

AC Servo Drives EL6 Series



- Power range: 100W - 1kW
- 220 Vac input
- Automatic motor identification
- Easy configuration
- Cost effective with stable performance

EL6 Series AC servo products are cost-effective AC digital servo which is designed for position high accurate control, power range up to 1kW, which can provide a perfect solution for different applications, performance with easy configuration process.

Combined with abundant features like MFC, vibration suppression, Multi - mode filter function etc, and with encoder resolution 17bit or 23bit, it can provide machines a intelligent performance.

EL6-D Version EL6-D Series Drive

Position/Internal velocity mode

- 5V differential pulse(500Khz) / 24V single-ended pulse(200Khz)
- Digital input and Digital output allows sink connection/source connection
- 17bit /23bit incremental encoder
- New configuration software-MotionStudio
- Online Inertia Ratio Identification
- Connector with Lock screw, more convenient connection



EL6-RS Version EL6 - RS Series Drive

Position/Velocity Mode

- RS485 based on Modbus-RTU protocol
- Encoder signal output
- 5V differential pulse(500Khz) / 24V single-ended pulse(200Khz)
- Digital input and Digital output allows sink connection/source connection
- 17bit Incremental Encoder / 23bit Multi-turn Absolute Encoder
- New configuration software-MotionStudio
- Online Inertia Ratio Identification
- Connector with Lock screw, more convenient connection



EL6-CAN Version EL6-CAN Series Drive



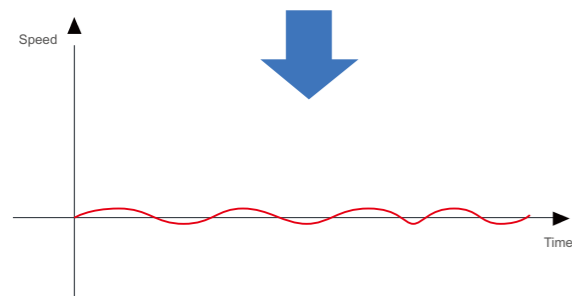
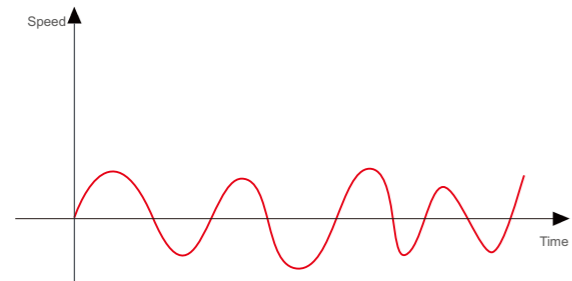
Profile Position/Profile Velocity/Profile Torque/Homing

- CANopen (CiADS301 & DS402)
- 4 RPDO & 4 TPDO
- Encoder signal output
- Digital input and Digital output allows sink connection/source connection
- 17bit Incremental Encoder / 23bit Multi-turn Absolute Encoder
- New configuration software-MotionStudio
- Online Inertia Ratio Identification
- Connector with Lock screw, more convenient connection



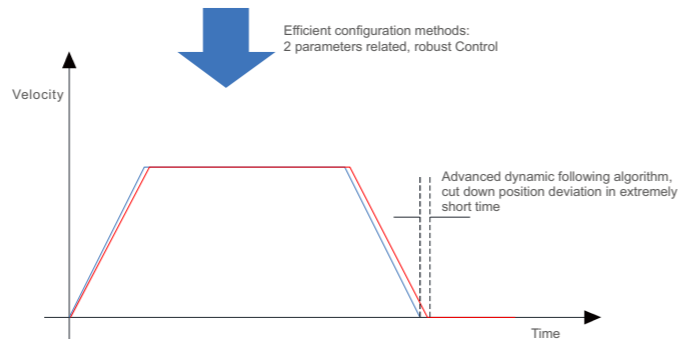
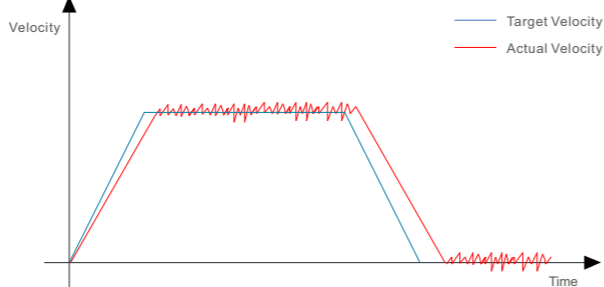
EL6 Servo System Features

• Lower torque-ripple, smooth speed



Obtain lower torque-ripple with new design of magnetic circuit, motor running smooth in low speed.

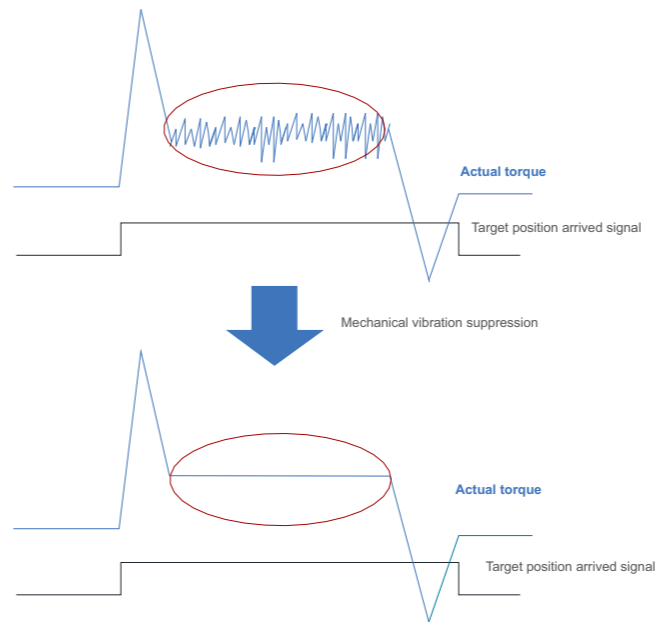
• Efficient Configuration Methods



Efficient configuration methods:
2 parameters related, robust Control

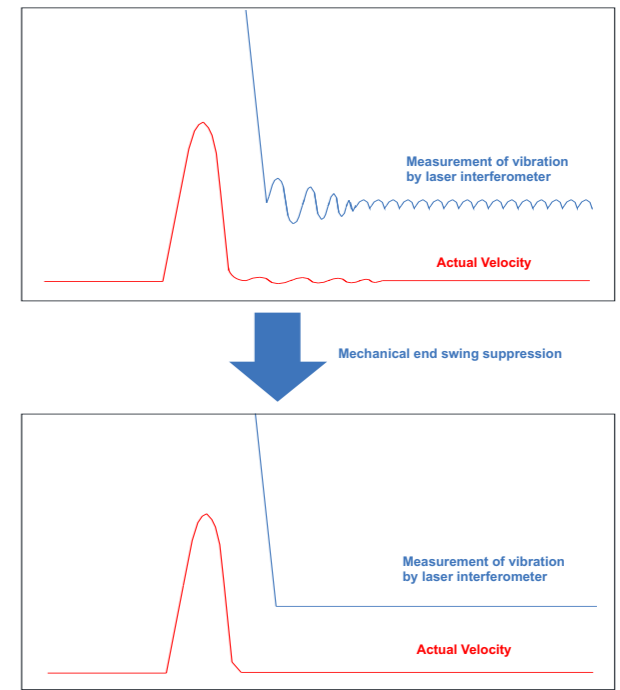
Advanced dynamic following algorithm,
cut down position deviation in extremely short time

• Adaptive Notch Filter



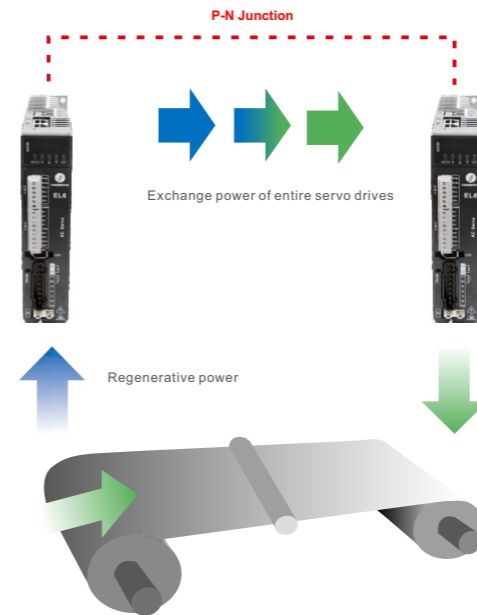
- 4 Adaptive Notch Filter
- Automatically / Manually Notch Filter Setting
- Notch Width Selectable
- Quick setting suppresses mechanical vibration, saving labor cost

• Mechanical end swing suppression



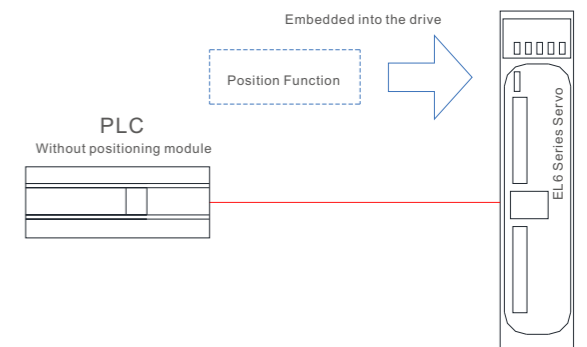
For mechanical equipment with lower stiffness, it is easy to produce low frequency vibration of less than 200Hz, which can be inhibited by mechanical end swing suppression, to realize the high-tempo operation of the equipment.

• P-N Junction



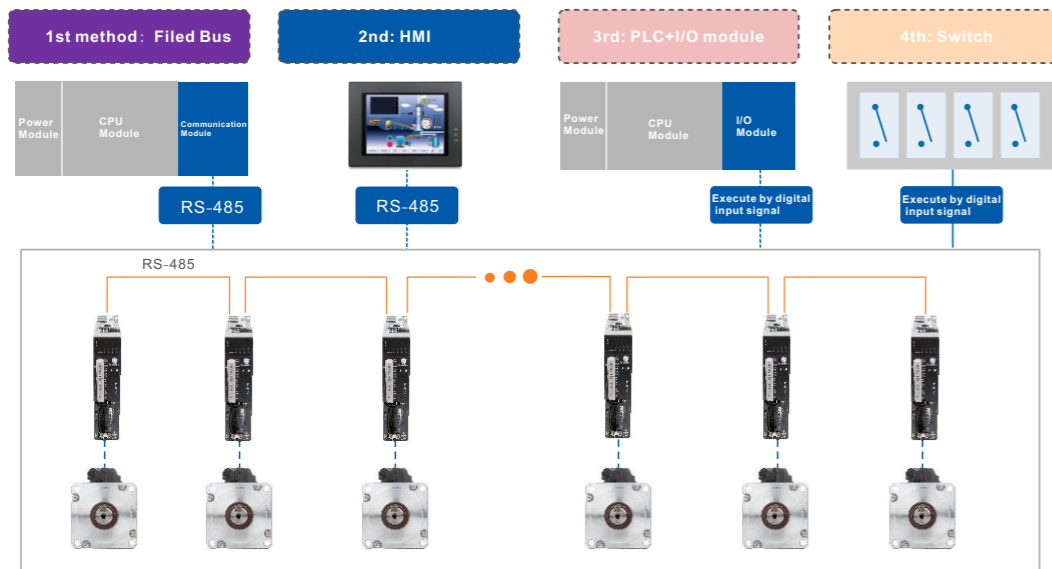
Directly connect the DC link circuit of entire servo drives to exchange power.
In a system having a powering (driving) shaft and regenerating (back tension) shaft such as the winder/unwinder unit, the power consumption of the entire system can be reduced.

• Pr-Mode



EL6-RS series embedded with 16 paths motion which setup internally, combined with position/velocity/homing/Jog/E-Stop/Limit switch.

• RS485 Communication Control / Digital Input Control

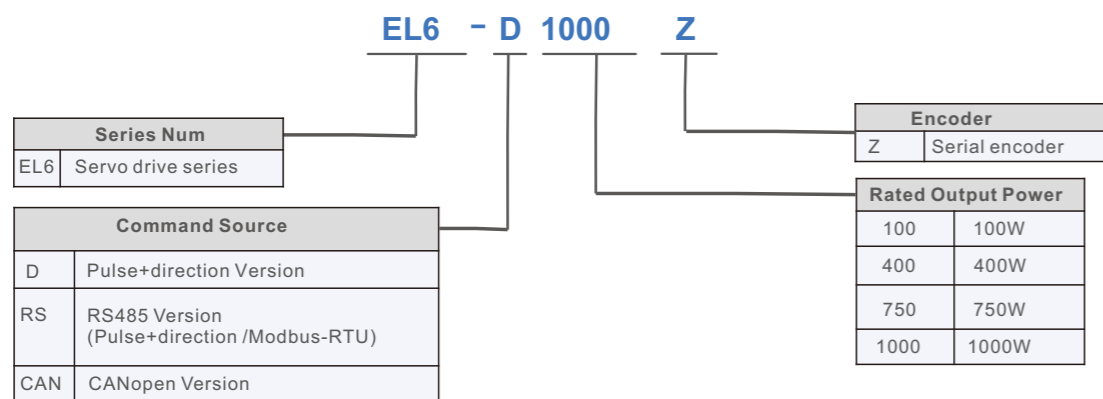


• CANopen



- RJ45 terminal for CANopen communication, LAN cable connection
- CiA 303-1 Cabling and connector pin assignment
- CiA 301 Application Layer and Communication Profile
- CiA 402 Device Profile Drives and Motion Control
- SDO, PDO, SYNC, EMCY, NMT, Heartbeat

Part Numbers



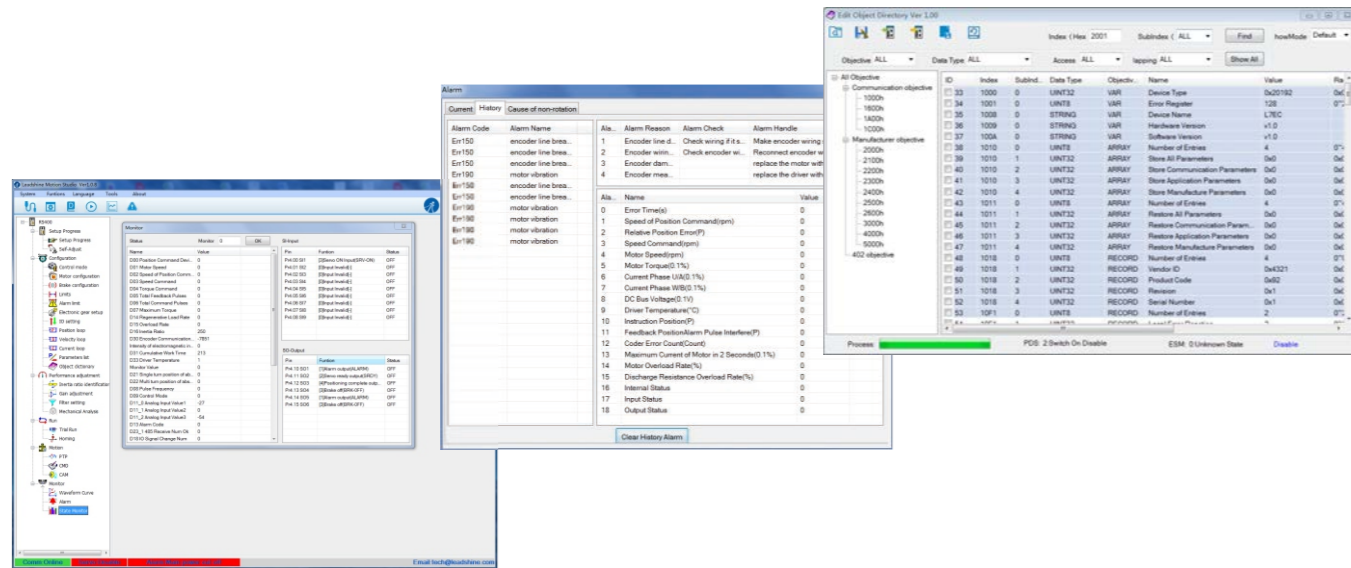
Specifications

Drive model	EL6-D400Z EL6-RS400Z EL6-CAN400Z	EL6-D750Z EL6-RS750Z EL6-CAN750Z	EL6-D1000Z EL6-RS1000Z EL6-CAN1000Z
Rated output power	400W	750W	1000W
Rated output current [A]	3	5.2	7
Max output current [A]	13	18.4	26.5
Dimensions(mm)	175*168*40	175*168*50	175*168*50
Main power/Control power	Single phase 220V -15%~+10% 50/60HZ		
Control mode	IGBT SVPWM sinusoidal wave control		
Feedback mode	Bus encoder: RS485 protocol		
Input pulse	0-500kHz,5V differential input ; 0-200kHz,24V single-ended input		
Position bandwidth	200HZ		
Electronic gear ratio	1~8388608/1~8388608		
Velocity bandwidth	500HZ		
Input signal	DI: 4 programmable digital inputs, allows sink connection/source connection Servo enable, over-travel inhibition, gain switching, command pulse inhibition, speed zero clamp, deviation counter clear, alarm clear		
Output signal	DO: 3 programmable digital outputs(2 single-ended, 1 differential) Alarm output, servo-ready, at-speed, zero-detection, velocity coincidence		
Encoder signal output	A phase, B phase, Z phase, long-distance drive mode output		
Alarm function	Over-voltage, under-voltage, over-current, over-load, encoder error, position deviation error, brake alarm, limit alarm, over-speed error etc.		
Operation and display	Jog, trapezoidal wave test, each parameter and input output signal can be modified and saved, five-bit LED to display rotational speed, current, position deviation, drive type version and address ID value etc.		
Debug software	Can adjust the parameters of current loop, velocity loop, position loop, and change the value of input and output signals and the parameter of motor and save the values to the files which can be downloaded and uploaded, monitor the waveform of velocity and position in the ladder.		
Communication interface	RS232: Based on Modbus protocol RS485: Based on Modbus protocol		
Brake mode	Built-in brake 50Ω/50W		
Adapt load inertia	Less than 20 times motor inertia		
weight	About 1.5-3Kg		
Environment	Environment: Avoid dust, oil fog and corrosive gases		
	Ambient Temp: 0 to +40℃		
	Humidity: 40% RH to 90%RH, no condensation		
	Vibration: 5.9 m/s ² MAX		
	Storage Temperature: -20~80℃ Installation: Vertical installation		

Servo drive series	EL6-D***Z	EL6-RS***Z	EL6-CAN***Z
Control mode	<ul style="list-style-type: none"> • Position control • Internal Velocity control • JOG 	<ul style="list-style-type: none"> • Position control • Velocity control • Torque control • JOG 	<ul style="list-style-type: none"> • PP(Profile Position) • PV(Profile Velocity) • PT(Profile Torque) • HM(Homing)
Encoder output	X	√	√
Digital input	4 programmable digital inputs (allow sink connection/source connection)		
Digital output	3 programmable digital outputs(2 single-ended, 1 differential)		
Network	--	Modbus RTU (LAN CABLE-RJ45 terminal)	CANopen (LAN CABLE-RJ45 terminal)
Maximum frequency Of pulse input	5V differential , 0~500kHz 24V single-ended, 0~200kHz	5V differential , 0~500kHz 24V single-ended, 0~200kHz	--

Motion Studio - New Configuration Software

- Information such as parameter setting and monitoring are consolidated easily just by connecting a personal computer to servo drive.
- Display parameter setting in list or visual formats, and set parameters by selecting from the drop down list
- Adjust control gain finely on the [Tuning] window manually for better performance.
- State monitoring and 4 channel wave showing with high accuracy.
- Easy to set the values of object dictionary for drive with CANopen version.
- Easy to read/save/download/compare/reset all parameters.



Servo Drive Connectors and Terminals

- EL6-D Series
 - EL6-RS Series
 - EL6-CAN Series
- Encoder Signal Output(CN6)**
- Communication Port(CN4,CN5)**
 - EL6-D series—RS232 for configuration
 - EL6-RS series—RS232 for configuration, RS485
 - EL6-CAN series—RS232 for configuration, CANopen
- Pulse+Direction Signal Port(CN1)**
 - P+24: 24V pulse+
 - D+24: 24V direction+
 - PUL+: 5V pulse+
 - PUL-: pulse-
 - DIR+: 5V direction+
 - DIR-: pulse-
- Control Signal Port(CN2)**
 - COM+: Digital input common terminal
 - SI1: Digital input 1
 - SI2: Digital input 2
 - SI3: Digital input 3
 - SI4: Digital input 4
 - COM-: Digital output common terminal
 - SO1: Digital output 1
 - SO2: Digital output 2
 - SO3+: Digital output 3+
 - SO3-: Digital output 3-
- Encoder Input Port(CN2)**
 - Motor Encoder Feedback Input
- Power LED**
- Heat-dissipation base**
 - Mounting Base and Heat-dissipation Base
- LED Display**
- Power Port(L1, L2)**
 - For 200W~1000W: single phase 220V, -15~+15%, 50/60Hz
- External Regenerative Resistor Terminal (P+, Br)**
 - P+: External regenerative resistor P terminal
 - Br: External regenerative resistor terminal
- Motor Power Input(UVW, PE)**
 - UVW: Motor power input
 - PE: Frame ground
- Ground Protection Terminal**

- LED Display**
 - Five LED lights to display monitor value, parameter value and set value
- Key of Mode Switch**
 - Press this key to switch among 4 mode:
 - Data monitor mode
 - Parameter setting mode
 - Auxiliary function mode
 - EEPROM written mode
- Confirming Key**
 - Entrance for submenu, confirming input
- Down Key**
 - Press this key to decrease the set value of current flash bit
- Up Key**
 - Press this key to increase the set value of current flash bit
- Left Key**
 - Press this key to shift to the next digit on the left

External Regenerative Resistor

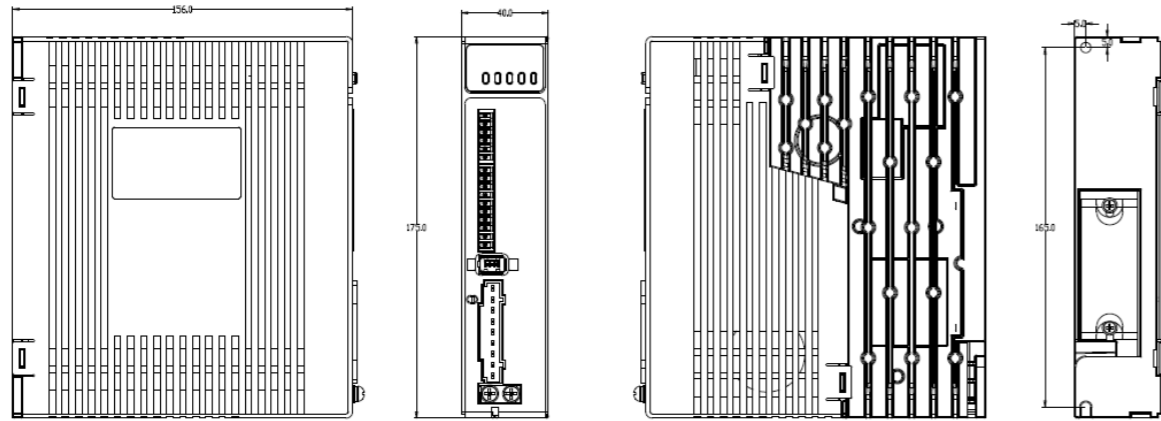
Type	Power	Resistance
RXLG-50W	50W	100Ω
RXLG-100W	100W	100Ω
RXLG-200W	200W	50Ω
RXLG-400W	400W	50Ω
RXLG-800W	800W	50Ω

Drive Mechanical Specifications

Unit: mm

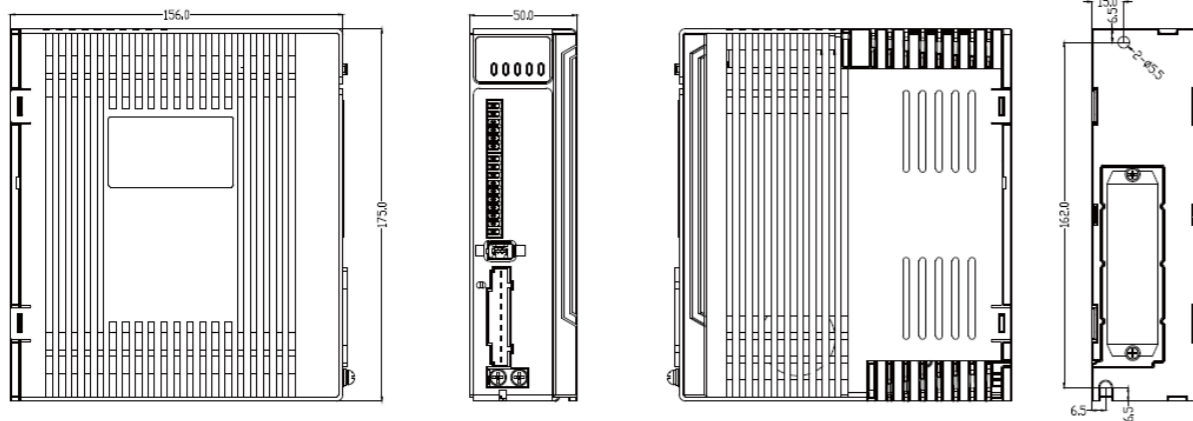
• 400W

EL6-D Series EL6-RS Series EL6-CAN Series



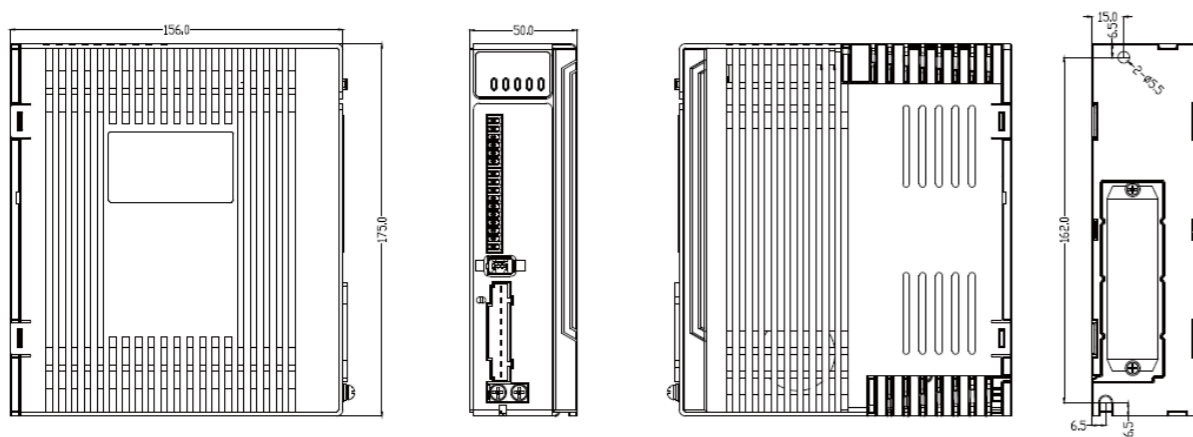
• 750W

EL6-D Series EL6-RS Series EL6-CAN Series



• 1000W

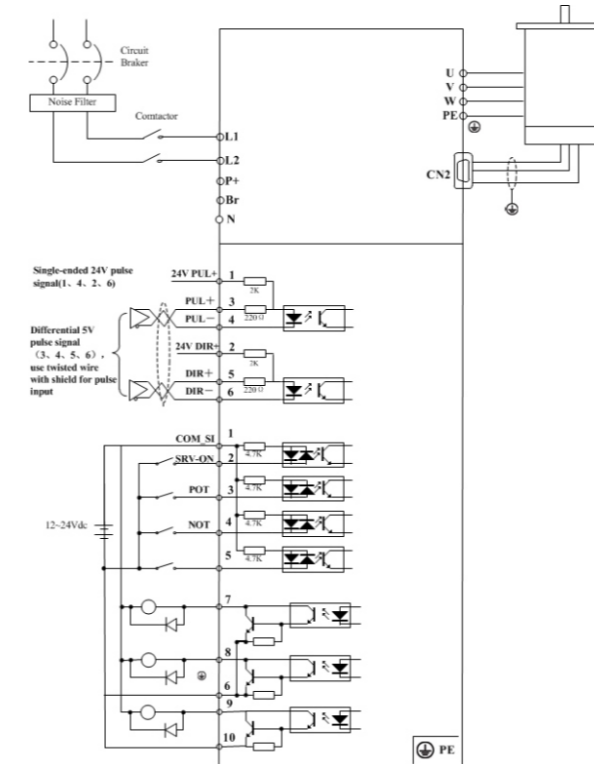
EL6-D Series EL6-RS Series EL6-CAN Series



Drive Connections

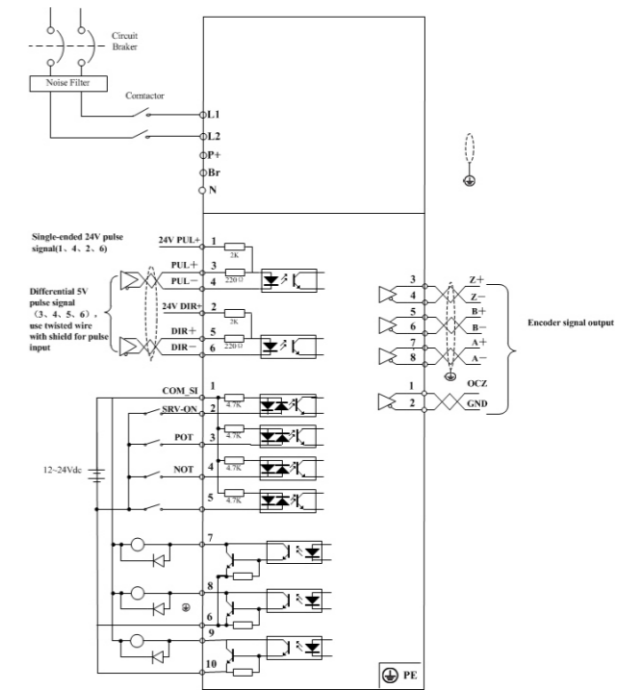
• Positional Control

EL6-D Series EL6-RS Series EL6-CAN Series



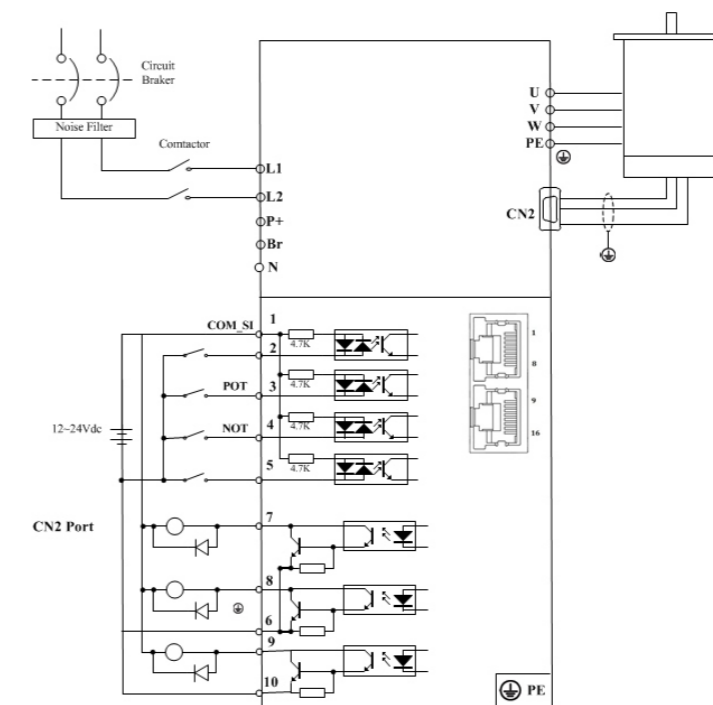
• Torque/Velocity Control

EL6-D Series EL6-RS Series EL6-CAN Series



• CANopen Control

EL6-D Series EL6-RS Series EL6-CAN Series



AC Servo Motors

ELM Series

- Power range: 100W - 2kW
- Voltage: 220vac
- Feedback: 17-Bit, 23-Bit absolute encoder
- Frame size: 40mm, 60mm, 80mm, 130mm



Part Numbers

ELM - 0750 L H 80 F - SS

Series Num	
ELM series motor	

Rated Output Power	
0100	100W
0200	200W
0400	400W
0750	750W
0850	850W
1000	1000W
1300	1300W
1500	1500W
1800	1800W
2000	2000W

Encoder Type	
F	17-Bit incremental
L	23-Bit multi-turn absolute

Inertia Ratio	
L	Low
M	Medium
H	High

Motor Connector Type	
SS	9-Pin Plastic Connector
H	Plug Aviation Connector
HH2	6-Pin Aviation Connector
HD	Special Type Connector

	Shaft Type		Brake		Oil Seal	
	Rotary	Keyway	Yes	No	Yes	No
A	•		•		•	
B	•			•	•	
C	•		•			•
D	•			•		•
E		•	•		•	
F		•		•	•	
G		•	•			•
H		•		•		•

Frame Size	
40	40mm
60	60mm
80	80mm
130	130mm

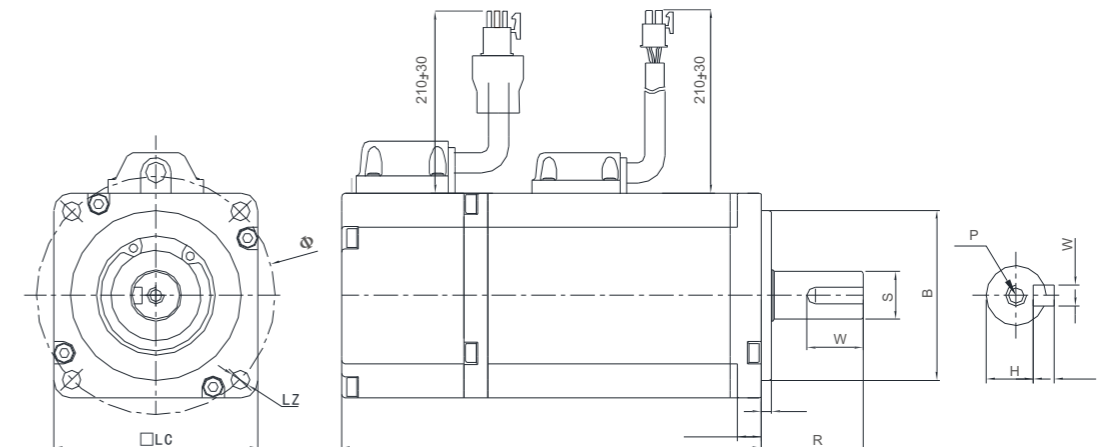
Servo Motors with 17-Bit Encoder

• Models

ELM Series	0100FL40H-**	0200FL60H-**	0400FM60H-**	0750FM80H-**	1000FM80H-**	
	0100FL40G-**	0200FL60G-**	0400FM60G-**	0750FM80G-**	1000FM80G-**	
Frame Size [mm]	40	60		80		
Rated Power [w]	100	200	400	750	1000	
Voltage [VAC]	220					
Rated Torque [Nm]	0.32	0.64	1.27	2.39	3.18	
Rated Current [A]	1.1	1.7	2.8	4.9	5.7	
Rated Speed [r/min]	3000	3000	3000	3000	3000	
Peak Torque [Nm]	0.96	1.92	3.81	7.17	9.52	
Peak Current [A]	3.3	5.1	8.4	14.7	17.1	
Max Speed [r/min]	6000	5000	5000	5000	5000	
Torque Const [Nm/A]	0.290	0.376	0.454	0.488	0.558	
Voltage Const [V/krpm]	20.5	26.3	30.2	33.5	36.2	
Resistance [Ω]	14.3	6.7	3.61	1.08	1.07	
Inductance [mH]	14.8	21.3	11.5	6.1	6.9	
Inertia [kgm ² *10 ⁻⁴]	0.046	0.2	0.436	1.43	1.63	
Oil Seal	X	X	X	X	X	
Encoder	17-Bit Incremental					
Structure	Totally Enclosed, Natural Cooling(IP rating: IP54)					
Mass (kg)	Standard	0.47	1.01	1.42	2.57	2.83
	With Brake	0.59	1.38	1.71	3.24	3.5
Length(mm)	Standard	79	78.5	105.5	114	126
	With Brake	109	105	131.5	143	155
Permissible Load for the Shaft	L [mm]	22.5	27	27	27	32
	Radial [N]	78	245	245	245	392
	Thrust [N]	54	74	74	74	147

-SS/-HH2 Connector Selectable

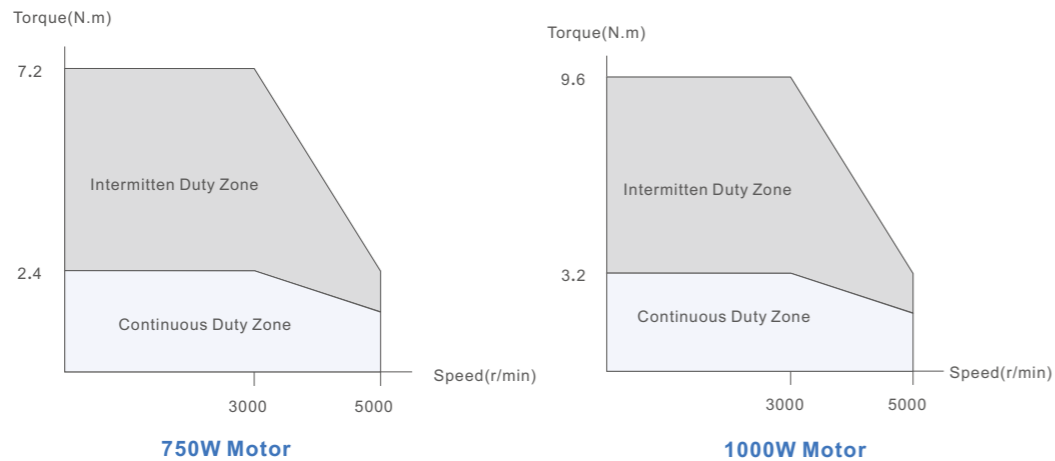
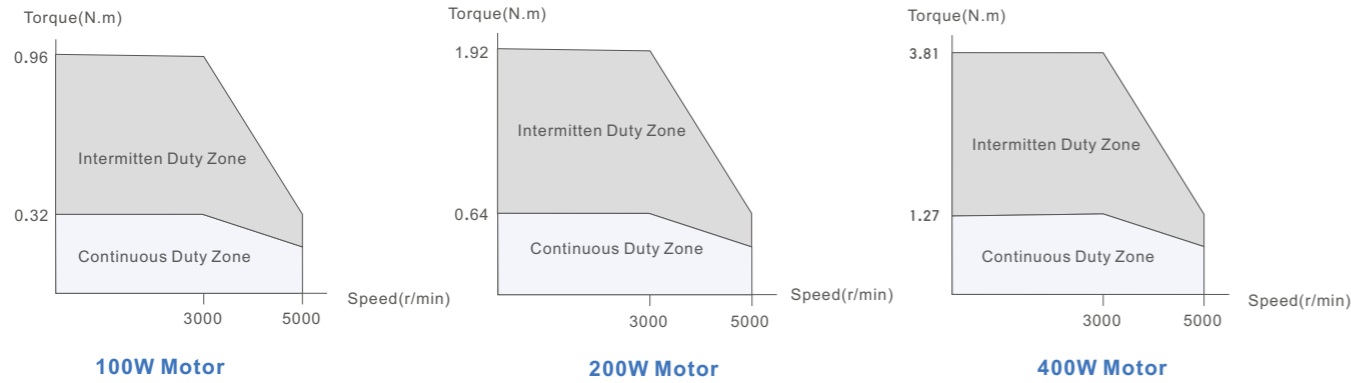
• Dimensions



Motor Series	LC (mm)	LZ (mm)	LA (mm)	S (mm)	LB (mm)	LL (mm)	LR (mm)	LE (mm)	LG (mm)	LW (mm)	RH (mm)	W (mm)	T (mm)	TP (mm)
ELM0100FL40H-**-	40	Φ4.5	46	Φ8	Φ30	79	25	2.5	5	15.5	6.2	3	3	M3T6
ELM0100FL40G-**-	40	Φ4.5	46	Φ8	Φ30	109	25	2.5	5	15.5	6.2	3	3	M3T6
ELM0200FL60H-**-	60	Φ5.5	70	Φ14	Φ50	78.5	30	3	7	16.5	11	5	5	M5T8
ELM0200FL60G-**-	60	Φ5.5	70	Φ14	Φ50	105	30	3	7	16.5	11	5	5	M5T8
ELM0400FM60H-**-	60	Φ5.5	70	Φ14	Φ50	105.5	30	3	7	16.5	11	5	5	M5T8
ELM0400FM60G-**-	60	Φ5.5	70	Φ14	Φ50	131.5	30	3	7	16.5	11	5	5	M5T8
ELM0750FM80H-**-	80	Φ7	90	Φ19	Φ70	114	35	3	8	25	15.5	6	6	M5T12
ELM0750FM80G-**-	80	Φ7	90	Φ19	Φ70	143	35	3	8	25	15.5	6	6	M5T12
ELM1000FM80H-**-	80	Φ6.5	90	Φ19	Φ70	126	35	3	8	25	15.5	6	6	M6T10
ELM1000FM80G-**-	80	Φ6.5	90	Φ19	Φ70	155	35	3	8	25	15.5	6	6	M6T10

-SS/-HH2 Connector Selectable

Torque-Speed Curves



Accessories

Each servo drive comes with:

- (1) Power Connector
- (2) Signal Connector
- (3) Press Rod

Extension Cables

Power Cable

- Length options: 1.5M, 3M, 5M, 7M, 10M, 13M
- Connector options: Plastic plug Optional: Injection plug



Encoder Cable

- Length options: 1.5M, 3M, 5M, 7M, 10M, 13M
- Connector options: Plastic plug Optional: Injection plug



Brake Cable

- Length options: 1.5M, 3M, 5M, 7M, 10M, 13M
- Connector options: Plastic plug Optional: Injection plug



Cable Details

Cables for motors of 80mm frame size and below

- (1) ABLE-RZ*M*-S1(V3.0) Power Cable



Configuration Cable

- Connect the drive to computer
- The interface standard is USB
- Mode: CABLE-USB1M5, CABLE-L6TS1M5



RS485/EtherCAT Communication Cable

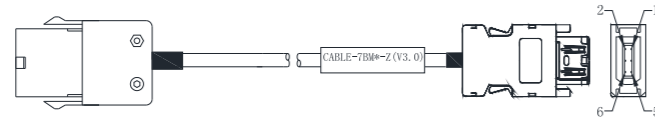
- Model: CABLE-TX0M2-BUS
- Length options: 1.5M, 3M, 5M, 7M, 10M, 13M



Accessories Details

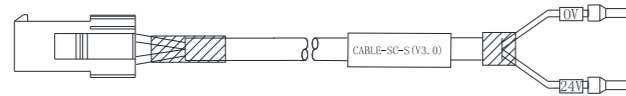
Part No.	Model No.	Mount	Components	Notes
11600371	4pin 172159-1 LS-17215901-AMP RoHS	1	4 Plastic Shell	
11600353	170362-1 RoHS AMP	4	4 Pin Needle	

(2) CABLE-7BM*M*-Z(V3.0) Encoder Cable



Accessories Details				
Part No.	Model No.	Mount	Components	Notes
11600372	9pin 172161-1 LS-17216101-AMP RoHS	1	9 Pin Plastic Shell	
11600354	170361-1 RoHS AMP	5	9 Pin Needle	
11600383	SC-06 SC-06 RoHS	1	Encoder-Drive(Connector)	

(3) CABLE-SC*M*-S1(V3.0) Brake Cable



Accessories Details				
Part No.	Model No.	Mount	Components	Notes
11600369	2pin 172157-1 LS-17215701-AMP RoHS	1	2 Pin Plastic Shell	Only optional for motor with brake
11600353	170362-1 RoHS AMP	2	2 Pin Needle	Only optional for motor with brake

Injection plug cables for motor of 80mm frame size and below

(1) CABLE-RZ*M*-HH2 Power Cable



Accessories Details				
Part No.	Model No.	Mount	Components	Notes
11600548	GM-1311/S-4B female 4 pin 13A OD:5-7.6mm GLM	1	Injection Plug	
11600549	GM-1310/P-4B male 4 pin 13A OD:5-7.6mm GLM	1	Injection Plug	

(2) CABLE-7BM*M*-HH2 Encoder Cable



Accessories Details				
Part No.	Model No.	Mount	Components	Notes
11600546	GM-1311/S-6A female 6 pin 5A OD:5-7.6mm GLM	1	Injection Plug	
11600547	GM-1310/P-6A male 6 pin 5A OD:5-7.6mm GLM	1	Injection Plug	
11600383	SC-06 SC-06 RoHS	1	Econder-Drive(Connector)	

(3) CABLE-SC*M*-HH2 Brake Cable



Part No.	Model No.	Mount	Components	Notes
11600544	GM-1311/S-2 female 2 pin 13A OD:5-7.6mm GLM	1	Injection Plug	Only optional for motor with brake
11600545	GM-1310/P-2 male 2 pin 13A OD:5-7.6mm GLM	1	Injection Plug	Only optional for motor with brake