![Axiomatic - Global Electronic Solutions logo]

4 INPUTS, 2 BIDIRECTIONAL 10 - 400 mA OUTPUTS VALVE CONTROLLER, DIN rail mount

Four Signal Inputs
Two Bi-directional 10-400 mA Outputs
One Reference Voltage
CANopen®

P/N: AX024011

Features:

- Two bidirectional outputs from -400mA to +400 mA
- 1 CANopen® port
- Two analog signal inputs are selectable as the following voltage or current signals (Inputs 1 & 2).
  - 0-5V, 0-10V, 0 to +/- 5V, 0 to +/- 10V
  - 4-20mA, or 0-20mA
- Two analog/digital inputs are available as the following signals (Inputs 3 & 4).
  - 0-5V, 0-10V,
  - 4-20 mA, 0-20 mA,
  - PWM,
  - Frequency,
  - or Digital (Active High or Active Low).
- 12Vdc or 24Vdc nominal
- One reference voltage (+5V) is available to power sensors.
- Operates from -40 to 85°C (-40 to 185°F).
- Two LED indicators
- IP20
- DIN rail mount
- CE marking
- EDS file is provided.

Applications:

- servo valve control in motion control, industrial automation

Ordering Part Numbers:

Valve Controller, CANopen®: **AX024011**
EDS File

Valve Controller, SAE J1939: **AX024010**

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 www.axiomatic.com/service.html.
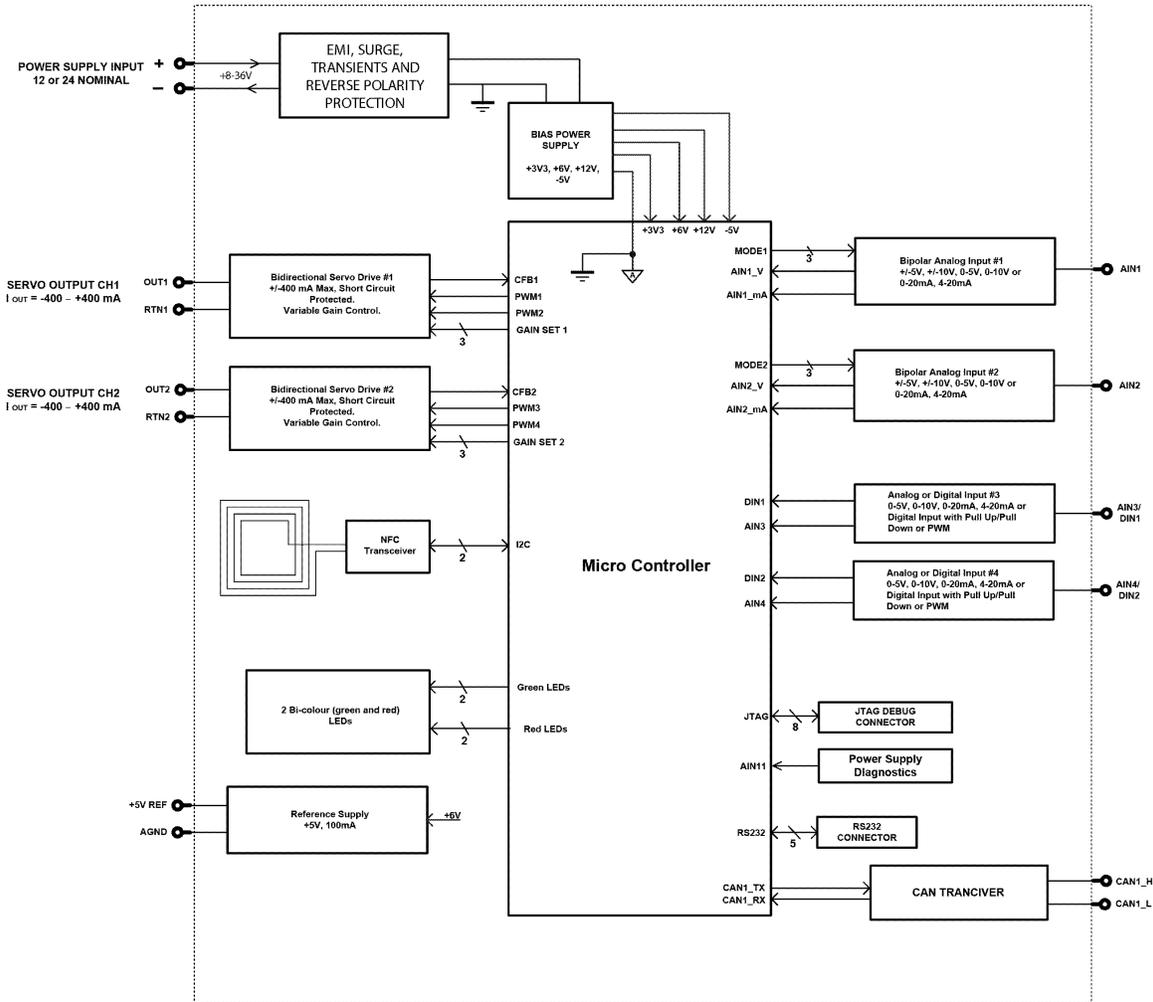

Figure 1.0 - Block Diagram – The NFC feature is not used.

Inputs

Power Supply Input	12V or 24Vdc nominal (9…36Vdc power supply range)
Protection	Reverse polarity protection Overvoltage protection up to 38V Under voltage shutdown at 7.5V.
Input Grounds	Three common input GND connections are provided.

Bipolar Analog Inputs	Two inputs (Input 1 and 2 in Table 2.0.) User selectable as Bipolar or Unipolar Voltage or Current 12-bit Analog to Digital Protected against shorts to GND or +Vsupply Voltage Types: 1mV resolution, accuracy +/- 1% error Ranges: +/-5V or +/-10V or 0-5V or 0-10V Current Types: 1uA resolution, accuracy +/- 1% error Ranges: 0-20mA or 4-20mA
Analog or Digital Inputs (Voltage, Current or PWM)	Two inputs (Inputs 3 and 4 in Table 2.0.) User selectable as: Voltage, Current, PWM or Digital 12-bit Analog to Digital (voltage, current) Protected against shorts to GND or +Vsupply Voltage Types: 1mV resolution, accuracy +/- 1% error Ranges: 0-5V, 0-10V Current Types: 1uA resolution, accuracy +/- 1% error Ranges: 0-20mA or 4-20mA PWM Signal Frequency: 1 – 10,000 Hz PWM Duty Cycle: 0 to 100% PWM Input: 0.01% resolution, accuracy +/- 1% error Digital Input: Active High or Active Low. Amplitude: 3.3V to +Vsupply
Minimum and Maximum Ratings	**Table 1.0. Absolute Maximum and Minimum Ratings** See table below.

Table 1.0. Absolute Maximum and Minimum Ratings

Characteristic	Min	Max	Units
Power Supply	9	36	V dc
Voltage Input	0	36	V dc
Current Input	0	21	mA
Current Input – Voltage Level	0	12	Vdc
Digital Type Input – Voltage Level	0	36	Vdc
PWM Duty Cycle	0	100	%
PWM Frequency	50	10 000	Hz
PWM Voltage pk - pk	0	36	V dc
RPM Frequency	50	10 000	Hz

Outputs

Outputs	Two +/- 400 mA bidirectional outputs, independent User selectable as: Servo Valve Control or Proportional Current Selectable current ranges from +/- 10mA to +/-400 mA Accuracy: +/- 1% Output voltage up to +Vps Full bridge output Current sensing resistor Overcurrent protection is provided. Short circuit protection is provided.
Reference Voltages	One 5V, 100mA, 1% reference voltage
Protection for Output Terminals	Fully protected against short circuit to ground and short circuit to power supply rail. Unit will fail safe in the case of a short circuit condition, self-recovering when the short is removed.

General Specifications

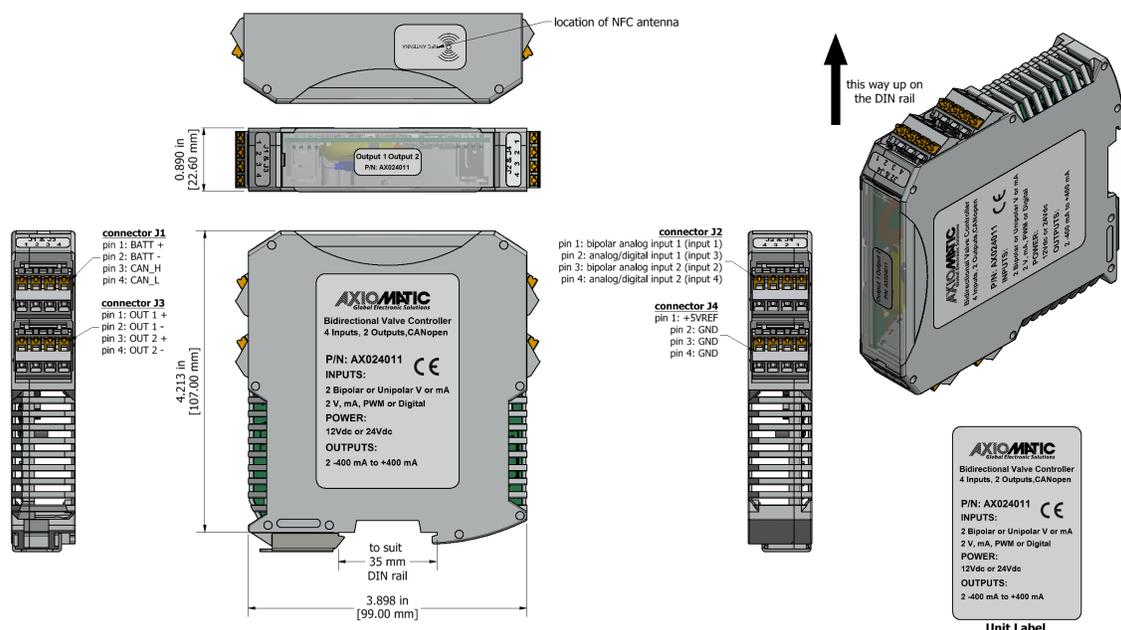| Microprocessor	STM32F205VGT7 32-bit, 1MByte flash memory
Typical Quiescent Current	60mA @ 12Vdc; 35mA @ 24Vdc
Response Time	70 ms for 0 to 400 mA current change
LED Indicators	2 bicolour LED's (Red and Green) Power, heartbeat, input fault indication and output fault indication
Control Logic	Standard embedded software is provided. Setpoints are user configurable. (Application-specific control logic or factory programmed setpoints on request) Refer to the User Manual for details.
CANopen User Interface	EDS File Standard CANopen tools (not supplied) can be used for complex configurations.
Software Reflashing	Electronic Assistant® P/N: AX070502
CAN bus	1 CAN port (CANopen®)
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.
Operating Conditions	-40 to 85 °C (-40 to 185 °F)
Enclosure and Dimensions	Phoenix Contact: ME MAX 22,5 G 2-2 KMGY – 2713638 or PHO ME MAX 22.5 2-2 KMGY – 2713625 (vented) Polyamide, UL94V0, cULus recognized, China RoHS DIN rail TH 35-7.5 99 x 114.5 x 22.5 x 99 mm (L x H x W x D) Refer to Figure 2.0.
Protection	IP20
Electrical Connections	4 Phoenix Contact PSPT 2,5/ 4-ST KMGY spring clamp connectors or 4 Phoenix Contact MSTBT2,5HC/4-STPGY screw terminals (based on availability) Accepts 24-14 AWG wire. Refer to Table 2.0 and Figure 2.0. for pin out.
Compliance	CE marking
Weight	0.30 lb. (0.136 kg)
Installation	DIN rail mount TH 35-7.5

Figure 2.0 – Dimensions – The NFC feature and antenna is not used.

Table 2.0 – Pin out: AX024011

Power and CAN (J1)		Outputs (J3)		Inputs (J2)		Reference and GNDs (J4)	
PIN #	Function	PIN #	Function	PIN #	Function	PIN #	
1	BATT +	1	Output 1+	1	Bipolar Analog Input 1 (Input 1)	1	+5V Reference
2	BATT –	2	Output 1-	2	Analog/Digital Input 1 (Input 3)	2	Common Analog GND
3	CAN_H	3	Output 2+	3	Bipolar Analog Input 2 (Input 2)	3	Common Analog GND
4	CAN_L	4	Output 2-	4	Analog/Digital Input 2 (Input 4)	4	Common Analog GND

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

Form: TDAX024011-06/10/22