

ENGINEERING DOCUMENTATION

Coreless Brushed DC Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-CM-BR01-M001	DRAFT-08 / 28 Aug 2026	Engineering Integration Reference

Integration Overview

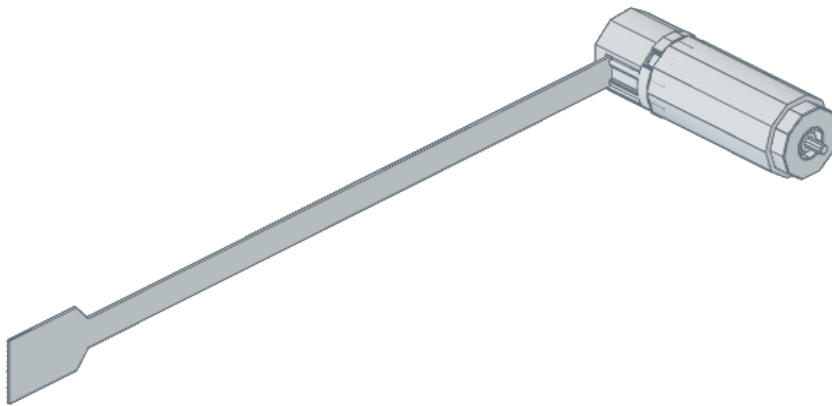
Compact electric motor for specified rotary actuation. This guide supports mounting, shaft, load-path, drive, thermal, cable and commissioning planning for ES-CM-BR01-M001.

Key Integration Facts

INTEGRATION ITEM	VALUE
Rated Torque	0.6 mNm
Instantaneous Maximum Torque	1.17 mNm
Speed Constant	11400 rpm/mNm
Loaded Speed	6300 rpm
Torque Constant	8.83 mNm/A
Instantaneous Maximum Current	0.13 A
Motor Speed Constant per Volt	1120 rpm/V
Continuous Rated Current	0.08 A

3D Orientation Reference

This axonometric reference provides a quick orientation check for the motor or actuator body, output interface and mounting relationship of ES-CM-BR01-M001.



Axonometric Orientation View

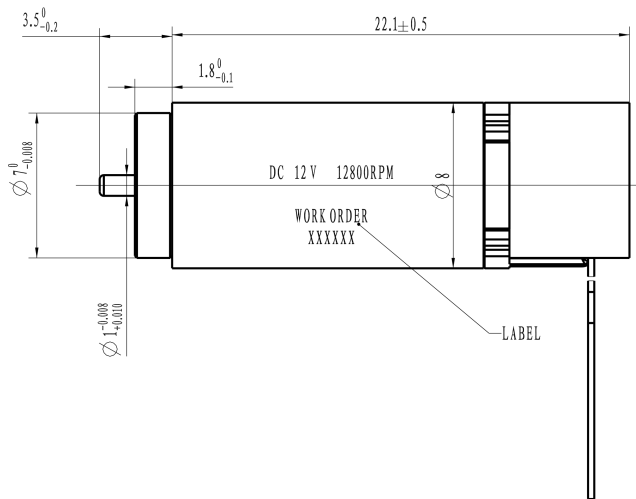
Orientation reference only. Use the exact-SKU parameter table and mechanical drawing for dimensions, hole geometry, fits and machining decisions.

Exact-SKU Interface Cross-Reference

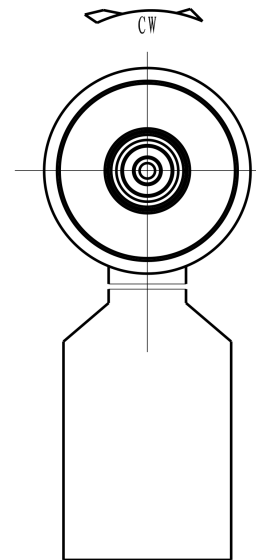
INTEGRATION TOPIC	EXACT-SKU REFERENCE
Motor envelope and output orientation	Confirm this interface or boundary from the exact-SKU parameter table and mechanical drawing.
Drive and motion boundaries	Rated Voltage: 12 V; Continuous Rated Current: 0.08 A; Rated Torque: 0.6 mNm. Confirm interface geometry, fits and installation details in the exact-SKU mechanical drawing.
Installed load and thermal reference	Rotor Inertia: 0.043 gcm ² . Confirm interface geometry, fits and installation details in the exact-SKU mechanical drawing.

Product Structure & Views

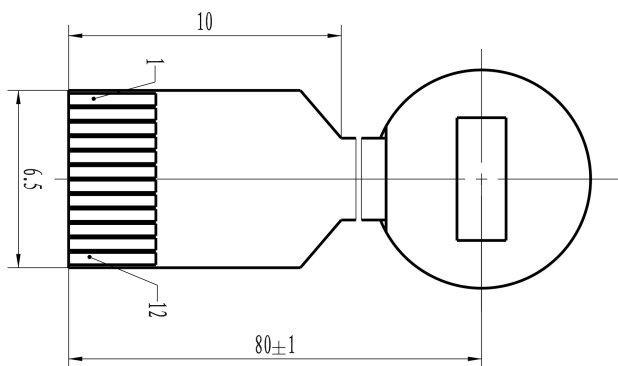
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



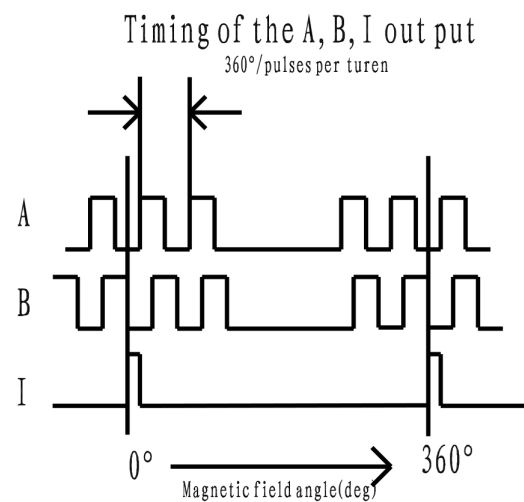
Mechanical View 1



Mechanical View 2

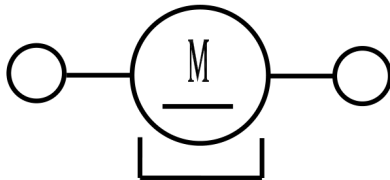


Mechanical View 3



Mechanical View 5

WIRING CHART



Mechanical View 8

VIEW	FIELD	VALUE
Mechanical View 1	Left shaft section length	3.5 ±.2mm
	Motor overall length	22.1±0.5 mm
	Left shaft flat depth	1.8 ±.2mm
	Left shaft diameter	Ø7 ±.003mm
	Bottom shaft diameter	Ø1 -0.008/+0.010 mm
	Right shaft diameter	Ø8 mm
Mechanical View 3	Rotation Direction	Clockwise (CW)
Mechanical View 5	Shaft length	10 mm
	Shaft diameter	6.5 mm
	Keyway depth	12 mm
	Overall length	80±1 mm

Technical Specifications

PARAMETER	VALUE	UNIT
Rated Torque	0.6	mNm
Instantaneous Maximum Torque	1.17	
Speed Constant	11400	rpm/mNm
Loaded Speed	6300	rpm
Torque Constant	8.83	mNm/A
Instantaneous Maximum Current	0.13	A
Motor Speed Constant per Volt	1120	rpm/V
Continuous Rated Current	0.08	A
Line-to-line resistance	78.4	Ω
No-load Current	0.006	A
Rated Voltage	12	V
Mechanical Time Constant	4.32	ms
Rotor Inertia	0.043	gcm ²
Motor length	24	mm
Housing-to-Ambient Thermal Resistance	115	K/W
Maximum Winding Temperature	155	°C

Technical Specifications - Continued

PARAMETER	VALUE	UNIT
Motor diameter	8	mm

Mounting, Shaft and Load Path

- Support the complete mounting face, preserve locating features and verify fastener engagement without distorting the housing.
- Align the shaft and coupling before tightening, and validate radial load, axial load, overhung distance, belt tension, inertia and shock for the installed mechanism.

Drive, Electrical and Motion Integration

- Coordinate supply, drive current limit, speed, torque and fault protection with the actual load and duty cycle.
- Use applicable wiring data for conductor identity, polarity, phase pairing, shielding and grounding; do not infer these from the product view.

Thermal, Cable and Commissioning Conditions

- Validate housing and winding temperature over the intended operating cycle, ambient condition, mounting heat path and enclosure airflow.
- Provide strain relief and service clearance, then commission at reduced energy and verify direction, current limits, motion response, temperature and fault behavior.

Integration Checklist

- | | |
|----|---|
| 01 | Confirm the exact-SKU drawing and parameter set. |
| 02 | Verify mounting geometry, locating features, shaft engagement, coupling alignment and service clearance. |
| 03 | Validate torque, speed, inertia, radial and axial loads, overhung distance and shock. |
| 04 | Set drive, current, motion, wiring, grounding and thermal boundaries from applicable product documentation. |
| 05 | Commission at reduced energy and verify direction, motion response, temperature and fault behavior. |

[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-CM-BR01-M001 and is intended for dimensional evaluation and preliminary integration. It is not a applicable manufacturing drawing, motor or actuator application approval, wiring definition, drive-selection approval, machinery risk assessment, safety validation or production authorization. Before design freeze, installation or energization, verify all dimensions, mounting and locating features, moving envelopes, shaft or output geometry, permissible loads, alignment, supply and current limits, wiring, motion profile, duty cycle, thermal condition, cable routing, environmental boundaries, maintenance and fault response against the applicable EmbodyStack engineering data for this exact SKU. Validate the complete installed system under intended operating and fault conditions.