ENGINEERING DOCUMENTATION

Multi-Axis Motion Controller

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-MC-01-M001	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

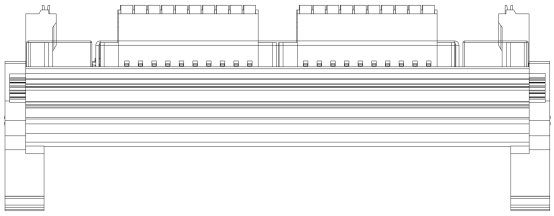
Multi-axis real-time motion controller for coordinated machine control. This guide supports cabinet mounting, power, fieldbus and I/O integration, network timing, grounding, thermal management and specified commissioning.

Key Integration Facts

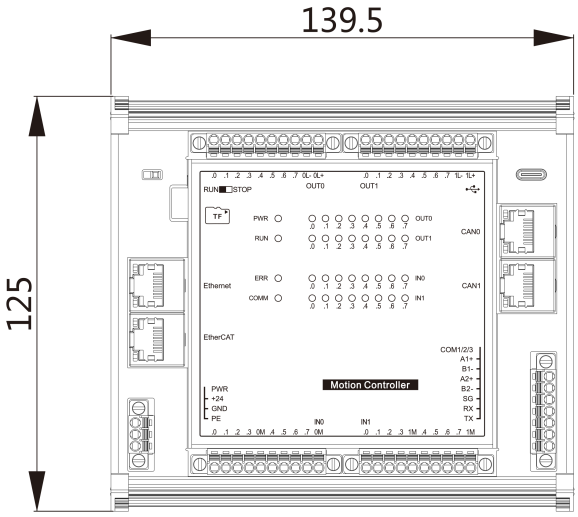
INTEGRATION ITEM	PUBLISHED VALUE
Communication Protocol	EtherCAT; CoE; CANopen; Modbus RTU; TCP; UDP

Product Structure & Views

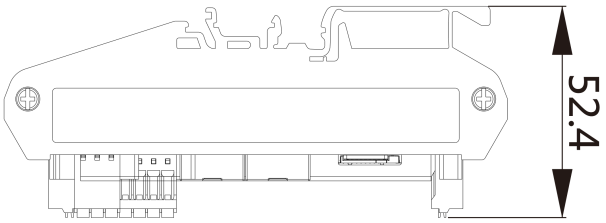
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



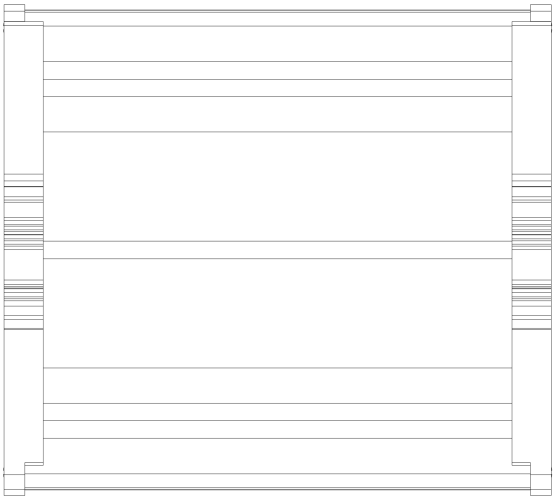
Mechanical View 1



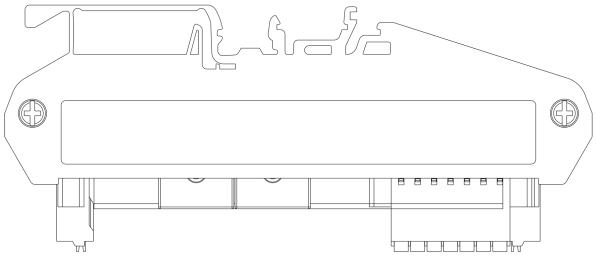
Mechanical View 2



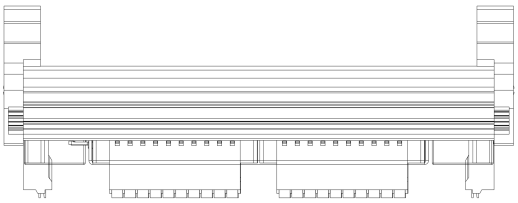
Mechanical View 3



Mechanical View 4



Mechanical View 5



Mechanical View 6

VIEW	FIELD	VALUE
Mechanical View 2	Overall Width	139.5 mm
	Overall Height	125 mm
Mechanical View 3	Side view height	52.4 mm

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Weight	0.18	kg

- Confirm mounting points, enclosure dimensions, connector access and service clearance against the applicable exact-SKU drawing.
- Mount on a rigid cabinet structure and preserve airflow and cable-bend space.

Power, Grounding and Protection

- Provide qualified supply, disconnection, overcurrent protection and grounding for normal and fault conditions.
- Keep protective earth, functional earth and cable shields consistent with the complete control-system architecture.

Motion Network and Fieldbus Integration

PARAMETER	PUBLISHED VALUE	UNIT
Communication Protocol	EtherCAT; CoE; CANopen; Modbus RTU; TCP; UDP	

- Validate network topology, cycle time, synchronization, node addressing and recovery with the selected drives and I/O.
- Use only specified protocol, firmware and device-description versions for the selected system.

I/O and Signal Integration

- Use the applicable connector and pin definitions for every interface.
- Separate safety-related, timing-sensitive, analog and high-current wiring according to the system design.

Thermal, Environmental and Service Conditions

- Validate enclosure temperature, airflow, contamination and condensation under maximum processing and I/O load.
- Preserve service access for storage media, connectors, indicators and replacement.

Software Commissioning and Fault Response

PARAMETER	PUBLISHED VALUE	UNIT
Communication Protocol	EtherCAT; CoE; CANopen; Modbus RTU; TCP; UDP	

- Commission with motion power specified, verify axis mapping, directions, limits and state transitions before enabling coordinated motion.
- Validate startup, communication loss, watchdog, emergency stop and recovery behavior as part of the machine safety lifecycle.

Integration Checklist

01	Confirm the exact SKU, 2D drawing and applicable interface data.
02	Verify cabinet mounting, airflow, connector access and replacement space.
03	Validate supply, protection, grounding and shielding.
04	Confirm motion-network topology, synchronization, cycle time and node mapping.
05	Verify I/O, fieldbus, firmware and device-description compatibility.
06	Commission axes individually before coordinated motion.
07	Validate fault detection, stop, restart and recovery 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-MC-01-M001 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.