

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

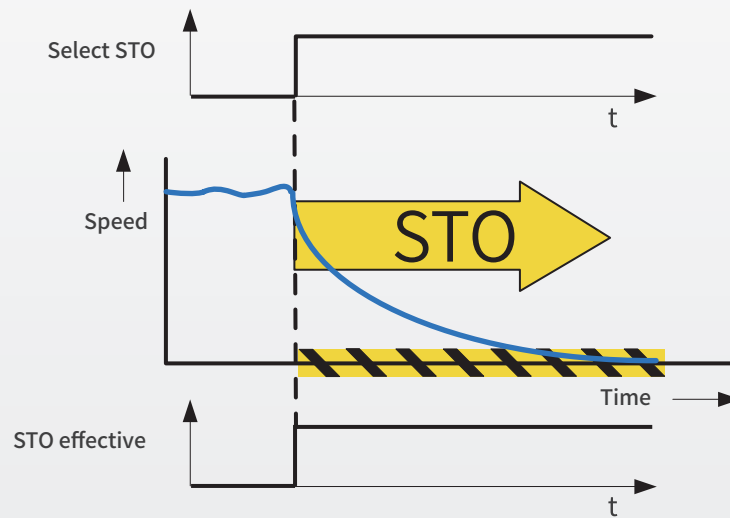
DA200A series high-performance AC servo system is the new generation of INVT servo products. It adopts a stable product technology platform and uses dedicated direct drive algorithms, improving its safety functions, product performance, reliability, and ease of use. With excellent products and services,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



Servo product functions and features

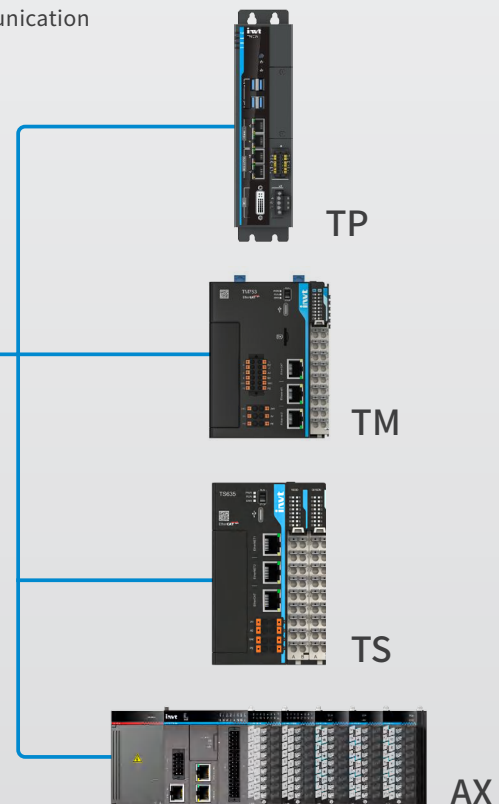
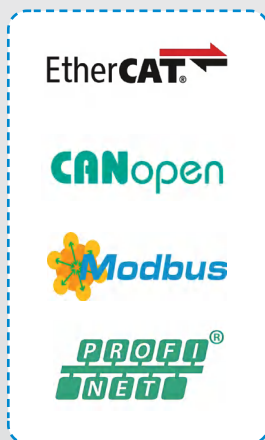
■ Safe and reliable

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



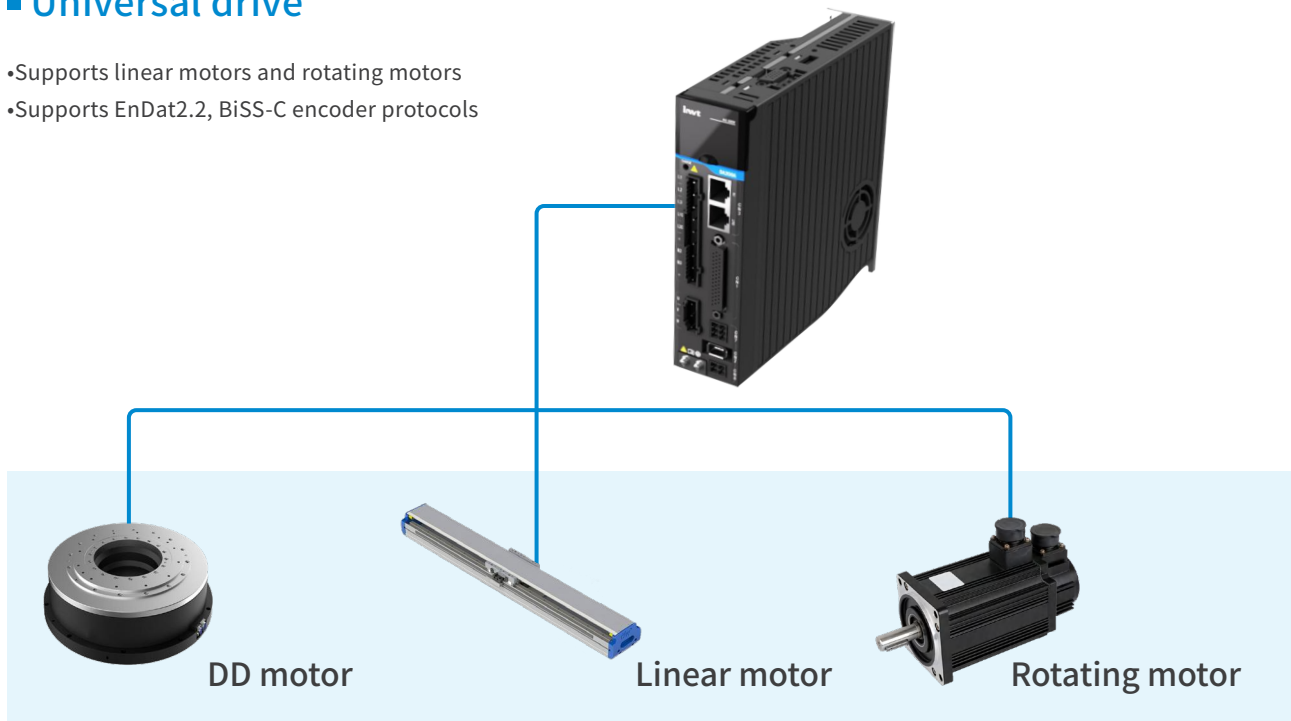
■ Enriched communication

- 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



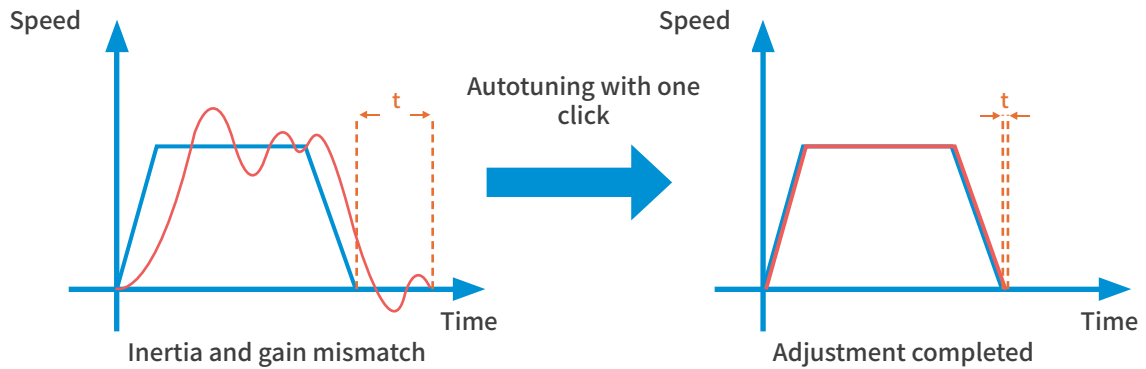
■ Built-in brake output

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



Autotuning with one click

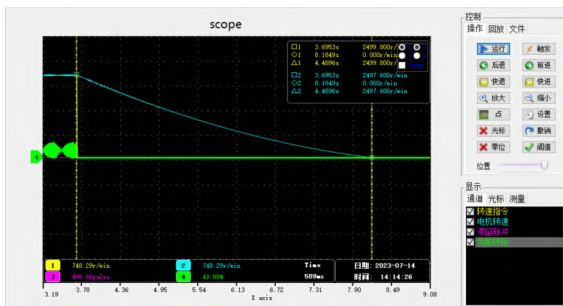
- Autotuning with one click requires just a few simple steps to automatically learn and update drive parameters, shortening the tuning time and making it easy to use



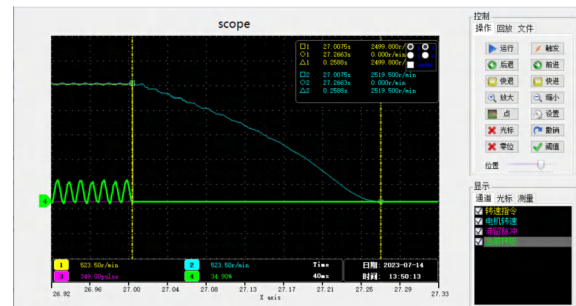
Dynamic braking

- 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



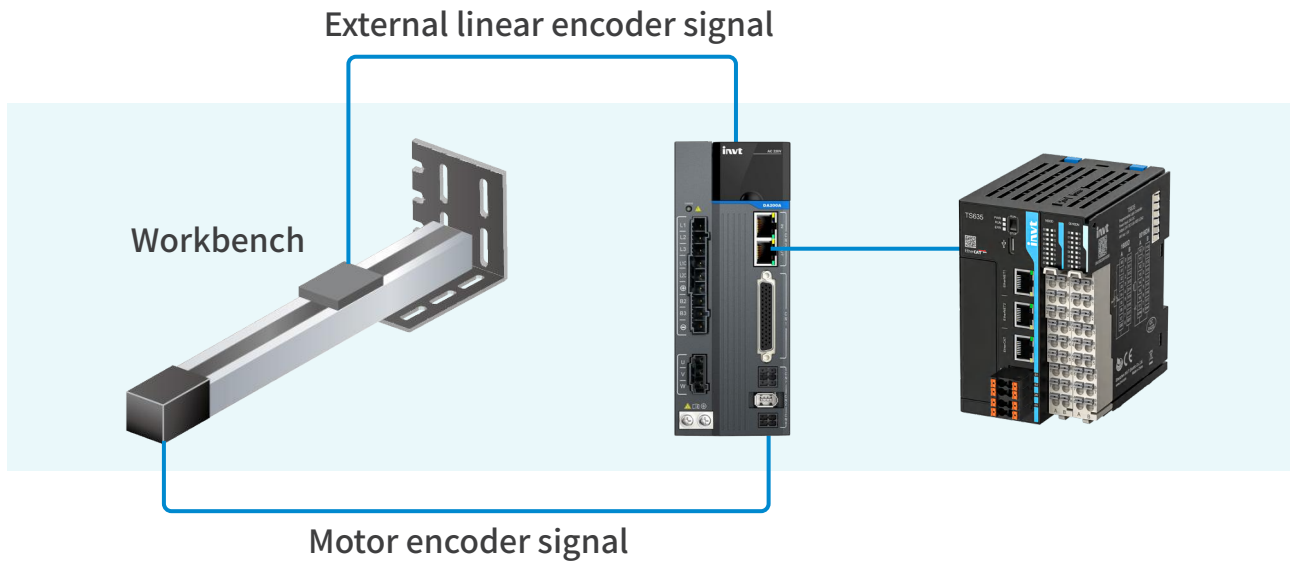
Free coast: 4.5s: **4.5s**



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

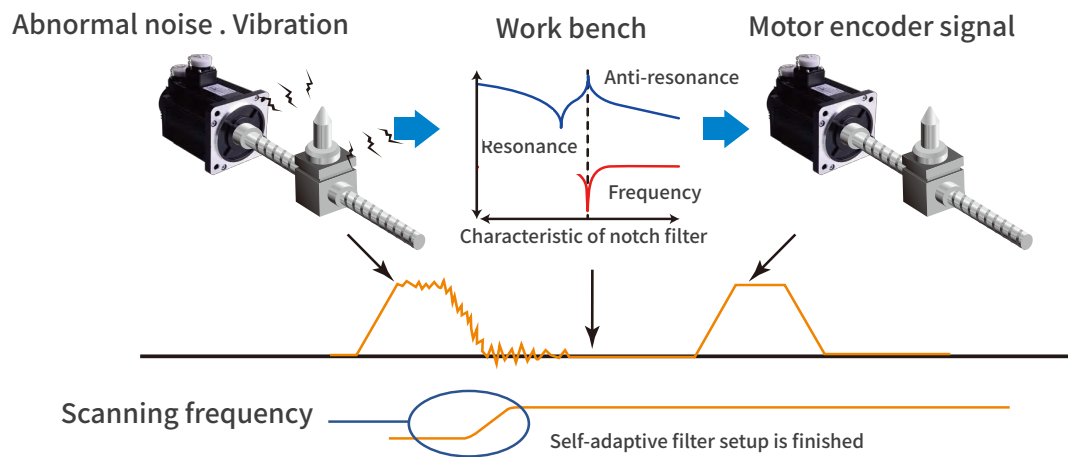
P1.06-Mechanical movement: 2.0 (0.2~20) (r)

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

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

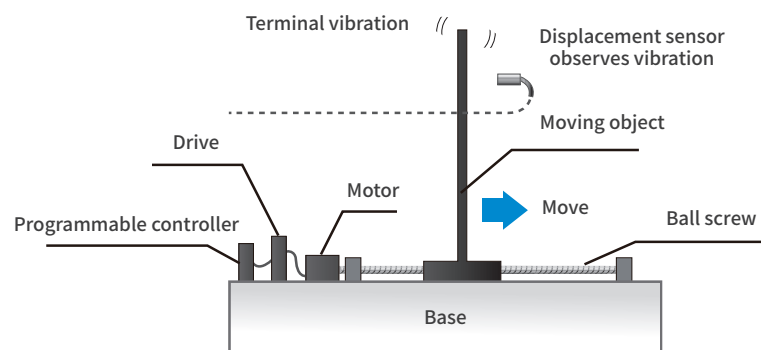
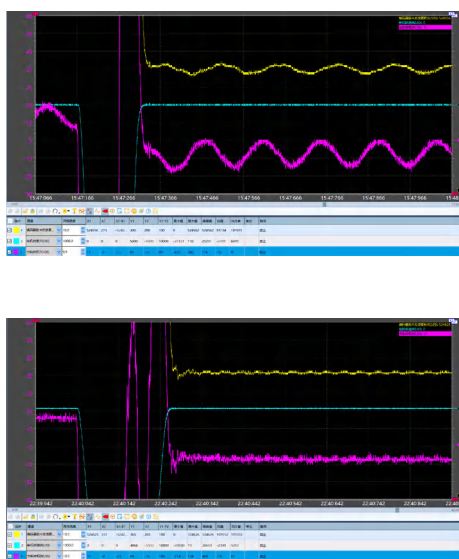
■ Automatic/manual notch filter

- 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

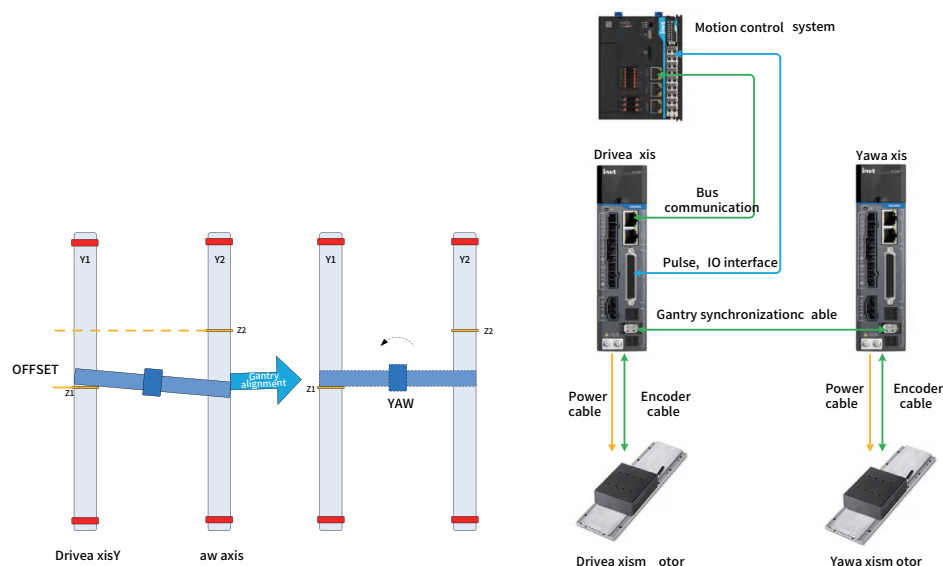


■ Low frequency vibration control

- 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.

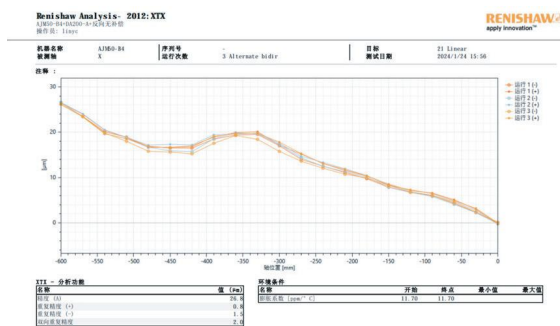
■ Speed observer

- 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.

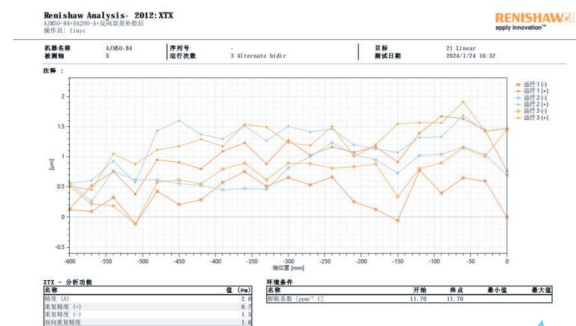
Unique functions of linear drives

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 μm



Positioning accuracy after compensation: 2 μm

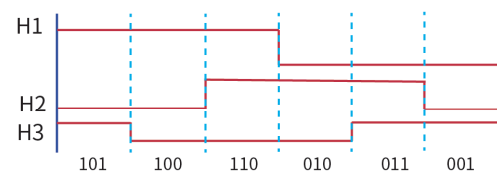
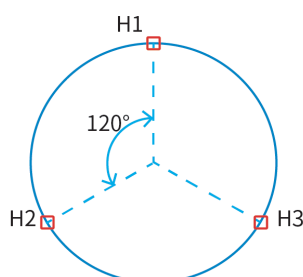
2 μm

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 380V
2R8: 2.8A 3R5: 3.5A
6R0: 6.0A 5R5: 5.5A
8R0: 8.0A 8R5: 8.5A
010: 10A 012: 12A
013: 13A 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 60W	30Ω 60W	30Ω 60W	60Ω 60W	60Ω 60W	30Ω 60W	60Ω 60W	30Ω 120W	30Ω 120W	30Ω 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

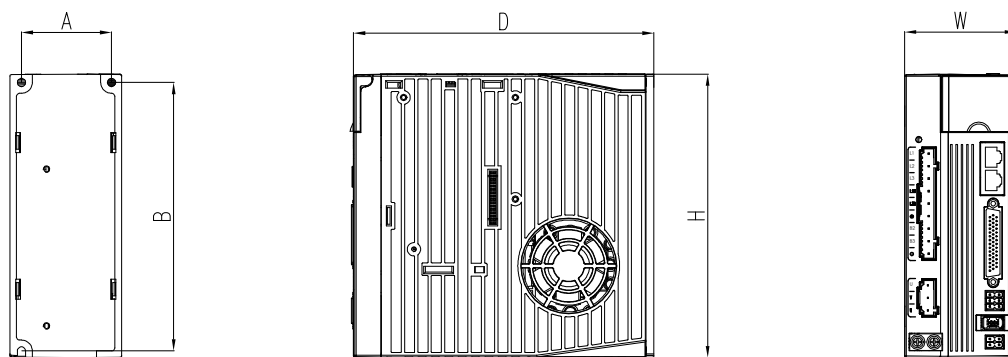
Specification			Description	
① Power supply	System input voltage of 220V		1P/3P AC220V(-15%)~240V(+10%) 47Hz~63Hz	
	System input voltage of 400V		3P AC380V(-15%)~440V(+10%) 47Hz~63Hz	
Port	Control signal	Input of 5V	10 inputs for pulse type and CANopen type, 7 inputs for EtherCAT bus type (the function 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; 2. B-phase reverse function	
	Speed control	Control input	1. Internal command speed 1; 2. Internal command speed 2; 3. Internal command speed 3; 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. 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. 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 ² , 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 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

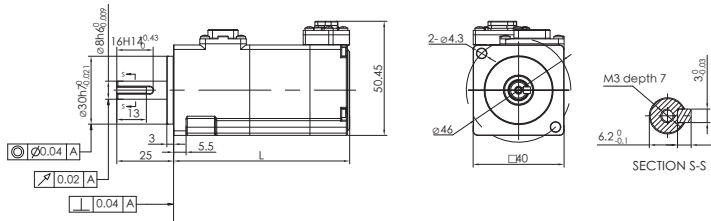
IMS20B-06 M 40B 30C-2-M3 4	
Item	Description
Product series	IMS20B: IMS20B series
Base model No.	04: 40 10: 100 18: 180 06: 60 13: 130
Inertia identification	L: Small inertia M: Medium inertia H: Large inertia
Rated power (W)	Composition of base (number) * magnification (letter) A: *1 B: *10 C: *100 E.g.: 40B: 400W 15C: 1500W
Rated speed (rpm)	Composition of base (number) * magnification (letter) A: *1 B: *10 C: *100 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 ²) 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)									

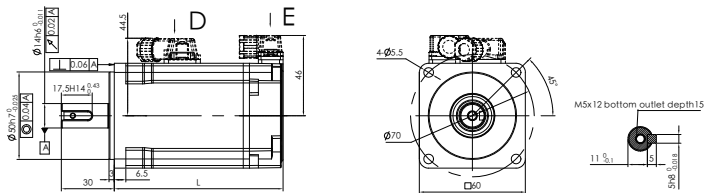
Installation dimensions for 40-frame motors (unit: mm)

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



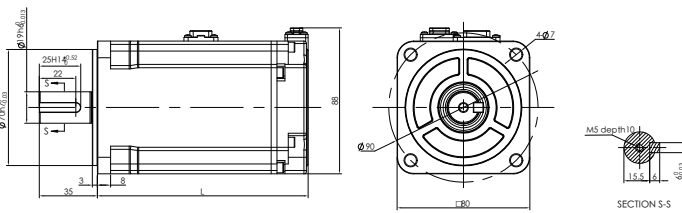
Installation dimensions for 60-frame motors (unit: mm)

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



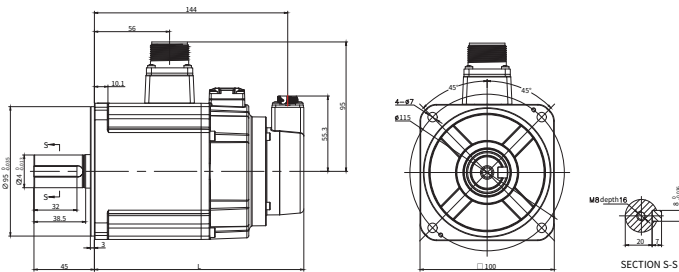
Installation dimensions for 80-frame motors (unit: mm)

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



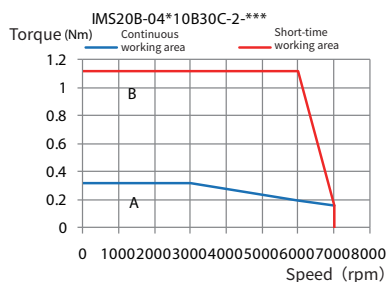
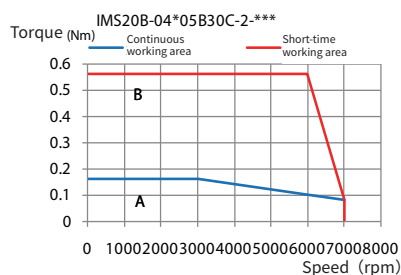
Installation dimensions for 100-frame motors (unit: mm)

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

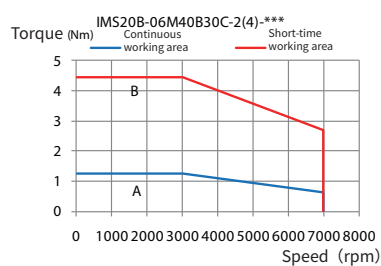
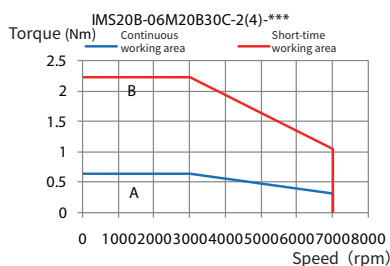


Servo motor torque-speed characteristics

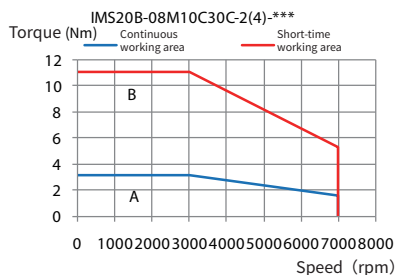
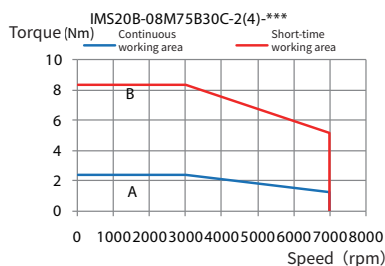
Base-40 motor



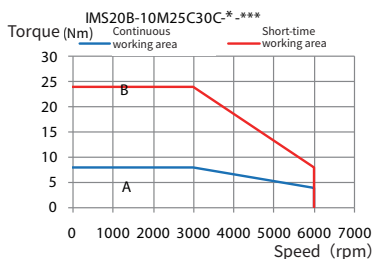
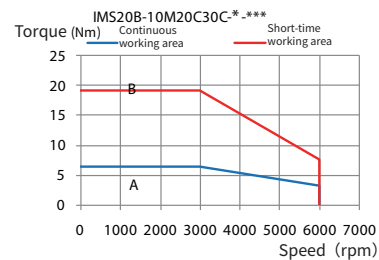
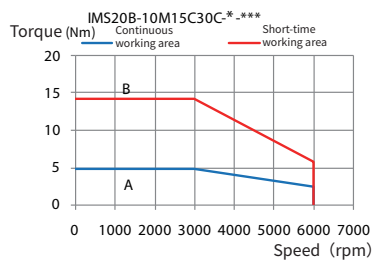
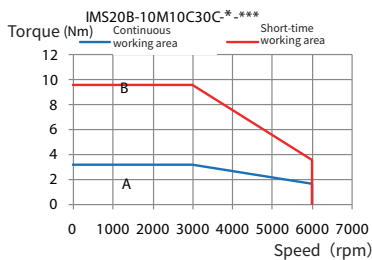
Base-60 motor



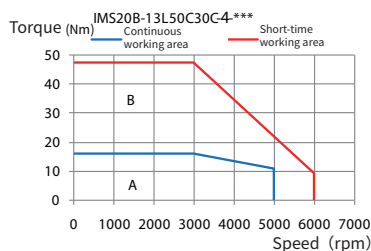
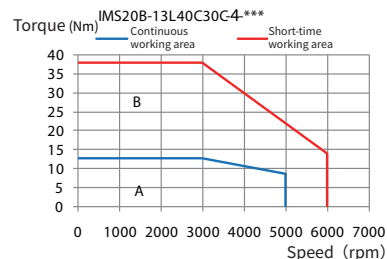
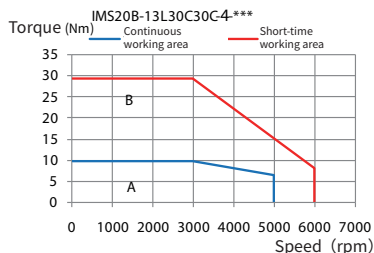
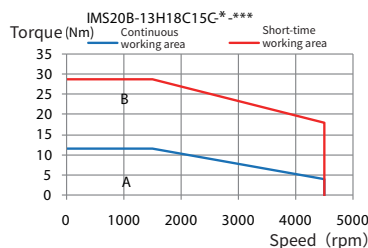
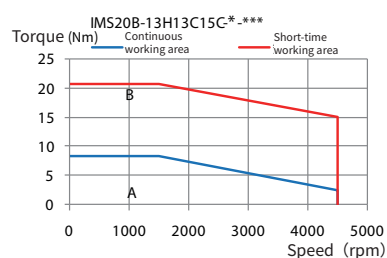
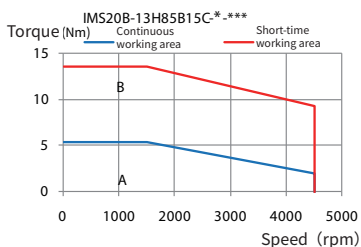
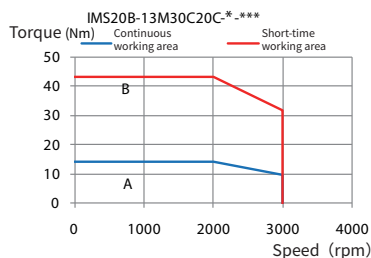
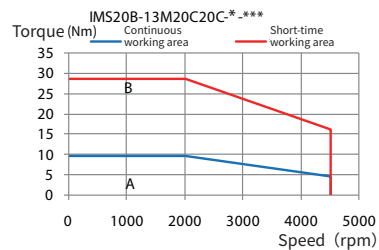
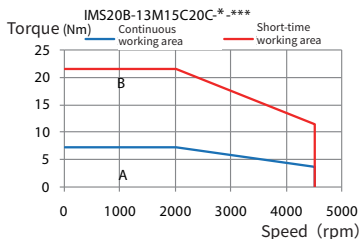
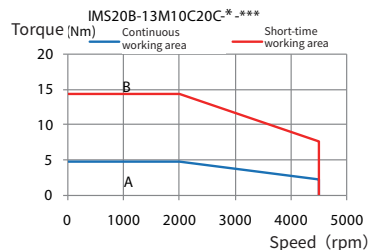
Base-80 motor



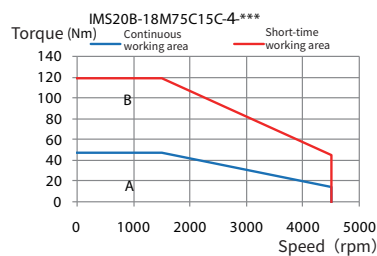
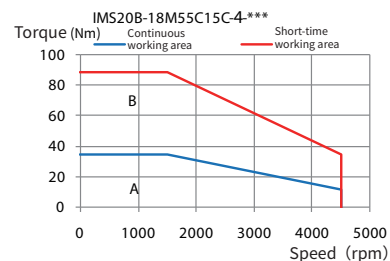
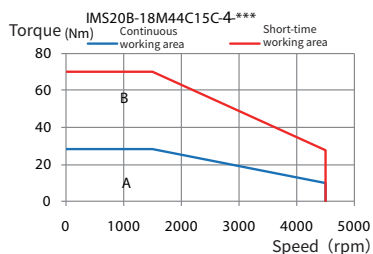
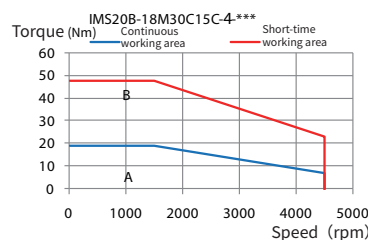
Base-100 motor



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 ²
100	1.0 mm ²
250	2.5 mm ²
400	4.0 mm ²
600	6.0 mm ²

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

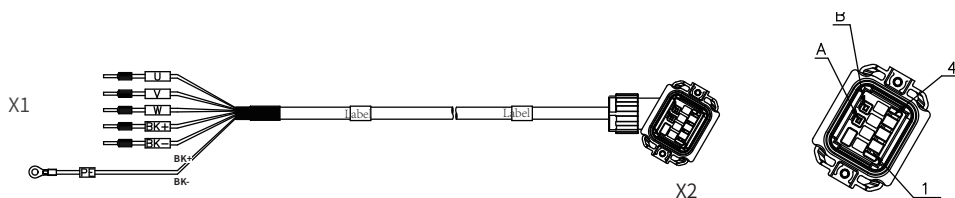
Symbol	Cable material
0	Regular cable
F	Flexible towline cable
A	Shielded regular cable

⑧

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

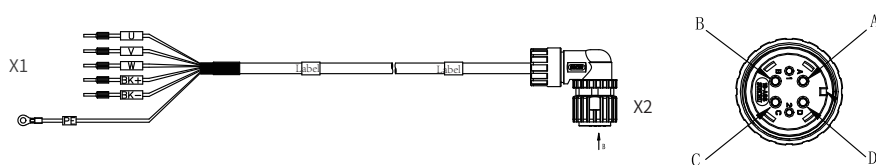
Servo motor power cable wiring

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

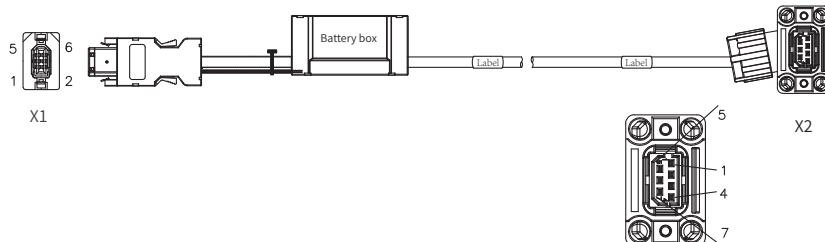
⑦	Symbol	Cable material
	0	Regular cable
	D	Regular cable with battery holder
	F	Flexible towline cable
	H	Flexible towline cable with battery holder

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

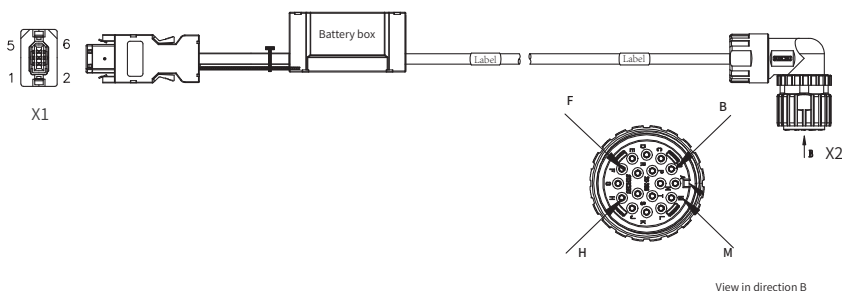
Servo motor encoder cable wiring

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)

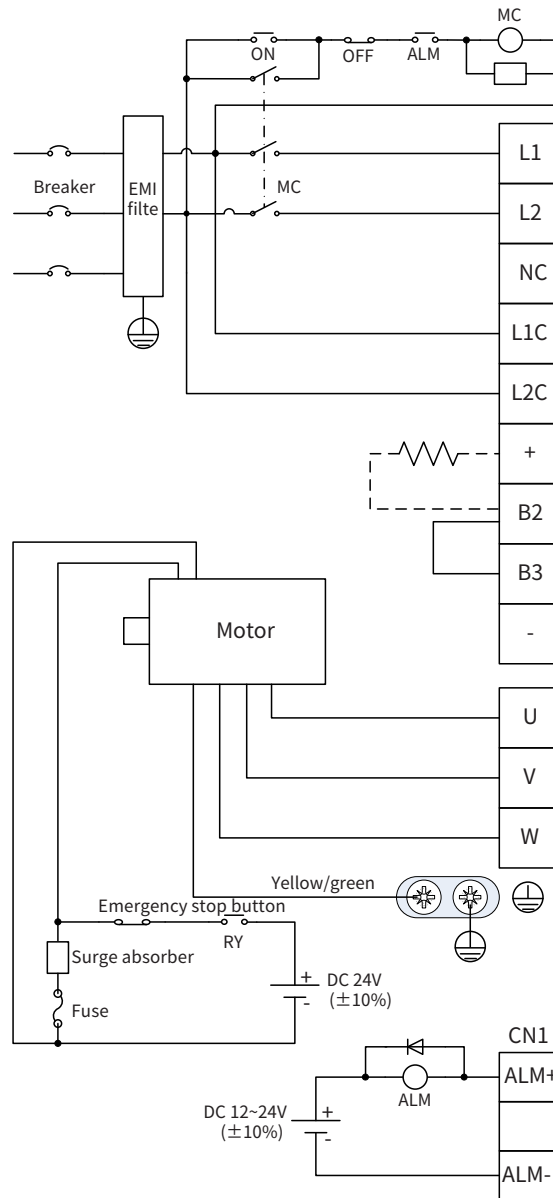


Wiring mapping			
Signal	X1	X2	Core cable structure
SD+	X1.5	X2.A	Twisted pair
SD-	X1.6	X2.B	
5V	X1.1	X2.G	Twisted pair
GND	X1.2	X2.H	
BAT+	/	X2.E	Twisted pair
BAT-	/	X2.F	
Shield	Iron shell	X2.J	Woven

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.

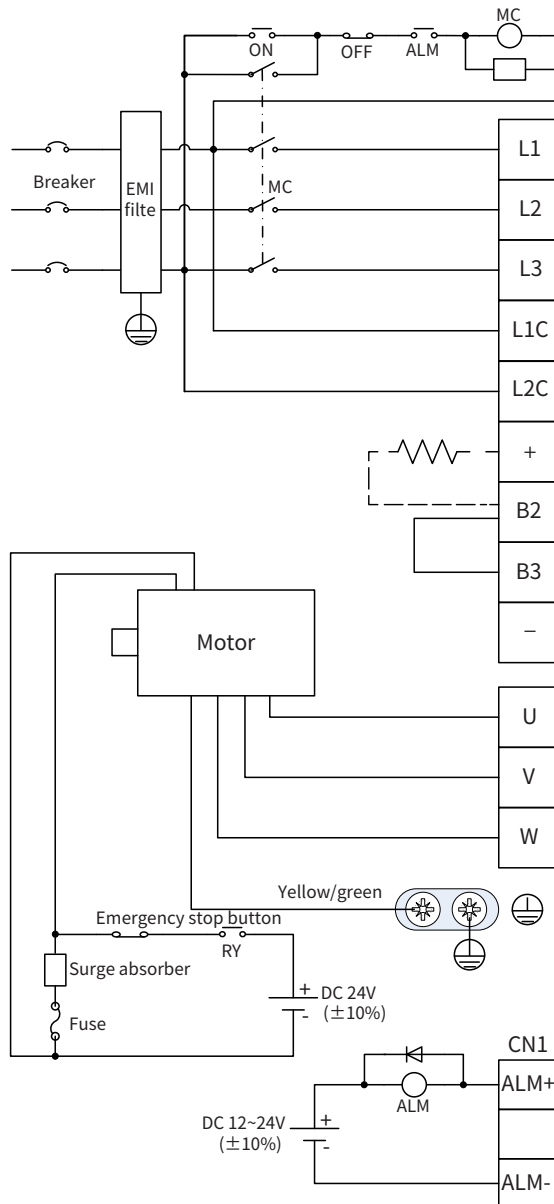
- Do not disconnect the short connection wire between B2 and B3 unless the external regenerative braking resistance is used.
- When using an external regenerative braking resistor, disconnect the short connection wire between B2 and B3, and connect according to the dashed line in the figure.
- Connect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

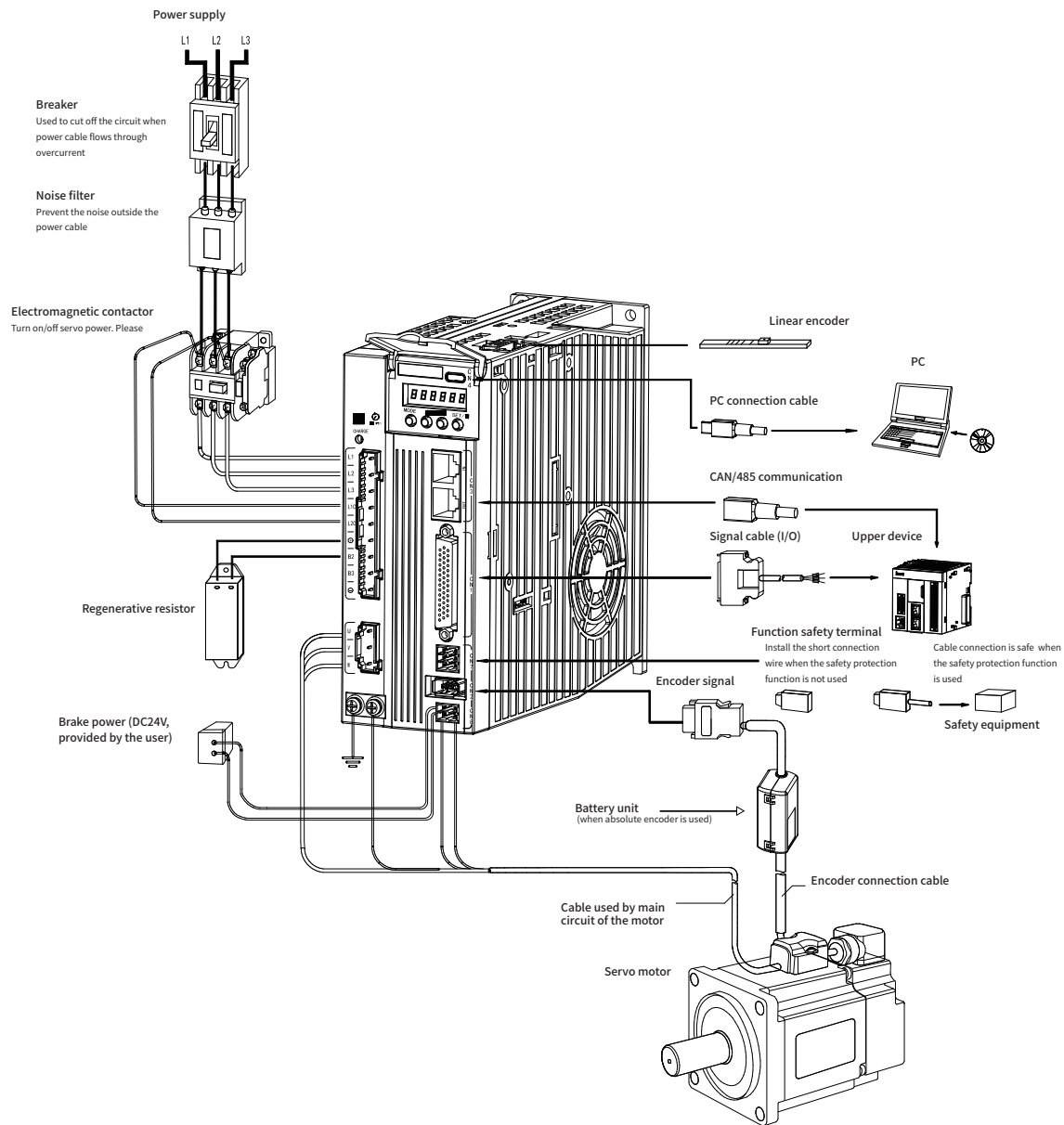
- Pay attention to the connection of the freewheeling diode. Reversed polarity may damage the drive.

Main circuit wiring diagram for size B/C/D

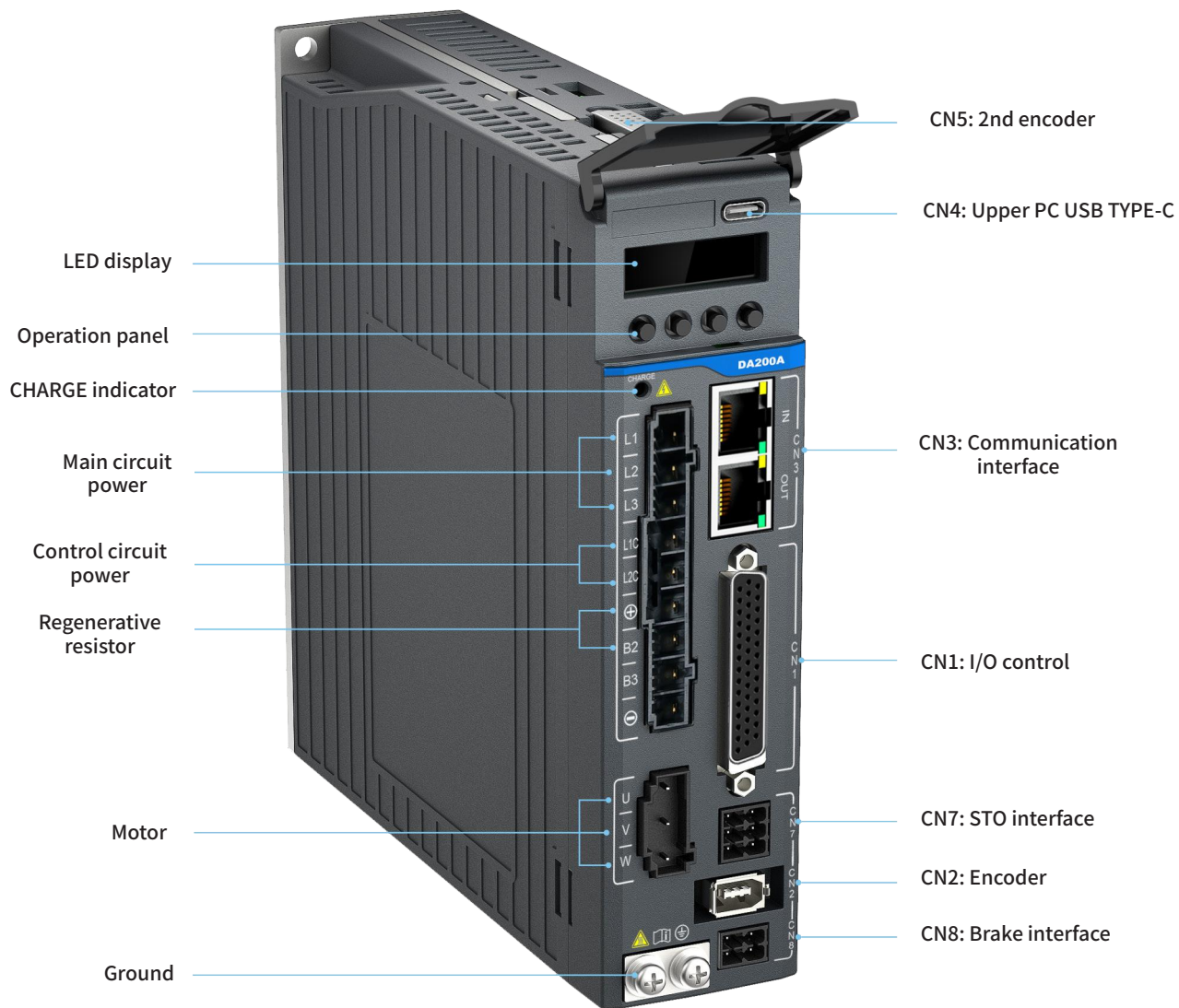


- You need to make this emergency stop protection circuit.
- Add surge absorbing devices on both ends of the electromagnetic contactor winding.
- System input voltage of 220V: AC 220V($\pm 15\%$)
- System input voltage of 400V: AC 380V($\pm 15\%$)
- Do not disconnect the short connection wire between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

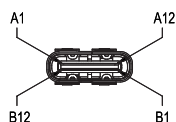
System wiring



Drive terminal diagram

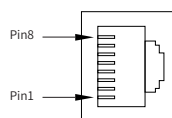


User interface



CN4: USB port

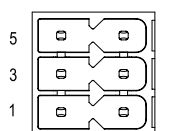
CN4 port function			
Pin	Name	Function	Remarks
A7, B7	USB-	Data-	Standard type-c interface
A6, B6	USB+	Data+	
A1, A12, B1, B12	GND	Signal ground	
A4, B4, A5, B5, A9, B9	-	-	



CN3: Communication port

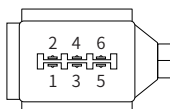
CN3 port function (IN)			
Pin	Name	Function	Remarks
1	CAN_H	CAN data +	RS485 and CAN use the same interface and each signal has three pins for multiple networking
2	CAN_L	CAN data -	
3	CAN_GND	CAN signal ground	
4	RS485+	RS485 data +	
5	RS485-	RS485 data -	
8	GND	RS485 GND	
6, 7	-	-	

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	-	-	



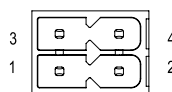
CN7: STO port

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-	



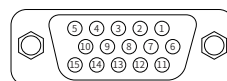
CN2: Encoder port

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

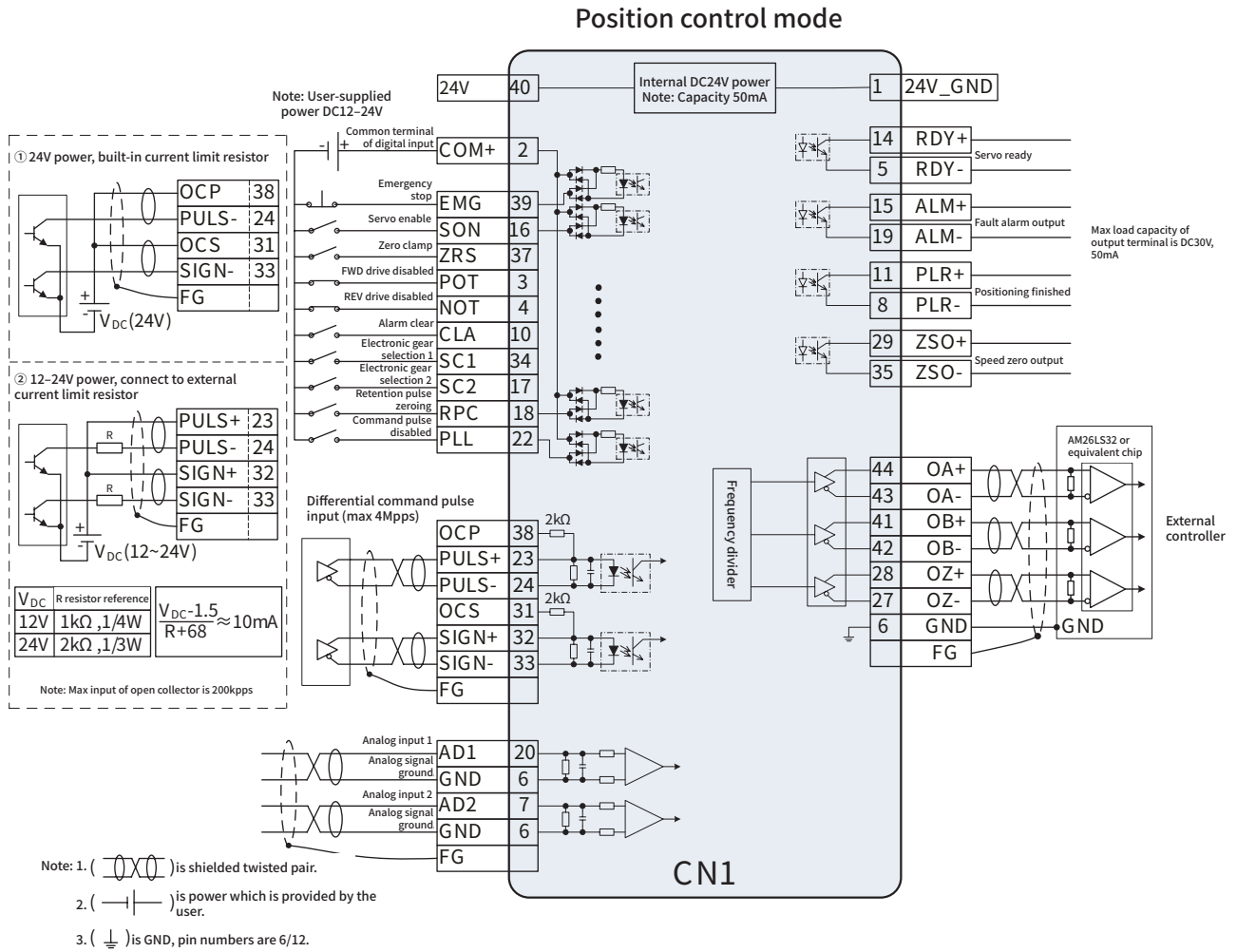
CN1: IO port

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 +

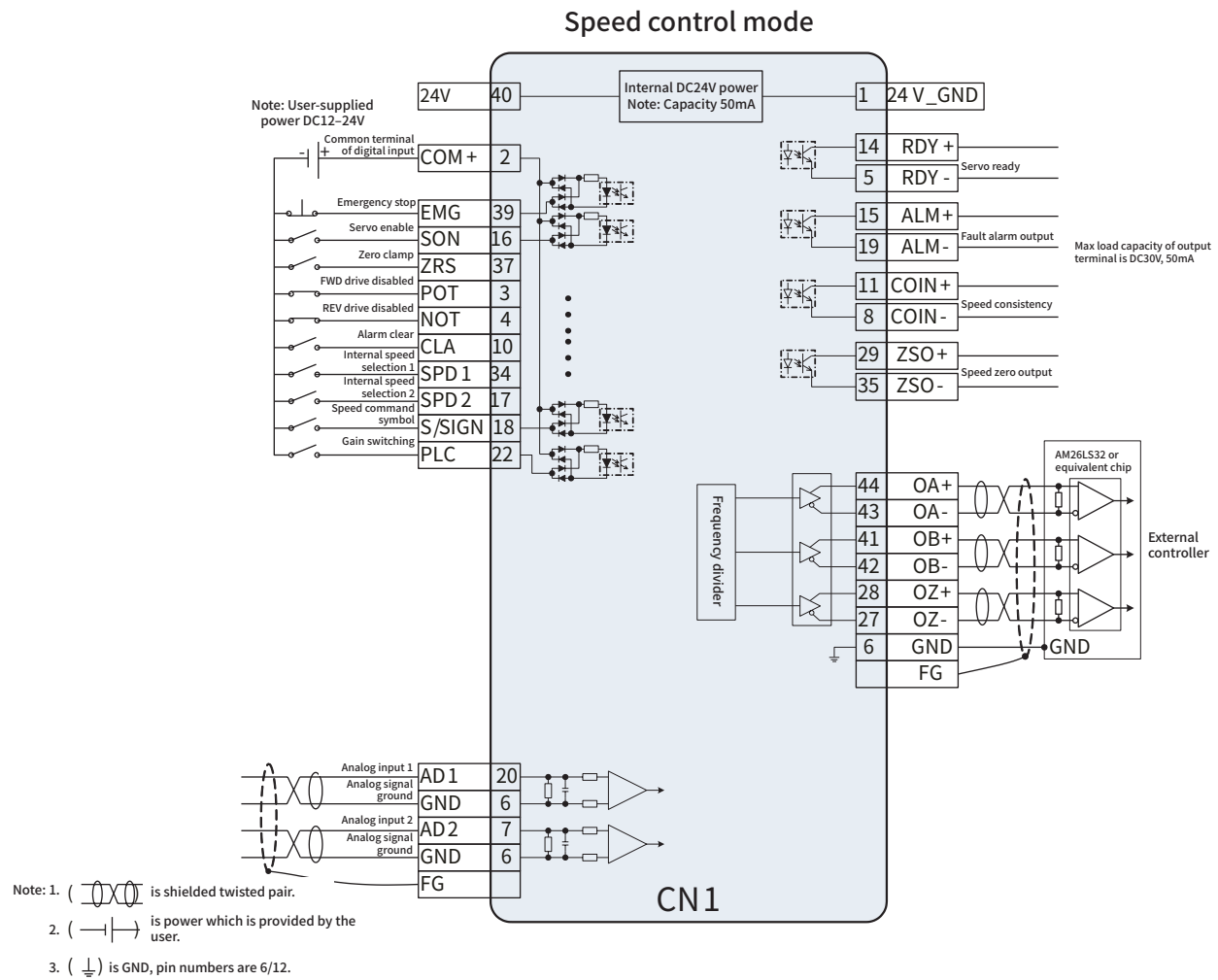
Note

Standard wiring diagram

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

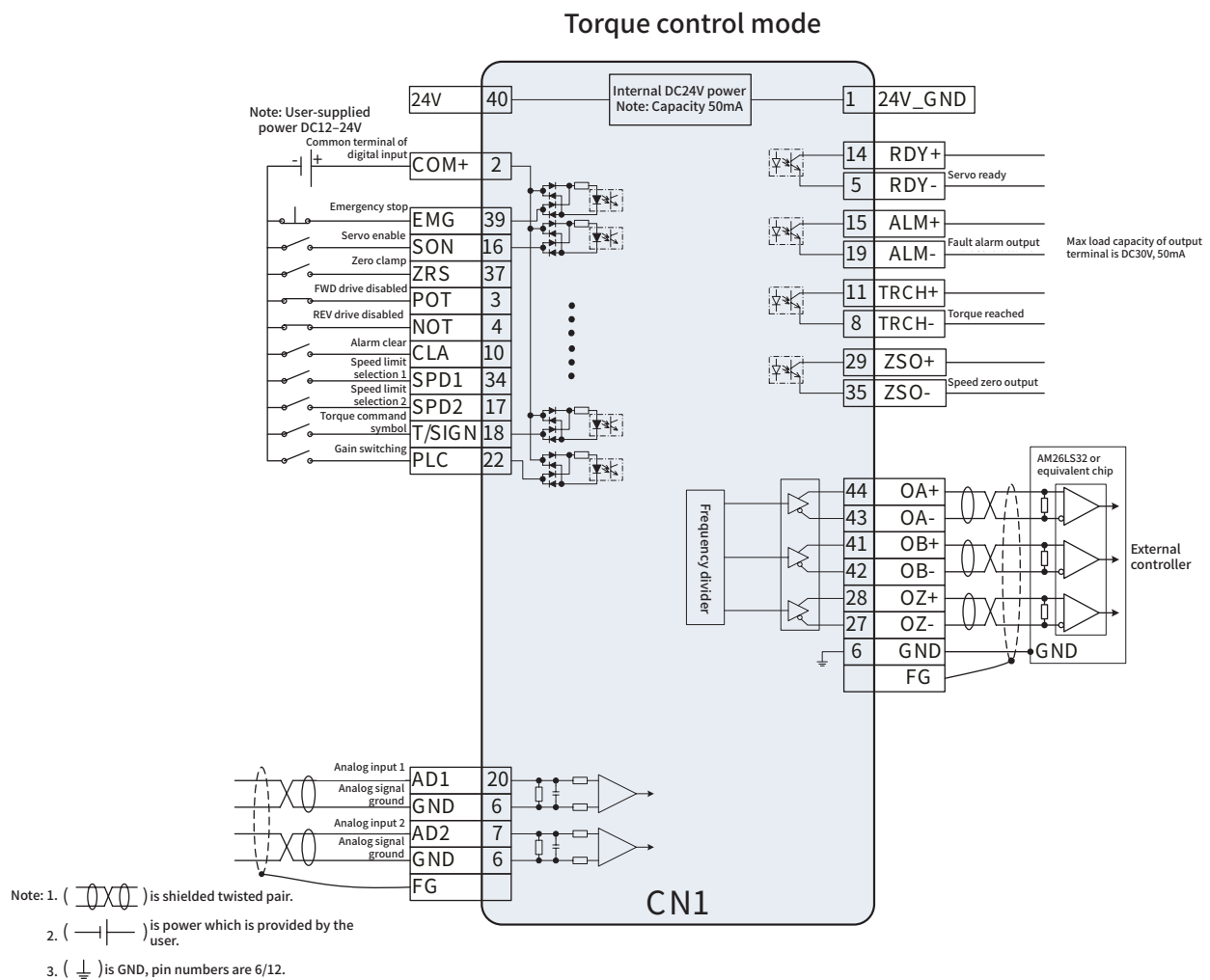


Standard wiring diagram of speed mode (suitable for analog input control)

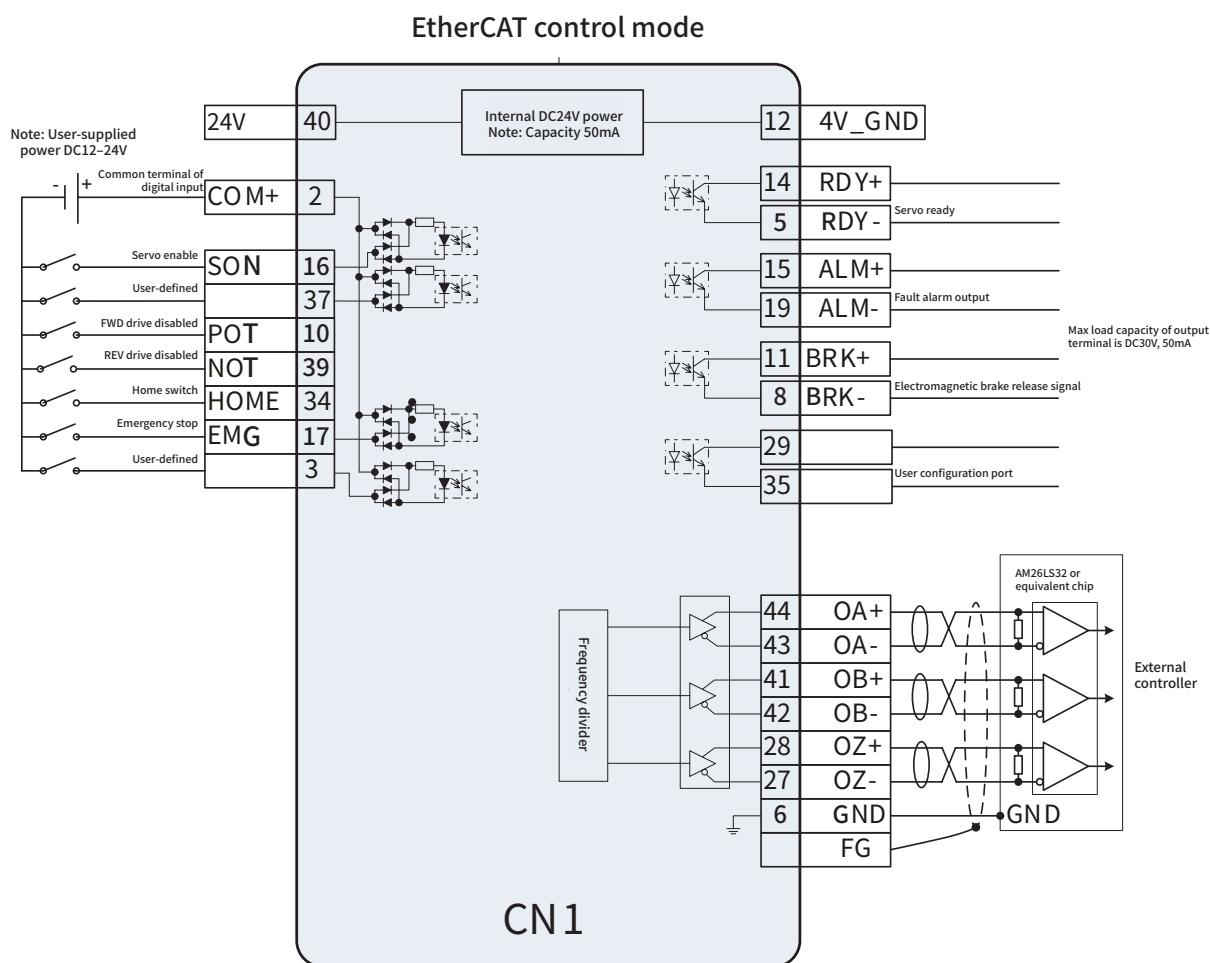


Standard wiring diagram

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·m ²	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	23-bit multi-turn optical encoder												
3										0.018	0.4	53.5			IMS20B-04L05B30C-2-P91-AUL	\													
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	23-bit multi-turn optical encoder												
7										0.033	0.5	66			IMS20B-04L10B30C-2-P91-AUL	\													
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	23-bit multi-turn optical encoder												
11										0.034	0.4	53.5			IMS20B-04M05B30C-2-P91-AUL	\													
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	23-bit multi-turn optical encoder												
15										0.064	0.5	66			IMS20B-04M10B30C-2-P91-AUL	\													
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	23-bit multi-turn optical encoder												
19										0.28	0.8	73			IMS20B-06M20B30C-2-P9-AUL	\													
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-bit multi-turn optical encoder												
23										0.5	1.2	92.5			IMS20B-06M40B30C-2-P9-AUL	\													
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												
26										0.31	1.1	95.5			IMS20B-06M20B30C-4-M44-AUL	Electromagnetic brake	23-bit multi-turn optical encoder												
27										0.28	0.8	73			IMS20B-06M20B30C-4-P9-AUL	\													
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	23-bit multi-turn optical encoder												
31										0.5	1.2	92.5			IMS20B-06M40B30C-4-P9-AUL	\													
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	23-bit multi-turn optical encoder												
35										1.7	2.14	96.8			IMS20B-08M75B30C-2-P9-AUL	\													
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 ²	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 (You can also use the 40 base above to lead out the wire towards the back) Common: DAML-20A-xx-XF0-00A1 Flexible: DAML-20A-xx-XFF-00A1 Without brake Common: DAML-20A-xx-XF0-01A1 Flexible: DAML-20A-xx-XFF-01A1 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
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						

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 ²	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
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 encoder	5015 aviation plug	DA200A-*-8R5-T-2-*	C	Without brake Common: DAML-16A-xx-KF0-00A4 Flexible: DAML-16A-xx-KFF-00A4 With brake Common: DAML-16A-xx-KF0-01A4 Flexible: DAML-16A-xx-KFF-01A4 xx represents the length, e.g. 03: 3 m	Without battery Common: DAEL-04-xx-HI0-04A4 Flexible: DAEL-04-xx-HIF-04A4 With battery Common: DAEL-06-xx-HID-04A4 Flexible: DAEL-06-xx-HIH-04A4 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 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 encoder	5015 aviation plug	DA200A-*-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 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 encoder					
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 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 encoder					
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 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 encoder					
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 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 encoder					
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 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 encoder					
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 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 encoder					
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 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 encoder					
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 encoder					
108										23.4	11.9	240.2			IMS20B-13M30C20C-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·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				
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 Common: DAML-16A-xx-KF0-00A4 Flexible: DAML-16A-xx-KFF-00A4 With brake Common: DAML-16A-xx-KF0-01A4 Flexible: DAML-16A-xx-KFF-01A4 xx represents the length, e.g. 03: 3 m	Without battery Common: DAEL-04-xx-HI0-04A4 Flexible: DAEL-04-xx-HIF-04A4 With battery Common: DAEL-06-xx-HID-04A4 Flexible: DAEL-06-xx-HIH-04A4 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-*				C			
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						B			
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		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-*				C			
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			D						
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-*				C			
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 Common: DAML-14A-xx-KW0-00A4 Flexible: DAML-14A-xx-KWF-00A4 With brake Common: DAML-14A-xx-KW0-01A4 Flexible: DAML-14A-xx-KWF-01A4 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 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 ²	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
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 encoder	5015 aviation plug	DA200A-*-016-T-2-*	D	Without brake Common: DAML-14A-xx-KW0-00A4 Flexible: DAML-14A-xx-KWF-00A4 With brake Common: DAML-14A-xx-KW0-01A4 Flexible: DAML-14A-xx-KWF-01A4 xx represents the length, e.g. 03: 3 m	Without battery Common: DAEL-04-xx-HI0-04A4 Flexible: DAEL-04-xx-HIF-04A4 With battery Common: DAEL-06-xx-HID-04A4 Flexible: DAEL-06-xx-HIH-04A4 xx represents the length, 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 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 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 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 encoder	5015 aviation plug	DA200A-*-012-T-2-*	D	Without brake Common: DAML-14A-xx-LW0-00A4 Flexible: DAML-14A-xx-LWF-00A4 With brake Common: DAML-14A-xx-LW0-01A4 Flexible: DAML-14A-xx-LWF-01A4 xx represents the length, e.g. 03: 3 m	Without battery Common: DAEL-04-xx-HI0-04A4 Flexible: DAEL-04-xx-HIF-04A4 With battery Common: DAEL-06-xx-HID-04A4 Flexible: DAEL-06-xx-HIH-04A4 xx represents the length, 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 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 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 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 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 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 encoder		DA200A-*-021-T-2-*			Without brake Common: DAML-12A-xx-LW0-00A4 Flexible: DAML-12A-xx-LWF-00A4 With brake Common: DAML-12A-xx-LW0-01A4 Flexible: DAML-12A-xx-LWF-01A4 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 encoder					
168										108.1	19.2	348			IMS20B-18M75C15C-4-P94-AUL	Electromagnetic brake						

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