PRODUCT DATASHEET

ES-SM-L01-060S-V48-T0P64NM-200W-005

Low-Voltage Servo Motors

Low-Voltage Servo Motors | ES-SM-L01-060S 48V 60 mm Low-Voltage Servo Motor Series

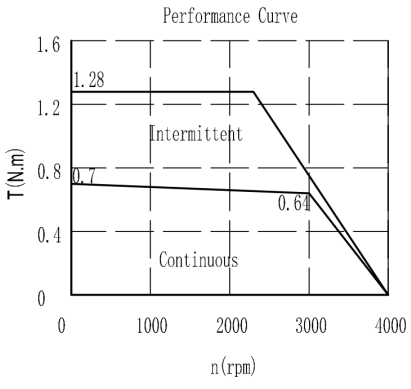
Product Overview

Low-Voltage Servo Motors with rated Torque 0.64 N·m, rated Speed 3000 rpm and continuous Rated Output Power 200 W.

Configuration Context	Feedback device: 2500 PPR incremental magnetic encoder

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	0.64	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	200	W
Rated Voltage	48	VDC
Rated Line Voltage	48	V
Continuous Rated Current	5.7	A
Instantaneous Maximum Current	11.4	A
Flange Size	60	mm
Allowable Axial Force	30	N



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	0.64	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	200	W
ELECTRICAL		
Rated Voltage	48	VDC
Rated Line Voltage	48	V
Continuous Rated Current	5.7	A
Instantaneous Maximum Current	11.4	A
Pole Pairs	5	
Rotational Back-EMF Constant	7.5	V/krpm
Electrical Time Constant	1.66	ms
Insulation Class	F	
Motor Outlet Mode	Three-row 15-pin metal-shell encoder connector	
MECHANICAL		
Flange Size	60	mm
Inertia Level	Low inertia	

Technical Specifications

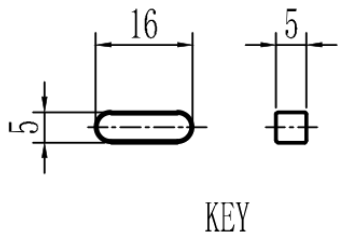
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Allowable Radial Force	40	N	
Mechanical Time Constant	0.69	ms	Brake Configuration: without_brake / Brake Configuration: with_brake
Rotor Inertia	0.11	Kg·cm 2	Brake Configuration: with_brake / Brake Configuration: without_brake
Allowable Axial Force	30	N	
INTEGRATION			
Feedback Device	2500 PPR incremental magnetic 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	-20 to 40	°C	
Protection Grade	Body IP65; shaft end IP54 without oil seal, IP65 with oil seal		
CONFIGURATION			
Output Shaft Type	Keyed shaft		
Motor Version	Ultra-short version		
ADDITIONAL SPECIFICATIONS			
Cooling Method	Fully enclosed, self-cooled		

Dimensional & Integration Overview

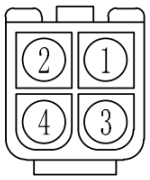
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	60	mm
Inertia Level	Low inertia	
Allowable Radial Force	40	N
Mechanical Time Constant	0.69	ms
Rotor Inertia	0.11	Kg·cm2
Allowable Axial Force	30	N

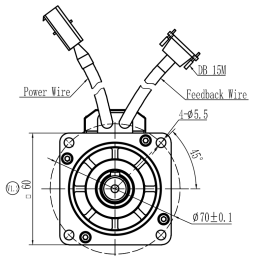
Dimensional Drawings



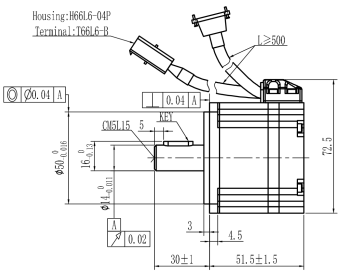
Mechanical View 1



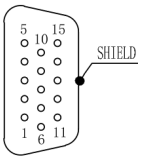
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Keyway length	Length 16 mm
	Keyway width	Width 5 mm
	Key width or square key section width	Key section width 5 mm
	View label	KEY detail
Mechanical View 3	Mounting hole quantity and diameter	4 holes, diameter 5.5 mm
	Mounting hole angular position	45 degrees
	Square flange outside size	Square 60 mm
	Locating circle diameter	Diameter 70 ± 0.1 mm

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Shaft-end geometric tolerance relative to datum A	Geometric tolerance diameter zone 0.04 relative to datum A
	Perpendicularity tolerance relative to datum A	Perpendicularity 0.04 relative to datum A
	Key feature label	Key feature
	Key feature dimension	5 mm
	Shaft-end callout label	CM5L15
	Body height	72.5 mm
	Main shaft diameter	Diameter 50 mm, +0/-0.016 mm
	Reduced shaft diameter	10 mm, +0/-0.13 mm
	Shaft end diameter	Diameter 14 mm, +0/-0.011 mm
	Datum A	
	Angularity/runout-style tolerance callout	Geometric tolerance 0.02
	End small spacing	3 mm
	End step distance	4.5 mm
	Shaft extension length	30 ± 1 mm
	Body length	51.5 ± 1.5 mm

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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.