

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A03-080S-T2P39NM-750W-001	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

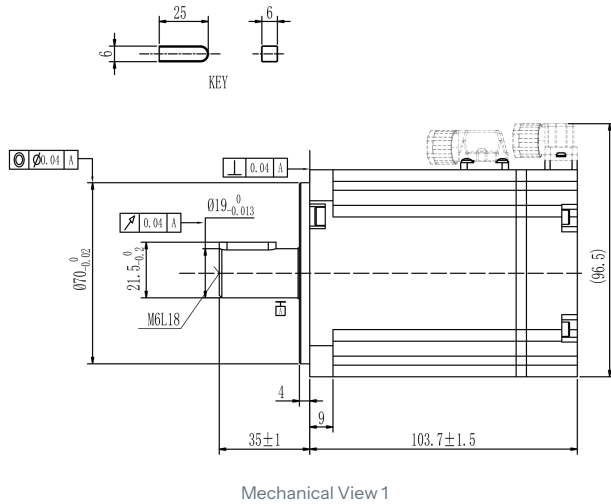
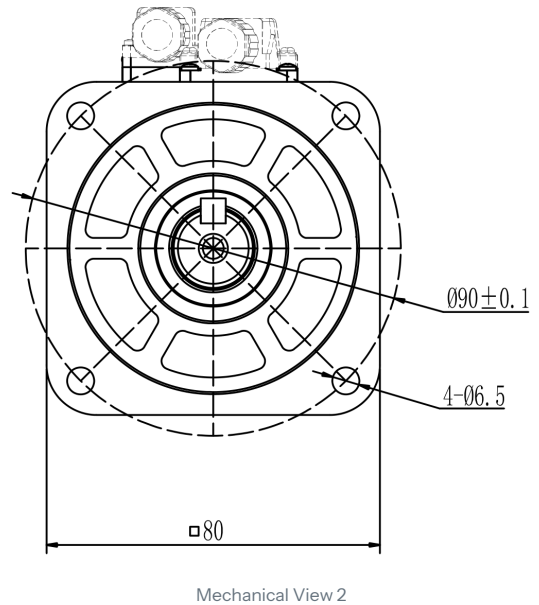
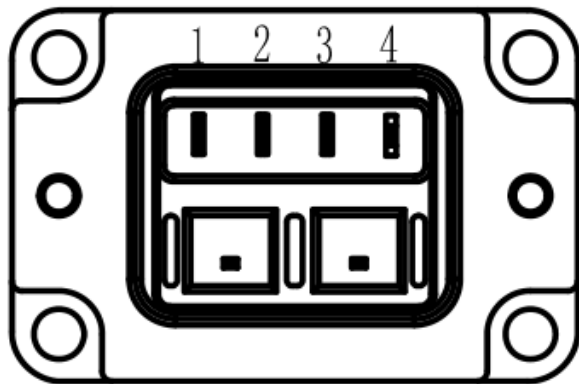
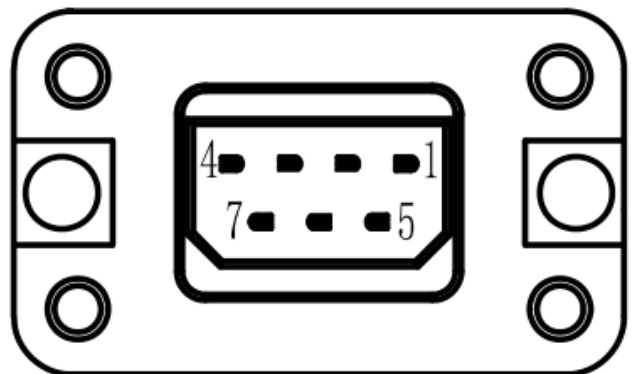
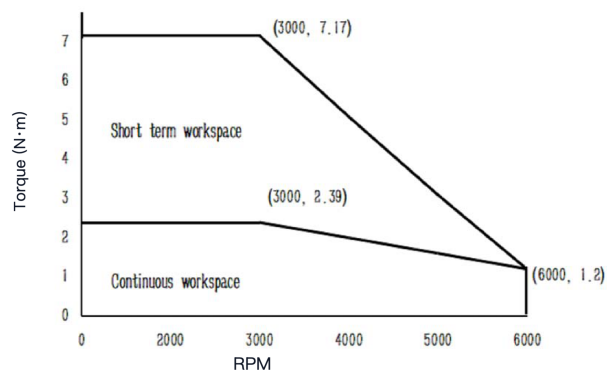
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	2.39 N·m
Rated Speed	3000 rpm
Rated Voltage	220 VAC
Flange Size	80 mm

Product Structure & Views

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



VIEW	FIELD	VALUE
Mechanical View 1	Key width	6 mm
	Key length	25 mm
	Position tolerance	Position 0.04 relative to datum A
	Perpendicularity tolerance	Perpendicularity 0.04 relative to datum A
	Angularity tolerance	Angularity 0.04 relative to datum A
	Shaft diameter	Ø19 0/-0.013 mm
	Mounting flange diameter	Ø70 0/-0.02 mm
	Shaft extension length	21.5 0/-0.2 mm
	Mounting bolt specification	M6×18 mm
	Datum A	Datum A
	Mounting hole depth	4 mm
	Mounting boss width	9 mm
	Face to mounting surface distance	35±1 mm
	Motor overall length	103.7±1.5 mm
	Motor body length (reference)	96.5 mm (reference)
Mechanical View 2	Mounting pitch circle diameter	Diameter 90 ±0.1
	Mounting hole quantity and diameter	4 holes, diameter 6.5
	Square flange size	Square 80
Mechanical View 5	Connector terminal/pin number	Terminal/pin number 2
	Connector Pin 1	Pin 1
	Connector terminal position 3	Terminal position 3
	Connector Pin 4	Pin 4
Mechanical View 8	Feedback connector pin identifier 4	Pin/contact identifier 4 visible on connector face.
	Feedback connector pin identifier 1	Pin/contact identifier 1 visible on connector face.
	Feedback connector pin identifier 7	Pin/contact identifier 7 visible on connector face.
	Feedback connector pin identifier 5	Pin/contact identifier 5 visible on connector face.
Mechanical View 10	Short-term maximum torque point	At 3000 RPM, torque = 7.17 Nm
	Transition point between short-term and continuous workspace	At 3000 RPM, torque = 2.39 Nm
	Maximum speed point in continuous workspace	At 6000 RPM, torque = 1.2 Nm
	Y-axis label	Torque unit: Nm
	X-axis label	Speed unit: RPM
	Short-term workspace region	Operating region for short-duration high-torque applications
	Continuous workspace region	Operating region for continuous duty applications
	Motor Speed Scale	0-6000 rpm
	Torque Scale	0-7 Nm

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	80	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	0.95 ()	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	220	VAC
Position Feedback Device	17-bit multi-turn communication magnetic absolute 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	2.39	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	17-bit multi-turn communication magnetic absolute 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	2.39	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-A03-080S-T2P39NM-750W-001 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.