SERVOMOTOR DRIVES **XC2**

Aerotech's XC2 next-generation panel mount controller with high-speed optical HyperWire communication bus.

The XC2 PWM digital drive is a small form-factor, high-performance single-axis motor drive designed for motion control applications. All versions are compatible with the Automation 3200 motion platform utilizing the HyperWire® motion bus.

The XC2 can control brushless DC, brush DC, voice coil, or stepper motor types at up to 100 VDC operating voltage and 10 A peak current capability.

The current loop and servo-loop are closed digitally to assure the highest level of positioning accuracy and rate stability. This allows loop closure rates of up to 20 kHz and allows digital and analog I/O processing, data collection, process control, and encoder multiplication tasks in real time.

Standard features for the XC2 include safe torque off (STO), a data array consisting of over 4 million 32-bit elements, dedicated home and end-of-travel limit inputs, and an enhanced current sense device. Encoder support includes square-wave, sine-wave, and absolute encoders.

The standard XC2 accepts square-wave encoder feedback at rates of up to 40 million counts-per- second. Sine-wave encoders can be multiplied by up to 16,384, producing high-resolution position feedback, with the optional encoder multiplier feature.

Each single-axis XC2 PWM digital drive has an optional I/O expansion board; greatly increasing the number I/O points. This I/O board also includes a dedicated PSO output.

PRODUCT HIGHLIGHTS

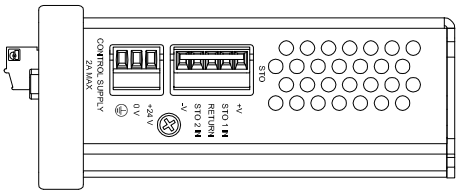
- HyperWire® fiber-optic interface
- 10 A peak output current
- Drive brush, brushless, voice coil, or stepper motors
- Safe torque off (STO) safety circuit
- Includes single-axis Position Synchronized Output (PSO)
- I/O expansion board
- High resolution digital current, velocity, and position loops
- NRTL safety certification and CE approval; follows the 2011/65/EU RoHS 2 Directive

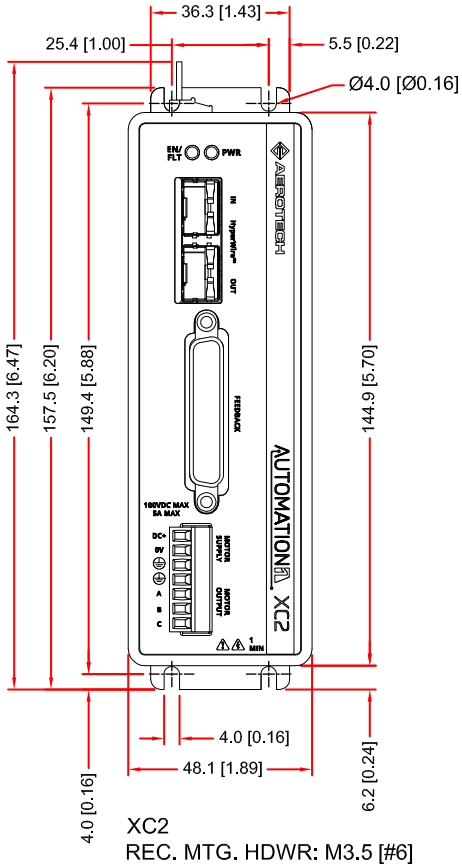
Automation1-XC2 **Specifications**

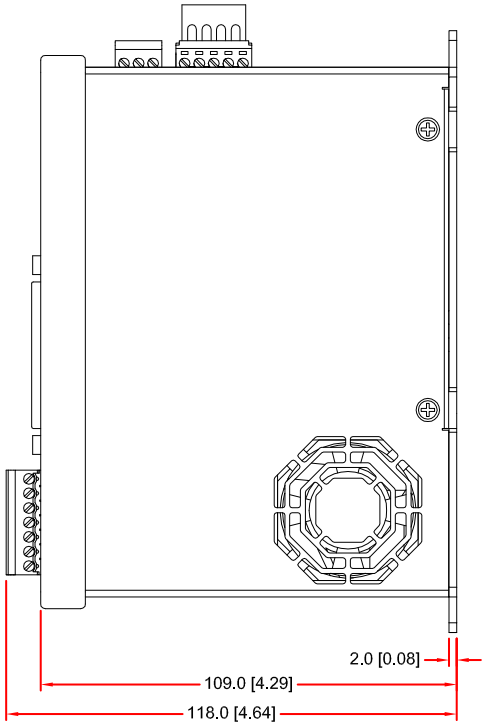
Specifications	10
Motor Style	Brush, brushless, voice coil, stepper[1]
Motor Supply/Bus Voltage[2]	15-100 VDC
Control Supply	24 VDC
Peak Output Current (1 sec)[3]	10 A_{pk}
Continuous Output Current[3]	5 A_{pk}
Digital Inputs	0 (available with -EB1 I/O expansion board, see below)
Digital Outputs	0 (available with -EB1 I/O expansion board, see below)
Analog Inputs	0 (available with -EB1 I/O expansion board, see below)
Analog Outputs	0 (available with -EB1 I/O expansion board, see below)
Position Synchronized Output (PSO)	One-axis PSO and one-axis Part-Speed PSO (available with -EB1 I/O expansion board, see below)
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) Brake output
Multiplier Options	MX0; no encoder multiplier includes: • Primary encoder 40 million counts-per-second square-wave input • Auxiliary encoder 40 million counts-per-second square-wave input MX1; MX1 encoder multiplier includes: • Primary Encoder 450 kHz sine-wave input, Encoder multiplier up to x16,384[4] • Auxiliary Encoder 40 million samples-per-second square wave input.
I/O Expansion Board (-EB1)	1x PSO connection point 8x digital inputs, optically isolated 8x digital outputs, optically isolated 1x analog inputs, 16-bit, differential, ±10 V 1x analog outputs, 16-bit, single-ended, ±10 V
Drive Array Memory	4,194,304 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 A
Absolute Encoder	Renishaw Resolute BiSS; EnDat 2.1; and EnDat 2.2
Current Loop Update Rate	20 kHz
Servo Loop Update Rate	8 kHz
Power Amplifier Bandwidth	2500 Hz maximum (software selectable)
Power Amplifier Efficiency	85-95%[5]
Minimum Load Inductance	0.1 mH
Operating Temperature	0 to 40°C
Storage Temperature	-30 to 85°C
Weight	2.36 kg. (5.20 lb.)
Compliance	CE approved, NRTL safety certification, 2011/65/EU RoHS 2 directive

1 For stepper motors only, one-half of bus voltage is applied across the motor (e.g., 100 VDC supply results in 50 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 Multiplied encoder cannot be echoed out.
5 Dependent on total output power: efficiency increases with increasing output power.

Automation1-XC2 **Dimensions**







XC2
REC. MTG. HDWR: M3.5 [#6]

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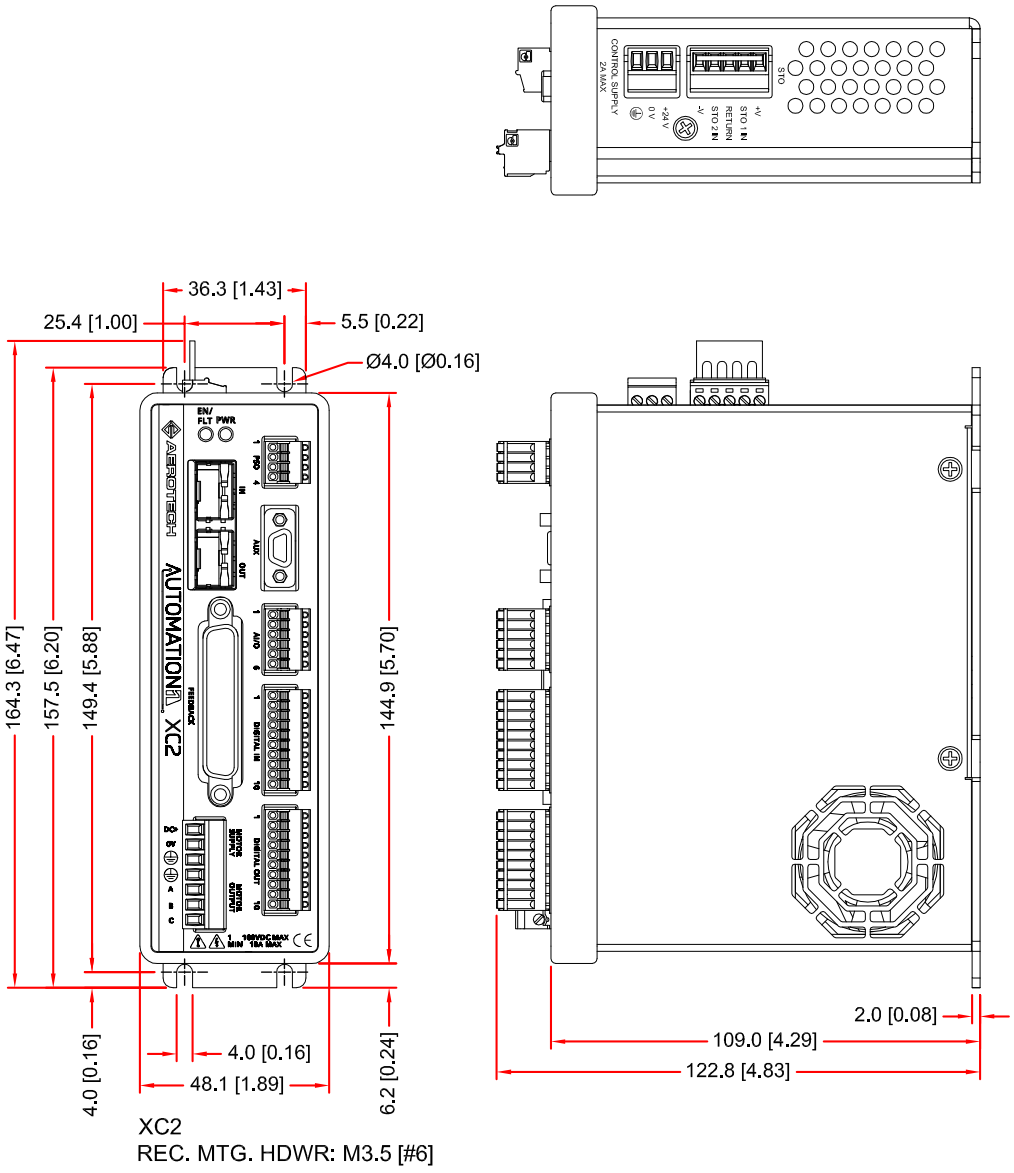

Automation1-XC2 **Ordering Information**

XC2

XC2	XC2 PWM digital drive

Peak Current

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

Expansion Board

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

Multiplier

-MX0	No encoder multiplier (default)
-MX1	450 kHz x16384 multiplier (primary), no multiplier (auxiliary)

PSO

-PSO1	One-Axis PSO (default; includes One-Axis Part-Speed PSO)

Note: PSO functionality is included in the base XC2. The -EB1 board is required to use PSO logic to generate an output signal.