

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L02-060S-V48-T1P27NM-400W-003	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

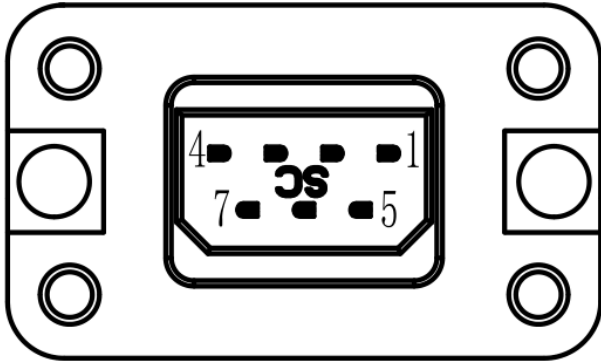
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

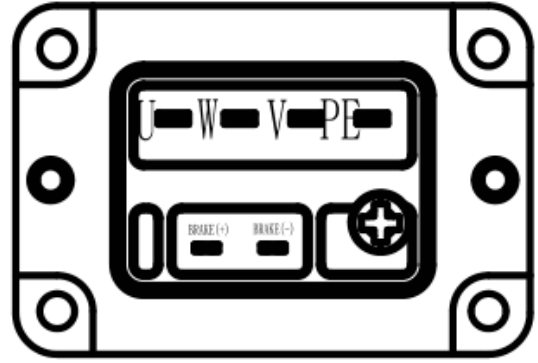
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	1.27 N·m
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	60 mm

Product Structure & Views

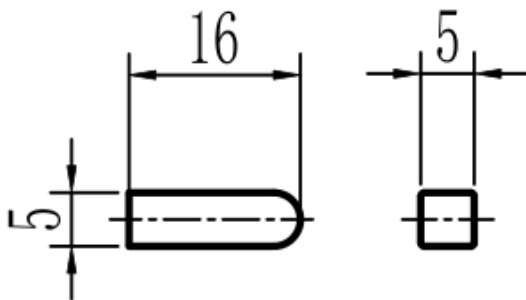
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



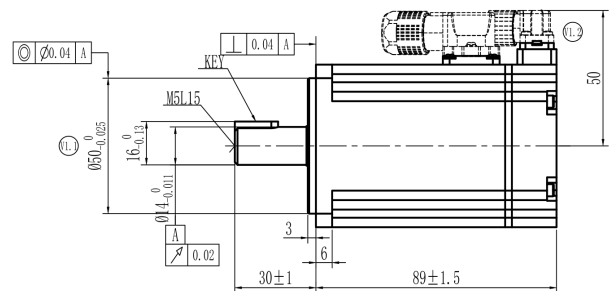
Mechanical View 3



Mechanical View 4

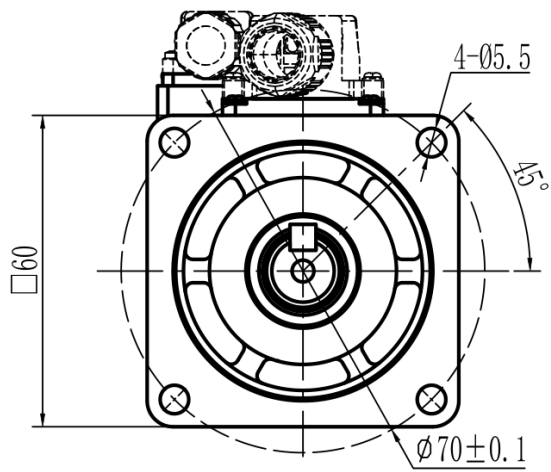


KEY

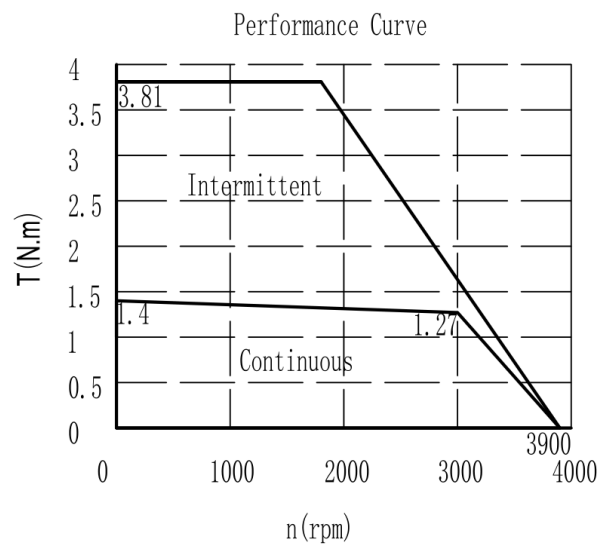


Mechanical View 7

Mechanical View 5



Mechanical View 8



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 3	Pin 1	Pin 1
	Pin 4	Pin 4
	Pin 5	Pin 5
	Pin 7	Pin 7
	Connector center marking	Connector marking: CS
Mechanical View 4	Connector positive terminal label	BUE(+)
	Connector negative terminal label	BBE(-)
	Power phase U terminal	Phase U terminal label
	Power phase W terminal	Phase W terminal label
	Power phase V terminal	Phase V terminal label
	Protective earth terminal	PE (Protective Earth) terminal label
Mechanical View 5	Keyway length	16
	Keyway width	5
	Keyway depth	5
	Keyway designation	KEY
Mechanical View 7	Position tolerance	Position tolerance Ø0.04 relative to datum A
	Position tolerance	Position tolerance 0.04 relative to datum A
	Keyway designation	Keyway feature present
	Threaded hole	M5 threaded hole, depth 15mm
	Shaft diameter	Ø50 0/-0.025
	Shaft length	16 0/-0.13
	Hole diameter	Ø14 0/-0.011
	Datum A	Datum A
	Perpendicularity tolerance	Perpendicularity 0.02
	Spacing dimension	3mm spacing
	Spacing dimension	6mm spacing
	Overall length	30±1
	Total assembly length	89±1.5
	Height dimension	50mm height
Mechanical View 8	4 mounting holes diameter	4-Ø5.5
	Square frame dimension	160
	Flange outer diameter with tolerance	Ø70±0.1
	Mounting hole angular position	45 degrees
Mechanical View 9	Chart title	Performance curve
	Torque axis	Torque T in N.m
	Speed axis	Rotational speed n in rpm

VIEW	FIELD	VALUE
Intermittent operating curve	Intermittent operating region/curve	
Continuous operating curve	Continuous operating region/curve	
Maximum torque callout	Maximum torque callout 3.81 N.m	
Continuous torque callout	Continuous torque callout 1.4 N.m	
Rated torque callout	Rated torque callout 1.27 N.m	
Maximum speed callout	Speed callout 3900 rpm	
Torque scale tick labels	Torque axis scale from 0 to 4 N.m in 0.5 N.m increments	
Speed scale tick labels	Speed axis scale from 0 to 4000 rpm in 1000 rpm increments	

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	0.31 / 0.314	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-L02-060S-V48-T1P27NM-400W-003 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.