



## Description

- ▶ Programmable Automation Controller with integrated 10/100 M-Bit Ethernet communications.
- ▶ Dual RS-232 communications ports
- ▶ 6 modular I/O bays
- ▶ On-board encoder, registration inputs, and virtual I/O support (5102 and 5104 only).

## 5100 Specifications

General	Value	Description
Supply voltage <sup>(1,2)</sup>	5101 / 5102 5103 / 5104	18-27.0 VDC 10-27.0 VDC
		For 24.0 VDC typical systems. For 12.0 VDC typical systems.
Supply Current	Quiescent Fully-Loaded	150 mADC 384 mADC
		Not including output load current, with a supply voltage of 24 VDC
+5 VDC power	2 ADC	Derived internal to the controller to be used to power analog I/O modules as well as external encoder circuits.
Temperature	Operating Storage	0 to 50°C -25 to 85°C
		Refer to the "Recommended Mounting Orientation" section for proper mounting instructions.

### Controller Capacities (controller capacities are not mutually inclusive)

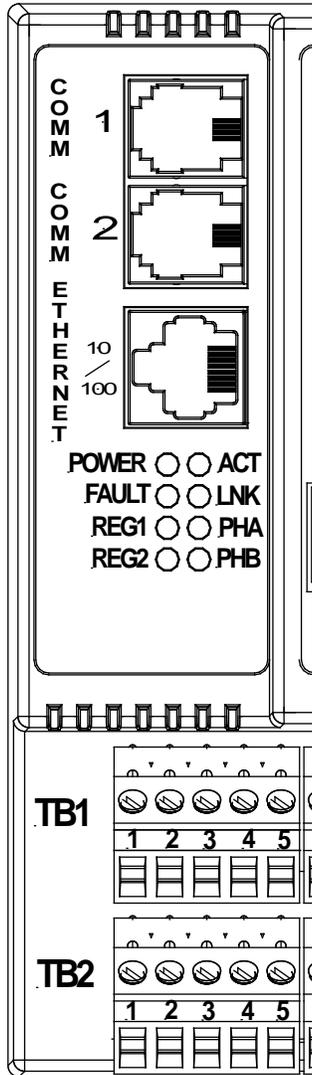
Number of I/O bays	Local / Virtual 6 / 6	Virtual I/O is mapped from the remote controller to the local controller via Ethernet.
I/O Capacity	Local / Virtual	Virtual I/O is mapped from the remote controller to the local controller via Ethernet.
Digital Inputs	48 / 48	
Digital Outputs	48 / 48	
Analog Inputs	24 / 24	
Analog Outputs	48 / 48	
Encoder Inputs <sup>(3)</sup>	2 / 0	RS-485 compliant inputs, 100 ohm termination resistor, Fmax = 6 MHz
Registration Inputs <sup>(3)</sup>	2 / 0	See specifications below
Servo Axis	6 / 0	6 motion axis with on-board encoder/registration <sup>(3)</sup>
Stepper Axis	6 / 0	6 motion axis with on-board encoder/registration <sup>(3)</sup>
Registration Inputs <sup>(3)</sup>		
Minimum V <sub>ih</sub>	0.73 * VS	The minimum threshold voltage at which the input will change from an 'OFF' state to an 'ON' state.
Maximum V <sub>il</sub>	0.61 * VS	The maximum threshold voltage at which the input will change from an 'ON' state to an 'OFF' state.
Maximum V <sub>in</sub>	VS	The absolute maximum input voltage.
Maximum I <sub>in</sub>	1.2 mADC	The maximum current flowing into the input with +24VDC applied to the input terminal.
Input resistance	20k Ω ±10%	Input Resistance to the controller's supply voltage return (VS_RTN).

### Communications Capacities

Ethernet	1 Port	
Speed	10/100 Mbps	
Type	Base-T	
Isolation	1500 VDC	
Ethernet transceivers	±10 VDC	
Common-mode voltage range	1.5 VAC PP	This conforms to IEEE standard 802.3
Connector Type	8 Pin Telco	See pinout below.
RS-232	2 Ports	
Maximum Speed	38,400 baud	(19200 default)
Type	3 - Wire	Txd, Rxd, Gnd
Isolation	500 VDC	
Max Txd / Rxd voltage	±10 VDC	
Connector Type	4 Pin Telco	See pinout below.

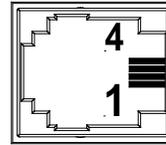


### Connector Identification



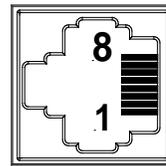
### Connector Pinouts

#### Comm1 & Comm2 RS-232 Pinouts



Pin #	Signal
1	TxD
2	Common
3	Common
4	RxD

#### Ethernet 10/100 Base-T Pinouts



Pin #	Signal
1	TX0+
2	TX0-
3	RX1+
4	NC <sup>(4)</sup>
5	NC <sup>(4)</sup>
6	RX1-
7	NC <sup>(4)</sup>
8	NC <sup>(4)</sup>

#### I/O Terminations

TB1-1	+VS INPUT
TB1-2	REGISTRATION 1 <sup>(3)</sup>
TB1-3	ENDODER PHASE +A <sup>(3)</sup>
TB1-4	ENDODER PHASE -B <sup>(3)</sup>
TB1-5	+5VDC OUTPUT
TB2-1	VS RETURN
TB2-2	REGISTRATION 2 <sup>(3)</sup>
TB2-3	ENDODER PHASE -A <sup>(3)</sup>
TB2-4	ENDODER PHASE -B <sup>(3)</sup>
TB2-5	VS RETURN

#### LED Identification

Label	Description	Label	Description
Power	Power on/off	ACT	Ethernet Activity
Fault	Controller Status	LNK	Ethernet Link
REG 1	REG1 status <sup>(3)</sup>	PHA	PHA status <sup>(3)</sup>
REG 2	REG2 status <sup>(3)</sup>	PHB	PHB status <sup>(3)</sup>

#### NOTES:



- When analog I/O modules are installed in a controller, it is recommended that the controller be powered via a dedicated linear power supply.
- Power to each controller should be individually fused with a 30VDC (minimum) rated 5.0 amp, fast-acting fuse.
- On-board encoder and registration inputs are only present on the Models 5102 and 5104 controllers.
- Series RC (75.0 Ohm resistor / 0.001uF capacitor) to chassis for optional ground terminations.

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# Data Sheet

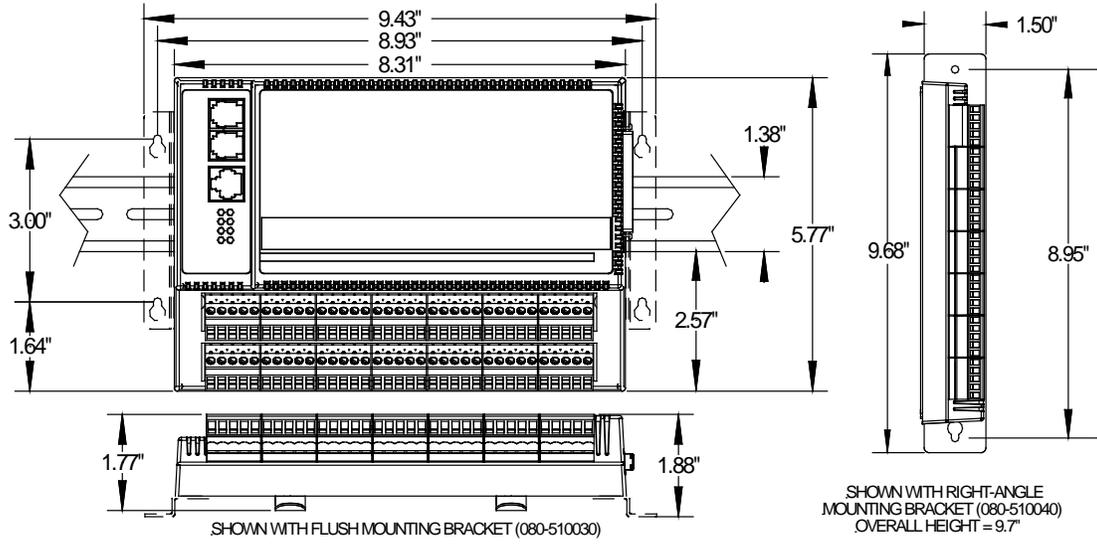
## Model 5100 Series Controllers

### 10/100Mbps Ethernet Communications

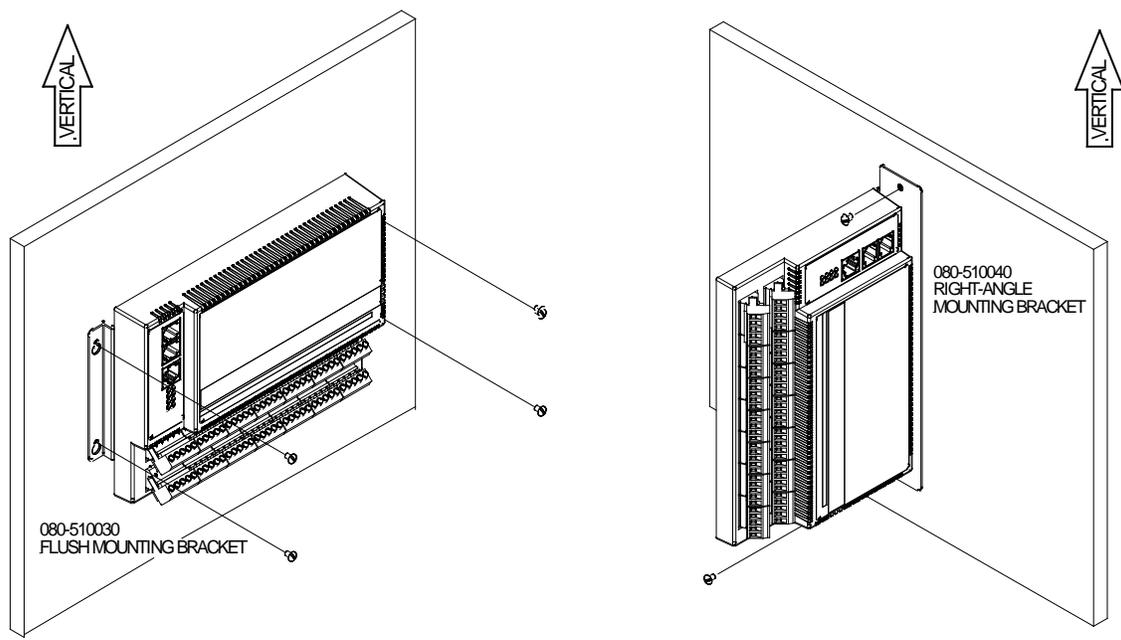


## Mechanical Specifications

### Dimensions



### Recommended Mounting Orientations



- NOTES:**
- De-rate operating temperatures to 0 to 45°C if mounted in any other orientation than described above

Data Sheet: Model 5100 Controller



## Additional Documentation

### Applications / Users Guides

Doc. ID	Title
951-510001	Model 5100 Remote Administration Guide
951-510002	Model 5100 Communications Guide
951-510003	Model 5100 Script Language Guide
951-510004	Model 5100 'C' Users Programming Guide
951-510005	Model 5100 Bootloader Installation Guide
951-510006	Quick Reference Register Guide
951-510007	Model 5100 Analog Modules Application Guide
MAN-1000A	Quickstep User's Guide
MAN-1010A	Quickstep Programming Guide
MAN-1050	CTC Load Utility User's Guide

## Compatible Hardware / Accessories

### I/O Modules

Part Number	Description
5100-A	Analog I/O Combo Module ( <i>Two ±10 VDC Analog Inputs; Two ±10 VDC Analog Outputs</i> )
5100-B	Digital Input Module ( <i>Eight VDC Sourcing Inputs</i> )
5100-C	Digital Output Module ( <i>Eight VDC Sourcing Outputs</i> )
5100-D	Analog Output Module ( <i>Six ±10 VDC Analog Outputs, Fully Isolated</i> )
5100-E	Analog Output Module ( <i>Eight ±10 VDC Analog Outputs</i> )
5100-F	Analog Input Module ( <i>Four ±10 VDC Analog Inputs</i> )
5100-G	Analog Input Module ( <i>Four ±20 mVDC Analog Inputs</i> )
5100-H	Analog Input Module ( <i>Four 4-20 mADC Analog Inputs</i> )
5100-J	Analog Input Module ( <i>Four ±100 mVDC / Thermocouple Analog Inputs</i> )
5100-K	Analog I/O Combo Module ( <i>Two ±100 mVDC / Thermocouple; Two ±10 VDC Analog Outputs</i> )
5100-L	Digital Input Module ( <i>Eight VDC Sinking Inputs</i> )
5100-M	Digital Input Module ( <i>Eight +5 VDC Sourcing Inputs</i> )
5100-N	Digital Input Module ( <i>Eight +5 VDC Sinking Inputs</i> )
5100-O	Digital Output Module ( <i>Eight +5 VDC Sourcing Outputs</i> )
5100-P	Digital Output Module ( <i>Eight VDC Sinking Outputs</i> )
5100-Q	Analog I/O Combo Module ( <i>Two ±20 mVDC Analog Inputs; Two ±10 VDC Analog Outputs</i> )
5100-R	Analog I/O Combo Module ( <i>Two 4-20 mADC Analog Inputs; Two ±10 VDC Analog Outputs</i> )
5100-SS	Dual Axis Servo Module ( <i>Two ±10 VDC Analog Servo Outputs; Two VDC Sourcing Registration Inputs; Two +5 VDC Diff-Ended Encoder Inputs</i> )
5100-TT	Dual Axis Stepper Module ( <i>Four +5 VDC Diff-Ended Step/Direction Outputs; Eight VDC Sourcing Inputs</i> )

### Misc. Hardware

Part Number	Description
080-510030	Flush Mounting Brackets
080-510040	Right-Angle Mounting Brackets

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