Preliminary
TECHNICAL DATASHEET #TDAX032161

6 Digital Inputs Controller, CANopen®

2 Isolated CAN Ports
EDS File for Configuration
P/N: AX032161

Features

- 6 digital signal inputs selectable as follows.
  - Frequency / RPM
  - PWM
  - Pulse Counter
  - Digital
- 2 isolated CANopen® ports
- 12, 24, or 48 VDC nominal power input (8 to 60 VDC range)
- Operates from -40 to 85 °C (-40 to 185 °F)
- IP67
- Compact Enclosure, 12-pin connector
- EDS file provided for configuration

Applications

- Mobile control panels
- Power generation, co-generation, stationary power, etc.
- Commercial vehicles, off-highway equipment, etc.
- Connect different CAN devices or networks with different baud-rates
- Provide galvanic isolation between the control system and vehicle backbone

Ordering Part Number

6 Digital Inputs Controller, CANopen® – P/N: **AX032161**

SAE J1939 model – P/N: **AX032160**

Accessories:
EDS File (for configuration)
Mating Plug KIT P/N: **PL-DTM06-12SA**

Description

The 6 Digital Input Controller with Dual CAN is designed to read six digital inputs and connect to two CANopen® networks. All inputs are selectable as frequency/RPM, PWM, pulse counter, or digital types. The device provides a comprehensive set of configurable settings, allowing users to create custom configurations without the need for reprogramming. The powerful control algorithms enable users to program the controller for a broad spectrum of applications without the necessity of custom software.

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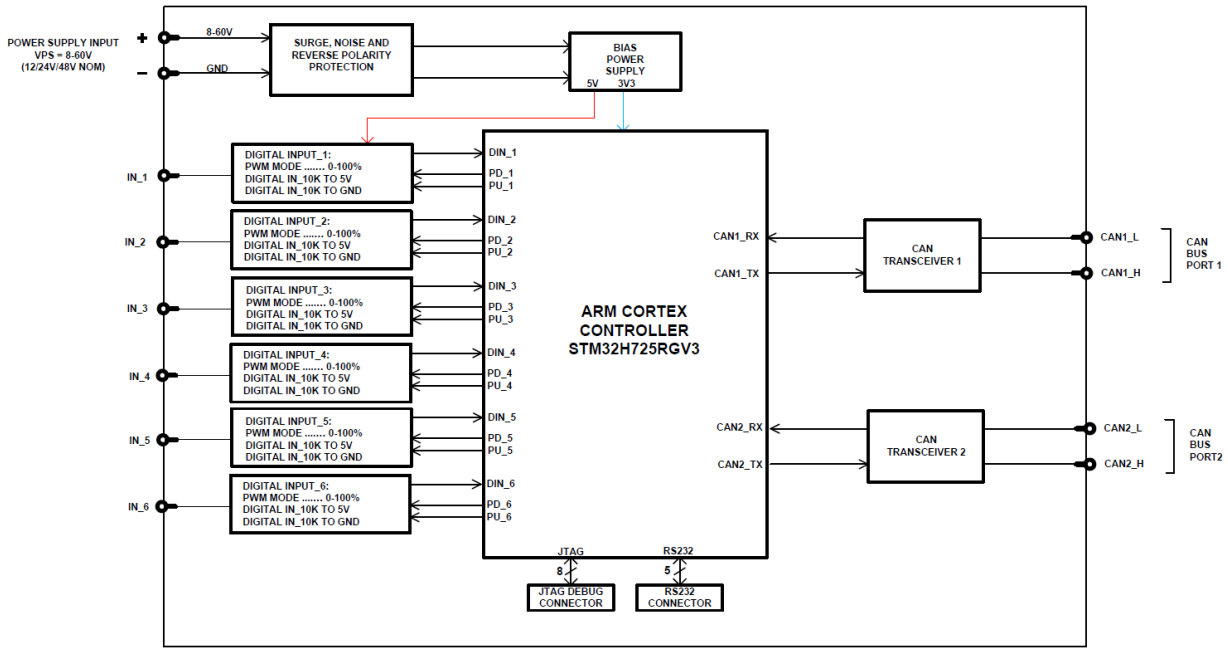
Block Diagram



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, 24, or 48 VDC nominal (8 to 60 VDC)
Quiescent Current	37 mA @ 12 V; 28 mA @ 24 V; 16.2 mA at 48 V (typical)
Protection	Reverse polarity protection is provided. Surge and transient protection is provided. Under-voltage protection is provided with hardware shutdown at 6 V. Over-voltage protection is provided with hardware shutdown at 63.5 V.

Input

Digital Inputs	6 digital signal inputs: Voltage, Frequency/RPM, PWM, or Pulse Counter Type Low level max. 1 V High level min. 4 V Selectable as 10 kΩ pull-up or pull-down <u>Frequency/RPM Type</u> Resolution: 0.01 % Accuracy: ±0.1 % Range: 1 Hz to 10 kHz or 0-6000 RPM <u>PWM Type</u> Resolution: 1 % duty cycle Accuracy: ±0.2 % Frequency: 1 Hz to 10 kHz PWM Duty Cycle: 0 to 100 % <u>Pulse Counter Type</u> 3 modes are supported: Pulses Within Measuring Window, Time Measurement of Pulse Count, and Trigger on Pulse Count Completion <u>Digital Type</u> Active Low (1 V max.) or Active High (4 V min.)
Input Grounds	Provided Inputs referenced to Power -

General Specifications

<table>
<tr><td>Microcontroller</td><td>STM32H725RGV3, 32-bit, 1 MB flash memory</td></tr>
<tr><td>Communications</td><td>2 galvanically isolated CAN ports (CANopen®)
Supported baud rates: 10 kbit/s, 20 kbit/s, 50 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s, 800 kbit/s, and 1 Mbit/s</td></tr>
<tr><td>Control Logic</td><td>Standard embedded logic is provided.
Refer to the User Manual.</td></tr>
<tr><td>User Interface</td><td>EDS file is provided for interfacing with the device using standard CANopen® tools.</td></tr>
<tr><td>Compliance</td><td>RoHS</td></tr>
<tr><td>Vibration</td><td>MIL-STD-202H, method 204, test condition C
10g peak (Sine)
MIL-STD-202H, method 214A, test condition I/B
7.56 Grms (Random)</td></tr>
<tr><td>Shock</td><td>MIL-STD-202H, method 213B, test condition A
50g peak</td></tr>
<tr><td>Operating Conditions</td><td>-40 to 85 °C (-40 to 185 °F)</td></tr>
<tr><td>Storage Temperature</td><td>-55 to 125 °C (-67 to 257 °F)</td></tr>
<tr><td>Weight</td><td>0.20 lb. (0.0907 kg)</td></tr>
<tr><td>Protection</td><td>IP67</td></tr>
<tr><td>Enclosure and Dimensions</td><td>Molded enclosure, integral connector
Nylon 6/6, 30% glass, laser welded
4.28 in. x 3.69 in. x 1.41 in. (108.7 mm x 93.7 mm x 35.8 mm)
Note: L x W x H includes the integral connector.
Refer to Dimensional Drawing.

Flammability rating: UL 94 HB</td></tr>
<tr><td>Electrical Connections</td><td>Integral 12-pin receptacle (equivalent TE Deutsch P/N: DTM04-12PA)

<table>
<tr><th>Pin</th><th>Function</th></tr>
<tr><td>1</td><td>Power +</td></tr>
<tr><td>2</td><td>Digital Input 2</td></tr>
<tr><td>3</td><td>Digital Input 4</td></tr>
<tr><td>4</td><td>Digital Input 6</td></tr>
<tr><td>5</td><td>CAN 1 High</td></tr>
<tr><td>6</td><td>CAN 2 High</td></tr>
<tr><td>7</td><td>CAN 2 Low</td></tr>
<tr><td>8</td><td>CAN 1 Low</td></tr>
<tr><td>9</td><td>Digital Input 5</td></tr>
<tr><td>10</td><td>Digital Input 3</td></tr>
<tr><td>11</td><td>Digital Input 1</td></tr>
<tr><td>12</td><td>Power -</td></tr>
</table></td></tr>
<tr><td>Mating Plug KIT</td><td>A mating plug kit is available under P/N PL-DTM06-12SA (includes 1x DTM06-12S, 1x WM-12S, 12x 0462-201-20141, 6x 0413-204-2005 sealing plugs)</td></tr>
<tr><td>Network Termination</td><td>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.</td></tr>
<tr><td>Mounting</td><td>Mounting holes are sized for #10 or M5 bolts. The bolt length will be determined by the end-user’s mounting plate thickness. The mounting flange of the controller is 0.47 in. (12 mm) thick.

If the module is mounted without an enclosure, it should be mounted vertically with connectors facing left or right to reduce the likelihood of moisture entry.

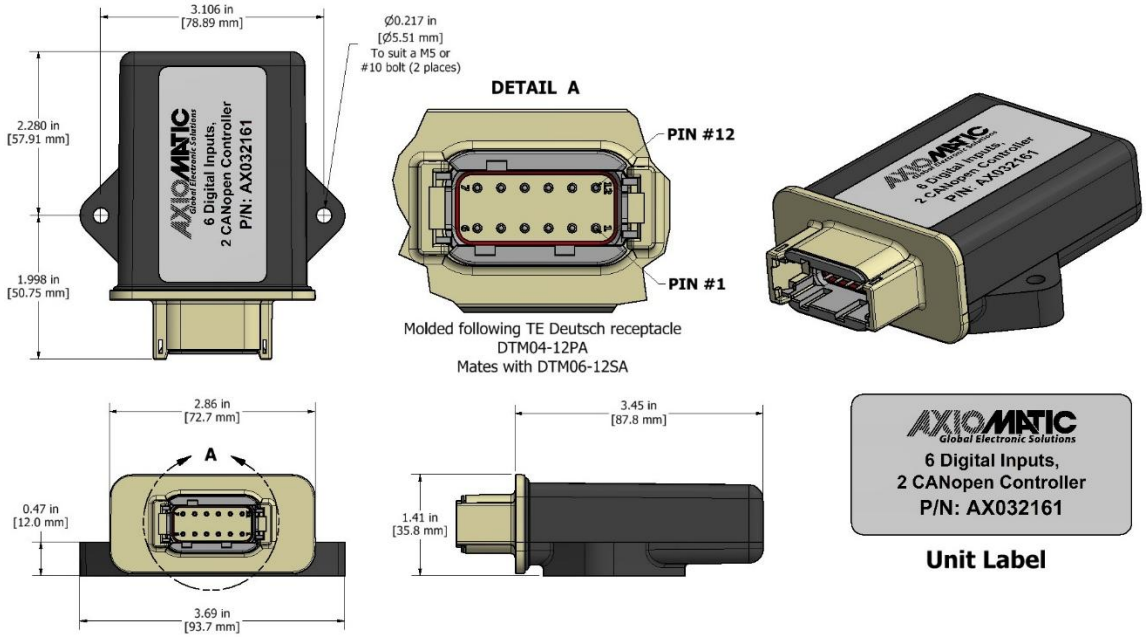
The CAN wiring is considered intrinsically safe. The power wires are not considered intrinsically safe and so in hazardous locations, they need to be located in conduit or conduit trays at all times. The module must be mounted in an enclosure in hazardous locations for this purpose.

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 in. or 15 cm) and strain relief (12 in. or 30 cm).</td></tr>
</table>

Dimensional Drawing



Form: TDAX032161-10/07/2025