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## Servo Motor Drives **Automation1 XC6e**

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### Ultra-Smooth, Precise Motion for High-Power Applications

The Automation1 XC6e single-axis PWM servo motor drive brings precision motion control to your high-power applications. It offers all the benefits of our XC4e drive but with more power to move the largest payloads, so you'll accelerate large, brushless servo motors faster and reach higher top speeds without sacrificing smooth motion. Plus, the XC6e can be configured and programmed with Automation1's user-friendly Studio application and APIs. Compatible with brush, brushless, voice coil or stepper motors, the XC6e also easily controls servo, galvo and piezo motors.

### Automation1

The XC6e 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
- ◆ Provides **UP TO 100 AMPS** peak output
- ◆ Offers **240 VAC** and **480 VAC** voltage options
- ◆ Includes **SAFE TORQUE OFF (STO)** safety circuit
- ◆ Features drive array with **MORE THAN 67 MB** of memory
- ◆ Holds CE approval; follows the EU 2015/863 RoHS 3 directive. Pending NRTL safety certification
- ◆ Offers many optional features, including Multi-axis Position Synchronized Output (PSO), I/O expansion board, and 65K encoder multiplier

## AUTOMATION1 XC6e SPECIFICATIONS

Category	Specification						
Motor Style	Brush, brushless, voice coil, stepper <sup>(1)</sup>						
Control Supply	100-240 VAC; 50/60 Hz						
Motor Supply	240 VAC (three-phase), 50/60 Hz		480 VAC (three-phase), 50/60 Hz				
Bus Voltage <sup>(2)</sup>	0-340 VDC		340-680 VDC				
PWM Frequency	20 kHz <sup>(3)</sup>						
Peak Output Current (1 sec) <sup>(4)(5)</sup>	50 A <sub>pk</sub>	100 A <sub>pk</sub>	10 A <sub>pk</sub>	20 A <sub>pk</sub>	30 A <sub>pk</sub>	50 A <sub>pk</sub>	100 A <sub>pk</sub>
Continuous Output Current <sup>(4)(5)</sup>	25 A <sub>pk</sub>	50 A <sub>pk</sub>	5 A <sub>pk</sub>	10 A <sub>pk</sub>	15 A <sub>pk</sub>	25 A <sub>pk</sub>	30 A <sub>pk</sub> @ 20 KHz 50 A <sub>pk</sub> @ 10 KHz
Position Synchronized Output (PSO)	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) Two-axis part-speed PSO only Three-axis part-speed PSO only						
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						
26-Pin Auxiliary Feedback Connector	High-speed differential inputs (encoder sin, cos and marker)* 4x optically isolated digital inputs 4x optically isolated digital outputs 1x 16-bit differential ±10 V analog input 1x 16-bit single-ended ±10 V analog output 2x optically isolated high-speed inputs  <i>*This channel is bidirectional and can be used to echo out encoder signals.</i>						
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*  <i>*Encoders multiplied with this input cannot be echoed out.</i>						
I/O Expansion Board (-EB1)	1x additional PSO connection point • 1x PSO synchronization input 16x digital inputs, optically isolated 16x digital outputs, optically isolated 3x analog inputs, 16-bit, differential, ±10 V 3x analog outputs, 16-bit, single-ended, ±10 V						

*chart continued on next page*

## AUTOMATION1 XC6e 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 1 A
Absolute Encoder	BiSS C Unidirectional; EnDat 2.1; EnDat 2.2
Current Loop Update Rate	20 kHz
Servo Loop Update Rate	20 kHz
Power Amplifier Bandwidth	Selectable through software (85-95% efficiency)
Minimum Load Inductance	0.1 mH
Operating Temperature	0 to 40 °C
Storage Temperature	-30 to 85 °C
Weight	6.30 kg (13.89 lb)
Compliance	CE approved EU 2015/863 RoHS 3 directive, Pending NRTL safety certification

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. The specifications on this table are for 20kHz operation unless noted. All versions of this drive can be changed to 10kHz if motor heating caused by the environment or the operation of the drive becomes an issue.
4. Peak value of the sine wave; rms current for AC motors is  $0.707 \cdot A_{pk}$ .
5. Rated at 25°C ambient temperature.



## AUTOMATION1 XC6e ORDERING OPTIONS

### Automation1 XC6e

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**Automation1-XC6e** Automation1-XC6e High-Powered PWM Digital Drive

#### Peak Current

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- 10\* 10 A Peak, 5 A Cont. Current (480V input only)
- 20\* 20 A Peak, 10 A Cont. Current (480V input only)
- 30\* 30 A Peak, 15 A Cont. Current (480V input only)
- 50 50 A Peak, 25 A Cont. Current
- 100 100 A Peak, 50 A Cont. Current

*\*Only available with 480 rated motor supply voltage*

#### Rated Motor Supply Voltage

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- 240 240 VAC input (600 W Power Supply)
- 480 480 VAC input (600 W Power Supply)

#### Expansion Board

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- EB0 No Expansion Board (Default)
- EB1 IO Expansion Board

#### Multiplier

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- MX0 No Encoder Multiplier (Default)
- MX2 2 MHz / 450 kHz x65536 Multiplier (Primary), No Multiplier (Auxiliary)
- MX3 2 MHz / 450 kHz x65536 Multiplier (Primary), 160 kHz x16384 Multiplier (Auxiliary)

#### PSO

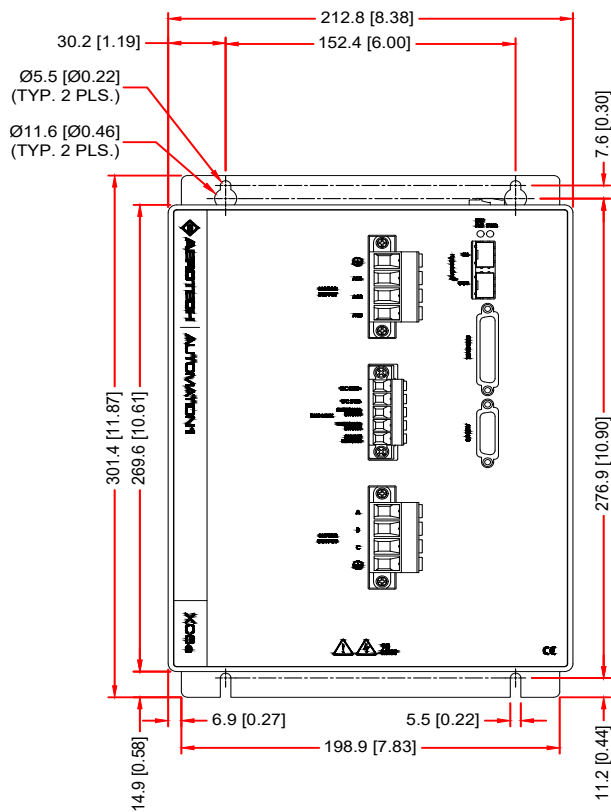
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- PSO1 One-Axis PSO (includes One-Axis Part-Speed PSO) (Default)
- PSO2 Two-Axis PSO (includes Two-Axis Part-Speed PSO)
- PSO3 Three-Axis PSO (includes Three-Axis Part-Speed PSO)
- PSO5 Two-Axis Part-Speed PSO
- PSO6 Three-Axis Part-Speed PSO

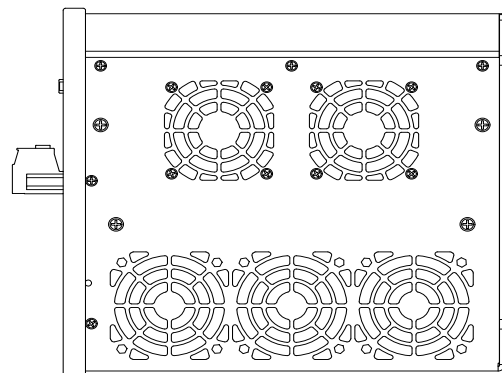
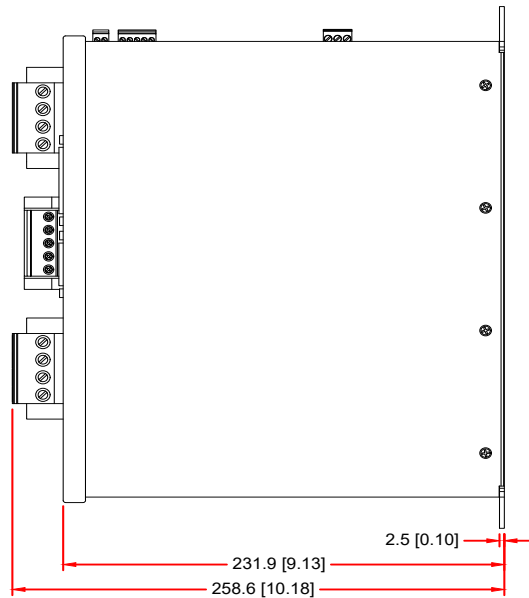
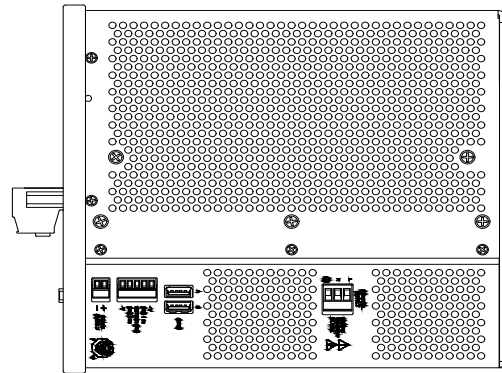


## AUTOMATION1 XC6e DIMENSIONS

AUTOMATION1-XC6e with -EBO (No Expansion Board) option



REC. MTG. HDWR: M5 [#10]



## AUTOMATION1-XC6e with -EB1 (Expansion Board) option

