  |                        |
| Cooling method                                      | Totally enclosed, non-ventilated                                 |                                                                                                   |                                                                                  |                        |                                                                                  |                        |
| Protection level                                    | IP65 for body, shaft sealing IP54                                |                                                                                                   |                                                                                  |                        |                                                                                  |                        |
| Environmental conditions for operation              | Temperature                                                      | -20°C ~ 40°C (Non-freezing)                                                                       |                                                                                  |                        |                                                                                  |                        |
|                                                     | Humidity                                                         | Below 90% RH (Non-condensing)                                                                     |                                                                                  |                        |                                                                                  |                        |
|                                                     | Ambient environment                                              | Away from active gas, combustible gas, oil drops and dust                                         |                                                                                  |                        |                                                                                  |                        |
|                                                     | Altitude                                                         | Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise |                                                                                  |                        |                                                                                  |                        |

Note : I =A —Without brake  
I =B —With brake

=H —Cable connector  
=N —HFO18 series standard connector (Towards the shaft)  
=O —HFO18 series standard connector (Opposite the shaft)  
=P —HFO21+HFO18 (Power HFO21 connector, Encoder HFO18 connector)  
=M —2xM17 series Intercontec connector

Technical Specifications of SMH Servo Motor (2)

| Motor series                                        | Medium inertia flange size 110mm                                                 |                                                                                                   |                                                                                  |                                                                                  |                                                                                  |                                                                                  |
|-----------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Model                                               | SMH110D-012S-30A□K-4LKC                                                          | SMH110D-0126-30A□K-4HKC                                                                           | SMH110D-0105-20A□K-4LKC                                                          | SMH110D-0157-30A□K-4HKC                                                          | SMH110D-0126-20A□K-4LKC                                                          | SMH110D-0188-30A□K-4HKC                                                          |
| Driver matching                                     | JD430-AA-000<br>FD432S-CA-000<br>FD432S-AA-000<br>FD432S-LA-000<br>CD432S-AA-000 | JD620-AA-000<br>FD622S-CA-000<br>FD622S-AA-000<br>FD622S-LA-000<br>CD622S-AA-000                  | JD430-AA-000<br>FD432S-CA-000<br>FD432S-AA-000<br>FD432S-LA-000<br>CD432S-AA-000 | JD620-AA-000<br>FD622S-CA-000<br>FD622S-AA-000<br>FD622S-LA-000<br>CD622S-AA-000 | JD430-AA-000<br>FD432S-CA-000<br>FD432S-AA-000<br>FD432S-LA-000<br>CD432S-AA-000 | JD620-AA-000<br>FD622S-CA-000<br>FD622S-AA-000<br>FD622S-LA-000<br>CD622S-AA-000 |
| DC link voltage UDC                                 | 300                                                                              | 560                                                                                               | 300                                                                              | 560                                                                              | 300                                                                              | 560                                                                              |
| Continuous performance                              | Rated power $P_n$ (W)                                                            | 1250                                                                                              | 1260                                                                             | 1050                                                                             | 1570                                                                             | 1880                                                                             |
|                                                     | Rated torque $T_n$ (Nm)                                                          | 4.0                                                                                               | 4.0                                                                              | 5.0                                                                              | 5.0                                                                              | 6.0                                                                              |
|                                                     | Rated speed $n_n$ (rpm)                                                          | 3000                                                                                              | 3000                                                                             | 2000                                                                             | 3000                                                                             | 2000                                                                             |
|                                                     | Rated current $I_N$ (A)                                                          | 6.5                                                                                               | 4.3                                                                              | 5.9                                                                              | 5.9                                                                              | 6.2                                                                              |
| Maximum torque $T_m$ (Nm)                           | 12                                                                               | 12                                                                                                | 15.0                                                                             | 15.0                                                                             | 18.0                                                                             | 18.0                                                                             |
| Maximum current $I_m$ (A)                           | 19.5                                                                             | 12.9                                                                                              | 17.7                                                                             | 17.7                                                                             | 18.6                                                                             | 18.6                                                                             |
| Standstill torque $T_s$ (Nm)                        | 4.4                                                                              | 4.4                                                                                               | 5.5                                                                              | 5.5                                                                              | 6.6                                                                              | 6.6                                                                              |
| Standstill current $I_S$ (A)                        | 6.82                                                                             | 4.73                                                                                              | 6.49                                                                             | 6.49                                                                             | 6.765                                                                            | 6.765                                                                            |
| Resistance line-line $R_L$ ( $\Omega$ )             | 0.8                                                                              | 1.83                                                                                              | 1.03                                                                             | 1.03                                                                             | 1.258                                                                            | 1.258                                                                            |
| Inductance line-line $L_L$ (mH)                     | 6.4                                                                              | 13.5                                                                                              | 7.8                                                                              | 7.8                                                                              | 9.62                                                                             | 9.62                                                                             |
| Electrical time constant $\tau_e$ (ms)              | 7.9                                                                              | 7.37                                                                                              | 7.57                                                                             | 7.57                                                                             | 7.64                                                                             | 7.64                                                                             |
| Mechanical time constant $\tau_m$ (ms)              | 1.4                                                                              | 1.63                                                                                              | 1.55                                                                             | 1.55                                                                             | 1.65                                                                             | 1.65                                                                             |
| Reverse voltage constant $K_e$ (V/krpm)             | 45                                                                               | 64                                                                                                | 55                                                                               | 55                                                                               | 64                                                                               | 64                                                                               |
| Torque constant $K_t$ (Nm/A)                        | 0.744                                                                            | 1.058                                                                                             | 0.910                                                                            | 0.910                                                                            | 1.058                                                                            | 1.058                                                                            |
| Rotor moment of inertia $J_m$ (Kg-cm <sup>2</sup> ) | 5.8                                                                              | 5.8                                                                                               | 7.2                                                                              | 7.2                                                                              | 8.5                                                                              | 8.5                                                                              |
|                                                     | 5.85 (with brake)                                                                | 5.85 (with brake)                                                                                 | 7.25 (with brake)                                                                | 7.25 (with brake)                                                                | 8.55 (with brake)                                                                | 8.55 (with brake)                                                                |
| Pole pair number                                    | 4                                                                                | 4                                                                                                 | 4                                                                                | 4                                                                                | 4                                                                                | 4                                                                                |
| Maximum voltage rising $du/dt$ (KV/ $\mu$ s)        | 8                                                                                | 8                                                                                                 | 8                                                                                | 8                                                                                | 8                                                                                | 8                                                                                |
| Insulation class                                    | F                                                                                | F                                                                                                 | F                                                                                | F                                                                                | F                                                                                | F                                                                                |
| Maximum radial force $F_r$ (N)                      | 630                                                                              | 630                                                                                               | 630                                                                              | 630                                                                              | 630                                                                              | 630                                                                              |
| Maximum axial force $F_a$ (N)                       | 315                                                                              | 315                                                                                               | 315                                                                              | 315                                                                              | 315                                                                              | 315                                                                              |
| Weight $G$ (Kg)                                     | 6.2                                                                              | 6.2                                                                                               | 7.2                                                                              | 7.2                                                                              | 8.2                                                                              | 8.2                                                                              |
|                                                     | 8.2 (with brake)                                                                 | 8.2 (with brake)                                                                                  | 9.2 (with brake)                                                                 | 9.2 (with brake)                                                                 | 10.2 (with brake)                                                                | 10.2 (with brake)                                                                |
| Length of motor $L$ (mm)                            | 168                                                                              | 168                                                                                               | 185                                                                              | 185                                                                              | 202                                                                              | 202                                                                              |
|                                                     | 228±1 (with brake)                                                               | 228±1 (with brake)                                                                                | 245±1 (with brake)                                                               | 245±1 (with brake)                                                               | 262±1 (with brake)                                                               | 262±1 (with brake)                                                               |
| Position feedback device                            | Incremental encoder 2500ppr                                                      |                                                                                                   |                                                                                  |                                                                                  |                                                                                  |                                                                                  |
| Cooling method                                      | Totally enclosed, non-ventilated                                                 |                                                                                                   |                                                                                  |                                                                                  |                                                                                  |                                                                                  |
| Protection level                                    | IP65 for body, shaft sealing IP54                                                |                                                                                                   |                                                                                  |                                                                                  |                                                                                  |                                                                                  |
| Environmental conditions for operation              | Temperature                                                                      | -20°C ~ 40°C (Non-freezing)                                                                       |                                                                                  |                                                                                  |                                                                                  |                                                                                  |
|                                                     | Humidity                                                                         | Below 90% RH (Non-condensing)                                                                     |                                                                                  |                                                                                  |                                                                                  |                                                                                  |
|                                                     | Ambient environment                                                              | Away from active gas, combustible gas, oil drops and dust                                         |                                                                                  |                                                                                  |                                                                                  |                                                                                  |
|                                                     | Altitude                                                                         | Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise |                                                                                  |                                                                                  |                                                                                  |                                                                                  |

Note : I =A —Without brake  
I =B —With brake

# Technical Specifications of SMH Servo Motor

Technical Specifications of SMH Servo Motor (3)

| Motor series                                                 |                                  | Medium inertia flange size 130mm                                                                  |                                                                 |                                                                 |                              | Medium inertia flange size 150mm                                |
|--------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|------------------------------|-----------------------------------------------------------------|
| Model                                                        |                                  | SMH130D-0105<br>-20A□K-4HKC                                                                       | SMH130D-0157<br>-20A□K-4HKC                                     | SMH130D-0210<br>-20A□K-4HKC                                     | SMH130D-0300<br>-20A□K-4HKC  | SMH150D-0230<br>-20A□K-4HKC                                     |
| Driver matching                                              |                                  | JD430-AA-000<br>FD432S-CA-000<br>FD432S-AA-000<br>FD432S-LA-000<br>CD432S-AA-000                  | JD620-AA-000<br>FD622S-CA-000<br>FD622S-AA-000<br>FD622S-LA-000 | JD620-AA-000<br>FD622S-CA-000<br>FD622S-AA-000<br>FD622S-LA-000 | JD630-AA-000<br>JD630-LA-000 | JD620-AA-000<br>FD622S-CA-000<br>FD622S-AA-000<br>FD622S-LA-000 |
| DC link voltage UDC                                          |                                  | 560                                                                                               | 560                                                             | 560                                                             | 560                          | 560                                                             |
| Continuous performance                                       | Rated power P <sub>n</sub> (W)   | 1050                                                                                              | 1570                                                            | 2100                                                            | 3000                         | 2300                                                            |
|                                                              | Rated torque T <sub>n</sub> (Nm) | 5                                                                                                 | 7.5                                                             | 10                                                              | 14.3                         | 11.1                                                            |
|                                                              | Rated speed n <sub>n</sub> (rpm) | 2000                                                                                              | 2000                                                            | 2000                                                            | 2000                         | 2000                                                            |
|                                                              | Rated current I <sub>N</sub> (A) | 4.3                                                                                               | 6.3                                                             | 7.6                                                             | 7.9                          | 7.1                                                             |
| Maximum torque T <sub>m</sub> (Nm)                           |                                  | 12.5                                                                                              | 18.75                                                           | 25                                                              | 35.75                        | 27.5                                                            |
| Maximum current I <sub>m</sub> (A)                           |                                  | 10.75                                                                                             | 15.75                                                           | 19                                                              | 19.75                        | 17.75                                                           |
| Standstill torque T <sub>s</sub> (Nm)                        |                                  | 5.5                                                                                               | 8.25                                                            | 11                                                              | 15.73                        | 12.1                                                            |
| Standstill current I <sub>S</sub> (A)                        |                                  | 4.73                                                                                              | 6.93                                                            | 8.36                                                            | 8.7                          | 7.81                                                            |
| Resistance line-line R <sub>L</sub> (Ω)                      |                                  | 1.85                                                                                              | 1.17                                                            | 0.98                                                            | 0.84                         | 2.2                                                             |
| Inductance line-line L <sub>L</sub> (mH)                     |                                  | 23.7                                                                                              | 16.2                                                            | 14.3                                                            | 12.7                         | 14(AVG)                                                         |
| Electrical time constant τ <sub>e</sub> (ms)                 |                                  | 12.81                                                                                             | 13.846                                                          | 14.592                                                          | 14.94                        | 6.36                                                            |
| Mechanical time constant τ <sub>m</sub> (ms)                 |                                  | 2.868                                                                                             | 2.529                                                           | 2.268                                                           | 1.53                         | 4.68                                                            |
| Reverse voltage constant K <sub>e</sub> (V/krpm)             |                                  | 70                                                                                                | 72                                                              | 80                                                              | 110                          | 100                                                             |
| Torque constant K <sub>t</sub> (Nm/A)                        |                                  | 1.1578                                                                                            | 1.191                                                           | 1.3232                                                          | 1.82                         | 1.65                                                            |
| Rotor moment of inertia J <sub>m</sub> (Kg·cm <sup>2</sup> ) |                                  | 12                                                                                                | 17.7                                                            | 23.4                                                            | 34.8                         | 33.5                                                            |
|                                                              |                                  | 12.04 (with brake)                                                                                | 17.74 (with brake)                                              | 23.44 (with brake)                                              | 34.9 (with brake)            | 33.6 (with brake)                                               |
| Pole pair number                                             |                                  | 4                                                                                                 | 4                                                               | 4                                                               | 4                            | 4                                                               |
| Maximum voltage rising du/dt (KV/μs)                         |                                  | 8                                                                                                 | 8                                                               | 8                                                               | 8                            | 8                                                               |
| Insulation class                                             |                                  | F                                                                                                 | F                                                               | F                                                               | F                            | F                                                               |
| Maximum radial force F (N)                                   |                                  | 900                                                                                               | 900                                                             | 900                                                             | 900                          | 1200                                                            |
| Maximum axial force F (N)                                    |                                  | 450                                                                                               | 450                                                             | 450                                                             | 450                          | 600                                                             |
| Weight G(Kg)                                                 |                                  | 7.5                                                                                               | 9.1                                                             | 10.7                                                            | 13.9                         | 12                                                              |
|                                                              |                                  | 9.7 (with brake)                                                                                  | 11.3 (with brake)                                               | 12.9 (with brake)                                               | 14.9 (with brake)            | 15.5 (with brake)                                               |
| Length of motor L(mm)                                        |                                  | 159±1.5                                                                                           | 179±1.5                                                         | 199±1.5                                                         | 239±1.5                      | 226±1.5                                                         |
|                                                              |                                  | 220±1.5 (with brake)                                                                              | 240±1.5 (with brake)                                            | 260±1.5 (with brake)                                            | 280±1.5 (with brake)         | 292±1.5 (with brake)                                            |
| Position feedback device                                     |                                  | Incremental encoder 2500ppr                                                                       |                                                                 |                                                                 |                              |                                                                 |
| Cooling method                                               |                                  | Totally enclosed, non-ventilated                                                                  |                                                                 |                                                                 |                              |                                                                 |
| Protection level                                             |                                  | IP65 for body, shaft sealing IP54                                                                 |                                                                 |                                                                 |                              |                                                                 |
| Environmental conditions for operation                       | Temperature                      | -20°C ~ 40°C (Non-freezing)                                                                       |                                                                 |                                                                 |                              |                                                                 |
|                                                              | Humidity                         | Below 90% RH (Non-condensing)                                                                     |                                                                 |                                                                 |                              |                                                                 |
|                                                              | Ambient environment              | Away from active gas, combustible gas, oil drops and dust                                         |                                                                 |                                                                 |                              |                                                                 |
|                                                              | Altitude                         | Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise |                                                                 |                                                                 |                              |                                                                 |

Note : I =A ——Without brake  
I =B ——With brake

# Technical Specifications of SMH Servo Motor

Technical Specifications of SMH Servo Motor (4)

| Motor series                                        |                         | Medium inertia flange size 150mm                                                                  |                             |                              | Medium inertia flange size 180mm |                             |                             |
|-----------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------------|-----------------------------|------------------------------|----------------------------------|-----------------------------|-----------------------------|
| Model                                               |                         | SMH150D-0300<br>-20A□K-4HKC                                                                       | SMH150D-0380<br>-20A□K-4HKC | SMH180D-0350<br>-15A□K-4HKC  | SMH180D-0440<br>-15A□K-4HKC      | SMH180D-0550<br>-15R□K-4HKC | SMH180D-0750<br>-15R□K-4HKC |
| Driver matching                                     |                         | JD630-AA-000<br>JD630-LA-000                                                                      |                             | JD630-LA-000<br>JD630-AA-000 | JD640-LA-000<br>JD640-AA-000     | JD640-AR-000                | JD650-AR-000                |
| DC link voltage UDC                                 |                         | 560                                                                                               | 560                         | 560                          | 560                              | 560                         | 560                         |
| Continuous performance                              | Rated power $P_n$ (W)   | 3000                                                                                              | 3800                        | 3500                         | 4400                             | 5500                        | 7500                        |
|                                                     | Rated torque $T_n$ (Nm) | 14.3                                                                                              | 18                          | 22                           | 28                               | 35                          | 48                          |
|                                                     | Rated speed $n_n$ (rpm) | 2000                                                                                              | 2000                        | 1500                         | 1500                             | 1500                        | 1500                        |
|                                                     | Rated current $I_N$ (A) | 8.5                                                                                               | 9.3                         | 10.3                         | 11.9                             | 13.5(REF)                   | 19.2 (REF)                  |
| Maximum torque $T_m$ (Nm)                           |                         | 35.75                                                                                             | 45                          | 55                           | 70                               | 87.5                        | 120                         |
| Maximum current $I_m$ (A)                           |                         | 21.25                                                                                             | 23.25                       | 25.75                        | 29.75                            | 33.7(REF)                   | 47.9 (REF)                  |
| Standstill torque $T_s$ (Nm)                        |                         | 15.73                                                                                             | 19.8                        | 24.2                         | 30.8                             | 38.5                        | 52.8                        |
| Standstill current $I_S$ (A)                        |                         | 9.35                                                                                              | 10.23                       | 11.33                        | 13.09                            | 14.8(REF)                   | 21.1(REF)                   |
| Resistance line-line $R_L$ ( $\Omega$ )             |                         | 1.4                                                                                               | 1.3                         | 1.2                          | 0.65                             | 0.53                        | 0.38                        |
| Inductance line-line $L_L$ (mH)                     |                         | 10.6(AVG)                                                                                         | 10.5(AVG)                   | 12.7(AVG)                    | 8.5                              | 7.86                        | 5.89                        |
| Electrical time constant $\tau_e$ (ms)              |                         | 7.57                                                                                              | 8.08                        | 10.58                        | 13.08                            | 14.83                       | 15.5                        |
| Mechanical time constant $\tau_m$ (ms)              |                         | 3.68                                                                                              | 3.32                        | 3.42                         | 2.16                             | 1.9                         | 1.81                        |
| Reverse voltage constant $K_e$ (V/krpm)             |                         | 107                                                                                               | 125                         | 135                          | 150                              | 165                         | 159                         |
| Torque constant $K_t$ (Nm/A)                        |                         | 1.77                                                                                              | 2.07                        | 2.23                         | 2.48                             | 2.73                        | 2.63                        |
| Rotor moment of inertia $J_m$ (Kg·cm <sup>2</sup> ) |                         | 47.6                                                                                              | 63.1                        | 82                           | 118                              | 154                         | 190                         |
|                                                     |                         | 47.7 (with brake)                                                                                 | 63.2 (with brake)           | 82.2 (with brake)            | 118.2 (with brake)               | 154.3 (with brake)          | 190.3 (with brake)          |
| Pole pair number                                    |                         | 4                                                                                                 | 4                           | 4                            | 4                                | 4                           | 4                           |
| Maximum voltage rising $du/dt$ (KV/ $\mu$ s)        |                         | 8                                                                                                 | 8                           | 8                            | 8                                | 8                           | 8                           |
| Insulation class                                    |                         | F                                                                                                 | F                           | F                            | F                                | F                           | F                           |
| Maximum radial force $F_r$ (N)                      |                         | 1200                                                                                              | 1200                        | 1600                         | 1600                             | 1600                        | 1600                        |
| Maximum axial force $F_a$ (N)                       |                         | 600                                                                                               | 600                         | 800                          | 800                              | 800                         | 800                         |
| Weight $G$ (Kg)                                     |                         | 15                                                                                                | 18                          | 22.7                         | 28.6                             | 34.4                        | 40                          |
|                                                     |                         | 18.5 (with brake)                                                                                 | 22.5 (with brake)           | 27.9 (with brake)            | 33.8 (with brake)                | 41.4                        | 47 (with brake)             |
| Length of motor $L$ (mm)                            |                         | 254±1.5                                                                                           | 282±1.5                     | 260±1.5                      | 298±1.5                          | 336±1.5                     | 374±1.5                     |
|                                                     |                         | 320±1.5(with brake)                                                                               | 352±1.5(with brake)         | 332±1.5 (with brake)         | 370±1.5 (with brake)             | 413±1.5 (with brake)        | 451±1.5 (with brake)        |
| Position feedback device                            |                         | Incremental encoder 2500ppr                                                                       |                             |                              |                                  |                             | SMT37 Resolver              |
| Cooling method                                      |                         | Totally enclosed, non-ventilated                                                                  |                             |                              |                                  |                             |                             |
| Protection level                                    |                         | IP65 for body, shaft sealing IP54                                                                 |                             |                              |                                  |                             |                             |
| Environmental conditions for operation              | Temperature             | -20°C ~ 40°C (Non-freezing)                                                                       |                             |                              |                                  |                             |                             |
|                                                     | Humidity                | Below 90% RH (Non-condensing)                                                                     |                             |                              |                                  |                             |                             |
|                                                     | Ambient environment     | Away from active gas, combustible gas, oil drops and dust                                         |                             |                              |                                  |                             |                             |
|                                                     | Altitude                | Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise |                             |                              |                                  |                             |                             |

Note : I =A ——Without brake  
I =B ——With brake

# Technical Specifications of Multi-pole Servo Motor

# Technical Specifications of SMH Low-voltage Servo Motor

Technical Specifications of Multi-pole Servo Motor

| Motor series                                 | Small inertia flange size 57mm               |                     |                        | Small inertia flange size 85mm                                  |                        |                        |                                                               |
|----------------------------------------------|----------------------------------------------|---------------------|------------------------|-----------------------------------------------------------------|------------------------|------------------------|---------------------------------------------------------------|
| Model                                        | 57S-0010-10AAK-FDFH                          | 57S-0015-08AAK-FDFH | 85S-0020-05AAK-FLFN-02 | 85S-0025-05AAK-FLFN-02                                          | 85S-0035-05AAK-FLFN-02 | 85S-0045-05AAK-FLFN-02 | 85S-0050-10AAK-FLFN-03                                        |
| Driver matching                              | FD122-CA-000<br>FD122-AA-000<br>FD122-LA-000 |                     |                        | JD430-AA-000<br>FD422S-CA-000<br>FD422S-AA-000<br>FD422S-LA-000 |                        |                        | CD422S-AA-000<br>FD122-CA-000<br>FD122-AA-000<br>FD122-LA-000 |
| Rated phase current (A)                      | 6.5                                          | 5.8                 | 6                      | 4                                                               | 4                      | 4                      | 8.5                                                           |
| Holding torque (Nm)                          | 0.9                                          | 1.5                 | 2.4                    | 4.18                                                            | 6                      | 7.5                    | 7.5                                                           |
| Damping torque (Nm)                          | 0.04                                         | 0.068               | 0.25                   | 0.3                                                             | 0.4                    | 0.45                   | 0.45                                                          |
| Resistance line-line (Ω)                     | 0.35                                         | 0.7                 | 0.44                   | 1.13                                                            | 2.3                    | 1.78                   | 0.43                                                          |
| Inductance line-line(mH)                     | 1.28                                         | 2.4                 | 3                      | 5.75                                                            | 12.4                   | 17.1                   | 3.9                                                           |
| Motor moment of inertia(Kg.cm <sup>2</sup> ) | 0.03                                         | 0.048               | 0.14                   | 0.232                                                           | 0.33                   | 0.44                   | 0.44                                                          |
| Length L (mm)                                | 90±1.5                                       | 113±1.5             | 125±1                  | 142±1                                                           | 172±1                  | 202±1                  | 202±1                                                         |
| Maximum radial force(N)                      | 15                                           | 15                  | 60                     | 60                                                              | 60                     | 60                     | 60                                                            |
| Maximum axial force (N)                      | 75                                           | 75                  | 220                    | 220                                                             | 220                    | 220                    | 220                                                           |
| Weight (Kg)                                  | 1.05                                         | 1.3                 | 2.3                    | 2.7                                                             | 3.8                    | 5.3                    | 5.3                                                           |
| Dielectric strength                          | 600V AC 1S 5mA                               | 600V AC 1S 5mA      | 1200V AC 1S 2mA        | 1500V AC 1S 5mA                                                 |                        |                        | 1800V AC 1S 5mA                                               |
| Insulation class                             | B                                            |                     |                        |                                                                 |                        |                        |                                                               |
| Ambient temperature                          | -20 ~ 50℃                                    |                     |                        |                                                                 |                        |                        |                                                               |
| Surface temperature rising                   | Max. 80℃                                     |                     |                        |                                                                 |                        |                        |                                                               |
| Insulation impedance                         | Min. 100MΩ , 500V DC                         |                     |                        |                                                                 |                        |                        |                                                               |

Technical Specifications of SMH Low-voltage Servo Motor

| Motor series                                                 | Small inertia flange size 40mm    |                                                                                                   |
|--------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------|
| Model                                                        | SMH40S-0005-30A K-4DKH            | SMH40S-0010-30A K-4DKH                                                                            |
| Driver matching                                              | FD122-CA-000                      | FD122-AA-000<br>FD122-LA-000                                                                      |
| DC link voltage UDC                                          | 60                                | 60                                                                                                |
| Continuous performance                                       | Rated power P <sub>n</sub> (W)    | 100                                                                                               |
|                                                              | Rated torque T <sub>n</sub> (Nm)  | 0.32                                                                                              |
|                                                              | Rated speed n <sub>n</sub> (rpm)  | 3000                                                                                              |
|                                                              | Rated current I <sub>N</sub> (A)  | 2.5                                                                                               |
| Maximum torque T <sub>m</sub> (Nm)                           | 0.48                              | 0.96                                                                                              |
| Maximum current I <sub>m</sub> (A)                           | 3.6                               | 7.5                                                                                               |
| Standstill torque T <sub>s</sub> (Nm)                        | 0.176                             | 0.352                                                                                             |
| Standstill current I <sub>S</sub> (A)                        | 1.32                              | 2.75                                                                                              |
| Resistance line-line RL (Ω)                                  | 4.2                               | 2.1                                                                                               |
| Inductance line-line LL (mH)                                 | 3.5                               | 2.5                                                                                               |
| Electrical time constant τ <sub>e</sub> (ms)                 | 0.84                              | 1.2                                                                                               |
| Mechanical time constant τ <sub>m</sub> (ms)                 | 1.28                              | 1.22                                                                                              |
| Reverse voltage constant K <sub>e</sub> (V/krpm)             | 8                                 | 8                                                                                                 |
| Torque constant K <sub>t</sub> (Nm/A)                        | 0.1323                            | 0.1323                                                                                            |
| Rotor moment of inertia J <sub>m</sub> (Kg·cm <sup>2</sup> ) | 0.031                             | 0.059                                                                                             |
|                                                              | 0.033 (with brake)                | 0.061 (with brake)                                                                                |
| Pole pair number                                             | 4                                 | 4                                                                                                 |
| Maximum voltage rising du/dt (KV/μs)                         | 8                                 | 8                                                                                                 |
| Insulation class                                             | F                                 | F                                                                                                 |
| Maximum radial force F (N)                                   | 120                               | 120                                                                                               |
| Maximum axial force F (N)                                    | 60                                | 60                                                                                                |
| Weight G(Kg)                                                 | 0.5                               | 0.8                                                                                               |
|                                                              | 0.8 (with brake)                  | 1.0 (with brake)                                                                                  |
| Length of motor L(mm)                                        | 85.3±1                            | 110.8±1                                                                                           |
|                                                              | 119±1.5 (with brake)              | 145±1.5 (with brake)                                                                              |
| Position feedback device                                     | Incremental encoder 2500ppr       |                                                                                                   |
| Cooling method                                               | Totally enclosed, non-ventilated  |                                                                                                   |
| Protection level                                             | IP65 for body, shaft sealing IP54 |                                                                                                   |
| Environmental conditions for operation                       | Temperature                       | -20°C ~ 40°C (Non-freezing)                                                                       |
|                                                              | Humidity                          | Below 90% RH (Non-condensing)                                                                     |
|                                                              | Ambient environment               | Away from active gas, combustible gas, oil drops and dust                                         |
|                                                              | Altitude                          | Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise |

Note : I =A —Without brake  
I =B —With brake

# Technical Specifications of SMC Servo Motor

Technical Specifications of SMC Servo Motor

| Motor series                                        |                         | Small inertia flange size 60mm                                                                    |                        | Small inertia flange size 80mm |
|-----------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------------|------------------------|--------------------------------|
| Model                                               |                         | SMC60S-0020-30E□K-3LKH                                                                            | SMC60S-0040-30E□K-3LKH | SMC80S-0075-30E□K-3LKH         |
| Driver matching                                     |                         | FD422S-CA-000<br>FD422S-AA-000<br>FD422S-LA-000<br>CD422S-AA-000                                  |                        |                                |
| DC link voltage UDC                                 |                         | 300                                                                                               | 300                    | 300                            |
| Continuous performance                              | Rated power $P_n$ (W)   | 200                                                                                               | 400                    | 750                            |
|                                                     | Rated torque $T_n$ (Nm) | 0.64                                                                                              | 1.24                   | 2.39                           |
|                                                     | Rated speed $n_n$ (rpm) | 3000                                                                                              | 3000                   | 3000                           |
|                                                     | Rated current $I_n$ (A) | 1.4                                                                                               | 2.4                    | 3.8                            |
| Maximum torque $T_m$ (Nm)                           |                         | 1.92                                                                                              | 3.81                   | 7.17                           |
| Maximum current $I_m$ (A)                           |                         | 4.2                                                                                               | 7.2                    | 11.4                           |
| Standstill torque $T_s$ (Nm)                        |                         | 0.7                                                                                               | 1.4                    | 2.63                           |
| Standstill current $I_s$ (A)                        |                         | 1.5                                                                                               | 2.6                    | 4.2                            |
| Resistance line-line $R_L$ ( $\Omega$ )             |                         | 11.2                                                                                              | 5.8                    | 2.1                            |
| Inductance line-line $L_L$ (mH)                     |                         | 20.9                                                                                              | 11.5                   | 10.5                           |
| Electrical time constant $\tau_e$ (ms)              |                         | 1.87                                                                                              | 1.98                   | 5                              |
| Mechanical time constant $\tau_m$ (ms)              |                         | 1.8                                                                                               | 1.29                   | 0.9                            |
| Reverse voltage constant $K_v$ (V/krpm)             |                         | 29                                                                                                | 34                     | 40                             |
| Torque constant $K_t$ (Nm/A)                        |                         | 0.48                                                                                              | 0.563                  | 0.662                          |
| Rotor moment of inertia $J_m$ (Kg·cm <sup>2</sup> ) |                         | 0.214                                                                                             | 0.405                  | 1.087                          |
|                                                     |                         | 0.218 (with brake)                                                                                | 0.409 (with brake)     | 1.099 (with brake)             |
| Pole pair number                                    |                         | 3                                                                                                 | 3                      | 3                              |
| Maximum voltage rising $du/dt$ (KV/ $\mu$ s)        |                         | 8                                                                                                 | 8                      | 8                              |
| Insulation class                                    |                         | F                                                                                                 | F                      | F                              |
| Maximum radial force $F_r$ (N)                      |                         | 180                                                                                               | 180                    | 335                            |
| Maximum axial force $F_a$ (N)                       |                         | 90                                                                                                | 90                     | 167.5                          |
| Weight                                              | G(Kg)                   | 1.1                                                                                               | 1.6                    | 2.8                            |
|                                                     |                         | 1.6 (with brake)                                                                                  | 2.1 (with brake)       | 3.4 (with brake)               |
| Length of motor                                     | L(mm)                   | 109±1.5                                                                                           | 135±1.5                | 139±1.5                        |
|                                                     |                         | 150±1.5                                                                                           | 176±1.5                | 182±1.5                        |
|                                                     |                         | (with brake)                                                                                      | (with brake)           | (with brake)                   |
| Position feedback device                            |                         | Incremental encoder 2500ppr                                                                       |                        |                                |
| Cooling method                                      |                         | Totally enclosed, non-ventilated                                                                  |                        |                                |
| Protection level                                    |                         | IP65 for body, shaft sealing IP54                                                                 |                        |                                |
| Environmental conditions for operation              | Temperature             | -20°C ~ 40°C (Non-freezing)                                                                       |                        |                                |
|                                                     | Humidity                | Below 90% RH (Non-condensing)                                                                     |                        |                                |
|                                                     | Ambient environment     | Away from active gas, combustible gas, oil drops and dust                                         |                        |                                |
|                                                     | Altitude                | Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise |                        |                                |

Note : □ = A —Without brake  
□ = B —With brake

# Technical Specifications of SMS Servo Motor

Technical Specifications of SMS Servo Motor

| Motor series                                        |                         | Medium inertia flange size 130mm                                                                  |                                                                  |                         |
|-----------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------|
| Model                                               |                         | SMC130D-0100-20E□K-4LKP                                                                           | SMC130D-0150-20E□K-4LKP                                          | SMC130D-0200-20E□K-4LKP |
| Driver matching                                     |                         | FD422S-CF-000<br>FD422S-AF-000<br>FD422S-LF-000<br>CD422S-AF-000                                  | FD432S-CA-000<br>FD432S-AA-000<br>FD432S-LA-000<br>CD432S-AA-000 |                         |
| DC link voltage UDC                                 |                         | 300                                                                                               | 300                                                              | 300                     |
| Continuous performance                              | Rated power $P_n$ (W)   | 1000                                                                                              | 1500                                                             | 2000                    |
|                                                     | Rated torque $T_n$ (Nm) | 4.8                                                                                               | 7.2                                                              | 10                      |
|                                                     | Rated speed $n_n$ (rpm) | 2000                                                                                              | 2000                                                             | 2000                    |
|                                                     | Rated current $I_n$ (A) | 4.2(REF)                                                                                          | 6.5(REF)                                                         | 8.5(REF)                |
| Maximum torque $T_m$ (Nm)                           |                         | 12                                                                                                | 18                                                               | 25                      |
| Maximum current $I_m$ (A)                           |                         | 10.4(REF)                                                                                         | 16.2(REF)                                                        | 21.1(REF)               |
| Standstill torque $T_s$ (Nm)                        |                         | 5.28                                                                                              | 7.92                                                             | 11                      |
| Standstill current $I_s$ (A)                        |                         | 4.6(REF)                                                                                          | 7.1(REF)                                                         | 9.3(REF)                |
| Resistance line-line $R_L$ (Ω)                      |                         | 3.1                                                                                               | 1.53                                                             | 0.93                    |
| Inductance line-line $L_L$ (mH)                     |                         | 22.7                                                                                              | 13.3                                                             | 8.8                     |
| Electrical time constant $\tau_e$ (ms)              |                         | 7.32                                                                                              | 8.69                                                             | 9.46                    |
| Mechanical time constant $\tau_m$ (ms)              |                         | 2.72                                                                                              | 2.31                                                             | 1.85                    |
| Reverse voltage constant $K_v$ (V/krpm)             |                         | 73                                                                                                | 71                                                               | 75                      |
| Torque constant $K_t$ (Nm/A)                        |                         | 1.21                                                                                              | 1.17                                                             | 1.24                    |
| Rotor moment of inertia $J_m$ (Kg·cm <sup>2</sup> ) |                         | 7.4                                                                                               | 12                                                               | 17.7                    |
|                                                     |                         | 7.5 (with brake)                                                                                  | 12.1 (with brake)                                                | 17.8 (with brake)       |
| Pole pair number                                    |                         | 4                                                                                                 | 4                                                                | 4                       |
| Maximum voltage rising $du/dt$ (KV/μs)              |                         | 8                                                                                                 | 8                                                                | 8                       |
| Insulation class                                    |                         | F                                                                                                 | F                                                                | F                       |
| Maximum radial force $F_r$ (N)                      |                         | 900                                                                                               | 900                                                              | 900                     |
| Maximum axial force $F_a$ (N)                       |                         | 450                                                                                               | 450                                                              | 450                     |
| Weight $G$ (Kg)                                     |                         | 6.2                                                                                               | 7.5                                                              | 9.1                     |
|                                                     |                         | 8.5 (with brake)                                                                                  | 9.8 (with brake)                                                 | 11.4 (with brake)       |
| Length of motor $L$ (mm)                            |                         | 143±1.5                                                                                           | 159±1.5                                                          | 179±1.5                 |
|                                                     |                         | 204±1.5 (with brake)                                                                              | 220±1.5 (with brake)                                             | 240±1.5 (with brake)    |
| Position feedback device                            |                         | Incremental encoder 2500ppr                                                                       |                                                                  |                         |
| Cooling method                                      |                         | Totally enclosed, non-ventilated                                                                  |                                                                  |                         |
| Protection level                                    |                         | IP65 for body, shaft sealing IP54                                                                 |                                                                  |                         |
| Environmental conditions for operation              | Temperature             | -20℃ ~ 40℃ (Non-freezing)                                                                         |                                                                  |                         |
|                                                     | Humidity                | Below 90% RH (Non-condensing)                                                                     |                                                                  |                         |
|                                                     | Ambient environment     | Away from active gas, combustible gas, oil drops and dust                                         |                                                                  |                         |
|                                                     | Altitude                | Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise |                                                                  |                         |

Note : □ = A —Without brake  
□ = B —With brake

## Technical Specifications of **SMC** Servo Motor

## Technical Specifications of SMC Servo Motor

| Motor series                                                 |                                  | Medium inertia flange size 130mm                                                                  |                                 |                                                                  |                                 |
|--------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------|---------------------------------|
| Model                                                        |                                  | SMC130D-0150<br>-20E □ K-4HKP                                                                     | SMC130D-0200<br>-20E □ K-4HKP   | SMC130D-0300<br>-20E □ K-4HKP                                    | SMC130D-0300<br>-30E □ K-4HKP   |
| Driver matching                                              |                                  | FD612S-CA-000<br>FD612S-AA-000<br>FD612S-LA-000<br>CD612S-AA-000                                  |                                 | FD622S-CA-000<br>FD622S-AA-000<br>FD622S-LA-000<br>CD622S-AA-000 |                                 |
| DC link voltage UDC                                          |                                  | 560                                                                                               | 560                             | 560                                                              | 560                             |
| Continuous performance                                       | Rated power P <sub>N</sub> (W)   | 1500                                                                                              | 2000                            | 3000                                                             | 3000                            |
|                                                              | Rated torque T <sub>N</sub> (Nm) | 7.2                                                                                               | 10                              | 14.3                                                             | 10                              |
|                                                              | Rated speed n <sub>N</sub> (rpm) | 2000                                                                                              | 2000                            | 2000                                                             | 3000                            |
|                                                              | Rated current I <sub>N</sub> (A) | 4.3(REF)                                                                                          | 6.2(REF)                        | 6.5(REF)                                                         | 6.4(REF)                        |
| Maximum torque T <sub>m</sub> (Nm)                           |                                  | 18                                                                                                | 25                              | 35.75                                                            | 25                              |
| Maximum current I <sub>m</sub> (A)                           |                                  | 10.8(REF)                                                                                         | 15.5(REF)                       | 16.3(REF)                                                        | 15.9(REF)                       |
| Standstill torque T <sub>s</sub> (Nm)                        |                                  | 7.92                                                                                              | 11                              | 15.73                                                            | 11                              |
| Standstill current I <sub>s</sub> (A)                        |                                  | 4.8(REF)                                                                                          | 6.8(REF)                        | 7.2(REF)                                                         | 7(REF)                          |
| Resistance line-line R <sub>L</sub> (Ω)                      |                                  | 3.6                                                                                               | 1.79                            | 1.77                                                             | 1.23                            |
| Inductance line-line L <sub>L</sub> (mH)                     |                                  | 29.6                                                                                              | 16.3                            | 18.2                                                             | 12.1                            |
| Electrical time constant τ <sub>e</sub> (ms)                 |                                  | 8.22                                                                                              | 9.11                            | 10.28                                                            | 9.84                            |
| Mechanical time constant τ <sub>m</sub> (ms)                 |                                  | 2.44                                                                                              | 1.92                            | 1.69                                                             | 1.83                            |
| Reverse voltage constant K <sub>v</sub> (V/krpm)             |                                  | 106                                                                                               | 102                             | 139                                                              | 100                             |
| Torque constant K <sub>t</sub> (Nm/A)                        |                                  | 1.75                                                                                              | 1.69                            | 2.3                                                              | 1.65                            |
| Rotor moment of inertia J <sub>m</sub> (Kg·cm <sup>2</sup> ) |                                  | 12<br>12.1 (with brake)                                                                           | 17.7<br>17.8 (with brake)       | 29.1<br>29.2 (with brake)                                        | 23.4<br>23.5 (with brake)       |
| Pole pair number                                             |                                  | 4                                                                                                 | 4                               | 4                                                                | 4                               |
| Maximum voltage rising du/dt (KV/μs)                         |                                  | 8                                                                                                 | 8                               | 8                                                                | 8                               |
| Insulation class                                             |                                  | F                                                                                                 | F                               | F                                                                | F                               |
| Maximum radial force F (N)                                   |                                  | 900                                                                                               | 900                             | 900                                                              | 900                             |
| Maximum axial force F (N)                                    |                                  | 450                                                                                               | 450                             | 450                                                              | 450                             |
| Weight                                                       |                                  | 7.5<br>9.8 (with brake)                                                                           | 9.1<br>11.4 (with brake)        | 12.3<br>14.9 (with brake)                                        | 10.7<br>13 (with brake)         |
| Length of motor L(mm)                                        |                                  | 159±1.5<br>220±1.5 (with brake)                                                                   | 179±1.5<br>240±1.5 (with brake) | 219±1.5<br>280±1.5 (with brake)                                  | 199±1.5<br>260±1.5 (with brake) |
| Position feedback device                                     |                                  | Incremental encoder 2500ppr                                                                       |                                 |                                                                  |                                 |
| Cooling method                                               |                                  | Totally enclosed, non-ventilated                                                                  |                                 |                                                                  |                                 |
| Protection level                                             |                                  | IP65 for body, shaft sealing IP54                                                                 |                                 |                                                                  |                                 |
| Environmental conditions for operation                       | Temperature                      | -20°C ~ 40°C (Non-freezing)                                                                       |                                 |                                                                  |                                 |
|                                                              | Humidity                         | Below 90% RH (Non-condensing)                                                                     |                                 |                                                                  |                                 |
|                                                              | Ambient environment              | Away from active gas, combustible gas, oil drops and dust                                         |                                 |                                                                  |                                 |
|                                                              | Altitude                         | Maximum altitude 4000m, Rated power at 1000m or below. Above 1000m; Decreasing 1.5% per 100m rise |                                 |                                                                  |                                 |

**Note :**  $I = A$  — Without brake  
 $I = B$  — With brake

## Technical Specifications of **SMS** Servo Motor

### Technical Specifications of SMS Servo Motor

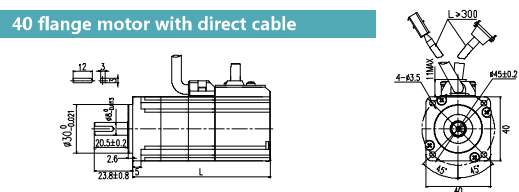
| Motor series                                        |                         | Small inertia flange size 60mm                                                                    |                        | Small inertia flange size 80mm |
|-----------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------------|------------------------|--------------------------------|
| Model                                               |                         | SMS60S-0020-30□AK-3LKU                                                                            | SMS60S-0040-30□□K-3LKU | SMS80S-0075-30□□K-3LKU         |
| Driver matching                                     |                         | FD422S-CA-000<br>FD422S-AA-000<br>FD422S-LA-000<br>CD422S-AA-000                                  |                        |                                |
| DC link voltage UDC                                 |                         | 300                                                                                               | 300                    | 300                            |
| Continuous performance                              | Rated power $P_n$ (W)   | 200                                                                                               | 400                    | 750                            |
|                                                     | Rated torque $T_n$ (Nm) | 0.64                                                                                              | 1.27                   | 2.39                           |
|                                                     | Rated speed $n_n$ (rpm) | 3000                                                                                              | 3000                   | 3000                           |
|                                                     | Rated current $I_n$ (A) | 1.4                                                                                               | 2.4                    | 3.8                            |
| Maximum torque $T_r$ (Nm)                           |                         | 1.92                                                                                              | 3.81                   | 7.17                           |
| Maximum current $I_r$ (A)                           |                         | 4.2                                                                                               | 7.2                    | 11.4                           |
| Standstill torque $T_s$ (Nm)                        |                         | 0.7                                                                                               | 1.4                    | 2.63                           |
| Standstill current $I_s$ (A)                        |                         | 1.5                                                                                               | 2.6                    | 4.2                            |
| Resistance line-line $R$ ( $\Omega$ )               |                         | 11.2                                                                                              | 5.8                    | 2.1                            |
| Inductance line-line $L$ (mH)                       |                         | 20.9                                                                                              | 11.5                   | 10.5                           |
| Electrical time constant $\tau_e$ (ms)              |                         | 1.87                                                                                              | 1.98                   | 5                              |
| Mechanical time constant $\tau_m$ (ms)              |                         | 1.8                                                                                               | 1.29                   | 0.9                            |
| Reverse voltage constant $K_v$ (V/krpm)             |                         | 29                                                                                                | 34                     | 40                             |
| Torque constant $K_t$ (Nm/A)                        |                         | 0.48                                                                                              | 0.563                  | 0.662                          |
| Rotor moment of inertia $J_m$ (Kg·cm <sup>2</sup> ) |                         | 0.214                                                                                             | 0.405                  | 1.087                          |
|                                                     |                         | 0.218 (with brake)                                                                                | 0.409 (with brake)     | 1.099 (with brake)             |
| Pole pair number                                    |                         | 3                                                                                                 | 3                      | 3                              |
| Maximum voltage rising $du/dt$ (kV/ $\mu$ s)        |                         | 8                                                                                                 | 8                      | 8                              |
| Insulation class                                    |                         | F                                                                                                 | F                      | F                              |
| Maximum radial force $F_r$ (N)                      |                         | 180                                                                                               | 180                    | 335                            |
| Maximum axial force $F_a$ (N)                       |                         | 90                                                                                                | 90                     | 167.5                          |
| Weight $G$ (Kg)                                     |                         | 1.1                                                                                               | 1.6                    | 2.8                            |
|                                                     |                         | 1.6 (with brake)                                                                                  | 2.1 (with brake)       | 3.4 (with brake)               |
| Length of motor $L$ (mm)                            |                         | 94±1.5                                                                                            | 115±1.5                | 132±1.5                        |
|                                                     |                         | 133±1.5 (with brake)                                                                              | 154±1.5 (with brake)   | 182±1.5 (with brake)           |
| Position feedback device                            |                         | 20 bit single-turn encoder, 16 bit multi-turn absolute encoder                                    |                        |                                |
| Cooling method                                      |                         | Totally enclosed, non-ventilated                                                                  |                        |                                |
| Protection level                                    |                         | IP65 for body, shaft sealing IP54                                                                 |                        |                                |
| Environmental conditions for operation              | Temperature             | -20°C ~ 40°C (Non-freezing)                                                                       |                        |                                |
|                                                     | Humidity                | Below 90% RH (Non-condensing)                                                                     |                        |                                |
|                                                     | Ambient environment     | Away from active gas, combustible gas, oil drops and dust                                         |                        |                                |
|                                                     | Altitude                | Maximum altitude 4000m. Rated power at 1000m or below. Above 1000m: Decreasing 1.5% per 100m rise |                        |                                |

**Note :** I=J — Motor equipped with 20 bit single-turn encoder  
I=K — Motor equipped with 16 bit multi-turn absolute encoder  
I=A — Without brake  
I=B — With brake

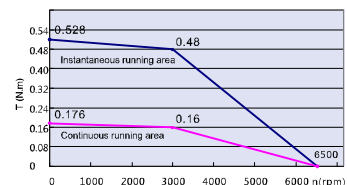
## Dimensions/Torque curve of SMH Servo Motor

## Dimensions/Torque curve of SMH Servo Motor

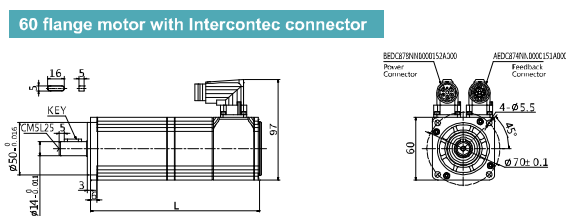
40 flange motor with direct cable



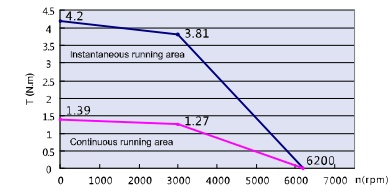
SMH40S-0005-30A K-4LK 50W



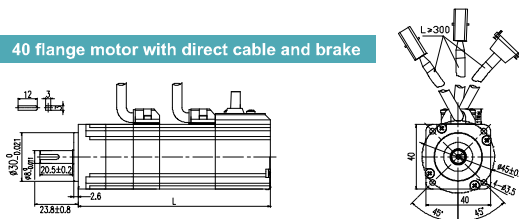
60 flange motor with Intercontec connector



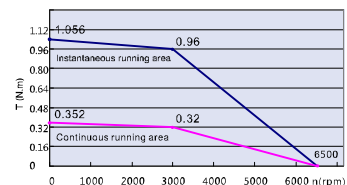
SMH60S-0040-30A K-3LK 400W



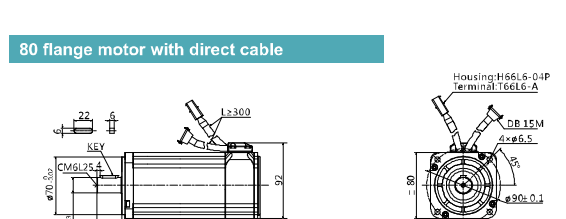
40 flange motor with direct cable and brake



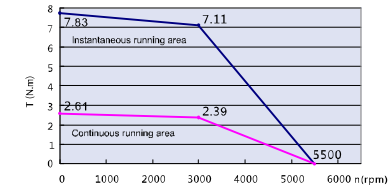
SMH40S-0010-30A K-4LK 100W



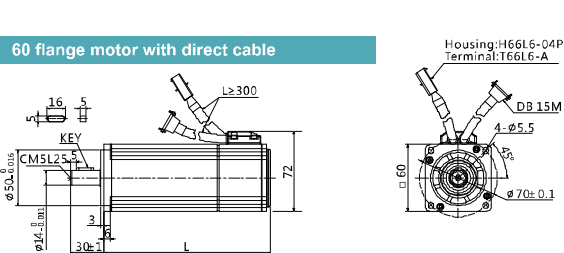
80 flange motor with direct cable



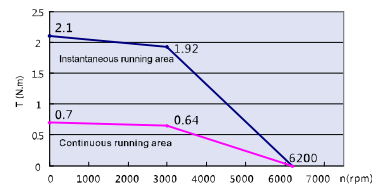
SMH80S-0075-30A K-3LK 750W



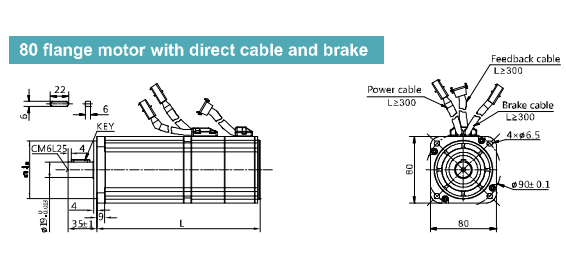
60 flange motor with direct cable



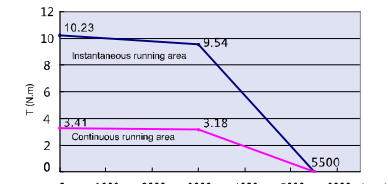
SMH60S-0020-30A K-3LK 200W



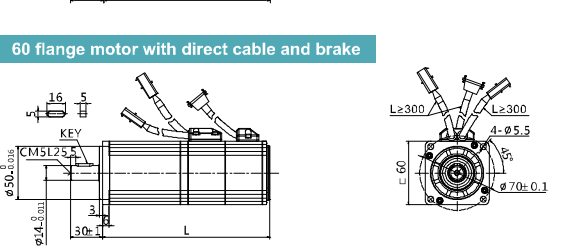
80 flange motor with direct cable and brake



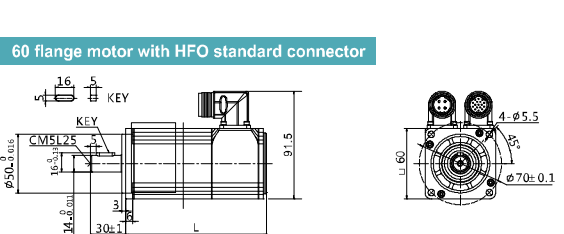
SMH80S-0100-30A K-3LK 1000W



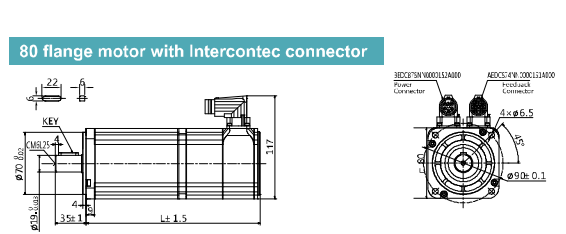
60 flange motor with direct cable and brake



60 flange motor with HFO standard connector

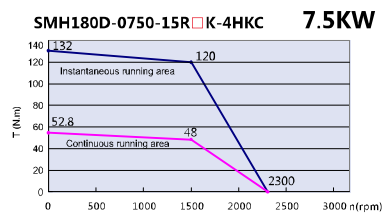
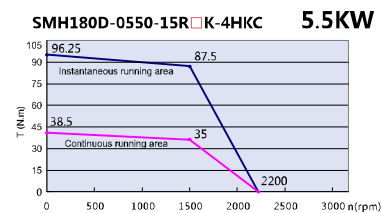
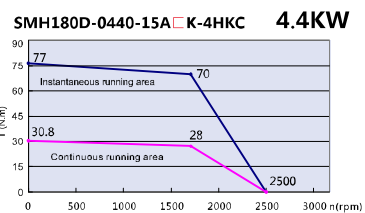
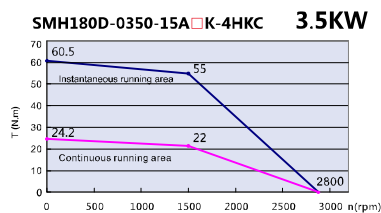
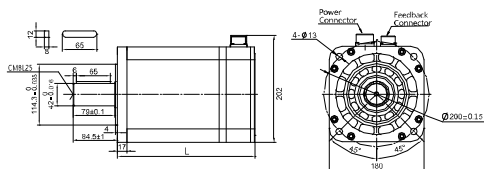


80 flange motor with Intercontec connector

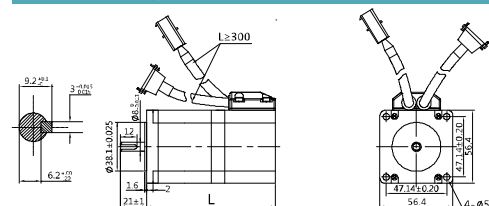




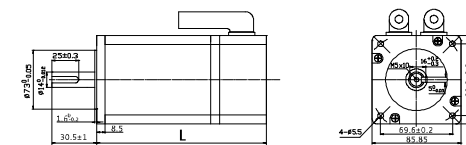
180 flange motor with standard connector



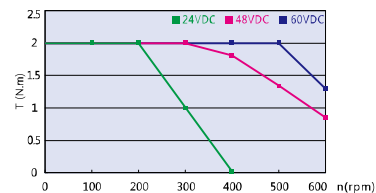
57 series multi-pole servo motor with direct cable



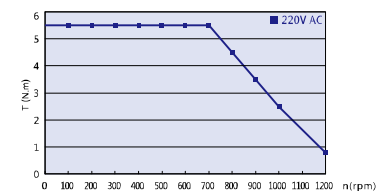
85 series multi-pole servo motor with connector



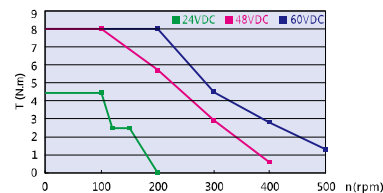
85S-0020-05AAK-FLFN-02 2.4NM



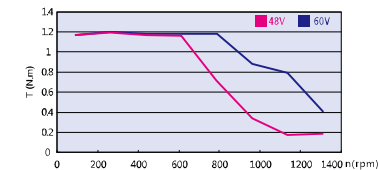
85S-0035-05AAK-FLFN-02 6NM



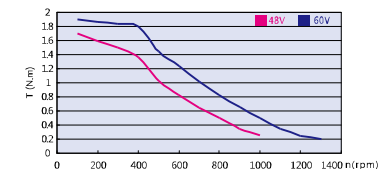
85S-0050-10AAK-FLFN-03 8NM



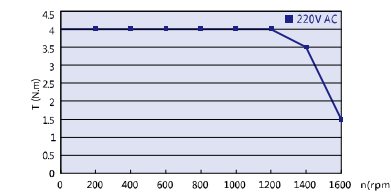
57S-0010-10AAK-FDFH 1NM



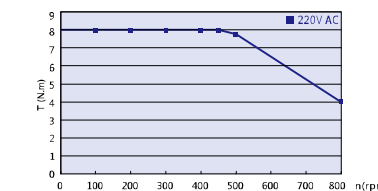
57S-0015-08AAK-FDFH 1.5NM



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



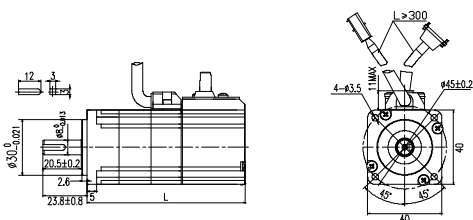
85S-0045-05AAK-FLFN-02 8NM



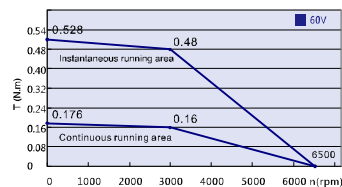
# Dimensions/Torque curve of Low-voltage Servo Motor

# Dimensions/Torque curve of SMC Servo Motor

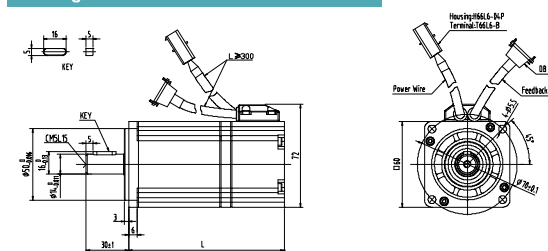
40 flange SMH low-voltage servo motor with direct cable



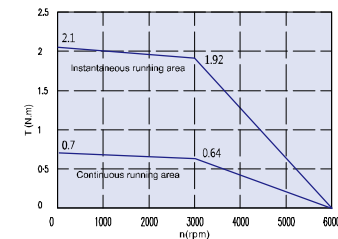
SMH40S-0005-30A K-4DKH 50W



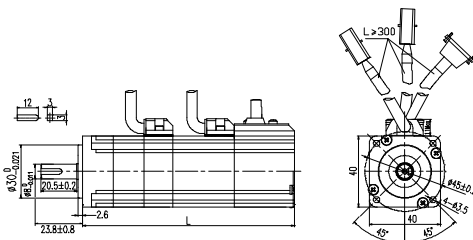
60 flange motor with direct cable



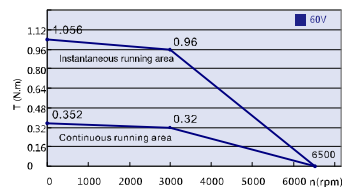
SMC60S-0020-30E K-3LKH 200W



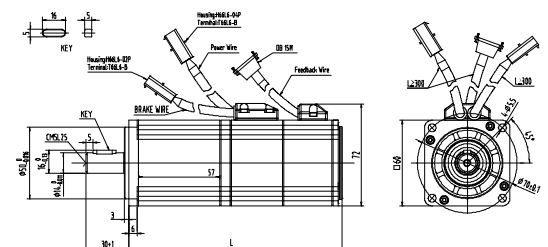
40 flange SMH series low-voltage servo motor with direct cable and brake



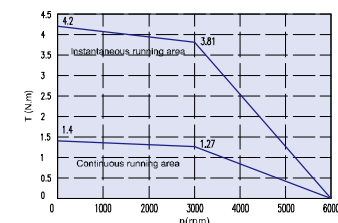
SMH40S-0010-30A K-4DKH 100W



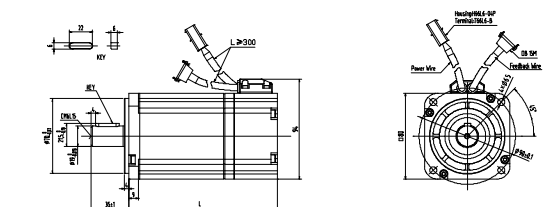
60 flange motor with direct cable and brake



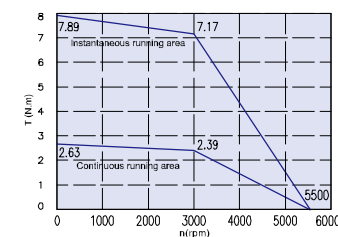
SMC60S-0040-30E K-3LKH 400W



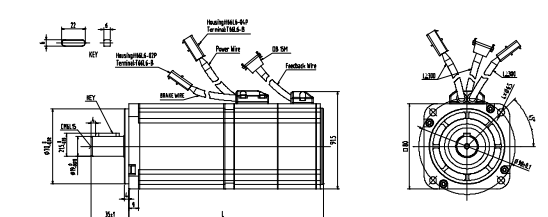
80 flange motor with direct cable



SMC80S-0075-30E K-3LKH 750W

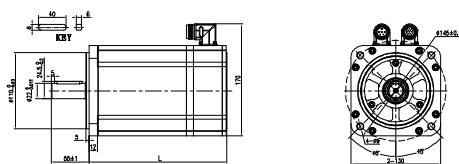


80 flange motor with direct cable and brake

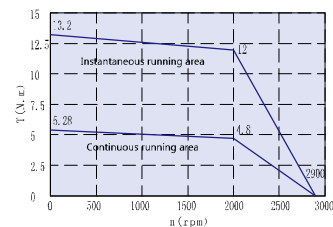


## Dimensions/Torque curve of SMC Servo Motor

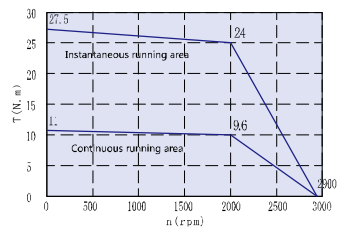
130 flange motor with standard connector



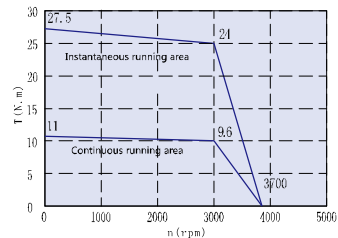
SMC130D-0100-20E K-4LKP



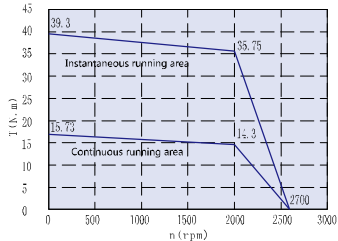
SMC130D-0200-20E K-4LKP



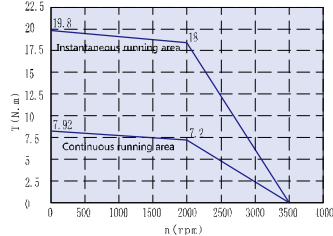
SMC130D-0300-30E K-4HKP



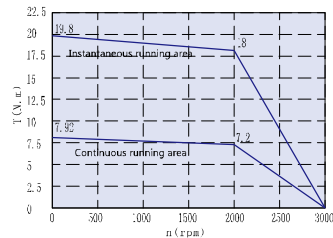
SMC130D-0300-20E K-4HKP



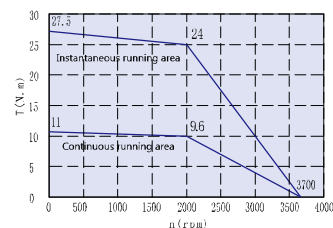
SMC130D-0150-20E K-4HKP



SMC130D-0150-20E K-4LKP

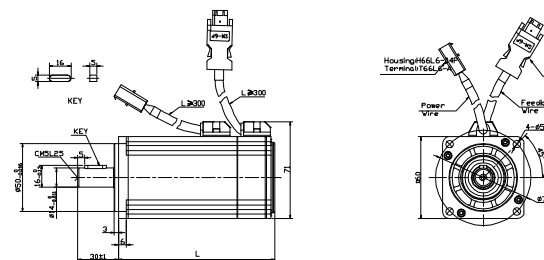


SMC130D-0200-20A K-4HKP

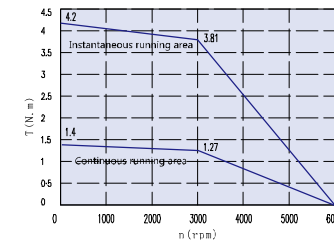


## Dimensions/Torque curve of SMS Servo Motor

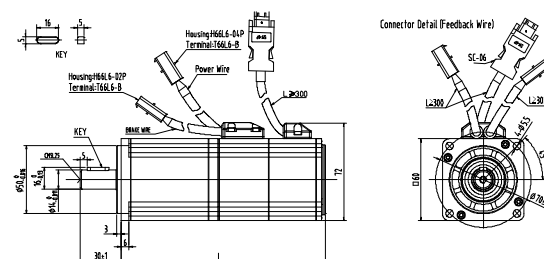
60 flange motor with communication encoder



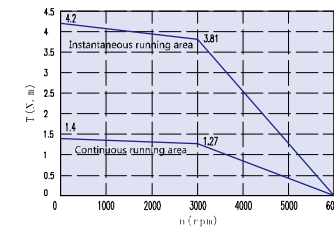
SMS60S-0020-30 AK-3LKU 200W



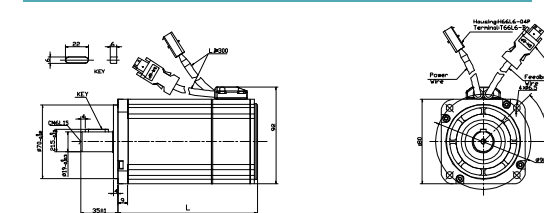
60 flange motor with communication encoder and brake



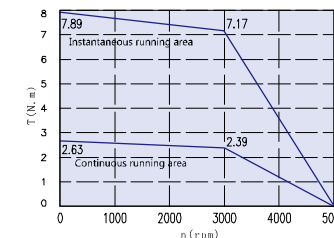
SMS60S-0040-30 K-3LKU 400W



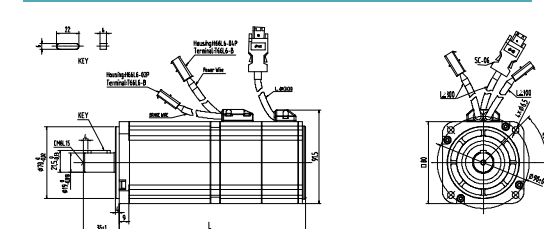
80 flange motor with communication encoder



SMS80S-0075-30 K-3LKU 750W



80 flange motor with communication encoder and brake



## Wiring Diagram for The Power Cable

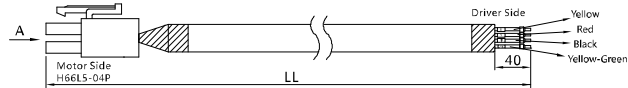
### MOT-005-LL-KL-D

Wire Spec. 4×18AWG(41/0.167)

The sectional area of 18AWG is 0.8107mm<sup>2</sup>



A  
4PIN



| MOT-005-LL-KL-D |        |      |
|-----------------|--------|------|
| Cable color     | Signal | PIN# |
| Yellow          | U      | PIN1 |
| Red             | V      | PIN2 |
| Black           | W      | PIN3 |
| Yellow-Green    | PE     | PIN4 |

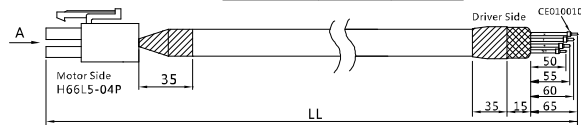
### MOT-005-LL-KL

Wire Spec. UL20328 4C×18AWG(41/0.16T) black

The sectional area of 18AWG is 0.8107mm<sup>2</sup>



A  
4PIN

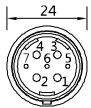


| MOT-005-LL-KL |        |      |
|---------------|--------|------|
| Cable color   | Signal | PIN# |
| Yellow        | U      | PIN1 |
| Red           | V      | PIN2 |
| Black         | W      | PIN3 |
| Yellow-Green  | PE     | PIN4 |

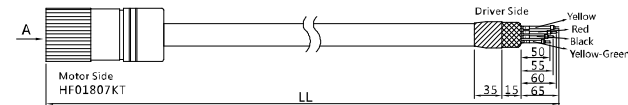
### MOT-005-LL-KC0

Wire Spec. 4C×18AWG(41/0.16T)

The sectional area of 18AWG is 0.8107mm<sup>2</sup>



A  
7PIN

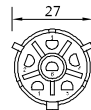


| MOT-005-LL-KC0 |        |                 |
|----------------|--------|-----------------|
| Cable color    | Signal | PIN#            |
| Yellow         | U      | PIN2            |
| Red            | V      | PIN3            |
| Black          | W      | PIN4            |
| Yellow-Green   | PE     | PIN1            |
| Metal ring     | Shield | Shield terminal |

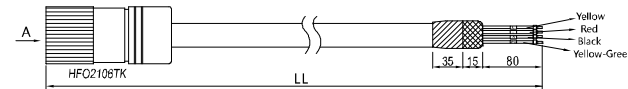
### MOT-005-LL-KC4

Wire Spec. UL20328 4C×18AWG

The sectional area of 18AWG is 0.8107mm<sup>2</sup>



A  
6PIN



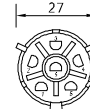
| MOT-005-LL-KC4 |        |           |
|----------------|--------|-----------|
| Cable color    | Signal | HFO2106TK |
| Yellow         | U      | PIN2      |
| Red            | V      | PIN3      |
| Black          | W      | PIN4      |
| Yellow-Green   | PE     | PIN6      |

## Wiring Diagram for The Power Cable

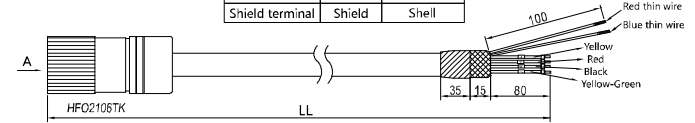
### MOT-005-LL-KC4-B

Wire Spec. 4×18AWG+2×20AWG

The sectional area of 18AWG is 0.8107mm<sup>2</sup>  
The sectional area of 20AWG is 0.5189mm<sup>2</sup>



A  
6PIN

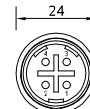


| MOT-005-LL-KC4-B |        |           |
|------------------|--------|-----------|
| Cable Color      | Signal | HFO2106TK |
| Yellow           | U      | PIN2      |
| Red              | V      | PIN3      |
| Black            | W      | PIN4      |
| Yellow-Green     | PE     | PIN6      |
| Red thin wire    | brake+ | PIN1      |
| Blue thin wire   | brake- | PIN5      |
| Shield terminal  | Shield | Shield    |

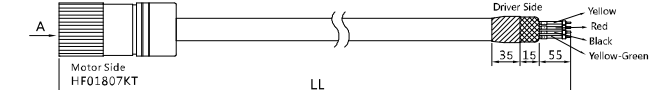
### MOTE-005-LL-KC0

Wire Spec. 4C×18AWG(41/0.16T)

The sectional area of 18AWG is 0.8107mm<sup>2</sup>



A  
4 PIN



| MOTE-005-LL-KC0 |        |                 |
|-----------------|--------|-----------------|
| Cable color     | Signal | PIN#            |
| Yellow          | U      | PIN2            |
| Red             | V      | PIN3            |
| Black           | W      | PIN4            |
| Yellow-Green    | PE     | PIN1            |
| Metal ring      | Shield | Shield terminal |

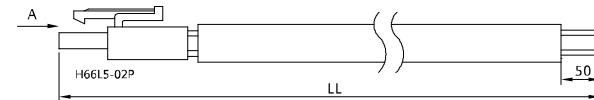
### BRA-LL-KL

Wire Spec. 2×20AWG

The sectional area of 20AWG is 0.5189mm<sup>2</sup>



A  
2PIN



| BRA-LL-KL   |        |      |
|-------------|--------|------|
| Cable color | Signal | PIN# |
| Red         | break+ | PIN1 |
| Blue        | break- | PIN2 |

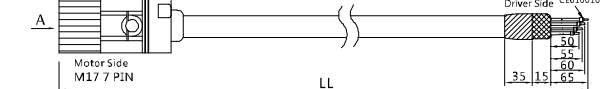
### MOT-005-LL-KM1

Wire Spec. UL20328 4C×18AWG(41/0.16T) black

The sectional area of 18AWG is 0.8107mm<sup>2</sup>



A  
6PIN



| MOT-005-LL-KM1 |        |      |
|----------------|--------|------|
| Cable color    | Signal | PIN# |
| Yellow         | U      | PIN1 |
| Red            | V      | PIN2 |
| Black          | W      | PIN3 |
| Yellow-Green   | PE     | ⊥    |

# Wiring Diagram for The Power Cable

## MOT-005-LL-KM1-B

Wire Spec. RVVP 4×18AWG+2×20AWG

The sectional area of 18AWG is 0.8107mm<sup>2</sup>

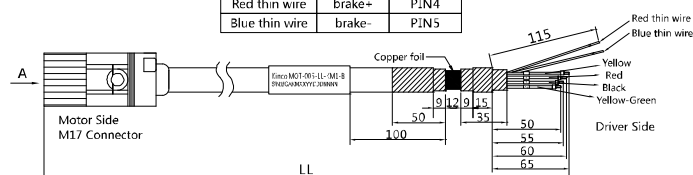
The sectional area of 20AWG is 0.5189mm<sup>2</sup>

21



A  
7PIN

| MOT-005-LL-KM1-B |        |            |
|------------------|--------|------------|
| Cable color      | Signal | M17 7PIN   |
| Yellow           | U      | PIN1       |
| Red              | V      | PIN2       |
| Black            | W      | PIN3       |
| Yellow-Green     | PE     | ±          |
| Shield terminal  | Shield | Metal ring |
| Red thin wire    | brake+ | PIN4       |
| Blue thin wire   | brake- | PIN5       |



## MOT-008-LL-KL-D

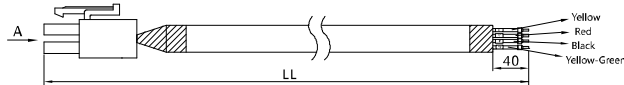
Wire Spec. UL2586 4×16AWG

The sectional area of 16AWG is 1.318mm<sup>2</sup>



A  
H66L5-04P

| MOT-008-LL-KL-D |        |           |
|-----------------|--------|-----------|
| Cable color     | Signal | H66L5-04P |
| Yellow          | U      | PIN1      |
| Red             | V      | PIN2      |
| Black           | W      | PIN3      |
| Yellow-Green    | PE     | PIN4      |



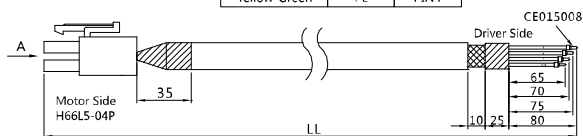
## MOT-008-LL-KL

Wire Spec. cable 4C×1.5mm<sup>2</sup>



A  
4PIN

| MOT-008-LL-KL |        |      |
|---------------|--------|------|
| Cable color   | Signal | PIN# |
| 1 Yellow      | U      | PIN1 |
| 2 Red         | V      | PIN2 |
| 3 Black       | W      | PIN3 |
| Yellow-Green  | PE     | PIN4 |



## MOT-008-LL-KC0

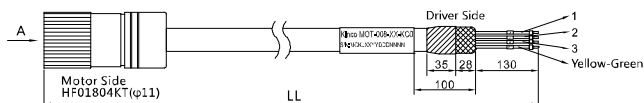
Wire Spec. ECHU H05VVC4V5-K 4×1.5mm<sup>2</sup> BLACK

24



A  
4PIN

| MOT-008-LL-KC0 |        |                 |
|----------------|--------|-----------------|
| Cable color    | Signal | PIN#            |
| 1 Yellow       | U      | PIN2            |
| 2 Red          | V      | PIN3            |
| 3 Black        | W      | PIN4            |
| Yellow-Green   | PE     | PIN1            |
| Metal ring     | Shield | Shield terminal |



# Wiring Diagram for The Power Cable

## MOT-008-LL-KC1

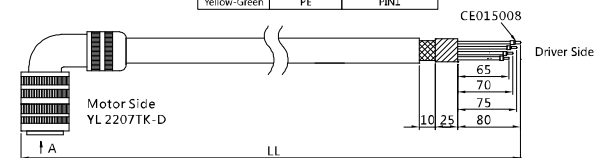
Wire Spec. cable 4C×1.5mm<sup>2</sup>

30



A

| MOT-008-LL-KC1 |        |      |
|----------------|--------|------|
| Cable color    | Signal | PIN# |
| 1 Yellow       | U      | PIN2 |
| 2 Red          | V      | PIN3 |
| 3 Black        | W      | PIN4 |
| Yellow-Green   | PE     | PIN1 |



## MOT-008-LL-KC2

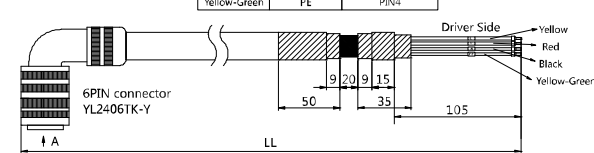
Power cable O-2395 4C×1.5mm<sup>2</sup>(30/0.25B)

33.5



A

| MOT-008-LL-KC2 |        |            |
|----------------|--------|------------|
| Cable color    | Signal | YL2406TK-Y |
| Yellow         | U      | PIN1       |
| Red            | V      | PIN2       |
| Black          | W      | PIN3       |
| Yellow-Green   | PE     | PIN4       |



## MOT-008-LL-KC2-B

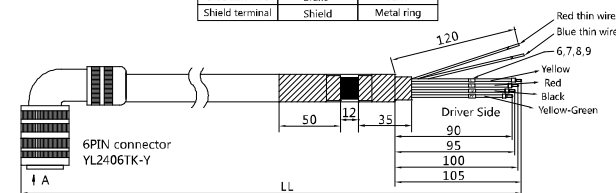
Wire Spec. ECHU RVVP 4×1.5mm<sup>2</sup>+2×0.5mm<sup>2</sup>

33.5



A

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



## MOT-008-LL-KC4

Wire Spec. UL2586 4×16AWG

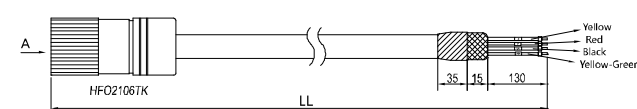
The sectional area of 16AWG is 1.318mm<sup>2</sup>

27



A  
6PIN

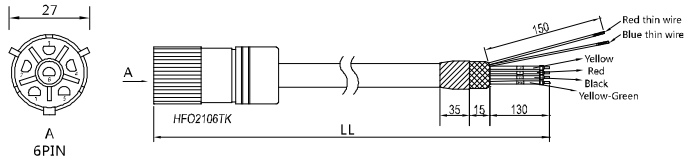
| MOT-008-LL-KC4 |        |           |
|----------------|--------|-----------|
| Cable color    | Signal | HFO2106TK |
| Yellow         | U      | PIN2      |
| Red            | V      | PIN3      |
| Black          | W      | PIN4      |
| Yellow-Green   | PE     | PIN6      |



## Wiring Diagram for The Power Cable

### MOT-008-LL-KC4-B

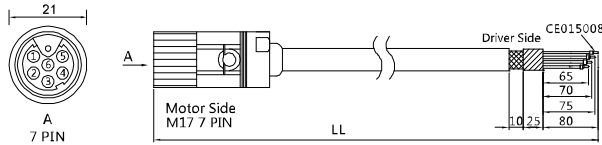
Wire Spec. 4x1.5mm<sup>2</sup>+2x0.5mm<sup>2</sup>



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

### MOT-008-LL-KM1

Wire Spec. cable 4Cx1.5mm<sup>2</sup>

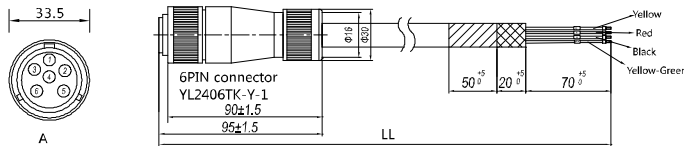


| MOT-008-LL-KM1 |        |      |
|----------------|--------|------|
| Cable color    | Signal | PIN# |
| 1 Yellow       | U      | PIN1 |
| 2 Red          | V      | PIN2 |
| 3 Black        | W      | PIN3 |
| Yellow-Green   | PE     | ⊕    |

### MOT-015-LL-KC2

Power Cable Cableplus UL2856 4x14AWG(50/0.25T)

The sectional area of 14AWG is 2.075mm<sup>2</sup>

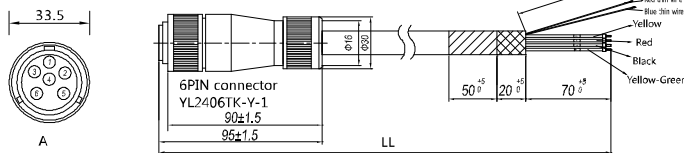


| MOT-015-LL-KC2  |        |              |
|-----------------|--------|--------------|
| Cable color     | Signal | YL2406TK-Y-1 |
| Yellow          | U      | PIN1         |
| Red             | V      | PIN2         |
| Black           | W      | PIN3         |
| Yellow-Green    | PE     | PIN4   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

### MOT-015-LL-KC2-B

Power Cable Cableplus

EKM715734x2.5mm<sup>2</sup>+2x0.5mm<sup>2</sup>

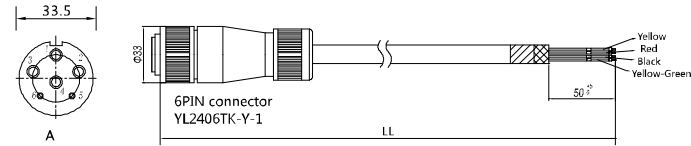


| MOT-015-LL-KC2-B |        |              |
|------------------|--------|--------------|
| Cable color      | Signal | YL2406TK-Y-1 |
| Yellow           | U      | PIN1         |
| Red              | V      | PIN2         |
| Black            | W      | PIN3         |
| Yellow-Green     | PE     | PIN4         |
| Red thin wire    | brake+ | PIN5         |
| Blue thin wire   | brake- | PIN6         |
| Shield terminal  | Shield | Metal ring   |

## Wiring Diagram for The Power Cable & Encoder Cable

### MOT-030-LL-KC3

Wire Spec. ECHU RVVYP 4x4mm<sup>2</sup>



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

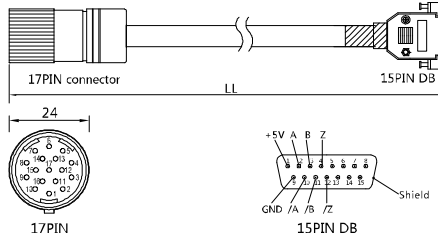
## Wiring Diagram for The Encoder Cable

### ENCCF-LL-FC0

Wire Spec. 1P×24AWG(7/0.20T)+4P×28AWG(7/0.127T)

The sectional area of 24AWG is 0.2047mm<sup>2</sup>

The sectional area of 28AWG is 0.0804mm<sup>2</sup>



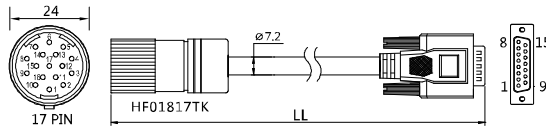
| ENCCF-LL-FC0     |                  |        |                      |                   |
|------------------|------------------|--------|----------------------|-------------------|
| 17PIN connector  | 15PIN DB         | Signal | External wire colour | Motor wire colour |
| PIN1             | PIN1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

### ENCCA-LL-KC0

Wire Spec. 1P×24AWG(7/0.20T)+7P×28AWG(7/0.127T)

The sectional area of 24AWG is 0.2047mm<sup>2</sup>

The sectional area of 28AWG is 0.0804mm<sup>2</sup>



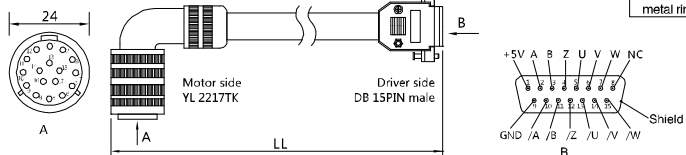
| ENCCA-LL-KC0/ENCCA-LL-KC1 |                |        |                      |                   |
|---------------------------|----------------|--------|----------------------|-------------------|
| 17PIN                     | 15PIN DB       | Signal | External wire colour | Motor wire colour |
| PIN1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

### ENCCA-LL-KC1

Wire Spec. 1P×24AWG(7/0.20T)+7P×28AWG(7/0.127T)

The sectional area of 24AWG is 0.2047mm<sup>2</sup>

The sectional area of 28AWG is 0.0804mm<sup>2</sup>



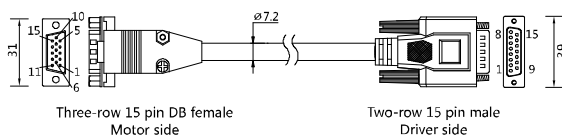
# Wiring Diagram for The Encoder Cable

## ENCCA-LL-KH

Wire Spec. 1P×24AWG(7/0.20T)+7P×28AWG(7/0.127T)

The sectional area of 24AWG is 0.2047mm<sup>2</sup>

The sectional area of 28AWG is 0.0804mm<sup>2</sup>

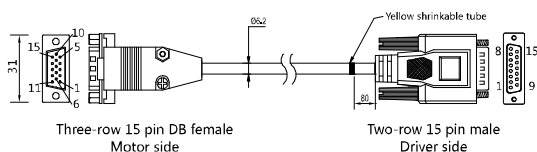


## ENCCF-LL-FH

Wire Spec. 1P×24AWG(7/0.20T)+4P×28AWG(7/0.127T)

The sectional area of 24AWG is 0.2047mm<sup>2</sup>

The sectional area of 28AWG is 0.0804mm<sup>2</sup>

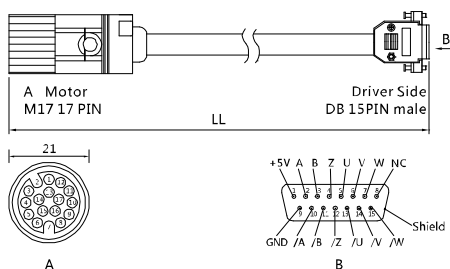


## ENCCA-LL-KM1

Wire Spec. 1P×24AWG(7/0.20T)+7P×28AWG(7/0.127T)

The sectional area of 24AWG is 0.2047mm<sup>2</sup>

The sectional area of 28AWG is 0.0804mm<sup>2</sup>



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

| ENCCF-LL-FH         |                   |        |              |                  |
|---------------------|-------------------|--------|--------------|------------------|
| Three-row 15 pin DB | Two-row 15 pin DB | Signal | Wire color   | Motor wire color |
| PIN1                | PIN1              | +5V    | Red(thick)   | Red              |
| PIN8                | PIN2              | A      | Brown        | Blue-black       |
| PIN7                | PIN3              | B      | Yellow       | Green            |
| PIN6                | PIN4              | Z      | Green        | Yellow           |
| PIN2                | PIN9              | GND    | Black(thick) | Black            |
| PIN13               | PIN10             | /A     | Brown-white  | Blue             |
| PIN12               | PIN11             | /B     | Yellow-white | Green-black      |
| PIN11               | PIN12             | /Z     | Green-white  | Yellow-black     |
| Other pins empty    | Other pins empty  |        |              |                  |
| Shell               | Shell             | Shield | Shield       | Shield           |

| ENCCA-LL-KM1        |                |        |                      |                   |
|---------------------|----------------|--------|----------------------|-------------------|
| 17PIN               | 15PIN DB       | Signal | External wire colour | Motor wire colour |
| PIN1                | PIN1           | +5V    | Red(thick)           | Red               |
| PIN3                | PIN2           | A      | Orange               | Blue              |
| PIN5                | PIN3           | B      | Yellow               | Green             |
| PIN14               | PIN4           | Z      | Green                | Yellow            |
| PIN9                | PIN5           | U      | Brown                | Brown             |
| PIN11               | PIN6           | V      | Purple               | Gray              |
| PIN16               | PIN7           | W      | Blue                 | White             |
| PIN2                | PIN9           | GND    | Black(thick)         | Black             |
| PIN4                | PIN10          | /A     | Orange-white         | Blue-black        |
| PIN6                | PIN11          | /B     | Yellow-white         | Green-black       |
| PIN15               | PIN12          | /Z     | Green-white          | Yellow-black      |
| PIN10               | PIN13          | /U     | Brown-white          | Brown-black       |
| PIN12               | PIN14          | /V     | Purple-white         | Gray-black        |
| PIN17               | PIN15          | /W     | Blue-white           | White-black       |
| Internal metal ring | DB metal shell | Shield | Shield               | Shield            |

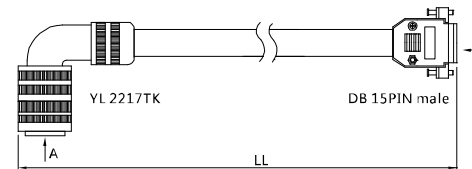
# Wiring Diagram for The Encoder Cable

## ENCCR-LL-FC1

Wire Spec. UL2464 24AWG/1P+28AWG/4P

The sectional area of 24AWG is 0.2047mm<sup>2</sup>

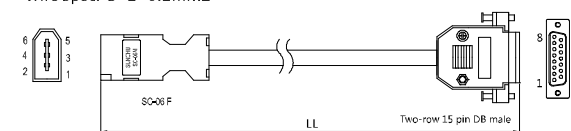
The sectional area of 28AWG is 0.0804mm<sup>2</sup>



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

## ENCCG-LL-GU

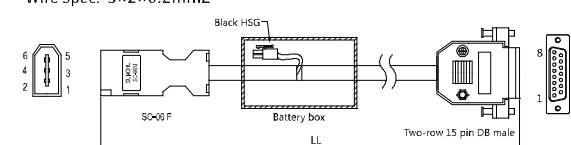
Wire Spec. 3×2×0.2mm2



| ENCCG-LL-GU |            |        |          |
|-------------|------------|--------|----------|
| SC-06F      | Wire color | Signal | 15PIN DB |
| PIN1        | Red        | +5V    | PIN1     |
| PIN2        | Black      | GND    | PIN9     |
| PIN5        | Yellow     | SD     | PIN7     |
| PIN6        | Green      | /SD    | PIN15    |
| Shell       | Shield     | Shield | Shield   |

## ENCCG-(4)-GU-BT

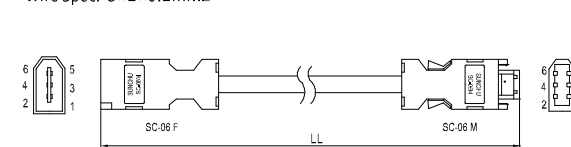
Wire Spec. 3×2×0.2mm2



| ENCCG-(4)-GU-BT |             |           |               |                 |
|-----------------|-------------|-----------|---------------|-----------------|
| SC-06F          | Cable color | Black HSG | External wire | Signal 15PIN DB |
| PIN1            | Red         |           | +5V           | PIN1            |
| PIN2            | Black       |           | GND           | PIN9            |
| PIN3            | Brown       | PIN1      | Red           | BAT+            |
| PIN4            | Blue        | PIN2      | Black         | BAT-            |
| PIN5            | Yellow      |           | SD            | PIN7            |
| PIN6            | Green       |           | /SD           | PIN15           |
| Shell           | Shield      |           | Shield        | Shield          |

## ENCDG-LL-GU

Wire Spec. 3×2×0.2mm2



| ENCDG-LL-GU |        |        |
|-------------|--------|--------|
| Wire color  | Signal | SC-06  |
| Red         | +5V    | PIN1   |
| Black       | GND    | PIN2   |
| Brown       | BAT+   | PIN3   |
| Blue        | BAT-   | PIN4   |
| Yellow      | SD     | PIN5   |
| Green       | /SD    | PIN6   |
| Shield      | Shield | Shield |