

Four Universal Signal Inputs Controller

4 Universal Signal Inputs

1 +8V Reference or +5V Reference

1 CAN (SAE J1939)

with Axiomatic Electronic Assistant

P/N: AX030440

Features:

- Four universal signal inputs configurable as Voltage, Current, Resistive, Frequency, PWM, or Digital
- CAN SAE J1939 port
- +8V Reference, +5V Reference (user selectable)
- 12V or 24V nominal power
- Compact IP67 Enclosure, 12-pin Connector (a TE Deutsch equivalent)
- Operates from -40°C to +85°C
- CE/UKCA marking



Applications: Machine automation

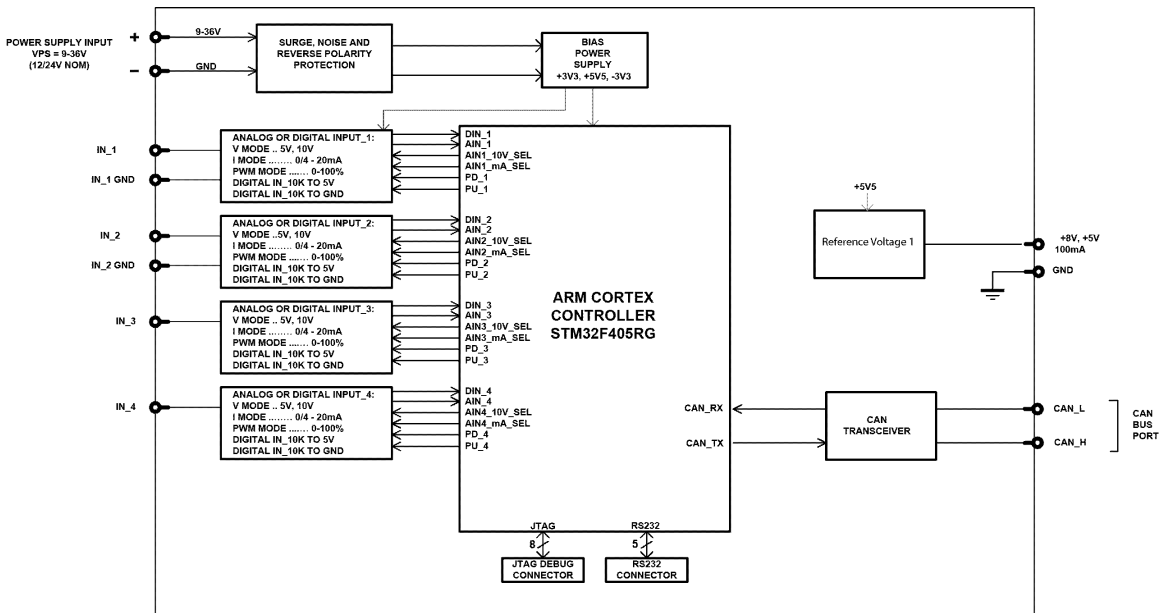
Ordering Part Numbers:

Four Universal Signal Inputs Controller, +8V/+5V Ref., SAE J1939 with auto-baud-rate detect: **AX030440**

Accessories:

Mating Plug Kit: **PL-DTM06-12SA**

Axiomatic Electronic Assistant KIT, P/Ns: **AX070502, AX070505K, or AX070506K**



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
Protection	Reverse polarity protection up to -100V. Undervoltage shutdown at 5Vdc. Overvoltage protection is up to 59 V.
Voltage Reference	User selectable +8V, 100 mA, 2% reference voltage output +5V, 100 mA, 2% reference voltage output

Inputs

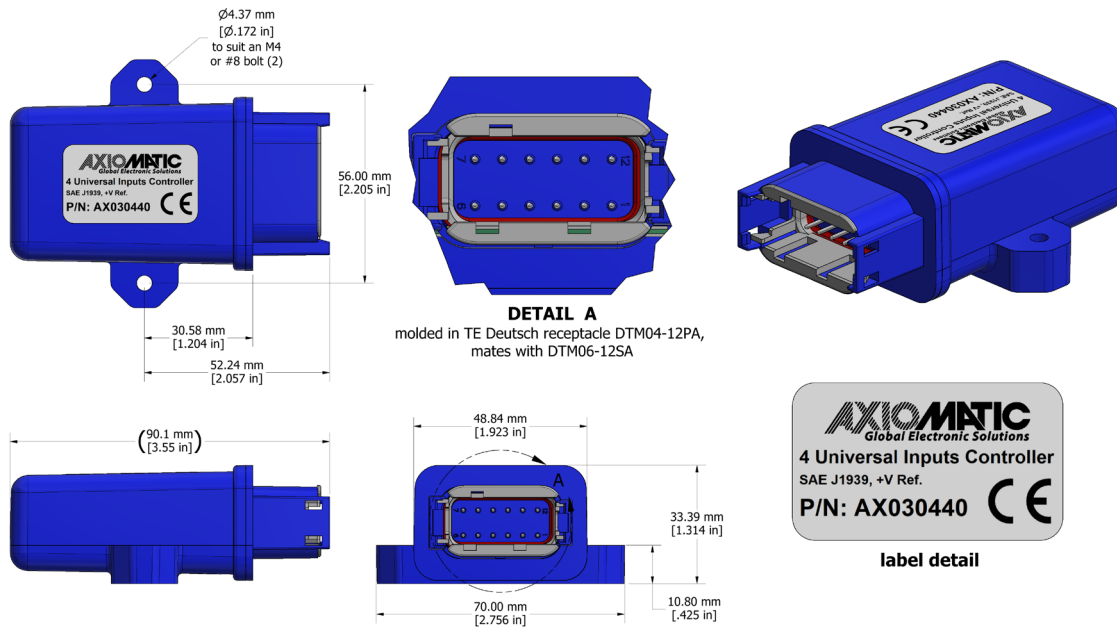
Inputs	4 Universal Signal Inputs Refer to Table 1.0.																											
Input Grounds	Three (3) are provided.																											
Protection	All inputs are protected against short to GND. All inputs are protected against shorts to Nominal Vps (36Vdc).																											
Input Accuracy and Resolution	<table border="1"> <thead> <tr> <th>Input Type</th> <th>Input Range</th> <th>Accuracy</th> <th>Resolution</th> </tr> </thead> <tbody> <tr> <td>Voltage</td> <td>0-5V, 0-10V</td> <td>+/-0.2%</td> <td>1 mV</td> </tr> <tr> <td>Current</td> <td>0(4)-20mA</td> <td>+/-0.2%</td> <td>1 μA</td> </tr> <tr> <td>Resistive</td> <td>30-250kΩ</td> <td>+/-2%</td> <td>1 Ω</td> </tr> <tr> <td>Frequency</td> <td>1Hz-10kHz</td> <td>+/-0.1%</td> <td>0.01%</td> </tr> <tr> <td>PWM</td> <td>Frequency</td> <td>+/-0.1%</td> <td>0.01%</td> </tr> </tbody> </table>				Input Type	Input Range	Accuracy	Resolution	Voltage	0-5V, 0-10V	+/-0.2%	1 mV	Current	0(4)-20mA	+/-0.2%	1 μ A	Resistive	30-250k Ω	+/-2%	1 Ω	Frequency	1Hz-10kHz	+/-0.1%	0.01%	PWM	Frequency	+/-0.1%	0.01%
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Table 1.0 –User Programmable Universal Inputs																																													
Analog & Digital Input Functions	Voltage Input, Current Input, Resistive Input or Digital Input 12-bit Analog to Digital																																												
Voltage Input	0-5 V (Impedance > 1 G Ω or 10 k Ω m pull-down) 0-10 V (Impedance 204 k Ω)																																												
Current Input	0-20 mA (Impedance 249 Ω) 4-20 mA (Impedance 249 Ω)																																												
Resistive	30 Ohms to 250 kOhms Self-calibrating																																												
Digital Input	Active High or Active Low with 10 k Ω m pull-up or pull-down Accepts up to Vps																																												
PWM Input	1 Hz to 25 kHz 0 to 100% D.C. (Impedance 200 k Ω)																																												
Frequency/RPM Input	1 Hz to 25 kHz																																												
Maximum and Minimum Ratings	<table border="1"> <thead> <tr> <th>Characteristic</th> <th>Min</th> <th>Max</th> <th>Units</th> </tr> </thead> <tbody> <tr> <td>Power Supply</td> <td>9</td> <td>36</td> <td>V dc</td> </tr> <tr> <td>Voltage Input</td> <td>0</td> <td>36</td> <td>V dc</td> </tr> <tr> <td>Current Input 0(4)-20 mA</td> <td>0</td> <td>12</td> <td>Vdc</td> </tr> <tr> <td>Current Input 0-200 mA</td> <td>0</td> <td>1V</td> <td>Vdc</td> </tr> <tr> <td>Resistive Input</td> <td>20</td> <td>250 000</td> <td>Ω</td> </tr> <tr> <td>Digital Input</td> <td>0</td> <td>36</td> <td>Vdc</td> </tr> <tr> <td>PWM Duty Cycle</td> <td>0</td> <td>100</td> <td>%</td> </tr> <tr> <td>PWM Frequency</td> <td>5</td> <td>25 000</td> <td>Hz</td> </tr> <tr> <td>PWM Voltage pk - pk</td> <td>0</td> <td>36</td> <td>V dc</td> </tr> <tr> <td>RPM Frequency</td> <td>1</td> <td>25 000</td> <td>Hz</td> </tr> </tbody> </table>	Characteristic	Min	Max	Units	Power Supply	9	36	V dc	Voltage Input	0	36	V dc	Current Input 0(4)-20 mA	0	12	Vdc	Current Input 0-200 mA	0	1V	Vdc	Resistive Input	20	250 000	Ω	Digital Input	0	36	Vdc	PWM Duty Cycle	0	100	%	PWM Frequency	5	25 000	Hz	PWM Voltage pk - pk	0	36	V dc	RPM Frequency	1	25 000	Hz
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General Specifications

Microcontroller	STM32F405RG																										
Typical Quiescent Current	55.1 mA @ 12Vdc typical; 27.2 mA @ 24Vdc typical																										
Control Logic	Standard embedded software is provided. <i>(Application-specific control logic or a set point file is available on request.)</i>																										
Communications	1 CAN port (SAE J1939) (CANopen® on request)																										
Baud Rate	CAN Baud rate: 250, 500, 667 kbit/s, 1 Mbit/s. Automatic baud rate detection.																										
Network Termination	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.																										
User Interface and Software Reflashing	The Axiomatic Electronic Assistant, P/Ns: AX070502 , AX070505K or AX070506K for <i>Windows</i> operating systems comes with a royalty-free license for use on multiple computers. It includes an Axiomatic USB-CAN converter to link the device's CAN port to a <i>Windows</i> -based PC.																										
Operating Temperature	-40 to 85 °C (-40 to 185 °F)																										
Storage Temperature	-55 to 125 °C (-67 to 257 °F)																										
Protection	IP67																										
Compliance	CE/UKCA marking																										
Vibration	MIL-STD-202G, Test 204D and 214A (Sine and Random) 10 g peak (Sine) 7.86 Grms peak (Random)																										
Shock	MIL-STD-202G, Test 213B 50g																										
Weight	0.15 lb. (0.068 kg)																										
Enclosure	Molded Enclosure, integral connector; Flammability Rating: UL 94V-0 Nylon 6/6, 30% glass Ultrasonically welded 3.54 x 2.75 x 1.31 inches (90.09 x 70.00 x 33.35 mm) L x W x H including integral connector Refer to the dimensional drawing.																										
Electrical Connections	Integral 12-pin receptacle (equivalent TE Deutsch P/N: DTM04-12PA) <table border="1" data-bbox="548 1045 1047 1430"> <thead> <tr> <th>PIN #</th> <th>FUNCTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>BATT -</td> </tr> <tr> <td>2</td> <td>+8V Reference</td> </tr> <tr> <td>3</td> <td>Input Ground</td> </tr> <tr> <td>4</td> <td>Input Ground</td> </tr> <tr> <td>5</td> <td>Input Ground</td> </tr> <tr> <td>6</td> <td>Universal Signal Input 1</td> </tr> <tr> <td>7</td> <td>Universal Signal Input 2</td> </tr> <tr> <td>8</td> <td>Universal Signal Input 4</td> </tr> <tr> <td>9</td> <td>Universal Signal Input 3</td> </tr> <tr> <td>10</td> <td>CAN_H</td> </tr> <tr> <td>11</td> <td>CAN_L</td> </tr> <tr> <td>12</td> <td>BATT +</td> </tr> </tbody> </table>	PIN #	FUNCTION	1	BATT -	2	+8V Reference	3	Input Ground	4	Input Ground	5	Input Ground	6	Universal Signal Input 1	7	Universal Signal Input 2	8	Universal Signal Input 4	9	Universal Signal Input 3	10	CAN_H	11	CAN_L	12	BATT +
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Mating Plug Kit	PL-DTM06-12SA Mating Plug Kit :1 DTM06-12SA, 1 WM-12S, 12 0462-201-20141, 6 0413-204-2005 Sealing Plug																										
Mounting	Mounting holes are sized for #8 or M4 bolts. The bolt length will be determined by the end-user's mounting plate thickness. The mounting flange of the controller is 0.425 inches (10.8 mm) thick. If the module is mounted without an enclosure, it should be mounted vertically with connectors facing left or right to reduce likelihood of moisture entry. The CAN wiring is considered intrinsically safe. The power wires are not considered intrinsically safe and so in hazardous locations, they need to be located in conduit or conduit trays at all times. The module must be mounted in an enclosure in hazardous locations for this purpose. No wire or cable harness should exceed 30 meters in length. The power input wiring should be limited to 10 meters. All field wiring should be suitable for the operating temperature range. Install the unit with appropriate space available for servicing and for adequate wire harness access (6 inches or 15 cm) and strain relief (12 inches or 30 cm).																										

Dimensional Drawing



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

Form: TDAX030440-06/07/23