ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-080S-V48-T3P82NM-1200W-002	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

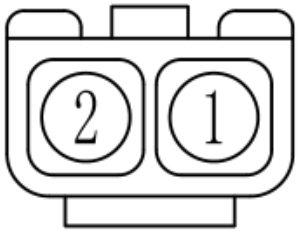
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	3.82 N·m
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	80 mm

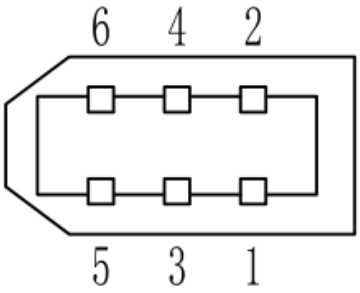
Product Structure & Views

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

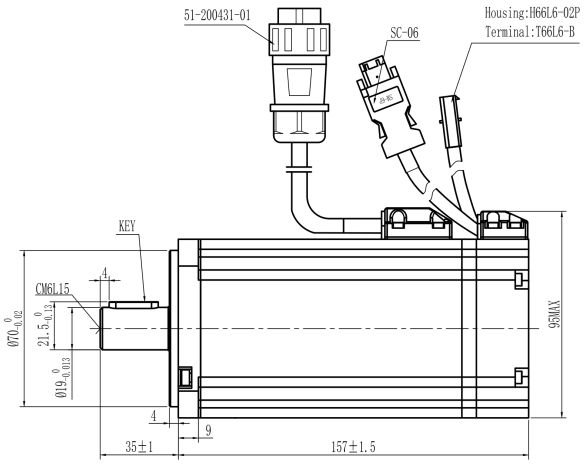


Mechanical View 4

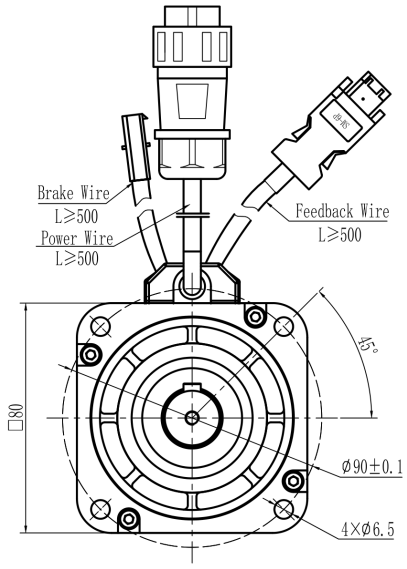
Mechanical View 5



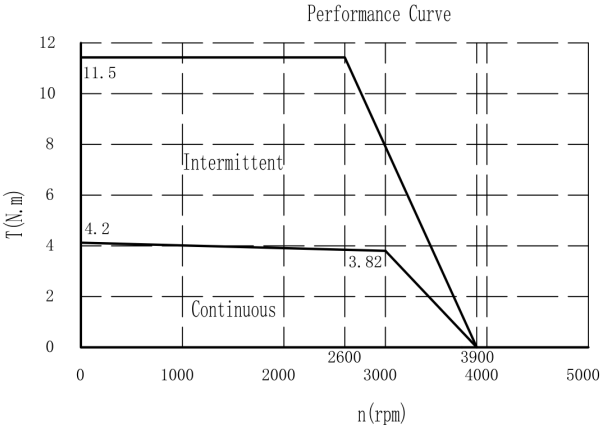
Mechanical View 6



Mechanical View 7



Mechanical View 9



Mechanical View 11

VIEW	FIELD	VALUE
Mechanical View 4	Connector pin identifier 2	Pin 2
	Connector pin identifier 1	Pin 1
Mechanical View 5	Power Wire Connector Pin Layout	4-pin: positions (top-left), (top-right), (bottom-left), (bottom-right) as viewed from mating face
Mechanical View 6	Connector Pin 6	Pin 6
	Connector Pin 4	Pin 4
	Connector Pin 2	Pin 2
	Connector Pin 5	Pin 5
	Connector Pin 3	Pin 3
	Connector Pin 1	Pin 1
Mechanical View 7	Connector Specification	SC-06
	Connector Pin Count	SM-6P (6 pins)
	Keyway Indicator	Keyway present
	Shaft End Diameter with Tolerance	Ø70 h7 (0/-0.02)
	Shaft Shoulder Height with Tolerance	21.5 h11 (0/-0.13)
	Mounting Hole Diameter with Tolerance	Ø19 H7 (0/-0.013)
	Maximum Height	95 max
	Keyway Width	4
	Mounting Edge Distance	9
	Mounting Hole Spacing	35±1
	Overall Length	157±1.5
	Mechanical Dimension	4
Mechanical View 9	Brake wire identification	Brake Wire
	Brake wire minimum length	L≥500
	Power wire identification	Power Wire
	Power wire minimum length	L≥500
	Feedback wire identification	Feedback Wire
	Feedback wire minimum length	L≥500
	Flange mounting bolt circle diameter	Ø90±0.1
	Mounting hole quantity and diameter	4×Ø6.5
	Flange square dimension	□80
	Angular dimension	45°
Mechanical View 11	Performance curve chart title	Performance Curve
	Torque axis label	Torque T in N·m
	Speed axis label	Speed n in rpm
	Peak torque (intermittent duty)	12 N·m

VIEW	FIELD	VALUE
Intermittent duty rated torque	11.5 N·m	
Y-axis scale mark 10 N·m	10 N·m	
Y-axis scale mark 8 N·m	8 N·m	
Y-axis scale mark 6 N·m	6 N·m	
Continuous rated torque	4.2 N·m	
Y-axis scale mark 4 N·m	4 N·m	
Continuous rated speed	3820 rpm (likely misread decimal point placement)	
Y-axis scale mark 2 N·m	2 N·m	
X-axis scale mark 1000 rpm	1000 rpm	
X-axis scale mark 2000 rpm	2000 rpm	
Intermittent rated speed	2600 rpm	
X-axis scale mark 3000 rpm	3000 rpm	
Continuous peak speed	3900 rpm	
X-axis scale mark 4000 rpm	4000 rpm	
X-axis scale mark 5000 rpm	5000 rpm	
Intermittent duty mode label	Intermittent duty operation	
Continuous duty mode label	Continuous duty operation	

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	1.41 / 1.36	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	3.82	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	3.82	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-T3P82NM-1200W-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.