PRODUCT DATASHEET

ES-SM-L02-040S-V48-T0P32NM-100W-002

Low-Voltage Servo Motors

Low-Voltage Servo Motors | ES-SM-L02-040S Compact 48V 40 mm Low-Voltage Servo Motor Series

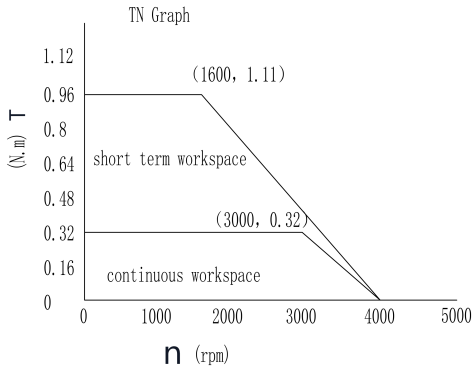
Product Overview

Low-Voltage Servo Motors with rated Torque 0.32 N·m, rated Speed 3000 rpm and continuous Rated Output Power 100 W.

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

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	0.32	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	100	W
Rated Voltage	48	VDC
Rated Line Voltage	48	V
Continuous Rated Current	2.74	A
Instantaneous Maximum Current	9.87	A
Flange Size	40	mm
Allowable Axial Force	54	N



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	0.32	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	100	W
ELECTRICAL		
Rated Voltage	48	VDC
Rated Line Voltage	48	V
Continuous Rated Current	2.74	A
Instantaneous Maximum Current	9.87	A
Pole Pairs	5	
Rotational Back-EMF Constant	7.737	V/krpm
Electrical Time Constant	0.65	ms
Insulation Class	F	
Motor Outlet Mode	Dedicated motor socket	
MECHANICAL		
Flange Size	40	mm

Technical Specifications

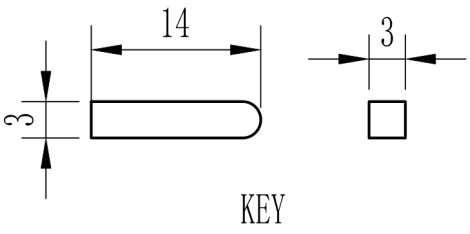
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Inertia Level	Low inertia		
Allowable Radial Force	78	N	
Mechanical Time Constant	0.9	ms	Brake Configuration: with_brake / Brake Configuration: without_brake
Rotor Inertia	0.044	Kg·cm 2	Brake Configuration: without_brake / Brake Configuration: with_brake
Allowable Axial Force	54	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	-20 to 40	°C	
Protection Grade	IP65		
CONFIGURATION			
Output Shaft Type	Keyed shaft		
ADDITIONAL SPECIFICATIONS			
Cooling Method	Fully enclosed, self-cooled		

Dimensional & Integration Overview

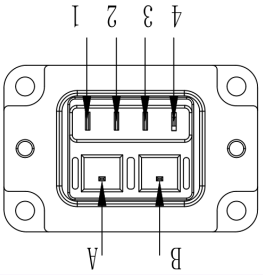
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	40	mm
Inertia Level	Low inertia	
Allowable Radial Force	78	N
Mechanical Time Constant	0.9	ms
Rotor Inertia	0.044	Kg·cm2
Allowable Axial Force	54	N

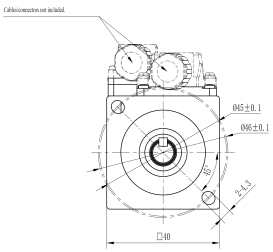
Dimensional Drawings



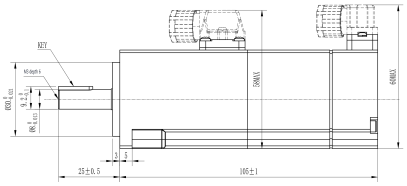
Mechanical View 1



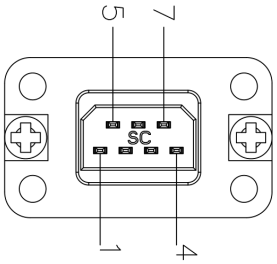
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Keyway length	14 mm
	Keyway height/depth	3 mm
	Keyway width	
Mechanical View 3	Outer diameter 1	Ø45±0.1
	Outer diameter 2	Ø46±0.1
	Square envelope side length	□40
Mechanical View 4	Keyway identifier	KEY
	Mounting thread depth	M3 thread, 6 mm depth
	Output shaft diameter with tolerance	Ø30 h7 (0/-0.021)
	Keyway depth with tolerance	9.2 (0/-0.1)
	Keyway width with tolerance	8 (0/-0.013)
	Motor body maximum height	58 mm maximum
	Overall maximum height	60 mm maximum
	Shaft extension length segment 1	3
	Shaft extension length segment 2	5
	Total shaft extension length	25±0.5
	Overall length	105±1

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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.