

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

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

Integration Overview

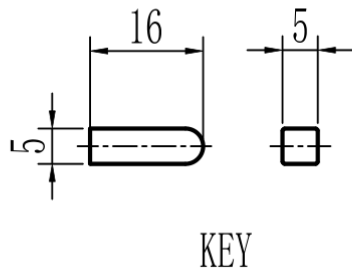
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

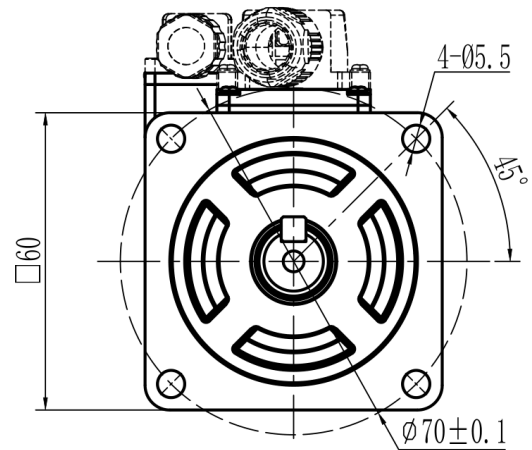
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	1.27 N·m
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	60 mm

Product Structure & Views

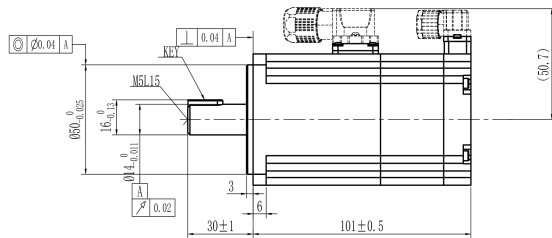
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



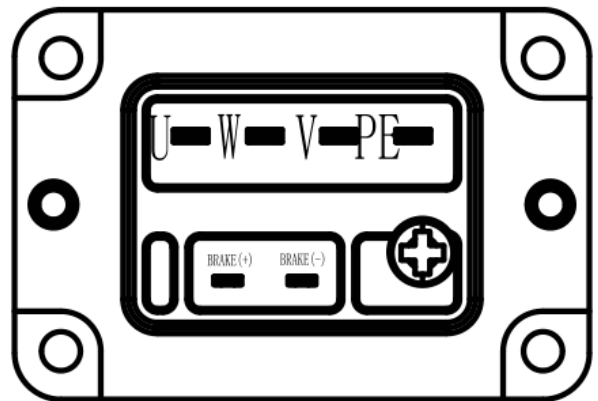
Mechanical View 1



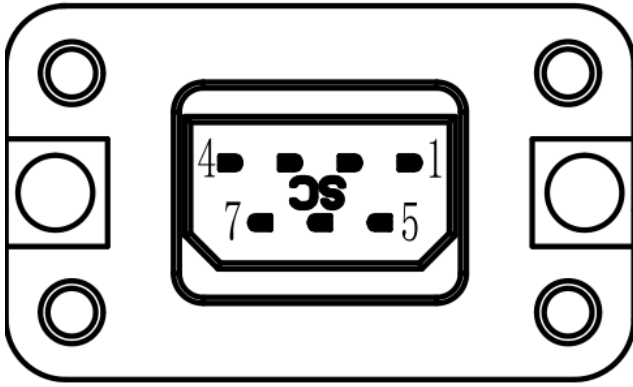
Mechanical View 2



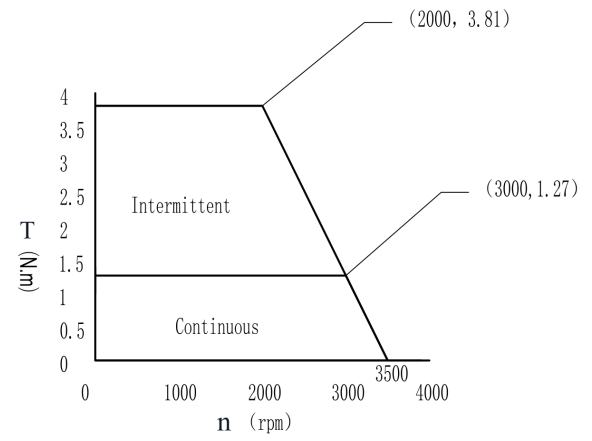
Mechanical View 3



Mechanical View 5



Mechanical View 7



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 1	Key length	16 mm
	Key width	5 mm
	Key height	5 mm
	Keyway designation	KEY
Mechanical View 2	Mounting hole diameter	4 holes, $\varnothing 5\text{mm}$
	Mounting hole angular spacing	45° spacing
	Mounting bolt circle diameter	$\varnothing 70 \pm 0.1\text{mm}$
	Flange envelope dimension (square)	160mm
Mechanical View 3	Position tolerance	0.04 relative to datum A
	Keyway designation	Keyway present
	Reference dimension	50.7 (reference)
	Mounting screw specification	M5 screw, 15mm length
	Datum B	Datum B
	Shaft diameter	$\varnothing 30\ 0/-0.025$
	Keyway width	16 -0.13
	Hole diameter	$\varnothing 4\ 0/-0.01$
	Dimension	3
	Datum A	Datum A
	Dimension	6
	Parallelism tolerance	0.02
	Overall length dimension	30 $\pm$ 1
	Overall length dimension	101 $\pm$ 0.5
Mechanical View 5	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
	Brake positive terminal	Brake positive terminal label
	Brake negative terminal	Brake negative terminal label
Mechanical View 7	Connector pin designation	CS
	Connector pin number	Pin label: 4
	Connector pin number	Pin label: 7
	Connector pin number	Pin label: 1
	Connector pin number	Pin label: 5
Mechanical View 10	Speed-Torque curve key point 1	At 2000 rpm, torque is 3.81 Nm
	Speed-Torque curve key point 2	At 3000 rpm, torque is 1.27 Nm
	Torque axis scale - maximum	3.5 Nm

VIEW	FIELD	VALUE
Torque axis scale - 2.5	2.5 Nm	
Torque axis scale - 1.5	1.5 Nm	
Torque axis scale - 0.5	0.5 Nm	
Torque axis scale - origin	0 Nm	
Intermittent working zone	Intermittent operation zone	
Continuous working zone	Continuous operation zone	
Torque axis label	Torque in Newton-meters	
Speed axis label	Rotational speed in revolutions per minute	
Speed axis scale - 1000	1000 rpm	
Speed axis scale - 2000	2000 rpm	
Speed axis scale - 3000	3000 rpm	
Speed axis scale - 3500	3500 rpm	
Speed axis scale - maximum	4000 rpm	
Torque axis scale - 1	1Nm	
Torque axis scale - 2	2 Nm	
Torque axis scale - 3	3 Nm	
Torque axis scale - 4	4 Nm	

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	0.43 / 0.434	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-L02-060D-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.