Enhanced, Compact Servo Drive with PWM+

Automation1 XC2e

Compact PWM+ Drive

The Automation1 XC2e servo motor drive features PWM+ technology, delivering Aerotech's industry-leading linear amplifier performance in a compact, efficient PWM package. Improve motion quality with sub-nanometer in-position stability and boost throughput with fast step-and-settle and superior tracking performance in our smallest panel-mount drive.

Synchronize laser firing or process triggers with motion using multi-axis PSO, precisely align digital and analog I/O samples with the servo loop and prevent unexpected motion with safe torque off (STO).

Automation1

The XC2e 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:

- Connects through the HyperWire® fiber-optic bus, which has **20 TIMES THE BANDWIDTH** of 100BASE-T Ethernet buses
- Includes **SAFE TORQUE OFF (STO)** safety circuit
- Generates **100 VDC BUS** motor power & up to **10 AMPS PEAK** output
- Features drive array with **MORE THAN 67 MB** of memory
- Collects analog sensor or position data **UP TO 320 kHz** (triggered by axis position)
- Offers many optional features, including Multi-axis Position Synchronized Output (PSO) & I/O expansion board

AUTOMATION1 XC2e GENERAL SPECIFICATIONS

CATEGORY	SPECIFICATION
Motor Style	Brush, brushless, voice coil, stepper[1]
Control Supply	24 VDC
Motor Supply	15-100 VDC
Bus Voltage[2]	15-100 VDC
PWM Frequency	20 kHz
Peak Output Current (1 sec)[3]	10 A_{pk}
Continuous Output Current [3]	5 A
Position Synchronized Output (PSO)	Standard: One-axis PSO (includes one-axis part-speed PSO)* Optional: Two-axis PSO (includes two-axis part-speed PSO)* Two-axis part-speed PSO only* Three-axis part-speed PSO only* *Requires adding an expansion board to the drive to output PSO pulses via a physical connection.
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: 40 million counts per second square-wave input Auxiliary encoder: 40 million counts per second square-wave input MX2 option: Primary encoder: 2 MHz/450 kHz (bandwidth selectable) sine-wave input, encoder multiplier up to 65,536 Auxiliary encoder: 40 million counts per second square-wave input MX3 option: Primary encoder: 2 MHz/450 kHz (bandwidth selectable) sine-wave input, encoder multiplier up to 65,536 Auxiliary encoder: 450 kHz sine-wave input, encoder multiplier up to x16,384* *Encoders multiplied with this input cannot be echoed out
I/O Expansion Board (-EB1)	PSO output connector with up to 12.5 MHz output rate Auxiliary Encoder Port 1x 16-bit differential, ±10 V analog input 1x 16-bit single-ended, ±10 V analog output 8x optically isolated digital inputs 8x optically isolated digital outputs

Chart continued on next page

AUTOMATION1 XC2e CONTROLLER SPECIFICATIONS

CATEGORY	SPECIFICATION
Drive Array Memory	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 0.5 A)
Absolute Encoder	Renishaw Resolute BiSS; EnDat 2.1; EnDat 2.2, and SSI
Current Loop Update Rate	20 kHz
Servo Loop Update Rate	20 kHz
Power Amplifier Bandwidth	2500 Hz maximum (software selectable)
Power Amplifier Efficiency	85-95%(4)
Minimum Load Inductance	0.1 mH
Operating Temperature	0 to 40 °C
Storage Temperature	-30 to 85 °C
Weight	0.54 kg (1.20 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 dependent upon input voltage.
3. Peak value of the sine wave; RMS current for AC motors is 0.707 A_{pk}.
4. Dependent on total output power: efficiency increases with increasing output power.

AUTOMATION1 XC2e ORDERING OPTIONS

Automation1-XC2e

Automation1-XC2e	Automation1-XC2e - Enhanced, Compact PWM Servo Drive

Peak Current

-10	10 A peak, 5 A cont. current (default)

Amplifier Type

-PMW+	With PMW+ amplifier

Expansion Board

-EB0	No expansion board (default)
-EB1	IO expansion board

Multiplier

-MX0	No encoder multiplier (default)
-MX2	x65536 multiplier (primary), no multiplier (auxiliary)
-MX3	x65536 multiplier (primary), x16384 multiplier (auxiliary)

PSO[1]

-PSO1	One-axis PSO (includes one-axis part-speed PSO) (default)
-PSO2	Two-axis PSO (includes three-axis part-speed PSO)
-PSO5	Two-axis part-speed PSO
-PSO6	Three-axis part-speed PSO

1. PSO functionality is included in the base XC2e. The -EB1 board is required to use PSO logic to generate an output signal.

AUTOMATION1 PS2 DIN RAIL POWER SUPPLY ORDERING OPTIONS

Automation1-PS2

Automation1 PS2	Automation1-PS2 - Din-rail mounted power supply for 1 to 4 compact servo drives

Drive Type (Required)

-D1	PS2 for XC2, XC2e drives and iXC2e & iXC2 drive-based controllers
-D2	PS2 for XL2e drives and iXL2e drive-based controllers

Power Output (Required)

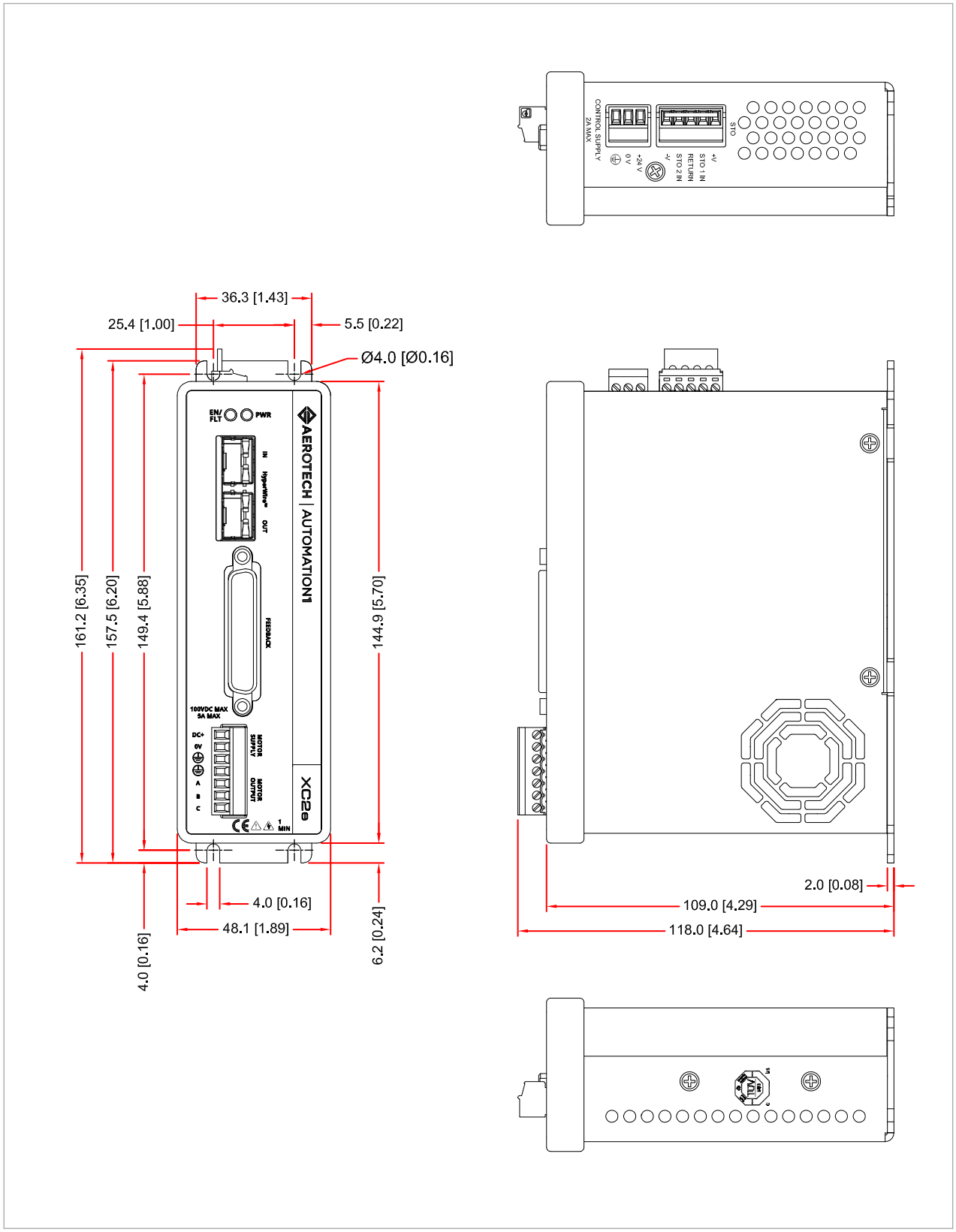
-P1	240 watts at 24 VDC
-P2	240 watts at 48 VDC
-P3	480 watts at 48 VDC
-P4	480 watts at 96 VDC
-P5	240 watts at +/-12 VDC (10A)
-P6	240 watts at +/-24 VDC (5A)
-P7	480 watts at +/-48 VDC (5A)

Number of Axes (Required)

-AX01	1 axis of wiring
-AX02	2 axes of wiring
-AX03	3 axes of wiring
-AX04	4 axes of wiring

AUTOMATION1 XC2e DIMENSIONS

AUTOMATION1 XC2e, -EB0 OPTION



AUTOMATION1 XC2e DIMENSIONS

AUTOMATION1 XC2e, -EB1 OPTION