

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A01-040S-TOP16NM-50W-002	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

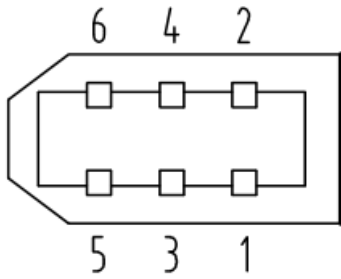
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	0.16 Nm
Rated Speed	3000 rpm
Flange Size	40 mm

Product Structure & Views

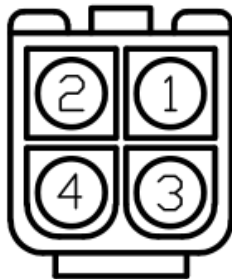
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



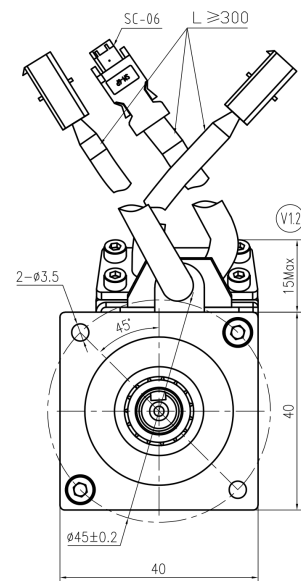
Mechanical View 5



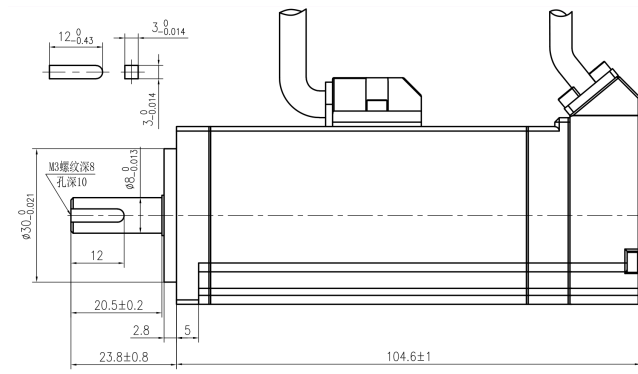
Mechanical View 6



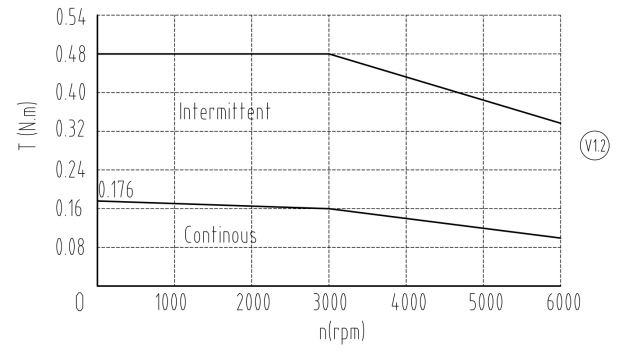
Mechanical View 7



Mechanical View 9



Mechanical View 10



Mechanical View 11



VIEW	FIELD	VALUE
Mechanical View 5	Feedback wire terminal number 6	Terminal 6
	Feedback wire terminal number 4	Terminal 4
	Feedback wire terminal number 2	Terminal 2
	Feedback wire terminal number 5	Terminal 5
	Feedback wire terminal number 3	Terminal 3
	Feedback wire terminal number 1	Terminal 1
Mechanical View 6	Connector Pin Cavity Position 1	Cavity 1
	Connector Pin Cavity Position 2	Cavity 2
Mechanical View 7	Connector Pin Number 2	Pin 2
	Connector Pin Number 1	Pin 1
	Connector Pin Number 4	Pin 4
	Connector Pin Number 3	Pin 3
Mechanical View 9	Connector type	SC-06
	Cable minimum length	L≥800
	Connector type	SM-6P
	Version number	V1.2
	Motor body right side maximum height	15Max
	Mounting hole specification	2- Ø 5
	Mounting hole angular position	45°
	Motor body height	40
	Flange diameter	Ø5±0.2
	Motor body width	40
Mechanical View 10	Shaft end length	12 mm with tolerance 0/-0.43
	Shaft width	3 mm with tolerance 0/-0.014
	Shaft flat depth	3 mm with tolerance 0/-0.014
	Thread specification and depth	M3 thread depth 8 mm
	Hole depth	Hole depth 10 mm
	Hole diameter	Ø8 mm with tolerance 0/-0.013
	Shaft diameter	Ø30 mm with tolerance 0/-0.021
	Mounting hole position	12 mm
	Mounting face width	20.5 mm ± 0.2
	Bottom offset	2.8 mm
	End protrusion	5 mm
	Total mounting height	23.8 mm ± 0.8
	Overall length	104.6 mm ± 1
Mechanical View 11	Y-axis label - Torque	T(N.m)

VIEW	FIELD	VALUE
X-axis label - Speed	n(rpm)	
Intermittent torque curve label	Intermittent	
Continuous torque curve label	Continuous	
Chart version number	V1.2	
Y-axis tick - 0.54 N.m	0.54	
Y-axis tick - 0.48 N.m	0.48	
Y-axis tick - 0.40 N.m	0.40	
Y-axis tick - 0.32 N.m	0.32	
Y-axis tick - 0.24 N.m	0.24	
Y-axis tick - 0.176 N.m	0.176	
Y-axis tick - 0.16 N.m	0.16	
Y-axis tick - 0.08 N.m	0.08	
X-axis tick - 0 rpm	0	
X-axis tick - 1000 rpm	1000	
X-axis tick - 2000 rpm	2000	
X-axis tick - 3000 rpm	3000	
X-axis tick - 4000 rpm	4000	
X-axis tick - 5000 rpm	5000	
X-axis tick - 6000 rpm	6000	

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	0.021	kgcm 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
Position Feedback Device	Single-turn communication magnetic encoder	

- 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	0.16	Nm
Operating Temperature	20 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

PARAMETER	PUBLISHED VALUE	UNIT
Position Feedback Device	Single-turn communication magnetic encoder	

- 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	0.16	Nm

- 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-A01-040S-TOP16NM-50W-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.