1- or 2-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- or 2-Axis HyperWire Multi-Axis PWM Servo Drive. These streamlined dual- and single-axis 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 dual-axis XA4 brings precise, powerful control to multiple axes of motion in the same machine footprint. Deploy XA4 servo drives with the user-friendly Automation1 motion control platform to unlock faster build times, improved quality and higher throughput in less development time. 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 for high-speed data capture and process control.

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:

◆ **COMPACT TWO-AXIS** design

◆ Available **SINGLE-AXIS** version

◆ **AC MOTOR SUPPLY** for up to 340 VDC bus power

◆ **ALL AXES' SIGNALS** included in the feedback connector

◆ **MINIMIZE PANEL SPACE** for multi-axis systems

◆ **SAFE TORQUE OFF (STO)** standard; **POSITION SYNCHRONIZED OUTPUT (PSO)** available

CATEGORY	XA4-AX1-10	XA4-AX1-20	XA4-AX2-10	XA4-AX2-20
Number of Axes	1		2	
Motor Style	Brush, brushless, voice coil, stepper[1]			
Motor Supply	Single-phase 0-240 VAC; 50/60 Hz			
Control Supply	24 VDC			
Bus Voltage[2]	0-340 VDC			
Peak Output Current (1 sec)[3][4]	10 A_{pk}	20 A_{pk}	10 A_{pk}	20 A_{pk}
Continuous Output Current[3][5]	5 A	10 A	5 A	5 A
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			
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	
Drive Array Memory	16.8 MB (4,194,304 32-bit elements)			
High Speed Data Capture	Yes (50 ns latency)			
Safe Torque Off (STO)	Yes, SIL3/PLe/Cat 4 (certification pending)			
HyperWire Connections	2x HyperWire small form-factor pluggable (SFP) ports			
Automatic Brake Control	Standard (24 V at 1.0 A), axis 1		Standard (24 V at 1.0 A), axes 1 and 2	
Absolute Encoder	BiSS C Unidirectional; EnDat 2.1; EnDat 2.2; SSI			
Current Loop Update Rate	20 kHz			
Servo Loop Update Rate	10 kHz			
Operating Temperature	0 to 40 °C			
Storage Temperature	-30 to 85 °C			
Weight	1 kg (2.2 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 A_{pk}.
4. This specification is for both axes combined.
5. This specification is per axis.

Automation1-XA4

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Motor Supply Voltage

-AC	240 VAC Rated Motor Supply (10 or 20 A Peak Versions)

Axes

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

Current, Axes 1 & 2*

-10	10 A Peak, 5 A Cont. Current (default)
-20	20 A Peak, 10 A Cont. Current

Note: When configured with -AX2, axes 1 and 2 are configured with the same current ratings.

Multiplier, Axes 1 & 2

-MX0	No Encoder Multiplier (default)
-MX1*	x4096 Encoder Multiplier

Note: MX1 multiplier is only available when configured with -AX2, and applies to both axes.
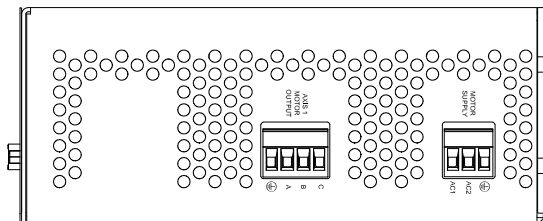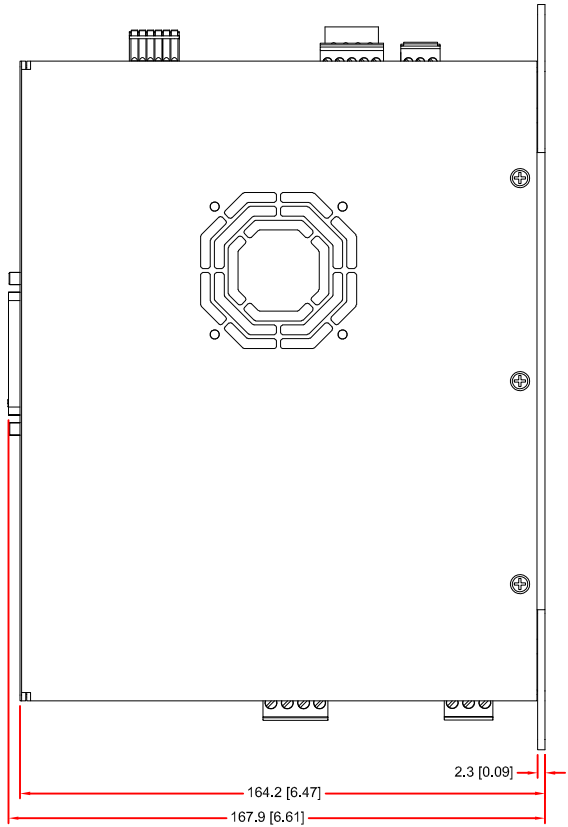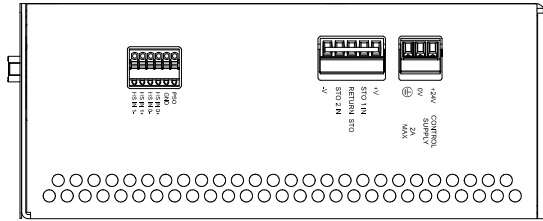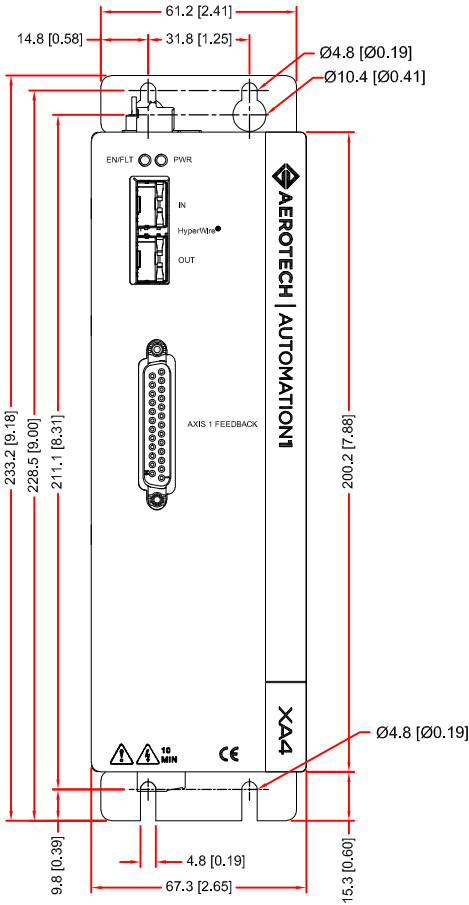
PSO

-PSO0	No PSO firing (default)
-PSO6	Three-axis Part-Speed PSO

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EN/FLT PWR

IN
HyperWire
OUT

AXIS 1 FEEDBACK

XA4

10 MIN CE

61.2 [2.41]
14.8 [0.58]
31.8 [1.25]
Ø4.8 [Ø0.19]
Ø10.4 [Ø0.41]
233.2 [9.18]
228.5 [9.00]
211.1 [8.31]
200.2 [7.88]
Ø4.8 [Ø0.19]
9.8 [0.39]
4.8 [0.19]
67.3 [2.65]
15.3 [0.60]
164.2 [6.47]
167.9 [6.61]
2.3 [0.09]

CONTROL SUPPLY
2A MAX
+24V
0V
+V
STO 1 IN
RETURN STO
STO 2 IN
-V
PSO
GND

AXIS 1 MOTOR OUTPUT
A B C
MOTOR SUPPLY
AC1 AC2