

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-060S-V48-T1P27NM-400W-002	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

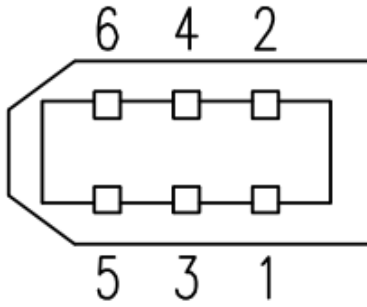
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

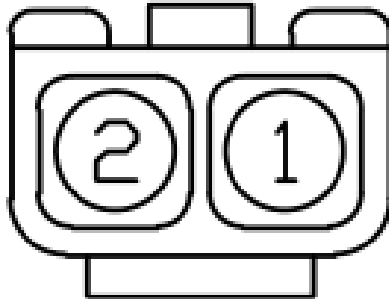
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	1.27 N·m
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	60 mm

Product Structure & Views

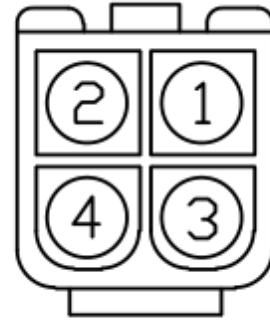
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



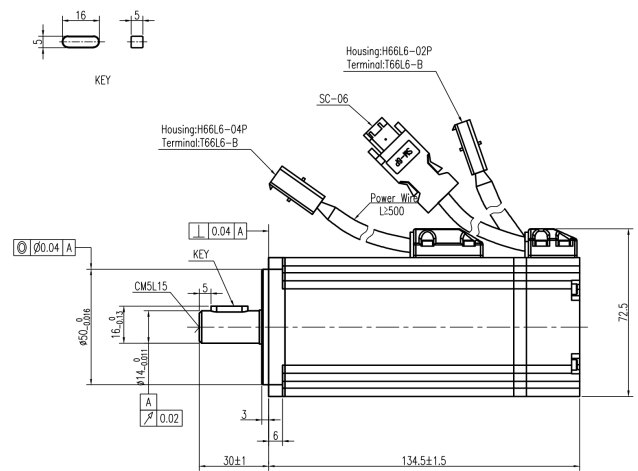
Mechanical View 4



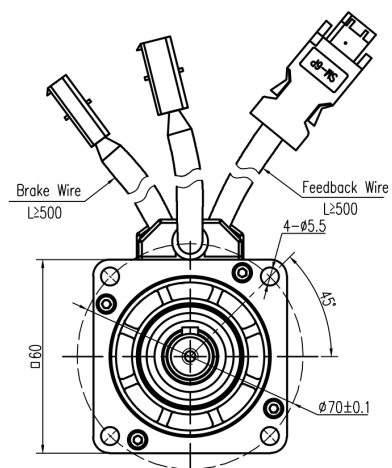
Mechanical View 6



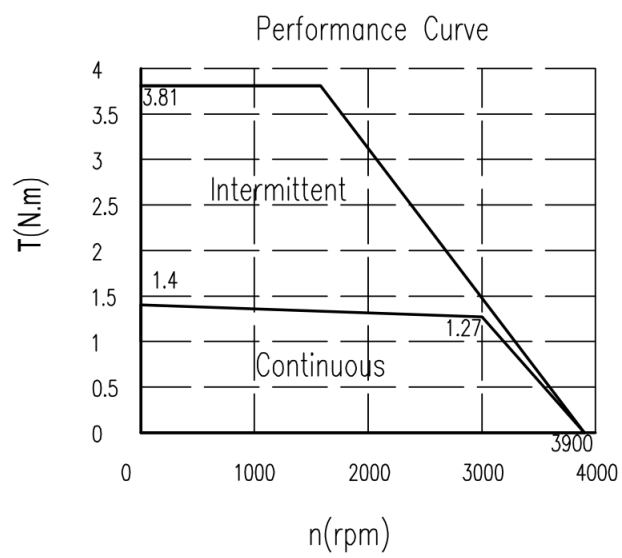
Mechanical View 5



Mechanical View 12



Mechanical View 13



Mechanical View 15

VIEW	FIELD	VALUE
Mechanical View 4	Feedback wire connector pin numbering	Connector pin labels arranged as top row 6, 4, 2 and bottom row 5, 3, 1.
Mechanical View 5	Pin number	Pin 1
	Pin number	Pin 2
	Pin number	Pin 4
	Pin number	Pin 3
Mechanical View 6	Connector cavity/pin identifier 2	Connector cavity/pin number: 2
	Connector cavity/pin identifier 1	Connector cavity/pin number: 1
Mechanical View 12	Keyway width	5 mm
	Keyway length	16 mm
	Keyway height	5 mm
	Key feature label	KEY
	Connector marking	6P-NS
	Power wire label	Power Wire
	Power wire minimum length	L ≥500 mm
	Perpendicularity tolerance	Perpendicularity 0.04 mm relative to datum A
	Position tolerance	Position tolerance diameter 0.04 mm relative to datum A
	Shaft keyway label	KEY
	Shaft keyway width	5 mm
	Motor overall height	72.5 mm
	Shaft step diameter	16 mm, +0 / -0.13
	Pilot diameter	Diameter 50 mm, +0 / -0.016
	Angularity tolerance	Angularity 0.02 mm
	Datum A	Datum A
	Hole diameter	Ø14 0/-0.011 mm
	Mounting depth or offset	3 mm
	Mounting width or spacing	6 mm
	Axial length (near section)	30±1 mm
	Axial length (far section)	134±1.5 mm
Mechanical View 13	brake wire identifier	Brake wire
	feedback wire identifier	Feedback wire
	wire lead length	L ≥500 mm
	mounting hole quantity and diameter	4 × Ø5.5 mm
	overall height	60 mm
	angle	45 degree
	outer diameter	Ø70 ±0.1 mm

VIEW	FIELD	VALUE
Mechanical View 15	Chart title	Performance curve
	Y-axis torque	Torque T in N.m
	X-axis speed	Rotational speed n in rpm
	Y-axis tick values	Torque scale from 0 to 4 N.m in 0.5 N.m increments
	X-axis tick values	Speed scale from 0 to 4000 rpm
	Intermittent operation curve	Intermittent curve with visible torque callout 3.81 N.m and speed endpoint callout 3900 rpm
	Continuous operation curve	Continuous curve with visible torque callouts 1.4 N.m and 1.27 N.m

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	60	mm

- Confirm the mounting face, locating feature, shaft geometry, fastener engagement and removal clearance against the applicable exact-SKU drawing.
- Mount the motor on a flat, rigid interface and avoid using fasteners to pull a misaligned assembly into position.

Shaft, Coupling and Load Path

PARAMETER	PUBLISHED VALUE	UNIT
Rotor Inertia	0.38 / 0.384	Kg-cm ²

- Align the driven shaft and coupling before tightening; validate radial, axial and moment loads against applicable bearing-load data.
- Do not hammer, uncontrolled press-fit or transmit installation force through the motor bearings.

Electrical, Feedback and Brake Integration

PARAMETER	PUBLISHED VALUE	UNIT
Rated Voltage	48	VDC

- Use only the current winding, feedback, brake and connector definitions for this exact SKU.
- Verify drive compatibility, polarity, current limits, feedback direction and brake sequencing before enabling torque.

Thermal, Duty and Environmental Conditions

PARAMETER	PUBLISHED VALUE	UNIT
Rated Torque	1.27	N·m
Operating Temperature	-20 to 40	°C

- Validate winding and housing temperature under the installed duty cycle, ambient condition, mounting heat path and enclosure airflow.
- Published peak values are transient boundaries and must not be treated as continuous operating ratings.

Cable Routing, Grounding and EMC

- Provide strain relief and bend radius through the full machine motion envelope.
- Separate motor power, brake and feedback wiring and terminate shields according to the specified system grounding architecture.

Commissioning and Motion Validation

PARAMETER	PUBLISHED VALUE	UNIT
Rated Speed	3000	rpm
Rated Torque	1.27	N·m

- Commission at low energy with the transmission unloaded or safely restrained, then confirm direction, feedback polarity, brake final integration, current limit and fault response.
- Validate the complete axis through intended acceleration, speed, load, stop and fault cycles during integration planning.

Integration Checklist

- | | |
|----|--|
| 01 | Confirm the exact SKU, 2D drawing and applicable wiring data. |
| 02 | Verify mounting, shaft, coupling, alignment, fasteners and removal clearance. |
| 03 | Validate radial and axial loads, inertia, acceleration and credible shock cases. |
| 04 | Confirm drive, winding, feedback, brake and connector compatibility. |
| 05 | Set current, speed, acceleration and thermal limits from the installed duty cycle. |
| 06 | Verify cable routing, shielding, grounding, strain relief and bend radius. |
| 07 | Commission at low energy before validating the full machine cycle. |

[View SKU Product Datasheet](#) [Request controlled 2D drawing](#) [Request controlled STEP review](#) [Request a Quote](#)

Engineering Use and Verification Notice

01. This Dimensional & Integration Guide applies only to EmbodyStack SKU ES-SM-L01-060S-V48-T1P27NM-400W-002 and is intended for dimensional evaluation and preliminary integration. It is not a applicable manufacturing drawing, wiring definition, application approval, machinery risk assessment, safety validation or integration planning document. Before design freeze, machining, wiring or energization, verify all dimensions, tolerances, mounting and locating features, load boundaries, electrical interfaces, thermal conditions, cabling, grounding, protection, commissioning and applicable regulatory requirements against the applicable EmbodyStack engineering data for this exact SKU. Where this guide and applicable product documentation differ, the applicable product documentation governs. Validate the complete installed system under intended duty cycles, loads, accelerations, environmental conditions and credible fault cases.