TECHNICAL DATASHEET #TDAX140320

Protocol Converter
2 Isolated CAN bus ports (SAE J1939, CANopen®)
1 Non-isolated RS422 port (Modbus RTU/J1587)

P/N: AX140320, AX140321, AX140322

Features:

- Acts as a gateway or interface between CAN buses with different baud rates and protocols (SAE J1939-SAE J1939 or SAE J1939-CANopen®)
- Fast data exchange between a CAN network (SAE J1939 or CANopen®) and a RS-422 bus (SAE J1587 or Modbus RTU)
- 2 Isolated CAN ports (CAN 2.0B) - SAE J1939 with auto-baud-rate-detect or CANopen®
- 1 Non-isolated RS-422 port
- Operational from 9 to 36 Vdc (12 Vdc, 24 Vdc nominal)
- Integrated TE Deutsch 12-pin connector
- Fully sealed enclosure with a rugged IP67 protection rating
- Compact size
- CE marking
- 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 - P/N: **AX140320**

Protocol Converter, SAE J1939, CANopen®, Modbus RTU - P/N: **AX140321**
with EDS File

Protocol Converter, SAE J1939, SAE J1939, J1587 - P/N: **AX140322**

Configuration Tool: Electronic Assistant P/N: **AX070502**

Accessories:
PL-DTM06-12SA Mating Plug Kit :1 DTM06-12SA, 1 WM-12S, 12 0462-201-20141, 6 0413-204-2005 Sealing Plug

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Technical Specifications:

Typical at nominal input voltage and 25 degrees C unless otherwise specified

Power

Power Supply Input - Nominal	12 V or 24 Vdc nominal; 9…36 Vdc The minimum allowable supply voltage for the power pin is 8 Vdc.
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 2 CAN networks and RS-422. The following protocols are available in the standard control logic of model. **AX140320**. • SAE J1939 (CAN 1 port) • SAE J1939 (CAN 2 port) • Modbus RTU (RS-422 port) The following protocols are available in the standard control logic of model **AX140321**. • CANopen® (CAN 2 port) • SAE J1939 (CAN 1 port) • Modbus RTU (RS-422 port) The following protocols are available in the standard control logic of model **AX140322**. • SAE J1939 (CAN 1 port) • SAE J1939 (CAN 2 port) • SAE J1587 (RS-422 port) **Custom programming for other applications is available on request.**

General Specifications

Memory	STM32F767 32-bit, 1024 Kbytes Flash Program Memory
RS-422 Port	1 Non-isolated RS-422
CAN Ports	2 Isolated CAN 2.0B Model: AX140320 and AX140322 – 2 SAE J1939 (10 kbit/s, 50 kbit/s, 100 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s, 1 Mbit/s. Automatic Baud Rate Detection) Model: AX140321 – 1 CANopen®, 1 SAE J1939 (10 kbit/s, 50 kbit/s, 100 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s, 1 Mbit/s. Automatic Baud Rate Detection)
Isolation	300 Vrms
Quiescent Current Draw	36 mA @12 V; 19 mA @24 V
Operating Conditions	-40 to 75°C (-40 to 167°F)
Storage Temperature	-55 to 85°C (-67 to 185°F)
Weight	0.15 lb. (0.068 kg)
Protection Rating	IP67
CE marking	Compliant to the EMC Directive Compliant to the RoHS Directive
Vibration	4 g IEC publication 60068-2-6, Test Fc
Enclosure and Dimensions	Molded Enclosure, integral connector 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 dimensional drawing.

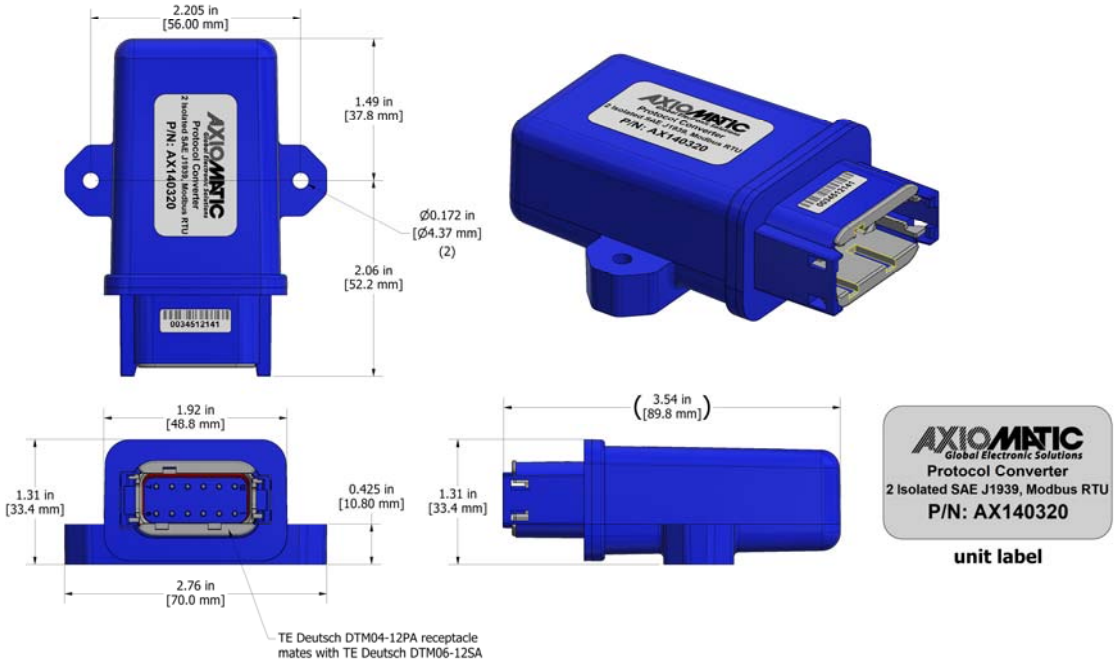

Figure 1.0 – Dimensional Drawing (AX140320, AX140321 and AX140322 have the same dimensions.)

Electrical Connections	12 pin TE Deutsch style connector P/N: DT15-12PA A mating plug kit is available as Axiomatic P/N: **AX070105.**

CAN and I/O Connector

Pin #	Description
1	BATT-
2	CAN2_H
3	CAN2_L
4	RS-422_RX+
5	CAN_SH
6	CAN_H
7	CAN_L
8	RS-422_RX-
9	RS-422_TX-
10	RS-422_TX+
11	CAN2_SH
12	BATT+

Mating Plug Kit	**PL-DTM06-12SA** Mating Plug Kit :1 DTM06-12SA, 1 WM-12S, 12 0462-201-20141, 6 0413-204-2005 Sealing Plug
Mounting	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. 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. 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 inches or 15 cm) and strain relief (12 inches or 30 cm).

User Interface – SAE J1939 models	**For SAE J1939 models, parameters are configurable using the Electronic Assistant.** Axiomatic Electronic Assistant P/N: AX070502 The Electronic Assistant for *Windows* operating systems comes with a royalty-free license for use on multiple computers. It requires an Axiomatic USB-CAN converter to link the device's CAN port to a *Windows*-based PC. The functionality of the Electronic Assistant includes but is not limited to the following. • Specify CAN message filters • Allow J1939 PGN's to be transmitted over CANopen • Link J1587 bus to J1939 • Link Modbus to CAN bus • Link CANopen to J1939 • Define CANnode ID, and baud rate • Facilitate dynamic decoupling of 2 CAN networks • Monitor CAN data
User Interface – CANopen® models	.EDS provided to interface to standard CANopen® tools

Notes:
CANopen® is a registered community trademark of CAN in Automation e.V.

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/.
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Form: TDAX140320-04/21/22