AEROTECH AUTOMATION1

Servo Controller
Automation1 XI4

Control Any Amplifier

The Automation1 XI4 servo controller brings precision Automation1 servo control to any analog transconductance amplifier. Each XI4 axis of control generates an analog voltage command -- required by analog amplifiers to control the output current to a servo motor -- and receives encoder and axis feedback signals. The XI4 comes in both 2- and 4- axis configurations, each with an independent 20 kHz servo control loop. For added flexibility, each axis on the XI4 can be configured to output clock and direction control signals.

Automation1

The XI4 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 analog control output, encoder feedback, 2x EOT limit inputs, marker input, amplifier enable & fault, plus optional absolute encoder support
- Features up to 4 axes of 20 kHz **CLOSED-LOOP SERVO** control
- Features one **ANALOG CURRENT COMMAND** per axis
- Includes **ONE-AXIS PSO** standard with multi-axis options
- Include **8/8 DIGITAL I/O** (optically isolated), 1x high speed input & dedicated PSO output

CATEGORY	SPECIFICATION
HyperWire Communication	2x HyperWire small form-factor pluggable (SFP) ports
Control Output[1]	Supports two or four axes of stepper current command (±10 V) or 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
Protective Features	Output short circuit Control power supply undervoltage
	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	Servo current commands / 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
Multiplier Options	MX0 Option: Primary Encoder: 40 million counts-per-second square-wave input Auxiliary Encoder: 40 million counts-per-second square-wave input MX1 Option: Primary Encoder: 450 kHz sine-wave input, encoder multiplier up to x4,096* Auxiliary Encoder: 40 million counts per second square-wave input *Encoders multiplied with this input cannot be echoed out
Analog I/O	4x 16-bit differential, ±10 V analog input 4x 16-bit single-ended, ±10 V analog output
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	67.1 MB (16,777,216 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

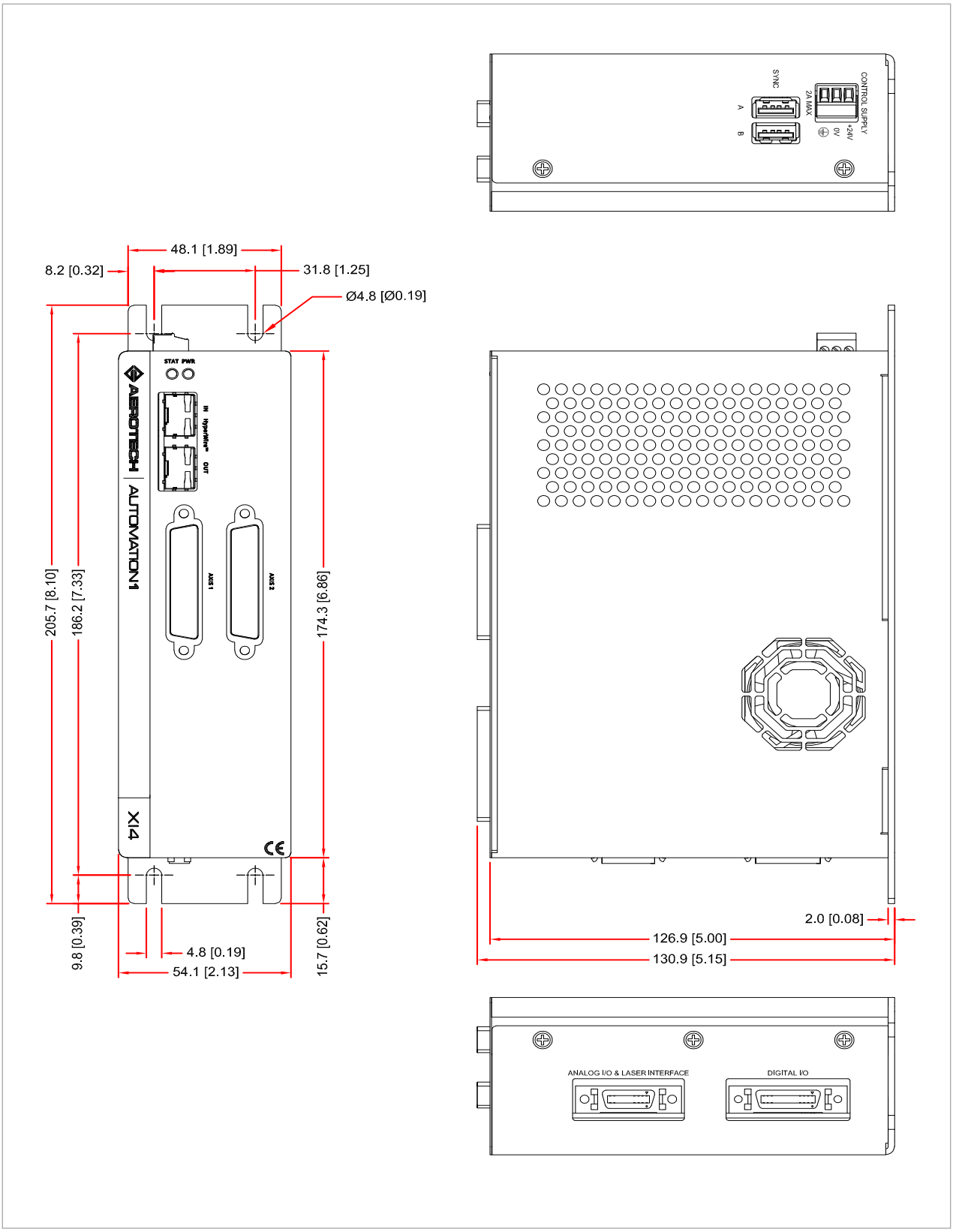
1. Single or two-phase current command output signals are available.

AUTOMATION1 XI4 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
Multiplier	
-MX0	No Encoder Multiplier (default)
-MX1	x4096 Multiplier (Primary), No Multiplier (Auxiliary)
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

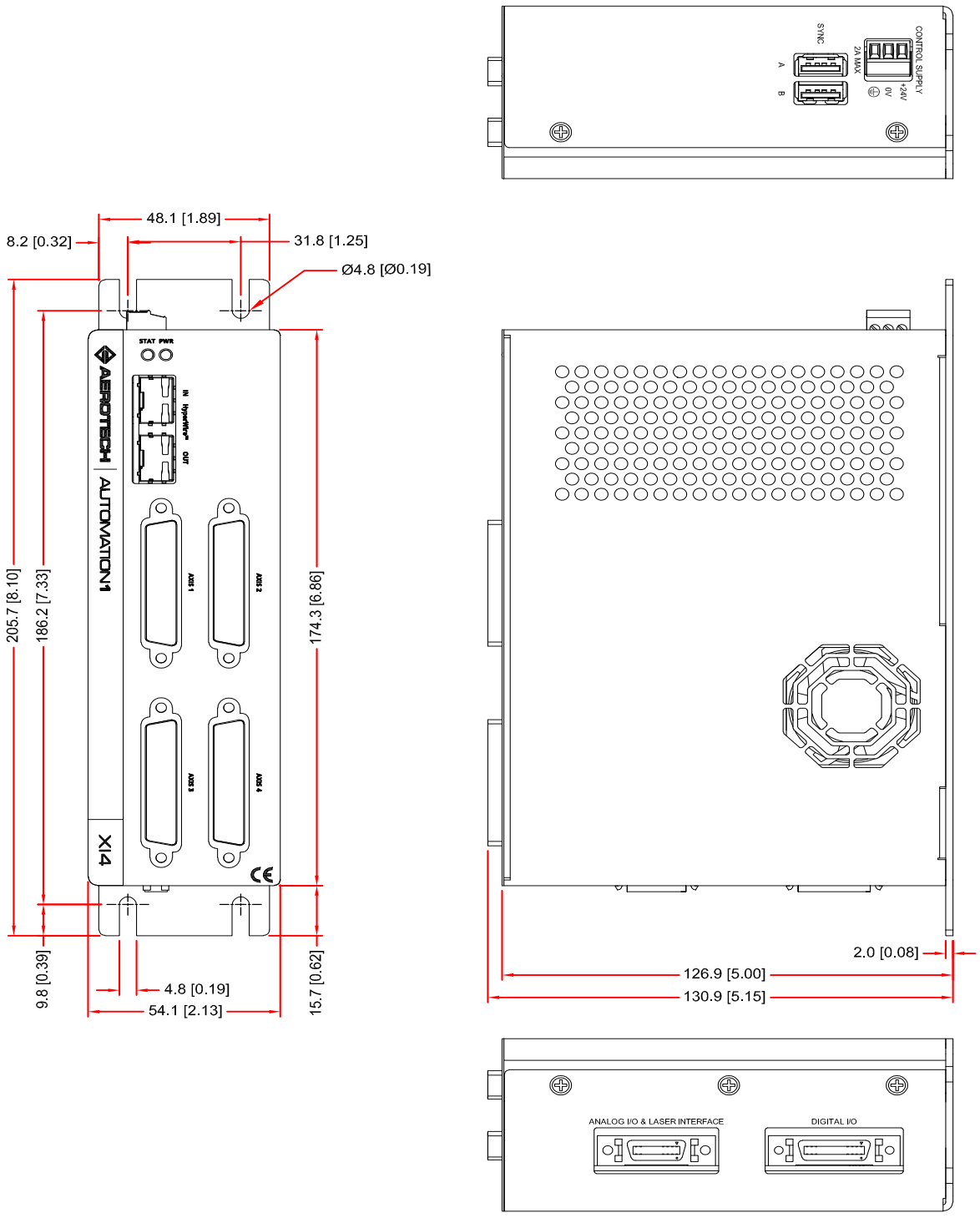
AUTOMATION1 XI4 DIMENSIONS

AUTOMATION1-XI4-2P1



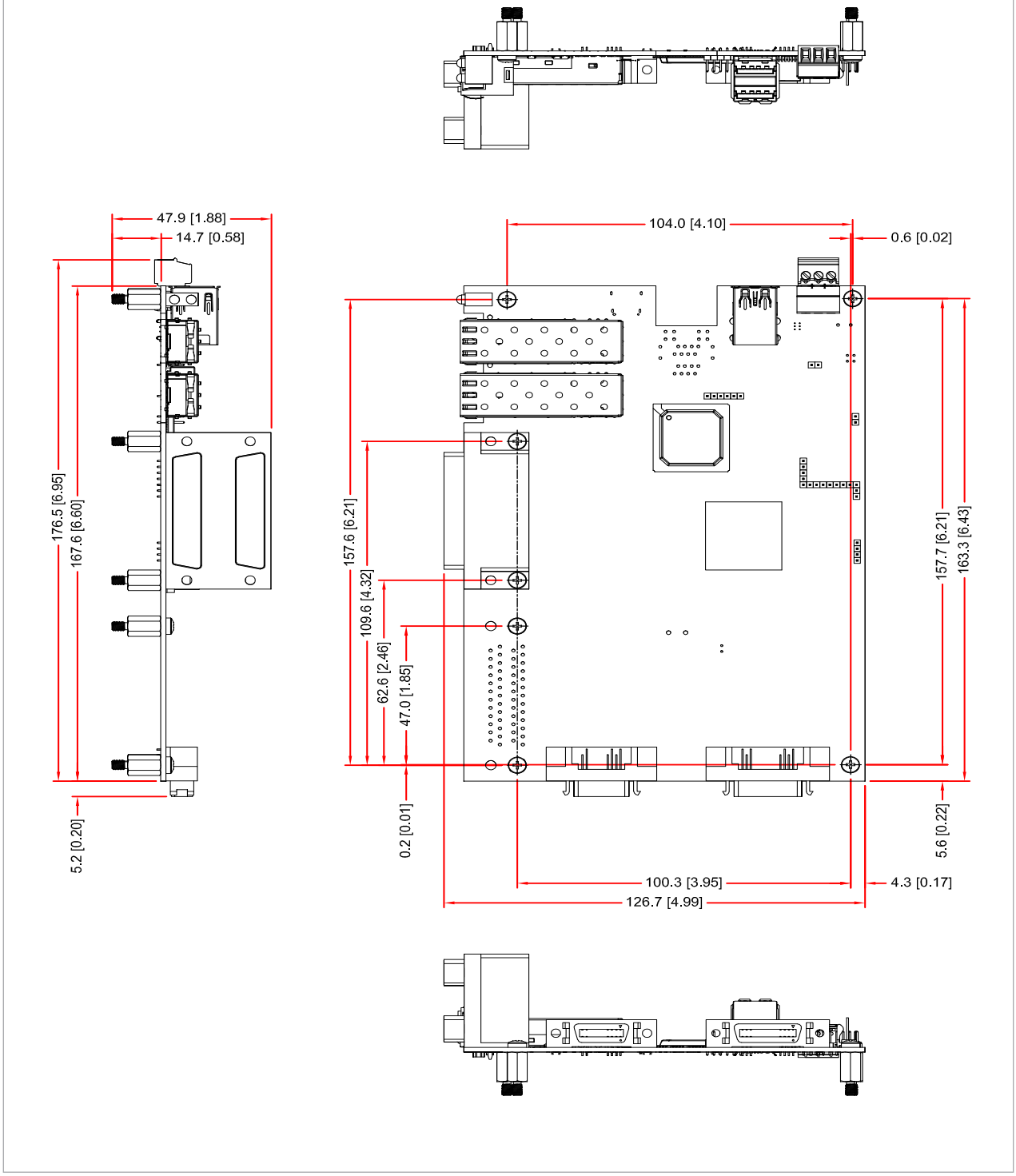
AUTOMATION1 XI4 DIMENSIONS

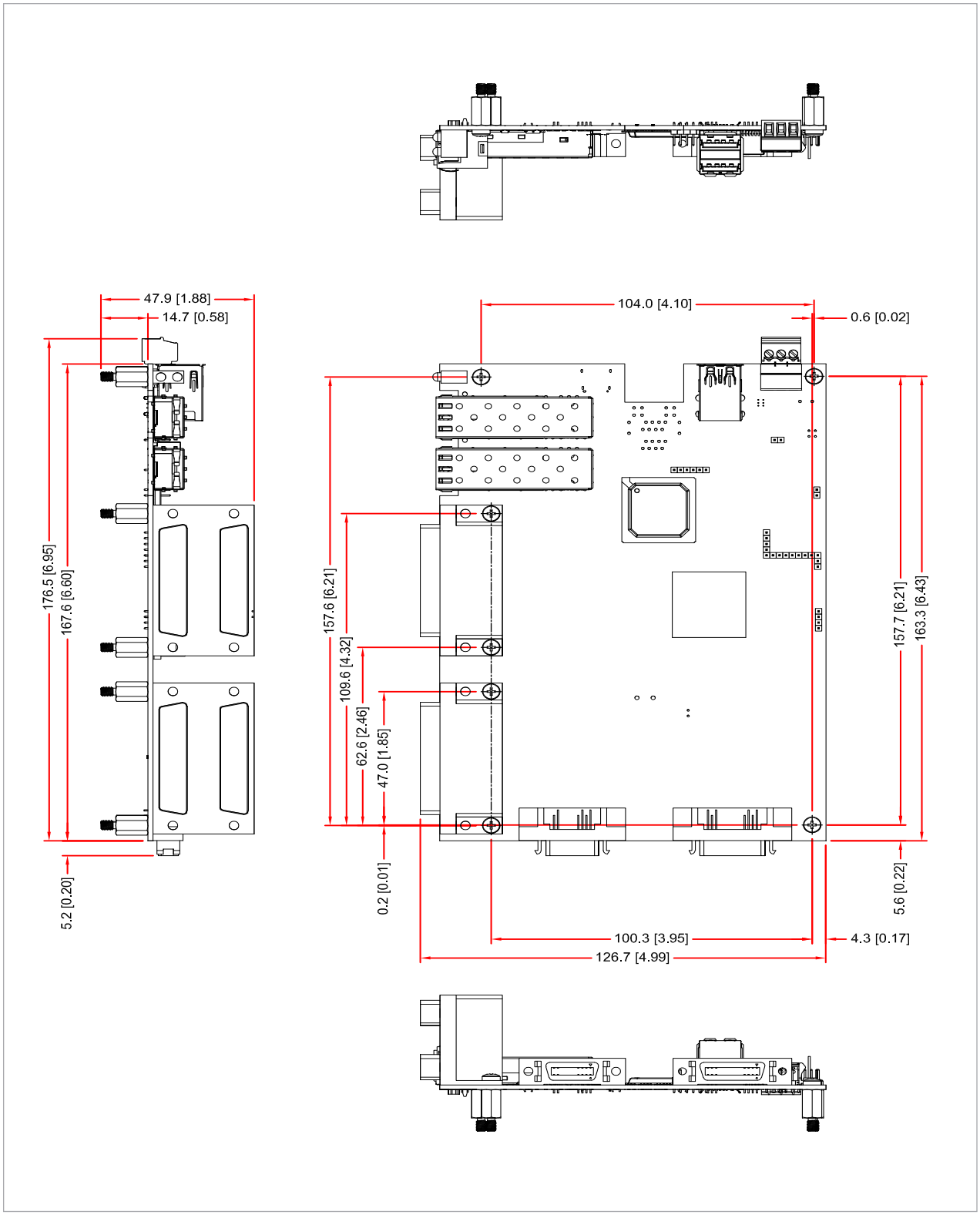
AUTOMATION1-XI4-4P1



AUTOMATION1 XI4 DIMENSIONS

AUTOMATION1-XI4-2P2



AUTOMATION1 XI4 DIMENSIONS

AUTOMATION1-XI4-4P2