ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-060S-V48-T1P91NM-600W-001	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

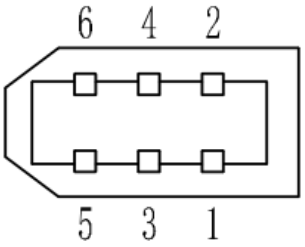
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

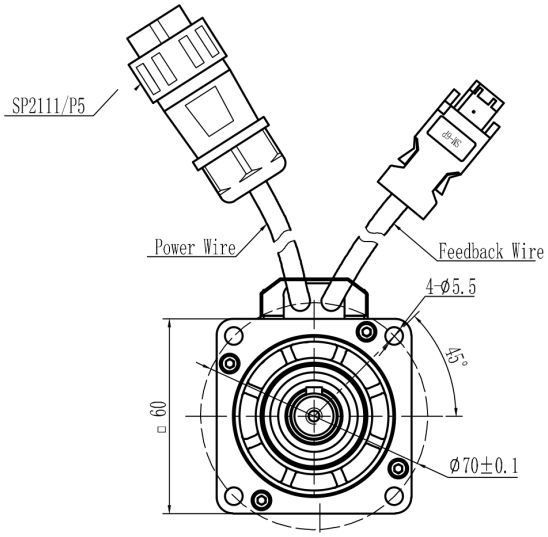
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	1.91 N·m
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	60 mm

Product Structure & Views

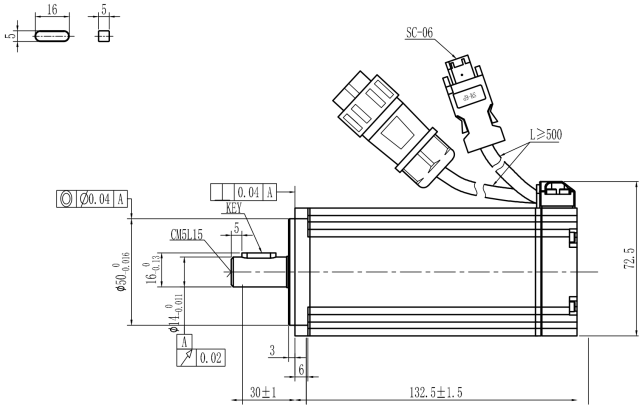
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



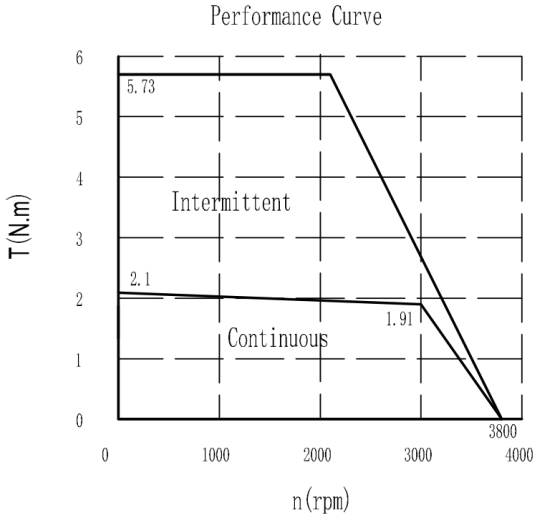
Mechanical View 3



Mechanical View 4



Mechanical View 5



Mechanical View 7

VIEW	FIELD	VALUE
Mechanical View 3	SC-06 Feedback Connector Pin 6	Pin 6
	SC-06 Feedback Connector Pin 4	Pin 4
	SC-06 Feedback Connector Pin 2	Pin 2
	SC-06 Feedback Connector Pin 5	Pin 5
	SC-06 Feedback Connector Pin 3	Pin 3
	SC-06 Feedback Connector Pin 1	Pin 1
Mechanical View 4	Power wire label	Power Wire
	Feedback wire label	Feedback Wire
	Mounting hole diameter and quantity	4×Ø5.5
	Flange square side length	□60
	Mounting flange diameter	Ø70±0.1
	Mounting hole angular position	45°
Mechanical View 5	Connector width	16 mm
	Connector thickness	5 mm
	Cable length requirement	L ≥500 mm
	Position tolerance	Position tolerance 0.04 relative to datum A
	Keyway designation	KEY
	Keyway specification	CM5L15
	Overall height	72.5 mm
	Shaft diameter	⌀50 0/-0.016 mm
	Shaft section length	16 -0.13 mm
	Shaft diameter	⌀14 0/-0.011 mm
	Datum A	Datum A
	Keyway depth	3 mm
	Axial runout tolerance	0.02 mm
	Unidentified dimension	9 mm
	Mounting dimension 1	30 ± 1 mm
	Mounting dimension 2	132.5 ± 1.5 mm
	Key width	5
	Keyway width	5
Mechanical View 7	Chart title	Performance Curve
	Torque axis	Torque T in N.m
	Speed axis	Rotational speed n in rpm
	Intermittent operation curve	Intermittent operation region or curve
	Continuous operation curve	Continuous operation region or curve
	Maximum intermittent torque callout	5.73 N.m

VIEW	FIELD	VALUE
Continuous torque callout	2.1 N.m	
Continuous curve torque callout	1.91 N.m	
Curve endpoint speed callout	3800 rpm	
Torque axis tick labels	Torque scale from 0 to 6 N.m	
Speed axis tick labels	Speed scale from 0 to 4000 rpm	

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	0.65 / 0.654	Kg·cm2

- 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	1.91	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	1.91	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-L01-060S-V48-T1P91NM-600W-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.