

# MXA-21



The MXA-21 is the first model of the MXA family of 19" rack-mount 2U enclosed motion controllers. The MXA-21 is an 8-axis motion controller based on OMS's motion technology where the design of the MXA-21 was defined in part with input from Argonne National Labs, including the type of connectors and the connector pinouts. Each axis supports encoder feedback (incremental & absolute). Much of the functionality of the legacy MAXv and MAXnet family of controllers is supported. The power input is 120VAC for convenience with all logic power internal to the enclosure.

## OVERVIEW

- 8-axis motion controller for Step & Direction motor control (stepper motors)
- 2U 19" rack mount enclosure, communications and status on front panel, motion control signals and power on back panel
- Each axis control signals are on a RJ45 connector, for simple cabling
- Step & Direction signals are differential for better noise immunity
- Limit + & - for each axis as well as Home inputs
- Individual 9-pin D-sub connector for the encoder for each axis (incremental, SSI or BiSS). Pinout compatible to popular industry encoders
- Built-in logic power supply (120VAC) with power On/Off switch on back
- Start/Stop button on front panel with LED status
- 1G Ethernet TCP/IP or USB interfaces on the front panel for communications
- Command functionality compatible to the legacy MAX family controllers
- Status LEDs on front panel indicate status and health of the controller
- All new motion control design for advanced capability and longevity of design



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## SPECIFICATIONS

### **Velocity**

0 to 4,194,176 pulses per second

### **Acceleration**

0 to 8,000,000 pulses per second

### **Position range**

140,737,488,355,328 pulses (+/- 70,368,744,177,664)

### **Accuracy**

Position accuracy and repeatability  $\pm 0$  counts for point-to-point moves

### **Environmental**

Operating temperature range: 0 to 50 C° (32° to 122°F)

Storage temperature range: -20 to 85 C° (-4° to 185°F)

Humidity: 0 to 90% (non-condensing)

### **Power Input requirements**

120VAC, 1.5Amp, 50/60Hz

(Third-party internal power supply includes safety & EMI/EMC registrations: TUV, CE & others)

### **Dimensions (overall)**

19" x 10.43" x 3.47" (482mm x 265mm x 88mm)

### **Limit switch inputs**

TTL input levels. (SN75C189A)

Active low or high selectable by command input for each axis. (active low is default)

### **Connector**

8 DB9 connectors for Encoders, 8 RJ45 connectors for axis control for each axis located on the back panel

### **Home switch inputs**

TTL input levels. (SN75C189A)

Input sense (low or high true) selectable by command input for each axis. Accurate to 1 encoder count.

### **Step pulse output**

50% duty cycle. 5V CMOS level differential signal. (DS26C31TM)

### **Direction output**

5V CMOS level differential signal. (DS26C31TM)

### **Encoder Feedback**

Maximum 16 MCnts/s after 4x quadrature detection differential or single-ended signals.

60-bit Absolute (SSI or BiSS) encoder channels aliased to the position range.

### **Ethernet**

10/100/1000Mb, TCP/IP, Standard RJ45 connector on front panel

### **USB 2.0**

Type B connector on front panel

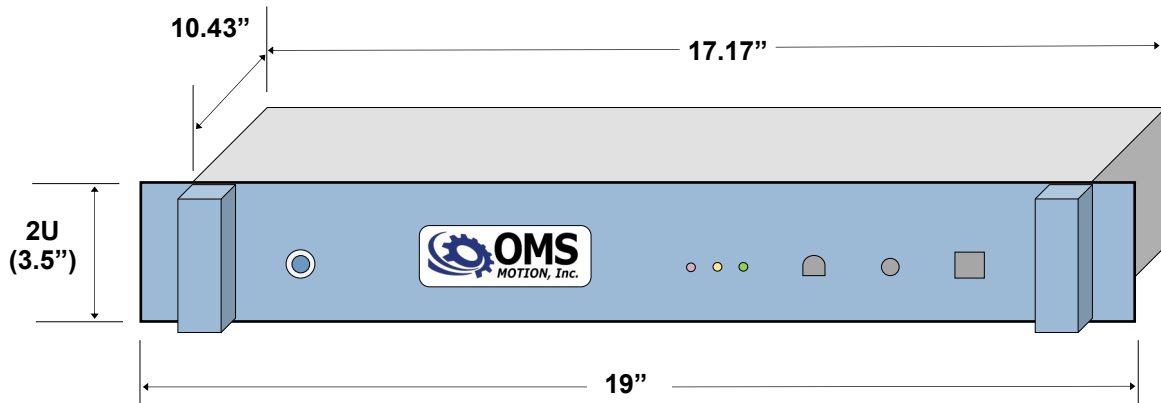


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### DIMENSIONS



### CONTROL SIGNAL CONNECTORS

Axis Control (RJ-45)	
Pin	Function
1	Step +
2	Step -
3	Direction +
4	Positive Limit
5	Negative Limit
6	Direction -
7	Home
8	Ground

Incremental Encoder (DB9)	
Pin	Function
1	Index +
2	Phase A+
3	Phase B+
4	+5VDC
5	Home
6	Index -
7	Phase A-
8	Phase B-
9	Ground

Absolute Encoder (DB9)	
Pin	Function
1	Clock +
2	Data +
3	NC
4	+5VDC
5	Home
6	Clock -
7	Data -
8	NC
9	Ground

ORDERING INFORMATION	
MODEL #	DESCRIPTION
MXA-21	8-Axis Motion Controller, 2U x 19" enclosed
PWRCBL	AC Power Cord (included)



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