Stepper Controller
Automation1 SI4

Complete Your Machine Control

Build flexibility into your motion system with the Automation1 SI4, our 2- or 4-axis stepper controller that easily interfaces with any device that can receive clock and direction signals – most commonly standard stepper drives. With the SI4, you can integrate any existing third-party device or stepper motor while maintaining all the benefits of the Automation1 precision motion control platform.

Automation1

The SI4 is a part of the user-friendly Automation1 motion control platform, which includes the following:

- **Development Software**
- **Controls**
- **Motor Drives**
- **Fiber-Optic HyperWire® Communication Bus**

KEY FEATURES:

- Supports **SINGLE CONNECTOR** axis interface including clock & direction output, encoder feedback, 2x EOT limit inputs, marker input, amplifier enable & fault, plus optional absolute encoder support
- Features **NEW CLOSED-LOOP STEPPER** control (pending)
- Features one **CLOCK OUTPUT** (up to 25 MHz) & direction output per axis
- Includes **ONE-AXIS PSO** standard with multi-axis options
- Includes with **8/8 DIGITAL I/O** (optically isolated), 1x highspeed input & a dedicated PSO output

AUTOMATION1 SI4 SPECIFICATIONS

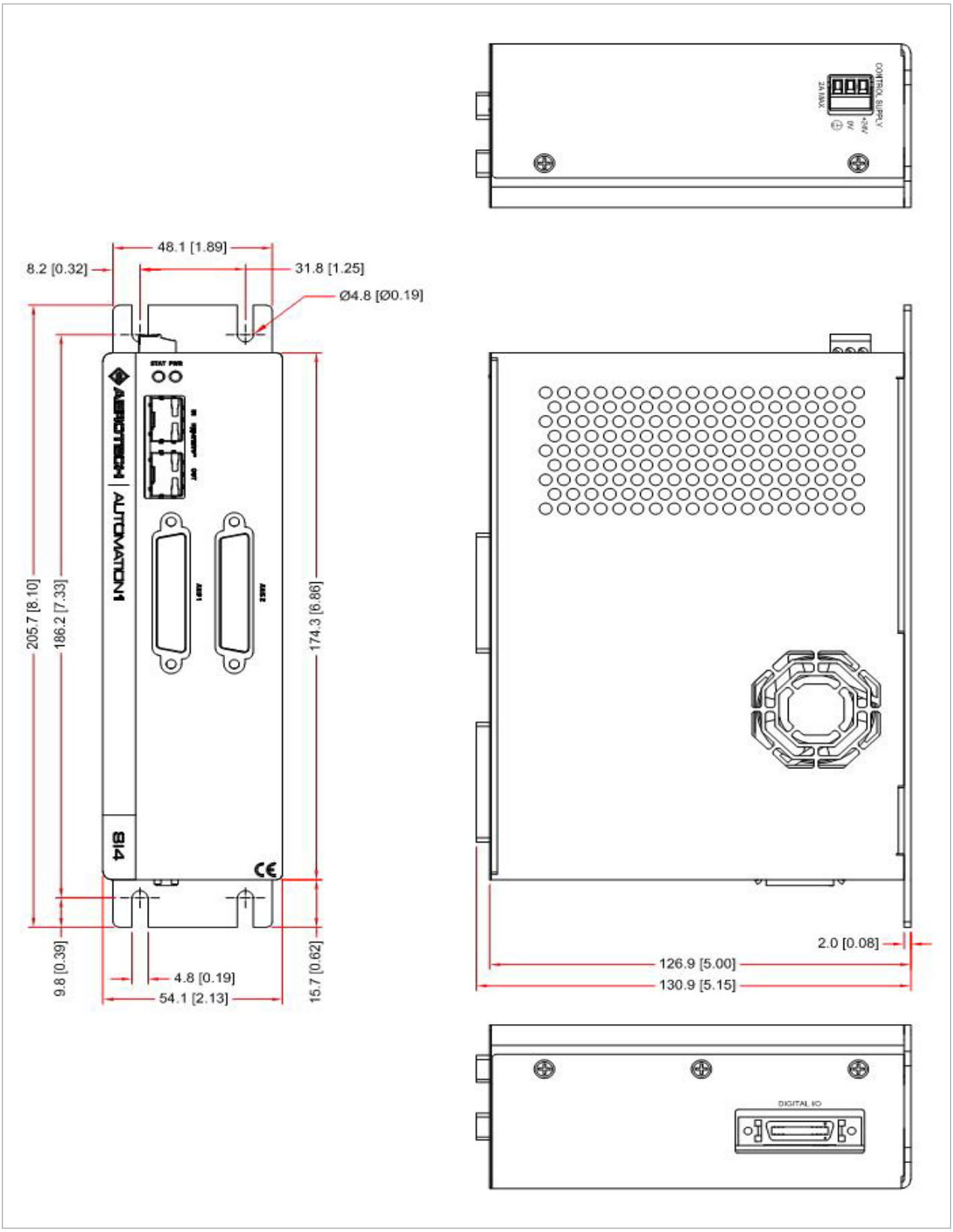
CATEGORY	SPECIFICATION
HyperWire Communication	2x HyperWire small form-factor pluggable (SFP) ports
Control Output	Supports two or four axes of stepper clock & direction control
Control Supply	Voltage: 24 VDC Current, 2 Axis Unit: 2 A max, 0.45 A typical Current, 4 Axis Unit 2 A max, 0.6 A typical
User Power Supply Output	5 VDC
Modes of Operation	Open loop Closed loop (Pending)
Protective Features	Output short circuit Control power supply undervoltage
Position Synchronized Output (PSO)	Standard: One-axis PSO (includes one-axis part-speed PSO) Optional: Two-axis PSO (includes two-axis part-speed PSO) Three-axis PSO (includes three-axis part-speed PSO) Three-axis part-speed PSO only
25-Pin Axis Connector	Stepper clock & direction output High-speed differential inputs (encoder sin, cos & marker) Absolute encoder interface (support optional) CW & CCW limits 5 VDC power supply Amplifier enable & fault
Digital I/O Connector	8x optically isolated digital inputs (externally powered, 5-24 VDC) 8x optically isolated digital outputs (externally powered, 5-24 VDC) 1x optically isolated high-speed inputs 1x PSO TTL output 1x 5 VDC power supply
Drive Array Memory	16.7 MB (4,194,304 32-bit elements)
High Speed Data Capture	Yes (50 ns latency)
Automatic Brake Control	Assignable digital output
E-Stop Sense Input	Assignable digital input
Absolute Encoder (Optional)	BiSS C Unidirectional; EnDat 2.1; EnDat 2.2
Position Command Update Rate	20 kHz
Operating Temperature	0 to 40 °C
Storage Temperature	-30 to 85 °C
Weight	0.59 kg (1.30 lb)
Compliance	CE approved; follows EU 2015/863 RoHS 3 directive

AUTOMATION1 SI4 ORDERING OPTIONS

Configuration	
2P1	2 Axes of Control, Standard Packaging
2P2	2 Axes of Control, OEM Packaging
4P1	4 Axes of Control, Standard Packaging
4P2	4 Axes of Control, OEM Packaging
Absolute Encoder	
A0	No Absolute Encoder Support (default)
A1	Absolute Encoder Support
PSO	
PSO1	One-axis PSO (includes one-axis part-speed PSO) (default)
PSO2	Two-axis PSO (includes two-axis part-speed PSO)
PSO3	Three-axis PSO (includes three-axis part-speed PSO)
PSO6	Three-axis part-speed PSO

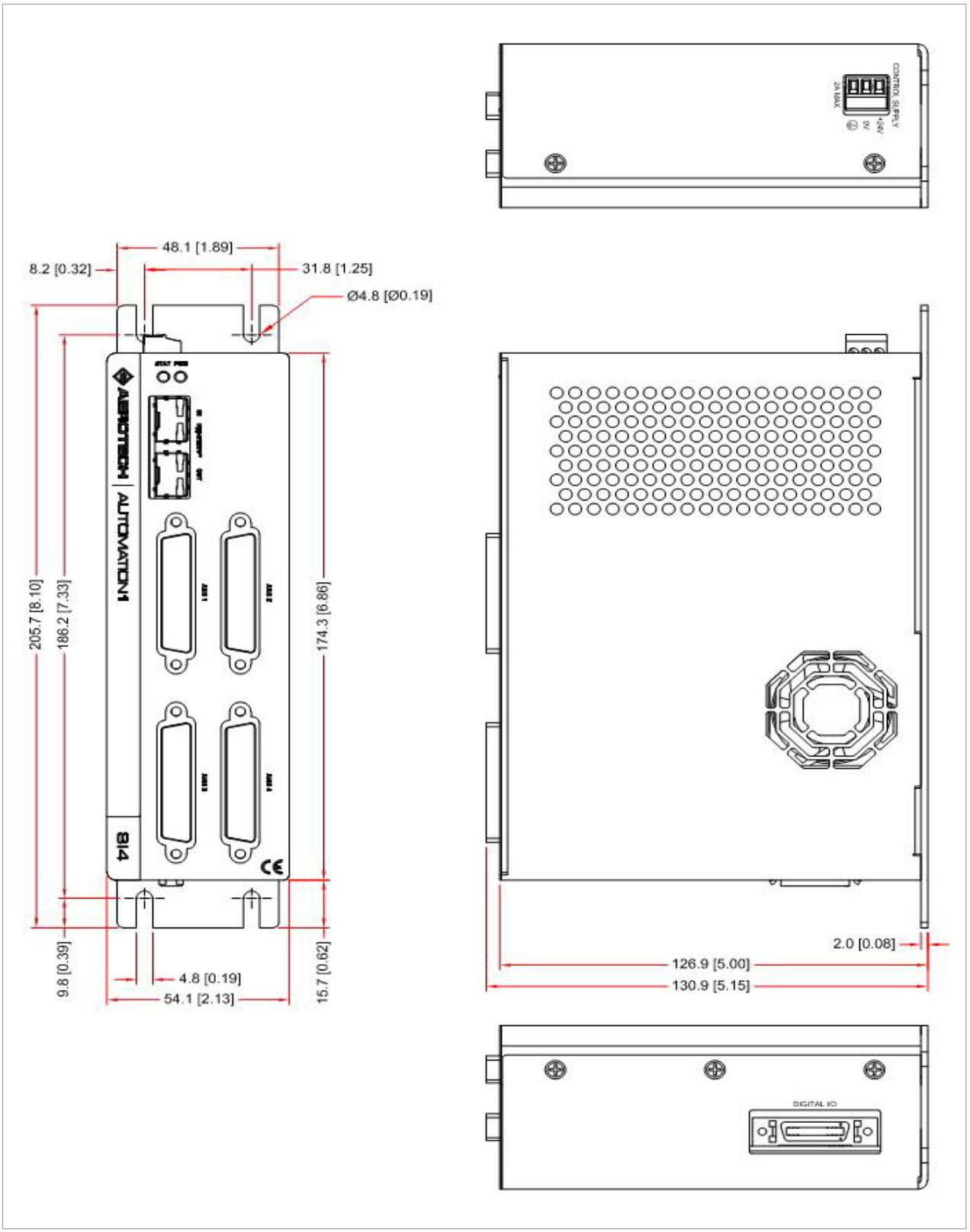
AUTOMATION1 SI4 DIMENSIONS

AUTOMATION1-SI4-2P1



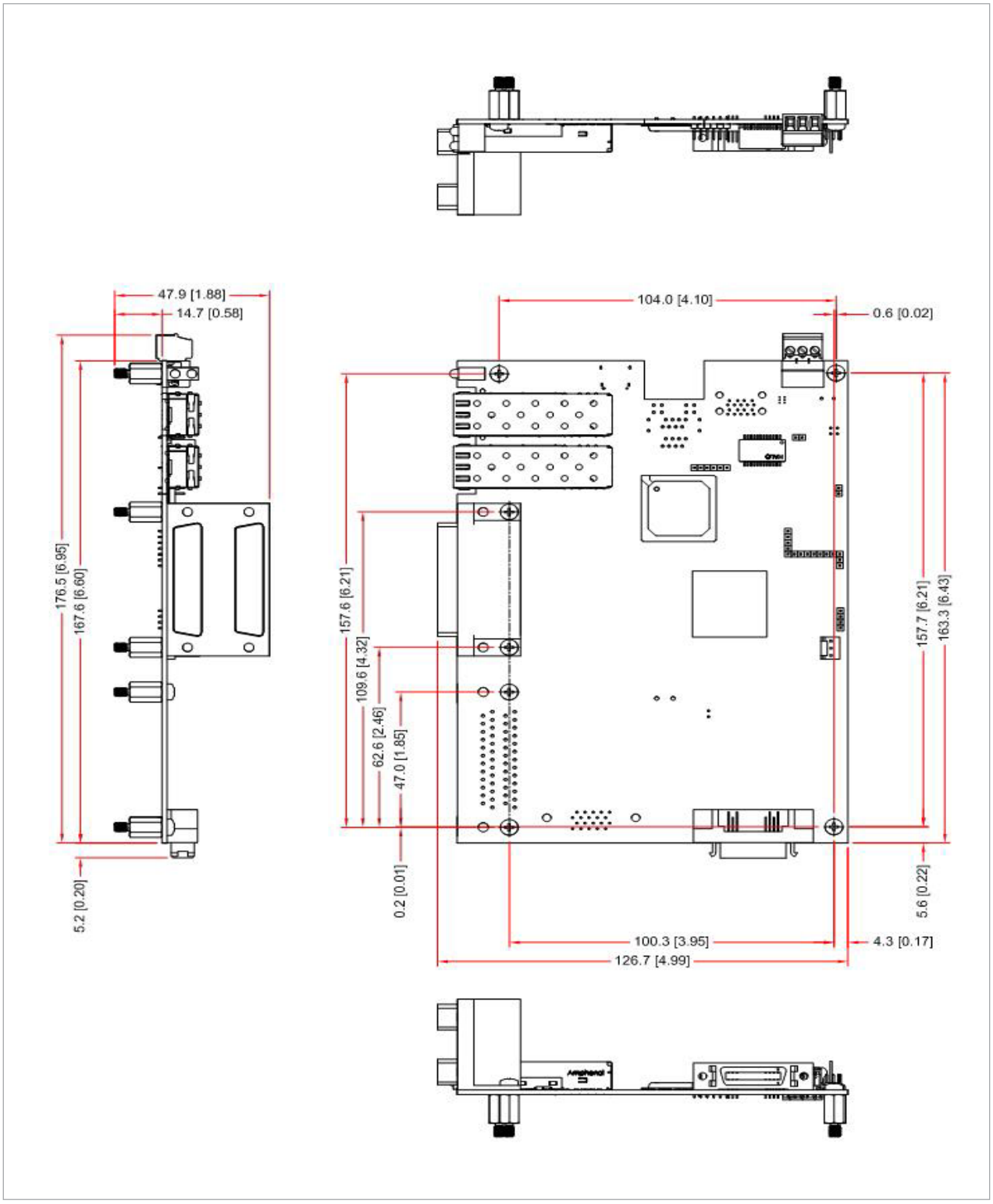
AUTOMATION1 SI4 DIMENSIONS

AUTOMATION1-SI4-4P1



AUTOMATION1 SI4 DIMENSIONS

AUTOMATION1-SI4-2P2



AUTOMATION1 SI4 DIMENSIONS

AUTOMATION1-SI4-4P2