PRODUCT DATASHEET

ES-SM-L02-080D-V96-T3P18NM-1000W-001

Low-Voltage Servo Motors

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

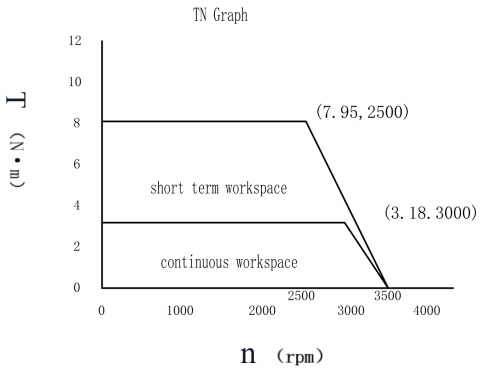
Product Overview

Low-Voltage Servo Motors with rated Torque 3.18 N·m, rated Speed 3000 rpm and continuous Rated Output Power 1000 W.

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

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	3.18	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	1000	W
Rated Voltage	96	VDC
Rated Line Voltage	96	V
Continuous Rated Current	12.4	A
Instantaneous Maximum Current	36	A
Flange Size	80	mm
Allowable Axial Force	90	N



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	3.18	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	1000	W
ELECTRICAL		
Rated Voltage	96	VDC
Rated Line Voltage	96	V
Continuous Rated Current	12.4	A
Instantaneous Maximum Current	36	A
Pole Pairs	5	
Rotational Back-EMF Constant	17.5	V/krpm
Electrical Time Constant	4.2	ms
Insulation Class	F	
Motor Outlet Mode	Communication encoder connector	
MECHANICAL		
Flange Size	80	mm
Inertia Level	Medium inertia	

Technical Specifications

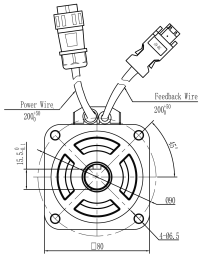
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Allowable Radial Force	270	N	
Mechanical Time Constant	0.8	ms	Brake Configuration: without_brake / Brake Configuration: with_brake
Rotor Inertia	2.04	Kg·cm 2	Brake Configuration: without_brake / Brake Configuration: with_brake
Allowable Axial Force	90	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	-20 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

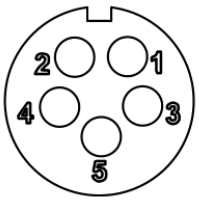
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	80	mm
Inertia Level	Medium inertia	
Allowable Radial Force	270	N
Mechanical Time Constant	0.8	ms
Rotor Inertia	2.04	Kg·cm2
Allowable Axial Force	90	N

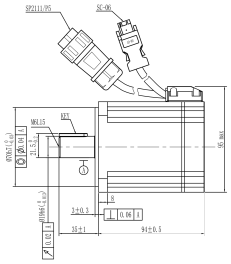
Dimensional Drawings



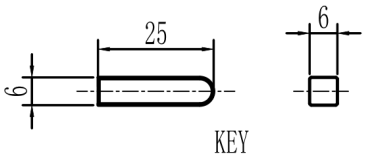
Mechanical View 1



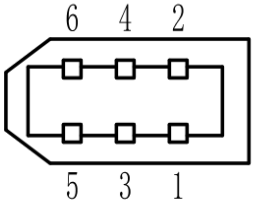
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Left side dimension	15.5 0/-0.1 mm
	Angle	45°
	Mounting flange outer diameter	Ø90 mm
	Mounting hole pitch circle diameter	Ø60 mm
	Mounting holes	4 holes Ø6.5 mm
	Mounting flange size	□80 mm

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 3	Keyway location label	Keyway present
	Mounting bolt specification	M6×15
	Motor-side shaft diameter with tolerance	Ø70h7 (0/-0.03)
	Position tolerance referenced to datum A	◎ Ø0.04 A
	Motor-side shaft length with tolerance	21.5 (0/-0.2)
	Maximum outer diameter	95 max
	Load-side shaft diameter with tolerance	Ø19h6 (0/-0.013)
	Keyway depth	3±0.3
	Perpendicularity tolerance referenced to datum A	⊥ 0.06 A
	Keyway width	8
	Load-side shaft length	35±1
	Overall length	94±0.5
	Parallelism tolerance referenced to datum A	// 0.02 A
	Datum A	
Mechanical View 4	Key length	25
	Key width	6
	Key width (end view)	

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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.