

TECHNICAL DATASHEET #TDAX030311
18 Digital Inputs CAN Controller
CANopen®

P/N: AX030311

Features:

- 10 digital inputs are user selectable from the following.
 - Active High/Active Low
 - PWM signal from sensors or diesel engine ECM's
 - Frequency (Hz or RPM)
 - Counter
- 8 digital inputs are user selectable as Active High/Active Low
- 12V, 24VDC input power (nominal) with rugged surge protection
- 1 CAN (SAE J1939)
- SAE J1939 model available (P/N: AX030310)
- Rugged IP67 packaging and connectors
- CE mark
- Standard control logic
- .EDS provided to interface to standard CANopen® tools



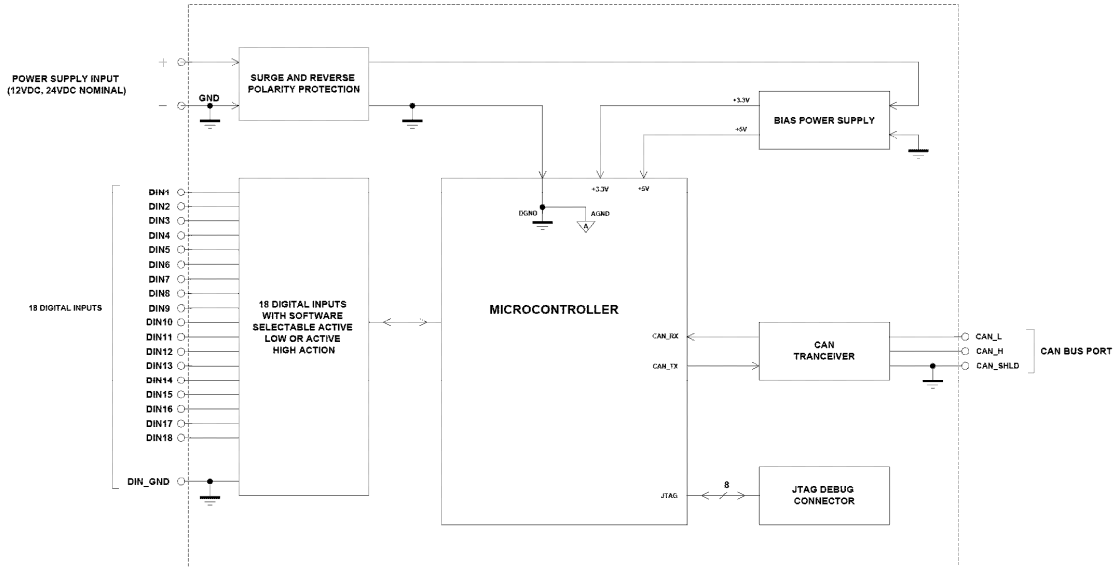
Applications:

- Engine controls for power generation, co-generation, stationary power
- Engine controls for commercial vehicles, off-highway equipment, etc.

Ordering Part Numbers:

CANopen® Controller: **AX030311**
EDS File: **EDS-AX030311**
Accessories: **PL-DTM06-12SA-12SB** Mating Plug Kit

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 www.axiomatic.com/service.html.

Input Specifications

Power Supply Input - Nominal	12V, 24VDC nominal (8...36VDC power supply range)
Protection	Surge and reverse polarity protection are provided.
All Inputs	Up to 18 digital inputs are selectable by the user. Refer to Table 1.0.
Input Protection	Full protection to all other physical pins (any other input or power terminal).
CAN Commands	CANopen®
Ground Connection	1 Digital GND connection is provided.

Table 1.0 - Inputs	
Digital Inputs	<p>Up to 18 digital inputs are available.</p> <p>The first 10 digital inputs can be configured for any one of the following options.</p> <ul style="list-style-type: none"> • Disable Input • Digital Input • PWM signal input (1-10,000 Hz, 0-100% D.C.) • Pulse Input (Hz or RPM) (50 to 10,000 Hz, 50 mV-3V RMS)* • 16-bit Counter Input <p>The last 8 digital inputs can be configured for any one of the following options.</p> <ul style="list-style-type: none"> • Disable Input • Digital Input <p>Threshold 3.5V Hysteresis 0.4V Pull up/Pull down 10 KOhm Input voltage maximum is 30Vdc.</p>
Input Accuracy	<p>PWM, single channel: +/- 0.05% to +/- 1.25% (over the 500 Hz to 10 kHz range)</p> <p>Frequency/RPM, single channel: +/- 1%</p> <p>16-bit counter, single channel: +/- 3 mSec (@50 Hz)</p>
Input Resolution	<p>PWM, single channel: +/- 0.05% to +/- 1.25%, 0 decimal place resolution</p> <p>Frequency/RPM (single channel)</p> <p>0.5 Hz to 50 Hz: +/- 0.01Hz, 0 decimal place resolution</p> <p>50 Hz to 10kHz: +/- 1Hz, 0 decimal place resolution</p> <p>16-bit counter, single channel: 1 pulse resolution</p>

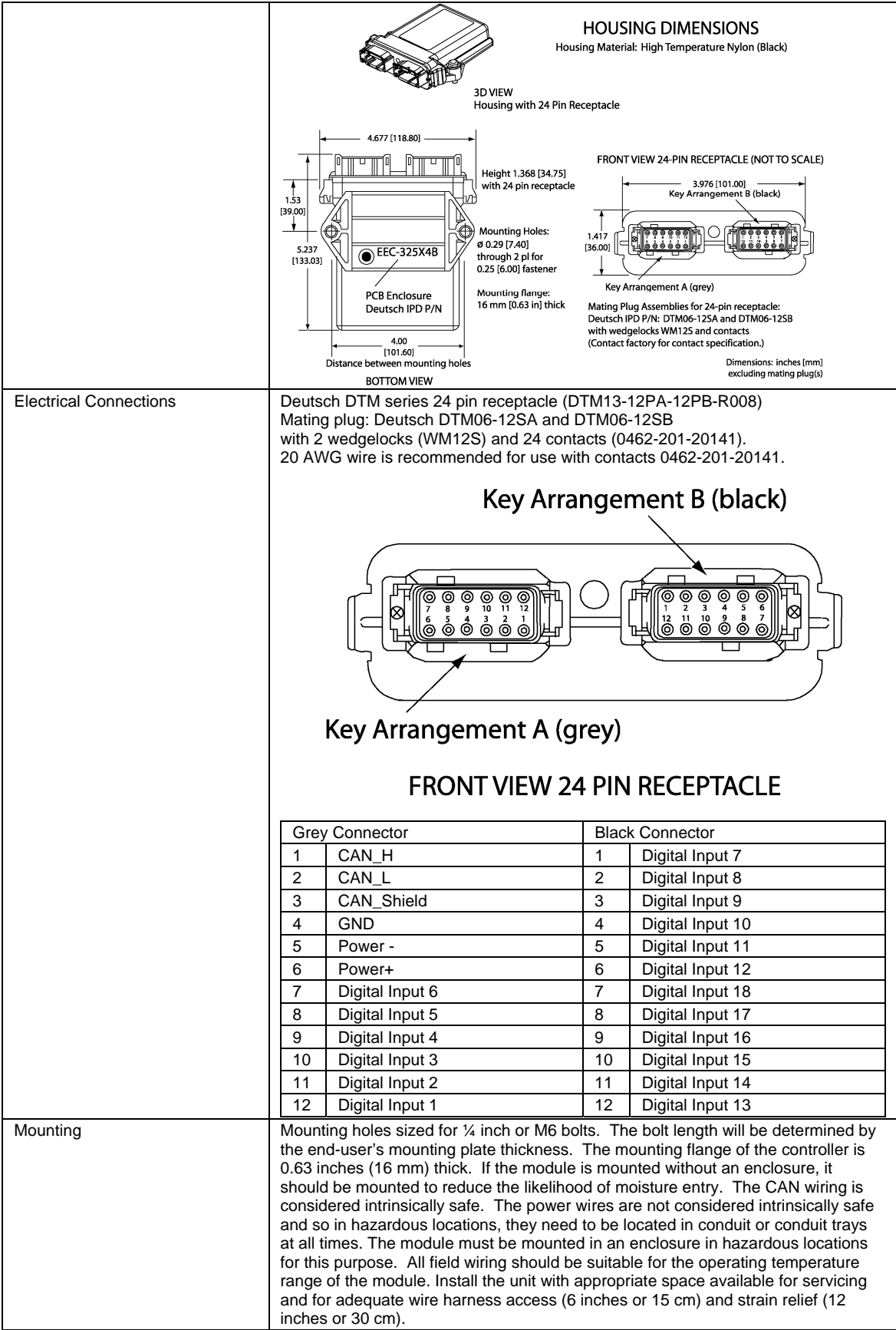
Input Accuracy	Table 2.0. Input Accuracy		
	Input Type	Accuracy	Resolution
	Voltage	+/- 1%	1 [mV]
	Current	+/- 1%	1 [uA]
	PWM	+/- 1% (<5kHz) +/- 2% (>5kHz)	0.1 [%]
	Frequency/RPM	+/- 1%	0.01 [Hz]

Output Specifications

CAN Messages	CANopen®
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General Specifications

Microprocessor	STM32F205RET6						
Control Logic	Standard embedded software (Application-specific logic is available on request.)						
User Interface (PC-based)	EDS File is provided. The controller architecture consists of a set of internal functional blocks, which can be individually programmed and arbitrarily connected together to achieve the required system functionality for a specific application. All objects are user configurable using standard commercially available tools that can interact with a CANopen® Object Dictionary via an .EDS file.						
CAN Communications	1 CAN 2.0B port, protocol CiA CANopen ® The controller's object dictionary is compatible with the CiA DS-404 device profile (Device profile for measurement devices and closed-loop controllers). Refer to the user manual for details. The controller is compliant with the following CAN in Automation (CiA) standards. <table border="1" data-bbox="597 940 1377 1123"> <tr> <td>[DS-301]</td> <td>CiA DS-301 V4.02 – CANopen Application Layer and Communication Profile. CAN in Automation 2002</td> </tr> <tr> <td>[DS-404]</td> <td>CiA DS-404 V1.2 – Device Profile for Measurement Devices and Closed-Loop Controllers. CAN in Automation 2002</td> </tr> <tr> <td>[DS-305]</td> <td>CiA DS-305 V2.0 – Layer Setting Service (LSS) and Protocols. CAN in Automation 2006</td> </tr> </table>	[DS-301]	CiA DS-301 V4.02 – CANopen Application Layer and Communication Profile. CAN in Automation 2002	[DS-404]	CiA DS-404 V1.2 – Device Profile for Measurement Devices and Closed-Loop Controllers. CAN in Automation 2002	[DS-305]	CiA DS-305 V2.0 – Layer Setting Service (LSS) and Protocols. CAN in Automation 2006
[DS-301]	CiA DS-301 V4.02 – CANopen Application Layer and Communication Profile. CAN in Automation 2002						
[DS-404]	CiA DS-404 V1.2 – Device Profile for Measurement Devices and Closed-Loop Controllers. CAN in Automation 2002						
[DS-305]	CiA DS-305 V2.0 – Layer Setting Service (LSS) and Protocols. CAN in Automation 2006						
CAN Response Time	The maximum recommended transmit rate for any TPDO is 10ms. Response time of feedback on the CAN to changes at the I/O will be a combination of the I/O type's response time and the configurable software filtering, delays, etc.						
Node-ID and Baud Rate	Configurable using Layer Setting Services. Default Node-ID = 127 and Baud Rate = 125 kbps.						
Quiescent Current Draw	13.71 mA @ 24V 24.15 mA @ 12V 31.68 mA @ 9V						
Diagnostics	The module can detect the following. <ul style="list-style-type: none"> • Module Over-Temperature • Power Supply Over Voltage • Power Supply Under Voltage 						
Compliance	CE mark: EMC Directive RoHS Directive Exempt from Low Voltage Directive						
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.						
Operating Conditions	-40 to 85 °C (-40 to 185 °F)						
Protection	IP67, PCB is conformal coated and protected by the housing.						
Weight	0.50 lbs. (0.23 kg)						
Packaging and Dimensions	High Temperature Nylon housing - Deutsch IPD PCB Enclosure (EEC-325X4B) 4.62 x 5.24 x 1.43 inches 117.42 x 133.09 x 36.36 mm (W x L x H excluding mating plugs)						



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Form: TDAX030311-11/13/14