

Protocol Converter

Ethernet / RS-422 / 2 RS-232 / CAN (SAE J1939)

P/N: AX142100A

Features:

- Fast and bidirectional data exchange between an Ethernet, an RS-422 bus, two RS-232 buses and a CAN network (SAE J1939)
- ASCII to PLC gateway
- 1 Isolated CAN port (CAN 2.0B)
- 1 RS-422 port (can be used as RS-485)
- 2 RS-232 serial ports
- 1 Ethernet interface (TCP communication at user configurable port)
- Power, Link and Speed LED indicators
- Operational from 9 to 36 VDC (12 or 24 VDC nominal)
- Fully sealed enclosure with a rugged IP67 protection rating
- Suitable for high vibration environments
- 1 8-pin M12 connector, 1 12-pin M12 connector
- Compact size
- User configurable using a web browser



Applications:

Communications interface between legacy ASCII systems and PLCs

Ordering Part Number:

Protocol Converter, Ethernet / RS-422 / 2 RS-232 / SAE J1939 CAN, P/N: **AX142100A**

The unit can also be purchased as a KIT, P/N: **AX142100AK**. It includes Protocol Converter AX142100A and mating wire harnesses AX070531 and AX070533.

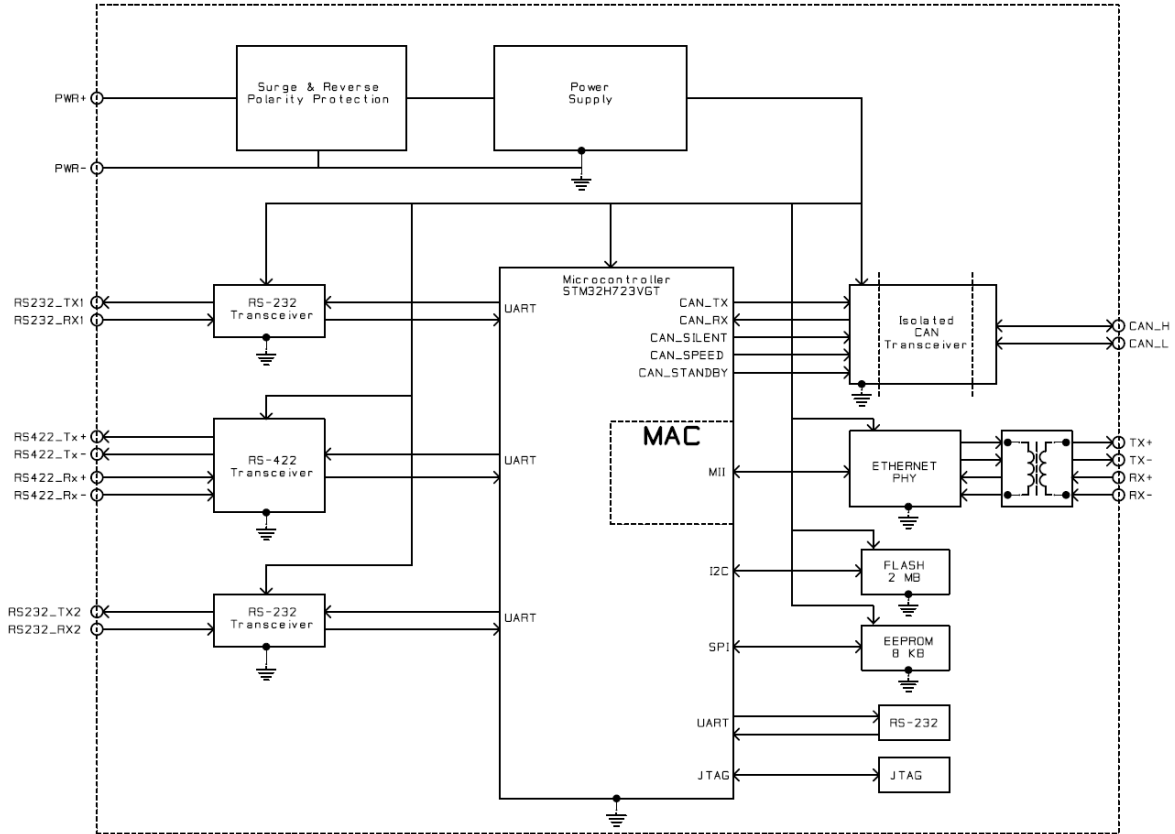
Accessories:

AX070531: 1.7 m (5.5 ft.), 8-pin M12 A-coded, Unterminated Leads, Ethernet Jack, Ethernet and Power Cable

AX070533: RS-232, RS-232 (RS-485), RS-422 Cable 1.5 m (5 ft.), 12-pin M12, Unterminated Leads, CAN Cable

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

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/>.

All specifications are typical at nominal input voltage and 25°C unless otherwise specified.

Power

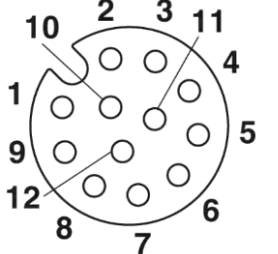
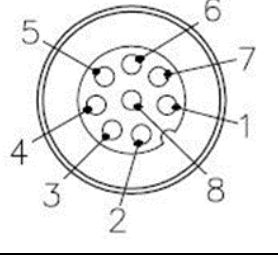
Power Supply Input	12 or 24 VDC nominal (9 to 36 VDC)
Quiescent Current	150 mA @ 12 V; 90 mA @ 24 V typical
Surge Protection	95 VDC
Under-Voltage Protection	Hardware shutdown at 6 VDC
Over-Voltage Protection	Hardware shutdown at 45 VDC
Reverse Polarity Protection	Provided up to -36 VDC

Functionality

Conversion Platform	<p>The Protocol Converter comes pre-programmed with standard protocol conversion logic for bidirectional data exchange between an Ethernet (proprietary TCP communications), an RS-422 bus, two RS-232 buses and a CAN network (SAE J1939).</p> <p>Data is forwarded "as-is" between the different serial ports. Also, CAN/Ethernet data is forwarded directly to serial interfaces with the configuration allowing the user to specify the CAN message ID (or TCP port) to listen for data to be forwarded.</p>	
Ethernet	<p>1 10/100 Mbit Ethernet compliant port 10BASE-T, 100BASE-Tx (auto-negotiation and full-duplex supported) Auto-MDIX</p>	
RS-422	<p>1 RS-422 port Baud rate: up to 10.5 Mbit/s Note: RS-422 connections can be used as RS-485. See pinout.</p>	
RS-232	<p>2 RS-232 ports for serial communications Three-wire Baud rate: up to 400 kbit/s</p>	
ASCII Features	Maximum Number of ASCII devices	2
	Serial Communications Port 0	RS422
	Serial Communications Port 1	RS232
	Message Queue Size	Configurable
CAN	<p>1 SAE J1939 port Isolated Baud rate: 250 kbit/s (default)</p>	

General Specifications

Microcontroller	<p>STM32H723VGT 32-bit, 1 MB flash memory</p>
Isolation	<p>CAN isolation: 330 Vrms</p>
Web Interface	<p>Refer to the User Manual.</p> <p>The functionality of the web interface includes but is not limited to the following.</p> <ul style="list-style-type: none"> ○ Specify CAN message filters and CAN message IDs to be received ○ Link RS-232 or RS-422 to CAN bus and Ethernet ○ Define CAN node ID and baud rate ○ Define Ethernet parameters (IP address, netmask) ○ Configure message queues
User Interface	<p>Axiomatic Electronic Assistant (P/N: AX070502 or AX070506K) 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 IP address configuration and firmware reflashing.</p>
LED Indicators	<p><u>Power LED</u> GREEN = Power ON RED = Fault condition GREEN/RED = Power OFF</p> <p><u>2 GREEN LEDs for Ethernet</u> LINK/ACT: ON means connection (LINK) Flashing means activity (ACT) OFF means Ethernet connection is down 10/100: Transmission Speed 100 Mbit/s = ON Transmission Speed 10 Mbit/s = OFF</p>
Enclosure and Dimensions	<p>Nylon 6/6, 30% glass fill Ultrasonically welded 4.19 in x 1.81 in x 1.31 in (106 mm x 46mm x 33 mm) L X W X H includes integral connectors Flammability rating: UL 94V-0 Refer to dimensional drawing below.</p>
Weight	<p>0.172 lb. (0.078 kg)</p>
Operating Temperature	<p>-40°C to 70°C (-40°F to 158°F)</p>
Storage Temperature	<p>-40°C to 85°C (-40°F to 185°F)</p>
Compliance	<p>RoHS</p>
Protection	<p>IP67</p>

Vibration	MIL-STD-202H, method 204, test condition C 10 g peak (Sine) MIL-STD-202H, method 214A, test condition I/B 7.56 Grms (Random)																																												
Shock	MIL-STD-202H, method 213B, test condition A 50 g peak																																												
Electrical Connections	<p>CAN / RS-232 / RS-422 Connector 1 Phoenix Contact M12 12-pin connector (A-coded), Female P/N: 1441833</p> <p>Note: To use RS-422 as RS-485, connect the Tx+ and Rx+ pin to D+ on the RS-485 connector. Also connect the Tx- and Rx- to pin D-.</p> <table border="1"> <thead> <tr> <th>Pin</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>1</td><td>RS-422 RX+</td></tr> <tr><td>2</td><td>RS-422 TX+</td></tr> <tr><td>3</td><td>RS-422 RX-</td></tr> <tr><td>4</td><td>RS-232 TX 2</td></tr> <tr><td>5</td><td>RS-232 RX 2</td></tr> <tr><td>6</td><td>CAN_L</td></tr> <tr><td>7</td><td>CAN_H</td></tr> <tr><td>8</td><td>RS-232 TX 1</td></tr> <tr><td>9</td><td>RS-232 RX 1</td></tr> <tr><td>10</td><td>RS-422 TX-</td></tr> <tr><td>11</td><td>Ground</td></tr> <tr><td>12</td><td>Ground</td></tr> </tbody> </table>  <p>Ethernet / Power Connector 1 Phoenix Contact M12 8-pin connector (A-coded), Female P/N: 1441817</p> <table border="1"> <thead> <tr> <th>Pin</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>1</td><td>Power +</td></tr> <tr><td>2</td><td>Power -</td></tr> <tr><td>3</td><td>Power -</td></tr> <tr><td>4</td><td>Ethernet TX-</td></tr> <tr><td>5</td><td>Ethernet RX+</td></tr> <tr><td>6</td><td>Ethernet TX+</td></tr> <tr><td>7</td><td>Power +</td></tr> <tr><td>8</td><td>Ethernet RX-</td></tr> </tbody> </table> 	Pin	Description	1	RS-422 RX+	2	RS-422 TX+	3	RS-422 RX-	4	RS-232 TX 2	5	RS-232 RX 2	6	CAN_L	7	CAN_H	8	RS-232 TX 1	9	RS-232 RX 1	10	RS-422 TX-	11	Ground	12	Ground	Pin	Description	1	Power +	2	Power -	3	Power -	4	Ethernet TX-	5	Ethernet RX+	6	Ethernet TX+	7	Power +	8	Ethernet RX-
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Mating Connectors	Not supplied Mating connectors should meet the following standard for M12 connectors, IEC 61076-2-101:2012. They should be A-coded.																																												
Mating Cables	<p>AX070531 (1.7 m (5.5 ft.), 8-pin M12 A-coded, Unterminated Leads, Ethernet Jack, Ethernet and Power Cable) mates with the Ethernet / Power Connector</p> <p>AX070533 (RS-232, RS-232 (RS-485), RS-422 Cable 1.5 m (5 ft.), 12-pin M12, Unterminated Leads, CAN Cable) mates with the CAN / RS-232 / RS-422 / RS-485 Connector</p>																																												
Mounting	Mounting holes sized for #10 or M5 bolts																																												

Dimensional Drawings

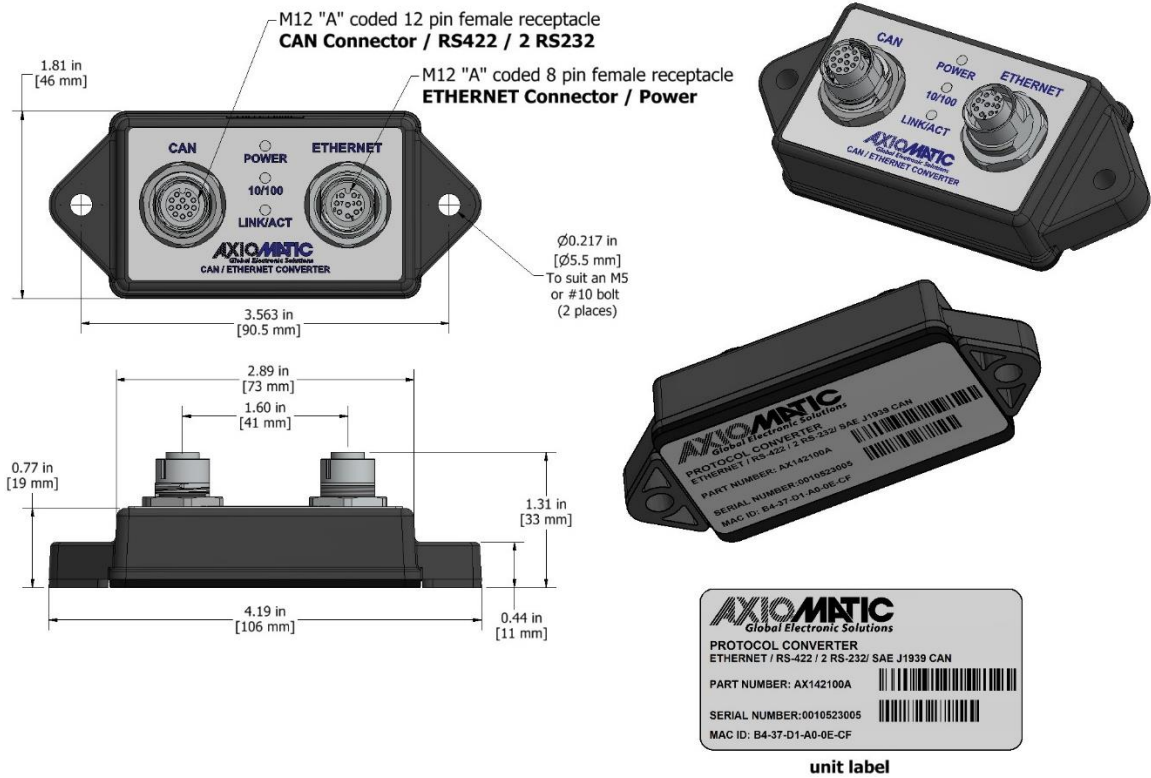


Figure 1.0 - Dimensional Drawing of AX142100A

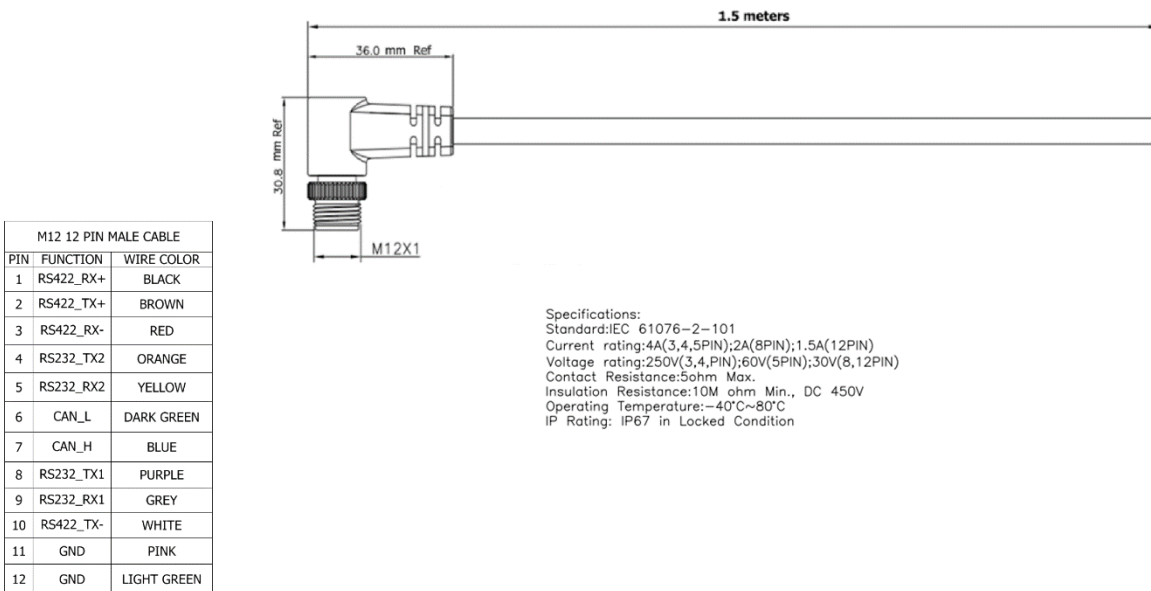


Figure 2.0 - AX070533 Mating Cable

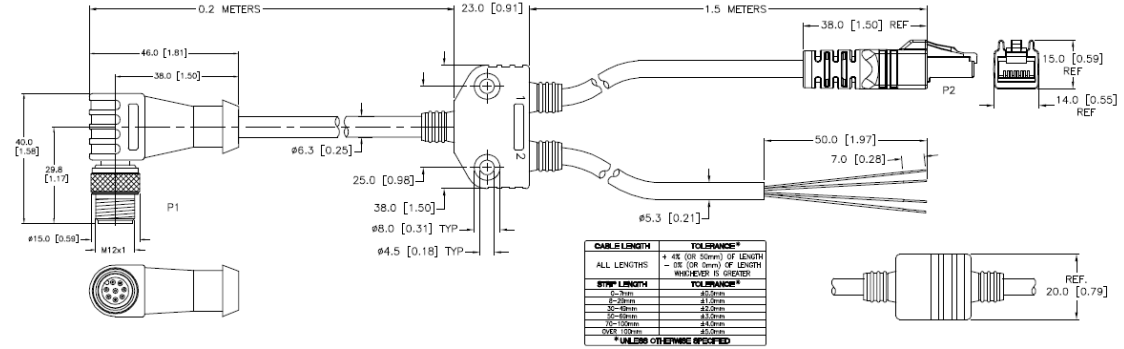
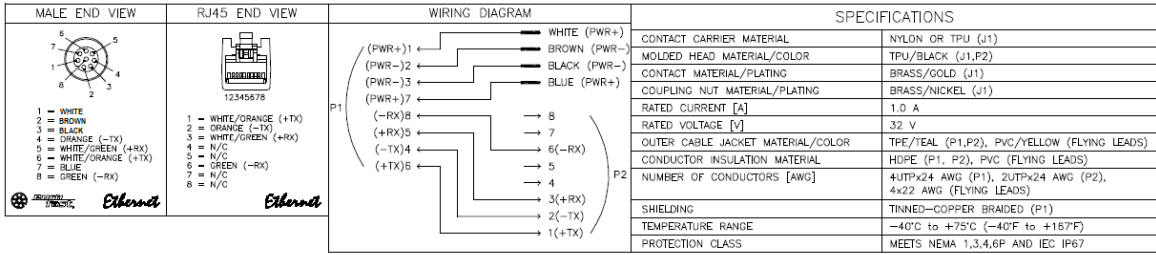


Figure 3.0 - AX070531 Mating Cable

Form: TDAX142100A-10/29/2024