Preliminary
TECHNICAL DATASHEET #TDAX024040

Dual Bidirectional 200 mA Servo Valve Controller, SAE J1939

Servo Valve Control or Proportional Current Outputs
Configurable with Axiomatic Electronic Assistant
P/N: AX024040

Features

- 2 outputs (up to ±200 mA) user selectable as:
  - Servo valve control
  - Proportional current
- 1 full H-bridge output
- Selectable current ranges: ±50 mA, ±100 mA, and ±200 mA
- 1 SAE J1939 CAN bus port with auto-baud-rate detection (CANopen® model available)
- Operates at 12 or 24 VDC nominal power (8 to 36 VDC range)
- Protected against input surge, transient, reverse polarity, undervoltage, and overvoltage
- Compact integrated TE Deutsch equivalent 8-pin connector
- -40°C to 85°C (-40°F to 185°F) operating temperature
- Fully sealed enclosure with a rugged IP67 protection rating
- Configurable with Axiomatic Electronic Assistant

Applications

- Suitable for vibration and harsh environments of mobile equipment
- Oil and gas equipment automation
- Off-highway machine automation
- Agricultural equipment

Ordering Part Number

Dual Bidirectional 200 mA Servo Valve Controller, SAE J1939 with Auto-Baud-Rate Detection - P/N: **AX024040**

CANopen® model - P/N: **AX024041**

Accessories:
Mating Plug KIT P/N: **AX070112**
Axiomatic Electronic Assistant Configuration KIT P/N: **AX070502** or **AX070506K**

Description

The Dual Bidirectional 200 mA Servo Valve Controller provides two outputs selectable as servo valve control or proportional current type. The outputs can be used as 1 full H-bridge output. Selectable current ranges are +/-50 mA, +/-100 mA, and +/-200 mA. It has an auto-baud-rate detection feature for CAN SAE J1939 networks. The Axiomatic Electronic Assistant is used to configure it. Setpoint configuration can be saved in a file which can then be utilized to program the same configuration to another AX024040 device.

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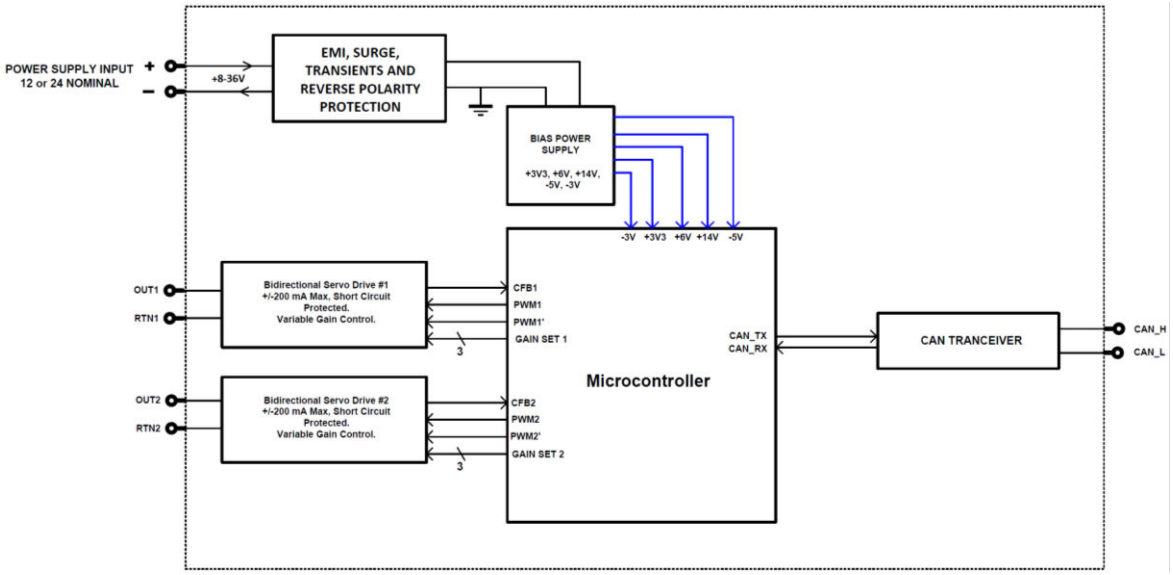
Block Diagram



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 Supply

Power Supply Input	12 or 24 VDC nominal (8 to 36 VDC power supply range)
Quiescent Current	35 mA @ 12 VDC; 20 mA @ 24 VDC typical
Protection	Surge and transient protection provided Reverse polarity protection Undervoltage hardware shutdown at 6 VDC Overvoltage hardware shutdown at 38 VDC

Outputs

Outputs	2 bidirectional outputs are user selectable as: • Servo Valve control • Proportional current Up to ±200 mA output 1 full H-bridge output Current sensing resistor Selectable current ranges: ±50 mA, ±100 mA, and ±200 mA Accuracy: ±1 %
Protection	Overcurrent protection provided Protected against short circuits to Ground or Vsupply

General Specifications

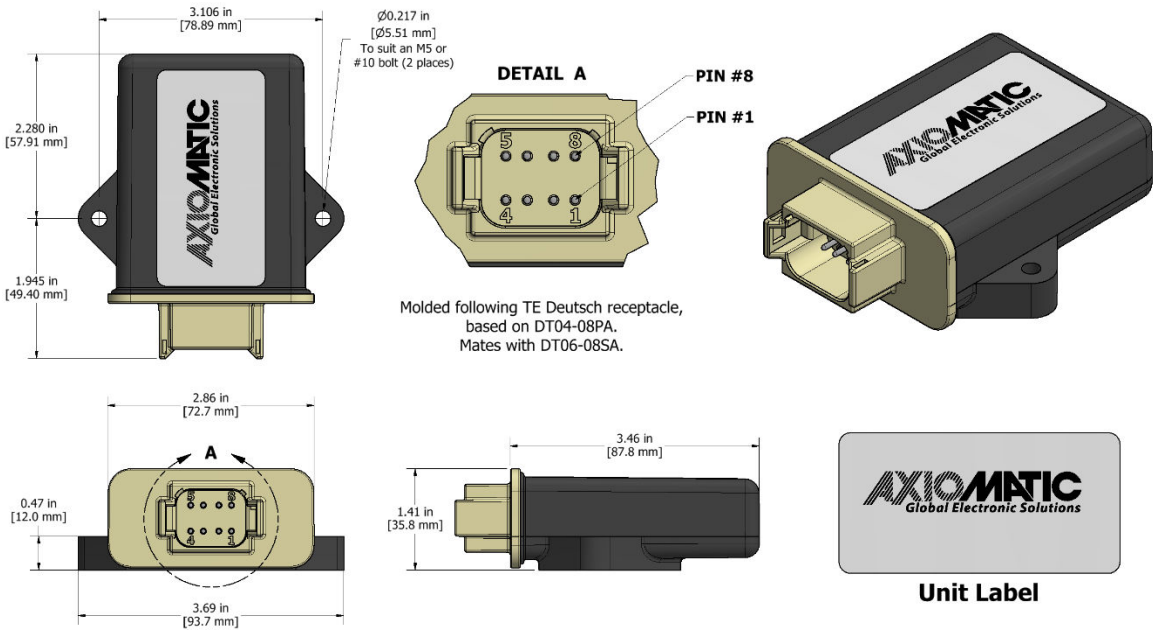
<table>
<tr><td>Microcontroller</td><td>STM32H725RGV3</td></tr>
<tr><td>Communication</td><td>1 CAN SAE J1939-compliant port
Supported baud-rates: 125 kbit/s, 250 kbit/s, 500 kbit/s, 667 kbit/s, and 1 Mbit/s with auto-baud-rate detection

CANopen® model: AX024041</td></tr>
<tr><td>Network Termination</td><td>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_H and CAN_L terminals at both ends of the network.</td></tr>
<tr><td>Control Logic</td><td>Standard embedded software is provided.
Application-specific control logic is available on request.</td></tr>
<tr><td>User Interface</td><td>Axiomatic Electronic Assistant - P/N AX070502 or AX070506K.</td></tr>
<tr><td>Compliance</td><td>RoHS</td></tr>
<tr><td>Operating Conditions</td><td>-40°C to 85°C (-40°F to 185°F)</td></tr>
<tr><td>Storage Temperature</td><td>-50°C to 125°C (-58°F to 257°F)</td></tr>
<tr><td>Weight</td><td>0.22 lbs. (0.1 kg)</td></tr>
<tr><td>Protection</td><td>IP67</td></tr>
<tr><td>Enclosure and Dimensions</td><td>Plastic Enclosure, Nylon 6-6 with 30% glass fill, laser welded
Integral TE Deutsch equivalent connector

4.23 in x 3.69 in x 1.41 in (107.3 mm x 93.7 mm x 35.8 mm)
Note: L x W x H includes the integral connector.
Refer to dimensional drawing.

Flammability rating: UL 94 HB</td></tr>
<tr><td>Mounting</td><td>Mounting holes are sized for #10 or M5 bolts. The bolt length will be determined by the end-user’s mounting plate thickness. The mounting flange of the controller is 0.47 inches (12 mm) thick. It should be mounted with connectors facing left or right to reduce the likelihood of moisture entry. All field wiring should be suitable for the operating temperature range. 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).</td></tr>
<tr><td>Electrical Connections</td><td>Integral 8-pin receptacle (equivalent to TE Deutsch P/N: DT04-08PA)
<table>
<tr><th>Pin #</th><th>Description</th></tr>
<tr><td>1</td><td>Battery +</td></tr>
<tr><td>2</td><td>Output 1 +</td></tr>
<tr><td>3</td><td>Output 2 +</td></tr>
<tr><td>4</td><td>CAN_H</td></tr>
<tr><td>5</td><td>CAN_L</td></tr>
<tr><td>6</td><td>Output 2 -</td></tr>
<tr><td>7</td><td>Output 1 -</td></tr>
<tr><td>8</td><td>Battery -</td></tr>
</table></td></tr>
<tr><td>Mating Plug Kit</td><td>A mating plug KIT is available as Axiomatic P/N: AX070112 (includes 1 socket DT06-08SA, 1 wedgelock W8S, 8 contacts 0462-201-16141, and 6 sealing plugs 114017)</td></tr>
</table>

Dimensional Drawing



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