TECHNICAL DATASHEET #TDAX140100-100

Protocol Converter

Extended Inputs
2 Isolated CAN Ports (SAE J1939)
1 Isolated RS-485 Port (Modbus RTU)
Configurable with Axiomatic Electronic Assistant
P/N: AX140100-100

Features

- Acts as a gateway or interface between two CAN (SAE J1939) buses with different baud rates
- Fast data exchange between two CAN networks (SAE J1939) and RS-485 bus (Modbus RTU)
- Allows for 100+ input messages
- 2 isolated CAN ports (SAE J1939)
- 1 isolated RS-485 serial port (Modbus RTU)
- Operational from 9 to 36 VDC (12 or 24 VDC nominal)
- Integrated 12-pin connector
- Fully sealed enclosure with a rugged IP67 protection rating
- Compact size
- CE / UKCA marking, BV and DNV-GL type approvals
- User configurable using Axiomatic Electronic Assistant

Applications

- Mobile (off-highway) equipment
- Transport vehicles
- Power genset control systems
- Control panels for power generation, marine, and oil & gas applications

Ordering Part Numbers

Protocol Converter, 2 SAE J1939, Modbus RTU, Extended Inputs - P/N: **AX140100-100**

Protocol Converter, 2 SAE J1939, Modbus RTU - P/N: **AX140100**
Protocol Converter, SAE J1939, CANopen®, Modbus RTU - P/N: **AX140200** (with EDS File)
Protocol Converter, SAE J1939, SAE J1939, J1587 - P/N: **AX140400**

Accessories:
Mating Plug KIT - P/N: **AX070105** (includes DT06-12SA, W12S, 12x 0462-201-16141 contacts, and 3x sealing plugs)
Configuration Tool: Axiomatic Electronic Assistant Configuration KIT - P/Ns: **AX070502** or **AX070506K**

Axiomatic Technologies Oy
Höytämöntie 6
33880 LEMPÄÄLÄ, Finland
Tel. +358 103 375 750
salesfinland@axiomatic.com
www.axiomatic.fi

Axiomatic Technologies Corporation
1445 Courtneypark Dr. E.
Mississauga, ON Canada L5T 2E3
Tel. 1 905 602 9270
sales@axiomatic.com
www.axiomatic.com

Dimensional Drawing

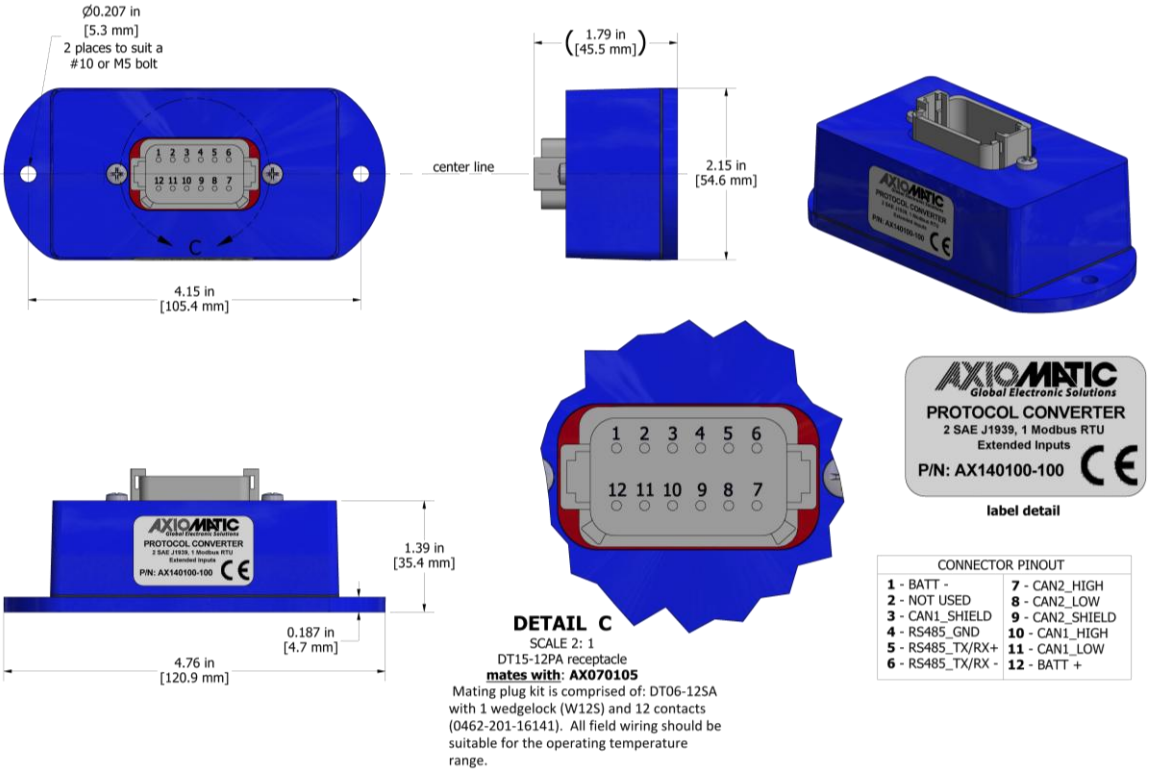

Figure 1.0 – Dimensional Drawing for AX140100-100

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/.

Typical at nominal input voltage and 25 °C unless otherwise specified.

Power

Power Supply Input	12 or 24 VDC nominal (9 to 36 VDC) The minimum allowable supply voltage for the power pin is 8 VDC.
Quiescent Current	36 mA @12 V; 19 mA @ 24 V
Surge Protection	95 VDC
Reverse Polarity Protection	Provided

Control Software

Software Platform	The Protocol Converter comes pre-programmed with standard protocol conversion logic for data exchange between two CAN networks and RS-485. The following protocols are available in the standard control logic. • SAE J1939 (CAN 1 port) • SAE J1939 (CAN 2 port) • Modbus RTU (RS-485 port) The AX140100-100 allows for +100 input messages. *Custom programming for other applications is available on request.*

General Specifications

<table>
<tr><td>Memory</td><td>STM32F205
32-bit, 512 Kbytes Flash Program Memory</td></tr>
<tr><td>RS-485 Port</td><td>1 isolated RS-485</td></tr>
<tr><td>CAN Ports</td><td>2 isolated CAN ports (SAE J1939)</td></tr>
<tr><td>Isolation</td><td>300 Vrms</td></tr>
<tr><td>User Interface</td><td>Parameters are configurable using the Axiomatic Electronic Assistant - P/Ns: AX070502 or AX070506K. The functionality of the Axiomatic Electronic Assistant includes but is not limited to the following.
Specify CAN message filters
Link Modbus to CAN bus
Define CANnode ID, and baud rate
Facilitate dynamic decoupling of 2 CAN networks
Monitor CAN data</td></tr>
<tr><td>Compliance</td><td>CE / UKCA marking (EMC Directive)
RoHS Directive</td></tr>
<tr><td>Vibration</td><td>4 g
IEC publication 60068-2-6, Test Fc</td></tr>
<tr><td>Marine Type Approvals</td><td>DNG-GL and Bureau Veritas (BV)</td></tr>
<tr><td>Protection Rating</td><td>IP67
Unit is encapsulated within the housing.</td></tr>
<tr><td>Operating Conditions</td><td>-40 to 75 °C (-40 to 167 °F)</td></tr>
<tr><td>Storage Temperature</td><td>-55 to 85 °C (-67 to 185 °F)</td></tr>
<tr><td>Enclosure</td><td>Aluminum enclosure, integral connector, encapsulation
Refer to dimensional drawing.</td></tr>
<tr><td>Weight</td><td>0.70 lbs. (0.32 kg)</td></tr>
<tr><td>Electrical Connections</td><td>12-pin connector (TE Deutsch P/N: DT15-12PA)
<table>
<tr><th>Pin</th><th>Description</th></tr>
<tr><td>1</td><td>Battery -</td></tr>
<tr><td>2</td><td>Not Used</td></tr>
<tr><td>3</td><td>CAN 1 Shield</td></tr>
<tr><td>4</td><td>RS-485 Ground</td></tr>
<tr><td>5</td><td>RS-485 TX/RX +</td></tr>
<tr><td>6</td><td>RS-485 TX/RX -</td></tr>
<tr><td>7</td><td>CAN 2 High</td></tr>
<tr><td>8</td><td>CAN 2 Low</td></tr>
<tr><td>9</td><td>CAN 2 Shield</td></tr>
<tr><td>10</td><td>CAN 1 High</td></tr>
<tr><td>11</td><td>CAN 1 Low</td></tr>
<tr><td>12</td><td>Battery +</td></tr>
</table></td></tr>
<tr><td>Mating Plug Kit</td><td>A mating plug kit is available under P/N: AX070105 (includes 1x plug DT06-12SA, 1x wedgelock W12S, 12x contacts 0462-201-16141, and 6x sealing plugs 114017)</td></tr>
<tr><td>Installation</td><td>Mounting holes sized for #10 or M4.5 bolts. The bolt length will be determined by the end-user’s mounting plate thickness. The mounting flange of the controller is 0.19 in. (4.75 mm) thick. If the module is mounted without an enclosure, it should be mounted to reduce the likelihood of moisture entry. 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). 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. All field wiring should be suitable for the operating temperature range of the module. All chassis grounding should go to a single ground point designated for the machine and all related equipment.</td></tr>
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Form: TDAX140100-100-08/13/2025