

Bring Out the Best in Motion

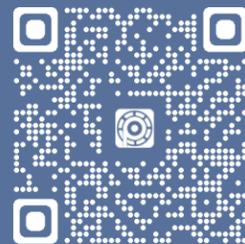
## Shanghai PrimoPal Precision Motor Co., Ltd.

Add: 3F, Bldg. B, No. 745 East Zhuanxing Road, Shanghai 201108, China

Tel: +86 21 5018 7836 | Fax: +86 21 5017 9351

Sale & Product Inquiries: [sales@primopal.com](mailto:sales@primopal.com)

Product & Technical Support: [support@primopal.com](mailto:support@primopal.com)



# DC SERVO SYSTEM

2024  
2025

Ver. 4.1

Shanghai PrimoPal Precision Motor Co., Ltd.



## ABOUT PRIMOPAL

PrimoPal Motor Co., Ltd. is a joint-venture manufacturing, engineering and trading company, located at the free-trade zone of Shanghai, China. PrimoPal specializes in development, production and selling of various high-quality and cost-effective precision motor and motion control products, including Hybrid stepper motors, PM stepper motors, Linear actuators, Close-loop stepper motors, Brushless DC motors, Brushless servo motors, AC servo motors, PM DC motors, AC induction motors, Synchronous motors, Gear motors, Stepper drives, Brushless DC drives, Hybrid servo drives, AC servo drives, Brushless servo drives, Brush servo drives, Encoders, Spur gearboxes, Planetary gear heads, Brakes, Power supplies, Accessories, and so on. Since establishment, PrimoPal is committed to providing outstanding quality, economical solutions, impeccable support and after-sales service for every client. Our manufacturing bases are equipped with advanced quality testing devices, precise injection molding machines, auto high-speed punches, auto winding machines and other advanced manufacturing equipment. It makes us have the ability of continuously providing products with superior quality. Besides, we have an engineering team with many years of experience in motor design and application engineering. This ability of offering custom products often gives our customers the great benefit.

For PrimoPal, the customer is not only a buyer, but also a long-term business partner. We work not only to meet their expectations, but also to exceed them through continuous cycles of learning. We believe it is the key to a successful business relationship that understanding our customer's goals, delivering what our customers

need and when they need it. To demonstrate our commitment to all our customers, PrimoPal has adopted "Bringing out the Best in Motion" as our official slogan, which means our ultimate goal is to become one of the world's top level companies in the industry of precision motor and motion control system. The pursuit of excellence encourages all PrimoPal employees to forge ahead into improving our business processes and increasing our management efficiency. We have no doubt that our endeavors enable us to maintain strong presence in the competitive market.

Now, let us help you find the right solution for your motor and motion control systems.



# CONTENTS

## A



Universal Series  
Brushless DC Servo Motor

A1-A8

## B



Injection Molding Series  
Brushless DC Servo Motor

B1-B8

## C



Brushless DC Servo Drive

C1-C22

## Features

PrimoPal's DC servo motor and drive is a new generation of high-performance, high-precision and high-reliability products. The working voltage is 24~80VDC, with small size, high stability and convenient networking. And other advantages, support CAN, Modbus bus, pulse and analog and other control methods. A wide range of products, providing a variety of product design combinations, are widely used in logistics warehousing AGV, medical intelligent service robots, power inspection robots, logistics sorting trolleys, textile machinery, medical equipment, outdoor mobile equipment, etc.

## Characteristics

- Position/speed/torque control, mode switching
- Protection functions: under-voltage, over-voltage, over-current, overload, stall, position tolerance, etc. RS232 and RS485
- communication interface supporting, MODBUS protocol
- Support CANBUS interface: including custom protocol and standard CANOPEN protocol  
Highly integrated, using direct quick-connect terminals, easy to use and reliable
- Support temperature detection and temperature alarm function
- There is an external keyboard display interface module
- Obtained a number of CE, high and low temperature test certifications

## Typical Applications



# PrimoPal's DC Servo Motor Part Number Naming Rule

PLS	A	40	EB	—	E	02	005	25	—	D	L2	—	B	1
1	2	3	4		5	6	7	8		9	10		11	12

PrimoPal Brushless DC Servo Motor

2	Motor Type
A	Universal series
P	Injection molding series

3	Frame Size
40	40 Frame Size
60	60 Frame Size
80	80 Frame Size
90	90 Frame Size
130	130 Frame Size

4	Brake Specs
None	Without brake
EB	Electromagnetic brake
PB	Permanent magnet brake

5	Encoder Type
None	Without encoder
E	Optical encoder
RE	Rotary resolver
ME	Magnetic encoder

6	Voltage Specs
02	24VDC
03	36VDC
04	48VDC

7	Rated Power
005	50W
010	100W
150	1500W

8	Speed Specs
Indicates the rated speed code, 25 represents the output speed 25*100r/min=2500r/min	

12	Oil Seal Specs
0	Without oil seal
1	With oil seal

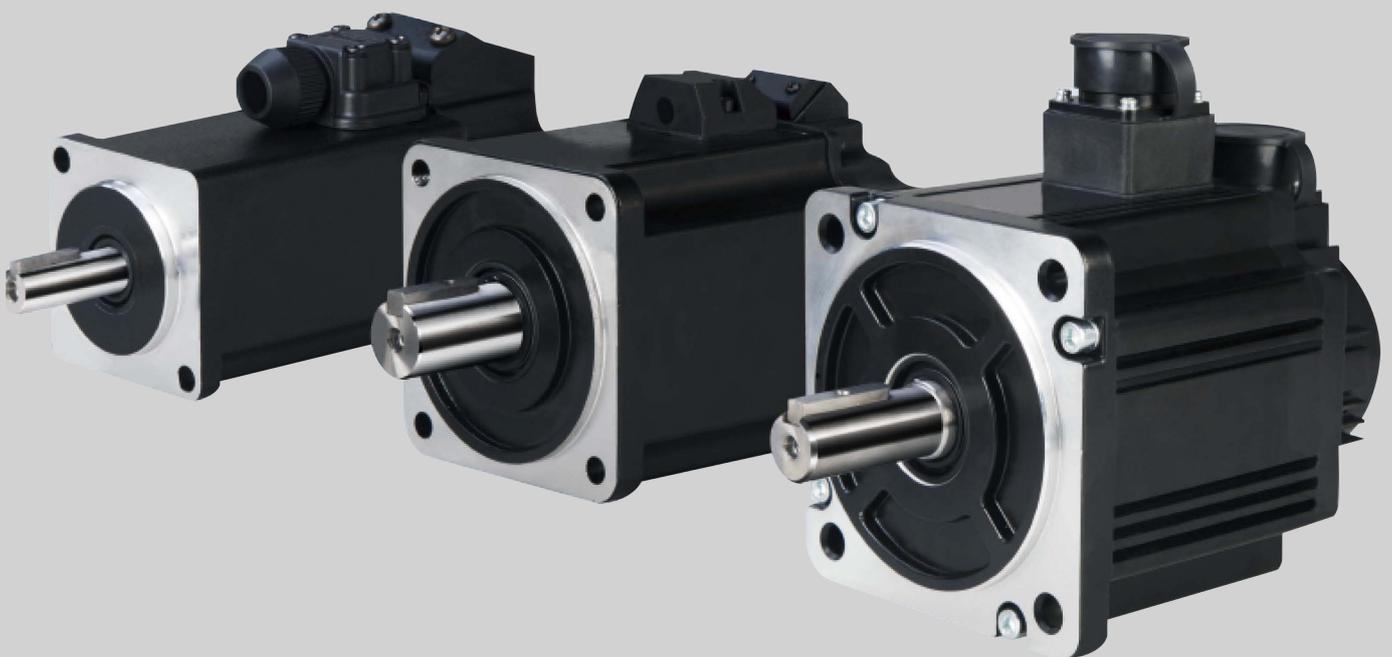
11	Shaft Specs
A	Round Shaft
B	Key way
C	D-cut
D	Tapered shaft

10	Encoder Resolution
L1	1024-Line
L2	2500-Line
L3	5000-Line
L4	Provincial line type 2500-lines
A1	Multi-turn absolute value 17 bits
A5	Multi-turn absolute value 23 bits
A2	Split multi-turn absolute value 17 bits
A3	Split multi-turn absolute value 23 bits
B1	Single-turn absolute value 17 bits
B5	Single-turn absolute value 23 bits
B2	Split single-turn absolute value 17 bits
B3	Split single-turn absolute value 23 bits
R1	Wound Pair Pole Resolver

9	Encoder Brand
D	Tamagawa
K	Nikon
N	Nemicon
C	Yu Heng
C	Others

# Universal Series

## DC Servo Motor



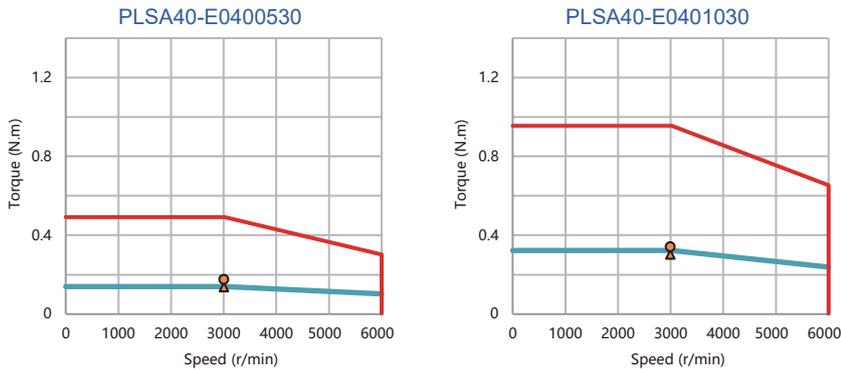
# PLSA40 DC Servo Motor



## Specifications

Model	PLSA40-E0400530								PLSA40-E0401030								
Rated Power(W)	50								100								
Rated Voltage(V)	DC48								DC48								
Rated Current(A)	3.5								5								
Rated Torque(N.m)	0.16								0.32								
Rated Speed(r/min)	3000								3000								
Peak Current(A)	12.2								15								
Peak Torque(N.m)	0.48								0.96								
Peak Speed(r/min)	6000								6000								
Voltage Constant(V/1000r/min)	3.5								3.7								
Torque Coefficient(N.m/A)	0.05								0.06								
Line-line Resistance( $\Omega$ )	1.06								0.47								
Line-line Inductance(mH)	0.86								0.45								
Electrical Time-constant(ms)	0.8								1								
Rotor Inertia( $\text{kg}\cdot\text{m}^2\times 10^{-4}$ )	0.035								0.06								
Weight(kg)	0.4								0.6								
Number of Pole Pairs	4 (5 Pairs Of Poles Are Optional)																
Encoder Resolution (CPR)	2500CPR(Absolute encoder available)																
Insulation Class	Class F																
Protection Class	IP65 (IP67 Optional)																
Environment	Ambient Temperature:-20-50°C/Ambient Humidity~90%(No Frosting Condition)																
Winding Socket	Winding Wire	U				V				W				PE			
	Socket Number	1				2				3				4			
Encoder Socket (Absolute Type)	Signal Pin Definition	PE	5V	0V	SD+	SD-	VB+	VB-									
	Male Pin Number	1	2	3	4	5	6	7									
Encoder Socket (Incremental Type)	Signal Pin Definition	Shield	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-	
	Male Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

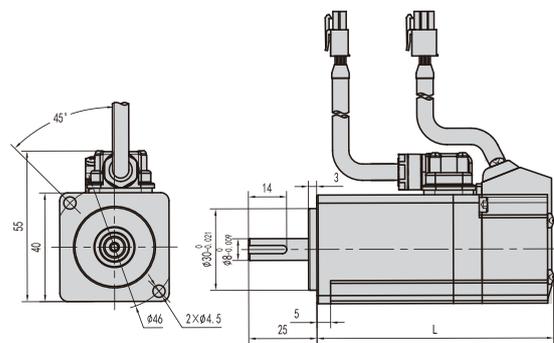
## Characteristic Curve



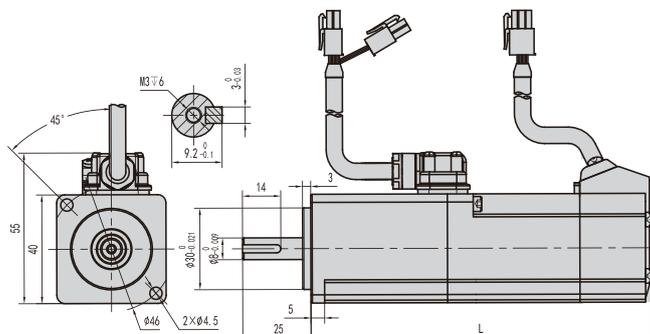
## Dimensions

Motor Length	50W	100W
L Without Brake (mm)	68.5	86.5
L With Brake (mm)	101.5	119.5

### Without Brake



### With Brake



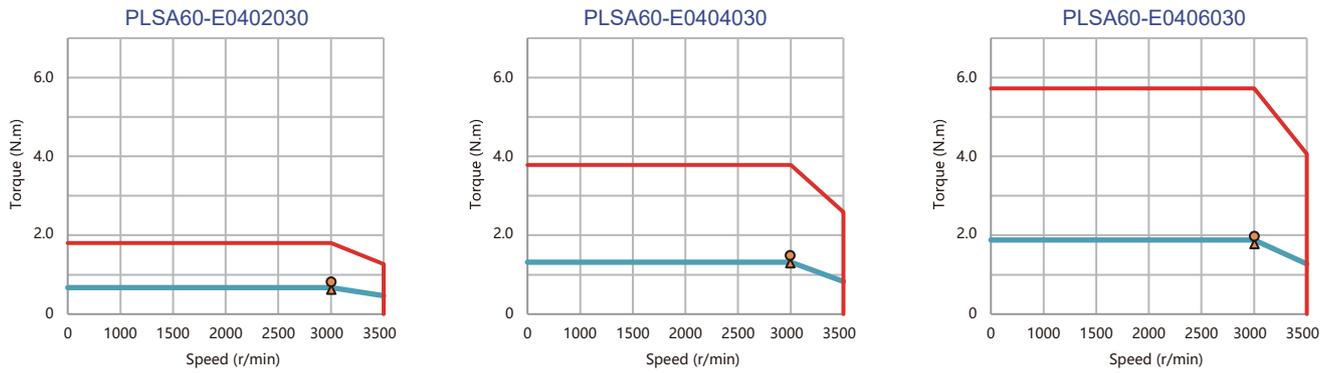
# PLSA60 DC Servo Motor



## Specifications

Model	PLSA60-E0402030	PLSA60-E0404030	PLSA60-E0406030													
Rated Power(W)	200	400	600													
Rated Voltage(V)	DC48	DC48	DC48													
Rated Current(A)	5	10	15													
Rated Torque(N.m)	0.64	1.27	1.91													
Rated Speed(r/min)	3000	3000	3000													
Peak Current(A)	16	32	48													
Peak Torque(N.m)	1.92	3.81	5.73													
Peak Speed(r/min)	3500	3500	3500													
Voltage Constant(V/1000r/min)	8.8	8.2	8.5													
Torque Coefficient(N.m/A)	0.13	0.13	0.13													
Line-line Resistance( $\Omega$ )	0.31	0.25	0.17													
Line-line Inductance(mH)	0.45	0.3	0.2													
Electrical Time-constant(ms)	1.5	1.2	1.17													
Rotor Inertia( $\text{kg}\cdot\text{m}^2\times 10^{-4}$ )	0.33	0.67	1.02													
Weight(kg)	1.1	1.5	1.9													
Number of Pole Pairs	4 (5 Pairs Of Poles Are Optional)															
Encoder Resolution (CPR)	2500CPR(Absolute encoder available)															
Insulation Class	Class F															
Protection Class	IP65 (IP67 Optional)															
Environment	Ambient Temperature:-20-50°C/Ambient Humidity~90%(No Frosting Condition)															
Winding Socket	Winding Wire	U	V	W	PE											
	Socket Number	1	2	3	4											
Encoder Socket (Absolute Type)	Signal Pin Definition	PE	5V	0V	SD+	SD-	VB+	VB-								
	Male Pin Number	1	2	3	4	5	6	7								
Encoder Socket (Incremental Type)	Signal Pin Definition	Shield	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-
	Male Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

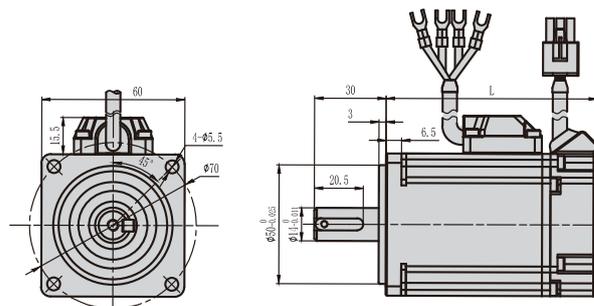
## Characteristic Curve



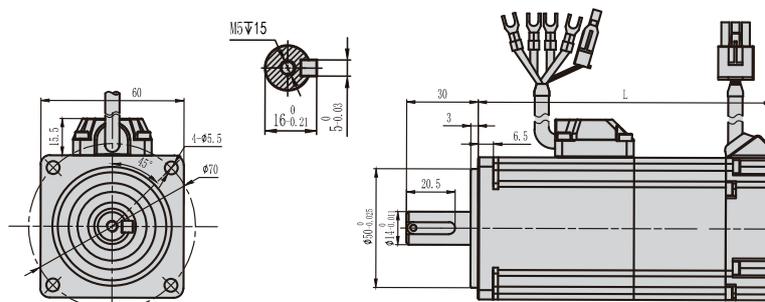
## Dimensions

Motor Length	200W		400W		600W	
	Regular	Thin	Regular	Thin	Regular	Thin
L Without Brake (mm)	99.2	80.2	122.2	103.2	153.3	134.3
L With Brake (mm)	131.2	112.2	154.2	135.2	190.3	171.3

### Without Brake



### With Brake



# PLSA80 DC Servo Motor

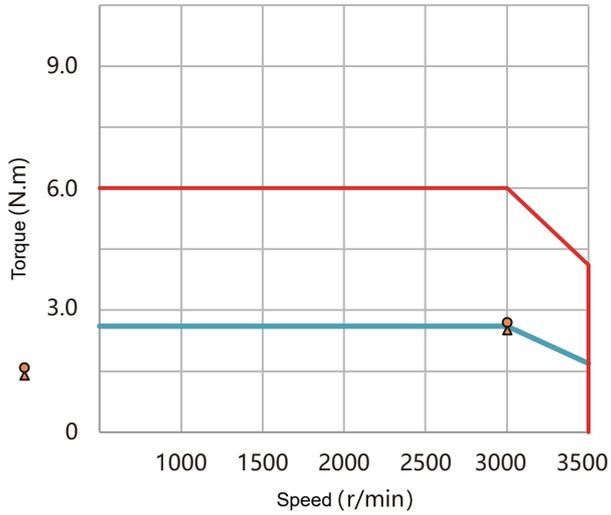


## Specifications

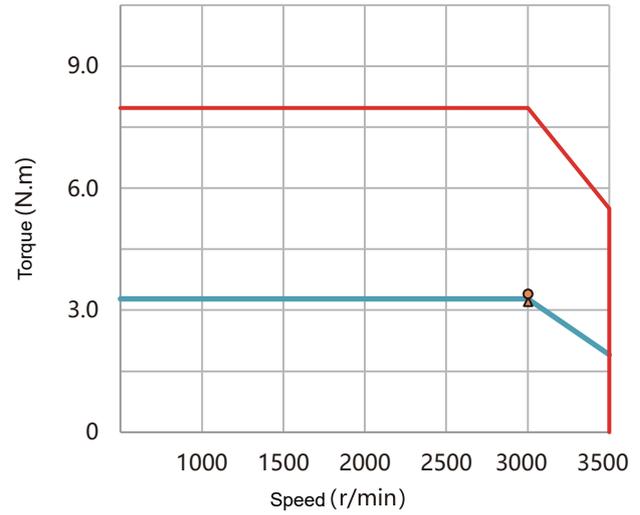
Model	PLSA80-E0407530								PLSA80-E0410030								
Rated Power(W)	750								1000								
Rated Voltage(V)	DC48								DC48								
Rated Current(A)	20								25								
Rated Torque(N.m)	2.4								3.2								
Rated Speed(r/min)	3000								3000								
Peak Current(A)	50								62.5								
Peak Torque(N.m)	6								8								
Peak Speed(r/min)	3500								3500								
Voltage Constant(V/1000r/min)	8.2								8.9								
Torque Coefficient(N.m/A)	0.12								0.13								
Line-line Resistance( $\Omega$ )	0.1								0.09								
Line-line Inductance(mH)	0.4								0.35								
Electrical Time-constant(ms)	4								3.89								
Rotor Inertia( $\text{kg}\cdot\text{m}^2\times 10^{-4}$ )	1.8								2.3								
Weight(kg)	2.8								3.4								
Number of Pole Pairs	4 (5 Pairs Of Poles Are Optional)																
Encoder Resolution (CPR)	2500CPR(Absolute encoder available)																
Insulation Class	Class F																
Protection Class	IP65 (IP67 Optional)																
Environment	Ambient Temperature:-20-50°C/Ambient Humidity~90%(No Frosting Condition)																
Winding Socket	Winding Wire	U				V				W				PE			
	Socket Number	1				2				3				4			
Encoder Socket (Absolute Type)	Signal Pin Definition	PE	5V	0V	SD+	SD-	VB+	VB-									
	Male Pin Number	1	2	3	4	5	6	7									
Encoder Socket (Incremental Type)	Signal Pin Definition	Shield	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-	
	Male Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

## Characteristic Curve

PLSA80-E0407530



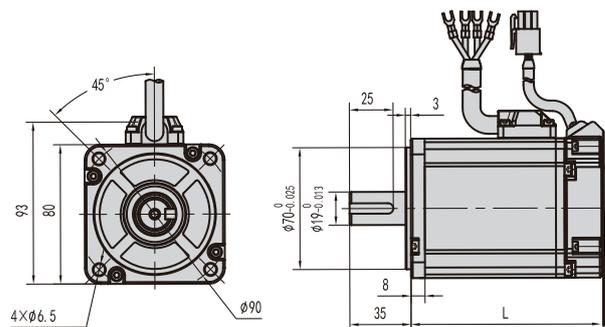
PLSA80-E0410030



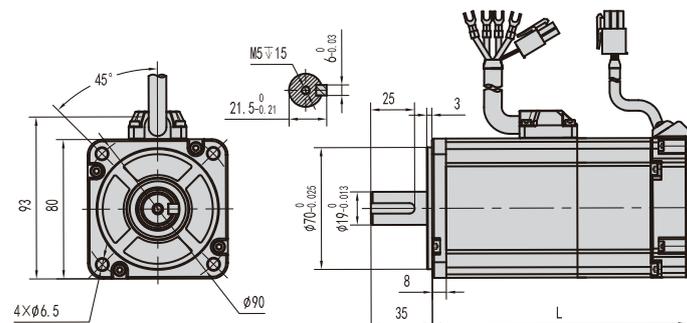
## Dimensions

Motor Length	750W		1000W	
	Regular	Thin	Regular	Thin
L Without Brake (mm)	132	113.5	147	128.5
L With Brake (mm)	169	150.5	184	165.5

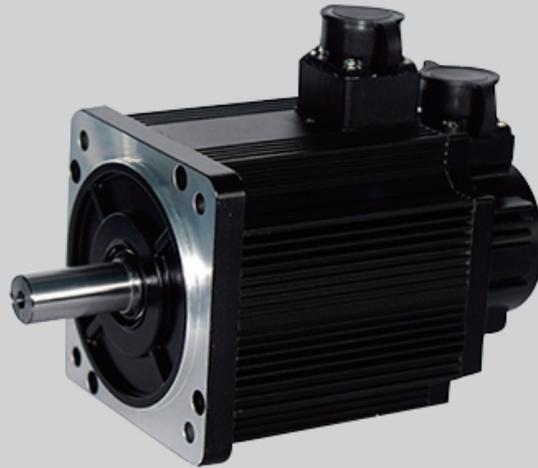
### Without Brake



### With Brake



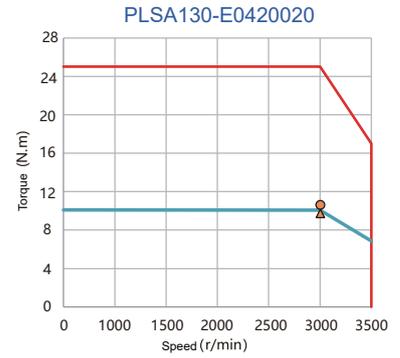
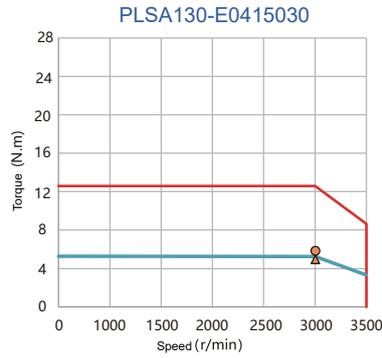
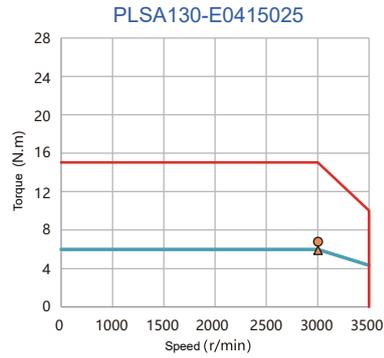
# PLSA130 DC Servo Motor



## Specifications

Model	PLSA130-E0415025	PLSA130-E0415030	PLSA130-E0420020													
Rated Voltage(V)	48	48	48													
Rated Power(KW)	1.5	1.5	2.0													
Rated Torque(N.m)	6	5	10													
Maximum Torque(N.m)	15	12.5	25													
Rated Speed(r/min)	2500	3000	2000													
Peak Speed (Rpm)	3000	3500	2500													
Rated Current (A)	27	26	48													
Rotor Inertia (Kg.m <sup>2</sup> x10 <sup>-4</sup> )	16	16	16													
Torque Coefficient(N.m/A)	0.22	0.19	0.48													
Electrical Time Constant (MS)	10.41	15	13.3													
Line Resistance (Ω)	0.048	0.012	0.024													
Line Inductance (MH)	0.5	0.18	0.32													
Line Back EMF Constant (V/krpm)	7.4	5.2	8													
Weight(kg)	8.5	8.5	10.5													
Number of Pole Pairs	4 (5 Pairs Of Poles Are Optional)															
Encoder Resolution (CPR)	2500CPR(Absolute encoder available)															
Insulation Class	Class F															
Protection Class	IP65 (IP67 Optional)															
Environment	Ambient Temperature:-20-50°C/Ambient Humidity~90%(No Frosting Condition)															
Winding Socket	Winding Wire	U		V		W		PE								
	Socket Number	1		2		3		4								
Encoder Socket (Absolute Type)	Signal Pin Definition	PE	5V	0V	SD+	SD-	VB+	VB-								
	Male Pin Number	1	2	3	4	5	6	7								
Encoder Socket (Incremental Type)	Signal Pin Definition	Shield	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-
	Male Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

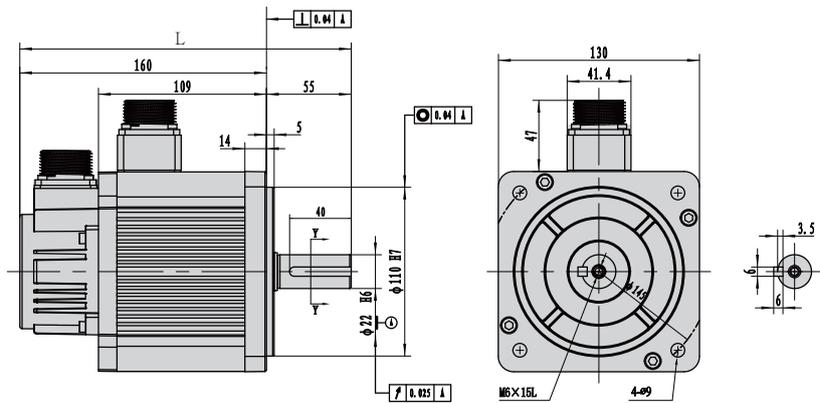
## Characteristic Curve



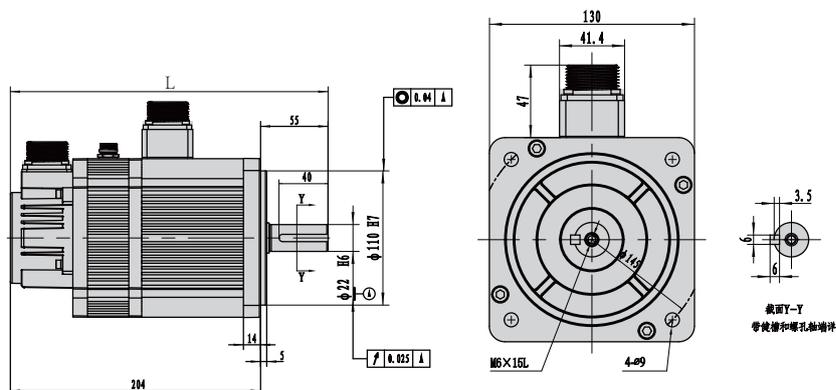
## Dimensions

Motor Length	1500W	2000W
L Without Brake (mm)	215	286
L With Brake (mm)	259.2	330.2

### Without Brake

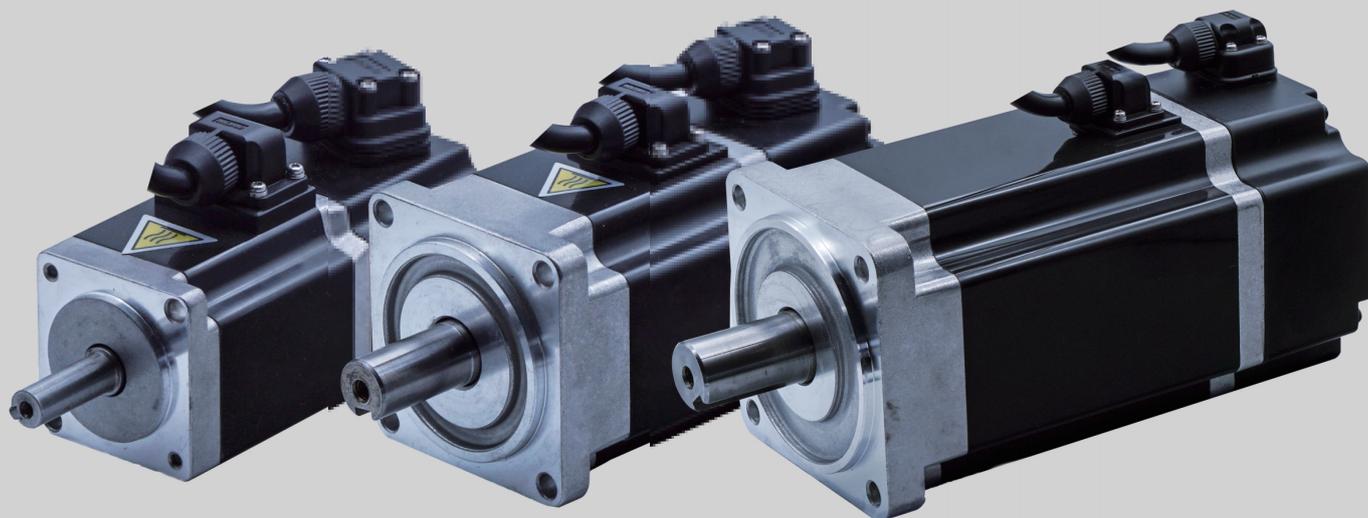


### With Brake



# Injection Mold Series

## DC Servo Motor



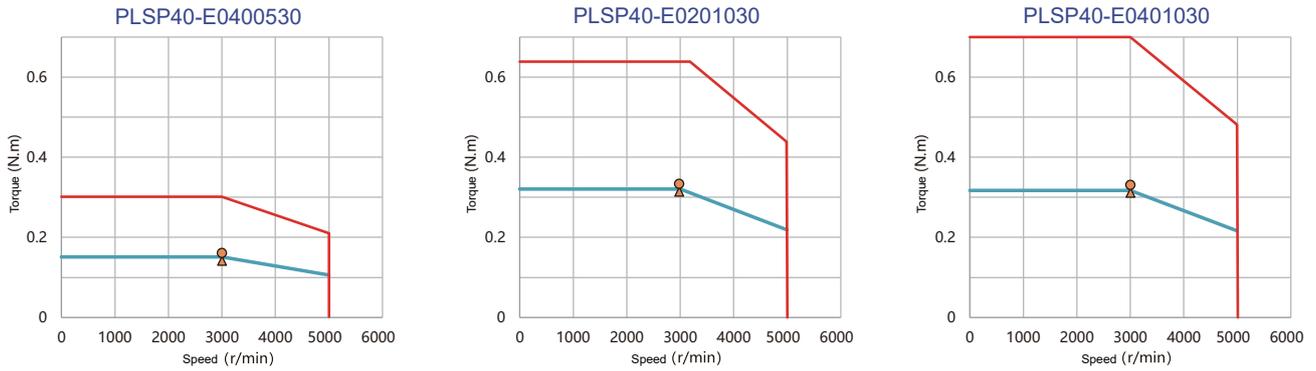
# PLSP40 DC Servo Motor



## Specifications

Model	PLSP40-E0400530	PLSP40-E0201030	PLSP40-E0401030													
Rated Voltage(V)	48	24	48													
Rated Power(W)	50	100	100													
Rated Torque(N.m)	0.15	0.32	0.32													
Maximum Torque(N.m)	0.30	0.64	0.70													
Rated Speed(r/min)	3000	3000	3000													
Peak Speed (Rpm)	5000	5000	5000													
Rated Current (A)	1.5	7.5	3.5													
Rotor Inertia (Kg.m <sup>2</sup> ×10 <sup>-4</sup> )	0.021	0.035	0.035													
Torque Coefficient(N.m/A)	0.1	0.04	0.09													
Electrical Time Constant (MS)	1.11	4.59	4.3													
Line Resistance (Ω)	6.75	0.32	0.95													
Line Inductance (MH)	7.5	1.47	4.1													
Line Back EMF Constant (V/krpm)	9.2	3.2	6.3													
Weight(kg)	0.4	0.5	0.5													
Number of Pole Pairs	4 (5 Pairs Of Poles Are Optional)															
Encoder Resolution (CPR)	2500CPR(Absolute encoder available)															
Insulation Class	Class F															
Protection Class	IP65 (IP67 Optional)															
Environment	Ambient Temperature:-20-50°C/Ambient Humidity~90%(No Frosting Condition)															
Winding Socket	Winding Wire	U		V		W		PE								
	Socket Number	1		2		3		4								
Encoder Socket (Absolute Type)	Signal Pin Definition	PE	5V	0V	SD+	SD-	VB+	VB-								
	Male Pin Number	1	2	3	4	5	6	7								
Encoder Socket (Incremental Type)	Signal Pin Definition	Shield	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-
	Male Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

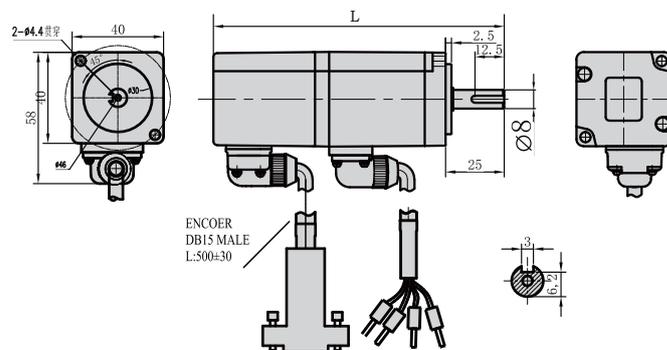
## Characteristic Curve



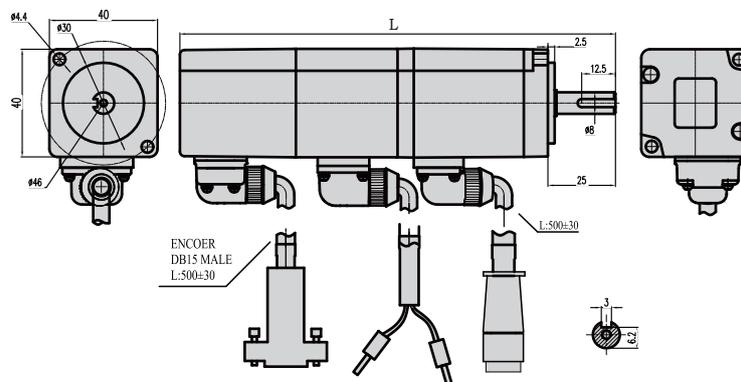
## Dimensions

Motor Length	50W	100W
L Without Brake (mm)	109	124
L With Brake (mm)	124	161

### Without Brake



### With Brake



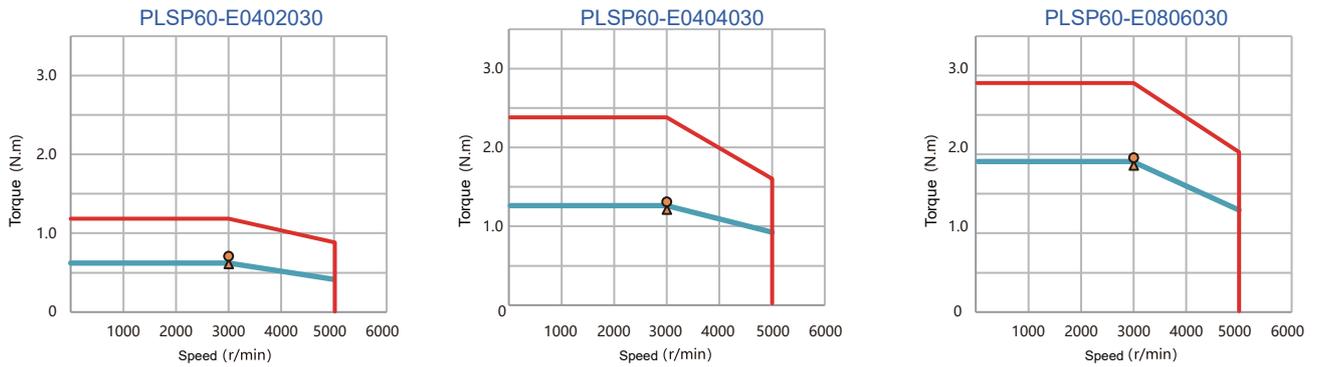
# PLSP60 DC Servo Motor



## Specifications

Model	PLSP60-E0202030	PLSP60-E0402030	PLSP60-E0204030	PLSP60-E0404030	PLSP60-E0806030											
Rated Voltage(V)	24	48	24	48	80											
Rated Power(W)	200	200	400	400	600											
Rated Torque(N.m)	0.64	0.64	1.27	1.27	1.91											
Maximum Torque(N.m)	1.2	1.2	2.4	2.4	2.9											
Rated Speed(r/min)	3000	3000	3000	3000	3000											
Peak Speed (Rpm)	5000	5000	5000	5000	5000											
Rated Current (A)	16	6.5	25	12.8	13.6											
Rotor Inertia (Kg.m <sup>2</sup> x10 <sup>-4</sup> )	0.264	0.264	0.407	0.407	0.526											
Torque Coefficient(N.m/A)	0.04	0.1	0.05	0.1	0.1											
Electrical Time Constant (MS)	4.2	11	9.64	14	13.2											
Line Resistance (Ω)	0.09	0.33	0.056	0.15	0.68											
Line Inductance (MH)	0.32	3.7	0.54	2.1	9.0											
Line Back EMF Constant (V/krpm)	3.2	6	3.2	6.6	12.2											
Weight(kg)	1.3	1.3	1.8	1.8	2.1											
Number of Pole Pairs	4 (5 Pairs Of Poles Are Optional)															
Encoder Resolution (CPR)	2500CPR(Absolute encoder available)															
Insulation Class	Class F															
Protection Class	IP65 (IP67 Optional)															
Environment	Ambient Temperature:-20-50°C/Ambient Humidity~90%(No Frosting Condition)															
Winding Socket	Winding Wire	U			V			W			PE					
	Socket Number	1			2			3			4					
Encoder Socket (Absolute Type)	Signal Pin Definition	PE	5V	0V	SD+	SD-	VB+	VB-								
	Male Pin Number	1	2	3	4	5	6	7								
Encoder Socket (Incremental Type)	Signal Pin Definition	Shield	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-
	Male Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

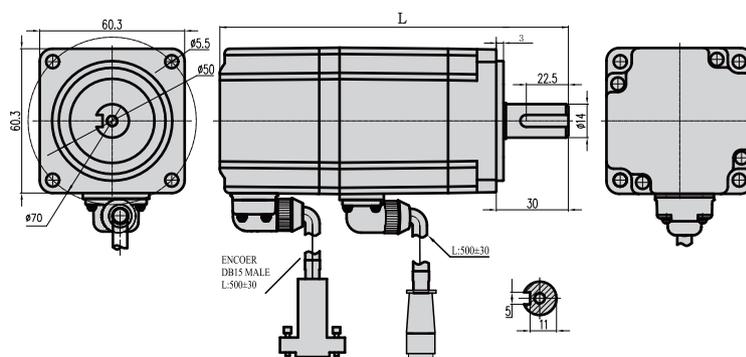
## Characteristic Curve



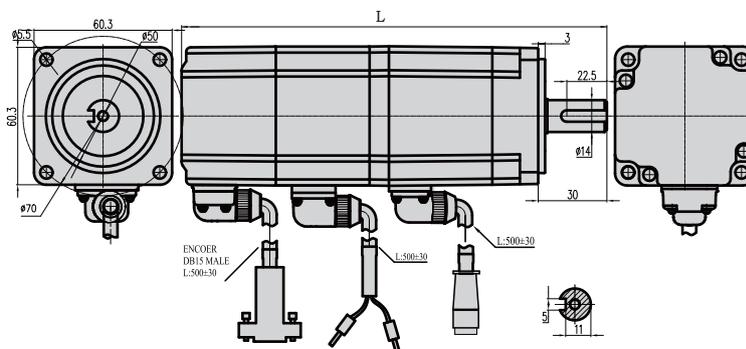
## Dimensions

Motor Length	200W	400W	600W
L Without Brake (mm)	145	173	189
L With Brake (mm)	186	214	230

### Without Brake



### With Brake



## PLSP60 DC Servo Motor (Short Version)



### Specifications

Model	PLSP60-E0401030 Short	PLSP60-E0402030 Short	PLSP60-E0404030 Short													
Rated Voltage(V)	48	48	48													
Rated Power(W)	100	200	400													
Rated Torque(N.m)	0.32	0.64	1.27													
Maximum Torque(N.m)	0.9	1.8	2.6													
Rated Speed(r/min)	3000	3000	3000													
Peak Speed (Rpm)	5000	5000	5000													
Rated Current (A)	3.2	6	13													
Rotor Inertia (Kg.m <sup>2</sup> ×10 <sup>-4</sup> )	0.102	0.183	0.347													
Torque Coefficient(N.m/A)	0.1	0.1	0.09													
Electrical Time Constant (MS)	2.4	2.73	3.5													
Line Resistance (Ω)	0.76	0.42	0.23													
Line Inductance (MH)	1.83	1.15	0.81													
Line Back EMF Constant (V/krpm)	6.5	6.9	7.8													
Weight(kg)	0.7	1.1	1.6													
Number of Pole Pairs	4 (5 Pairs Of Poles Are Optional)															
Encoder Resolution (CPR)	2500CPR(Absolute encoder available)															
Insulation Class	Class F															
Protection Class	IP65 (IP67 Optional)															
Environment	Ambient Temperature:-20-50°C/Ambient Humidity~90%(No Frosting Condition)															
Winding Socket	Winding Wire	U		V		W		PE								
	Socket Number	1		2		3		4								
Encoder Socket (Absolute Type)	Signal Pin Definition	PE	5V	0V	SD+	SD-	VB+	VB-								
	Male Pin Number	1	2	3	4	5	6	7								
Encoder Socket (Incremental Type)	Signal Pin Definition	Shield	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-
	Male Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

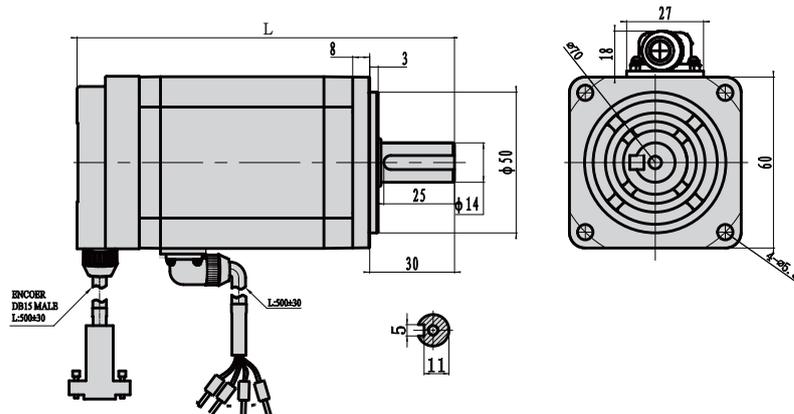
## Characteristic Curve



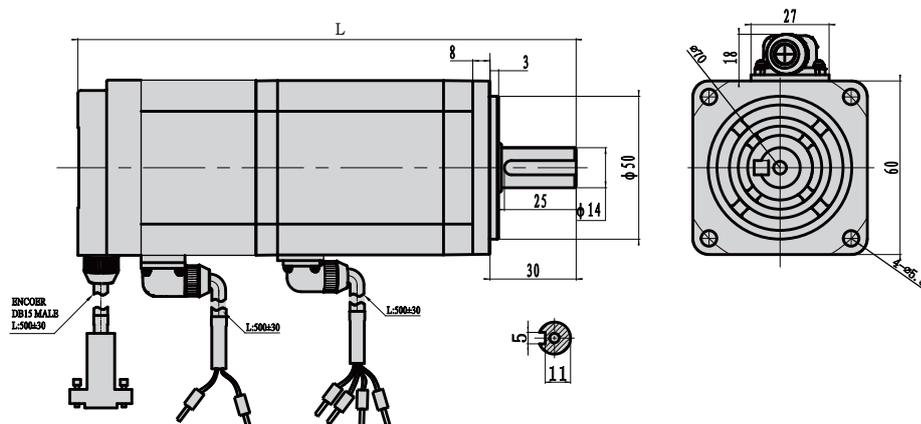
## Dimensions

Motor Length	100W	200W	400W
L Without Brake (mm)	105.5	116.5	133.5
L With Brake (mm)	145.5	156.5	173.5

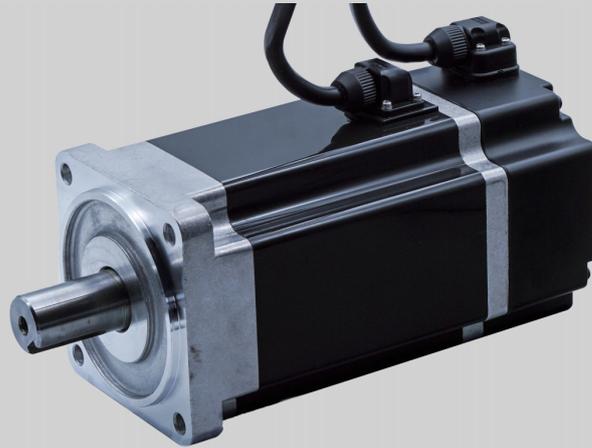
### Without Brake



### With Brake



# PLSP80 DC Servo Motor



## Specifications

Model		PLSP80-E0407530															
Rated Voltage(V)		48															
Rated Power(W)		750															
Rated Torque(N.m)		2.39															
Maximum Torque(N.m)		3.8															
Rated Speed(r/min)		3000															
Peak Speed (Rpm)		5000															
Rated Current (A)		20															
Rotor Inertia (Kg.m <sup>2</sup> x10 <sup>-4</sup> )		0.924															
Torque Coefficient(N.m/A)		0.2															
Electrical Time Constant (MS)		11.5															
Line Resistance (Ω)		0.026															
Line Inductance (MH)		0.3															
Line Back EMF Constant (V/krpm)		6.5															
Weight(kg)		3.0															
Number of Pole Pairs		4 (5 Pairs Of Poles Are Optional)															
Encoder Resolution (CPR)		2500CPR(Absolute encoder available)															
Insulation Class		Class F															
Protection Class		IP65 (IP67 Optional)															
Environment		Ambient Temperature:-20-50°C/Ambient Humidity~90%(No Frosting Condition)															
Winding Socket	Winding Wire	U				V				W				PE			
	Socket Number	1				2				3				4			
Encoder Socket (Absolute Type)	Signal Pin Definition	PE	5V	0V	SD+	SD-	VB+	VB-									
	Male Pin Number	1	2	3	4	5	6	7									
Encoder Socket (Incremental Type)	Signal Pin Definition	Shield	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-	
	Male Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

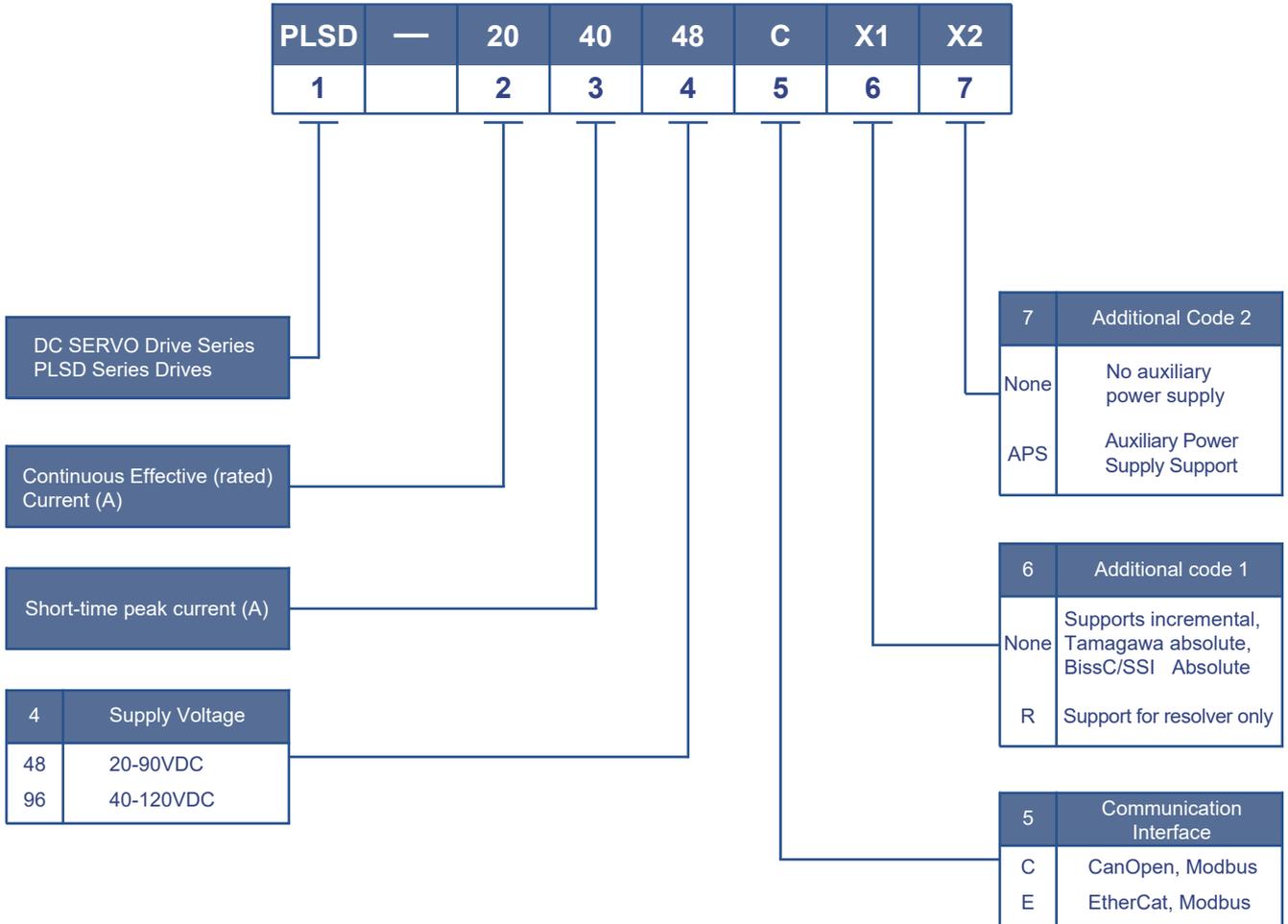


## PLSD Series DC Servo Drives

- Can be used to drive low-voltage permanent magnet synchronous motors, DC brushless motors, DC brushed motors
- Support Modbus/CanOpen/EtherCat
- Supports incremental encoders, SSI/BISSB/BISSC absolute encoding NRZ Tamagawa Absolute Encoder, Hall Signal Position, Rotary Transformer
- Peak current 500A



## ■ PLSD Series DC Servo Drives Model Definition



## Electrical Characteristics of PLSD Series Low Voltage Servo Drives

Model Number	PLSD-2040	PLSD-2550	PLSD-3060	PLSD-3570	PLSD-4080
Input Voltage Range	20-110VDC	40-120VDC	20-90VDC	40-120VDC	20-90VDC
Maximum continuous output current (A)	20	25	30	35	40
Maximum output current (A)	40	50	60	70	80
PWM Frequency	10KHz				
Supported Motors	Permanent Magnet Synchronous Motor (PMSM), Brushless DC Motor (BLDC), Brushed DC Motor				
Input and output	Analog Input	2 analog inputs, -10V-+10V			
	Digital Input	8 digital inputs, 12-30VDC			
	Digital Output	4 digital outputs, open collector outputs			
Bus Function	Modbus	RS485 interface, standard Modbus protocol			
	CanOpen	Standard CanOpen protocol, CiA301/402			
	EtherCAT	Standard CoE protocol			
Encoder Interface	Incremental Encoders, SSI/BISSB/BISSC Absolute Encoders, NRZ, Tamagawa Absolute Encoders, Hall signal position feedback, resolver				
Control Characteristics	Control Method	Speed control (PV), torque control (PT), position control (PP), IP, CSP, CSV, CST			
	SBC&STO	Not have			
Matrix	Location	Indoors, out of direct sunlight, free of dust, corrosive gases, flammable gases, oil mist, water vapor, etc.			
	Ambient Temperature	-20°C to 50°C, derated for 40°C above			
	Altitude	The altitude of the place of use is less than 1000m, and above 1000m, it is used at a reduced level.			
	Humidity Level	Below 95% RH, no water condensation			
	Vibratory	Less than 0.5G (4.9m/s <sup>2</sup> ), less than 10Hz			
	Storage Temperature	-40°C-70°C			
	Cooling method	Natural cooling			
Weight (kg)	0.6	0.7	0.7	0.8	0.8

## Electrical Characteristics of PLSD Series Low Voltage Servo Drives

Model Number	PLSD-80100	PLSD-70140	PLSD-80160	PLSD-95200	PLSD-100200
Input Voltage Range	20-90VDC	40-120VDC	20-90VDC	20-90VDC	20-90VDC
Maximum continuous output current (A)	80	70	80	95	100
Maximum output current (A)	160	140	160	200	200
PWM Frequency	10KHz				
Supported Motors	Permanent Magnet Synchronous Motor (PMSM), Brushless DC Motor (BLDC), Brushed DC Motor				
Input and output	Analog Input	2 analog inputs, -10V-+10V			
	Digital Input	8 digital inputs, 12-30VDC			
	Digital Output	4 digital outputs, open collector outputs			
Bus Function	Modbus	RS485 interface, standard Modbus protocol			
	CanOpen	Standard CanOpen protocol, CiA301/402			
	EtherCAT	Standard CoE protocol			
Encoder Interface	Incremental Encoders, SSI/BISSB/BISSC Absolute Encoders, NRZ Tamagawa Absolute Encoders, Hall signal position feedback, resolver				
Control Characteristics	Control Method	Speed control (PV), torque control (PT), position control (PP), IP, CSP, CSV, CST			
	SBC&STO	Not have			
Matrix	Location	Indoors, out of direct sunlight, free of dust, corrosive gases, flammable gases, oil mist, water vapor, etc.			
	Ambient Temperature	-20°C to 50°C, derated for 40°C above			
	Altitude	The altitude of the place of use is less than 1000m, and above 1000m, it is used at a reduced level.			
	Humidity Level	Below 95% RH, no water condensation			
	Vibratory	Less than 0.5G (4.9m/s <sup>2</sup> ), less than 10Hz			
	Storage Temperature	-40°C-70°C			
	Cooling method	Natural cooling			
Weight (kg)	1.85	2	2.7	2	2

## Electrical Characteristics of PLSD Series Low Voltage Servo Drives

Model Number		PLSD-150300	PLSD-250500
Input Voltage Range		20-120VDC	20-120VDC
Maximum continuous output current (A)		150	250
Maximum output current (A)		300	500
PWM Frequency		10KHz	
Supported Motors		Permanent Magnet Synchronous Motor (PMSM), Brushless DC Motor (BLDC), Brushed DC Motor	
Input and output	Analog Input	2 analog inputs, -10V-+10V	
	Digital Input	8 digital inputs, 12-30VDC	
	Digital Output	4 digital outputs, open collector outputs	
Bus Function	Modbus	RS485 interface, standard Modbus protocol	
	CanOpen	Standard CanOpen protocol, CiA301/402	
	EtherCAT	Standard CoE protocol	
Encoder Interface		Incremental Encoders, SSI/BISSB/BISSC Absolute Encoders, NRZ Tamagawa Absolute Encoders, Hall signal position feedback, resolver	
Control Characteristics	Control Method	Speed control (PV), torque control (PT), position control (PP), IP, CSP, CSV, CST	
	SBC&STO	Not have	
Matrix	Location	Indoors, out of direct sunlight, free of dust, corrosive gases, flammable gases, oil mist, water vapor, etc.	
	Ambient Temperature	-20°C to 50°C, derated for 40°C above	
	Altitude	The altitude of the place of use is less than 1000m, and above 1000m, it is used at a reduced level.	
	Humidity Level	Below 95% RH, no water condensation	
	Vibratory	Less than 0.5G (4.9m/s <sup>2</sup> ), less than 10Hz	
	Storage Temperature	-40°C-70°C	
	Cooling method	Natural cooling	
Weight (kg)		2.7	4.5

## ■ PLSD Series Low Voltage Servo Drives Selection List (CANOpen)

Drive Ordering Number	Input Voltage	Rated Current (A)	Peak Current (A)	Encoder Support	Control Method	Safety Function (SBC&STO)	Operating Temperature		
PLSD-204048-C	20-90VDC	20	40		Analog Pulse Modbus CanOpen				
PLSD-204096-C	40-120VDC								
PLSD-255096-C	40-120VDC	25	50						
PLSD-306048-C	20-90VDC	30	60						
PLSD-357096-C	40-120VDC	35	70						
PLSD-408048-C	20-90VDC	40	80						
PLSD-5010048-C	20-90VDC	50	100	Incremental encoders, Hall signals					
PLSD-7014096-C	40-120VDC	70	140	SSI/SSB/BISSC protocol absolute value				Not have	-40°-50°
PLSD-8016048-C	20-90VDC	80	160	NRZ Tamagawa Protocol Absolute					
PLSD-9520048-C	20-90VDC	95	200						
PLSD-10020048-C	20-90VDC	100	200						
PLSD-15030048-C	20-90VDC	150	300						
PLSD-15030096-C	40-120VDC								
PLSD-25050048-C	20-90VDC	250	500						
PLSD-25050096-C	40-120VDC								

## ■ PLSD Series Low Voltage Servo Drives Selection Table (EtherCat)

Drive Ordering Number	Input Voltage	Rated Current (A)	Peak Current (A)	Encoder Support	Control Method	Safety Function (SBC&STO)	Operating Temperature		
PLSD-204048-E	20-90VDC	20	40		Analog Pulse Modbus CanOpen				
PLSD-204096-E	40-120VDC								
PLSD-255096-E	40-120VDC	25	50						
PLSD-306048-E	20-90VDC	30	60						
PLSD-357096-E	40-120VDC	35	70						
PLSD-408048-E	20-90VDC	40	80						
PLSD-5010048-E	20-90VDC	50	100	Incremental encoders, Hall signals					
PLSD-7014096-E	40-120VDC	70	140	SSI/SSB/BISSC protocol absolute value				Not have	-40°-50°
PLSD-8016048-E	20-90VDC	80	160	NRZ Tamagawa Protocol Absolute					
PLSD-9520048-E	20-90VDC	95	200						
PLSD-10020048-E	20-90VDC	100	200						
PLSD-15030048-E	20-90VDC	150	300						
PLSD-15030096-E	40-120VDC								
PLSD-25050048-E	20-90VDC	250	500						
PLSD-25050096-E	40-120VDC								

## ■ PLSD Series Low Voltage Servo Drives Selection Table (CANOpen & Rotation)

Drive Ordering Number	Input Voltage	Rated Current (A)	Peak Current (A)	Encoder Support	Control Method	Safety Function (SBC&STO)	Operating Temperature
PLSD-204048-CR	20-90VDC	20	40		Analog Pulse Modbus CanOpen		
PLSD-204096-CR	40-120VDC						
PLSD-255096-CR	40-120VDC	25	50				
PLSD-306048-CR	20-90VDC	30	60				
PLSD-357096-CR	40-120VDC	35	70				
PLSD-408048-CR	20-90VDC	40	80				
PLSD-5010048-CR	20-90VDC	50	100				
PLSD-7014096-CR	40-120VDC	70	140	Rotary Transformer			
PLSD-8016048-CR	20-90VDC	80	160				
PLSD-9520048-CR	20-90VDC	95	200				
PLSD-10020048-CR	20-90VDC	100	200				
PLSD-15030048-CR	20-90VDC	150	300				
PLSD-15030096-CR	40-120VDC						
PLSD-25050048-CR	20-90VDC	250	500				
PLSD-25050096-CR	40-120VDC						

## ■ PLSD Series Low Voltage Servo Drives Selection Table (EtherCat & Rotation)

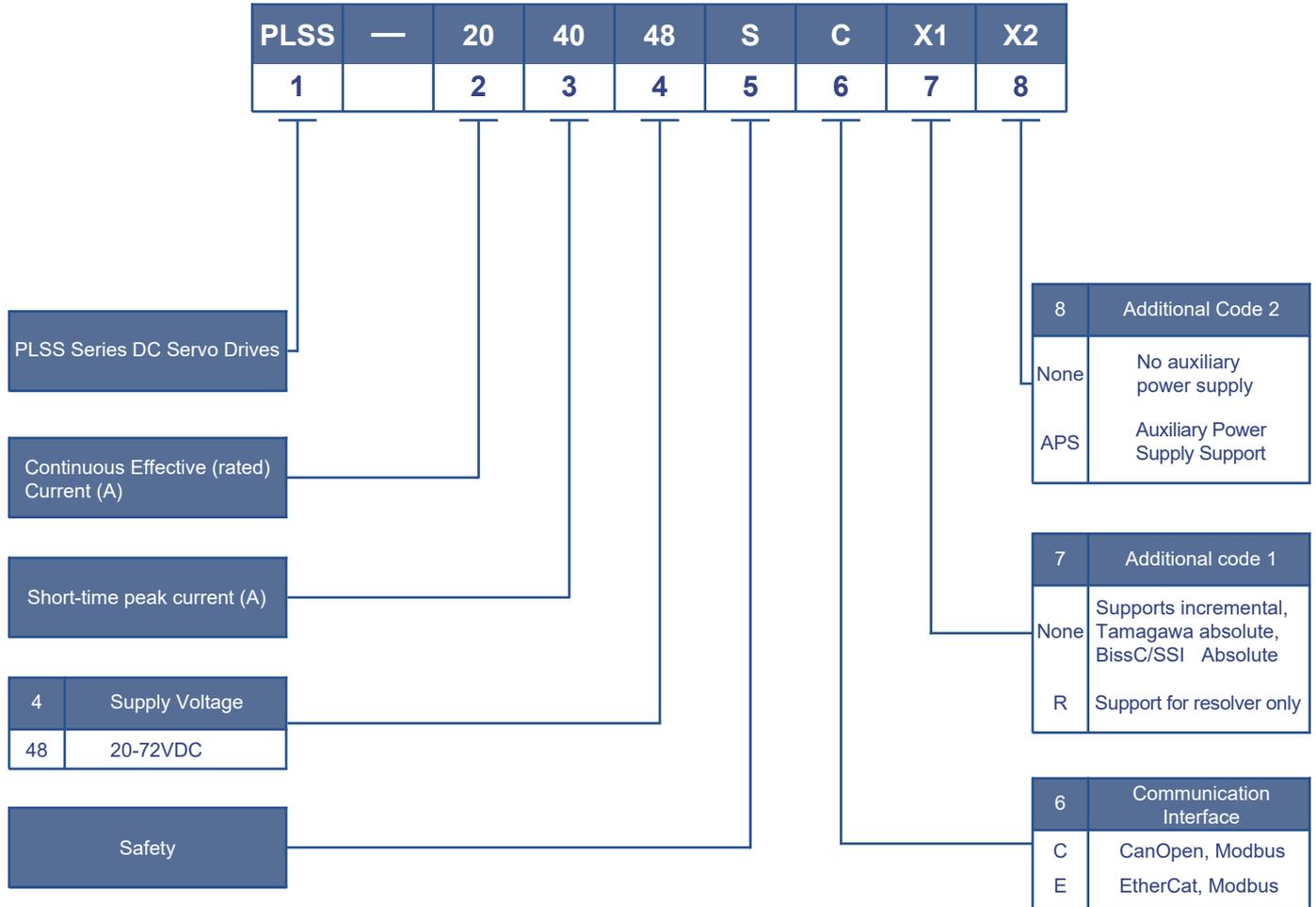
Drive Ordering Number	Input Voltage	Rated Current (A)	Peak Current (A)	Encoder Support	Control Method	Safety Function (SBC&STO)	Operating Temperature
PLSD-204048-ER	20-90VDC	20	40		Analog Pulse Modbus CanOpen		
PLSD-204096-ER	40-120VDC						
PLSD-255096-ER	40-120VDC	25	50				
PLSD-306048-ER	20-90VDC	30	60				
PLSD-357096-ER	40-120VDC	35	70				
PLSD-408048-ER	20-90VDC	40	80				
PLSD-5010048-ER	20-90VDC	50	100				
PLSD-7014096-ER	40-120VDC	70	140	Rotary Transformer			
PLSD-8016048-ER	20-90VDC	80	160				
PLSD-9520048-ER	20-90VDC	95	200				
PLSD-10020048-ER	20-90VDC	100	200				
PLSD-15030048-ER	20-90VDC	150	300				
PLSD-15030096-ER	40-120VDC						
PLSD-25050048-ER	20-90VDC	250	500				
PLSD-25050096-ER	40-120VDC						

## PLSS Series Safe DC Servo Drives

- ISO13849-1 safety certified, safety level: PLD, STO & SBC supported
- Can be used to drive low-voltage permanent magnet synchronous motors, DC brushless motors, DC brushed motors
- Support Modbus/CanOpen/EtherCat
- Supports incremental encoders, SSI/BISSB/BISSC absolute encoders, NRZ Tamagawa absolute encoders, Hall signal position, resolvers
- Peak current 300A



## ■ PLSS Series Safe DC Servo Drives Model Definition



## Electrical Characteristics of PLSS Series Safe Low Voltage Servo Drives

Range		PLSS-2040	PLSS-3060	PLSS-4080	PLSS-100200	PLSS-150300
Input Voltage Range		20-72VDC	20-72VDC	20-72VDC	20-72VDC	20-72VDC
Maximum continuous output current (A)		20	30	30	100	40
Maximum output current (A)		40	60	60	200	80
PWM Frequency		10KHz				
Supported Motors		Permanent Magnet Synchronous Motor (PMSM), Brushless DC Motor (BLDC), Brushed DC Motor				
Input and output	Analog Input	2 analog inputs, -10V-+10V				
	Digital Input	8 digital inputs, 12-30VDC				
	Digital Output	4 digital outputs, open collector outputs				
Bus Function	Modbus	RS485 interface, standard Modbus protocol				
	CanOpen	Standard CanOpen protocol, CiA301/402				
	EtherCAT	Standard CoE protocol				
Encoder Interface		Incremental Encoders, SSI/BISSB/BISSC Absolute Encoders, NRZ Tamagawa Absolute Encoders, Hall signal position feedback, rotary Transformers				
Control Characteristics	Control Method	Speed control (PV), torque control (PT), position control (PP), IP, CSP, CSV, CST				
	SBC&STO	Certified for functional safety, safety standard: ISO 13849-1, safety level: PLD				
Matrix	Location	Indoors, out of direct sunlight, free of dust, corrosive gases, flammable gases, oil mist, water vapor, etc.				
	Ambient Temperature	-20°C to 50°C, derated for 40°C above				
	Altitude	The altitude of the place of use is less than 1000m, and above 1000m, it is used at a reduced level.				
	Humidity Level	Below 95% RH, no water condensation				
	Vibratory	Less than 0.5G (4.9m/s <sup>2</sup> ), less than 10Hz				
	Storage Temperature	-40°C-70°C				
	Cooling method	Natural cooling				
Weight (kg)		0.6	0.7	0.8	1.95	2.75

## ■ PLSS Series Safe Low Voltage Servo Drives Selection List (CANOpen)

Drive Ordering Number	Input Voltage	Rated Current (A)	Peak Current (A)	Encoder Support	Control Mode	Safety Function (SBC&STO)	Operating Temperature
PLSS-204048-CS	20-72VDC	20	40	Incremental Encoder Single Hall Signal SSI/SSB/BISSC protocol absolute value	Analog Pulse Modbus CanOpen	Functional safety certified Safety standard: ISO13849-1 Security level: PL D  Certification Body: SGS	-40°-50°
PLSS-306048-CS	20-72VDC	30	60				
PLSS-408048-CS	20-72VDC	40	80				
PLSS-10020048-CS	20-72VDC	100	200				
PLSS-15030048-CS	20-72VDC	150	300	NRZ Tamagawa Protocol Absolute			

## ■ PLSS Series Safe Low Voltage Servo Drives Selection Chart (EtherCat)

Drive Ordering Number	Input Voltage	Rated Current (A)	Peak Current (A)	Encoder Support	Control Mode	Safety Function (SBC&STO)	Operating Temperature
PLSS-204048-ES	20-72VDC	20	40	Incremental Encoder Single Hall Signal SSI/SSB/BISSC protocol absolute value	Analog Pulse Modbus EtherCat	Functional safety certified Safety standard: ISO13849-1 Security level: PL D  Certification Body: SGS	-40°-50°
PLSS-306048-ES	20-72VDC	30	60				
PLSS-408048-ES	20-72VDC	40	80				
PLSS-10020048-ES	20-72VDC	100	200				
PLSS-15030048-ES	20-72VDC	150	300	NRZ Tamagawa Protocol Absolute			

## ■ PLSS Series Safe Low Voltage Servo Drives Selection Chart (CANOpen & Rotation)

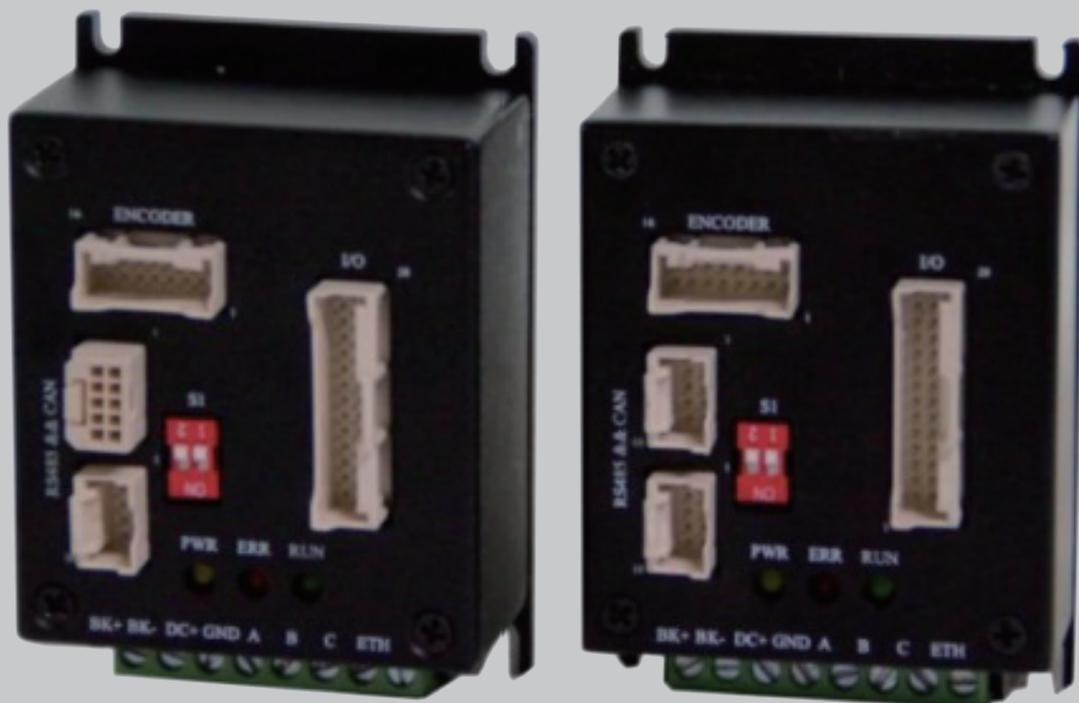
Drive Ordering Number	Input Voltage	Rated Current (A)	Peak Current (A)	Encoder Support	Control Mode	Safety Function (SBC&STO)	Operating Temperature
PLSS-204048-CRS	20-72VDC	20	40	Rotary Transformer	Analog Pulse Modbus CanOpen	Functional safety certified Safety standard: ISO13849-1 Security level: PL D  Certification Body: SGS	-40°-50°
PLSS-306048-CRS	20-72VDC	30	60				
PLSS-408048-CRS	20-72VDC	40	80				
PLSS-10020048-CRS	20-72VDC	100	200				
PLSS-15030048-CRS	20-72VDC	150	300				

## ■ PLSS Series Safe Low Voltage Servo Drives Selection Chart (EtherCat & Rotation)

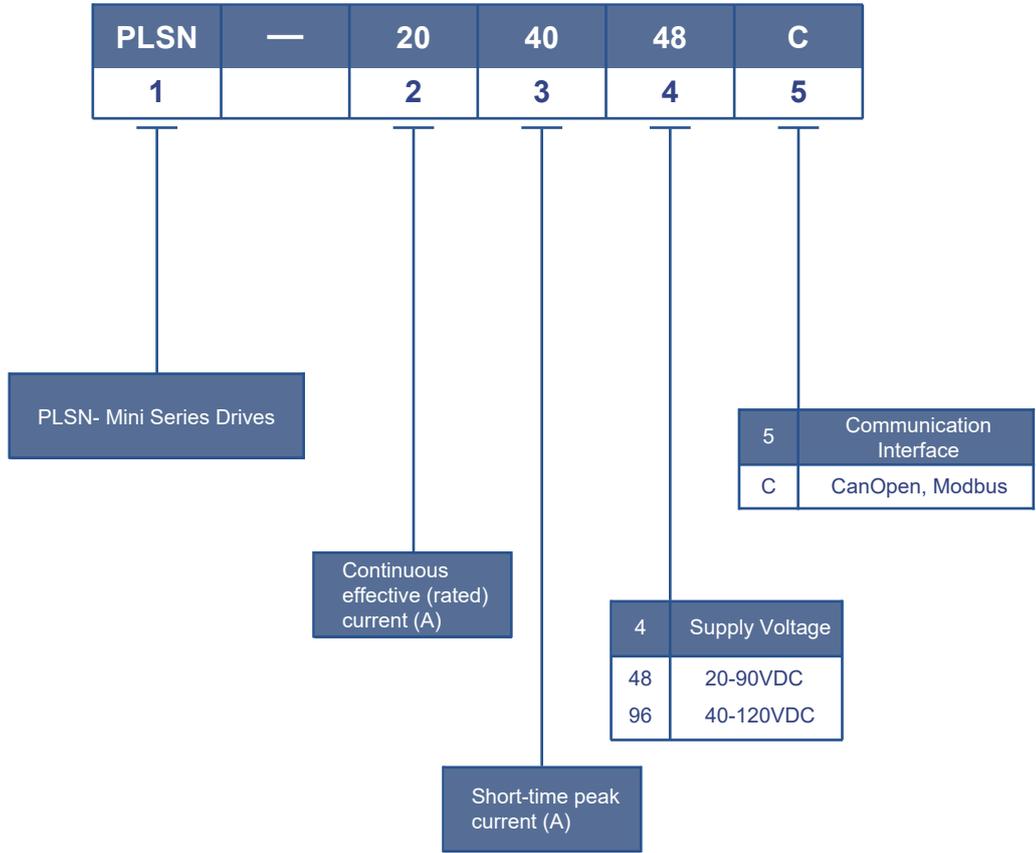
Drive Ordering Number	Input Voltage	Rated Current (A)	Peak Current (A)	Encoder Support	Control Mode	Safety Function (SBC&STO)	Operating Temperature
PLSS-204048-ERS	20-72VDC	20	40	Rotary Transformer	Analog Pulse Modbus EtherCat	Functional safety certified Safety standard: ISO13849-1 Security level: PL D  Certification Body: SGS	-40°-50°
PLSS-306048-ERS	20-72VDC	30	60				
PLSS-408048-ERS	20-72VDC	40	80				
PLSS-10020048-ERS	20-72VDC	100	200				
PLSS-15030048-ERS	20-72VDC	150	300				

## PLSN Series Mini DC Servo Drives

- Can be used to drive low-voltage permanent magnet synchronous motors, DC brushless motors, DC brushed motors
- Support Modbus/CanOpen
- Supports incremental encoders, SSI/BISSB/BISSC absolute encoders, NRZ Tamagawa absolute encoders, Hall-signaled positions, and other encoders.
- Peak Current 60A



## ■ PLSN Series DC Servo Drives Model Definition



## Electrical Characteristics of IxLS Series Low Voltage Servo Drives

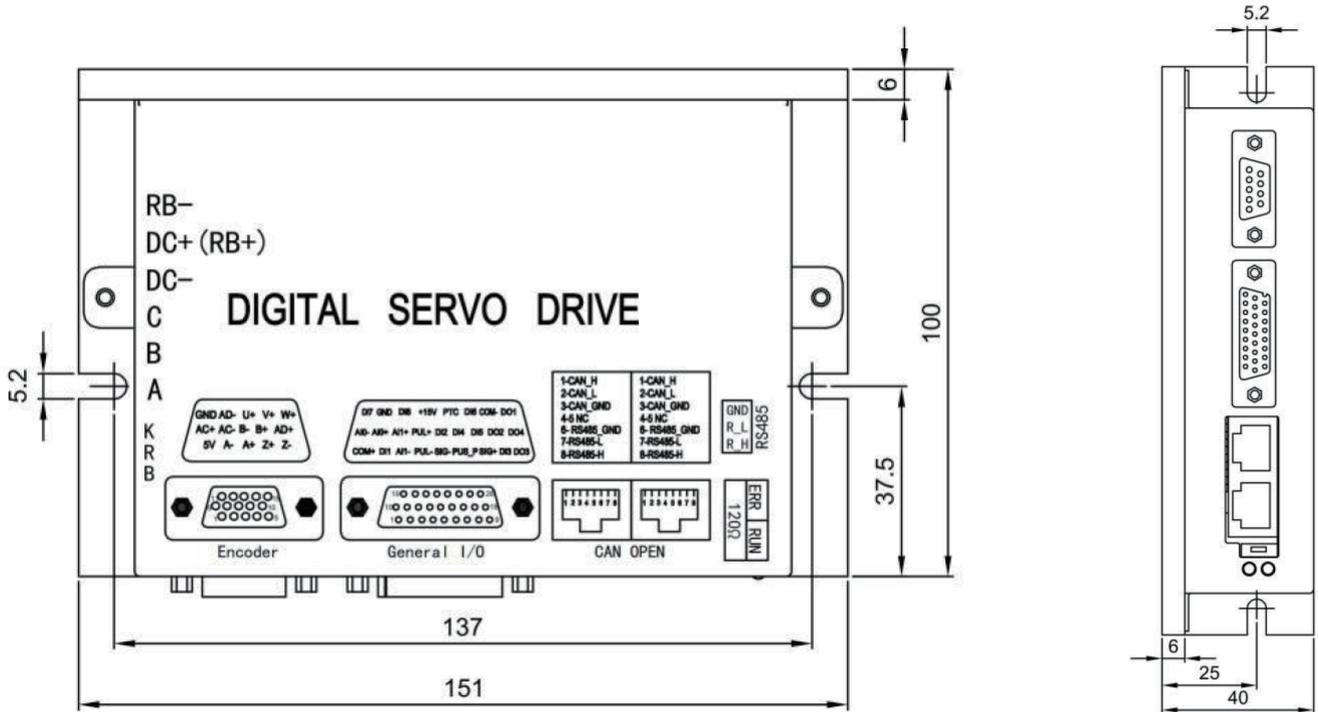
Model Number		PLSN-153048-C	PLSN-306048-C
Input Voltage Range		20-90VDC	
Maximum continuous output current (A)		15	30
Maximum output current (A)		30	60
PWM Frequency		10KHz	
Supported Motors		Permanent magnet synchronous motor (PMSM), brushless DC motor (BLDC), brush DC motor (PMDC)	
Input and output	Analog Input	2 analog inputs, -10V-+10V	
	Digital Input	8 digital inputs, 12-30VDC	
	Digital Output	4 digital outputs, open collector outputs	
Bus Function	Modbus	RS485 interface, standard Modbus protocol	
	CanOpen	Standard CanOpen protocol, CiA301/402	
	EtherCAT	Not have	
Encoder Interface		Incremental Encoder, SSI/BISSB/BISSC Absolute Encoder, NRZ Tamagawa Absolute Encoder, Hall Signal Position Feedback	
Control Characteristics	Control Method	Speed control (PV), torque control (PT), position control (PP), IP, CSP, CSV, CST	
	SBC&STO	Not have	
Matrix	Location	Indoors, out of direct sunlight, free of dust, corrosive gases, flammable gases, oil mist, water vapor, etc.	
	Ambient Temperature	-20°C to 50°C, derated for 40°C above	
	Altitude	The altitude of the place of use is less than 1000m, and above 1000m, it is used at a reduced level.	
	Humidity Level	Below 95% RH, no water condensation	
	Vibratory	Less than 0.5G (4.9m/s <sup>2</sup> ), less than 10Hz	
	Storage Temperature	-40°C-70°C	
	Cooling method	Natural cooling	
Weight (kg)		0.6	2.75

## ■ PLSN Series Low Voltage Drives Selection Chart (CANOpen)

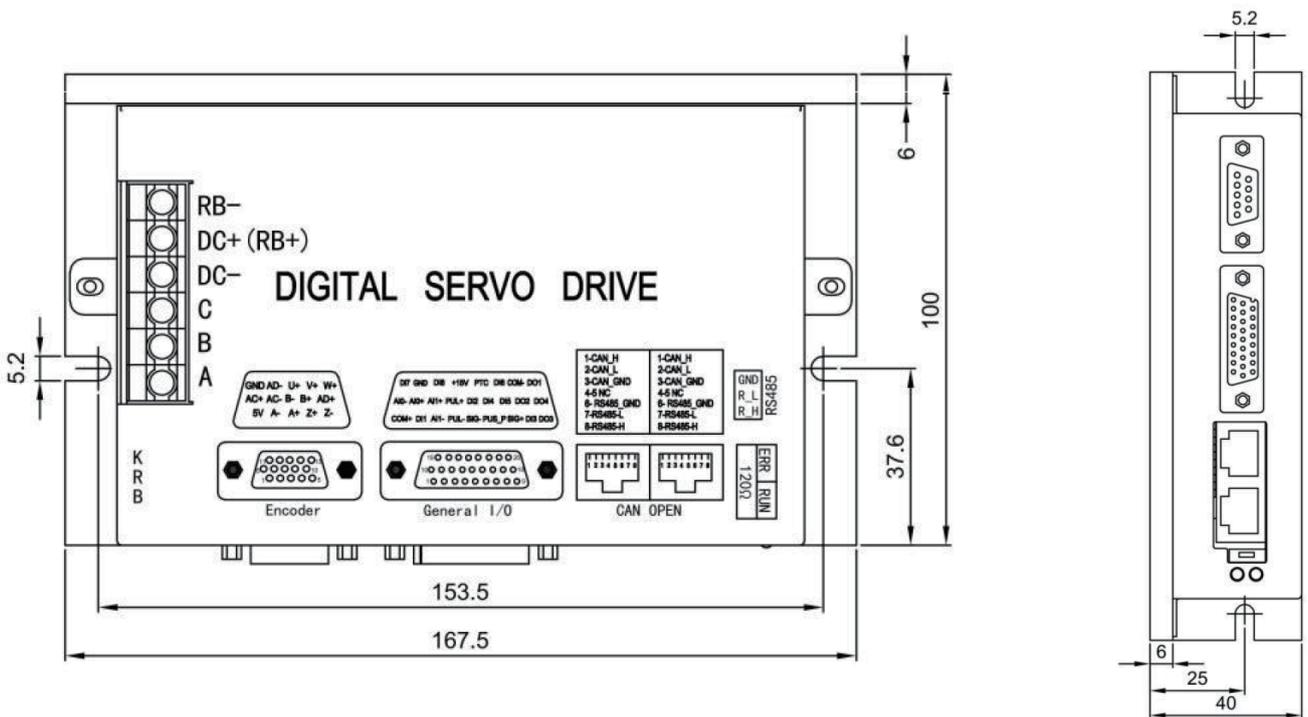
Drive Ordering Number	Input Voltage	Rated Current (A)	Peak Current (A)	Encoder Support	Control Mode	Safety Function (SBC&STO)	Operating Temperature
PLSN-153048-CS	20-90VDC	15	30	Incremental Encoder Single Hall Signal SSI/SSB/BISSC protocol absolute value	Analog Pulse Modbus CanOpen	Not have	-40°-50°
PLSN-306048-CS	20-90VDC	30	60	NRZ Tamagawa Protocol Absolute			

## Drive Dimension and Terminals

- PLSD2040 & PLSS2040 Size

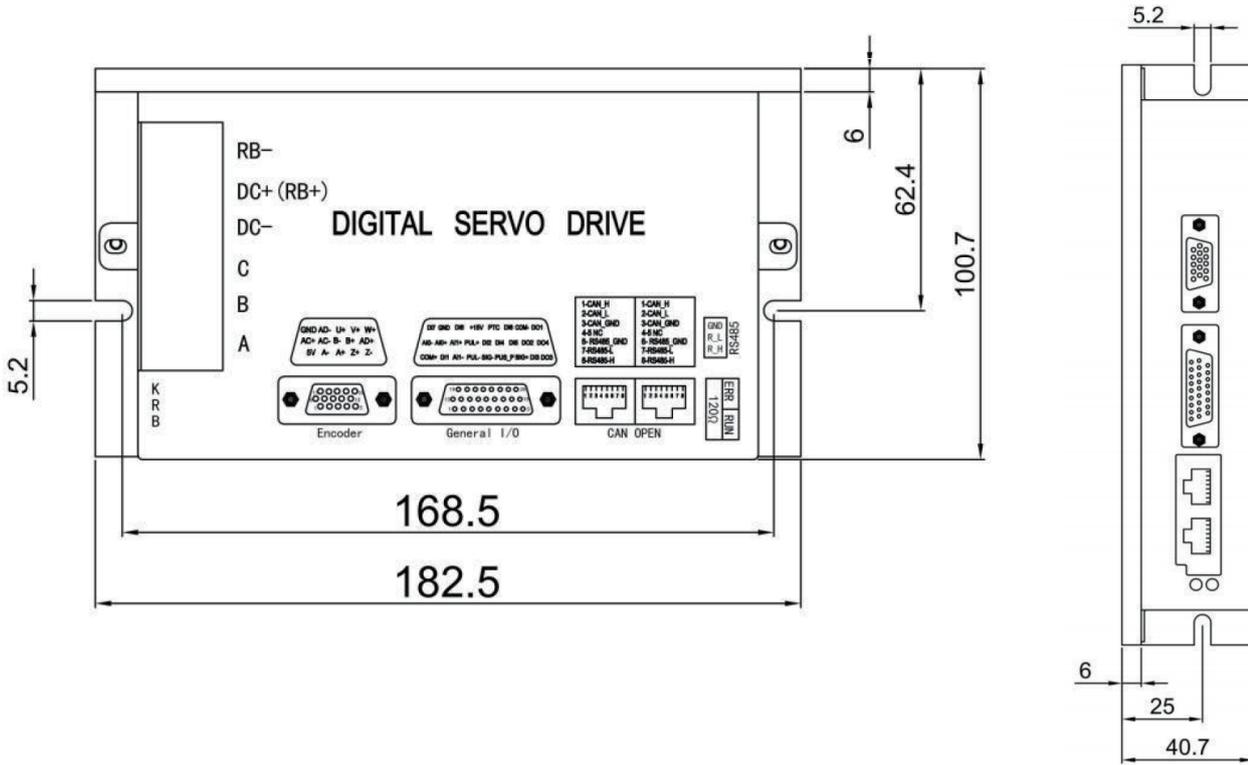


- PLSD3060(PLSD2550) & PLSS3060(PLSS2550) Size

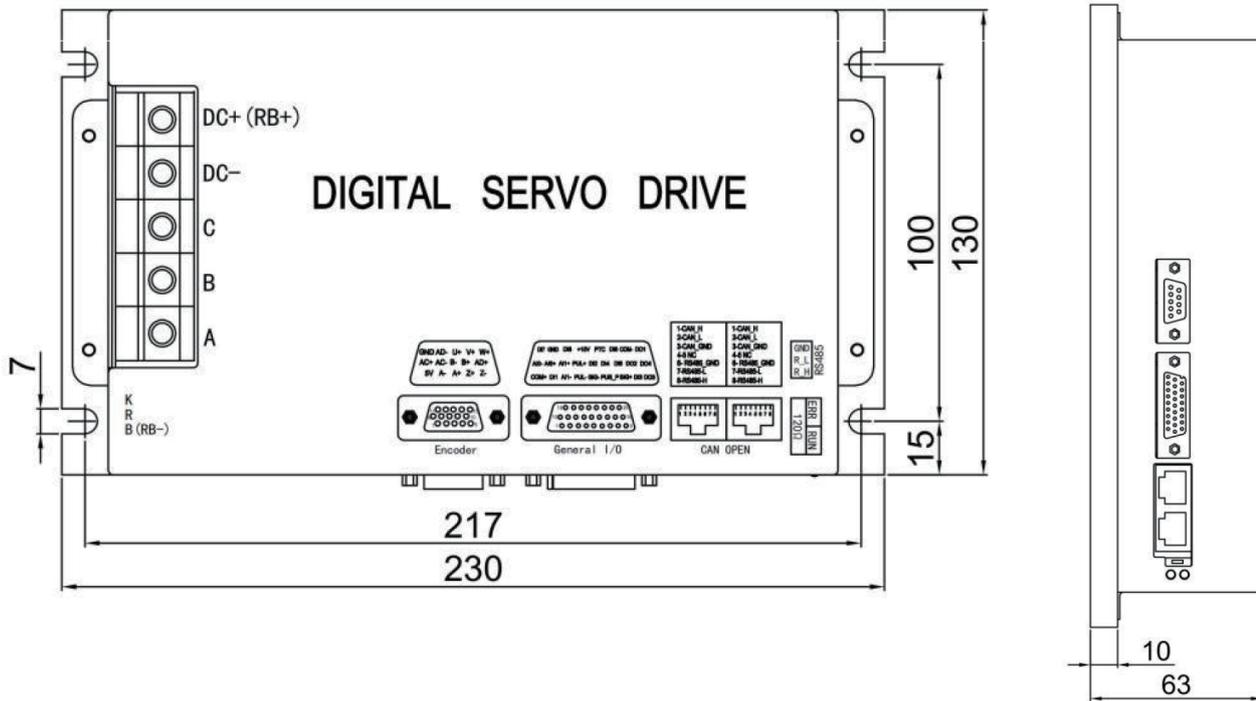


## Drive Dimension and Terminals

- PLSD4080(PLSD3570) & PLSS4080(PLSS3570) Size

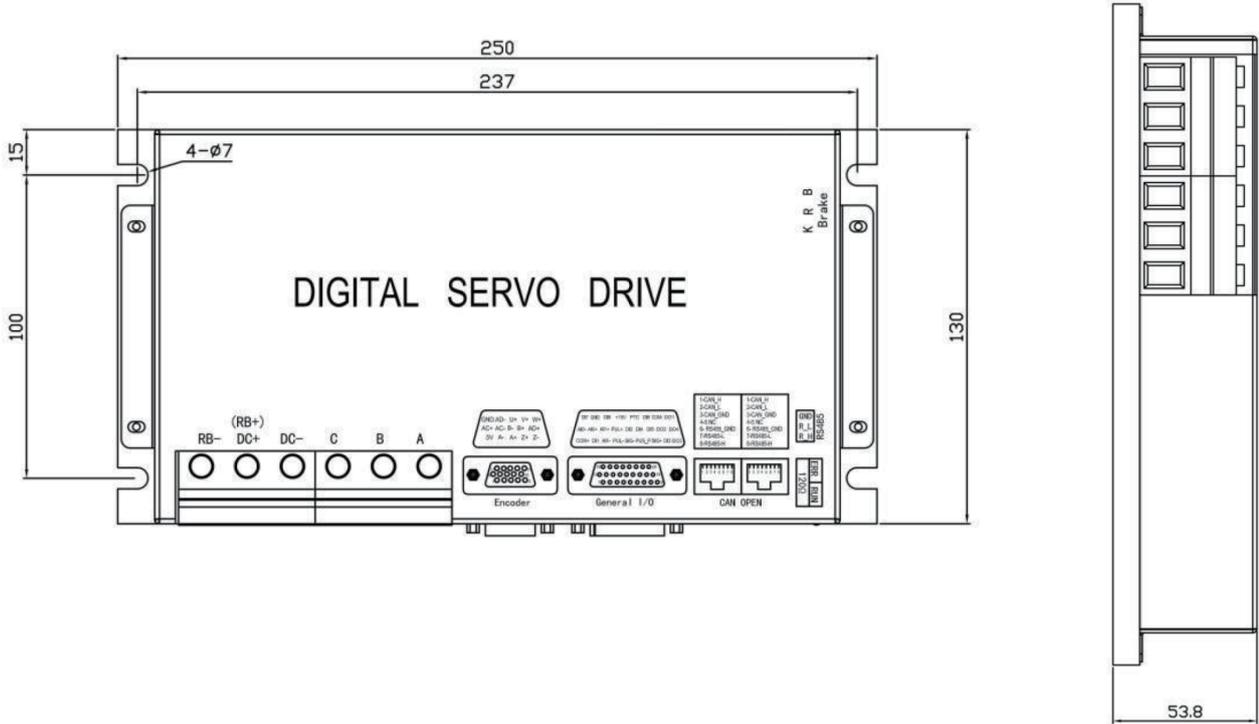


- PLSD80160(PLSD50100) & PLSS80160(PLSS50100) Size

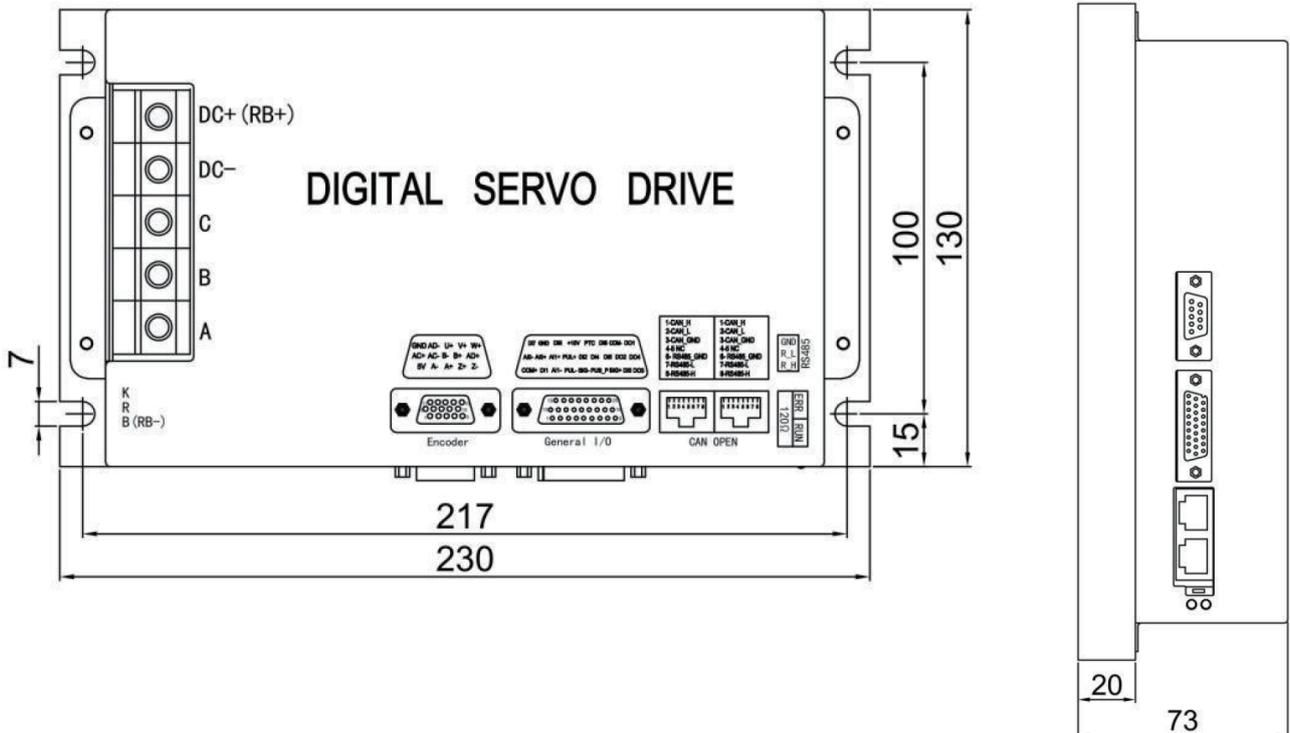


## Drive Dimension and Terminals

- PLSD95200(PLSD70140) & PLSS95200(PLSS70140) Size

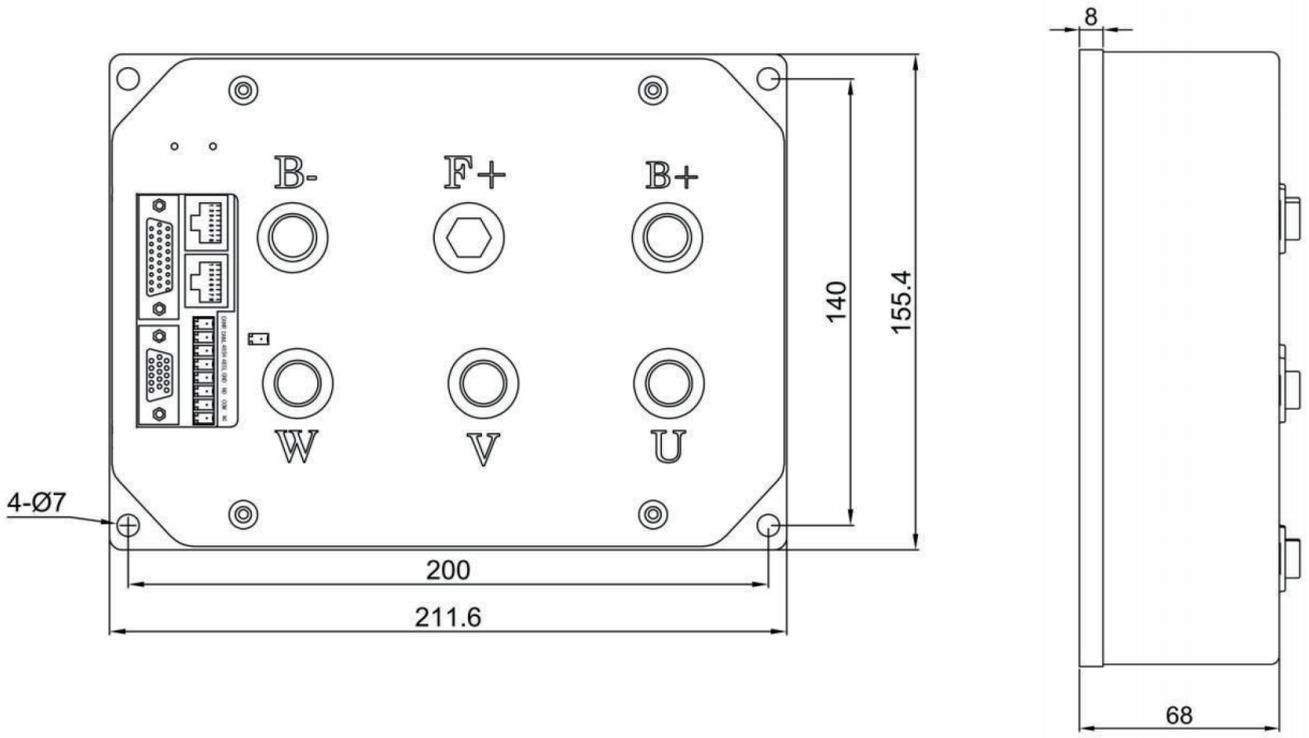


- PLSD100200 & PLSS100200 Size

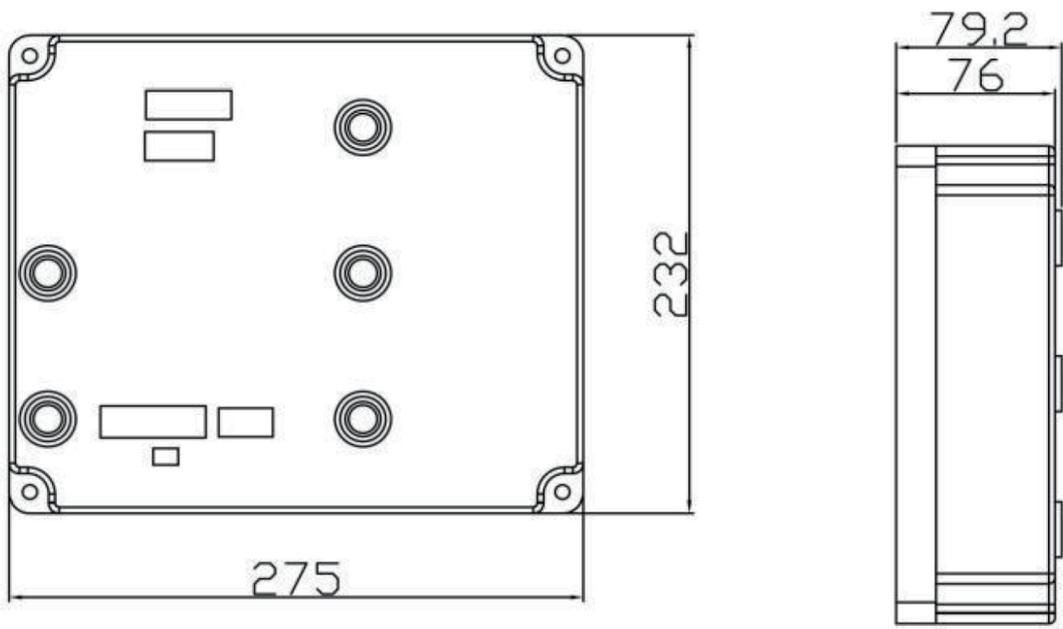


## Drive Dimension and Terminals

- PLSD150300 & PLSS150300 Size

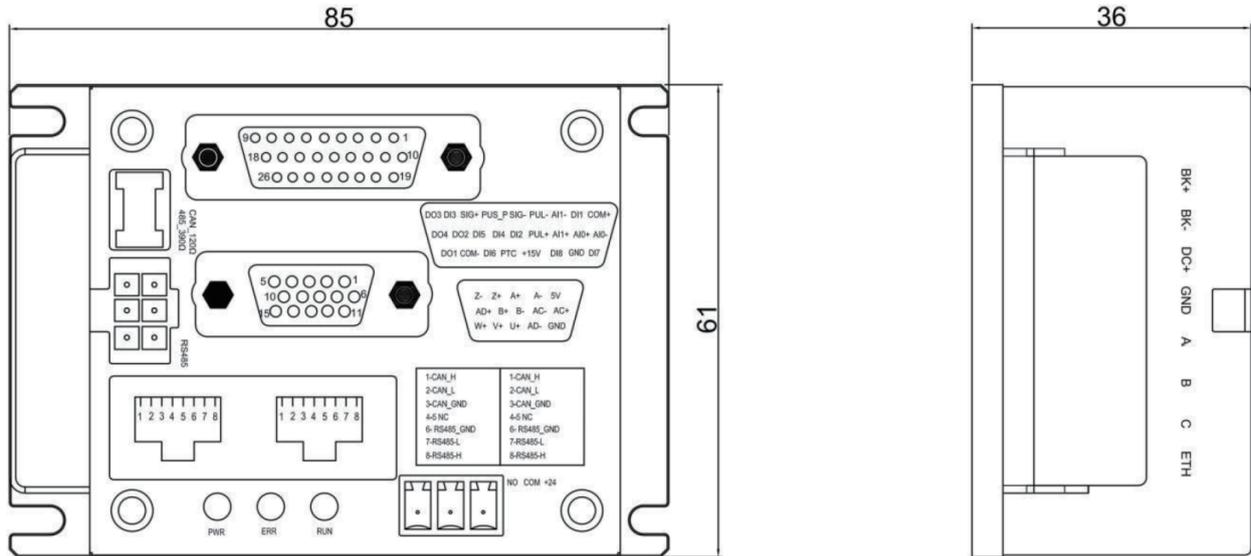


- PLSD250500 & PLSS250500 Size

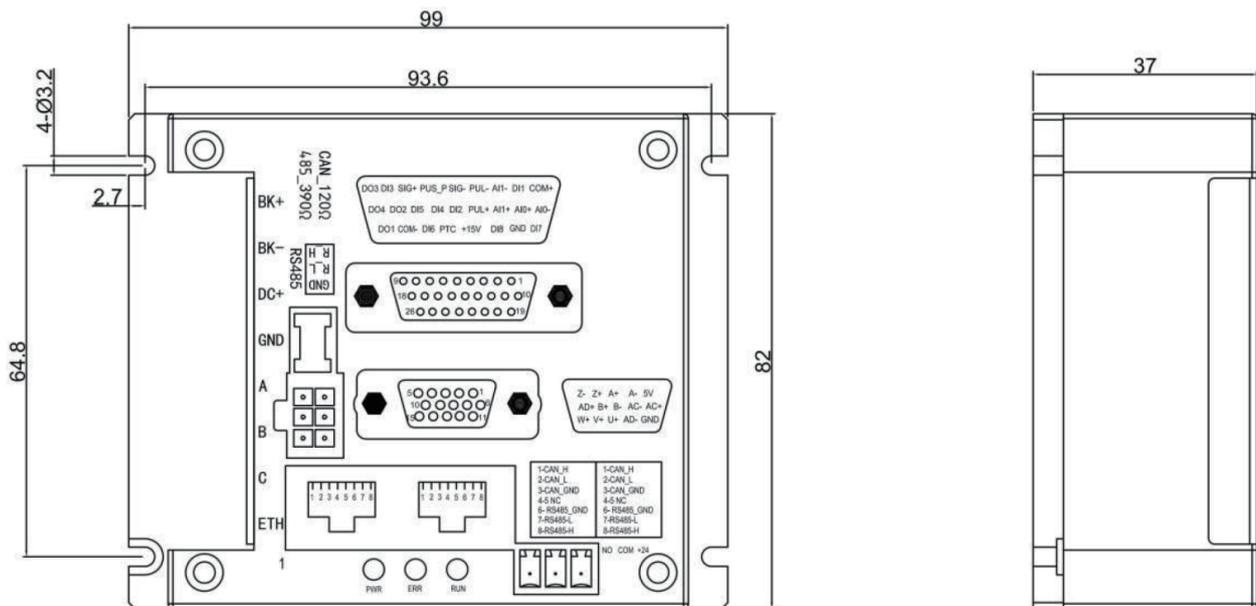


## Drive Dimension and Terminals

### • PLSN1530 Size



### • PLSN3060 Size

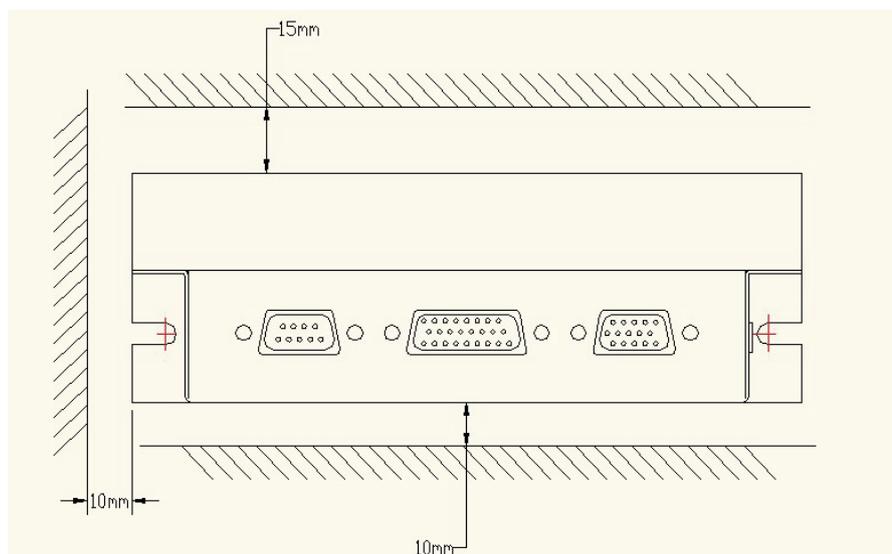


## ■ Installation Precautions

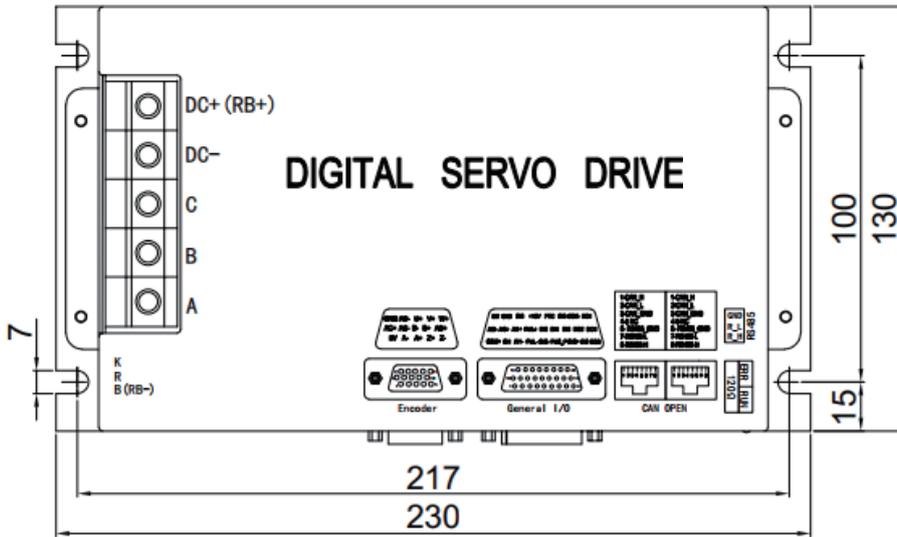
- (1)The servo drive is base-mounted. Improper installation may lead to malfunction. Please install correctly according to the following precautions.
- (2)Please install it in a well-ventilated place. To facilitate the heat dissipation of the drive, vertical installation is generally adopted;
- (3)The allowable ambient temperature for operation of the drive is 0°C~50°C, but if the ambient temperature is higher than 40°C, the maximum continuous output current should be reduced by 20% for every increase of 10°C, and ventilation and heat dissipation should be strengthened;
- (4)The humidity requirement of the installation place is lower than 95%, with no condensation;
- (5)It is not allowed to install the drive where there is a lot of dust and metal powder;
- (6)It is not allowed to install the drive where there are corrosive and explosive gases;
- (7)Install the drive where the vibration is less than 0.5G (4.9 m/s<sup>2</sup>), and the vibration frequency is lower than 10Hz;
- (8)Install the drive where there is no direct sunlight;
- (9)The altitude is preferably lower than 1,000m . If it is higher than 1,000m , the maximum continuous output current of the drive shall be reduced by 3% for each increase of 100m.
- (10)If the continuous running current of SIZE1/SIZE2 drives exceeds 15A, the continuous current of SIZE3 drives exceeds 30A, and that of SIZE4 drives exceeds 50A, it is necessary to provide an external radiator or install the drives on metal shells, and apply heat-radiating silica gel or cooling pads between the drives and the shells.

## ■ 5.Installation of the Driver

SIZE:PLSD2040/PLSD3060(PLSS2550)/PLSD4080(PLSD3570) drive are shown in the following figure:



SIZE:PLSD&PLSS80160(PLSD50100) drive are shown in the following figure:

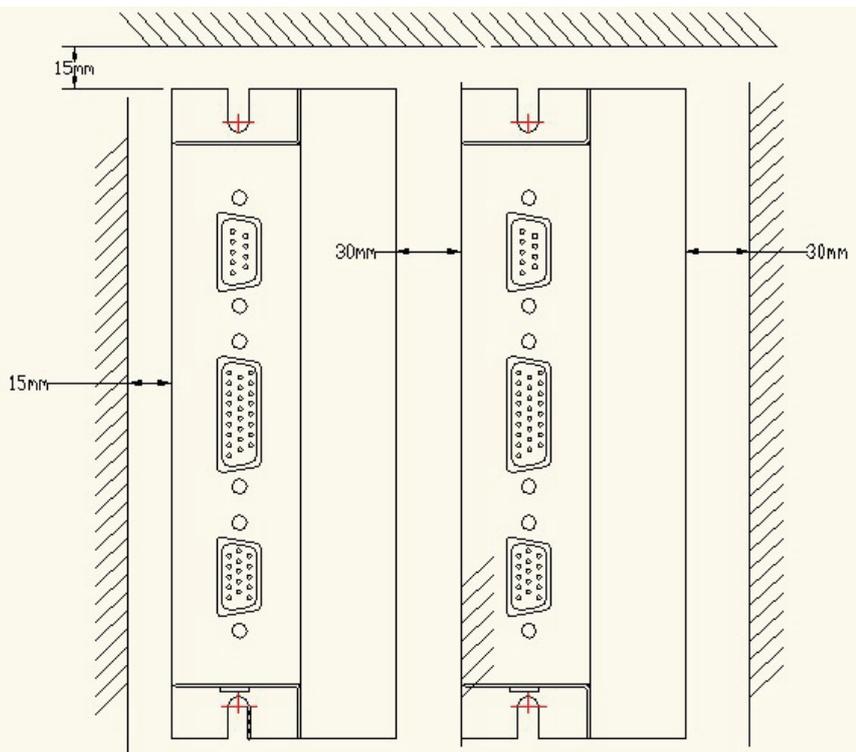


**Note:**

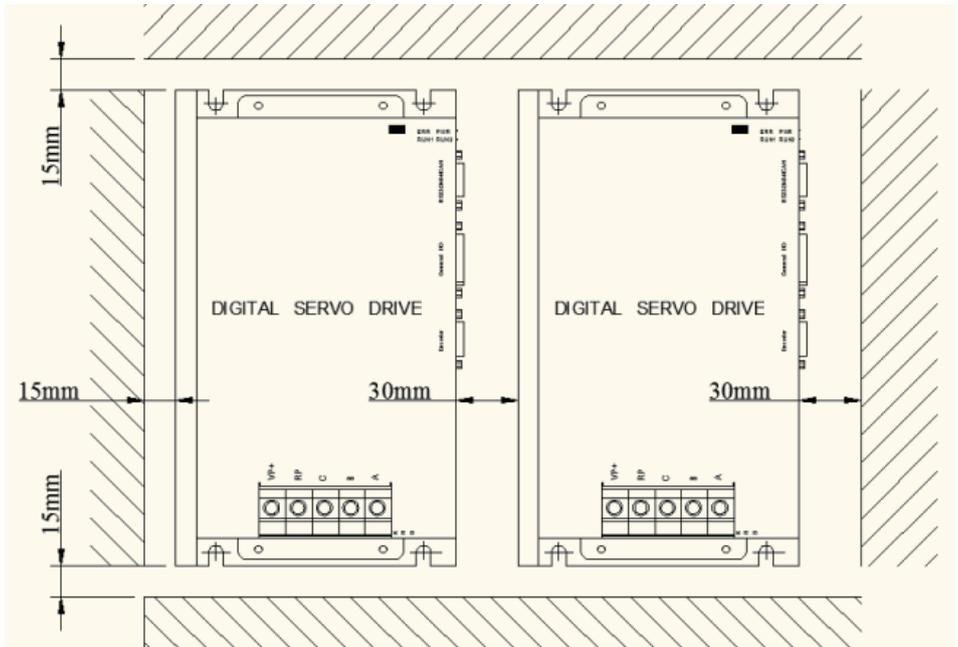
SIZE:PLSD80160(PLSD50100, PLSS50100)/PLSD150300, PLSS150300 drives need to use an external radiator or external casing for heat dissipation due to their large current. Pay attention to installing an external radiator during the installation of the drive, and apply heat-radiating silica gel or cooling pads between the drive and the external radiator.

If there are multiple controllers installed in the mechanism, they should be installed side by side, and equipped with air inlets, air outlets and special cooling fans.

SIZE:PLSD2040,PLSS2040/PLSD3060,PLSS3060(PLSS2550) drives are shown in the following figure:



SIZE:PLSD&PLSS80160(PLSD&PLSS50100)/PLSD&PLSS150300 drives are shown in the following figure:



**Note:** SIZE:80160(50100)/150300 drives need to use an external radiator or external casing for heat dissipation due to their large current. Pay attention to installing an external radiator during the installation of the drive, and apply heat-radiating silica gel or cooling pads between the drive and the external radiator.