

TECHNICAL DATASHEET #TDAX030440  
**4 Universal Signal Inputs CAN Controller**  
4 Universal Signal Inputs  
1 +8V Reference or +5V Reference  
1 CAN (SAE J1939)  
Configurable with Axiomatic Electronic Assistant  
**P/N: AX030440**

## Features

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



## Applications

Machine automation

## Ordering Part Number

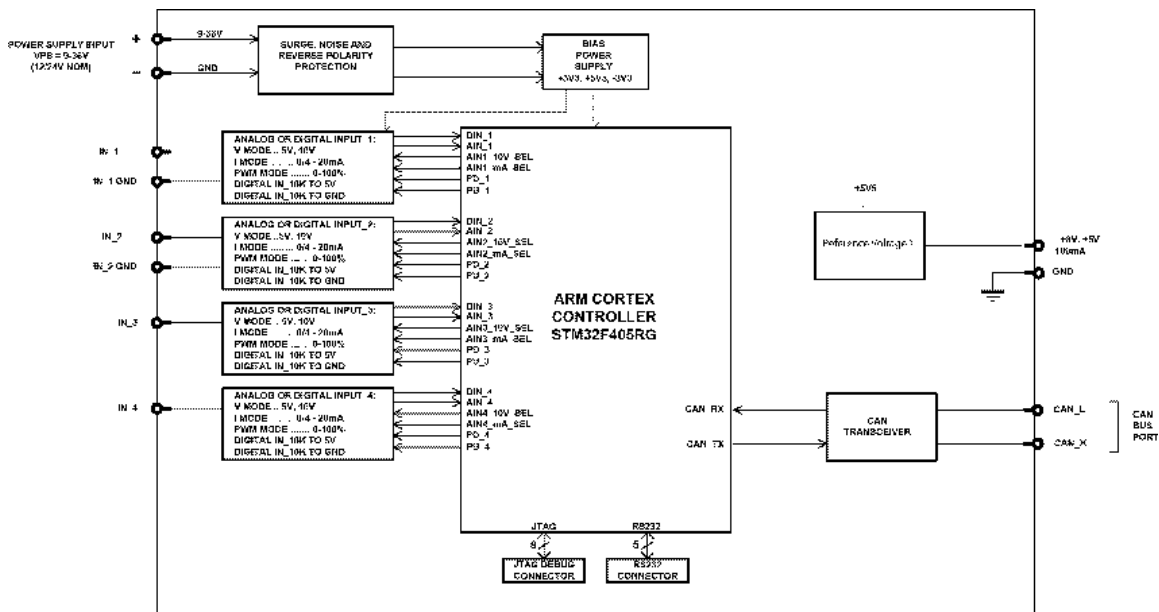
4 Universal Signal Inputs Controller, +8V/+5V Ref., SAE J1939 with Auto-Baud-Rate Detection  
- P/N: **AX030440**

### Accessories:

Mating Plug KIT - P/N: **PL-DTM06-12SA**

Axiomatic Electronic Assistant Configuration KIT - P/N: **AX070502** 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 Limitations & Return Materials Process as described on <https://www.axiomatic.com/service/>.

### Power Supply

Power Supply Input	12 Vdc or 24 Vdc nominal 8 to 36 Vdc power supply range
Quiescent Current	47.2 mA @ 12Vdc; 25.8 mA @ 24Vdc typical
Protection	Reverse polarity protection up to -36 V. Undervoltage shutdown at 5.1 V. Overvoltage protection is up to 59.3 V.

### Inputs

Inputs	4 Universal signal inputs Refer to Table 1.0.			
Input Grounds	3 provided			
Protection	All inputs are protected against short to GND. All inputs are protected against shorts to Nominal Vps (36Vdc).			
Input Accuracy and Resolution	Input Type	Input Range	Accuracy	Resolution
	Voltage	0-5V, 0-10V	+/-0.2%	1 mV
	Current	0(4)-20mA	+/-0.2%	1 µA
	Resistive	30-250kΩ	+/-2%	1 Ω
	Frequency	1Hz-10kHz	+/-0.1%	0.01%
	PWM	Frequency	+/-0.1%	0.01%

**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 GΩ or 10 kΩ pull-down) 0-10 V (Impedance 204 kΩ)			
Current Input	0-20 mA (Impedance 249 Ω) 4-20 mA (Impedance 249 Ω)			
Resistive	30 Ohms to 250 kΩ Self-calibrating			
Digital Input	Active High or Active Low with 10 kΩ pull-up or pull-down Accepts up to Vps			
PWM Input	1 Hz to 25 kHz 0 to 100% D.C. (Impedance 200 kΩ)			
Frequency/RPM Input	1 Hz to 25 kHz			
Maximum and Minimum Ratings	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

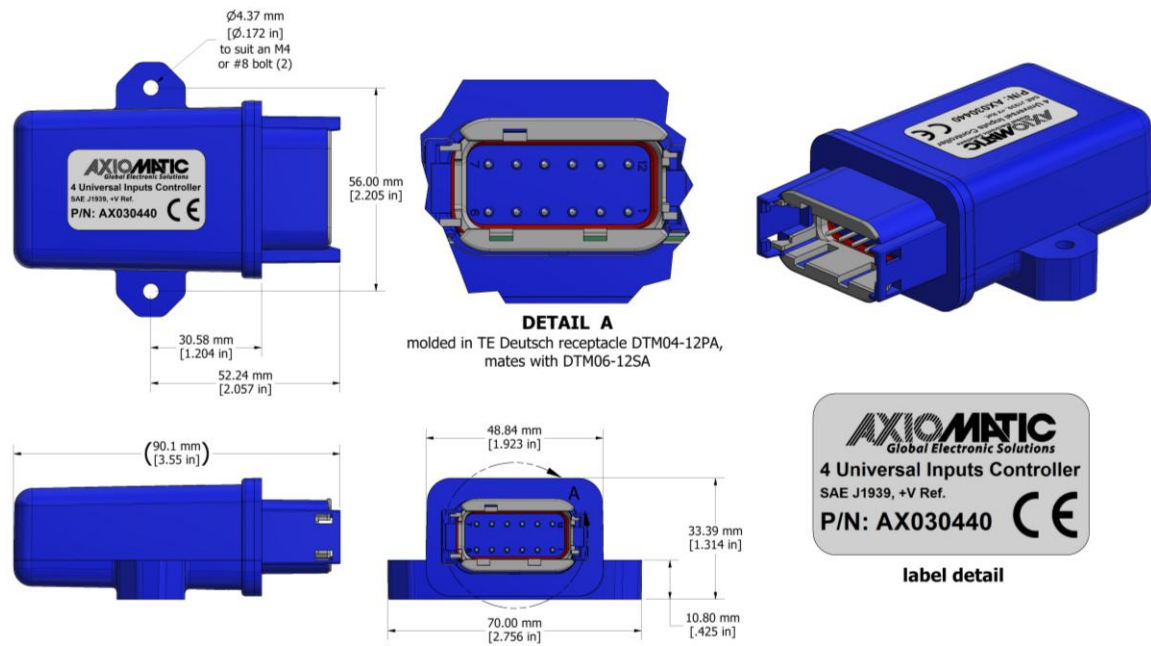
### Reference Voltage

Voltage Reference	User selectable from the following. 8V, 100 mA, 2% reference voltage output 5V, 100 mA, 2% reference voltage output
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## General Specifications

Microcontroller	STM32F405RG																										
Control Logic	Standard embedded software is provided. (Application-specific control logic or a set point file is available on request.)																										
Communications	1 CAN port (SAE J1939) Supported baud-rates: 250 kbps, 500 kbps, 667 kbps, 1 Mbps with auto-baud-rate detection CANopen® model - P/N: <b>AX030441</b>																										
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	Axiomatic Electronic Assistant, P/N: <b>AX070502</b> or <b>AX070506K</b>																										
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-202H, method 204D, test condition C 10g peak (Sine component) MIL-STD-202H, method 214A, test condition I/B 7.56 Grms (Random component)																										
Shock	MIL-STD-202H, method 213B, test condition A 50g peak																										
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	<p>Integral 12-pin receptacle (equivalent TE Deutsch P/N: DTM04-12PA)</p> <table border="1"> <thead> <tr> <th>PIN #</th><th>FUNCTION</th></tr> </thead> <tbody> <tr><td>1</td><td>Battery -</td></tr> <tr><td>2</td><td>5V or 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>Battery +</td></tr> </tbody> </table>	PIN #	FUNCTION	1	Battery -	2	5V or 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	Battery +
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Mating Plug Kit	<b>PL-DTM06-12SA</b> Mating Plug Kit :1x DTM06-12SA, 1x WM-12S, 12x 0462-201-20141, 6x 0413-204-2005 Sealing Plug																										
Mounting	<p>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.</p> <p>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.</p> <p>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.</p> <p>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).</p>																										

## Dimensional Drawing



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Form: TDAX030440-04/28/2025