

# DA200A Series AC Servo System



ARCO CONTROL  
آرکو کالا



# About us





INVT (Shenzhen INVT Electric Co., Ltd) has been concentrating on industry automation and energy power since its foundation in 2002 and is committed to "Providing the best product and service to allow customers more competitiveness". INVT goes public in 2010 and is the first A-share listed company (002334) in Shenzhen Stock Exchange in the industry. At present, INVT owns 15 subsidiaries and more than 4500 employees, over 40 branches, forming a sales network covering more than 100 overseas countries and regions.

INVT has been awarded as the Key High-tech Enterprise of National Torch Plan based on mastering of key technologies in power electronics, auto control and IT. With business covering industry automation, electric vehicle, network power and rail transit, INVT has established 10 R&D centers nationwide, boasts more than 1400 patents and owns the first lab in the industry awarded ACT qualification from TÜV SÜD, UL-WTDP and CNAS National Lab. The industrial parks in Shenzhen and Suzhou aim to provide customers with advanced integrated product development design management, comprehensive product R&D test and auto informational production. The worldwide INVT branches and warranty service centers are ready to offer customers all-around back-ups including professional solutions, technical trainings and service support.

In the next decade, INVT will continue to take "Sincere Virtuous, Professional Aspiring" as our business philosophy, enhance core business sectors including industrial automation, electric vehicle, network power and rail transit based on the three major technologies in industry automation and energy power fields, and strive to become a leading, responsible and harmonic international professional group armed with proper product structure, leading technologies, efficient management, robust profitability and superior competitiveness.



# Precise drive control, safe and stable

## INVT DA200A series universal AC servo system

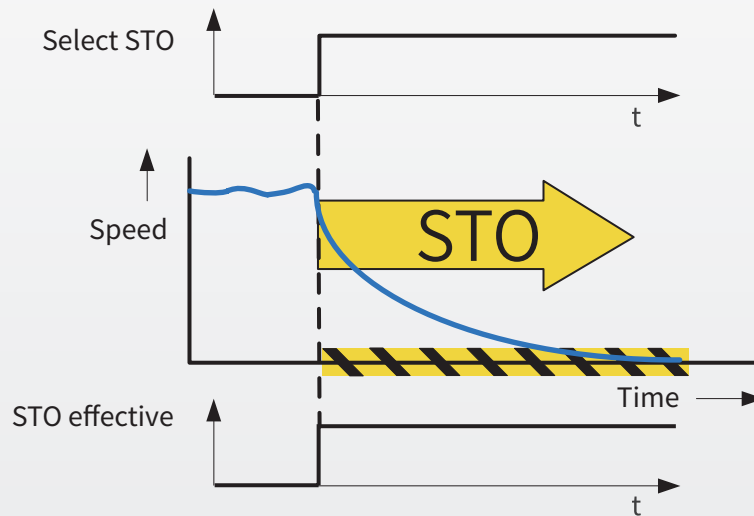
DA200A series high-performance AC servo system is the new generation of INVT servo products. It adopts a stable product technology platform and uses dedicated direct drive algorithms, improving its safety functions, product performance, reliability, and ease of use. With excellent products and services, INVT offers you competitive products and solutions.



# Product features

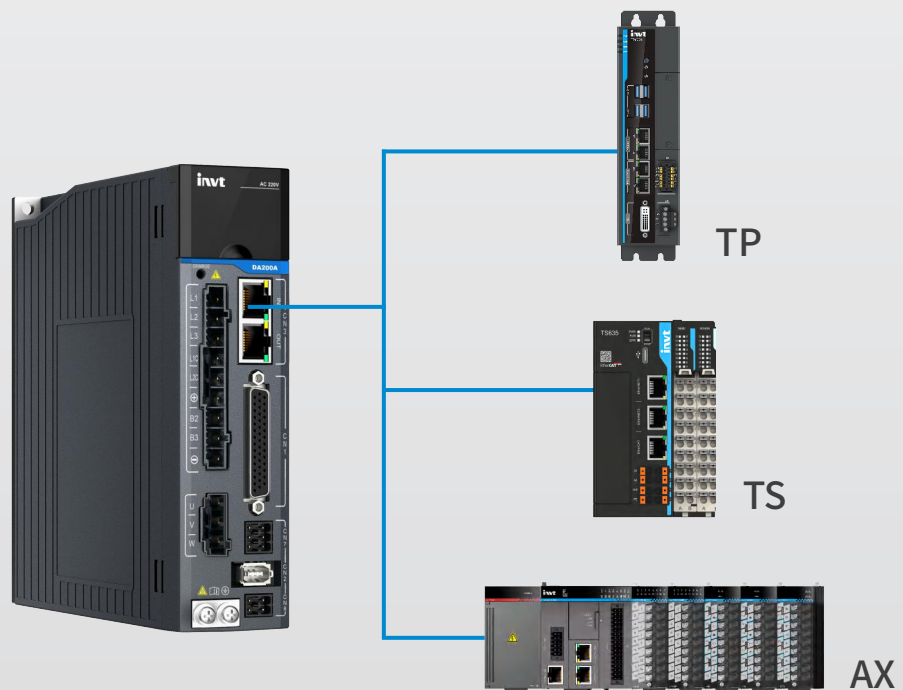
## Safe and reliable

- Support for Safe Torque Off (STO) to ensure personal safety



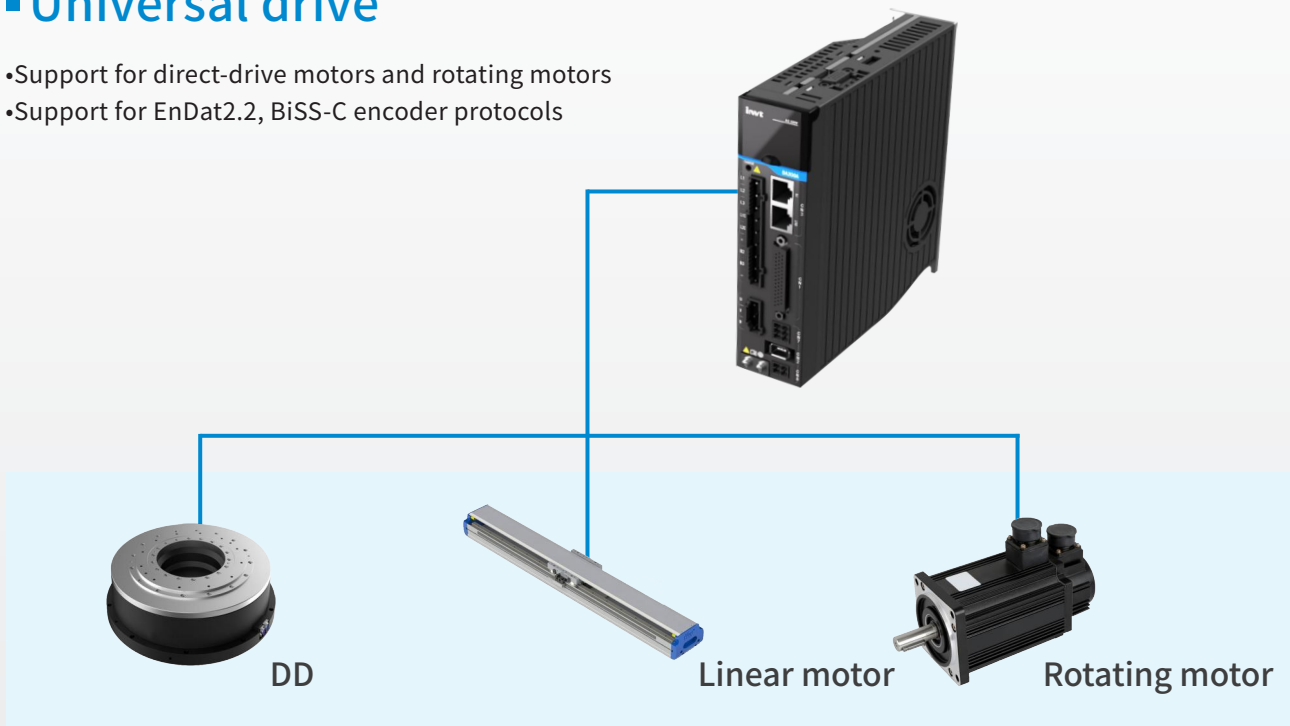
## Enriched communication

- With mature fieldbus technology, application networking is convenient and reliable
- Support Modbus, CANopen, EtherCAT and other bus communication



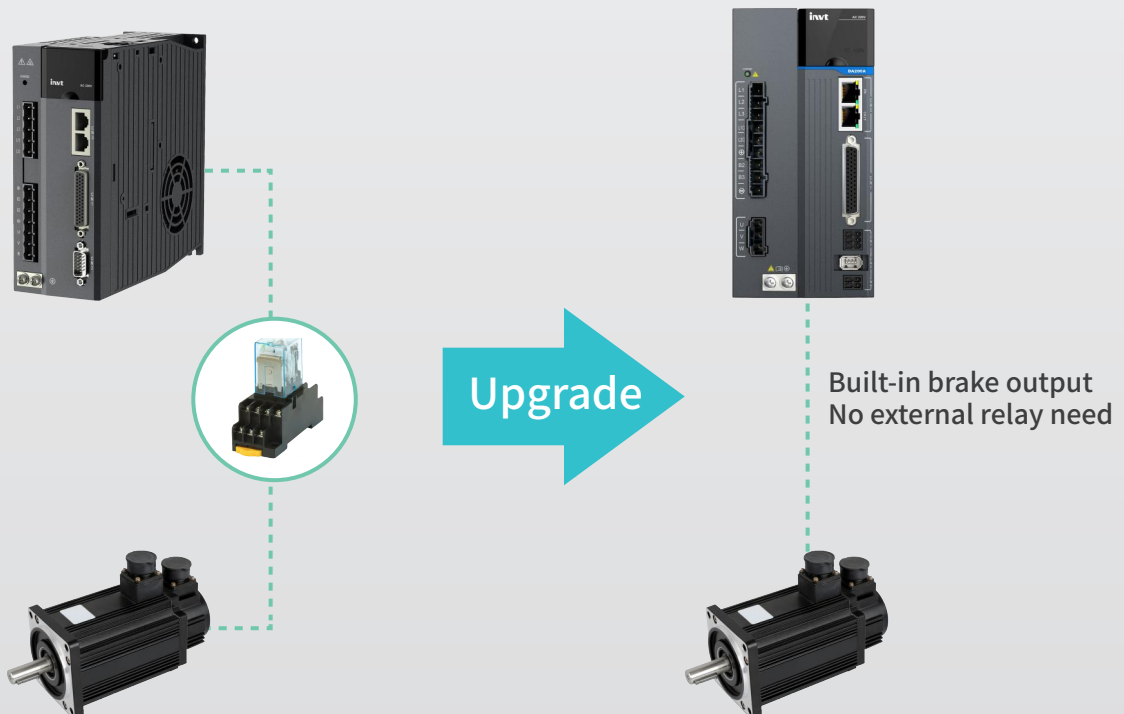
## ■ Universal drive

- Support for direct-drive motors and rotating motors
- Support for EnDat2.2, BiSS-C encoder protocols



## ■ Built-in brake output

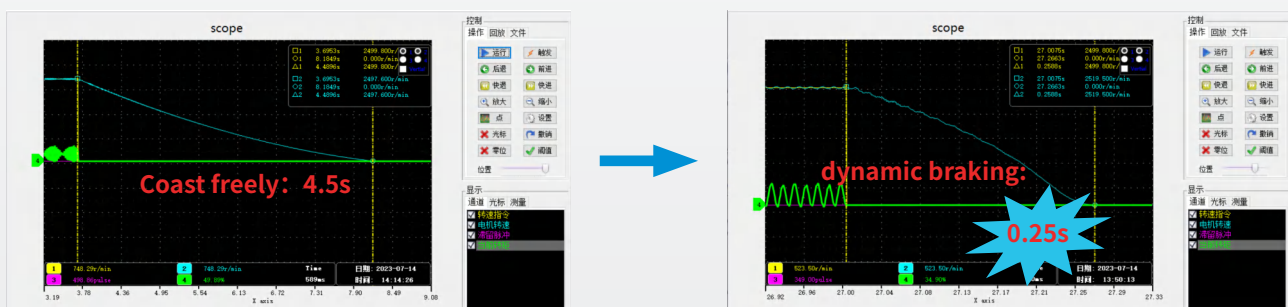
- No external relay need, saving external space
- Reduce wiring to cut the system cost



## Dynamic braking

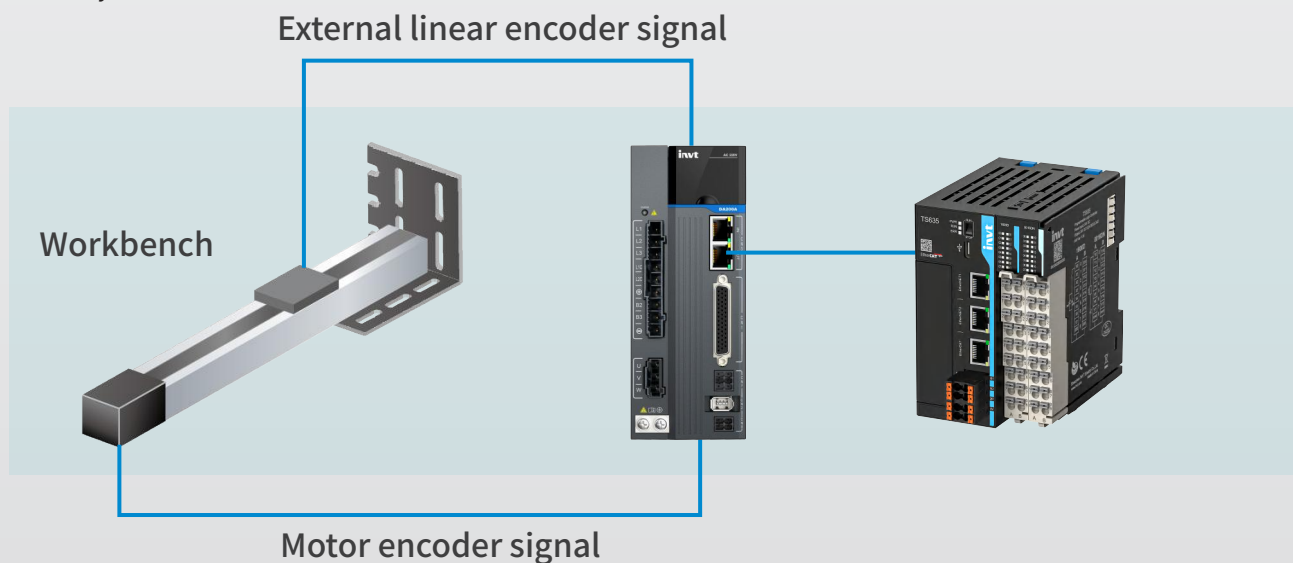
- Dynamic braking as standard configuration. Standard configuration includes dynamic braking, which employs dynamic braking to rapidly halt the motor when emergency stop, fault, or power outage occurs
- Quick stop to avoid mechanical damage and ensure personnel safety
- Dynamic braking as standard configuration
- Quick stop to avoid mechanical damage and ensure personnel safety

Test condition: •Motor power 1.0kW •Rated speed 2500r/min •Inertia disc 10.5 times



## Fully-closed loop control

- Support for external connection to an encoder or grating ruler installed at the load end, implementing fully-closed loop control
- Reducing back clearance impact caused by mechanical drive, and improving machine-end positioning accuracy



## ▪ Load inertia identification

- Provide online and offline inertia identification. Automatically identify gain parameters in the system, and reduce the system tuning time

Apply

PTP control Program jog Phase and angle Homing Identify inertia

Device: DA180A-V1.18-1 Axis: X Refresh

Set parameters > Write commands > Monitor running

**Rigid set**

P1.03-Machine rigidity setting: 13 (0~31)

**On-line identification**

P1.00-Online auto tune: 0: Invalid (0~1)

P1.08-Inertia identification grade: 0: No change (0~3)

**Off-line identification**

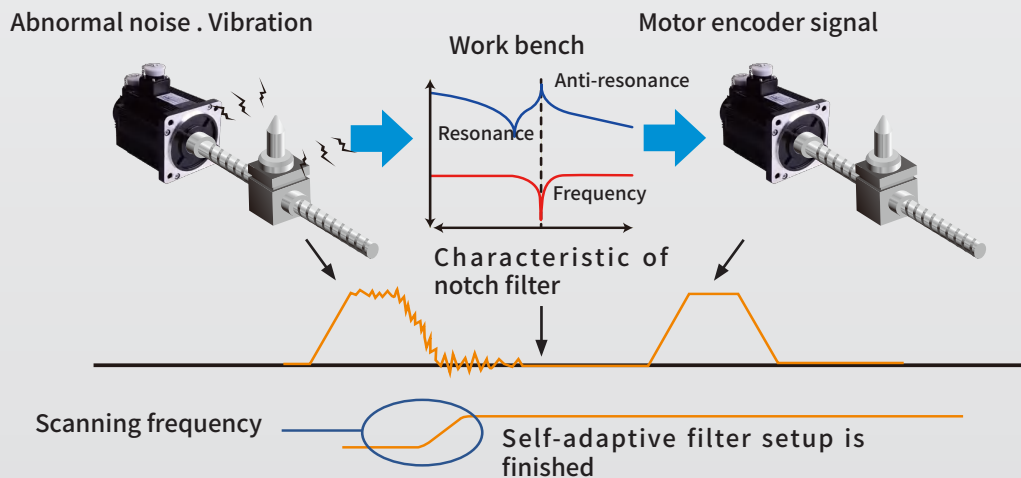
P1.06-Mechanical movement: 2.0 (r) (0.2~20)

P1.05-Inertia identification operation: 0: First forward and (0~3)

P1.07-Identification of inertia acceleration time constant: 200 (ms) (2~1000)

## ▪ Automatic/manual notch filter

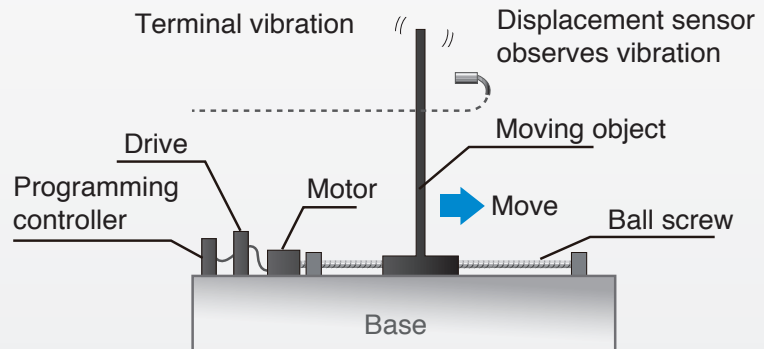
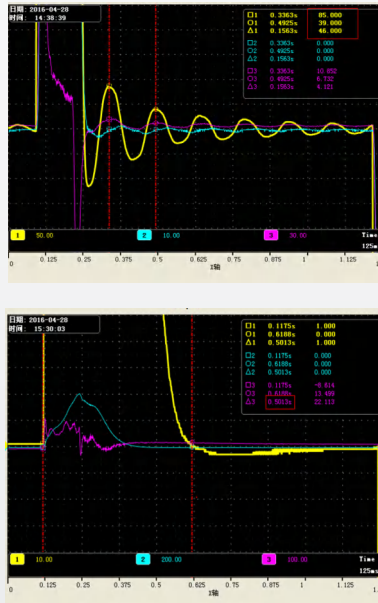
- Equipped with a simplified notch filter setup function. Abnormal noise and vibration caused by mechanical devices can be greatly reduced by using a notch filter





## ▪ Low frequency vibration control

- Advanced low frequency vibration control algorithms can be used to effectively control low frequency mechanical resonance and control oscillation at long swing arm end



## ▪ Disturbance control

- Equipped with the disturbance control function to compensate for the control performance impact caused by load disturbance and parameter changes, enhancing system robustness and greatly improving command following performance

## ▪ Friction torque compensation

- Equipped with the friction torque compensation function to reduce the impact caused by static friction during motor commutation and improve command following performance at low speed running

## ▪ Simple gain adjusting and switching

- The speed and position loop gains and filter time constant can be automatically adjusted by setting rigidity levels, effectively reducing commissioning complicity. Two groups of gain can be set, and the gains can be switched through I/O input, communication, or internal variables, fulfilling flexible process demands

## ▪ Speed observer

- Use a speed observer to reduce the noise impact and improve command following performance
- Improve the usability of servo to reduce the difficulty of customer commissioning

# Model designation of servo drive

DA200A-E-2R8-S-2-XXXX-XXXX

## Item

## Description

Product series DA200A: Servo drive series

Product type  
E: Pulse type  
C: CANopen type  
N: EtherCAT bus type  
F: PROFINET bus type

Rated current  
220V 380V  
2R8: 2.8A 5R5: 5.5A  
6R0: 6.0A 8R5: 8.5A  
8R0: 8.0A 012: 12A  
010: 10A 016: 16A  
013: 13A 021: 21A

Voltage class  
S: 220V  
T: 380V

Encoder category  
2: Serial communication encoder

Product lot number  
Digit 1: Product configuration Empty: Standard version  
-P: High-spec version  
Digit 2: Integration level 1: Single axis (omitted by default)  
Digit 3: Installation method B: Substrate installation (omitted by default)  
Digit 4: Ingress protection (IP) rating 0: IP00 1: IP20 (omitted by default)

Customized lot number  
Digit 1: Hardware  
Digit 2/3: Function category  
Digit 4: Software serial No

Note: PROFINET models are coming soon

# Product specifications

| Cabinet                                       | A                 |                   | B                 |                   |                   | C                 |                   | D                 |                   |                   |
|-----------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Model                                         | 2R8               | 6R0               | 8R0               | 010               | 5R5               | 013               | 8R5               | 012               | 016               | 021               |
| Rated power (kW)                              | 0.4               | 1                 | 1.5               | 2                 | 1.5               | 3                 | 3                 | 4.4               | 5.5               | 7.5               |
| Main power supply (V)                         | 220(1P)           |                   | 220(3P)           |                   | 380(3P)           | 220V(3P)          | 380(3P)           | 380(3P)           |                   |                   |
| Control circuit voltage (V)                   | 220(1P)           |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Input current (A)                             | 3.6               | 9                 | 5.6               | 7.5               | 3.3               | 11.2              | 6.5               | 9.6               | 11.9              | 13                |
| Rated output current (A)                      | 2.8               | 6                 | 8                 | 10                | 5.5               | 13                | 8.5               | 12                | 16                | 21                |
| Max. output current (A)                       | 8.4               | 18                | 24                | 25                | 14                | 32.5              | 25.5              | 30                | 40                | 52.5              |
| Built-in braking resistor                     | /                 | 45Ω<br>60W        | 30Ω<br>60W        | 30Ω<br>60W        | 60Ω<br>60W        | 30Ω<br>60W        | 60Ω<br>60W        | 30Ω<br>120W       | 30Ω<br>120W       | 30Ω<br>120W       |
| Min. resistance of external braking resistors | 60Ω               | 45Ω               | 30Ω               | 30Ω               | 60Ω               | 20Ω               | 60Ω               | 30Ω               | 30Ω               | 30Ω               |
| Recommended filter model                      | FLT-PS2010<br>H-B | FLT-PS2010<br>H-B | FLT-P04016<br>L-B | FLT-P04016<br>L-B | FLT-P04006<br>L-B | FLT-P04032<br>L-B | FLT-P04006<br>L-B | FLT-P04016<br>L-B | FLT-P04016<br>L-B | FLT-P04032<br>L-B |

# Product configuration

| Power range: 400W–7.5KW |        |                         | Function    |                     |             |     |              |                 | Communication |         |          |
|-------------------------|--------|-------------------------|-------------|---------------------|-------------|-----|--------------|-----------------|---------------|---------|----------|
| Model                   | Symbol | Configuration selection | Pulse input | Analog input/output | 2nd encoder | STO | Brake Output | Dynamic braking | RS485         | CANopen | EtherCAT |
| Pulse type              | E      | Standard                | √           | √                   | ×           | ×   | ×            | √               | √             | ×       | ×        |
|                         |        | High-spec               | √           | √                   | √           | √   | √            | √               | √             | ×       | ×        |
| CANopen type            | C      | High-spec               | √           | √                   | √           | √   | √            | √               | √             | √       | ×        |
| Bus type                | N      | Standard                | ×           | ×                   | ×           | ×   | ×            | √               | ×             | ×       | √        |
|                         |        | High-spec               | ×           | ×                   | √           | √   | √            | √               | ×             | ×       | √        |
|                         | F      | High-spec               | ×           | ×                   | √           | √   | √            | √               | ×             | ×       | ×        |

Note: Bus type servo ROFINET models are coming soon

# Technical specifications

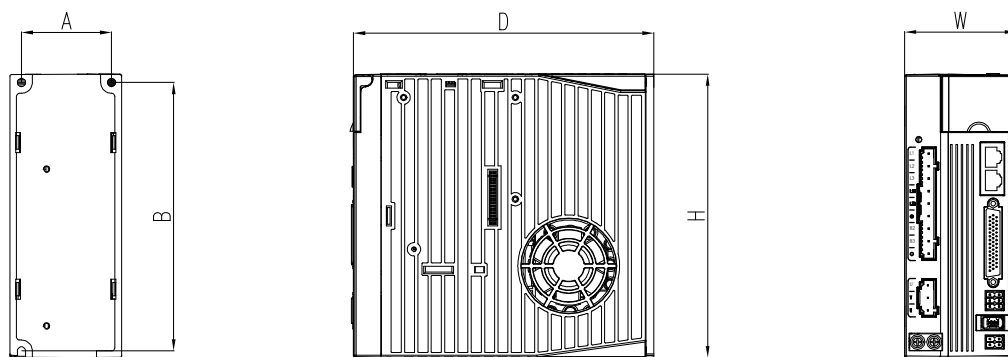
| Specification |                              |                | Description                                                                                                                                                                                                   |                                                                                |
|---------------|------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Power supply  | System input voltage of 220V |                | 1P/3P AC220V(-15%)~240V(+10%) 47Hz~63Hz                                                                                                                                                                       |                                                                                |
|               | System input voltage of 400V |                | 3P AC380V(-15%)~440V(+10%) 47Hz~63Hz                                                                                                                                                                          |                                                                                |
| Port          | Control signal               | Input of 5V    | 10 inputs for pulse type and CANopen type, 7 inputs for EtherCAT bus type (the function can be configured by relevant parameters)                                                                             |                                                                                |
|               |                              | Output         | 4 differential outputs (the function can be configured by relevant parameters)                                                                                                                                |                                                                                |
|               | Analog                       | Input          | Two 12bit inputs                                                                                                                                                                                              |                                                                                |
|               |                              | Output         | 2 outputs (analog monitoring output)                                                                                                                                                                          |                                                                                |
|               | Pulse signal                 | Input          | Two groups (mode: differential input or open collector input)                                                                                                                                                 |                                                                                |
|               |                              | Output         | Six groups (3 differential outputs, 3 open collector outputs)                                                                                                                                                 |                                                                                |
|               | 1st encoder                  | Input of 5V    | Two-wire and four-wire absolute encoder interfaces (Tamagawa, BiSS-C, EnDat2.2)                                                                                                                               |                                                                                |
|               | 2nd encoder                  | Input of 5V    | Incremental encoder interface (2nd encoder or linear encoder)                                                                                                                                                 |                                                                                |
|               | Communication                | USB            | 1:1 communication upper PC software (standard, Type-C)                                                                                                                                                        |                                                                                |
|               |                              | RS485          | 1:n communication (standard)                                                                                                                                                                                  |                                                                                |
|               |                              | CANopen        | 1:n communication (optional)                                                                                                                                                                                  |                                                                                |
|               |                              | PROFINET       | 1:n communication (optional)                                                                                                                                                                                  |                                                                                |
|               |                              | EtherCAT       | 1:n communication (optional)                                                                                                                                                                                  |                                                                                |
|               | Safety terminals             | STO            | Safe torque off (conform to the latest European safety standards) (optional)                                                                                                                                  |                                                                                |
| Control mode  |                              |                | 1. Position control; 2. Speed control; 3. Torque control; 4. Position/Speed mode switching; 5. Speed/Torque mode switching; 6. Position/Torque mode switching; 7: Reserved; 8. CANopen mode; 9. EtherCAT mode |                                                                                |
| Function      | Position control             | Control output | 1. Retention pulse clearing; 2. Command pulse input disabled; 3. Command frequency division and multiplication switching; 4. Vibration control switching                                                      |                                                                                |
|               |                              | Control output | Positioning completion output, etc                                                                                                                                                                            |                                                                                |
|               |                              | Pulse input    | Max. pulse input frequency                                                                                                                                                                                    | Optical coupling: differential input 4Mbps, open collector input 200kbps;      |
|               |                              |                | Pulse input mode                                                                                                                                                                                              | 1. Forward/reverse direction; 2. Phase A/B; 3. Command pulse/command direction |
|               |                              |                | Electronic gear                                                                                                                                                                                               | 1/10000~1000 times                                                             |



| Specification |                   |                                            | Description                                                                                                        |                                                                                                         |
|---------------|-------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Function      | Position control  | Pulse input                                | Filter                                                                                                             | 1. Command smoothing filter; 2. FIR filter                                                              |
|               |                   |                                            | Feed-forward forecast                                                                                              | Feed-forward forecast control of pulse command                                                          |
|               |                   | Bus input                                  | Interpolation control                                                                                              | Linear interpolation, spline interpolation, and arc interpolation                                       |
|               |                   | Analog input                               | Torque limit command input                                                                                         | Can independently perform clockwise/counterclockwise torque limit                                       |
|               |                   | Pulse output                               | 1. Can perform arbitrary frequency division settings under the encoder resolution;<br>2. B-phase reverse function  |                                                                                                         |
|               | Speed control     | Control input                              | 1. Internal command speed 1; 2. Internal command speed 2; 3. Internal command speed 3;<br>4. Zero speed clamp, etc |                                                                                                         |
|               |                   | Control output                             | Speed reaching, etc                                                                                                |                                                                                                         |
|               |                   | Analog input                               | Speed command input                                                                                                | The speed command input can be set according to the analog voltage DC $\pm 10V$                         |
|               |                   |                                            | Torque limit input                                                                                                 | Can independently perform clockwise/counterclockwise torque limit                                       |
|               |                   | Internal speed commands                    | 8 step speed can be switched according to the external control input                                               |                                                                                                         |
|               |                   | Speed command filter<br>ACC/DEC adjustment | ACC/DEC time setting and S curve setting                                                                           |                                                                                                         |
|               |                   | Zero-speed clamp                           | In the speed mode, it can set the operation mode as the speed mode and position mode                               |                                                                                                         |
|               |                   | Speed command filter                       | A delay filter of analog input speed command                                                                       |                                                                                                         |
|               |                   | Speed command zero drift control           | Zero drift control against outside interference with 0.3mV precision                                               |                                                                                                         |
|               | Torque control    | Control input                              | Zero speed clamp input, etc                                                                                        |                                                                                                         |
|               |                   | Control output                             | Speed reaching, etc                                                                                                |                                                                                                         |
|               |                   | Analog input                               | Torque command input                                                                                               | Analog torque command input, gain and polarity can be set based on analog voltage with 4.88mV precision |
|               |                   |                                            | Speed limit input                                                                                                  | Analog speed limit                                                                                      |
|               |                   | Speed limit                                | Set the speed limit by parameters                                                                                  |                                                                                                         |
|               |                   | Torque command filter                      | A delay filter of analog input torque command                                                                      |                                                                                                         |
|               | Special functions | Torque command zero drift control          | Zero drift control against outside interference with 4.88mV precision                                              |                                                                                                         |
|               |                   | PTP control                                | 128 bits internal position planning, the positioning can be controlled through communication                       |                                                                                                         |
|               |                   | PTP setting                                | Support multi-point curve planning combination control                                                             |                                                                                                         |
|               |                   | Homing                                     | 1. Limit signal; 2. Z-phase signal; 3. Limit signal+Z-phase signal; 4. Torque limit signal                         |                                                                                                         |
|               |                   | E-CAM                                      | Support manual table creation, S-curve, flying shear, and chasing shear functions                                  |                                                                                                         |
|               |                   | Cam setting                                | Support multi-cam curve planning combination control                                                               |                                                                                                         |

| Specification |                             |            | Description                                                                                                                                                                                                                                                                                                                                  |
|---------------|-----------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Functions     | Special functions           | IO capture | Support IO capture functions, such as color-coded capture                                                                                                                                                                                                                                                                                    |
| Protection    | Hardware protection         |            | Protection against phase loss, overvoltage, undervoltage, overcurrent, drive overload, braking resistor overload, drive overheat, encoder disconnection (ABZ disconnection) and dynamic braking.                                                                                                                                             |
|               | Software protection         |            | Protection against storage fault, initialization fault, I/O distribution abnormalities and large position deviation.                                                                                                                                                                                                                         |
|               | Dynamic braking             |            | For emergency stop function, including emergency stop and fault stop scenarios.                                                                                                                                                                                                                                                              |
|               | Protection and fault record |            | 1. Up to 10 faults can be recorded.<br>2. Eight key parameters can be recorded when fault occurs, including motor speed, speed command, accumulated feedback pulses, accumulated command pulses, residual pulse, current torque, main circuit DC voltage, output voltage and output current.<br>3. Support fault analysis and usage reminder |
| Environment   | Working temperature         |            | 0–55° C (Derate 80% when the ambient temperature is 45–55° C.)                                                                                                                                                                                                                                                                               |
|               | Storage temperature         |            | -20° C–70° C (No freezing)                                                                                                                                                                                                                                                                                                                   |
|               | Working/storage humidity    |            | ≤ 90% RH (no condensation)                                                                                                                                                                                                                                                                                                                   |
|               | IP class                    |            | IP20                                                                                                                                                                                                                                                                                                                                         |
|               | Altitude                    |            | Lower than 1000m                                                                                                                                                                                                                                                                                                                             |
|               | Vibration                   |            | ≤ 5.88m/s <sup>2</sup> , 10–60Hz (Working at the resonance point is not allowed)                                                                                                                                                                                                                                                             |
| Other         | Certification requirement   |            | Standard machines comply with CE certification standards (optional filter)                                                                                                                                                                                                                                                                   |
|               | Installation method         |            | Wall mounting                                                                                                                                                                                                                                                                                                                                |
|               | Cooling method              |            | Natural cooling for 0.4kW and lower models<br>Others: Forced air cooling                                                                                                                                                                                                                                                                     |

## Size and dimension diagram



| Volume | Outline dimensions (mm) |       |       | Installation dimensions |       | Mounting hole diameter (mm) | Weight (kg) |
|--------|-------------------------|-------|-------|-------------------------|-------|-----------------------------|-------------|
|        | H(mm)                   | W(mm) | D(mm) | A(mm)                   | B(mm) |                             |             |
| A      | 170                     | 45    | 170   | 33                      | 162   | M4(Φ5)                      | 1.05        |
| B      | 170                     | 67    | 180   | 54                      | 162   | M4(Φ5)                      | 1.45        |
| C      | 170                     | 84    | 180   | 71                      | 162   | M4(Φ5)                      | 1.75        |
| D      | 245                     | 92    | 190   | 79                      | 237   | M4(Φ5)                      | 3.13        |

# Servo system configuration table

|                | SIZE A                                                                            |                        | SIZE B                                                                            |                        |                        | SIZE C                                                                             |                        | SIZE D                                                                              |                        |                        |
|----------------|-----------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------|------------------------|------------------------|------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------|------------------------|------------------------|
| Drive          |  |                        |  |                        |                        |  |                        |  |                        |                        |
|                | DA200A-*-2R8-S                                                                    | DA200A-*-6R0-S         | DA200A-*-8R0-S                                                                    | DA200A-*-010-S         | DA200A-*-5R5-T         | DA200A-*-013-S                                                                     | DA200A-*-8R5-T         | DA200A-*-012-T                                                                      | DA200A-*-016-T         | DA200A-*-021-T         |
| Voltage class  | 1PH 220V                                                                          |                        | 3PH 220V                                                                          |                        |                        | 3PH 380V                                                                           | 3PH 380V               | 3PH 380V                                                                            |                        |                        |
| Matching motor | IMS20B-04L10B30C-2-***                                                            | IMS20B-08M75B30C-2-*** | IMS20B-10M15C30C-2-***                                                            | IMS20B-10M20C30C-2-*** | IMS20B-10M10C30C-4-*** | IMS20B-10M25C30C-2-***                                                             | IMS20B-10M25C30C-4-*** | IMS20B-18M30C15C-4-***                                                              | IMS20B-18M44C15C-4-*** | IMS20B-18M75C15C-4-*** |
|                | IMS20B-06M20B30C-2-***                                                            | IMS20B-08M10C30C-2-*** | IMS20B-13M15C20C-2-***                                                            | IMS20B-13M20C20C-2-*** | IMS20B-10M15C30C-4-*** | IMS20B-13M30C20C-2-***                                                             | IMS20B-13M30C20C-4-*** | /                                                                                   | IMS20B-18M55C15C-4-*** | /                      |
|                | IMS20B-06M40B30C-2-***                                                            | IMS20B-10M10C30C-2-*** | /                                                                                 | IMS20B-13H13C15C-2-*** | IMS20B-10M20C30C-4-*** | IMS20B-13H18C15C-2-***                                                             | IMS20B-13H18C15C-4-*** | /                                                                                   | /                      | /                      |
|                | /                                                                                 | IMS20B-13M10C20C-2-*** | /                                                                                 | /                      | IMS20B-13M10C20C-4-*** | /                                                                                  | /                      | /                                                                                   | /                      | /                      |
|                | /                                                                                 | IMS20B-13H85B15C-2-*** | /                                                                                 | /                      | IMS20B-13M15C20C-4-*** | /                                                                                  | /                      | /                                                                                   | /                      | /                      |
|                | /                                                                                 | /                      | /                                                                                 | /                      | IMS20B-13M20C20C-4-*** | /                                                                                  | /                      | /                                                                                   | /                      | /                      |
|                | /                                                                                 | /                      | /                                                                                 | /                      | IMS20B-13H85B15C-4-*** | /                                                                                  | /                      | /                                                                                   | /                      | /                      |
|                | /                                                                                 | /                      | /                                                                                 | /                      | IMS20B-13H13C15C-4-*** | /                                                                                  | /                      | /                                                                                   | /                      | /                      |

# Servo motor naming

| IMS20B-06 M 40B 30C-2-M3 4 |                                                                                                                                |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Item                       | Description                                                                                                                    |
| Product series             | IMS20B: IMS20B series                                                                                                          |
| Base model No.             | 04: 40    10: 100    18: 180<br>06: 60    13: 130                                                                              |
| Inertia identification     | L: Small inertia<br>M: Medium inertia<br>H: Large inertia                                                                      |
| Rated power (W)            | Composition of base (number) * magnification (letter)<br>A: *1    B: *10    C: *100    .....<br>E.g.: 40B: 400W    15C: 1500W  |
| Rated speed (rpm)          | Composition of base (number) * magnification (letter)<br>A: *1    B: *10    C: *100    .....<br>例: 80B: 800rpm    30C: 3000rpm |
| Voltage class              | 2:220    4:380                                                                                                                 |
| Encoder                    | M4: 17-bit multi-turn magnetic encoder    P9: 23-bit multi-turn optical encoder                                                |
| Optional part              | 0: With oil seal but no brake (Empty by default)    4: With oil seal and electromagnetic brake                                 |

# Servo motor technical parameters

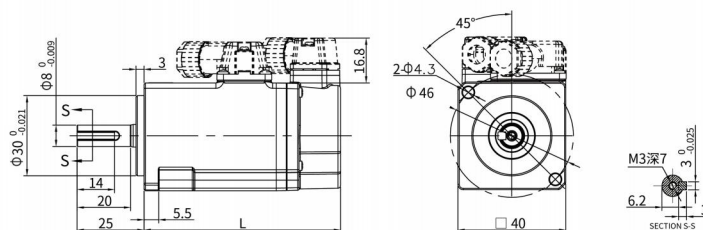
| Model                     | Base model No. (mm)                                                                                                                                             | Power (kW) | Rated torque (Nm) | Max. torque (Nm) | Rated speed (rpm) | Max. speed (rpm) | Voltage (V) | Rated current (A) 220V/3 80V | Inertia (10-4kg·m <sup>2</sup> ) Standard/with brake | Weight (kg) Standard/with brake |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|------------------|-------------------|------------------|-------------|------------------------------|------------------------------------------------------|---------------------------------|
| IMS20B-04L10B30C-2-***    | 40                                                                                                                                                              | 0.1        | 0.32              | 1.12             | 3000              | 6000             | 220         | 0.98                         | 0.031/0.034                                          | 0.36/0.55                       |
| IMS20B-06M20B30C-2-***    | 60                                                                                                                                                              | 0.2        | 0.64              | 2.23             | 3000              | 6000             | 220         | 1.3                          | 0.34/0.35                                            | 0.8/1.2                         |
| IMS20B-06M40B30C-2-***    |                                                                                                                                                                 | 0.4        | 1.27              | 4.45             | 3000              | 6000             | 220         | 2.6                          | 0.59/0.6                                             | 1.2/1.6                         |
| IMS20B-08M75B30C-2-***    | 80                                                                                                                                                              | 0.75       | 2.38              | 8.36             | 3000              | 6000             | 220         | 4.6                          | 1.72/1.77                                            | 2.2/2.9                         |
| IMS20B-08M10C30C-2-***    |                                                                                                                                                                 | 1          | 3.18              | 11.3             | 3000              | 6000             | 220         | 6.3                          | 2.23/2.28                                            | 2.6/3.3                         |
| IMS20B-10M10C30C-2(4)-*** | 100                                                                                                                                                             | 1          | 3.18              | 9.55             | 3000              | 6000             | 220/380     | 6.6/3.72                     | 1.84/2.59                                            | 3.3/4.1                         |
| IMS20B-10M15C30C-2(4)-*** |                                                                                                                                                                 | 1.5        | 4.78              | 13.4             | 3000              | 6000             | 220/380     | 8.8/5.1                      | 2.75/3.5                                             | 4.3/5.1                         |
| IMS20B-10M20C30C-2(4)-*** |                                                                                                                                                                 | 2          | 6.37              | 19.1             | 3000              | 6000             | 220/380     | 10.71/6.95                   | 3.65/4.4                                             | 5.3/6.1                         |
| IMS20B-10M25C30C-2(4)-*** |                                                                                                                                                                 | 2.5        | 7.96              | 26.5             | 3000              | 6000             | 220/380     | 13.3/8.17                    | 4.36/5.11                                            | 6.3/7.1                         |
| IMS20B-13M10C20C-2(4)-*** | 130                                                                                                                                                             | 1          | 4.78              | 14.34            | 2000              | 4500             | 220/380     | 5.4/3                        | 6.3/7.95                                             | 4.4/6.0                         |
| IMS20B-13M15C20C-2(4)-*** |                                                                                                                                                                 | 1.5        | 7.16              | 21.48            | 2000              | 4500             | 220/380     | 7.6/4.8                      | 9.1/10.8                                             | 5.6/7.2                         |
| IMS20B-13M20C20C-2(4)-*** |                                                                                                                                                                 | 2          | 9.55              | 28.65            | 2000              | 4500             | 220/380     | 9/5.6                        | 12.9/14.6                                            | 6.9/8.5                         |
| IMS20B-13M30C20C-2(4)-*** |                                                                                                                                                                 | 3          | 14.3              | 42.9             | 2000              | 3000             | 220/380     | 13/7.7                       | 21.7/23.4                                            | 10.3/11.9                       |
| IMS20B-13H85B15C-2(4)-*** |                                                                                                                                                                 | 0.85       | 5.4               | 13.5             | 1500              | 4500             | 220/380     | 6.2/3.3                      | 13.1/14.3                                            | 5.7/7.3                         |
| IMS20B-13H13C15C-2(4)-*** |                                                                                                                                                                 | 1.3        | 8.4               | 21               | 1500              | 4500             | 220/380     | 9.9/5.2                      | 17.9/19.1                                            | 7.2/8.8                         |
| IMS20B-13H18C15C-2(4)-*** |                                                                                                                                                                 | 1.8        | 11.5              | 28.8             | 1500              | 4500             | 220/380     | 12.8/7.7                     | 24.3/25.6                                            | 9/10.6                          |
| IMS20B-18M30C15C-4-***    | 180                                                                                                                                                             | 3          | 19.1              | 47.8             | 1500              | 4500             | 380         | 9.7                          | 48.6/49.3                                            | 19.2/21.2                       |
| IMS20B-18M44C15C-4-***    |                                                                                                                                                                 | 4.4        | 28                | 70               | 1500              | 4500             | 380         | 13.5                         | 65.2/65.9                                            | 23.2/25.2                       |
| IMS20B-18M55C15C-4-***    |                                                                                                                                                                 | 5.5        | 35                | 88.8             | 1500              | 4500             | 380         | 16.8                         | 84/84.7                                              | 27.7/29.7                       |
| IMS20B-18M75C15C-4-***    |                                                                                                                                                                 | 7.5        | 47.8              | 119.5            | 1500              | 4500             | 380         | 20.9                         | 107.4/108.1                                          | 32/34                           |
| Insulation class          | Class F(155° C)                                                                                                                                                 |            |                   |                  |                   |                  |             |                              |                                                      |                                 |
| IP rating                 | IP67 (base-80 and below, in-line), IP65 (base-100 and above, military-grade aviation plug)                                                                      |            |                   |                  |                   |                  |             |                              |                                                      |                                 |
| Application environment   | Temperature: 0 ° C--+40 ° C (no freezing for base-80 and below), -10 ° C--+40 ° C (no freezing for base-100 and above); humidity: below 90%RH (no condensation) |            |                   |                  |                   |                  |             |                              |                                                      |                                 |



# Servo motor installation dimensions

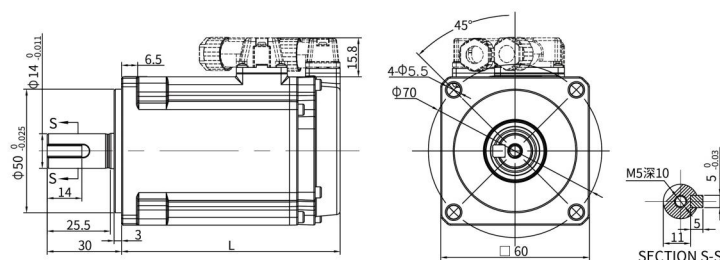
## Installation dimensions for base-40 motors (unit: mm)

| Motor model            | L(mm)         |                       |
|------------------------|---------------|-----------------------|
|                        | Without brake | Electromagnetic brake |
| IMS20B-04L10B30C-2-*** | 73.4          | 100.1                 |



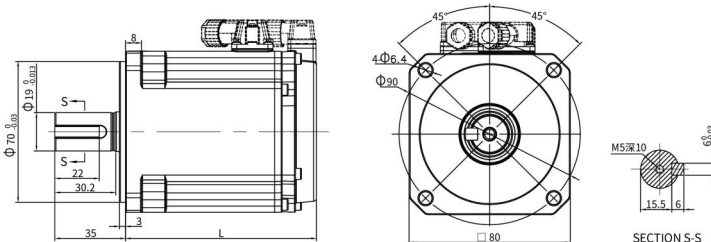
## Installation dimensions for base-60 motors (unit: mm)

| Motor model            | L(mm)         |                       |
|------------------------|---------------|-----------------------|
|                        | Without brake | Electromagnetic brake |
| IMS20B-06M20B30C-2-*** | 70.5          | 99.7                  |
| IMS20B-06M40B30C-2-*** | 88            | 117.2                 |



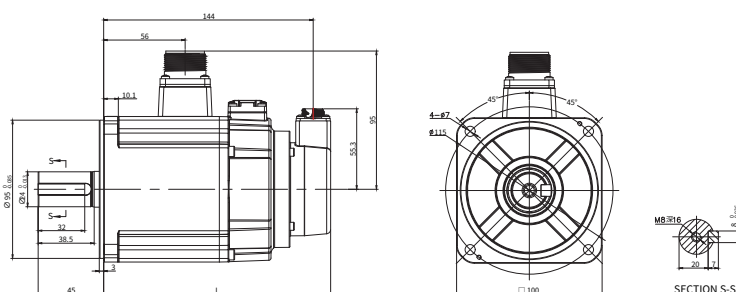
## Installation dimensions for base-80 motors (unit: mm)

| Motor model            | L(mm)         |                       |
|------------------------|---------------|-----------------------|
|                        | Without brake | Electromagnetic brake |
| IMS20B-08M75B30C-2-*** | 94.6          | 107.9                 |
| IMS20B-08M10C30C-2-*** | 107.9         | 142.1                 |



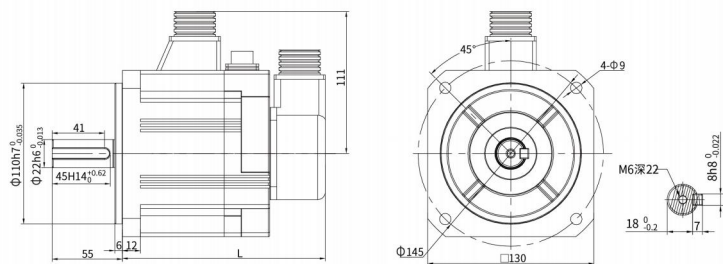
## Installation dimensions for base-100 motors (unit: mm)

| Motor model               | L(mm)         |                       |
|---------------------------|---------------|-----------------------|
|                           | Without brake | Electromagnetic brake |
| IMS20B-10M10C30C-2(4)-*** | 127.4         | 156                   |
| IMS20B-10M15C30C-2(4)-*** | 147.4         | 176                   |
| IMS20B-10M20C30C-2(4)-*** | 167.4         | 196                   |
| IMS20B-10M25C30C-2(4)-*** | 184.4         | 213                   |



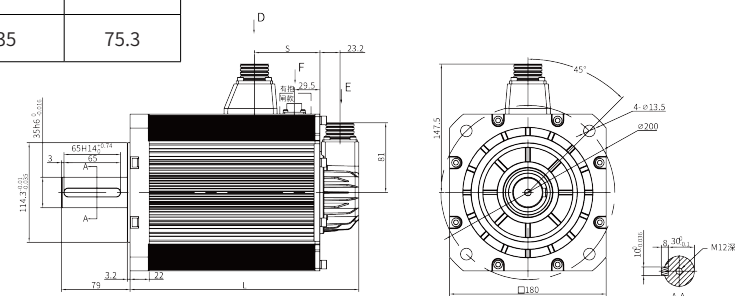
### Installation dimensions for base-130 motors (unit: mm)

| Motor model               | L(mm)         |                       |
|---------------------------|---------------|-----------------------|
|                           | Without brake | Electromagnetic brake |
| IMS20B-13M10C20C-2(4)-*** | 130           | 159                   |
| IMS20B-13M15C20C-2(4)-*** | 143           | 172                   |
| IMS20B-13M20C20C-2(4)-*** | 160           | 189                   |
| IMS20B-13M30C20C-2(4)-*** | 210.5         | 240.2                 |
| IMS20B-13H85B15C-2(4)-*** | 138           | 167                   |
| IMS20B-13H13C15C-2(4)-*** | 155           | 184                   |
| IMS20B-13H18C15C-2(4)-*** | 185           | 215                   |

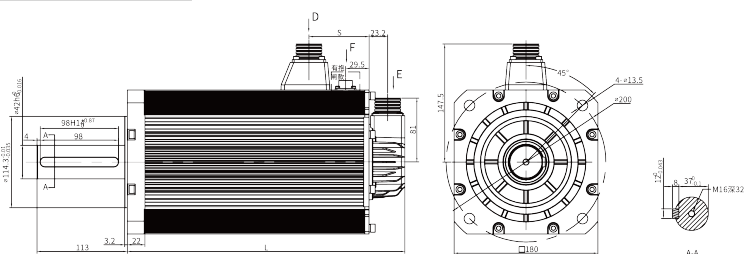


### Installation dimensions for base-180 motors (unit: mm)

| Motor model            | L(mm)         |                       | S (mm)        |                       |
|------------------------|---------------|-----------------------|---------------|-----------------------|
|                        | Without brake | Electromagnetic brake | Without brake | Electromagnetic brake |
| IMS20B-18M30C15C-4-*** | 223           | 263                   | 35            | 75.3                  |
| IMS20B-18M44C15C-4-*** | 248           | 288                   | 35            | 75.3                  |

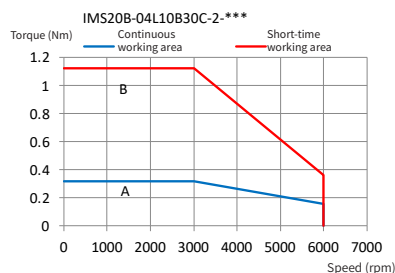


| Motor model            | L(mm)         |                       | S (mm)        |                       |
|------------------------|---------------|-----------------------|---------------|-----------------------|
|                        | Without brake | Electromagnetic brake | Without brake | Electromagnetic brake |
| IMS20B-18M55C15C-4-*** | 273           | 313                   | 35            | 75.3                  |
| IMS20B-18M75C15C-4-*** | 308           | 348                   | 35            | 75.3                  |

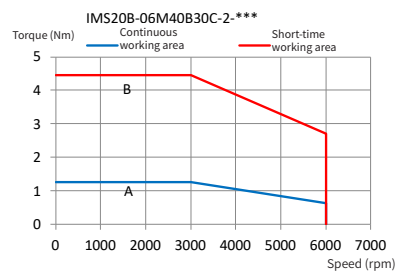
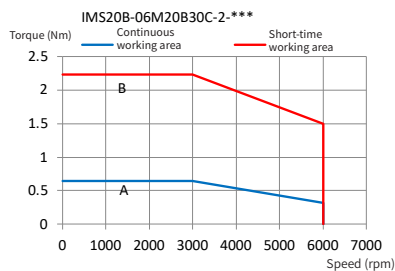


# Servo motor torque-speed characteristics

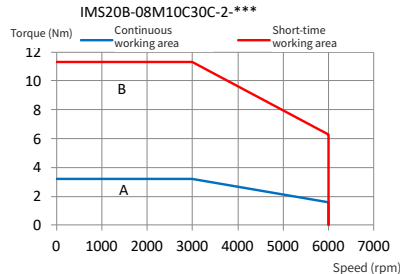
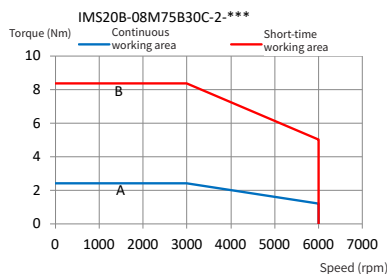
## Base-40 motor



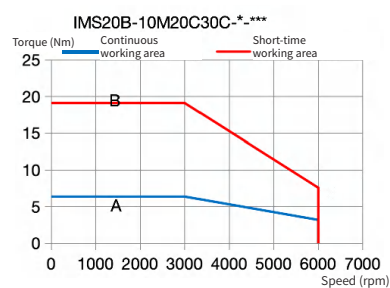
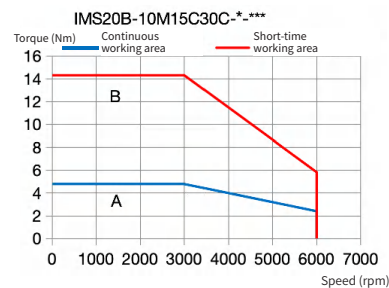
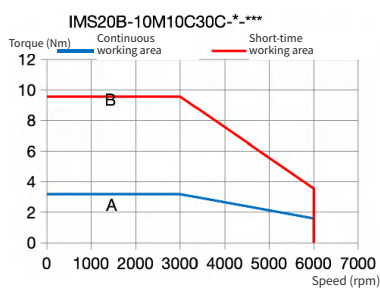
## Base-60 motor



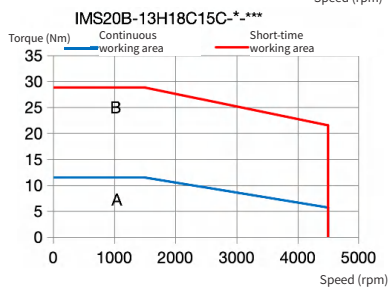
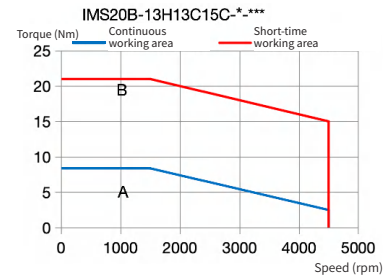
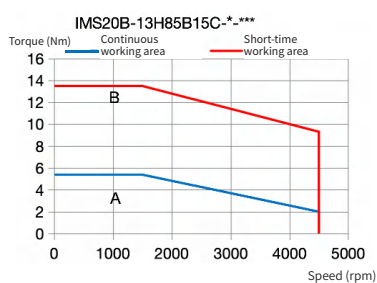
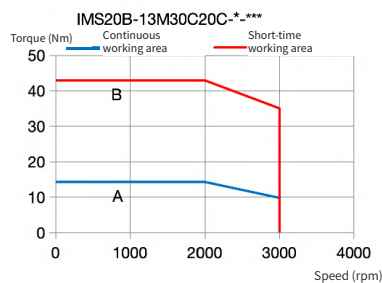
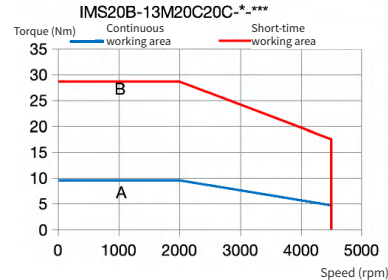
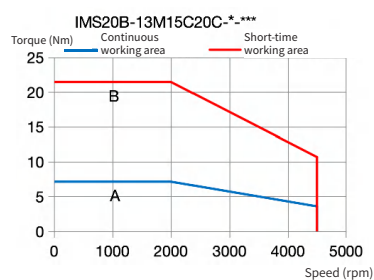
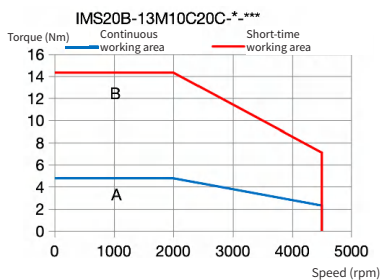
## Base-80 motor



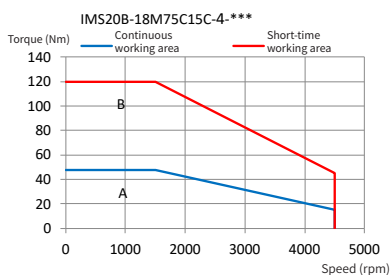
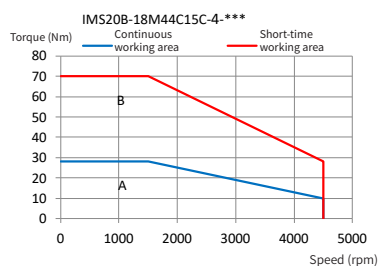
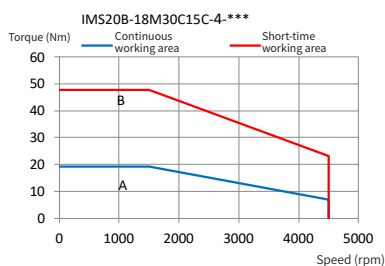
## Base-100 motor



## Base-130 motor



## Base-180 motor



# Servo motor power cable models

## Power cable

**DA ML-100-03-B F 0-00**

①

②

③

④

⑤

⑥

⑦

⑧

## Power cable accessories

**DA ML - B F**

①

②

⑤

⑥

①

| Symbol | Supporting series |
|--------|-------------------|
| DA     | Manufacturer No.  |

②

| Symbol | Cable type              |
|--------|-------------------------|
| ML     | Power cable accessories |

③

| Symbol | Cable diameter      |
|--------|---------------------|
| 050    | 0.5 mm <sup>2</sup> |
| 100    | 1.0 mm <sup>2</sup> |
| 250    | 2.5 mm <sup>2</sup> |
| 400    | 4.0 mm <sup>2</sup> |
| 600    | 6.0 mm <sup>2</sup> |

④

| Symbol | Cable length |
|--------|--------------|
| 03     | 3m           |
| 05     | 5m           |
| 10     | 10m          |
| ...    | Other        |

⑤

| Symbol | Plug on motor end               |
|--------|---------------------------------|
| B      | 4PIN regular aviation plug YD28 |
| N      | Regular aviation plug YD32      |
| A      | 4PIN plastic plug               |
| X      | In-line terminal                |
| H      | 4+2PIN CMS08A18-B6SBI003        |
| G      | 4PIN CMS3108A18-10SI            |

⑥

| Symbol | Plug on drive end  |
|--------|--------------------|
| F      | Tube-type terminal |
| W      | Fork-type terminal |

⑦

| Symbol | Cable material         |
|--------|------------------------|
| 0      | Regular cable          |
| F      | Flexible towline cable |
| A      | Shielded regular cable |

⑧

| Symbol | Lot number    |
|--------|---------------|
| 00     | Without brake |
| ...    | Other         |

## Brake cable (except base-40/60/80 motor)

**BRKL - 03 - B**

①

②

③

①

| Symbol | Product series    |
|--------|-------------------|
| BRKL   | Motor brake cable |

②

| Symbol | Cable length |
|--------|--------------|
| 03     | 3m           |
| ...    | Other        |

③

| Symbol | Plug on motor end          |
|--------|----------------------------|
| B      | 3PIN regular aviation plug |
| D      | 2PIN plastic plug          |

Note: For brake cable, it is recommended that the customer use the internal brake plug inside the motor for welding

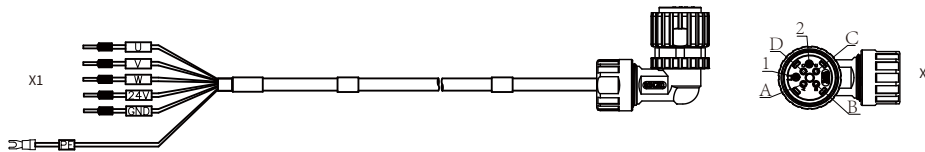
# Servo motor power cable wiring

## Power cable for base-40/60/80 motor (in-line + brake)



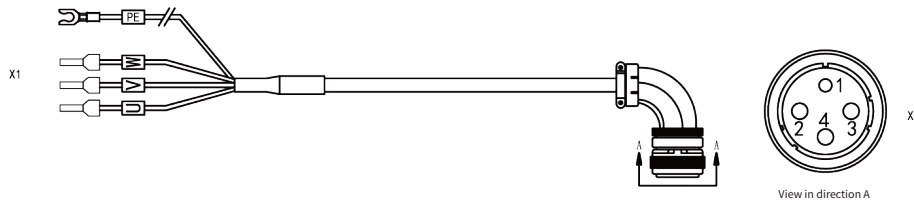
| Wiring mapping |                    |      |
|----------------|--------------------|------|
| Signal         | X1                 | X2   |
| W              | Tube-type terminal | X2.3 |
| V              | Tube-type terminal | X2.1 |
| U              | Tube-type terminal | X2.2 |
| PE             | Fork-type terminal | X2.4 |
| BK+            | Tube-type terminal | X2.A |
| BK-            | Tube-type terminal | X2.B |

## Power cable for base-100 motor (military-grade aviation plug + brake)



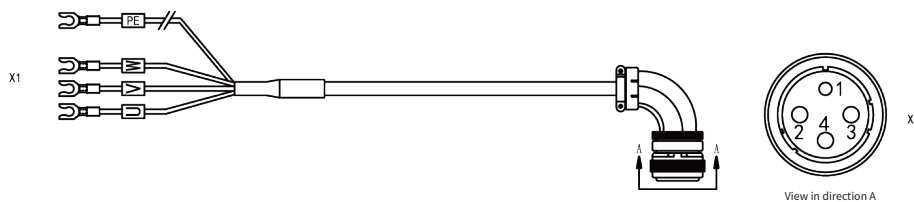
| Wiring mapping |                   |      |
|----------------|-------------------|------|
| Signal         | X1                | X2   |
| U              | Rod-type terminal | X2.A |
| V              | Rod-type terminal | X2.B |
| W              | Rod-type terminal | X2.C |
| PE             | U-type terminal   | X2.D |
| BK+            | Rod-type terminal | X2.1 |
| BK-            | Rod-type terminal | X2.2 |

## Power cable for base-130 motor (YD28 terminal)



| Wiring mapping |                              |      |
|----------------|------------------------------|------|
| Signal         | X1                           | X2   |
| W              | Tube-type/fork-type terminal | X2.4 |
| V              | Tube-type/fork-type terminal | X2.3 |
| U              | Tube-type/fork-type terminal | X2.2 |
| PE             | Fork-type terminal           | X2.1 |

## Power cable for base-180 motor (YD32 terminal)



| Wiring mapping |                              |      |
|----------------|------------------------------|------|
| Signal         | X1                           | X2   |
| W              | Tube-type/fork-type terminal | X2.4 |
| V              | Tube-type/fork-type terminal | X2.3 |
| U              | Tube-type/fork-type terminal | X2.2 |
| PE             | Fork-type terminal           | X2.1 |



# Servo motor encoder cable models

## Encoder cable

**DB EL - 04 - 03 - B I 0 - 04 A0**

①      ②      ③      ④      ⑤ ⑥ ⑦      ⑧      ⑨

## Encoder cable accessories

**DB EL-B I**

①      ②      ⑤      ⑥

①

| Symbol | Supporting series |
|--------|-------------------|
| DB     | Manufacturer No.  |

②

| Symbol | Cable type    |
|--------|---------------|
| EL     | Encoder cable |

③

| Symbol | Number of cable cores |
|--------|-----------------------|
| 06     | 6                     |
| 15     | 15                    |
| 04     | 4                     |

④

| Symbol | Cable length |
|--------|--------------|
| 03     | 3m           |
| 05     | 5m           |
| 10     | 10m          |
| ...    | Other        |

⑤

| Symbol | Plug on motor end                |
|--------|----------------------------------|
| B      | 15PIN regular aviation plug YD28 |
| D      | 9PIN plastic plug                |
| X      | In-line terminal                 |
| H      | 17PIN 08A                        |
| J      | 10PIN SC-CMV1-SP10CBT            |

⑥

| Symbol | Plug on drive end      |
|--------|------------------------|
| I      | 6PIN plastic plug 1394 |

⑦

| Symbol | Cable material                             |
|--------|--------------------------------------------|
| 0      | Regular cable                              |
| D      | Regular cable with battery holder          |
| F      | Flexible towline cable                     |
| H      | Flexible towline cable with battery holder |

⑧

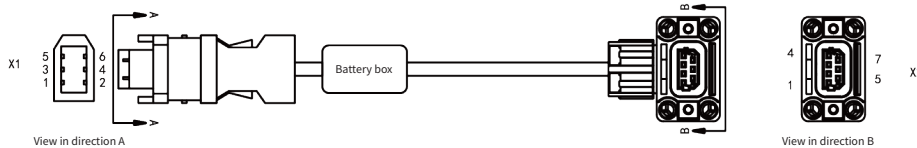
| Symbol | Encoder type |
|--------|--------------|
| 04     | Absolute     |

⑨

| 符号 | Lot number |
|----|------------|
| A0 | Other      |

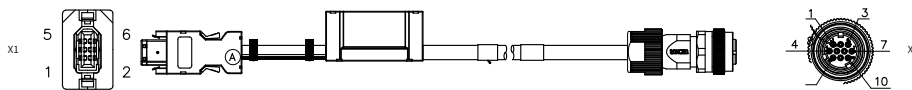
# Servo motor encoder cable wiring

## Encoder cable for base-40/60/80 motor (absolute + in-line + battery holder)



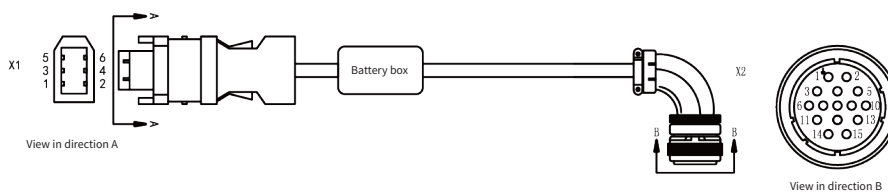
| Wiring mapping |            |      |                      |
|----------------|------------|------|----------------------|
| Signal         | X1         | X2   | Core cable structure |
| SD+            | X1.5       | X2.1 | Twisted pair         |
| SD-            | X1.6       | X2.2 |                      |
| 5V             | X1.1       | X2.5 | Twisted pair         |
| GND            | X1.2       | X2.6 |                      |
| BAT+           | /          | X2.3 | Twisted pair         |
| BAT-           | /          | X2.4 |                      |
| Shield         | Iron shell | X2.7 | Woven                |

## Encoder cable for base-100 motor (absolute + military-grade aviation plug + battery holder)



| Wiring mapping |            |       |                      |
|----------------|------------|-------|----------------------|
| Signal         | X1         | X2    | Core cable structure |
| SD+            | X1.5       | X2.1  | Twisted pair         |
| SD-            | X1.6       | X2.2  |                      |
| 5V             | X1.1       | X2.4  | Twisted pair         |
| GND            | X1.2       | X2.9  |                      |
| BAT+           | /          | X2.6  | Twisted pair         |
| BAT-           | /          | X2.5  |                      |
| Shield         | Iron shell | X2.10 | Woven                |

## Encoder cable for base-130/180 motor (absolute + YD28 terminal + battery holder)

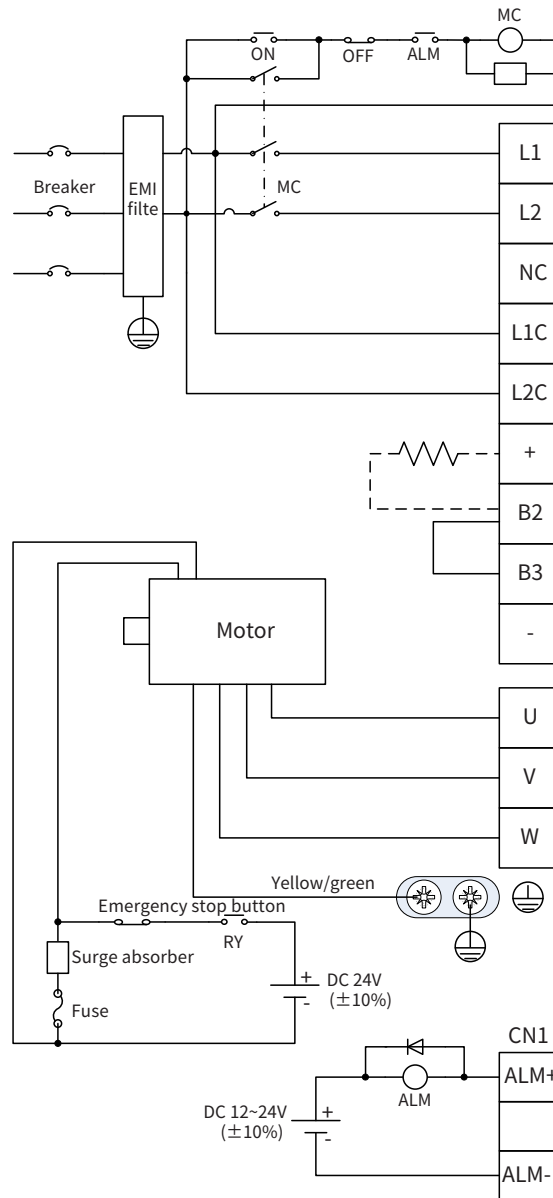


| Wiring mapping |            |      |                      |
|----------------|------------|------|----------------------|
| Signal         | X1         | X2   | Core cable structure |
| SD+            | X1.5       | X2.2 | Twisted pair         |
| SD-            | X1.6       | X2.3 |                      |
| 5V             | X1.1       | X2.4 | Twisted pair         |
| GND            | X1.2       | X2.5 |                      |
| BAT+           | /          | X2.6 | Twisted pair         |
| BAT-           | /          | X2.7 |                      |
| Shield         | Iron shell | X2.1 | Woven                |

# User interface

Note: Standard-type examples

## Main circuit wiring diagram for size A



- You need to make this emergency stop protection circuit;
- Add surge absorbing devices on both ends of the electromagnetic contactor winding.

- Input voltage range of 220V system: AC 220V( $\pm 15\%$ )
- For main circuit wiring, connect to L1 and L2.
- Note: Use the 3PH input power supply for 1.5kW and higher drives.

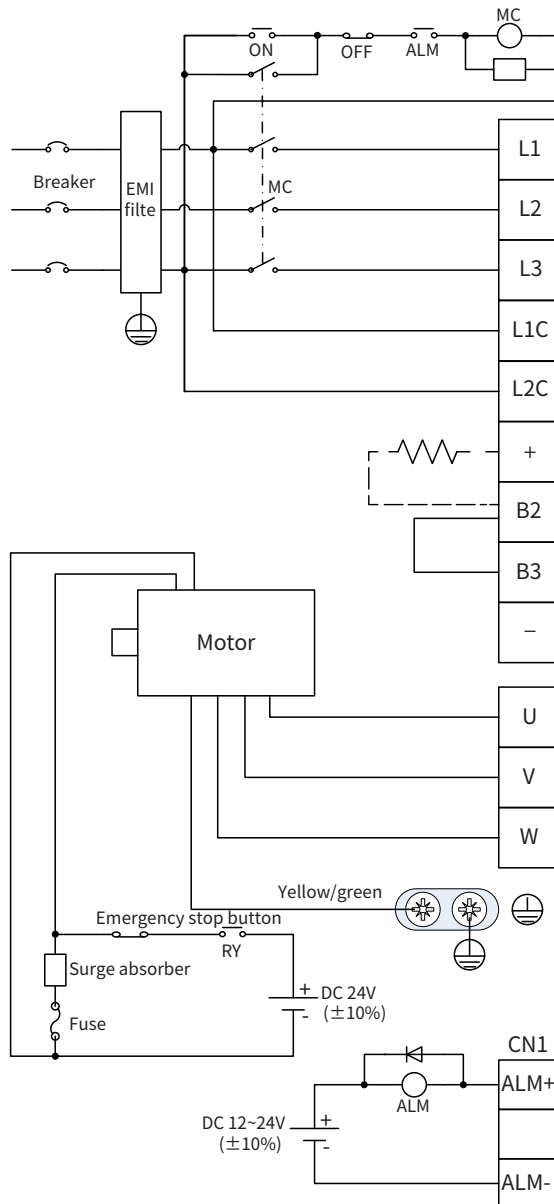
- Do not disconnect the short connection wire between B2 and B3 unless the external regenerative braking resistance is used.
- When using an external regenerative braking resistor, disconnect the short connection wire between B2 and B3, and connect according to the dashed line in the figure.
- Connect output U, V and W to the drive according to the motor cable phase sequence of servo motor, wrong phase sequence will cause drive fault.

- Be sure to ground the servo drive to avoid accident of electrical shock.

- The electromagnetic brake uses 24V DC power supply which should be provided by the user. Moreover, it must be isolated from the DC12-24V power supply which is used by the control signal.

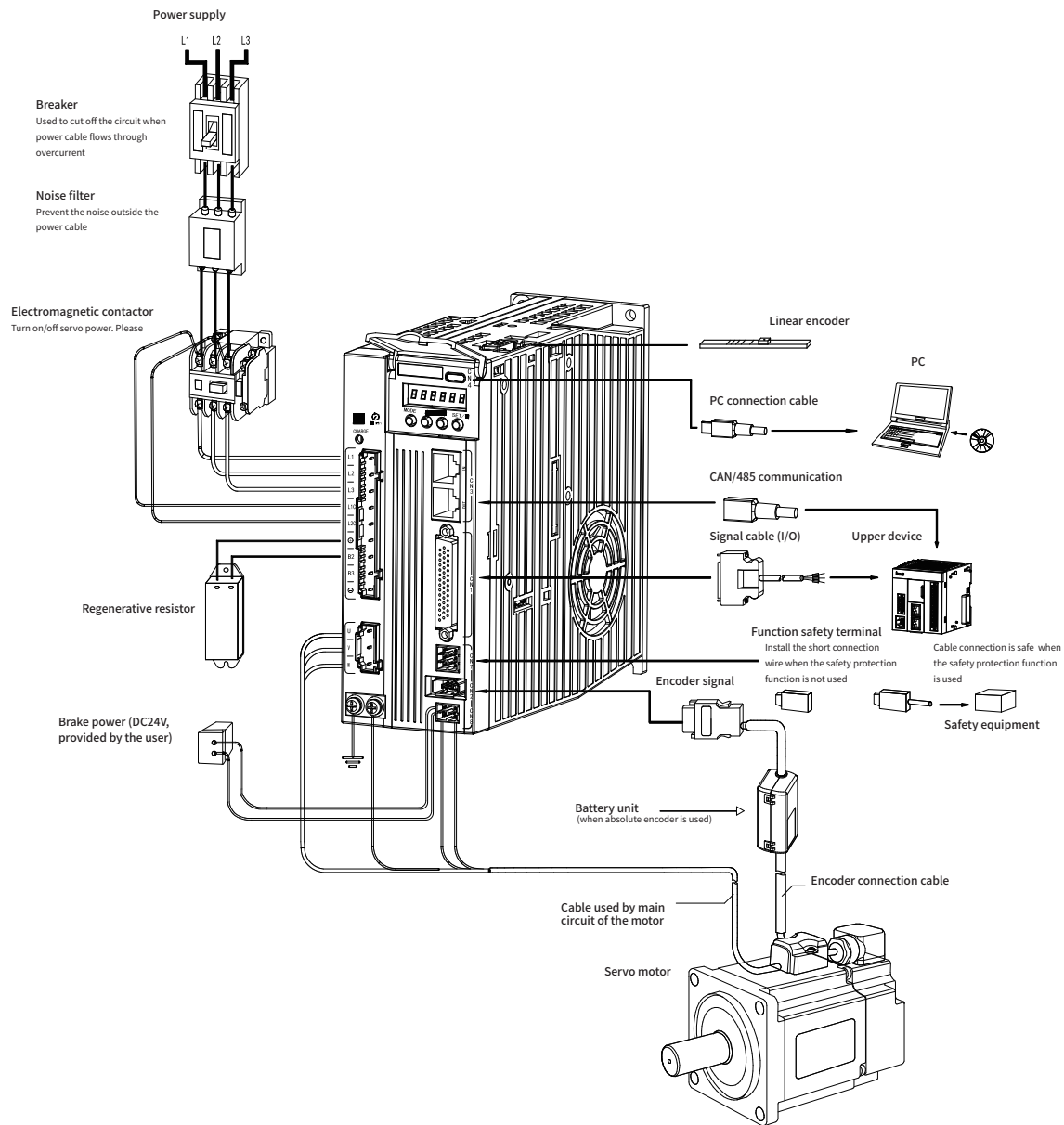
- Pay attention to the connection of the freewheeling diode. Reversed polarity may damage the drive.

## Main circuit wiring diagram for size B/C/D

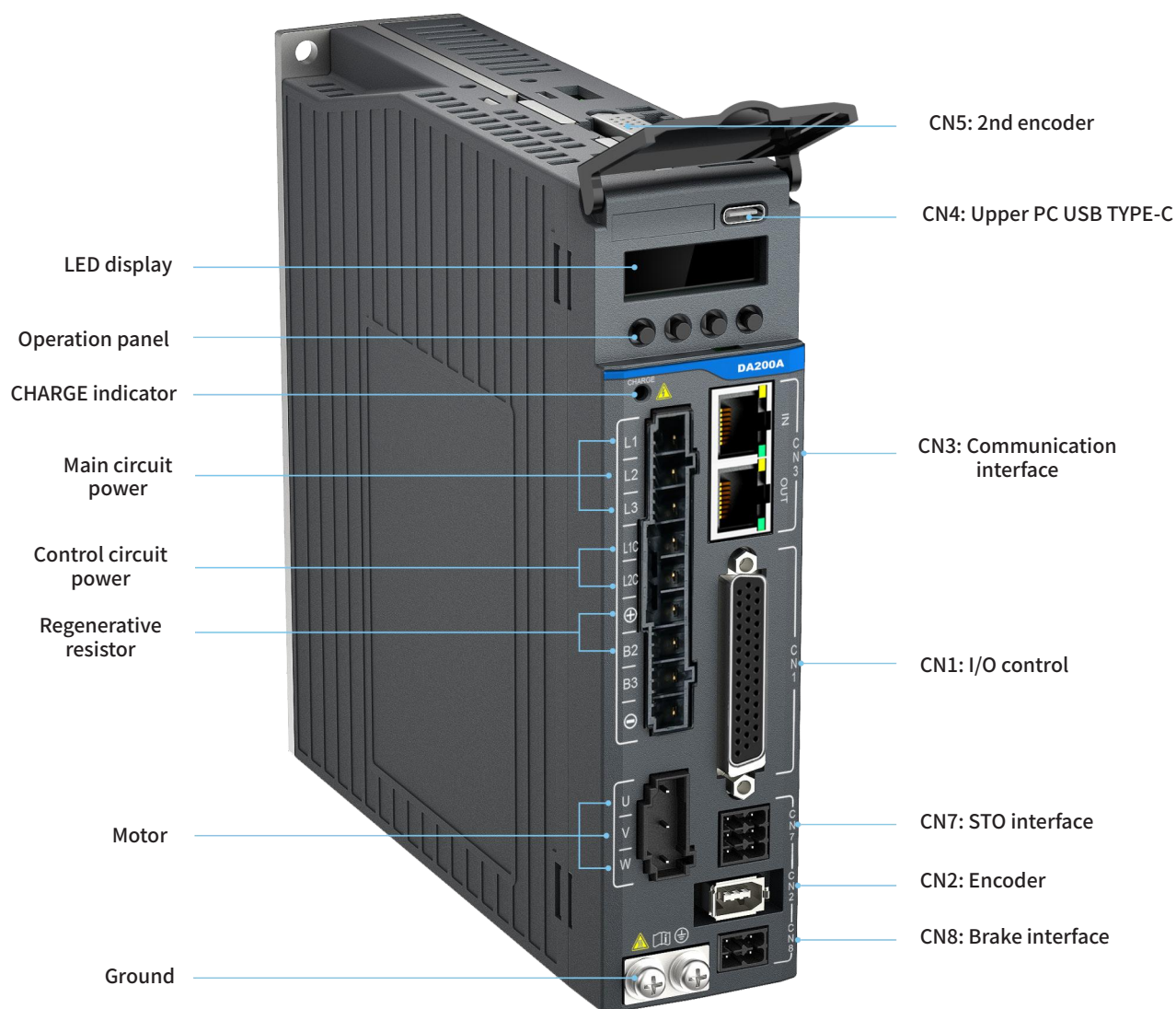


- You need to make this emergency stop protection circuit.
- Add surge absorbing devices on both ends of the electromagnetic contactor winding.
- System input voltage of 220V: AC 220V( $\pm 15\%$ )
- System input voltage of 400V: AC 380V( $\pm 15\%$ )
- Do not disconnect the short connection wire between B2 and B3 unless the external regenerative braking resistance is used.
- When using an external regenerative braking resistor, disconnect the short connection wire between B2 and B3, and connect according to the dashed line in the figure.
- Connect output U, V and W to the drive according to the motor cable phase sequence of servo motor, wrong phase sequence will cause drive fault.
- Be sure to ground the servo drive to avoid accident of electrical shock.
- The electromagnetic brake uses 24V DC power supply which should be provided by the user. Moreover, it must be isolated from the DC12-24V power supply which is used by the control signal.
- Pay attention to the connection of the freewheeling diode. Reversed polarity may damage the drive.

# System wiring



# Drive terminal diagram

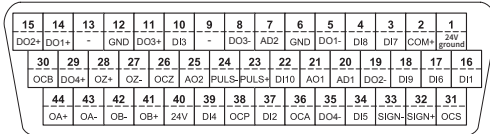


# User interface

Note: Standard-type examples

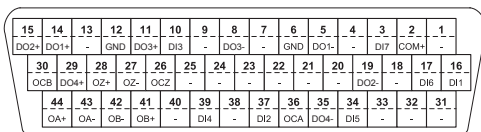
## CN1terminal

Applicable to standard type (pulse-type CANopen)



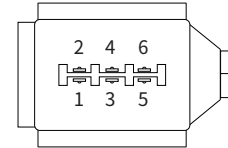
| CN1 terminal function |            |                                  |     |        |                                  |
|-----------------------|------------|----------------------------------|-----|--------|----------------------------------|
| Pin                   | Name       | Function                         | Pin | Symbol | Function                         |
| 1                     | 24V ground | Ground of 24V power supply       | 23  | PULS+  | Differential command pulse +     |
| 2                     | COM+       | Common terminal of digital input | 24  | PULS-  | Differential command pulse -     |
| 3                     | DI7        | Digital input 7                  | 25  | AO2    | 4 channels of analog output      |
| 4                     | DI8        | Digital input 8                  | 26  | OCZ    | Z-phase open collector output    |
| 5                     | DO1-       | Digital output 1 -               | 27  | OZ-    | Z-phase differential output -    |
| 6                     | GND        | Signal ground                    | 28  | OZ+    | Z-phase differential output +    |
| 7                     | AD2        | Analog input                     | 29  | DO4+   | Digital output 4 +               |
| 8                     | DO3-       | Digital output 3 -               | 30  | OCB    | B-phase open collector output    |
| 9                     | -          | -                                | 31  | OCS    | Open collector command direction |
| 10                    | DI3        | Digital input 3                  | 32  | SIGN+  | Differential command direction + |
| 11                    | DO3+       | Digital output 3 +               | 33  | SIGN-  | Differential command direction - |
| 12                    | GND        | Signal ground                    | 34  | DI5    | Digital input 5                  |
| 13                    | -          | -                                | 35  | DO4-   | Digital output 4 -               |
| 14                    | DO1+       | Digital output 1 +               | 36  | OCA    | A-phase open collector output    |
| 15                    | DO2+       | Digital output 2 +               | 37  | DI2    | Digital input 2                  |
| 16                    | DI1        | Digital input 1                  | 38  | OCP    | Open collector command pulse     |
| 17                    | DI6        | Digital input 6                  | 39  | DI4    | Digital input 4                  |
| 18                    | DI9        | Digital input 9                  | 40  | 24V    | Power supply 24V ground          |
| 19                    | DO2-       | Digital output 2 -               | 41  | OB+    | B-phase differential output +    |
| 20                    | AD1        | Analog input                     | 42  | OB-    | B-phase differential output -    |
| 21                    | AO1        | 4 channels of analog output      | 43  | OA-    | A-phase differential output -    |
| 22                    | DI10       | Digital input 10                 | 44  | OA+    | A-phase differential output +    |

Suitable for EtherCAT, PROFINET, CANopen bus drives (bus type)



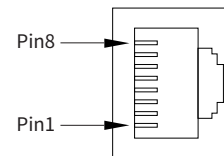
Note: For terminal definition, refer to pulse type

## CN2terminal



| CN2 terminal function |      |                          |                                         |
|-----------------------|------|--------------------------|-----------------------------------------|
| Pin                   | Name | Function                 | Remarks                                 |
| 1                     | 5V   | 5V power supply          | Different encoders use different cables |
| 2                     | GND  | Power ground             |                                         |
| 3                     | CLK+ | BISS Endat clock output+ |                                         |
| 4                     | CLK- | BISS Endat clock output- |                                         |
| 5                     | SD+  | Serial encoder data+     |                                         |
| 6                     | SD-  | Serial encoder data-     |                                         |

## CN3terminal

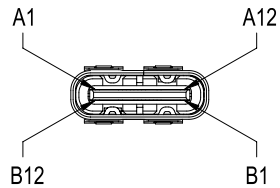


| CN3 terminal function |         |                   |                                                                                           |
|-----------------------|---------|-------------------|-------------------------------------------------------------------------------------------|
| Pin                   | Name    | Function          | Remarks                                                                                   |
| 1                     | CAN_H   | CAN data +        | 485 and CAN use the same interface and each signal has three pins for multiple networking |
| 2                     | CAN_L   | CAN data -        |                                                                                           |
| 3                     | CAN_GND | CAN signal ground |                                                                                           |
| 4                     | RS485+  | RS485 data +      |                                                                                           |
| 5                     | RS485-  | RS485 data -      |                                                                                           |
| 8                     | GND     | RS485 GND         |                                                                                           |
| 6\7                   | -       | -                 |                                                                                           |

| CN3 terminal function |      |                |                                                               |
|-----------------------|------|----------------|---------------------------------------------------------------|
| Pin                   | Name | Function       | Remarks                                                       |
| 1                     | Tx+  | Transmit data+ | The bus drive terminals are defined as standard network ports |
| 2                     | Tx-  | Transmit data- |                                                               |
| 3                     | Rx+  | Receive data+  |                                                               |
| 4                     | -    | -              |                                                               |
| 5                     | -    | -              |                                                               |
| 6                     | Rx-  | Receive data-  |                                                               |
| 7,8                   | -    | -              |                                                               |

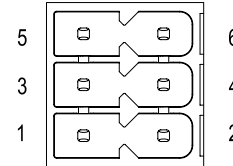


### CN4terminal



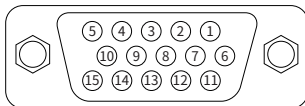
| CN4 terminal function  |      |               |                           |
|------------------------|------|---------------|---------------------------|
| Pin                    | Name | Function      | Remarks                   |
| A7, B7                 | USB- | Data-         | Standard type-c interface |
| A6, B6                 | USB+ | Data+         |                           |
| A1, A12, B1, B12       | GND  | Signal ground |                           |
| A4, B4, A5, B5, A9, B9 | -    | -             |                           |

### CN7: STO



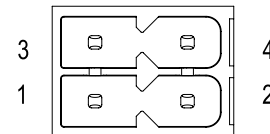
| CN7 terminal function |         |                            |                                                                                                                                                                                             |
|-----------------------|---------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pin                   | Name    | Function                   | Remarks                                                                                                                                                                                     |
| 1                     | 24V     | Power supply 24V           | DC24V is internally powered. When STO function is unused, it is necessary to short connect pin 1, pin 3 and pin 4. In other cases, 24V power supply cannot be used as external power supply |
| 2                     | 24V_GND | Power supply 24V ground    |                                                                                                                                                                                             |
| 3                     | HWBB1   | Safety input 1+            |                                                                                                                                                                                             |
| 4                     | HWBB2   | Safety input 2+            |                                                                                                                                                                                             |
| 5                     | EDM+    | Safety monitoring output + |                                                                                                                                                                                             |
| 6                     | EDM-    | Safety monitoring output-  |                                                                                                                                                                                             |

### CN5terminal



| CN5 terminal function |        |                                              |                                                                                       |
|-----------------------|--------|----------------------------------------------|---------------------------------------------------------------------------------------|
| Pin                   | Name   | Function                                     | Remarks                                                                               |
| 1                     | -      | -                                            | Connect to linear encoder or 2nd encoder, supporting incremental linear motor encoder |
| 2                     | -      | -                                            |                                                                                       |
| 3                     | ENC_A+ | Incremental encoder A+                       |                                                                                       |
| 4                     | ENC_A- | Incremental encoder A-                       |                                                                                       |
| 5                     | 5V     | Power supply +5V                             |                                                                                       |
| 6                     | -      | -                                            |                                                                                       |
| 7                     | v      | Single-ended hall V-phase signal             |                                                                                       |
| 8                     | W      | Single-ended hall W-phase signal             |                                                                                       |
| 9                     | ENC_B- | Incremental encoder B-                       |                                                                                       |
| 10                    | ENC_B+ | Incremental encoder B+                       |                                                                                       |
| 11                    | U      | Single-ended hall U-phase signal             |                                                                                       |
| 12                    | GND    | Power ground, be connected with internal GND |                                                                                       |
| 13                    | ENC_Z- | Incremental encoder Z-                       |                                                                                       |
| 14                    | ENC_Z+ | Incremental encoder Z+                       |                                                                                       |
| 15                    | PTC    | Motor temperature feedback input             |                                                                                       |

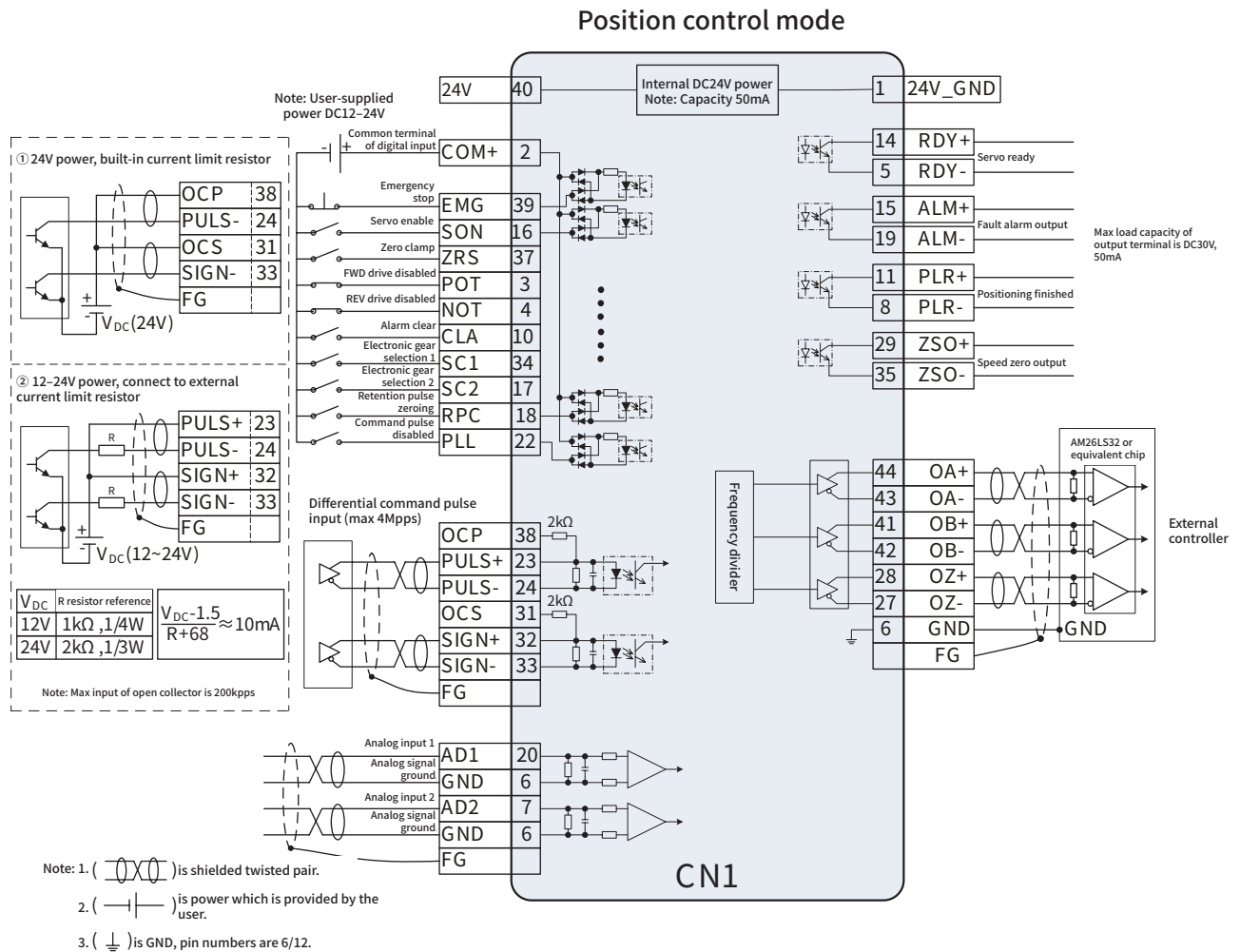
### CN8 motor brake



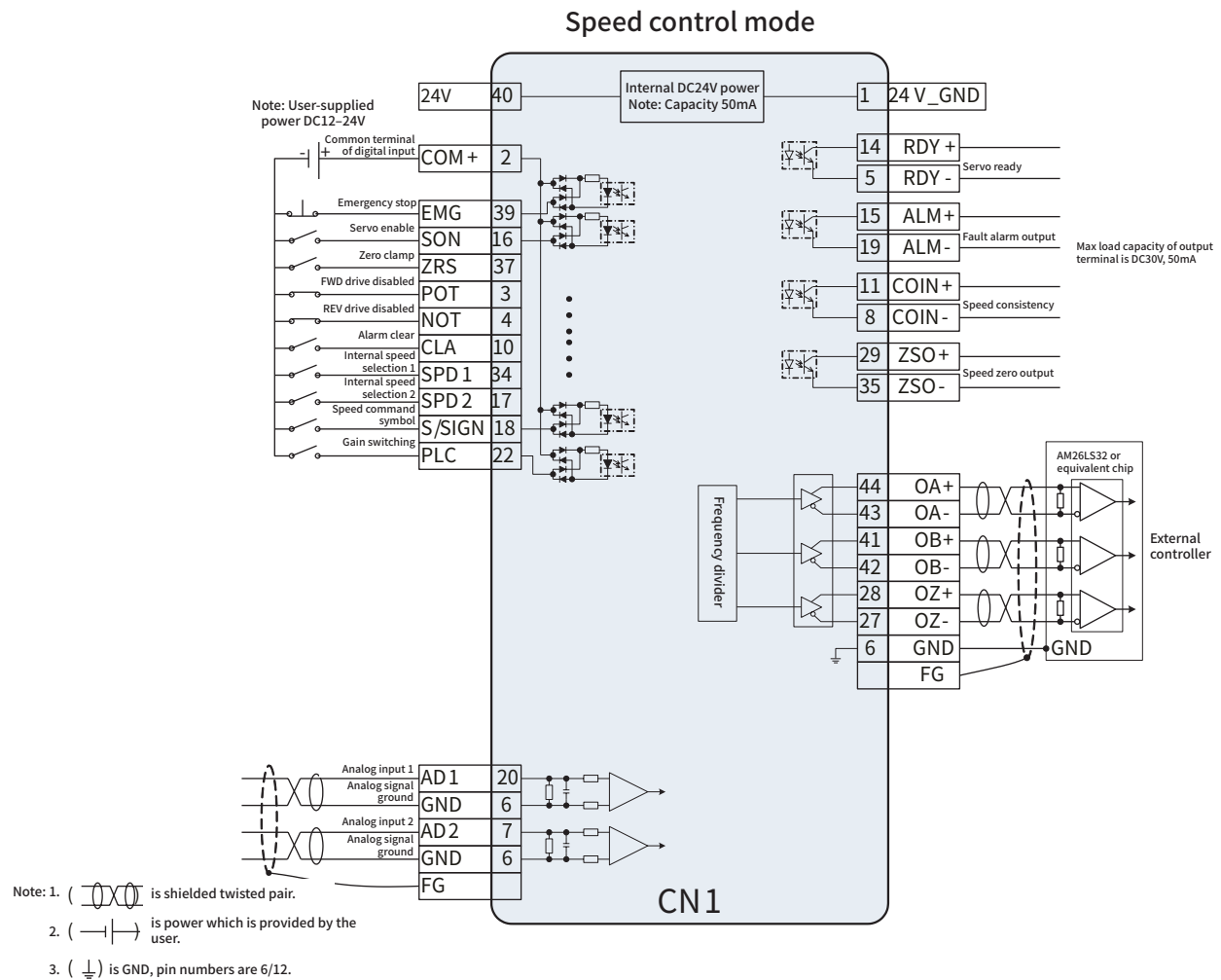
| CN8 terminal function |        |                                                      |         |
|-----------------------|--------|------------------------------------------------------|---------|
| Pin                   | Name   | Function                                             | Remarks |
| 1                     | 24V_BK | The brake connects to the external 24V power supply. | -       |
| 2                     | COM    | The brake connects to the external 24V ground.       |         |
| 3                     | BK+    | Brake BK+                                            |         |
| 4                     | BK-    | Brake BK-                                            |         |

# Standard wiring diagram

## Standard wiring diagram of position control mode (suitable for pulse input control)

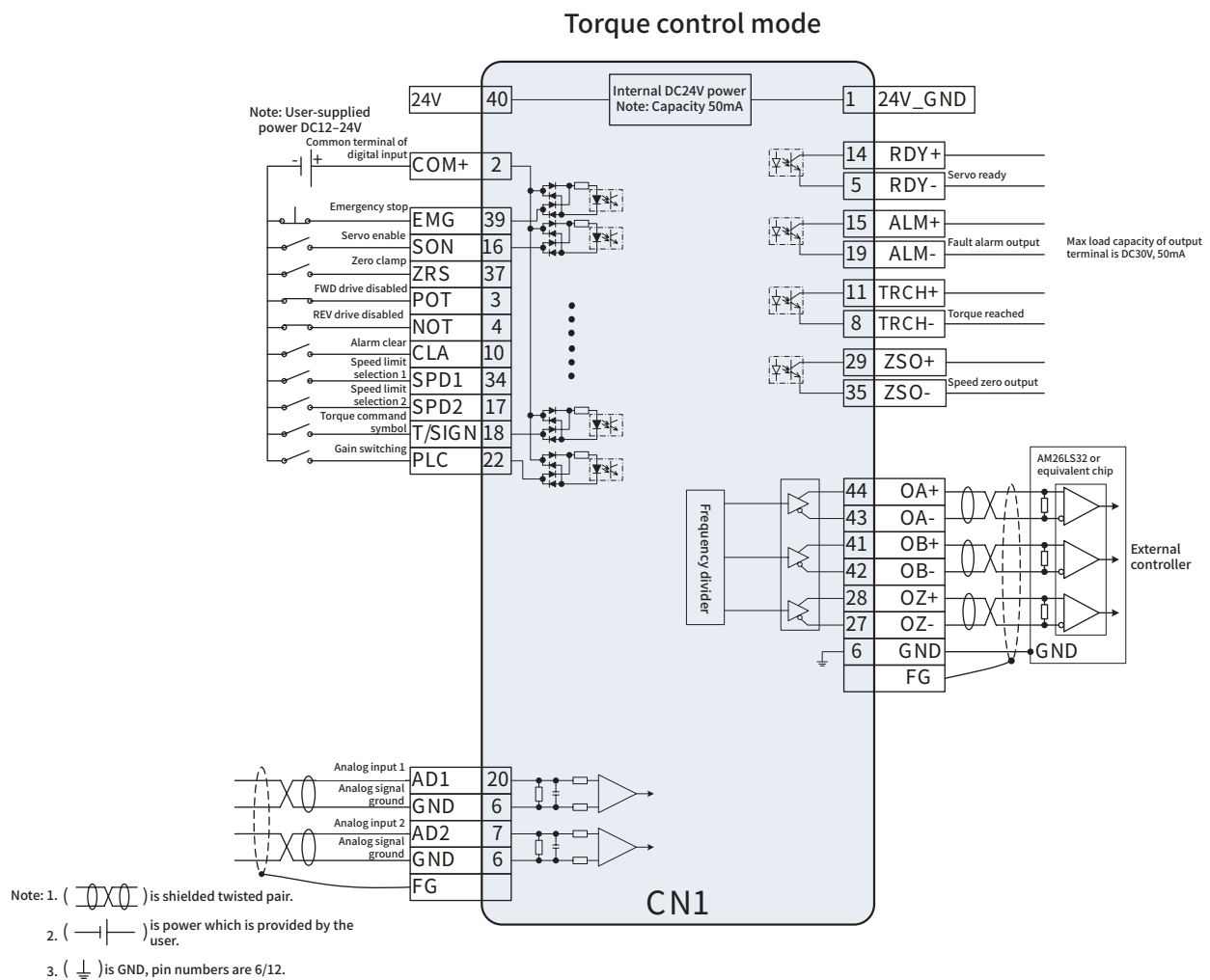


# Standard wiring diagram of speed mode (suitable for analog input control)

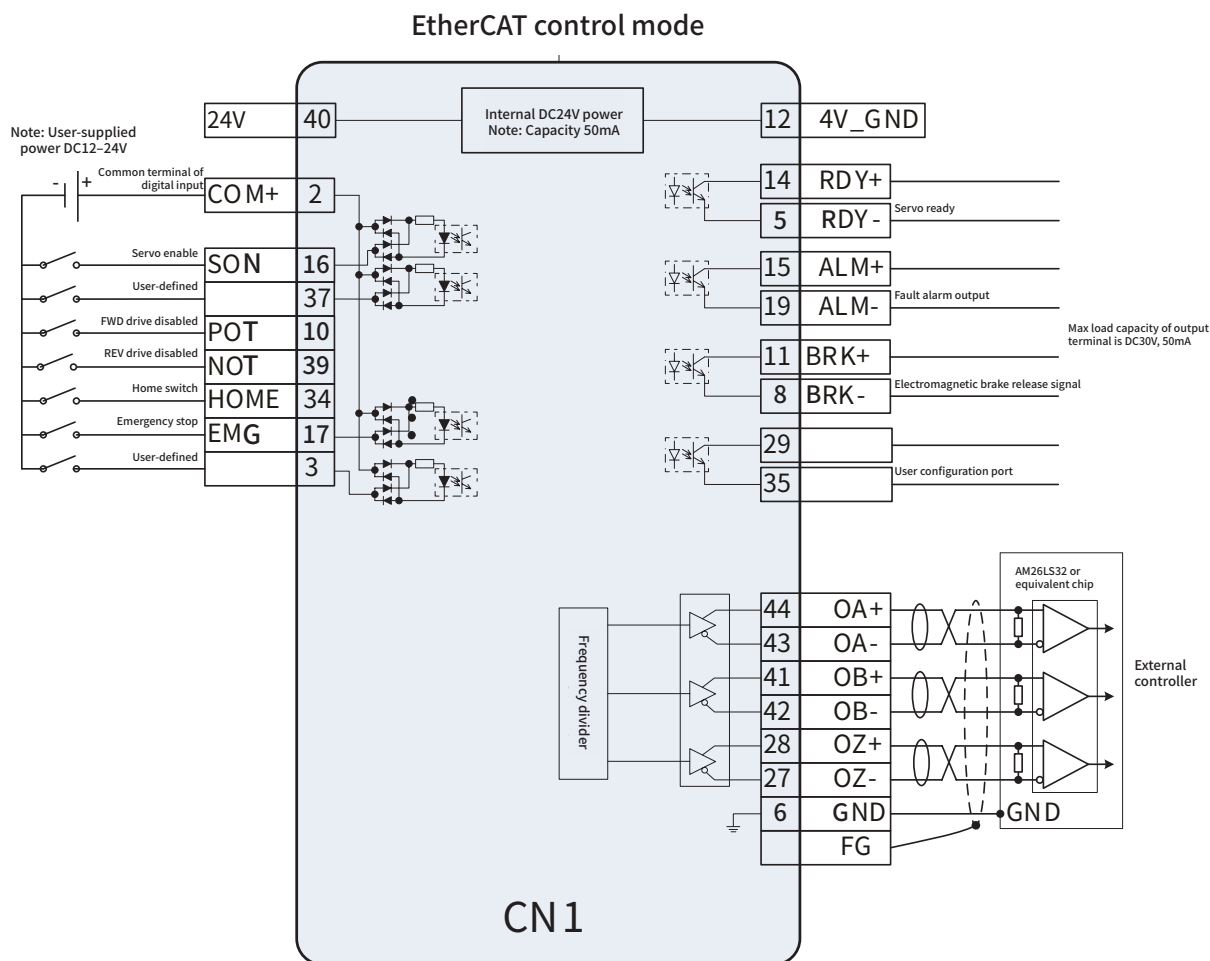


# Standard wiring diagram

## Standard wiring diagram of torque mode (suitable for analog input control)



## Standard wiring diagram of bus mode



- Note: 1. ( ) is shielded twisted pair.
2. ( ) is power which is provided by the user.
3. ( ) is GND, pin numbers are 6/12.

# Ordering guide

| No. | Base model No. (mm) | Voltage (V) | Power (kW) | Rated torque (Nm) | Max. torque (Nm) | Rated speed (rpm) | Max. speed (rpm) | Rated current (A) | Max. current (A) | Inertia (10 <sup>-4</sup> kg·m <sup>2</sup> ) | Weight (kg) | Machine length (mm) | Shaft extension/ Shaft diameter (mm) | Bond width (mm) | Material number | Motor model              | Encoder                            | Brake                 | Terminal type                | Adapted drive type | Drive encapsulation | Power cable type Length: 3, 5, 10, 15, 20, 25                                                                                                                                                     | Encoder cable type Length: 3, 5, 10, 15, 20, 25                                                                                                                                                           |
|-----|---------------------|-------------|------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|-----------------------------------------------|-------------|---------------------|--------------------------------------|-----------------|-----------------|--------------------------|------------------------------------|-----------------------|------------------------------|--------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | 40                  | 220         | 0.1        | 0.32              | 1.12             | 3000              | 6000             | 0.98              | 3.9              | 0.031                                         | 0.36        | 73.4                | 25/8                                 | 3               | 91015-00068     | IMS20B-04L10B30C-2-M4-J  | 17-bit multi-turn magnetic encoder | \                     | In-line                      | DA200A-*-2R8-S-2-* | A                   | Without brake<br>Common: DAML-050-xx-XF0-00<br>Flexible: DAML-050-xx-XFF-00<br>With brake<br>Common: DAML-050-xx-XF0-01<br>Flexible: DAML-050-xx-XFF-01<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DBEL-04-xx-XIO-04A0<br>Flexible: DBEL-04-xx-XIF-04A0<br>With battery<br>Common: DBEL-06-xx-XID-04A0<br>Flexible: DBEL-06-xx-XIH-04A0<br>xx represents the length, e.g. 03: 3 m |
| 2   |                     |             |            |                   |                  |                   |                  |                   |                  | 0.034                                         | 0.55        | 100.1               |                                      |                 | 91015-00069     | IMS20B-04L10B30C-2-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 3   |                     |             |            |                   |                  |                   |                  |                   |                  | 0.031                                         | 0.36        | 73.4                |                                      |                 | 91015-00070     | IMS20B-04L10B30C-2-P9-J  | 23-bit multi-turn optical encoder  | \                     | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 4   |                     |             |            |                   |                  |                   |                  |                   |                  | 0.034                                         | 0.55        | 100.1               |                                      |                 | 91015-00071     | IMS20B-04L10B30C-2-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 5   | 60                  | 220         | 0.2        | 0.64              | 2.23             | 3000              | 6000             | 1.3               | 4.4              | 0.34                                          | 0.8         | 70.5                | 30/14                                | 5               | 91015-00072     | IMS20B-06M20B30C-2-M4-J  | 17-bit multi-turn magnetic encoder | \                     | In-line                      | DA200A-*-2R8-S-2-* | A                   | Without brake<br>Common: DAML-050-xx-XF0-00<br>Flexible: DAML-050-xx-XFF-00<br>With brake<br>Common: DAML-050-xx-XF0-01<br>Flexible: DAML-050-xx-XFF-01<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DBEL-04-xx-XIO-04A0<br>Flexible: DBEL-04-xx-XIF-04A0<br>With battery<br>Common: DBEL-06-xx-XID-04A0<br>Flexible: DBEL-06-xx-XIH-04A0<br>xx represents the length, e.g. 03: 3 m |
| 6   |                     |             |            |                   |                  |                   |                  |                   |                  | 0.35                                          | 1.2         | 99.7                |                                      |                 | 91015-00073     | IMS20B-06M20B30C-2-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 7   |                     |             |            |                   |                  |                   |                  |                   |                  | 0.34                                          | 0.8         | 70.5                |                                      |                 | 91015-00074     | IMS20B-06M20B30C-2-P9-J  | 23-bit multi-turn optical encoder  | \                     | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 8   |                     |             |            |                   |                  |                   |                  |                   |                  | 0.35                                          | 1.2         | 99.7                |                                      |                 | 91015-00075     | IMS20B-06M20B30C-2-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 9   |                     | 220         | 0.4        | 1.27              | 4.45             | 3000              | 6000             | 2.6               | 8.6              | 0.59                                          | 1.2         | 88                  | 30/14                                | 5               | 91015-00076     | IMS20B-06M40B30C-2-M4-J  | 17-bit multi-turn magnetic encoder | \                     | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 10  |                     |             |            |                   |                  |                   |                  |                   |                  | 0.6                                           | 1.6         | 117.2               |                                      |                 | 91015-00077     | IMS20B-06M40B30C-2-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 11  |                     |             |            |                   |                  |                   |                  |                   |                  | 0.59                                          | 1.2         | 88                  |                                      |                 | 91015-00078     | IMS20B-06M40B30C-2-P9-J  | 23-bit multi-turn optical encoder  | \                     | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 12  |                     |             |            |                   |                  |                   |                  |                   |                  | 0.6                                           | 1.6         | 117.2               |                                      |                 | 91015-00079     | IMS20B-06M40B30C-2-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 13  | 80                  | 220         | 0.75       | 2.38              | 8.36             | 3000              | 6000             | 4.6               | 16.3             | 1.72                                          | 2.2         | 94.6                | 35/19                                | 6               | 91015-00080     | IMS20B-08M75B30C-2-M4-J  | 17-bit multi-turn magnetic encoder | \                     | In-line                      | DA200A-*-6R0-S-2-* | A                   | Without brake<br>Common: DAML-100-xx-GF0-00<br>Flexible: DAML-100-xx-GFF-00<br>With brake<br>Common: DAML-100-xx-HF0-01<br>Flexible: DAML-100-xx-HFF-01<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DBEL-04-xx-JIO-04A0<br>Flexible: DBEL-04-xx-JIF-04A0<br>With battery<br>Common: DBEL-06-xx-JID-04A0<br>Flexible: DBEL-06-xx-JIH-04A0<br>xx represents the length, e.g. 03: 3 m |
| 14  |                     |             |            |                   |                  |                   |                  |                   |                  | 1.77                                          | 2.9         | 107.9               |                                      |                 | 91015-00081     | IMS20B-08M75B30C-2-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 15  |                     |             |            |                   |                  |                   |                  |                   |                  | 1.72                                          | 2.2         | 94.6                |                                      |                 | 91015-00082     | IMS20B-08M75B30C-2-P9-J  | 23-bit multi-turn optical encoder  | \                     | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 16  |                     |             |            |                   |                  |                   |                  |                   |                  | 1.77                                          | 2.9         | 107.9               |                                      |                 | 91015-00083     | IMS20B-08M75B30C-2-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 17  |                     | 220         | 1          | 3.18              | 11.3             | 3000              | 6000             | 6.3               | 20.9             | 2.23                                          | 2.6         | 107.9               | 35/19                                | 6               | 91015-00084     | IMS20B-08M10C30C-2-M4-J  | 17-bit multi-turn magnetic encoder | \                     | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 18  |                     |             |            |                   |                  |                   |                  |                   |                  | 2.28                                          | 3.3         | 142.1               |                                      |                 | 91015-00085     | IMS20B-08M10C30C-2-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 19  |                     |             |            |                   |                  |                   |                  |                   |                  | 2.23                                          | 2.6         | 107.9               |                                      |                 | 91015-00086     | IMS20B-08M10C30C-2-P9-J  | 23-bit multi-turn optical encoder  | \                     | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 20  |                     |             |            |                   |                  |                   |                  |                   |                  | 2.28                                          | 3.3         | 142.1               |                                      |                 | 91015-00087     | IMS20B-08M10C30C-2-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | In-line                      |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 21  | 100                 | 220         | 1          | 3.18              | 9.55             | 3000              | 6000             | 6.6               | 19.8             | 1.84                                          | 3.3         | 127.4               | 45/24                                | 8               | 91015-00088     | IMS20B-10M10C30C-2-M4-J  | 17-bit multi-turn magnetic encoder | \                     | Military-grade aviation plug | DA200A-*-6R0-S-2-* | A                   | Without brake<br>Common: DAML-100-xx-GF0-00<br>Flexible: DAML-100-xx-GFF-00<br>With brake<br>Common: DAML-100-xx-HF0-01<br>Flexible: DAML-100-xx-HFF-01<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DBEL-04-xx-JIO-04A0<br>Flexible: DBEL-04-xx-JIF-04A0<br>With battery<br>Common: DBEL-06-xx-JID-04A0<br>Flexible: DBEL-06-xx-JIH-04A0<br>xx represents the length, e.g. 03: 3 m |
| 22  |                     |             |            |                   |                  |                   |                  |                   |                  | 2.59                                          | 4.1         | 156                 |                                      |                 | 91015-00089     | IMS20B-10M10C30C-2-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 23  |                     |             |            |                   |                  |                   |                  |                   |                  | 1.84                                          | 3.3         | 127.4               |                                      |                 | 91015-00090     | IMS20B-10M10C30C-2-P9-J  | 23-bit multi-turn optical encoder  | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 24  |                     |             |            |                   |                  |                   |                  |                   |                  | 2.59                                          | 4.1         | 156                 |                                      |                 | 91015-00091     | IMS20B-10M10C30C-2-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 25  |                     | 220         | 1.5        | 4.78              | 13.4             | 3000              | 6000             | 8.8               | 24.39            | 2.75                                          | 4.3         | 147.4               | 45/24                                | 8               | 91015-00096     | IMS20B-10M15C30C-2-M4-J  | 17-bit multi-turn magnetic encoder | \                     | Military-grade aviation plug | DA200A-*-8R0-S-2-* | B                   | Without brake<br>Common: DAML-250-xx-GF0-00<br>Flexible: DAML-250-xx-GFF-00<br>With brake<br>Common: DAML-250-xx-HF0-01<br>Flexible: DAML-250-xx-HFF-01<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DBEL-04-xx-JIO-04A0<br>Flexible: DBEL-04-xx-JIF-04A0<br>With battery<br>Common: DBEL-06-xx-JID-04A0<br>Flexible: DBEL-06-xx-JIH-04A0<br>xx represents the length, e.g. 03: 3 m |
| 26  |                     |             |            |                   |                  |                   |                  |                   |                  | 3.5                                           | 5.1         | 176                 |                                      |                 | 91015-00097     | IMS20B-10M15C30C-2-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 27  |                     |             |            |                   |                  |                   |                  |                   |                  | 2.75                                          | 4.3         | 147.4               |                                      |                 | 91015-00098     | IMS20B-10M15C30C-2-P9-J  | 23-bit multi-turn optical encoder  | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 28  |                     |             |            |                   |                  |                   |                  |                   |                  | 3.5                                           | 5.1         | 176                 |                                      |                 | 91015-00099     | IMS20B-10M15C30C-2-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 29  |                     | 220         | 2          | 6.37              | 19.1             | 3000              | 6000             | 10.71             | 31.01            | 3.65                                          | 5.3         | 167.4               | 45/24                                | 8               | 91015-00104     | IMS20B-10M20C30C-2-M4-J  | 17-bit multi-turn magnetic encoder | \                     | Military-grade aviation plug | DA200A-*-010-S-2-* | B                   | Without brake<br>Common: DAML-250-xx-GF0-00<br>Flexible: DAML-250-xx-GFF-00<br>With brake<br>Common: DAML-250-xx-HF0-01<br>Flexible: DAML-250-xx-HFF-01<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DBEL-04-xx-JIO-04A0<br>Flexible: DBEL-04-xx-JIF-04A0<br>With battery<br>Common: DBEL-06-xx-JID-04A0<br>Flexible: DBEL-06-xx-JIH-04A0<br>xx represents the length, e.g. 03: 3 m |
| 30  |                     |             |            |                   |                  |                   |                  |                   |                  | 4.4                                           | 6.1         | 196                 |                                      |                 | 91015-00105     | IMS20B-10M20C30C-2-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 31  |                     |             |            |                   |                  |                   |                  |                   |                  | 3.65                                          | 5.3         | 167.4               |                                      |                 | 91015-00106     | IMS20B-10M20C30C-2-P9-J  | 23-bit multi-turn optical encoder  | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 32  |                     |             |            |                   |                  |                   |                  |                   |                  | 4.4                                           | 6.1         | 196                 |                                      |                 | 91015-00107     | IMS20B-10M20C30C-2-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 33  |                     | 220         | 2.5        | 7.96              | 26.5             | 3000              | 6000             | 13.3              | 38.51            | 4.36                                          | 6.3         | 184.4               | 45/24                                | 8               | 91015-00112     | IMS20B-10M25C30C-2-M4-J  | 17-bit multi-turn magnetic encoder | \                     | Military-grade aviation plug | DA200A-*-013-S-2-* | C                   | Without brake<br>Common: DAML-250-xx-GF0-01<br>Flexible: DAML-250-xx-GFF-01<br>xx represents the length, e.g. 03: 3 m                                                                             | Without battery<br>Common: DBEL-04-xx-JIO-04A0<br>Flexible: DBEL-04-xx-JIF-04A0<br>With battery<br>Common: DBEL-06-xx-JID-04A0<br>Flexible: DBEL-06-xx-JIH-04A0<br>xx represents the length, e.g. 03: 3 m |
| 34  |                     |             |            |                   |                  |                   |                  |                   |                  | 5.11                                          | 7.1         | 213                 |                                      |                 | 91015-00113     | IMS20B-10M25C30C-2-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 35  |                     |             |            |                   |                  |                   |                  |                   |                  | 4.36                                          | 6.3         | 184.4               |                                      |                 | 91015-00114     | IMS20B-10M25C30C-2-P9-J  | 23-bit multi-turn optical encoder  | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 36  |                     |             |            |                   |                  |                   |                  |                   |                  | 5.11                                          | 7.1         | 213                 |                                      |                 | 91015-00115     | IMS20B-10M25C30C-2-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |

# Ordering guide

| No. | Base model No. (mm) | Voltage (V) | Power (kW) | Rated torque (Nm) | Max. torque (Nm) | Rated speed (rpm) | Max. speed (rpm) | Rated current (A) | Max. current (A) | Inertia (10 <sup>4</sup> kg·m <sup>2</sup> ) | Weight (kg) | Machine length (mm) | Shaft extension/ Shaft diameter (mm) | Bond width (mm) | Material number | Motor model              | Encoder                            | Brake                 | Terminal type                | Adapted drive type | Drive encapsulation | Power cable type Length: 3, 5, 10, 15, 20, 25                                                                                                                                                     | Encoder cable type Length: 3, 5, 10, 15 20, 25                                                                                                                                                            |
|-----|---------------------|-------------|------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|----------------------------------------------|-------------|---------------------|--------------------------------------|-----------------|-----------------|--------------------------|------------------------------------|-----------------------|------------------------------|--------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 37  | 100                 | 380         | 1          | 3.18              | 9.55             | 3000              | 6000             | 3.72              | 11.34            | 1.84                                         | 3.3         | 127.4               | 45/24                                | 8               | 91015-00092     | IMS20B-10M10C30C-4-M4-J  | 17-bit multi-turn magnetic encoder | \                     | Military-grade aviation plug | DA200A-*-5R5-T-2-* | B                   | Without brake<br>Common: DAML-100-xx-GF0-00<br>Flexible: DAML-100-xx-GFF-00<br>With brake<br>Common: DAML-100-xx-HF0-01<br>Flexible: DAML-100-xx-HFF-01<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DBEL-04-xx-JI0-04A0<br>Flexible: DBEL-04-xx-JIF-04A0<br>With battery<br>Common: DBEL-06-xx-JID-04A0<br>Flexible: DBEL-06-xx-JIH-04A0<br>xx represents the length, e.g. 03: 3 m |
| 38  |                     |             |            |                   |                  |                   |                  |                   |                  | 2.59                                         | 4.1         | 156                 |                                      |                 | 91015-00093     | IMS20B-10M10C30C-4-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 39  |                     |             |            |                   |                  |                   |                  |                   |                  | 1.84                                         | 3.3         | 127.4               |                                      |                 | 91015-00094     | IMS20B-10M10C30C-4-P9-J  | 23-bit multi-turn optical encoder  | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 40  |                     |             |            |                   |                  |                   |                  |                   |                  | 2.59                                         | 4.1         | 156                 |                                      |                 | 91015-00095     | IMS20B-10M10C30C-4-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 41  |                     | 380         | 1.5        | 4.78              | 13.4             | 3000              | 6000             | 5.1               | 14.85            | 2.75                                         | 4.3         | 147.4               | 45/24                                | 8               | 91015-00100     | IMS20B-10M15C30C-4-M4-J  | 17-bit multi-turn magnetic encoder | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 42  |                     |             |            |                   |                  |                   |                  |                   |                  | 3.5                                          | 5.1         | 176                 |                                      |                 | 91015-00101     | IMS20B-10M15C30C-4-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 43  |                     |             |            |                   |                  |                   |                  |                   |                  | 2.75                                         | 4.3         | 147.4               |                                      |                 | 91015-00102     | IMS20B-10M15C30C-4-P9-J  | 23-bit multi-turn optical encoder  | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 44  |                     |             |            |                   |                  |                   |                  |                   |                  | 3.5                                          | 5.1         | 176                 |                                      |                 | 91015-00103     | IMS20B-10M15C30C-4-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 45  |                     | 380         | 2          | 6.37              | 19.1             | 3000              | 6000             | 6.95              | 22.2             | 3.65                                         | 5.3         | 167.4               | 45/24                                | 8               | 91015-00108     | IMS20B-10M20C30C-4-M4-J  | 17-bit multi-turn magnetic encoder | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 46  |                     |             |            |                   |                  |                   |                  |                   |                  | 4.4                                          | 6.1         | 196                 |                                      |                 | 91015-00109     | IMS20B-10M20C30C-4-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 47  |                     |             |            |                   |                  |                   |                  |                   |                  | 3.65                                         | 5.3         | 167.4               |                                      |                 | 91015-00110     | IMS20B-10M20C30C-4-P9-J  | 23-bit multi-turn optical encoder  | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 48  |                     |             |            |                   |                  |                   |                  |                   |                  | 4.4                                          | 6.1         | 196                 |                                      |                 | 91015-00111     | IMS20B-10M20C30C-4-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 49  |                     | 380         | 2.5        | 7.96              | 26.5             | 3000              | 6000             | 8.17              | 27.8             | 4.36                                         | 6.3         | 184.4               | 45/24                                | 8               | 91015-00116     | IMS20B-10M25C30C-4-M4-J  | 17-bit multi-turn magnetic encoder | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 50  |                     |             |            |                   |                  |                   |                  |                   |                  | 5.11                                         | 7.1         | 213                 |                                      |                 | 91015-00117     | IMS20B-10M25C30C-4-M44-J | 17-bit multi-turn magnetic encoder | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 51  |                     |             |            |                   |                  |                   |                  |                   |                  | 4.36                                         | 6.3         | 184.4               |                                      |                 | 91015-00118     | IMS20B-10M25C30C-4-P9-J  | 23-bit multi-turn optical encoder  | \                     | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 52  |                     |             |            |                   |                  |                   |                  |                   |                  | 5.11                                         | 7.1         | 213                 |                                      |                 | 91015-00119     | IMS20B-10M25C30C-4-P94-J | 23-bit multi-turn optical encoder  | Electromagnetic brake | Military-grade aviation plug |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 53  | 130                 | 220         | 0.85       | 5.4               | 13.5             | 1500              | 4500             | 6.2               | 15.7             | 13.1                                         | 5.7         | 138                 | 55/22                                | 8               | 11101-01256     | IMS20B-13H85B15C-2-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28                         | DA200A-*-6R0-S-2-* | A                   | Common: DBAFM0-L0-0100-**-BF0-00<br>Flexible: DAML-100-**-BFF-00<br>xx represents the length, e.g. 03: 3 m                                                                                        | Without battery<br>Common: DBEL-04-**-BI0-04A0<br>Flexible: DBEL-04-**-BIF-04A0<br>With battery<br>Common: DBEL-06-**-BID-04A0<br>Flexible: DBEL-06-**-BIH-04A0<br>xx represents the length, e.g. 03: 3 m |
| 54  |                     |             |            |                   |                  |                   |                  |                   |                  | 14.3                                         | 7.3         | 167                 |                                      |                 | 11101-01255     | IMS20B-13H85B15C-2-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 55  |                     |             |            |                   |                  |                   |                  |                   |                  | 13.1                                         | 5.7         | 138                 |                                      |                 | 11101-01257     | IMS20B-13H85B15C-2-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 56  |                     |             |            |                   |                  |                   |                  |                   |                  | 14.3                                         | 7.3         | 167                 |                                      |                 | 11101-01259     | IMS20B-13H85B15C-2-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 57  |                     | 220         | 1          | 4.78              | 14.34            | 2000              | 4500             | 5.4               | 17.7             | 6.3                                          | 4.4         | 130                 | 55/22                                | 8               | 11101-01258     | IMS20B-13M10C20C-2-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 58  |                     |             |            |                   |                  |                   |                  |                   |                  | 7.95                                         | 6           | 159                 |                                      |                 | 11101-01253     | IMS20B-13M10C20C-2-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 59  |                     |             |            |                   |                  |                   |                  |                   |                  | 6.3                                          | 4.4         | 130                 |                                      |                 | 11101-01243     | IMS20B-13M10C20C-2-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 60  |                     |             |            |                   |                  |                   |                  |                   |                  | 7.95                                         | 6           | 159                 |                                      |                 | 11101-01251     | IMS20B-13M10C20C-2-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 61  |                     | 220         | 1.5        | 7.16              | 21.48            | 2000              | 4500             | 7.6               | 23.3             | 9.1                                          | 5.6         | 143                 | 55/22                                | 8               | 11101-01213     | IMS20B-13M15C20C-2-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28                         | DA200A-*-8R0-S-2-* | B                   |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 62  |                     |             |            |                   |                  |                   |                  |                   |                  | 10.8                                         | 7.2         | 172                 |                                      |                 | 11101-01209     | IMS20B-13M15C20C-2-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 63  |                     |             |            |                   |                  |                   |                  |                   |                  | 9.1                                          | 5.6         | 143                 |                                      |                 | 11101-01203     | IMS20B-13M15C20C-2-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 64  |                     |             |            |                   |                  |                   |                  |                   |                  | 10.8                                         | 7.2         | 172                 |                                      |                 | 11101-01205     | IMS20B-13M15C20C-2-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 65  |                     | 220         | 1.3        | 8.4               | 21               | 1500              | 4500             | 9.9               | 25               | 17.9                                         | 7.2         | 155                 | 55/22                                | 8               | 11101-01221     | IMS20B-13H13C15C-2-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28                         | DA200A-*-010-S-2-* | B                   | Common: DBML-250-**-BF0-00<br>Flexible: DBML-250-**-BFF-00<br>xx represents the length, e.g. 03: 3 m                                                                                              |                                                                                                                                                                                                           |
| 66  |                     |             |            |                   |                  |                   |                  |                   |                  | 19.1                                         | 8.8         | 184                 |                                      |                 | 11101-01220     | IMS20B-13H13C15C-2-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 67  |                     |             |            |                   |                  |                   |                  |                   |                  | 17.9                                         | 7.2         | 155                 |                                      |                 | 11101-01215     | IMS20B-13H13C15C-2-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 68  |                     |             |            |                   |                  |                   |                  |                   |                  | 19.1                                         | 8.8         | 184                 |                                      |                 | 11101-01216     | IMS20B-13H13C15C-2-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 69  |                     | 220         | 2          | 9.55              | 28.65            | 2000              | 4500             | 9                 | 29.2             | 12.9                                         | 6.9         | 160                 | 55/22                                | 8               | 11101-01202     | IMS20B-13M20C20C-2-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 70  |                     |             |            |                   |                  |                   |                  |                   |                  | 14.6                                         | 8.5         | 189                 |                                      |                 | 11101-01207     | IMS20B-13M20C20C-2-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 71  |                     |             |            |                   |                  |                   |                  |                   |                  | 12.9                                         | 6.9         | 160                 |                                      |                 | 11101-01198     | IMS20B-13M20C20C-2-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |
| 72  |                     |             |            |                   |                  |                   |                  |                   |                  | 14.6                                         | 8.5         | 189                 |                                      |                 | 11101-01201     | IMS20B-13M20C20C-2-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28                         |                    |                     |                                                                                                                                                                                                   |                                                                                                                                                                                                           |



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| No. | Base model No. (mm) | Voltage (V) | Power (kW) | Rated torque (Nm) | Max. torque (Nm) | Rated speed (rpm) | Max. speed (rpm) | Rated current (A) | Max. current (A) | Inertia (10 <sup>-3</sup> kg·m <sup>2</sup> ) | Weight (kg) | Machine length (mm) | Shaft extension/ Shaft diameter (mm) | Bond width (mm) | Material number | Motor model              | Encoder                            | Brake                 | Terminal type | Adapted drive type | Drive encapsulation | Power cable type Length: 3, 5, 10, 15, 20, 25                                                        | Encoder cable type Length: 3, 5, 10, 15, 20, 25 |
|-----|---------------------|-------------|------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|-----------------------------------------------|-------------|---------------------|--------------------------------------|-----------------|-----------------|--------------------------|------------------------------------|-----------------------|---------------|--------------------|---------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| 73  | 130                 | 220         | 1.8        | 11.5              | 28.8             | 1500              | 4500             | 12.8              | 32.7             | 24.3                                          | 9           | 185                 | 55/22                                | 8               | 11101-01305     | IMS20B-13H18C15C-2-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28          | DA200A-*-5R5-T-2-* | C                   | Common: DBML-250-**-BF0-00<br>Flexible: DBML-250-**-BFF-00<br>xx represents the length, e.g. 03: 3 m |                                                 |
| 74  |                     |             |            |                   |                  |                   |                  |                   |                  | 25.6                                          | 10.6        | 215                 |                                      |                 | 11101-01297     | IMS20B-13H18C15C-2-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 75  |                     |             |            |                   |                  |                   |                  |                   |                  | 24.3                                          | 9           | 185                 |                                      |                 | 11101-01291     | IMS20B-13H18C15C-2-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 76  |                     |             |            |                   |                  |                   |                  |                   |                  | 25.6                                          | 10.6        | 215                 |                                      |                 | 11101-01293     | IMS20B-13H18C15C-2-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 77  |                     | 220         | 3          | 14.3              | 42.9             | 2000              | 3000             | 13                | 39.4             | 21.7                                          | 10.3        | 210.5               | 55/22                                | 8               | 11101-01306     | IMS20B-13M30C20C-2-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 78  |                     |             |            |                   |                  |                   |                  |                   |                  | 23.4                                          | 11.9        | 240.2               |                                      |                 | 11101-01301     | IMS20B-13M30C20C-2-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 79  |                     |             |            |                   |                  |                   |                  |                   |                  | 21.7                                          | 10.3        | 210.5               |                                      |                 | 11101-01294     | IMS20B-13M30C20C-2-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 80  |                     |             |            |                   |                  |                   |                  |                   |                  | 23.4                                          | 11.9        | 240.2               |                                      |                 | 11101-01303     | IMS20B-13M30C20C-2-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 81  |                     | 380         | 0.85       | 5.4               | 13.5             | 1500              | 4500             | 3.3               | 8.7              | 13.1                                          | 5.7         | 138                 | 55/22                                | 8               | 11101-01254     | IMS20B-13H85B15C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28          | DA200A-*-5R5-T-2-* | B                   | Common: DBML-100-**-BF0-00<br>Flexible: DBML-100-**-BFF-00<br>xx represents the length, e.g. 03: 3 m |                                                 |
| 82  |                     |             |            |                   |                  |                   |                  |                   |                  | 14.3                                          | 7.3         | 167                 |                                      |                 | 11101-01244     | IMS20B-13H85B15C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 83  |                     |             |            |                   |                  |                   |                  |                   |                  | 13.1                                          | 5.7         | 138                 |                                      |                 | 11101-01252     | IMS20B-13H85B15C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 84  |                     |             |            |                   |                  |                   |                  |                   |                  | 14.3                                          | 7.3         | 167                 |                                      |                 | 11101-01247     | IMS20B-13H85B15C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 85  |                     | 380         | 1          | 4.78              | 14.34            | 2000              | 4500             | 3                 | 9                | 6.3                                           | 4.4         | 130                 | 55/22                                | 8               | 11101-01250     | IMS20B-13M10C20C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 86  |                     |             |            |                   |                  |                   |                  |                   |                  | 7.95                                          | 6           | 159                 |                                      |                 | 11101-01248     | IMS20B-13M10C20C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 87  |                     |             |            |                   |                  |                   |                  |                   |                  | 6.3                                           | 4.4         | 130                 |                                      |                 | 11101-01246     | IMS20B-13M10C20C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 88  |                     |             |            |                   |                  |                   |                  |                   |                  | 7.95                                          | 6           | 159                 |                                      |                 | 11101-01245     | IMS20B-13M10C20C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 89  |                     | 380         | 1.3        | 8.4               | 21               | 1500              | 4500             | 5.2               | 13.2             | 17.9                                          | 7.2         | 155                 | 55/22                                | 8               | 11101-01217     | IMS20B-13H13C15C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 90  |                     |             |            |                   |                  |                   |                  |                   |                  | 19.1                                          | 8.8         | 184                 |                                      |                 | 11101-01214     | IMS20B-13H13C15C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 91  |                     |             |            |                   |                  |                   |                  |                   |                  | 17.9                                          | 7.2         | 155                 |                                      |                 | 11101-01212     | IMS20B-13H13C15C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 92  |                     |             |            |                   |                  |                   |                  |                   |                  | 19.1                                          | 8.8         | 184                 |                                      |                 | 11101-01218     | IMS20B-13H13C15C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 93  |                     | 380         | 1.5        | 7.16              | 21.48            | 2000              | 4500             | 4.8               | 14.1             | 9.1                                           | 5.6         | 143                 | 55/22                                | 8               | 11101-01211     | IMS20B-13M15C20C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 94  |                     |             |            |                   |                  |                   |                  |                   |                  | 10.8                                          | 7.2         | 172                 |                                      |                 | 11101-01210     | IMS20B-13M15C20C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 95  |                     |             |            |                   |                  |                   |                  |                   |                  | 9.1                                           | 5.6         | 143                 |                                      |                 | 11101-01199     | IMS20B-13M15C20C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 96  |                     |             |            |                   |                  |                   |                  |                   |                  | 10.8                                          | 7.2         | 172                 |                                      |                 | 11101-01206     | IMS20B-13M15C20C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 97  |                     | 380         | 2          | 9.55              | 28.65            | 2000              | 4500             | 5.6               | 16.6             | 12.9                                          | 6.9         | 160                 | 55/22                                | 8               | 11101-01200     | IMS20B-13M20C20C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 98  |                     |             |            |                   |                  |                   |                  |                   |                  | 14.6                                          | 8.5         | 189                 |                                      |                 | 11101-01222     | IMS20B-13M20C20C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 99  |                     |             |            |                   |                  |                   |                  |                   |                  | 12.9                                          | 6.9         | 160                 |                                      |                 | 11101-01223     | IMS20B-13M20C20C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 100 |                     |             |            |                   |                  |                   |                  |                   |                  | 14.6                                          | 8.5         | 189                 |                                      |                 | 11101-01224     | IMS20B-13M20C20C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 101 |                     | 380         | 1.8        | 11.5              | 28.8             | 1500              | 4500             | 7.7               | 18.7             | 24.3                                          | 9           | 185                 | 55/22                                | 8               | 11101-01295     | IMS20B-13H18C15C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28          | DA200A-*-8R5-T-2-* | C                   |                                                                                                      |                                                 |
| 102 |                     |             |            |                   |                  |                   |                  |                   |                  | 25.6                                          | 10.6        | 215                 |                                      |                 | 11101-01304     | IMS20B-13H18C15C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 103 |                     |             |            |                   |                  |                   |                  |                   |                  | 24.3                                          | 9           | 185                 |                                      |                 | 11101-01302     | IMS20B-13H18C15C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 104 |                     |             |            |                   |                  |                   |                  |                   |                  | 25.6                                          | 10.6        | 215                 |                                      |                 | 11101-01299     | IMS20B-13H18C15C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 105 |                     | 380         | 3          | 14.3              | 42.9             | 2000              | 3000             | 7.7               | 22.1             | 21.7                                          | 10.3        | 210.5               | 55/22                                | 8               | 11101-01296     | IMS20B-13M30C20C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 106 |                     |             |            |                   |                  |                   |                  |                   |                  | 23.4                                          | 11.9        | 240.2               |                                      |                 | 11101-01300     | IMS20B-13M30C20C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |
| 107 |                     |             |            |                   |                  |                   |                  |                   |                  | 21.7                                          | 10.3        | 210.5               |                                      |                 | 11101-01298     | IMS20B-13M30C20C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD28          |                    |                     |                                                                                                      |                                                 |
| 108 |                     |             |            |                   |                  |                   |                  |                   |                  | 23.4                                          | 11.9        | 240.2               |                                      |                 | 11101-01292     | IMS20B-13M30C20C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD28          |                    |                     |                                                                                                      |                                                 |

# Ordering guide

| No. | Base model No. (mm) | Voltage (V) | Power (kW) | Rated torque (Nm) | Max. torque (Nm) | Rated speed (rpm) | Max. speed (rpm) | Rated current (A) | Max. current (A) | Inertia (10 <sup>-4</sup> kg·m²) | Weight (kg) | Machine length (mm) | Shaft extension/ Shaft diameter (mm) | Bond width (mm) | Material number | Motor model              | Encoder                            | Brake                 | Terminal type | Adapted drive type | Drive encapsulation | Power cable type Length: 3, 5, 10, 15, 20, 25                                                        | Encoder cable type Length: 3, 5, 10, 15, 20, 25                                                                                                                                                           |
|-----|---------------------|-------------|------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|----------------------------------|-------------|---------------------|--------------------------------------|-----------------|-----------------|--------------------------|------------------------------------|-----------------------|---------------|--------------------|---------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 109 | 180                 | 380         | 3          | 19.1              | 47.8             | 1500              | 4500             | 9.7               | 22               | 48.6                             | 19.2        | 223                 | 79/35                                | 10              | 11101-01230     | IMS20B-18M30C15C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD32          | DA200A-*-012-T-2-* | D                   | Common: DBML-250-**-NW0-00<br>Flexible: DBML-250-**-NWF-00<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DBEL-04-**-BIO-04A0<br>Flexible: DBEL-04-**-BIF-04A0<br>With battery<br>Common: DBEL-06-**-BID-04A0<br>Flexible: DBEL-06-**-BIH-04A0<br>xx represents the length, e.g. 03: 3 m |
| 110 |                     |             |            |                   |                  |                   |                  |                   |                  | 49.3                             | 21.2        | 263                 |                                      |                 | 11101-01241     | IMS20B-18M30C15C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 111 |                     |             |            |                   |                  |                   |                  |                   |                  | 48.6                             | 19.2        | 223                 |                                      |                 | 11101-01231     | IMS20B-18M30C15C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 112 |                     |             |            |                   |                  |                   |                  |                   |                  | 49.3                             | 21.2        | 263                 |                                      |                 | 11101-01227     | IMS20B-18M30C15C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 113 |                     | 380         | 4.4        | 28                | 70               | 1500              | 4500             | 13.5              | 29.8             | 65.2                             | 23.2        | 248                 | 79/35                                | 10              | 11101-01228     | IMS20B-18M44C15C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD32          | DA200A-*-016-T-2-* |                     |                                                                                                      |                                                                                                                                                                                                           |
| 114 |                     |             |            |                   |                  |                   |                  |                   |                  | 65.9                             | 25.2        | 288                 |                                      |                 | 11101-01232     | IMS20B-18M44C15C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 115 |                     |             |            |                   |                  |                   |                  |                   |                  | 65.2                             | 23.2        | 248                 |                                      |                 | 11101-01234     | IMS20B-18M44C15C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 116 |                     |             |            |                   |                  |                   |                  |                   |                  | 65.9                             | 25.2        | 288                 |                                      |                 | 11101-01229     | IMS20B-18M44C15C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 117 |                     | 380         | 5.5        | 35                | 88.8             | 1500              | 4500             | 16.8              | 37.7             | 84                               | 27.7        | 273                 | 113/42                               | 12              | 11101-01242     | IMS20B-18M55C15C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD32          | DA200A-*-016-T-2-* |                     |                                                                                                      |                                                                                                                                                                                                           |
| 118 |                     |             |            |                   |                  |                   |                  |                   |                  | 84.7                             | 29.7        | 313                 |                                      |                 | 11101-01233     | IMS20B-18M55C15C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 119 |                     |             |            |                   |                  |                   |                  |                   |                  | 84                               | 27.7        | 273                 |                                      |                 | 11101-01235     | IMS20B-18M55C15C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 120 |                     |             |            |                   |                  |                   |                  |                   |                  | 84.7                             | 29.7        | 313                 |                                      |                 | 11101-01237     | IMS20B-18M55C15C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 121 |                     | 380         | 7.5        | 47.8              | 119.5            | 1500              | 4500             | 20.9              | 46.4             | 107.4                            | 32          | 308                 | 113/42                               | 12              | 11101-01238     | IMS20B-18M75C15C-4-M4-A  | 17-bit multi-turn magnetic encoder | \                     | YD32          | DA200A-*-021-T-2-* |                     |                                                                                                      |                                                                                                                                                                                                           |
| 122 |                     |             |            |                   |                  |                   |                  |                   |                  | 108.1                            | 34          | 348                 |                                      |                 | 11101-01239     | IMS20B-18M75C15C-4-M44-A | 17-bit multi-turn magnetic encoder | Electromagnetic brake | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 123 |                     |             |            |                   |                  |                   |                  |                   |                  | 107.4                            | 32          | 308                 |                                      |                 | 11101-01236     | IMS20B-18M75C15C-4-P9-A  | 23-bit multi-turn optical encoder  | \                     | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |
| 124 |                     |             |            |                   |                  |                   |                  |                   |                  | 108.1                            | 34          | 348                 |                                      |                 | 11101-01240     | IMS20B-18M75C15C-4-P94-A | 23-bit multi-turn optical encoder  | Electromagnetic brake | YD32          |                    |                     |                                                                                                      |                                                                                                                                                                                                           |

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20240730(V1.0)