

TECHNICAL DATASHEET #TDAX200301

## 4 Channel Strain Gauge CAN Controller

CANopen®

P/N: AX200301

### Features:

- 4 channels for inputs from 4-wire full bridge strain gauges:
  - +/- 19.5 mV to +/- 2.5 Vdc (selectable)
- 1 digital input, 1 digital on/off output
- 1 interlock (relay) output
- 12V, 24Vdc (nominal) power input
- 4 +5V excitation connections
- Wire break detection
- 1 CAN port (CANopen®)
- Rugged enclosure and connectors (TE Deutsch equivalents)
- Standard control logic
- EDS file is provided.



**Description:** The 4 Channel Strain Gauge CAN controller accepts up to four 4-wire strain gauge connections. The input range is user selectable from +/- 19.5 mV to +/- 2.5 Vdc. It interfaces with the machine's CAN network (CANopen®). The measurement rate is 2.5 scans per second and the update rate is 400 ms for all 4 channels. Standard embedded software is provided. Its rugged IP67 rated enclosure and power supply input of 12Vdc or 24Vdc nominal is suited for applications in the harsh environment of mobile equipment with on-board battery power.

### Applications:

- construction equipment, lift equipment and cranes

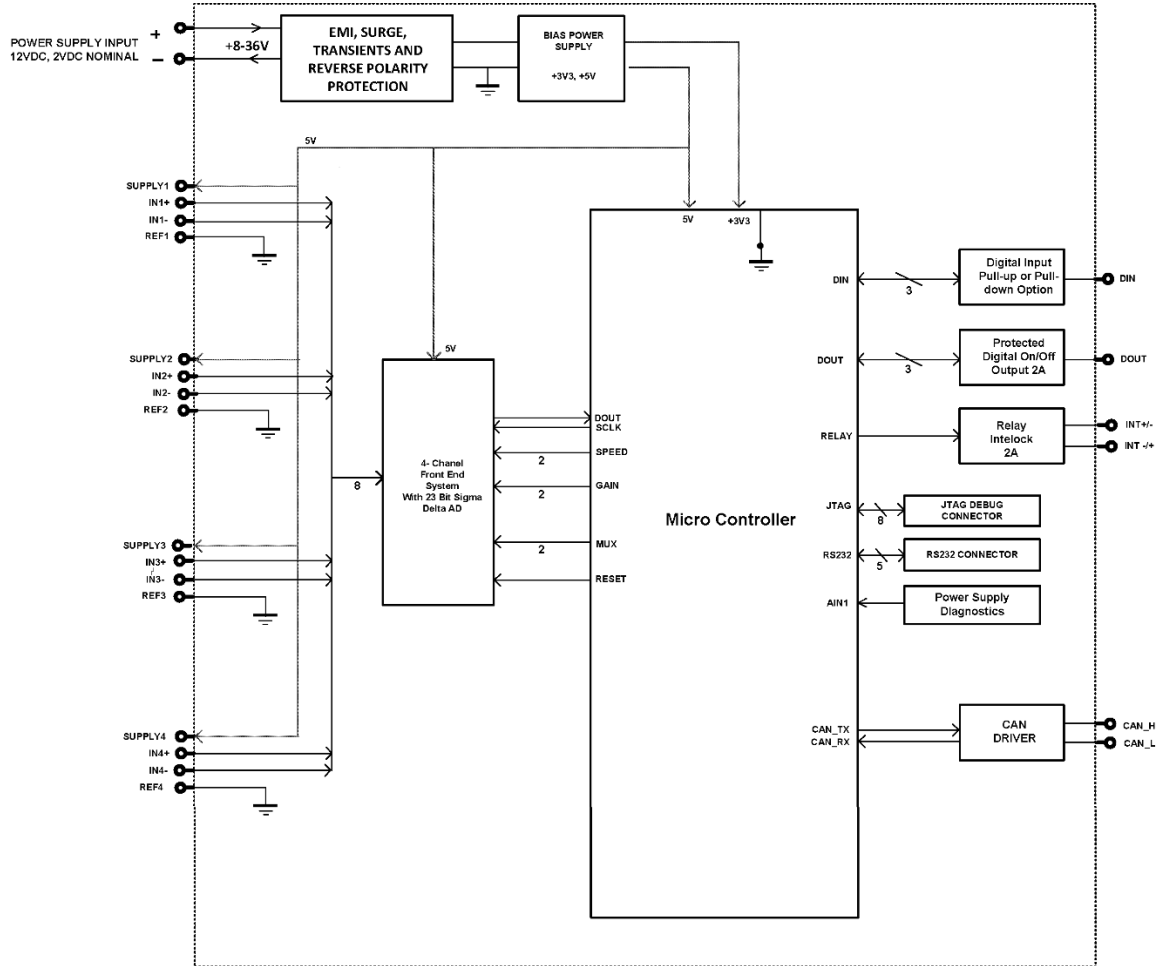
### Ordering Part Numbers:

Controller, CANopen®: **AX200301**  
**EDS File**

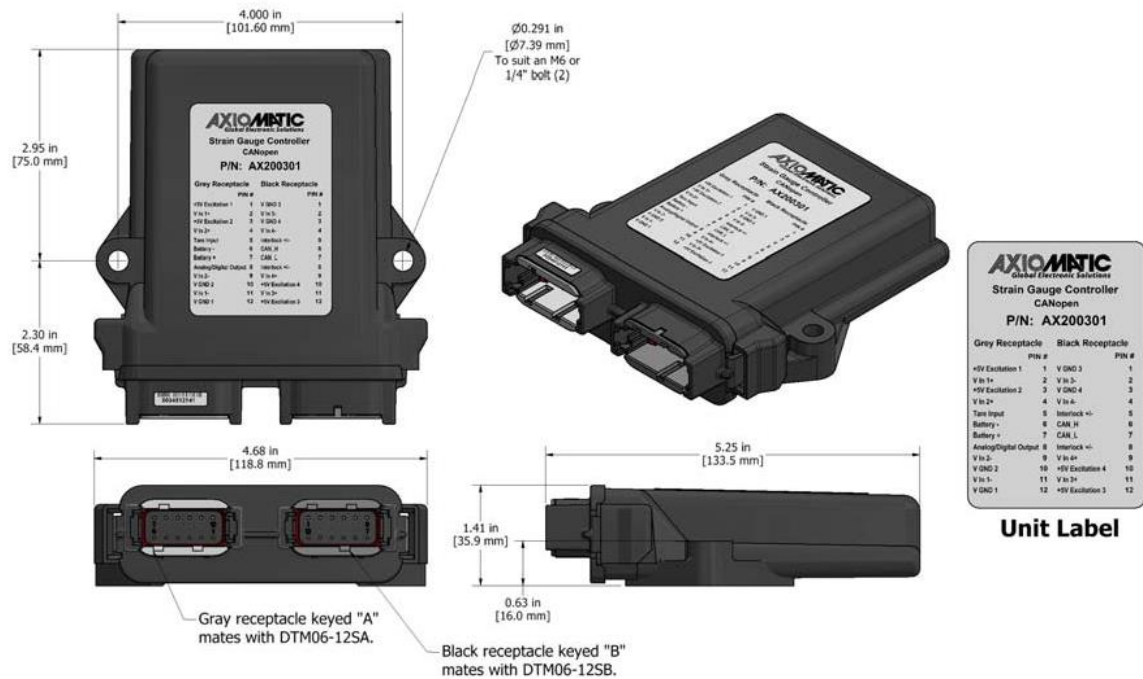
#### Accessories:

**PL-DTM06-12SA-12SB** Mating Plug Kit (1 DTM06-12S, DTM06-12SB, 2 W12S, 24 contacts)

## BLOCK DIAGRAM:



## Dimensions:



## 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 Input Specifications

Power Supply Input - Nominal	12 or 24Vdc nominal operating voltage 8...36 Vdc power supply range for voltage transients
Quiescent Current Draw	60.9 mA @ 12V 31.5 mA @ 24V
Surge Protection	Provided
Reverse Polarity Protection	Provided

### Input Specifications

Strain Gauge Inputs	4 Channels Accepts 4-wire Strain Gauge inputs Input range selectable from +/- 19.5 mV to +/- 2.5 Vdc. All input channels have excitation and ground connections provided. All inputs send a message to the CAN bus.
Measurement rate	The measurement rate is 2.5 scans per second for all 4 channels. The update rate is 400 mSec. for all 4 channels.
Common-mode	Common-mode rejection is > 100 db@ 1V p-p, simultaneous 50/60 Hz. Common mode input range is +/- 3.5V maximum.
Resolution	18.2-Bit noise-free minimum
Drift	Overall drift with temperature is 50 ppm/°C of span (maximum).
Input Accuracy	+/- 0.5% throughout the entire range of the input
Excitation	4 +5V excitation connections
Other Input	1 Digital Input Active High to 5V or Active Low to GND Configurable Pull Up or Pull-down Resistor Amplitude: up to +Vps
Grounds	4 GND connections

### Output

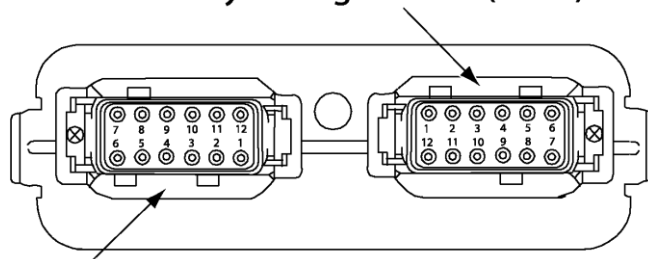
Analog/Digital Output	1 Analog/Digital Output Analog Output has selectable range of 0 to 10V and 0 to 24mA Digital Output On/Off Fully protected high side digital switch with low current readings 2A Overcurrent, overvoltage and undervoltage protection is provided.
Relay Output	An interlock relay with 2 contact pins is provided. 2A (nominal)

### General Specifications

Microcontroller	STM32F407VGT7
Communications	1 CAN port (CANopen®) Other Models: AX200300: SAE J1939
Wire Break Detection	Included
Control Logic	Standard embedded control logic is provided. Refer to the User Manual for details. Application-specific control logic is available on request.

User Interface	EDS File is provided. Use standard CANopen® tools (not supplied).																																																								
Electrical Connections	<p>24-pin receptacle: (TE Deutsch equivalent P/N: DTM13-12PA-12PB-R008)  Mating plug: Equivalent to TE Deutsch DTM06-12SA and DTM06-12SB with 2 wedgelocks (WM12S) and 24 contacts (0462-201-20141).  20 AWG wire is recommended for use with contacts 0462-201-20141.</p> <table border="1"> <thead> <tr> <th colspan="2">Grey Connector</th> <th colspan="2">Black Connector</th> </tr> <tr> <th>Pin #</th> <th>Function</th> <th>Pin #</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>+5V Excitation 1</td> <td>1</td> <td>GND 3</td> </tr> <tr> <td>2</td> <td>V IN 1+</td> <td>2</td> <td>V IN 3-</td> </tr> <tr> <td>3</td> <td>+5V Excitation 2</td> <td>3</td> <td>GND 4</td> </tr> <tr> <td>4</td> <td>V IN 2+</td> <td>4</td> <td>V IN 4-</td> </tr> <tr> <td>5</td> <td>Tare Input</td> <td>5</td> <td>Interlock +/-</td> </tr> <tr> <td>6</td> <td>BATT-</td> <td>6</td> <td>CAN_H</td> </tr> <tr> <td>7</td> <td>BATT+</td> <td>7</td> <td>CAN_L</td> </tr> <tr> <td>8</td> <td>Digital Output</td> <td>8</td> <td>Interlock +/-</td> </tr> <tr> <td>9</td> <td>V IN 2 -</td> <td>9</td> <td>V IN 4+</td> </tr> <tr> <td>10</td> <td>GND 2</td> <td>10</td> <td>+5V Excitation 4</td> </tr> <tr> <td>11</td> <td>V IN 1 -</td> <td>11</td> <td>V IN 3+</td> </tr> <tr> <td>12</td> <td>GND 1</td> <td>12</td> <td>+5V Excitation 3</td> </tr> </tbody> </table>	Grey Connector		Black Connector		Pin #	Function	Pin #	Function	1	+5V Excitation 1	1	GND 3	2	V IN 1+	2	V IN 3-	3	+5V Excitation 2	3	GND 4	4	V IN 2+	4	V IN 4-	5	Tare Input	5	Interlock +/-	6	BATT-	6	CAN_H	7	BATT+	7	CAN_L	8	Digital Output	8	Interlock +/-	9	V IN 2 -	9	V IN 4+	10	GND 2	10	+5V Excitation 4	11	V IN 1 -	11	V IN 3+	12	GND 1	12	+5V Excitation 3
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Enclosure and Dimensions	High Temperature Nylon Enclosure – (TE Deutsch P/N: EEC-325X4B) Flammability Rating: UL 94V-0 4.68 x 5.25 x 1.42 inches 119 x 133 x 36 mm (W x L x H excluding mating plugs)																																																								
Operating Temperature	-40°C to 85°C (-40°F to 185°F)																																																								
Storage Temperature	-50°C to 125°C (-58°F to 257°F)																																																								
Weight	0.50 lb. (0.23 kg)																																																								
Protection	IP67																																																								
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																																																								
Mounting	Mounting holes sized for ¼ inch or M6 bolts. The bolt length will be determined by the end-user's mounting plate thickness. The mounting flange of the controller is 0.63 inches (16 mm) thick.  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).																																																								

**Key Arrangement B (black)**



**Key Arrangement A (grey)**

**FRONT VIEW 24 PIN RECEPTACLE**

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Form: TDAX200301-07/05/23