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Kinco® Automation

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K1E15-202506

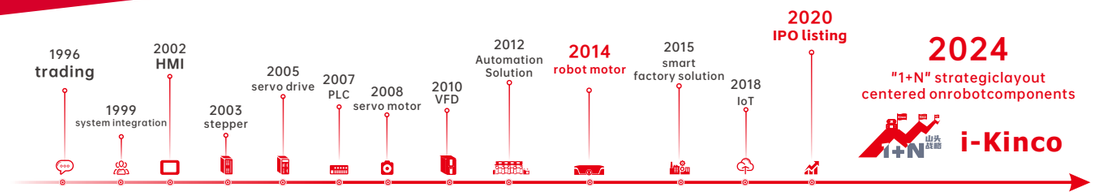
Kinco

Motion Control
Servo System

Low-voltage Servo System Catalog

-FD1X4S Servo Drive
-OD1X4S Servo Drive
-MD series integrated Servo Motor
-Low-voltage 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. It is a leading supplier of automation control, robot power and digital factory solutions in China.

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

Shanghai | Shenzhen | Changzhou | Chengdu | Shenzhen Manufacturing Center HMI, PLC, drive class | Changzhou Manufacturing Base electric machinery

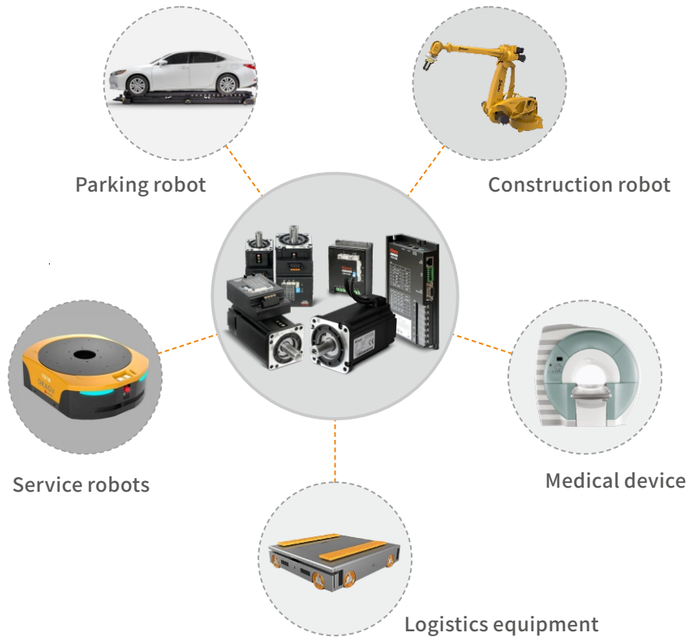
Kinco low voltage servo system

FD, OD, MD series low-voltage servo drives are a new generation of products with small size, good performance and high stability developed by Kinco Electric after years of market research and according to the characteristics of the logistics automation industry.

The working voltage of Kinco low voltage servo system is DC24~60V. Support CAN, Modbus, Ethercat, Profinet bus and pulse and other control methods. It can be matched with encoder motors such as photoelectric, magnetoelectric, multi-turn absolute value, etc., and the product configuration is more flexible. Widely used in logistics storage equipment, mobile handling equipment, sorting trolleys, mobile service robots and other fields that have high requirements on voltage and volume.

For industrial customers who have special requirements in communication mode, installation mode, protection level, etc., our company also provides customized low-voltage servo drives and motors for customer application.

Industry application



PROFINET EtherCAT CANopen Modbus

Contents

Standards and Certificates

TÜVRheinland®

European Standards
Drive：EN 61800-5-1:2007/A11:2021
Motor：EN 60034-1:2010
American Standard
Drive：UL 61800-5-1:2012 R3.15
Motor：UL 1004-1:2012R11.20

EMC

EMC electromagnetic compatibility certification

Standard： EN 61000-6-4:2007+A1:2011
Standard： EN 61000-6-2:2005

Magnetoelectric encoder servo motor and servo drive configuration table 1 (DC48V)

Power	Servo motor	Brake cable	Power cable	Encoder cable	Servo drive		
					CANopen	RS485+ Pluse	EtherCAT
50W	SMC40S-0005-30MAK-5DSU	-	MOT-005-LL-KL-D	FD1X4S Drive：ENCHG-LL-GU OD1X4S Drive：ENCOG-LL-GU	FD114S-CB-000 OD114S-CA-000	FD114S-LB-000 OD114S-LA-000	FD114S-EB-000 OD114S-EA-000
	SMC40S-0005-30MBK-5DSU	BRA-LL-KL					
100W	SMC40S-0010-30MAK-5DSU	-					
	SMC40S-0010-30MBK-5DSU	BRA-LL-KL					
200W	SMC60S-0020-30MAK-5DSU	-			FD124S-CB-000 OD124S-CA-000	FD124S-LB-000 OD124S-LA-000	FD124S-EB-000 OD124S-EA-000
	SMC60S-0020-30MBK-5DSU	BRA-LL-KL					
400W	SMC60S-0040-30MAK-5DSU	-	MOT-008-LL-KL-D				
	SMC60S-0040-30MBK-5DSU	BRA-LL-KL					
600W	SMC60S-0060-30MAK-5DSU	-	FD1X4S Drive：MOT-020-LL-KL-SP OD1X4S Drive：MOT-020-LL-KL-SP-1		FD134S-CB-000 OD134S-CA-000	FD134S-LB-000 OD134S-LA-000	FD134S-EB-000 OD134S-EA-000
	SMC60S-0060-30MBK-5DSU	BRA-LL-KL					
750W	SMC80S-0075-30MAK-5DSU	-					
	SMC80S-0075-30MBK-5DSU	BRA-LL-KL					
1000W	SMC80S-0100-30MAK-5DSU	-	MOTF-030-LL-KL-SP	ENCHG-LL-GU	FD144S-CB-000	FD144S-LB-000	FD144S-EB-000
	SMC80S-0100-30MBK-5DSU	BRA-LL-KL					

Note: "LL" in the power line/brake line/encoder line list indicates the cable length, please refer to the model description.

2500P/R incremental magneto electric encoder (ultra short) servo motor and servo driver configuration table 2 (DC48V)

Power	Servo motor	Brake cable	Power cable	Encoder cable	Servo drive		
					CANopen	RS485+ Pluse	EtherCAT
200W	SMC60S-0020-30WAK-5DCH	-	MOT-005-LL-KL-D	FD1X4S Drive： ENCHA-LL-KH OD1X4S Drive： ENCOA-LL-KH	FD124S-CB-000 OD124S-CA-000	FD124S-LB-000 OD124S-LA-000	FD124S-EB-000 OD124S-EA-000
	SMC60S-0020-30WBK-5DCH	BRA-LL-KL					
400W	SMC60S-0040-30WAK-5DCH	-	MOT-008-LL-KL-D				
	SMC60S-0040-30WBK-5DCH	BRA-LL-KL					
750W	SMC80S-0075-30WAK-5DCH	-	FD1X4S Drive： MOT-020-LL-KL-SP OD1X4S Drive： MOT-020-LL-KL-SP-1		FD134S-CB-000 OD134S-CA-000	FD134S-LB-000 OD134S-LA-000	FD134S-EB-000 OD134S-EA-000
	SMC80S-0075-30WBK-5DCH	BRA-LL-KL					
1000W	SMC80S-0100-30WAK-5DCH	-	MOTF-030-LL-KL-SP	ENCHA-LL-KH	FD144S-CB-000	FD144S-LB-000	FD144S-EB-000
	SMC80S-0100-30WBK-5DCH	BRA-LL-KL					

Low voltage high-power 2500P/R incremental magneto electric encoder servo motor and servo driver configuration table 3 (DC48V)

Power	Servo motor	Brake cable	Power cable	Encoder cable	Servo drive		
					CANopen	RS485+ Pluse	EtherCAT
1500W	SMC130D-0150-30WAK-4DSH-2	-	-	-	FD144S-CB-000	FD144S-LB-000	FD144S-EB-000
	SMC130D-0150-30WBK-4DSH-2						
2500W	SMC130D-0250-30WAK-4DSH-2				FD164S-CB-000	FD164S-LB-000	-
	SMC130D-0250-30WBK-4DSH-2						
3000W	SMC130D-0300-30WAK-4DSH-2						
	SMC130D-0300-30WBK-4DSH-2						
	SMC130D-0300-20WAK-4DSH-2						
	SMC130D-0300-20WBK-4DSH-2						

Note: The SMC130 motor body of this table has a 2-meter output line and is directly connected to the driver, without the need for additional adapters.
If you need longer cables, please contact your local sales representative.

Note: "LL" in the power line/brake line/encoder line list indicates the cable length, please refer to the model description.

2-in-1 Drive Configuration Table 4 (DC48V)

Power	Servo motor	Brake cable	Power cable	Encoder cable/ Battery cable	Servo drive	
					CANopen	RS485+Pluse
200W	SMC60S-0020-30MAK-5DSU	-	MOTF-(2)-M	ENCOGF-LL-GU	FD124S-AB-020-D2	FD124S-AB-020-D2 Note: Pulse not supported
	SMC60S-0020-30MBK-5DSU	BRAF-(2)-M				
	SMC60S-0020-30WAK-5DCH	-		ENCOAF-LL-KH		
	SMC60S-0020-30WBK-5DCH	BRAF-(2)-M				
400W	SMC60S-0040-30MAK-5DSU	-		ENCOGF-LL-GU		
	SMC60S-0040-30MBK-5DSU	BRAF-(2)-M				
	SMC60S-0040-30WAK-5DCH	-		ENCOAF-LL-KH		
	SMC60S-0040-30WBK-5DCH	BRAF-(2)-M				
600W	SMC60S-0060-30MAK-5DSU	-	MOT-020-LL-KL-SP	ENCHG-LL-GU	FD134S-CB-000-D2	FD134S-LB-000-D2
	SMC60S-0060-30MBK-5DSU	BRA-LL-KL				
750W	SMC80S-0075-30MAK-5DSU	-		ENCHA-LL-KH		
	SMC80S-0075-30MBK-5DSU	BRA-LL-KL				
	SMC80S-0075-30WAK-5DCH					
	SMC80S-0075-30WBK-5DCH	BRA-LL-KL				
	SMC80S-0075-30MAK-5DSU	-	MOTF-020-LL-M	ENCOGF-LL-GU	FD134S-CB-020-D2	-
	SMC80S-0075-30MBK-5DSU	BRAF-(2)-M				
	SMC80S-0075-30WAK-5DCH	-		ENCOAF-LL-KH		
	SMC80S-0075-30WBK-5DCH	BRAF-(2)-M				

Note：LL" in the powerline/brake line/encoderlinelistindicates the cable length,please refer to the model description.

Introduction of low voltage servo drive

Features:

Control mode: support position, speed, torque control mode

Communication protocol: support CANopen, EtherCAT, RS485 and other communication protocols

Encoder: support photoelectric, magnetic encoder, absolute value and other encoder type motors
Can drive 50W~3Kw low voltage servo motor

Industry-specific: Provide a variety of special functions according to the needs of the AGV industry: two-in-one drive, alarm braking, enhanced battery life

For customers who are more sensitive to space, we have launched a palm-sized OD series drive, which can be customized and developed according to different working conditions of users

FD1X4S

OD1X4S

FD134S-CB-020-D2

Drive naming rule

Model: FD124S-CB-000-D2
①②③④⑤⑥⑦

①-Serial number	FD：FD series　OD：OD series
②-Voltage input specifications	1：Input voltage DC24～60V
③-Rated output current	1：5Arms 2：15Arms 3：25Arms 4：40Arms 6：80Arms
④-Drive version	4S：4S version low voltage drive
⑤-Control method	AB：RS232、RS485、CANopen LB：RS232、RS485、pluse CB：RS232、CANopen EB：RS232、EtherCAT
⑥-Software version number	000：Standard version 020：mobile specific
⑦-Drive mode	D2：2-in-1 drive

Note 1、The output currents of FD124S, FD134S, and FD144S are 15Arms, 25Arms, and 40Arms, respectively, which is the value measured by installing the drive on an oxide black 6063 aluminum plate with a length*width*height of 300mm*300mm*10mm of the auxiliary heat sink.

2、The output current of the FD164S is 80Arms, and the drive needs to be installed on the auxiliary radiator with a length*width*height of 400mm*400mm*10mm and the measured value of the black oxide 6063 aluminum plate.

FD1X4S technical specifications table

Model parameters		FD1X4S servo drive technical parameter table				
		FD114S-□B-00■	FD124S-□B-00■	FD134S-□B-00■	FD144S-□B-00■	FD164S-□B-000
Rated input voltage		24VDC~60VDC				
Rated output current	Maximum continuous output current (rms)	5A	15A (Up to 12A without auxiliary radiator)	25A (Up to 20A without auxiliary radiator)	40 A (Up to 30 A swithout auxiliary radiator)	80A (Up to 60A without auxiliary radiator)
	Peak current (PEAK)	12Ap	48Ap	80Ap	120Ap	240Ap
Feedback signal		2500P/R (incremental differential 5V encoder)；Magnetic encoder;Absolute encoder				
Brake chopper		An external braking resistor (depending on the working conditions, mainly used for quick start and stop), the braking voltage absorption point is 73V (FD164S is 63V) (software setting).				
Brake chopper threshold		DC73V ± 2V (default value, can be set)				DC63V ± 2V (default value, can be set)
Over-voltage alarm voltage		DC83V ± 2V				DC70V ± 2V
Under-voltage alarm voltage		DC18V±2V				DC18V±2V
Cooling method		Natural cooling Remark1：The output currents of FD124S, FD134S and FD144S are 15Arms, 25Arms and 40Arms respectively. The value measured on an oxide black 6063 aluminum plate of 300mm*300mm*10mm. 2：The output current of FD164S is 80Arms, the drive needs to be installed on the auxiliary radiator. The length*width*height is the value measured on an oxide black 6063 aluminum plate of 400mm*400mm*10mm.				
Weight(Kg)		0.3	0.3	0.6	0.9	1.68
General functions	Input specification	4-channel digital input, common to COMI terminal, high level: 12.5-30VDC, low level: 0-5VDC, maximum frequency: 1KHz, input impedance: 5KΩ.(the brake motor drive is a 3-way digital input)				
	Input function	Freely define as needed, the functions are as follows: drive enable, drive error reset, drive working mode control, speed loop proportional control, positive limit, negative limit, origin signal, command reversal, internal speed segment control, internal position segment control , emergency stop, start to find origin, command activation, electronic gear ratio switching, gain switching				
	Output specification	2 digital outputs, brake motor drive is 1 digital signal output				
	Pulse direction control	Pulse+direction, CCW+CW, A phase+B phase (3.3V~24V) Note: Only FD1X4S-L□-000 supports this function				-
	Output function	Freely define according to needs, the functions are as follows: drive ready, drive error, motor position arrives, motor zero speed, motor holding brake, motor speed arrives, index Z signal appears, maximum speed limit reached in torque mode, motor lock shaft, motor limit bit center, origin found				
	RS232	The default baud rate is 38400 and the maximum baud rate is 115.2K. Can use Kinco host computer software for linking, or use custom protocol to communicate with the controller				
	Protective function	Overvoltage protection, undervoltage protection, motor overheating (I2T) protection, short circuit protection, drive overheating protection, etc.				
Bus function	Modbus/RS485	Maximum support 115.2K baud rate, can use Modbus RTU protocol to communicate with the controller				-
	CAN BUS	Maximum support 1M baud rate, can use CANopen protocol to communicate with the controller				
	EtherCAT	Support CoE (CiA402 protocol) and CSP/CSV/PP/PV/PT/HM mode, the communication speed is 100M.				-
Use environment	Operating temperature	0～40℃				
	Storage temperature	－10℃～70℃				
	Humidity (no condensation)	Below 90%RH				
	Protection level	IP20 (note: except for FD164S driver power terminal)				
	Installation site	Dust-free and dry place (such as electrical cabinet)				
	Installation method	Vertical installation or horizontal installation				
	Height	The rated working altitude is below 1000m. When the working altitude is above 1000m, every 100m rise, it needs to be derated by 1.5%. The maximum working altitude is 4000m above sea level.				
	Atmospheric pressure	86kpa～106kpa				

Note：□=L：Communication port RS232, RS485, pulse
□=C:Communication port RS232, CANopen
□=E：Communication port RS232, EtherCAT

OD1X4S technical specifications table

Model parameters		OD1X4S servo drive		
		OD114S-□□-000	OD124S-□□-000	OD134S-□□-000
Rated input voltage	Power supply	24VDC~60VDC		
	Logic power supply	24VDC 1A (unnecessary)		
Rated output current	Maximum continuous output current (rms)	2.5A	10A (Up to 9A swithout auxiliary radiator)	20A (Up to 13A swithout auxiliary radiator)
	Peak current (PEAK)	12Ap	36Ap	80Ap
Feedback signal		2500P/R (incremental differential 5V encoder)Magnetoelectric encoder		
Brake chopper		An external braking resistor is required (depending on the operating conditions, mainly used in the occasion of rapid start and stop)		
Brake chopper threshold		DC73V ± 2V (default value, can be set)		
Overvoltage alarm voltage		DC86V ± 2V		
Undervoltage alarm voltage		18V±2V		
cooling method		Natural cooling	Natural cooling Remarks：add an oxide black 6063Aluminum radiator with a size of 150mm*150mm*10mm Remarks：add an oxide black 6063Aluminum radiator with a size of 150mm*150mm*10mm	
Weight(KG)		0.266		0.393
Universal function	Input specification	4-channel digital input, common to COMI terminal, high level: 12.5~30VDC, low level: 0~5VDC, maximum frequency: 1KHz, input impedance: 5KΩ.		
	Input function	Freely define as needed, the functions are as follows: drive enable, drive error reset, drive working mode control, speed loop proportional control, positive limit, negative limit, origin signal, command reversal, internal speed segment control, internal position segment control , emergency stop, start to find origin, command activation, electronic gear ratio switching, gain switching		
	Pulse control	Pulse + direction, CCW + CW, A phase + B phase (3.3V~24V)		
	Analog input	Voltage input range: -10V~+10V: input impedance 200K, input sampling frequency 4KHz.Note: OD1X4S-EA-000 does not support this feature		
	Output specification	2-channel digital output (maximum driving current 100mA) 1-channel brake driving output (requires external 24VDC driving current maximum 500mA)		
	Output function	Freely define according to needs, the functions are as follows: drive ready, drive error, motor position arrives, motor zero speed, motor holding brake, motor speed arrives, index Z signal appears, maximum speed limit reached in torque mode, motor lock shaft, motor limit bit center, origin found		
	RS232	Maximum support 115.2K baud rate, can use Kinco host computer software to link, can also use custom protocol to communicate with the controller		
	Protective function	Overvoltage protection, undervoltage protection, motor overheating (I2T) protection, short circuit protection, drive overheating protection, etc.		
Bus function	Modbus/RS485	Maximum support 115.2K baud rate, can use Modbus RTU protocol to communicate with the controller		
	CAN BUS	Maximum support 1M baud rate, can use CANopen protocol to communicate with the controller		
	EtherCAT	Support CoE (CiA402 protocol) and CSP/CSV/PP/PV/PT/HM mode, the communication speed is 100M.		
Use environment	Operating temperature	0～40℃		
	Storage temperature	－10℃～70℃		
	Humidity	Below 90%RH		
	Protection level	IP20		
	Installation site	Dust-free,dry and lockable (such as electrical cabinets)		
	Installation method	vertical installation		
	High	The rated working altitude is below 1000m. When the working altitude is above 1000m, every 100m rise, the derating needs to be reduced by 1.5%. The maximum working altitude is 4000m above sea level.		

Note：□□=LA：Communication port RS232, RS485, pulse
□□=CA：Communication port RS232, CANopen, pulse
□□=EA：Communication port RS232, EtherCAT, pulse

FD134S two-in-one drive technical specifications table

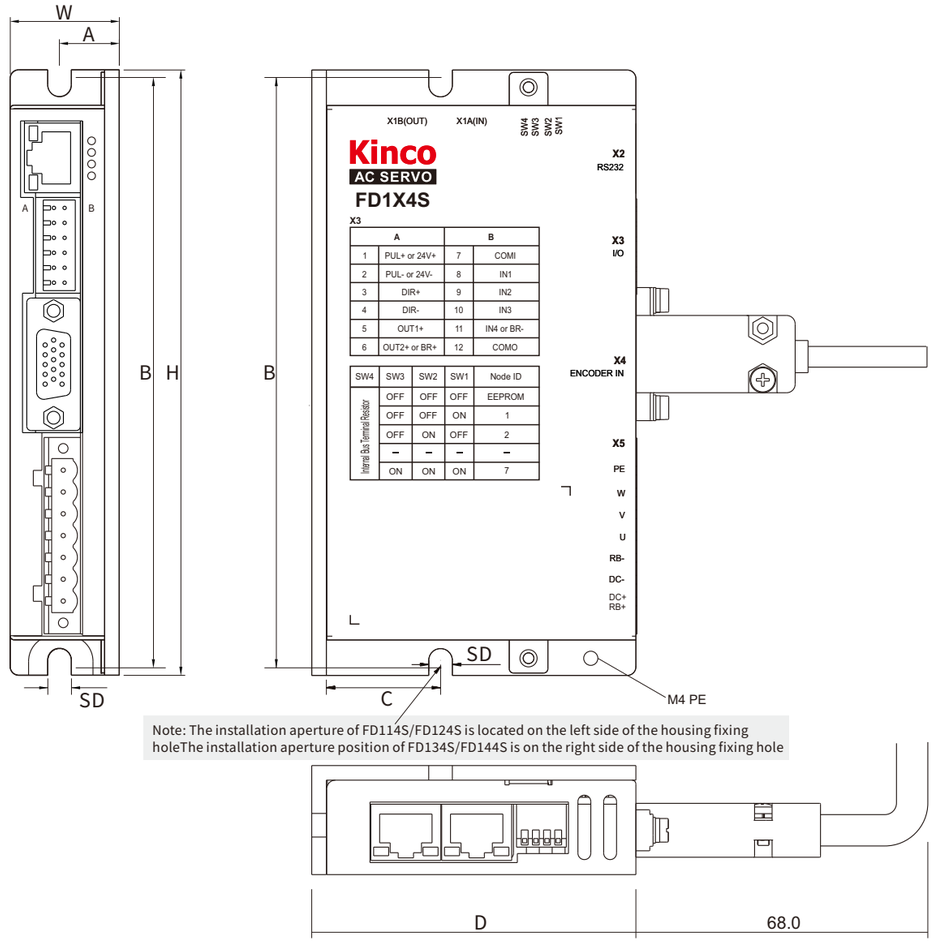


Model parameters		Two-in-one drive			
		FD124S-AB-020-D2	FD134S-LB-000-D2	FD134S-CB-000-D2	FD134S-CB-020-D2
Rated input voltage	Power supply	24VDC~60VDC			
	Built in fuse	Have(20A)	None		
	Logic power supply	Have (24VDC)			
Rated output current	Maximum continuous output current (rms)	15A (up to 12A without auxiliary cooling)	20A (up to 15A without auxiliary cooling)		
	Peak current(PEAK)	20A (Restricted by fuses)	80A		
Feedback signal		2500P/R(incremental differential 5V encoder): magnetoelectric encoder			
Energy consumption braking		It can be externally connected with brake resistor (depending on the operation, mainly used in the situation of rapid start and stop), and the brake voltage absorption pointis 73V (software setting)			
Energy consumption braking voltage absorption point		DC73V ± 2V (default value, settable)			
Overvoltage alarm voltage		DC83V ± 2V			
Undervoltage alarm voltage		DC18V ± 2V			
Cooling mode		Natural cooling Note: When the output current ofthe drive is 20Amms, the drive is installed on the auxiliary radiator, and the length *width * heightofthe drive is the value measured on 300mm * 300mm * 10mm oxidized 6063 aluminum plate			
Weight (Kg)		0.566	0.9		1.29
Mechanical dimension (mm)		140*90.8*42.6	207*100.5*33.9		196*124.2*54.6
General function	Input specification	3-channeldigital input: Digital input has COMl terminal, high level: 12.5～30VDC, low level: 0～5VDC, maximum frequency: 1KHz, input impedance:5KΩ Note:FD124S-AB-020-D2&FD134S-CB-020-D2 only 2 digital inputs			
	Input function	It can be freely defined as reauired, and its functions are as folows: drive enable, drive error reset, drive working mode control, speed loopproportional control, positive limit, negative limit, oriein signa,command reverse, intemal speed segment control, internal position segmentcontrol, emergency stop, start to find origin, command activation, electronic gear ratio switching, gain			
	Output Specification	1 digital output, driving capacity of 100mA			None
	Output function	Freely defined as needed,the functions are as follows: drive ready, drive error, motor position to, motor zero speed, motor holding brake, motor speed to,index Z signal appears, maximum limit speed is reached under torque mode, motor shaft locking, motor limit center,and origin finding			
	Pulse direction control	None	Pulse+direction, CcW+CW, A phase+B phase (3.3V~24V)	None	None
	Protection function	Overvoltage protection, undervoltage protection, motor overheating (I^2T) protection, short circuit protection, drive overheatingprotection, etc			
	Brake	1-channel brake output (built-in 24V brake power supply, output capacity is 0.8A), Note:FD124S-AB-020-D2 supports external power output brake and is not controlled by the driver			
	RS232	The default baud rate is 38400, and the maximum baud rate is 115.2k. Kinco host computer software can be used to linkor custom protocol can be used to communicate with the controller			
Bus function	RS485	Maximum baud rate of 115.2K is supported, and Modbus RTU protocol can be used to communicate with the controller			
	CAN BUS	Maximum lM baud rate is supported, and CANopen protocol can be used to communicate with the controller			
Use environment	Working temperature	0-40℃			
	Storage temperature	-10℃-70℃			
	Humidity (no condensing)	Below 90%RH			
	Protection class	IP20			
	Installation site	Dust free, dry and lockable (such as electrical cabinet)			
	Installation method	Vertical or horizontal installation			
	Height	The rated working altitude is below 1000m. When the working altitude is above 1000m, 1.5% derating is required for every 100m rise. The maximum working altitude is 4000m.			
	Atmospheric pressure	86kpa-106kpa			

Note：AB：Communication port RS485、CANopen　　LB：Communication port RS232、RS485、pulse　　CB：Communication port RS232、CANopen

FD1X4S Drive mechanical dimension diagram

Note：Wiring is needed around the drive，Recommend leaving distance>60mm



X3

A		B	
1	PUL+ or 24V+	7	COMI
2	PUL- or 24V-	8	IN1
3	DIR+	9	IN2
4	DIR-	10	IN3
5	OUT1+	11	IN4 or BR-
6	OUT2+ or BR+	12	COMO

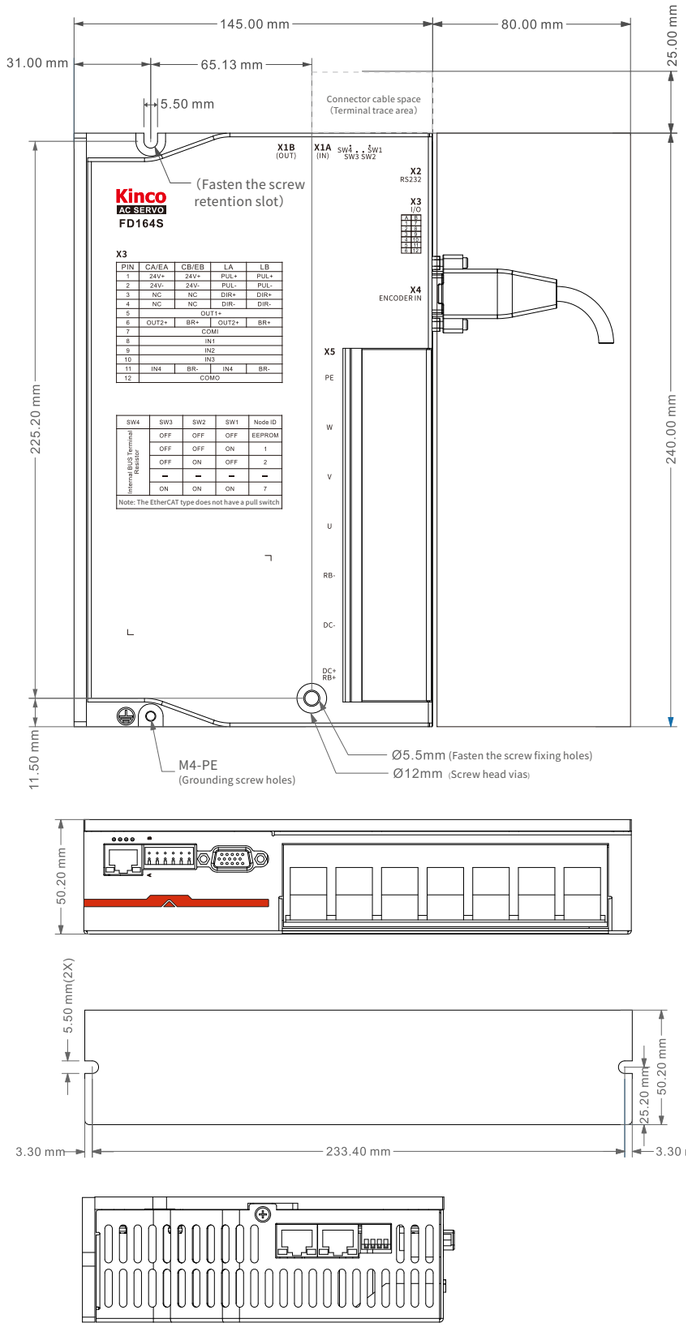
SW4	SW3	SW2	SW1	Node ID
Internal Bus Terminal Resistor	OFF	OFF	OFF	EEPROM
	OFF	OFF	ON	1
	OFF	ON	OFF	2
	--	--	--	--
	ON	ON	ON	7

Note: The installation aperture of FD114S/FD124S is located on the left side of the housing fixing holeThe installation aperture position of FD134S/FD144S is on the right side of the housing fixing hole

Model	Outline dimension (mm)			Installation dimension (mm)			Mounting aperture SD (mm)
	H	W	D	A	B	C	
FD114S	141	25.4	75.5	14	137.5	30	5.5
FD124S							
FD134S	174.6	31	100.5	18	168	70	5.8
FD144S	200	35.8	100.5	18	193.4		

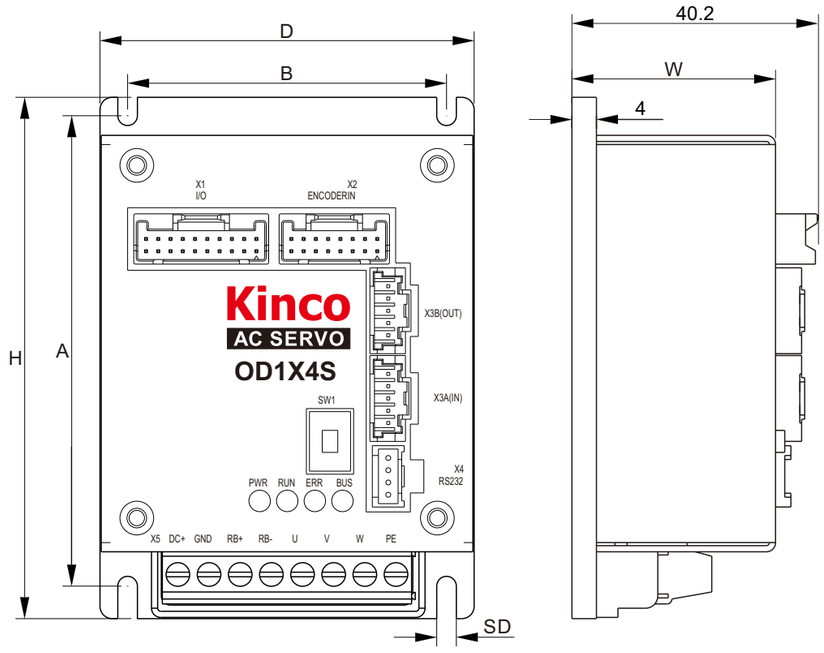
FD164S Drive mechanical dimension diagram

Note：Wiring is needed around the drive，recommend leaving distance>60mm



OD1X4S drive mechanical dimension diagram

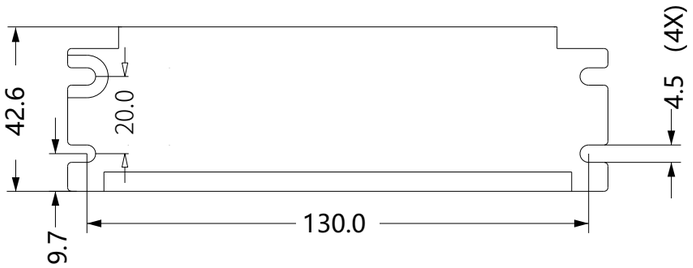
Note：Wiring is needed around the drive，recommend leaving distance>60mm



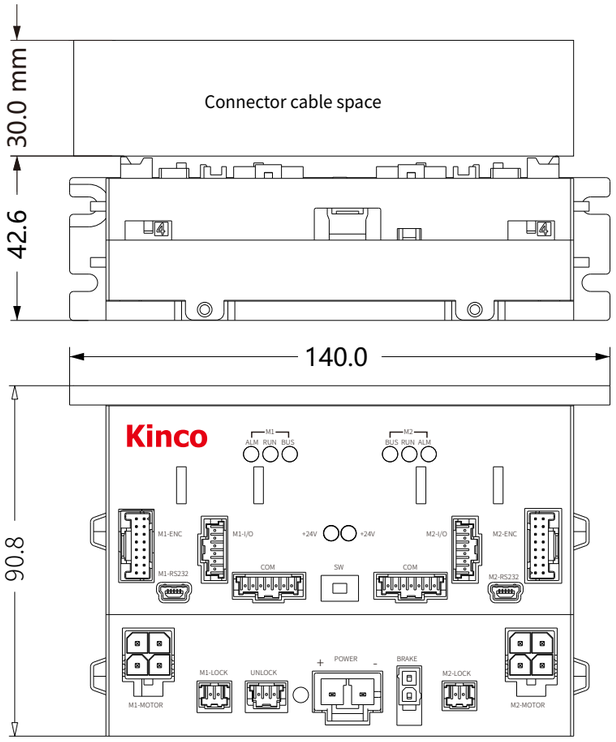
Model	Outline dimension (mm)			Installation dimension (mm)		Mounting aperture SD (mm)
	H	W	D	A	B	
OD114S	85	33.2	61	76.7	52	3.2
OD124S						
OD134S	107	33.2	77.4	101.4	60	

FD124S-AB-020-D2 drive wiring port description

Note: Wiring is needed around the drive, recommend leaving distance>60mm

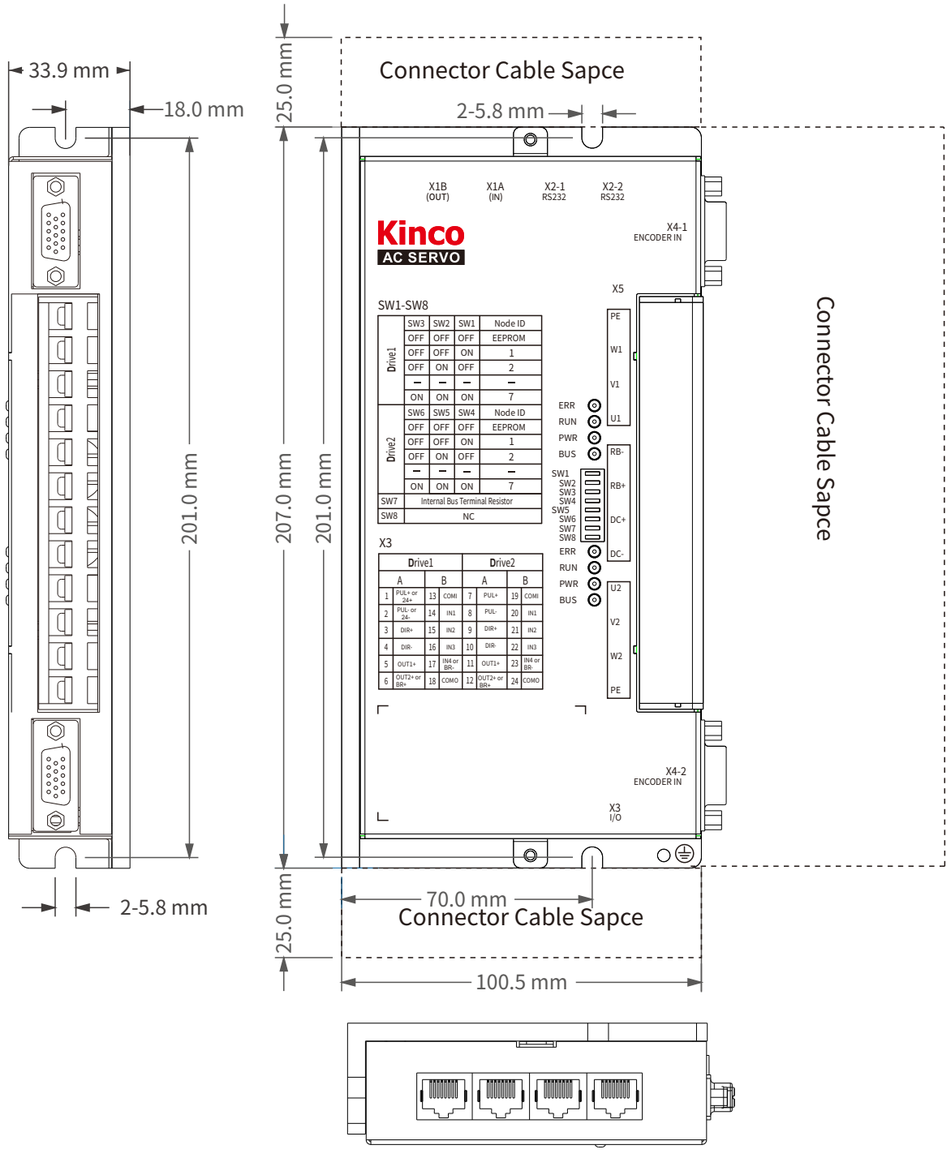


Hole position for fixation



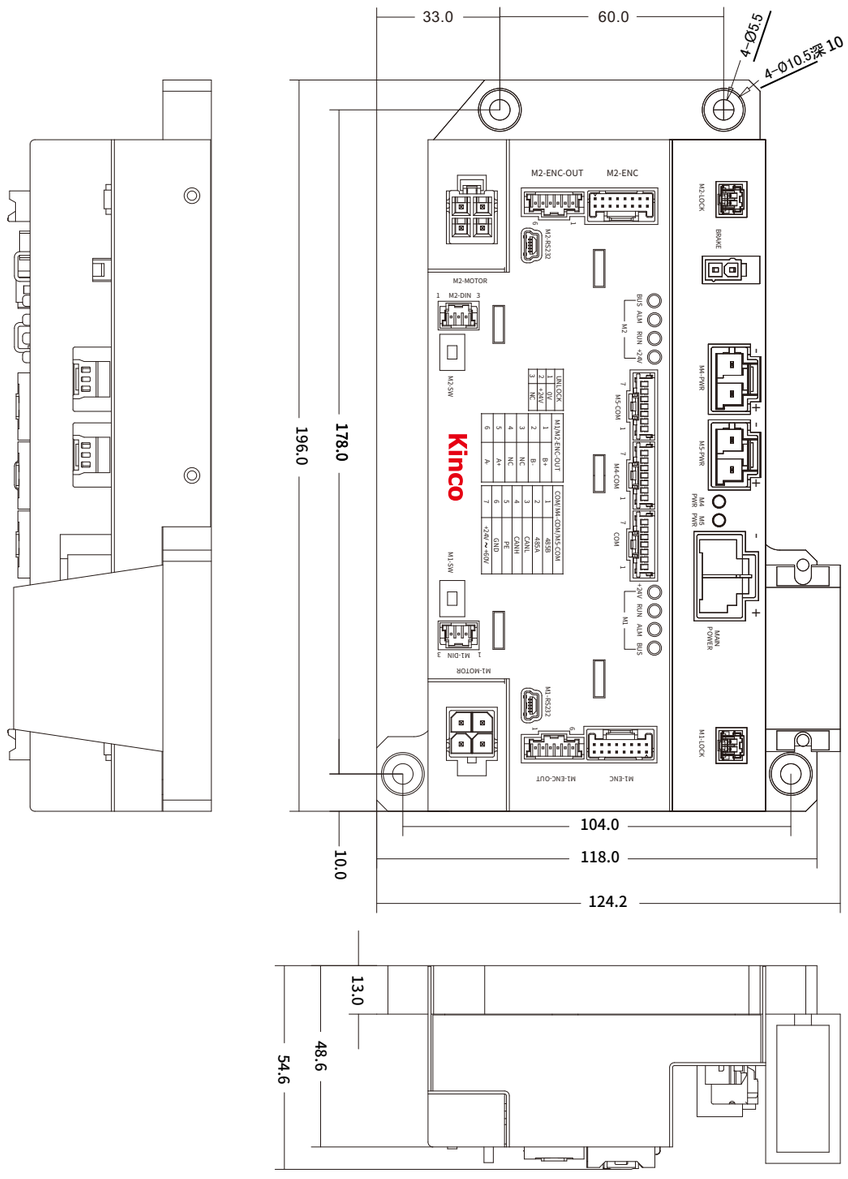
FD134S 2-in-1 driver Drive mechanical dimension diagram

Note：Wiring is needed around the drive，recommend leaving distance>60mm



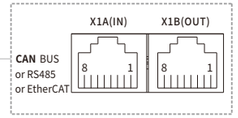
FD134S-CB-020-D2 Drive mechanical dimension diagram

Note：Wiring is needed around the drive，recommend leaving distance>60mm



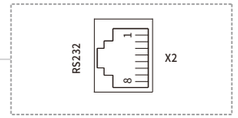
FD1X4S servo drive wiring port description

Bus communication interface — **X1**



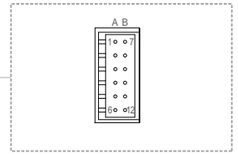
Pin No.	RS485	EtherCAT	CAN
1	RX	TD+	CAN_H
2	/RX	TD-	CAN_L
3	GND	RD+	GND
4	/TX	\	\
5	TX	\	\
6	\	RD-	\
7	\	\	\
8	GND	\	\

Communication interface RS232 — **X2**



Pin No.	Signal
1	\
2	\
3	TXD
4	GND
5	\
6	RXD
7	\
8	\

Digital signal input/output port — **X3**

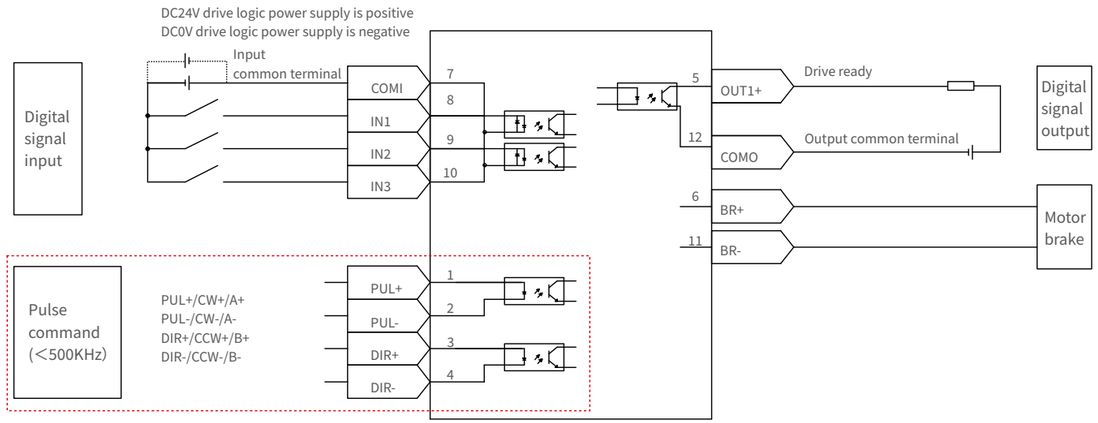


Pin No.	Communication port		FD1X4S-CB-000 FD1X4S-EB-000	FD1X4S-LB-000
	DIN	DOUT		
1			24V+	PUL+
2			24V-	PUL-
3			\	DIR+
4			\	DIR-
5		OUT1+		
6			BR+	BR+
7	COMI			
8	IN1			
9	IN2			
10	IN3			
11			BR-	BR-
12		COMO		

X3	PUL+、PUL-、DIR+、DIR-	Pulse signal input terminal Input voltage: 3.3V~24V Maximum frequency: 500KHz
	24V+、24V-	FD1X4S-C □ - 000 and FD1X4S-E □ - 000 do not support pulse control, X3 port pins 1 and 2 are multiplexed as 24V logic power input ports.
	OUT1+、OUT2+、COMO	Digital signal output terminal Maximum output current: 100mA
	IN1、IN2、IN3、IN4、COMI	Digital signal output terminal Maximum output current: 100mA digital signal input terminal High level: 12.5VDC~30VDC Low level: 0VDC~5VDC Input frequency:<1KHz
	BR+、BR-	FD114S-□B-000&FD124S-□B-000, the rated output current of the brake port is 0.5Arms; FD134S-□B-000, the rated output current of the brake port is 0.8Arms; FD144S-□B-000, the rated output current of the brake port is 1Arms; FD164S-CB-000, the rated output current of the brake port is 1.2Arms;

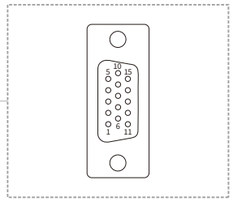
FD1X4S servo drive wiring port description

FD114S, FD124S, FD134S, FD144S, FD164S input and output terminal X3 wiring diagram



Notes:
FD1X4S-CB-00 ○ and FD1X4S-EB-000 do not hold pulse control;
FD1X4S-LB-00 ○ There is no 24V logic power supply.

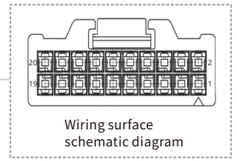
Motor encoder input interface **X4**



Pin No.	Incremental encoder signal	Communication type magneto-electric encoder signal
1	+5V	VDD
2	GND	GND
3	\	\
4	U	\
5	/U	\
6	Z	\
7	B	\
8	A	\
9	W	SLO__P+
10	V	MA__P+
11	/Z	\
12	/B	\
13	/A	\
14	/W	SLO__N-
15	/V	MA__N-

OD1X4S servo drive wiring port description

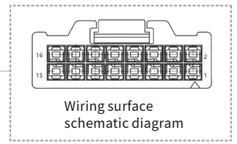
Digital signal input/output port **X1**



Wiring surface schematic diagram

针脚号	信号	描述
1	GND	Logic power input, motor with brake must be connected Voltage: 24VDC; Current: 1A Note: Both Pin1 and Pin15 are GND, there is no difference. Please be able to wiring nearby
15	GND	
2	24V+	
3	OUT2-	Digital signal output Maximum output current: 100mA
5	OUT2+	
7	OUT1-	
9	OUT1+	
11	AIN-	Analog input: ±10V Accuracy: 12 bits
13	AIN+	
17	OUT5-	The brake output needs to be connected to 24VDC externally, and the maximum driving current is 500mA
19	OUT5+	
4	DIR-	Input voltage: 3.3V to 24V Maximum frequency: 500KHz
6	DIR+	
8	PUL-	
10	PUL+	
12	In4	Digital signal input High level: 12.5VDC to 30VDC Low level: 0VDC to 5VDC Input impedance: 5KΩ Input frequency: <1KHz
14	In3	
16	In2	
18	In1	
20	COMI	Digital signal input common end

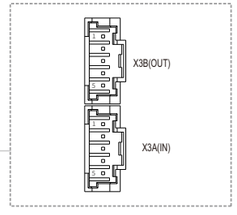
Motor encoder input interface **X2**



Wiring surface schematic diagram

Pin No.	Incremental encoder signal	Magnetoelectric encoder signal
1	PTC_IN	\
2	Shield	Shield
3	W	SLO_P+
4	/W	SLO_N-
5	V	MA_P+
6	/V	MA_N-
7	U	\
8	/U	\
9	Z	\
10	/Z	\
11	B	\
12	/B	\
13	A	\
14	/A	\
15	+5V	VDD
16	GND	GND

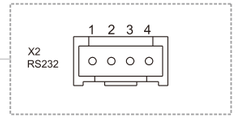
Bus communication interface **X3**



Pin No.	RS485	EtherCAT	CAN
1	RX+	RX+	\
2	RX-	RX-	CAN_H
3	TX-	TX+	CAN_L
4	TX+	TX-	\
5	GND	GND	GND

Note:
Kinco communication cable **OD-P5 - (5)** can be purchased

Communication interface RS232 **X4**

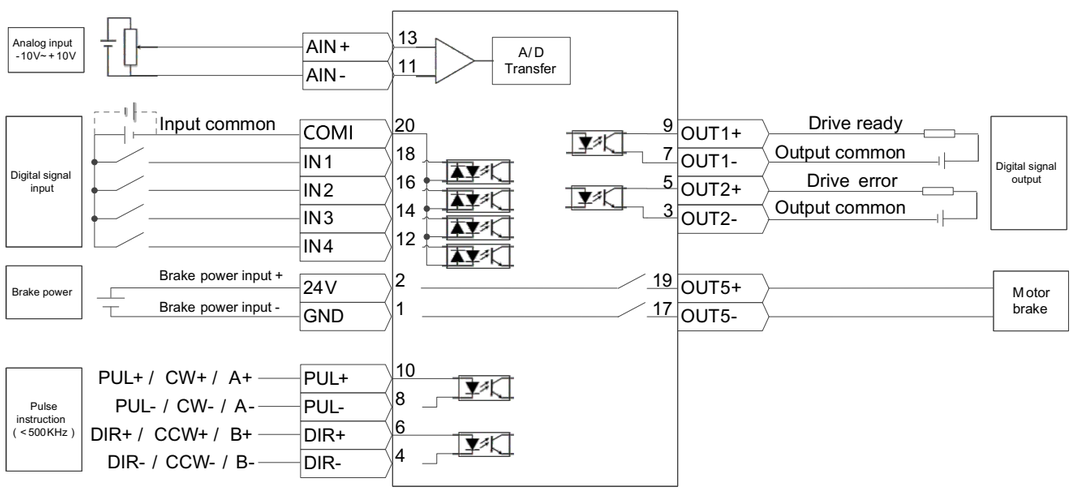


Pin No.	Signal
1	RX
2	TX
3	GND
4	GND

Note:
Kinco communication cable **OD124RS232-0.5m** can be purchased

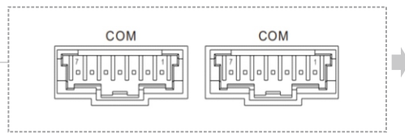
OD1X4S servo drive wiring port description

Input/Output Terminal Wiring Diagram (OD1X4S)



FD124S-AB-020-D2 drive wiring port description

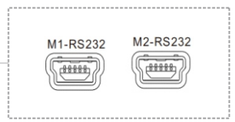
Bus communication interface



COM

Pin No.	Signal
1	485B
2	485A
3	CANL
4	CANH
5	PE
6	GND
7	+24V

Communication interface RS232

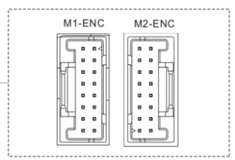


M1-RS232&M2-RS232

Pin No.	Signal
1	NC
2	RX
3	TX
4	NC
5	GND

Note: Customers can choose Kinco servo commissioning cable-MINIUSB, model PDC-USBM-1 (5)

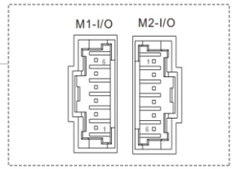
Motor encoder input interface



M1-ENC&M2-ENC

Pin No.	Incremental encoder signal	Magnetoelectric encoder signal
1	PTC_IN	\
2	Shield	Shield
3	W	SLO_P+
4	/W	SLO_N-
5	V	MA_P+
6	/V	MA_N-
7	U	\
8	/U	\
9	Z	\
10	/Z	\
11	B	\
12	/B	\
13	A	\
14	/A	\
15	+5V	VDD
16	GND	GND

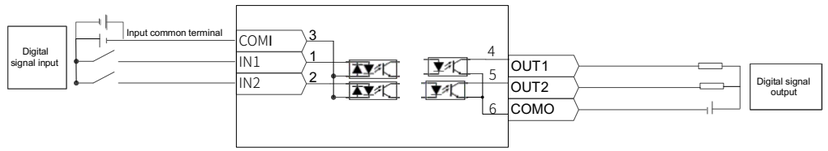
Digital signal input/output port



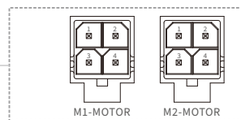
M1-I/O & M1-I/O

Pin No.	Signal
1	In1
2	In2
3	COMI
4	OUT1
5	OUT2
6	COMO

Input/output terminal M1-I/O&M1-I/O wiring diagram

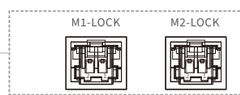


Motor power interface



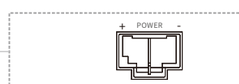
Pin No.	signal
1	U
2	V
3	W
4	PE

Motor brake interface



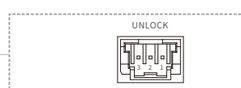
Pin No.	signal
1	+
2	-

Power interface



Pin No.	signal
1	Positive input terminal of power supply(+)
2	Negative input terminal of power supply(-)

External release brake interface

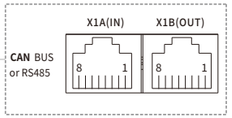


Pin No.	signal
1	-
2	+
3	blank

FD134S two-in-one servo drive description of servo drive wiring port

Bus communication interface

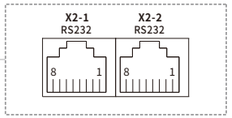
X1



Pin No.	RS485	CAN
1	RX	CAN_H
2	/RX	CAN_L
3	GND	GND
4	/TX	\
5	TX	\
6	\	\
7	\	\
8	\	\

Communication interface RS232

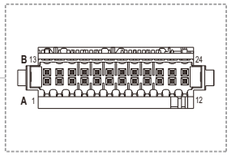
X2



Pin No.	Signal
1	\
2	\
3	TXD
4	GND
5	\
6	RXD
7	\
8	\

Digital signal input/output port

X3



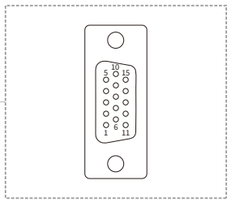
Drive 1			
A		B	
1	PUL+or 24+	13	COMI
2	PUL-or 24-	14	IN1
3	DIR+or NC	15	IN2
4	DIR-or NC	16	IN3
5	OUT1+	17	BR-
6	BR+	18	COMO

Drive 2			
A		B	
7	PUL+	19	COMI
8	PUL-	20	IN1
9	DIR+	21	IN2
10	DIR-	22	IN3
11	OUT1+	23	BR-
12	BR+	24	COMO

Note: Please refer to the X3 wiring diagramof FD1X4S for the wiring diagram of input and output terminals

Motor encoder input interface

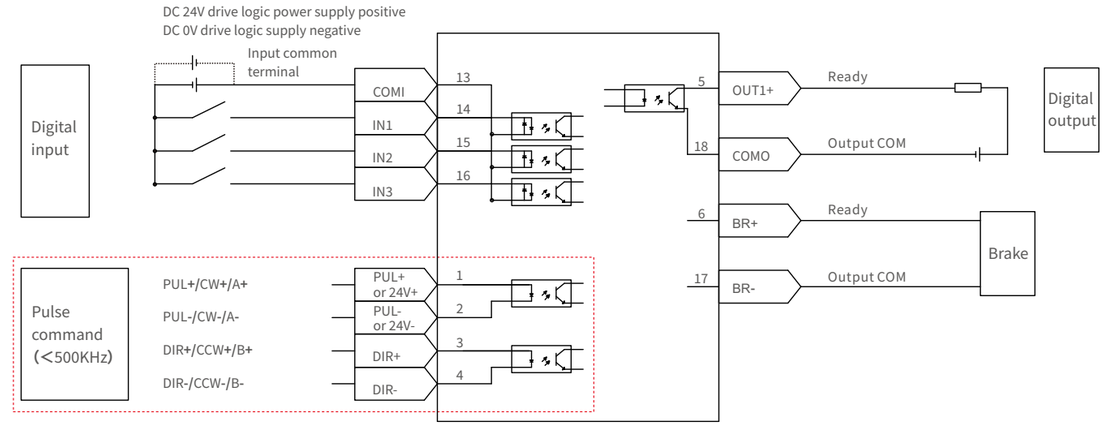
X4



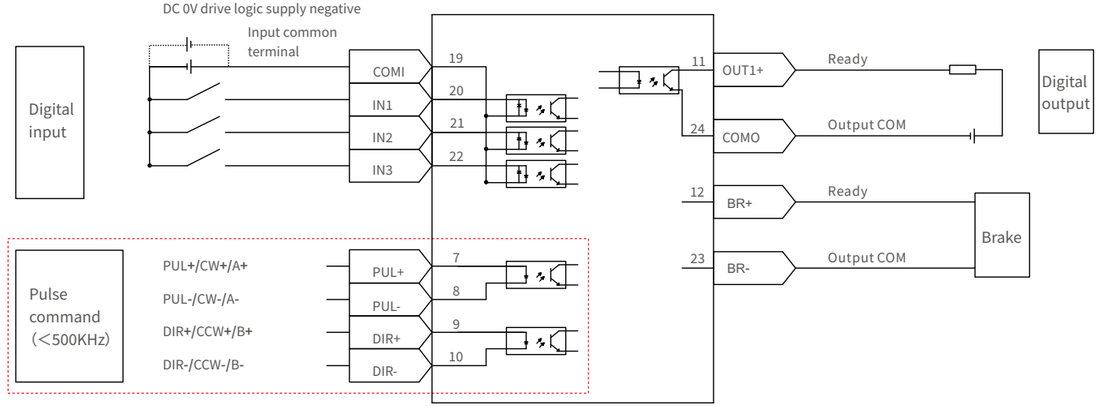
Pin No.	Incremental encoder signal	Communication magnetoelectric coder signal
1	+5V	VDD
2	GND	GND
3	\	\
4	U	\
5	/U	\
6	Z	\
7	B	\
8	A	\
9	W	SLO__P+
10	V	MA__P+
11	/Z	\
12	/B	\
13	/A	\
14	/W	SLO__N-
15	/V	MA__N-

FD134S two-in-one servo drive description of servo drive wiring port

FD134S two in one I/O Terminal X 3 wiring diagram



Drive 1

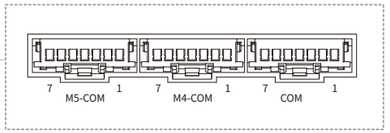


Drive 2

Note:
FD134S-CB-000-D2 don't support pulse control
FD134S-LB-000-D2 don't have 24V logic power input port
Drive 1、Drive 2 share a 24V logic power supply

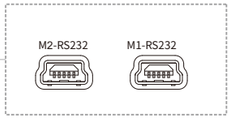
FD134S-CB-020-D2 drive wiring port description

Bus communication interface



Pin No.	Signal
1	485B
2	485A
3	CANL
4	CANH
5	PE
6	GND
7	+24V～60V

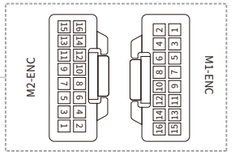
Communication interface RS232



Pin No.	Signal
1	NC
2	RX
3	TX
4	NC
5	GND

Note:
Customers can choose Kinco servo commissioning cable-MINIUSB, model **PDC-USBM-1 (5)**

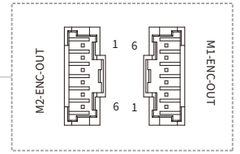
Motor encoder input interface



Pin No.	Incremental magnetoelectric encoder signal	Magnetoelectric encoder signal
1	GND	VDD
2	+5V	\
3	/A	\
4	A	\
5	/B	\
6	B	MA__P+
7	/Z	SLO__P+
8	Z	\
9	/U	GND
10	U	\
11	/V	\
12	U	\
13	/W	\
14	W	MA__N-
15	/	SLO__N-
16	Shield	Shield

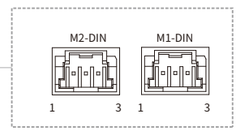
FD134S-CB-020-D2 drive wiring port description

Motor encoder output interface



Pin No.	Signal
1	B+
2	B-
3	/
4	/
5	A+
6	A-

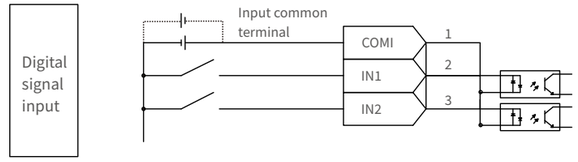
Digital signal input port



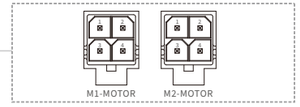
Pin No.	Signal
1	COMI
2	DI1
3	DI2

Note:
Kinco IO accessory kit: **FD134S-020-D2-IO** can be purchased

Input terminal M1-DIN/M2-DIN wiring diagram

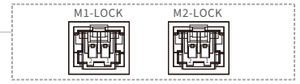


Motor power interface



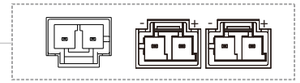
Pin No.	Signal
1	U
2	V
3	W
4	PE

Motor brake interface



Note: FD134S-CB-020-D2 brake interface has no polarity, so it is not distinguished

Power interface



Pin No.	Signal
1	power supply input positive end(+)
2	Power supply input negative end(-)

MD series integrated servo motor

Innovative and practical integrated design

Compact structure

The product integrates servo drive and low-voltage servo motor, which is smaller in size and saves equipment installation space.

High reliability

Eliminate the connection line between the motor and the drive, reduce equipment failures caused by connection problems, and reduce the equipment failure rate.

Lower cost

Save connecting cables and effectively reduce equipment cost.

MD series integrated servo motors naming rule

MD 60- 040 - D M A K - CA - 000

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①-Series name	MD：Integrated servo motor	⑤-EnCoder type	M：Magnetoelectric encoder
②-Flange	60：60x60(mm) 80：80x80(mm)	⑥-Brake	A：without brake B：with brake
③-Rate power	0020：20x10(W) 0040：40x10(W) 0075：75x10(W)	⑦-Outgoing shaft style	K：Keyed
④-Supply voltage	D：DC48V	⑧ Control mode	LA：RS232、RS485、pulse CA：RS232、CANopen、pulse EA：RS232、EtherCAT PA：RS232，Profinet
		⑨Software version number	000：Software version number

Note: The oil seal is an optional accessory, and it can be omitted if it is not necessary.

MD integrated servo motor technical prameter

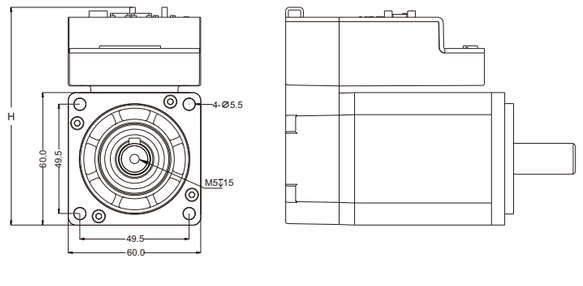
Model parameters		MD integrated servo motor		
		MD60-020-DM□K-■A-000	MD60-040-DM□K-■A-000	MD80-075-DM□K-■A-000
Power supply	Power	24VDC~60VDC	24VDC~60VDC	24VDC~60VDC
Current	Rated current (rms)	5Arms	10Arms	20Arms
	Peak current(PEAK)	21Ap	36Ap	80Ap
Brake holding torque T(Nm)		1.5	1.5	3.2
Feedback signal		Magnetoelectric encoder		
Energy consumption braking		Need for external braking resistor (depending on the operating conditions, mainly used in the case of rapid start/stop)		
Energy consumption brake voltage absorption point		DC73V ± 2V (default value, settable)		
Overvoltage alarm voltage		DC83V ±2V		
Undervoltage alarm voltage		DC18V ±2V		
Cooling method		Natural cooling		
Input specification		4-channel digital input,with COM1 terminal, high level:12.5~30VDC,low level:0~5VDC, max frequency:1KHZ, input impedance:5KΩ		
Output specification		2-channel digital output ,common COM0 terminal, Maximum output current: 100mA		
Impulsive control		Pulse+Direction、CCW+CW、Phase A+Phase B (3.3~24V) The input voltage：3.3V～24V; Maximum frequency：500KHz (note:MD -060-DMK-EA-000 don't support this function)		
Brake		Built-in brake power supply		
RS232		The default baud rate is 38400bps, and the maximum baud rate is 115.2Kbps. The host computer Kincoservo+		
RS485		Maximum support 115.2Kbps baud rate, can use Modbus RTU protocol to communicate with the controller		
CAN BUS		Maximum support 1Mbps baud rate, can use CANopen protocol to communicate with the controller		
EtherCAT		Support CoE(CiA402 protocol)and CSP/CSV/PP/PV/PT/HM mode，communication speed 100M		
Profinet		Support No. 1 message, No. 3 message, No. 111 message, process object, aperiodic data read and write, etc.		
Rated Speed nN(rpm)		3000		
Rated Torque Tn(Nm)		0.64	1.27	2.39
Rotational inertia Jm (Kg·cm²)		0.214	0.405	1.087
		0.218 (with brake)	0.409 (with brake)	1.099 (with brake)
Operation environment	Operation temperature	0～40℃		
	Storage temperature	-10℃～70℃		
	Humidity(non-condensing)	Below 90%RH		
	Protection level	Shaft end IP54, protection level IP20		
	Installation environment	Dust-free, dry and lockable (such as electrical cabinets)		
	Installation mode	Vertical or horizontal installation		
	Height	The rated working altitude is below 1000m.When the working altitude is above 1000m, every 100 meters of ascent is required, and the maximum working altitude is 4000 meters above sea level		
	Atmospheric pressure	86kpa~106kpa		

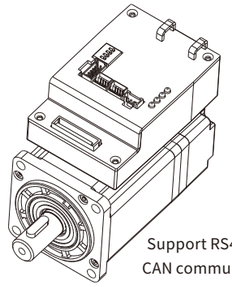
Note: ■=L: communication port RS232, RS485, pulse
■=C: Communication port RS232, CANopen, pulse
■=E: Communication port RS232, EtherCAT
■=P: Communication port RS232, Profinet

□=A: without brake
□=B: with brake

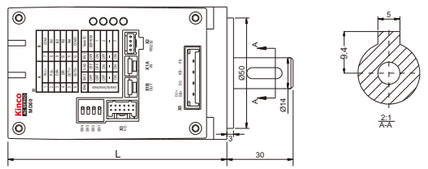
MD series mechanical dimension diagram

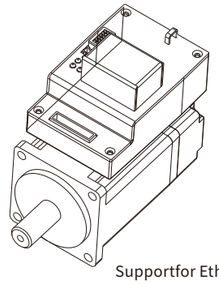
MD60 mechanical dimension diagram (Unit:mm)





Support RS485 and
CAN communication



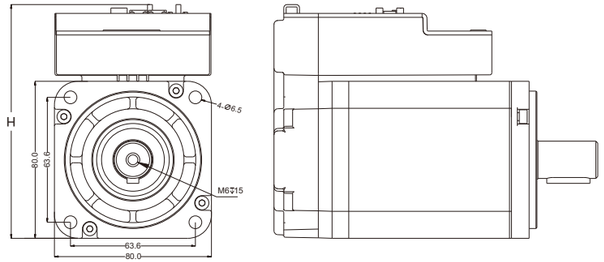


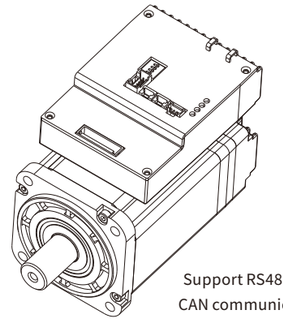
Supportfor EtherCAT
and Profinet communication

MD60 series models	Brake	Weight (KG)	Machine height H (mm)	Machine dimension L (mm)
MD60-020-DMAK-LA-000		1.2	98.6	99.2±1.5
MD60-020-DMAK-CA-000				
MD60-020-DMAK-EA-000		1.25	113.1	
MD60-020-DMAK-PA-000				
MD60-020-DMBK-LA-000	✓	1.6	98.6	129.2±1.5
MD60-020-DMBK-CA-000				
MD60-020-DMBK-EA-000		1.65	113.1	
MD60-020-DMBK-PA-000				
MD60-040-DMAK-LA-000		1.6	98.6	125.2±1.5
MD60-040-DMAK-CA-000				
MD60-040-DMAK-EA-000		1.65	113.1	
MD60-040-DMAK-PA-000				
MD60-040-DMBK-LA-000	✓	2	98.6	155.2±1.5
MD60-040-DMBK-CA-000				
MD60-040-DMBK-EA-000		2.05	113.1	
MD60-040-DMBK-PA-000				

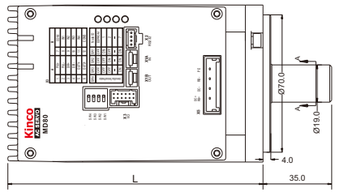
MD series mechanical dimension diagram

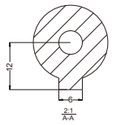
MD80 mechanical dimension diagram (Unit:mm)

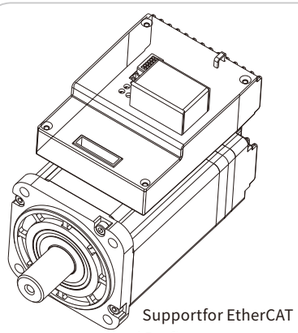




Support RS485 and
CAN communication





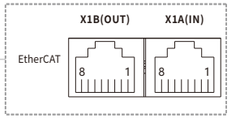


Supportfor EtherCAT
and Profinet communication

MD80 series models	Brake	Weight (KG)	Machine height H (mm)	Machine dimension L (mm)
MD80-075-DMAK-LA-000		2.9	119.1	130±1.5
MD80-075-DMAK-CA-000				
MD80-075-DMAK-EA-000		2.95	133.6	
MD80-075-DMAK-PA-000				
MD80-075-DMBK-LA-000	✓	3.5	119.1	164.2±1.5
MD80-075-DMBK-CA-000				
MD80-075-DMBK-EA-000		3.55	133.6	
MD80-075-DMBK-PA-000				

MD series terminal description

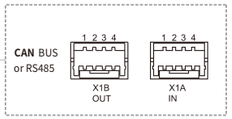
Bus communication interface **X1**



Pin No.	EtherCAT
1	TD+
2	TD-
3	RD+
4	\
5	\
6	RD-
7	\
8	\

Note: Applicable to MD series models supporting EtherCAT and Profinet communication

Bus communication interface **X1**

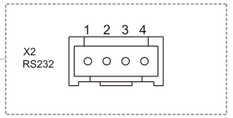


Pin No.	CAN	RS485
1	GND	GND
2	GND	GND
3	CAN_L	485+
4	CAN_H	485-

Note: Applicable to MD series models supporting RS485 and CAN communication

Note:Kinco communication cable: **MD-P4-(8)** can be purchased

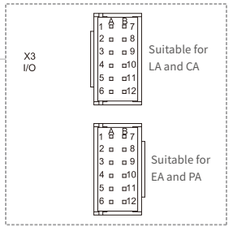
RS232 communication port **X2**



Pin No.	Signal
1	GND
2	GND
3	TX
4	RX

Note:Kinco communication cable: **OD124RS232-0.5m** can be purchased

Digital signal input/output port **X3**



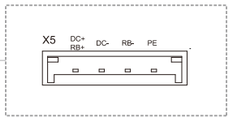
Kinco IO accessory kit can be purchased: **MD-IO-12P**

A		B	
Pin No.	Signal	Pin No.	Signal
1	PUL+	7	COMI
2	PUL-	8	IN1
3	DIR+	9	IN2
4	DIR-	10	IN3
5	OUT1+	11	IN4
6	OUT2+	12	COMO

Note : MD □□□□□□□□ - DM □ K-EA-000 and MD □□□□□□□□ - DM □ K-PA-000 do not support pulse function, Pins 1, 2, 3 and 4 are empty, and the brake models 1, 2, 3, 4 and 6 are empty

X3	PUL+、PUL-、DIR+、DIR-	Pulse signal input terminal Input voltage: 3.3V~24V Maximum frequency: 500KHz
	OUT1+、OUT2+、COMO	Digital signal output terminal Maximum output current: 100mA
	IN1、IN2、IN3、IN4、COMI	Digital signal input terminal High level: 12.5VDC~30VDC Low level: 0VDC~5VDC Input frequency:<1KHz

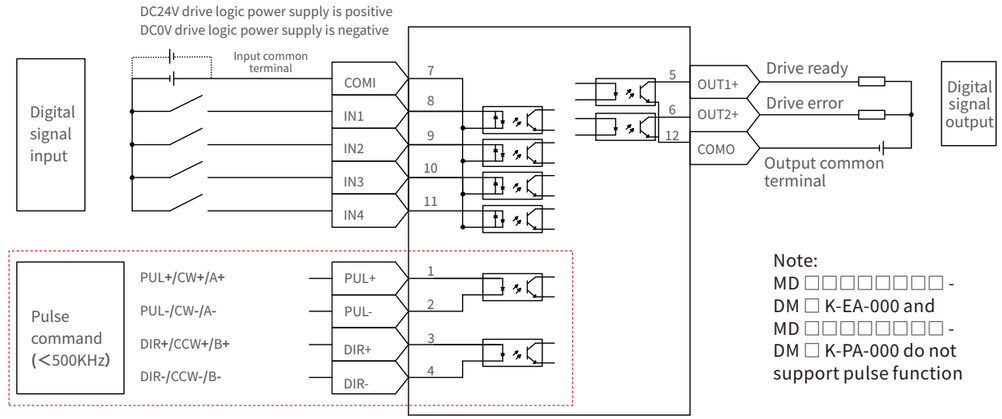
Power supply external braking resistor **X5**



X5

DC+、DC-	DC power input (24-70V)
PE	Grounding
RB+、RB-	External braking resistor

Input and output terminal wiring diagram (MD series)



Note:
MD □□□□□□□□ - DM □ K-EA-000 and MD □□□□□□□□ - DM □ K-PA-000 do not support pulse function

A new generation of G2 series servo motor

New electromagnetic design

The design adopts 12 slots and 10 poles, with small cogging torque and low torque ripple, which is conducive to reducing vibration during motor operation and making torque output more stable.

New structure and short fuselage

The fuselage structure is redesigned and the length of the fuselage is shortened, which can save more installation space for customer equipment and reduce equipment size.

The latest magnetoelectric coding technology

The independently designed magnetoelectric encoder has good shock resistance and high cost performance.

Insulation class F

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

Model description / model list

SMC 60 S - 0040 - 30 M A K -5 D S U

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

①-Series name	SMC：SMC series
②-Flange	40：40x40(mm) 60：60x60(mm) 80：80x80(mm) 130：130x130(mm)
③-Inertia type	S：Small inertia D：Medium inertia
④-Rated power	0005：5x10(W) 0010：10x10(W) 0020：20x10(W) 0040：40x10(W) ..... 0300：300x10(W)
⑤-Rated rotation speed	20：20x100(rpm) 30：30x100(rpm)
⑥-Encoder type	M:Singleturn communication magnetoelectric encoder W:2500P/R incremental magnetoelectric encoder
⑦-Brake	A：without brake B：with brake
⑧-Output shaft style	K：With key
⑨-Number of polar pairs	4:4 pole pairs 5:5 pole pairs
⑩-Supply voltage	D： DC48V
⑪-Motor version number	K：K version S：S version C： Ultra short version
⑫-Motor outlet mode	H：Three rows of 15-pin metal shell encoder socket U：Communication encoder socket

Note: The oil seal is an optional accessory, and it can be omitted if it is not necessary.

Low-voltage servo motor specification model table (DC48V)

Flange dimension (mm)	Servo motor model	Encoder type	Rotational inertia Jm(Kg·cm²)	Rated power Pn(W)	Rated torque Tn(Nm)	Rated current In(A)	Rated rotation speed nN(rpm)
40x40	SMC40S-0005-30M□K-5DSU	Magnetoelectric encoder	0.018 (0.021)	50	0.16	1.5	3000
	SMC40S-0010-30M□K-5DSU	Magnetoelectric encoder	0.033 (0.046)	100	0.32	3.2	
60x60	SMC60S-0020-30M□K-5DSU	Magnetoelectric encoder	0.14(0.144)	200	0.64	5.7	
	SMC60S-0020-30W□K-5DCH	2500P/Rincremental magnetoelectric encoder	0.11(0.114)				
	SMC60S-0040-30M□K-5DSU	Magnetoelectric encoder	0.26(0.264)	400	1.27	10.6	
	SMC60S-0040-30W□K-5DCH	2500P/Rincremental magnetoelectric encoder	0.26(0.264)				
	SMC60S-0060-30M□K-5DSU	Magnetoelectric encoder	0.403(0.407)	600	1.91	16.5	
80x80	SMC80S-0075-30M□K-5DSU	Magnetoelectric encoder	1.027(1.099)	750	2.39	19.9	
	SMC80S-0075-30W□K-5DCH	2500P/Rincremental magnetoelectric encoder	0.77(0.84)				
	SMC80S-0100-30M□K-5DSU	Magnetoelectric encoder	1.36(1.41)	1000	3.18	26.4	
	SMC80S-0100-30W□K-5DCH	2500P/Rincremental magnetoelectric encoder	1.027(1.099)				
130x130	SMC130D-0150-30W□K-4DSH-2	2500P/Rincremental magnetoelectric encoder	11.5(11.5)	1500	5	42.4	
	SMC130D-0250-30W□K-4DSH-2		17.1(17.1)	2500	7.96	61	
	SMC130D-0300-30W□K-4DSH-2		22.6(22.6)	3000	9.55	72	
	SMC130D-0300-20W□K-4DSH-2		35.9 (35.9	3000	14.3	77.7	2000

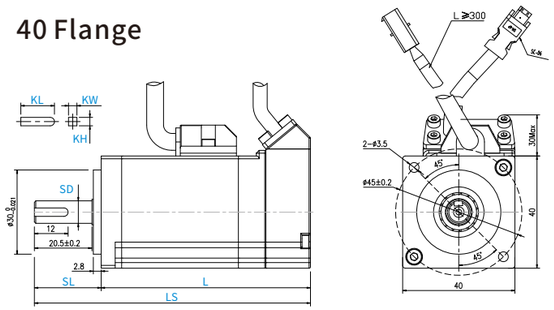
Note 1: Operating environment
Temperature：-20~40℃(no freezing)
Humidity: below 90%RH (no condensation)
Environment：keep awayfrom corrosion, flammable gases, oil droplets, dust
Altitude: 1000~4000m,every100mincrease, power decreases by 1.5%
Protection class:
(1) body IP65, shaft end (without oil seal) IP54 Shaft end installation oil seal IP65
(2) for oil sealinstallation, please refer to the productinstruction manual
Energy efficiency class: class 2

Note 2: □=A:Without brake
□=B: With brake

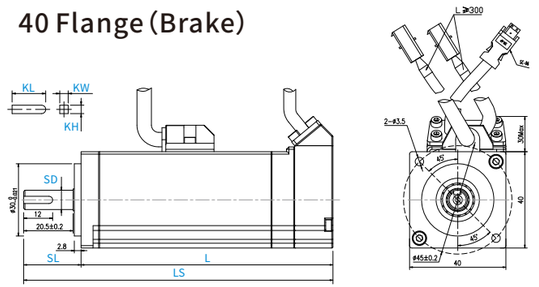
Note 3: The values in parentheses in the moment of inertia column are the values of the moment of inertia column ofthe brake motor

Dimension drawing of G2 series servo motors（short body, DC48V)

40 Flange

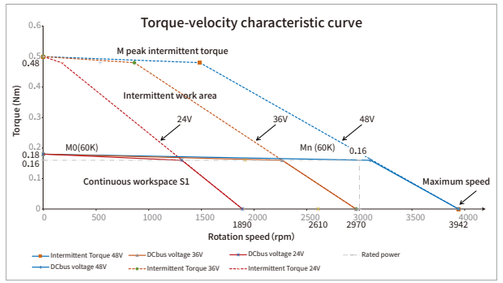


40 Flange (Brake)

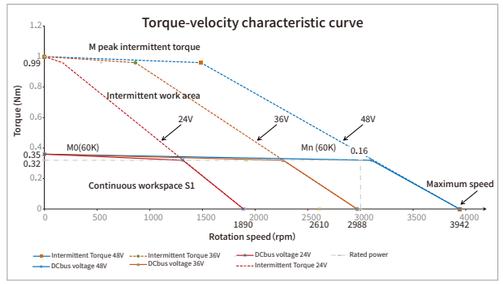


Flange dimension (mm)	Servo motor	Brake	Weight (KG)	Overall dimension (mm)		Shaft dimension (mm)			Key dimension (mm)		
				LS	L	SL	SD	Screw hole x depth	KL	KW	KH
40x40	SMC40S-0005-30MAK-5DSU		0.4	98.4±1.5	74.6±1.5	23.8±0.8	8	M3x6	12	3	3
	SMC40S-0005-30MBK-5DSU	✓	0.6	128.4±1.5	104.6±1.5						
	SMC40S-0010-30MAK-5DSU		0.57	120.4±1.5	96.6±1.5						
	SMC40S-0010-30MBK-5DSU	✓	0.77	150.4±1.5	126.6±1.5						

50W

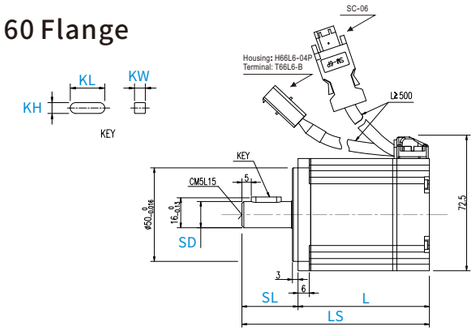


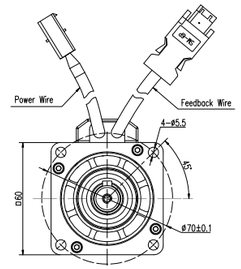
100W



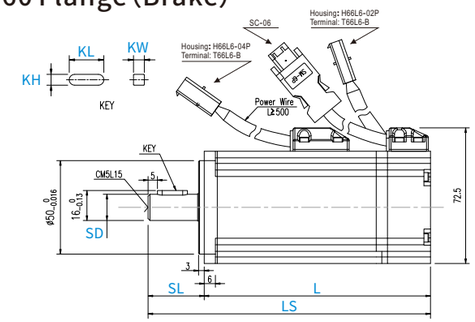
Dimension drawing of G2 series servo motors（short body, DC48V)

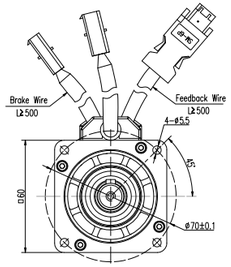
60 Flange

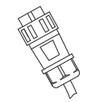




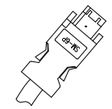
60 Flange (Brake)







（SP connector）
600W servo motor power aviation socket

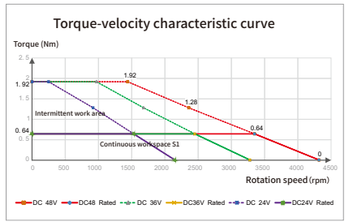


（1394 connector）
Communication encoder socket

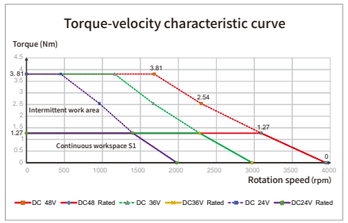
Three rows of 15-pin
metal case encoder sockets

Flange dimension (mm)	Servo motor	Brake	Weight (KG)	Overall dimension (mm)		Shaft dimension (mm)			Key dimension (mm)		
				LS	L	SL	SD	Screw hole x depth	KL	KW	KH
60x60	SMC60S-0020-30MAK-5DSU		0.9	105±1.5	75±1.5	30±1	14	M5x15	16	5	5
	SMC60S-0020-30WAK-5DCH		0.6	81.5±1.5	51.5±1.5						
	SMC60S-0020-30MBK-5DSU	✓	1.2	142.5±1.5	112.5±1.5						
	SMC60S-0020-30WBK-5DCH		1.2	114±1.5	84±1.5						
	SMC60S-0040-30MAK-5DSU		1.2	127±1.5	97±1.5						
	SMC60S-0040-30WAK-5DCH		0.9	101.5±1.5	71.5±1.5						
	SMC60S-0040-30MBK-5DSU	✓	1.6	164.5±1.5	134.5±1.5						
	SMC60S-0040-30WBK-5DCH		1.4	134±1.5	104±1.5						
	SMC60S-0060-30MAK-5DSU		1.9	167.5±1.5	132.5±1.5						
	SMC60S-0060-30MBK-5DSU	✓	2.3	197.5±1.5	167.5±1.5						

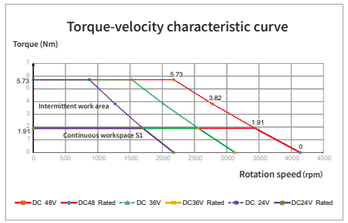
200W



400W

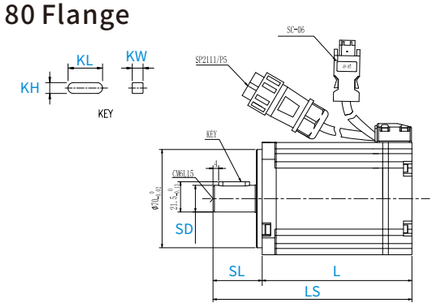


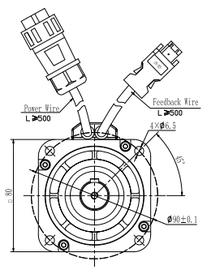
600W

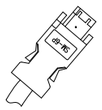


Dimension drawing of G2 series servo motors (short body, DC48V)

80 Flange



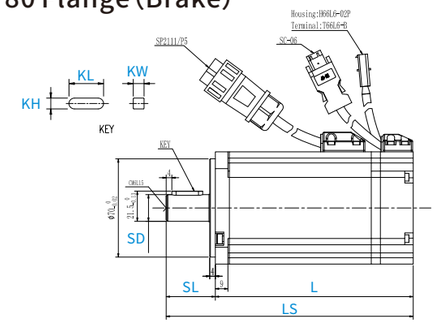


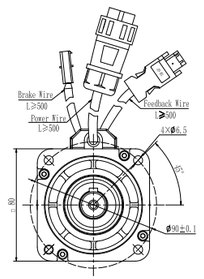


(1394 connector)
Communication encoder socket

Three rows of 15-pin
metal case encoder sockets

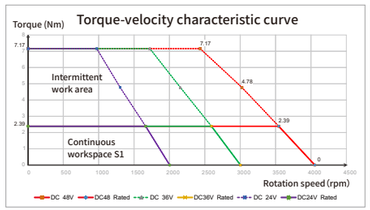
80 Flange (Brake)



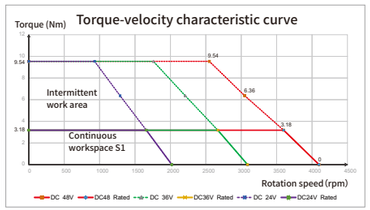


Flange dimension (mm)	Servo motor	Brake	Weight (KG)	Overall dimension (mm)		Shaft dimension (mm)			Key dimension (mm)		
				LS	L	SL	SD	Screw hole x depth	KL	KW	KH
80x80	SMC80S-0075-30MAK-5DSU		2.3	141.7±1.5	106.7±1.5	35±1	19	M6x15	22	6	6
	SMC80S-0075-30WAK-5DCH		1.8	118.5±1.5	83.5±1.5						
	SMC80S-0075-30MBK-5DSU	✓	3	176±1.5	141±1.5						
	SMC80S-0075-30WBK-5DCH		2.9	151.9±1.5	116.9±1.5						
	SMC80S-0100-30MAK-5DSU		2.8	157.7±1.5	122.7±1.5						
	SMC80S-0100-30WAK-5DCH		2.2	130.5±1.5	95.5±1.5						
	SMC80S-0100-30MBK-5DSU	✓	3.3	192±1.5	157±1.5						
	SMC80S-0100-30WBK-5DCH		3	163.9±1.5	128.9±1.5						

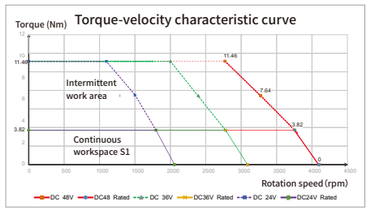
750W



1000W

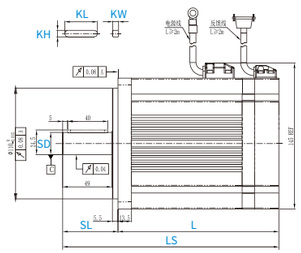


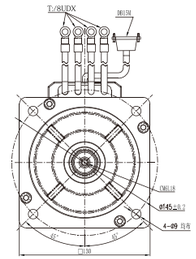
1200W



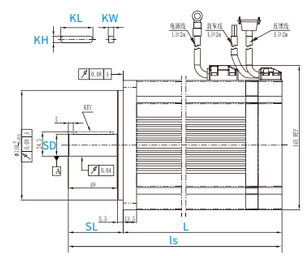
Dimension drawing of 130 series servo motors (DC48V incremental photoelectric encoder)

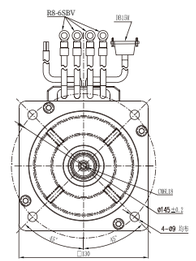
130 Flange (incremental magnetoelectric encoder)





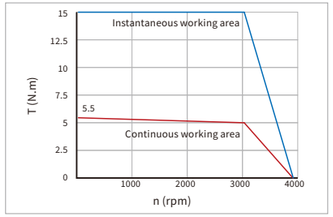
130 Flange (incremental magnetoelectric encoder)(brake)



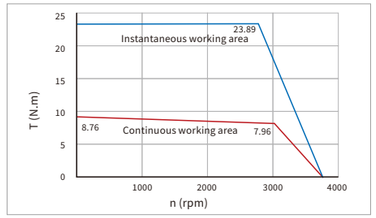


Flange dimension (mm)	Servo motor	Brake	Weight (KG)	Overall dimension (mm)		Shaft dimension (mm)			Key dimension (mm)		
				LS	L	SL	SD	Screw hole x depth	KL	KW	KH
130x130	SMC130D-0150-30WAK-4DSH-2		6.1	195±1.5	140±1.5	55±1	22	M6x18	40	6	6
	SMC130D-0150-30WBK-4DSH-2	✓	8	211±1.5	156±1.5						
	SMC130D-0250-30WAK-4DSH-2		7.6	215±1.5	160±1.5						
	SMC130D-0250-30WBK-4DSH-2	✓	9.6	231±1.5	176±1.5						
	SMC130D-0300-30WAK-4DSH-2		9	235±1.5	180±1.5						
	SMC130D-0300-30WBK-4DSH-2	✓	11	251±1.5	196±1.5						
	SMC130D-0300-20WAK-4DSH-2		11.9	275±1.5	220±1.5						
	SMC130D-0300-20WBK-4DSH-2	✓	14.3	291±1.5	236±1.5						

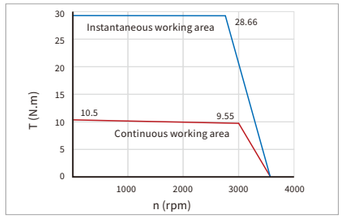
1.5kW



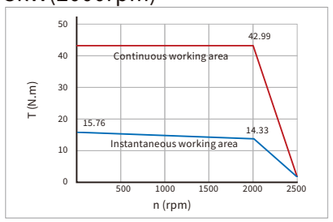
2.5kW



3kW(3000rpm)



3kW(2000rpm)



Naming rules for motor cables

Power cable : MOT F - 005 - 03 - KL - D
① ② ③ ④ ⑤ ⑥

①- Cable function type	MOT：Motor power cable	④-Cable length	(5)：0.5 m 01：1 m 02：2 m 03：3 m
②- Cable type	F：The flexible cable Empty：Ordinary cable	⑤-Motor outlet type	KL：4PIN power plug KC5：Aviation socket
③-Rated current	005：5A 008：8A 020：20A 030：30A 040：40A	⑥-Connector types	D：DC servo standard connector SP：SP21 series common aviation plugs B：brake - power integrated cable Empty: Ordinary cable

Encoder cable: ENC H G F - 03 - G U
① ② ③ ④ ⑤ ⑥ ⑦

①-Cable function type	ENC：Motor encoder wire	⑤-Cable length	(5)：0.5 m 01：1 m 02：2 m 03：3 m
②-Drive encoder interface type	H：Three rows of 15 pin connector D：1394 connector O：Compact quick lock connector	⑥-Conductor type	K：16 core G：6 core
③-Drive interface definition	A：Incremental encoder G：Communication encoder	⑦-Type of motor end encoder connector	U：1394 connector C0：HFO series common air connector H：Three rows of 15-pin D-Sub encoder connector
④-Cable type	F：The flexible cable Empty：Ordinary cable		

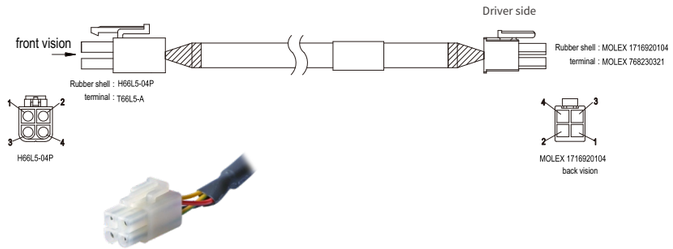
Brake cable: BRA F - 03 - KL
① ② ③ ④

①-Cable function type	BRA：Motor brake cable	③-Cable length	(5)：0.5 m 01：1 m 02：2 m 03：3 m
②-Cable type	F：The flexible cable Empty：Ordinary cable	④-Connector types	KL：2PIN brake connector

Cable(encoder cable)

MOTF-(2)-M

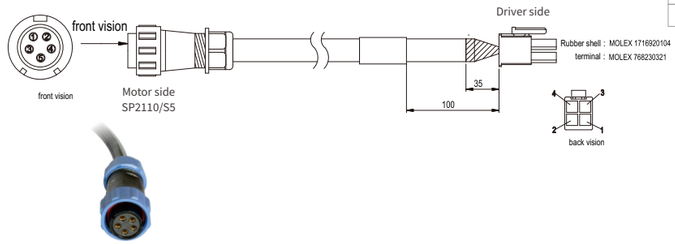
Wire spec：4x16AWG,drag chain500 million times
16AWG crosssectional area1.318mm²



MOTF-(2)-M			
Signal	H66L5-04P	Color	MOLEX 1716920104
U	PIN1	white	PIN1
W	PIN2	black	PIN2
V	PIN3	red	PIN3
PE	PIN4	Yellowgreen+Shielding	PIN4

MOTF-020-LL-M

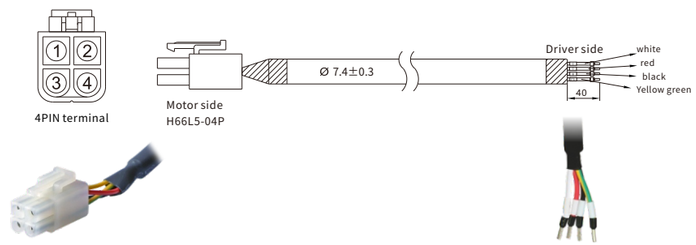
Wire spec:4Cx18AWG(41/0.16T)-PVC 1
8AWG crosssectional area0.8107mm²



MOTF-020-LL-M			
Signal	SP2110/S5	Color	MOLEX 1716920104
U	PIN1	white	PIN1
W	PIN2	black	PIN2
V	PIN3	red	PIN3
PE	PIN4	Yellowgreen+Shielding	PIN4

MOT-005-LL-KL-D

Wire spec:4Cx18AWG(41/0.16T)-PVC 1
8AWG crosssectional area0.8107mm²



MOT-005-LL-KL-D		
Signal	H66L5-04P	Color
U	PIN1	white
V	PIN2	red
W	PIN3	black
PE	PIN4	Yellowgreen+Shielding

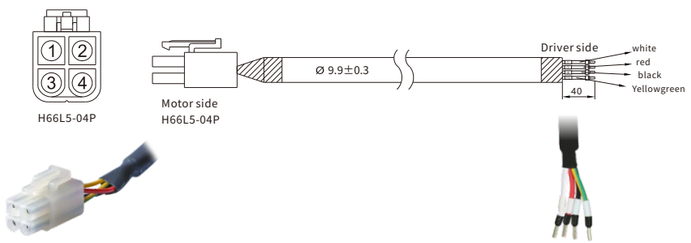
Correspondingaccessory: MOT-KL

Correspondingflexible cableMOTF-005-LL-KL-D
Wire spec:4Cx18AWG(7/18/0.10T)500 million times
Wire diametе:7.3±0.5mm

Cable(power cable)

MOT-008-LL-KL-D

Wire spec:4x16AWG
16AWG crosssectional area1.318mm²



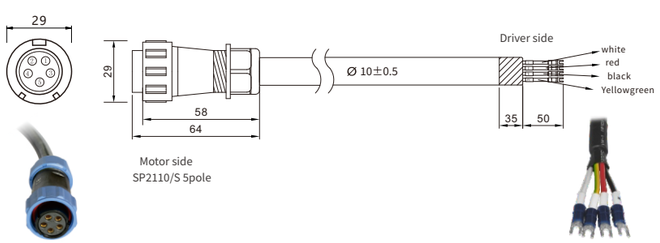
MOT-008-LL-KL-D		
Signal	H66L5-04P	Color
U	PIN1	white
W	PIN2	red
V	PIN3	black
PE	PIN4	Yellowgreen+Shielding

Correspondingaccessory: MOT-KL

Correspondingflexible cable：MOTF-008-LL-KL-D
Wire spec:4x1.5mm², BLACK
Wire diamete:9.3+0.5mm

MOT-020-LL-KL-SP

Wire spec：UL2586 4x13AWG standard cable
13AWG crosssectional area2.627mm²



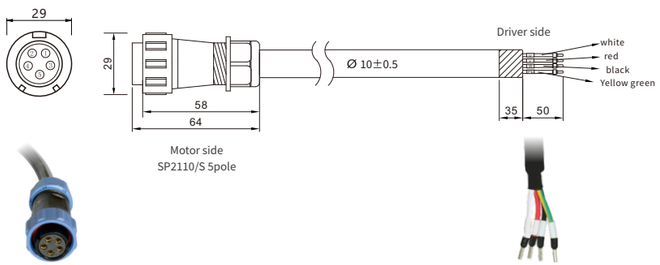
MOT-020-LL-KL-SP		
Signal	SP2110/S 5pole	Color
U	PIN1	white
V	PIN2	red
W	PIN3	black
PE+Shielding	PIN4	Yellowgreen
NC	PIN5	NC

Correspondingaccessory：MOT-020-KL-SP

Correspondingflexible cable：MOTF-020-LL-KL-SP
Wire spec：UL2586 4x13AWG flexibledrag chaincable
Wire diamete：10±0.5mm

MOT-020-LL-KL-SP-1

Wire spec：UL2586 4x13AWG standard cable
13AWGcross sectional area2.627mm²



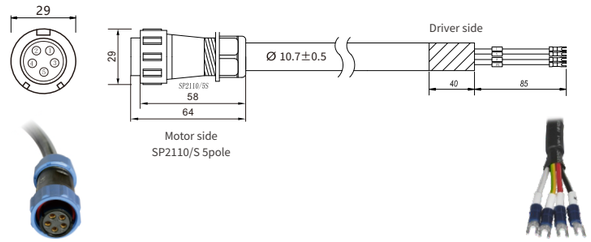
MOT-020-LL-KL-SP-1		
Signal	SP2110/S 5pole	Color
U	PIN1	white
V	PIN2	red
W	PIN3	black
PE+Shielding	PIN4	Yellowgreen
NC	PIN5	NC

Correspondingaccessory：MOT-020-KL-SP
Correspondingflexible cable：MOTF-020-LL-KL-SP-1
Wire spec：UL2586 4x13AWG flexibledrag chaincable
Wire diamete：10±0.5mm

Cable (power cable/encoder cable)

MOTF-030-LL-KL-SP

Wire spec:UL22614x12AWG(500 million times)
12AWG crosssectional area3.332mm²

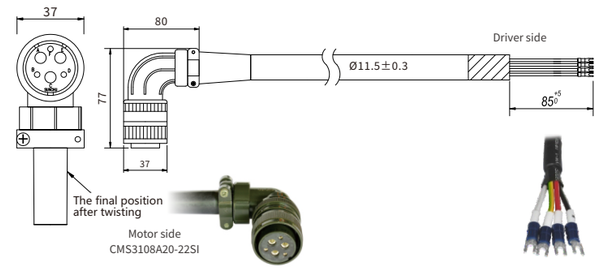


MOTF-030-LL-KL-SP		
Signal	SP2110/S 5pole	Color
U	PIN1	white
V	PIN2	red
W	PIN3	black
PE+Shielding	PIN4	Yellowgreen
NC	PIN5	NC

Correspondingaccessory：MOT-030-KL-SP

MOT-040-LL-KC5

Wire spec::3cx10AWG+3X19AGW
10AWG crosssectional area5.26mm²
19AWG crosssectional area0.5667mm²

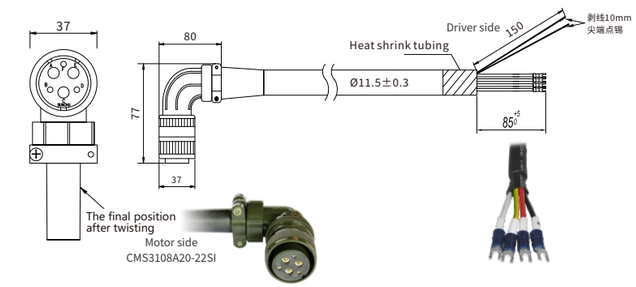


MOT-040-LL-KC5		
Signal	CMS3108A20-22SI	Color
U	PINA	white
V	PINE	red
W	PINC	black
PE	PINF	Yellowgreen
Shielding	Metal ring	Shielding wire

Correspondingaccessory：MOT-KC5-B

MOT-040-LL-KC5-B

Wire spec::3cx10AWG+3X19AGW
10AWG crosssectional area5.26mm²
19AWG crosssectional area0.5667mm²



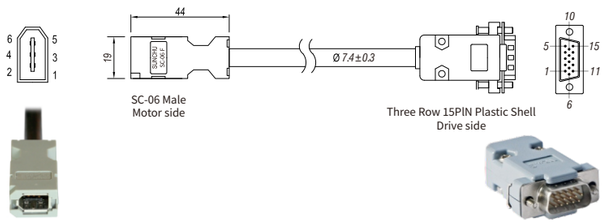
MOT-040-LL-KC5-B		
Signal	CMS3108A20-22SI	Color
U	PINA	white
V	PINE	red
W	PINC	black
PE	PINF	Yellowgreen
BR+	PINB	red
BR-	PIND	blue
Shielding	Metal ring	Shielding wire

Correspondingaccessory：MOT-KC5-B

Cable (encoder cable)

ENCHG-LL-GU

Wire spec:1P*20AWG(26/0.16T)+2P*24AWG(11/0.16T)(0D7.4mm)
20AWG crosssectional area0.5189mm²
24AWG crosssectional area0.2047mm²



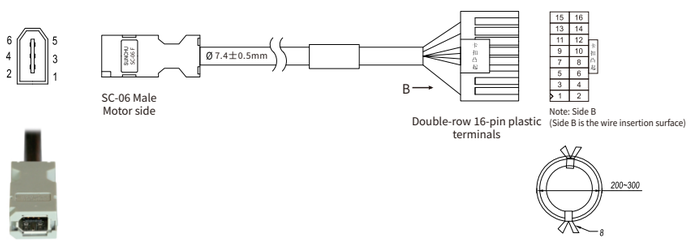
ENCHG-LL-GU			
Signal	SC-06 M	Color	15PIN DB F
VDD	PIN1	red	PIN1
GND	PIN2	black	PIN2
MA_P+	PIN3	brown	PIN10
MA_N-	PIN4	blue	PIN15
SLO_P+	PIN5	yellow	PIN9
SLO_N-	PIN6	green	PIN14
Shielding	Shell	Shielding wire	Shell

Correspondingaccessory:ENCHG-GU

Correspondingflexible cableENCHGF-LL-GU
Wire spec:
1P*20AWG(72/0.10T)+2P*24AWG(32/0.10T)500 million times(0D7.4mm)
Wire diamete:7.4±0.5mm

ENCOG-LL-GU

Wire spec: 3×2×0.2mm²



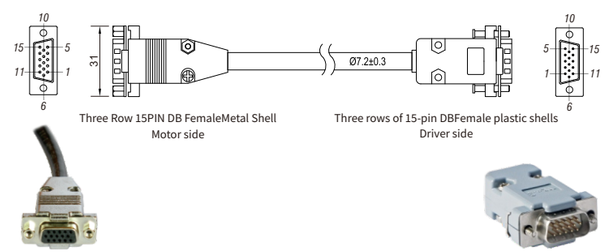
ENCOG-LL-GU			
Signal	SC-06 M	Color	16PIN
VDD	PIN1	red	PIN15
GND	PIN2	black	PIN16
MA_P+	PIN3	brown	PIN5
MA_N-	PIN4	blue	PIN6
SLO_P+	PIN5	yellow	PIN3
SLO_N-	PIN6	green	PIN4
Shielding	Shell	Shielding wire	PIN2

Correspondingaccessory:ENCOG-GU

Correspondingflexible cableENCOGF-LL-GU
Wire spec:
1Px22AWG+2Px26AWG,Shielding,drag chain500 million times
Wire diamete:6.5±0.5mm

ENCHA-LL-KH

Wire spec:24AWG/1P+28AWG/7P+AB 1061
24AWG crosssectional area0.2047mm²
28AWG crosssectional area0.0804mm²



ENCHA-LL-KH			
Signal	15PIN DB M	Color	15PIN DB F
+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	bluewhite	PIN14
Shielding	Shell	Shielding wire	Shell

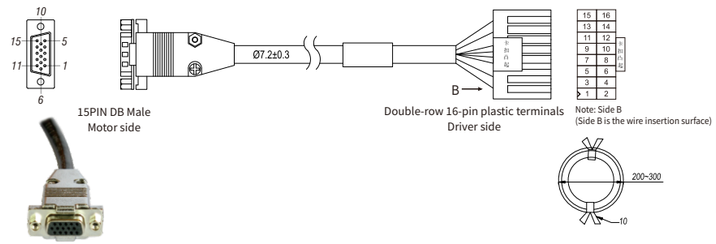
Correspondingaccessory:ENCHA-KH

Correspondingflexible cable :ENCHAF-LL-KH
Wire spec:2*24AWG+7*2*26AWGBLACK
Wire diamete:10+0.5mm

Cable(encoder cable/brake cable)

ENCOA-LL-KH

Wire spec:24AWG/1P+28AWG/7P+AB 1061
24AWG crosssectional area0.2047mm²
28AWG crosssectional area0.0804mm²



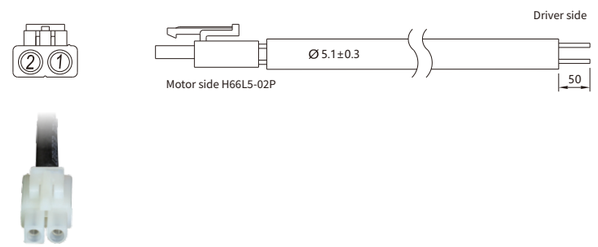
ENCOA-LL-KH			
Signal	15PIN DB M	Color	16PIN
+5V	PIN1	red(thick)	PIN15
A	PIN8	orange	PIN13
B	PIN7	yellow	PIN11
Z	PIN6	green	PIN9
U	PIN4	brown	PIN7
V	PIN10	purple	PIN5
W	PIN9	blue	PIN3
GND	PIN2	black (thick)	PIN16
/A	PIN13	orangewhite	PIN14
/B	PIN12	yellowwhite	PIN12
/Z	PIN11	greenwhite	PIN10
/U	PIN5	brownwhite	PIN8
/V	PIN15	purplewhite	PIN6
/W	PIN14	bluewhite	PIN4
Shielding	Shell	Shielding	PIN2

Correspondingaccessory:ENCOA-KH

Corresponding flexible cable ENCOAF-LL-KH
Wire spec:2*24AWG+7*2*26AWGBLACK
Wire diamete:10+0.5mm

BRA-LL-KL

Wire spec:2Cx20AWG
20AWG crosssectional area0.5189mm²



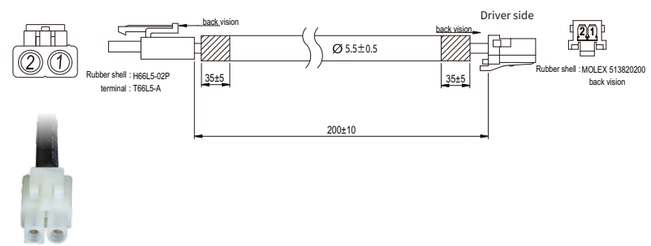
BRA-LL-KL		
Signal	H66L5-02P	Color
BR+	PIN1	red
BR-	PIN2	blue

Correspondingaccessory:BRA-KL

Corresponding flexible cable: BRAF-LL-KL
Wire spec:2C*20AWG(72/0.10T)500 million times
Wire diamete:5.5±0.5mm

BRAF-(2)-M

Wire spec:2X20AWG,drag chain500 million times
20AWG crosssectional area0.5189mm²



BRAF-(2)-M			
Signal	H66L5-02P	Color	MOLEX 39012020
BR+	PIN1	red	PIN1
BR-	PIN2	blue	PIN2