

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-040S-V48-TOP32NM-100W-004	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

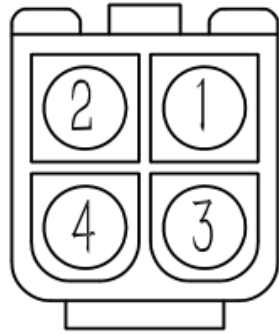
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

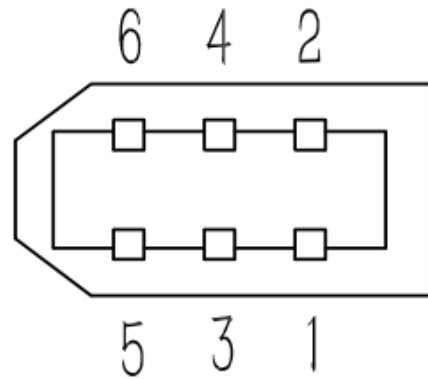
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	0.32 N·m
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	40 mm

Product Structure & Views

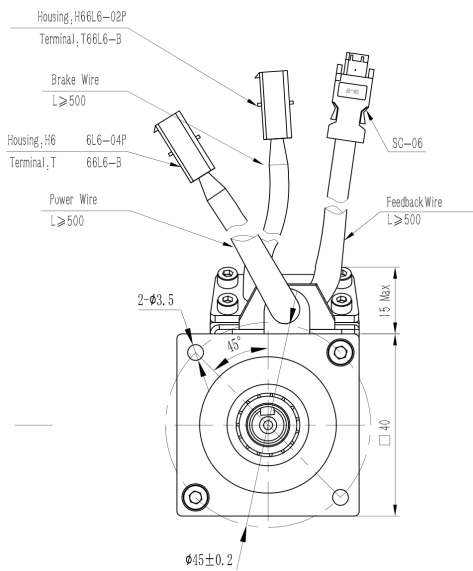
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



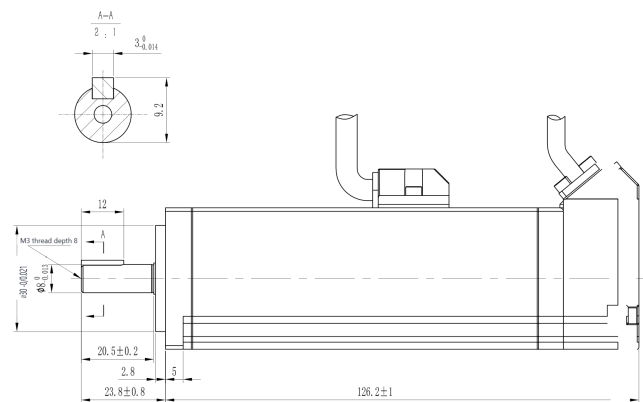
Mechanical View 3



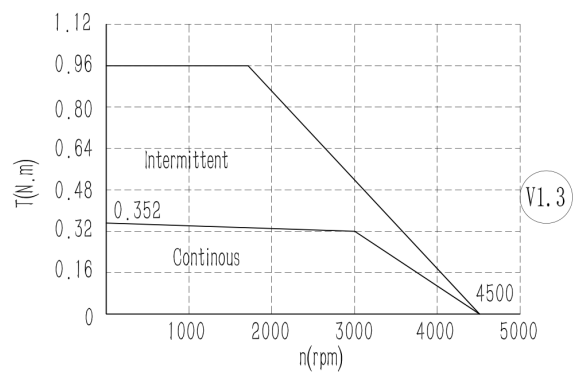
Mechanical View 4



Mechanical View 8



Mechanical View 9



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 3	Connector cavity number	Connector cavity 2
	Connector cavity number	Connector cavity 3
	Connector pin number 1	Pin 1
	Connector pin number 4	Pin 4
Mechanical View 4	Connector upper-row pin numbers	Upper row pins: 6, 4, 2
	Connector lower-row pin numbers	Lower row pins: 5, 3, 1
Mechanical View 8	Brake wire label	Brake Wire
	Brake wire length	L >= 500
	Power wire label	Power Wire
	Power wire length	L >= 500
	Feedback wire label	Feedback Wire
	Feedback wire length	L >= 500
	Maximum protrusion height	15 max
	Mounting hole quantity and diameter	2 holes, diameter 3.5
	Mounting hole angular position	45 degrees
	Square flange envelope size	Square 40
	Pilot diameter	Diameter 45 ±0.2
	Connector body marking	SM6P
Mechanical View 9	Section view identifier	Section A-A
	View scale	Scale 2:1
	Keyway slot width	3 mm, +0 / -0.014
	Shaft end sectional height or envelope dimension	9.2 mm
	Shaft end length	12 mm
	Threaded hole size and depth	M3 thread, depth 8 mm
	Shaft diameter tolerance	Diameter 8 mm, +0 / -0.013
	Shaft end reference length	20.5 mm ±0.2
	Step offset length	2.8 mm
	End step width	5 mm
	Main body length	126.2 mm ±1
	Shaft end total projection length	23.8 mm ±0.8
	Datum A	Datum A
	Diametral tolerance	Ø0.0/-0.021mm
Mechanical View 10	Torque axis scale value	Torque scale tick: 1.12 N.m
	Torque axis scale value	Torque scale tick: 0.96 N.m
	Torque axis scale value	Torque scale tick: 0.80 N.m
	Torque axis scale value	Torque scale tick: 0.64 N.m

VIEW	FIELD	VALUE
Intermittent operating region	Intermittent operation curve/region label	
Torque axis scale value	Torque scale tick: 0.48 N.m	
Curve version identifier	Version identifier: V1.3	
Continuous operation torque callout	Continuous curve torque callout: 0.352 N.m	
Torque axis scale value	Torque scale tick: 0.32 N.m	
Continuous operating region	Continuous operation curve/region label	
Torque axis scale value	Torque scale tick: 0.16 N.m	
Speed callout	Speed callout: 4500 rpm	
Speed axis zero value	Speed axis origin: 0 rpm	
Speed axis scale value	Speed scale tick: 1000 rpm	
Speed axis scale value	Speed scale tick: 2000 rpm	
Speed axis scale value	Speed scale tick: 3000 rpm	
Speed axis scale value	Speed scale tick: 4000 rpm	
Speed axis scale value	Speed scale tick: 5000 rpm	
Speed axis label	Rotational speed n, unit rpm	

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	40	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	0.033 / 0.036	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	0.32	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	0.32	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-L01-040S-V48-TOP32NM-100W-004 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.