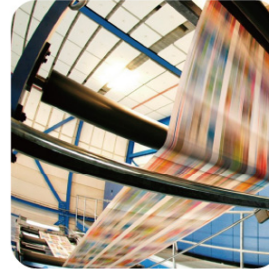


STEP®



STEP Servo Driver and Motor eMebotic C Series & QS Series

SHANGHAI STEP ELECTRIC CORPORATION

Address: 3503-3504, CITIC Plaza, No.859, North Sichuan Road, Shanghai, P.R.China

Tel: +86 21 6393 1275

Skype: jasonvisa

Email: jasonvisa@stepelectric.com

www.stepelectric.com

CAT No.: eMebotic201410



SMT Workshop

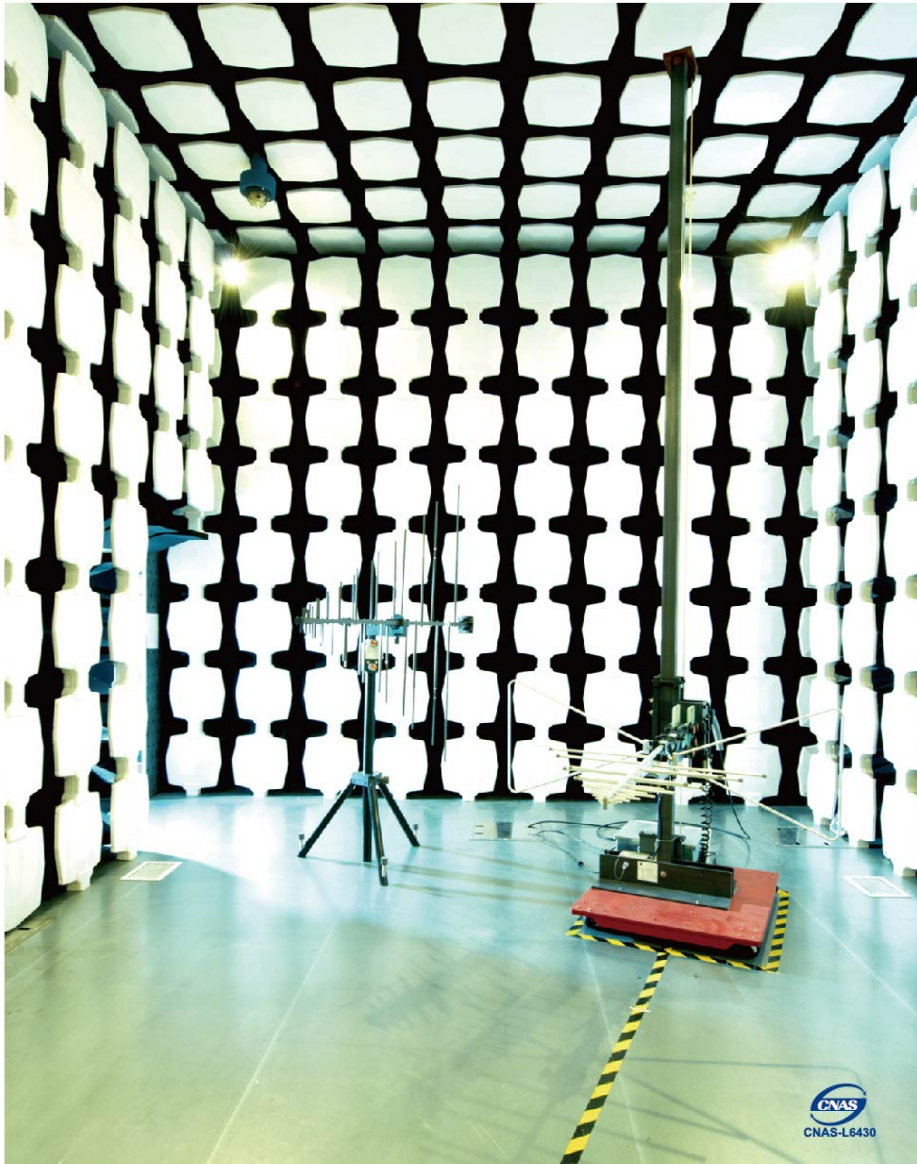
Company Introduction

SHANGHAI STEP ELECTRIC CORPORATION

STEP is a high-tech enterprise specializing in designing, integrating and applying industrial automation control system. The products are widely applied in equipment manufacturing, energy saving and renovating projects, mainly concerned with elevator, harbor crane, hoisting, rubber & plastic, mining, metallurgy cement, solar power/wind power generation, CNC, package, municipal administration etc. The products mainly include high/medium/low voltage inverter, integrated controller, servo driver and motor; elevator control system, elevator parts, elevator wire and cables; industrial robots, etc. In December 2010, STEP was listed in Shenzhen Stock Exchange with stock name STEP and code 002527.

STEP Group, based on Electric Corporation, owns Shanghai Sigriner STEP Electric Co., Ltd., Shanghai STEP Elevator Components Co., Ltd., Shanghai Electric Wire & Cable Co., Ltd., Shanghai STEP Software Technology Co., Ltd., Shanghai STEP Robotics Co., Ltd., Shanghai Yixin International Co., Ltd. and two overseas companies, STEP Sigriner Elektronik GmbH and Hong Kong STEP International Electric Holdings Co., Ltd.

In motion control area, we establishes two major product systems: motion control system (motion control platform, servo motor & driver, industry application); industrial robot, which are widely used in metal processing, textile household, electronic assembly, special machine tools and so on.



Anechoic Chamber

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eMotic C Series EM3S Servo Driver

■ Characteristics of eMotic C series servos

- Support multiple mainstream real-time industrial Ethernet: Powerlink, EtherCAT, Profinet, CANopen



- Support a variety of encoder interfaces

• Have self-adaptive encoder interface; support multiple industrial mainstream linear encoders, which make users easy to establish servo systems quickly and flexibly according to different application occasions and models.

• Support bus communication encoder, including Smart-ABS (TAMAGAWA), Endat2.1/2.2 (HEIDENHAIN), HIPERFACE DSL (SICK) and NIKON lap/ring absolute value encoders



TAMAGAWA



HEIDENHAIN



SICK
HIPERFACE/DSL



NIKON

- Support digifax mixed Resolver, and Sin/Cos encoders
- Support orthogonal pulse incremental encoders, with pulse rate higher than 10 Mb/s
- Support programmable encoder analog frequency divider output

- Excellent product performance

• Support a variety of control modes: periodic torque, speed, position control mode; Contour torque, speed and position control mode; Support interpolation position control mode

• Current control cycle is less than 50 us; current loop bandwidth is greater than 2.5 kHz; speed loop bandwidth is greater than 1.6 kHz; position loop bandwidth is greater than 800 Hz

• Adopts 16-bit current sampling precision; is equipped with control parameter self-tuning; self-adaptive busbar voltage fluctuation and counter-emf compensation, and other functions

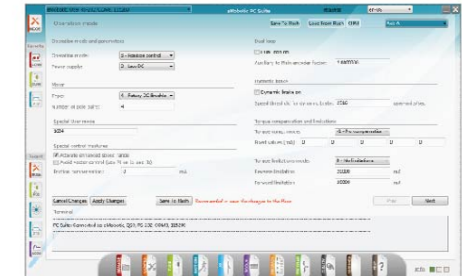
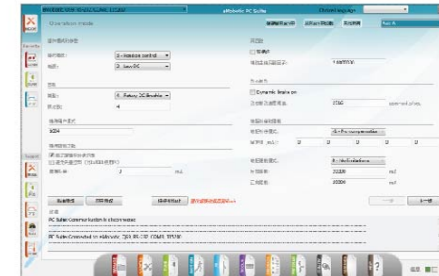
• Speed regulation range is greater than 1:10000; steady speed precision is higher than ± 1 rpm at rated speed, ± 0.1 rpm at 1 rpm

• Support torque feedforward control function

• Equipped with programmable notch filter and low-pass filter to suppress vibration.

• Multi-axis synchronization precision is high, with 6-node synchronization accuracy higher than ± 300 ns

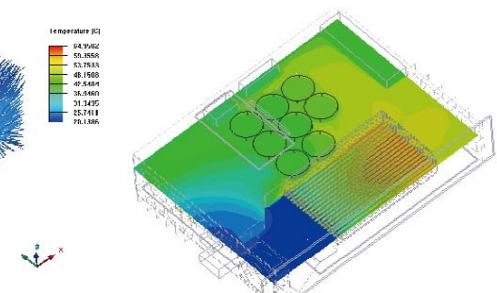
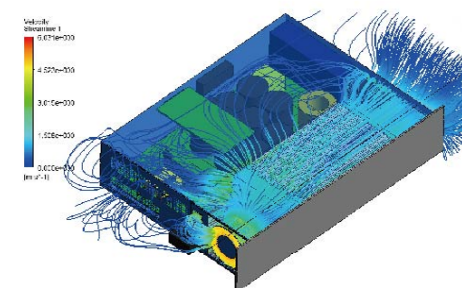
- Rich software debug interface



- All-metal chassis design, with excellent EMC performance



- Fully considering heat dissipation structure, guaranteeing good cooling effect



eMotic C Series EM3S Servo Driver

■ Technical parameters of servo drive

Input	Main power supply	3 × (380–480) VAC, 50/60Hz, –25% ~ +10%
	Control power source	3 × (110–230) VAC, 50/60Hz, –20% ~ +15%
		24 VDC, –25% ~ +25%

Model: EM3S4							Power source type	Size (mm) x H x D
External Case No.	Current [A]		Bus type			3 × 380–480		
				PowerLink	EtherCAT		CANopen	
A2.	01P0MEx	1.0	N1xxxx	■			■	47 × 285 × 180
	01P6MEx.	1.6	N2xxxx		■			
	02P2MEx.	2.2	N3xxxx			■		
A3.	03P8MEx.	3.8	N1xxxx	■			■	60 × 322 × 227
	04P4MEx.	4.4	N2xxxx		■			
	06P8MEx.	6.8	N3xxxx			■		
A4	08P8MEx.	8.8	N1xxxx	■			■	65 × 322 × 227
	11P0MEx.	11	N2xxxx		■			
	12P0MEx.	12	N3xxxx			■		

Model: EM3S2							Power source type	Size (mm) x H x D
External Case No.	Current [A]		Bus type			3 × 110–230		
				PowerLink	EtherCAT		CANopen	
A2.	01P0MEx	1.0	N1xxxx	■			■	47 × 285 × 180
	01P6MEx.	1.6	N2xxxx		■			
	02P2MEx.	2.2	N3xxxx			■		
A3.	03P8MEx.	3.8	N1xxxx	■			■	60 × 285 × 197
	04P4MEx.	4.4	N2xxxx		■			
	06P8MEx.	6.8	N3xxxx			■		
A4	08P8MEx.	8.8	N1xxxx	■			■	65 × 285 × 197
	11P0MEx.	11	N2xxxx		■			
	12P0MEx.	12	N3xxxx			■		

Note: 1) Ex model selection: E1 – Tamagawa, E2 – Nikon, E3 – Endat2.1/2.2 encoder
 2) Overload current: 1.2 × 1N 120 seconds, 2 × 1N 30 seconds, 3 × 1N 1 second

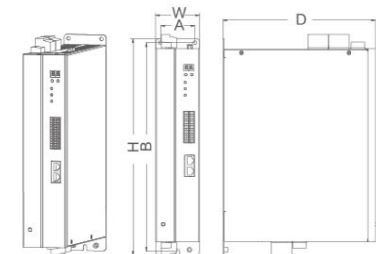
■ Application environment of servo drive

Characteristic parameters		Servo drive	Handheld client
Temperature range	Runtime	Temperature of cooling medium is less than 45 ° C	
	Storage	–20°C–65°C	
	Transport	–20°C–70°C	
Relative air humidity		Below 90% RH (relative humidity), without condensation	
Mechanical strength	Long term	Vibration: 0.075 mm, frequency range: 10–50 Hz Impact: 9.8 m/s ² , frequency range: > 50–500 Hz	
	Short term	Vibration: 3.5 mm, frequency range: 5–9 Hz Impact: 9.8 m/s ² , frequency range: > 9–500 Hz	
Work environment		No corrosive and flammable gas, oil, dust, or conductive dust	
Application altitude		Below altitude 1000 m; above 1000 m, with the increase of each 100 m, the derating amount is 1%; maximum 2000 m	
Protection level		IP20 without dustproof and waterproof	

■ Size of servo drive

Model: EM3S4		Installation dimensions						Installing screw
External Case No.	Current [A]	A (mm)	B (mm)	H (mm)	W (mm)	D (mm)	Installing aperture (mm)	
A2	01P0ME	/	273	285	47	180	Φ5.5	2M4
	01P6ME							
	02P2ME							
A3	03P8ME	50	310	322	60	227	Φ5.5	3M4
	04P4ME							
	06P8ME							
A4	08P8ME	50	310	322	65	227	Φ5.5	3M4
	11P0ME							
	12P0ME							

Model: EM3S2		Installation dimensions						Installing screw
External Case No.	Current [A]	A (mm)	B (mm)	H (mm)	W (mm)	D (mm)	Installing aperture (mm)	
A2	01P0ME	/	273	285	47	180	Φ5.5	2M4
	01P6ME							
	02P2ME							
A3	03P8ME	50	273	285	60	197	Φ5.5	3M4
	04P4ME							
	06P8ME							
A4	08P8ME	50	273	285	65	197	Φ5.5	3M4
	11P0ME							
	12P0ME							



eMotic C Series EM3S Servo Driver

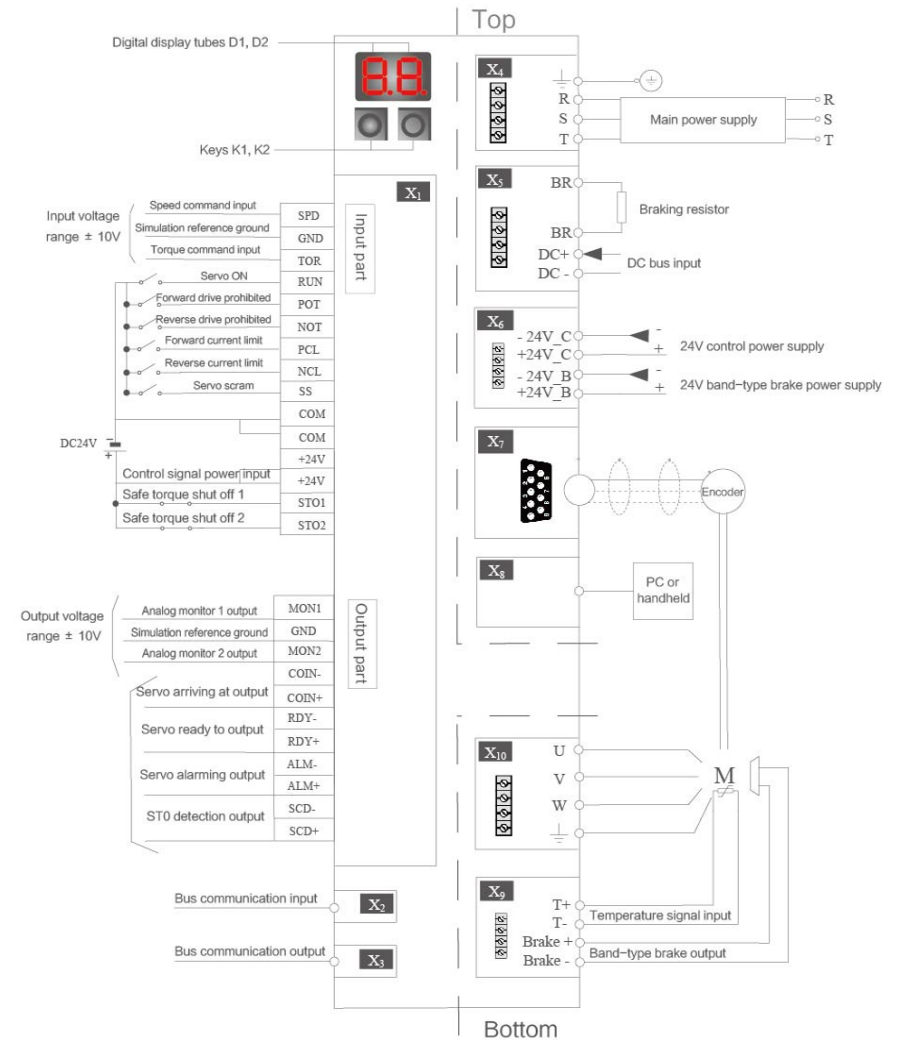
■ Diagram of servo driver



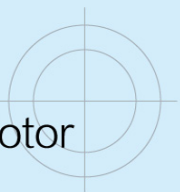
■ Tamagawa motor and EM servo Driver selection table

Driver model	EM3S4A2	EM3S4A3			
Motor rated power range	100W , 200W	400W	750W	950W , 1KW	
Motor rated current range	≤2A	≤4A	≤5A	≤6A	
Tamagawa Motor models	TS4603N1090E200	TS4609N1090E200	TS4614N1090E200	TS4615N1090E200	
	TS4603N6090E200	TS4609N6090E200	TS4614N6090E200	TS4615N6090E200	
	TS4603N2190E200	TS4609N2190E200	TS4614N2190E200	TS4615N2190E200	
	TS4603N7190E200	TS4609N7190E200	TS4614N7190E200	TS4615N7190E200	
	TS4607N1090E200				
	TS4607N6090E200				
	TS4607N2190E200				
	TS4607N7190E200				

■ Servo driver terminal wiring diagram



eMobic C Series EM3M Servo Motor



Printing machinery

eMobic C series EM3M servo motors



■ eMobic C EM3M Naming

EM3M	110	A	4	L	.	06P8	M	15	E1	.	T	O	B
													<ul style="list-style-type: none"> B: With band-type brake N: Without band-type brake O: With oil seal N: Without oil seal T: With temperature resistor N: Without temperature resistor
													<ul style="list-style-type: none"> Delimiter E1: Tamagawa encoder 17bit E2: Tamagawa encoder 20bit E3: Nikon encoder 20bit E4: Endat 2.1 E5: Endat 2.2 E6: HIPERFACE E7: DSL
													<ul style="list-style-type: none"> 15: Rated rotational speed (×100rpm) M: Permanent magnet synchronous servo motor L: Linear motor T: Torque motor I: Asynchronous motor
													<ul style="list-style-type: none"> 06P8: Power size kW, in which P represents the decimal point Delimiter L: small inertia M: Medium inertia G: large inertia
													<ul style="list-style-type: none"> 2: 200V level 4: 400V level A: Standard E: Economical
													<ul style="list-style-type: none"> 080: 80 mm flange 110: 110 mm flange EM3M: servo motor

eMotic C Series EM3M Servo Motor

■ Technical parameters of servo motors

● EM3MxxxA4L small-inertia 400V level series

Motor	Rated power Pn [kW]	Rated speed nN [rpm]	Rated torque Mn [Nm]	Rated current In[A]	Static torque Mo [Nm]	Rotational inertia J [kgcm ²]
EM3M088A4L	0.35 – 1.79	2200 – 6000	1.0 – 4.3	1.0 – 4.8	1.3 – 4.5	0.9 – 3.6
EM3M115A4L	0.53 – 3.14	2200 – 6000	2.1 – 11.3	1.1 – 6.3	2.5 – 13.0	1.8 – 5.3
EM3M165A4L	0.99 – 7.16	2200 – 4500	4.0 – 23.4	2.0 – 13.0	4.8 – 26.0	3.6 – 17.8
EM3M190A4L	2.72 – 9.58	2200 – 4500	11.6 – 31.5	5.1 – 19.0	13.9 – 36.5	10.1 – 22.6
EM3M215A4L	4.80 – 12.25	2200 – 4500	20.0 – 41.6	9.5 – 24.4	26.0 – 52.0	76 – 136
EM3M240A4L	7.10 – 29.40	1500 – 3000	27.0 – 126.1	14.0 – 58.5	40.0 – 149.5	58 – 230
EM3M270A4L	12.00 – 52.00	1000 – 2000	86.0 – 334.3	24.7 – 115.5	135 – 390	243 – 633

● EM3MxxxA4G large-inertia 400V level series

Motor	Rated power Pn [kW]	Rated speed nN [rpm]	Rated torque Mn [Nm]	Rated current In[A]	Static torque Mo [Nm]	Rotational inertia J [kgcm ²]
EM3M070A4G	0.20 – 0.61	2200 – 6000	0.5 – 1.5	0.5 – 1.5	0.75 – 1.8	0.2 – 0.6
EM3M080A4G	0.35 – 1.79	2200 – 6000	1.0 – 4.3	1.0 – 4.8	1.3 – 4.5	0.9 – 3.6
EM3M100A4G	0.53 – 3.14	2200 – 6000	2.1 – 11.3	1.1 – 6.7	2.5 – 13.0	3.5 – 9.8
EM3M130A4G	1.40 – 4.00	2200 – 4500	5.7 – 14.8	2.8 – 8.2	8.1 – 17.8	13.9 – 35.8
EM3M165A4G	0.99 – 7.16	2200 – 4500	4.0 – 23.4	1.8 – 13.7	4.8 – 26.0	9.1 – 44.0

● EM3MxxxA2L small-inertia 200V level series

Motor	Rated power Pn [kW]	Rated speed nN [rpm]	Rated torque Mn [Nm]	Rated current In[A]	Static torque Mo [Nm]	Rotational inertia J [kgcm ²]
EM3M040A2L	0.1	3000	0.318	1.1	0.92	0.043
EM3M060A2L	0.2–0.4	3000	0.64–1.27	1.7–3.3	1.95	0.19–0.44
EM3M080A2L	0.75	3000	2.39	3.3	7	1.06–1.3
EM3M086A2L	0.75	3000	3.0	5.7	9.5	5.81
EM3M100A2L	1.0	3000	3.2	6.0	9.5	2.45
EM3M130A2L	1.0	1500/2000	4.8–6.4	6.0	14.5/19	5.0/7.3

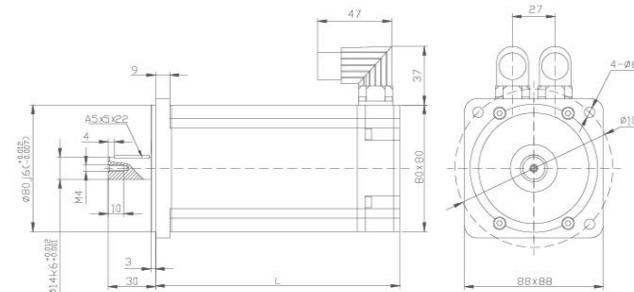
● Matching between servo drive and motor

Drive	EM3S4A1	EM3S4A2	EM3S4A3	EM3S4A4	EM3S4A5	EM3S4A6	EM3S4A7	EM3S4A8
Output current [A]	1.0, 1.6	2.2, 2.8	3.8 – 6.8	7.6 – 12	19 – 47	64, 80	98, 116	128, 160
Corresponding power [kW]	0.4, 0.75	1.0, 1.5	2.0 – 3.0	4.0 – 6.0	TBD			

■ Ordering models of EM3MxxxA4L small-inertia motors

● EM3M088A4L parameters and mechanical dimensions

Technical data	Unit	Model: EM3M088A4L							
		0P35	0P47	0P68	0P90	1P04	1P32	1P35	1P79
Number of poles		10							
Rated speed nN	min ⁻¹	3000	4500	3000	4500	3000	4500	3000	4500
Rated torque Mn	Nm	1.1	1.0	2.2	1.9	3.3	2.8	4.3	3.8
Rated power pN	kW	0.35	0.47	0.68	0.90	1.04	1.32	1.35	1.79
Rated current In	A	1.02	1.34	2.00	2.55	2.81	3.56	3.80	4.83
Static torque Mo	Nm	1.3		2.3		3.5		4.5	
Static current Io	A	1.20	1.73	2.13	3.07	2.99	4.43	4.00	5.70
Torque constant KT	Nm/A	1.08	0.75	1.08	0.75	1.17	0.79	1.13	0.79
Voltage constant KE	V/1000min ⁻¹	142	98	142	98	142	98	142	98
Stator resistor (line) R2ph	Ω	20.20	9.00	10.10	4.50	6.73	2.99	4.00	2.27
Stator inductance (line) L2Ph	mH	64.8	28.8	32.4	14.4	21.6	9.6	16.2	7.2
Rotational inertia without braking J	kgcm ²	0.90		1.70		2.51		3.32	
Rotational inertia with braking JBr	kgcm ²	1.13		1.93		2.74		3.55	
Weight without brake m	kg	1.8		2.8		3.8		4.8	
Weight without brake mBr	kg	2.1		3.1		4.1		5.1	
Braking torque MBr	Nm	5							
Recommend cross section of power cable	mm ²	0.75	0.75	0.75	0.75	0.75	0.75	0.75	1.5



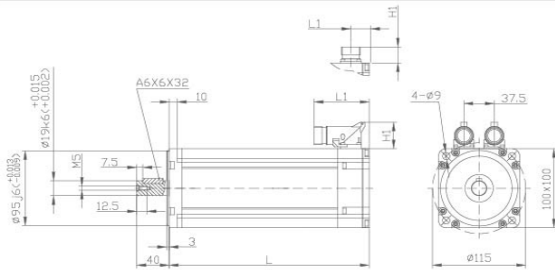
● Size L

Product series	L (EnDat EBI1135)	L (spin variable feedback)	L increased size (with brake)
EM3M088A4L.0P35/0P47	109	130	30
EM3M088A4L.0P68/0P90	134	155	30
EM3M088A4L.1P04/1P32	159	180	30
EM3M088A4L.1P35/1P79	184	205	30

eMotic C Series EM3M Servo Motor

● EM3M100A4L parameters and mechanical dimensions

Technical data	Unit	Model: EM3M100A4L									
		0P53	0P63	0P81	0P97	1P20	1P45	1P62	1P95	2P00	2P42
Number of poles		10									
Rated speed nN	min ⁻¹	2200	3000	2200	3000	2200	3000	2200	3000	2200	3000
Rated torque Mn	Nm	2.4	2.1	3.5	3.1	5.2	4.6	7.0	6.2	8.7	7.7
Rated power pN	kW	0.53	0.63	0.81	0.97	1.20	1.45	1.62	1.95	2.00	2.42
Rated current In	A	1.1	1.3	1.6	1.9	2.4	2.9	3.2	3.8	4.0	4.8
Static torque Mo	Nm	2.5		3.7		5.5		7.4		9.2	
Static current Io	A	1.2	1.6	1.7	2.3	2.5	3.5	3.4	4.6	4.2	5.8
Torque constant KT	Nm/A	2.2	1.6	2.2	1.6	2.2	1.6	2.2	1.6	2.2	1.6
Voltage constant KE	V/1000min ⁻¹	139	106	139	106	139	106	139	106	139	106
Stator resistor (line) R2ph	Ω	13.20	7.60	9.80	5.50	5.60	2.90	4.10	2.28	3.40	1.80
Stator inductance (line) L2Ph	mH	91.0	50.0	76.0	41.0	52.0	33.9	38.0	29.1	31.0	16.8
Rotational inertia without braking J	kgcm ²	1.8		2.6		3.4		4.3		5.1	
Rotational inertia with braking JBr	kgcm ²	2.0		2.8		3.6		4.5		5.1	
Weight without brake m	kg	4.4		5.3		6.3		7.3		8.4	
Weight without brake mBr	kg	5.5		6.4		7.4		8.4		9.5	
Braking torque MBr	Nm	8									
Recommend cross section of power cable	mm ²	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5



● Size L

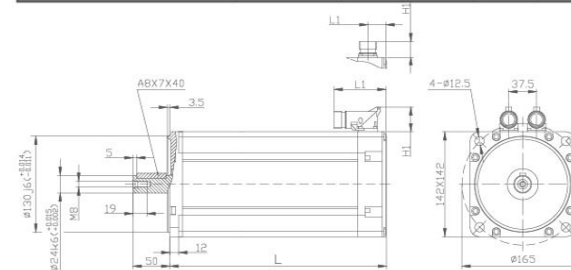
Product series	L (induction EnDat/spin variable feedback)	L (photoelectric EnDat feedback)	L increased size (with brake)
EM3M100A4L_0P53/0P63	162.5	194	41.5
EM3M100A4L_0P81/0P97	184	215.5	41.5
EM3M100A4L_1P20/1P45	205.5	237	41.5
EM3M100A4L_1P62/1P95	227	258.5	41.5
EM3M100A4L_2P00/2P42	250	281.5	41.5

● Size LI / H1

Connector type	L1	H1
Curved	68	34
Stretched	22	22
Curved (multi-angle)	71	41

● EM3M142A4 parameters and mechanical dimensions

Technical data	Unit	Model: EM3M142A4L									
		0P99	1P26	1P80	2P42	2P72	3P65	3P32	4P37	4P15	5P50
Number of poles		8									
Rated speed nN	min ⁻¹	2200	3000	2200	3000	2200	3000	2200	3000	2200	3000
Rated torque Mn	Nm	4.2	4.0	7.8	7.7	11.8	11.6	14.4	13.9	18.0	17.5
Rated power pN	kW	0.99	1.26	1.80	2.42	2.72	3.65	3.32	4.37	4.15	5.50
Rated current In	A	2.0	2.5	3.6	4.8	5.4	7.3	6.5	8.7	8.2	10.9
Static torque Mo	Nm	4.8		9.2		13.9		16.7		21.0	
Static current Io	A	2.2	3.0	4.2	5.8	6.2	8.7	7.6	10.4	9.6	13.1
Torque constant KT	Nm/A	2.2	1.6	2.2	1.6	2.2	1.6	2.2	1.6	2.2	1.6
Voltage constant KE	V/1000min ⁻¹	135	98	135	98	135	98	135	98	135	98
Stator resistor (line) R2ph	Ω	10.6	6.5	4.4	2.2	2.33	1.2	1.5	0.95	1.26	0.68
Stator inductance (line) L2Ph	mH	91.0	58	49	25.0	31.0	16.9	22.1	11.9	17	9.5
Rotational inertia without braking J	kgcm ²	3.6		6.9		10.1		13.3		16.5	
Rotational inertia with braking JBr	kgcm ²	4.9		8.2		11.4		14.6		17.8	
Weight without brake m	kg	7.5		9.4		11.3		13.4		15.5	
Weight without brake mBr	kg	9		10.9		12.8		14.9		17	
Braking torque MBr	Nm	15									
Recommend cross section of power cable	mm ²	1.5	1.5	1.5	1.5	1.5	1.5	1.5	4	4	4



● Size L

Product series	L (induction EnDat/spin variable feedback)	L (photoelectric EnDat feedback)	L increased size (with brake)
EM3M142A4L_0P99/1P26	148	182	45
EM3M142A4L_1P80/2P42	173	207	45
EM3M142A4L_2P72/3P65	198	232	45
EM3M142A4L_3P32/4P37	223	257	45
EM3M142A4L_4P15/5P50	248	282	45

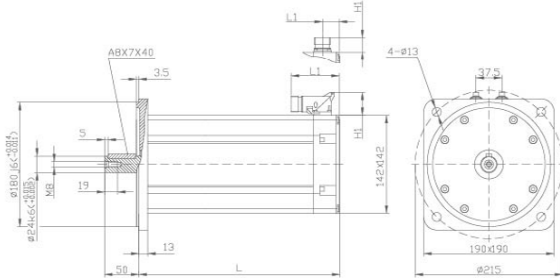
● Size LI / H1

Connector type	L1	H1
Curved	68	34
Stretched	22	22
Curved (multi-angle)	71	41

eMotic C Series EM3M Servo Motor

● EM3M190A4G parameters and mechanical dimensions

Technical data	Unit	Model: EM3M190A4L							
		2P72	3P65	4P15	5P50	5P07	6P60	5P65	7P39
Number of poles		8							
Rated speed nN	min ⁻¹	2200	3000	2200	3000	2200	3000	2200	3000
Rated torque Mn	Nm	11.8	11.6	18.0	17.5	22.0	21.0	24.5	23.5
Rated power pN	kW	2.72	3.65	4.15	5.50	5.07	6.60	5.65	7.39
Rated current In	A	5.4	7.3	8.2	10.9	10	13.1	11.1	14.7
Static torque Mo	Nm	13.9		21.0		25.2		28.2	
Static current Io	A	6.3	8.7	9.6	13.1	10.5	15.7	12.8	17.6
Torque constant KT	Nm/A	2.2	1.6	2.2	1.6	2.2	1.6	2.2	1.6
Voltage constant KE	V/1000min ⁻¹	135	98	135	98	135	98	135	98
Stator resistor (line) R2ph	Ω	2.33	1.2	1.26	0.68	0.9	0.55	0.8	0.45
Stator inductance (line) L2Ph	mH	31	16.9	17	9.5	13	7.9	12.5	7.9
Rotational inertia without braking J	kgcm ²	10.1		16.5		18.4		21.3	
Rotational inertia with braking JBr	kgcm ²	11.4		17.8		19.7		22.6	
Weight without brake m	kg	11.8		16		18.1		20.2	
Weight without brake mBr	kg	13.3		17.5		19.6		21.7	
Braking torque MBr	Nm	32							
Recommend cross section of power cable	mm ²	1.5	1.5	4	4	4	4	4	4



● Size L

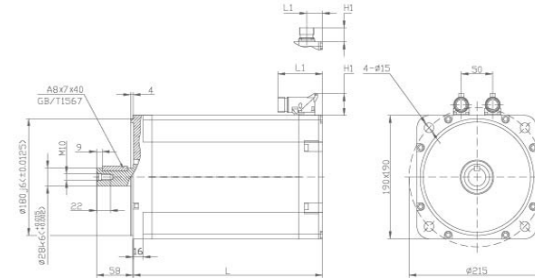
Product series	L (induction EnDat/spin variable feedback)	L (photoelectric EnDat feedback)	L increased size (with brake)
EM3M190A4L.2P72/3P65	198	232	50
EM3M190A4L.4P15/5P50	248	282	50
EM3M190A4L.5P07/6P60	273	307	50
EM3M190A4L.5P65/7P39	298	332	50

● Size LI / H1

Connector type	L1	H1
Curved	68	34
Stretched	22	22
Curved (multi-angle)	71	41

● EM3M190A4G parameters and mechanical dimensions

Technical data	Unit	Model: EM3M190A4L					
		4P80	6P30	6P00	7P50	7P40	9P40
Number of poles		6					
Rated speed nN	min ⁻¹	2200	3000	2200	3000	2200	3000
Rated torque Mn	Nm	21	20	26	24	32	30
Rated power pN	kW	4.8	6.3	6.0	7.5	7.4	9.4
Rated current In	A	9.5	12.5	11.8	14.8	14.5	18.5
Static torque Mo	Nm	26		32		40	
Static current Io	A	11.8	16.3	14.5	20.0	18.2	25.0
Torque constant KT	Nm/A	2.2	1.6	2.2	1.6	2.2	1.6
Voltage constant KE	V/1000min ⁻¹	135	112	135	112	135	112
Stator resistor (line) R2ph	Ω	0.85	0.40	0.60	0.33	0.40	0.22
Stator inductance (line) L2Ph	mH	7.2	3.7	6.1	3.2	4.3	2.1
Rotational inertia without braking J	kgcm ²	76		95		130	
Rotational inertia with braking JBr	kgcm ²	82		101		136	
Weight without brake m	kg	23.5		27.0		34.0	
Weight without brake mBr	kg	26.0		29.0		37.0	
Braking torque MBr	Nm	32					
Recommend cross section of power cable	mm ²	4	4	4	4	4	4



● Size L

Product series	L (induction EnDat/spin variable feedback)	L (photoelectric EnDat feedback)	L increased size (with brake)
EM3M190A4L.4P80/6P30	240	268	40
EM3M190A4L.6P00/7P50	260	288	40
EM3M190A4L.7P40/9P40	300	328	40

● Size LI / H1

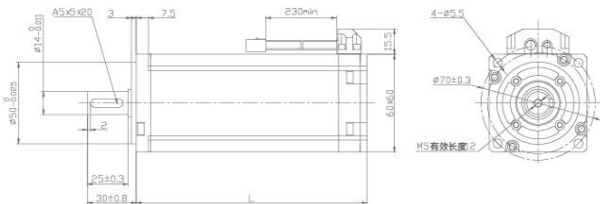
Connector type	L1	H1
Curved	68	34
Stretched	22	22
Curved (multi-angle)	71	41

eMotic C Series EM3M Servo Motor

Ordering models of EM3MxxxA4LD large-inertia motor

EM3M060A4G parameters and mechanical dimensions

Technical data	Unit	Model: EM3M060A4G					
		0P20	0P25	0P32	0P40	0P47	0P61
Number of poles		8					
Rated speed nN	min ⁻¹	3000	4500	3000	4500	3000	4500
Rated torque Mn	Nm	0.64	0.54	1.02	0.85	1.50	1.30
Rated power pN	kW	0.200	0.254	0.320	0.400	0.470	0.612
Rated current In	A	0.50	0.64	0.78	1.00	1.15	1.53
Static torque Mo	Nm	0.75		1.24		1.80	
Static current Io	A	0.58	0.88	0.95	1.46	1.40	2.12
Torque constant KT	Nm/A	1.30	0.85	1.30	0.85	1.30	0.85
Voltage constant KE	V/1000min ⁻¹	78	52	78	52	78	52
Stator resistor (line) R2ph	Ω	110.0	48.9	54.0	24.0	30.0	13.3
Stator inductance (line) L2Ph	mH	167.0	74.2	113.0	50.1	70.0	31.1
Rotational inertia without braking J	kgcm ²	0.20		0.34		0.49	
Rotational inertia with braking JBr	kgcm ²	0.34		0.48		0.63	
Weight without brake m	kg	0.9		1.3		1.7	
Weight without brake mBr	kg	1.3		1.7		2.1	
Braking torque MBr	Nm	1.5					
Recommend cross section of power cable	mm ²	0.75	0.75	0.75	0.75	0.75	0.75

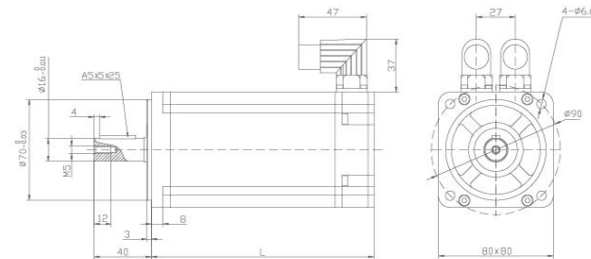


Size L

Product series	L (spin variable feedback)	L (EnDatEBI1135 feedback)	L increased size (with brake)
EM3M060A4G.0P20/0P25	100	85.5	28
EM3M060A4G.0P32/0P40	128	113.5	28
EM3M060A4G.0P47/0P61	156	141.5	28

EM3M080A4G parameters and mechanical dimensions

Technical data	Unit	Model: EM3M080A4G							
		0P35	0P47	0P68	0P90	1P04	1P32	1P35	1P79
Number of poles		10							
Rated speed nN	min ⁻¹	3000	4500	3000	4500	3000	4500	3000	4500
Rated torque Mn	Nm	1.1	1.0	2.2	1.9	3.3	2.8	4.3	3.8
Rated power pN	kW	0.35	0.47	0.68	0.90	1.04	1.32	1.35	1.79
Rated current In	A	1.02	1.34	2.00	2.55	2.81	3.56	3.80	4.83
Static torque Mo	Nm	1.3		2.3		3.5		4.5	
Static current Io	A	1.20	1.73	2.13	3.07	2.99	4.43	4.00	5.70
Torque constant KT	Nm/A	1.08	0.75	1.08	0.75	1.17	0.79	1.13	0.79
Voltage constant KE	V/1000min ⁻¹	142	98	142	98	142	98	142	98
Stator resistor (line) R2ph	Ω	20.20	9.00	10.10	4.50	6.73	2.99	4.00	2.27
Stator inductance (line) L2Ph	mH	64.8	28.8	32.4	14.4	21.6	9.6	16.2	7.2
Rotational inertia without braking J	kgcm ²	0.90		1.70		2.51		3.32	
Rotational inertia with braking JBr	kgcm ²	1.13		1.93		2.74		3.55	
Weight without brake m	kg	1.8		2.8		3.8		4.8	
Weight without brake mBr	kg	2.1		3.1		4.1		5.1	
Braking torque MBr	Nm	5							
Recommend cross section of power cable	mm ²	0.75	0.75	0.75	0.75	0.75	0.75	0.75	1.5



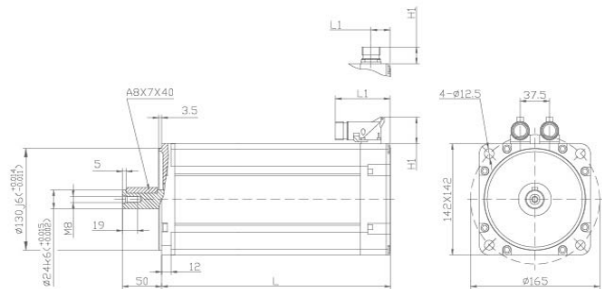
Size L

Product series	L (EnDatEBI1135 feedback)	L (spin variable feedback)	L increased size (with brake)
EM3M080A4G.0P35/0P47	107	128	30
EM3M080A4G.0P68/0P90	132	153	30
EM3M080A4G.1P04/1P32	157	178	30
EM3M080A4G.1P35/1P79	182	203	30



● EM3M142A4L parameters and mechanical dimensions

Technical data	Unit	Model: EM3M142A4G									
		0P99	1P26	1P80	2P42	2P72	3P65	3P32	4P37	4P15	5P50
Number of poles		8									
Rated speed nN	min ⁻¹	2200	3000	2200	3000	2200	3000	2200	3000	2200	3000
Rated torque Mn	Nm	4.2	4.0	7.8	7.7	11.8	11.6	14.4	13.9	18.0	17.5
Rated power pN	kW	0.99	1.26	1.80	2.42	2.72	3.65	3.32	4.37	4.15	5.50
Rated current In	A	1.8	2.4	3.4	4.6	5.1	6.9	6.3	8.3	7.8	10.5
Static torque Mo	Nm	4.8		9.2		13.9		16.7		21.0	
Static current Io	A	2.1	2.9	4.0	5.5	6.0	8.3	7.3	10.0	9.1	12.6
Torque constant KT	Nm/A	2.3	1.67	2.3	1.67	2.3	1.67	2.3	1.67	2.3	1.67
Voltage constant KE	V/1000min ⁻¹	143	106	143	106	143	106	143	106	143	106
Stator resistor (line) R2ph	Ω	11.90	6.40	4.00	2.15	2.23	1.20	1.58	0.85	1.23	0.66
Stator inductance (line) L2Ph	mH	44.6	24.0	22.3	12.0	14.9	8.0	11.2	6.0	8.9	4.8
Rotational inertia without braking J	kgcm ²	9.1		17.3		25.8		34.4		42.7	
Rotational inertia with braking JBr	kgcm ²	10.4		18.5		27.1		35.7		44.0	
Weight without brake m	kg	7.8		9.7		11.6		13.7		15.8	
Weight without brake mBr	kg	9.3		11.2		13.1		15.2		16.3	
Braking torque MBr	Nm	15									
Recommend cross section of power cable	mm ²	1.5	1.5	1.5	1.5	1.5	1.5	1.5	4	4	4



● Size L

Product series	L (EnDatEBI1135 feedback)	L (spin variable feedback)	L increased size (with brake)
EM3M142A4G.0P99/1P26	148	182	45
EM3M142A4G.1P80/2P42	173	207	45
EM3M142A4G.2P72/3P65	198	232	45
EM3M142A4G.3P32/4P37	223	257	45
EM3M142A4G.4P15/5P50	248	282	45

eMotic C series EM3L accessories



Cable



Terminal



Input filter



Braking resistor



Handheld debug panel



Battery

QS series servo driver have been passing 8 years , and possess of completely product line, have rich successful cases in textile household, metal processing, CNC lathe & milling machinery , print, electronicprocessing, Robot industry . Steady and reliable, easy to use high speed position, fast speed to stabilizationfeatures etc, along with vibration reduction control , command tracking control, control mode changeable functionetc, make QS series driver perform excellent in different kinds of industry.



QS Series Servo Driver



QS7 common type

Power	Model
0.4KW	QS7AA010M
0.75KW	QS7AA020M
1.5KW	QS7AA030M
3.7KW	QS7AA050M2
5.5KW	QS7AA075M2

QS1 economic type

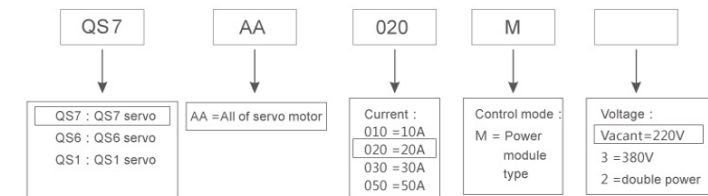
Power	Model
0.75KW	QS1AA020M2
1.5KW	QS1AA030M2

QS2 low voltage type

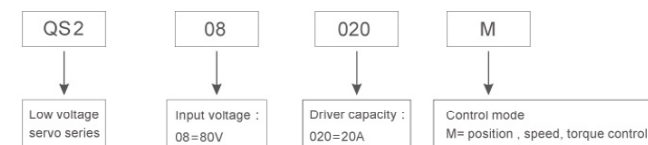
Power	Model
0.1KW	QS208020M
0.2KW	
0.4KW	
0.4KW	

■ Naming rule

QS servo driver series



Low voltage servo driver series



QS7 Series Standard Servo Driver

■ QS7 Series Standard Servo Driver

QS7 Software has optimization algorithms, mature and steady of hardware structure. Power range is from 100W to 5.5Kw.

● System Configuration Diagram

Circuit breaker (MCCB)

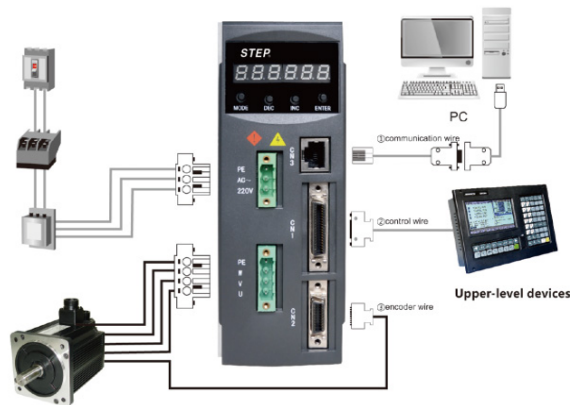
Used for the power line protection. It turns off the circuit when over current flows.

Electromagnetic contactor

Turn on and off the servo power. Use it by mounting the surge suppressor.

Interference filter

Mounted to avoid external interference from power.



● QS7 Series connector port describe

Input, output signal connect port (CN1)	For command signal input or sequential signal input or output connect port
Encoder connect port (CN2)	For connecting port of encoder on servo motor
Computer communication connect port (CN3)	Through RS485 or RS232 bus line work with computer parameter setting software communicate
Power terminal (PE/AC~220V)	Power input terminal
Servo motor connect terminal (PE/W/U)	Connect servo motor power wire

*QS7AA050M2/075M2 connect mode has a little difference from other QS7 series, details refer to user manual.

● QS7 Accessories List

Power & Motor terminal	3 power terminal, 4 motor terminal	Standard
User manual	1-2 piece user manual	Standard
Servo cable set	Including motor power wire, encoder wire and control wire	Optional
Communication wire	Used for servo driver work with PC software parameter communicate	Optional
Interference filter	3 kinds for optional, refer to the chapter of servo optional part	Optional
Encoder servo head	CN2	Optional Re: If servo cable set order, no need purchase servo head separately.
Controller servo head	CN1	Optional
The brake resistance	Refer to the chapter of servo optional part	Optional

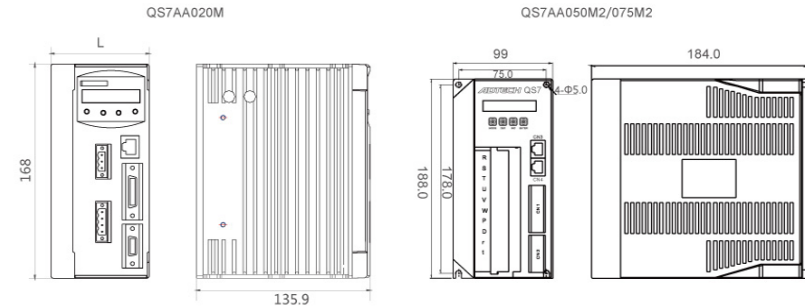
● QS7 series technical specification sheet

Servo driver mode	QS7AA010M	QS7AA020M	QS7AA030M	QS7AA050M2	QS7AA075M2
Input power	Main power AC220V -15%~+10% Control power AC220V -15%~+10% Main power AC220V				
Feedback	incremental 2500/5000 wires photoelectric rotary encoder				
Speed ratio	1:5000				
Speed volatility	< ±0.03% (Within rated torque)				
Pulse command input	pulse+direction pulse+ A+B 90°orthogonal pulse				
Pulse frequency	differential drive: 500K open-collector: 200K				
Analog command input	-10V~10V, input resistance 10KΩ				
Pulse output signal	encoder A,B,Z phase differential output, Z signal connector output				
Input signal	servo enable, alarm clear, position forbid, forward limit, reversal limit, control mode				
Output signal	locate finish, servo alarm, servo ready, brake output, zero output				
Protection function	over-current, over-voltage, low-voltage, overload, overheat, phase loss, over-speed, encoder unusual, ultra-poor, module unusual				
Monitoring function	rotation speed, current position, current pulse frequency, position deviation, motor torque, motor current, analog input value, etc.				
Communication function	through RS232/RS485 with PC, modify real time parameters, monitor of servo system running status				

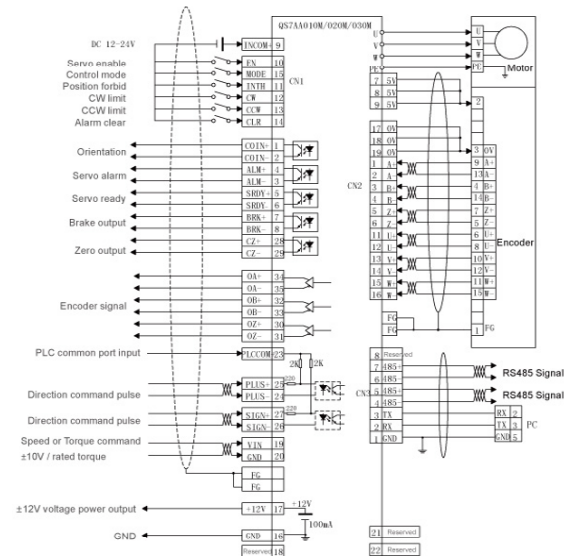
Work Environment
Work temperature: <45°C
Work humidity: 40%~80%
Vibration/Impact strength: 4.9m/s² / 19.6 m/s²
Altitude: < 1000m, 1000m above please derate to use
Air pressure: 86~106kpa

● Product dimension drawing (mm)

QS7	010M	020M	030M
L	60	77	77



● QS7 wiring diagram



QS1 Series Economic Type Servo Driver

■ QS1 Series Economic Type Servo Driver

Q1 series are low cost servo for middle and big power motors, sound structure, convenient connection and Sdebug, cover from 750W to 1.5 KW power range.

● System Configuration Diagram

Circuit breaker (MCCB)

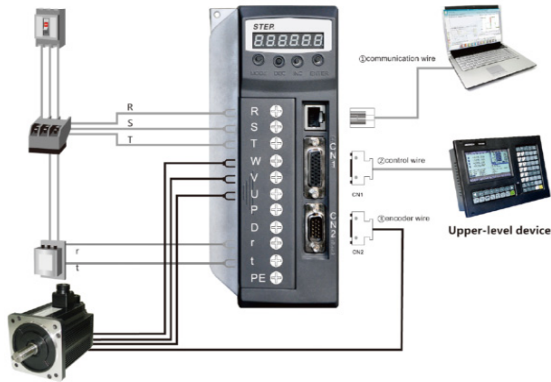
Used for the power line protection. It turns off the circuit when over current flows.

Electromagnetic contactor

Turn on and off the servo power. Use it by mounting the surge suppressor.

Interference filter

Mounted to avoid external interference from power.



● QS1 Series connector port describe

Input, output signal connect port (CN1)	For command signal input or sequential signal input or output connect port
Encoder connect port (CN2)	For connecting port of encoder on servo motor
Computer communication connect port (CN3)	Through RS485 or RS232 bus line work with computer parameter setting software communicate
Power terminal (R/S/T/r/t)	Power input terminal
Servo motor connect terminal (W/V/U)	Connect servo motor power wire

● QS1 Accessories List

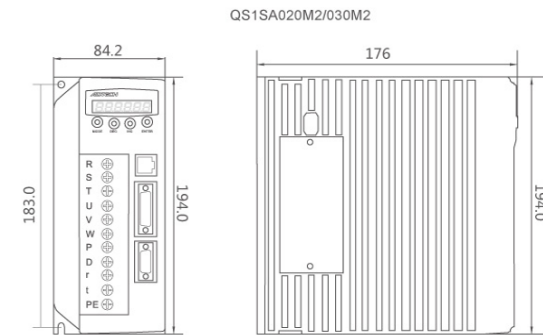
User manual	1~2 piece user manual	Standard
Servo cable set	Including motor power wire, encoder wire and control wire	Optional
Encoder servo head	CN2	Re: If servo cable set order, no need purchase servo head separately. Optional
Controller servo head	CN1	Optional
Interference filter	3 kinds for optional, refer to the chapter of servo optional part	Optional

● QS1 series technical specification sheet

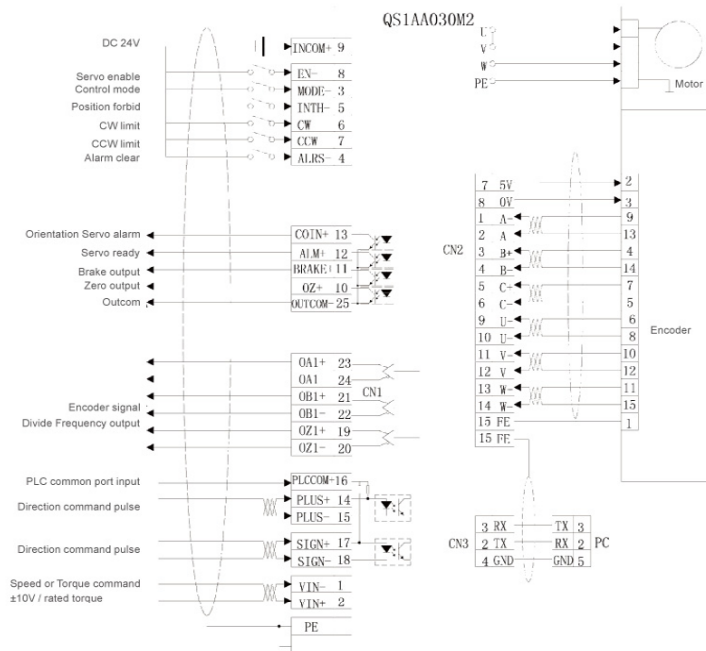
Servo driver model	QS1SA020M2*	QS1SA030M2	Work Environment
Input power	AC220V -15%~+10%	Control power AC220V -10%~+5%	Work temperature: <45°C
Feedback	incremental 2500/5000 wires photoelectric rotary encoder		Work humidity: 40%~80%
Speed ratio	1:5000		Vibration/Impact strength: 4.9m/s ² / 19.6 m/s ²
Speed volatility	<±0.03% (Within rated torque)		Altitude: < 1000m, 1000m above please derate to use
Pulse command input	Pulse type: pulse+direction Pulse frequency: differential drive: 500K open-collector: 200K	Pulse+pulse A+B 90° orthogonal pulse	Air pressure: 86~106kpa
Analog command input	-10V~10V, input resistance 10KΩ		
Pulse output signal	encoder A,B,Z phase differential output, Z signal connector output		
Input signal	servo enable, alarm clear, position forbid, forward limit, reversal limit, control mode		
Output signal	locate finish, servo alarm, brake output, zero output		
Protection function	over-current, over-voltage, low-voltage, overload, overheat, phase loss, over-speed, encoder unusual, ultra-poor, module unusual		
Monitoring function	rotation speed, current position, current pulse frequency, position deviation, motor torque, motor current, analog input value, etc.		
Communication function	through RS232/RS485 with PC, modify real time parameters, monitor of servo system running status		

*Note: QS1AA020M2 Customized Specification

● Product dimension drawing (mm)



● QS1 wiring diagram

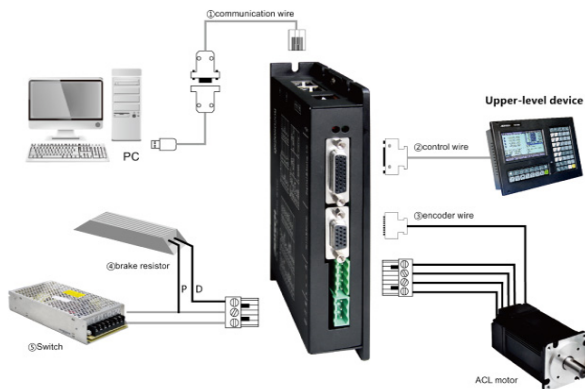


QS2 Series Low Voltage Servo Driver

■ QS2 Series Low Voltage Servo Driver

QS2 Series servo driver is developed based on low cost situation upon years of general servo field experience, withbuilt in various algorithm, flexible parameter setting, small size,matches with low voltage servo motor, widely used small power situations from 100W to 400W.

● System Configuration Diagram



● QS2 Series connector port describe

Input, output signal connect port (I/O)	Connect PC, command input, I signal output
Encoder connect port	For connecting port of encoder on servo motor
Computer communication connect port	Through RS485 or RS232 bus line to communicate with computer or multi-QS2 driver
Power terminal (GND/VCC/BR)	Power input terminal
Servo motor drive terminal (PE/W/V/U)	Connect servo motor power line output terminal

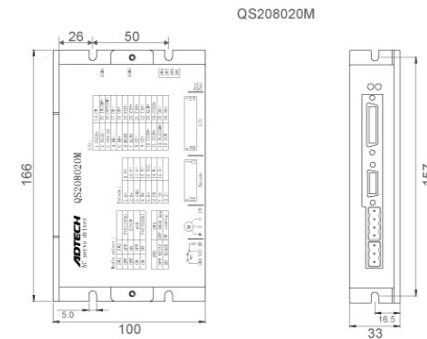
● QS2 Accessories List

Power & Motor terminal	3 power terminal, 4 motor terminal	Standard
User manual/CD	1~2 piece user manual	Standard
Servo cable set	Including motor power wire, encoder wire and control wire	Optional
Communication wire	Used for servo driver to transfer data with PC software	Optional
Encoder DB head	CN1	Note: If servo cable set order, no need purchase servo head separately.
Controller DB head		Optional
DC Power	Two model for choosing, refer to servo optional parts in this chapter for detail info.	Optional
The brake resistance	Refer to the chapter of servo optional part	Optional

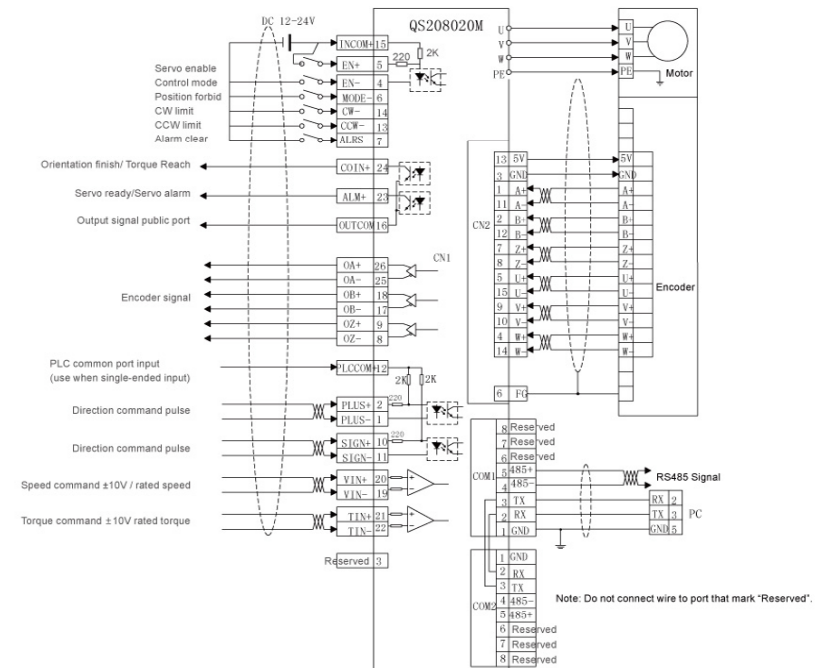
● QS2 series technical specification sheet

Input power	DC24V-80V	Work Environment
Feedback	incremental 1000/2500 wires photoelectric rotary encoder	Work temperature: <45°C
Speed ratio	1:5000	Work humidity: 40%~80%
Speed volatility	<±0.03% (Within rated load)	Vibration/Impact strength: 4.9m/s ² / 19.6 m/s ²
Pulse command input	Pulse type pulse+direction pulse+ pulse A+B 90°orthogonal pulse Pulse frequency differential drive: 500K open- collector: 200K	Altitude: < 1000m, derating to use above 1000m
Analog command input	-10V~10V, input resistance 10kΩ	Atmospheric pressure: 86~106kpa
Pulse output signal	encoder A,B,Z phase differential output, Z signal connector output	Dimension
Input signal	servo enable, alarm clear, position forbid, forward limit, reversal limit, control mode	
Output signal	locate finish, servo alarm, servo ready, zero output(Z phase)	
Protection function	over-current, over-voltage, low-voltage, overload, phase loss, encoder unusual alarm ect	
Monitoring function	rotation speed, current position, current pulse frequency, position deviation, motor torque, motor current, analog input value, etc.	
Communication function	through RS232/RS485 to communicate with PC, modify parameters, monitor of servo system running status	

● Product dimension drawing (mm)



● QS2 wiring diagram



Servo Series Selection Form

■ Servo motor and driver combination model selection form

Low inertia series (ACH motor)

Rated rotation speed **3000r/min**



rated power (W)	model	shaft Diameter (mm)	length (mm)	driver model
50W	ACN-04005D	8	73	Q57 010M
100W	ACN-04010D	8	91	Q57 010M
200W	MRMS-06020D	14	106	Q57 010M
400W	MRMS-06040D	14	126	Q57 010M
600W	ACH-11060DC	19	159	Q57 020M
750W	ACH-09075DC	16	149	Q57 020M/030M
	MRMS-08075D	19	140	Q57 020M/030M
1000W	MRMS-08100D	19	160	Q57 020M/030M
1200W	ACH-11120DC	19	189	Q57 030M2 Q57 050M2
1500W	ACH-11150DC	19	204	Q57 030M2 Q57 050M2
1800W	ACH-11180DC	19	219	Q57 050M2



3000r/min



2000r/min type



1500r/min type



3000r/min

Middle inertia series (ACH motor)

Rated rotation speed **2000r/2500r/min**



rated power (W)	model	shaft Diameter (mm)	length (mm)	driver model
750W	ACH-09075BC	16	171	Q57 020M
1000W	ACH-13100CC	22	106	Q57 030M2
1200W	ACH-11120BC	19	219	Q57 030M2
1500W	ACH-13150CC	22	179	Q57 030M2 Q57 050M2
2000W	ACH-13200CC	22	192	Q57 050M2
2600W	ACH-13260CC	22	209	Q57 050M3
3800W	ACH-13380C3C	22	231	Q57 050M3

High inertia series (ACH motor)

Rated rotation speed **1500r/min**



rated power (W)	model	shaft Diameter (mm)	length (mm)	driver model
1500W	ACH-13150AC	22	213	Q57 050M2
2300W	ACH-13230AC	22	241	Q57 050M2
2700W	ACH-18270AC	35	226	Q57 050M2
3000W	ACH-18300AC	35	232	Q57 050M2
3700W	ACH-18370AC	35	292	Q57 050M2
5500W	ACH-18550BC	35	243	Q57 050M2

Low voltage servo series (ACL motor)

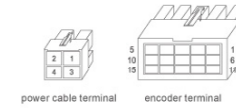
Rated rotation speed **3000r/4500r/min**



rated power (W)	model	shaft Diameter (mm)	length (mm)	driver model
100W	ACL06010A	8	85	Q52 08020M
200W	ACL06020A	14	99	Q52 08020M
	ACL06020B	14	99	Q52 08020M
400W	ACL06040B	14	127	Q52 08020M

■ Servo optional accessory

15 wires encoder and power cable definition (< 1KW) ACH/MRMS series



power cable U.V.W. definition				
serial number	1	2	3	4
name	U	V	W	PE

encoder fast-terminal motor outlet port definition															
serial number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
name	FG	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-

Aviation plug motor leads definition (≥ 1KW) ACH series



power cable aviation plug definition				
serial number	1	2	3	4
name	U	V	W	PE

encoder aviation plug definition															
serial number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
name	FG	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-

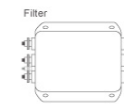
Province-wire encoder type motor leads definition (< 1KW) MRMS series



encoder fast-terminal motor outlet port definition									
serial number	1	2	3	4	5	6	7	8	9
name	5V	0V	A+	A-	B+	B-	Z+	Z-	屏蔽

Tips: In order to ensure the quality of data transmission, the signal line provided by our company are shielded twisted-pair cable, a group of signal wire twisted together should be used for pairs of differential signal. The length of the servo cable in 10 meters in general. Up 10 meters, interference from industrial field may cause work unstable. If need more than 10 meters cable, please consult our engineer before purchasing.

Optional Spare Parts

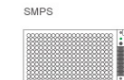


code	specification	description
E2401010001	single-phase 10A 250V	match Q57AA010M
E24A1003001	single-phase 20A 250V	match Q57AA020M/030M/050M2
E2402001001	three phase 40A 450V	match Q57AA050M2/Q56AA050M3



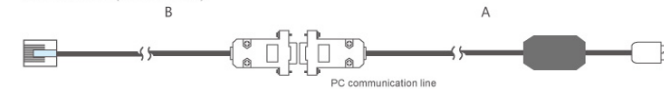
E01A0740002	40Ω, 200W, 165X60mm, length 550mm	match Q57AA050M2
E01A0710001	10Ω, 30W, 65*42*6, length 100mm	match QS208020M

*Above table is only the recommended specifications, the actual need to choose according to mechanical operating condition.



E34A1350291	350W, input 100-120VAC Or 200-240VAC (switch) output 36V, 9.7A	Please choose according to the power and voltage of the ACL motor
E34A1500251	500W, input 180-240VAC, output 68VDC, 7.3A	

communication line (CQS2USB1M01)



Tips: Communication line is used to connect drive and computer. Section B due to using RS232 turn to USB turn wiring, need to install the PC driving program first. DB9 joint in A section is not a standard serial port definition, so please do not directly connect it to the serial port of PC or controller.

Low-inertia series (ACH motor) selection table

Low inertia series (ACH motor) **3000r/min**

Model	Rated output	Rated speed
ACH-06020DC	200W	3000r/min

Model	Rated output	Rated speed
ACH-06040DC	400W	3000r/min

Model	Rated output	Rated speed
ACH-08075DC	750W	3000r/min

Model	Rated output	Rated speed
ACH-09075DC	750W	3000r/min

Model	Rated output	Rated speed
ACH-11120DC	1200W	3000r/min

Model	Rated output	Rated speed
ACH-11060D	600W	3000r/min

Model	Rated output	Rated speed
ACH-11150D	1500W	3000r/min

Model	Rated output	Rated speed
ACH-11180DC	1800W	3000r/min

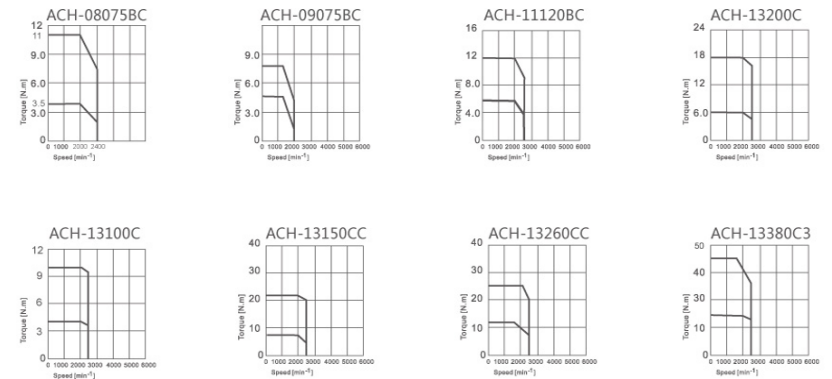
Middle-inertia series (ACH motor) selection table

Rated speed **2000r/2500r/min**

Performance parameters	Servo motor model (ACH)	08075BC	09075BC	11120BC	13200C	13100C	13150CC	13260CC	13380C3	
	Servo driver model (QS7)	020M	020M	030M	050M2	030M	050M2	050M2	050M2	QS6AA050M3
Flange specification (mm)	80	86	110	130						
Rated power (kw)	0.75	0.75	1.2	2.0	1.0	1.5	2.6	3.8		
Rated torque (Nm)	3.5	3.5	6.0	7.7	4.0	6.0	10	15		
Maximum Torque (Nm)	10.5	10.5	12	22	12	18	25	45		
Rated current (A)	3.0	3.0	4.5	7.5	4.0	6.0	10	10		
Rated speed (r/min)	2000			2500						
Rated voltage (V)	220								380	
Install size	Inertia (kgm ² ×10 ⁻⁴)	3.0	3.4	7.6	15.3	8.5	12.6	19.4	12.6	
	Coder line number (PPR)	2500								
	Diameter of axis(mm)	19	16	19	22	22	22	22	22	
	Length of motor(mm)	178	171	219	192	106	179	209	231	
	Weight(kg)	3.7	3.8	6.7	10	7.7	8.9	11.5	14.7	

Use environment: Temperature : 0~40°C ; Humidity: 90%RH under; Height: 1000m under, indoor condition, less than 1000m high, avoid dust, oil fog and corrosive gas.

Rated speed-torque characteristics figure



■ Middle-inertia series (ACH motor) selection table

Middle-inertia series (ACH motor) 2000r/2500r/min

Model	Rated output	Rated speed
ACH-08075BC	750W	2000r/min

Model	Rated output	Rated speed
ACH-09075BC	750W	2000r/min

Model	Rated output	Rated speed
ACH-11120BC	1200W	2000r/min

Model	Rated output	Rated speed
ACH-13150CC	1500W	2500r/min

Model	Rated output	Rated speed
ACH-13200CC	2000W	2500r/min

Model	Rated output	Rated speed
ACH-13260CC	2600W	2500r/min

Model	Rated output	Rated speed
ACH-13100C	1000W	2500r/min

Model	Rated output	Rated speed
ACH-13380C3C	3800W	2500r/min

■ High-inertia series (ACH motor) selection table

Rated speed 1500r/min

Performance parameters	Servo motor model (ACH)	18270A3C	18290F3C	18300A3C	18370F3C	18430A3C	18450B3C	18550A3C	18750A3C
	Servo driver model	QS6AA050M3							*Developing QS9AA075M3*
Flange specification (mm)	180								
Rated power (kw)	2.7	2.9	3.0	3.7	4.3	4.5	5.5	7.5	
Rated torque (Nm)	17.2	27	19	35	27	21.5	35	48	
Maximum Torque (Nm)	43		47	70	67	53	70	96	
Rated current (A)	6.5	7.5	7.5	10	10	9.5	12	20	
Rated speed (r/min)	1500	1000	1500	1000	1500	2000	1500	1500	
Rated voltage (V)	380								
Inertia (kgm ² ×10 ⁻⁴)	34	61	38	86	61	47	86	95	
Coder line number (PPR)	2500								
Diameter of axis(mm)	35	35	35	35	35	35	35	35	
Length of motor(mm)	226	262	232	292	262	243	292	346	
Weight(kg)	19.5	25.5	20.5	30.5	25.5	22.2	30.5	40	

Use environment: Temperature : 0-40°C ; Humidity: 90%RH under; Height: 1000m under, indoor condition, less than 1000m high, avoid dust, oil fog and corrosive gas.

Performance parameters	Servo motor model (ACH)	13150AC	13230AC	18270AC	18290FC	18300AC	18370FC	18430AC	18550BC
	Servo driver model (QST)	050M2			050M2			QS7AA075M2	
Flange specification (mm)	130			180			180		
Rated power (kw)	1.5	2.3	2.7	2.9	3.0	3.7	4.3	5.5	
Rated torque (Nm)	10	15	17.2	27	19	35	27	35	
Maximum Torque (Nm)	25	30	43	67	47	70	67	70	
Rated current (A)	6.0	9.5	10.5	12	12	16	16	24	
Rated speed (r/min)	1500	1500	1500	1000	1500	1000	1500	1500	
Rated voltage (V)	220								
Inertia (kgm ² ×10 ⁻⁴)	19.4	27.7	34	61	38	86	61	86	
Coder line number (PPR)	2500								
Diameter of axis(mm)	22	22	35	35	35	35	35	35	
Length of motor(mm)	213	241	226	344	232	292	262	243	
Weight(kg)	11.5	14.4	19.5	25.5	20.5	30.5	25.5	22.2	

Use environment: Temperature : 0-40°C ; Humidity: 90%RH under; Height: 1000m under, indoor condition, less than 1000m high, avoid dust, oil fog and corrosive gas.

High inertia series (ACH motor) 1500r/2300r/min

Model	Rated	Rated speed
ACH-13230AC	2300W	1500r/min

Model	Rated output	Rated speed
ACH-13150AC	1500W	1500r/min

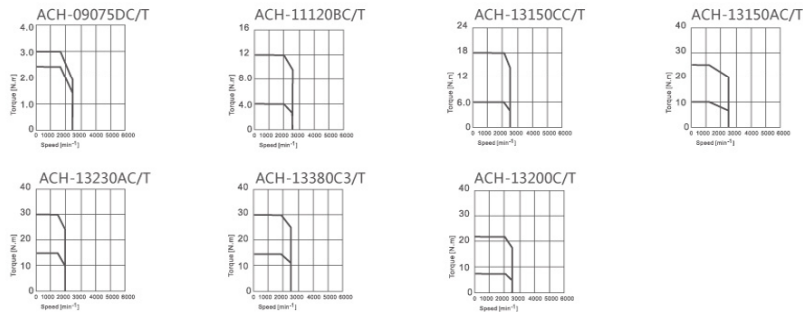
■ With Brake Series(ACH Motor) Selection Table

Rated speed 1500r-3000r/min

Performance parameters	Servo motor model (ACH)	09075DC/T	11120BC/T	13150AC/T	13200C/T	13230AC/T	13150CC/T	13380C3/T	
	Servo driver model (QS6/QS7)	020M	030M2	030M2	050M2	050M2	030M2	503G	
	Flange specification (mm)	86	110	130					
	Rated power (kw)	0.75	1.2	1.5	2.0	2.3	1.5	3.8	
	Rated torque (Nm)	2.4	6.0	10	7.7	15	6.0	15	
	Maximum Torque (Nm)	7.1	12	25	22	30	18	30	
	Rated current (A)	4.78	4.5	7.5	7.0	6.0	6.0	10	
	Rated speed (r/min)	3000	2000	1500	2500	1500	2500	2500	
	Rated voltage (V)	24V	24V	24V	24V	24V	24V	24V	
	Inertia (kgm ² ×10 ⁻³)	2.45	7.6	19.4	15.3	27.7	12.6	12.6	
Install size	Coder line number (PPR)	2500							
	Diameter of axis(mm)	16	19	22	22	22	22	22	
	Length of motor(mm)	194	263	308	249	300	238	319	
	Weight(kg)	3.7	9.7	12.3	10.4	14.7	9.3	14.7	

Use environment: Temperature : 0-40°C ; Humidity: 90%RH under; Height: 1000m under, indoor condition, less than 1000m high, avoid dust, oil fog and corrosive gas.

Rated speed-torque characteristics figure



Model	Rated output	Rated speed
ACH-13150CC/T	1500W	2500r/min

Model	Rated output	Rated speed
ACH-13200C/T	2000W	2500r/min

■ With Brake Series(ACH Motor) Selection Table

Model	Rated output	Rated speed
ACH-09075D/T	750W	3000r/min

Model	Rated output	Rated speed
ACH-13380C3/T	3800W	2500r/min

Model	Rated output	Rated speed
ACH-11120BC/T	1200W	2000r/min

Model	Rated output	Rated speed
ACH-13230AC/T	2300W	1500r/min

Model	Rated output	Rated speed
ACH-13150AC/T	1500W	1500r/min

MRMS series motor selection table

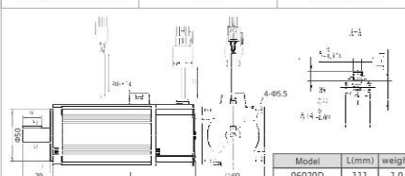
Rated speed **3000r/min**

Performance parameters	Servo motor model (MRMS-)	06020D	06040 D	08075D	08100 D
	Servo driver model (QS7)	010M	020M	030M/030M2	
	Flange specification (mm)	60		80	
	Rated power (kw)	0.2	0.4	0.75	1.0
	Rated torque (Nm)	0.637	1.27	2.39	3.3
	Maximum Torque (Nm)	1.91	3.81	7.2	9.9
	Rated current (A)	1.45	3	5	5.5
	Rated speed (r/min)	3000/4500			
	Rated voltage (V)	220			
	Install size	Inertia (kgm ² ×10 ⁻⁴)	0.215	0.382	0.951
Coder line number (PPR)		2500 PPR 9lines/Incremental 15 lines/Absolute Optional			
Diameter of axis(mm)		14	14	16	19
Length of motor(mm)		106	126	140	160
Weight(kg)		1.0	1.4	3.0	3.8

Use environment: Temperature : 0~40°C ; Humidity: 90%RH under; Height: 1000m under, indoor condition, less than 1000m high, avoid dust, oil fog and corrosive gas.

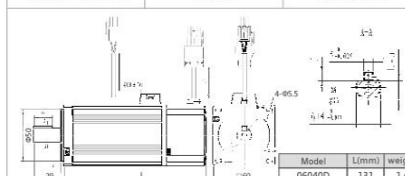
Low-inertia series (MRMS motor) 3000r/min

Model	Rated output	Rated speed
MRMS-06020D	200W	3000r/min



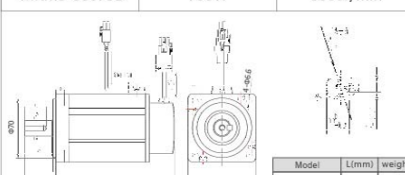
Model	L(mm)	weight
06020D	111	3.0
06020D(with brake)	158	1.45

Model	Rated output	Rated speed
MRMS-06040D	400W	3000r/min



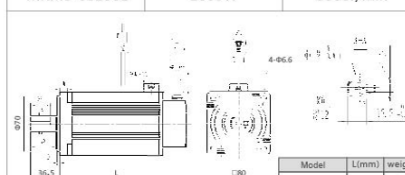
Model	L(mm)	weight
06040D	131	1.4
06040D(with brake)	178	1.85

Model	Rated output	Rated speed
MRMS-08075D	750W	3000r/min



Model	L(mm)	weight
08075D	140	3.0
08075D(with brake)	180	3.8

Model	Rated output	Rated speed
MRMS-08100D	1000W	3000r/min



Model	L(mm)	weight
08100D	160	3.8
08100D(with brake)	200	4.6

Suffix: Mechanical Specification code or customized code				
Specification Table	No Brake, No Seal	With Brake, No Seal	No Brake, With Seal	With Brake, With Seal
Round Shaft	A	B	C	D
Slot	E	F	G	H

*Shaft customized, need 45 days.

ACL series low-voltage servo motor selection table

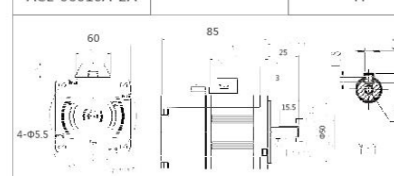
Rated speed **3000r/min**

Performance parameters	Servo motor model (ACL)	06010A-	06020A-	06020B-	06040B-
	Servo driver model	QS208020M			
	Flange specification (mm)	60			
	Rated power (kw)	0.1	0.2	0.2	0.4
	Rated torque (Nm)	0.32	0.64	0.64	1.27
	Maximum Torque (Nm)	0.95	1.91	1.91	3.82
	Rated current (A)	4	7.2	4.5	8.1
	Rated speed (r/min)	3000/3600			
	Rated voltage (V)	36	36	60	60
	Install size	Inertia (kgm ² ×10 ⁻⁴)	0.16	0.306	0.31
Coder line number (PPR)		1000PPR / 2500PPR Optional			
Diameter of axis(mm)		8	14	14	14
Length of motor(mm)		85	99	99	127
Weight(kg)		0.7	0.9	0.9	1.2

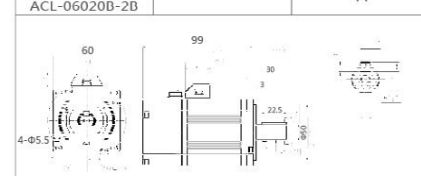
Use environment: Temperature : 0~40°C ; Humidity: 90%RH under; Height: 1000m under, indoor condition, less than 1000m high, avoid dust, oil fog and corrosive gas.
*For details of the specification, please refer to the outline according to the suffix.

Low-voltage servo series (ACL motor) 3000r/min

Model	Rated output	Rated speed
ACL-06010A-2C	100W	8
ACL-06010A-2A		11



Model	Rated output	Rated speed
ACL-06020A-2A	200W	11
ACL-06020B-2A		14
ACL-06020A-2B	14	
ACL-06020B-2B		14



Model	Rated output	Rated speed
ACL-06040B-2B	400W	14

