PRODUCT DATASHEET

ES-SM-L03-180G-V96-T19P1NM-4000W-002

Low-Voltage Servo Motors

Low-Voltage Servo Motors | ES-SM-L03-180G 96V 180 mm Low-Voltage Servo Motor Series

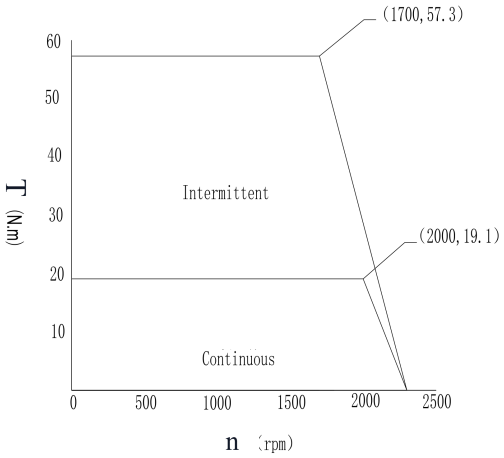
Product Overview

Low-Voltage Servo Motors with rated Torque 19.1 N·m, rated Speed 2000 rpm and continuous Rated Output Power 4000 W.

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

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	19.1	N·m
Rated Speed	2000	rpm
Continuous Rated Output Power	4000	W
Rated Voltage	96	VDC
Rated Line Voltage	96	V
Continuous Rated Current	50	A
Instantaneous Maximum Current	160	A
Flange Size	180	mm
Allowable Axial Force	490	N



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	19.1	N·m
Rated Speed	2000	rpm
Continuous Rated Output Power	4000	W
ELECTRICAL		
Rated Voltage	96	VDC
Rated Line Voltage	96	V
Continuous Rated Current	50	A
Instantaneous Maximum Current	160	A
Pole Pairs	4	
Rotational Back-EMF Constant	25.6 ±10%	V/krpm
Electrical Time Constant	13.1	ms
Insulation Class	F	
Motor Outlet Mode	Dedicated motor socket	
MECHANICAL		
Flange Size	180	mm

Technical Specifications

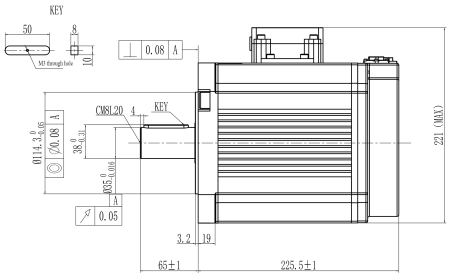
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Inertia Level	High inertia		
Allowable Radial Force	1470	N	
Mechanical Time Constant	1.86 / 1.74	ms	Brake Configuration: without_brake / Brake Configuration: with_brake
Rotor Inertia	62.34	Kg·cm 2	Brake Configuration: without_brake / Brake Configuration: with_brake
Allowable Axial Force	490	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		
ADDITIONAL SPECIFICATIONS			
Cooling Method	Fully enclosed, self-cooled		

Dimensional & Integration Overview

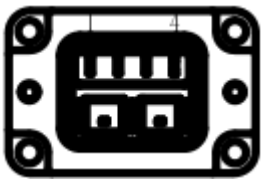
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	180	mm
Inertia Level	High inertia	
Allowable Radial Force	1470	N
Mechanical Time Constant	1.86 / 1.74	ms
Rotor Inertia	62.34	Kg·cm2
Allowable Axial Force	490	N

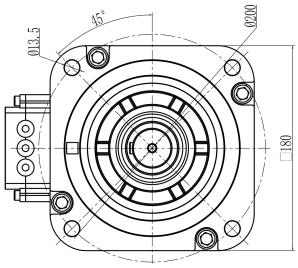
Dimensional Drawings



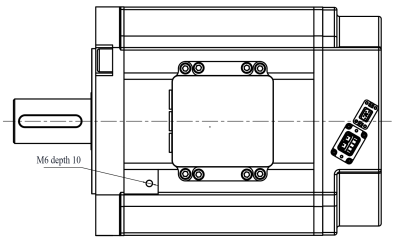
Mechanical View 1



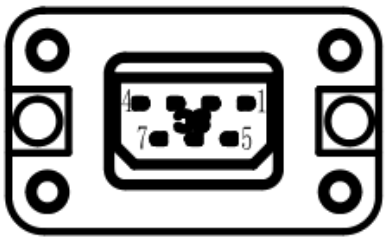
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Key identifier	KEY
	Key length	50 mm
	Key width	8 mm
	Threaded through hole	M3 through hole
	Position tolerance to datum A	Position 0.08 A
	Datum A	
	Maximum axial length	221 mm maximum
	Shaft section length	38 +0/-0.31 mm
	Perpendicularity tolerance	Perpendicularity 0.08
	Bearing housing diameter	Ø114.3 +0/-0.05 mm
	Shaft diameter	Ø35 +0/-0.016 mm
	Perpendicularity to datum A	
	Directional tolerance or surface finish	0.05 mm with direction indicator
	Feature dimension	3.2 mm
		19 mm
	Shaft section length	65±1 mm
	Overall length	225.5±1 mm

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 3	Mounting flange outer diameter	Ø200
	Mounting hole angular distribution	45°
	Mounting hole diameter	Ø13.5
	Motor flange face width/height	180
Mechanical View 4	M6 threaded hole depth	M6 threaded hole, depth 10mm

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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.