1- 2- or 4-Axis PWM Servo Drive

Automation1 XA4

Unlock the Power of Precision

Add precision motion control to your industrial and research systems with the XA4 1-, 2- or 4-Axis PWM Servo Drive. These streamlined drives enable machine builders to experience Automation1 precision on all of their systems. The XA4 makes the power of the Automation1 motion control platform more accessible than ever, so you can build solutions your customers trust.

The simplified multi-axis XA4 brings precise, powerful control to multiple axes of motion in a smaller machine footprint. Built on the user-friendly Automation1 motion control technology, the XA4 unlocks faster build times and improved quality and throughput. It communicates to Automation1 PC- and drive-based controller products over the HyperWire® motion bus, supports multiple feedback device types and includes on-board memory.

Automation1

The XA4 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:

- Available in **1-, 2- & 4-AXIS** configurations
- **COST-EFFECTIVE**, high-performance design
- **AC & DC** motor supply options
- Compact design **MINIMIZES PANEL SPACE** for multi-axis systems
- **SAFE TORQUE OFF** standard; **POSITION SYNCHRONIZED OUTPUT (PSO)** options available

AUTOMATION1 XA4 GENERAL SPECIFICATIONS

SPECIFICATION	SINGLE-AXIS (-AX1)	TWO-AXIS (-AX2)	FOUR-AXIS (-AX4)
Number of Axes	1	2	4
Motor Style	Brush, brushless, voice coil, stepper[1]		
Motor Supply	-AC: Single-phase 0-240 VAC; 50/60 Hz		
	-DC: Not available on -AX1	-DC: 15-100 VDC	
Control Supply	24 VDC		
Bus Voltage[2]	-AC: 0-340 VDC		
	-DC: Not available on -AX1	-DC: 15-100 VDC	
Peak Output Current (1 sec)[3][4]	-10: 10 A_{pk} -20: 20 A_{pk}, only available on -AC option		
Continuous Output Current[3][5]	-10: 5 A_{pk} (-AX1 and -AX2 options); 4 A_{pk} (-AX4 option); -20: 10 A_{pk} (-AX1 option); 5 A_{pk} (-AX2 option); 4 A_{pk} (-AX4 option), only available on -AC option		
Position Synchronized Output (PSO)	Standard • No PSO support Optional: • Three-axis Part-Speed PSO (includes one-axis PSO)		
25-Pin Motor Feedback Connector	- High-speed differential inputs (encoder sin, cos and marker) - CW and CCW limits - Hall effect sensor inputs (A, B and C) - Analog motor temperature input (accepts digital) - Brake output - 1x 16-bit differential ±10 V analog input		
Multiplier Options	MX0 Option: Primary encoder (axis 1): 40 million counts per second square-wave input	MX0 Option: Primary encoder (axes 1 and 2): 40 million counts per second square-wave input MX1 Option: Primary encoder (axes 1 and 2): 450 kHz sine-wave input, encoder multiplier up to 4,096	
I/O Expansion Board (-EB1)	- 16x digital inputs, optically isolated - 16x digital outputs, optically isolated - 2x analog inputs, 16-bit, differential, ±10 V - 2x analog outputs, 16-bit, single-ended, ±10 V - Auxiliary encoder: 40 million counts-per-second square-wave input		
I/O Expansion Board (-EB2)	- 32x digital inputs, optically isolated - 32x digital outputs, optically isolated - 3x analog inputs, 16-bit, differential, ±10 V - 6x analog outputs, 16-bit, single-ended, ±10 V - Auxiliary encoder: 40 million counts-per-second square-wave input, 10 MHz maximum		
Drive Array Memory	16.8 MB (4,194,304 32-bit elements)		67.1 MB (16,777,216 32-bit elements)
High Speed Data Capture	Yes (50 ns latency)		
Safe Torque Off (STO)	Yes, SIL3/PLe/Cat 4		
HyperWire Connections	2x HyperWire small form-factor pluggable (SFP) ports		
Automatic Brake Control	Standard (24 V at 1.0 A per axis)		
Absolute Encoder	BiSS C Unidirectional; EnDat 2.1; EnDat 2.2; SSI		
Current Loop Update Rate	20 kHz		
Servo Loop Update Rate	10 kHz		

chart continued on next page

AUTOMATION1 XA4 GENERAL SPECIFICATIONS

SPECIFICATION	SINGLE-AXIS (-AX1)	TWO-AXIS (-AX2)	FOUR-AXIS (-AX4)
Operating Temperature	0 to 40 °C		
Storage Temperature	-30 to 85 °C		
Weight	1 kg (2.2 lb)		1.5 kg (3.3 lb)
Compliance	CE approved, NRTL safety certification, EU 2015/863 RoHS 3 directive		

1. For stepper motors only, one-half of bus voltage is applied across the motor (e.g 80 VDC supply results in 40 VDC across stepper motor).
2. Output voltage depends on input voltage.
3. Peak value of the sine wave; rms current for AC motors is 0.707 Apk.
4. This specification is for all axes together. The drive can achieve the peak output current for each axis with all axes running.
5. This specification is per axis.

AUTOMATION1 XA4 ORDERING OPTIONS

Automation1-XA4

Automation1-XA4	1- 2- or 4-Axis HyperWire multi-Axis PWM servo drive

Axes

-AX1	Single-axis servo motor drive
-AX2	Two-axis servo motor drive
-AX4	Four-axis servo motor drive

Notes:

1. The -AX1 option is only available with the -AC Motor supply voltage option.

Motor Supply Voltage

-AC	240 VAC rated motor supply
-DC	100 VDC rated motor supply

Notes:

1. The -DC option is only available with the two-axis (-AX2) and four-axis (-AX4) options.

Current

-10	10 A peak, 5 A cont. current (-AX1, -AX2); 10 A peak, 4 A cont. current (-AX4)
-20	20 A peak, 10 A cont. current (-AX1); 20 A peak, 5 A cont. current (-AX2); 20 A peak, 4 A cont. current (-AX4)

Notes:

1. The -20 Peak Current option is only available with the -AC Motor supply voltage option.

2. When configured with -AX2 or AX4, each axis pair (1 & 2 and 3 & 4) is configured with the same current ratings.

Multiplier

-MX0	No encoder multiplier (default)
-MX1	x4096 encoder multiplier

Notes:

1. MX1 multiplier is only available when configured with the -AX2 or -AX4, and applies to each pair of axes (1 & 2 and 3 & 4).

Expansion Board

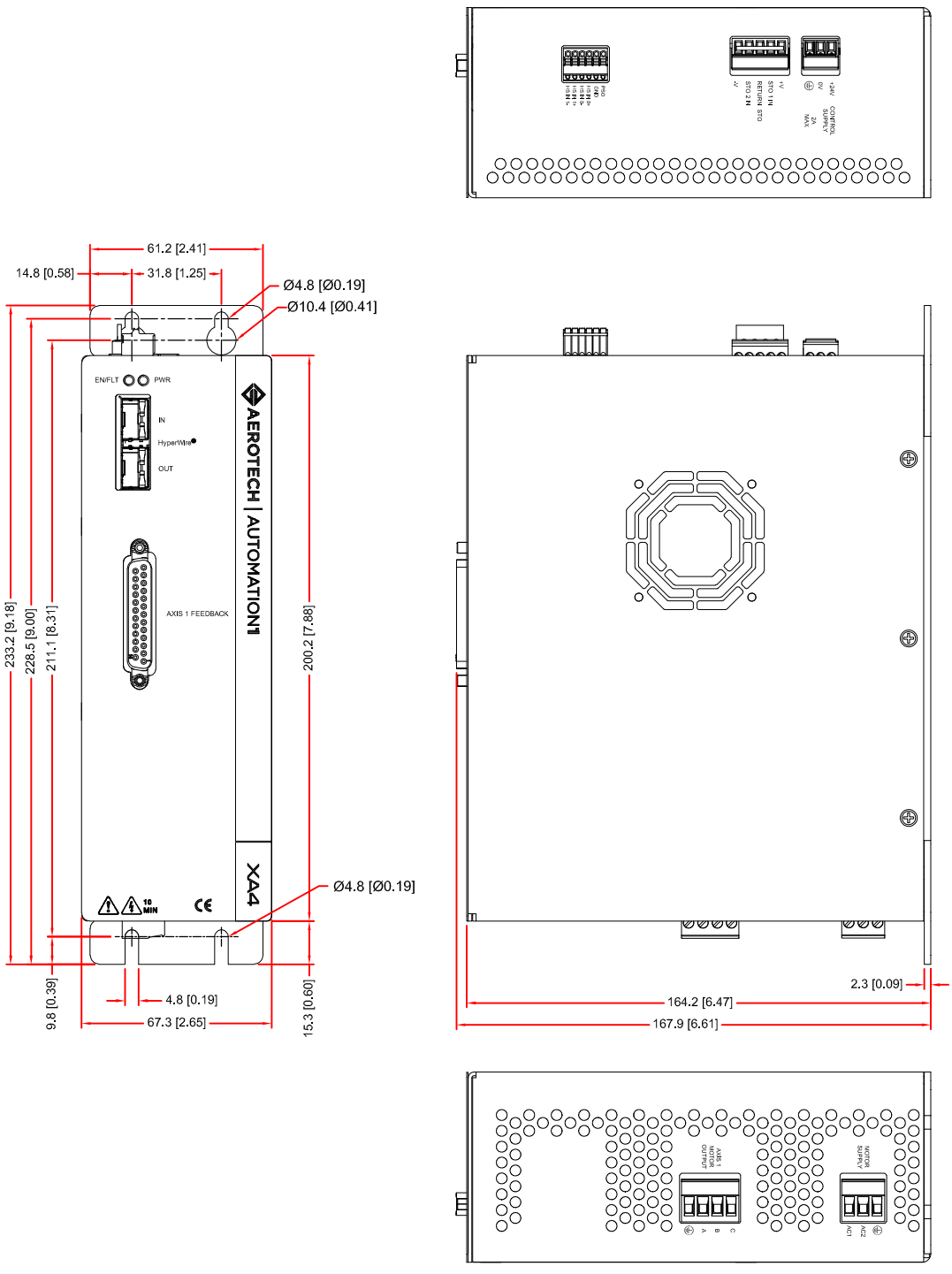
-EB0	No expansion board
-EB1	Standard density I/O expansion board
-EB2	High density I/O expansion board

PSO

-PSO0	No PSO
-PSO6	Three-axis Part-Speed PSO

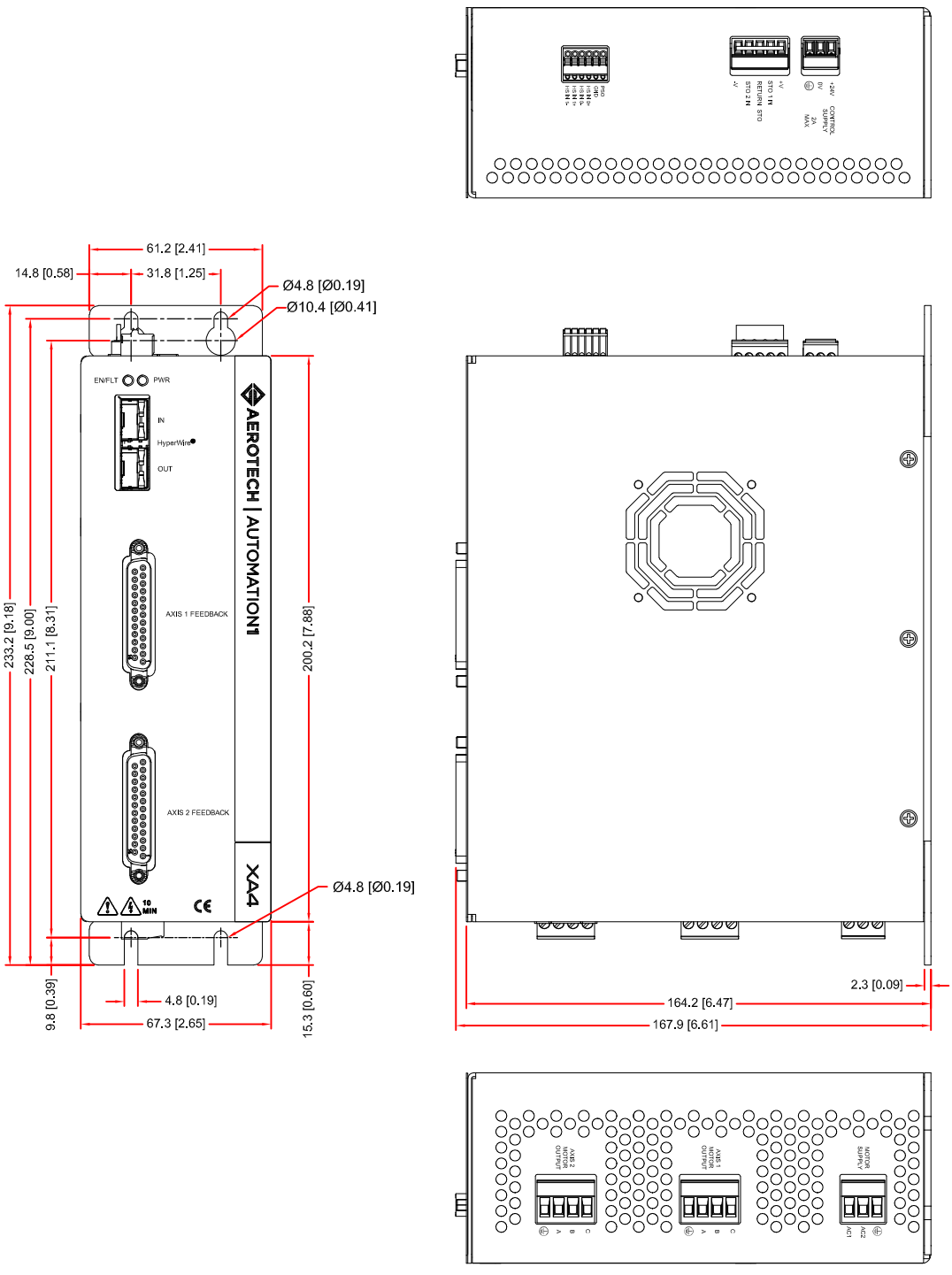
AUTOMATION1 XA4 DIMENSIONS

AUTOMATION1-XA4 SINGLE-AXIS



AUTOMATION1 XA4 DIMENSIONS

AUTOMATION1-XA4 TWO-AXIS



AUTOMATION1 XA4 DIMENSIONS

AUTOMATION1-XA4 FOUR-AXIS