

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A03-130G-T15P2NM-2400W-004	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

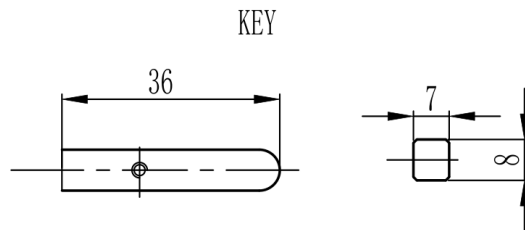
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

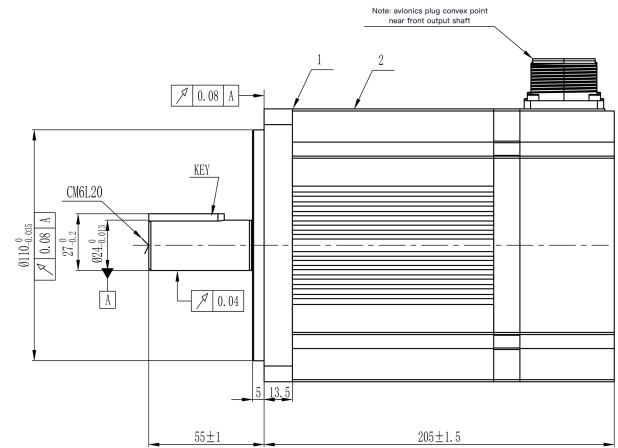
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	15.2 Nm
Rated Speed	1500 rpm
Rated Voltage	220 VAC
Flange Size	130 mm

Product Structure & Views

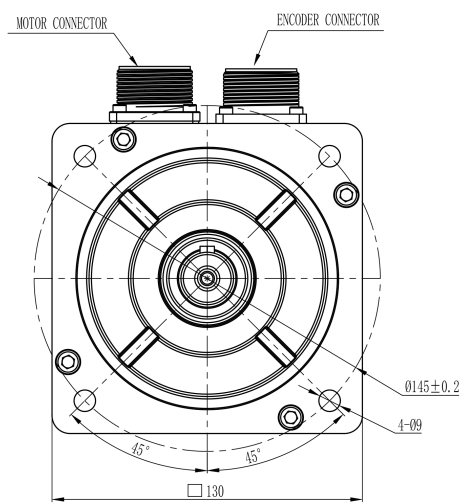
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



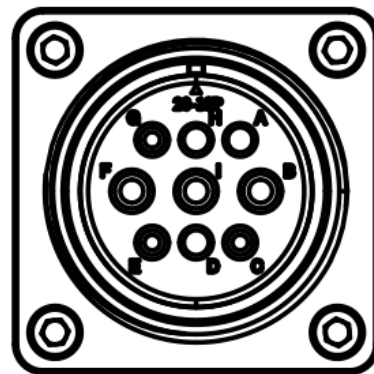
Mechanical View 1



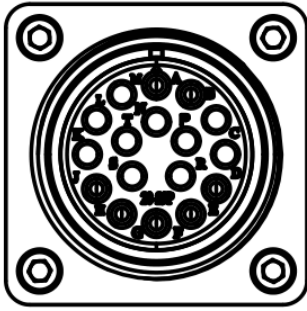
Mechanical View 2



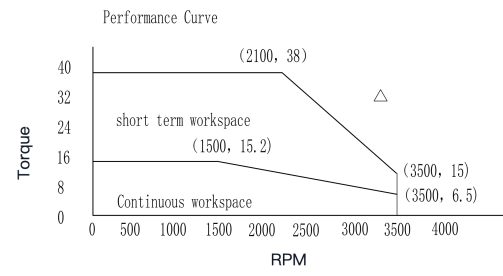
Mechanical View 3



Mechanical View 5



Mechanical View 7



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 1	Keyway length	36
	Keyway width	7
	Keyway depth	8
	Keyway designation	KEY
Mechanical View 2	Installation note	Note: avionics plug convex point near front output shaft
	Part reference number 1	1
	Part reference number 2	2
	Circular runout tolerance, front face region	Circular runout 0.08 mm, datum A
	Keyway label	Keyway
	Datum A	Datum A
	Front output shaft diameter with tolerance	Ø10 +0.035/-0 mm
	Circular runout tolerance, bore fit region	Circular runout 0.08 mm, datum A
	Shaft segment axial length	27 0/-0.2 mm
	Shaft journal diameter with tolerance	Ø24 0/-0.013 mm
	Datum reference A in tolerance frame	Datum A
	Position or coaxiality tolerance	0.04 mm (datum A)
	Front shaft section length	55 ±1 mm
	Rear body section length	205 ±1.5 mm
	End step dimensions	5 and 13.5
Mechanical View 3	Encoder connector label	ENCODER CONNECTOR
	Motor connector label	MOTOR CONNECTOR
	Mounting bolt circle diameter	Ø145±0.2
	Mounting hole count and diameter	4-Ø9
	Mounting hole angular position 1	45°
	Mounting hole angular position 2	45°
	Motor housing side length	130
Mechanical View 5	Connector Contact Letter Designation	A, B, C, D, ...
Mechanical View 7	Connector Contact Letter Designation	A, B, C, D, ...
Mechanical View 10	Short-term operating zone maximum torque point	2100 rpm, 38 Nm
	Transition point between short-term and continuous operating zones	1500 rpm, 15.2 Nm
	Continuous operating zone maximum speed point (upper limit)	3500 rpm, 15 Nm
	Continuous operating zone maximum speed point (lower limit)	3500 rpm, 6.5 Nm
	Torque Scale	0-40 Nm
	Motor Speed Scale	0-4000 rpm

VIEW	FIELD	VALUE
Performance Curve Title	Performance Curve	
Short-term duty zone	Short-term duty zone (14.31 Nm, 0-2500 rpm)	
Continuous operating zone label	Continuous operating zone	
Y-axis label: Torque	Torque in Newton-meters	
X-axis label	RPM	

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	130	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	31.67 ()	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	23-bit multi-turn communication optical 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	15.2	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	23-bit multi-turn communication optical 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	1500	rpm
Rated Torque	15.2	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-A03-130G-T15P2NM-2400W-004 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.