

## SERVO PRODUCTS

- Overview
- AC Servo Systems
- DC Servo Systems
- Integrated Servo Motors
- Power Supplies
- Accessories



# Company Profile

Founded in 1997 by Warren Li, a MIT PhD graduate.

Leadshine Technology Co., Ltd. is a leading technology company dedicated to designing, manufacturing, marketing, and selling affordable high performance motion control products based on the latest control technologies.

Our products include stepper and closed loop stepper products & AC servo products, integrated stepper & servo motors, motion controllers, motion PLCs, I/O module etc.

Today, Leadshine is a publicly listed company(stock code002979)with over 1,000 employees and 4 manufacturing facilities in China. We are the largest stepper product manufactures in China, and serve 10,000+ OEM clients from 60+ countries and in tens of industries.



Leadshine Shenzhen Headquarter



Shanghai Intelligent Industry Park



Production base in Shenzhen

## R&D

Led by Dr. Li, a PhD majored in robotics & servo controls from MIT, Leadshine has one of the strongest R&D teams in the motion control industry.

The team consists of more than 100 R&D engineers and all of them are highly educated with most of them carry PhD & Master degrees in controls, electrical & electronics engineering, mechanical engineering, mechatronics, computer engineering, and computer science.

Their strong background and experience allow Leadshine capable of designing superior quality products based the latest technology in the most efficient way.

## Product Quality

Leadshine operates manufacturing facilities which are superiorly equipped, professionally staffed, and ISO-9001 certified.

That allows Leadshine to provide highly reliable quality motion control products OEM clients in the shortest time.

Leadshine's products have proven records of being successfully adopted in thousands of applications such as CNC routers, mills, plasmas, lathes, laser cutters/engravers/markers,

inkjet printers, plotters, electronics equipments, medical equipments, semiconductor assembly & inspection machines, electronics machines, packaging equipments, textile machines,

robotics, pick-and-place devices, etc. In most cases, Leadshine's standard "off-the-shelf" products are able to satisfy the motion control needs for most applications.

For many OEM applications with special requirements, Leadshine also offers customized products with optimized performance.

## Support and Service

Leadshine believes the key to be a successful motion product supplier is the commitment to fully understanding our customer's applications and working closely with our OEM clients.

In many cases, Leadshine engineers can participate in the whole process of client product development, including initial application evaluation, product selection, design help & suggestion.

Our expertise and experience allow us to help OEM clients to produce competitive high quality machines in their industries.

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## DC Servo Systems

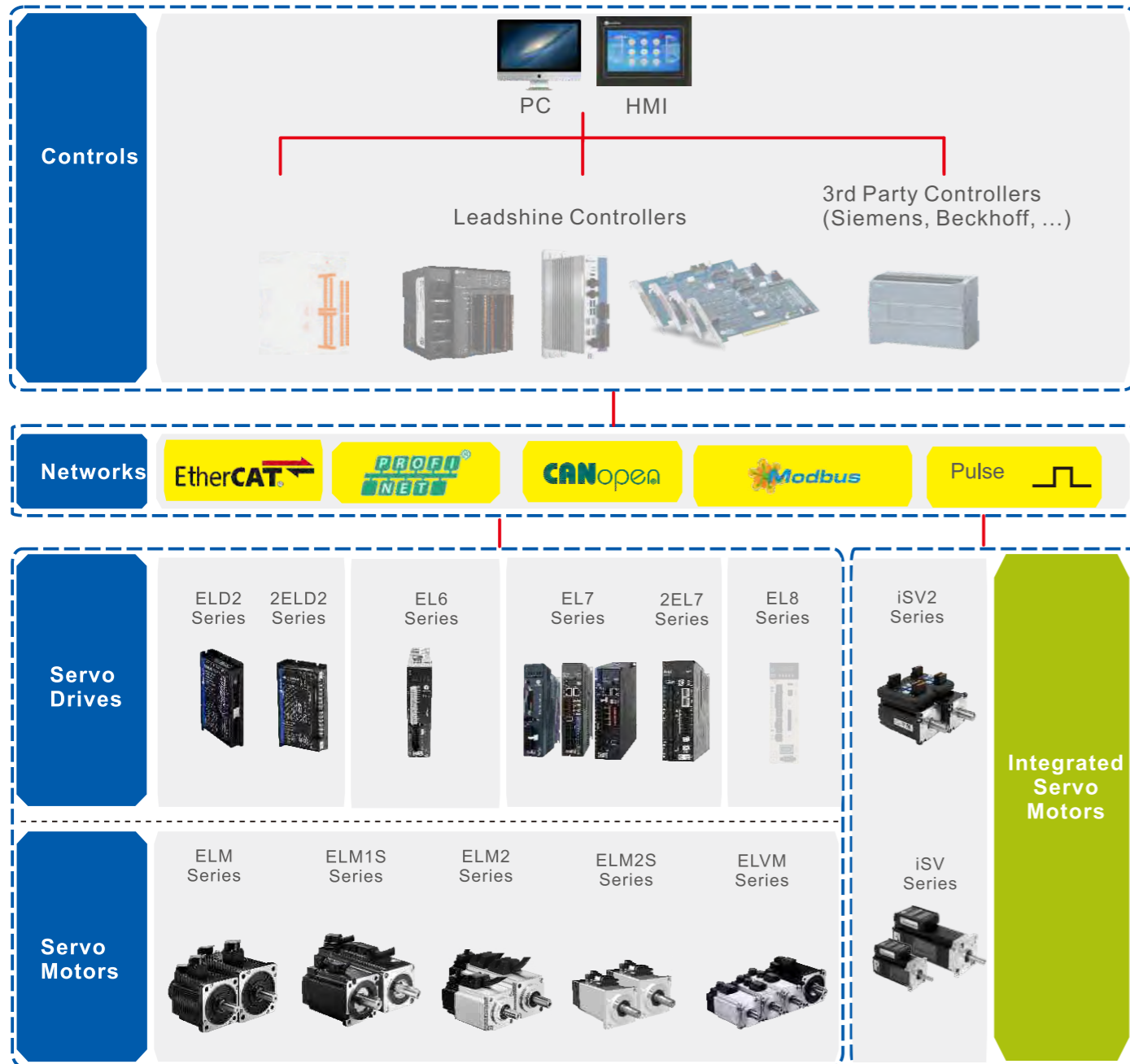
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**Why Leadshine**



Over 30,000,000 installed stepper & servo axes worldwide since 1997

# Typical Industry Applications



Electronic manufacturing equipment

- Dispensing machine
- Screw locking machine
- SMT
- Wire stripping machine
- Lithium battery equipment



Laser machine industry

- Laser marking machine
- Laser cutting machine
- Jade carving machine
- Wood carving machine



Special machine tool industry

- CNC machine
- Die stamping machine



AGV logistics industry

- Warehouse robot
- Sorting robot
- Cross belt sorter
- Inclined guide wheel sorter
- Multi-layer shuttle



Packaging

- Filling machine
- Pillow packaging machine
- Labeling machine
- Vertical packaging machine

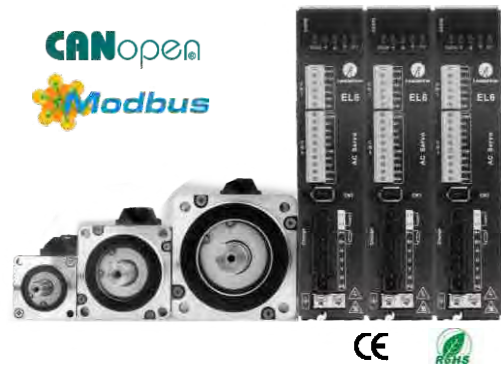


Industrial robots

- Multi-joint industrial robot
- SCARA robot
- Injection molding robot
- Stamping robot

# Product Overview

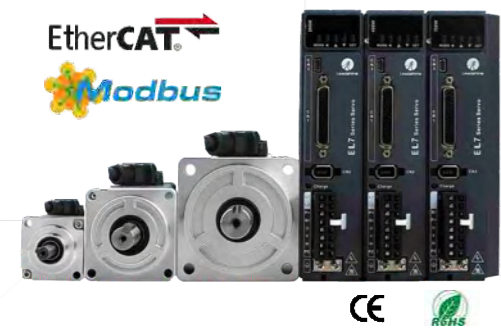
## EL6 AC Servo Systems



- Power Rating:** 50W - 1.0kW  
**Input Voltage:** 220VAC 1ph input  
**Motor:** 40-130mm frame size with 17bit/23bit encoder  
**Features:**
- Automatic motor identification
  - Notch filter, damping filter
- Command source:**
- Pulse+Direction / Modbus RTU / CANopen
  - 16 PR paths
- Inputs and Outputs:**
- Max pulse input: 500 kHz
  - 4 programmable digital inputs
  - 3 programmable digital outputs
  - A/B/Z-phase differential output, Z-phase OC output

- Position Mode
- Velocity Mode
- Torque Mode

## EL7 AC Servo Systems-220VAC Models



- Power Rating:** 50W - 2.0kW  
**Input Voltage:** 220VAC 1/3ph input  
**Motor:** 40-130mm frame size with 17bit/23bit encoder  
**Command source:**
- Pulse+Direction / Analog input / Modbus RTU / EtherCAT
  - 16 PR paths
- Inputs and Outputs:**
- Max pulse input: 500 kHz
  - 9 programmable digital inputs
  - 6 programmable digital outputs
  - A/B/Z-phase differential output, A/B/Z-phase OC output
  - 2 analog input: -10V to +10V

- Position Mode
- Velocity Mode
- Torque Mode

## EL7 AC Servo Systems-380VAC Models



- Power Rating:** 750W - 7.5kW  
**Input Voltage:** 380VAC 3ph input  
**Motor:** 130-180mm frame size with 23bit encoder  
**Features:**
- Speed frequency response up to 3.2kHz
  - Automatic motor identification
  - Notch filter, damping filter
- Command source:**
- Pulse+Direction / EtherCAT / Profinet
- Inputs and Outputs:**
- Max pulse input: 500 kHz
  - 4 programmable digital inputs
  - 3 programmable digital outputs
  - A/B/Z-phase differential output, Z-phase OC output

- Position Mode
- Velocity Mode
- Torque Mode

## 2EL7 Dual-axis Servo Systems



- Power Rating:** 50W - 1kW  
**Input Voltage:** 220VAC 1/3ph input  
**Motor:** 40-130mm frame size with 17bit/23bit encoder  
**Features:**
- Dual-axis servo control
  - Speed frequency response up to 3.2kHz
  - Automatic motor identification
  - Notch filter, damping filter
- Command source:**
- Analog Input / EtherCAT
- Inputs and Outputs:**
- 8 programmable digital inputs
  - 3\*2 programmable digital outputs
  - A/B/Z-phase differential output, Z-phase OC output
  - 2 analog input: -10V to +10V
  - STO

- Position Mode
- Velocity Mode
- Torque Mode

## ELD2 DC Servo Systems



- Power Rating:** 50W - 2.5kW  
**Input Voltage:** 24~70VDC  
**Motor:** 40-130mm frame size  
**Encoder:** 1000 ppr, 2500 ppr, 17bit, 23bit  
**Features:**
- Up to 180Amp(127Arms)
  - Power brushed DC, and brushless DC/AC servo motors
  - STO and Logic Power
  - 24VDC Power for Brake
- Command source:**
- Pulse+Direction / Analog input / Modbus RTU / CANopen
  - 16 PR paths
- Inputs and Outputs:**
- 2 fast pulse input, 5V only
  - 4 programmable digital inputs
  - 2 programmable digital outputs
  - Encoder AB output
  - 1 analog input: -10V to +10V

- Position Mode
- Velocity Mode
- Torque Mode

## 2ELD2 Dual-axis Servo Systems



- Power Rating:** Each axis 50W - 1.2kW  
**Input Voltage:** 24~70VDC  
**Motor:** 40- 80mm frame size  
**Encoder:** 1000 ppr, 2500 ppr, 17bit, 23bit  
**Features:**
- Dual-axis, each axis current range up to 90Amp(64Arms)
  - Power brushed DC, and brushless DC/AC servo motors
  - STO and Auxiliary input power
  - Direct control of brake
  - Save Mounting Space
- Command source:**
- Pulse+Direction / Analog input / Modbus RTU / CANopen
  - 16 PR paths
- Inputs and Outputs:**
- Max pulse input: 500 kHz
  - 4 programmable digital inputs
  - 2 programmable digital outputs
  - 1 analog input: -10V to +10V

- Position Mode
- Velocity Mode
- Torque Mode

## iSV2 Integrated Servo Motors



- Power Rating:** 200W, 400W, 750W  
**Input Voltage:** 24~60VDC  
**Motor Frame Size:** 60mm, 80mm  
**Encoder:** 17bit incremental encoder  
**Features:**
- Highly Intergrated
  - Save Mounting Space
- Command source:**
- Pulse+Direction / Modbus RTU / CANopen
- Inputs and Outputs:**
- Max pulse input: 500 kHz
  - 4 programmable digital inputs
  - 2 programmable digital outputs

- Position Mode
- Velocity Mode
- Torque Mode

## iSV Integrated Servo Motors



- Power Rating:** 90W, 130W, 180W  
**Input Voltage:** 24~50VDC  
**Motor Frame Size:** 57mm (NEMA 23)  
**Encoder:** 1000-Line, 16bit  
**Features:**
- Highly Intergrated
  - Easy tuning, flexible to control
  - Save Mounting Space
- Command source:**
- Pulse+Direction
- Inputs and Outputs:**
- 1 programmable digital outputs

- Position Mode

# Leadshine Servo Products Quick Selection

Servo Drive	Model	Power (W)	Voltage (VAC)	Dimensions (mm)	Weight (kg)	Command Source			Command Source		STO	Encoder Output	Brake Output	Digital Inputs (Points)	Digital Outputs (Points)	Matched Servo Motors		
						Pulse+Dir	Analog Input	RS485	EtherCAT	CANopen								
AC Servo Drive EL6 Series	EL6-D400Z	400	1 Phase 220	175*156*40	0.9	✓								4	3	ELM Servo Motors For more information please refer to pages 39 to 52		
	EL6-RS400Z					✓		✓				✓		4	3			
	EL6-CAN400Z										✓			4	3			
	EL6-D750Z	750		175*156*50	1.1	✓								4	3			
	EL6-RS750Z					✓		✓			✓		4	3				
	EL6-CAN750Z									✓			4	3				
	EL6-D1000Z	1000		175*156*50	1.2									4	3			
	EL6-RS1000Z					✓					✓		4	3				
EL6-CAN1000Z	✓					✓		✓			4	3						
AC Servo Drive EL7 Series - 220VAC Models	EL7-D400Z	400	1 Phase 220	175*156*40	0.9	✓						✓		9	6			
	EL7-RS400Z					✓	✓	✓				✓		9	6			
	EL7-EC400S									✓			✓		14		6	
	EL7-D750Z	750		175*156*50	1.1	✓							✓		9		6	
	EL7-RS750Z					✓	✓	✓				✓		9	6			
	EL7-EC750S									✓			✓		14		6	
	EL7-D1000Z	1000		175*156*50	1.2	✓							✓		9		6	
	EL7-RS1000Z					✓	✓	✓				✓		9	6			
	EL7-EC1000S									✓			✓		14		6	
	EL7-RS1500Z	1500		1/3 Phase 220	175*156*80	2.3	✓	✓	✓					✓			9	6
	EL7-EC1500Z										✓			✓			14	6
	EL7-RS2000Z	2000			175*156*80	2.3	✓	✓	✓					✓			9	6
EL7-EC2000Z									✓			✓		14	6			
AC Servo Drive EL7 Series - 380VAC Models	EL7-EC750T3	750	3 Phase 380		55*175*179	1.3	✓				✓		✓		4		3	
	EL7-EC1000T3	1000					✓				✓		✓		4		3	
	EL7-EC1500T3	1500		✓						✓		✓		4	3			
	EL7-EC2000T3	2000		80*175*179	1.9	✓				✓		✓		4	3			
	EL7-EC3000T3	3000				✓				✓		✓		4	3			
	EL7-EC4400T3	4400		90*250*230	3.3	✓				✓		✓		4	3			
	EL7-EC5500T3	5500				✓				✓		✓		4	3			
	EL7-EC7500T3	7500				✓				✓		✓		4	3			
AC Servo Drive 2EL7 Series	2EL7-EC200S	200+200	1/3 Phase 220	55*175*186	1.1		✓			✓	✓	✓		8	3*2			
	2EL7-EC400S	400+400					✓			✓	✓	✓		8	3*2			
	2EL7-EC750S	750+750		80*175*186	1.4		✓			✓	✓	✓		8	3*2			
	2EL7-EC1000S	1000+1000					✓			✓	✓	✓		8	3*2			


Servo Drive	Model	Power (W)	Main Voltage (VDC)	Logic Power (VDC)	Dimensions (mm)	Weight (kg)	Command Source				Command Source		*STO	Encoder Output	Brake Output	Digital Inputs (Points)	Digital Outputs (Points)	Matched Servo Motors	
							Pulse+Dir	Analog Input	RS485		EtherCAT	CANopen							
DC Servo Drive ELD2 Series	ELD2-RS7005	100	24-70	-	118*75.5*25.5	0.2	√	√	√							4	2	*ELVM Servo Motors For more information please refer to pages 53 to 62  *3rd Party Brushless /Brushed Motor	
	ELD2-CAN7005B				140*79.5*25.5	0.3					√			√		4	2		
	ELD2-RS7010	400			118*75.5*25.5	0.2	√	√	√				√		4	2			
	ELD2-CAN7010B				140*79.5*25.5	0.3					√		√	√	4	2			
	ELD2-RS7015B	600			175*100.5*31	0.7	√	√	√				√	√	4	2			
	ELD2-CAN7015B					0.7					√		√	√	4	2			
	ELD2-RS7020B	750				0.7	√	√	√				√	√	4	2			
	ELD2-CAN7020B					0.7					√		√	√	4	2			
	ELD2-RS7030B	1200				0.7	√	√	√				√	√	4	2			
	ELD2-CAN7030B					0.7					√		√	√	4	2			
	ELD2-RS7040B	1500				194*103*41	0.9	√	√	√				√	√	√	4		2
	ELD2-CAN7040B						0.9						√	√	√	√	4		2
	ELD2-RS7060B	2500					0.9	√	√	√				√	√	√	4		2
	ELD2-CAN7060B						0.9						√	√	√	√	4		2
DC Servo Drive 2ELD2 Series	2ELD2-RS7020B	750*2	24-70	24-70			194*103*41	1.0	√		√			√		√	4*2	2*2	
	2ELD2-CAN7020B							1.0		√			√	√	√	4*2	2*2		
	2ELD2-RS7030B	1200*2						1.0	√		√			√		√	4*2	2*2	
	2ELD2-CAN7030B							1.0		√			√	√	√	4*2	2*2		

Note: \*STO function is in the process of certification

# AC Servo Drive Series

**Performance**


**Cost-effective AC Servo EL6**



- Speed frequency response up to 2kHz
- Power range up to 1kW
- Connectors with lock screws for convenient reliable connections

EL6-D***Z	Pulse+dir
EL6-RS***Z	Pulse+dir /Modbus RTU
EL6-CAN***Z	CANopen


**General Purpose AC Servo EL7**



- Speed frequency response up to 3.2kHz
- Power range up to 7.5kW
- 220VAC/380VAC input
- Modbus RTU/EtherCAT/Profinet
- Safety torque off with SiL3(optional)
- Auto tuning

EL7-EC***	Pulse+dir/EtherCAT, 380VAC
EL7-PN***	Profinet, 380VAC
2EL7-EC***	EtherCAT,dual-axes, 220VAC
EL7-D***	Pulse+dir, 220VAC
EL7-RS***	Pulse+dir/Modbus RTU/Analog input
EL7-EC***	EtherCAT, 220VAC

**High performance AC Servo EL8 (Coming soon)**



- Speed frequency response up to 3.5 kHz
- Power range up to 1kW with 220VAC
- The frequency of pulse input up to 8Mpps
- Fault diagnosis and analysis
- Safety torque off (IEC61508 SIL3)
- Modbus RTU/EtherCAT/Profinet/EtherNET IP
- Auto tuning

EL8-SE***	Pulse+dir/Analog input
EL8-SF***	Pulse+dir/Analog input/Full close-loop/STO
EL8-ECF***	EtherCAT/Full close-loop/STO
EL8-PN***	Profinet/Full close-loop/STO
EL8-L***	For linear motor

Series

# AC Servo Motor Series

**Performance**

**Enhanced ELM2S Series**

- Frame of 40/60/80
- Power range from 50W-1000W
- 23-bit optical multi-turn encoders
- IP67
- 220VAC
- Direct Plug-in Connections

**Standard ELM2 Series**


- Frame of 40/60/80
- Power range from 50W-1000W
- 23-bit optical multi-turn encoders
- IP65
- 220VAC

**Economic ELM1S Series**

- Frame of 40/60/80
- Power range from 50W-1000W
- 17-bit magnetic multi-turn encoders
- IP65
- 220VAC

**ELM Series**

- Frame of 130/180
- Power range from 850W-7500W
- 23-bit optical multi-turn encoders
- IP65
- 220VAC/380VAC



Series

# AC Servo Drives EL6 Series

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



EL6 Series include cost-effective AC servo drives designed for accurate positioning control. They can power up to 1kW AC servo motors and are ideal for many OEM applications. Many advanced features are implemented such as MFC, vibration suppression, Multi - mode filter function, etc. When combined with Leadshine servo motors with 17 or 23-bit high resolution encoders, they can provide excellent performance to your control systems.


**EL6-D EL6-D Servo Drives**

**Position/Internal velocity mode**

- 5V differential pulse(500kHz) / 24V single-ended pulse(200kHz)
- Digital inputs and digital outputs allow sink and source connections
- Supporting 17-bit magnetic single-turn encoder / 23-bit optical multi-turn encoders
- GUI Software - MotionStudio
- Online Inertia Ratio Identification
- Connectors with lock screws for convenient reliable connections

**EL6-RS EL6-D Modbus Servo Drives**


**Position/Velocity Mode**



- RS485 based on Modbus-RTU protocol
- Encoder signal output
- 5V differential pulse(500kHz) / 24V single-ended pulse(200kHz)
- Digital inputs and digital outputs allow sink and source connections
- Supporting 17-bit magnetic single-turn encoder / 23-bit optical multi-turn encoders
- GUI Software - MotionStudio
- Online Inertia Ratio Identification
- Connectors with lock screws for convenient reliable connections

**EL6-CAN EL6-CAN CANopen Servo Drives**

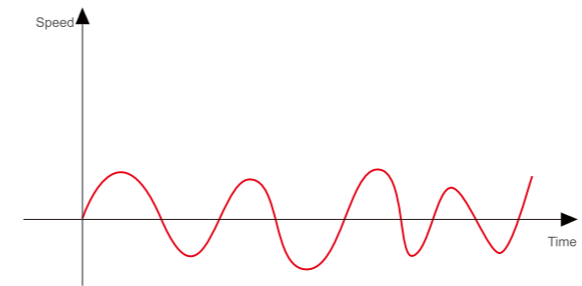
**Profile Position/Profile Velocity/Profile Torque/Homing**



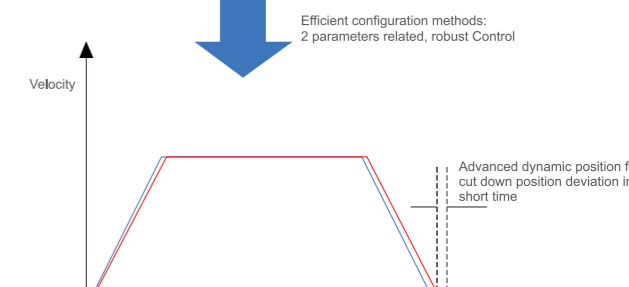
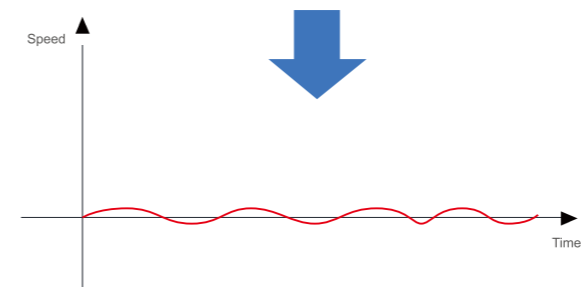
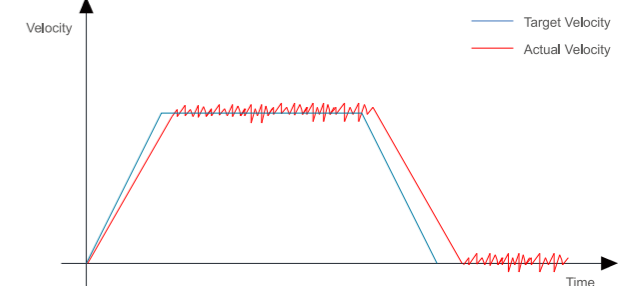
- CANopen (CIA 301 & DS402)
- 4 RPDO & 4 TPDO
- Encoder signal output
- Digital inputs and digital outputs allow sink and source connections
- Supporting 17-bit magnetic single-turn encoder / 23-bit optical multi-turn encoders
- GUI Software - MotionStudio
- Inertia load identification online
- Connectors with lock screws for convenient reliable connections

## EL6 Servo System Performance

• Lower torque-ripple, smooth speed



• Efficient Configuration Methods



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

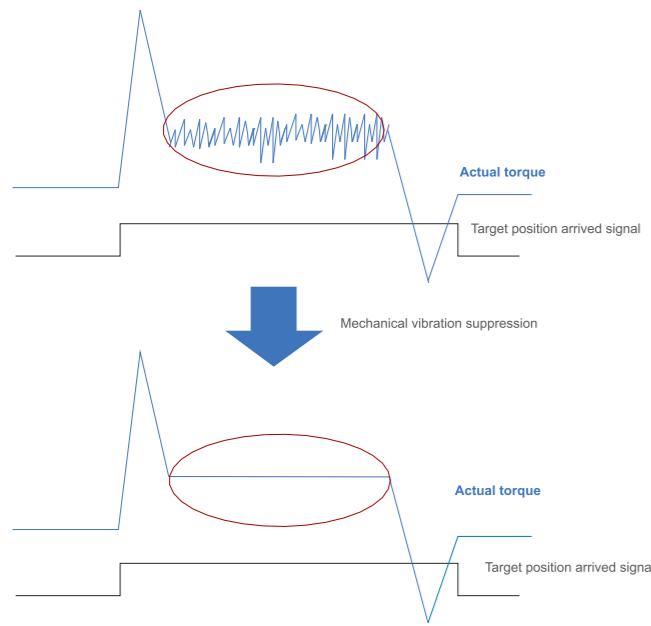
AC Servo Systems

DC Servo Systems

Integrated Servo Motors

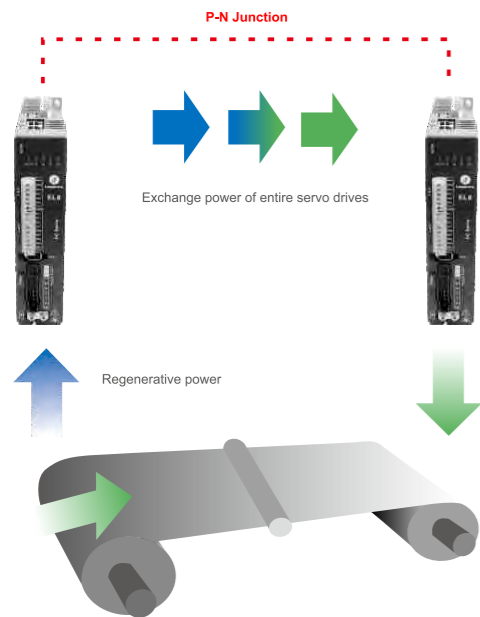
Power Supply

### • Adaptive Notch Filter



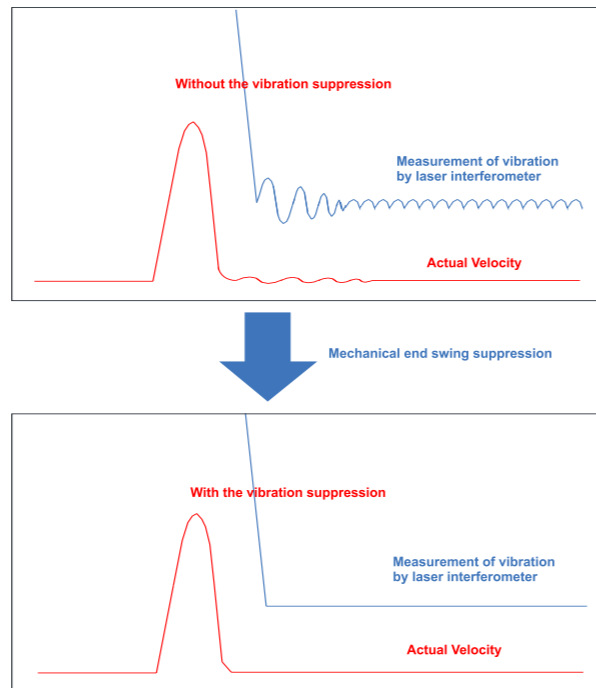
- 4 Adaptive Notch Filter
- Automatically / Manually Notch Filter Setting
- Notch Width Selectable
- Quick setting suppresses mechanical vibration, saving labor cost

### • P-N Junction



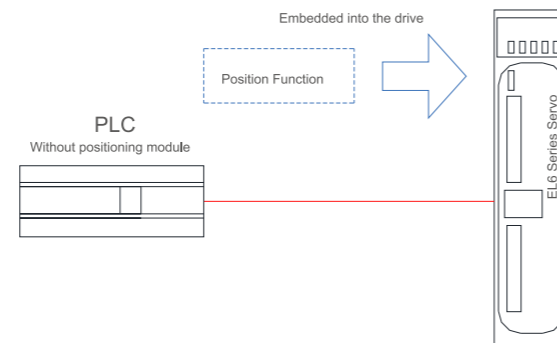
Directly connect the DC link circuit of entire servo drives to exchange power.  
In a system having a powering (driving) shaft and regenerating (back tension) shaft such as the winder/unwinder unit, the power consumption of the entire system can be reduced.

### • Anti-Vibration Filter



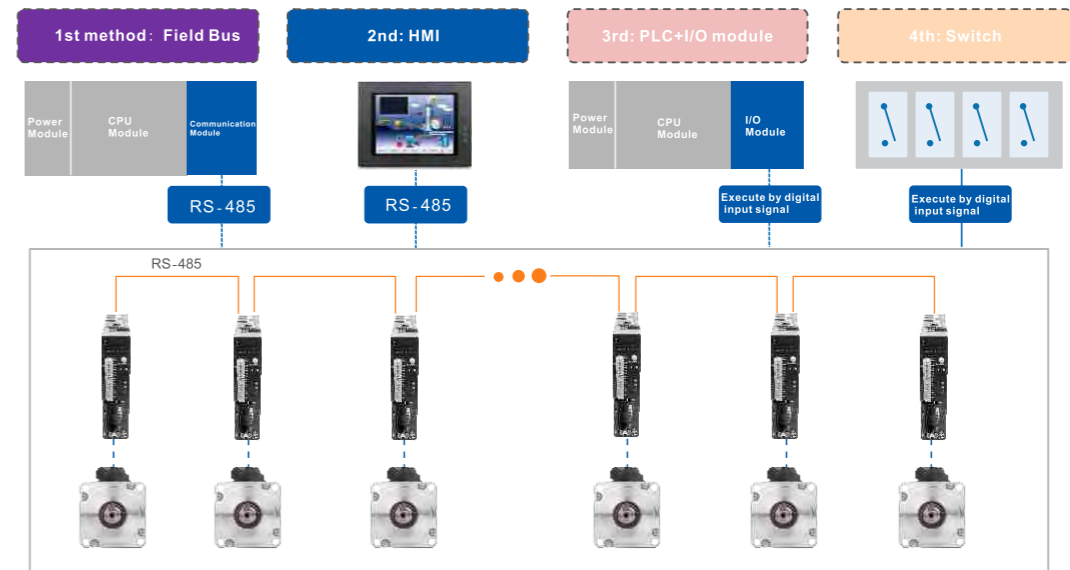
For mechanical equipment with lower stiffness, it is easy to produce low frequency vibration of less than 200Hz, which can be inhibited by mechanical end swing suppression, to realize the high-tempo operation of the equipment.

### • 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, Heatbeat

### Part Numbers

**EL6 - D 1000 Z**

<b>Series Num</b>		<b>Version</b>	
EL6	Servo drive series	Z	Standard Version
<b>Command Source</b>		<b>Rated Output Power</b>	
D	Pulse+Direction	100	100W
RS	RS485 (Pulse+Direction /Modbus-RTU)	400	400W
CAN	CANopen	750	750W
		1000	1000W



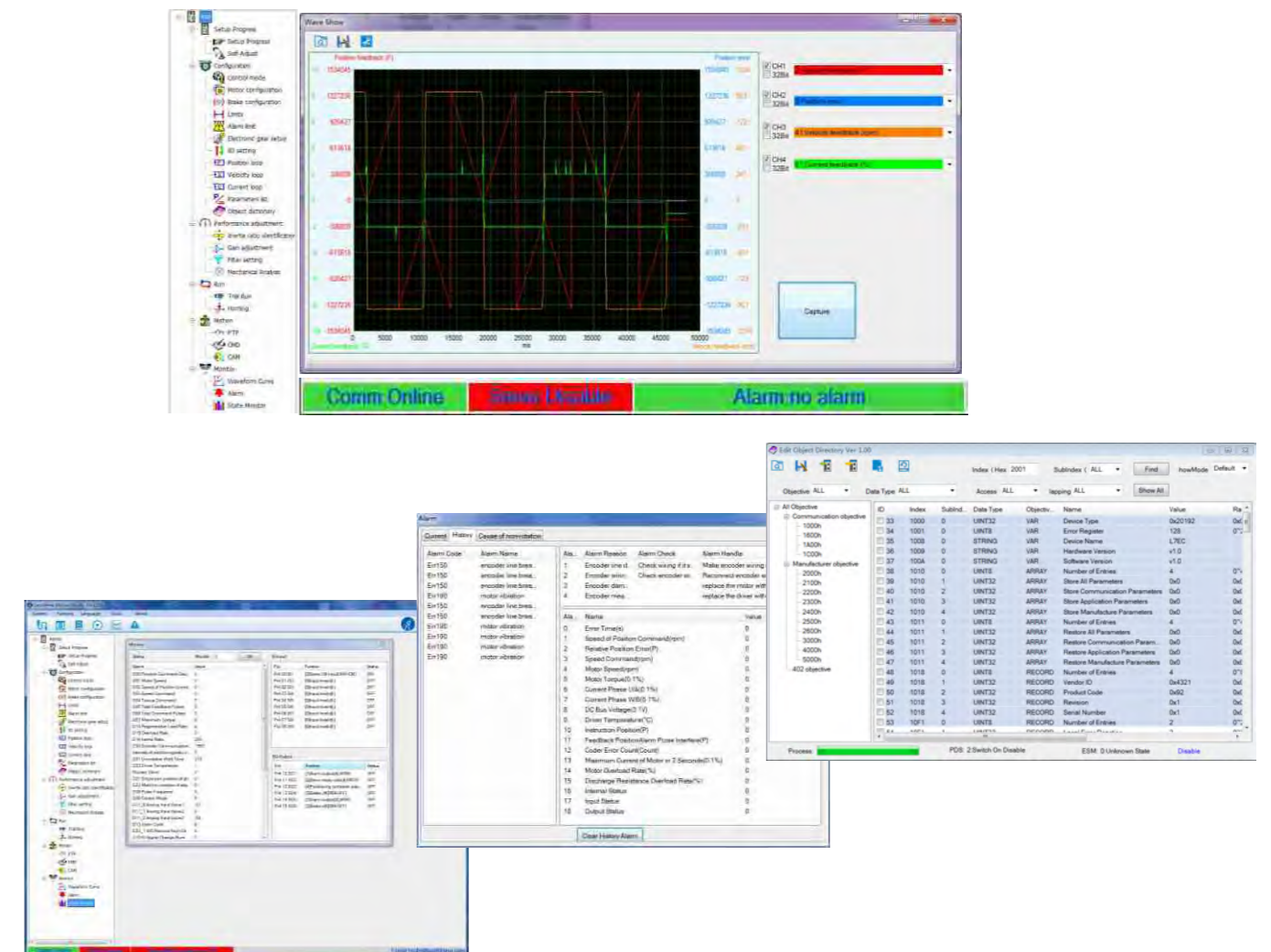
## Specifications

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 [Arms]	3	5.2	7
Max output current [Arms]	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 methods	IGBT SVPWM sinusoidal wave control		
Feedback mode	Bus encoder: RS485 protocol		
Input pulse	0-500kHz,5V differential input ; 0-200kHz,24V single-ended input		
Electronic gear ratio	1~8388608/1~8388608		
Speed frequency response	3.1kHz		
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.		
GUI 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 <sup>2</sup> MAX		
	Storage Temperature: -20~80℃		
	Installation: Vertical installation		

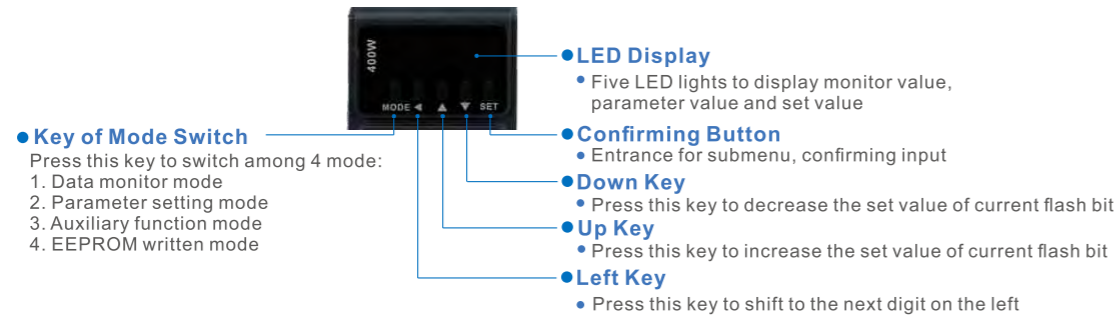
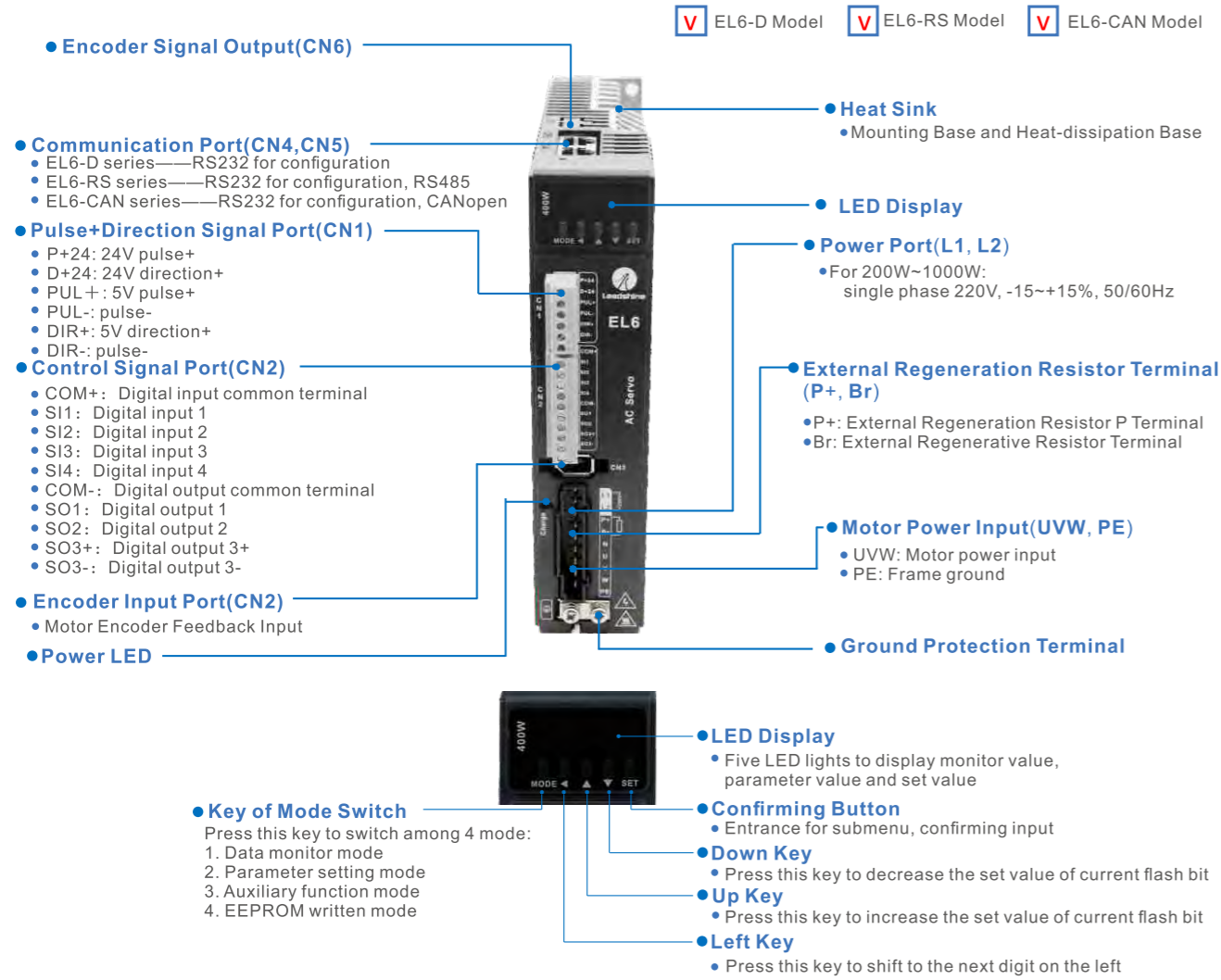
Servo drive series	EL6-D***Z	EL6-RS***Z	EL6-CAN***Z
Control methods	<ul style="list-style-type: none"> <li>Position control</li> <li>Internal Velocity control</li> <li>JOG</li> </ul>	<ul style="list-style-type: none"> <li>Position control</li> <li>Velocity control</li> <li>Torque control</li> <li>JOG</li> </ul>	<ul style="list-style-type: none"> <li>PP(Profile Position )</li> <li>PV(Profile Velocity )</li> <li>PT(Profile Torque )</li> <li>HM(Homing)</li> </ul>
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 - GUI Software

- Complex parameter displaying, motion status monitoring, servo tuning, etc. have been consolidated into an easy-to-use PC software.
- Tabular display for easy monitoring and modify servo parameter settings.
- Easy to adjust control gains manually for better performance.
- Motion State Monitoring and accurate 4-channel wave displays.
- Easy to set the values of object dictionary for CANopen drives.
- Easy to read /save / download / compare / reset servo parameters.



## Servo Drive Pin Assignments



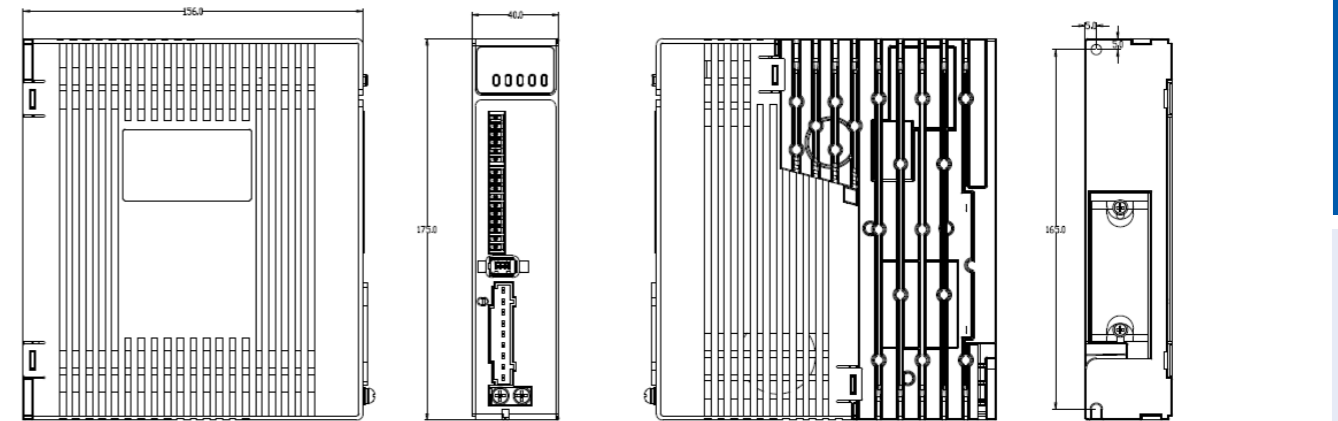
## External Regeneration Resistors

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

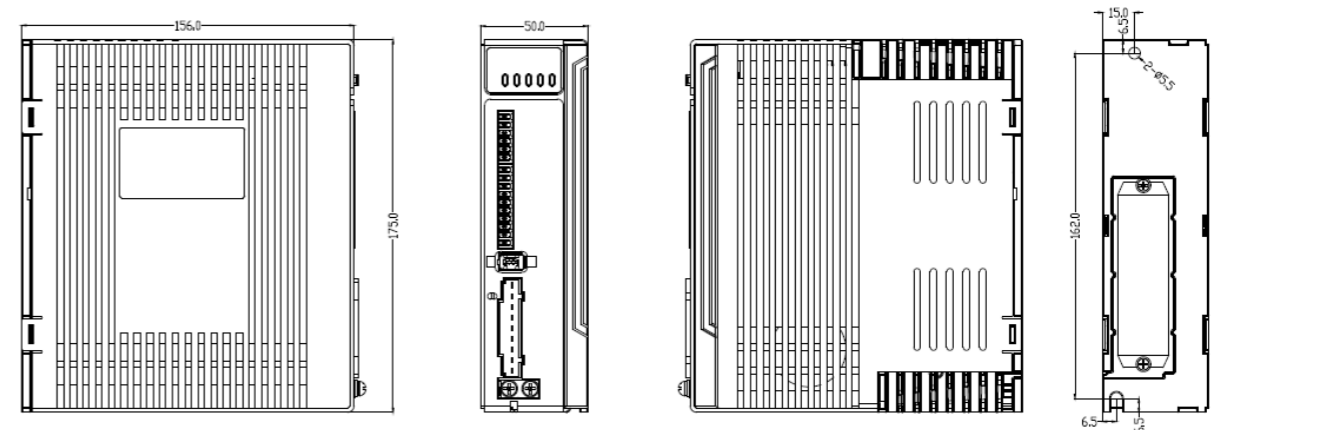
## Dimensions

Unit: mm

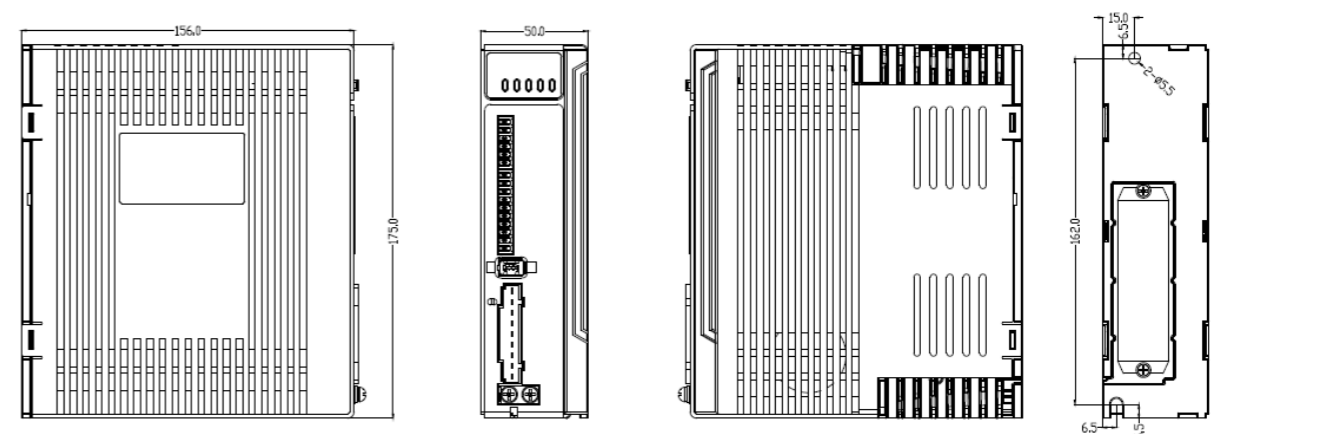
### • 400W



### • 750W



### • 1000W



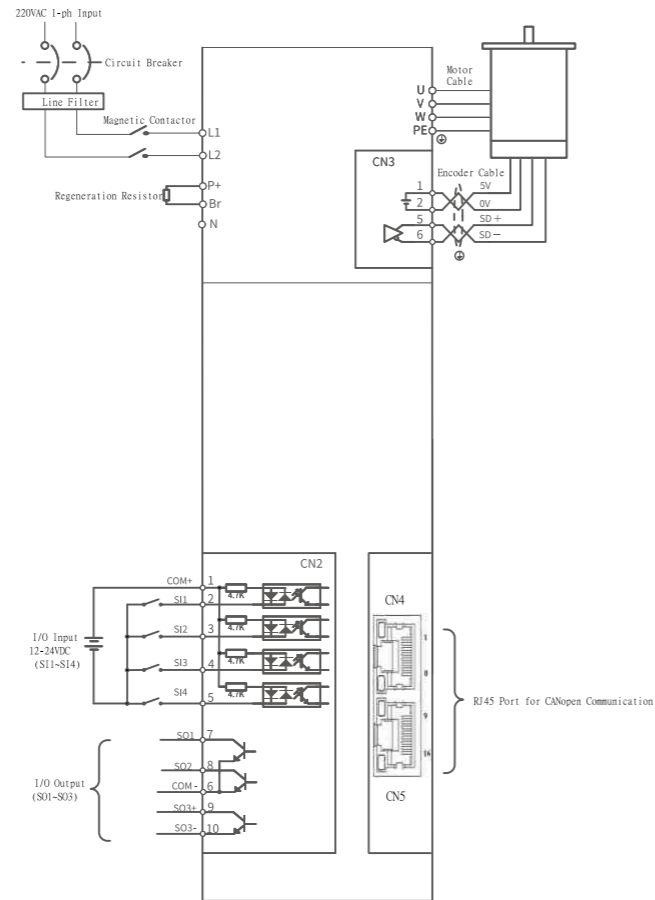
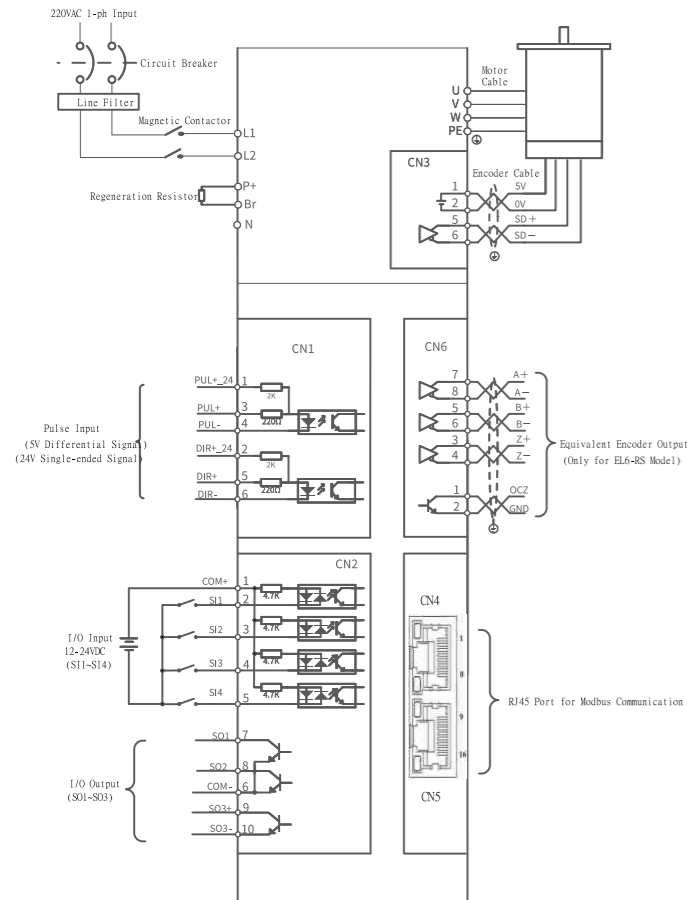
# System Wirings

## Position/Torque/Velocity Control

- EL6-D Model
- EL6-RS Model
- EL6-CAN Model

## CANopen Control

- EL6-D Model
- EL6-RS Model
- EL6-CAN Model



# AC Servo Drives

## EL7 Series-220VAC Models



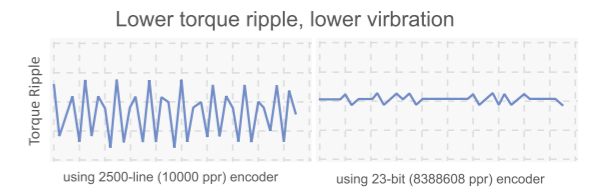
- Power rating: 100W - 2kW
- 220 VAC input
- Automatic motor identification
- Easy tuning
- Built-in dynamic brake

EL7 Series AC servo drives are high performance AC digital servo drives which is designed for position / velocity / torque high accurate control, 220VAC version power range up to 2kW and it can provide intelligent performance with easy tuning process. Combined with abundant features like MFC, vibration suppression, Multi-mode filter function, etc. It provides machines a compact size, low tuning works, but high resolution encoder up to 23-bit, which can be used for high accuracy applications.

EL7-D EL7-D Servo Drives	EL7-RS EL7-RS Modbus Servo Drives	EL7-EC EL7-EC EtherCAT Servo Drives
<b>Position Mode</b> <ul style="list-style-type: none"> <li>• 5V differential pulse/24V single-ended pulse</li> <li>• 17-bit magnetic single-turn encoder / 23-bit optical multi-turn encoder</li> <li>• Built-in dynamic brake</li> <li>• GUI Software - Motion Studio</li> </ul>	<b>Position/Velocity/Torque Mode</b> <ul style="list-style-type: none"> <li>• RS485 based on Modbus</li> <li>• 16paths Motion-PR Mode</li> <li>• 17-bit magnetic single-turn encoder / 23-bit optical multi-turn encoder</li> <li>• Built-in dynamic brake</li> <li>• GUI Software - Motion Studio</li> </ul>	<b>Position/Velocity/Torque Mode</b> <ul style="list-style-type: none"> <li>• EtherCAT—CiA402, CoE</li> <li>• 14 Inputs and 6 outputs</li> <li>• 17-bit magnetic single-turn encoder / 23-bit optical multi-turn encoder</li> <li>• Built-in dynamic brake</li> <li>• GUI Software - Motion Studio</li> </ul>

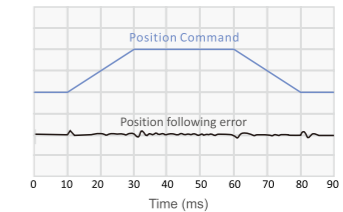
### High Precision

- Up to 23-bit(8388608 ppr) high resolution encoder.
- Motors come with up to 23-bit (8388608 ppr) high resolution encoders are also available for applications require higher precision, smoother movement and lower torque ripple



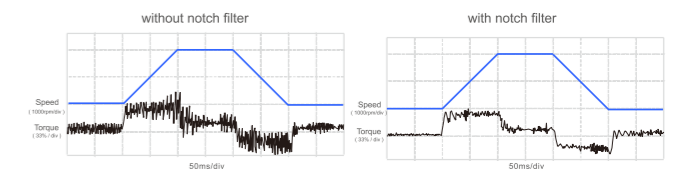
### Excellent Position Following Capability

- By adopting load identification and torque feedforward advanced control algorithms, very small velocity ripple and position following error can be achieved. It is a great feature of the ELP when multi-axis synchronization such as interpolations are required.



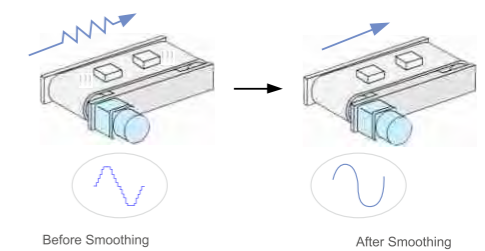
### Vibration Suppression

- Adaptive filter makes the notch filter frequency automatically follow the machine resonance frequency.
- Can suppress vibration occurring at both starting and stopping in low stiffness machine.
- Suppress vibration frequency up to 1500 Hz.

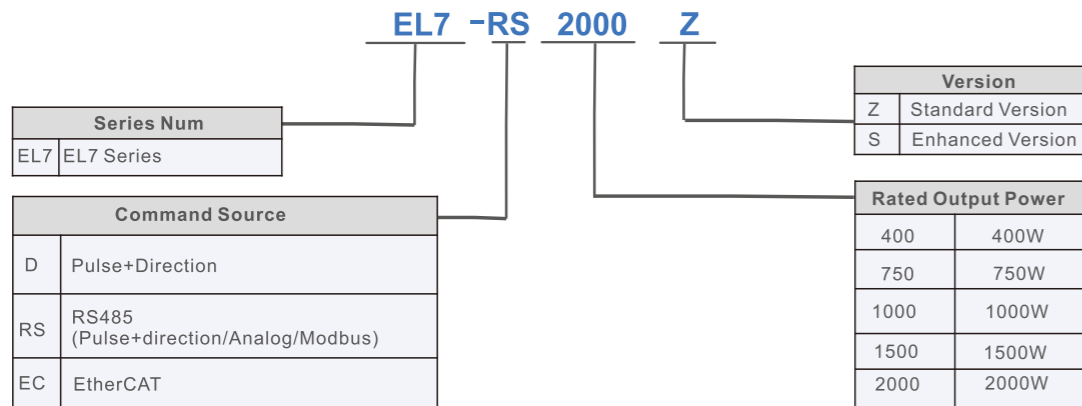


### Command Signal Smoothing

- Command signal smoothing can soften the effect of immediate change in velocity and direction, delivering smoother movement and longer lifetime.



## Part Numbers



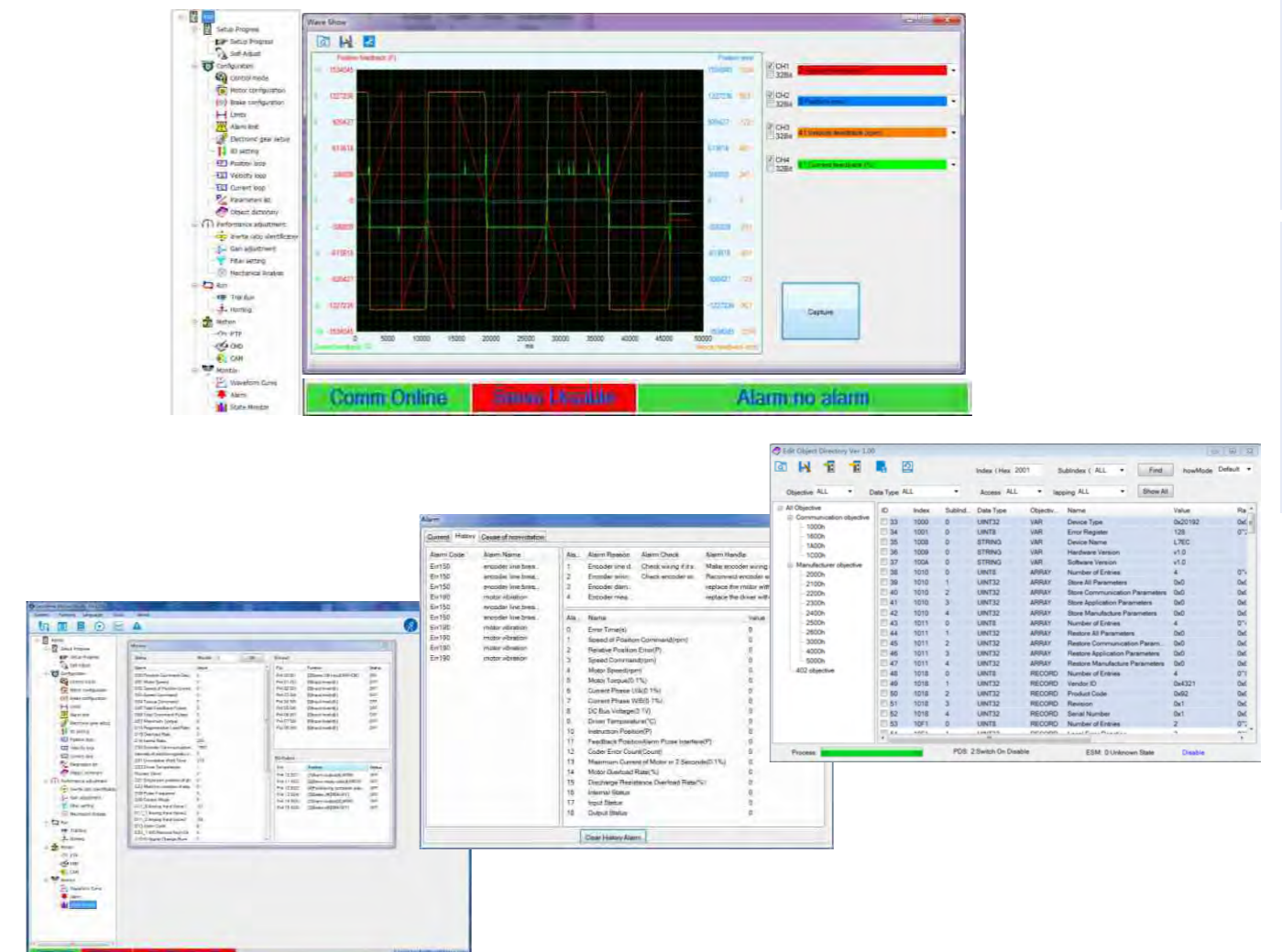
## Specifications

Servo drive model	EL7-*400Z	EL7-*750Z	EL7-*1000Z	EL7-*1500Z	EL7-*2000Z
Rated output power	400W	750W	1000W	1500W	2000W
Rated output current [Arms]	3	5.5	7	9.5	12
Max output current [Arms]	9	16.5	21	28.5	36
Dimensions(mm)	40*175*156	50*175*156	50*175*156	80*175*175	80*175*175
Main power	1-phase 190VAC – 240VAC , 50/60Hz			1 or 3-phase 190VAC – 240VAC,50/60Hz	
Control power	1-phase 190VAC–240VAC, 50/60Hz				
Control methods	IGBT SVPWM sinusoidal wave control				
Feedback mode	17-bit magnetic single-turn encoder / 23-bit optical multi-turn encoder				
Input pulse	0-500kHz,5V differential input				
Electronic gear ratio	1~8388608/1~8388608				
Analog input	not available				
Speed frequency response	3.1kHz				
Input signal	DI: 9 programmable digital inputs, allows sink connection Servo enable, over-travel inhibition, gain switching, command pulse inhibition, speed zero clamp, deviation counter clear, alarm clear				
Output signal	DO: 6 programmable digital outputs 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.				
GUI Software	All setting values of current loop, velocity loop, position loop can be modified and saved with Motion Studio software, all setting values can be downloaded and uploaded				
Communication interface	USB : Based on Modbus protocol (according to USB2.0 specification) RS485				
Brake mode	Built-in brake resistor or external resistor				
Adapt load inertia	Less than 30 times motor inertia				
Weight	About 1.5-3kg				

Servo drive series	EL7-D***Z	EL7-RS***Z	EL7-EC***Z
Control methods	<ul style="list-style-type: none"> <li>Position control</li> <li>JOG</li> </ul>	<ul style="list-style-type: none"> <li>Position control</li> <li>Velocity control</li> <li>Torque control</li> <li>Built-in PR mode Modbus RTU</li> <li>JOG</li> </ul>	<ul style="list-style-type: none"> <li>CSP(Cyclic Synchronous Position)</li> <li>CSV(Cyclic Synchronous Velocity)</li> <li>CST(Cyclic Synchronous Torque)</li> <li>PP(Profile Position)</li> <li>PV(Profile Velocity)</li> <li>PT(Profile Torque)</li> <li>HM(Homing)</li> </ul>
Encoder output	5V Differential, 0-500kHz 24Vsingle-ended,0-200kHz	5V Differential, 0-500kHz 24Vsingle-ended,0-200kHz	--
Digital input	9 programmable digital inputs (allows sink connection/ source connection)	9 programmable digital inputs (allows sink connection/ source connection)	14 programmable digital inputs (allows sink connection/source connection) 2 differential (for capture probe)
Digital output	6 programmable digital outputs (4 single-ended, 2 differential)		
Analog input	2 analog input: -10 ~ +10Vdc		
Network	--	Modbus RTU (RJ 45)	EtherCAT (RJ45)
Maximum frequency Of pulse input	5V Differential, 500kHz 24Vsingle-ended, 200kHz	5V Differential, 500kHz 24Vsingle-ended, 200kHz	--

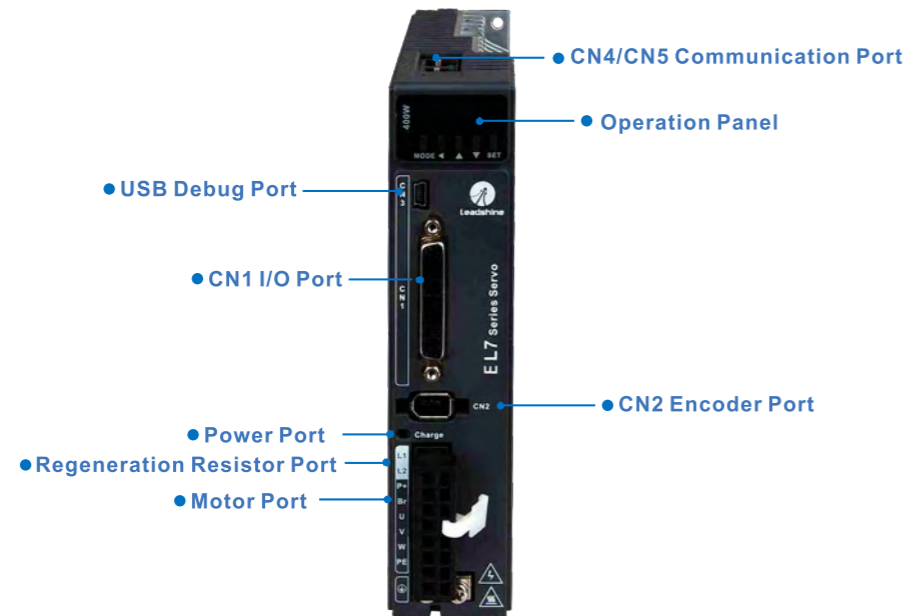
## Motion Studio - GUI Software

- 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 EtherCAT version.
- Easy to read/save/download/compare/reset all parameters.

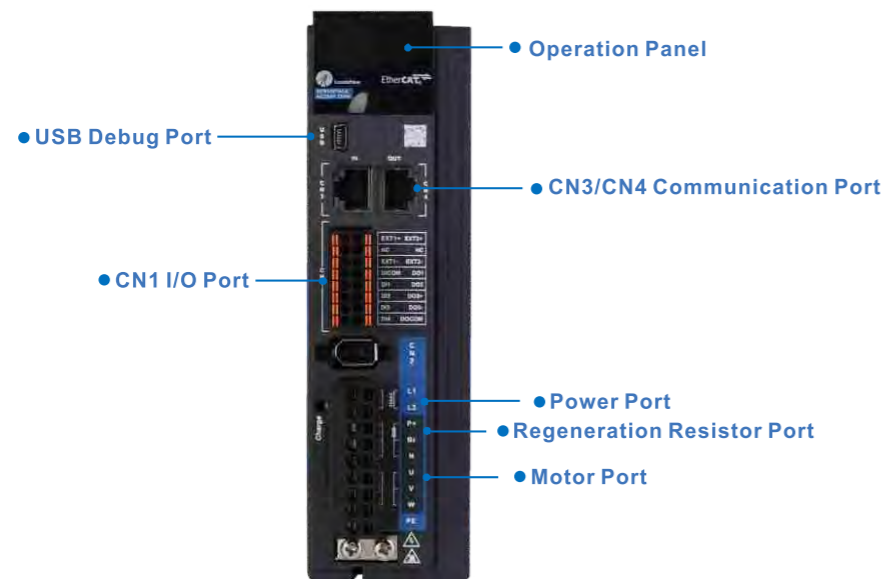


## Servo Drive Pin Assignments

EL7-D Model  EL7-RS Model  EL7-EC Model



EL7-D Model  EL7-RS Model  EL7-EC Model



## External Regeneration Resistors

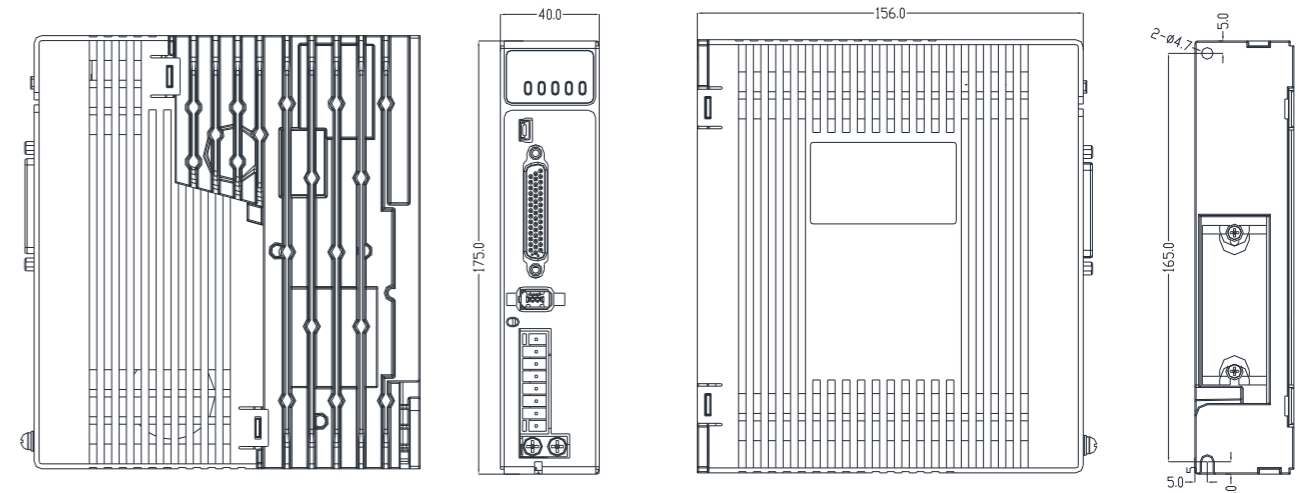
Type	Power	Resistance
RXLG-50W	50W	100Ω
RXLG-100W	100W	100Ω
RXLG-200W	200W	50Ω
RXLG-400W	400W	50Ω
RXLG-800W	800W	50Ω

## Dimensions

Unit: mm

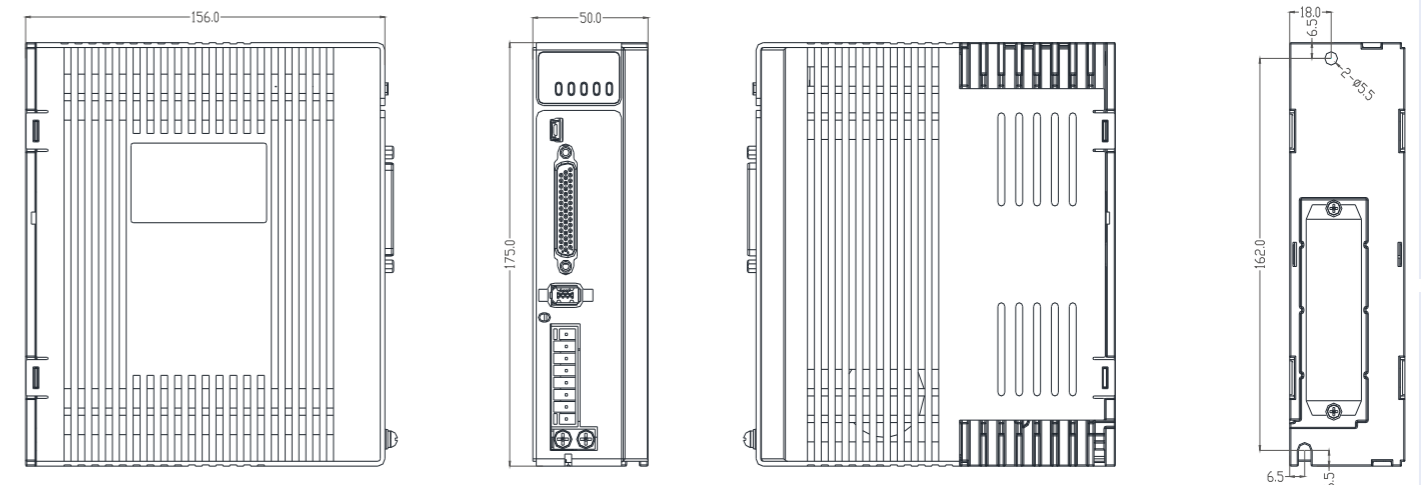
### • 200W/400W

EL7-D Model  EL7-RS Model  EL7-EC Model



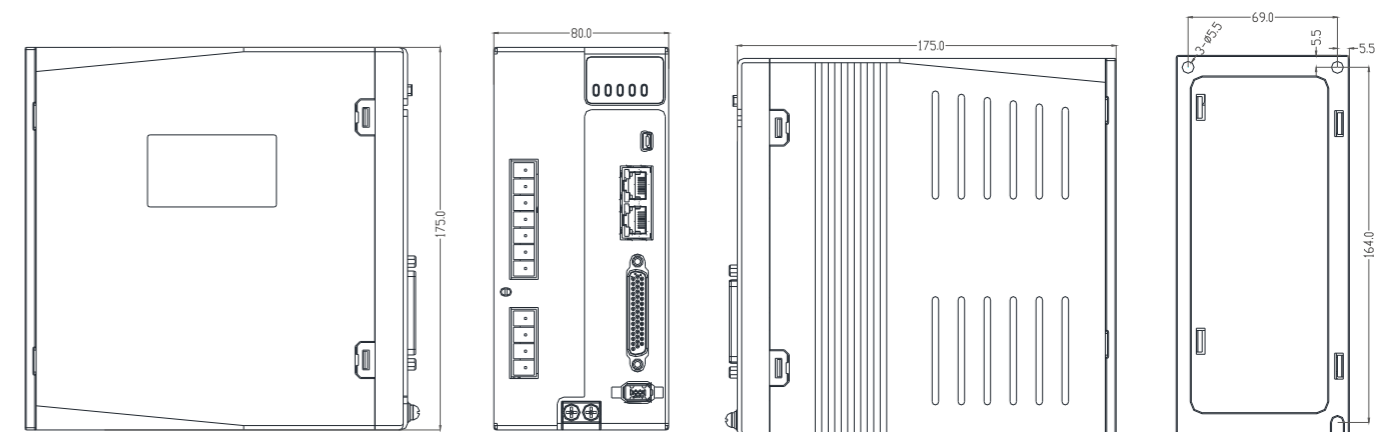
### • 750W/1000W

EL7-D Model  EL7-RS Model  EL7-EC Model



### • 1500W/2000W

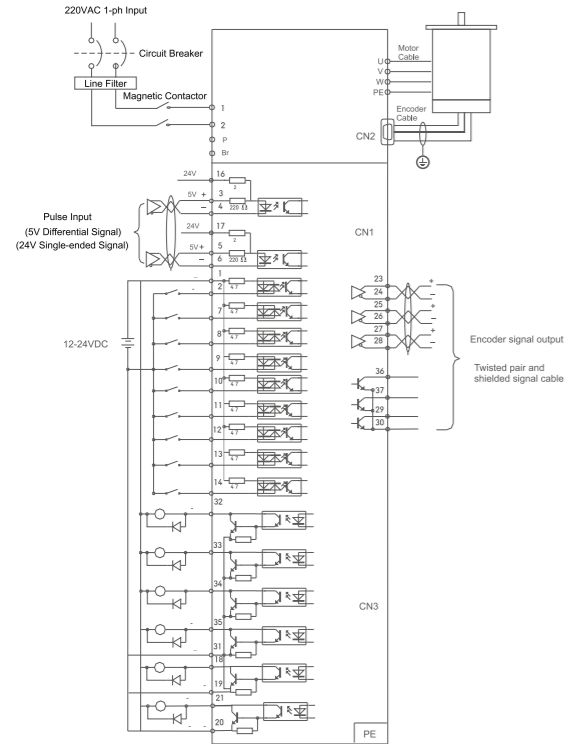
EL7-RS Model  EL7-EC Model



# System Wirings

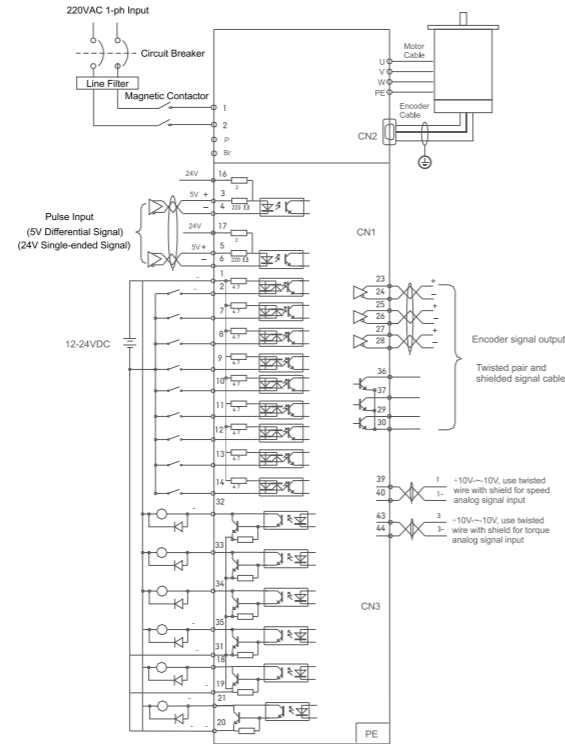
## • Position Control

EL7-D Model  EL7-RS Model  EL7-EC Model



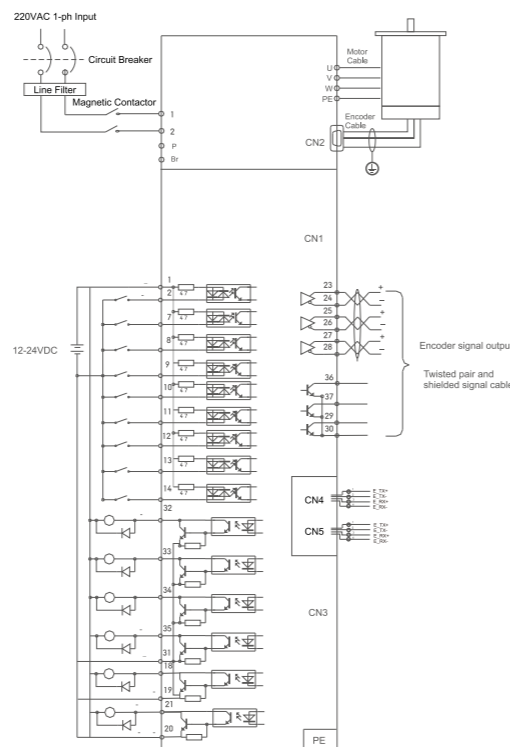
## • Torque/Velocity Control

EL7-D Model  EL7-RS Model  EL7-EC Model



## • EtherCAT Control

EL7-D Model  EL7-RS Model  EL7-EC Model



# AC Servo Drives

## EL7 Series-380VAC Models



- Power rating: 750W - 7.5kW
- 380 VAC input
- Automatic motor identification
- Easy tuning
- Built-in dynamic brake

EL7 Series AC servo products are high performance AC digital servo which is designed for position / velocity / torque high accurate control, 380VAC version power range up to 7.5kW and it can provide intelligent performance with easy tuning process. Combined with abundant features like MFC, vibration suppression, Multi-mode filter function, etc. It provides machines a compact size, low tuning works, but high resolution encoder up to 23-bit, which can be used for high accuracy applications.



**EtherCAT**

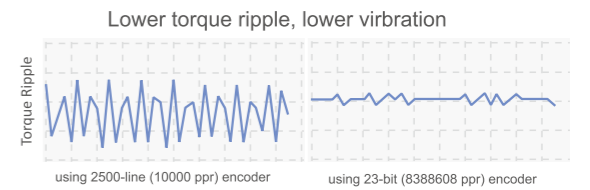
EL7 Series EL7-EC EtherCAT Servo Drives

### Position/Velocity/Torque Mode

- EtherCAT—CiA402, CoE
- Speed frequency response up to 3.2kHz
- 17-bit magnetic single-turn encoder/  
23-bit optical multi-turn encoder
- Built-in dynamic brake
- GUI Software - Motion Studio

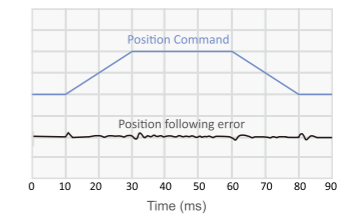
## High Precision

- Up to 23-bit(8388608 ppr) high resolution encoder.
- Motors come with up to 23-bit (8388608 ppr) high resolution encoders are also available for applications require higher precision, smoother movement and lower torque ripple



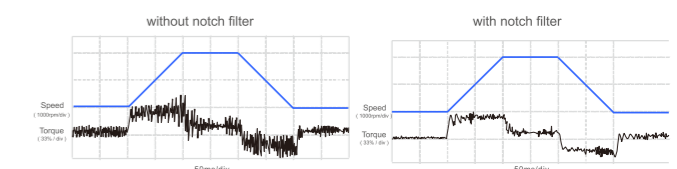
## Excellent Position Following Capability

- By adopting load identification and torque feedforward advanced control algorithms, very small velocity ripple and position following error can be achieved. It is a great feature of the EL7 when multi-axis synchronization such as interpolations are required.



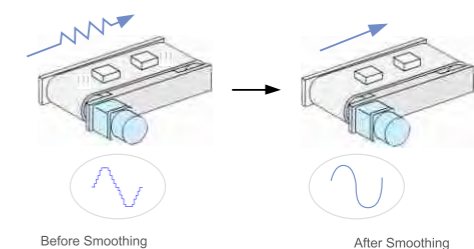
## Vibration Suppression

- Adaptive filter makes the notch filter frequency automatically follow the machine resonance frequency.
- Can suppress vibration occurring at both starting and stopping in low stiffness machine.
- Suppress vibration frequency up to 1500 Hz.

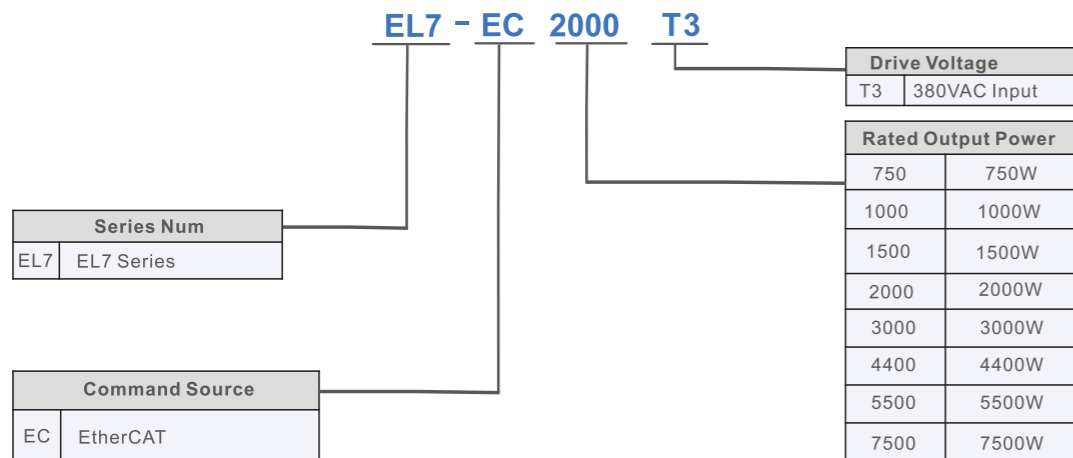


## Command Signal Smoothing

- Command signal smoothing can soften the effect of immediate change in velocity and direction, delivering smoother movement and longer lifetime.



## Part Numbers



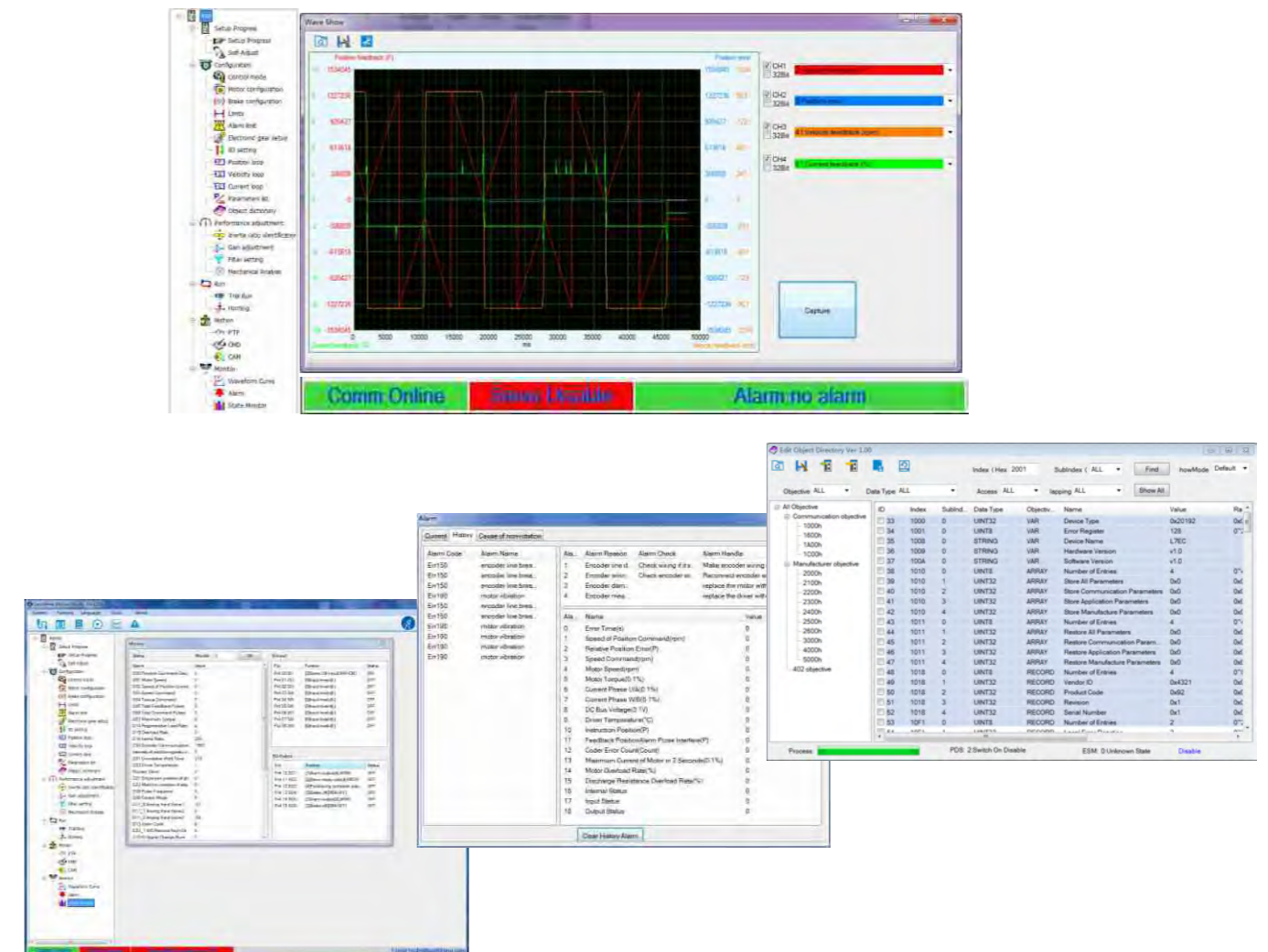
## Specifications

Servo drive model	EL7-EC750T3	EL7-EC1000T3	EL7-EC1500T3	EL7-EC2000T3	EL7-EC3000T3	EL7-EC4400T3	EL7-EC5500T3	EL7-EC7500T3
Rated output power	750W	1000W	1500W	2000W	3000W	4400W	5500W	7500W
Rated output current [Arms]	2.5	3.5	5.4	8.4	11.9	16.5	20.8	25.7
Max output current [Arms]	7.5	10.5	16.2	21	29.7	41.2	52	64.2
Dimensions (mm)	55*175*179	55*175*179	55*175*179	80*175*179	80*175*179	90*250*230	90*250*230	90*250*230
Main power	3-phase 380VAC -15%~+10%, 50/60Hz							
Control power	3-phase 380VAC -15%~+10%, 50/60Hz							
Control methods	IGBT SVPWM sinusoidal wave control							
Feedback mode	17-bit magnetic single-turn encoder/ 23-bit optical multi-turn encoder							
Input pulse	0-500kHz, 5V differential input							
Electronic gear ratio	1~8388608/1~8388608							
Analog input	Not available							
Speed frequency response	3.1kHz							
Input signal	DI: 4 programmable digital inputs, allows sink 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 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.							
GUI Software	All setting values of current loop, velocity loop, position loop can be modified and saved with Motion Studio software, all setting values can be downloaded and uploaded							
Communication interface	USB : Based on Modbus protocol (according to USB2.0 specification) RS485							
Brake mode	Built-in brake resistor or external resistor							
Adapt load inertia	Less than 30 times motor inertia							
Weight	About 1.5-3kg							

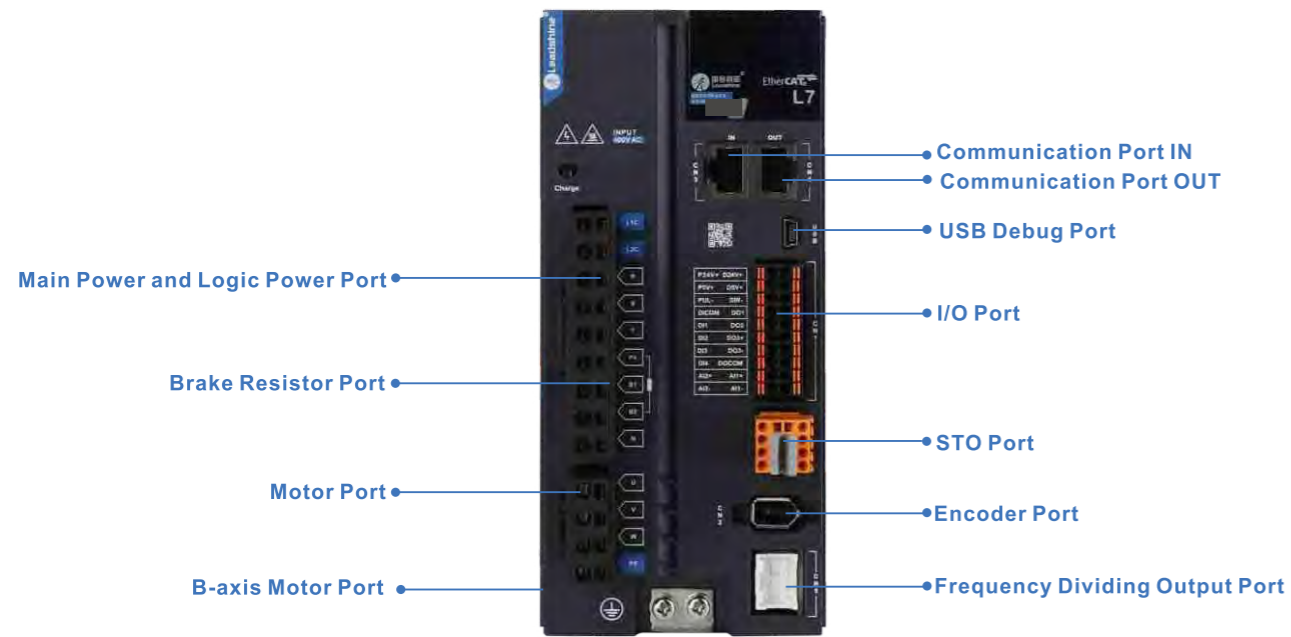
Servo drive series	EL7-EC***T3
Control methods	<ul style="list-style-type: none"> <li>• CSP(Cyclic Synchronous Position)</li> <li>• CSV(Cyclic Synchronous Velocity)</li> <li>• CST(Cyclic Synchronous Torque)</li> <li>• PP(Profile Position)</li> <li>• PV(Profile Velocity)</li> <li>• PT(Profile Torque)</li> <li>• HM(Homing)</li> <li>• Pulse</li> </ul>
Encoder output	RS485 bus communication
Digital input	4 programmable digital inputs (allows sink connection/ source connection)
Digital output	3 programmable digital outputs (2 single-ended, 1 differential)
Network	EtherCAT (RJ45)
Maximum frequency Of pulse input	5V Differential, 500kHz 24Vsingle-ended, 200kHz

## Motion Studio - GUI 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 EtherCAT version.
- Easy to read/save/download/compare/reset all parameters.



## Servo Drive Pin Assignments



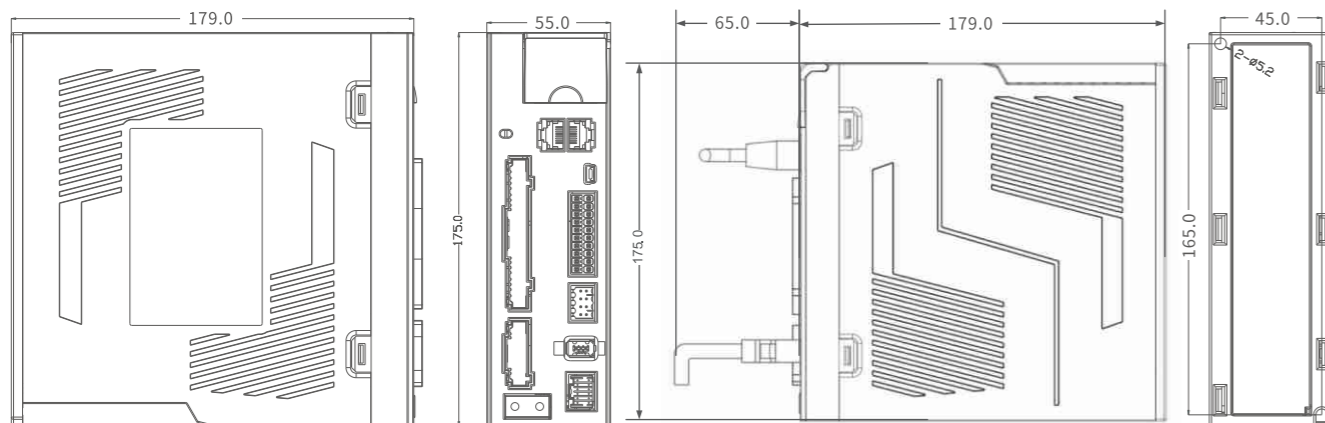
## External Regeneration Resistors

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

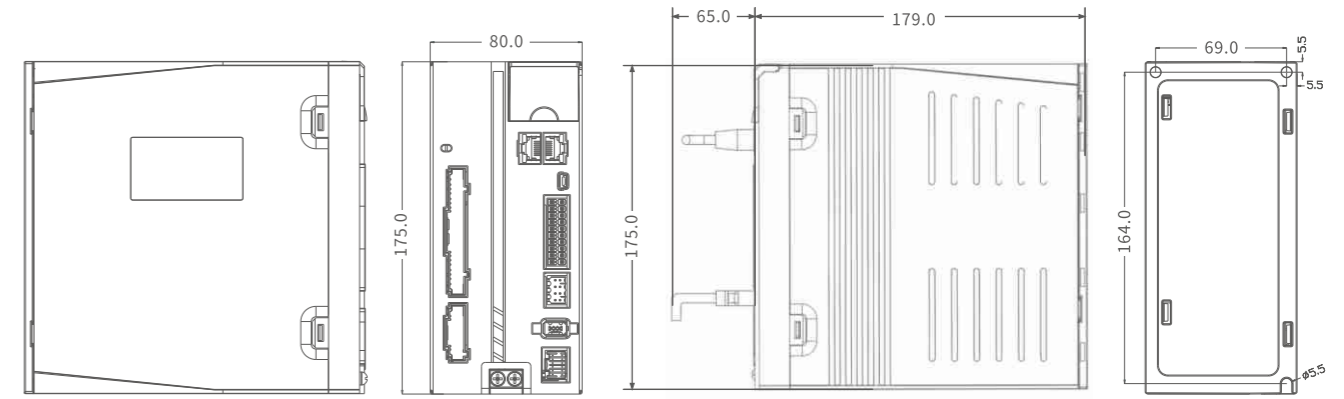
## Dimensions

### • 750W/1000W/1.5kW

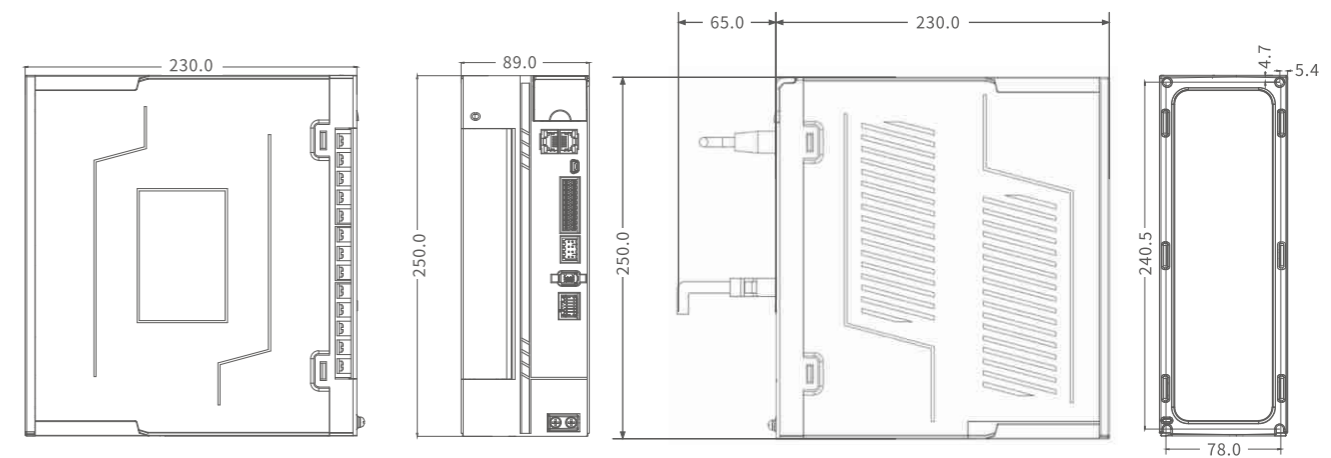
Unit: mm



### • 2kW/3kW



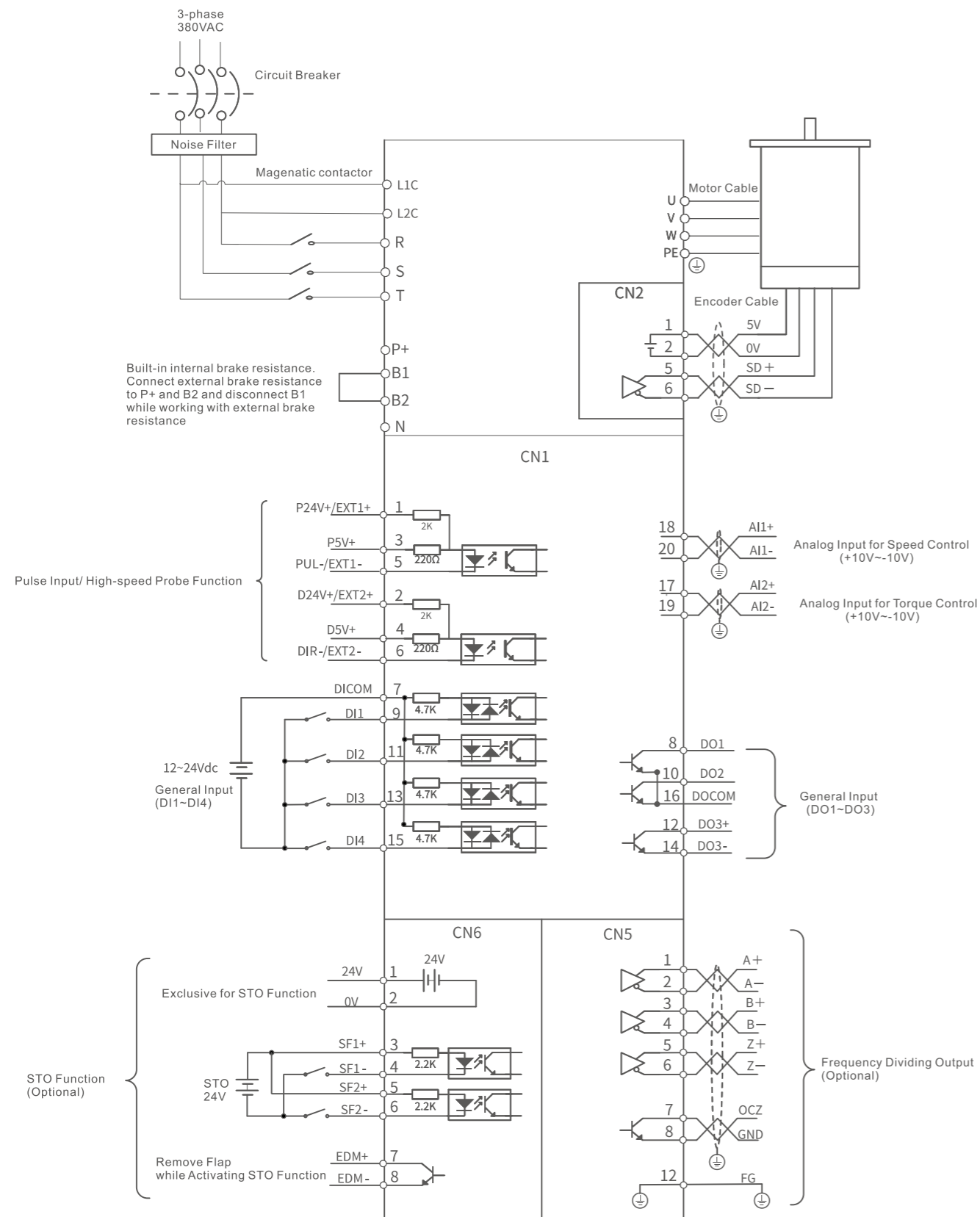
### • 4.4kW/5.5kW/7.5kW





# System Wirings

• 750W-7.5kW



# AC Servo Drives EL7-PN Series (Coming soon)



- Profinet communication
  - PTCP (IEC61158)
  - 100Mbit/s (100BASE-TX)
  - Conform to PROFIdrive , AC1/AC3/AC4 supported
- 380VAC, 0.75 -7.5kW
- STO (SiL3 , optional)
- Command source : Profinet communication , Pulse+dir
- Speed frequency response up to 3.5kHz
- Auto-tuning

## Products Models

Model	Rated output power	Main power(VAC)	Rated output current [Arms]	Max output current [Arms]	Dimensions(mm)
EL7-PN750T3	750W	3-phase 380VAC -15%~+10%, 50/60Hz	2.5	7.5	55*175*179
EL7-PN1000T3	1000W	3-phase 380VAC -15%~+10%, 50/60Hz	3.5	10.5	55*175*179
EL7-PN1500T3	1500W	3-phase 380VAC -15%~+10%, 50/60Hz	5.4	16.2	55*175*179
EL7-PN2000T3	2000W	3-phase 380VAC -15%~+10%, 50/60Hz	8.4	21	80*175*179
EL7-PN3000T3	3000W	3-phase 380VAC -15%~+10%, 50/60Hz	11.9	29.7	80*175*179
EL7-PN4400T3	4400W	3-phase 380VAC -15%~+10%, 50/60Hz	16.5	41.2	90*250*230
EL7-PN5500T3	5500W	3-phase 380VAC -15%~+10%, 50/60Hz	20.8	52	90*250*230
EL7-PN7500T3	7500W	3-phase 380VAC -15%~+10%, 50/60Hz	25.7	64.2	90*250*230

## Applications



AC Servo Systems

DC Servo Systems

Integrated Servo Motors

Power Supply

# AC Servo Drives

## 2EL7 Dual-axis Servo Drives



- Power rating: 200W - 1kW
- 220 VAC input
- Automatic motor identification
- Easy tuning
- Built-in dynamic brake
- Dual axis control

2EL7 Series AC servo products are high performance AC digital servo which is designed for position / velocity / torque high accurate control, power range up to 1kW and it can provide intelligent performance with easy tuning process. Combined with abundant features like MFC, vibration suppression, Multi-mode filter function, etc. It provides machines a compact size, low tuning works, but high resolution encoder up to 23-bit, which can be used for high accuracy applications.



**EtherCAT**

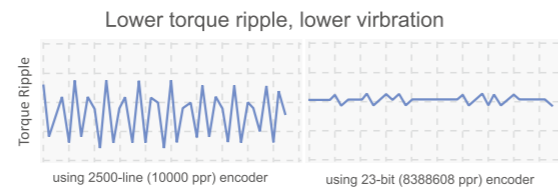
2EL7 2EL7-EC Servo Drives

Position/Velocity/Torque Mode

- EtherCAT—CiA402, CoE
- 8 Inputs and 3 outputs
- 17-bit magnetic single-turn encoder / 23-bit optical multi-turn encoder
- Built-in dynamic brake and electronic cam
- GUI Software - Motion Studio
- Save wiring and save installation space up to 43% at most

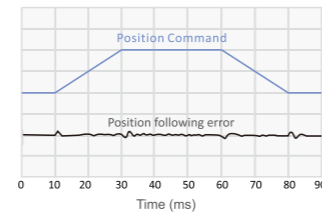
### High Precision

- Up to 23-bit(8388608 ppr) high resolution encoder.
- Motors come with up to 23-bit (8388608 ppr) high resolution encoders are also available for applications require higher precision, smoother movement and lower torque ripple



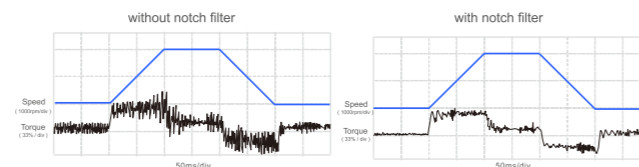
### Excellent Position Following Capability

- By adopting load identification and torque feedforward advanced control algorithms, very small velocity ripple and position following error can be achieved. It is a great feature of the 2EL7 when multi-axis synchronization such as interpolations are required.



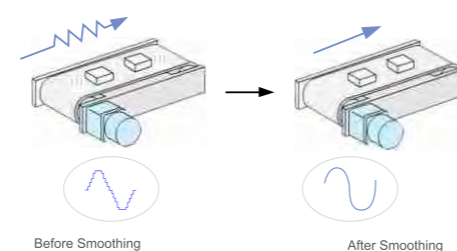
### Vibration Suppression

- Adaptive filter makes the notch filter frequency automatically follow the machine resonance frequency.
- Can suppress vibration occurring at both starting and stopping in low stiffness machine.
- Suppress vibration frequency up to 1500 Hz.

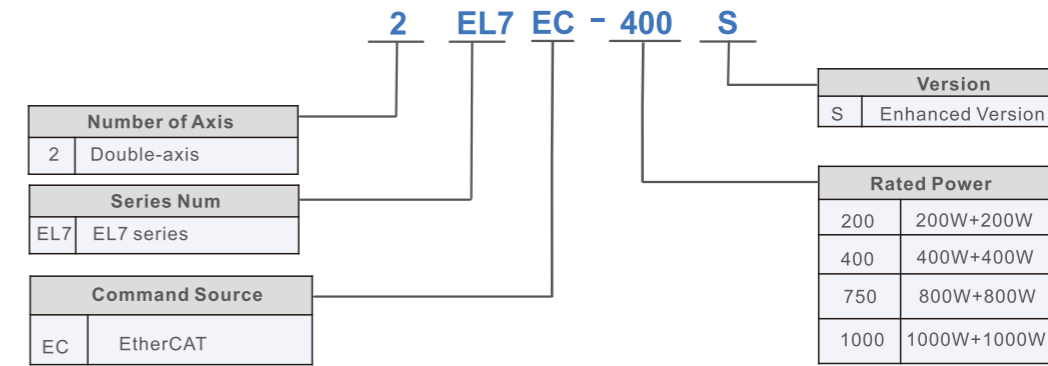


### Command Signal Smoothing

- Command signal smoothing can soften the effect of immediate change in velocity and direction, delivering smoother movement and longer lifetime.



### Part Numbers



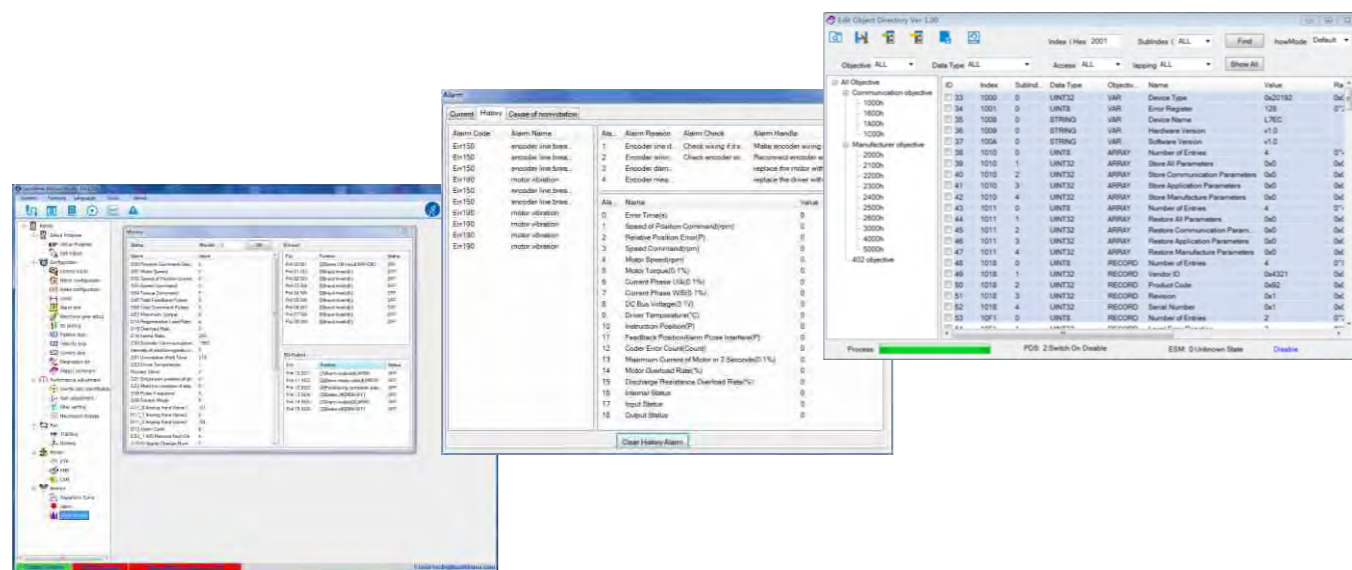
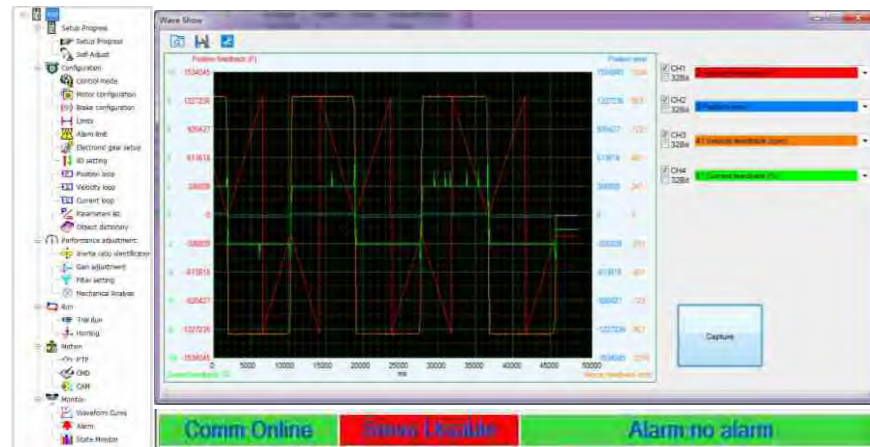
### Specifications

Servo drive model	2EL7-EC200S	2EL7-EC400S	2EL7-EC750S	2EL7-EC1000S
Rated output power	200W	400W	750W	1000W
Rated output current [Arms]	1.9	3.2	5.1	5.7
Max output current [Arms]	5.7	9.6	15.3	17.1
Dimensions(mm)	55*175*186	55*175*186	80*175*186	80*175*186
Main power	1-phase/3-phase 190VAC – 240VAC , 50/60Hz			
Control power	1-phase/3-phase 190VAC–240VAC, 50/60Hz			
Control methods	IGBT SVPWM sinusoidal wave control			
Feedback mode	17-bit magnetic single-turn encoder / 23-bit optical multi-turn encoder			
Input pulse	0-500kHz,5V differential input			
Electronic gear ratio	1~8388608/1~8388608			
Analog input	not available			
Speed frequency response	3.1kHz			
Input signal	DI: 8 programmable digital inputs, allows sink 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 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.			
GUI Software	All setting values of current loop, velocity loop, position loop can be modified and saved with Motion Studio software, all setting values can be downloaded and uploaded			
Communication interface	USB: Based on Modbus protocol (according to USB2.0 specification) RS485			
Brake mode	Built-in brake resistor or external resistor			
Adapt load inertia	Less than 30 times motor inertia			
Weight	About 1.5-3kg			

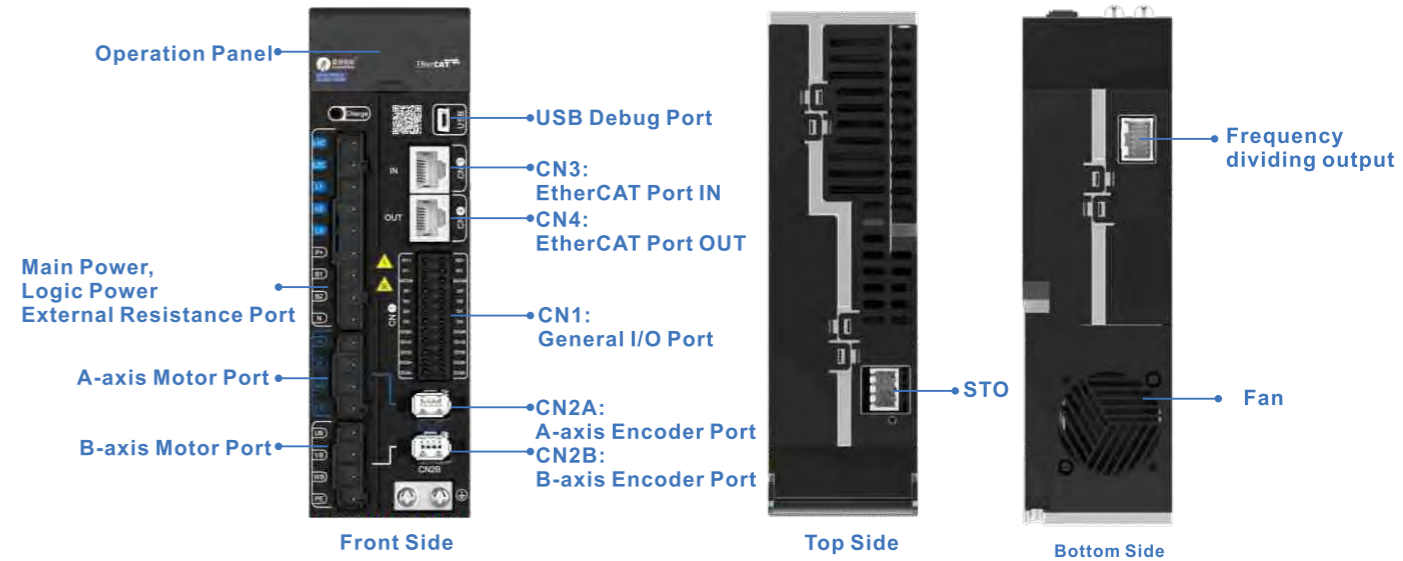
Servo drive series	2EL7
Control methods	<ul style="list-style-type: none"> <li>• CSP(Cyclic Synchronous Position)</li> <li>• CSV(Cyclic Synchronous Velocity)</li> <li>• CST(Cyclic Synchronous Torque)</li> <li>• PP(Profile Position)</li> <li>• PV(Profile Velocity)</li> <li>• PT(Profile Torque)</li> <li>• HM(Homing)</li> </ul>
Digital input	8 inputs (two axis shared, allow sink or source connection)
Digital output	3 outputs (2 single-ended, 1 differential)
Network	EtherCAT (RJ45)

## Motion Studio - GUI 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 EtherCAT version.
- Easy to read/save/download/compare/reset all parameters.



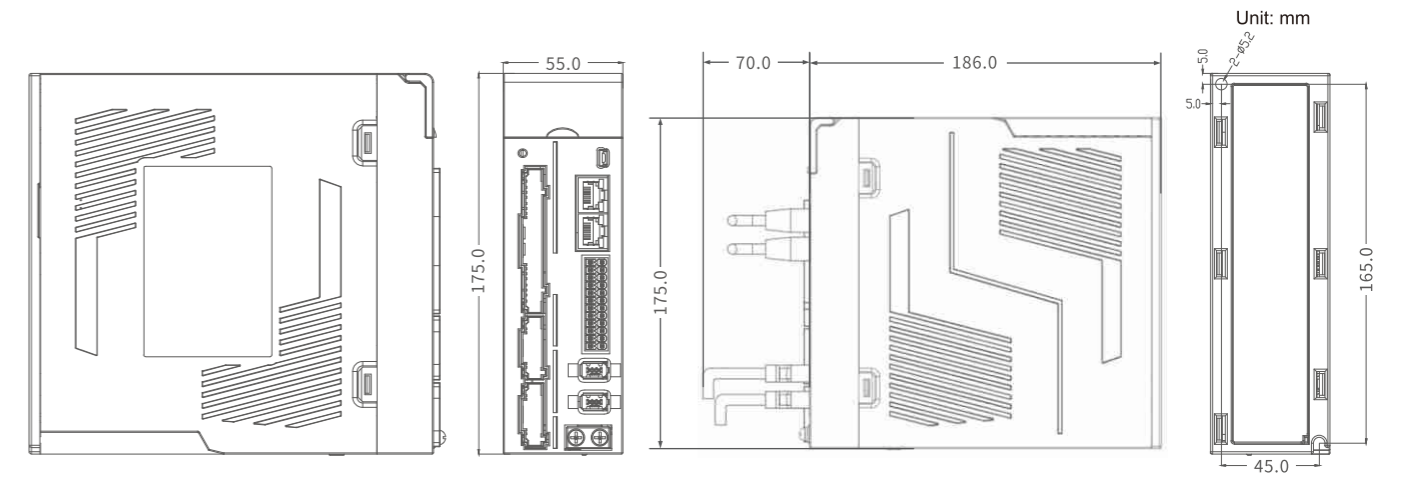
## Servo Drive Pin Assignments



## External Regeneration Resistors

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

## Dimensions



AC Servo Systems

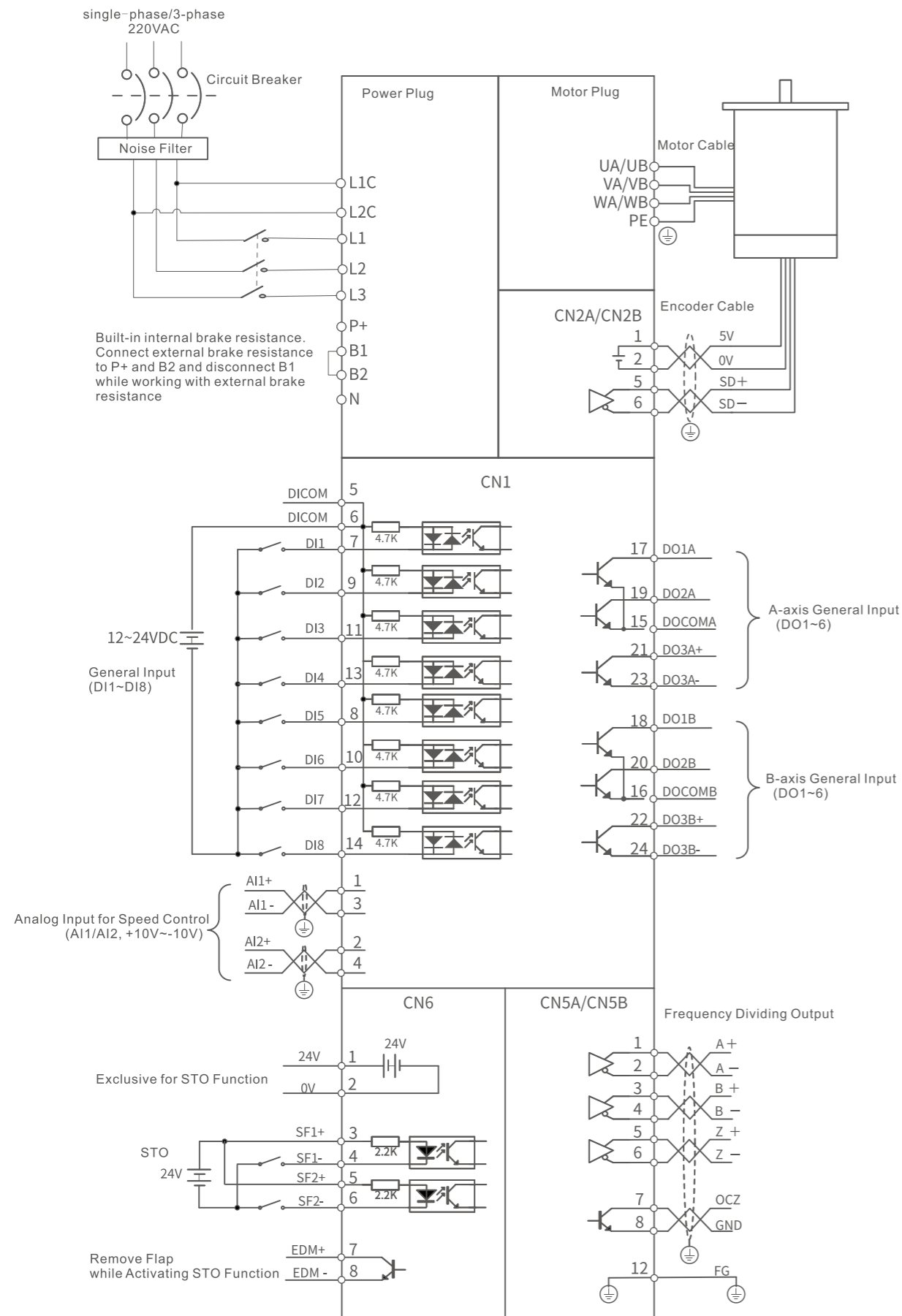
DC Servo Systems

Integrated Servo Motors

Power Supply

# System Wirings

• 200W-1kW



# AC Servo Drives

EL8 Series (Coming Soon)



- Power range up to 1kW
- Speed frequency response up to 3.5kHz
- STO (IEC61508 SIL3)
- Pulse+dir/Analog input/RS485/EtherCAT/Profinet
- Up to 8Mpps for the frequency of pulse input
- Auto-tuning
- Auxiliary feedback port for fully feedback control

Pulse+dir

RS485

EtherCAT

PROFINET

## Products Models

Model	Rated output power	Main power(VAC)	Rated output current [Arms]	Max output current [Arms]	Dimensions(mm)
EL8-**100	100W	Single-phase/3-phase AC220	2.0	4.8	150*150*43
EL8-**400	400W	Single-phase/3-phase AC220	3.5	10.3	150*150*43
EL8-**750	750W	Single-phase/3-phase AC220	5.5	15.6	172*150*55
EL8-**1000	1000W	Single-phase/3-phase AC220	7.0	21.2	172*150*55

## Applications



# AC Servo Motors

## ELM1S/ELM2/ELM2S/ELM Series



- Power rating: 100W - 7.5kW
- Voltage: 220VAC/380VAC
- Feedback: 17-bit, 23-bit absolute encoder
- Frame size: 40mm, 60mm, 80mm, 130mm, 180mm

### Part Numbers

ELM2S - 0750 L H 80 E □ - DC

Series Num	
ELM1S	ELM1S Series for frame 40/60/80
ELM2	ELM2 Series for frame 40/60/80
ELM2S	ELM2S Series for frame 40/60/80
ELM	ELM Series for frame 130/180

Note: All above are AC servo series

Rated Output Power	
0050	50W
0100	100W
0200	200W
0400	400W
0750	750W
0850	850W
1000	1000W
1300	1300W
1500	1500W
1800	1800W
2000	2000W
2900	2900W
4400	4400W
5500	5500W
7500	7500W

Encoder Type	
D	17-bit optical single-turn
F	17-bit magnetic single-turn
L	23-bit optical multi-turn

Inertia Ratio	
L	Low
M	Medium
H	High

Motor Connector Type	
SS	Plastic plug, for ELM1S/ELM2
HH2	Aviation plug, for ELM1S
DC	Direct connect plug, for ELM2S
H	Aviation plug, for ELM, frame 130/180
HD	Aviation plug, for ELM, frame 130

Voltage	
Absence	220VAC
T	380VAC

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

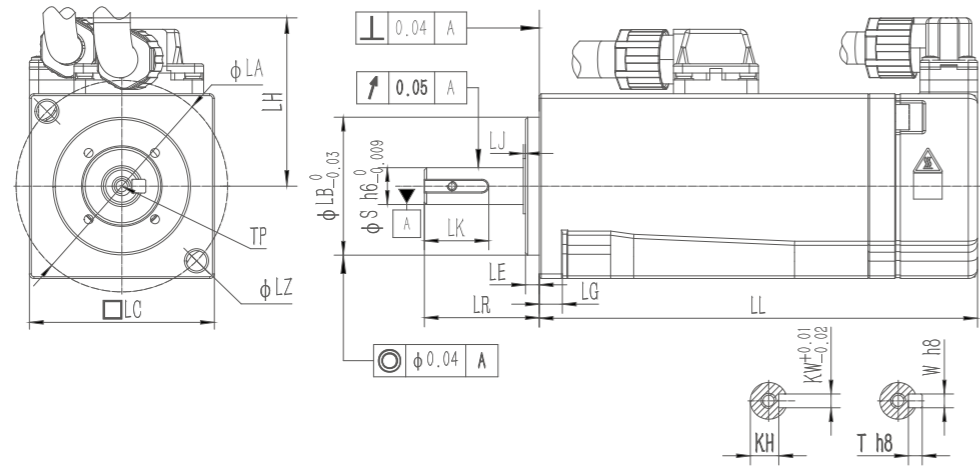
Frame Size	
40	40mm
60	60mm
80	80mm
130	130mm
180	180mm

### Servo Motor with 17-bit Magnetic Single-turn Encoder

#### • Models

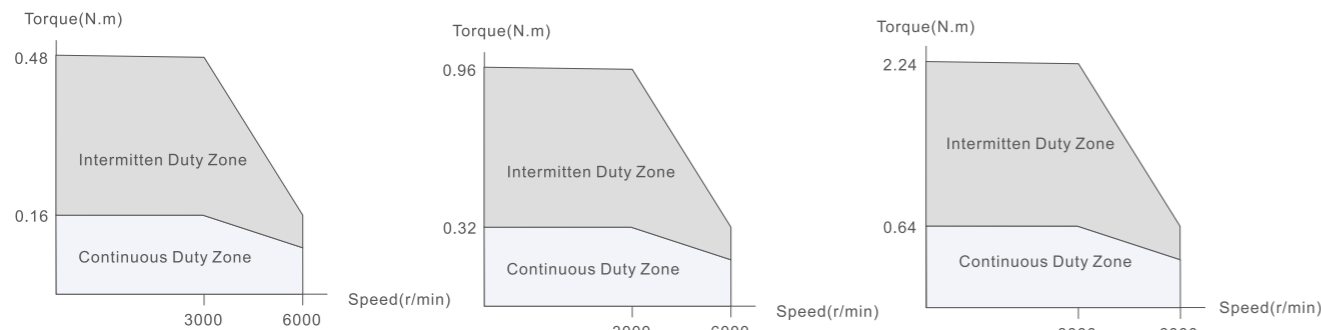
ELM Model	ELM1S-0050FH40E-*	ELM1S-0100FH40E-*	ELM1S-0200FH60E-*	ELM1S-0400FH60E-*	ELM1S-0750FH80E-*	ELM1S-1000FH80E-*	
	ELM1S-0050FH40F-*	ELM1S-0100FH40F-*	ELM1S-0200FH60F-*	ELM1S-0400FH60F-*	ELM1S-0750FH80F-*	ELM1S-1000FH80F-*	
Frame Size[mm]	40		60		80		
Rated Power[W]	50	100	200	400	750	1000	
Rated Voltage[VAC]	220						
Rated Torque[Nm]	0.16	0.32	0.64	1.27	2.39	3.19	
Peak Torque[Nm]	0.48	0.96	2.24	4.46	8.37	11.2	
Rated Current[A rms]	0.85	0.85	2.1	2.1	4.1	5.7	
Peak Current[A rms]	2.97	2.97	7.35	7.35	13.4	17.7	
Rated Speed[r/min]	3000	3000	3000	3000	3000	3000	
Peak Speed[r/min]	6000	6000	6000	6000	6000	6000	
Inertia [kgm <sup>2</sup> *10 <sup>-4</sup> ]	Without Brake	0.0355	0.062	0.56	0.56	1.5	2.03
	With Brake	0.0456	0.0721	0.58	0.58	1.65	2.13
Weight (kg)	Without Brake	0.32	0.46	1.3	1.3	2.12	2.7
	With Brake	0.54	0.68	1.55	1.55	2.7	3.2
Permissible Load to Shaft (N)	Radial	147	147	245	245	392	392
	Axial	88	88	74	74	147	147
Plug Type	SS Plug and HH2 Plug						
Matching Cable	Motor Cable Encoder Cable Brake Cable	For Motor with SS Plug	CABLE-RZ*M*-S1(V3.0)		For Motor with HH2 Plug	CABLE-RZH*M*-113-TS without Brake	
			CABLE-7BM*M*-Z(V3.0)			CABLE-RZSH*M*-113-TS with Brake	
			CABLE-SC*M*-S(V3.0)			CABLE-BMH*M*-113-TS	
Matching Drive	Priority	EL6-**400*				EL6-**750*	EL6-**1000*
	Optional	EL7-**400*				EL7-**750*	EL7-**1000*

• Dimensions



Motor Series	LL	LC	LR	LA	LZ	LH	LG	LE	LJ	S	LB	TP	LK	KH	kW	W	T
ELM1S-0050FH40*-**	56.7 (84)	40	25	46	4.5	35MAX	5	3	3	8	30	M3X8	14	6.2	3	3	3
ELM1S-0100FH40*-**	67.7 (95)	40	25	46	4.5	35MAX	5	3	3	8	30	M3X8	14	6.2	3	3	3
ELM1S-0200FH60*-**	71.6 (100.9)	60	30	70	5.5	45MAX	6.6	3	3	14	50	M5X12	22.5	11	5	5	5
ELM1S-0400FH60*-**	88.8 (118.1)	60	30	70	5.5	45MAX	6.6	3	3	14	50	M5X12	22.5	11	5	5	5
ELM1S-0750FH80*-**	90.9 (121.9)	80	35	90	6.5	55MAX	8.1	3	3	19	70	M5X15	25	15.5	6	6	6
ELM1S-1000FH80*-**	90.9 (121.9)	80	35	90	6.5	55MAX	8.1	3	3	19	70	M5X15	25	15.5	6	6	6

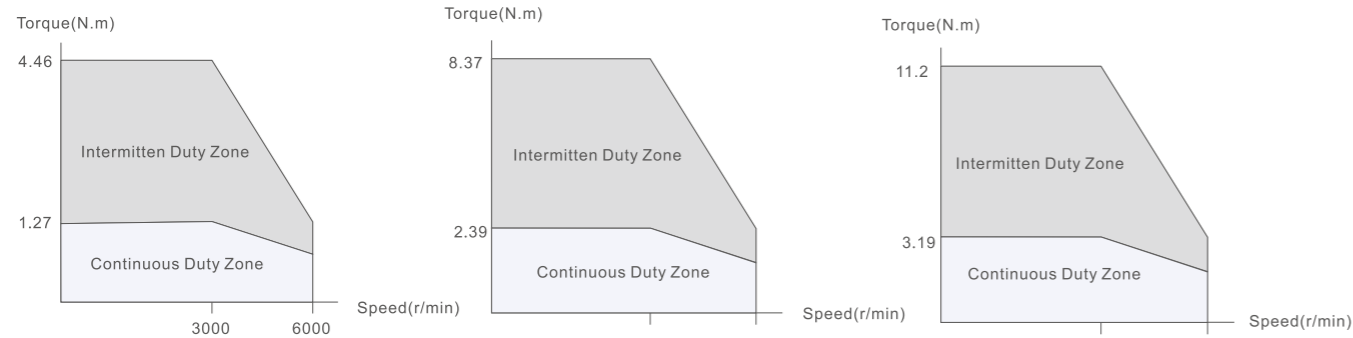
• Speed - Torque characteristics



50W Motor

100W Motor

200W Motor



400W Motor

750W Motor

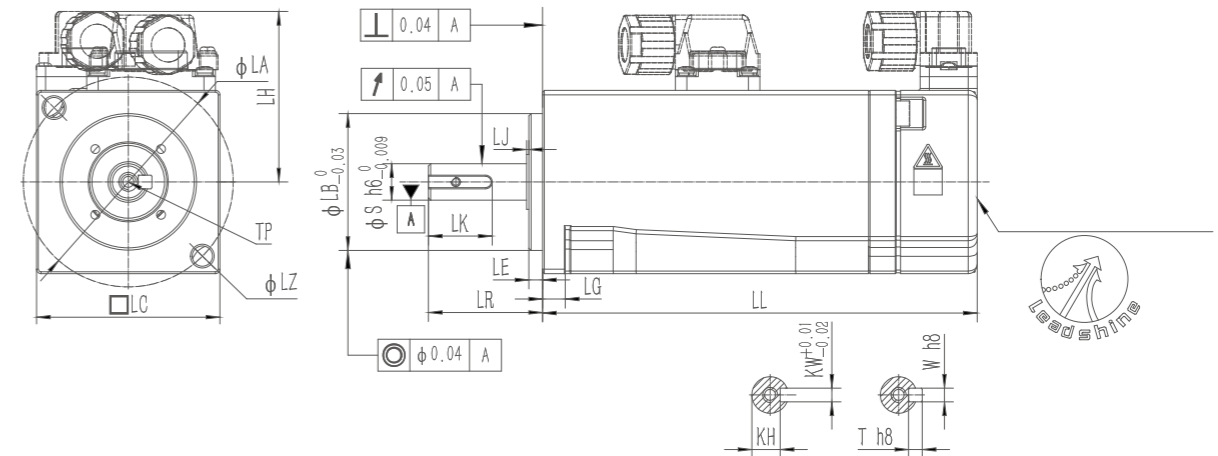
1000W Motor

Servo Motor with 23-bit Optical Multi-turn Encoder

• Models

ELM Model	ELM2-0050LH40*-SS	ELM2-0100LH40*-SS	ELM2-0200LH60*-SS	ELM2-0400LH60*-SS	ELM2-0750LH80*-SS	ELM2-1000LH80*-SS	
	ELM2S-0050LH40*-DC	ELM2S-0100LH40*-DC	ELM2S-0200LH60*-DC	ELM2S-0400LH60*-DC	ELM2S-0750LH80*-DC	ELM2S-1000LH80*-DC	
Frame Size[mm]	40			60		80	
Rated Power[W]	50	100	200	400	750	1000	
Rated Voltage[VAC]	220						
Rated Torque[Nm]	0.16	0.32	0.64	1.27	2.39	3.19	
Peak Torque[Nm]	0.48	0.96	2.24	4.46	8.37	11.2	
Rated Current[Arms]	0.85	0.85	1.5	2.1	4.1	5.7	
Peak Current[Arms]	2.97	2.97	4.7	7.35	13.4	17.7	
Rated Speed[r/min]	3000	3000	3000	3000	3000	3000	
Peak Speed[r/min]	6000	6000	6000	6000	6000	6000	
Inertia [kgm <sup>2</sup> *10 <sup>-4</sup> ]	Without Brake	0.0355	0.062	0.29	0.56	2.03	
	With Brake	0.0456	0.0721	0.31	0.58	2.13	
Weight (kg)	Without Brake	0.32	0.46	0.9	1.3	2.7	
	With Brake	0.54	0.68	1.3	1.55	3.2	
Permissible Load to Shaft (N)	Radial	147	147	245	245	490	
	Axial	88	88	74	74	147	
Plug Type	SS Plug and DC Plug						
Matching Cable	Motor Cable	For Motor with SS Plug	CABLE-RZ*M*-S1(V3.0)		For Motor with DC Plug	CABLE-RZH*M*-114-TS without Brake	
	Encoder Cable		CABLE-7BMA*M*-Z(V3.0)			CABLE-RZSH*M*-114-TS with Brake	
	Brake Cable		CABLE-SC*M*-S(V3.0)			CABLE-BMAH*M*-124-TS	
Matching Drive	Priority	2EL7-EC200S				EL7-**750*	EL7-**1000*
	Optional	EL7-**400*				2EL7-EC750S	2EL7-EC1000S
		EL6-**400*				EL6-**750*	EL6-1000*

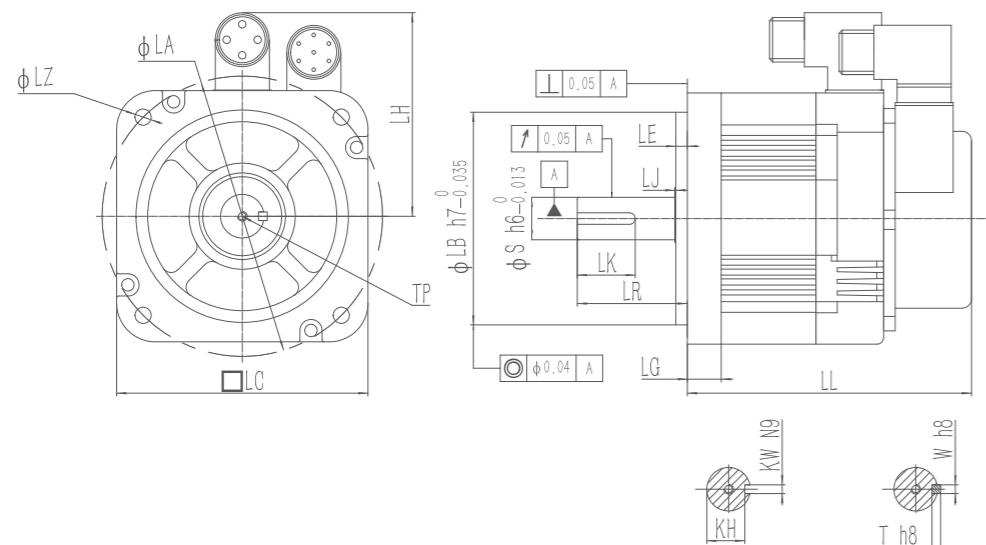
• Dimensions



Motor Series	LL	LC	LR	LA	LZ	LH	LG	LE	LJ	S	LB	TP	LK	KH	kW	W	T
ELM2*-0050LH40*-***	56.7 (84)	40	25	46	4.5	35MAX	5	3	3	8	30	M3X8	14	6.2	3	3	3
ELM2*-0100LH40*-***	67.7 (95)	40	25	46	4.5	35MAX	5	3	3	8	30	M3X8	14	6.2	3	3	3
ELM2*-0200LH60*-***	71.6 (100.9)	60	30	70	5.5	45MAX	6.6	3	3	14	50	M5X12	22.5	11	5	5	5
ELM2*-0400LH60*-***	88.8 (118.1)	60	30	70	5.5	45MAX	6.6	3	3	14	50	M5X12	22.5	11	5	5	5
ELM2*-0750LH80*-***	90.9 (121.9)	80	35	90	6.5	55MAX	8.1	3	3	19	70	M5X15	25	15.5	6	6	6
ELM2*-1000LH80*-***	103.9 (134.9)	80	35	90	6.5	55MAX	8.1	3	3	19	70	M5X15	25	15.5	6	6	6

ELM Model		ELM-0850LH130E-HD	ELM-1300LH130E-HD	ELM-1800LH130E-HD
		ELM-0850LH130F-HD	ELM-1300LH130F-HD	ELM-1800LH130F-HD
Frame Size[mm]		130	130	130
Rated Power[W]		850	1300	1800
Rated Voltage[VAC]		220		
Rated Torque[Nm]		5.39	8.4	11.5
Peak Torque[Nm]		13.5	21	28.75
Rated Current[Arms]		6.5	9.5	9
Peak Current[Arms]		16.3	23.8	22.5
Rated Speed[r/min]		1500	1500	1500
Peak Speed[r/min]		3000	3000	2000
Inertia [kgm <sup>2</sup> *10 <sup>-4</sup> ]	Without Brake	13.88	8.5	20.59
	With Brake	15.78	8.95	22.26
Weight (kg)	Without Brake	5.6	6.2	7.5
	With Brake	6.9	8.3	8.8
Permissible Load to Shaft (N)	Radial	490	490	490
	Axial	196	196	196
Plug Type		H Plug and HD Plug		
Matching Cable	Motor Cable	For Motor with HD Plug		
	Encoder Cable	CABLE-RZ*M*-HD(V2.0)		
	Brake Cable	CABLE-7BMA*M*-HD(V3.0) CABLE-SC*M*-HD(V3.0)		

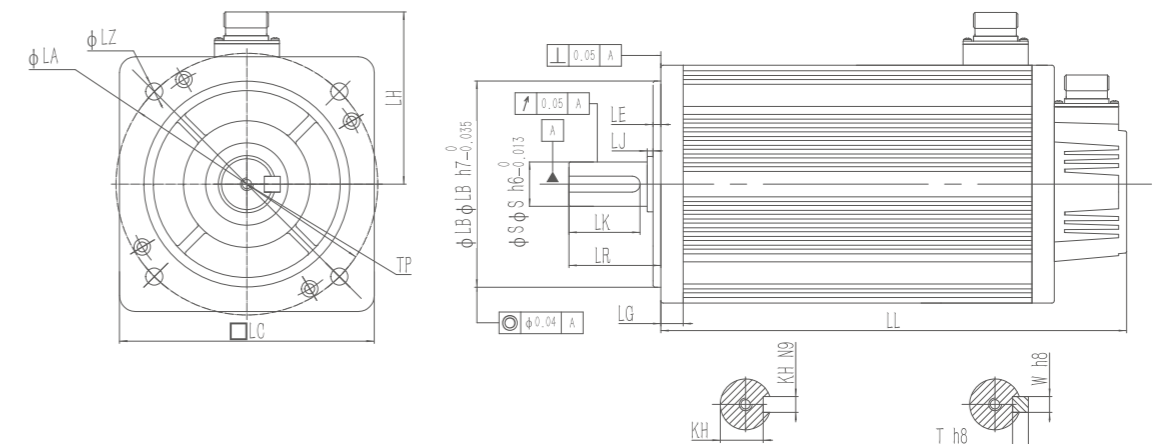
• Dimensions



Motor Series	LL	LC	LR	LA	LZ	LH	LG	LE	LJ	S	LB	TP	LK	KH	kW	W	T
ELM-0850LH130F-HD	147	130	57	145	8.5	106	17.5	6	0.5	19	110	M5X12	30	16	5	5	5
ELM-0850LH130E-HD	172	130	57	145	8.5	106	17.5	6	0.5	19	110	M5X12	30	16	5	5	5
ELM-1300LH130F-HD	168	130	57	145	8.5	106	17.5	6	0.5	22	110	M5X12	30	18.5	6	6	6
ELM-1300LH130E-HD	192	130	57	145	8.5	106	17.5	6	0.5	22	110	M5X12	30	18.5	6	6	6
ELM-1800LH130F-HD	195	130	57	145	8.5	106	17.5	6	0.5	24	110	M5X15	30	19	8	8	8
ELM-1800LH130E-HD	219	130	57	145	8.5	106	17.5	6	0.5	24	110	M5X15	30	19	8	8	8

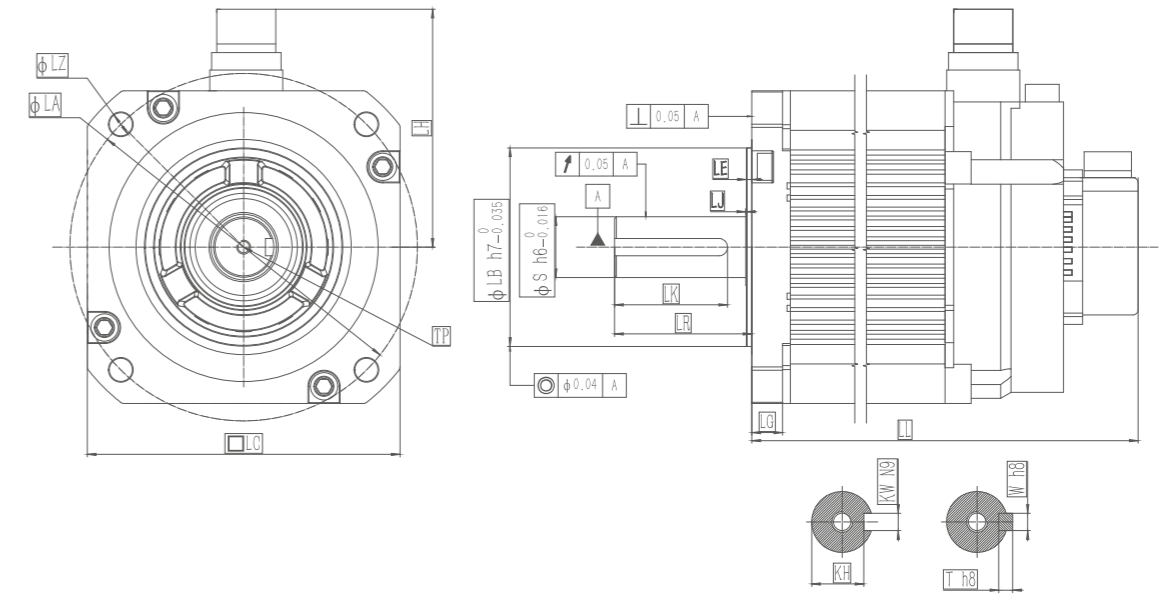
ELM Model		ELM-1000LM130E-H	ELM-1500LM130E-H	ELM-2000LM130E-H	ELM-1800LH130ET-H
		ELM-1000LM130F-H	ELM-1500LM130F-H	ELM-2000LM130F-H	ELM-1800LH130FT-H
Frame Size[mm]		130			
Rated Power[W]		1000	1500	2000	1800
Rated Voltage[VAC]		220			
Rated Torque[Nm]		4	6	7.7	11.5
Peak Torque[Nm]		10	15	19.3	34.5
Rated Current[Arms]		4	6	7.5	8.2
Peak Current[Arms]		10	15	18.8	24.6
Rated Speed[r/min]		2500	2500	2500	1500
Peak Speed[r/min]		3000	3000	3000	3000
Inertia [kgm <sup>2</sup> *10 <sup>-4</sup> ]	Without Brake	8.5	12.6	15.3	20.59
	With Brake	8.95	14.08	16.8	22.26
Weight (kg)	Without Brake	6.2	7.4	8.3	7.5
	With Brake	8.3	9.5	11	8.8
Permissible Load to Shaft (N)	Radial	490	490	490	490
	Axial	196	196	196	196
Plug Type		H Plug			
Matching Cable	Motor Cable	For Motor with H Plug			
	Encoder Cable	CABLE-RZ*M*-H(V2.0)			
	Brake Cable	CABLE-7BMA*M*-HZ(V3.0) CABLE-SC*M*-H(V3.0)			
Matching Drive	Priority	EL7-**1000*	EL7-**1500*	EL7-**2000*	EL7-EC2000T3
	Optional	EL6-**1000*	/	/	/

• Dimensions



Motor Series	LL	LC	LR	LA	LZ	LH	LG	LE	LJ	S	LB	TP	LK	KH	kW	W	T
ELM-1000LM130F-H	166	131	57	145	9	111	14	5	2	22	110	M6X20	40	18.5	6	6	6
ELM-1000LM130E-H	223	131	57	145	9	111	14	5	2	22	110	M6X20	40	18.5	6	6	6
ELM-1500LM130F-H	179	131	57	145	9	111	14	5	2	22	110	M6X20	40	18.5	6	6	6
ELM-1500LM130E-H	236	131	57	145	9	111	14	5	2	22	110	M6X20	40	18.5	6	6	6
ELM-2000LM130F-H	192	131	57	145	9	111	14	5	2	22	110	M6X20	40	18.5	6	6	6
ELM-2000LM130E-H	270	131	57	145	9	111	14	5	2	22	110	M6X20	40	18.5	6	6	6
ELM-1800LH130FT-H	195	130	57	145	8.5	106	17.5	6	0.5	24	110	M5X15	30	19	8	8	8
ELM-1800LH130ET-H	219	130	57	145	8.5	106	17.5	6	0.5	24	110	M5X15	30	19	8	8	8

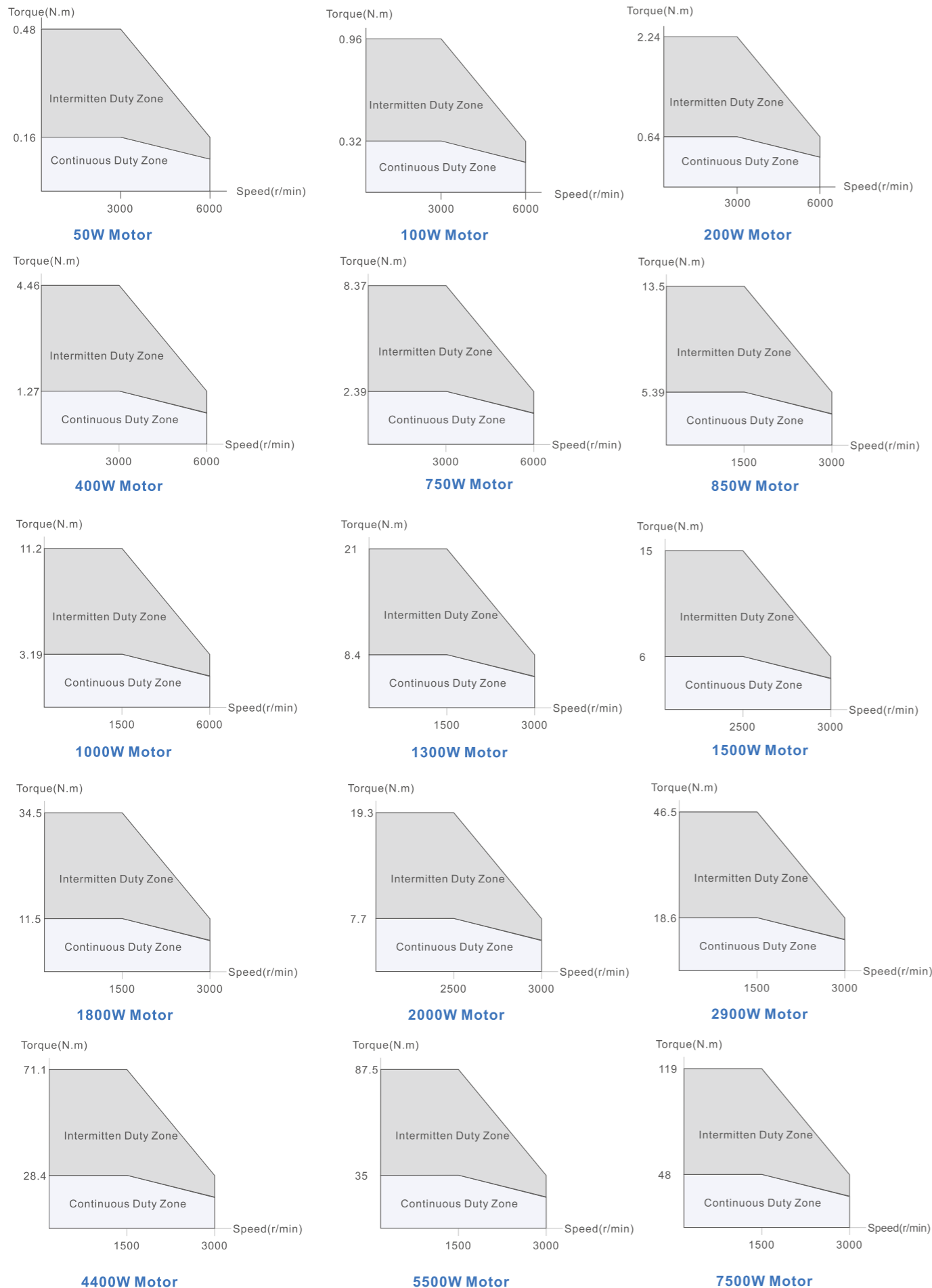
ELM Model	ELM-2900LM180ET-H	ELM-4400LM180ET-H	ELM-5500LM180ET-H	ELM-7500LM180ET-H
	ELM-2900LM180FT-H	ELM-4400LM180FT-H	ELM-5500LM180FT-H	ELM-7500LM180FT-H
Frame Size[mm]	180			
Rated Power[W]	2900	4400	5500	7500
Rated Voltage[VAC]	380			
Rated Torque[Nm]	18.6	28.4	35	48
Peak Torque[Nm]	46.5	71.1	87.5	119
Rated Current[Arms]	11.8	15.7	20.6	25.7
Peak Current[Arms]	29.5	39.3	51.5	64.5
Rated Speed[r/min]	1500	1500	1500	1500
Peak Speed[r/min]	3000	3000	3000	3000
Inertia [kgm <sup>2</sup> *10 <sup>-4</sup> ]	Without Brake	56.8	78.2	109
	With Brake	65.3	86	118
Weight (kg)	Without Brake	16.3	21.4	25.8
	With Brake	21.8	26.5	31.1
Permissible Load to Shaft (N)	Radial	1470	1750	1750
	Axial	490	580	580
Plug Type	H Plug			
Matching Cable	Motor Cable	CABLE-RZA*M*-H-180(V1.0) For Motor of 2900W CABLE-RZB*M*-H-180(V1.0) For Motor of 4400W/5500W/7500W		
	Encoder Cable	CABLE-7BMA*M*-HZ-180(V1.0)		
	Brake Cable	CABLE-SC*M*-H-180(V1.0)		
Matching Drive	Priority	EL7-EC3000T3	EL7-EC4400T3	EL7-EC5500T3
	Optional	/	/	/



Motor Series	LL	LC	LR	LA	LZ	LH	LG	LE	LJ	S	LB	TP	LK	KH	kW	W	T
ELM-2900LM180FT-H	201	180	79	200	4-φ13.5	134	18	3.2	0.3	35	114	M12X25	65	30	10	10	8
ELM-2900LM180ET-H	249	180	79	200	4-φ13.5	134	18	3.2	0.3	35	114	M12X25	65	30	10	10	8
ELM-4400LM180FT-H	230	180	79	200	4-φ13.5	134	18	3.2	0.3	35	114	M12X25	65	30	10	10	8
ELM-4400LM180ET-H	278	180	79	200	4-φ13.5	134	18	3.2	0.3	35	114	M12X25	65	30	10	10	8
ELM-5500LM180FT-H	257	180	113	200	4-φ13.5	134	18	3.2	0.3	42	114	M16X32	96	37	12	12	8
ELM-5500LM180ET-H	305	180	113	200	4-φ13.5	134	18	3.2	0.3	42	114	M16X32	96	37	12	12	8
ELM-7500LM180FT-H	297	180	113	200	4-φ13.5	134	18	3.2	0.3	42	114	M16X32	96	37	12	12	8
ELM-7500LM180ET-H	345	180	113	200	4-φ13.5	134	18	3.2	0.3	42	114	M16X32	96	37	12	12	8



• Speed - Torque characteristics



Accessories

Each servo drive comes with:

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

• Extension Cables

Power Cables

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



Encoder Cables

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



Brake Cables

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



Configuration Cables

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



RS485/EtherCAT Communication Cables

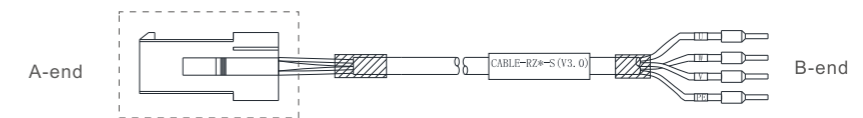
- Model: CABLE-TX0M2-BUS
- Length options: 1.5M, 3M, 5M, 7M, 10M, 13M



■ Cable Details

Cable with SS Plug for Frame 40/60/80

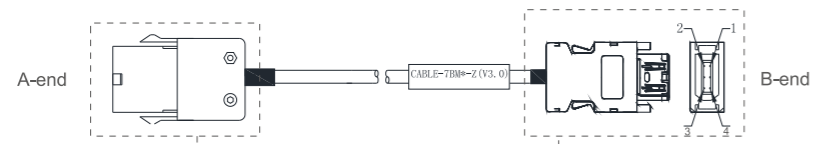
(1) CABLE-RZ\*M\*-S1(V3.0) Motor Cable



Material		Part No.	Description	Quantity
Motor Cable Parts	Plastic Shell	11600371	4pin female plastic shell 172159-1LS-17215901-AMP RoHS	1
	Pin Needle	11600353	Female needle 170362-1 RoHS AMP	4

Pin Definition		
Diagram	Pin Definition	
	A-end	B-end
	1	Blue U
	2	Red W
	3	Black V
	4	Yellow/Green PE

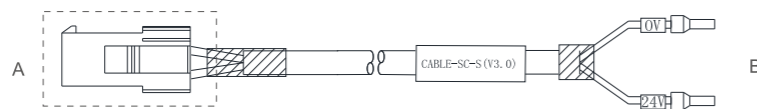
(2) CABLE-7BM\*M\*-Z(V3.0) Encoder Cable



Material	Part No.	Quantity	
Encoder Cable Parts	Plastic Shell	11600372	1
	Pin Needle	11600354	5
Material	Part No.	Quantity	
Plug Connected to Drive	11600383	1	

Pin Definition							
A-end	B-end	Pin Definition					
		Color	Shield	White	Black	Blue	Pink
A-end		1	2	3	4	5	
B-end	Shell	1	2	5	6		
Definition	Shield	+5V	0V	5D+	5D-		

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



Material	Part No.	Quantity	Note	
Brake Cable Parts	Plastic Shell	11600369	1	Only for motor with brake
	Pin Needle	11600353	2	Only for motor with brake

Pin Definition	
Diagram	Pin Definition
	Blue: 0V Brown: 24V

Cable with HH2 Plug for Frame 40/60/80

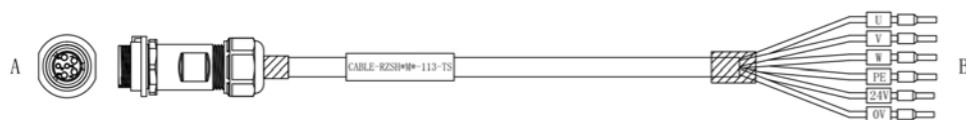
(1) CABLE-RZH\*M\*-113-TS Motor Cable for Motor without Brake



Material	Part No.	Quantity	
Motor Cable Parts	Female Plug for Motor Cable	11600548	1
	Male Plug for Motor Cable	11600549	1

Pin Definition			
Diagram	A-end	Color	B-end
	1	Blue	U
	2	Red	W
	3	Black	V
	4	Yellow/Green	PE

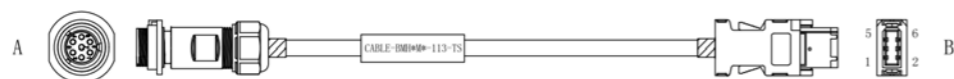
(2) CABLE-TZSH\*M\*-113-TS Motor Cable for Motor with Brake



Material	Part No.	Quantity	
Motor Cable Parts	Female Plug for Motor Cable	11600546	1
	Male Plug for Motor Cable	11600547	1

Pin Definition			
Diagram	A-end	Color	B-end
	1	Blue	U
	2	Red	W
	3	Black	V
	4	Yellow/Green	PE
	5	Black	0V
	6	Red	24V

(3) CABLE-BMH\*M\*-113-TS Encoder Cable

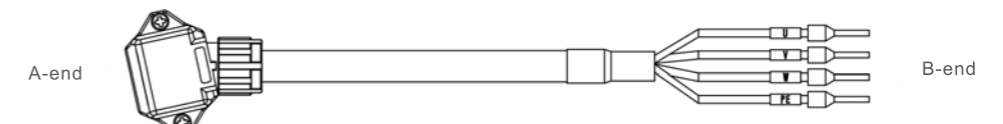


Material	Part No.	Quantity	
Encoder Cable Parts	Female Plug for Encoder Cable	11600546	1
	Male Plug for Encoder Cable	11600547	1
	Plug Connected to Drive	11600383	1

Pin Definition				
Diagram	A-end	Color	B-end	Definition
	1	Weave	Shell	PE
	2	White	1	5V
	3	Black	2	0V
	4	Blue	5	SD+
	5	Pink	6	SD-

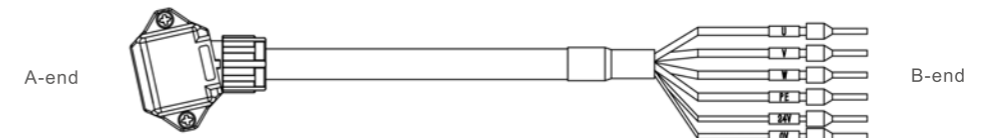
Cable with DC Plug for Frame 40/60/80

(1) CABLE-RZH\*M\*-114-TS Motor Cable for Motor without Brake



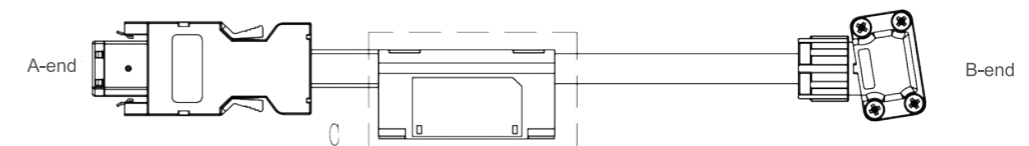
Pin Definition			
Diagram	A-end	Color	B-end
	1	Blue	U
	2	Red	W
	3	Black	V
	4	Yellow/Green	PE

(2) CABLE-RZH\*M\*-114-TS Motor Cable for Motor with Brake



Pin Definition			
Diagram	A-end	Color	B-end
	1	Blue	U
	2	Red	W
	3	Black	V
	4	Yellow/Green	PE
	5	Black	0V
	6	Red	24V

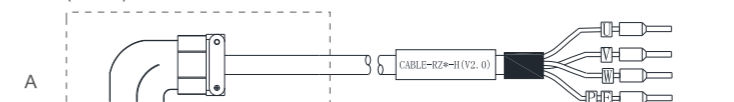
(3) CABLE-BMAH\*M\*-124-TS Encoder Cable



Pin Definition						
Diagram	A-end	Definition	B-end	Diagram	C-end	
	1	PE	1			
	2	5V	2			
	3	0V	3			
	4	SD+	4			
	5	SD-	5			
	6	BAT+	6			1
	7	BAT-	7			2

Cable with H Plug for Frame 130

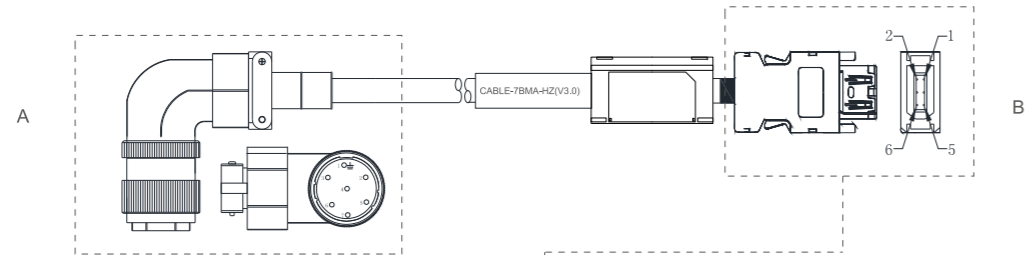
(1) CABLE-RZ\*M\*-HD(V2.0) Power Cable



Material	Part No.	Quantity	
Motor Cable Parts	Aviation Plug for Motor Cable	11600072	1

Pin Definition			
Diagram	Pin Definition		
	1	PE	Yellow
	2	U	Red
	3	V	Green
	4	W	Black

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

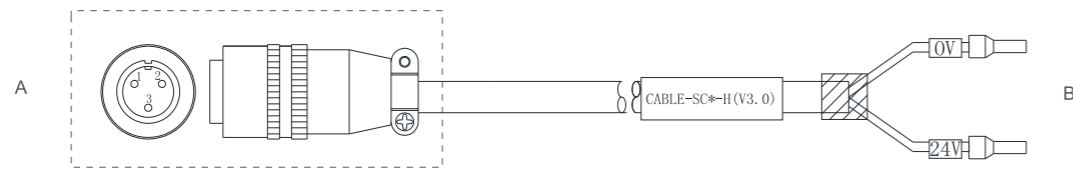


Material	Part No.	Quantity	
Encoder Cable Parts	Aviation Plug for Encoder Cable	11600076	1

Material	Part No.	Quantity	
Encoder Cable Parts	Plug Connected to Drive	11600383	1

Pin Definition		Pin Definition							
A-end	B-end	Pin Definition							
Diagram	Diagram	Color	Shield	White	Black	Blue	Purple	Red	Yellow
		A-end	1	2	3	4	5	6	7
B-end		Shell	1	2	5	6	/	/	
Definition		Shield	+5V	0V	SD+	SD-	BAT+	BAT-	

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

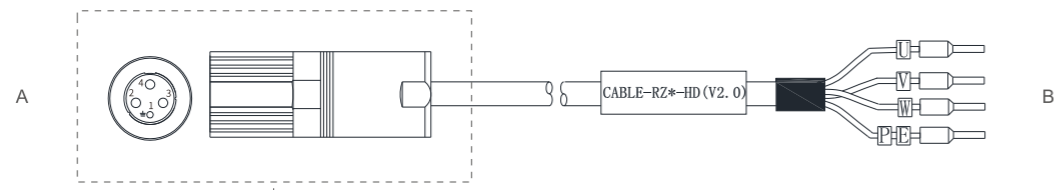


Material	Quantity	Notes	
Brake Cable Parts	Aviation Plug for Brake Cable	1	Only for motor with brake

Pin Definition		
Diagram	Pin Definition	
Diagram	1	0V
	2	24V

Cable with HD Plug for Frame 130

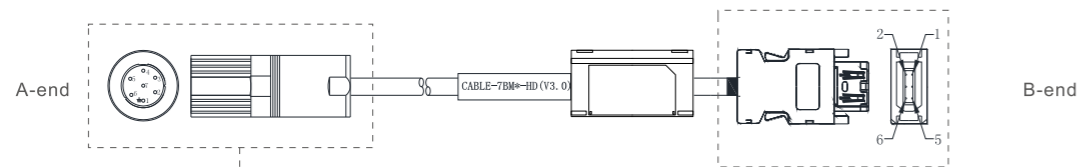
(1) CABLE-RZ\*M\*-HD(V2.0) Motor Cable



Material	Part No.	Quantity	
Motor Cable Parts	Aviation Plug for Motor Cable	11600077	1

Pin Definition			
Diagram	Pin Definition		
Diagram	1	PE	Yellow
	2	U	Red
	3	V	Green
	4	W	Black

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

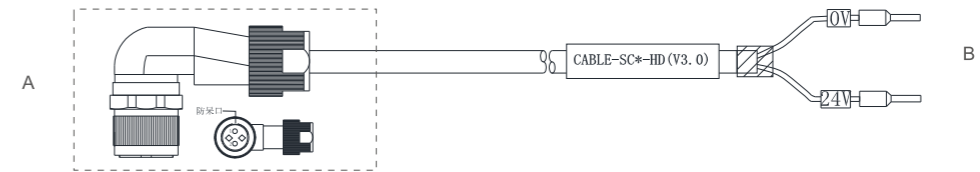


Material	Part No.	Quantity	
Encoder Cable Parts	Aviation Plug for Encoder Cable	11600079	1

Material	Part No.	Quantity	
Encoder Cable Parts	Plug Connected to Drive	11600383	1

Pin Definition		Pin Definition							
A-end	B-end	Pin Definition							
Diagram	Diagram	Color	Shield	Red	Black	Blue	Blue/Black	Brown	Brown/Black
		A-end	1	7	5	6	4	3	2
B-end		Shell	1	2	5	6	/	/	
Definition		Shield	+5V	0V	SD+	SD-	BAT+	BAT-	

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

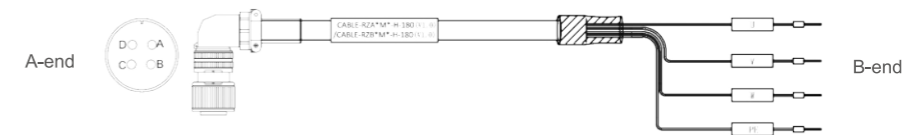


Material	Part No.	Quantity	Notes	
Brake Cable Parts	Aviation Plug for Brake Cable	11600078	1	Only for motor with brake

Pin Definition		
Diagram	Pin Definition	
Diagram	1	0V
	2	24V

Cable with Aviation Plug for Frame 180

(1) CABLE-RZ\*M\*-H(V2.0) Motor Cable



Material	Part No.	Quantity	
Motor Cable Parts	Aviation Plug for Motor Cable	11600980	1

Pin Definition			
Diagram	A-end	Color	B-end
Diagram	1	Blue	U
	2	Red	W
	3	Black	V
	4	Yellow/Green	PE

(2) CABLE-7BMA\*M\*-HZ-180(V1.0) Encoder Cable



Material	Part No.	Quantity	
Encoder Cable Parts	Aviation Plug for Encoder Cable	11600979	1
	Plug Connected to Drive	11600383	1
	Battery Box	82600020	1

Pin Definition					
Diagram	A-end	Color	B-end	C-end	Definition
Diagram	10	Weave	Shell		PE
	2	White	1		5V
	3	Black	2		0V
	4	Blue	5		SD+
	5	Pink	6		SD-
	6	Red		1	E+
	7	Black		2	E-

(3) CABLE-SC\*M\*-H(V1.0) Brake Cable



Material	Part No.	Quantity	
Brake Cable Parts	Aviation Plug for Brake Cable	11600978	1

Pin Definition			
Diagram	A-end	Color	B-end
Diagram	1	Black	0V
	2	Red	24V

# DC Servo Drives

## ELD2 Series

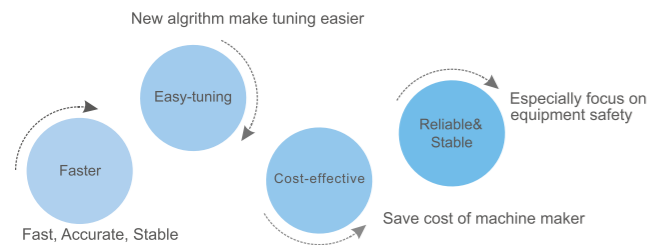


### ELD2 Series DC Servo Drives

ELD2 series DC servo drive, power range from 50W to 2.5kW, adopt special DC input, motion control product designed for machines and applications that request a best balance between reasonable cost and outstanding performance with MFC/vibration suppression.

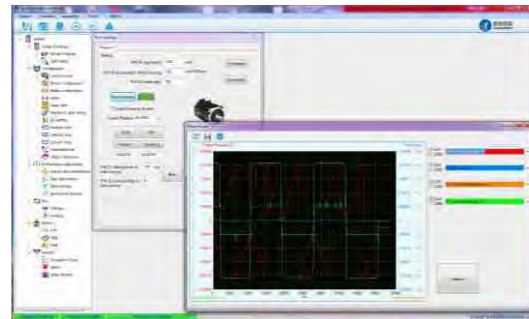
- Voltage : 24-70VDC
- Power range : 50W - 2.5kW
- Up to 180Amp peak current
- Compact size
- Pulse+Direction, analog input
- Modbus,CANopen
- Brushless motor & Brushed motor suitable

### Easy Tuning



### Motion Studio

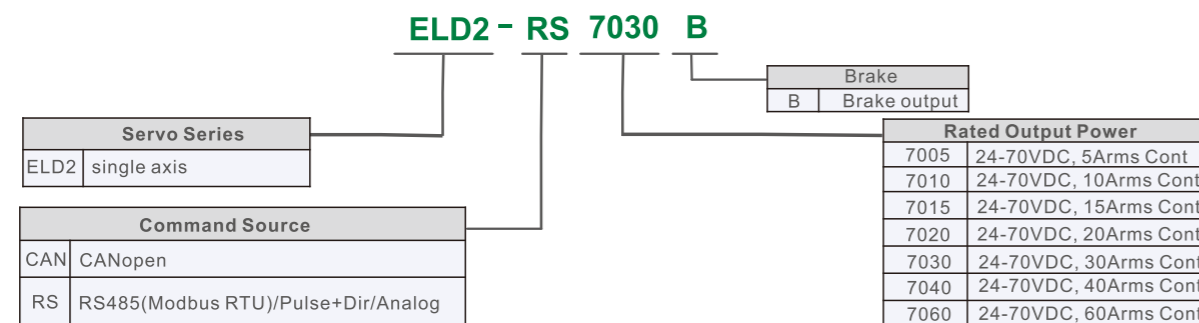
- Convenient GUI user interface
- Easy Tuning
- Real-time motion state monitoring
- Error history and resolution guide



### Supported Networks



### Part Numbers



### Specifications

Power & Environment				
Drive	ELD2-RS7005 ELD2-CAN7005B	ELD2-RS7010 ELD2-CAN7010B	ELD2-RS7015B ELD2-CAN7015B	ELD2-RS7020B ELD2-CAN7020B
Dimensions(mm)	118*75.5*25.5(RS7005) 140*79.5*25.5(CAN7005B)	118*75.5*25.5(RS7010) 140*79.5*25.5(CAN7010B)	175*101.5*33	175*100.5*33
Rated Power (kW)	0.1	0.4	0.6	0.75
Rated Output Current (Arms)	5	10	15	20
Max Output Current (Apeak)	21	35(RS7010) 42(CAN7010)	45	80
Main Power	Voltage (V)	DC24-70	DC24-70	DC24-70
	Current (Arms)	5Arms (≤48VDC) 3.5Arms (>48VDC)	10Arms (≤48VDC) 7Arms (>48VDC)	15Arms (≤48VDC) 11Arms (>48VDC)
Logic Power	Voltage (V)	-	-	-
Control Method	IGBT PWM Sinusoidal Wave Drive			
Overload	300%(3s)			
Brake Resistor	External Connection			
Communication Interface	RS485/CAN			
Protection Class	IP20			

Power & Environment				
Drive	ELD2-RS7030B ELD2-CAN7030B	ELD2-RS7040B ELD2-CAN7040B	ELD2-RS7060B ELD2-CAN7060B	
Dimensions(mm)	175*100.5*33	194*103*41	194*103*41	
Rated Power (kW)	1.2	1.5	2.5	
Rated Output Current (Arms)	30	40	60	
Max Output Current (Apeak)	90	120	180	
Main Power	Voltage (V)	DC24-70	DC24-70	DC24-70
	Current (Arms)	30Arms (≤48VDC) 21Arms (>48VDC)	40Arms (≤48VDC) 28Arms (>48VDC)	60Arms (≤48VDC) 42Arms (>48VDC)
Logic Power	Voltage (V)	-	DC24-70	DC24-70
Control Method	IGBT PWM Sinusoidal Wave Drive			
Overload	300%(3s)			
Brake Resistor	External Connection			
Communication Interface	RS485/CAN			
Safe function	-		STO	
Protection Class	IP20			

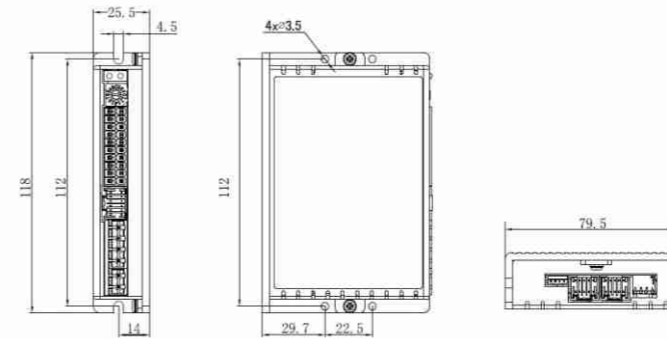
CANopen Specifications	
Link Layer Protocol	CAN Field-bus
Application Layer Protocol	CANopen protocol
CAN-ID Type	CAN 2.0A
Communication Rate	1Mbit/s, 500Kbit/s, 250Kbit/s, 125Kbit/s, 100Kbit/s, 50Kbit/s, 20Kbit/s
Sub-protocol	DS 301 V4.02: CANopen application layer protocol and communication protocol DSP 402 V2.0: Device profile for drives and motion control
CANopen Length	0 - 8-bit
Support Service	NMT: Network Management Service SDO: Service Data Object PDO: Process Data Object Devices Monitor: Node protection and heartbeat message SYNC: Synchronous generator and synchronous detection, applied to the PDO transmission EMCY: Emergency object Services
PDO Transmission Modes	Time trigger, event trigger, asynchronization/synchronization trigger(configurable)
PDO Number	4 TPDOs, 4 RPDOs
Control Methods	PP (Profile Position) PV (Profile Velocity) PT (Profile Torque) HM (Homing)

Communication & Connection		
	ELD2-RS	ELD2-CAN
Pulse Input	2 fast pulse input, 5V-24V only	-
Pulse Encoder Output	5V differential outputs, A/B phase	5V differential outputs, A/B phase
Digital Input/Output	4 programmable OC inputs, 2 programmable OC outputs, 24V	4 programmable OC inputs, 2 programmable OC outputs, 24V
Analog Input	1 analog input: -10V to +10V	-
Feedback Supported	1000-Line, 2500-Line, 17-bit incremental encoder	

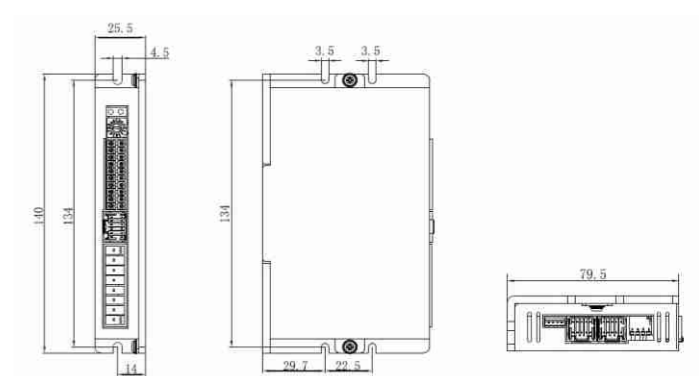
Matched Motors	
Motor Model	ELVM Series / Third-party Brushless + Brushed motor
Power Range	50W - 2.5kW
Voltage Range	24 - 70VDC
Encoder Type	1000-Line, 2500-Line, 17-bit
Motor Size	40mm, 42mm, 57mm, 60mm, 80mm 110mm, 130mm Frame Size
Other Requirements	Brake. oil-seal. protection level. shaft & connector can be customized

## Dimensions

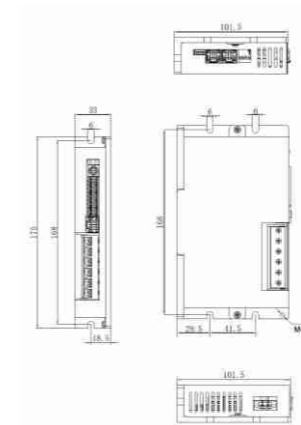
### • ELD2-RS7005/ELD2-RS7010



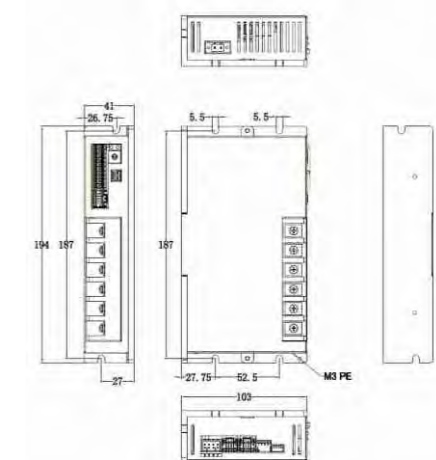
### • ELD2-CAN7005B/ELD2-CAN7010B



### • ELD2-\*\*7015B/ELD2-\*\*7020B/ELD2-\*\*7030B



### • ELD2-\*\*7040B/7060B



## Applications



Printing Machines



Logistics



AGV Machines



Medical

# DC Servo Drives

## 2ELD2 Dual-axis Servo Drives



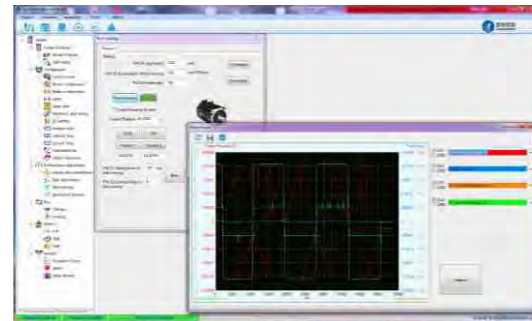
### 2ELD2 Dual-axis Servo Drives

The 2ELD2 series is a new low voltage DC servo drive developed from Leadshine, dual-axis, that one 2ELD2 drive can drive two DC servo motors at the same time. 2ELD2 series keep the same performance of ELD2 series, relying on the special dual-axis structure, 2ELD2 series achieve less wiring, space saving, energy saving, while having a high cost performance. 2ELD2 series can be applied to mobile robots, logistics, electronics, CNC machine and other industries.

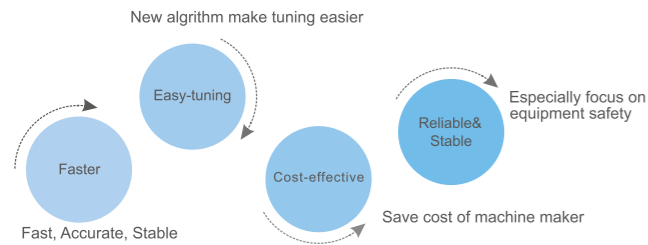
- Each axis power range up to 1.2kW
- Each axis current range up to 90Amp
- STO and Auxiliary input power
- Pulse+Direction, analog input
- Modbus, CANopen
- Brushless motor & Brushed motor suitable

### Motion Studio

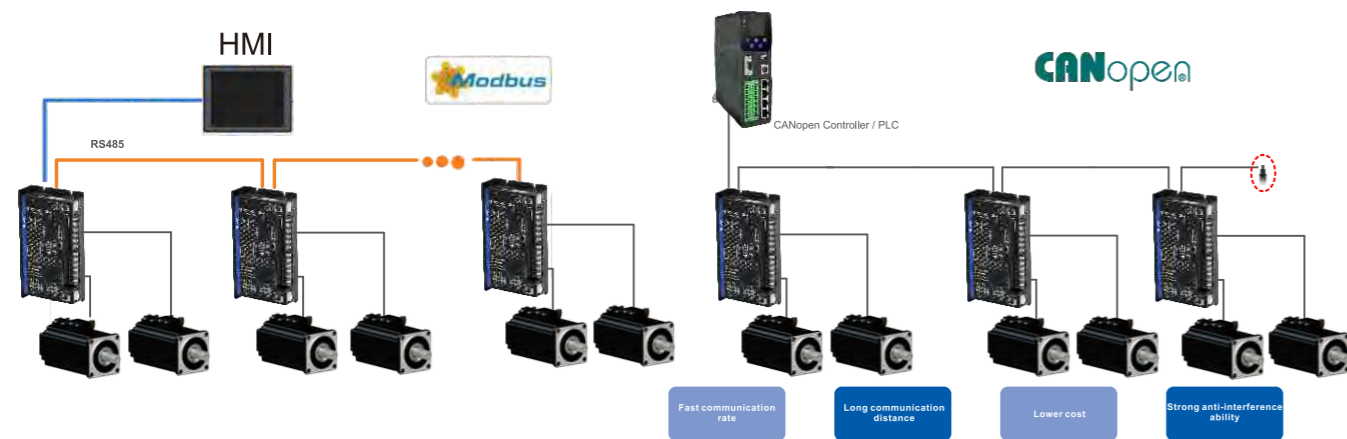
- Convenient GUI user interface
- Easy Tuning
- Real-time motion state monitoring
- Error history and resolution guide



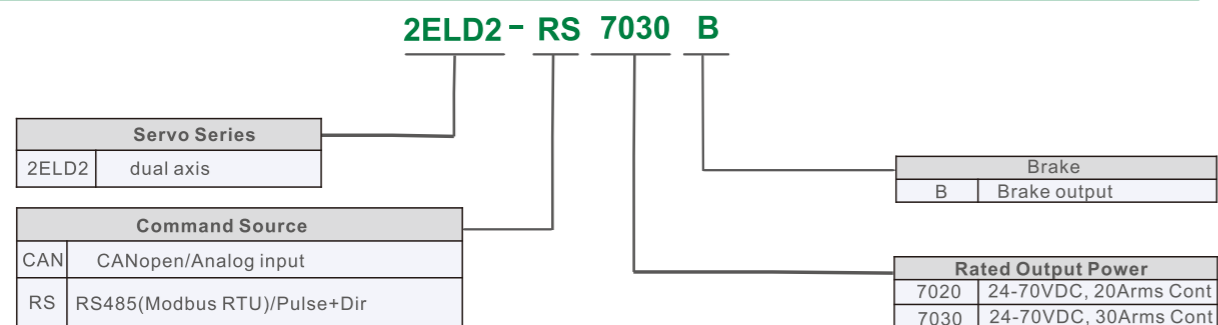
### Easy Tuning



### Supported Networks



### Part Numbers

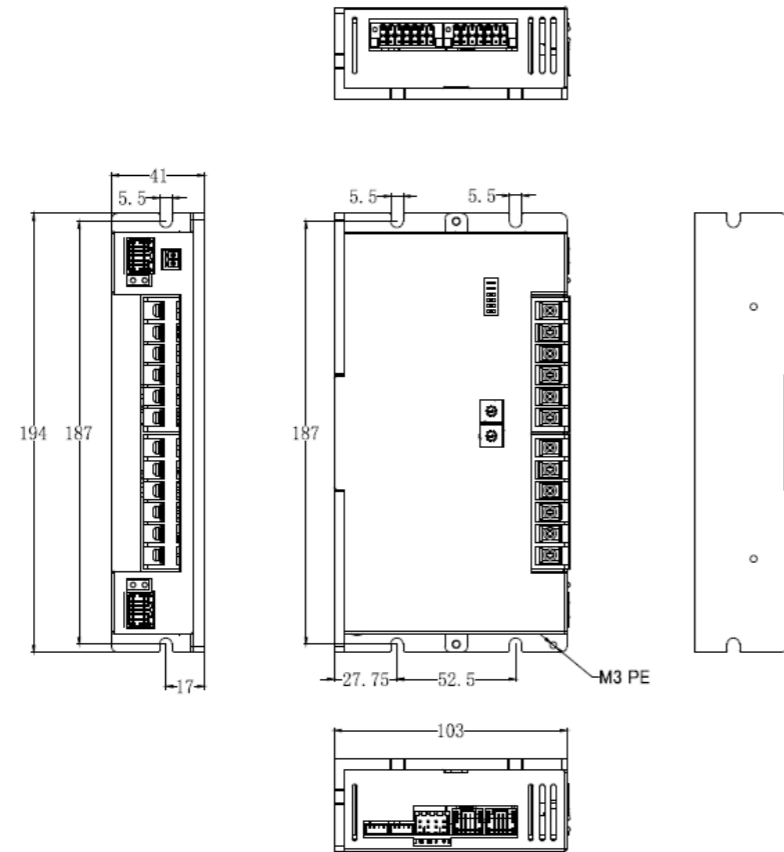


### Specifications

Power & Environment		
Drive	2ELD2-RS7020B 2ELD2-CAN7020B	2ELD2-RS7030B 2ELD2-CAN7030B
Dimensions(mm)	194*103*41	194*103*41
Rated Power (kW)/Each Channel	0.75	1.2
Rated Output Current (Arms) /Each Channel	20	30
Max Output Current (Apeak) /Each Channel	80	90
Main Power	Voltage (V)	DC24-70
	Current (Arms)	40Arms (≤48VDC) 28Arms (>48VDC)
Logic Power	Voltage (V)	DC24~70
Control Method	IGBT PWM Sinusoidal Wave Drive	
Overload	300%(3s)	
Brake Resistor	External Connection	
Communication Interface	RS485/CAN	
Safe function	STO	
Protection Class	IP20	
CANopen Specifications		
Link Layer Protocol	CAN Field-bus	
Application Layer Protocol	CANopen protocol	
CAN-ID Type	CAN 2.0A	
Communication Rate	1Mbit/s, 500Kbit/s, 250Kbit/s, 125Kbit/s, 100Kbit/s, 50Kbit/s, 20Kbit/s	
Sub-protocol	DS 301 V4.02: CANopen application layer protocol and communication protocol DSP 402 V2.0: Device profile for drives and motion control	
CANopen Length	0 - 8-bit	
Support Service	NMT: Network Management Service SDO: Service Data Object PDO: Process Data Object Devices Monitor: Node protection and heartbeat message SYNC: Synchronous generator and synchronous detection, applied to the PDO transmission EMCY: Emergency object Services	
PDO Transmission Modes	Time trigger, event trigger, asynchronization/synchronization trigger(configurable)	
PDO Number	4 TPDOs, 4 RPDOs	
Control Methods	PP (Profile Position), PV (Profile Velocity) PT (Profile Torque), HM (Homing)	
Communication & Connection		
	2ELD2-RS	2ELD2-CAN
Pulse Input	2 fast pulse input, 5V-24V only	-
Pulse Encoder Output	5V differential outputs, A/B phase	5V differential outputs, A/B phase
Digital Input/Output	4 programmable OC inputs, 2 programmable OC outputs, 24V	4 programmable OC inputs, 2 programmable OC outputs, 24V
Analog Input	-	1 analog input: -10V to +10V
Feedback Supported	1000-Line, 2500-Line, 17-bit incremental encoder	
Matched Motors		
Motor Model	ELVM Series / Third-party Brushless + Brushed motor	
Power Range	50W - 1.2kW	
Voltage Range	24 - 70VDC	
Encoder Type	1000-Line, 2500-Line, 17-bit	
Motor Size	40mm, 42mm, 57mm, 60mm, 80mm 110mm, 130mm Frame Size	
Other Requirements	Brake, oil-seal, protection level, shaft & connector can be customized	

## Dimensions

- 2ELD2-\*\*7020B/7030B



## Applications



Printing Machines



Logistics



AGV Machines



Medical

# DC Servo Motors

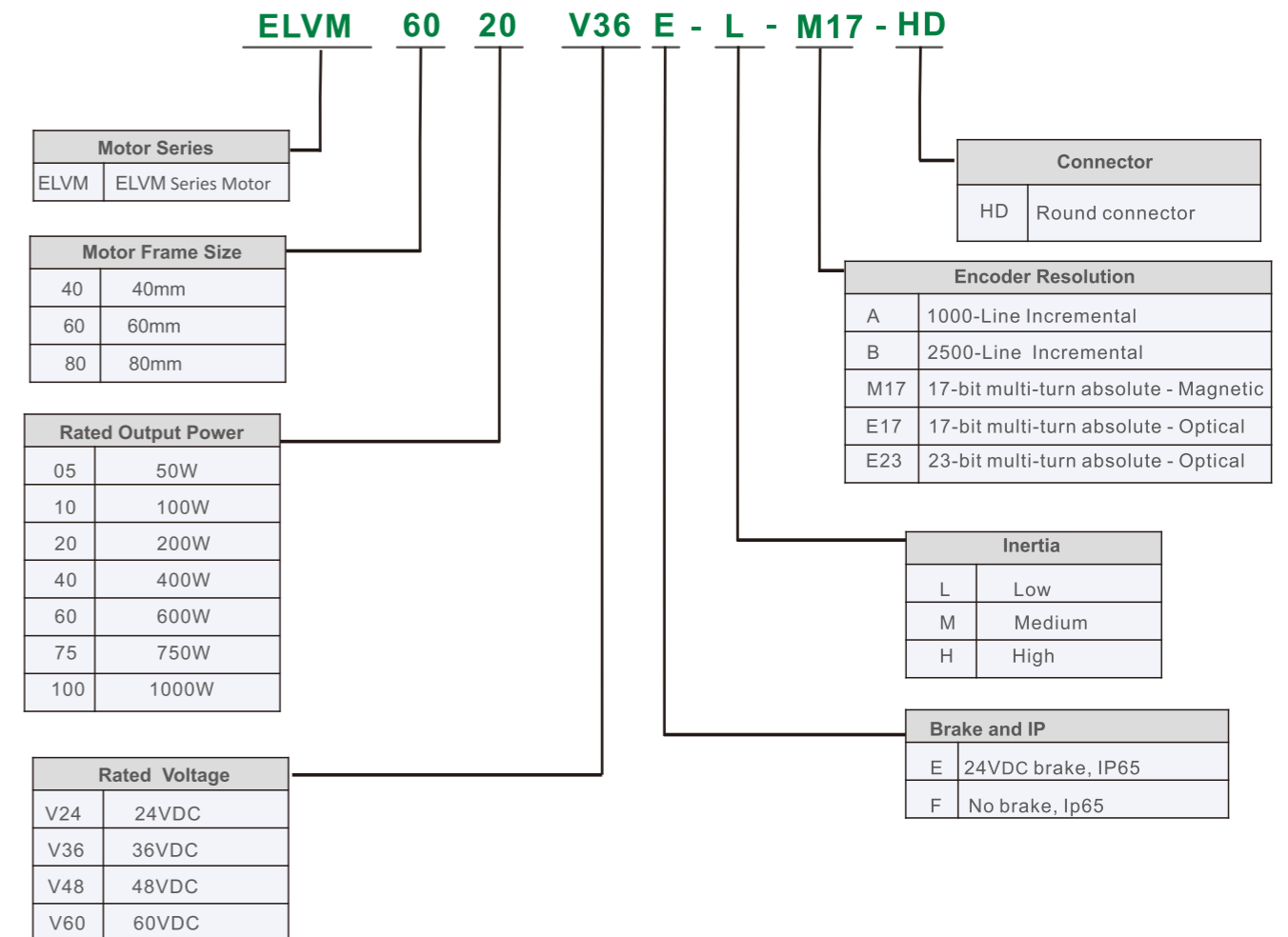
## ELVM Series

- Power rating: 50W - 1000W
- Frame size: 40mm,60mm,80mm;
- Voltage range: 24 - 60VDC
- Feedback: 2500-Line incremental encoder; 17-bit absolute encoder
- Protection:IP65



The ELVM series is a new low voltage servo motor series designed of Lead Shine with power ranging from 50W to 1000W,with 2500-Line incremental encoder or 17-bit/23-bit absolute encoder, featuring short length, high overload capacity, good vibration resistance and IP65 protection.

## Part Numbers



# Servo Motors with 2500-Line/17-bit Encoders

## • Models

ELVM Series	6020V24FH-**	6020V48FH-**	6040V24FH-**	6040V48FH-**	6060V48FH-**	8075V48FH-**	80100V48FH-**	
	6020V24EH-**	6020V48EH-**	6040V24EH-**	6040V48EH-**	6060V48EH-**	8075V48EH-**	80100V48EH-**	
Frame Size [mm]	60				80			
Rated Power [W]	200	200	400	400	600	750	1000	
Voltage [VDC]	24	48	24	48	48	48	48	
Rated Torque [Nm]	0.64	0.64	1.27	1.27	1.91	2.39	3.2	
Rated Current [Arms]	10	6	19.9	10	15	19	28	
Rated Speed [r/min]	3000	3000	3000	3000	3000	3000	3000	
Peak Torque [Nm]	1.92	1.92	3.81	3.81	5.73	7.17	9.6	
Peak Current [Arms]	31	19.6	61.7	31	49.3	59	87	
Max Speed [r/min]	4000	4000	4000	4000	4000	3500	3500	
Torque Const [Nm/A]	0.064	0.107	0.064	0.127	0.127	0.126	0.11	
Voltage Const [V/krpm]	4.1	6.9	4.1	8.3	8.3	8.4	7.6	
Resistance [Ω]	0.18	0.47	0.07	0.28	0.17	0.09	0.049	
Inductance [mH]	0.33	0.92	0.14	0.52	0.34	0.38	0.25	
Inertia [kgm <sup>2</sup> ·10 <sup>-4</sup> ]	Standard	0.29	0.29	0.58	0.58	0.83	1.5	1.8
	With Brake	0.3	0.3	0.59	0.59	0.84	1.65	1.95
Encoder	2500-Line/17-bit Incremental Encoder							
Structure	Totally Enclosed, Natural Cooling (IP rating: IP65)							
Weight (kg)	Standard	1.03	1.03	1.32	1.32	1.59	2.21	2.6
	With Brake	1.38	1.38	1.67	1.67	2	2.79	3.2
Permissible Load for the Shaft	L [mm]	22.5	27	27	27	27	27	27
	Radial [N]	254	254	254	254	254	392	392
	Thrust [N]	74	74	74	74	74	147	147

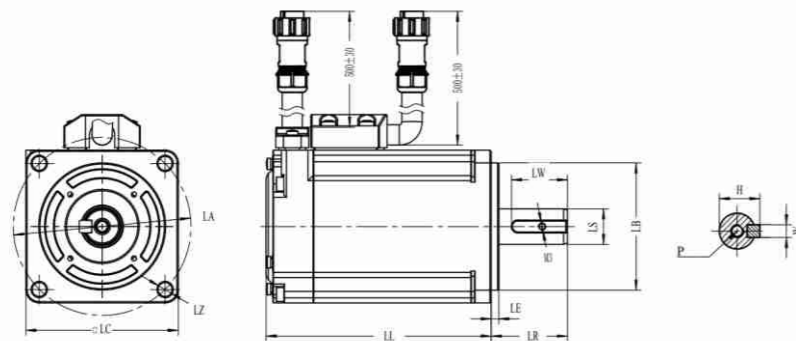
### The pin assignment of 17-bit encoder

Pin	Name
1	GND
2	5V
3	0V
4	SD+
5	SD-
6	BAT+
7	BAT-

### The pin assignment of 2500-Line encoder

Pin	Name	Pin	Name
1	PE	5	Z-
2	+5V	6	HU+
3	GND	8	HU-
9	EA+	10	HV+
13	EA-	12	HV-
4	EB+	11	HW+
14	EB-	15	HW-
7	Z+		

## • Dimensions



Motor Series	LC (mm)	LZ (mm)	LA (mm)	LS (mm)	LB (mm)	LL (mm)	LR (mm)	LE (mm)	LW (mm)	W (mm)	H (mm)	TP (mm)
ELVM6020V24FH-**	60	Φ5.5	Φ70	Φ14	Φ50	71.6	30	2.5	22	5	16	M3T12
ELVM6020V24EH-**	60	Φ5.5	Φ70	Φ14	Φ50	100.9	30	2.5	22	5	16	M3T12
ELVM6020V48FH-**	60	Φ5.5	Φ70	Φ14	Φ50	71.6	30	3	22	5	16	M5T12
ELVM6020V48EH-**	60	Φ5.5	Φ70	Φ14	Φ50	100.9	30	3	22	5	16	M5T12
ELVM6040V24FH-**	60	Φ5.5	Φ70	Φ14	Φ50	88.6	30	3	22	5	16	M5T12
ELVM6040V24EH-**	60	Φ5.5	Φ70	Φ14	Φ50	117.9	30	3	22	5	16	M5T12
ELVM6040V48FH-**	60	Φ5.5	Φ70	Φ14	Φ50	88.6	30	3	22	5	16	M5T12
ELVM6040V48EH-**	60	Φ5.5	Φ70	Φ14	Φ50	117.9	30	3	22	5	16	M5T12
ELVM6060V48FH-**	60	Φ5.5	Φ70	Φ14	Φ50	108.6	30	3	22	5	16	M5T12
ELVM6060V48EH-**	60	Φ5.5	Φ70	Φ14	Φ50	137.9	30	3	22	5	16	M5T12
ELVM8075V48FH-**	80	Φ6.6	Φ90	Φ19	Φ70	90.9	35	3	25	6	21.5	M5T12
ELVM8075V48EH-**	80	Φ6.6	Φ90	Φ19	Φ70	121.9	35	3	25	6	21.5	M5T12
ELVM80100V48FH-**	80	Φ6.6	Φ90	Φ19	Φ70	103.9	35	3	25	6	21.5	M5T12
ELVM80100V48EH-**	80	Φ6.6	Φ90	Φ19	Φ70	134.9	35	3	25	6	21.5	M5T12

## Ordering Information

Frame (mm)	Motor	Drive	Cable					
			Power Cable	Encoder Cable	Brake Cable	Communication Cable	Software Configuration Cable	
60	ELVM6020V24FH-**	ELD2-CAN7010B ELD2-RS7010	CABLE-RZD*M*-143	CABLE-BMAD*M*-223 (Multi-turn) CABLE-BMD*M*-213 (Single-turn)	×	CABLE-TX*M*-LD2	CABLE-PC-1	
	ELVM6020V24EH-**				CABLE-SCD*M*-113			
	ELVM6020V48FH-**				×			
	ELVM6020V48EH-**				CABLE-SCD*M*-113			
	ELVM6040V24FH-**	ELD2-CAN7020B ELD2-RS7020B	CABLE-RZD*M*-253		×			
	ELVM6040V24EH-**				CABLE-SCD*M*-113			
	ELVM6040V48FH-**	ELD2-CAN7010B ELD2-RS7010	CABLE-RZD*M*-143		×			
	ELVM6040V48EH-**				CABLE-SCD*M*-113			
	80	ELVM6060V48FH-**	ELD2-CAN7015B ELD2-RS7015B		CABLE-RZD*M*-253			×
		ELVM6060V48EH-**						CABLE-SCD*M*-113
ELVM8075V48FH-**		ELD2-CAN7020B ELD2-RS7020B	CABLE-RZD*M*-253	×				
ELVM8075V48EH-**				CABLE-SCD*M*-113				
ELVM80100V48FH-**		ELD2-CAN7030B ELD2-RS7030B	CABLE-RZD*M*-263	×				
ELVM80100V48EH-**				CABLE-SCD*M*-113				
Photos								

**Note:**  
 \*\*M\*\* means cable length, e.g. "0M5" means 0.5 m, "1M0" means 1 m.  
 The 0.5 m/1.5 m/3 m/5 m cables are always in stock.



# Integrated Servo Motors

## iSV2 Series

- Power rating: 200W~750W
- 24VDC~60VDC
- Compact size, save mounting space
- Easy configuration



Leadshine iSV2 series includes 60mm & 80mm frame size servomotors which are integrated with 17-bit encoders and servo drives. Its power ranges from 200 to 750W with peak torque to 7.2 Nm. At very compact size an iSV2 integrated servo motor can save mounting space, eliminate encoder & power cable connections, reduce interference, and reduce system cost.

### iSV2-RS Series iSV2-RS Series Drive



#### Position/Internal velocity mode

- RS485 based on Modbus / Pulse+Direction compatible
- Digital input and Digital output allows sink connection/source connection
- 17-bit incremental encoder
- GUI Software - MotionStudio
- Online Inertia Ratio Identification
- Motor with brake or without brake
- DIP switch for Modbus communication setting
- 120Ω on board termination resistor(DIP switch selection)

### iSV2-CAN Series iSV2-CAN Series Drive

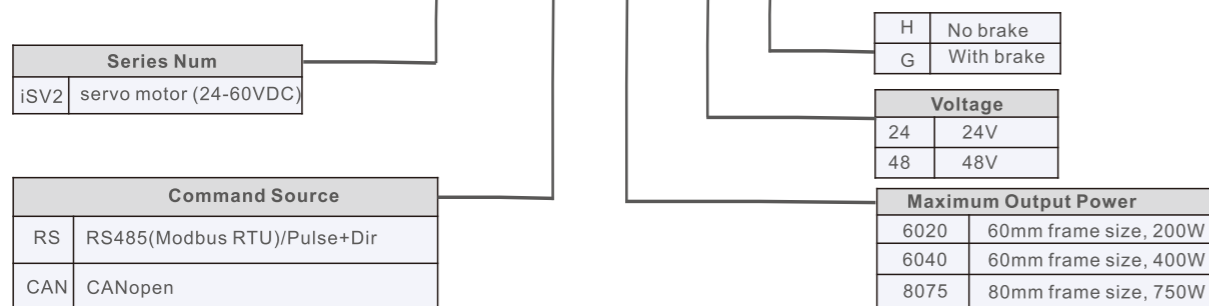


#### Profile Position/Profile Velocity/Profile Torque/Homing

- CANopen (CiA 301 & DS402)
- 4 RPDO & 4 TPDO
- Digital input and Digital output allows sink connection/source connection
- 17-bit incremental encoder
- GUI Software - MotionStudio
- Online Inertia Ratio Identification
- Motor with brake or without brake
- DIP switch for CAN communication setting
- 120Ω on board termination resistor(DIP switch selection)

## Part Numbers

### iSV2 - CAN 6040 V48 G



## Specifications

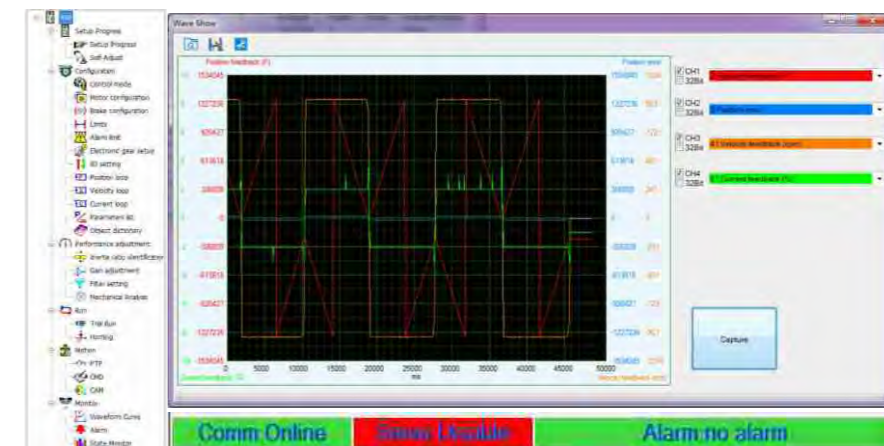
Models	iSV2-RS6020V24* iSV2-CAN6020V24*	iSV2-RS6020V48* iSV2-CAN6020V48*	iSV2-RS6040V48* iSV2-CAN6040V48*	iSV2-RS8075V48* iSV2-CAN8075V48*
Modes of operation(iSV2-RS)	Position/Internal Velocity			
Modes of operation(iSV2-CAN)	Profile Position/Profile Velocity/Profile Torque/Homing			
Command source(iSV2-RS)	Pulse+Direction/Modbus RTU/16 PR paths			
Command source(iSV2-CAN)	CANopen			
Inputs/Outputs	4 programmable digital inputs, allow sink input/source input, within the range from 12VDC to 24VDC, 30mA 2 programmable single-end outputs			
Feedback Supported	17-bit Incremental			
Communication	CANopen/Modbus RTU(RS485)			

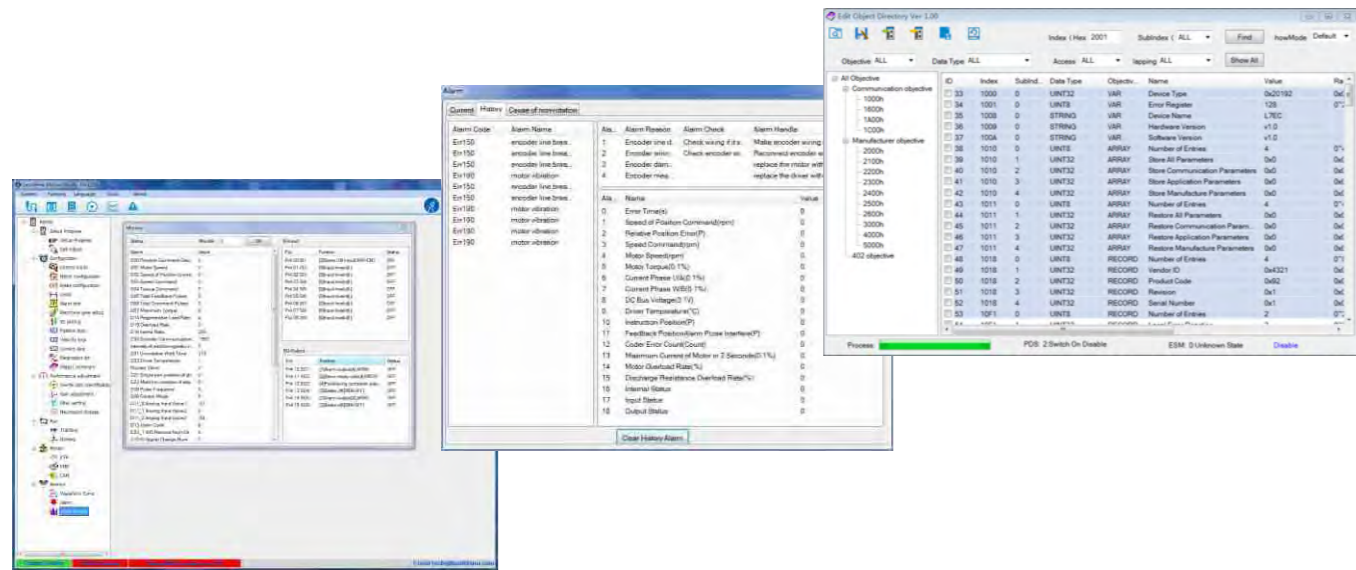
Drive model	iSV2-RS6020V24* iSV2-CAN6020V24*	iSV2-RS6020V48* iSV2-CAN6020V48*	iSV2-RS6040V48* iSV2-CAN6040V48*	iSV2-RS8075V48* iSV2-CAN8075V48*
Input Voltage(VDC)	24-60	24-60	24-60	24-60
Rated Power(W)	200	200	400	750
Rated Torque(Nm)	0.64	0.64	1.27	2.4
Peak Torque(Nm)	1.92	1.92	3.81	7.2
Rated Speed(rpm)	3000	3000	3000	3000
Peak Speed(rpm)	4000	4000	4000	4000
Rated Voltage(VDC)	24	48	48	48
Weight(kg)	0.93(1.32)	1.1(1.4)	1.26(1.65)	2.52(3.19)
Continuous Current(Arms)	11	6.5	10	19
Peak Current(Arms)	34	20	28	57
Back EMF Const(V/krpm)	3.6	6.3	8.3	8.6
Inertia(kg*m <sup>2</sup> *10 <sup>-4</sup> )	0.29	0.29	0.58	1.5
Logic Signal Current(mA)	10	10	10	10
Isolation Resistance(MΩ)	100	100	100	100
Control method	IGBT PWM sinusoidal Wave Drive			
Overload	250% ~ 300%			
Brake resistor	External connection			
Protection class	IP20			

Figures in ( ) represent the weight with brake.

## Motion Studio - GUI 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.





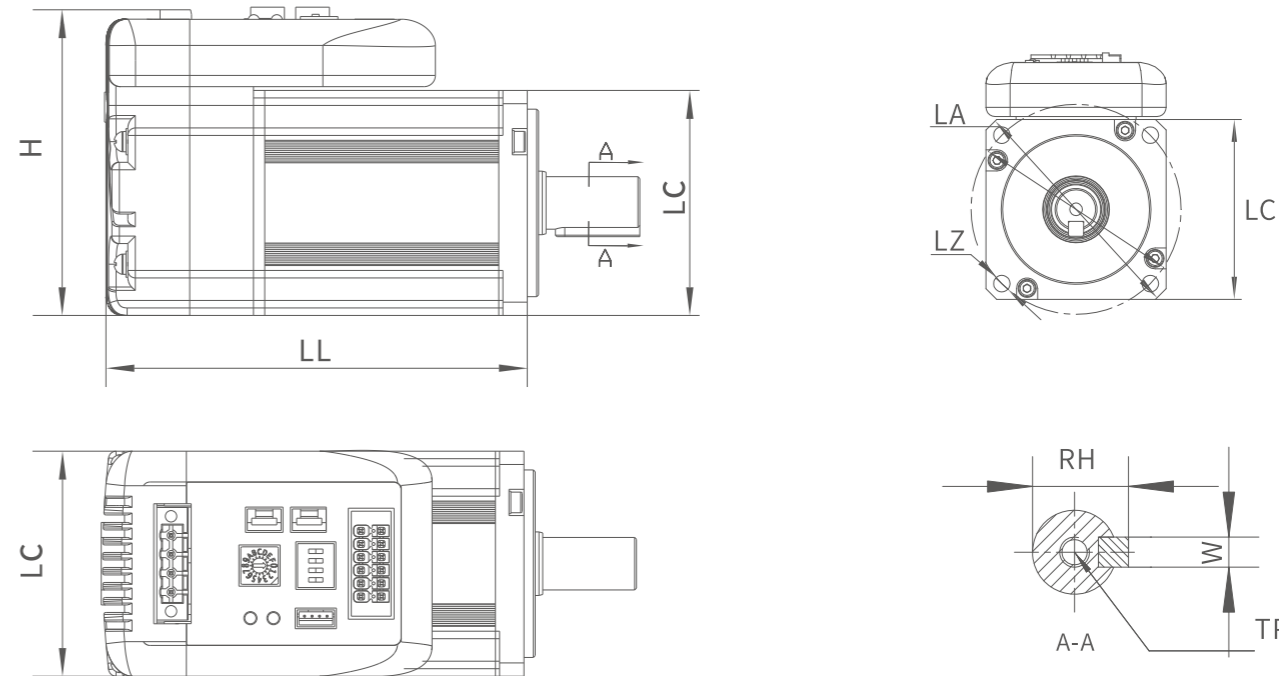
## Servo Motor Pin Assignments



## External Regeneration Resistors

	Recommend resister value( $\Omega$ )	Recommend resister power(W)
iSV2-CAN6020V48	10	50
iSV2-CAN6040V48	10	50
iSV2-CAN8075V48	10	100

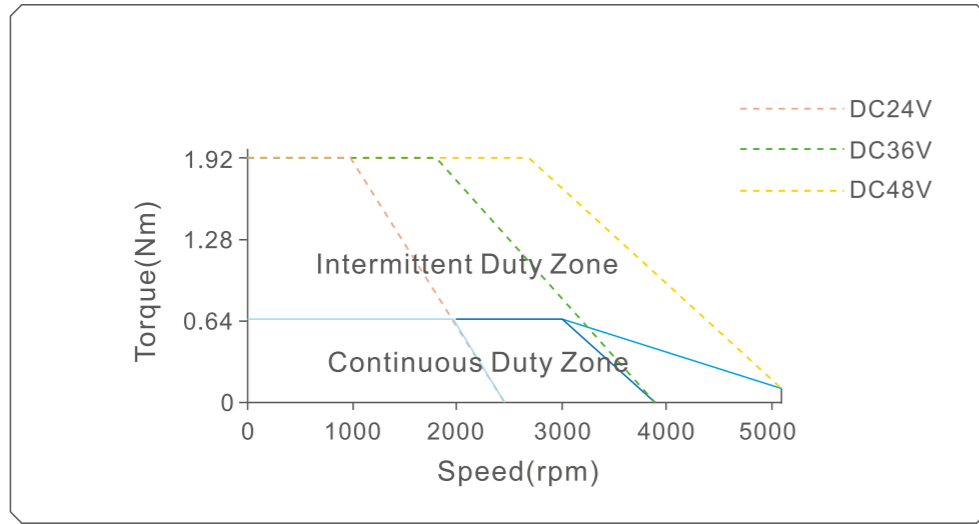
## Dimensions



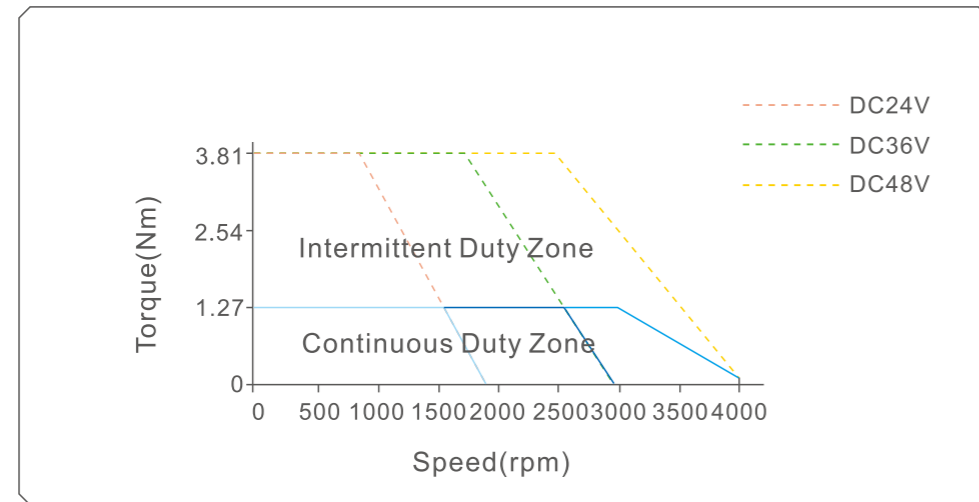
Model	LC (mm)	LL (mm)	H (mm)	LA (mm)	LZ (mm)	TP (mm)	RH (mm)	W (mm)
iSV2-CAN6020V24H iSV2-RS6020V24H	60	95.7	79	$\Phi 70$	$\Phi 5.5$	$\Downarrow 12$	16	5
iSV2-CAN6020V24G iSV2-RS6020V24G		124.7						
iSV2-CAN6020V48H iSV2-RS6020V48H		95.7						
iSV2-CAN6020V48G iSV2-RS6020V48G		124.7						
iSV2-CAN6040V48H iSV2-RS6040V48H		112.7						
iSV2-CAN6040V48G iSV2-RS6040V48G		141.7						
iSV2-CAN8075V48H iSV2-RS8075V48H	80	128.8	100	$\Phi 90$	$\Phi 6.6$		21.5	6
iSV2-CAN8075V48G iSV2-RS8075V48G		160.3						

## Speed - Torque characteristics

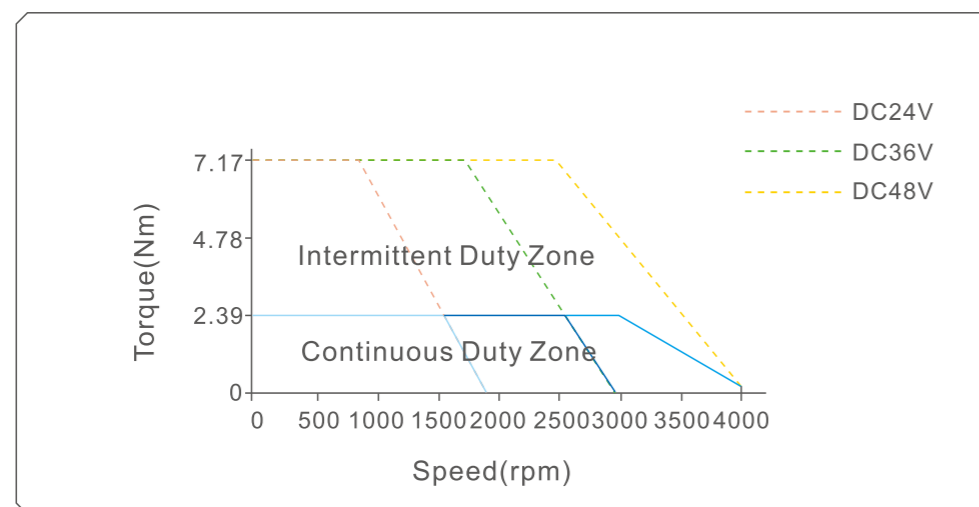
- 200W motor(iSV2-\*\*20)



- 400W motor(iSV2-\*\*40)

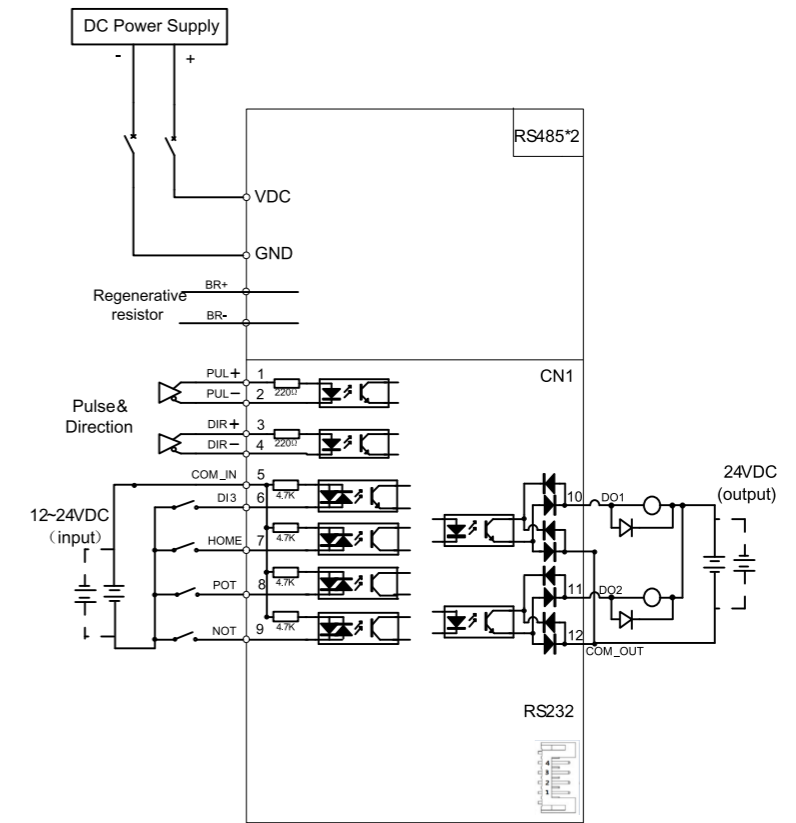


- 750W motor(iSV2-\*\*75)

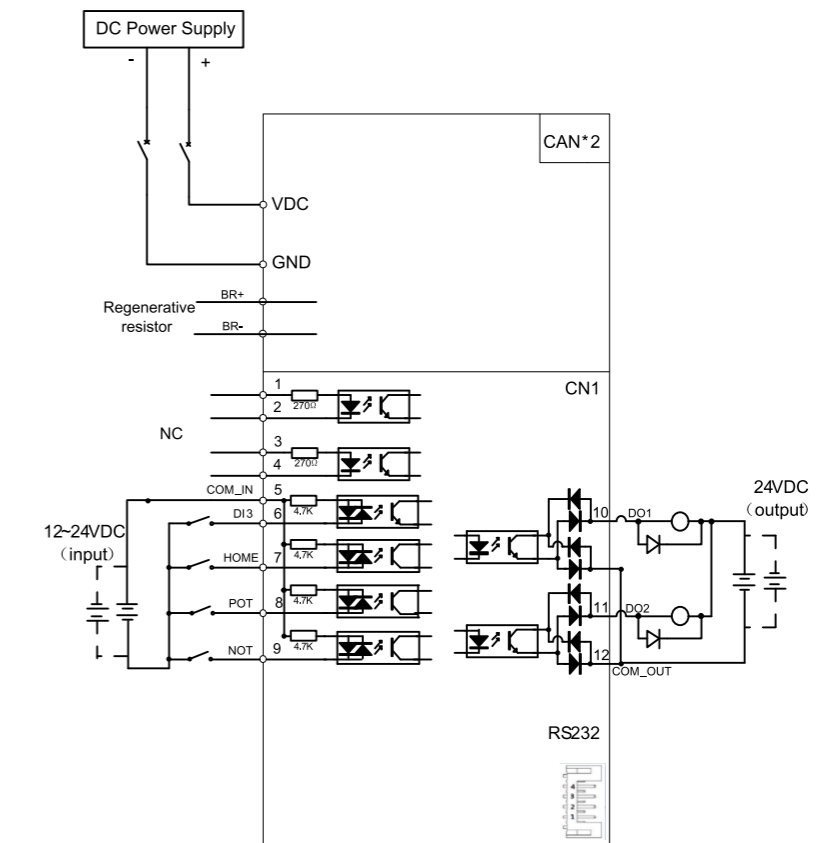


## Drive Connections

- iSV2-RS



- iSV2-CAN



# Integrated Servo Motors

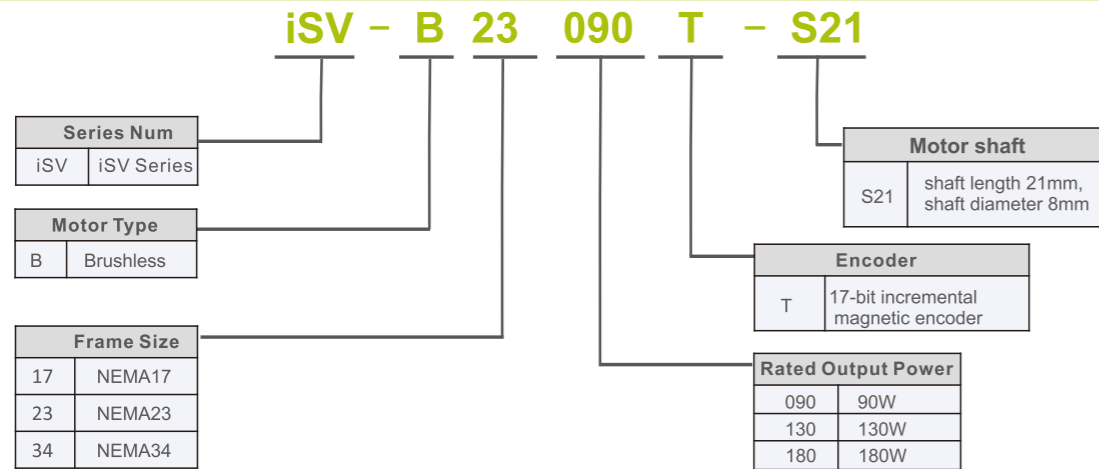
## iSV Series

- Highly Integrated, Servo motor + advanced DSP servo drive
- Lower cable cost
- Support step & direction, commands
- Built-in pulse generator for the tuning and self-test
- Compact size, Save mounting space



Leadshine's iSV series integrated servo motors are one of the most compact servo systems available on the market. An iSV integrated servo has a servo motor (PMSM or BLDC optional) and an advanced DSP servo drive. At very compact size and with all components integrated, the iSV series servos can save mounting space, eliminate encoder connection and motor wiring time, increase reliability, and lower cable and labor cost. The drive takes step & direction, commands, and is capable of outputting in position and fault signals back to the master controller or external devices for complete system controls.

### Part Numbers



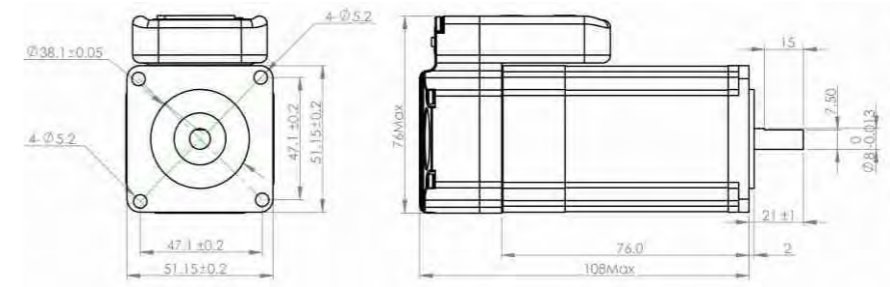
### Specifications

Part Number	iSV-B23090T-S21	iSV-B23130T-S21	iSV-B23180T-S21
Rated Power(W)	90	130	180
Rated Torque(Nm)	0.30	0.45	0.6
Peak Torque(Nm)	0.80	1.1	1.1
Rated Speed(rpm)	3000	3000	3000
Peak Speed(rpm)	4000	4000	4000
Rated Voltage(VDC)	36	36	36
Weight(kg)	0.95	1.25	1.54

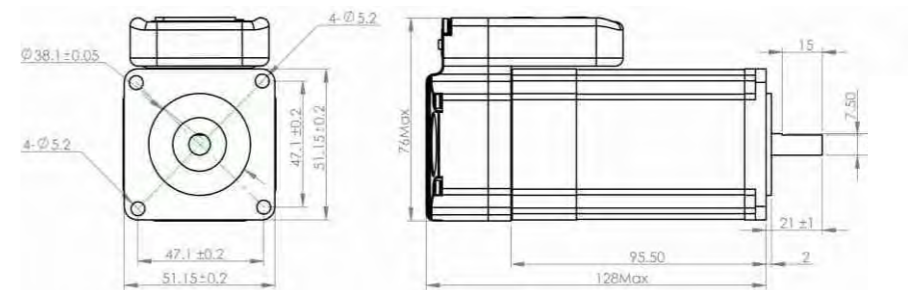
### Dimensions

- iSV-B23090T-S21

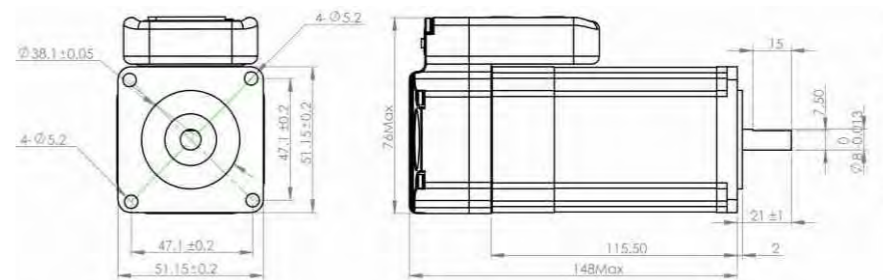
Units: mm 1 inch = 25.4 mm



- iSV-B23130T-S21



- iSV-B23180T-S21



# Power Supplies

- 220VAC  $\pm$  10% or 110 VAC  $\pm$  10%
- Higher Reliability and mass production
- High efficiency, low temperature rising



## Features

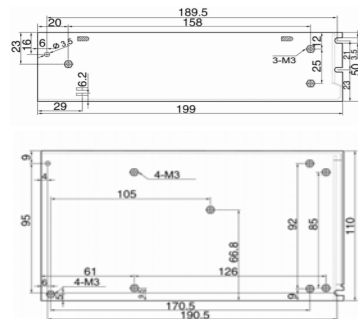
- 1.8 or 3 times overload
- Compact Size, Light in Weight
- Use Switch to select input voltage 220VAC  $\pm$  10%
- Over-current, Over-voltage, Low-voltage Protections
- Big Power with High Efficiency
- CE and RoHS

## Electrical Specifications

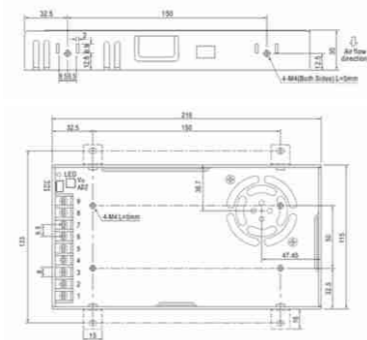
Model	Output Voltage (VDC)	Continuous Current(Arms)	Peak Current(Arms)	Input Voltage	Power(W)	Dimensions (mm)	Weight(kg)
SPS2410(V3.0)	24	10	30	220VAC $\pm$ 10%	240	199*110*50	0.8
SPS3611(V3.0)	36	11	33		400	215*115*30	0.6
SPS488(V3.0)	48	8.3	24.9		400	215*115*30	0.6
SPS606(V3.0)	60	6.7	20.1		400	215*115*30	0.6

## Dimensions

(unit: mm, 1inch=25.4mm)



SPS2410(V2.0)



SPS3611(V2.0)/SPS488(V2.0)/SPS607(V2.0)