

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A01-130D-T4P78NM-1000W-003	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

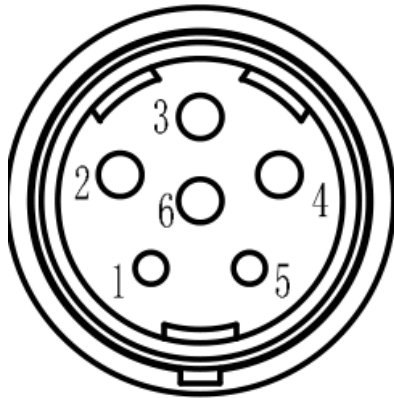
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

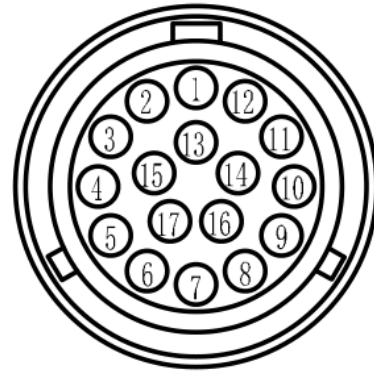
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	4.78 N·m
Rated Speed	2000 rpm
Flange Size	130 mm

Product Structure & Views

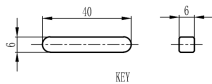
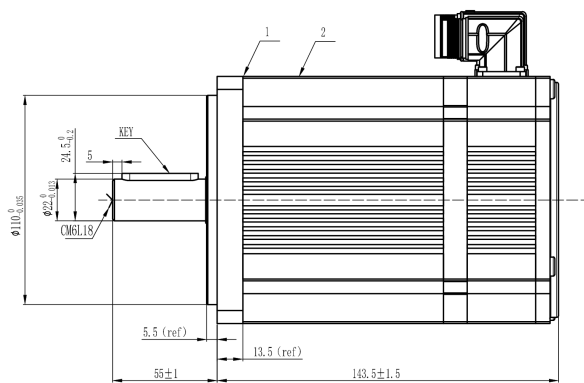
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



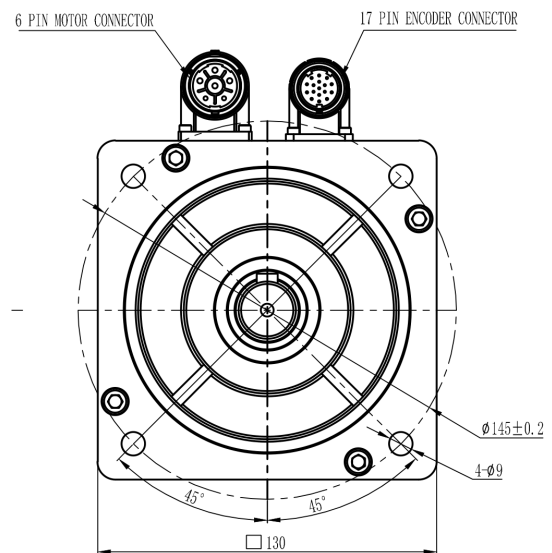
Mechanical View 4



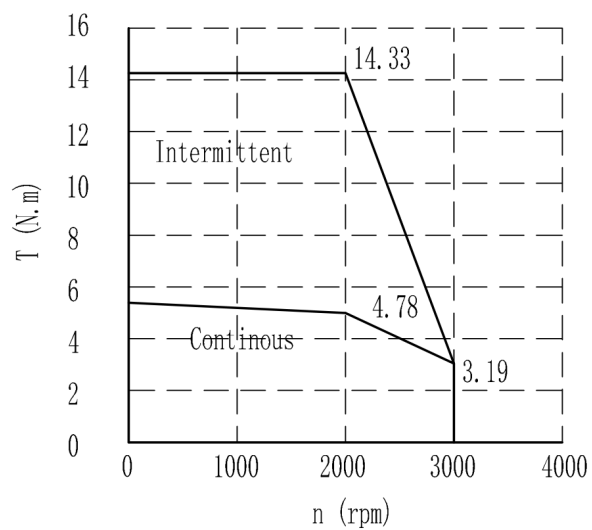
Mechanical View 5



Mechanical View 6



Mechanical View 7



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 4	Pin number 1	Pin 1
	Pin number 2	Pin 2
	Pin number 3	Pin 3
	Pin number 4	Pin 4
	Pin number 5	Pin 5
	Pin number 6	Pin 6
Mechanical View 5	Feedback connector pin number labels	Connector face pin labels recognized: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,11 12, 13, 14, 15, 16, 17
Mechanical View 6	Key length	Key length 40 mm
	Key width	Key width 6 mm
	Key height or thickness	Key height/thickness 6 mm
	Item callout 1	Item callout 1
	Item callout 2	Item callout 2
	Shaft key label	Key feature identified on shaft
	Shaft step or vertical height dimension	24.5 mm, +0/-0.2 mm
	Keyway end distance	Keyway end distance 5 mm
	Shaft diameter	Shaft diameter $\varnothing 2$ mm, +0/-0.013 mm
	Outer diameter or envelope height	Outer diameter/envelope $\varnothing 10$ mm, +0/-0.035 mm
	End threaded hole or thread length callout	CM6L18 thread/hole callout
	Reference clearance or offset	5.5 mm reference
	Reference mounting offset or shoulder length	13.5 mm reference
	Shaft extension length	Shaft extension length 55 mm ± 1 mm
	Motor body length	Motor body length 143.5 mm ± 1.5 mm
Mechanical View 7	Motor connector	6-pin motor connector
	Encoder connector	17-pin encoder connector
	Mounting hole pitch circle diameter	Pitch circle diameter 145 ± 0.2 mm
	Mounting hole quantity and diameter	4 holes, diameter 9 mm
	Left mounting hole angular position	45 degrees
	Right mounting hole angular position	45 degrees
	Square flange outside dimension	Square flange 130 mm
Mechanical View 9	Torque axis label	Torque T in N.m
	Speed axis label	Rotational speed n in rpm
	Torque scale tick values	Torque scale: 0 to 16 N.m, tick interval 2 N.m
	Speed scale tick values	Speed scale: 0 to 4000 rpm, tick interval 1000 rpm
	Intermittent operation curve label	Intermittent operating region/curve
	Continuous operation curve label	Continuous operating region/curve

VIEW	FIELD	VALUE
Intermittent curve torque callout	14.33 N.m	
Continuous curve torque callout	4.78 N.m	
High-speed end torque callout	3.19 N.m	

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	10.6	kgcm 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
Position Feedback Device	17-bit multi-turn communication magnetic 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	4.78	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	17-bit multi-turn communication magnetic 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	2000	rpm
Rated Torque	4.78	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-A01-130D-T4P78NM-1000W-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.