RS485-MODBUS-ETHERNET
MODBUS ROUTER WITH ETHERNET AND CAN

USER MANUAL

P/N: AX141810A, AX141830A

VERSION HISTORY

Version	Date	Author	Modification
1.0.0.	May 9, 2023	Antti Keränen	Initial Draft
1.0.1	May 16, 2023	M Ejaz	Added Technical Specifications Fixed legacy issues
1.0.2	February 6, 2024	M Ejaz	Updated technical specifications
1.0.3	February 13, 2024	M Ejaz	Updated temperature ratings
1.0.4	February 15, 2024	M Ejaz	Added a note about default Ethernet settings where default passwords are mentioned.

The default passwords:
AX141810A firmware: '**AX141810A**'
AX141830A firmware: '**AX141830A**'
For default Ethernet settings, please go to section 5.2.

ACCRONYMS

ACK Positive Acknowledgement (from SAE J1939 standard)

BATT +/- Battery positive (a.k.a. Vps) or Battery Negative (a.k.a. GND)

DM Diagnostic Message (from SAE J1939 standard)

DTC Diagnostic Trouble Code (from SAE J1939 standard)

EA Axiomatic Electronic Assistant (A Service Tool for Axiomatic ECUs)

ECU Electronic Control Unit (from SAE J1939 standard)

GND Ground reference (a.k.a. BATT-)

I/O Inputs and Outputs

IP Internet Protocol

MAC Media Access Control

MAP Memory Access Protocol

MB Modbus

NAK Negative Acknowledgement (from SAE J1939 standard)

PDU1 A format for messages that are to be sent to a destination address, either specific or global (from SAE J1939 standard)

PDU2 A format used to send information that has been labeled using the Group Extension technique, and does not contain a destination address.

PGN Parameter Group Number (from SAE J1939 standard)

PropA Message that uses the Proprietary A PGN for peer-to-peer communication

PropB Message that uses a Proprietary B PGN for broadcast communication

SPN Suspect Parameter Number (from SAE J1939 standard)

TCP/IP Transmission Control Protocol / Internet Protocol

TP Transport Protocol

Vps Voltage Power Supply (a.k.a. BATT+)

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REFERENCES

J1939	Recommended Practice for a Serial Control and Communications Vehicle Network, SAE, April 2011
J1939/21	Data Link Layer, SAE, December 2010
J1939/71	Vehicle Application Layer, SAE, March 2011
J1939/73	Application Layer-Diagnostics, SAE, February 2010
J1939/81	Network Management, SAE, March 2017
TDAX141810A	Technical Datasheet, RS485-MODBUS-ENET Converter, Axiomatic Technologies 2023
UMAX07050x	User Manual, Axiomatic Electronic Assistant and USB-CAN, Axiomatic Technologies, May 2023

This document assumes the reader is familiar with the SAE J1939 standard. Terminology from the standard is used, but not described in this document.

NOTE: This product is supported by Axiomatic Electronic Assistant V5.15.129.0 and higher
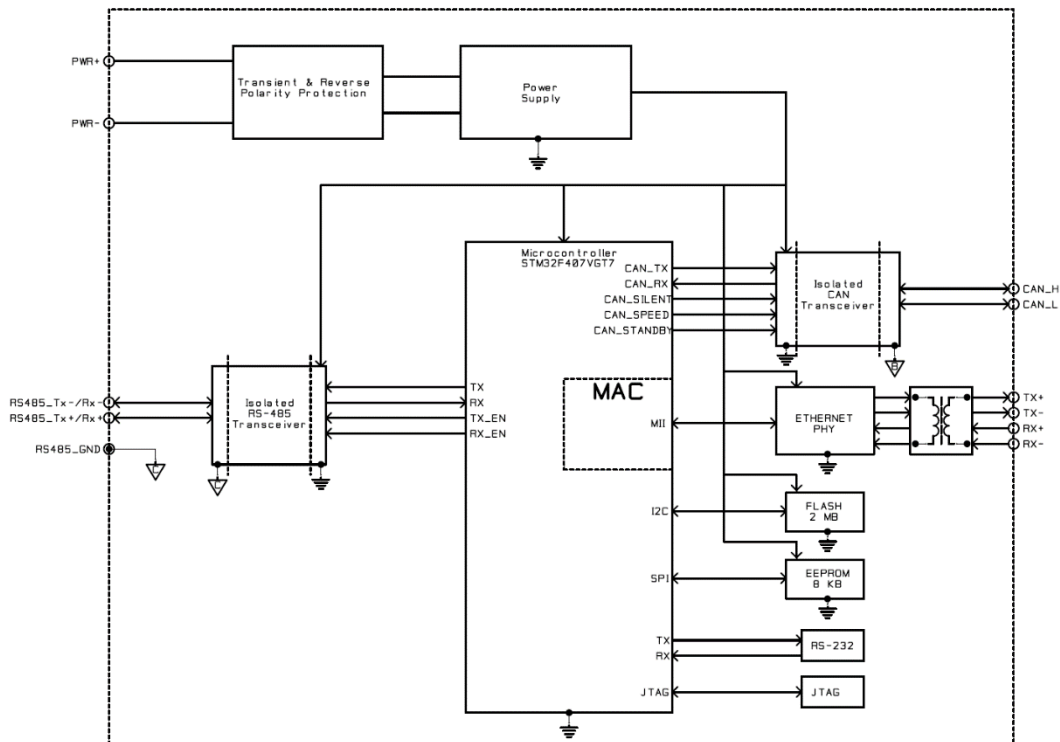
1. OVERVIEW OF CONTROLLER

Figure 1 – Block diagram of the RS485-MODBUS Converter with Ethernet and CAN

The RS485-MODBUS Converter with Ethernet and CAN (later RS485-MODBUS-ENET) is a device that forwards Modbus data between the serial port (RTU), CAN and Ethernet based on a custom routing configuration. The configuration can be done using a web browser and the built-in web server running on the RS485-MODBUS-ENET device.

The Axiomatic Electronic Assistant can be used to configure the network parameters (both RS485 and Ethernet) of the RS485-MODBUS-ENET device. The web browser interface (TCP port 80) supports the configuration of all parameters, also including the ones that have EA configuration support.

The two firmware versions, AX141810A and AX141830A both support the same data routing functions. The difference is in the amount of routing rules and message definitions. The AX141810A is a general-purpose device with support for both directions, Modbus (RTU+TCP/IP) to CAN and vice versa.

The AX141830A is targeted mainly for CAN to Modbus (RTU+TCP/IP) direction.

2. INSTALLATION INSTRUCTIONS
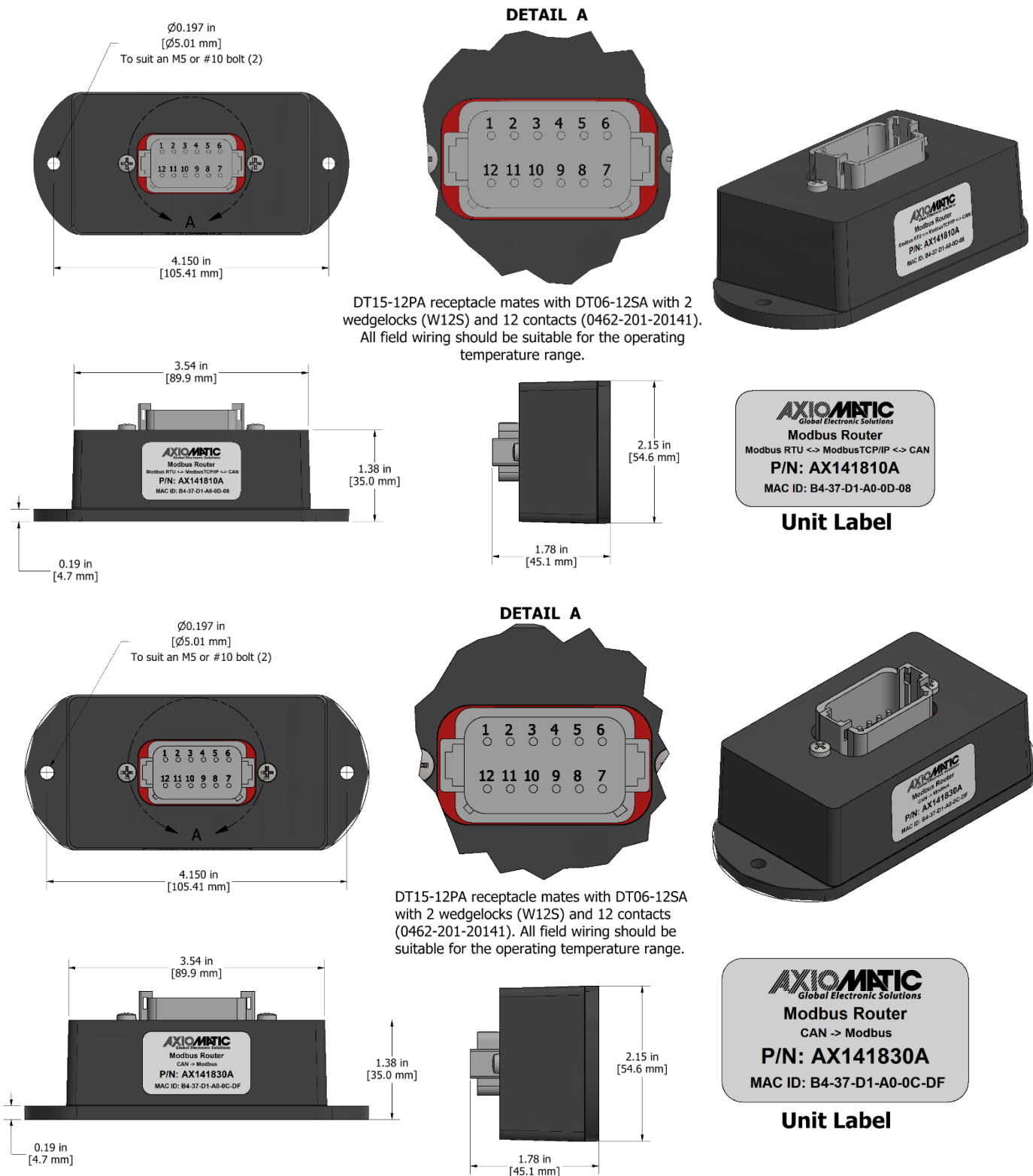
2.1. Dimensions and Pinout

DETAIL A

∅0.197 in
[∅5.01 mm]
To suit an M5 or #10 bolt (2)

4.150 in
[105.41 mm]

DT15-12PA receptacle mates with DT06-12SA with 2 wedgelocks (W12S) and 12 contacts (0462-201-20141). All field wiring should be suitable for the operating temperature range.

3.54 in
[89.9 mm]

1.38 in
[35.0 mm]

2.15 in
[54.6 mm]

1.78 in
[45.1 mm]

0.19 in
[4.7 mm]

Modbus Router
Modbus RTU <-> ModbusTCP/IP <-> CAN
P/N: AX141810A
MAC ID: B4-37-D1-A0-0D-08
Unit Label

DETAIL A

∅0.197 in
[∅5.01 mm]
To suit an M5 or #10 bolt (2)

4.150 in
[105.41 mm]

DT15-12PA receptacle mates with DT06-12SA with 2 wedgelocks (W12S) and 12 contacts (0462-201-20141). All field wiring should be suitable for the operating temperature range.

3.54 in
[89.9 mm]

1.38 in
[35.0 mm]

2.15 in
[54.6 mm]

1.78 in
[45.1 mm]

0.19 in
[4.7 mm]

Modbus Router
CAN -> Modbus
P/N: AX141830A
MAC ID: B4-37-D1-A0-0C-DF
Unit Label

Figure 2 – Controller Dimensions and Label

CAN and I/O Connector	
Pin #	Description
1	BATT-
2	Ethernet TX+
3	Ethernet RX+
4	RS485_TX+/RX+
5	CAN_SH
6	CAN_H
7	CAN_L
8	RS485_GND
9	RS485_TX-/RX-
10	Ethernet RX-
11	Ethernet TX-
12	BATT+

Table 1 – AX141810A/AX141830A Connector Pinout

3. OVERVIEW OF J1939 FEATURES

The software was designed to provide flexibility to the user with respect to messages sent from the ECU by providing:

- Configurable ECU Instance in the NAME (to allow multiple ECUs on the same network)
- Configurable PGN and Data Parameters
- Configurable Diagnostic Messaging Parameters, as required

3.1. Introduction to Supported Messages

The ECU is compliant with the standard SAE J1939, and supports following PGNs from the standard.

From J1939-21 – Data Link Layer
- Request   59904   0x00EA00
- Acknowledgement   59392   0x00E800
- Transport Protocol – Connection Management   60416   0x00EC00
- Transport Protocol – Data Transfer Message   60160   0x00EB00
- Proprietary B   from   65280   0x00FF00
      to   65535   0x00FFFF

From J1939-73 – Diagnostics
- DM1 – Active Diagnostic Trouble Codes   65226   0x00FECA
- DM2 – Previously Active Diagnostic Trouble Codes   65227   0x00FECB
- DM3 – Diagnostic Data Clear/Reset for Previously Active DTCs   65228   0x00FECC
- DM11 – Diagnostic Data Clear/Reset for Active DTCs   65235   0x00FED3

From J1939-81 – Network Management
- Address Claimed/Cannot Claim   60928   0x00EE00
- Commanded Address   65240   0x00FED8

From J1939-71 – Vehicle Application Layer
- ECU Identification Information   64965   0x00FDC5
- Software Identification   65242   0x00FEDA
- Component Identification   65259   0x00FEEB

None of the application layer PGNs are supported as part of the default configurations, but they can be selected as desired for transmit function blocks.

Setpoints are accessed using standard Memory Access Protocol (MAP) with proprietary addresses. The Axiomatic Electronic Assistant (EA) allows for quick and easy configuration of some of the unit's main parameters over CAN network.

3.2. NAME, Address and Identification Information

The RS485-MODBUS-ENET has the following default for the J1939 NAME. The user should refer to the SAE J1939/81 standard for more information on these parameters and their ranges.

Arbitrary Address Capable	Yes
Industry Group	0, Global
Vehicle System Instance	0
Vehicle System	0, Non-specific system
Function	25, Axiomatic Protocol Converter
Function Instance	23/24, Axiomatic AX141810A/AX141830A
ECU Instance	0, First Instance
Manufacture Code	162, Axiomatic Technologies
Identity Number	Variable, uniquely assigned during factory programming for each ECU

The ECU Instance is a configurable setpoint associated with the NAME. Changing this value will allow multiple ECUs of this type to be distinguishable from one another when they are connected on the same network.

The default value of the "ECU Address" setpoint is 128 (0x80), which is the preferred starting address for self-configurable ECUs as set by the SAE in J1939 tables B3 and B7. The EA will allow the selection of any address between 0 and 253. *It is the user's responsibility to select an address that complies with the standard*. The user must also be aware that since the unit is arbitrary address capable, if another ECU with a higher priority NAME contends for the selected address, the RS485-MODBUS-ENET will continue select the next highest address until it finds one that it can claim. See J1939/81 for more details about address claiming.

ECU Identification Information

PGN 64965		ECU Identification Information	-ECUID

Transmission Repetition Rate: On request

Data Length:	Variable	
Extended Data Page:	0	
Data Page:	0	
PDU Format:	253	
PDU Specific:	197 PGN Supporting Information:	
Default Priority:	6	
Parameter Group Number:	64965 (0x00FDC5)	

Start Position	Length	Parameter Name	SPN
a	Variable	ECU Part Number, Delimiter (ASCII "*")	2901
b	Variable	ECU Serial Number, Delimiter (ASCII "*")	2902
c	Variable	ECU Location, Delimiter (ASCII "*")	2903
d	Variable	ECU Type, Delimiter (ASCII "*")	2904
e	Variable	ECU Manufacturer Name, Delimiter (ASCII "*")	4304

(a)*(b)*(c)*(d)*(e)*

Software Identifier

PGN 65242		Software Identification	-SOFT

Transmission Repetition Rate: On request

Data Length:	Variable	
Extended Data Page:	0	
Data Page:	0	
PDU Format:	254	
PDU Specific:	218 PGN Supporting Information:	
Default Priority:	6	
Parameter Group Number:	65242 (0x00FEDA)	

Start Position	Length	Parameter Name	SPN
1	1 Byte	Number of software identification fields	965
2-n	Variable	Software identification(s), Delimiter (ASCII "*")	234

Byte 1 is set to 5, and the identification fields are as follows.

(Part Number)*(Version)*(Date)*(Owner)*(Description)

The EA shows all this information in its "General ECU Information" page. *Note: The information provided in the Software ID is available for any J1939 service tool which supports the PGN -SOFT*

Component Identification

PGN 65259	Component Identification	-CI

Transmission Repetition Rate: On request

Data Length: Variable
Extended Data Page: 0
Data Page: 0
PDU Format: 254
PDU Specific: 235 PGN Supporting Information:
Default Priority: 6
Parameter Group Number: 65259 (0x00FEEB)

Start Position	Length	Parameter Name	SPN
a	1-5 Byte	Make, Delimiter (ASCII "*")	586
b	Variable	Model, Delimiter (ASCII "*")	587
c	Variable	Serial Number, Delimiter (ASCII "*")	588
d	Variable	Unit Number (Power Unit), Delimiter (ASCII "*")	233

(a)*(b)*(c)*(d)*(e)*

4. WEB BROWSER BASED CONTROLLER CONFIGURATION

The RS485-MODBUS-ENET controller supports configuration of the data routing parameters from Ethernet port using a standard web browser.

The web browser-based configuration requires a password before any of the parameters can be viewed or edited.

> The default passwords:
> AX141810 firmware: '**AX141810A**'
> AX141830 firmware: '**AX141830A**'
> For default Ethernet settings, please go to section 5.2.

4.1.   Parameter Editing

The RS485-MODBUS-ENET has a web server running on TCP port 80. Please note that the "Save settings" button must be pressed to save the parameters. If not, the modified parameters are discarded when moving to another configuration page or closing the web browser. The RS485-MODBUS-ENET web server supports the configuration options described on the following pages.

\<configured ip\>

\<configured ip\>/index.shtml

The Home page (index.shtml) shows the main configuration parameters and communication statistics for the different interfaces.

<configured ip>/main_settings.shtml

The Main Settings configuration page allows the user to modify the device's IP address, netmask and the main configuration parameters for the communication interfaces. The CAN configuration parameters include the default baud rate to use and the auto-baud rate capability.

The serial port configuration contains baud rate (freely settable in range 75bps…256kbps), number of data bits, start and stop bits and parity.

The password can be changed by entering the same password to both **New password** and **Retype new password** entries. In case the **Retype new password** is left empty or the two passwords don't match, the password is not modified.

<configured ip>/can_rx_settings.shtml

The CAN receive message parameter settings are displayed one message at time. The message can be selected using the 'Next' and 'Previous' buttons. The 'Jump to' button selects the specified message directly. Please remember to save settings before selecting another CAN receive message to be configured, otherwise the modified settings will be lost.

The 'Discrete' data type reads in the CAN data as a number (or bit field data), using the range specified by the configured number of bits (**Data width**). With discrete data types, the resolution, offset, minimum and maximum are not used.

The 'Continuous' data type uses the J1939 data formatting with resolution, offset, minimum and maximum values. With continuous data, the data range is limited for reserving the upper range for J1939 special and error codes.

The Data destination and Data destination number settings specify the target interface for the received data. The received data is always stored to a local variable assigned for each CAN receive message, but the Data destination needs to be configured for forwarding the data to the Modbus slave interfaces.

<configured ip>/can_tx_settings.shtml

Each of the CAN transmit messages support several signals for sending out received data. The transmit messages support the same 'Discrete' and 'Continuous' data types with same characteristics than the CAN receive messages do.

Please remember to save the settings before selecting a new transmit message or transmit signal. In case the values are not saved, the modifications are lost when a new message or signal is selected.
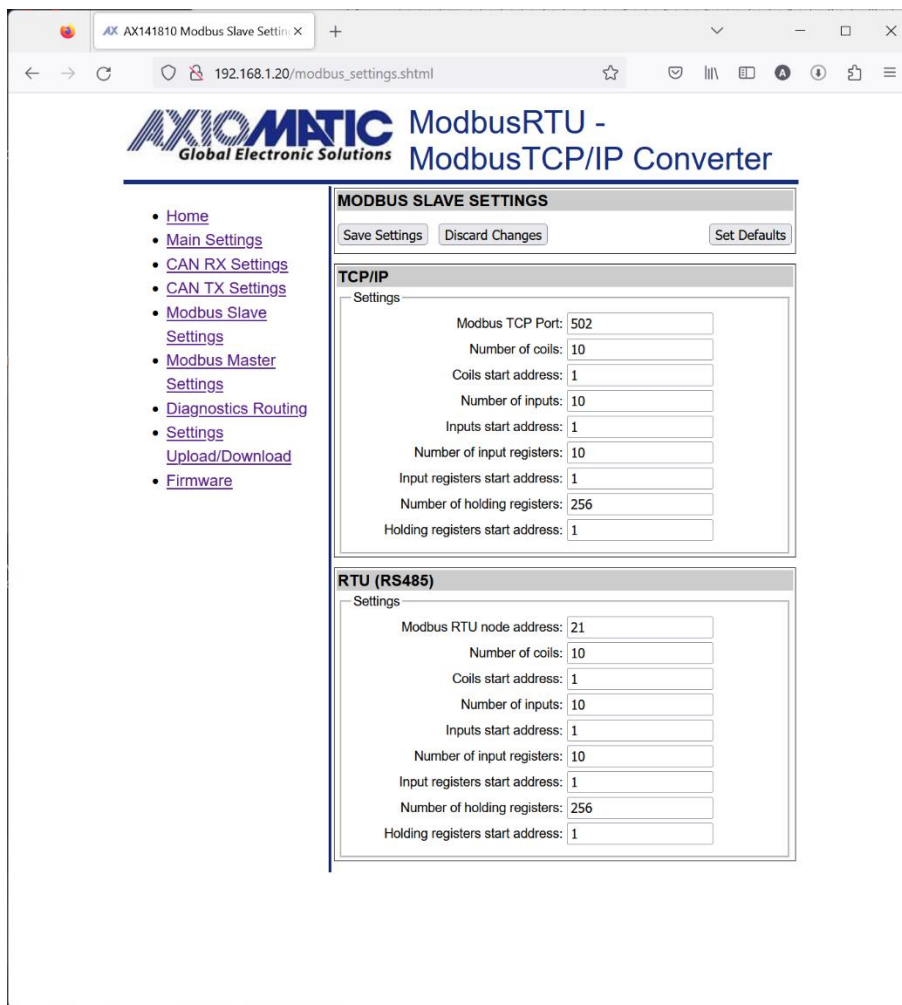
<configured ip>/modbus_settings.shtml

The RS485-MODBUS-ENET device supports Modbus RTU and Modbus TCP/IP slaves running on the RS485 and Ethernet ports, respectively. The number and start address for each of the Modbus slave's inputs, coils and registers can be specified.

Please note that the slave interface is enabled only if the Modbus master implementation is not running on that interface.

The Modbus TCP/IP node address is a "don't care", but the RTU slave interface will read in only the messages that are targeted to the configured Modbus node address.

The number of inputs, coils and registers have an upper limit, and the web server will not accept values beyond the built-in maximum limit. If the upper limit is exceeded, the value is saturated to the maximum allowed value.

<configured ip>/modbus_master.shtml

The RS485-MODBUS-ENET device supports Modbus RTU and Modbus TCP/IP master running on the RS485 and Ethernet ports, respectively. The "Ethernet master enabled" and "RS485 master enabled" options need to be set to 'Yes' for enabling the corresponding Modbus master.

Please note that enabling the Modbus master will disable the corresponding Modbus slave.

The **Forward received data to** and **Default source for writes** data routing options are the built-in variables for each Modbus master message definition. The CAN receive messages' **Data destination** configuration can access these variables directly if configured to do so on the CAN receive message configuration page.

The received Modbus data can be also sent directly to CAN bus by selecting the 'Direct CAN TX' option for the **Forward received data to** setpoint. In this case, the **Received data number** specifies the J1939 PGN to use (the priority will default to 6 and the RS485-MODBUS-ENET's J1939 address will be used as the source address for the direct transmit messages).

\<configured ip\>/diagnostics_routing.shtml

J1939 DM1 diagnostics frames can be routed to Modbus slave interfaces (either RTU or TCP/IP) using the Diagnostics routing configuration.

The routing options include routing all received diagnostics to Modbus or only routing the specified ones.

In case specified diagnostics routing is configured, the SPN is the main parameter to configure. The diagnostics are filtered using this setting. In case needed, the FMI and SA values can be used for more detailed filtering of the received DM1 frames. The FMI and SA can be set to "don't care" values (32 for FMI and 255 for SA) for accepting a wider range of SPNs.

The received DM1 data is forwarded to Modbus slave holding registers using this data layout.

	Holding register	
	\<15:8\>	\<7:0\>
\<MB diag. start addr.\>		SPN (MSBs)
\<MB diag. start addr. + 1\>	SPN (16 LSBs)	
\<MB diag. start addr. + 2\>	Lamp	FMI
\<MB diag. start addr. + 3\>	SA	OC
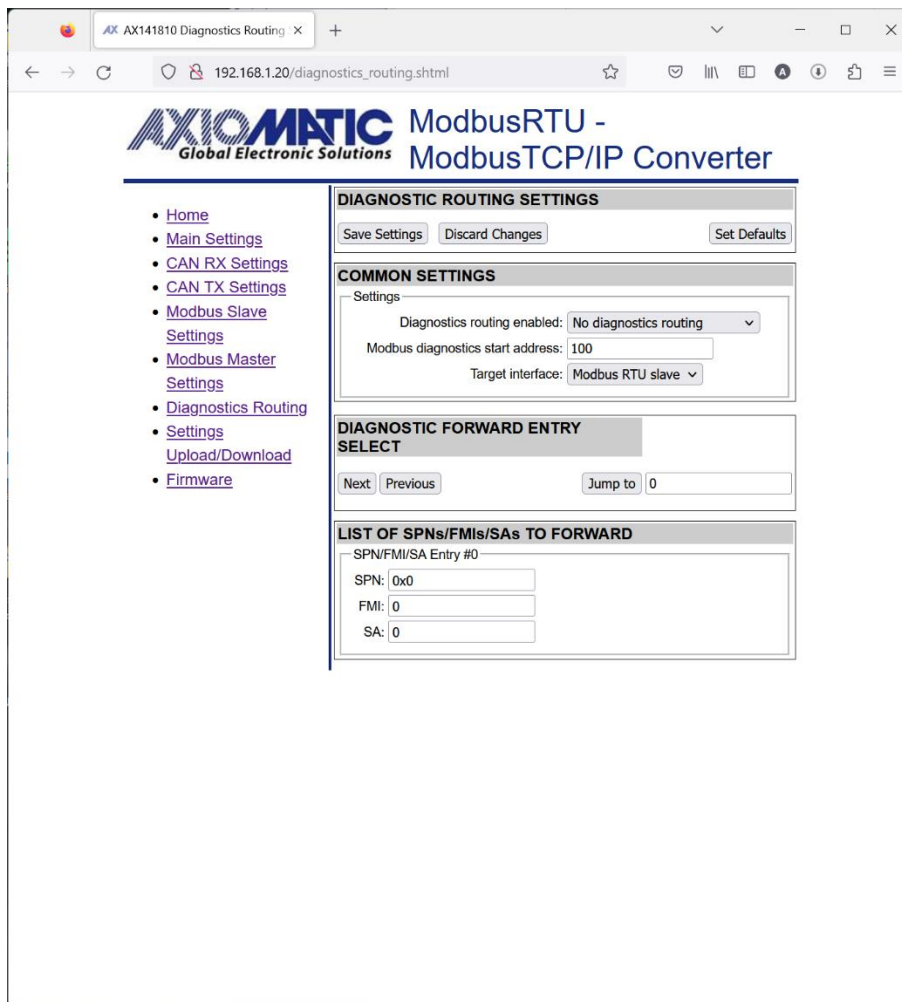
<configured ip>/settings_transfer.shtml

The settings can be downloaded from the RS485-MODBUS-ENET as a binary file. When a settings file is uploaded to the RS485-MODBUS-ENET, the settings are checked using a CRC32 checksum. In case the checksum isn't correct, the uploaded settings won't be stored to RS485-MODBUS-ENET's non-volatile memory.

Please also note that AX141810A and AX141830A settings are not compatible with each other due to different number of supported routing functions.

5. ECU SETPOINTS ACCESSED WITH AXIOMATIC ELECTRONIC ASSISTANT

5.1. J1939 Network Setpoints

"**ECU Instance Number**" and "**ECU Address**" setpoints and their effect are defined in section 3.2.

Name	Range	Default	Notes
ECU Instance Number	0-7	0x00	Per J1939-81
ECU Address	0-253	0x80	Preferred address for a self-configurable ECU

Table 2 – J1939 Setpoints

If non-default values for the **"ECU Instance Number"** or **"ECU Address"** are used, they will be mirrored during a setpoint file flashing, and will only take effect once the entire file has been downloaded to the unit. After the setpoint flashing is complete, the unit will claim the new address and/or re-claim the address with the new NAME. If these setpoints are changing, it is recommended to close and re-open the CAN connection on EA after the file is loaded so that only the new NAME and address are showing in the J1939 CAN Network ECU list.

Figure 3 – Screen Capture of J1939 Setpoints

5.2. Ethernet Parameter Setpoints

The main Ethernet parameters can be configured using EA for easier initial configuration of the RS485-MODBUS-ENET device. A power cycle is needed for taking the new settings into use.
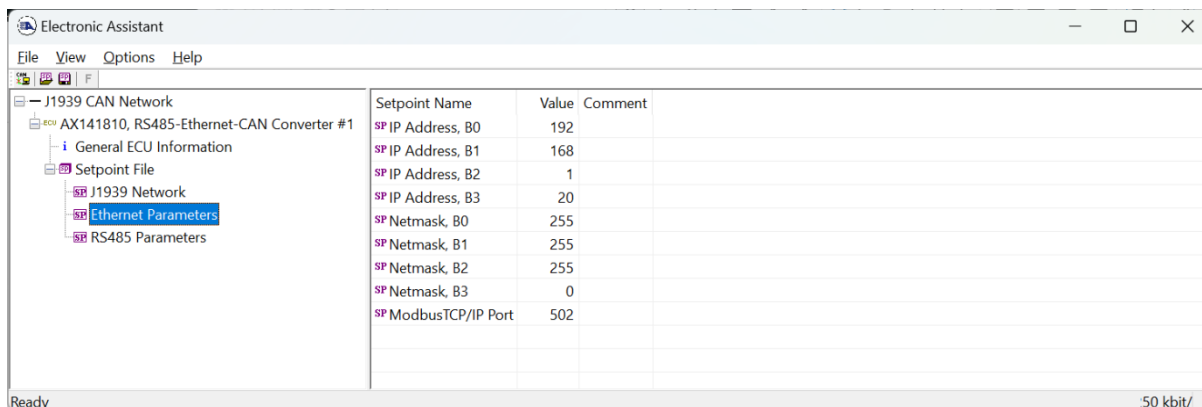

Figure 4 – Screen Capture of Ethernet Parameter Setpoints

Name	Range	Default	Notes
IP Address, B0	0…255	192	These settings define an IP address: 192.168.1.20
IP Address, B1	0…255	168	
IP Address, B2	0…255	1	
IP Address, B3	0…255	20	
Netmask, B0	0…255	255	These settings define a netmask 255.255.255.0
Netmask, B1	0…255	255	
Netmask, B2	0…255	255	
Netmask, B3	0…255	0	
ModbusTCP/IP Port	0…65535	502	The port for accessing the Modbus slave interface.

Table 3 – Ethernet Parameter Setpoints
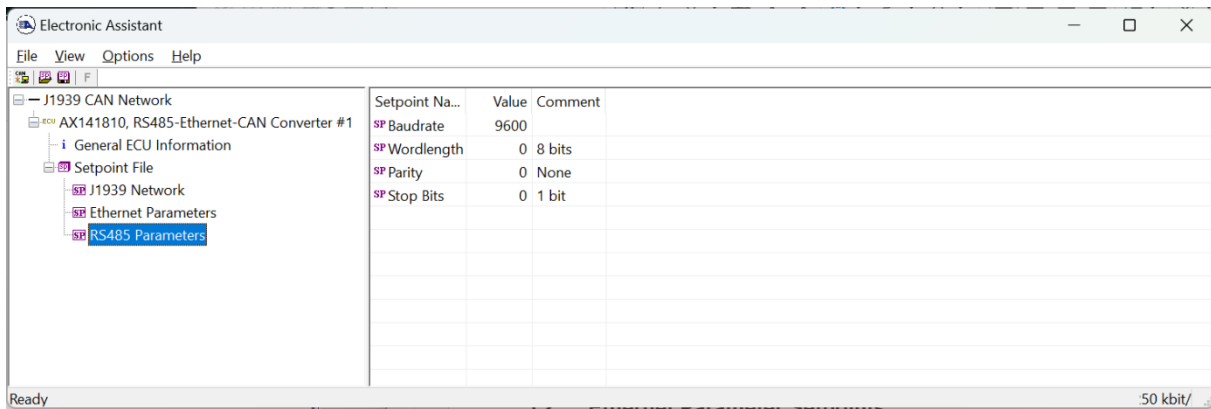
5.3. RS485 Parameter Setpoints

**Figure 5 – Screen Capture of RS485 Parameter Setpoints**

Name	Range	Default	Notes
Baudrate	0…256000	9600	The RS485 port baud rate to use.
Wordlength	0, 1	0 – 8 bits	Number of data bits to use, 8bits or 9bits.
Parity	0, 1, 2	0 – None	Parity: None, even, odd.
Stop bits	0, 1	0 – 1 bit	Number of stop bits, 1 bit or 2 bits.

**Table 4 – RS485 Parameter Setpoints**

6. REFLASHING OVER ETHERNET USING A WEB BROWSER

The AX141810A/AX141830A can be upgraded with new application firmware using a web browser. Once the correct configuration password is entered, the firmware reflash can be done using the 'Firmware' page.
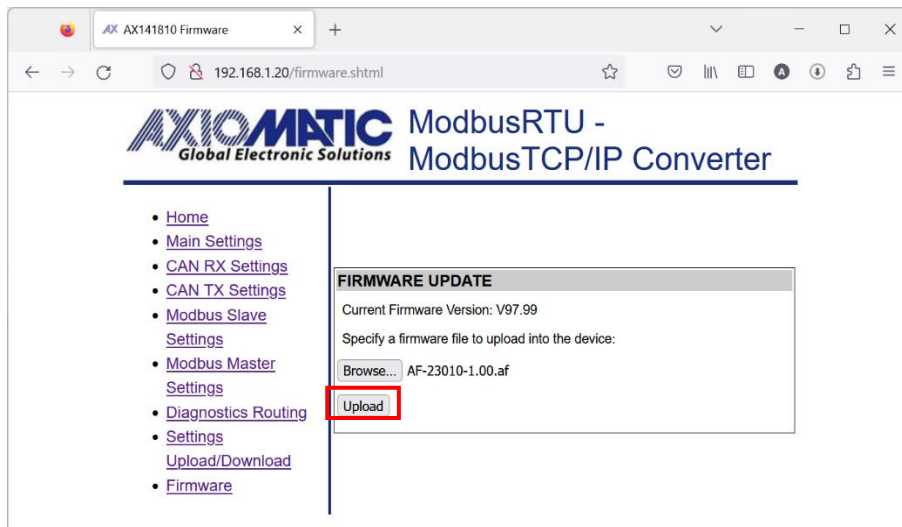
<configured ip>/firmware.shtml
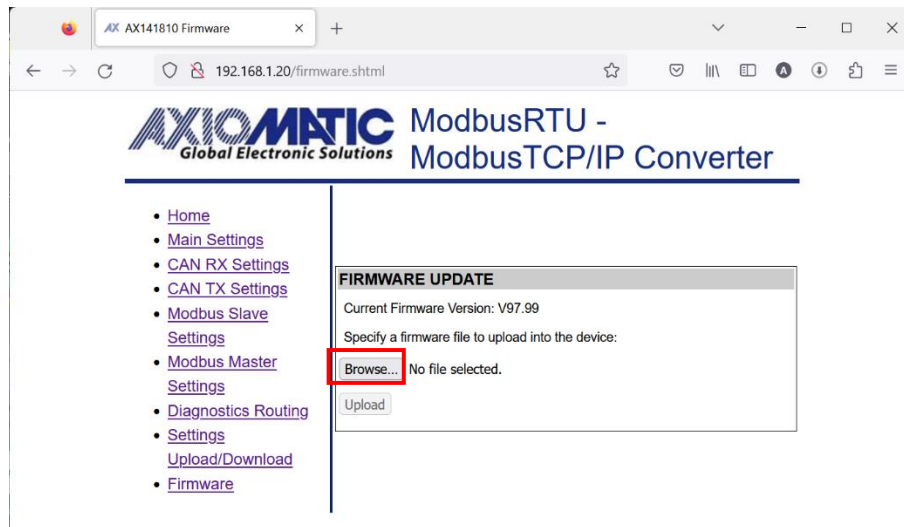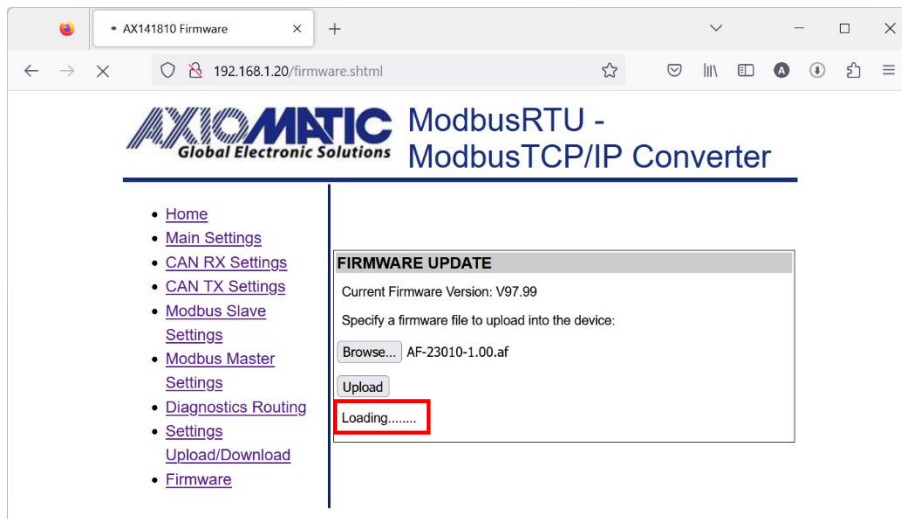

On the 'Firmware' page, a file selection dialog can be opened by pressing the 'Browse…' button.
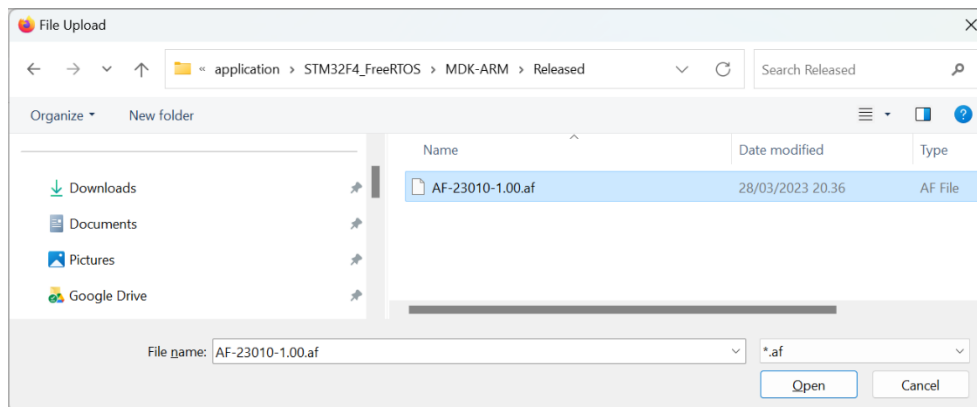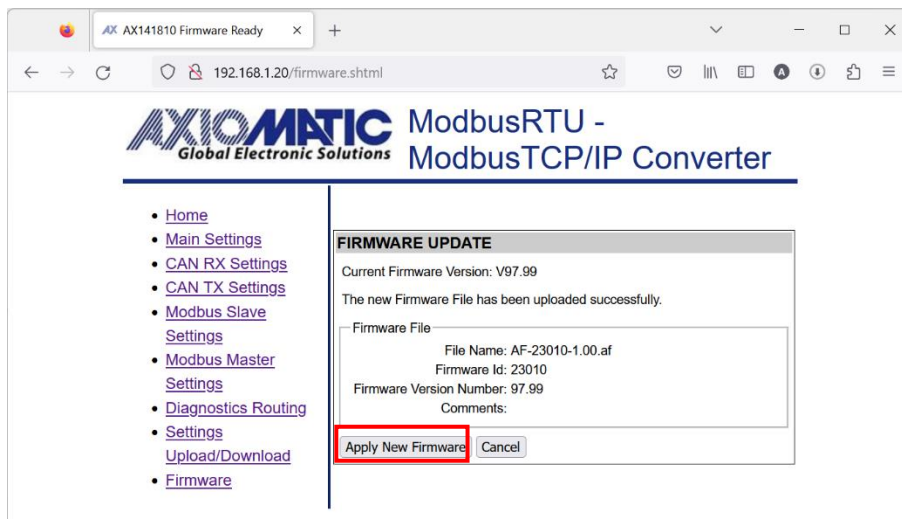

Navigate to where you had saved the **AF-23010-x.xx.af** file sent from Axiomatic. (Note: only binary (.af) files can be flashed using the web browser firmware update interface.)
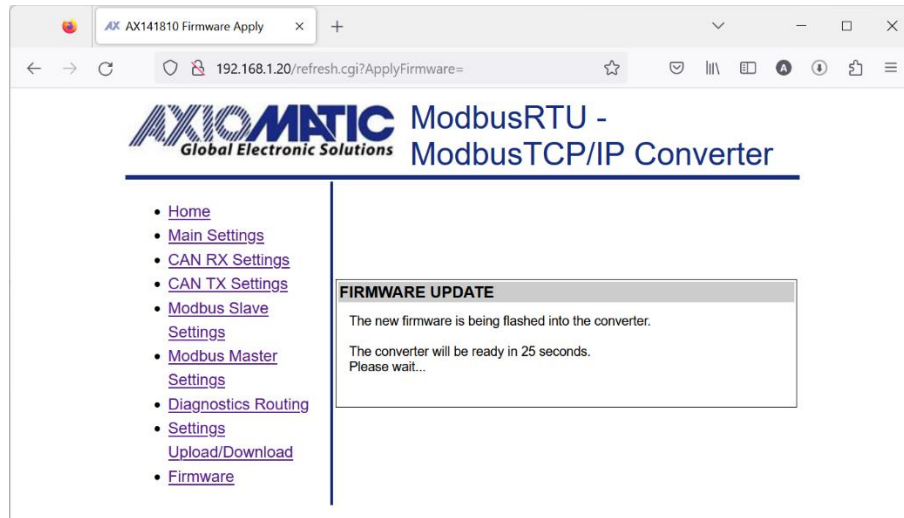
Once the file is selected, the actual upload/upgrade process is started by pressing the 'Upload' button.

The firmware upload process is shown below the 'Upload' button.

Once the upload is finished and the file checked and stored to a temporary location on the AX141810A/AX141830A, the user is prompted to either to 'Apply New Firmware' or cancel the operation.

The firmware reflash procedure takes 30 seconds to finish. After this the AX141810A/AX141830A reboots automatically to the new firmware and returns to the password dialog.

APPENDIX A - TECHNICAL SPECIFICATION

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/.

<u>Note:</u> *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	130 mA @ 12 V; 70 mA @ 24 V typical
Surge Protection	95 VDC
Under-Voltage Protection	Hardware shutdown at 6 VDC
Over-Voltage Protection	Hardware shutdown at 42 VDC
Reverse Polarity Protection	Provided up to -40 V

Functionality

Conversion Platform	The Protocol Converter supports conversion logic for bi-directional data exchange between Ethernet (Modbus TCP/IP), RS-485 (Modbus RTU) and SAE J1939 CAN networks. The actual conversion logic setup is highly application specific. The two firmware versions, AX141810A and AX141830A both support the same data routing functions. The difference is in the amount of routing rules and message definitions. The AX141810A is a general-purpose device with support for both directions, Modbus (RTU+TCP/IP) to CAN and vice versa. The AX141810A ships with no configuration to allow the user to set up the parameters. The AX141830A is targeted mainly for CAN to Modbus (RTU+TCP/IP) direction.
Ethernet	1 port 10/100 Mbit Ethernet compliant 10BASE-T, 100BASE-Tx (auto-negotiation and full-duplex supported) Auto-MDIX Modbus TCP/IP
RS-485	Modbus RTU Isolated 1 half-duplex RS-485 port provided Baud rate: Configurable (75 bit/s to 256 kbit/s)
CAN	SAE J1939 port Isolated Baud rate: 250 kbit/s (default) 250 kbit/s, 500 kbit/s, 1 Mbit/s auto-baud-rate detection

General Specifications

Microcontroller	
Isolation	CAN isolation: 330 Vrms RS-485 isolation: 300 Vrms
User Interface	**Parameters are configurable using a web browser.** Axiomatic Electronic Assistant (P/N: **AX070502** or **AX070506K**) can be used for configuring device IP address, netmask, and Modbus port. Firmware can be updated using a web browser
Compliance	RoHS
Vibration	
Shock	

Operating Conditions	-40 to 65°C (-40 to 149°F)
Storage Temperature	-40 to 105°C (-40 to 221°F)
Weight	0.70 lbs. (0.32 kg)
Protection	IP67
Enclosure and Dimensions	Aluminum enclosure Integral TE Deutsch equivalent connector Encapsulation Refer to dimensional drawing.
Electrical Connections	12-pin TE Deutsch equivalent connector P/N: DT15-12PA A mating plug KIT is available as Axiomatic P/N: **AX070105.** **CAN and I/O Connector** {{TABLE_CAN}}
Mounting	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 inches (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 inches or 15 cm) and strain relief (12 inches 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.

CAN and I/O Connector

Pin #	Description
1	BATT-
2	Ethernet TX+
3	Ethernet RX+
4	RS485_TX+/RX+
5	CAN_SH
6	CAN_H
7	CAN_L
8	RS485_GND
9	RS485_TX-/RX-
10	Ethernet RX-
11	Ethernet TX-
12	BATT+

OUR PRODUCTS

AC/DC Power Supplies

Actuator Controls/Interfaces

Automotive Ethernet Interfaces

Battery Chargers

CAN Controls, Routers, Repeaters

CAN/WiFi, CAN/Bluetooth, Routers

Current/Voltage/PWM Converters

DC/DC Power Converters

Engine Temperature Scanners

Ethernet/CAN Converters,
Gateways, Switches

Fan Drive Controllers

Gateways, CAN/Modbus, RS-232

Gyroscopes, Inclinometers

Hydraulic Valve Controllers

Inclinometers, Triaxial

I/O Controls

LVDT Signal Converters

Machine Controls

Modbus, RS-422, RS-485 Controls

Motor Controls, Inverters

Power Supplies, DC/DC, AC/DC

PWM Signal Converters/Isolators

Resolver Signal Conditioners

Service Tools

Signal Conditioners, Converters

Strain Gauge CAN Controls

Surge Suppressors

OUR COMPANY

Axiomatic provides electronic machine control components to the off-highway, commercial vehicle, electric vehicle, power generator set, material handling, renewable energy and industrial OEM markets. *We innovate with engineered and off-the-shelf machine controls that add value for our customers.*

QUALITY DESIGN AND MANUFACTURING
We have an ISO9001:2015 registered design/manufacturing facility in Canada.

WARRANTY, APPLICATION APPROVALS/LIMITATIONS
Axiomatic Technologies Corporation reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. 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 at https://www.axiomatic.com/service/.

COMPLIANCE
Product compliance details can be found in the product literature and/or on axiomatic.com. Any inquiries should be sent to sales@axiomatic.com.

SAFE USE
All products should be serviced by Axiomatic. Do not open the product and perform the service yourself.

⚠️ This product can expose you to chemicals which are known in the State of California, USA to cause cancer and reproductive harm. For more information go to www.P65Warnings.ca.gov.

SERVICE
All products to be returned to Axiomatic require a Return Materials Authorization Number (RMA#) from rma@axiomatic.com. Please provide the following information when requesting an RMA number:
- Serial number, part number
- Runtime hours, description of problem
- Wiring set up diagram, application and other comments as needed

DISPOSAL
Axiomatic products are electronic waste. Please follow your local environmental waste and recycling laws, regulations and policies for safe disposal or recycling of electronic waste.

CONTACTS

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