PRODUCT DATASHEET

ES-SM-L02-080D-V48-T4P77NM-1500W-001

Low-Voltage Servo Motors

Low-Voltage Servo Motors | ES-SM-L02-080D Compact 80 mm Low-Voltage Servo Motor Series

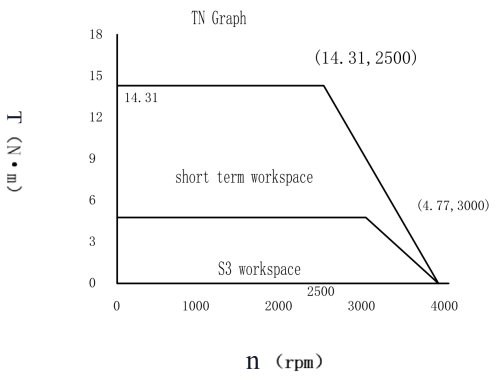
Product Overview

Low-Voltage Servo Motors with rated Torque 4.77 N·m, rated Speed 3000 rpm and continuous Rated Output Power 1500 W.

Configuration Context	Feedback device: Multi-turn communication magnetic absolute encoder

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	4.77	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	1500	W
Rated Voltage	48	VDC
Rated Line Voltage	48	V
Continuous Rated Current	36	A
Instantaneous Maximum Current	110	A
Flange Size	80	mm
Allowable Axial Force	90	N



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	4.77	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	1500	W
ELECTRICAL		
Rated Voltage	48	VDC
Rated Line Voltage	48	V
Continuous Rated Current	36	A
Instantaneous Maximum Current	110	A
Pole Pairs	5	
Rotational Back-EMF Constant	8.7	V/krpm
Electrical Time Constant	3.17	ms
Insulation Class	F	
Motor Outlet Mode	Communication encoder connector	
MECHANICAL		
Flange Size	80	mm
Inertia Level	Medium inertia	

Technical Specifications

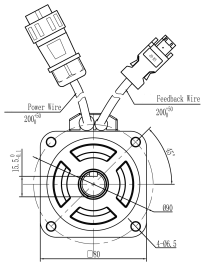
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Allowable Radial Force	270	N	
Mechanical Time Constant	0.78	ms	Brake Configuration: without_brake / Brake Configuration: with_brake
Rotor Inertia	3.1	Kg·cm 2	Brake Configuration: with_brake / Brake Configuration: without_brake
Allowable Axial Force	90	N	
INTEGRATION			
Feedback Device	Multi-turn communication magnetic absolute encoder		
ENVIRONMENTAL			
Operating Environment	Free from corrosive or flammable gases, oil droplets, and dust		
Operating Humidity	≤90% RH, non-condensing	%RH	
Altitude and Derating Rule	Maximum 2,000 m; derate power 1.5% per 100 m above 1,000	m	
Operating Temperature	-5 to 40	°C	
Protection Grade	IP54		
CONFIGURATION			
Output Shaft Type	Keyed shaft		
Motor Version	Ultra-short version		
ADDITIONAL SPECIFICATIONS			
Cooling Method	Fully enclosed, self-cooled		

Dimensional & Integration Overview

Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	80	mm
Inertia Level	Medium inertia	
Allowable Radial Force	270	N
Mechanical Time Constant	0.78	ms
Rotor Inertia	3.1	Kg·cm2
Allowable Axial Force	90	N

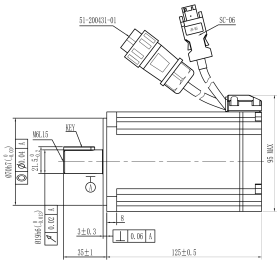
Dimensional Drawings



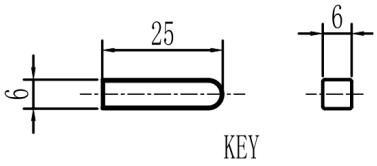
Mechanical View 1



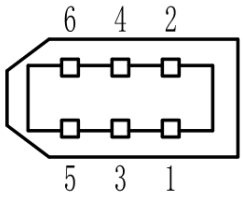
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Mounting dimension with tolerance	15.5±0.1mm
	Circular feature diameter	Φ90mm
	Mounting hole pattern	4 holes, Φ6.5mm each
	Square flange side length	□80mm
	Angular reference	45°

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 3	Keyway designation	Keyway present
	Mounting threaded hole	M6×15 depth
	Datum A	
	Shaft outer diameter with tolerance	Ø70h7 (0/-0.03)
	Position tolerance	Position Ø0.04
	Shaft segment length	21.5 +0.2/0
	Shaft end diameter with tolerance	Ø19h6 (0/-0.013)
	Perpendicularity tolerance	Perpendicularity 0.02 to A
	Shaft segment length	8
	Keyway depth	3±0.3
	Parallelism tolerance	Parallelism 0.06 to A
	Keyway position dimension	35±1
	Overall length	125±0.5
	Maximum outer diameter	Ø95 maximum
Mechanical View 4	Keyway length	25 mm
	Keyway width	6 mm
	Keyway depth	
	Feature label	KEY

View Product Online Request Engineering Data Request a Quote

01 Specifications are subject to change without notice. Verify the current product configuration before final design release.

02 2D drawings, CAD files and integration documentation are controlled documents and are supplied separately on request.