

2 Bipolar, 8 Universal Signal Inputs Controller

*CAN (CANopen®)
Ethernet (Modbus TCP/IP)
Two +5V references
DIN rail mount*

P/N: AX032101

Features:

- CANopen® port
- Ethernet port (Modbus TCP/IP)
- Two (2) signal inputs are selectable as bipolar voltage, current, digital or PWM signal types:
 - 0-5V, 0-10V, 0 to +/- 5V, 0 to +/- 10V;
 - 4-20mA, 0-20mA;
 - PWM, Frequency;
 - or Digital (Discrete Voltage Level).
- Eight (8) universal signal inputs are selectable as bipolar voltage, current, resistive, digital, PWM or frequency signal types:
 - 0-5V, 0-10V;
 - 4-20mA, 0-20mA;
 - Resistive
 - PWM;
 - Frequency;
 - or Digital.
- 12Vdc or 24Vdc nominal
- Two reference voltages (+5V) are available.
- Operates from -40 to 85°C (-40 to 185°F).
- Two LED indicators
- IP20
- DIN rail mount, screw terminal connections
- EDS File is provided.

Applications:

- industrial control panels
- power gen set engine control systems
- oil and gas equipment automation
- machine automation

Ordering Part Numbers:

2 Bipolar A/D and 8 Universal Signal Inputs Controller, CANopen®: **AX032101**

Accessories:

EDS File

Description: The Controller accepts two analog/digital signal inputs and eight universal signal inputs. The control can be networked to a CANopen® or a Modbus TCP/IP fieldbus. Two +5V, 100 mA references are available to power sensor inputs. A rugged power supply interface accepts 12 Vdc or 24 Vdc nominal for battery powered machine applications. LED's indicate operational status. The enclosure is DIN rail mount. It operates from -40 to 85°C (-40 to 185°F). Standard embedded software is provided. The sophisticated control algorithms allow the user to program the controller for a wide range of applications without the need for custom software.

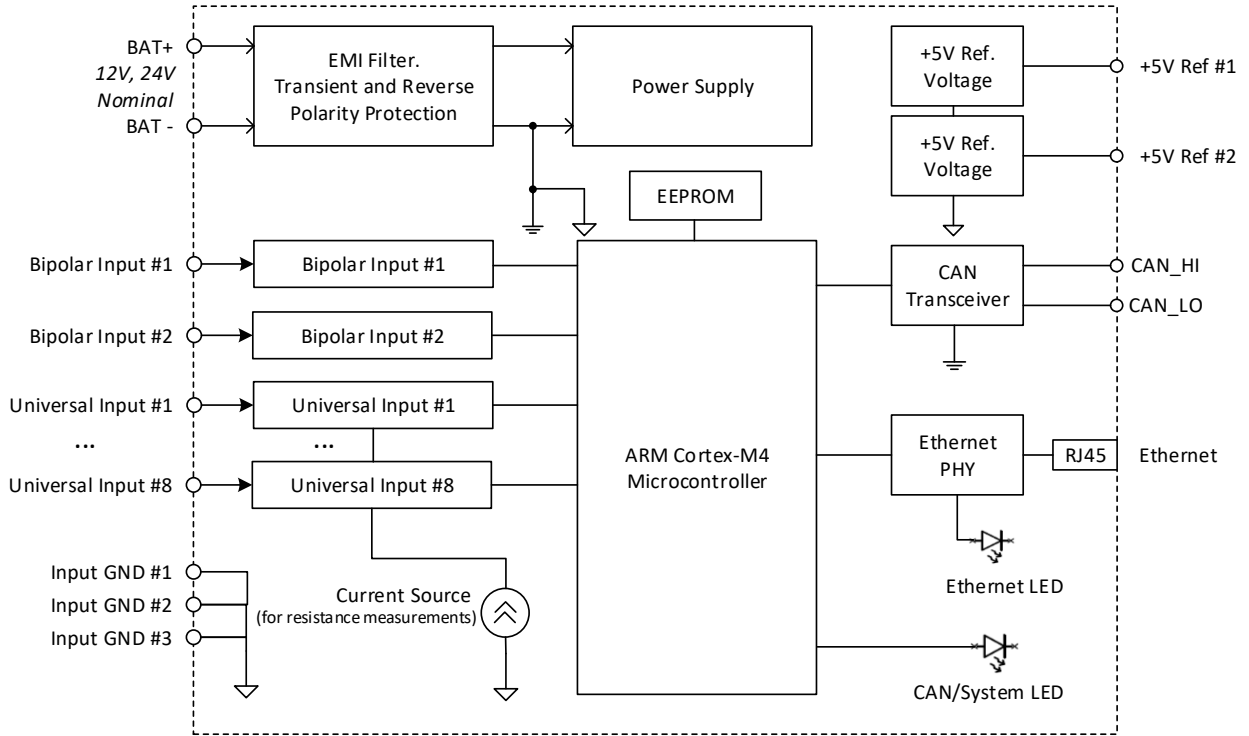


Figure 1.0 – Block Diagram

Technical Specifications:

Specifications are indicative and subject to change. Actual performance will vary depending on the application and operating conditions. Users should satisfy themselves that the product is suitable for use in the intended application. All our products carry a limited warranty against defects in material and workmanship. Please refer to our Warranty, Application Approvals/Limitations and Return Materials Process as described on <https://www.axiomatic.com/service/>.

Power Supply

Power Supply Input	12 Vdc or 24 Vdc nominal 8...36 Vdc power supply range
Protections	Reverse polarity protection Transient protection Short circuit to Ground protection

Bipolar Inputs

Inputs	2 Bipolar Analog or Digital Signal Inputs User programmable as Bipolar or Unipolar Voltage, Current, PWM or Digital signal inputs types. Refer to Table 1.0.																											
Input Grounds	1 provided																											
Protection	All inputs are protected against short to GND. All inputs, except current inputs, are protected against shorts to Nominal Vps (36Vdc).																											
Table 1.0 –User Programmable Bipolar and Analog Inputs																												
Analog Input Functions	Voltage Input, Current Input																											
Voltage Input	0-5 V (Impedance 1M Ω) 0-10 V (Impedance 1M Ω) +/- 5V (Impedance 1M Ω) +/- 10V (Impedance 1M Ω)																											
Current Input	0-20 mA (Impedance 124 Ω) 4-20 mA (Impedance 124 Ω)																											
Analog Update Rate	1.67 ms depending on analog filter settings																											
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Protection	+/- 36V maximum Forward and reverse polarity protection																											

Universal Inputs

Inputs	8 Universal Signal Inputs User programmable as Voltage, Current, Resistive, Frequency, PWM or Digital signal inputs types. Refer to Table 2.0.																						
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Analog Input Functions	Voltage Input, Current Input, Resistive Input																						
Voltage Input	0-5 V (Impedance 1M Ω (High Z)) 0-10 V (Impedance 204 k Ω)																						
Current Input	0-20 mA (Impedance 249 Ω) 4-20 mA (Impedance 249 Ω)																						
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Protection	+/- 36V maximum Forward and reverse polarity protection																						

Outputs

Voltage References	Two +5V, +/- 1%, 100 mA Short circuit protection Connection to the power supply is prohibited.
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General Specifications

Microprocessor	STM32F407Z, 32-bit, 1MByte flash memory								
Typical Quiescent Current	100 mA@ 12Vdc; 50 mA @ 24Vdc typical								
LED Indicators	2 bicolour LED's Red/Green: CAN/System error/CAN link (activity) Flashing: Bootloader mode Yellow/Green: Ethernet speed/link (activity)								
CAN Communications	1 CAN port (CANopen®)								
Ethernet	One 10 BASE-T/100 BASE-TX Ethernet port Auto-MDIX Ethernet IEEE 802.3, IP, ICMP, ARP, UDP, TCP, Modbus TCP, Proprietary Discovery Protocol								
Modbus TCP/IP	Uses Ethernet port Server mode (slave device) Up to 8 simultaneous connections <table border="1" data-bbox="548 663 1279 768"> <tr> <td colspan="2">Supported function codes:</td> </tr> <tr> <td>2, 4</td> <td>Reading bipolar/Universal inputs</td> </tr> <tr> <td>3, 6, 13, 23</td> <td>Reading/changing configuration parameters</td> </tr> <tr> <td>43/14</td> <td>Reading controller ID, S/N on a private object 0x80</td> </tr> </table>	Supported function codes:		2, 4	Reading bipolar/Universal inputs	3, 6, 13, 23	Reading/changing configuration parameters	43/14	Reading controller ID, S/N on a private object 0x80
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Control Logic	Refer to the user manual.								
User Interface	EDS File CANopen® tools (not supplied) Refer to the user manual for details. Modbus TCP - Third-party software								
Software Reflashing	Via J1939 CAN - Electronic Assistant P/N: AX070502 Modbus TCP – not currently supported								
Operating Conditions	-40 to 85 °C (-40 to 185 °F)								
Storage Temperature	-55 to 125 °C (-67 to 257°F)								
Protection	IP20								
Weight	0.30 lb. (0.136 kg)								
Enclosure and Dimensions	Phoenix Contact: ME MAX 22,5 G 2-2 KMGY – 2713638 Polyamide, UL94V0, cULus recognized, China RoHS DIN rail TH 35-7.5 114.5 x 22.5 x 99 x 107 mm 4.508 x 0.89 x 3.898 x 4.213 in (L x H x W x D) Refer to Figure 2.0.								
Electrical Connections	4 sets of 5 Phoenix Contact MC 1,5/ 5-ST-3,5 GY7035 3.5 mm screw terminal connectors Accepts 28-16 AWG wire. RJ-45 for Ethernet connection Refer to Table 3.0 and Figure 2.0. for pin out.								
Installation	DIN rail mount TH 35-7.5 or TH 35-15 (mm)								
Network Termination	ISO 11898 It is necessary to terminate the network with external termination resistors. The resistors are 120 Ohm, 0.25W minimum, metal film or similar type. They should be placed between CAN_H and CAN_L terminals at both ends of the network. Baud rate up to 1 Mbit/s is supported.								

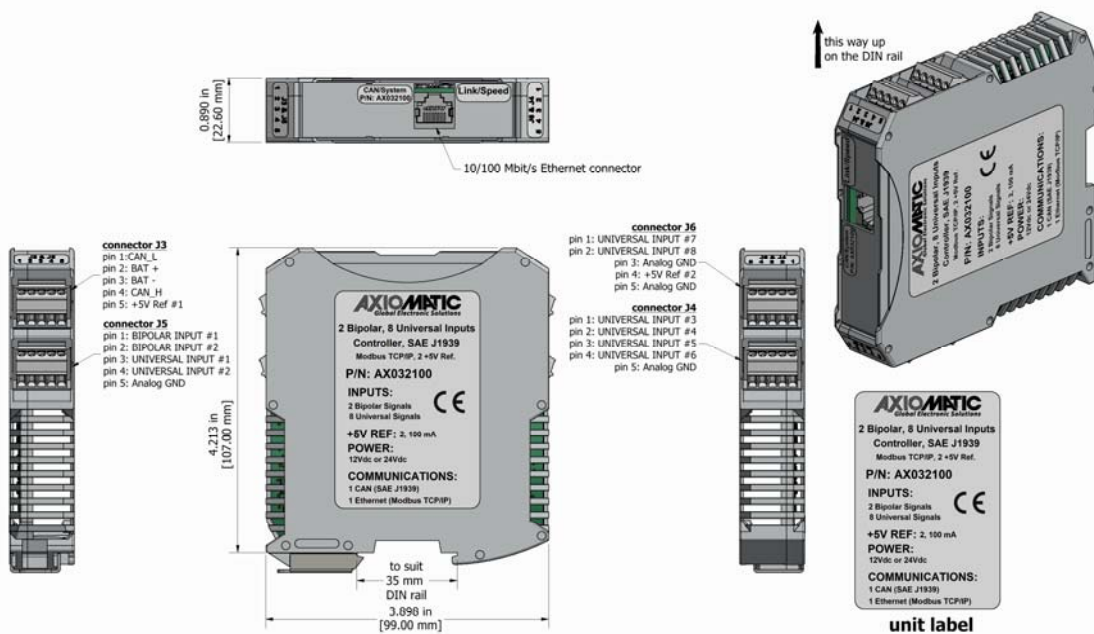


Figure 2.0 – Dimensions – **pending** drawing for AX032101 (same dimensions as AX032100 shown)

Table 3.0 – Pin out: AX032101

Power and CAN (J3)		Bipolar Inputs 1-2, Universal Inputs 1-2 (J5)		Universal Inputs 7-8 (J6)		Universal Inputs 3-6 (J4)	
PIN #	Function	PIN #	Function	PIN #	Function	PIN #	Function
1	CAN_L	1	Bipolar Analog/Signal Input 1	1	Universal Input 7	1	Universal Input 3
2	BATT +	2	Bipolar Analog/Signal Input 2	2	Universal Input 8	2	Universal Input 4
3	BATT –	3	Universal Input 1	3	Input GND	3	Universal Input 5
4	CAN_H	4	Universal Input 2	4	+5V Reference 2	4	Universal Input 6
5	+5V Reference 1		Input GND	5	Input GND	5	Input GND

Notes:

CANopen® is a registered community trademark of CAN in Automation e.V.

Form: TDAX032101-01/24/22