TECHNICAL DATASHEET #TDAX029001

10 Outputs Valve Controller, CANopen®

CANopen®, Ethernet (Modbus)
DIN Rail Mount
P/N: AX029001

Features

- Ten (10) independent outputs to drive valves (0-2.5A) are user configurable as:
  - Proportional Current
  - Proportional Voltage
  - Hotshot Digital
  - PWM Duty Cycle
  - On/Off Digital
- Output type is high side sourcing or low side sinking.
- CANopen® port
- Modbus (Ethernet 10/100 Mbit/s port) on request
- 12Vdc or 24Vdc nominal
- Twelve (12) output voltages are available to power LEDs.
- Operates from -40 to 85°C (-40 to 185°F)
- IP20
- DIN rail mount
- Configurable via the Axiomatic Electronic Assistant

Applications

The controller is designed to be applied in industrial process equipment.

Ordering Part Numbers

KIT (AX029001 CANopen® Controller and Mating Screw Terminal Plugs): **AX029001K**
KIT (AX029000 SAE J1939 Controller and Mating Screw Terminal Plugs): **AX029000K**

To order items separately:
Controller, CANopen®: **AX029001**
Controller, SAE J1939: **AX029000**
Mating Screw Terminal Plug KIT: **AX070151**

Accessories:
ESD File

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Block Diagram

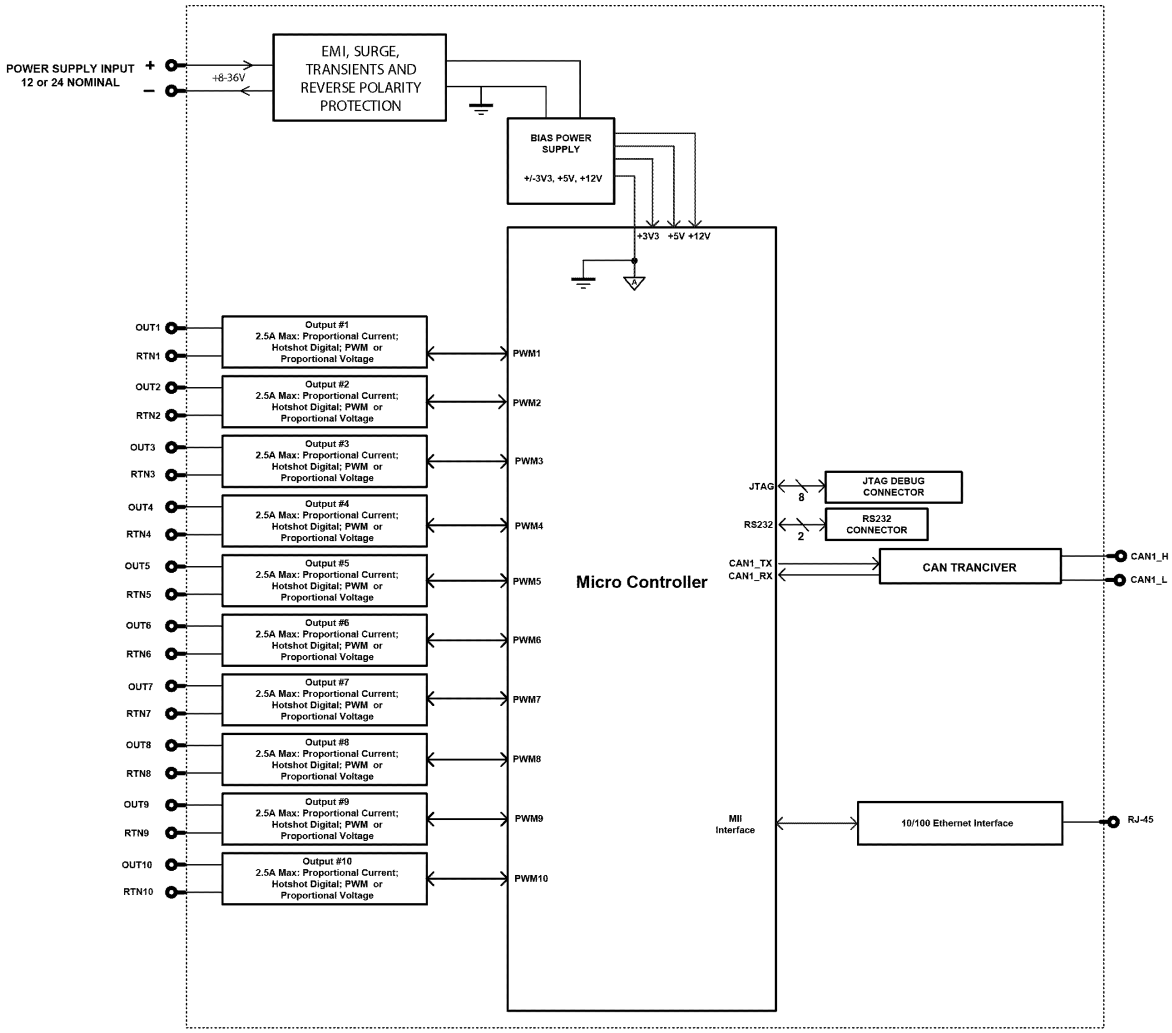

Figure 1 –Logical Functional Block Diagram

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 Approvals/Limitations and Return Materials Process as described on https://www.axiomatic.com/service/.

Power Supply

Power Supply Input	12 Vdc or 24 Vdc nominal 8…36 Vdc power supply range Maximum supply current is 15A @ 24Vdc at any time.
Protection	Reverse polarity protection is provided up to -80Vdc. Surge and transient protection are provided. Overvoltage shutdown of the output load is provided. Undervoltage protection (hardware and software shutdown) is provided.

Outputs

Outputs	10 independent universal outputs selectable as: proportional current, proportional voltage, hotshot or ON/OFF digital or PWM type. High side sourcing or low side sinking Half-bridge output, current sensing Up to 2.5A each Overcurrent protection Short circuit protection All output types have configurable minimum and maximum output levels within the range for the type selected. Current Outputs: 1mA resolution, accuracy +/- 1% error Voltage Outputs: 0.1V resolution, accuracy +/- 5% error High frequency drive PWM Outputs: 0.1% resolution, accuracy +/- 0.1% error Digital On/Off: Sourcing from power supply, sinking from output to ground or off. Load at supply voltage must not draw more than 2.5A.
LED Voltage Supply	Twelve +5Vdc LED voltage outputs via 332Ω resistor

General Specifications

Microcontroller	STM32F407ZG, 32-bit, 1MByte flash memory
Quiescent Current	122.3mA @ 12Vdc ; 80.7mA @ 24Vdc typical
CAN Communications	Model: **AX029001** CANopen® Model: **AX029000** 250 kbps SAE J1939
Control Logic	User programmable functionality is detailed in the User Manual.
CAN Communications	1 CAN port (CANopen®)
Ethernet Communications	One 10/100 Mbit Ethernet compliant port Modbus is available on request.
User Interface	CANopen® service tools (not supplied)
Protection	IP20
Weight	0.45 lb. (0.204 kg)
Operating Temperature	-40 to 85°C (-40 to 185°F)
Enclosure, Dimensions	PHOENIX 2 MCV1.5/10-G-3.81 HEADER VERTICAL 10 PIN 3.81mm 8A 160V T/H 1 MCV1.5/2-G-3.81HEADER VERTICAL 2 PIN 3.81mm 8A 160V T/H 1 MSTBVA2.5HC/2-G-5.08 - HEADER VERTICAL 2 PIN 5.08 16A 250V T/H 1 UM-PRO_72X168.5 UM-PRO PROFILE 72 X 168.5mm -40-100C 1 UM-PRO72_COVER-L - END CAP LEFT 72mm BLK 1 UM-PRO72_COVER-R - END CAP RIGHT 72mm BLK 4 UM-PRO_PCB_S-LOCK - S-LOCK CLIP BLK FOR TOP RAIL 2 UM-PRO_PCB_C-LOCK_L1- C-LOCK CLIP BLK FOR TOP RAIL 1 UM-PRO72_FOOT FOOT DIN RAIL (OPTIONAL) Polyamide, UL94V0, cULus recognized, China RoHS DIN rail TH 35-7.5 *Refer to Figure 2.0.*
Electrical Connections	Screw terminals are included in part number AX070151. PHOENIX **2 MC1,5/10-ST-3,81** – ten position screw terminal plug **1 MC1,5/ 2-ST-3,81** - two position PCB screw terminal plug 1 **MVSTBR2,5HC/2-ST-5,08** screw terminal plug *Refer to Figure 3.0.*
Installation	DIN rail mount, TH 35-7.5
Network Termination	It is necessary to terminate the network with external termination resistors. The resistors are 120 Ohm, 0.25W minimum, metal film or similar type. They should be placed between CAN_H and CAN_L terminals at both ends of the network.

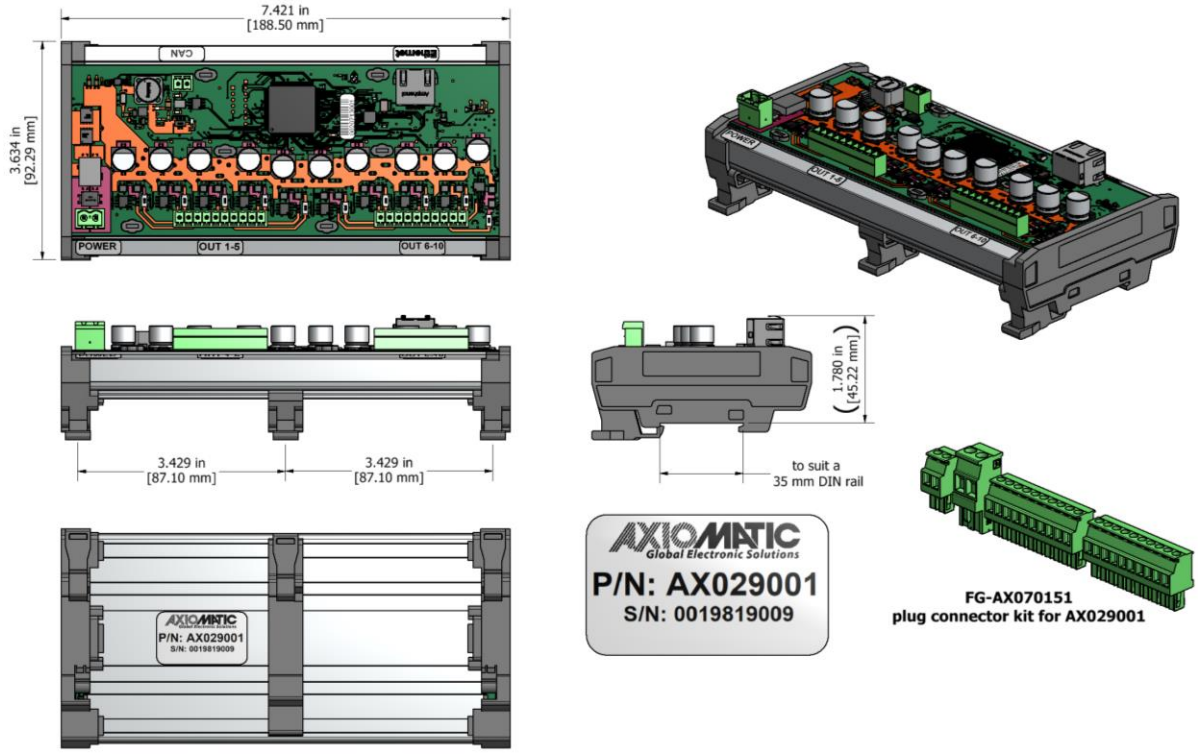

Figure 2 – AX029001K Dimensional Drawing (mating screw terminal plugs shown)

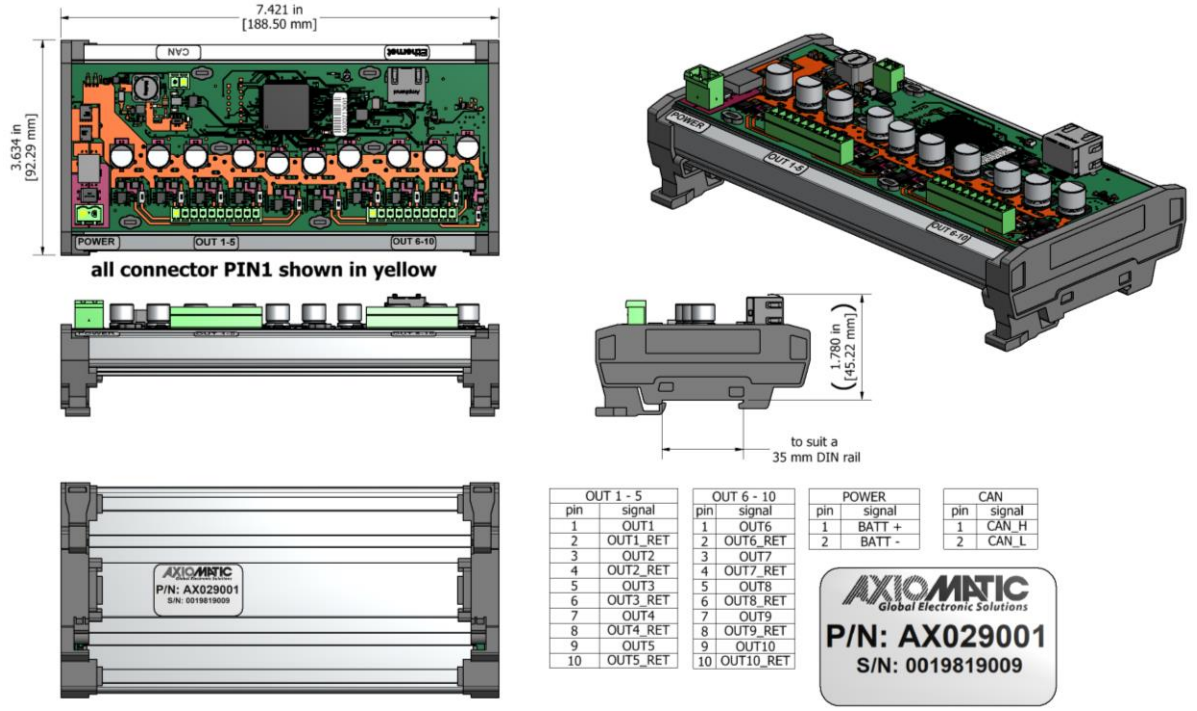

Figure 3 – Pin out is shown in drawing of AX029001 without mating connectors.

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

Form: TDAX029001-02/08/2024