

**Protocol Converter**  
**2 Isolated CAN Bus Ports (SAE J1939)**  
**1 Non-Isolated RS422 or RS-485 Port (Modbus RTU)**  
P/N: AX140320

**Features:**

- Acts as a gateway or interface between CAN buses with different baud rates (SAE J1939- SAE J1939)
- Fast data exchange between a CAN network (SAE J1939) and an RS-422/ RS-485 bus (Modbus RTU)
- 2 isolated CAN ports (CAN 2.0B) - SAE J1939 with auto-baud-rate detection
- 1 non-isolated RS-422 port (RS-485 is supported with a wiring change)
- Operational from 9 to 36 VDC (12 or 24 VDC nominal)
- Integrated 12-pin connector (equivalent to a TE Deutsch P/N)
- Fully sealed enclosure with a rugged IP67 protection rating
- Compact size
- CE and UKCA marking
- User configurable using the 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**

Accessories:

**PL-DTM06-12SA** Mating Plug KIT

Configuration Tool:

The Axiomatic Electronic Assistant KIT - P/N: **AX070502** or **AX070506K**

## Technical Specifications

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

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

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 Draw	36 mA @12 V; 19 mA @24 V
Surge Protection	95 VDC
Reverse Polarity Protection	Provided

### Control Software

Software Platform	<p>The Protocol Converter comes pre-programmed with standard protocol conversion logic for data exchange between 2 CAN networks and RS-422.</p> <p>The following protocols are available in the standard control logic:</p> <ul style="list-style-type: none"> <li>• SAE J1939 (CAN 1 port)</li> <li>• SAE J1939 (CAN 2 port)</li> <li>• Modbus RTU (RS-422/ RS-485 port)</li> </ul> <p><b>Custom programming for other applications is available on request.</b></p>
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### General Specifications

Microcontroller	STM32F767 32-bit, 1024 KB Flash Program Memory
RS-422 / RS-485 Port	1 non-isolated RS-422 AX140320 supports RS-485 if <ul style="list-style-type: none"> <li>• TX+ and RX+ (pins 10 &amp; 4) are connected together (RS485 D+), and</li> <li>• TX- and RX- (pins 9 &amp; 8) are connected together (RS485 D-).</li> </ul>
CAN Ports	<u>2 Isolated CAN 2.0B:</u> 2 SAE J1939 (10 kbit/s, 50 kbit/s, 100 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s, 667 kbit/s, 1 Mbit/s. auto-baud-rate detection)
Isolation	300 Vrms
User Interface – SAE J1939 Models	<p>For SAE J1939 models, parameters are configurable using the Axiomatic Electronic Assistant. (P/Ns: AX070502 or AX070506K)</p> <p>The Axiomatic Electronic Assistant for <i>Windows</i> 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 <i>Windows</i>-based PC.</p> <p>The functionality of the Axiomatic Electronic Assistant includes but is not limited to the following.</p> <ul style="list-style-type: none"> <li>• Specify CAN message filters</li> <li>• Allow J1939 PGN's to be transmitted over CANopen®</li> <li>• Link Modbus to CAN bus</li> <li>• Define CANnode ID, and baud rate</li> <li>• Facilitate dynamic decoupling of 2 CAN networks</li> <li>• Monitor CAN data</li> </ul>
CE/UKCA Marking	Compliant to the EMC Directive Compliant to the RoHS Directive
Vibration	4 g IEC publication 60068-2-6, Test Fc
Protection Rating	IP67
Operating Conditions	-40°C to 70°C (-40°F to 158°F)
Storage Temperature	-55°C to 85°C (-67°F to 185°F)
Weight	0.15 lb. (0.068 kg)

Enclosure and Dimensions	<p>Molded Enclosure, integral connector  Nylon 6/6, 30% glass  Ultrasonically welded  3.54 in x 2.75 in x 1.31 in (90.09 mm x 70.00 mm x 33.35 mm)  L x W x H including integral connector</p> <p>Refer to dimensional drawing.</p>																												
Electrical Connections	<p>12-pin connector (equivalent TE Deutsch P/N: DT15-12PA)  A mating plug kit is available as Axiomatic P/N: <b>AX070105</b>.</p> <table border="1" data-bbox="597 443 1024 871"> <thead> <tr> <th colspan="2">CAN and I/O Connector</th> </tr> <tr> <th>Pin #</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>1</td><td>BATT-</td></tr> <tr><td>2</td><td>CAN2_H</td></tr> <tr><td>3</td><td>CAN2_L</td></tr> <tr><td>4</td><td>RS-422_TX-</td></tr> <tr><td>5</td><td>CAN_SH</td></tr> <tr><td>6</td><td>CAN_H</td></tr> <tr><td>7</td><td>CAN_L</td></tr> <tr><td>8</td><td>RS-422_TX+</td></tr> <tr><td>9</td><td>RS-422_RX-</td></tr> <tr><td>10</td><td>RS-422_RX+</td></tr> <tr><td>11</td><td>CAN2_SH</td></tr> <tr><td>12</td><td>BATT+</td></tr> </tbody> </table>	CAN and I/O Connector		Pin #	Description	1	BATT-	2	CAN2_H	3	CAN2_L	4	RS-422_TX-	5	CAN_SH	6	CAN_H	7	CAN_L	8	RS-422_TX+	9	RS-422_RX-	10	RS-422_RX+	11	CAN2_SH	12	BATT+
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Mating Plug Kit	<p><b>PL-DTM06-12SA</b> Mating Plug Kit : 1 Plug (DTM06-12SA), 1 Wedgelock (WM-12S), 12 Contacts (0462-201-20141), 6 Sealing Plugs (0413-204-2005)</p>																												
Mounting	<p>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.</p> <p>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.</p> <p>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.</p> <p>No wire or cable harness should exceed 30 meters in length. The power input wiring should be limited to 10 meters.</p> <p>All field wiring should be suitable for the operating temperature range.</p> <p>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).</p>																												

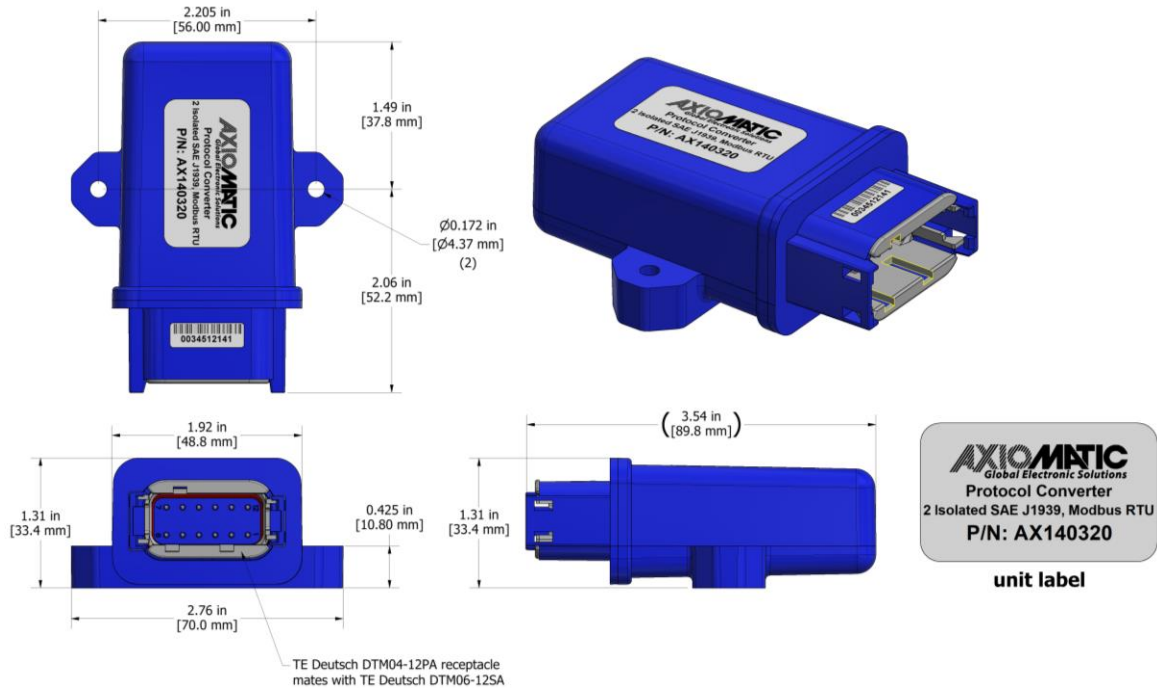


Figure 1.0 – Dimensional Drawing

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