

PRODUCT DATASHEET

ES-SM-A01-040S-TOP16NM-50W-004

AC Servo Motors

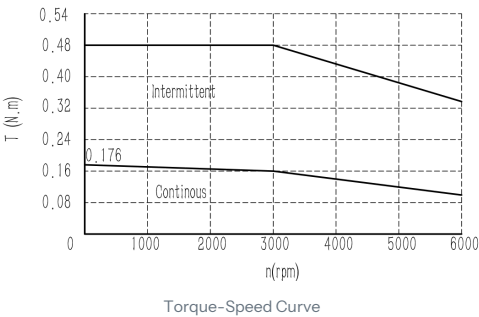
AC Servo Motors | ES-SM-A01-040S Standard 40 mm AC Servo Motor Series

Product Overview

AC Servo Motors with rated Torque 0.16 N·m, instantaneous Maximum Torque 0.48 N·m and rated Speed 3000 rpm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	0.16	N·m
Instantaneous Maximum Torque	0.48	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	50	W
Instantaneous Maximum Current	2.25	A
Flange Size	40	mm
Torque Constant	0.232	N·m/A
Rated Voltage	220	V AC
Rated Line Voltage	220	V



Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	0.16	Nm
Instantaneous Maximum Torque	0.48	Nm
Rated Speed	3000	rpm
Continuous Rated Output Power	50	W
Torque Constant	0.232	Nm/A
Rated Power	50	W
ELECTRICAL		
Rated Voltage	220	V AC
Rated Line Voltage	220	V
Instantaneous Maximum Current	2.25	A
Back EMF Constant	0.018	V/krpm
Insulation Class	F	
Maximum Allowed Voltage Slew Rate	8	KV/ μ s
Motor Outlet Mode	Communication encoder socket	
Pole Pairs	5	
Rated Current	0.7	A

Technical Specifications

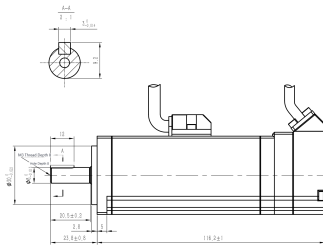
PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Rotational Back-EMF Constant	0.018	V/krpm	
Electrical Time Constant	1.14	ms	
Position Feedback Device	23-bit multi-turn communication optical absolute encoder		
MECHANICAL			
Flange Size	40	mm	
Inertia Level	Low inertia		
Holding Brake Available	With holding brake		
Mechanical Time Constant	1.51	ms	Brake Configuration: without_brake
Rotor Inertia	0.021 kgcm ² / 0.018 Kg·cm ²		Brake Configuration: without_brake
Bearing Radial Force Capacity	120	N	
Bearing Axial Force Capacity	60	N	
ENVIRONMENTAL			
Altitude and Derating Rule	Maximum altitude 4000 m; above 1000 m, power derates 1.5% per 100 m		
Operating Environment	Keep away from corrosive or flammable gases, oil droplets and dust		
Operating Humidity	≤90% RH, non-condensing		
Operating Temperature	-20 to 40°C (no freezing)		
Protection Rating	IP65, shaft end IP54 (Note: with shaft-end oil seal IP54, without oil seal IP50)		

Dimensional & Integration Overview

Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	40	mm
Inertia Level	Low inertia	
Holding Brake Available	With holding brake	
Mechanical Time Constant	1.51	ms
Rotor Inertia	0.021 kgcm ² / 0.018 Kg·cm ²	
Bearing Radial Force Capacity	120	N

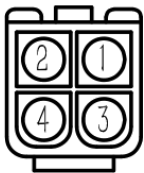
Dimensional Drawings



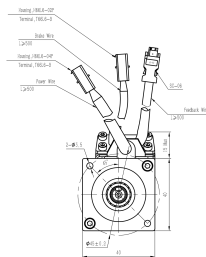
Mechanical View 1



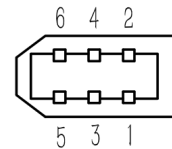
Power Connector Pinout



Power Connector Pinout



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Section view label	Section A-A
	Keyway width	3 mm +0/-0.014
	Keyway radial dimension	9.2 mm
	Shaft end length	12 mm
	Datum A	
	End threaded hole	M3 thread, depth 8 mm
	Hole depth	Hole depth 8 mm
	Shaft end diameter	Diameter 8 mm +0/-0.013
	Body locating diameter	Diameter 30 mm +0/-0.021
	Shaft shoulder to end length	20.5 mm $\pm$ 0.2
	Step width	5 mm
	Relief or spacing width	2.8 mm
	Total shaft protrusion length	23.8 mm $\pm$ 0.8
	Motor body length	116.2 mm $\pm$ 1

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Maximum top cable/connector protrusion height	15 mm maximum
	Mounting hole quantity and diameter	2 holes, diameter 3.5 mm
	Mounting hole angular position	45 degrees
	Vertical mounting hole spacing	40 mm
	Mounting hole pitch circle diameter	Diameter 45 mm ± 0.2 mm
	Horizontal mounting hole spacing	40 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.