Data Logger, CAN/RS-232/Gigabit Ethernet

Linux Host
Internal 128 Gigabyte eMMC
2 CAN ports (CAN 2.0B)
1 Gigabit Ethernet Interface (TCP/IP)
1 RS-232 Port (Linux Console)
Supercap Backup for Ensuring Data Integrity
P/N: AX141000

Features

- Fast and bidirectional data exchange between CAN, RS-232, and Gigabit Ethernet
- Linux Host
- 2 CAN ports (CAN 2.0B) (SAE J1939 & CANopen® compliant)
- 1 RS-232 port (Linux Console)
- 1 Ethernet interface (TCP/IP)
- Data logging to internal 128 Gigabyte eMMC (eMMC contains both Linux image and data logging partitions)
- SYNC pin for data log start/stop synchronization
- Supercapacitor (power) backup for ensuring data integrity
- Power, Status, and Link/Act LED indicators
- Operational from 9 to 36 Vdc (12 / 24 Vdc nominal)
- Fully sealed enclosure with a rugged IP67 protection rating
- 2 M12 5-pin connectors, 1 M12 8-pin connector
- Compact size

Applications

Rugged data logging and communications interface for vehicles, machines, and generator sets

Ordering Part Numbers
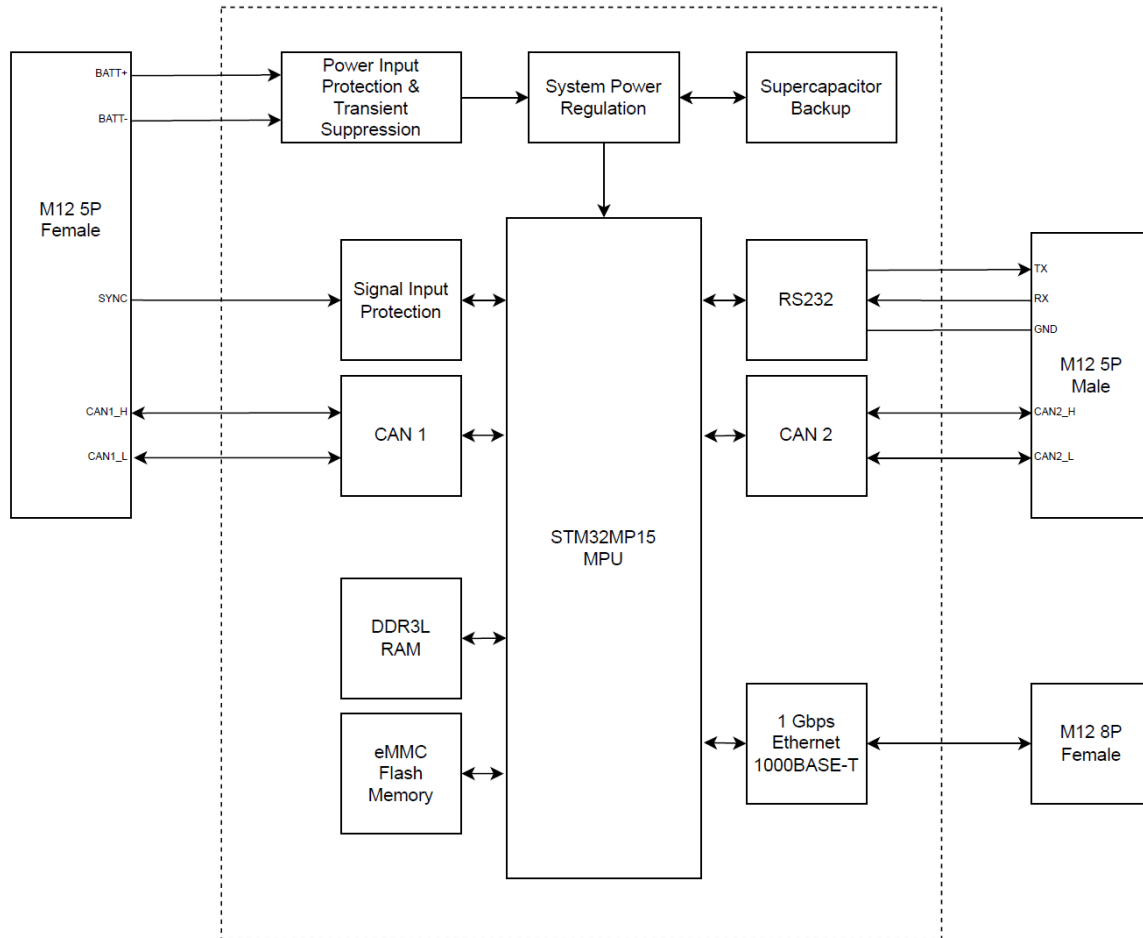
Data Logger, CAN/RS-232/Ethernet - P/N: **AX141000**

Accessories:
AX070532 CAN Cable - 1.5 m (5 ft.), 5-pin M12 A-coded, Unterminated Leads
AX070139 CAN Cable - 1.5 m (5 ft.), 5-pin M12 A-coded, Unterminated Leads
AX070535 Ethernet Cable 2 m (6.5 ft.), 8-pin M12 A-coded, Ethernet Jack

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/.

Power Input

Power Supply Input	12 or 24 Vdc nominal (8 to 36 Vdc range)
Quiescent Current	80 mA @12 V, 50 mA @ 24V
Protections	Surge and transient protection Reverse polarity protection up to -50 V. Under-voltage protection. Hardware shuts down at 4 Vdc. Over-voltage protection. Hardware shuts down at 38 Vdc.
Backup Battery	Supercapacitor backup for ensuring data integrity - time TBD

Functionality

Linux Host	OpenSTLinux with custom data logging application.

CAN Port

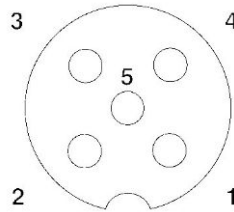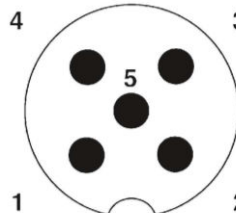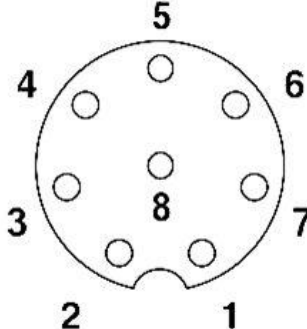| CAN	2 CAN ports (CAN 2.0B) SAE J1939 / CANopen® compliant Baud rate: 250 kBit/s (default) CAN FD supported (Contact Axiomatic for the supported data transfer speeds)
Protection	ESD protection for signal lines
SYNC	Digital input for starting or stopping CAN recording Min 4 V for Input High Max 1 V for Input Low Max voltage on input: 0 V to VPS

RS-232 Port

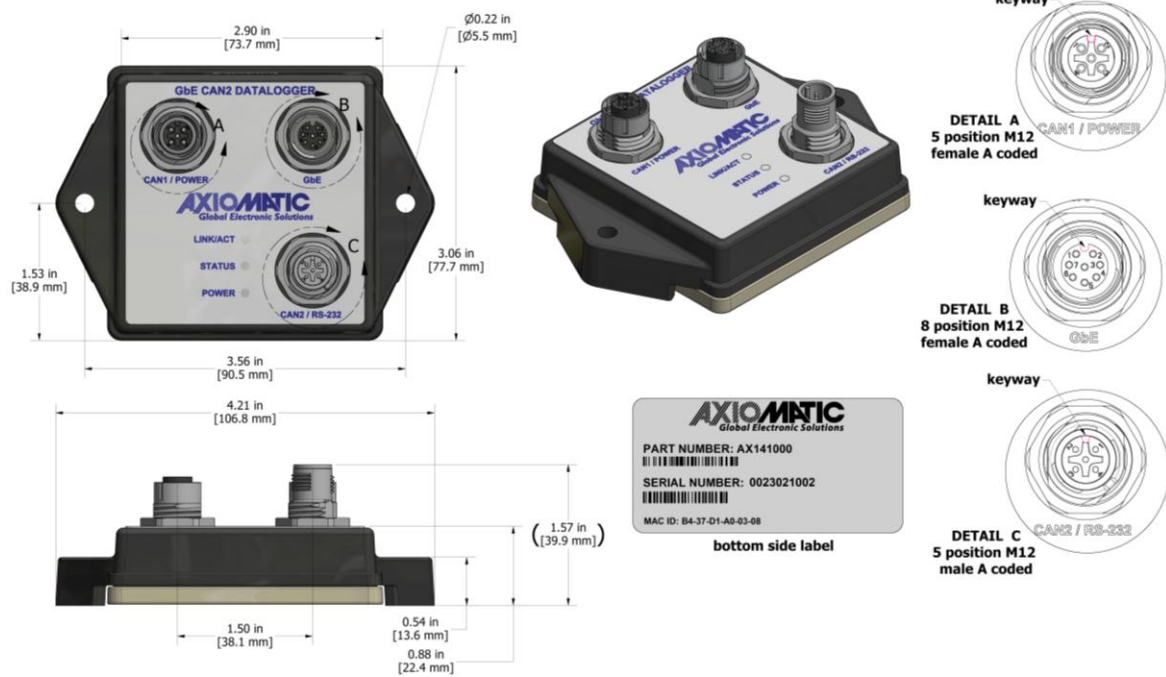| RS-232	1 RS-232 port Default baud rate: 115200 kbit/s
Protection	ESD protection for signal lines
User Interface	Any terminal emulator that supports serial communication. Default functionality: Linux root console

Ethernet Port

Port Type	1 port 10/100/1000 Mbit Ethernet Auto-negotiation and full-duplex supported Automatic polarity correction TCP/IP
MDIX	Auto-MDI/MDIX (crossover)
PHY	KSZ9131RNXI (10BASE-T, 100BASE-T, 1000BASE-T)
Protocol	Ethernet IEEE 802.3bw or IEEE 802.3 (2015)
Protection	ESD protection for signal lines
User Interface	SSH & SFTP server

General Specifications

Microcontroller	STM32MP157A, 32-bit, 512 MB RAM 128 GB Flash Program Memory (eMMC) out of which the default system uses ~200 MB
LED Indicators	POWER LED GREEN = System Booted and Ready RED = System in Backup Mode and powering down LINK LED Bicolor LED for Ethernet only STATUS LED (software defined) GREEN = Recording CAN RED = Stop OFF = Recording not started
Operating Temperature	-40 to 65°C (-40 to 149°F)
Compliance	RoHS Directive
Enclosure and Dimensions	Injection molded enclosure and cover. Laser welded. PA66, 30% glass fiber reinforced 4.21 in x 3.06 in x 1.57 in (106.8 mm x 77.7 mm x 39.9 mm) L x W x H including connectors. See dimensional drawing. Flammability Rating: UL 94 HB
Weight	0.283 lb. (0.128 kg)
Protection Rating	IP67 IEC 60529 with mated connectors
Installation	Suits two M5 or #10 mounting bolts.

LINK LED sub-table:

LED Color	State	Description
OFF		No Link
GREEN	On	1000 Link / No Activity
	Blink	1000 Link / Activity (RX, TX)
RED	On	100 Link / No Activity
	Blink	100 Link / Activity (RX, TX)
YELLOW / ORANGE	On	10 Link / No Activity
	Blink	10 Link / Activity (RX, TX)

Electrical Connections	1x 5-pin Phoenix Contact M12 circular female connector (A-coded), P/N: 1441778	

1x 5-pin Phoenix Contact M12 circular female connector (A-coded), P/N: 1441778

Pin #	Description
1	SYNC
2	Power+
3	Power-
4	CAN1_H
5	CAN1_L

1x 5-pin Phoenix Contact M12 circular male connector (A-coded), P/N: 1441765

Pin #	Description
1	RS232-RX
2	RS232_TX
3	GND
4	CAN2_H
5	CAN2_L

Ethernet Connector:
1x 8-pin Phoenix Contact M12 circular female connector (A-coded), P/N: 1441817

Pin #	Description
1	BI_DC_P
2	BI_DD_P
3	BI_DD_N
4	BI_DA_N
5	BI_DB_P
6	BI_DA_P
7	BI_DC_N
8	BI_DB_N

Mating Cables

The following part numbers are available from Axiomatic.

AX070532 CAN Cable - 1.5 m (5 ft.), 5-pin M12 A-coded, Unterminated Leads, can be used for experimenting. The cable is rated for -40°C to 105°C.

AX070139 CAN Cable - 1.5 m (5 ft.), 5-pin M12 A-coded, Unterminated Leads

AX070535 Ethernet Cable 2 m (6.5 ft.), 8-pin M12 A-coded, Ethernet Jack
Note: Cable supplier is Phoenix Contact Network cable NBC-M12MR/2,0-94B/R4AC US – 1406112. The M12 connector on the harness assembly is rated for -20°C to +85°C and the RJ45 ethernet jack is rated as -20°C to +60°C.

Dimensional Drawing

DETAIL A
5 position M12
female A coded

DETAIL B
8 position M12
female A coded

DETAIL C
5 position M12
male A coded

keyway

2.90 in [73.7 mm]

Ø0.22 in [Ø5.5 mm]

1.53 in [38.9 mm]

3.06 in [77.7 mm]

3.56 in [90.5 mm]

4.21 in [106.8 mm]

1.57 in [39.9 mm]

1.50 in [38.1 mm]

0.54 in [13.6 mm]

0.88 in [22.4 mm]

PART NUMBER: AX141000
SERIAL NUMBER: 0023021002
MAC ID: B4-37-D1-A0-03-08

bottom side label

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

Form: TDAX142100-03/28/2025