

PROVEN PERFORMANCE

Customers in over 60 countries and in diverse markets and sectors.



Kinco® Automation

en.kinco.cn Email: sales@kinco.cn

(All trademarks and logos in this brochure are property of and registered by their respective owners.)

K1E18-2511

Kinco

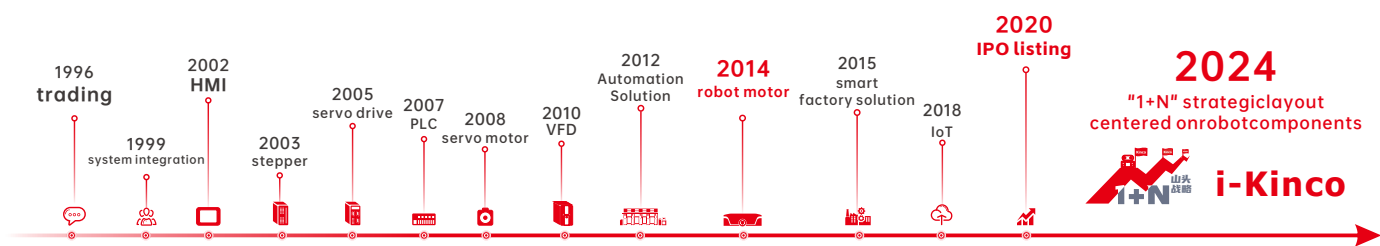
Motion
Control
Servo System

➔ Servo System Catalog

- FD1X5S
- Servo Motor



About us



Kinco was founded in 1996, and successfully listed on the Shanghai Stock Exchange in 2020 (abbreviated name: Kinco share, stock code 688160), which is a high-tech, specialized and sophisticated enterprise that attaches great importance to independent research and development and innovation, mainly engaged in the research and development, production, sales and related technical services of industrial automation and robot core components and digital factory hardware and software. Leading Chinese supplier of motion control and human-machine interaction components for robotics and intelligent devices.

After years of continuous research and development and innovation, Kinco has established a complete product line with independent intellectual property rights, covering a series of products from machine iot to human-machine interaction, control, drive and execution, which are widely used in robots, medical equipment, logistics equipment, packaging equipment, food equipment, clothing equipment, environmental protection equipment, etc. New energy equipment, rail transit equipment and other automation equipment industry.

Based on the comprehensive industrial automation and digital technology platform, the company has in-depth application scenarios in the robot industry, providing display, control, drive and other multi-dimensional solutions for industrial mobile robots, collaborative robots, industrial robots, pan-service robots, and bionic robots. Through the insight of the industry pain points, deep links with robot customers, combined with the advantages of product research and development, the company continues to innovate, and launches industry-leading low-voltage servo products for mobile robots, integrated servo wheel, frameless torque motor for collaborative robots, robot human-machine interfaces, robot controllers and other products. The company has formed a relatively complete robot core parts capability, and after nearly 10 years of hard work in the robot industry, it has become a leading enterprise in the field of mobile robot low-voltage servo, and has a high brand influence in the industry.

Kinco has four research and development centers in Shanghai, Shenzhen, Changzhou and Chengdu, and two manufacturing bases in Shenzhen and Changzhou, a total of 10+ domestic marketing centers, 100+ domestic service providers, 40+ global partners, and products are exported to 70+ countries overseas. In terms of after-sales service, Kinco has established after-sales service centers in Shanghai, Shenzhen and Changzhou.

Four R&D centers and two manufacturing bases



FD1X5S series servo drive

New design platform, high-performance low-voltage with analog function driver



Product Features

- Support RS485、CANopen、EtherCAT、Profinet communication.
- Automatically identify motor parameters.
- Motor temperature monitoring and over temperature protection.
- Equipped with S-curve and parameter self-tuning function.
- 1-channel analog function.
- Gantry control function.
- Support STO .
- Motor overspeed protection.
- Use Type-C debugging port.

Contents

03	Naming rule	Drive naming rules
04	FD1X5S Driver Introduction	Technical parameters Dimension Configuration table Terminal description and wiring Electrical wiring
12	SMK Motor Introduction	Technical parameters Dimension TN curve chart Motor connectors
17	SMC Motor Introduction	Technical parameters Dimension TN curve chart Motor connectors
24	Accessory	Accessory

Driver Naming Rule

Dirve: FD 1 2 5 S-A S-000

① ② ③ ④ ⑤ ⑥ ⑦



①-Series Name	FD: FD series	④-Drive version	5S:5th generation low-voltage servo drive upgrade version
②-Input voltage	1:DC24~60V	⑤-Control mode	A:RS485、CANopen、Pulse、24V logic power supply E:EtherCAT、Pulse、24V logic power supply P:Profinet、Pulse、24V logic power supply
③-Rated output current	1:5Arms 2:15Arms 3:30Arms 4:50Arms	⑥-Hardware version	S:Support STO
		⑦-Software Version	000:Standard software Other: Customized software

FD1X5S series driver parameter table

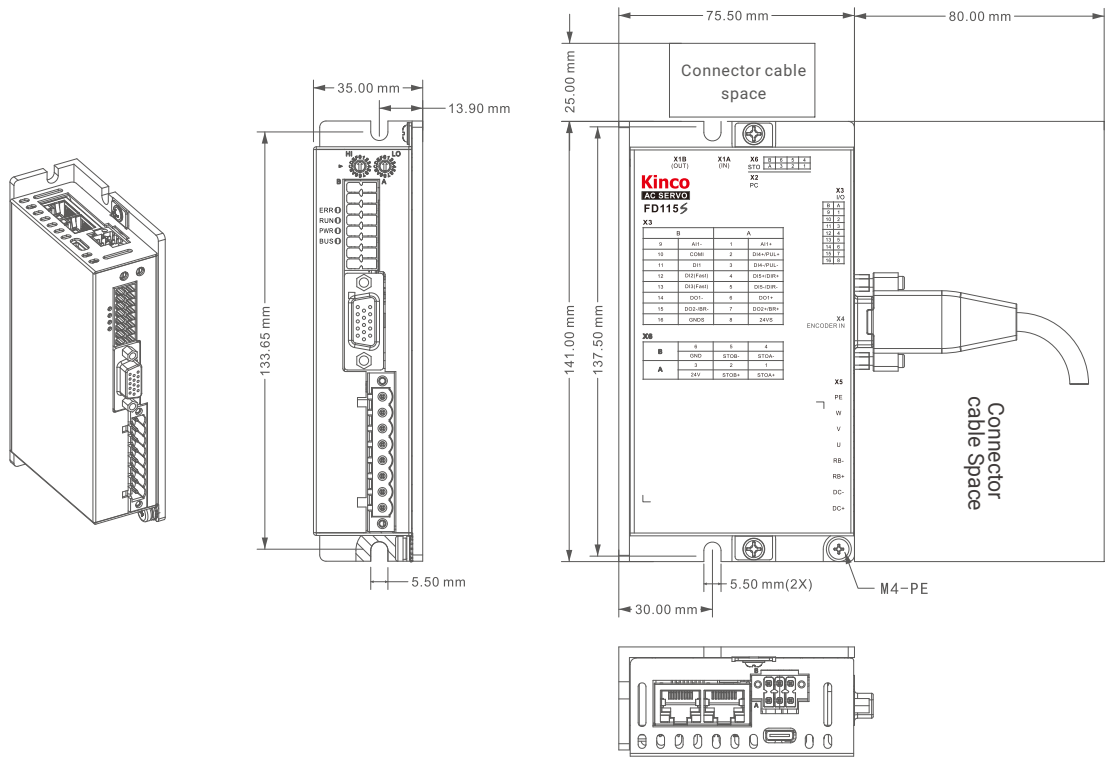
Model parameter		FD125S-□S-000	FD125S-□S-000	FD135S-□S-000	FD145S-□S-000
Input voltage	Power	24VDC~60VDC	24VDC~60VDC	24VDC~60VDC	24VDC~60VDC
	Logic power	24VDC (allowable fluctuation range 18V~30V);500mA+holding brake coil current,Power and logic electrical isolation (500VDC)			
Output current	Max continuous output current (rms)	5A	15A(Up to 12Arms without auxiliary cooling plate)	30A(Up to 22Arms without auxiliary cooling plate)	50A(Up to 35Arms without auxiliary cooling plate)
	Peak current (Arms)	12.73	33.95	70.72	113.15
	Peak current (AP)	18	48	100	160
Feedback signal		Tamagawa protocol, Incremental encoder			
Energy consumption brake		Need external brake resistance (depending on the operation condition, mainly used in rapid start-stop occasions)			
Energy consumption brake voltage absorption point		63V±2V(default)			
Overvoltage alarm voltage		70V±2V(default)			
Undervoltage alarm voltage		16V±2V(default)			
Cooling mode		Natural cooling			
Weight (KG)		0.405	0.405	0.695	0.867
Logic loss power (mW)		2500	2500	2500	2500
Safety function STO		2-channel STO, STO interface can be connected with the safety controller, safety switch, safety sensor, etc., to realize the safety function of the driver			
Input specification	Digital input	3-channel DIdigital input, Common COMI port , DI2 and DI3 are high-speed input terminal High level :12.5V~30VDC, Low level: 0~5VDC; Max frequency : 1KHz, Input impedance :5KΩ			
	Pulse input	2-channel pulse input,Pulse+direction, CCW+CW,phase A+phase B (12V~24V). Max frequency:500KHz. It can be multiplexed as 2-channel DI (DI4 and DI5) by software setting			
Output specification	Digital output	1-channel digital output, open collector output, Max voltage:30V , Driving capacity:100mA			
	Brake output	1-channel brake(Voltage: 24V,Output capacity:1A,can directly drive the brake) It can be multiplexed as 24V source output or open collector output			
Analog		1-channel voltage type analog input, 12bit, -10V~+10V, differential connection method			
Station number		Two 16-bit rotary DIP switch are provided for setting the station number			
Gantry synchronization		AS version supports Gantry synchronization			
USB		Debug linterface, can use Kinco PC software to connection			
Protect function		Overvoltage protection, undervoltage protection, motor I ² T protection, short circuit protection, drive overheat protection			
Bus function	Modbus/RS485	It supports a maximum 115.2K baud rate and can communicate with the controller using Modbus RTU			
	CANopen	It supports a maximum of 1MHz baud rate and can communicate with the controller using the CANopen			
	EtherCAT	Support CoE(CiA402 protocol)and CSP/CSV/PP/PV/PT/HM mode, communication speed 100M			
	Profinet	Non periodic parameter read and write; Message 1, message 3, message 5, message 9, message 102, message 105, message 111; Support IRT synchronous mode; Support absolute value encoder; Support DSC dynamic servo control			
Certification		UL61800-5-1,IEC61800-5-1,IEC61508 SIL-3			
Working Temperature		-20℃~40℃ (no freezing) ,When the operating temperature exceeds 40℃, the driver needs to be derated			
Working Humidity		Less than 90%RH (no condensation)			
Storage temperature		Short-term storage (within 1 month) : -20℃ ~ 65℃ Long-term storage (over 1 month) : -10℃ ~ 55℃			
Storage humidity		90%RH (no condensation)			
Protection class		IP20 (Power supply terminal X5 only meets IP00 protection level)			
Altitude		Less than 3000m,power derating 1.5%/100m between 1000m and 3000m			
Atmospheric pressure		70kpa~106kpa			
Installation site		It needs to be installed in an electrical cabinet with an IP54 protection class.The length of the control cable and bus cable installed on the equipment shall not exceed 30 meters, and the length of the power cable and encoder cable shall not exceed 10 meters.			
Installation method		Install vertically or horizontally			

Note: □=A:CANopen、RS485、Pulse
=E:EtherCAT、Pulse
=P:Profinet、Pulse

Drive mechanical dimension diagram (unit: mm)

■ FD115S-□S-000 mechanical dimensional drawing (Unit: mm)

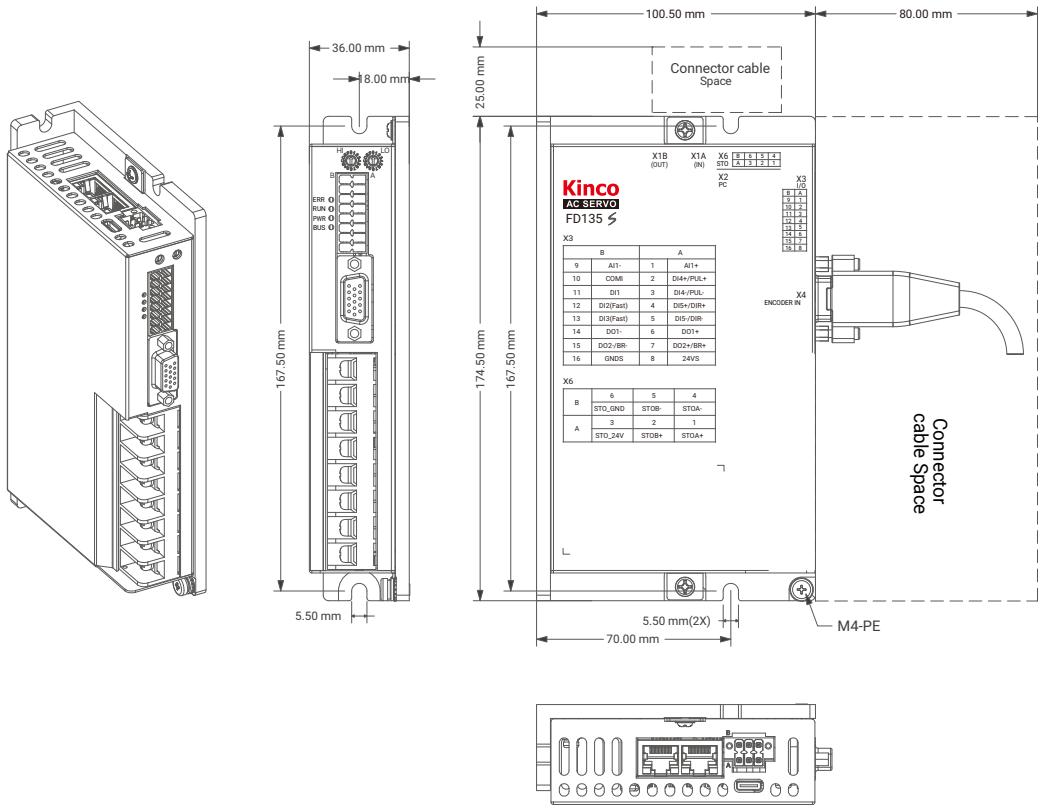
Note: wiring is needed around the driver, so it is recommended to keep a space of > 80 mm.



Servo drive mechanical dimension

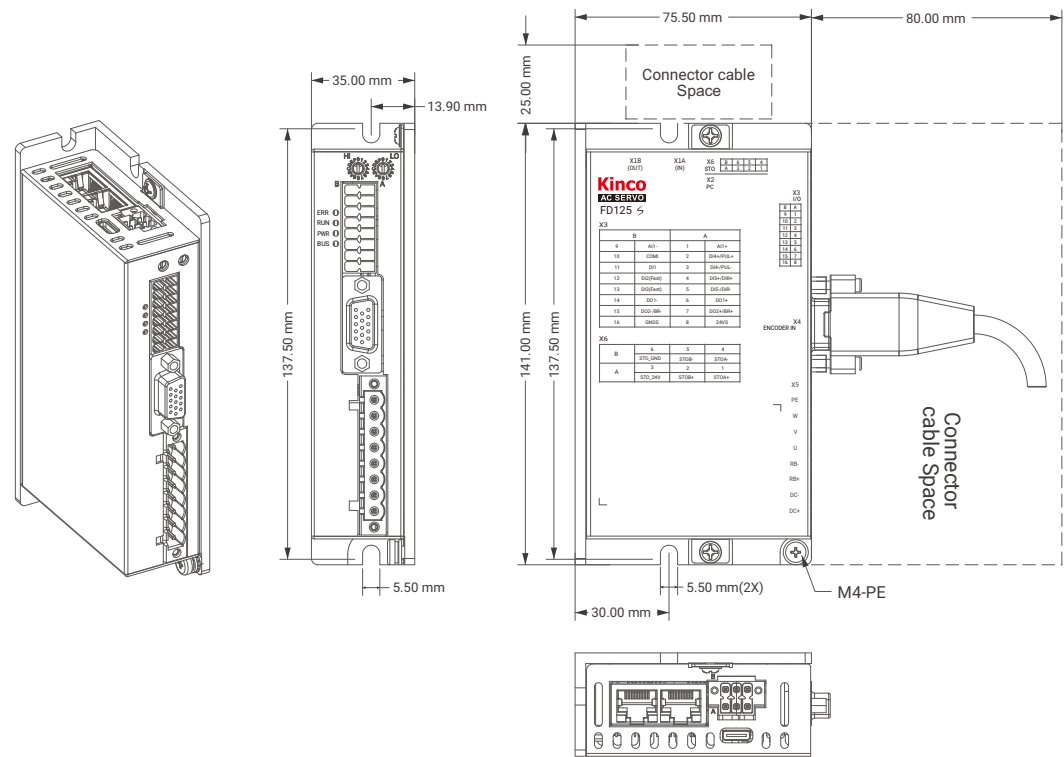
■ FD135S-□S-000 mechanical dimension diagram (unit: mm)

Note: wiring is needed around the driver, so it is recommended to keep a space of > 80 mm.



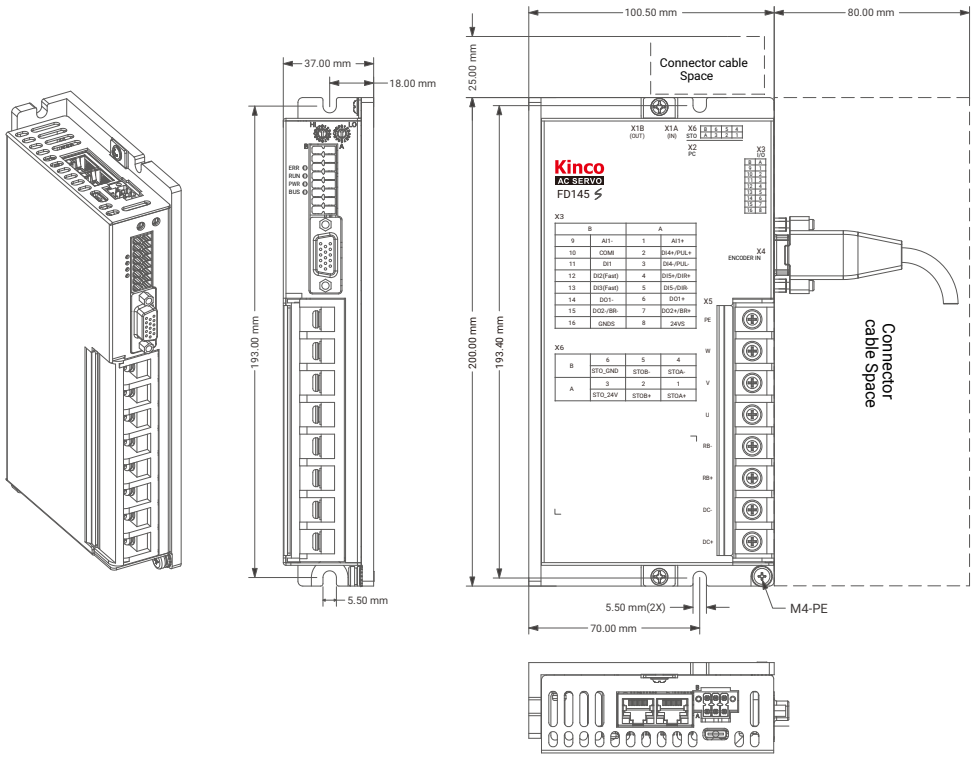
■ FD125S-□S-000 mechanical dimensional drawing (Unit: mm)

Note: wiring is needed around the driver, so it is recommended to keep a space of > 80 mm.



■ FD145S-□S-000 mechanical dimension diagram (unit: mm)

Note: wiring is needed around the driver, so it is recommended to keep a space of > 80 mm.



FD1X5S series configuration table

■ FD1X5S &SMK configuration table

Servo motor					Servo drive				Power cable			Encoder cable	
Voltage/Inertia type/Rated speed	Rated torque Peak torque	Rated current Peak current	Description	Motor model	Pulse /Modbus 485/ CANopen	EtherCAT	ProfiNet		Axial out line(-S/-FS) With brake (-BS/-BFS)	Tail out line(-S/-FS) With brake (-BS/-BFS)	Brake extension line	Axial out line(-F)	Tail out line(-F)
DC48V Small inertia 3000rpm	0.32Nm	2.74Arms	17 bit multi-turn magnetic	SMK40S-0010-30QAK-5DSA	FD115S-AS-000	FD115S-ES-000	FD115S-PS-000	M-A-6A-KA2-LL-S	M-A-6A-KA3-LL-S	/	E-H-MV-KA0-LL [*] ★E-H-QY-KA0-LL	E-H-MV-KA1-LL [*] ★E-H-QY-KA1-LL	
	1.11Nm	9.87Arms	17 bit multi-turn magnetic,With brake	SMK40S-0010-30QBK-5DSA				M-A-6A-KA2-LL-BS	M-A-6A-KA3-LL-BS				
	0.64Nm	5.7Arms	17 bit multi-turn magnetic	SMK60S-0020-30QAK-5DSA	FD125S-AS-000	FD125S-ES-000	FD125S-PS-000	M-A-6A-KA2-LL-S	M-A-6A-KA3-LL-S	/			
	1.92Nm	18.2Arms	17 bit multi-turn magnetic,With brake	SMK60S-0020-30QBK-5DSA				M-A-6A-KB0-LL-BS	M-A-6A-KB1-LL-BS				
	1.27Nm	10.6Arms	17 bit multi-turn magnetic	SMK60S-0040-30QAK-5DSA				M-A-12A-KB0-LL-S	M-A-12A-KB1-LL-S				
	3.81Nm	33.9Arms	17 bit multi-turn magnetic,With brake	SMK60S-0040-30QBK-5DSA	FD135S-AS-000	FD135S-ES-000	FD135S-PS-000	M-A-12A-KB0-LL-BS	M-A-12A-KB1-LL-BS	/			
	2.39Nm	19.2Arms	17 bit multi-turn magnetic	SMK80S-0075-30QAK-5DKA				M-Y-20A-KD0-LL-S	M-Y-20A-KD1-LL-S				
	7.17Nm	62.7Arms	17 bit multi-turn magnetic,With brake	SMK80S-0075-30QBK-5DKA				M-Y-20A-KD0-LL-BS	/				
	3.18Nm	25.8Arms	17 bit multi-turn magnetic	SMK80S-0100-30QAK-5DKA				M-Y-30A-KD0-LL-S	M-Y-30A-KD1-LL-S				
	9.54Nm	81Arms	17 bit multi-turn magnetic,With brake	SMK80S-0100-30QBK-5DKA				M-Y-30A-KD0-LL-BS	/				

- Note:1、"LL" indicates the cable length.
- 2、★E-H-QY-KA0-LL/E-H-QY-KA1-LL is an essential battery power cable for multi turn absolute encoder motors.
- 3、*If the multi-turn is used as a single-turn magnetic, the encoder wire can be E-H-MV-KA0-LL or E-H-MV-KA1-LL.

■ FD1X5S &SMC configuration table

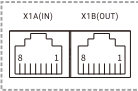
Servo motor					Servo drive				Power cable		Encoder cable
Voltage/Inertia type/Rated speed	Rated torque Peak torque	Rated current Peak current	Description	Motor model	Pulse /Modbus 485 CANopen	EtherCAT	ProfiNet		Axial out line(-S/-FS)	Brake extension line	Axial out line(-F)
DC48V Small inertia 3000rpm	0.64Nm	5.7Arms	2500P/R incremental magnetic	SMC60S-0020-30WAK-5DCH	FD125S-AS-000	FD125S-ES-000	FD125S-PS-000		M-A-6A-L-LL-S	/ BRA-LL-KL	E-H-WA-H-LL
	1.28Nm	11.4Arms	2500P/R incremental magnetic , With brake	SMC60S-0020-30WBK-5DCH							
	1.27Nm	10.6Arms	2500P/R incremental magnetic	SMC60S-0040-30WAK-5DCH					M-A-12A-L-LL-S	/ BRA-LL-KL	
	2.54Nm	21.2Arms	2500P/R incremental magnetic , With brake	SMC60S-0040-30WBK-5DCH							
	2.39Nm	19.9Arms	2500P/R incremental magnetic	SMC80S-0075-30WAK-5DCH	FD135S-AS-000	FD135S-ES-000	FD135S-PS-000		M-Y-20A-SP-LL-S	/ BRA-LL-KL	
	7.17Nm	67Arms	2500P/R incremental magnetic , With brake	SMC80S-0075-30WBK-5DCH							
	3.18Nm	26.4Arms	2500P/R incremental magnetic	SMC80S-0100-30WAK-5DCH					M-Y-30A-SP-LL-S	/ BRA-LL-KL	
	9.57Nm	88Arms	2500P/R incremental magnetic , With brake	SMC80S-0100-30WBK-5DCH							
	1.27Nm	10.6Arms	Dual encoder , With brake	SMC60S-0040-30ZBK-5DCX	FD125S-AS-000	FD125S-ES-000	FD125S-PS-000		M-A-12A-L-LL-S	BRA-LL-KL	E-H-WA-H-LL
	2.54Nm	21.2Arms									
	2.39Nm	19.9Arms	Dual encoder , With brake	SMC80S-0075-30ZBK-5DCX					M-Y-20A-SP-LL-S	BRA-LL-KL	
	7.17Nm	67Arms									
	3.18Nm	26.4Arms	Dual encoder , With brake	SMC80S-0100-30ZBK-5DCX	FD135S-AS-000	FD135S-ES-000	FD135S-PS-000		M-Y-30A-SP-LL-S	BRA-LL-KL	
	9.54Nm	88Arms									
	3.82Nm	34Arms	17 bit multi-turn magnetic	SMC80S-0120-30QAK-5DSU	FD145S-AS-000	FD145S-ES-000	FD145S-PS-000			/ BRA-LL-KL	E-H-MV-U-LL [*] ★E-H-QY-U-LL
	11.5Nm	107.1Arms	17 bit multi-turn magnetic , With brake	SMC80S-0120-30QBK-5DSU					M-Y-40A-LJ51-LL-S		
	4.77Nm	36Arms	17 bit multi-turn magnetic	SMC80S-0150-30QAK-5DSU						/ BRA-LL-KL	
	14.31Nm	112.2Arms	17 bit multi-turn magnetic , With brake	SMC80S-0150-30QBK-5DSU							

- Note:1、"LL" indicates the cable length.
- 2、★E-H-QY-U-LL is an essential battery power cable for multi turn absolute encoder motors.
- 3、*If the multi-turn is used as a single-turn magnetict, the encoder wire can be E-H-MV-U-LL.

FD1X5S servo driver interface description

Interface definition

Bus interface



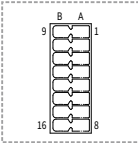
Model	FD1X5S-AS-000	FD1X5S-ES/PS-000
Pin No.	RS485/Modbus	CAN
1	/	CAN_H
2	/	CAN_L
3	/	GND_CAN
4	458B	/
5	485A	/
6	/	/
7	/	RD-
8	/	DATA+
		DATA-

USB interface



Pin No.	Signal
A1&B12	GND
A6&B6	USBDP
A7&B7	USBDN
A4&B9	+5V

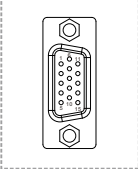
IO interface



Pin No.	Signal	Pin No.	Signal
9	AI1-	1	AI1+
10	COMI	2	DI4+/PUL+
11	DI1	3	DI4-/PUL-
12	DI2(Fast)	4	DI5+/DIR+
13	DI3(Fast)	5	DI5-/DIR-
14	DO1-	6	DO1+
15	DO2-/BR-	7	DO2+/BR+
16	GNDS	8	24VS

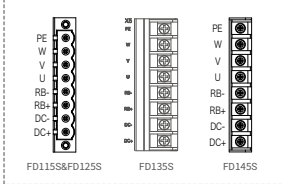
Pin No.	Signal	Pin specification
1	AI1+	1-channel voltage type analog input, 12bit, -10V~+10V, differential connection method
9	AI1-	
10	COMI	Input common terminal
11	DI1	3-channel DI, Common COMI port; High level: 12.5V~30VDC; Low level: 0~5VDC; Max frequency: 1KHz; Input impedance: 5KΩ; DI2 and DI3 are high-speed input terminal
12	DI2(Fast)	
13	DI3(Fast)	
2	DI4+/PUL+	2-channel pulse input, Pulse+direction, CCW+CW, phase A+phase B (12V~24V); Max frequency: 500KHz
3	DI4-/PUL-	
4	DI5+/DIR+	It can be multiplexed as 2-channel DI (DI4 and DI5) by software setting
5	DI5-/DIR-	
6	DO1+	1-channel DO, open collector output
14	DO1-	Max voltage: 30V; Driving capacity: 100mA
7	DO2+/BR+	1-channel brake (Voltage: 24V, Output capacity: 1A, can directly drive the brake)
15	DO2-/BR-	It can be multiplexed as 24V source output or open collector output
8	24VS	Logical power input
16	GNDS	Input voltage: 24V, Rated input current: 500mA+ brake coil current

Encoder input



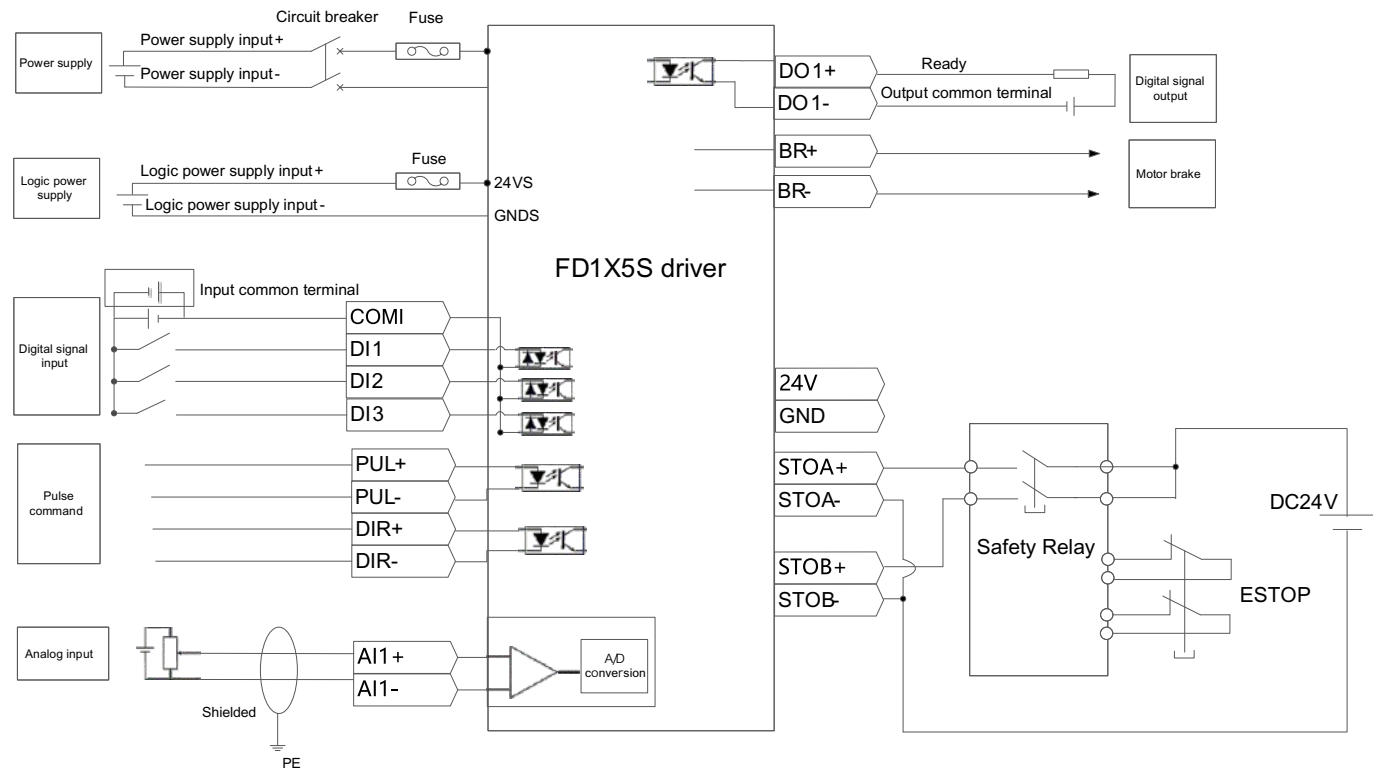
Pin No.	incremental	Communication
1	+5V	+5V
2	GND	GND
3	(PTC)	(PTC)
4	U	/
5	/U	/
6	Z	/
7	B	/
8	A	/
9	W	SD+
10	V	/
11	/Z	/
12	/B	/
13	/A	/
14	/W	SD-
15	/V	/

Power and Motor interface



Pin No.	Signal	Pin specification
1	PE	Servo motor power supply output end
2	W	and motor supply output end
3	V	grounding end
4	U	External brake resistance input
5	RB-	
6	RB+	
7	DC-	Drive power input
8	DC+	

FD1X5S servo driver electrical wiring



Low voltage servo motor



New electromagnetic design

Adopting 12-slot and 10-pole design, with small slot torque and low torque pulsation ,which is conducive to reducing the vibration during the operation of the motor and making the torque output more smooth.

New structure and short fuselage

The redesign of the fuselage structure shortens the length of the fuselage, which can save more installation space and reduce the size of the equipment for customers' equipment.

Insulation class F

The motor in the industry is at the highest insulation level, which can maintain high reliability and stability in high temperature extreme environment.

Energy efficiency class: 2

Servo motor naming rules

Dirve: SMK 60S - 0040 - 30Q A K - 5 D S A

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫



①-Series name:	SMK:Common body series SMC:SMC series	⑦-Brake:	A:Without brake B:With brake
②-Flange:	60:60x60(mm) 80:80x80(mm)	⑧-Output axis style:	K: Withkey
③-Inertia type:	S:Small inertia	⑨-Number of polar pairs:	5:5-pole pair
④-Rated power:	0010:10x10(W) 0020:10x20(W) 0150:10*150 (W)	⑩- Supply voltage:	D:DC48V
⑤-Rated speed:	30:30x100(rpm)	⑪-Motor version number:	S:S version K:K version
⑥-Encoder type:	Q:Multiturn magnetic encoder W:2500P/R incremental magnetic encoder Z:Double encoder	⑫-Motor Outlet Type:	A: Special socketfor common body motor U: Communication encoder socket H:Three row DB15 PIN socket X:Double encoder socket

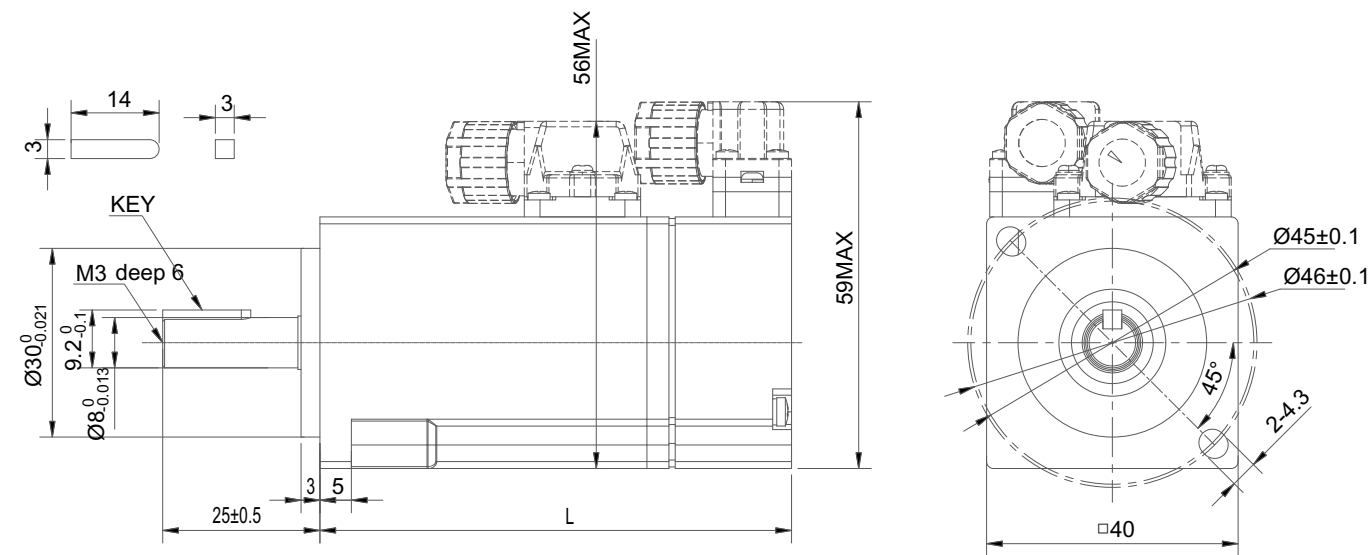
SMK series servo motor technical parameters table

Model parameter		Small inertia, 40 Flange	Small inertia,60 Flange		Small inertia,80 Flange	
Servo motor model		SMK40S-0010-30Q■K-5DSA	SMK60S-0020-30Q■K-5DSA	SMK60S-0040-30Q■K-5DSA	SMK80S-0075-30Q■K-5DKA	SMK80S-0100-30Q■K-5DKA
Drive power supply voltage		48	48	48	48	48
Intermediate link DC voltage VDC						
Continuous Characteristics	Rated power Pn(W)	100	200	400	750	1000
	Rated torque Tn(Nm)	0.32	0.64	1.27	2.39	3.18
	Rated speed Nn (rpm)	3000	3000	3000	3000	3000
	Rated current In(A)	2.74	5.7	10.6	19.2	25.8
MAX torqueTm(Nm)		1.11	1.92	3.81	7.17	9.54
MAX current Im (A)		9.87	18.2	33.9	62.7	81
MAX speed (rpm)		4000	4300	4000	3900	3960
Standstill torque Ts(Nm)		0.352	0.7	1.4	2.63	3.5
Standstill current Is(A)		3.04	6.27	11.7	21.1	28.4
Torque constant Kt (Nm/A)		0.128	0.124	0.132	0.137	0.136
Rotor moment of inertia Jm (Kg·cm ²)		0.044	0.17	0.31	0.85	1.16
		(with brake)	(with brake)	(with brake)	(with brake)	(with brake)
Brake	Brake holding torque (Nm)	0.32	2	2	4	4
	Rated power (W)	6.1	7.6	7.6	11.5	11.5
	Rated voltage (VDC)	24	24	24	24	24
Insulation class		F	F	F	F	F
Max radial force Fr(N)		78	40	40	392	392
Max axial force Fa(N)		54	30	30	147	147
Cooling method		Totally enclosed, self-cooling				
Protection level		IP65, IP54 at the shaft end				
Operation environment	Temperature	-20~40℃				
	Humidity	Below 90% RH (no condensation)				
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust				
	Altitude	The highest altitude is 2000m. From 1000 to 2000m, the power decreases by 1.5% per 100m increase				

Note: ■ = A:Without brake
B:With brake

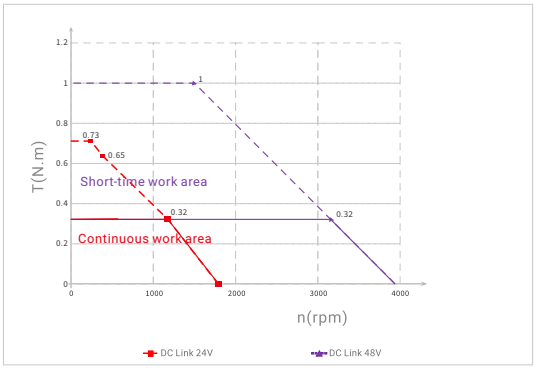
SMK series servo motor size diagram

SMK40S



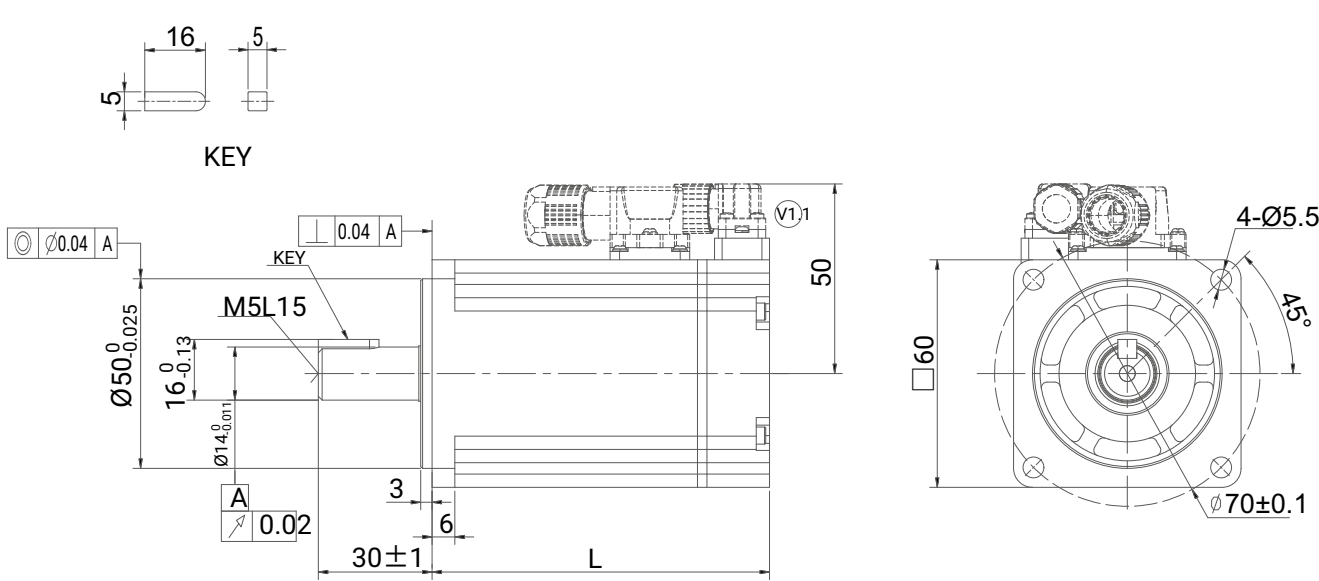
SMK40S series models	With brake	Weight (KG)	Motor body size (mm)
SMK40S-0010-30QAK-5DSA		0.382	75 ± 1.5
SMK40S-0010-30QBK-5DSA	✓	0.571	105 ± 1.5

SMK40S-0010-30QAK-5DSA 100W



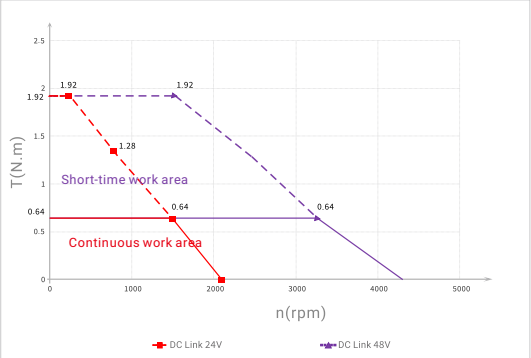
SMK series servo motor size diagram

SMK60S

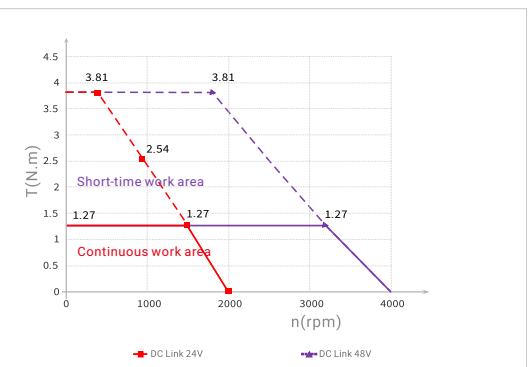


SMK60S series models	With brake	Weight (KG)	Motor body size L (mm)
SMK60S-0020-30QAK-5DSA		0.9	66.5 ± 1.5
SMK60S-0020-30QBK-5DSA	✓	1.3	98 ± 1.5
SMK60S-0040-30QAK-5DSA		1.1	89 ± 1.5
SMK60S-0040-30QBK-5DSA	✓	1.5	116 ± 1.5

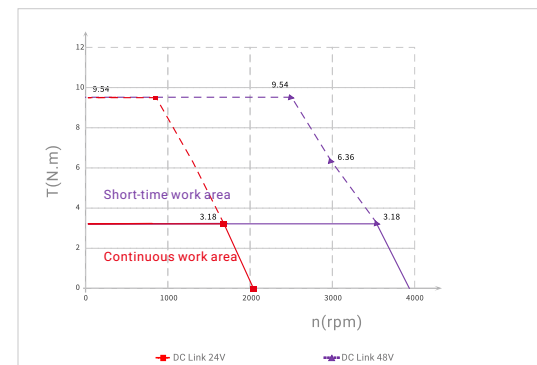
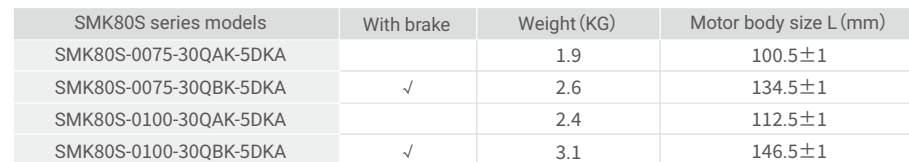
SMK60S-0020-30QAK-5DSA 200W



SMK60S-0020-30QBK-5DSA 400W



SMK80S



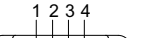
Num	Definition
1	U
2	W
3	V
4	PE

SMK40S/SMK60S(200W)

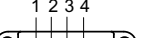
SMK60S(400W)

SMK80S

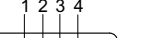
Num	Definition
1	U
2	W
3	V
4	PE
A	BR+
B	BR-



SMK40S



SMK60S



SMK80S

Num	Multi-turn encoder definition
1	+5V
2	GND
3	VB+
4	VB-
A	SD+
B	SD-

Encoder connector

SMC series servo motor technical parameters table

Model parameter		Small inertia 60 Flange	
Servo motor model		SMC60S-0020-30W $\blacksquare$ K-5DCH	SMC60S-0040-30W $\blacksquare$ K-5DCH SMC60S-0040-30ZBK-5DCX
Drive power supply voltage		48	48
Intermediate link DC voltage VDC			
Continuous Characteristics	Rated power Pn(W)	200	400
	Rated torque Tn(Nm)	0.64	1.27
	Rated speed Nn (rpm)	3000	3000
	Rated current In(A)	5.7	10.6
MAX torqueTm(Nm)		1.28	2.54
MAX current Im (A)		11.4	21.2
MAX speed (rpm)		4000	3900
Standstill torque Ts(Nm)		0.7	1.4
Standstill current Is(A)		6.27	11.7
Torque constant Kt (Nm/A)		0.124	0.132
Rotor moment of inertia Jm (Kg•cm ²)		0.11	0.26 (Double encoder none)
		0.114	0.264
		(with brake)	(with brake)
Brake	Brake holding torque (Nm)	1.3	1.3
	Rated power (W)	7.4	7.4
	Rated voltage (VDC)	24	24
Insulation class		F	F
Max radial force Fr(N)		40	40
Max axial force Fa(N)		30	30
Cooling method		Totally enclosed, self-cooling	
Protection level		Body IP65, shaft end (excluding oil seal) IP54, shaft end installed with oil seal IP65	
Operation environment	Temperature	-20~40℃	
	Humidity	Below 90% RH (no condensation)	
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust	
	Altitude	The highest altitude is 2000m. From 1000 to 2000m, the power decreases by 1.5% per 100m increase	

Note:■ = A:Without brake
B:With brake

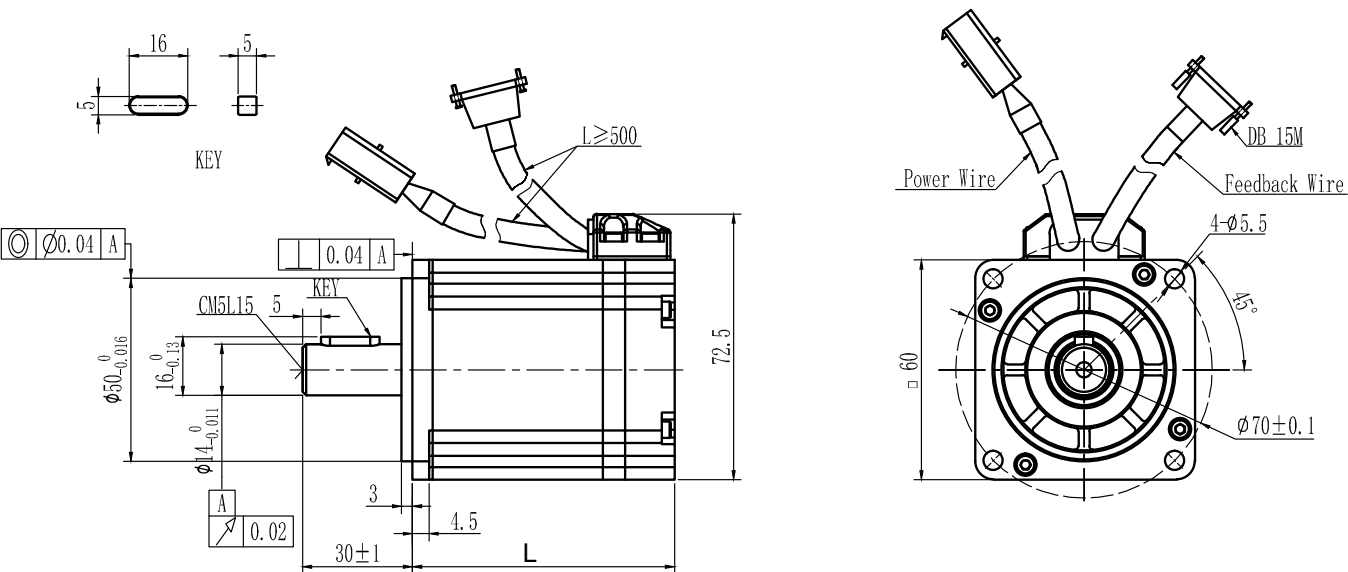
SMC series servo motor technical parameters table

Model parameter		Small inertia 60 Flange			
Servo motor model		SMC80S-0750-30W $\blacksquare$ K-5DCH SMC80S-0075-30ZBK-5DCX	SMC80S-0100-30W $\blacksquare$ K-5DCH SMC80S-0100-30ZBK-5DCX	SMC80S-0120-30Q $\blacksquare$ K-5DSU	SMC80S-0150-30Q $\blacksquare$ K-5DSU
Drive power supply voltage		48	48	48	48
Intermediate link DC voltage VDC					
Continuous Characteristics	Rated power Pn(W)	750	1000	1200	1500
	Rated torque Tn(Nm)	2.39	3.18	3.82	4.77
	Rated speed Nn (rpm)	3000	3000	3000	3000
	Rated current In(A)	19.9	26.4	34	36
MAX torqueTm(Nm)		7.17	9.54	11.5	14.31
MAX current Im (A)		67	88	107.1	112.2
MAX speed (rpm)		3900	3900	4000	3400
Standstill torque Ts(Nm)		2.63	3.5	4.2	5.247
Standstill current Is(A)		21.9	29	37.4	39.6
Torque constant Kt (Nm/A)		0.13	0.13	0.127	0.146
Rotor moment of inertia Jm (Kg·cm ²)		0.77 (Double encoder none)	1.027 (Double encoder none)	1.36	1.64
		0.84	1.099	1.41	1.901
		(with brake)	(with brake)	(with brake)	(with brake)
Brake	Brake holding torque (Nm)	3.2	4	4	5
	Rated power (W)	11.5	11.5	11.5	11.5
	Rated voltage (VDC)	24	24	24	24
Insulation class		F	F	F	F
Max radial force Fr(N)		335	335	335	335
Max axial force Fa(N)		167.5	167.5	167.5	167.5
Cooling method		Totally enclosed, self-cooling			
Protection level		Body IP65, shaft end (excluding oil seal) IP54, shaft end installed with oil seal IP65			
Operation environment	Temperature	-20~40℃			
	Humidity	Below 90% RH (no condensation)			
	Ambient environment	Keep away from corrosion, flammable gases, oil droplets, dust			
	Altitude	The highest altitude is 2000m. From 1000 to 2000m, the power decreases by 1.5% per 100m increase			

Note:■ = A:Without brake
B:With brake

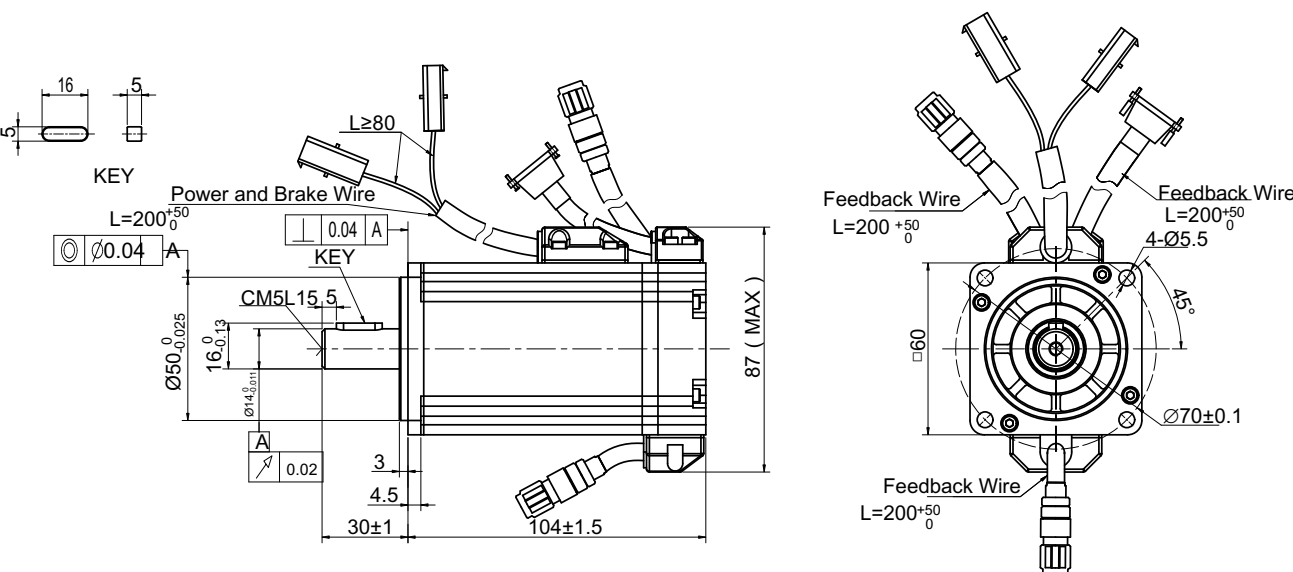
SMC series servo motor size diagram

SMC60S



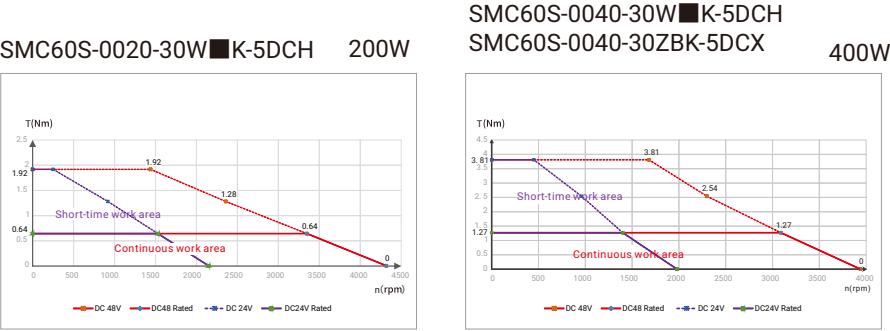
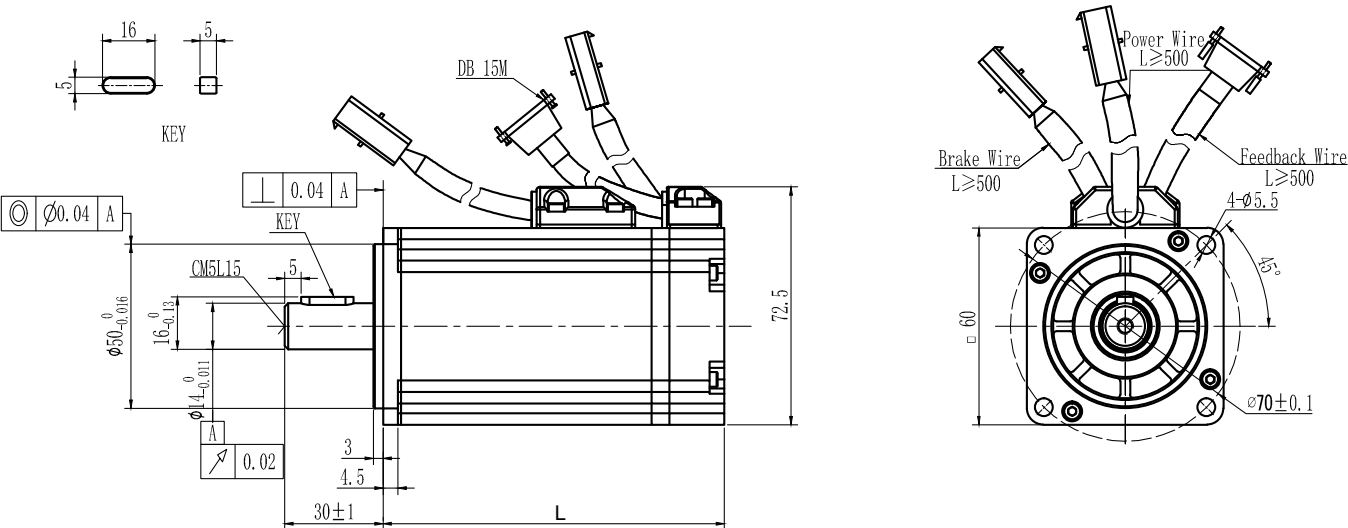
SMC series servo motor size diagram

SMC60S_Double encoder with brake



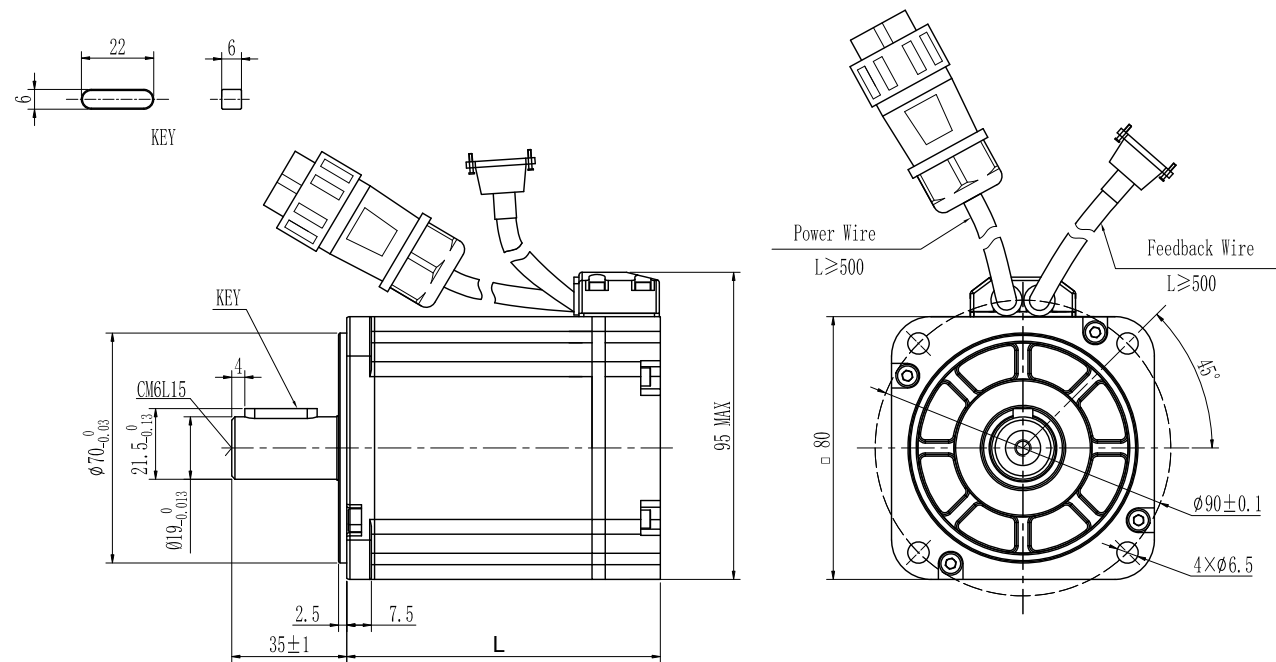
SMC60S series models	With brake	Weight (KG)	Motor body size L (mm)
SMC60S-0020-30WAK-5DCH		0.6	51.5±1.5
SMC60S-0020-30WBK-5DCH	✓	1.2	84±1.5
SMC60S-0040-30WAK-5DCH		0.9	71.5±1.5
SMC60S-0040-30WBK-5DCH	✓	1.4	104±1.5
SMC60S-0040-30ZBK-5DCX			

SMC60S with brake

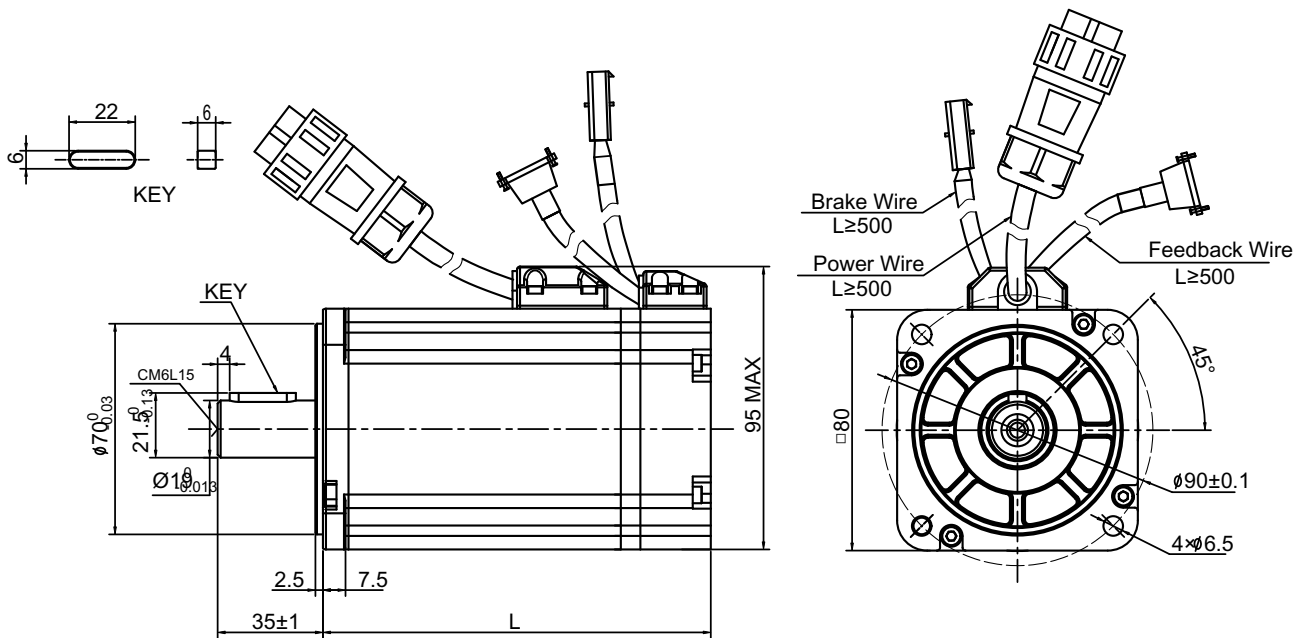


SMC series servo motor size diagram

SMC80S

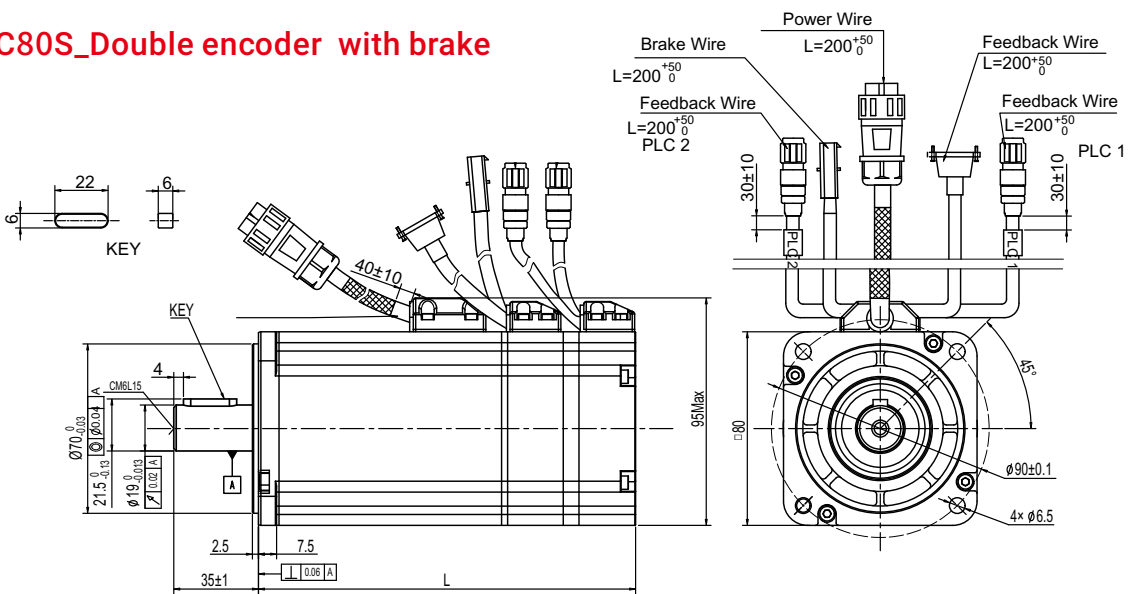


SMC80S with brake



SMC series servo motor size diagram

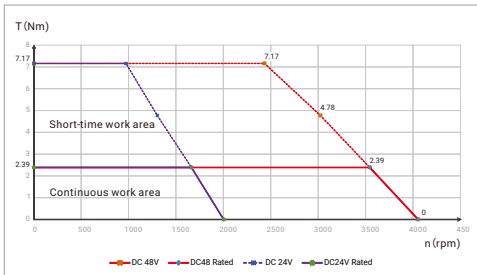
SMC80S_Double encoder with brake



SMC80S series models	With brake	Weight (KG)	Motor body size L (mm)
SMC80S-0075-30WAK-5DCH		1.8	83.5±1.5
SMC80S-0075-30WBK-5DCH	✓	2.9	116.9±1.5
SMC80S-0075-30ZBK-5DCX	✓	3	143.9±1.5
SMC80S-0100-30WAK-5DCH		2.2	95.5±1.5
SMC80S-0100-30WBK-5DCH	✓	3	128.9±1.5
SMC80S-0100-30ZBK-5DCX	✓	3.3	155.9±1.5
SMC80S-0120-30QAK-5DSU		3	122.7±1.5
SMC80S-0120-30QBK-5DSU	✓	3.3	157±1.5
SMC80S-0150-30QAK-5DSU		3.9	145±1.5
SMC80S-0150-30QAK-5DSU	✓	4.2	175±1.5

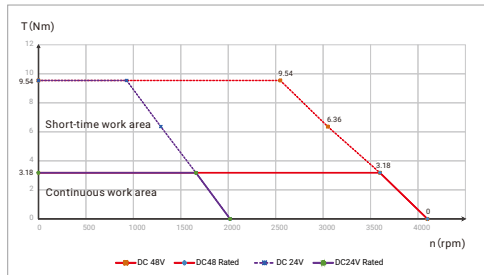
SMC80S-0075-30WAK-5DCH
SMC80S-0075-30ZBK-5DCX

750W



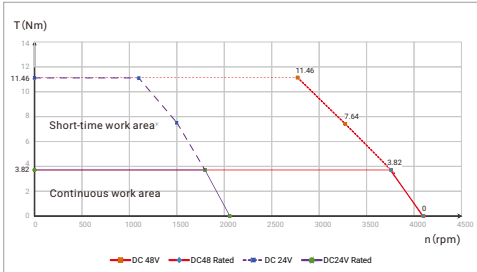
SMC80S-0100-30WAK-5DCH
SMC80S-0100-30ZBK-5DCX

1000W



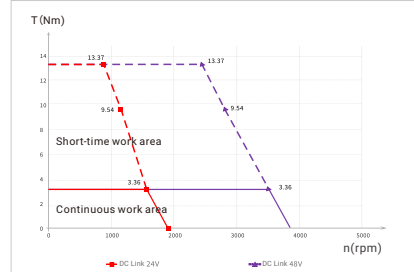
SMC80S-0120-30QAK-5DSU

1200W

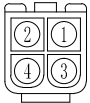
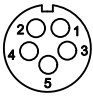


SMC80S-0150-30QAK-5DSU

1500W



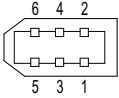
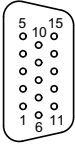
SMC60S&80S motor connector specification (body outlet)

Num	Definition		
1	U	 SMC60S	 SMC80S
2	W		
3	V		
4	PE		
5	/		

动力插座

Num	Definition	
1	BR+	
2	BR-	

抱闸插座

Num	2500P/R incremental magnetic encoder definition	Multi-turn encoder definition	 1394 connector Communication encoder socket  3 row DB 15PIN 2500P/R incremental magnetic encoder
1	+5V	+5V	
2	GND	GND	
3	/	VB+	
4	U	VB-	
5	/U	SD+	
6	Z	SD-	
7	B	/	
8	A	/	
9	W	/	
10	V	/	
11	/Z	/	
12	/B	/	
13	/A	/	
14	/W	/	
15	/V	/	

Encoder connector

Cable naming rules

Power cable: M - A - 6A - KA2 - LL - BF

① ② ③ ④ ⑤ ⑥ ⑦

①-Cable function type	M : Motor power cable	⑤-Motor end connector	A2 : Common body motor front outgoing (6A) A3 : Common body motor rear outgoing (6A) B0 : Common body motor front outgoing (12A) B1 : Common body motor rear outgoing (12A) D0 : Common body motor front outgoing (20A&30A) D1 : Common body motor rear outgoing (20A&30A) L : 4 pin plastic plug for flying leads type SP : Aviation plug for flying leads type (SP2110/S5PIN) LJ51 : Aviation plug for flying leads type (JNICON51)
②-Driver end encoder connector type	A : Needle type cold press terminal Y : Fork shaped cold press head		
③-Current	6A : Rated current 6A 12A : Rated current 12A 20A : Rated current 20A 30A : Rated current 12A	⑥-Cable length(m)	(5) : 5m 01 : 1m 02 : 2m 03 : 3m
④ -Motor platform	K : SMK Empty: Other	⑦-Cable property	F : High flexibility cable S : Shielded cable FS : High flexibility shielded cable BF : High flexible cable with brake BS : Shielded cable with brake BFS : High flexibility shielded cable with brake

Encoder cable: E - D - QY - K A0 - LL - F

① ② ③ ④ ⑤ ⑥ ⑦

①-Cable function type	E : Motor encoder cable	⑤-Motor end connector	A0 : Common body motor front outgoing A1 : Common body motor rear outgoing U : 1394 6-core interface female connector H : 3 row DB 15PIN interface female connector
②-Driver end encoder connector type	D : 1394 6-core interface H : 3 row DB 15PIN		
③-Encoder type	Qy : multiturn communication encoder MV : Single-turn communication encoder WA : Incremental encoder	⑥-Cable length (m)	(5) : 5m 01 : 1m 02 : 2m 03 : 3m
④-Motor platform	K : SMK Empty: Other	⑦-Cable property	F : High flexibility cable

Brake cable: BRA - F - 03 - LL

① ② ③ ④

①-Cable function type	BRA: Motor brake cable	③-Cable length (m)	(5) : 5m 01 : 1m 02 : 2m 03 : 3m
②-Cable property	F : Flexible cable Empty : Common cable	④-Connector types	KL: 2PIN brake connector

Accessory

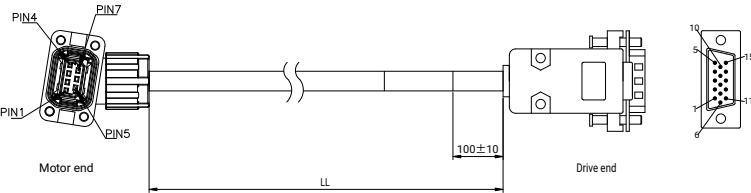
SMK series 40,60,80 flange motor encoder wire

E-H-MV-KA0-LL

Cable specification:3P*26AWG,with shielding,standard cable (Specifications for cables of length 0-14m and 15-39m)

E-H-MV-KA0-LL-F

Cable specification:3P*26AWG,with shielding,flexible cable (Specifications for cables of length 0-14m and 15-39m)



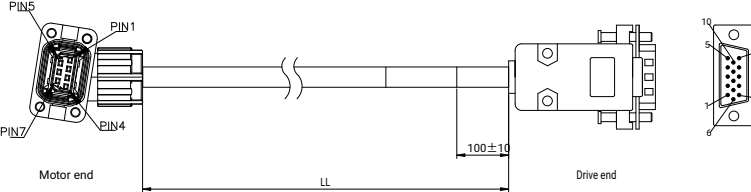
Signal	Motor end SC-MC7S-A820-P0	Color	Drive end 15PIN DB male
VDD	PIN1	Red	PIN1
GND	PIN2	Orange	PIN2
/	PIN3	/	/
/	PIN4	/	/
485+	PIN5	Blue	PIN9
485-	PIN6	Purple	PIN14
Shield	PIN7	Shield	Metal button

E-H-MV-KA1-LL

Cable specification:3P*26AWG,with shielding,standard cable (Specifications for cables of length 0-14m and 15-39m)

E-H-MV-KA1-LL-F

Cable specification:3P*26AWG,with shielding, flexible cable (Specifications for cables of length 0-14m and 15-39m)



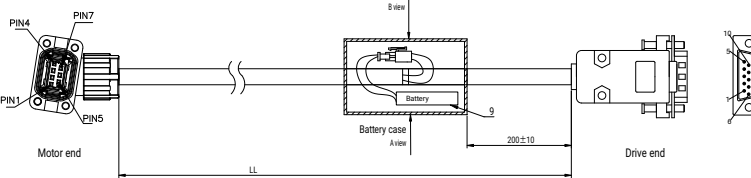
Signal	Motor end SC-MC7S-A820-P0	Color	Drive end 15PIN DB male
VDD	PIN1	Red	PIN1
GND	PIN2	Orange	PIN2
/	PIN3	/	/
/	PIN4	/	/
485+	PIN5	Blue	PIN9
485-	PIN6	Purple	PIN14
Shield	PIN7	Shield	Metal button

E-H-QY-KA0-LL

Cable specification:3P*26AWG,with shielding,standard cable (Specifications for cables of length 0-14m and 15-39m)

E-H-QY-KA0-LL-F

Cable specification:3P*26AWG,with shielding,flexible cable
(Specifications for cables of length 0-14m and 15-39m)



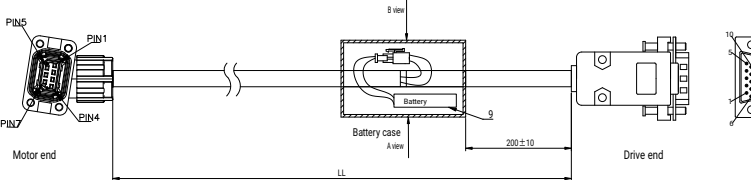
Signal	Motor end SC-MC7S-A820-P0	Color	Battery terminals	Drive end 15PIN DB male
VDD	PIN1	Red	/	PIN1
GND	PIN2	Orange	/	PIN2
BAT+	PIN3	Brown	PIN1	/
BAT-	PIN4	Black	PIN2	/
485+	PIN5	Blue	/	PIN9
485-	PIN6	Purple	/	PIN14
Shield	PIN7	Shield	/	Metal button

E-H-QY-KA1-LL

Cable specification:3P*26AWG,with shielding,standard cable (Specifications for cables of length 0-14m and 15-39m)

E-H-QY-KA1-LL-F

Cable specification:3P*26AWG,with shielding,flexible cable
(Specifications for cables of length 0-14m and 15-39m)



Signal	Motor end SC-MC7S-A820-P0	Color	Battery terminals	Drive end 15PIN DB male
VDD	PIN1	Red	/	PIN1
GND	PIN2	Orange	/	PIN2
BAT+	PIN3	Brown	PIN1	/
BAT-	PIN4	Black	PIN2	/
485+	PIN5	Blue	/	PIN9
485-	PIN6	Purple	/	PIN14
Shield	PIN7	Shield	/	Metal button

Accessory

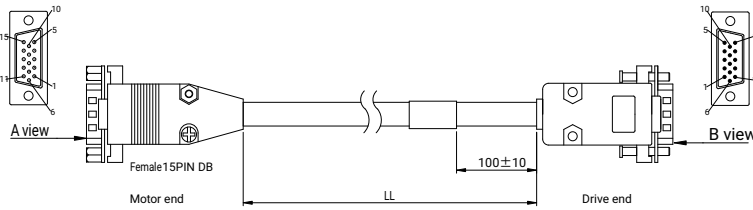
SMC series 60,80 flange motor encoder wire

E-H-WA-H-LL

Cable specification:1P*24AWG+7P*28AWG,with shielding,standard cable
(Specifications for cables of length 0-14m and 15-39m)

E-H-WA-H-LL-F

Cable specification:1P*24AWG+7P*28AWG,with shielding,flexible cable
(Specifications for cables of length 0-14m and 15-39m)



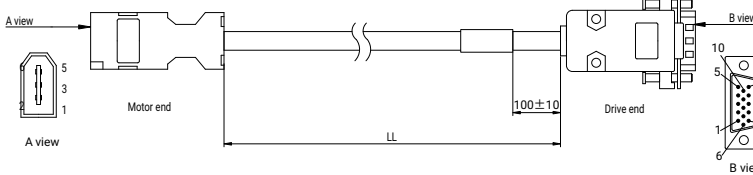
Signal	Motor end 15PIN DB female	Color	Driver side 15PIN DB male
+5V	PIN1	Red(thick)	PIN1
A	PIN8	Orange	PIN8
B	PIN7	Yellow	PIN7
Z	PIN6	Green	PIN6
U	PIN4	Brown	PIN4
V	PIN10	Purple	PIN10
W	PIN9	Blue	PIN9
GND	PIN2	Black(thick)	PIN2
/A	PIN13	Orange-White	PIN13
/B	PIN12	Yellow-White	PIN12
/Z	PIN11	Green-White	PIN11
/U	PIN5	Brown-White	PIN5
/V	PIN15	Purple-White	PIN15
/W	PIN14	Blue-White	PIN14
PTC/KTY+	PIN3	Red	PIN3
PTC/KTY-	PIN2	Red-White	PIN2
Shield	Shell	Shielding wire	Shell

E-H-MV-U-LL

Cable specification:3P*26AWG,with shielding,standard cable
(Specifications for cables of length 0-14m and 15-39m)

E-H-MV-U-LL-F

Cable specification:3P*26AWG,with shielding,flexible cable
(Specifications for cables of length 0-14m and 15-39m)



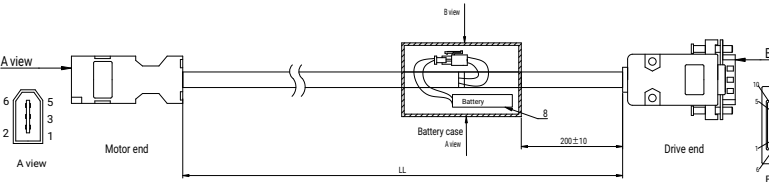
Signal	Motor side SC-06 female	Color	Driver side 15PIN DB male
VDD	PIN1	red	PIN1
GND	PIN2	Orange	PIN2
MA_P+	PIN3	brown	PIN10
MA_N-	PIN4	Black	PIN15
SLO_P+	PIN5	Blue	PIN9
SLO_N-	PIN6	Purple	PIN14
Shield	Shell	Shielding wire	Shell

E-H-QY-U-LL

Cable specification:3P*26AWG,with shielding,standard cable
(Specifications for cables of length 0-14m and 15-39m)

E-H-QY-U-LL-F

Cable specification:3P*26AWG,with shielding,flexible cable
(Specifications for cables of length 0-14m and 15-39m)



Signal	Motor side SC-06 female	Color	Battery terminals	Driver side 15PIN DBmale
+5V	PIN1	Red	/	PIN1
GND	PIN2	Orange	/	PIN2
BAT+	PIN3	Brown	PIN1	/
BAT-	PIN4	Black	PIN2	/
485+	PIN5	Blue	/	PIN9
485-	PIN6	Purple	/	PIN14
Shield	Shell	Shielding wire	/	Shell

Accessory

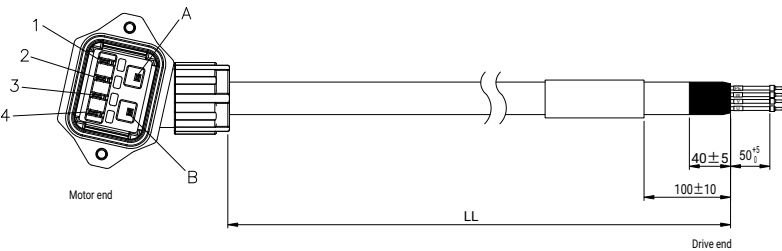
SMK series 40,60,80 flange motor power wire

M-A-6A-KA2-LL-S

Cable specification:4C*20AWG 300V,with shielding,standard cable

M-A-6A-KA2-LL-FS

Cable specification:4C*20AWG 300V,with shielding,flexible cable



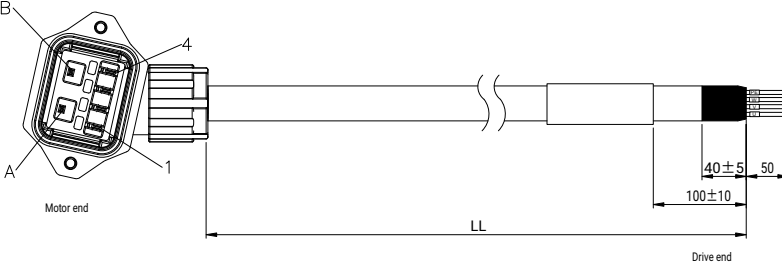
Signal	Motor end SC-MC6S-AE20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	yellow-green+shield

M-A-6A-KA3-LL-S

Cable specification:4C*20AWG 300V,with shielding,standard cable

M-A-6A-KA3-LL-FS

Cable specification:4C*20AWG 300V,with shielding,flexible cable



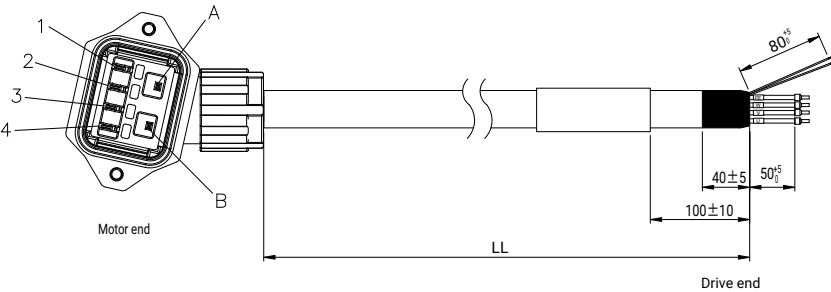
Signal	Motor end SC-MC6S-AE20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	Yellow-Green+shield

M-A-6A-KA2-LL-BS

Cable specification:4*20AWG+2*24AWG,with shielding,standard cable

M-A-6A-KA2-LL-BFS

Cable specification:4*20AWG+2*24AWG,with shielding,flexible cable



Signal	Motor end SC-MC6S-AQ20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	Yellow-Green+shield

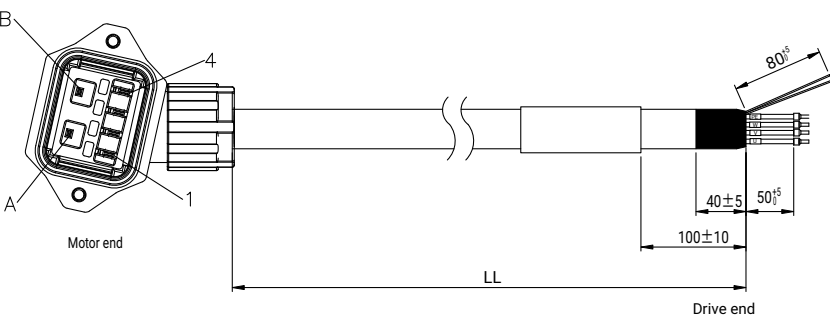
Accessory

M-A-6A-KA3-LL-BS

Cable specification:4*20AWG+2*24AWG, with shielding,standard cable

M-A-6A-KA3-LL-BFS

Cable specification:4*20AWG+2*24AWG ,with shielding,flexible cable



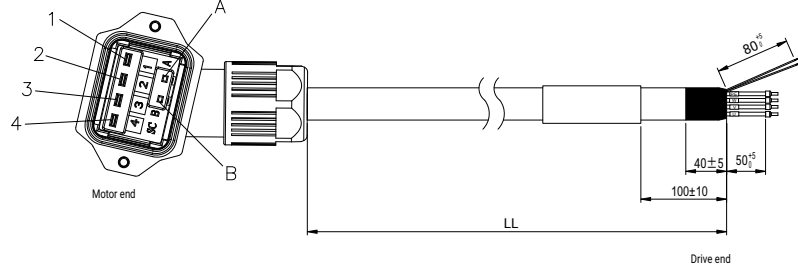
Signal	Motor end SC-MC6S-AE20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	Yellow-Green+shield

M-A-6A-KB0-LL-BS

Cable specification:4*20AWG+2*24AWG,with shielding,standard cable

M-A-6A-KB0-LL-BFS

Cable specification:4*20AWG+2*24AWG,with shielding,flexible cable



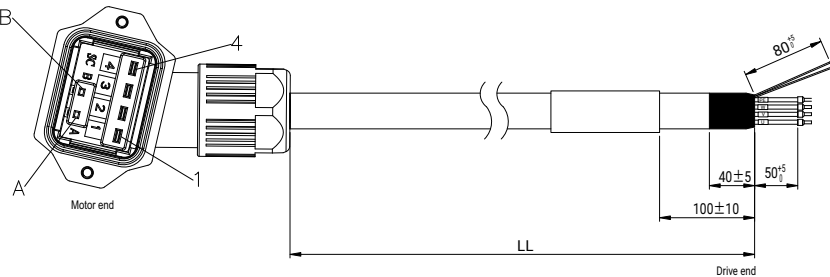
Signal	Motor end SC-MC6S-AQ20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	Yellow-Green+shield

M-A-6A-KB1-LL-BS

Cable specification:4*20AWG+2*24AWG,with shielding,standard cable

M-A-6A-KB1-LL-BFS

Cable specification:4*20AWG+2*24AWG,with shielding,flexible cable



Signal	Motor end SC-MC6S-AQ20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	Yellow-Green+shield
BR+	PINA	Brown
BR-	PINB	Blue

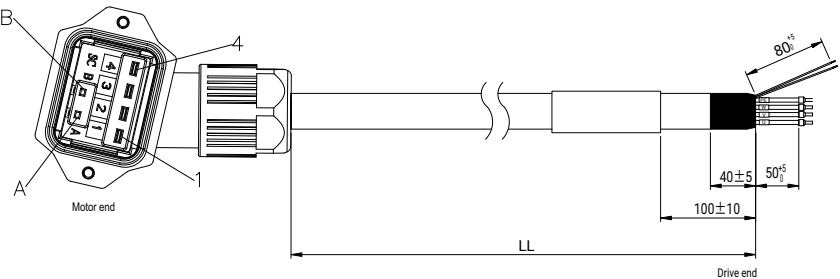
Accessory

M-A-12A-KB0-LL-S

Cable specification:4*16AWG 300V,with shielding,standard cable

M-A-12A-KB0-LL-FS

Cable specification:4*16AWG 300V,with shielding,flexible cable



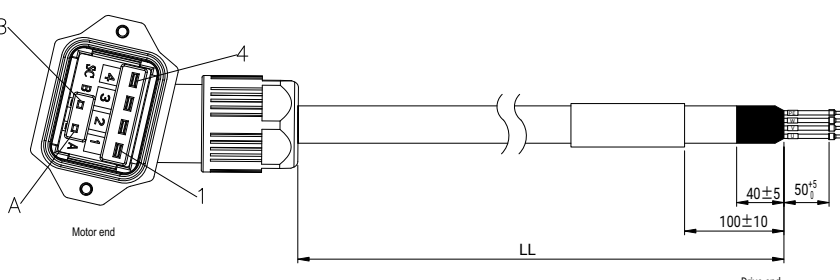
Signal	Motor end SC-MC6S-AQ20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	yellow-green+shield

M-A-12A-KB1-LL-S

Cable specification:4*16AWG 300V,with shielding,standard cable

M-A-12A-KB1-LL-FS

Cable specification:4*16AWG 300V,with shielding,flexible cable



Signal	Motor end SC-MC6S-AQ20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	yellow-green+shield

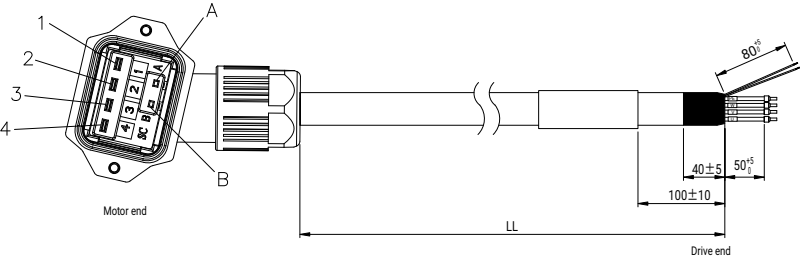
Accessory

M-A-12A-KB0-LL-BS

Cable specification:4*16AWG+2*24AWG,with shielding,standard cable

M-A-12A-KB0-LL-BFS

Cable specification:4*16AWG+2*24AWG,with shielding,flexible cable



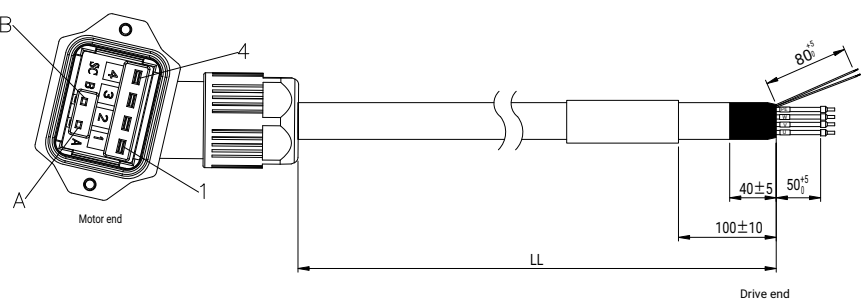
Signal	Motor end SC-MC6S-AQ20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	Yellow-Green+shield
BR+	PINA	Brown
BR-	PINB	Blue

M-A-12A-KB1-LL-BS

Cable specification:4*16AWG+2*24AWG,with shielding,standard cable

M-A-12A-KB1-LL-BFS

Cable specification:4*16AWG+2*24AWG,with shielding,flexible cable



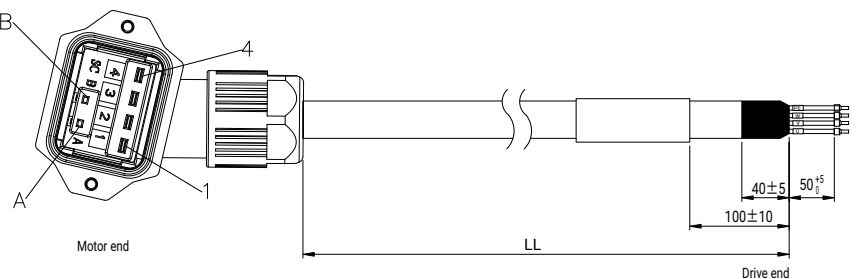
Signal	Motor end SC-MC6S-AQ20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	Yellow-Green+shield
BR+	PINA	Brown
BR-	PINB	Blue

M-A-12A-KB1-LL-S

Cable specification:4*16AWG 300V,with shielding,standard cable

M-A-12A-KB1-LL-FS

Cable specification:4*16AWG 300V,with shielding,flexible cable



Signal	Motor end SC-MC6S-AQ20-00	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	yellow-green+shield

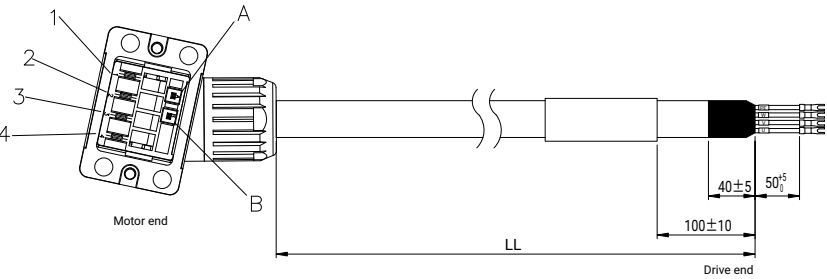
Accessory

M-A-20A-KD0-LL-S

Cable specification:4*14AWG,with shielding,standard cable

M-A-20A-KD0-LL-FS

Cable specification:4*14AWG,with shielding,flexible cable



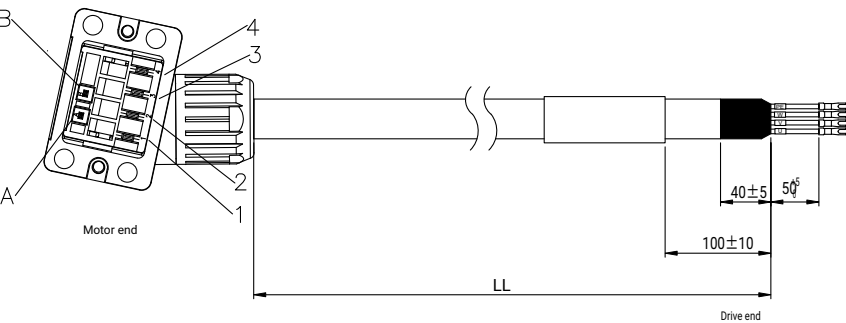
Signal	Motor end	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	yellow-green+shield

M-A-20A-KD1-LL-S

Cable specification:4x*14AWG,with shielding,standard cable

M-A-20A-KD1-LL-FS

Cable specification:4x*14AWG,with shielding,flexible cable



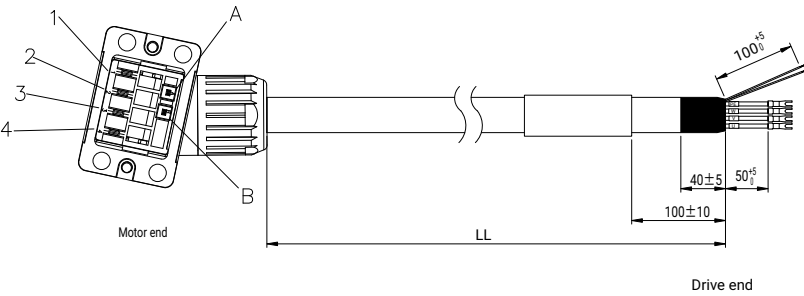
Signal	Motor end	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	yellow-green+shield

M-A-20A-KD0-LL-BS

Cable specification:4*14AWG+2*20AWG,with shielding,standard cable

M-A-20A-KD0-LL-BFS

Cable specification:4*14AWG+2*20AWG,with shielding,flexible cable



Signal	Motor end	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	Yellow-Green+shield
BR+	PINA	Brown
BR-	PINB	Blue

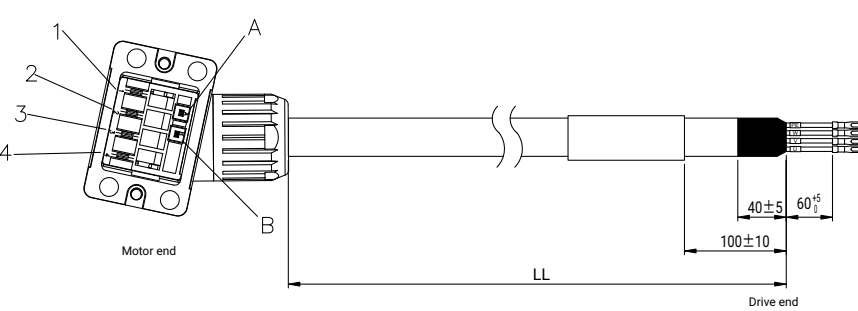
Accessory

M-A-30A-KD0-LL-S

Cable specification:4*12AWG,with shielding, standard cable

M-A-30A-KD0-LL-FS

Cable specification:4*12AWG,with shielding,flexible cable



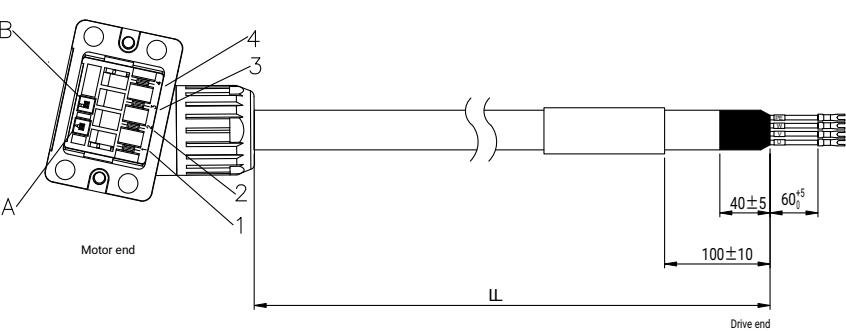
Signal	Motor end	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	yellow-green+shield

M-A-30A-KD1-LL-S

Cable specification:4*12AWG,with shielding,standard cable

M-A-30A-KD1-LL-FS

Cable specification:4*12AWG,with shielding,flexible cable



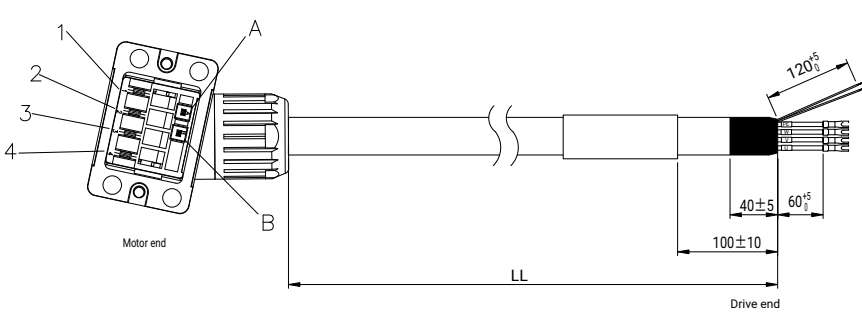
Signal	Motor end	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	yellow-green+shield

M-A-30A-KD0-LL-BS

Cable specification:4*12AWG+2*20AWG,with shielding,standard cable

M-A-30A-KD0-LL-BFS

Cable specification:4*12AWG+2*20AWG,with shielding,flexible cable



Signal	Motor end	Color
U	PIN1	White
W	PIN2	Black
V	PIN3	Red
PE	PIN4	Yellow-Green+Shield
BR+	PINA	Brown
BR-	PINB	Blue

Accessory

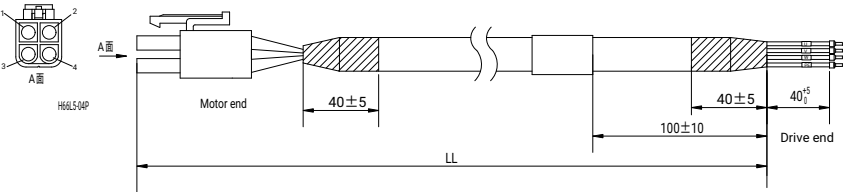
SMC series 60,80 flange motor power wire

M-A-6A-L-LL-S

Cable specification:4C*20AWG 300V,with shielding,standard cable

M-A-6A-L-LL-FS

Cable specification:4C*20AWG 300V,with shielding,flexible cable



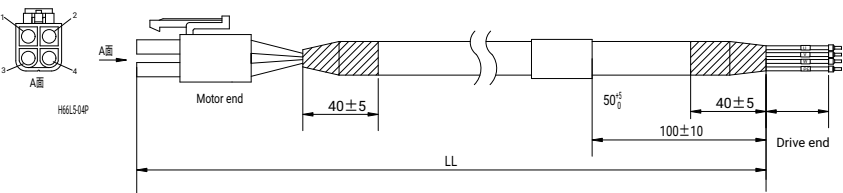
Signal	Motor end H66L5-04P	Color
U	PIN1	White
W	PIN3	Black
V	PIN2	Red
PE	PIN4	Yellow-Green+Shielding

M-A-12A-L-LL-S

Cable specification:4C*16AWG 300V,with shielding,standard cable

M-A-12A-L-LL-FS

Cable specification:4C*16AWG 300V,with shielding,flexible cable



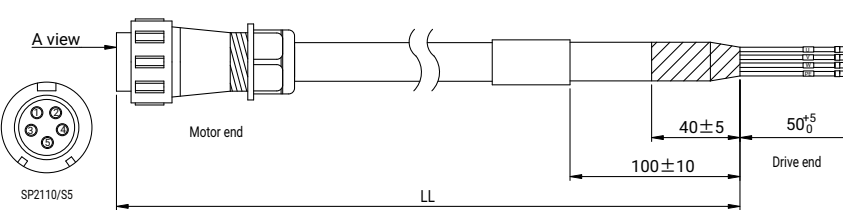
Signal	Motor end H66L5-04P	Color
U	PIN1	White
W	PIN3	Black
V	PIN2	Red
PE	PIN4	Yellow-Green+Shielding

M-Y-20A-SP-LL-S

Cable specification:4C*14AWG 300V,with shielding,standard cable

M-Y-20A-SP-LL-FS

Cable specification:4C*14AWG 300V,with shielding,flexible cable



Signal	Motor end SP2110/S 5pole	Color
U	PIN1	White
W	PIN3	Black
V	PIN2	Red
PE+Shielding	PIN4	Yellow-Green
NC	PIN5	NC

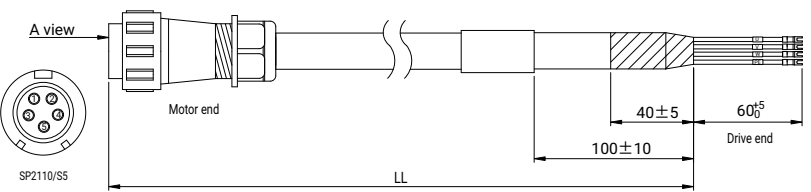
Accessory

M-Y-30A-SP-LL-S

Cable specification:4C*12AWG 300V,with shielding, standard cable

M-Y-30A-SP-LL-FS

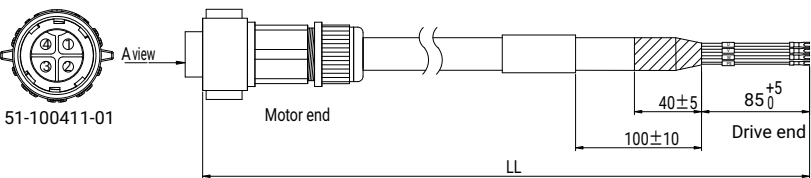
Cable specification:4C*12AWG 300V,with shielding,flexible cable



Signal	Motor end SP2110/S 5pole	Color
U	PIN1	White
W	PIN3	Black
V	PIN2	Red
PE+Shielding	PIN4	Yellow-Green
NC	PIN5	NC

M-Y-40A-LJ51-LL-S

Cable specification:3*10AWG+3*19AWG, with shielding, standard cable



Signal	Motor end 51-100411-01	Color
U	PIN1	White
W	PIN3	Black
V	PIN4	Red
PE+Shielding wire	PIN2	Yellow-Green+Shield

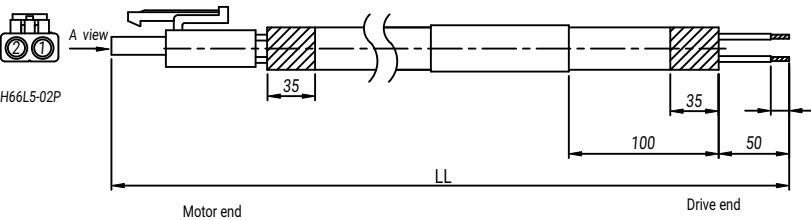
SMC series 60,80 flange motor brake wire

BRA-LL-KL

Cable specification:2C*20AWG

BRAF-LL-KL

Cable specification:2C*20AWG



Signal	Motor end H66L5-02P	Color
BR+	PIN1	red
BR-	PIN2	blue