

DA180A series basic AC servo



/ 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 4000 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 11 R&D centers nationwide, boasts more than 1300 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 "Honesty and Integrity, Professionalism and Excellence" 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.

Industrial Park in Suzhou

Group's core industrial base and R&D center in East China

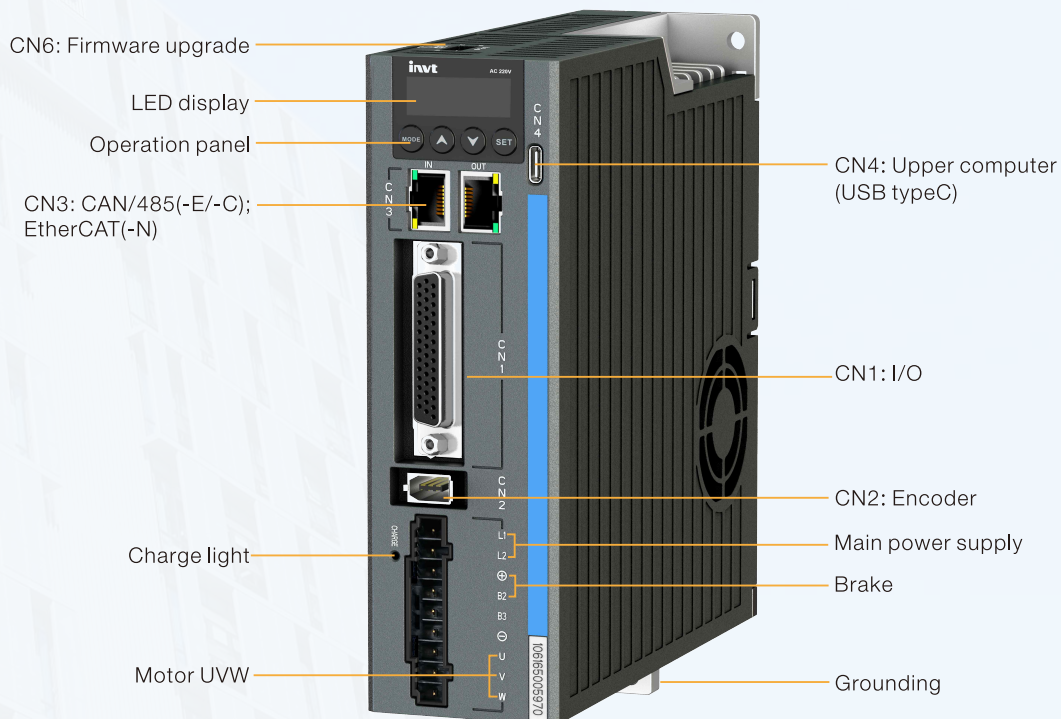


Industrial Park in Guangming Shenzhen

Group headquarters, new product development and new business incubation base



/ Introduction



Simple look, utility power

INVT DA180A series basic AC servo drive

DA180A series basic AC servo drive, the new generation of INVT simplified single-axis servo product, is utility oriented, making expansion easy. It provides efficient and competitive solutions for the simplification, networking, and high-performance requirements of general-purpose equipment.

Features



High speed response

With a response frequency up to 2.5kHz, DA180A can significantly improve processing speed, shorten tuning time, and maximize mechanical performance



Enriched communication interfaces

Support bus communication protocols such as Modbus, CANopen, and EtherCAT. Long-distance, multi-axis high-speed synchronous control is achieved through networking



Light and compact

Compared to DA200, DA180A is up to 45% smaller in size, with flexible driving and handy control, saving installation space and achieving device miniaturization



Environmental adaptability

Models with an output current of 2.8A use an independent heat sink for natural cooling



Accurate positioning

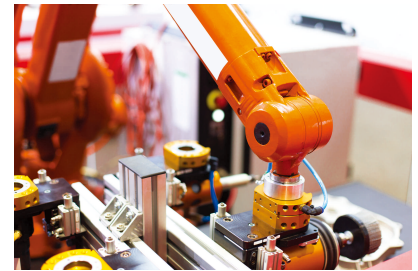
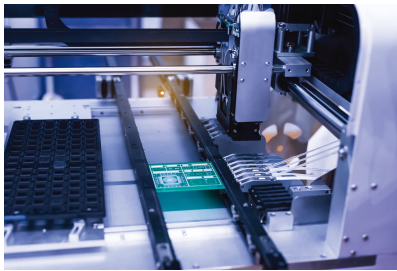
17bits magnetic and 23bits optic absolute optical



Long guarantee

24 months

Applications



Drive model naming

DA180A-E-2R8-S-2

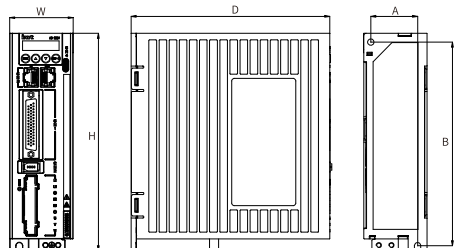
Item	Description
Product series	DA180A: Servo drive series
Product category	E: Pulse type C: CANopen bus type (dynamic brake) N: EtherCAT bus type (dynamic brake)
Rated output current	2R8: 2.8A 6R0: 6.0A
Voltage class	S: 220V
Encoder category	2: Communication encoder (Tamagawa, BISS*, Endat*, Nikon* and others) Note: The encoder with a * mark is not equipped as a standard configuration. For details, contact the manufacturer.

/ Drive ratings and frame sizes

Drive model	Function description	Input		Output		Frame size
		Voltage (V)	Rated current (A)	Power (kW)	Rated current (A)	
DA180A-E-2R8-S-2	Pulse+12bits analog	1PH 220	3.6	0.4	2.8	A
DA180A-C-2R8-S-2	Pulse+CANopen+dynamic brake	1PH 220	3.6	0.4	2.8	A
DA180A-N-2R8-S-2	EtherCAT+dynamic brake	1PH 220	3.6	0.4	2.8	A
DA180A-E-6R0-S-2	Pulse+12bits analog	1PH 220	9.1	1.0	6	A
DA180A-C-6R0-S-2	Pulse+CANopen+dynamic brake	1PH 220	9.1	1.0	6	A
DA180A-N-6R0-S-2	EtherCAT+dynamic brake	1PH 220	9.1	1.0	6	A

/ Drive dimensions

Unit: mm



Frame	Drive model	Outline dimensions			Installation dimensions		Installation hole
		H	W	D	A	B	
A	DA180A-E-2R8-S-2	172	50	157	37	161	M4(Φ5)
	DA180A-C-2R8-S-2						
	DA180A-N-2R8-S-2						
	DA180A-E-6R0-S-2						
	DA180A-C-6R0-S-2						
	DA180A-N-6R0-S-2						

/ EMI filter

Drive model	EMI filter model
DA180A-E-2R8-S-2	FLT-PS2010H-B
DA180A-C-2R8-S-2	
DA180A-N-2R8-S-2	
DA180A-E-6R0-S-2	
DA180A-C-6R0-S-2	
DA180A-N-6R0-S-2	

Note: EMI filter models in the table are EMI filter models of our company. Used for power input side.

/ Brake resistor

Drive model	Built-in braking resistor specifications	Min. allowed resistance of external braking resistor
DA180A-E-2R8-S-2	-	60Ω
DA180A-C-2R8-S-2	-	60Ω
DA180A-N-2R8-S-2	-	60Ω
DA180A-E-6R0-S-2	45Ω 60W	45Ω
DA180A-C-6R0-S-2	45Ω 60W	45Ω
DA180A-N-6R0-S-2	45Ω 60W	45Ω

Drive introduction

DA180A series servo drive (400W/1kW)					
Specifications		Description			
Power supply	220V System input voltage	1PH, AC 220V(±15%), 47–63Hz			
Control signal	Input	10 inputs (The function is configurable through parameter settings.) (7 inputs for EtherCAT models.)			
		Output	2/4 differential outputs (The function is configurable through parameter settings.)		
	Analog		Two 12bit analog inputs (None for EtherCAT models.)		
		Pulse signal	Input	Two groups (mode: open collector input or differential input)	
Output	One group differential output (A+, A-; B+, B-; Z+, Z-); One group open collector output (A, B, Z)				
Port	Encoder	2/4-PPR absolute encoder interface			
		USB 1:1 communication upper PC software			
	Communication	RS485 1:n communication (optional)			
		EtherCAT 1:n communication (optional)			
Function	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. CANopen mode; 8. EtherCAT mode		
	Position control	Control input	1. Retention pulse clearing; 2. Command pulse input disabled; 3. Electronic gear ratio switching; 4. Vibration control switching, etc		
		Control output	Positioning completion output, etc		
		Pulse input	Max. pulse input frequency	Optical coupling: differential input 4Mpps, open collector input 200kpps	
			Pulse input mode	1. Pulse +direction; 2. CW +CCW; 3. Quadrature	
			Electronic gear (e-gear)	1/10000-1000 times	
		Filter	1. Command smoothing filter; 2. FIR filter		
	Analog input	Torque limit command input	Can independently perform clockwise/counterclockwise torque limit		
	Vibration control	Able to suppress 1-200Hz front-end vibration and overall machine vibration			
	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 ±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			
ACC/DEC adjustment of speed command		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				
Torque control	Control input	Zero speed clamp input, etc			
	Control output	Speed reaching, etc			
	Speed limit	Torque command input	Analog torque command input, gain and polarity can be set based on analog voltage		
		Speed limit input	Analog speed limit		
	Torque command filter	Set the speed limit by parameters			
	Torque command zero drift control	A delay filter of analog input torque command			
Internal position plan	Plan bits	Zero drift control against outside interference			
	Route setting	128 bits internal position planning, the positioning can be controlled through communication			
	Homing	1. Position; 2. Speed; 3. ACC time; 4. DEC time; 5. Stop timer; 6. Various state output; 7. Operational mode			
Protection	Protection function		1. LS signal; 2. Z phase signal; 3. LS signal+Z phase signal; 4. Torque limit signal		
	Dynamic braking		Such as protection against phase-loss, overvoltage, undervoltage, overcurrent, overheating, storage fault, initialization fault, I/O distribution abnormalities and large position deviation, braking resistor overload, and drive overload.		
	Protection and fault record		For emergency stop function, including stop and fault stop scenarios.		
		1. Up to 10 faults can be recorded; 2. The key parameters can be recorded when fault occurs.			

DA180A series servo drive (400W/1kW)		
Specifications	Description	
Environment	Working temperature	0-55°C (Derate 80% when the ambient temperature is 45-55°C.)
	Storage temperature	-20°C-70°C (No freezing)
	Operation/storage humidity	≤90%RH (no condensation)
	IP rating	IP20
	Altitude	Lower than 1000m
	Vibration	≤5.88m/s2, 10-60Hz (Working at the resonance point is not allowed)

/ Motor model naming

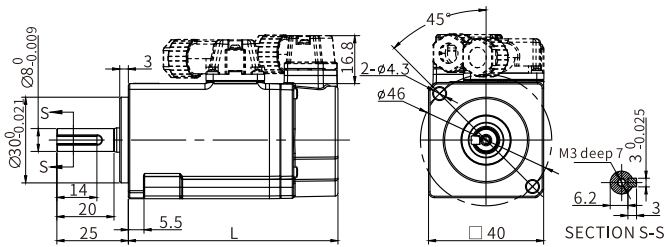
IMS20A - 06 M 40B 30C - 2 - M3 4 - □	
Item	Description
Product series	IMS20A: IMS20A series IMS20B: IMS20B series
Base model No.	04:40 06: 60 08: 80 13: 130
Inertia classification	L: Small inertia M: Medium inertia H: Large inertia
Rated power (W)	Composition of base (number) * magnification (letter) A: *1 B: *10 C: *x100 ... E.g.: 40B: 400W; 15C: 1.5kW
Rated power (rpm)	Composition of base (number) * magnification (letter) A: *1 B: *10 C: *x100 ... E.g.: 80B: 800rpm; 30C: 3000rpm
Voltage class (V)	2: 220 4: 380
Encoder type	M: magnetic encoder P: optical encoder 3: 17-bit single-turn 4: 17-bit multi-turn 9: 23-bit multi-turn
Optional part	0: With oil seal but no brake (empty by default) 4: With oil seal and electromagnetic brake
Customized	Empty by default ;Ec401 (waterproof socket).....etc

/ Servo motor technical parameters

Motor model	Rated power (kW)	Rated current (A)	Max. transient current (A)	Rated torque (Nm)	Max. transient torque (Nm)	Rated speed (rpm)	Max. speed (rpm)	Rotation inertia Standard/With brake (kg·cm ²)	Voltage (V)	Weight Standard/With brake (kg)
IMS20B-04L10B30C-2-□	100	0.98	0.98	0.3	0.3	3000	6000	0.031/0.034	220	0.36/0.55
IMS20B-06M20B30C-2-□	200	1.3	4.4	0.64	2.23	3000	6000	0.34/0.35	220	0.8/1.2
IMS20B-06M40B30C-2-□	400	2.6	8.6	1.27	4.445	3000	6000	0.59/0.6	220	1.2/1.6
IMS20B-08M75B30C-2-□	750	4.6	16.3	2.38	8.36	3000	6000	1.72/1.77	220	2.2/2.9
IMS20B-08M10C30C-2-□	1000	6.3	20.9	3.18	11.3	3000	6000	2.23/2.28	220	2.6/3.3
IMS20A-06M20B30C-2-□	200	1.8	5.4	0.64	1.92	3000	6000	0.32/0.37	220	0.9/1.2
IMS20A-06M40B30C-2-□	400	3	9	1.27	3.82	3000	6000	0.68/0.73	220	1.15/1.76
IMS20A-08M75B30C-2-□	750	4.8	14.4	2.4	7.2	3000	5000	1.72/1.77	220	2/3
IMS20A-08M10C25C-2-□	1000	4.8	14.4	3.6	11.4	2500	3000	2.15/2.4	220	2.71/3.36
IMS20A-13M10C20C-2-□	1000	4.8	14.4	4.78	14.3	2000	3000	6.387/8.287	220	5.8/7.5
IMS20A-13H85B15C-2-□	850	6.5	19.5	5.4	14.2	1500	3000	13.888/15.78	220	5.6/6.9
Insulation class	Class F(155°C)									
IP rating	IP65/IP67 (IMS20B)									
Application environment	Temperature: -10°C~+40°C (non-frozen)									

Servo motor dimensions

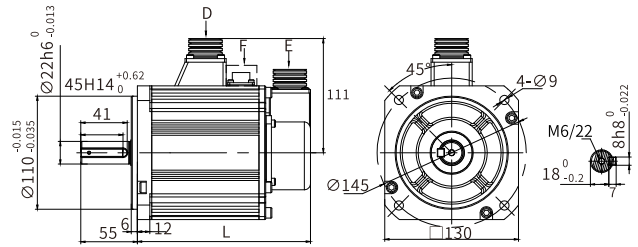
Dimensions for base-40 motors



Unit: mm

Motor model	L	
	Without brake	Electromagnetic brake
IMS20B-04L10B30C-2-□-□	73.4	100.1

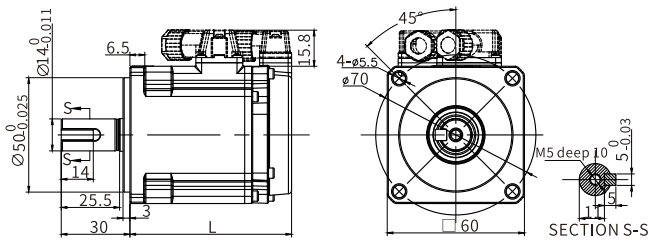
Dimensions for base-130 motors



Unit: mm

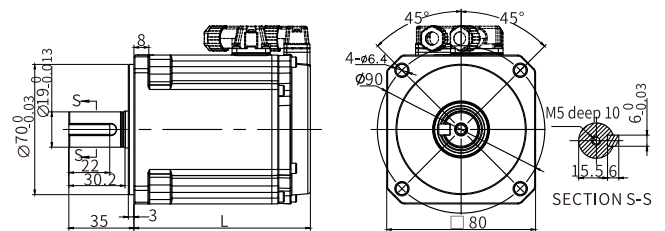
Motor model	L	
	Without brake	Electromagnetic brake
IMS20A-13M10C20C-2-□-A1	143	185
IMS20A-13H85B15C-2-□-A	153	176

Dimensions for base-60 motors

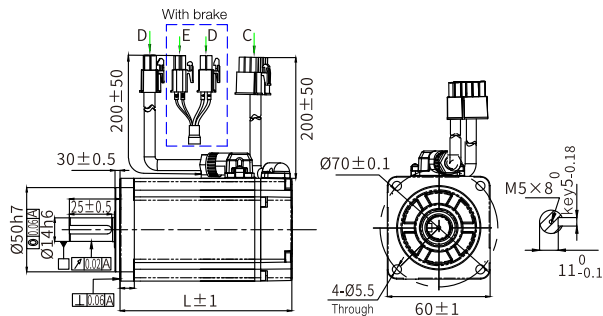


IMS20B-06M**B**C-2-□-J

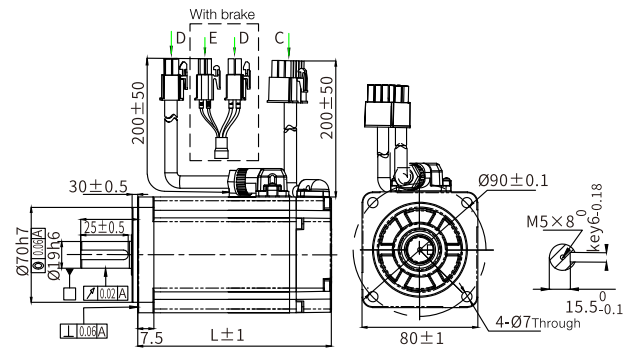
Dimensions for base-80 motors



IMS20B-08M**B***-2-□-J



IMS20A-06M**B**C-2-□



IMS20A-08M**B**C-2-□

Unit: mm

Motor model	L	
	Without brake	Electromagnetic brake
IMS20A-06M20B30C-2-□-□	87	110.5
IMS20A-06M40B30C-2-□-□	107	130.5
IMS20B-06M20B30C-2-□-□	70.5	99.7
IMS20B-06M40B30C-2-□-□	88	117.2

Unit: mm

Motor model	L	
	Without brake	Electromagnetic brake
IMS20A-08M75B30C-2-□-□	119	143.5
IMS20A-08M10C25C-2-□-□	153	/
IMS20B-08M75B30C-2-□-□	94.6	107.9
IMS20B-08M10C30C-2-□-□	107.9	142.1

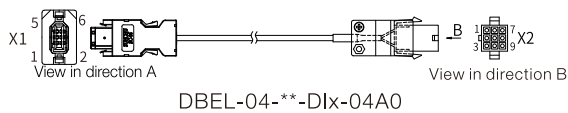
Servo motor power cable

		Wiring mapping			
		Definition	X1	X2	Core wire color
Power cable for base-40/60/80 100–1000W motors					
<p>DAML-050-**-AFx-00</p> <p>View in direction A</p>	U	Tubular terminal	X2.2	Yellow	
	V	Tubular terminal	X2.1	Green	
	W	Tubular terminal	X2.3	Red	
	PE	Ground terminal	X2.4	Yellow/green	
Power cable for base-100/130 850–1000W motors					
<p>DAML-100-**-BFx-00</p> <p>View in direction A</p>	U	Tubular terminal	X2.2	Yellow	
	V	Tubular terminal	X2.3	Green	
	W	Tubular terminal	X2.4	Red	
	PE	Ground terminal	X2.1	Yellow/green	
Power cable for base 40/60/80 100~1000W waterproof socket motor					
<p>DAML-050-**-XFx-##</p> <p>PS: ## as 00 (means without brake); ## as 01 (means with brake)</p>	U	Tubular terminal	X2.2	Red	
	V	Tubular terminal	X2.1	White	
	W	Tubular terminal	X2.3	Black	
	PE	Ground terminal	X2.4	Yellow/green	
	BK+	Tubular terminal	X2.A	Blue	
	BK-	Tubular terminal	X2.B	Brown	

Servo motor encoder cable

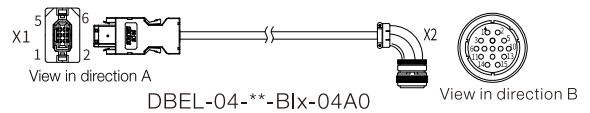
PS: ** means length, you can choose (03,05,10,15,20,25) meters; x means cable type you can choose (0:standard F: flexible □: standard with battery H: flexible with battery)

Cable for 17-bit and 23-bit absolute encoder used by base-40/60/80 motors



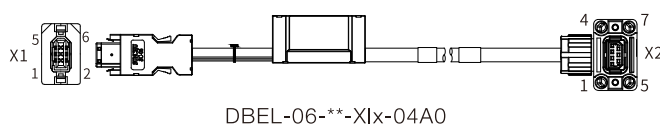
Wiring mapping			
Signal	X1	X2	Core wire color
SD+	X1.5	X2.1	Blue
SD-	X1.6	X2.2	Blue/black
5V	X1.1	X2.6	Red
GND	X1.2	X2.7	Red/white
VB+	/	X2.3	Black
VB-	/	X2.8	Black/white
PE	Metal shell	X2.9	Woven

Cable for 17-bit and 23-bit absolute encoder used by base-100/130 motors



Wiring mapping			
Signal	X1	X2	Core wire color
SD+	X1.5	X2.2	Blue
SD-	X1.6	X2.3	Blue/black
5V	X1.1	X2.4	Red
GND	X1.2	X2.5	Red/white
VB+	/	X2.6	Black
VB-	/	X2.7	Black/white
PE	Metal shell	X2.1	Woven

Cable for 17-bits magnetic and 23-bits optical absolute encoder used by base 60/80 waterproof socket motor(IMS20B-J)



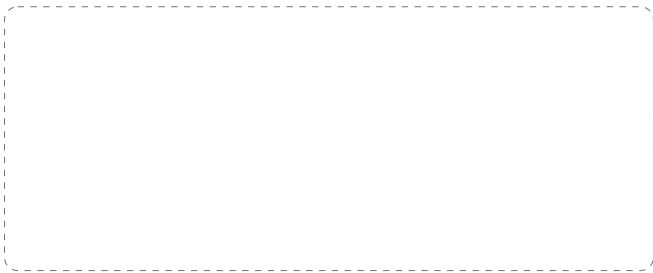
Wiring mapping			
Signal	X1	X2	Core wire color
SD+	X1.5	X2.1	Blue
SD-	X1.6	X2.2	Purple
5V	X1.1	X2.5	Red
GND	X1.2	X2.6	Orange
VB+	/	X2.3	Brown
VB-	/	X2.4	Black
PE	Metal shell	X2.7	Woven

Servo configuration

Flang (mm)	Rated power (W)	Rated speed (rpm)	Rated torque (Nm)	Rated current (A)	Rated voltage (V)	Inertia (kg/cm ²)	Motor ERP	Motor model	Encoder	Brake	Remark	Adapted Drive	Power cable type (length: 3,5,7,10,15,20,25meter)	Encoder cable type (length: 3,5,7,10,15,20,25meter)
40	100	3000	0.3	0.98	220	0.031	91015-00068	IMS20B-04L10B30C-2-M4-J	17bits multi-turn magnetic	/	Plug type B	DA180A-*-2R8-S-2	Standard: DAML-050-xx-XF0-00 Flexible with brake: DAML-050-xx-XFF-00 Standard with brake: DAML-050-xx-XF0-01 Flexible with brake: DAML-050-xx-XFF-01 xx means lenth, eg: 03-3m	Without battery: Standard: DBEL-04-xx-XI0-04A0 Flexible with brake: DBEL-04-xx-XIF-04A0 With battery Standard: DBEL-06-xx-XID-04A0 Flexible with brake: DBEL-06-xx-XIH-04A0 xx means lenth, eg: 03-3m
	100	3000	0.3	0.98	220	0.034	91015-00069	IMS20B-04L10B30C-2-M44-J	17bits multi-turn magnetic	EM Brake	Plug type B			
	100	3000	0.3	0.98	220	0.031	91015-00070	IMS20B-04L10B30C-2-P9-J	23bits multi-turn optical	/	Plug type B			
	100	3000	0.3	0.98	220	0.034	91015-00071	IMS20B-04L10B30C-2-P94-J	23bits multi-turn optical	EM Brake	Plug type B			
60-A	200	3000	0.64	1.8	220	0.32	11101-00879	IMS20A-06M20B30C-2-M3-A	17bits single-turn magnetic	/	AMP Accessories	DA180A-*-2R8-S-2	Standard: DAML-050-xx-AF0-00 Flexible with brake: DAML-050-xx-AFF-00 xx means lenth, eg: 03-3m	Without battery Standard: DBEL-04-xx-DI0-04A0 Flexible with brake: DBEL-04-xx-DIF-04A0 With battery Standard: DBEL-06-xx-DID-04A0 Flexible with brake: DBEL-06-xx-DIH-04A0 xx means lenth, eg: 03-3m
	200	3000	0.64	1.8	220	0.35	11101-00876	IMS20A-06M20B30C-2-M34-A	17bits single-turn magnetic	EM Brake	AMP Accessories			
	200	3000	0.64	1.8	220	0.32	11101-01041	IMS20A-06M20B30C-2-M4-A	17bits multi-turn magnetic	/	AMP Accessories			
	200	3000	0.64	1.8	220	0.35	11101-01046	IMS20A-06M20B30C-2-M44-A	17bits multi-turn magnetic	EM Brake	AMP Accessories			
	200	3000	0.64	1.8	220	0.32	11101-00884	IMS20A-06M20B30C-2-P9-A	23bits multi-turn optical	/	AMP Accessories			
	200	3000	0.64	1.8	220	0.35	11101-00885	IMS20A-06M20B30C-2-P94-A	23bits multi-turn optical	EM Brake	AMP Accessories			
	400	3000	1.27	3	220	0.67	11101-00875	IMS20A-06M40B30C-2-M3-A	17bits single-turn magnetic	/	AMP Accessories			
	400	3000	1.27	3	220	0.71	11101-00881	IMS20A-06M40B30C-2-M34-A	17bits single-turn magnetic	EM Brake	AMP Accessories			
	400	3000	1.27	3	220	0.67	11101-01052	IMS20A-06M40B30C-2-M4-A	17bits multi-turn magnetic	/	AMP Accessories			
	400	3000	1.27	3	220	0.71	11101-01047	IMS20A-06M40B30C-2-M44-A	17bits multi-turn magnetic	EM Brake	AMP Accessories			
80-A	400	3000	1.27	3	220	0.67	11101-00883	IMS20A-06M40B30C-2-P9-A	23bits multi-turn optical	/	AMP Accessories	DA180A-*-6R0-S-2	Standard: DAML-100-xx-BF0-00 Flexible with brake: DAML-100-xx-BFF-00 xx means lenth, eg: 03-3m	Without battery Standard: DBEL-04-xx-BI0-04A0 Flexible with brake: DBEL-04-xx-BIF-04A0 With battery Standard: DBEL-06-xx-BID-04A0 Flexible with brake: DBEL-06-xx-BIH-04A0 xx means lenth, eg: 03-3m
	750	3000	2.4	4.8	220	1.62	11101-00878	IMS20A-08M75B30C-2-M3-A	17bits single-turn magnetic	/	AMP Accessories			
	750	3000	2.4	4.8	220	1.67	11101-00882	IMS20A-08M75B30C-2-M34-A	17bits single-turn magnetic	EM Brake	AMP Accessories			
	750	3000	2.4	4.8	220	1.62	11101-01055	IMS20A-08M75B30C-2-M4-A	17bits multi-turn magnetic	/	AMP Accessories			
	750	3000	2.4	4.8	220	1.67	11101-01058	IMS20A-08M75B30C-2-M44-A	17bits multi-turn magnetic	EM Brake	AMP Accessories			
	750	3000	2.4	4.8	220	1.62	11101-00880	IMS20A-08M75B30C-2-P9-A	23bits multi-turn optical	/	AMP Accessories			
	750	3000	2.4	4.8	220	1.67	11101-00886	IMS20A-08M75B30C-2-P94-A	23bits multi-turn optical	EM Brake	AMP Accessories			
	1000	2500	3.8	4.8	220	2.1	11101-01061	IMS20A-08M10C25C-2-M4-A	17bits multi-turn magnetic	/	AMP Accessories			
1000	2500	3.8	4.8	220	2.1	11101-01025	IMS20A-08M10C25C-2-P9-A	23bits multi-turn optical	/	AMP Accessories				
130-A1	1000	2000	4.78	5.5	220	6.3	11101-01098	IMS20A-13M10C20C-2-M4-A1	17bits multi-turn magnetic	/	YD28 aviation plug	DA180A-*-6R0-S-2	Standard: DAML-100-xx-BF0-00 Flexible with brake: DAML-100-xx-BFF-00 xx means lenth, eg: 03-3m	Without battery Standard: DBEL-04-xx-BI0-04A0 Flexible with brake: DBEL-04-xx-BIF-04A0 With battery Standard: DBEL-06-xx-BID-04A0 Flexible with brake: DBEL-06-xx-BIH-04A0 xx means lenth, eg: 03-3m
	1000	2000	4.78	5.5	220	7.95	11101-01129	IMS20A-13M10C20C-2-M44-A1	17bits multi-turn magnetic	EM Brake	YD28 aviation plug			
	1000	2000	4.78	5.5	220	6.3	11101-01116	IMS20A-13M10C20C-2-P9-A1	23bits multi-turn optical	/	YD28 aviation plug			
	1000	2000	4.78	5.5	220	7.95	11101-01121	IMS20A-13M10C20C-2-P94-A1	23bits multi-turn optical	EM Brake	YD28 aviation plug			
130 High inertia-A	850	1500	5.4	6	220	13.4	11101-01031	IMS20A-13H85B15C-2-M4-A	17bits multi-turn magnetic	/	YD28 aviation plug	DA180A-*-6R0-S-2	Standard: DAML-100-xx-BF0-00 Flexible with brake: DAML-100-xx-BFF-00 xx means lenth, eg: 03-3m	Without battery Standard: DBEL-04-xx-BI0-04A0 Flexible with brake: DBEL-04-xx-BIF-04A0 With battery Standard: DBEL-06-xx-BID-04A0 Flexible with brake: DBEL-06-xx-BIH-04A0 xx means lenth, eg: 03-3m
	850	1500	5.4	6	220	14.1	11101-01073	IMS20A-13H85B15C-2-M44-A	17bits multi-turn magnetic	EM Brake	YD28 aviation plug			
	850	1500	5.4	6	220	13.4	11101-01071	IMS20A-13H85B15C-2-P9-A	23bits multi-turn optical	/	YD28 aviation plug			
	850	1500	5.4	6	220	14.1	11101-01084	IMS20A-13H85B15C-2-P94-A	23bits multi-turn optical	EM Brake	YD28 aviation plug			

PS: Encoder type, you can choose M3 (17-bits single turn magnetic), M4 (17-bits multi turn magnetic), P9 (23-bits multi turn optic absolute)
* In drive model means fieldbus type, you can choose E (plus), C (CANopen), N (EtherCAT)

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