

32x Inputs CAN Controller, SAE J1939

P/N: AX030460

Applications

- Construction equipment
- Mining equipment
- Agricultural equipment
- On-road vehicles
- Power generator sets

Ordering Part Number

32x Inputs CAN Controller, SAE J1939 – P/N: **AX030460**

Features

- 24x universal signal inputs selectable as voltage, current, frequency, PWM, and digital (active high or active low)
- 4x digital inputs programmable as frequency, PWM, and digital (active high or active low)
- 2x encoder channels (3 pins per encoder: A, B, and Z)
- 2x RTD channels (3-wire Pt100)
- 6x 5 V references (max. combined load ≤ 200 mA)
- 3x CAN ports (SAE J1939)
- 1x standard Ethernet port (10 or 100 Mbit/s)
- Accepts 12 or 24 V nominal battery power
- 12x configurable status indicator LEDs
- -40 to 85 °C (-40 to 185 °F) operating temperature
- 1x 4-pin M12 and 10x 6-pin TE Deutsch equivalent connectors
- Sealed, IP67-rated enclosure
- Suitable for harsh environments
- Configurable via webserver



Block Diagram

Figure 1.0 – Block Diagram (TBD)

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 Limitations & Return Materials Process as described on <https://www.axiomatic.com/service/>.

Power Supply

Power Supply Input	12 or 24 V _{DC} nominal (8 to 36 V _{DC} power supply range)
Quiescent Current	89 mA @ 12 V _{DC} ; 51 mA @ 24 V _{DC} (typical)
Protection	Surge and transient protection Reverse polarity protection Undervoltage protection down to 7.5 V _{DC} . Overvoltage protection is up to 38 V _{DC} .

Inputs

Universal Inputs	24x universal signal inputs user selectable as voltage, current, frequency, PWM, or digital types. 12-bit analog to digital resolution (voltage and current inputs) Protected against shorts to Ground or V_{PS} Universal inputs 3, 6, 8, 11, 12, 15, and 18 have individual counter bases. Universal inputs 1, 2, and 4 share a counter base. Their frequency range must be set together. Similarly, universal inputs [5, 7, and 17], [10, 19, and 21], [9 and 22], [13, 14, 20, and 24], and [16 and 23] share counters within their respective groups. <table> <tr> <td>Voltage</td><td> Range: 0-5 V Impedance: 170 kΩ Range: 0-10 V Impedance: 120 kΩ Accuracy: ±1 % error </td></tr> <tr> <td>Current</td><td> Ranges: 0-20 mA or 4-20 mA Current Sensing Resistor: 124 Ω Accuracy: ±1 % error </td></tr> <tr> <td>Frequency</td><td> Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±1 % error Impedance: 1 MΩ </td></tr> <tr> <td>PWM</td><td> Duty Cycle: 1 to 100 % Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±2 % error Impedance: 1 MΩ </td></tr> <tr> <td>Digital</td><td> Active low or Active low Low from 0 to 1.5 V; High from 3.5 to 36 V Pull-Up / Pull-Down Resistor: 10 kΩ (configurable) </td></tr> </table>	Voltage	Range: 0-5 V Impedance: 170 kΩ Range: 0-10 V Impedance: 120 kΩ Accuracy: ±1 % error	Current	Ranges: 0-20 mA or 4-20 mA Current Sensing Resistor: 124 Ω Accuracy: ±1 % error	Frequency	Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±1 % error Impedance: 1 MΩ	PWM	Duty Cycle: 1 to 100 % Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±2 % error Impedance: 1 MΩ	Digital	Active low or Active low Low from 0 to 1.5 V; High from 3.5 to 36 V Pull-Up / Pull-Down Resistor: 10 kΩ (configurable)
Voltage	Range: 0-5 V Impedance: 170 kΩ Range: 0-10 V Impedance: 120 kΩ Accuracy: ±1 % error										
Current	Ranges: 0-20 mA or 4-20 mA Current Sensing Resistor: 124 Ω Accuracy: ±1 % error										
Frequency	Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±1 % error Impedance: 1 MΩ										
PWM	Duty Cycle: 1 to 100 % Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±2 % error Impedance: 1 MΩ										
Digital	Active low or Active low Low from 0 to 1.5 V; High from 3.5 to 36 V Pull-Up / Pull-Down Resistor: 10 kΩ (configurable)										
Digital Inputs	4x digital inputs All digital inputs share a counter base. Their frequency range must be set together. <table> <tr> <td>Frequency</td><td> Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±1 % error Impedance: 1 MΩ </td></tr> <tr> <td>PWM</td><td> Duty Cycle: 1 to 100 % Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±2 % error Impedance: 1 MΩ </td></tr> <tr> <td>Digital</td><td> Active low or Active low Low from 0 to 1.5 V High from 3.5 to 36 V Pull-Up / Pull-Down Resistor: 10 kΩ (configurable) </td></tr> </table>	Frequency	Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±1 % error Impedance: 1 MΩ	PWM	Duty Cycle: 1 to 100 % Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±2 % error Impedance: 1 MΩ	Digital	Active low or Active low Low from 0 to 1.5 V High from 3.5 to 36 V Pull-Up / Pull-Down Resistor: 10 kΩ (configurable)				
Frequency	Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±1 % error Impedance: 1 MΩ										
PWM	Duty Cycle: 1 to 100 % Range: 1 to 100 Hz, 10 Hz to 1 kHz, 1 to 10 kHz Accuracy: ±2 % error Impedance: 1 MΩ										
Digital	Active low or Active low Low from 0 to 1.5 V High from 3.5 to 36 V Pull-Up / Pull-Down Resistor: 10 kΩ (configurable)										
Encoder Inputs	2x encoder channels 3 pins per encoder: A, B, and Z Frequency Range: 0.5 Hz to 10 kHz Accuracy: ±1 % error Low: 1.5 V max. High: 3.5 V min Pull-Down Resistor: 10 kΩ										
RTD Inputs	2x RTD channels for 3-wire Pt100 sensors RTD Resistance Range: 20 to 400 Ω RTD Lead Resistance Range: 0 to 10 Ω Accuracy: ±0.5 Ω Scan Rate: 10 samples per second per channel										
Signal Ground	6x provided										

Voltage References

Voltage References	6x +5 V reference outputs Accuracy: $\pm 0.5\%$ Load current of all 6 outputs combined must not exceed 200 mA.
--------------------	--

CAN

Ports	3x CAN ports (SAE J1939)
Baud Rate	125 kbit/s, 250 kbit/s, 500 kbit/s, 667 kbit/s, and 1 Mbit/s with auto-baud-rate detection
Network Termination	It is necessary to terminate the network with external termination resistors. The resistors are 120 Ω , 0.25 W minimum, metal film or similar type. They should be placed between CAN High and CAN Low terminals at both ends of the network.
Protection	ESD protected

Ethernet

Port	1 Ethernet port 10/100 Mbit/s
Protection	ESD/EFT protected

General Specifications

Microcontroller	STM32H725IGK3 32-bit, 1 MB flash memory
Control Logic	Standard embedded software is provided.
User Interface	The Ethernet port has a web server for configuration purposes. Refer to the User Manual.
LED Indicators	Individual LED indicators for each of the 10 ports, LINK, and SPEED. The functionality of the LEDs is configurable.
Compliance	RoHS
Operating Conditions	-40 to 85 °C (-40 to 185 °F)
Storage Temperature	-50 to 120 °C (-58 to 248 °F)
Enclosure	Infino SC-1220UR, Polycarbonate Flammability rating: UL 94-V2 Gasket Refer to dimensional drawing.
Protection	IP67
Weight	1.04 lb. (0.472 kg)
Installation	Mounting slots are sized for M6 bolts (or 7/32 in. bolts with washers). The bolt length will be determined by the end-user's mounting plate thickness. Refer to the dimensional drawing.

Electrical Connections

Connections	10x connectors, 6-pin, male, TE Deutsch equivalent P/N: DT15-6P (mates with P/N: DT06-6S)					
	Pin	Port 1	Port 2	Port 3	Port 4	Port 5
	1	Encoder Input 1 A	RTD 1 A	Universal Input 1	Universal Input 13	Universal Input 17
	2	Encoder Input 1 B	RTD 1 C	Universal Input 2	Universal Input 14	Universal Input 18
	3	Encoder Input 1 Z	RTD 1 Ground	Universal Input 3	Universal Input 15	Universal Input 19
	4	Encoder Input 2 Z	RTD 2 Ground	Universal Input 4	Universal Input 16	Universal Input 20
	5	Encoder Input 2 B	RTD 2 C	Signal Return	Signal Return	Signal Return
	6	Encoder Input 2 A	RTD 2 A	+5 V Reference	+5 V Reference	+5 V Reference
	Note: Connect one wire of the same colored wire pair of the 3-wire RTD to RTD C pin and the other to RTD Ground pin.					
	Pin	Port 6	Port 7	Port 8	Port 9	Port 10
1	Universal Input 5	Universal Input 9	Universal Input 21	CAN 1 High	Battery +	
2	Universal Input 6	Universal Input 10	Universal Input 22	CAN 2 High	Digital Input 1	
3	Universal Input 7	Universal Input 11	Universal Input 23	CAN 3 High	Digital Input 2	
4	Universal Input 8	Universal Input 12	Universal Input 24	CAN 3 Low	Digital Input 4	
5	Signal Return	Signal Return	Signal Return	CAN 2 Low	Digital Input 3	
6	+5 V Reference	+5 V Reference	+5 V Reference	CAN 1 Low	Battery -	
1x M12 connector, 4-pin, D-coded, female, Binder P/N: 99-3732-200-04						
	Pin	ENET				
	1	TX +				
	2	RX +				
	3	TX -				
	4	RX -				
Mating Connectors	10x sets of AX070119 Mating Plug Kit (includes 1x DT06-6S, 1x W6S, 6x 0462-201-16141) are required. Mating plug for 4-pin M12 D-coded connector is not supplied.					

Dimensional Drawing

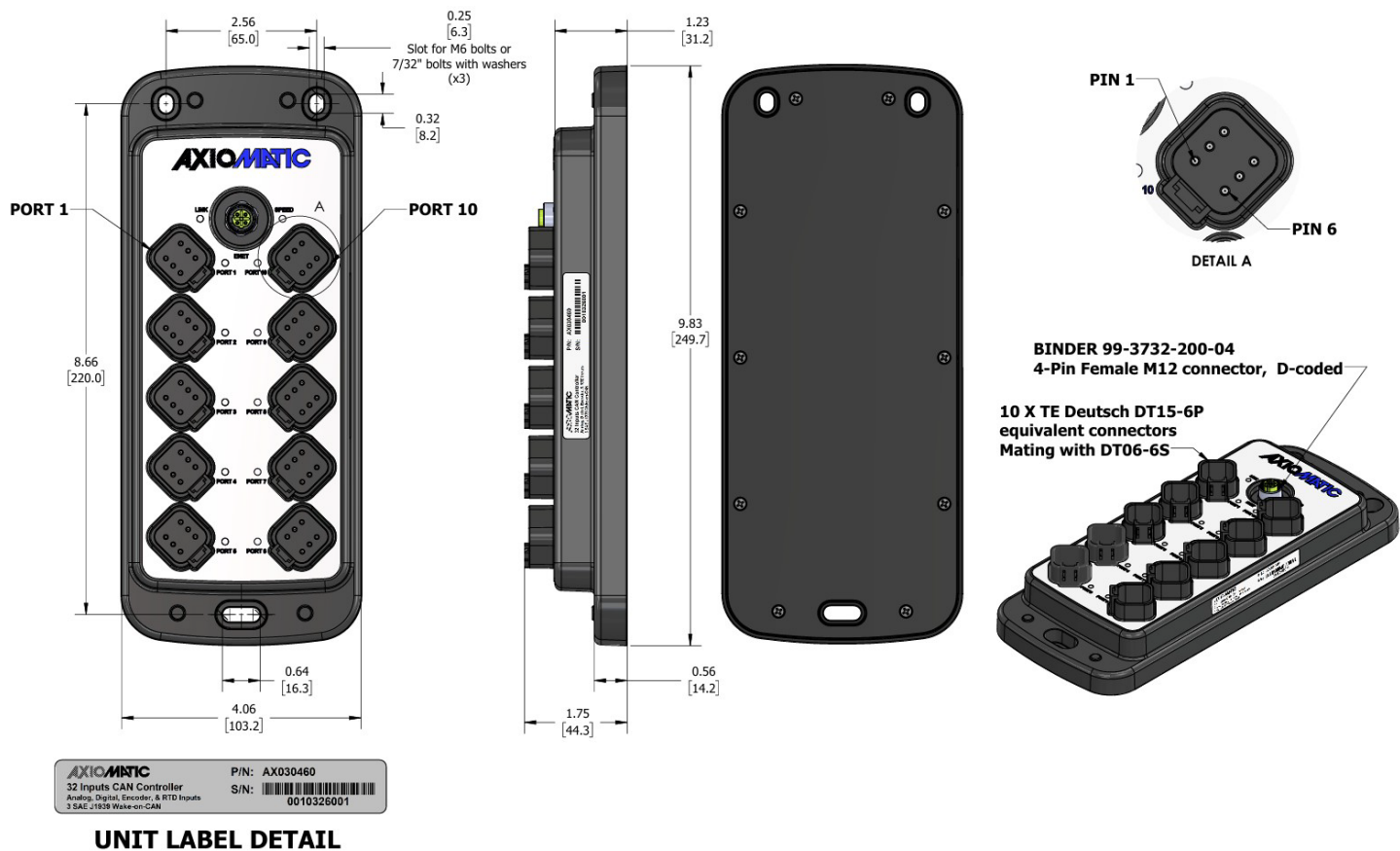


Figure 2.0 – Dimensional Drawing

TDAX030460-08/26/2026

OUR PRODUCTS

AC/DC Power Supplies
Actuator Controls/Interfaces
Automotive Ethernet Switches
Battery Chargers
CAN Controls, Routers, Repeaters
CAN/WiFi
CAN/Bluetooth (Classic, BLE)
CAN bus Routers
CANopen I/O Modules
Current/Voltage/PWM Converters
DC/DC Power Converters
Engine Temperature Scanners
Ethernet/CAN Converters, Gateways
Ethernet Switches
Fan Drive Controllers
Gateways, CAN/Modbus, RS-232
Gyroscopes, Inclinometers
Hydraulic Valve Controllers
Inclinometers, Triaxial
I/O Controls
LVDT Signal Converters
Machine Controls
Media Converters
Modbus, RS-422, RS-485 Controls
Motor Controls, Inverters
Power Supplies, DC/DC, AC/DC
PWM Signal Converters/Isolators
Resolver Signal Conditioners
SAE J1939 I/O Modules
Service Tools
Signal Conditioners, Converters
Strain Gauge CAN Controls
Surge Suppressors

OUR COMPANY

Axiomatic provides electronic machine control components to the off-highway, commercial vehicle, electric vehicle, power generator set, material handling, renewable energy and industrial OEM markets. ***We innovate with engineered and off-the-shelf machine controls that add value for our customers.***

QUALITY DESIGN AND MANUFACTURING

We have an ISO9001 registered R&D, electronics design and manufacturing facility in Canada.

Sales offices are in Canada, USA, Australia and Finland.

COMPLIANCE

Product compliance details can be found in the product literature and/or on axiomatic.com. Any inquiries should be sent to sales@axiomatic.com.

SAFE USE

All products should be serviced by Axiomatic. Do not open the product and perform the service yourself.



This product can expose you to chemicals which are known in the State of California, USA to cause cancer and reproductive harm. For more information go to www.P65Warnings.ca.gov.

TECHNICAL SUPPORT

Contact technical support by emailing support@axiomatic.com.

WARRANTY, APPLICATION APPROVALS/LIMITATIONS

Axiomatic Technologies Corporation reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. 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 at <https://www.axiomatic.com/service/>.

SERVICE

All products to be returned to Axiomatic require a Return Materials Authorization Number (RMA#) from rma@axiomatic.com. Please provide the following information when requesting an RMA number:

- Serial number, part number, Runtime hours, description of problem
- Wiring set up diagram, application and other comments as needed

DISPOSAL

Axiomatic products are electronic waste. Please follow your local environmental waste and recycling laws, regulations and policies for safe disposal or recycling of electronic waste.

CONTACTS

Axiomatic Technologies Corporation

1445 Courtneypark Drive E.
Mississauga, ON
CANADA L5T 2E3
TEL: +1 (905) 602-9270
FAX: +1 (905) 602-9279
www.axiomatic.com
sales@axiomatic.com
support@axiomatic.com

Axiomatic Technologies Corporation

Unit 1632
3 Lakeview Rise
Noosa Heads, QLD
AUSTRALIA 4567
TEL: +61 (0) 423 600 664
www.axiomatic.com
sales@axiomatic.com

Axiomatic Technologies Oy

Höytämöntie 6 C
33880 Lempäälä
FINLAND
TEL: +358 10 337 5751
www.axiomatic.com
salesfinland@axiomatic.com

Axiomatic Technologies Inc.

39100 Country Club Drive
Suite 400
Farmington Hills, MI
USA 48331
TEL: +1 (734) 262-8535
www.axiomatic.com
sales@axiomatic.com