Preliminary
Technical Datasheet #TDAX024030

4x Inputs, 2x Bidirectional 600mA Outputs Valve Controller, DIN Rail Mount

1x CAN Port (SAE J1939)
1x +5 V Reference Output
Near Field Communications (NFC)
Programmable with Android and Apple iOS Devices and Smartphones
Also Configurable with the Axiomatic Electronic Assistant
P/N: AX024030

Features

- 2x analog signal inputs are selectable as follows.
  - Current
  - Voltage
- 2x analog/digital inputs are programmable as:
  - Current
  - Voltage
  - PWM / Frequency
  - Digital (active high or active low)
- 2x bidirectional outputs of up to 600 mA
- 1x reference +5 V voltage output to power sensors
- 1x CAN port (SAE J1939)
- Operates at 12 or 24 VDC nominal power (9 to 36 VDC range)
- Protected against input surge, transient, reverse polarity, undervoltage, and overvoltage
- -40 to 85 °C (-40 to 185 °F) operating temperature
- 2x LED indicators for output status
- IP20
- DIN rail mount
- Configurable via the Axiomatic Electronic Assistant
- Near Field Communications (NFC) is provided. E-Write NFC application for Android and Apple iOS devices can be used to configure some parameters of the device.

Applications

Servo valve control in motion control and industrial automation

Ordering Part Number

4x Inputs, 2x Bidirectional 600 mA Outputs Valve Controller, DIN Rail Mount, SAE J1939 with Auto-Baud-Rate Detection – P/N: **AX024030**

Accessories:
E-Write NFC Application is available for Android and iOS devices *(see User Interface below)*.
Axiomatic Electronic Assistant Configuration KIT – P/N: **AX070502** or **AX070506K**

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Block Diagram (TBD)

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 Supply

Power Input	12 or 24 VDC nominal (9 to 36 VDC range)
Quiescent Current	65 mA @ 12 VDC; 40 mA @ 24 VDC (typical)
Protection	Surge and transient protection provided up to 202 VDC Reverse polarity protection Undervoltage hardware shutdown at 7 VDC Overvoltage hardware shutdown at 38 VDC

Inputs

Analog Inputs	2x inputs (inputs 1 and 2) user selectable as current or bipolar voltage 12-bit analog to digital Current Type: Ranges: 0-20 mA or 4-20 mA Resolution: 1 µA Accuracy: ±1 % Voltage Type: Ranges: ±5 V, ±10 V, 0-5 V, or 0-10 V Resolution: 1 mV Accuracy: ±1 %
Analog or Digital Inputs	2x inputs (inputs 3 and 4) user selectable as current, voltage, PWM / frequency, or digital 12-bit analog to digital (voltage and current) Current Type: Ranges: 0-20 mA or 4-20 mA Resolution: 1 µA Accuracy: ±1 % Voltage Type: Ranges: 0-5 V or 0-10 V Resolution: 1 mV Accuracy: ±1 % PWM / Frequency Type: Range: 1 Hz to 10 kHz Duty Cycle: 0 to 100 % Resolution: 0.01 % Accuracy: ±1 % Digital Type: Active high or active low Amplitude: 3.3 V to +Vsupply
Protection	Protected against shorts to Ground or +Vsupply
Input Grounds	3x common input Ground connections

Outputs

Outputs	2x bidirectional outputs up to 600 mA independently user selectable as Servo Valve Control or Proportional Current Current ranges selectable from ±150 to ±600 mA Accuracy: ±1 % Maximum output resistance can be calculated as: R[Ω] = (Vps[V] -3) / Imax[A] Full bridge output Current sensing resistor Output voltage up to +Vps
Response Time	70 ms for 0-600 mA current change
Reference Voltage	1x 5 V, 100 mA, 1 % reference voltage output
Protection	Overcurrent protection is provided. Protected against shorts to Ground or +Vsupply. Unit will fail safe in the case of a short circuit condition, self-recovering when the short is removed.

General Specifications

Microcontroller	STM32F205VGT7, 32-bit, 1 MB flash memory
LED Indicators	2x bicolour status LEDs (Red and Green), one for each output, on top of the housing indicate the status of the respective outputs. • Green indicates that the output is operating normally. • Red indicates an output fault (such as output short circuit, configured diagnostic active, or output drive disabled due to setpoint change).
Control Logic	Standard embedded software is provided. Refer to the User Manual for details. *Application-specific control logic or factory programmed setpoints on request*
CAN	1x CAN port (SAE J1939) Auto-baud-rate detection feature is enabled by default. It can be disabled by the user for setting the desirable baud rate. Supported baud-rates include 125 kbit/s, 250 kbit/s, 500 kbit/s, 667 kbit/s, and 1 Mbit/s.
Network Termination	It is necessary to terminate the network with external termination resistors. The resistors are 120 Ω, 0.25 W minimum, metal film or similar type. They should be placed between CAN High and CAN Low terminals at both ends of the network.
NFC	Near Field Communication (NFC) Full-duplex Data rate: 106 kbit/s Complies with ISO 1443 (RF protocol), ISO 13239, and ISO 7816 Protected and secure configuration

User Interface	• Axiomatic Electronic Assistant KIT – P/N: **AX070502** or **AX070506K**
	• The NFC interface supports a limited set of setpoints. Only input, output, and CAN baud rate configuration are accessible using NFC.
	  ○ E-WRITE NFC Application is available for a fee from Google Play for Android devices (https://play.google.com/store/apps/details?id=com.axiomatic.ewritenfc).
	  ○ E-WRITE NFC Application can be downloaded for a fee from Apple's App Store for iOS devices (https://apps.apple.com/us/app/e-write-nfc/id6473560354).

Software Reflashing	Via Axiomatic Electronic Assistant KIT – P/N: **AX070502** or **AX070506K**
Compliance	RoHS
Protection	IP20
Operating Temperature	-40 to 85 °C (-40 to 185 °F)
Storage Temperature	-50 to 125 °C (-58 to 257 °F)
Weight	0.30 lb. (0.136 kg) preliminary
Enclosure	Phoenix Contact: ME MAX 22,5 G 2-2 KMGY - 2713638 or ME MAX 22.5 2-2 KMGY - 2713625 (vented) Polyamide, UL94V0, cULus recognized, China RoHS 3.89 in. x 4.49 in. x 0.89 in. (98.6 mm x 113.9 mm x 22.6 mm) (L x H x W) Refer to the Dimensional Drawing for details.
Mounting	DIN rail TH 35-7.5
Electrical Connections	4x spring clamp connectors (Phoenix Contact PSPT 2,5/4-ST KMGY) or 4x screw terminals (Phoenix Contact MSTBT2,5HC/4-STPGY) (based on availability) Accepts 24-14 AWG wire

Pin	Connector			
	Power & CAN (J1)	**Inputs (J2)**	**Outputs (J3)**	**Reference & Ground (J4)**
1	Battery +	Input 1	Output 1 +	+5 V Reference
2	Battery -	Input 2	Output 1 -	Ground
3	CAN High	Input 3	Output 2 +	
4	CAN Low	Input 4	Output 2 -	

Dimensional Drawing

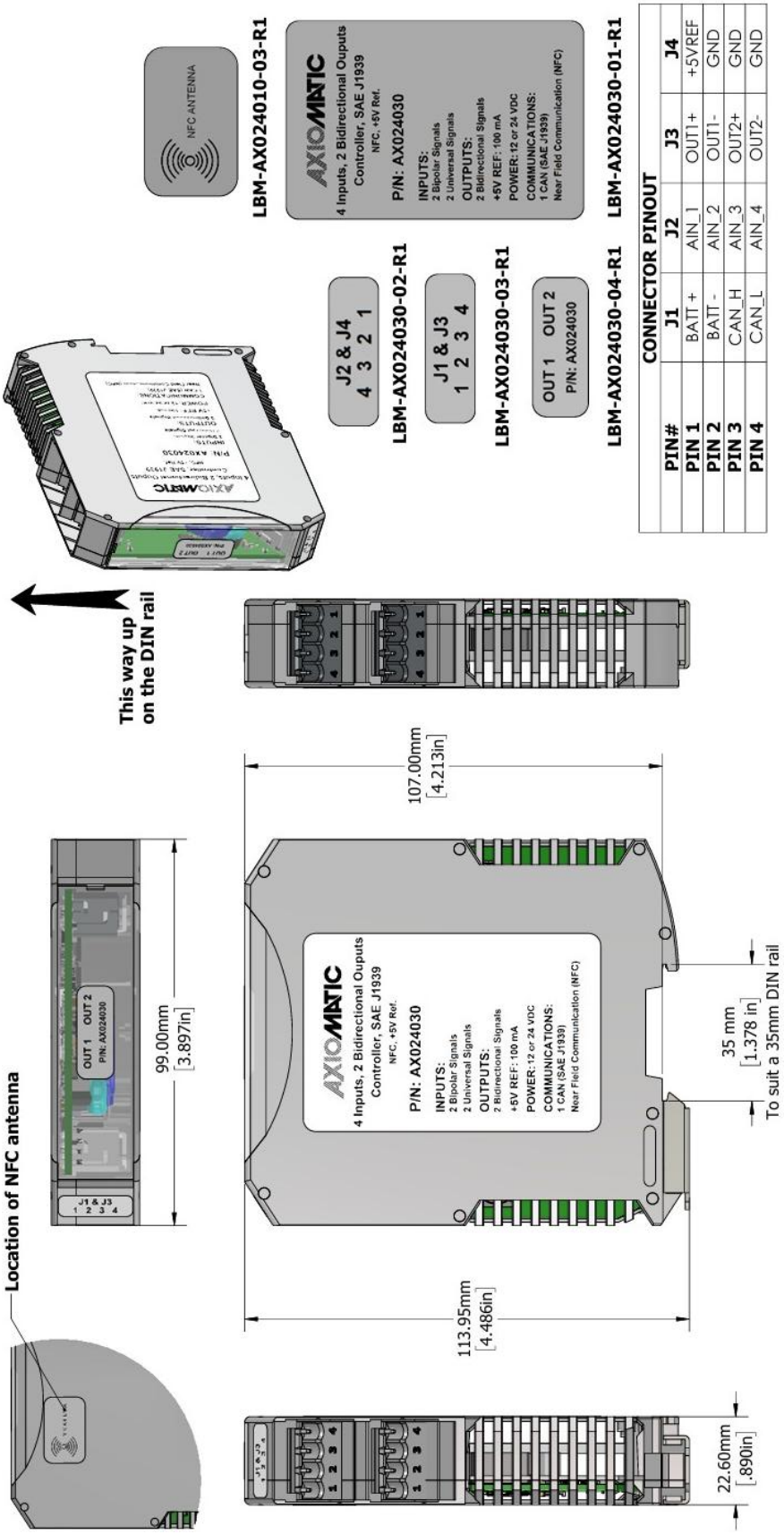

Figure 1.0 – Dimensional Drawing

Form: TDAX024030-04/21/2026