ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-080S-V48-T2P39NM-750W-002	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

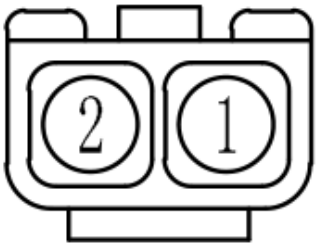
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

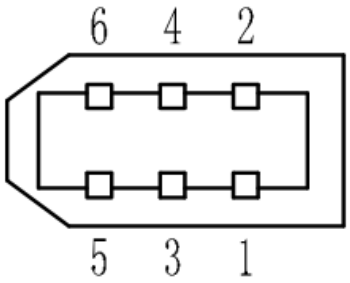
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	2.39 N·m
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	80 mm

Product Structure & Views

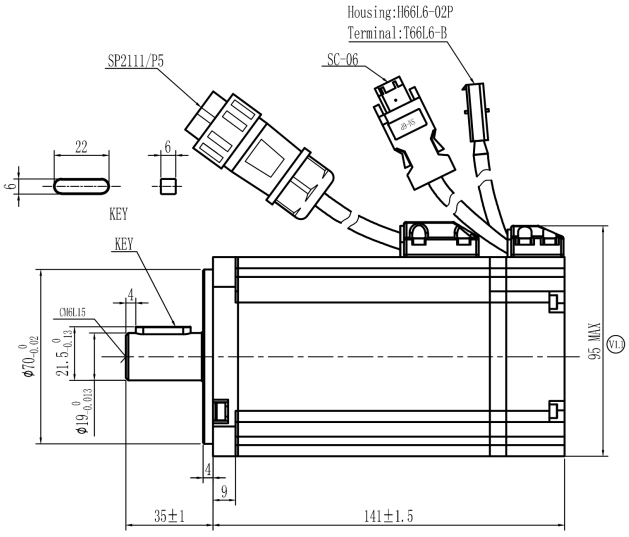
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



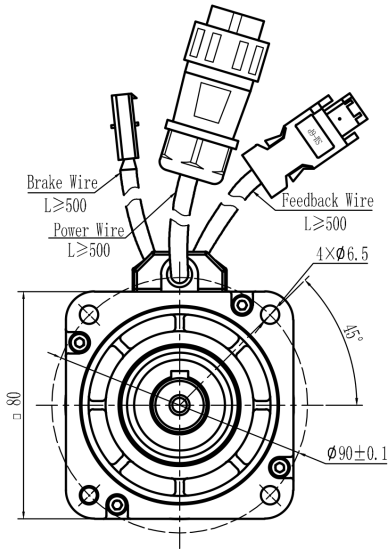
Mechanical View 4



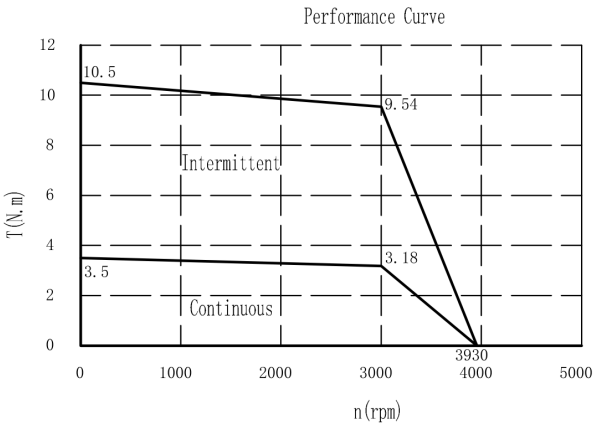
Mechanical View 5



Mechanical View 6



Mechanical View 7



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 4	Connector terminal/cavity number 2	Terminal/cavity identifier 2
	Connector terminal/cavity number 1	Terminal/cavity identifier 1
Mechanical View 5	Feedback connector pin 9	Pin 9
	Feedback connector pin 4	Pin 4
	Feedback connector pin 2	Pin 2
	Feedback connector pin 5	Pin 5
	Feedback connector pin 3	Pin 3
	Feedback connector pin 1	Pin 1
Mechanical View 6	Connector body marking	SM-6P
	Key width	6 mm
	Key length	22 mm
	Key thickness or keyway height	6 mm
	Keyway label	KEY
	Thread or end feature specification	CM6L15
	Shaft shoulder diameter	Diameter 70 mm, +0/-0.02 mm
	Shaft extension length	21.5 mm, +0/-0.13 mm
	Shaft end diameter	Diameter 19 mm, +0/-0.013 mm
	Maximum height	95 mm maximum
	Front extension length	35 ±1 mm
	Motor body length	141 ±1.5 mm
	Front step dimension	4 mm
	Front offset dimension	9 mm
	Revision mark	V1.1
	Mounting hole radial position	4 mm
Mechanical View 7	Brake wire length	Brake wire length ≥500 mm
	Feedback wire length	Feedback wire length ≥500 mm
	Power wire length	Power wire length ≥500 mm
	Mounting hole specification	4 holes, diameter 6.5 mm
	Mounting hole angular spacing	45 degree angular orientation/spacing
	Square flange outside size	Square flange 80 mm
	Mounting hole pitch circle diameter	Pitch circle diameter 90 ±0.1 mm
Mechanical View 10	Performance curve title	Performance Curve
	Torque vertical axis	Torque T in N.m
	Speed horizontal axis	Rotational speed n in rpm
	Torque axis tick values	Torque scale ticks: 0, 2, 4, 6, 8, 10, 12 N.m
	Speed axis tick values	Speed scale ticks: 0, 1000, 2000, 3000, 4000, 5000 rpm

VIEW	FIELD	VALUE
Intermittent operation curve	Intermittent curve labeled at 10.5 N.m, 9.54 N.m, and speed limit point 3930 rpm	
Continuous operation curve	Continuous curve labeled at 3.5 N.m, 3.18 N.m, and speed limit point 3930 rpm	

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	1.027 / 1.099	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	2.39	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	2.39	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-L01-080S-V48-T2P39NM-750W-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.