

# DA200A Series AC Servo System



# 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.



INVT Guangming  
Technology Building



INVT Shenzhen  
Production Industry Park



INVT Suzhou Industry Park



INVT Zhongshan  
New Energy Industry Base

# Precise drive control, safe and stable

## INVT DA200A series universal AC servo system

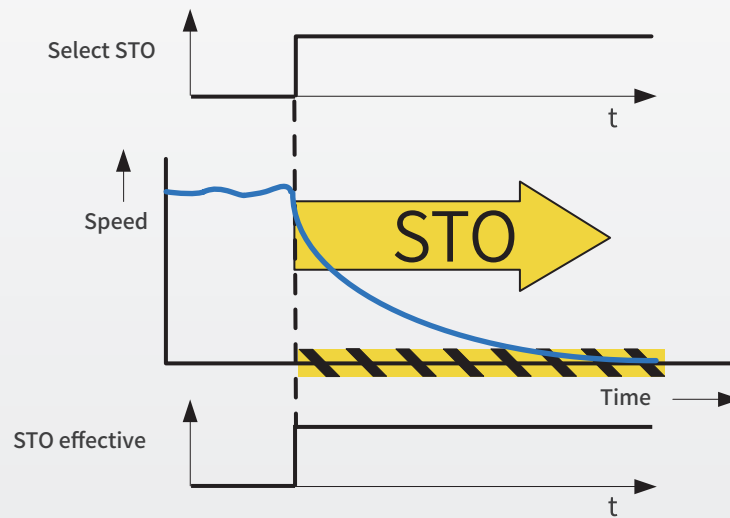
DA200A series high-performance AC servo system is the new generation of INVT servo products. It adopts a stable product technology platform and uses dedicated direct drive algorithms, improving its safety functions, product performance, reliability, and ease of use. With excellent products and services,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



# Servo product functions and features

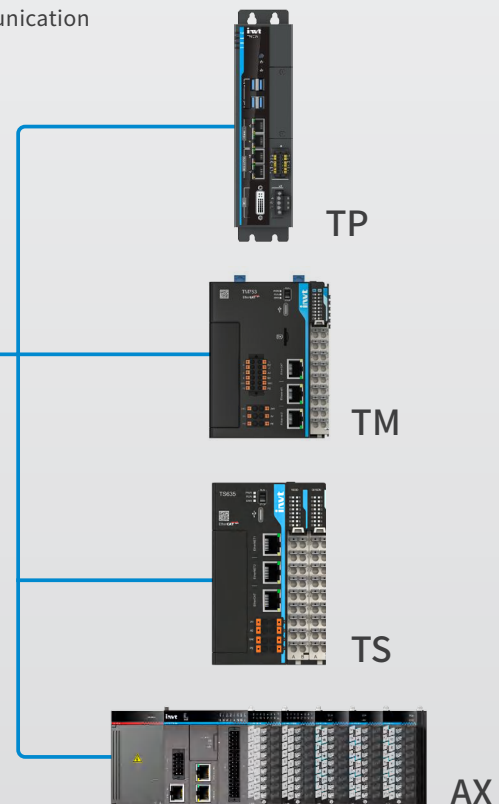
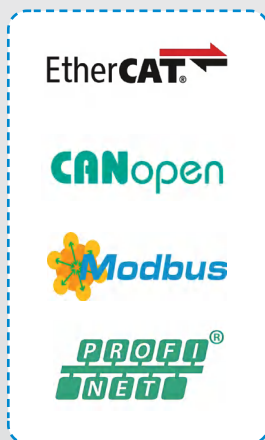
## ■ Safe and reliable

- Supports STO (Safe Torque Off)
- Meets the EN/IEC61800-5-2 SIL3 requirements Level requirement



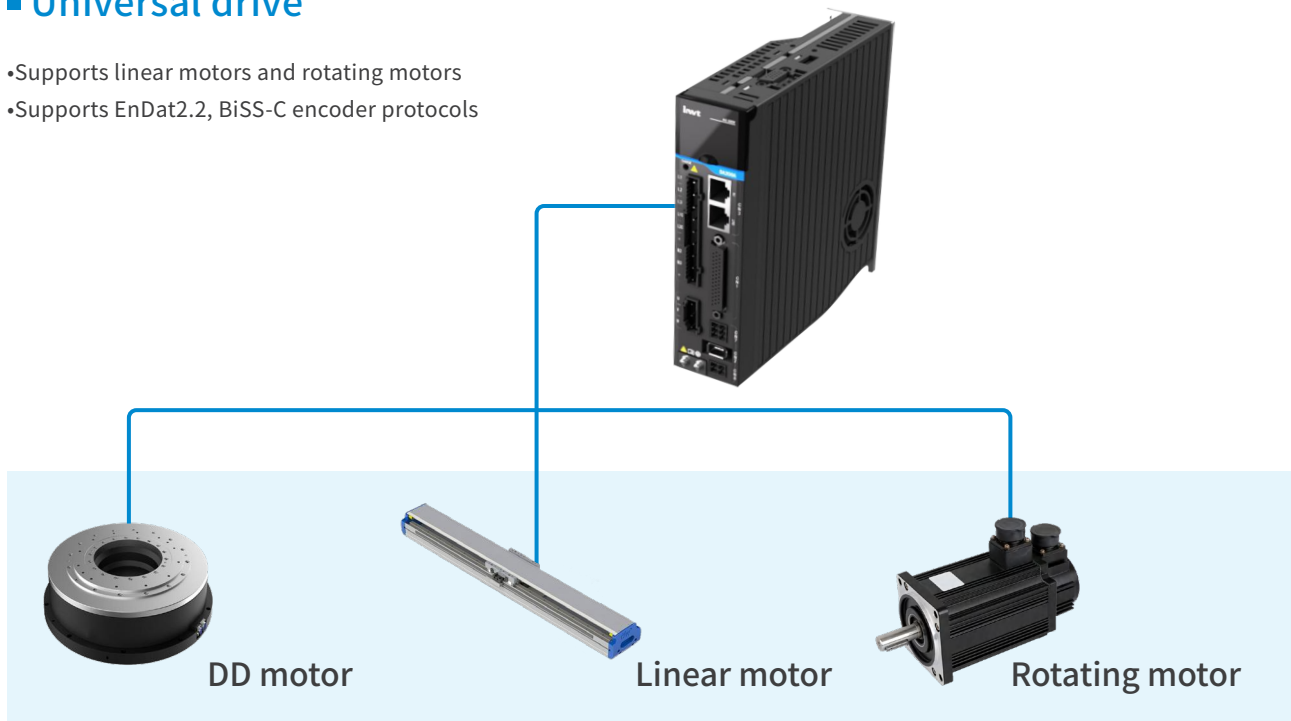
## ■ Enriched communication

- With mature fieldbus technology, application network is convenient and reliable
- Supports Modbus, CANopen, EtherCAT, PROFINET and other bus communication



## ■ Universal drive

- Supports linear motors and rotating motors
- Supports EnDat2.2, BiSS-C encoder protocols



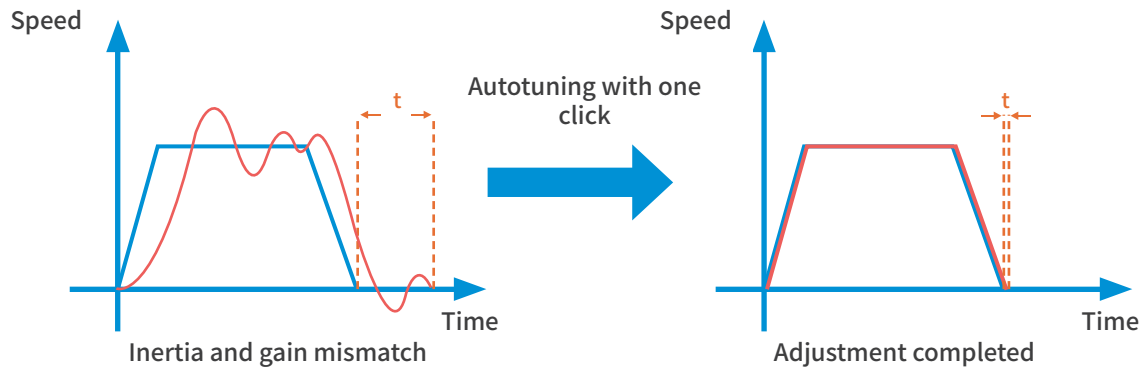
## ■ Built-in brake output

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



## Autotuning with one click

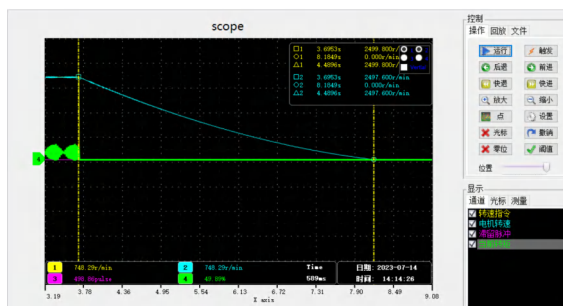
- Autotuning with one click requires just a few simple steps to automatically learn and update drive parameters, shortening the tuning time and making it easy to use



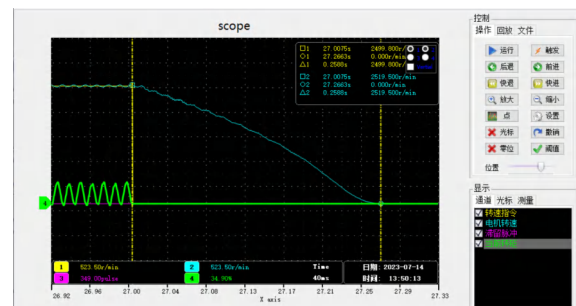
## Dynamic braking

- Dynamic braking uses dynamic braking methods to quickly stop the motor during situations such as emergency stop, faults, or power off
- 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



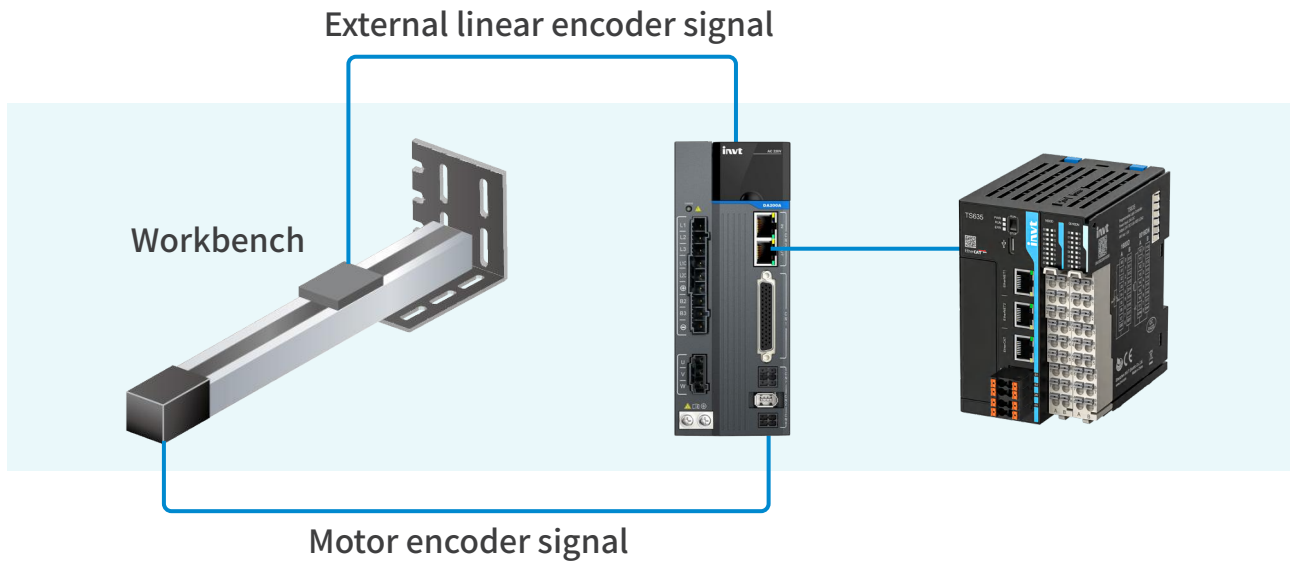
Free coast: 4.5s: **4.5s**



Dynamic braking: **0.25s**

## ■ Fully-closed loop control

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



## ■ Load inertia identification

- Provides online and offline inertia identification. Identifies gain parameters automatically in the system, and reduces 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

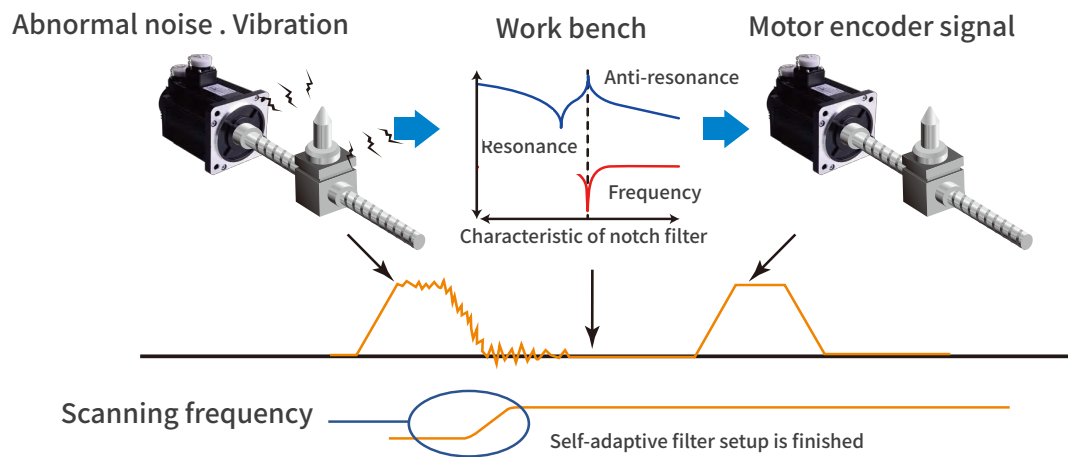
P1.06-Mechanical movement: 2.0 (0.2~20) (r)

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

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

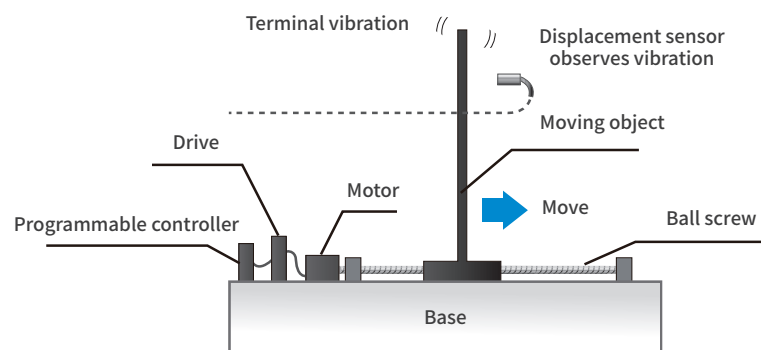
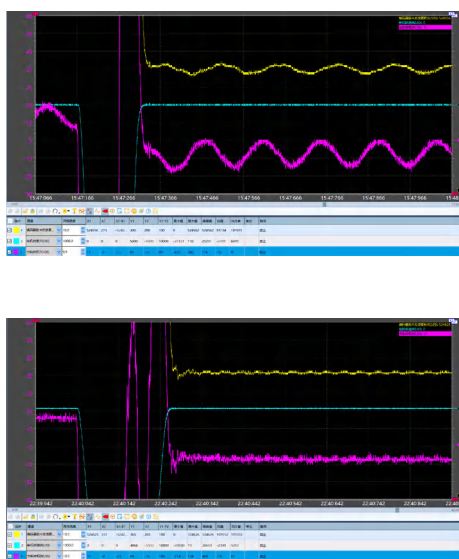
## ■ Automatic/manual notch filter

- 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

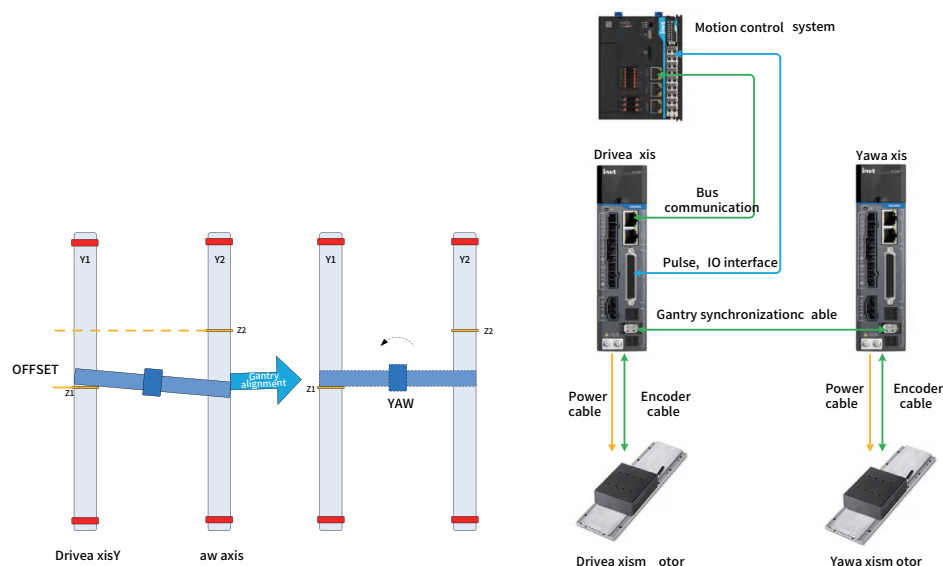


## ■ Low frequency vibration control

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



## ■ Gantry synchronization function



- Divides the gantry system into virtual decoupled axes based on multi-input multi-output (MIMO) cross decoupling control—namely, a drive axis and a yaw axis, enabling both fast dynamic response and high synchronization performance.
- Independently performs dual-drive gantry synchronization control without the use of a host controller, ensuring precise alignment of the two axes.
- Adopts a cross decoupling control strategy and mechanical model self-decoupling control to significantly enhance gantry synchronization accuracy and performance.
- Supports functions such as mechanical installation offset calibration, gantry alignment, homing, and positioning compensation, ensuring safe, precise, and stable gantry running.
- Supports both rigid and flexible gantry structures, compatible with both rotary and linear servo motors.
- Provides a dedicated gantry commissioning interface for simple and user-friendly setup and tuning.

## ■ 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 gains can be set, and the gains can be switched through I/O input, communication, or internal variables, fulfilling flexible process demands.

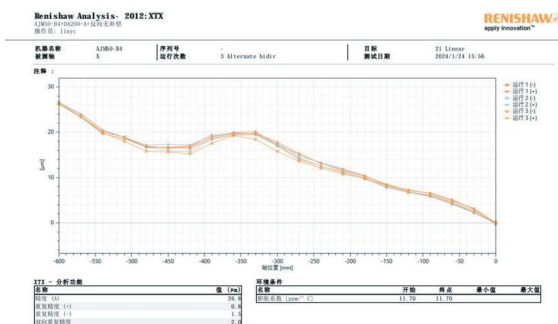
## ■ Speed observer

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

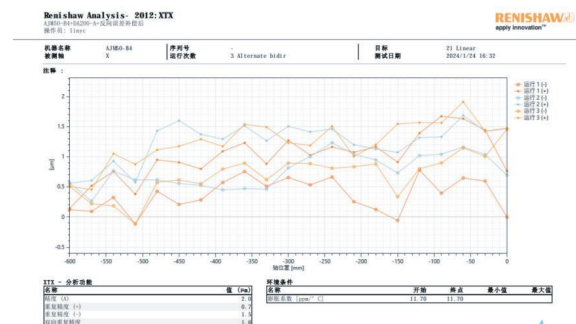
# Unique functions of linear drives

## Positioning compensation

- Supports measurement with Renishaw laser interferometers to determine errors; imports measurement tables without manual input of error compensation data, achieving high-precision positioning compensation functions
- Solves precision loss caused by factors such as machining accuracy of mechanical parts and assembly processes



Positioning accuracy before compensation: 26.8  $\mu\text{m}$



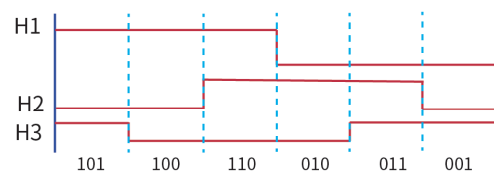
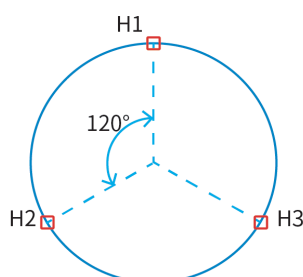
Positioning accuracy after compensation: 2  $\mu\text{m}$

## Magnetic pole identification

- Supports both micromotion and static magnetic pole identification methods
- Incremental encoders (with Hall signal assistance) and absolute encoders: within a small movement range, they can quickly and accurately identify the encoder's offset angle, thus obtaining the current accurate electrical angle of the motor. Upon re-powered on, there is no need for pole identification. It can automatically calculate the current electrical angle of the motor based on the HALL state and offset angle, and directly control the motor
- Automatic commutation: In cases where the motor phase sequence UVW is reversed, the phase sequence is recognized as reverse, and the drive can automatically commute without manual phase sequence replacement

## Hall commutation

- Supports single-ended hall
- After power-on, the initial position angle is automatically determined based on the positions of the 3PH hall devices, and compensation is performed during motion based on sector switching
- For linear motors, where the signal sequence of the 3PH power output UVW and hall H1/H2/H3 can be randomly configured, a one-click autotuning method is provided
- This resolves the hassle of using an oscilloscope to observe phases to determine direction and change the hall wiring



# 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  
2R8: 2.8A  
6R0: 6.0A  
8R0: 8.0A  
010: 10A  
013: 13A  
380V  
3R5: 3.5A  
5R5: 5.5A  
8R5: 8.5A  
012: 12A  
016: 16A  
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)  
Digit3: 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

# Product specifications

| Cabinet                                       | A             |               |               | B             |               |               |               | C             |               | D             |               |               |
|-----------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Model                                         | 1R6           | 2R8           | 6R0           | 8R0           | 10            | 3R5           | 5R5           | 13            | 8R5           | 12            | 16            | 21            |
| Rated power (kW)                              | 0.4           | 0.4           | 1             | 1.5           | 2             | 1             | 1.5           | 3             | 3             | 4.4           | 5.5           | 7.5           |
| Main power supply (V)                         | 380(3P)       | 220(1P)       |               | 220(3P)       |               | 380(3P)       |               | 220V(3P)      | 380(3P)       | 380(3P)       |               |               |
| Control circuit voltage (V)                   | 380(1P)       | 220(1P)       |               |               |               | 380(1P)       |               | 220(1P)       | 380(1P)       |               |               |               |
| Input current (A)                             | 0.9           | 3.6           | 9             | 5.6           | 7.5           | 3.3           | 3.3           | 11.2          | 6.5           | 9.6           | 11.9          | 13            |
| Rated output current (A)                      | 1.6           | 2.8           | 6             | 8             | 10            | 3.5           | 5.5           | 13            | 8.5           | 12            | 16            | 21            |
| Max. output current (A)                       | 4.8           | 8.4           | 18            | 24            | 25            | 10.5          | 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    | 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           | 60Ω           | 45Ω           | 30Ω           | 30Ω           | 60Ω           | 60Ω           | 20Ω           | 60Ω           | 30Ω           | 30Ω           | 30Ω           |
| Recommended filter model                      | FLT-P04006L-B | FLT-PS2010H-B | FLT-PS2010H-B | FLT-P04016L-B | FLT-P04016L-B | FLT-P04006L-B | FLT-P04006L-B | FLT-P04032L-B | FLT-P04006L-B | FLT-P04016L-B | FLT-P04016L-B | FLT-P04032L-B |

# Product configuration

| Power range: 400W-7.5KW |        |                    | Function    |                            |                                     |             |     |              |                 |       | Communication |         |          |          | Encoder protocol                  |           |          |        |
|-------------------------|--------|--------------------|-------------|----------------------------|-------------------------------------|-------------|-----|--------------|-----------------|-------|---------------|---------|----------|----------|-----------------------------------|-----------|----------|--------|
| Drive category          | Symbol | Configuration type | Pulse input | Two analog inputs/ outputs | Two high-speed I/O inputs (DI1/DI2) | 2nd encoder | STO | Brake output | Dynamic braking | PT100 | RS485         | CANopen | EtherCAT | PROFINET | Asynchronous serial communication | ABZ (TTL) | EnDat2.2 | BISS-C |
| Pulse type              | E      | Standard           | √           | √                          | ×                                   | ×           | ×   | ×            | √               | ×     | √             | ×       | ×        | ×        | √                                 | ×         | √        | √      |
|                         |        | High-spec version  | √           | √                          | ×                                   | √           | √   | √            | √               | √     | √             | ×       | ×        | ×        | √                                 | √         | √        | √      |
| Bus type                | N      | Standard           | ×           | ×                          | √                                   | ×           | ×   | ×            | √               | ×     | ×             | ×       | √        | ×        | √                                 | ×         | √        | √      |
|                         |        | High-spec version  | ×           | ×                          | √                                   | √           | √   | √            | √               | √     | ×             | ×       | √        | ×        | √                                 | √         | √        | √      |
|                         | C      | High-spec version  | √           | √                          | ×                                   | √           | √   | √            | √               | √     | √             | √       | ×        | ×        | √                                 | √         | √        | √      |
|                         | F      | High-spec version  | ×           | ×                          | √                                   | √           | √   | √            | √               | √     | ×             | ×       | ×        | √        | √                                 | √         | √        | √      |

# Technical specifications

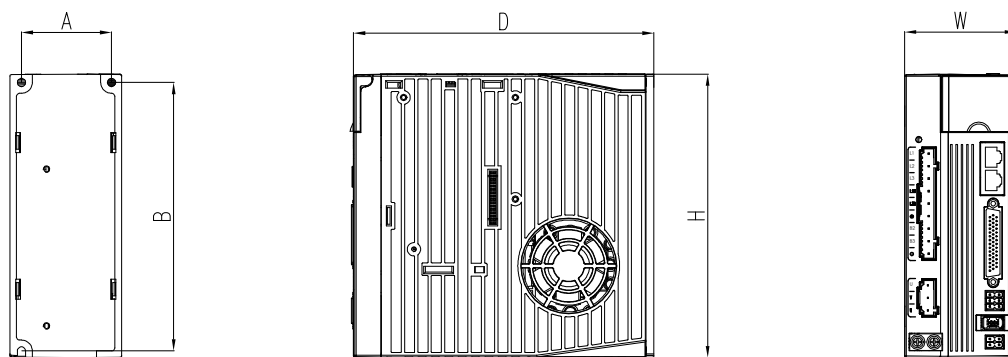
| Specification     |                              |                | Description                                                                                                                                                                                                   |                                                                                |
|-------------------|------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| ①<br>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                                                             |

① Note1: For UL certified servo drive models  
 220V system input voltage: 1P/3P AC200V(-15%)~240V(+10%) 47Hz~63Hz  
 400V system input voltage: 3P AC380V(-15%)~480V(+10%) 47Hz~63Hz

| 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 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-*-1R6-T                                                                    | DA200A-*-2R8-S          | DA200A-*-6R0-S          | DA200A-*-8R0-S                                                                    | DA200A-*-010-S          | DA200A-*-3R5-T          | DA200A-*-5R5-T          | DA200A-*-013-S                                                                     | DA200A-*-8R5-T          | DA200A-*-012-T                                                                      | DA200A-*-016-T          | DA200A-*-021-T          |
| Voltage class  | 3PH 380V                                                                          | 1PH 220V                |                         | 3PH 220V                                                                          |                         | 3PH 380V                | 3PH 380V                | 3PH 220V                                                                           | 3PH 380V                | 3PH 380V                                                                            |                         |                         |
| Matching motor | IMS20B-06M20B 30C-4-***                                                           | IMS20B-04L05B 30C-2-*** | IMS20B-08M75B 30C-2-*** | IMS20B-10M15C 30C-2-***                                                           | IMS20B-10M20C 30C-2-*** | IMS20B-10M10C 30C-4-*** | IMS20B-10M15C 30C-4-*** | IMS20B-10M25C 30C-2-***                                                            | IMS20B-10M20C 30C-4-*** | IMS20B-18M30C 15C-4-***                                                             | IMS20B-18M44C 15C-4-*** | IMS20B-18M75C 15C-4-*** |
|                | IMS20B-06M40B 30C-4-***                                                           | IMS20B-04L10B 30C-2-*** | IMS20B-08M10C 30C-2-*** | IMS20B-13M15C 20C-2-***                                                           | IMS20B-13M20C 20C-2-*** | IMS20B-13M10C 20C-4-*** | IMS20B-10M20C 30C-4-*** | IMS20B-13M30C 20C-2-***                                                            | IMS20B-10M25C 30C-4-*** | IMS20B-13L30C 30C-4-***                                                             | IMS20B-18M55C 15C-4-*** | /                       |
|                | /                                                                                 | IMS20B-06M20B 30C-2-*** | IMS20B-10M10C 30C-2-*** | /                                                                                 | IMS20B-13H13C 15C-2-*** | IMS20B-13H85B 15C-4-*** | IMS20B-13M15C 20C-4-*** | IMS20B-13H18C 15C-2-***                                                            | IMS20B-13M30C 20C-4-*** | /                                                                                   | IMS20B-13L40C 30C-4-*** | /                       |
|                | /                                                                                 | IMS20B-06M40B 30C-2-*** | IMS20B-13M10C 20C-2-*** | /                                                                                 | /                       | /                       | IMS20B-13M20C 20C-4-*** | /                                                                                  | IMS20B-13H18C 15C-4-*** | /                                                                                   | IMS20B-13L50C 30C-4-*** | /                       |
|                | /                                                                                 | /                       | IMS20B-13H85B 15C-2-*** | /                                                                                 | /                       | /                       | IMS20B-13H13C 15C-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                                 |

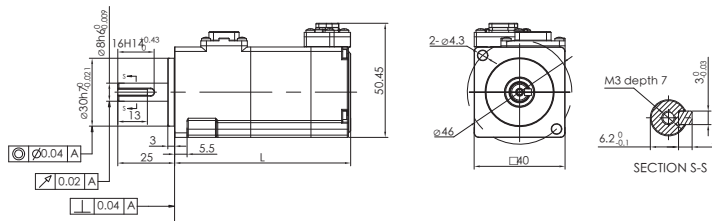
# Servo motor technical parameters

| 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-04L05B30C-2-***    | 40                                                                                                                                          | 0.05       | 0.16              | 0.56             | 3000              | 7000             | 220         | 1.2                          | 0.018/0.021                                           | 0.26/0.4                         |
| IMS20B-04L10B30C-2-***    |                                                                                                                                             | 0.1        | 0.32              | 1.12             | 3000              | 7000             | 220         | 1.2                          | 0.033/0.036                                           | 0.36/0.5                         |
| IMS20B-04M05B30C-2-***    |                                                                                                                                             | 0.05       | 0.16              | 0.56             | 3000              | 7000             | 220         | 1.2                          | 0.034/0.037                                           | 0.26/0.4                         |
| IMS20B-04M10B30C-2-***    |                                                                                                                                             | 0.1        | 0.32              | 1.12             | 3000              | 7000             | 220         | 1.2                          | 0.064/0.067                                           | 0.36/0.5                         |
| IMS20B-06M20B30C-2(4)-*** | 60                                                                                                                                          | 0.2        | 0.64              | 2.24             | 3000              | 7000             | 220/380     | 1.4/1.1                      | 0.28/0.31                                             | 0.8/1.1                          |
| IMS20B-06M40B30C-2(4)-*** |                                                                                                                                             | 0.4        | 1.27              | 4.45             | 3000              | 7000             | 220/380     | 2.7/1.6                      | 0.5/0.53                                              | 1.2/1.4                          |
| IMS20B-08M75B30C-2(4)-*** | 80                                                                                                                                          | 0.75       | 2.39              | 8.37             | 3000              | 7000             | 220/380     | 4.8/2.8                      | 1.7/1.75                                              | 2.2/2.7                          |
| IMS20B-08M10C30C-2(4)-*** |                                                                                                                                             | 1          | 3.18              | 11.13            | 3000              | 7000             | 220/380     | 5.5/3.5                      | 2.16/2.21                                             | 2.62/3.2                         |
| 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          | 4.8               | 14.3             | 2000              | 4500             | 220/380     | 5.4/3                        | 6.3/7.95                                              | 4.4/6.0                          |
| IMS20B-13M15C20C-2(4)-*** |                                                                                                                                             | 1.5        | 7.2               | 21.5             | 2000              | 4500             | 220/380     | 7.6/4.8                      | 9.1/10.8                                              | 5.6/7.2                          |
| IMS20B-13M20C20C-2(4)-*** |                                                                                                                                             | 2          | 9.6               | 28.7             | 2000              | 4500             | 220/380     | 9/5.6                        | 12.9/14.6                                             | 6.9/8.5                          |
| IMS20B-13M30C20C-2(4)-*** |                                                                                                                                             | 3          | 14.3              | 43               | 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        | 8.3               | 20.7             | 1500              | 4500             | 220/380     | 9.9/5.2                      | 17.9/19.1                                             | 7.2/8.8                          |
| IMS20B-13H18C15C-2(4)-*** |                                                                                                                                             | 1.8        | 11.5              | 28.7             | 1500              | 4500             | 220/380     | 12.8/7.7                     | 24.3/25.6                                             | 9/10.6                           |
| IMS20B-13L30C30C-4-***    |                                                                                                                                             | 3          | 9.8               | 29.4             | 3000              | 6000             | 380         | 10.13                        | 7.28/8.22                                             | 9.9/11.6                         |
| IMS20B-13L40C30C-4-***    |                                                                                                                                             | 4          | 12.6              | 37.8             | 3000              | 6000             | 380         | 12.96                        | 10.1/11.04                                            | 13/14.7                          |
| IMS20B-13L50C30C-4-***    |                                                                                                                                             | 5          | 15.8              | 47.7             | 3000              | 6000             | 380         | 16.77                        | 13.3/14.24                                            | 17/18.7                          |
| 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 (for 40~180 frames), and IP54 (for 200, 263 frames)                                                                                    |            |                   |                  |                   |                  |             |                              |                                                       |                                  |
| Application environment   | 40° C (no freezing for 80 and lower frames), -10° C~+40° C (no freezing for 100 and higher frames); humidity: below 90%RH (no condensation) |            |                   |                  |                   |                  |             |                              |                                                       |                                  |



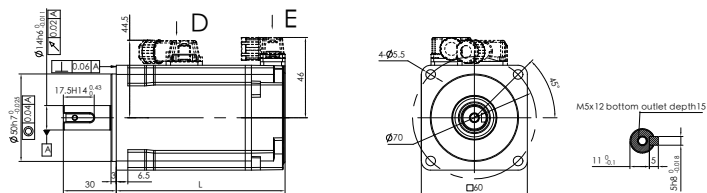
### Installation dimensions for 40-frame motors (unit: mm)

| Motor model            | L(mm)         |                       |
|------------------------|---------------|-----------------------|
|                        | Without brake | Electromagnetic brake |
| IMS20B-04L05B30C-2-*** | 53.5          | 77.5                  |
| IMS20B-04L10B30C-2-*** | 66            | 90                    |
| IMS20B-04M05B30C-2-*** | 53.5          | 77.5                  |
| IMS20B-04M10B30C-2-*** | 66            | 90                    |



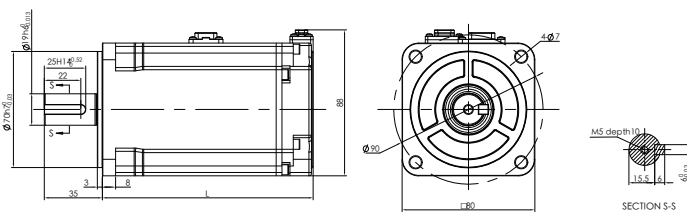
### Installation dimensions for 60-frame motors (unit: mm)

| Motor model               | L(mm)         |                       |
|---------------------------|---------------|-----------------------|
|                           | Without brake | Electromagnetic brake |
| IMS20B-06M20B30C-2(4)-*** | 73            | 95.5                  |
| IMS20B-06M40B30C-2(4)-*** | 92.5          | 114.5                 |



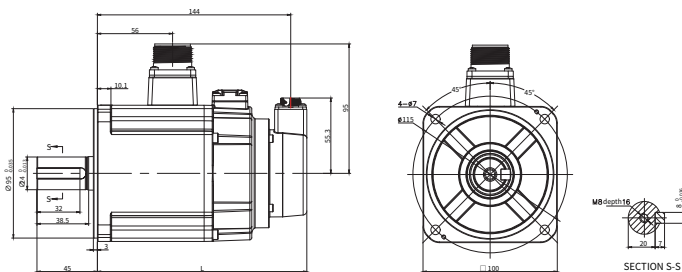
### Installation dimensions for 80-frame motors (unit: mm)

| Motor model            | L(mm)         |                       |
|------------------------|---------------|-----------------------|
|                        | Without brake | Electromagnetic brake |
| IMS20B-08M75B30C-2-*** | 96.8          | 127                   |
| IMS20B-08M10C30C-2-*** | 110.8         | 141                   |



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

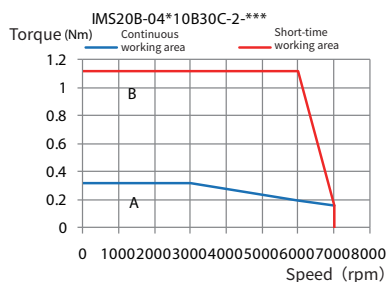
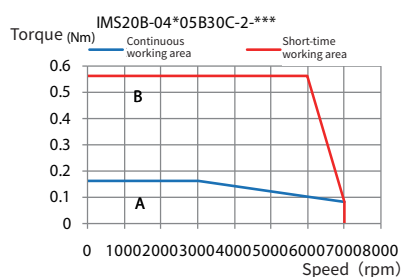
| Motor model               | L(mm)         |                       |
|---------------------------|---------------|-----------------------|
|                           | Without brake | Electromagnetic brake |
| IMS20B-10M10C30C-2(4)-*** | 127.4         | 156                   |
| IMS20B-10M15C30C-2(4)-***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



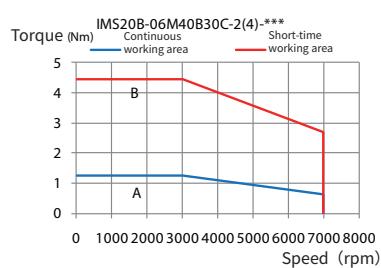
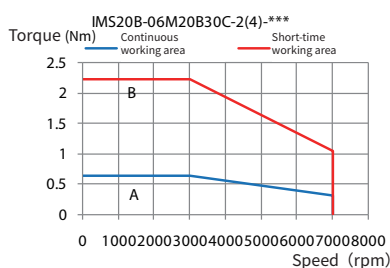


# Servo motor torque-speed characteristics

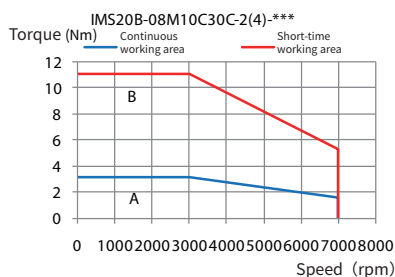
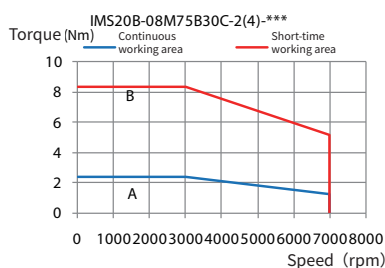
## Base-40 motor



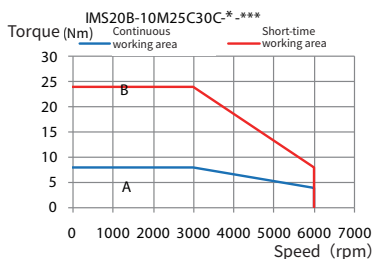
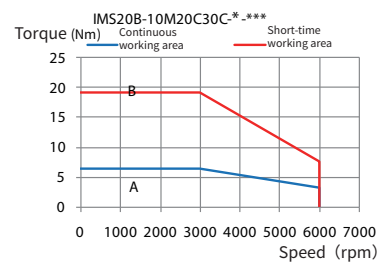
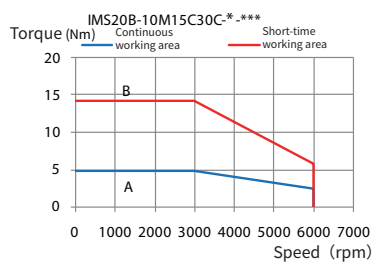
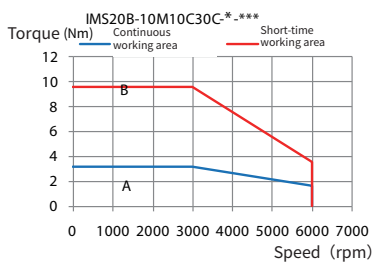
## Base-60 motor



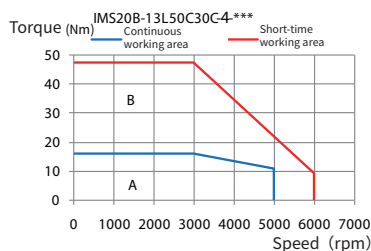
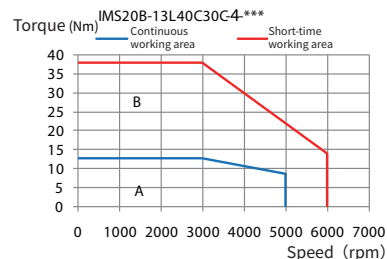
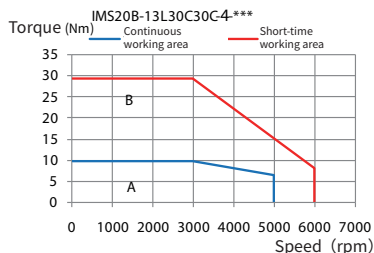
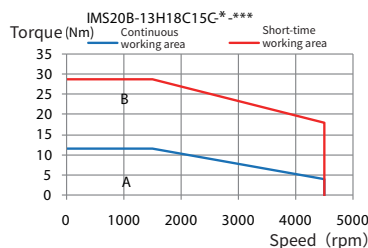
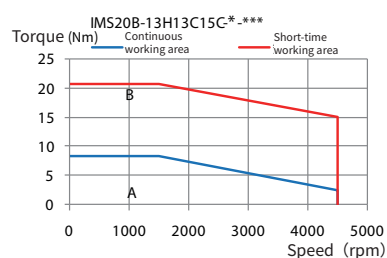
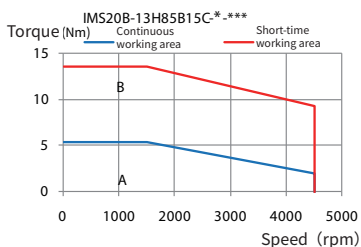
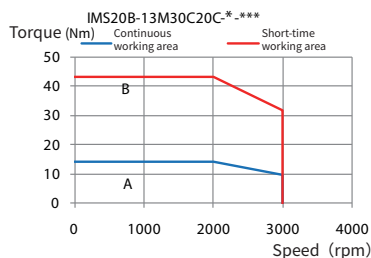
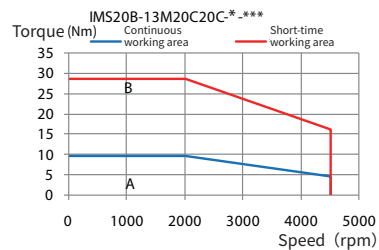
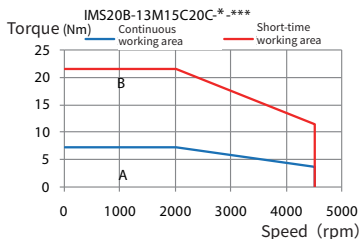
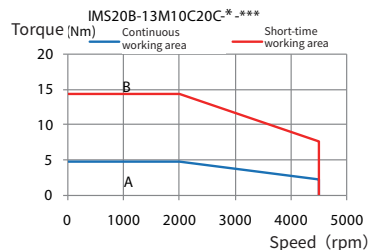
## Base-80 motor



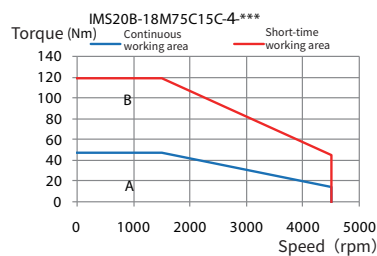
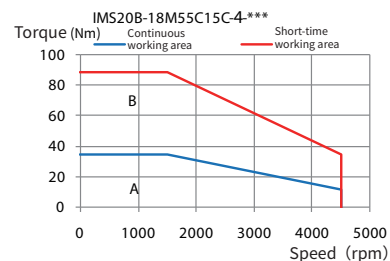
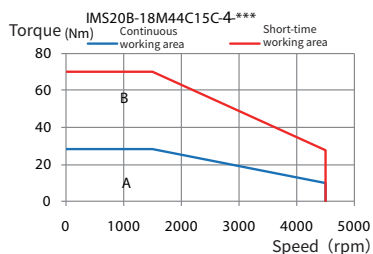
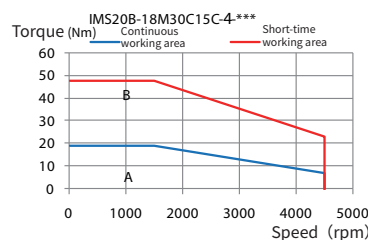
## Base-100 motor



## 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

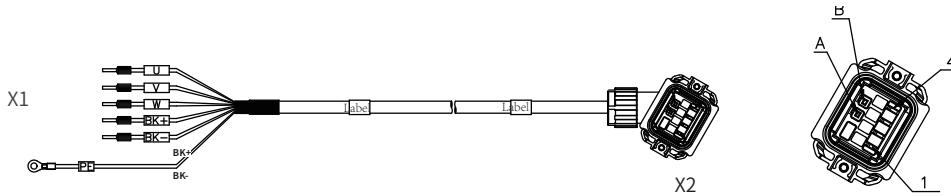
| Symbol | Cable material         |
|--------|------------------------|
| 0      | Regular cable          |
| F      | Flexible towline cable |
| A      | Shielded regular cable |

⑧

| Symbol | Lot number    |
|--------|---------------|
| 00     | Without brake |
| 01     | With brake    |
| ...    | Other         |

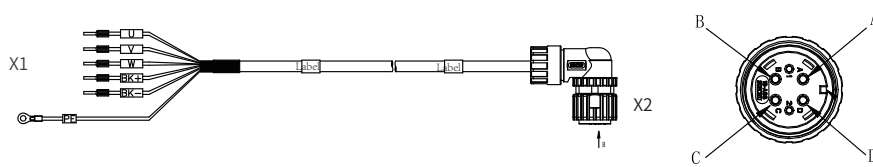
# Servo motor power cable wiring

## 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-100/130/180 motor (5015terminal + brake)



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

# 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 |

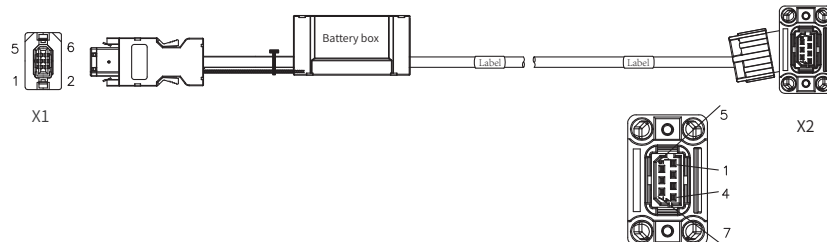
| ⑦ | Symbol | Cable material                             |
|---|--------|--------------------------------------------|
|   | 0      | Regular cable                              |
|   | D      | Regular cable with battery holder          |
|   | F      | Flexible towline cable                     |
|   | H      | Flexible towline cable with battery holder |

| ⑧ | Symbol | Encoder type |
|---|--------|--------------|
|   | 04     | Absolute     |

| ⑨ | 符号 | Lot number                                   |
|---|----|----------------------------------------------|
|   | A0 | Other                                        |
|   | A1 | Line out towards the rear front of the motor |
|   | A2 | Line out towards the rear end of the motor   |

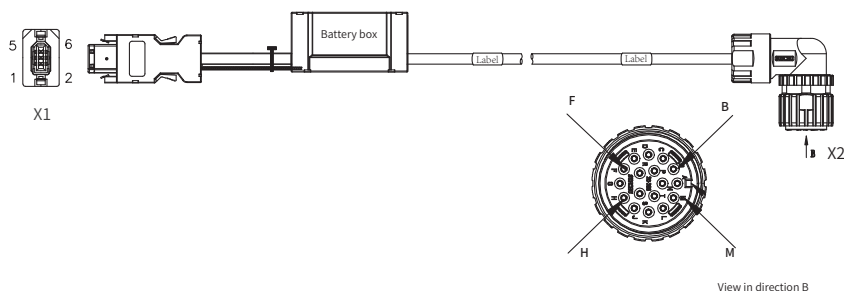
# Servo motor encoder cable wiring

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-100/130/180 motor (absolute + 5015terminal + battery holder)

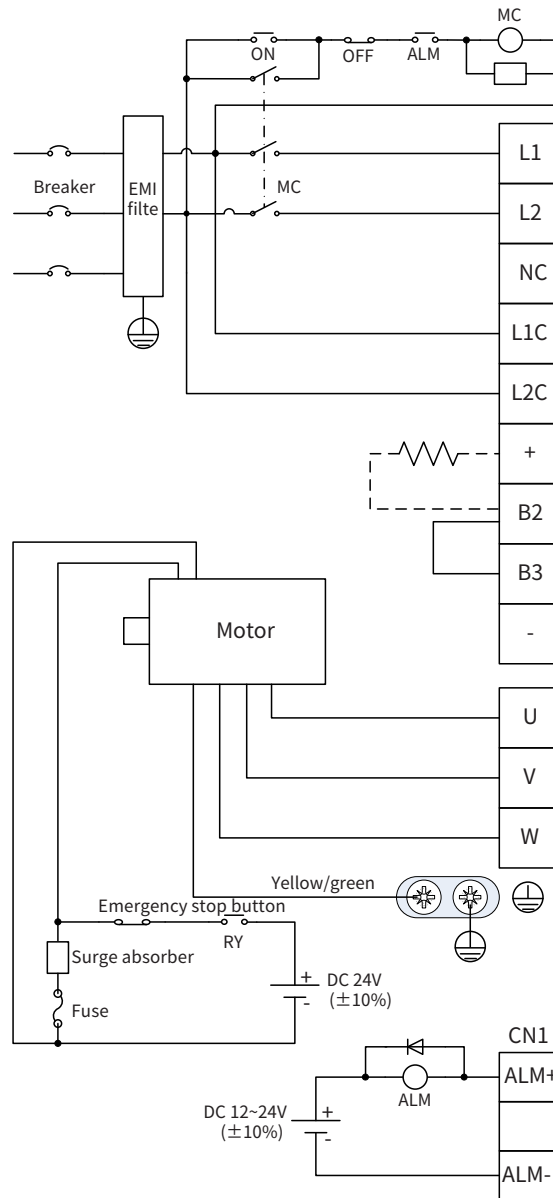


| Wiring mapping |            |      |                      |
|----------------|------------|------|----------------------|
| Signal         | X1         | X2   | Core cable structure |
| SD+            | X1.5       | X2.A | Twisted pair         |
| SD-            | X1.6       | X2.B |                      |
| 5V             | X1.1       | X2.G | Twisted pair         |
| GND            | X1.2       | X2.H |                      |
| BAT+           | /          | X2.E | Twisted pair         |
| BAT-           | /          | X2.F |                      |
| Shield         | Iron shell | X2.J | 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.

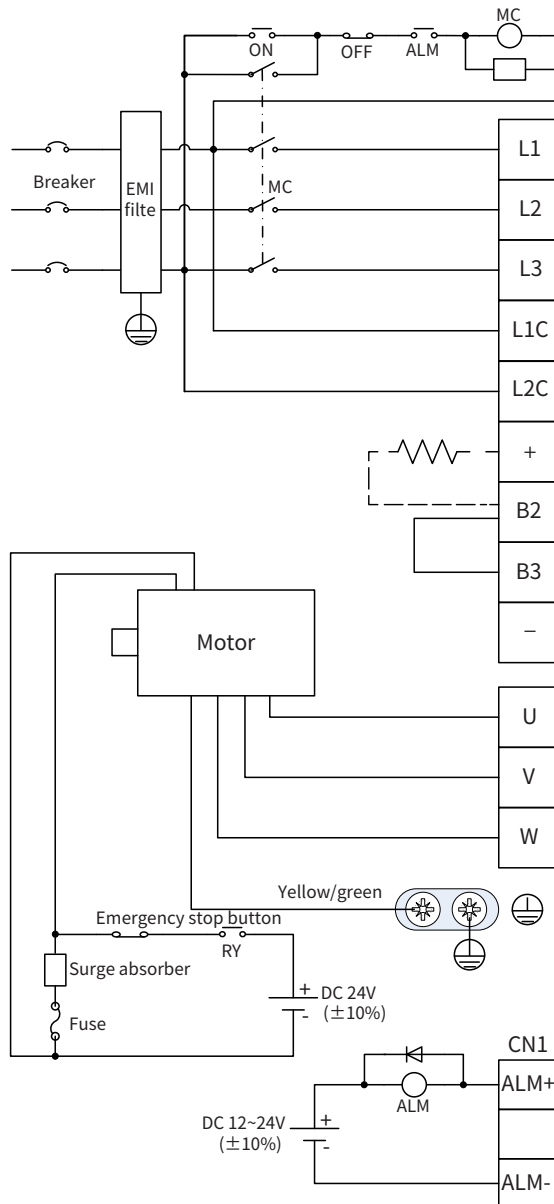
- Do not disconnect the short connection wire between B2 and B3 unless the external regenerative braking resistance is used.
- When using an external regenerative braking resistor, disconnect the short connection wire between B2 and B3, and connect according to the dashed line in the figure.
- Connect 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.

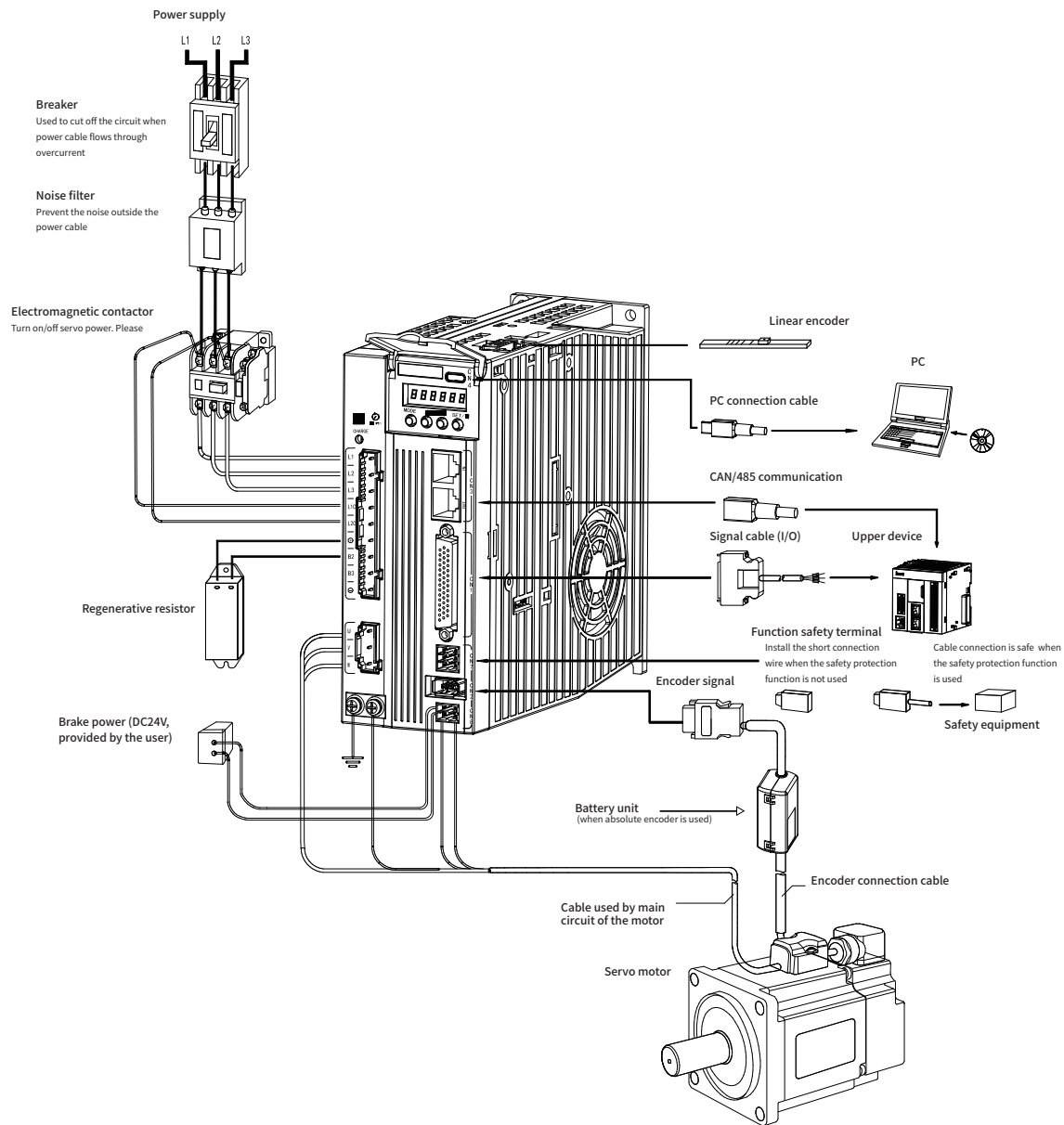
- Pay attention to the connection of the freewheeling diode. Reversed polarity may damage the drive.

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

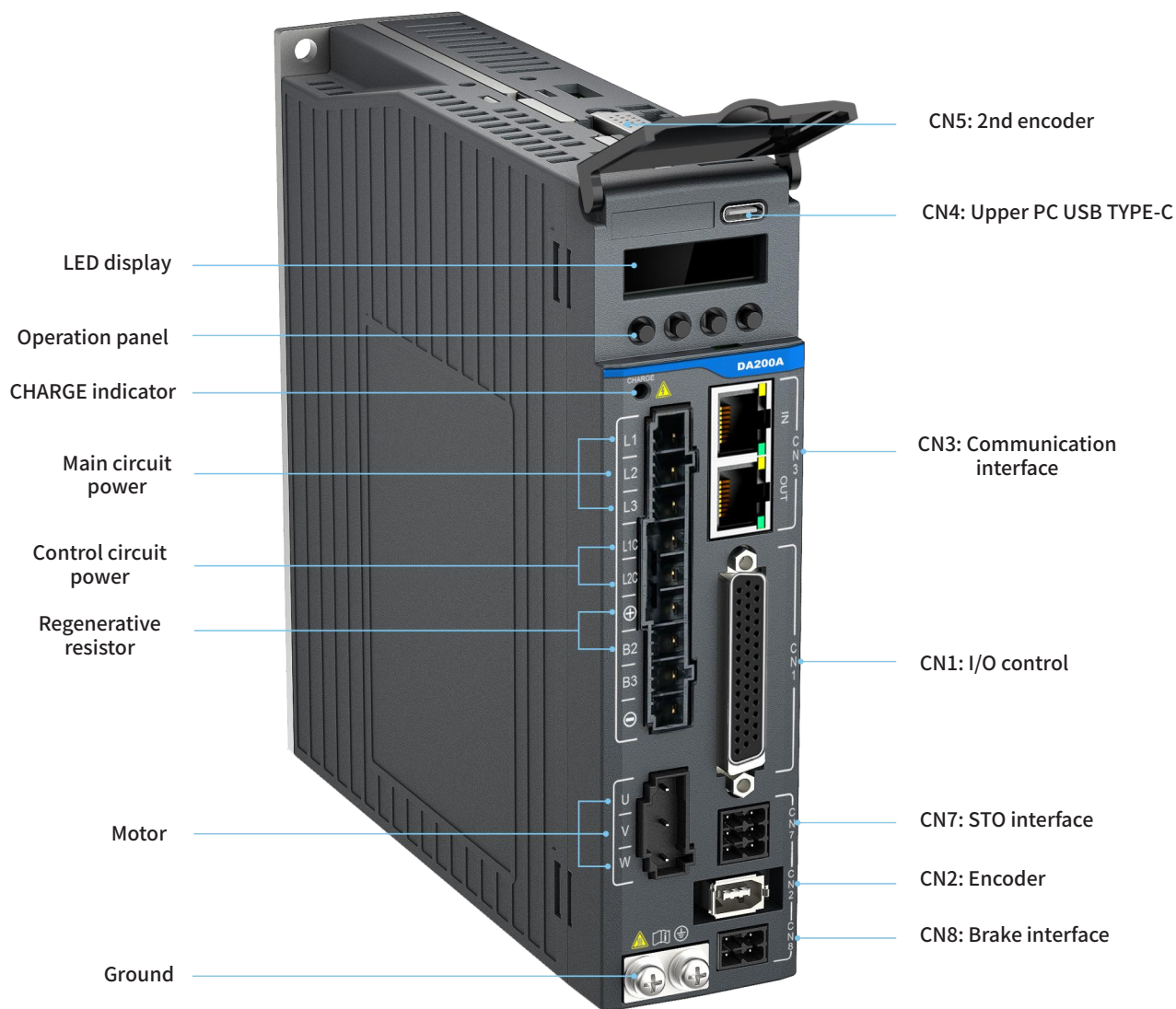


- You need to make this emergency stop protection circuit.
- Add surge absorbing devices on both ends of the electromagnetic contactor winding.
- System input voltage of 220V: AC 220V( $\pm 15\%$ )
- System input voltage of 400V: AC 380V( $\pm 15\%$ )
- Do not disconnect the short connection wire between 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.

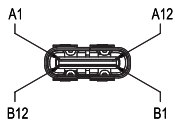
# System wiring



# Drive terminal diagram

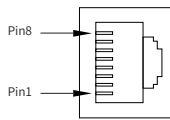


# User interface



**CN4: USB port**

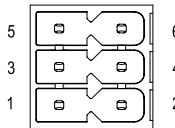
| CN4 port function      |      |               |                           |
|------------------------|------|---------------|---------------------------|
| Pin                    | Name | Function      | Remarks                   |
| A7, B7                 | USB- | Data-         | Standard type-c interface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



**CN3: Communication port**

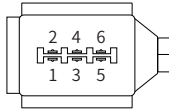
| CN3 port function (IN) |         |                   |                                                                                             |
|------------------------|---------|-------------------|---------------------------------------------------------------------------------------------|
| Pin                    | Name    | Function          | Remarks                                                                                     |
| 1                      | CAN_H   | CAN data +        | RS485 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 port function (OUT) |      |                 |                                                          |
|-------------------------|------|-----------------|----------------------------------------------------------|
| Pin                     | Name | Function        | Remarks                                                  |
| 1                       | Tx+  | Transmit data + | The bus drive port is defined as a standard network port |
| 2                       | Tx-  | Transmit data - |                                                          |
| 3                       | Rx+  | Receive data +  |                                                          |
| 4                       | -    | -               |                                                          |
| 5                       | -    | -               |                                                          |
| 6                       | Rx-  | Receive data -  |                                                          |
| 7, 8                    | -    | -               |                                                          |



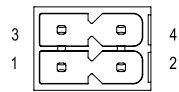
**CN7: STO port**

| CN7 port function |         |                            |                                                                                                                                     |
|-------------------|---------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Pin               | Name    | Function                   | Remarks                                                                                                                             |
| 1                 | 24V     | Power 24V                  | DC24V is internally powered. When the STO function is not used, please short connect pins 1, 3, and 4; do not use it in other cases |
| 2                 | 24V_GND | Power 24V ground           |                                                                                                                                     |
| 3                 | HWBB1+  | Safety input 1+            |                                                                                                                                     |
| 4                 | HWBB2+  | Safety input 2+            |                                                                                                                                     |
| 5                 | EDM+    | Safety monitoring output + |                                                                                                                                     |
| 6                 | EDM-    | Safety monitoring output-  |                                                                                                                                     |



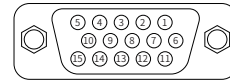
**CN2: Encoder port**

| CN2 port 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-      |                                         |



**CN8: Motor brake port**

| CN8 port function |        |                                 |         |
|-------------------|--------|---------------------------------|---------|
| Pin               | Name   | Function                        | Remarks |
| 1                 | 24V_BK | Brake external 24V power supply | -       |
| 2                 | COM    | Brake external 24V ground       |         |
| 3                 | BK+    | Brake BK+                       |         |
| 4                 | BK-    | Brake BK-                       |         |



**CN5: 2nd encoder port**

| CN5 port function |        |                                         |                                                                                         |
|-------------------|--------|-----------------------------------------|-----------------------------------------------------------------------------------------|
| Pin               | Name   | Function                                | Remarks                                                                                 |
| 1                 | -      | -                                       | Connects to linear encoder or 2nd encoder and supports 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, connected to internal GND |                                                                                         |
| 13                | ENC_Z- | Incremental encoder Z-                  |                                                                                         |
| 14                | ENC_Z+ | Incremental encoder Z+                  |                                                                                         |
| 15                | PTC    | Motor temperature feedback input        |                                                                                         |

Applicable to standard type (pulse-type CANopen)

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 15   | 14   | 13   | 12   | 11   | 10   | 9    | 8    | 7    | 6    | 5    | 4    | 3    | 2    | 1    |
| DO2+ | DO1+ | GND  | DO3+ | DO3- | AO2  | GND  | DO1- | DO1- | DO1- | DO1- | DO1- | DO1- | DO1- | DO1- |
| 30   | 29   | 28   | 27   | 26   | 25   | 24   | 23   | 22   | 21   | 20   | 19   | 18   | 17   | 16   |
| OCB  | DO4+ | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- |
| 44   | 43   | 42   | 41   | 40   | 39   | 38   | 37   | 36   | 35   | 34   | 33   | 32   | 31   |      |
| OA+  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  |

CN1, EtherCAT bus type interface definition

Applicable to EtherCAT and PROFINET bus drives (bus type)

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 15   | 14   | 13   | 12   | 11   | 10   | 9    | 8    | 7    | 6    | 5    | 4    | 3    | 2    | 1    |
| DO2+ | DO1+ | GND  | DO3+ | DO3- | AO2  | GND  | DO1- | DO1- | DO1- | DO1- | DO1- | DO1- | DO1- | DO1- |
| 30   | 29   | 28   | 27   | 26   | 25   | 24   | 23   | 22   | 21   | 20   | 19   | 18   | 17   | 16   |
| OCB  | DO4+ | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- | DO4- |
| 44   | 43   | 42   | 41   | 40   | 39   | 38   | 37   | 36   | 35   | 34   | 33   | 32   | 31   |      |
| OA+  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  | OA-  |

Note: For the EtherCAT and PROFINET bus terminal definitions, refer to the pulse type

**CN1: IO port**

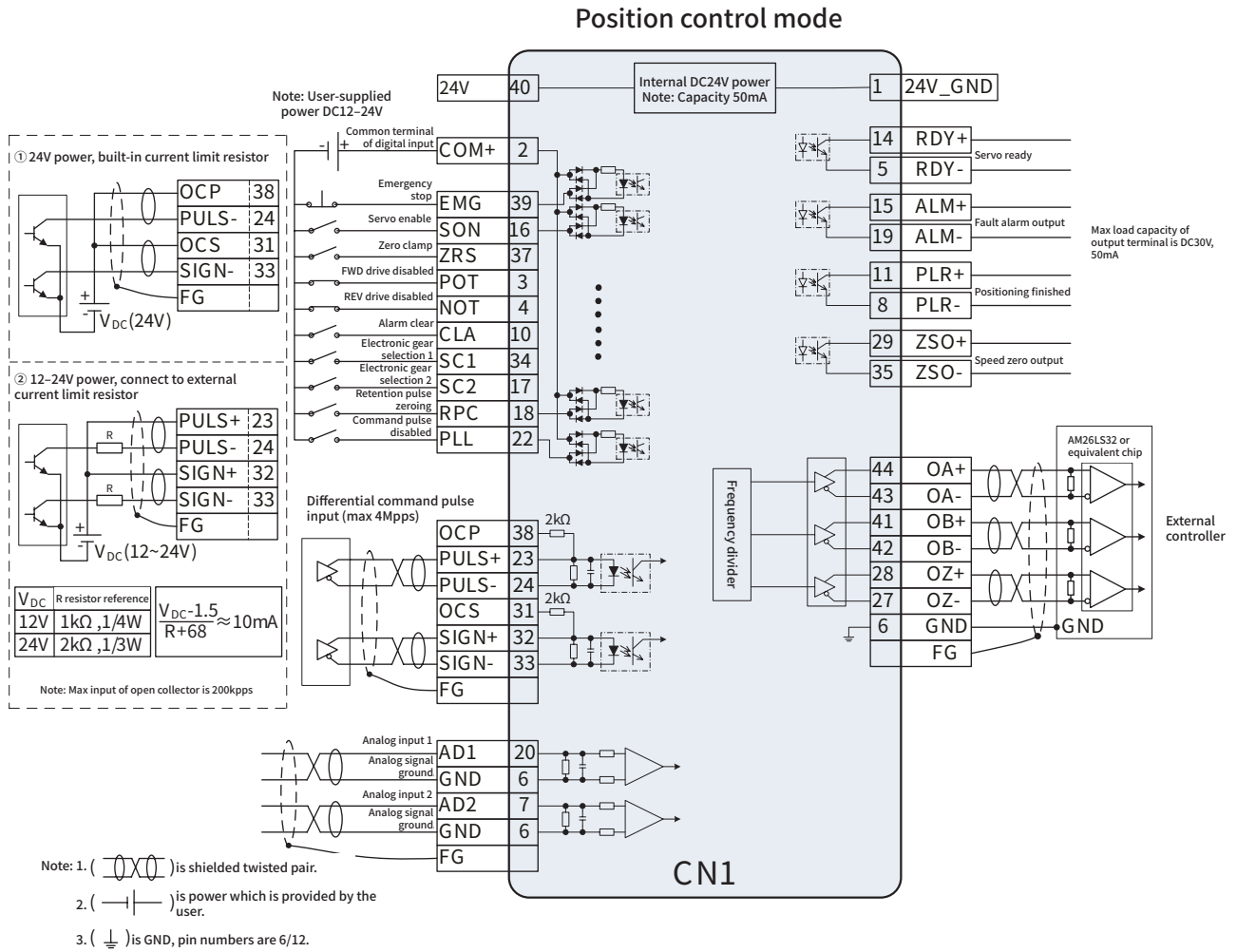
| CN1 port function (pulse type) |            |                                  |     |        |                                  |
|--------------------------------|------------|----------------------------------|-----|--------|----------------------------------|
| Pin                            | Symbol     | Function                         | Pin | Symbol | Function                         |
| 1                              | 24V ground | 24V power ground                 | 23  | PULS+  | Differential command pulse +     |
| 2                              | COM+       | Common terminal of digital input | 24  | PULS-  | Differential command pulse -     |
| 3                              | DI7        | Digital input 7                  | 25  | AO2    | Analog output 2                  |
| 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 2                   | 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  | OCF    | Open collector command pulse     |
| 17                             | DI6        | Digital input 6                  | 39  | DI4    | Digital input 4                  |
| 18                             | DI9        | Digital input 9                  | 40  | 24V    | 24V power supply                 |
| 19                             | DO2-       | Digital output 2-                | 41  | OB+    | B-phase differential output +    |
| 20                             | AD1        | Analog input 1                   | 42  | OB-    | B-phase differential output -    |
| 21                             | AO1        | Analog output 1                  | 43  | OA-    | A-phase differential output -    |
| 22                             | DI10       | Digital input 10                 | 44  | OA+    | A-phase differential output +    |

# Note

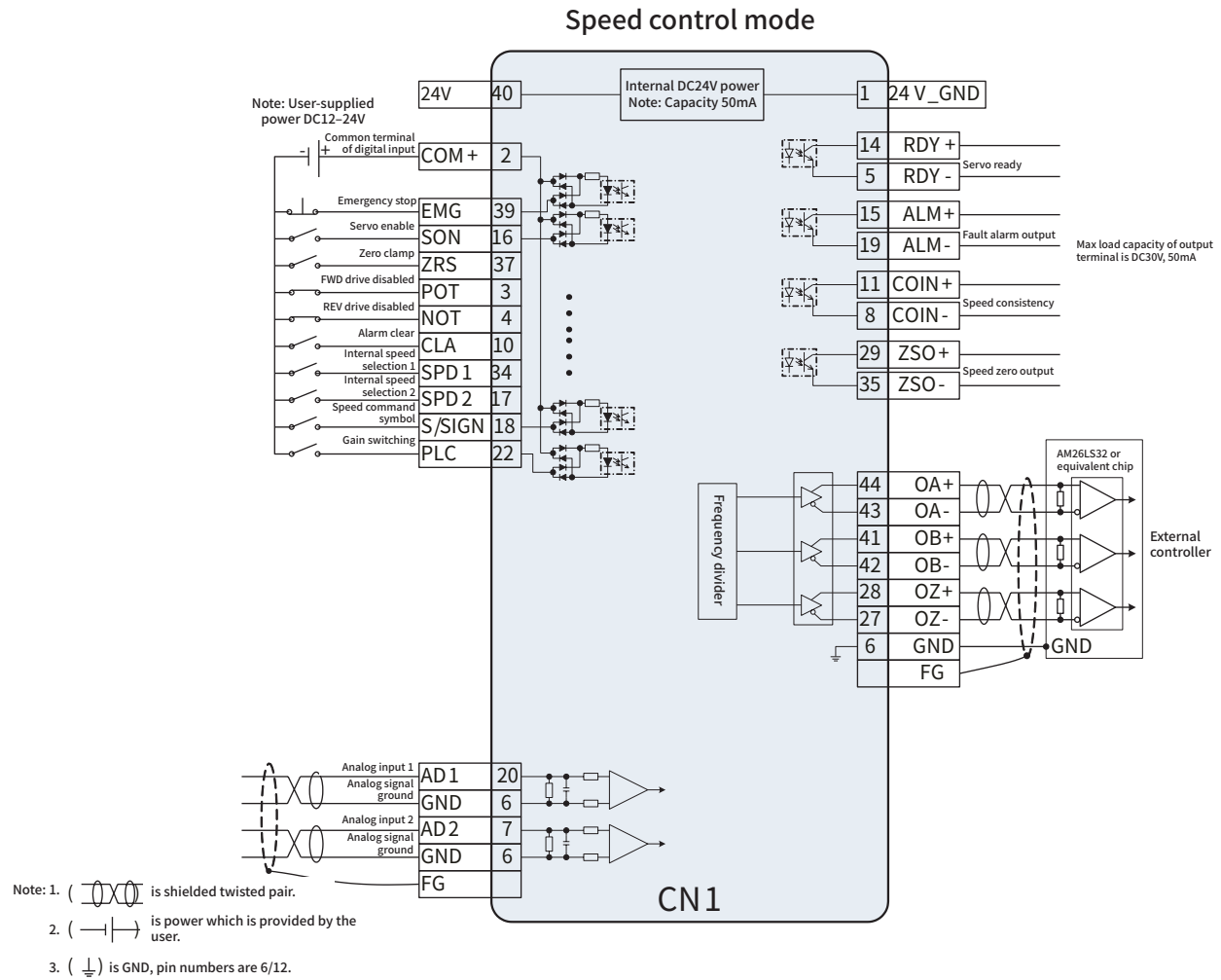
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# Standard wiring diagram

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

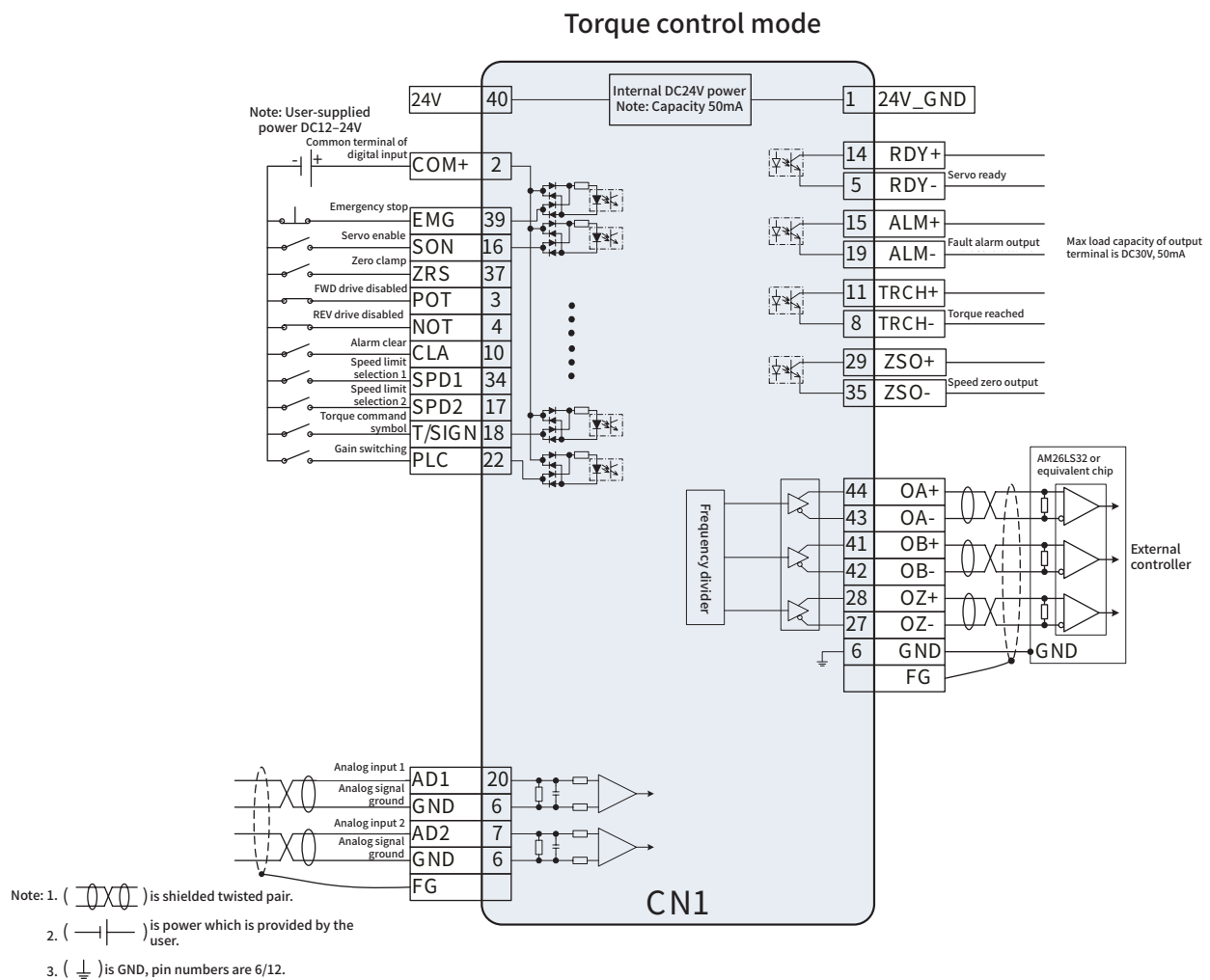


## Standard wiring diagram of speed mode (suitable for analog input control)

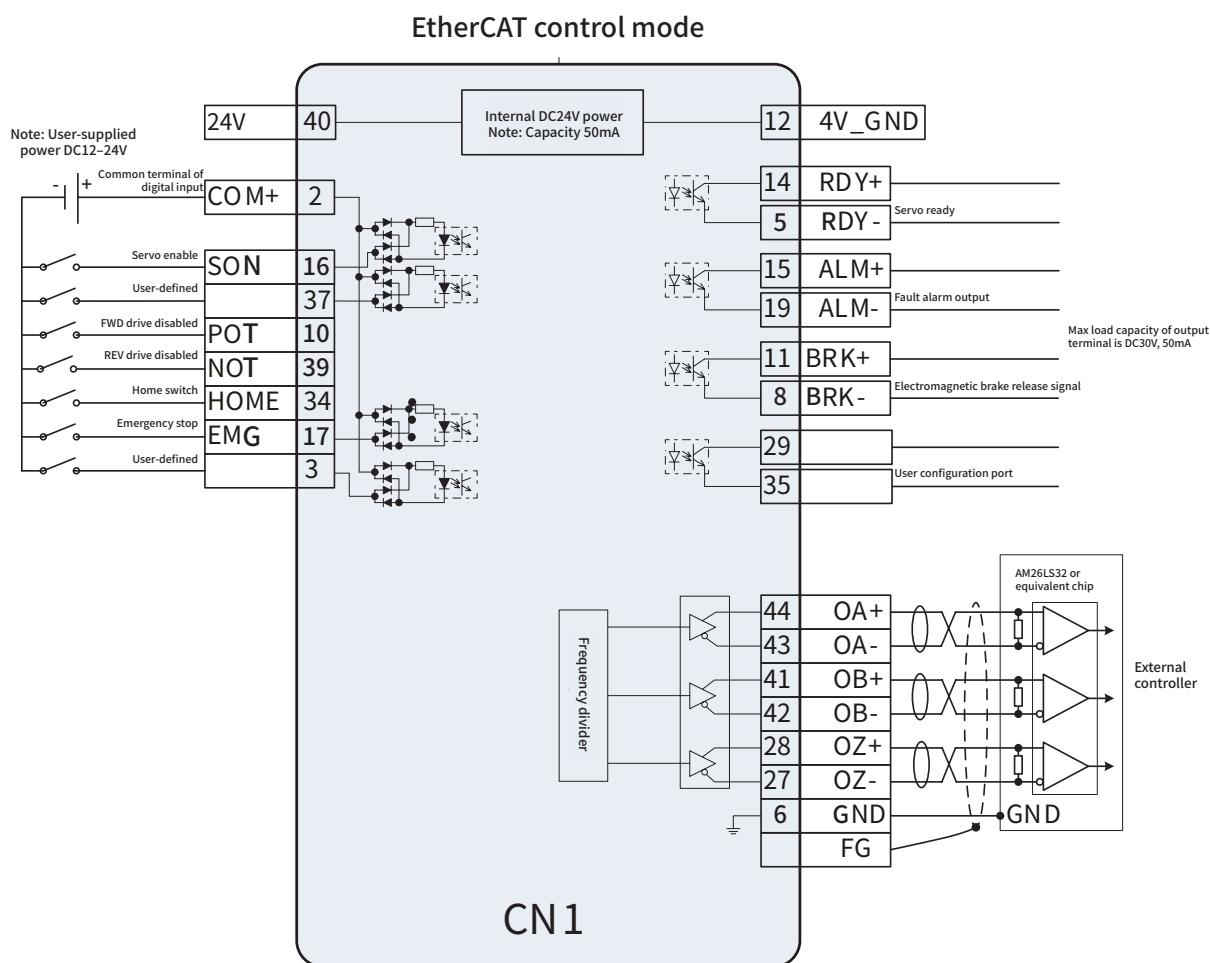


# Standard wiring diagram

## 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 10-4kg·m² | Weight (kg) | Machine length mm | Shaft extension/Shaft diameter (mm) | Bond width mm | Motor model                | Brake                 | Encoder                            | Terminal type | Compatible drive model | Drive encapsulation | Power cable model Length: 3, 5, 10, 15, 20, 25                                                                                                                                                                                                                                                                                                     | Encoder cable model Length: 3, 5, 10, 15, 20, 25                                                                                                                                                                                                                                                                                                   |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
|-----|-------------------|-------------|------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|-------------------|-------------|-------------------|-------------------------------------|---------------|----------------------------|-----------------------|------------------------------------|---------------|------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | 40                | 220         | 0.05       | 0.16              | 0.56             | 3000              | 7000             | 1.2               | 4.8              | 0.018             | 0.4         | 53.5              | 25/8                                | 3             | IMS20B-04L05B30C-2-M41-AUL | \                     | 17-bit multi-turn magnetic encoder | In-line       | DA200A-*-2R8-S-2-*     | A                   | "Line out towards the rear end of the motor (Installation of the 40 base is prone to interference, and it is recommended to choose a rear facing outlet) Without brake Common: DAML-20A-xx-XF0-00A2 Flexible: DAML-20A-xx-XFF-00A2 With brake Common: DAML-20A-xx-XF0-01A2 Flexible: DAML-20A-xx-XFF-01A2 xx represents the length, e.g. 03: 3 m." | "Line out towards the rear end of the motor (Installation of the 40 base is prone to interference, and it is recommended to choose a rear facing outlet) Without battery Common: DAEL-04-xx-SI0-04A2 Flexible: DAEL-04-xx-SIF-04A2 With battery Common: DAEL-06-xx-SID-04A2 Flexible: DAEL-06-xx-SIH-04A2 xx represents the length, e.g. 03: 3 m." |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 2   |                   |             |            |                   |                  |                   |                  |                   |                  | 0.021             | 0.45        | 77.5              |                                     |               | IMS20B-04L05B30C-2-M45-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 3   |                   |             |            |                   |                  |                   |                  |                   |                  | 0.018             | 0.4         | 53.5              |                                     |               | IMS20B-04L05B30C-2-P91-AUL | \                     | 23-bit multi-turn optical encoder  |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 4   |                   |             |            |                   |                  |                   |                  |                   |                  | 0.021             | 0.45        | 77.5              |                                     |               | IMS20B-04L05B30C-2-P95-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 5   |                   |             | 0.1        | 0.32              | 1.12             | 3000              | 7000             | 1.2               | 4.8              | 0.033             | 0.5         | 66                | 25/8                                | 3             | IMS20B-04L10B30C-2-M41-AUL | \                     | 17-bit multi-turn magnetic encoder |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 6   |                   |             |            |                   |                  |                   |                  |                   |                  | 0.036             | 0.55        | 90                |                                     |               | IMS20B-04L10B30C-2-M45-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 7   |                   |             |            |                   |                  |                   |                  |                   |                  | 0.033             | 0.5         | 66                |                                     |               | IMS20B-04L10B30C-2-P91-AUL | \                     | 23-bit multi-turn optical encoder  |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 8   |                   |             |            |                   |                  |                   |                  |                   |                  | 0.036             | 0.55        | 90                |                                     |               | IMS20B-04L10B30C-2-P95-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 9   |                   |             | 0.05       | 0.16              | 0.56             | 3000              | 7000             | 1.2               | 5.3              | 0.034             | 0.4         | 53.5              | 25/8                                | 3             | IMS20B-04M05B30C-2-M41-AUL | \                     | 17-bit multi-turn magnetic encoder |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 10  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.037             | 0.45        | 77.5              |                                     |               | IMS20B-04M05B30C-2-M45-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 11  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.034             | 0.4         | 53.5              |                                     |               | IMS20B-04M05B30C-2-P91-AUL | \                     | 23-bit multi-turn optical encoder  |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 12  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.037             | 0.45        | 77.5              |                                     |               | IMS20B-04M05B30C-2-P95-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 13  |                   |             | 0.1        | 0.32              | 1.12             | 3000              | 7000             | 1.2               | 4.8              | 0.064             | 0.5         | 66                | 25/8                                | 3             | IMS20B-04M10B30C-2-M41-AUL | \                     | 17-bit multi-turn magnetic encoder |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 14  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.067             | 0.55        | 90                |                                     |               | IMS20B-04M10B30C-2-M45-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 15  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.064             | 0.5         | 66                |                                     |               | IMS20B-04M10B30C-2-P91-AUL | \                     | 23-bit multi-turn optical encoder  |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 16  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.067             | 0.55        | 90                |                                     |               | IMS20B-04M10B30C-2-P95-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 17  | 60                | 220         | 0.2        | 0.64              | 2.24             | 3000              | 7000             | 1.4               | 4.6              | 0.28              | 0.8         | 73                | 30/14                               | 5             | IMS20B-06M20B30C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder | In-line       | DA200A-*-2R8-S-2-*     | A                   | Line out towards the front end of the motor (You can also use the 40 base above to lead out the wire towards the back) Without brake Common: DAML-20A-xx-XF0-00A1 Flexible: DAML-20A-xx-XFF-00A1 With brake Common: DAML-20A-xx-XF0-01A1 Flexible: DAML-20A-xx-XFF-01A1 xx represents the length, e.g. 03: 3 m                                     | Line out towards the front end of the motor (You can also use the 40 base above to lead out the wire towards the back) Without battery Common: DAEL-04-xx-SI0-04A1 Flexible: DAEL-04-xx-SIF-04A1 With battery Common: DAEL-06-xx-SID-04A1 Flexible: DAEL-06-xx-SIH-04A1 xx represents the length, e.g. 03: 3 m                                     |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 18  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.31              | 1.1         | 95.5              |                                     |               | IMS20B-06M20B30C-2-M44-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 19  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.28              | 0.8         | 73                |                                     |               | IMS20B-06M20B30C-2-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 20  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.31              | 1.1         | 95.5              |                                     |               | IMS20B-06M20B30C-2-P94-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 21  |                   |             | 0.4        | 1.27              | 4.45             | 3000              | 7000             | 2.7               | 8.9              | 0.5               | 1.2         | 92.5              | 30/14                               | 5             | IMS20B-06M40B30C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 22  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.53              | 1.4         | 114.5             |                                     |               | IMS20B-06M40B30C-2-M44-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 23  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.5               | 1.2         | 92.5              |                                     |               | IMS20B-06M40B30C-2-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 24  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.53              | 1.4         | 114.5             |                                     |               | IMS20B-06M40B30C-2-P94-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 25  |                   | 380         | 0.2        | 0.64              | 2.24             | 3000              | 7000             | 1.1               | 3.6              | 0.28              | 0.8         | 73                | 30/14                               | 5             | IMS20B-06M20B30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder | In-line       | DA200A-*-1R6-T-2-*     |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    | A | Line out towards the front end of the motor (You can also use the 40 base above to lead out the wire towards the back) Without brake Common: DAML-20A-xx-XF0-00A1 Flexible: DAML-20A-xx-XFF-00A1 With brake Common: DAML-20A-xx-XF0-01A1 Flexible: DAML-20A-xx-XFF-01A1 xx represents the length, e.g. 03: 3 m | Line out towards the front end of the motor (You can also use the 40 base above to lead out the wire towards the back) Without battery Common: DAEL-04-xx-SI0-04A1 Flexible: DAEL-04-xx-SIF-04A1 With battery Common: DAEL-06-xx-SID-04A1 Flexible: DAEL-06-xx-SIH-04A1 xx represents the length, e.g. 03: 3 m |
| 26  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.31              | 1.1         | 95.5              |                                     |               | IMS20B-06M20B30C-4-M44-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 27  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.28              | 0.8         | 73                |                                     |               | IMS20B-06M20B30C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 28  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.31              | 1.1         | 95.5              |                                     |               | IMS20B-06M20B30C-4-P94-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 29  |                   |             | 0.4        | 1.27              | 4.45             | 3000              | 7000             | 1.6               | 5.3              | 0.5               | 1.2         | 92.5              | 30/14                               | 5             | IMS20B-06M40B30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 30  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.53              | 1.4         | 114.5             |                                     |               | IMS20B-06M40B30C-4-M44-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 31  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.5               | 1.2         | 92.5              |                                     |               | IMS20B-06M40B30C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 32  |                   |             |            |                   |                  |                   |                  |                   |                  | 0.53              | 1.4         | 114.5             |                                     |               | IMS20B-06M40B30C-4-P94-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 33  | 80                | 220         | 0.75       | 2.39              | 8.36             | 3000              | 7000             | 4.8               | 16               | 1.7               | 2.14        | 96.8              | 35/19                               | 6             | IMS20B-08M75B30C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder | In-line       | DA200A-*-6R0-S-2-*     | A                   |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 34  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.74              | 2.7         | 127               |                                     |               | IMS20B-08M75B30C-2-M44-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 35  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.7               | 2.14        | 96.8              |                                     |               | IMS20B-08M75B30C-2-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| 36  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.74              | 2.7         | 127               |                                     |               | IMS20B-08M75B30C-2-P94-AUL | Electromagnetic brake |                                    |               |                        |                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |

# 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 10-4kg·m <sup>2</sup> | Weight (kg) | Machine length mm | Shaft extension/Shaft diameter (mm) | Bond width mm | Motor model                | Brake                 | Encoder                            | Terminal type      | Compatible drive model | Drive encapsulation | Power cable model Length: 3, 5, 10, 15, 20, 25                                                                                                                                                                                                                                                                                                                                                           | Encoder cable model Length: 3, 5, 10, 15, 20, 25                                                                                                                                                                                                                                                                                       |
|-----|-------------------|-------------|------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|-------------------------------|-------------|-------------------|-------------------------------------|---------------|----------------------------|-----------------------|------------------------------------|--------------------|------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 37  | 80                | 220         | 1          | 3.18              | 11.14            | 3000              | 7000             | 5.5               | 19               | 2.2                           | 2.62        | 110.8             | 35/19                               | 6             | IMS20B-08M10C30C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder | In-line            | DA200A-*-6R0-S-2-*     | A                   | Line out towards the front end of the motor<br>(You can also use the 40 base above to lead out the wire towards the back)<br>Common: DAML-20A-xx-XF0-00A1<br>Flexible: DAML-20A-xx-XFF-00A1<br>Without brake<br>Common: DAML-20A-xx-XF0-01A1<br>Flexible: DAML-20A-xx-XFF-01A1<br>With brake<br>Common: DAML-20A-xx-XF0-01A1<br>Flexible: DAML-20A-xx-XFF-01A1<br>xx represents the length, e.g. 03: 3 m | Line out towards the front end of the motor<br>(You can also use the 40 base above to lead out the wire towards the back)<br>Without battery<br>Common: DAEL-04-xx-SI0-04A1<br>Flexible: DAEL-04-xx-SIF-04A1<br>With battery<br>Common: DAEL-06-xx-SID-04A1<br>Flexible: DAEL-06-xx-SIH-04A1<br>xx represents the length, e.g. 03: 3 m |
| 38  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.24                          | 3.18        | 141               |                                     |               | IMS20B-08M10C30C-2-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 39  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.2                           | 2.62        | 110.8             |                                     |               | IMS20B-08M10C30C-2-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 40  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.24                          | 3.18        | 141               |                                     |               | IMS20B-08M10C30C-2-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 41  |                   | 380         | 0.75       | 2.39              | 8.36             | 3000              | 7000             | 2.8               | 9.3              | 1.7                           | 2.14        | 96.8              | 35/19                               | 6             | IMS20B-08M75B30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder | In-line            | DA200A-*-3R5-T-2-*     | B                   |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 42  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.74                          | 2.7         | 127               |                                     |               | IMS20B-08M75B30C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 43  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.7                           | 2.14        | 96.8              |                                     |               | IMS20B-08M75B30C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 44  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.74                          | 2.7         | 127               |                                     |               | IMS20B-08M75B30C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 45  |                   |             | 1          | 3.18              | 11.14            | 3000              | 7000             | 3.5               | 11.7             | 2.2                           | 2.62        | 110.8             | 35/19                               | 6             | IMS20B-08M10C30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 46  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.24                          | 3.18        | 141               |                                     |               | IMS20B-08M10C30C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 47  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.2                           | 2.62        | 110.8             |                                     |               | IMS20B-08M10C30C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 48  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.24                          | 3.18        | 141               |                                     |               | IMS20B-08M10C30C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 49  | 100               | 220         | 1          | 3.2               | 9.6              | 3000              | 6000             | 5.9               | 19.7             | 1.71                          | 3.4         | 140.2             | 45/24                               | 8             | IMS20B-10M10C30C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder | 5015 aviation plug | DA200A-*-6R0-S-2-*     | A                   |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 50  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.87                          | 4.2         | 166.2             |                                     |               | IMS20B-10M10C30C-2-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 51  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.71                          | 3.4         | 140.2             |                                     |               | IMS20B-10M10C30C-2-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 52  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.87                          | 4.2         | 166.2             |                                     |               | IMS20B-10M10C30C-2-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 53  |                   |             | 1.5        | 4.8               | 14.3             | 3000              | 6000             | 7.8               | 29.3             | 2.36                          | 4.2         | 156.2             | 45/24                               | 8             | IMS20B-10M15C30C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    | DA200A-*-8R0-S-2-*     | B                   |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 54  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.53                          | 5           | 182.2             |                                     |               | IMS20B-10M15C30C-2-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 55  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.36                          | 4.2         | 156.2             |                                     |               | IMS20B-10M15C30C-2-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 56  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.53                          | 5           | 182.2             |                                     |               | IMS20B-10M15C30C-2-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 57  |                   |             | 2          | 6.4               | 19.1             | 3000              | 6000             | 11.1              | 36.8             | 3.03                          | 5           | 172.2             | 45/24                               | 8             | IMS20B-10M20C30C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    | DA200A-*-013-S-2-*     | C                   |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 58  |                   |             |            |                   |                  |                   |                  |                   |                  | 3.2                           | 5.8         | 198.2             |                                     |               | IMS20B-10M20C30C-2-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 59  |                   |             |            |                   |                  |                   |                  |                   |                  | 3.03                          | 5           | 172.2             |                                     |               | IMS20B-10M20C30C-2-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 60  |                   |             |            |                   |                  |                   |                  |                   |                  | 3.2                           | 5.8         | 198.2             |                                     |               | IMS20B-10M20C30C-2-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 61  |                   | 380         | 1          | 3.2               | 9.6              | 3000              | 6000             | 3                 | 10               | 1.71                          | 3.4         | 140.2             | 45/24                               | 8             | IMS20B-10M10C30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder | 5015 aviation plug | DA200A-*-3R5-T-2-*     | B                   |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 62  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.87                          | 4.2         | 166.2             |                                     |               | IMS20B-10M10C30C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 63  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.71                          | 3.4         | 140.2             |                                     |               | IMS20B-10M10C30C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 64  |                   |             |            |                   |                  |                   |                  |                   |                  | 1.87                          | 4.2         | 166.2             |                                     |               | IMS20B-10M10C30C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 65  |                   |             | 1.5        | 4.8               | 14.3             | 3000              | 6000             | 4                 | 14               | 2.36                          | 4.2         | 156.2             | 45/24                               | 8             | IMS20B-10M15C30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    | DA200A-*-5R5-T-2-*     |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 66  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.53                          | 5           | 182.2             |                                     |               | IMS20B-10M15C30C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 67  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.36                          | 4.2         | 156.2             |                                     |               | IMS20B-10M15C30C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 68  |                   |             |            |                   |                  |                   |                  |                   |                  | 2.53                          | 5           | 182.2             |                                     |               | IMS20B-10M15C30C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 69  |                   |             | 2          | 6.4               | 19.1             | 3000              | 6000             | 5.5               | 17.1             | 3.03                          | 5           | 172.2             | 45/24                               | 8             | IMS20B-10M20C30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 70  |                   |             |            |                   |                  |                   |                  |                   |                  | 3.2                           | 5.8         | 198.2             |                                     |               | IMS20B-10M20C30C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 71  |                   |             |            |                   |                  |                   |                  |                   |                  | 3.03                          | 5           | 172.2             |                                     |               | IMS20B-10M20C30C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |
| 72  |                   |             |            |                   |                  |                   |                  |                   |                  | 3.2                           | 5.8         | 198.2             |                                     |               | IMS20B-10M20C30C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                        |

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| No. | Base<br>model<br>No.<br>mm | Voltage<br>(V) | Power<br>(kW) | Rated<br>torque<br>(Nm) | Max.<br>torque<br>(Nm) | Rated<br>speed<br>(rpm) | Max.<br>speed<br>(rpm) | Rated<br>current<br>(A) | Max.<br>current<br>(A) | Inertia<br>10-<br>4kg·m <sup>2</sup> | Weight<br>(kg) | Machine<br>length<br>mm | Shaft<br>extension/Shaft<br>diameter<br>(mm)" | Bond<br>width<br>mm | Motor model                | Brake                 | Encoder                               | Terminal type         | Compatible drive<br>model | Drive<br>encapsulation | Power cable model<br>Length: 3, 5, 10, 15, 20, 25                                                                                                                                                         | Encoder cable model<br>Length: 3, 5, 10, 15, 20, 25                                                                                                                                                       |  |  |  |  |  |  |
|-----|----------------------------|----------------|---------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|--------------------------------------|----------------|-------------------------|-----------------------------------------------|---------------------|----------------------------|-----------------------|---------------------------------------|-----------------------|---------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|
| 73  | 100                        | 380            | 2.5           | 8                       | 23.9                   | 3000                    | 6000                   | 7.1                     | 22.5                   | 3.68                                 | 5.8            | 188.2                   | 45/24                                         | 8                   | IMS20B-10M25C30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder | 5015 aviation<br>plug | DA200A-*<br>-8R5-T-2-*    | C                      | Without brake<br>Common: DAML-16A-xx-KF0-00A4<br>Flexible: DAML-16A-xx-KFF-00A4<br>With brake<br>Common: DAML-16A-xx-KF0-01A4<br>Flexible: DAML-16A-xx-KFF-01A4<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DAEL-04-xx-HI0-04A4<br>Flexible: DAEL-04-xx-HIF-04A4<br>With battery<br>Common: DAEL-06-xx-HID-04A4<br>Flexible: DAEL-06-xx-HIH-04A4<br>xx represents the length, e.g. 03: 3 m |  |  |  |  |  |  |
| 74  |                            |                |               |                         |                        |                         |                        |                         |                        | 3.85                                 | 6.6            | 214.2                   |                                               |                     | IMS20B-10M25C30C-4-M44-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 75  |                            |                |               |                         |                        |                         |                        |                         |                        | 3.68                                 | 5.8            | 188.2                   |                                               |                     | IMS20B-10M25C30C-4-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 76  |                            |                |               |                         |                        |                         |                        |                         |                        | 3.85                                 | 6.6            | 214.2                   |                                               |                     | IMS20B-10M25C30C-4-P94-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 77  | 130                        | 220            | 0.85          | 5.4                     | 13.5                   | 1500                    | 4500                   | 6.2                     | 14.9                   | 13.1                                 | 5.7            | 138                     | 55/22                                         | 8                   | IMS20B-13H85B15C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder | 5015 aviation<br>plug | DA200A-*<br>-6R0-S-2-*    | A                      |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 78  |                            |                |               |                         |                        |                         |                        |                         |                        | 14.3                                 | 7.3            | 167                     |                                               |                     | IMS20B-13H85B15C-2-M44-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 79  |                            |                |               |                         |                        |                         |                        |                         |                        | 13.1                                 | 5.7            | 138                     |                                               |                     | IMS20B-13H85B15C-2-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 80  |                            |                |               |                         |                        |                         |                        |                         |                        | 14.3                                 | 7.3            | 167                     |                                               |                     | IMS20B-13H85B15C-2-P94-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 81  |                            |                | 1.3           | 8.3                     | 20.7                   | 1500                    | 4500                   | 9.9                     | 24.8                   | 17.9                                 | 7.2            | 155                     | 55/22                                         | 8                   | IMS20B-13H13C15C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder |                       | DA200A-*<br>-010-S-2-*    | B                      |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 82  |                            |                |               |                         |                        |                         |                        |                         |                        | 19.1                                 | 8.8            | 184                     |                                               |                     | IMS20B-13H13C15C-2-M44-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 83  |                            |                |               |                         |                        |                         |                        |                         |                        | 17.9                                 | 7.2            | 155                     |                                               |                     | IMS20B-13H13C15C-2-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 84  |                            |                |               |                         |                        |                         |                        |                         |                        | 19.1                                 | 8.8            | 184                     |                                               |                     | IMS20B-13H13C15C-2-P94-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 85  |                            |                | 1.8           | 11.5                    | 28.7                   | 1500                    | 4500                   | 12.8                    | 31.1                   | 24.3                                 | 9              | 185                     | 55/22                                         | 8                   | IMS20B-13H18C15C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder |                       | DA200A-*<br>-013-S-2-*    | C                      |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 86  |                            |                |               |                         |                        |                         |                        |                         |                        | 25.6                                 | 10.6           | 215                     |                                               |                     | IMS20B-13H18C15C-2-M44-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 87  |                            |                |               |                         |                        |                         |                        |                         |                        | 24.3                                 | 9              | 185                     |                                               |                     | IMS20B-13H18C15C-2-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 88  |                            |                |               |                         |                        |                         |                        |                         |                        | 25.6                                 | 10.6           | 215                     |                                               |                     | IMS20B-13H18C15C-2-P94-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 89  |                            |                | 2.3           | 7.3                     | 21.9                   | 3000                    | 5000                   | 11.9                    | 32.6                   | 17.9                                 | 7.2            | 155                     | 55/22                                         | 8                   | IMS20B-13H23C30C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder |                       | DA200A-*<br>-013-S-2-*    | C                      |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 90  |                            |                |               |                         |                        |                         |                        |                         |                        | 19.1                                 | 8.8            | 184                     |                                               |                     | IMS20B-13H23C30C-2-M44-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 91  |                            |                |               |                         |                        |                         |                        |                         |                        | 17.9                                 | 7.2            | 155                     |                                               |                     | IMS20B-13H23C30C-2-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 92  |                            |                |               |                         |                        |                         |                        |                         |                        | 19.1                                 | 8.8            | 184                     |                                               |                     | IMS20B-13H23C30C-2-P94-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 93  |                            |                | 1             | 4.8                     | 14.3                   | 2000                    | 4500                   | 5.4                     | 16.9                   | 6.3                                  | 4.4            | 130                     | 55/22                                         | 8                   | IMS20B-13M10C20C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder |                       | DA200A-*<br>-6R0-S-2-*    | A                      |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 94  |                            |                |               |                         |                        |                         |                        |                         |                        | 7.95                                 | 6              | 159                     |                                               |                     | IMS20B-13M10C20C-2-M44-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 95  |                            |                |               |                         |                        |                         |                        |                         |                        | 6.3                                  | 4.4            | 130                     |                                               |                     | IMS20B-13M10C20C-2-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 96  |                            |                |               |                         |                        |                         |                        |                         |                        | 7.95                                 | 6              | 159                     |                                               |                     | IMS20B-13M10C20C-2-P94-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 97  |                            |                | 1.5           | 7.2                     | 21.5                   | 2000                    | 4500                   | 7.6                     | 22.2                   | 9.1                                  | 5.6            | 143                     | 55/22                                         | 8                   | IMS20B-13M15C20C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder |                       | DA200A-*<br>-8R0-S-2-*    | B                      |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 98  |                            |                |               |                         |                        |                         |                        |                         |                        | 10.8                                 | 7.2            | 172                     |                                               |                     | IMS20B-13M15C20C-2-M44-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 99  |                            |                |               |                         |                        |                         |                        |                         |                        | 9.1                                  | 5.6            | 143                     |                                               |                     | IMS20B-13M15C20C-2-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 100 |                            |                |               |                         |                        |                         |                        |                         |                        | 10.8                                 | 7.2            | 172                     |                                               |                     | IMS20B-13M15C20C-2-P94-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 101 |                            |                | 2             | 9.6                     | 28.7                   | 2000                    | 4500                   | 9                       | 27.8                   | 12.9                                 | 6.9            | 160                     | 55/22                                         | 8                   | IMS20B-13M20C20C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder |                       | DA200A-*<br>-010-S-2-*    | B                      |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 102 |                            |                |               |                         |                        |                         |                        |                         |                        | 14.6                                 | 8.5            | 189                     |                                               |                     | IMS20B-13M20C20C-2-M44-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 103 |                            |                |               |                         |                        |                         |                        |                         |                        | 12.9                                 | 6.9            | 160                     |                                               |                     | IMS20B-13M20C20C-2-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 104 |                            |                |               |                         |                        |                         |                        |                         |                        | 14.6                                 | 8.5            | 189                     |                                               |                     | IMS20B-13M20C20C-2-P94-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 105 |                            |                | 3             | 14.3                    | 43                     | 2000                    | 3000                   | 13                      | 37.5                   | 21.7                                 | 10.3           | 210.5                   | 55/22                                         | 8                   | IMS20B-13M30C20C-2-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder |                       | DA200A-*<br>-013-S-2-*    | C                      |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 106 |                            |                |               |                         |                        |                         |                        |                         |                        | 23.4                                 | 11.9           | 240.2                   |                                               |                     | IMS20B-13M30C20C-2-M44-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 107 |                            |                |               |                         |                        |                         |                        |                         |                        | 21.7                                 | 10.3           | 210.5                   |                                               |                     | IMS20B-13M30C20C-2-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |
| 108 |                            |                |               |                         |                        |                         |                        |                         |                        | 23.4                                 | 11.9           | 240.2                   |                                               |                     | IMS20B-13M30C20C-2-P94-AUL | Electromagnetic brake |                                       |                       |                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                           |  |  |  |  |  |  |

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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 10-4kg·m <sup>2</sup> | Weight (kg) | Machine length mm | Shaft extension/Shaft diameter (mm)" | Bond width mm | Motor model                | Brake                 | Encoder                            | Terminal type      | Compatible drive model | Drive encapsulation | Power cable model Length: 3, 5, 10, 15, 20, 25                                                                                                                                                            | Encoder cable model Length: 3, 5, 10, 15, 20, 25                                                                                                                                                          |
|-----|-------------------|-------------|------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|-------------------------------|-------------|-------------------|--------------------------------------|---------------|----------------------------|-----------------------|------------------------------------|--------------------|------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 109 | 130               | 380         | 0.85       | 5.4               | 13.5             | 1500              | 4500             | 3.3               | 8.3              | 13.1                          | 5.7         | 138               | 55/22                                | 8             | IMS20B-13H85B15C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder | 5015 aviation plug | DA200A-*-3R5-T-2-*     | B                   | Without brake<br>Common: DAML-16A-xx-KF0-00A4<br>Flexible: DAML-16A-xx-KFF-00A4<br>With brake<br>Common: DAML-16A-xx-KF0-01A4<br>Flexible: DAML-16A-xx-KFF-01A4<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DAEL-04-xx-HI0-04A4<br>Flexible: DAEL-04-xx-HIF-04A4<br>With battery<br>Common: DAEL-06-xx-HID-04A4<br>Flexible: DAEL-06-xx-HIH-04A4<br>xx represents the length, e.g. 03: 3 m |
| 110 |                   |             |            |                   |                  |                   |                  |                   |                  | 14.3                          | 7.3         | 167               |                                      |               | IMS20B-13H85B15C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 111 |                   |             |            |                   |                  |                   |                  |                   |                  | 13.1                          | 5.7         | 138               |                                      |               | IMS20B-13H85B15C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 112 |                   |             |            |                   |                  |                   |                  |                   |                  | 14.3                          | 7.3         | 167               |                                      |               | IMS20B-13H85B15C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 113 |                   |             | 1.3        | 8.3               | 20.7             | 1500              | 4500             | 5.2               | 12.6             | 17.9                          | 7.2         | 155               | 55/22                                | 8             | IMS20B-13H13C15C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    | DA200A-*-5R5-T-2-*     |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 114 |                   |             |            |                   |                  |                   |                  |                   |                  | 19.1                          | 8.8         | 184               |                                      |               | IMS20B-13H13C15C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 115 |                   |             |            |                   |                  |                   |                  |                   |                  | 17.9                          | 7.2         | 155               |                                      |               | IMS20B-13H13C15C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 116 |                   |             |            |                   |                  |                   |                  |                   |                  | 19.1                          | 8.8         | 184               |                                      |               | IMS20B-13H13C15C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 117 |                   |             | 1.8        | 11.5              | 28.7             | 1500              | 4500             | 7.7               | 17.8             | 24.3                          | 9           | 185               | 55/22                                | 8             | IMS20B-13H18C15C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    | DA200A-*-8R5-T-2-*     | C                   |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 118 |                   |             |            |                   |                  |                   |                  |                   |                  | 25.6                          | 10.6        | 215               |                                      |               | IMS20B-13H18C15C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 119 |                   |             |            |                   |                  |                   |                  |                   |                  | 24.3                          | 9           | 185               |                                      |               | IMS20B-13H18C15C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 120 |                   |             |            |                   |                  |                   |                  |                   |                  | 25.6                          | 10.6        | 215               |                                      |               | IMS20B-13H18C15C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 121 |                   |             | 2.3        | 7.3               | 21.9             | 3000              | 5000             | 6.8               | 19.2             | 17.9                          | 7.2         | 155               | 55/22                                | 8             | IMS20B-13H23C30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    | DA200A-*-3R5-T-2-*     |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 122 |                   |             |            |                   |                  |                   |                  |                   |                  | 19.1                          | 8.8         | 184               |                                      |               | IMS20B-13H23C30C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 123 |                   |             |            |                   |                  |                   |                  |                   |                  | 17.9                          | 7.2         | 155               |                                      |               | IMS20B-13H23C30C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 124 |                   |             |            |                   |                  |                   |                  |                   |                  | 19.1                          | 8.8         | 184               |                                      |               | IMS20B-13H23C30C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 125 |                   |             | 1          | 4.8               | 14.3             | 2000              | 4500             | 3                 | 8.6              | 6.3                           | 4.4         | 130               | 55/22                                | 8             | IMS20B-13M10C20C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder | 5015 aviation plug | DA200A-*-3R5-T-2-*     | B                   |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 126 |                   |             |            |                   |                  |                   |                  |                   |                  | 7.95                          | 6           | 159               |                                      |               | IMS20B-13M10C20C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 127 |                   |             |            |                   |                  |                   |                  |                   |                  | 6.3                           | 4.4         | 130               |                                      |               | IMS20B-13M10C20C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 128 |                   |             |            |                   |                  |                   |                  |                   |                  | 7.95                          | 6           | 159               |                                      |               | IMS20B-13M10C20C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 129 |                   |             | 1.5        | 7.2               | 21.5             | 2000              | 4500             | 4.8               | 13.4             | 9.1                           | 5.6         | 143               | 55/22                                | 8             | IMS20B-13M15C20C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    | DA200A-*-5R5-T-2-*     |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 130 |                   |             |            |                   |                  |                   |                  |                   |                  | 10.8                          | 7.2         | 172               |                                      |               | IMS20B-13M15C20C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 131 |                   |             |            |                   |                  |                   |                  |                   |                  | 9.1                           | 5.6         | 143               |                                      |               | IMS20B-13M15C20C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 132 |                   |             |            |                   |                  |                   |                  |                   |                  | 10.8                          | 7.2         | 172               |                                      |               | IMS20B-13M15C20C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 133 |                   |             | 2          | 9.6               | 28.7             | 2000              | 4500             | 5.6               | 15.9             | 12.9                          | 6.9         | 160               | 55/22                                | 8             | IMS20B-13M20C20C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    | DA200A-*-8R5-T-2-*     | C                   |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 134 |                   |             |            |                   |                  |                   |                  |                   |                  | 14.6                          | 8.5         | 189               |                                      |               | IMS20B-13M20C20C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 135 |                   |             |            |                   |                  |                   |                  |                   |                  | 12.9                          | 6.9         | 160               |                                      |               | IMS20B-13M20C20C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 136 |                   |             |            |                   |                  |                   |                  |                   |                  | 14.6                          | 8.5         | 189               |                                      |               | IMS20B-13M20C20C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 137 |                   |             | 3          | 14.3              | 43               | 2000              | 3000             | 7.7               | 21.1             | 21.7                          | 10.3        | 210.5             | 55/22                                | 8             | IMS20B-13M30C20C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder |                    | DA200A-*-8R5-T-2-*     |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 138 |                   |             |            |                   |                  |                   |                  |                   |                  | 23.4                          | 11.9        | 240.2             |                                      |               | IMS20B-13M30C20C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 139 |                   |             |            |                   |                  |                   |                  |                   |                  | 21.7                          | 10.3        | 210.5             |                                      |               | IMS20B-13M30C20C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 140 |                   |             |            |                   |                  |                   |                  |                   |                  | 23.4                          | 11.9        | 240.2             |                                      |               | IMS20B-13M30C20C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 141 |                   |             | 3          | 9.8               | 29.4             | 3000              | 6000             | 9                 | 29.5             | 6.89                          | 8.3         | 192               | 63/28                                | 8             | IMS20B-13L30C30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic encoder | 5015 aviation plug | DA200A-*-012-T-2-*     | D                   | Without brake<br>Common: DAML-14A-xx-KW0-00A4<br>Flexible: DAML-14A-xx-KWF-00A4<br>With brake<br>Common: DAML-14A-xx-KW0-01A4<br>Flexible: DAML-14A-xx-KWF-01A4<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DAEL-04-xx-HI0-04A4<br>Flexible: DAEL-04-xx-HIF-04A4<br>With battery<br>Common: DAEL-06-xx-HID-04A4<br>Flexible: DAEL-06-xx-HIH-04A4<br>xx represents the length, e.g. 03: 3 m |
| 142 |                   |             |            |                   |                  |                   |                  |                   |                  | 8.13                          | 9.9         | 222               |                                      |               | IMS20B-13L30C30C-4-M44-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 143 |                   |             |            |                   |                  |                   |                  |                   |                  | 6.89                          | 8.3         | 192               |                                      |               | IMS20B-13L30C30C-4-P9-AUL  | \                     | 23-bit multi-turn optical encoder  |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |
| 144 |                   |             |            |                   |                  |                   |                  |                   |                  | 8.13                          | 9.9         | 222               |                                      |               | IMS20B-13L30C30C-4-P94-AUL | Electromagnetic brake |                                    |                    |                        |                     |                                                                                                                                                                                                           |                                                                                                                                                                                                           |

# Ordering guide

| No. | Base<br>model<br>No.<br>mm | Voltage<br>(V) | Power<br>(kW) | Rated<br>torque<br>(Nm) | Max.<br>torque<br>(Nm) | Rated<br>speed<br>(rpm) | Max.<br>speed<br>(rpm) | Rated<br>current<br>(A) | Max.<br>current<br>(A) | Inertia<br>10-<br>4kg·m <sup>2</sup> | Weight<br>(kg) | Machine<br>length<br>mm | Shaft<br>extension/Shaft<br>diameter<br>(mm)" | Bond<br>width<br>mm | Motor model                | Brake                 | Encoder                               | Terminal type          | Compatible drive<br>model                                                                                                                                                                                 | Drive<br>encapsulation | Power cable model<br>Length: 3, 5, 10, 15, 20, 25                                                                                                                                                         | Encoder cable model<br>Length: 3, 5, 10, 15, 20, 25                                                                                                                                                                          |
|-----|----------------------------|----------------|---------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|--------------------------------------|----------------|-------------------------|-----------------------------------------------|---------------------|----------------------------|-----------------------|---------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 145 | 130                        | 380            | 4             | 12.6                    | 37.8                   | 3000                    | 6000                   | 13.5                    | 41                     | 9.89                                 | 11             | 230                     | 63/28                                         | 8                   | IMS20B-13L40C30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder | 5015 aviation<br>plug  | DA200A-*<br>-016-T-2-*                                                                                                                                                                                    | D                      | ithout brake<br>Common: DAML-14A-xx-KW0-00A4<br>Flexible: DAML-14A-xx-KWF-00A4<br>With brake<br>Common: DAML-14A-xx-KW0-01A4<br>Flexible: DAML-14A-xx-KWF-01A4<br>xx represents the length, e.g. 03: 3 m  | Without battery<br>Common: DAEL-04-xx-<br>HI0-04A4<br>Flexible: DAEL-04-xx-HIF-<br>04A4<br>With battery<br>Common: DAEL-06-xx-<br>HID-04A4<br>Flexible: DAEL-06-xx-HIH-<br>04A4<br>xx represents the length,<br>e.g. 03: 3 m |
| 146 |                            |                |               |                         |                        |                         |                        |                         |                        | 11.13                                | 11.6           | 260                     |                                               |                     | IMS20B-13L40C30C-4-M44-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 147 |                            |                |               |                         |                        |                         |                        |                         |                        | 9.89                                 | 11             | 230                     |                                               |                     | IMS20B-13L40C30C-4-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 148 |                            |                |               |                         |                        |                         |                        |                         |                        | 11.13                                | 11.6           | 260                     |                                               |                     | IMS20B-13L40C30C-4-P94-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 149 |                            |                | 5             | 15.8                    | 47.4                   | 3000                    | 6000                   | 17                      | 52                     | 12.9                                 | 13.6           | 268                     | 63/28                                         | 8                   | IMS20B-13L50C30C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 150 |                            |                |               |                         |                        |                         |                        |                         |                        | 14.14                                | 14.2           | 298                     |                                               |                     | IMS20B-13L50C30C-4-M44-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 151 |                            |                |               |                         |                        |                         |                        |                         |                        | 12.9                                 | 13.6           | 268                     |                                               |                     | IMS20B-13L50C30C-4-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 152 |                            |                |               |                         |                        |                         |                        |                         |                        | 14.14                                | 14.2           | 298                     |                                               |                     | IMS20B-13L50C30C-4-P94-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 153 | 180                        | 380            | 3             | 19.1                    | 47.8                   | 1500                    | 4500                   | 9.7                     | 22                     | 48.6                                 | 19.2           | 223                     | 79/35                                         | 10                  | IMS20B-18M30C15C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder | 5015 aviation<br>plug  | DA200A-*<br>-012-T-2-*                                                                                                                                                                                    | D                      | Without brake<br>Common: DAML-14A-xx-LW0-00A4<br>Flexible: DAML-14A-xx-LWF-00A4<br>With brake<br>Common: DAML-14A-xx-LW0-01A4<br>Flexible: DAML-14A-xx-LWF-01A4<br>xx represents the length, e.g. 03: 3 m | Without battery<br>Common: DAEL-04-xx-<br>HI0-04A4<br>Flexible: DAEL-04-xx-HIF-<br>04A4<br>With battery<br>Common: DAEL-06-xx-<br>HID-04A4<br>Flexible: DAEL-06-xx-HIH-<br>04A4<br>xx represents the length,<br>e.g. 03: 3 m |
| 154 |                            |                |               |                         |                        |                         |                        |                         |                        | 49.3                                 | 21.2           | 263                     |                                               |                     | IMS20B-18M30C15C-4-M44-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 155 |                            |                |               |                         |                        |                         |                        |                         |                        | 48.6                                 | 19.2           | 223                     |                                               |                     | IMS20B-18M30C15C-4-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 156 |                            |                |               |                         |                        |                         |                        |                         |                        | 49.3                                 | 21.2           | 263                     |                                               |                     | IMS20B-18M30C15C-4-P94-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 157 |                            |                | 4.4           | 28                      | 70                     | 1500                    | 4500                   | 13.5                    | 29.8                   | 65.2                                 | 23.2           | 248                     | 79/35                                         | 10                  | IMS20B-18M44C15C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 158 |                            |                |               |                         |                        |                         |                        |                         |                        | 65.9                                 | 25.2           | 288                     |                                               |                     | IMS20B-18M44C15C-4-M44-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 159 |                            |                |               |                         |                        |                         |                        |                         |                        | 65.2                                 | 23.2           | 248                     |                                               |                     | IMS20B-18M44C15C-4-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 160 |                            |                |               |                         |                        |                         |                        |                         |                        | 65.9                                 | 25.2           | 288                     |                                               |                     | IMS20B-18M44C15C-4-P94-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 161 |                            |                | 5.5           | 35                      | 88.8                   | 1500                    | 4500                   | 16.8                    | 37.7                   | 84                                   | 27.7           | 273                     | 113/42                                        | 12                  | IMS20B-18M55C15C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 162 |                            |                |               |                         |                        |                         |                        |                         |                        | 84.7                                 | 29.7           | 313                     |                                               |                     | IMS20B-18M55C15C-4-M44-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 163 |                            |                |               |                         |                        |                         |                        |                         |                        | 84                                   | 27.7           | 273                     |                                               |                     | IMS20B-18M55C15C-4-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 164 |                            |                |               |                         |                        |                         |                        |                         |                        | 84.7                                 | 29.7           | 313                     |                                               |                     | IMS20B-18M55C15C-4-P94-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 165 |                            |                | 7.5           | 47.8                    | 119.5                  | 1500                    | 4500                   | 20.9                    | 46.4                   | 107.4                                | 34.7           | 308                     | 113/42                                        | 12                  | IMS20B-18M75C15C-4-M4-AUL  | \                     | 17-bit multi-turn magnetic<br>encoder | DA200A-*<br>-021-T-2-* | Without brake<br>Common: DAML-12A-xx-LW0-00A4<br>Flexible: DAML-12A-xx-LWF-00A4<br>With brake<br>Common: DAML-12A-xx-LW0-01A4<br>Flexible: DAML-12A-xx-LWF-01A4<br>xx represents the length, e.g. 03: 3 m |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 166 |                            |                |               |                         |                        |                         |                        |                         |                        | 108.1                                | 19.2           | 348                     |                                               |                     | IMS20B-18M75C15C-4-M44-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 167 |                            |                |               |                         |                        |                         |                        |                         |                        | 107.4                                | 34.7           | 308                     |                                               |                     | IMS20B-18M75C15C-4-P9-AUL  | \                     | 23-bit multi-turn optical<br>encoder  |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |
| 168 |                            |                |               |                         |                        |                         |                        |                         |                        | 108.1                                | 19.2           | 348                     |                                               |                     | IMS20B-18M75C15C-4-P94-AUL | Electromagnetic brake |                                       |                        |                                                                                                                                                                                                           |                        |                                                                                                                                                                                                           |                                                                                                                                                                                                                              |

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