

## *LeadShine AC Servo Motors*

### **ELM1S/ELM2/ELM2S/ELM Series**

The AC servo motors are designed by LeadShine with own intellectual property rights. The servo motors use rare earth neodymium-iron-boron permanent magnet rotors, provide features of high torque density, high peak torques, low noise, low temperature rising, lower current consumption. The motors power range from 50W to 7500W, frame size range from 40mm to 180mm. 17-bit/23-bit absolute encoders are optional. Multiple motor connector types are available.

#### **Feature:**

- ◆ PMSM construction, high efficiency
- ◆ Compact design, high overload
- ◆ Insulation class: Class F
- ◆ Protection level: IP65
- ◆ Encoder: 17-bit/23-bit absolute encoders
- ◆ Optional accessory: brake



## 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		•		•		•

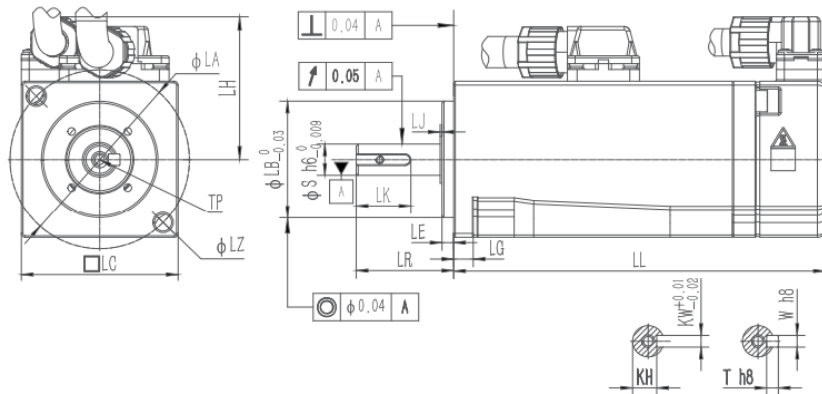
Frame Size	
40	40mm
60	60mm
80	80mm
130	130mm
180	180mm

## Model Technical Specification

### Servo motors with 17-bit magnetic single-turn encoder (ELM1S)

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[Arms]		0.85	0.85	2.1	2.1	4.1	5.7	
Peak Current[Arms]		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	For Motor with SS Plug	CABLE-RZ*M*-S1(V3.0)			For Motor with HH2 Plug	CABLE-RZH*M*-113-TS without Brake	
	Encoder Cable		CABLE-7BM*M*-Z(V3.0)				CABLE-RZSH*M*-113-TS with Brake	
	Brake Cable		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*	

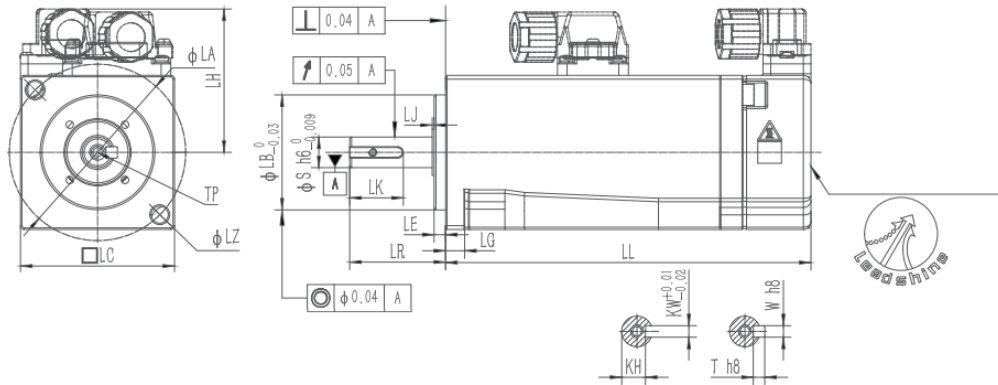
● Dimensions



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

**Servo motors with 23-bit optical multi-turn encoder (ELM2/ELM2S)**

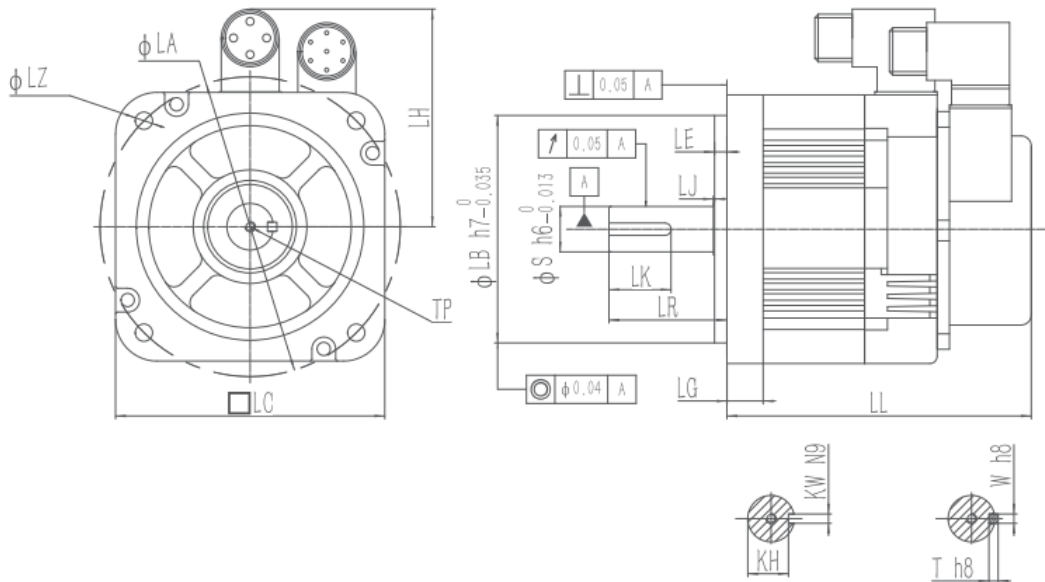
ELM Model		ELM2-0050LH40*-SS	ELM2-0100LH40*-SS	ELM2-0200LH60*-SS	ELM2-0400LH60*-SS	ELM2-0750LH80*-SS	ELM2-1000LH80*-SS	
		ELM2S-0050LH40*-DC	ELM2S-0100LH40*-DC	ELM2S-0200LH60*-DC	ELM2S-0400LH60*-DC	ELM2S-0750LH80*-DC	ELM2S-1000LH80*-DC	
Frame Size[mm]		40		60		80		
Rated Power[W]		50	100	200	400	750	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[A rms]		0.85	0.85	1.5	2.1	4.1	5.7	
Peak Current[A rms]		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	1.5	2.03	
	With Brake	0.0456	0.0721	0.31	0.58	1.65	2.13	
Weight (kg)	Without Brake	0.32	0.46	0.9	1.3	2.12	2.7	
	With Brake	0.54	0.68	1.3	1.55	2.7	3.2	
Permissible Load to Shaft (N)	Radial	147	147	245	245	392	490	
	Axial	88	88	74	74	147	196	
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-**400*				EL7-**750*		
	Optional	EL7-EC400S				2EL7-EC750S		
		EL6-**400*				EL6-**750*		
						EL7-**1000*		
						2EL7-EC1000S		
						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

**Servo motors with 23-bit optical multi-turn encoder (ELM with HD plug)**

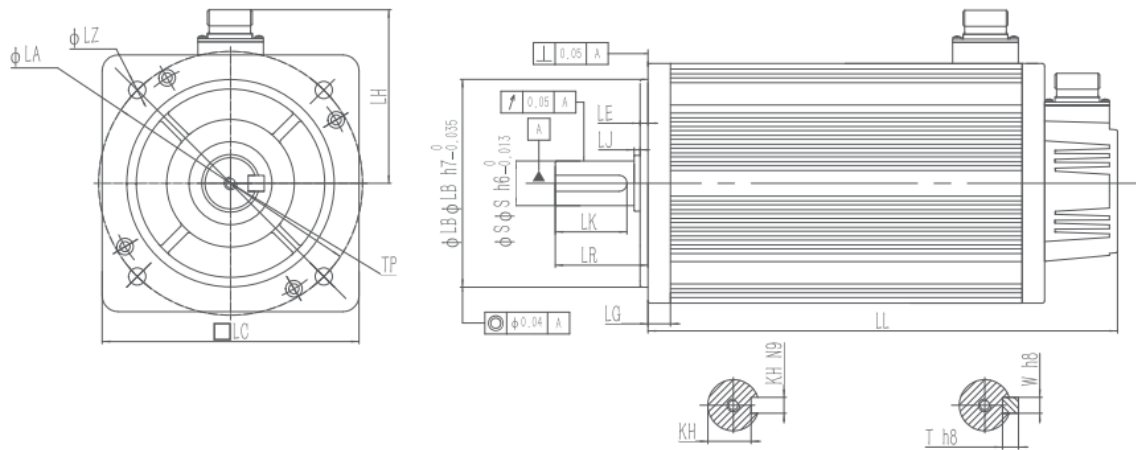
ELM Model		ELM-0850LH130E-HD	ELM-1300LH130E-HD	ELM-1800LH130E-HD
		ELM-0850LH130F-HD	ELM-1300LH130F-HD	ELM-1800LH130F-HD
Frame Size[mm]		130	130	130
Rated Power[W]		850	1300	1800
Rated Voltage[VAC]		220		
Rated Torque[Nm]		5.39	8.4	11.5
Peak Torque[Nm]		13.5	21	28.75
Rated Current[Arms]		6.5	9.5	9
Peak 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

**Servo motors with 23-bit optical multi-turn encoder (ELM with H plug)**

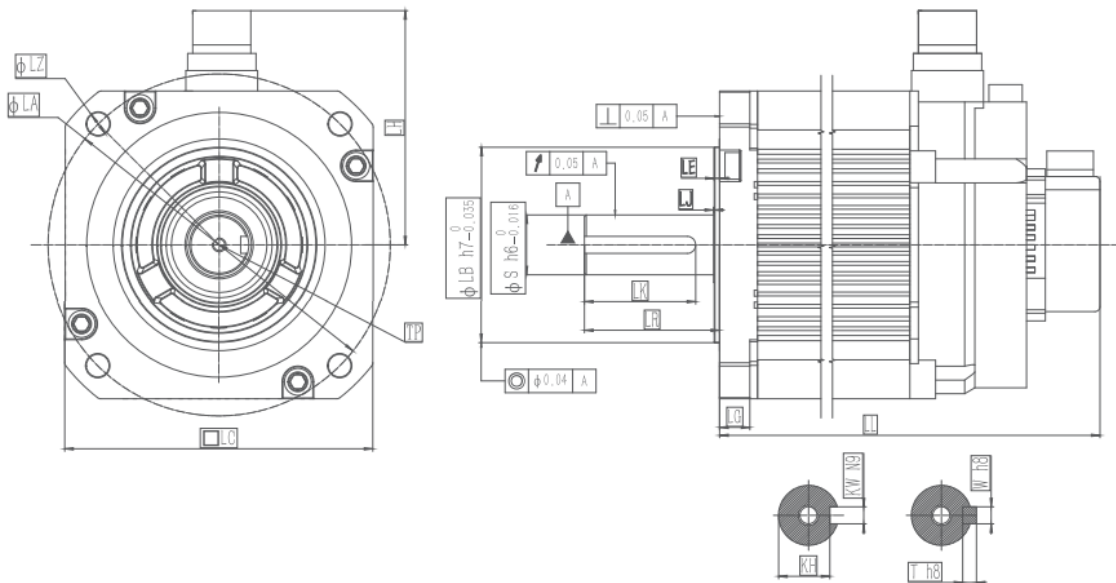
ELM Model		ELM-1000LM130E-H	ELM-1500LM130E-H	ELM-2000LM130E-H	ELM-1800LH130ET-H
		ELM-1000LM130F-H	ELM-1500LM130F-H	ELM-2000LM130F-H	ELM-1800LH130FT-H
Frame Size[mm]		130			
Rated Power[W]		1000	1500	2000	1800
Rated Voltage[VAC]		220			
Rated Torque[Nm]		4	6	7.7	11.5
Peak Torque[Nm]		10	15	19.3	34.5
Rated Current[A rms]		4	6	7.5	8.2
Peak Current[A rms]		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		CABLE-RZ*M*-H(V2.0)	
	Encoder Cable			CABLE-7BMA*M*-HZ(V3.0)	
	Brake Cable			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

**Servo motors with 23-bit optical multi-turn encoder (ELM with H plug)**

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	130
	With Brake	65.3	86	118	140
Weight (kg)	Without Brake	16.3	21.4	25.8	32.3
	With Brake	21.8	26.5	31.1	37.6
Permissible Load to Shaft (N)	Radial	1470	1750	1750	1750
	Axial	490	580	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	EL7-EC7500T3
	Optional	/	/	/	/

**● Dimensions**


**Datasheet of LeadShine AC Servo Motors**

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- $\Phi$ 13.5	134	18	3.2	0.3	35	114	M12X25	65	30	10	10	8
ELM-2900LM180ET-H	249	180	79	200	4- $\Phi$ 13.5	134	18	3.2	0.3	35	114	M12X25	65	30	10	10	8
ELM-4400LM180FT-H	230	180	79	200	4- $\Phi$ 13.5	134	18	3.2	0.3	35	114	M12X25	65	30	10	10	8
ELM-4400LM180ET-H	278	180	79	200	4- $\Phi$ 13.5	134	18	3.2	0.3	35	114	M12X25	65	30	10	10	8
ELM-5500LM180FT-H	257	180	113	200	4- $\Phi$ 13.5	134	18	3.2	0.3	42	114	M16X32	96	37	12	12	8
ELM-5500LM180ET-H	305	180	113	200	4- $\Phi$ 13.5	134	18	3.2	0.3	42	114	M16X32	96	37	12	12	8
ELM-7500LM180FT-H	297	180	113	200	4- $\Phi$ 13.5	134	18	3.2	0.3	42	114	M16X32	96	37	12	12	8
ELM-7500LM180ET-H	345	180	113	200	4- $\Phi$ 13.5	134	18	3.2	0.3	42	114	M16X32	96	37	12	12	8

## *Environment*

Item	Storage	Installation
Temperature	-20-60°C (free from freezing)	0°C~40°C (free from freezing)
Humidity	20%~90%RH (free from condensation)	
Atmospheric environment	Indoor(no exposure)no corrosive gas or flammable gas, no oil or dust	
Altitude	Lower than 1000m	
Vibration	Less than 0.5G (4.9m/s <sup>2</sup> ) 10-60Hz (non-continuous working)	
Protection level	IP65 (ELM2S series up to IP67)	