

1x Relay & 2x Universal Outputs Controller, SAE J1939

P/N: AX130790

Applications

- Throttle controls for marine engine applications
- Servo applications

Ordering Part Numbers

1x Relay & 2x Universal Outputs Controller, SAE J1939 – P/N: **AX130790**

Accessories:

Axiomatic Electronic Assistant KIT – P/N: **AX070506K**

Mating Plug KIT – P/N: **PL-DTM06-12SA** (For details, please refer to the General Specifications below.)



Features

- 2x analog/digital signal outputs configurable as analog voltage, analog current, PWM, frequency, or digital types
- 1x isolated relay
- 1x CAN port (SAE J1939)
- Operational 9 to 36 V_{DC} (12 or 24 V_{DC})
- Integrated 12-pin connector
- Compact, fully sealed, IP67-rated enclosure
- Designed for EMC compliance
- Configurable with Axiomatic Electronic Assistant

Block Diagram

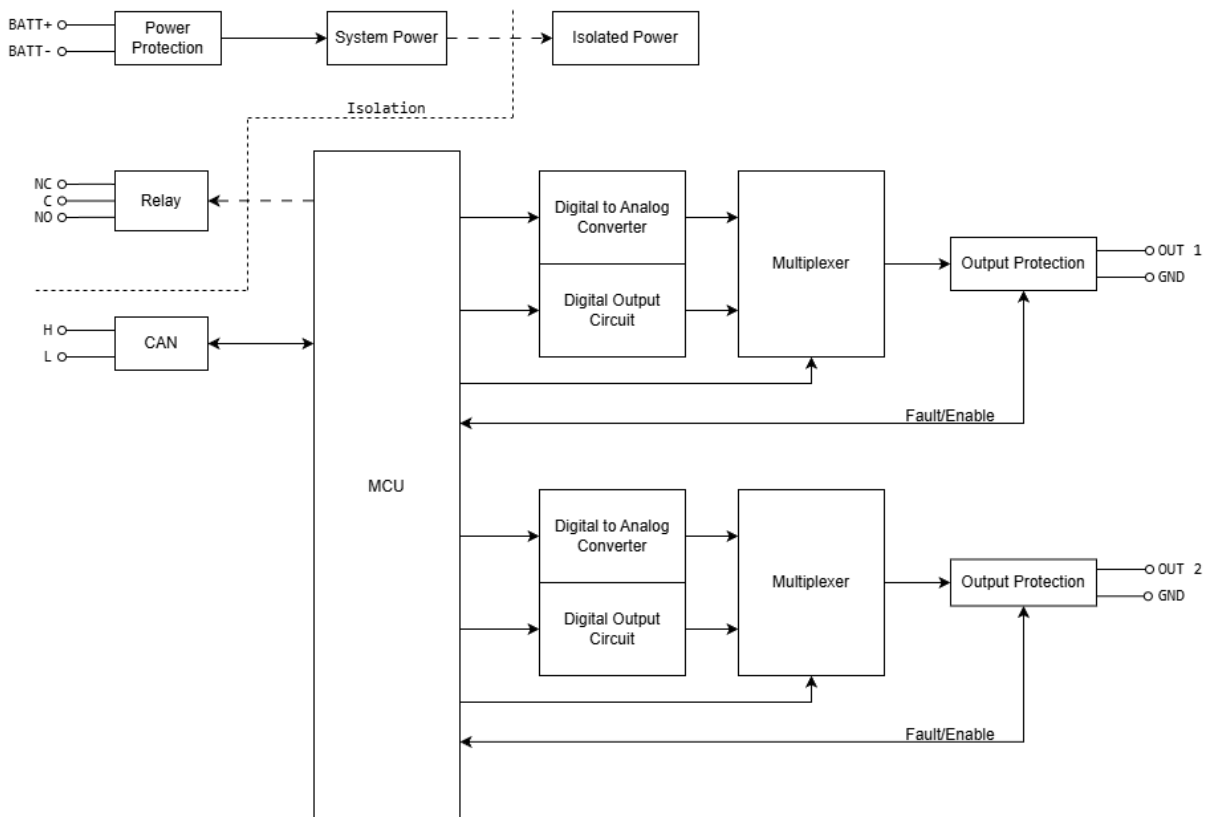


Figure 1.0 – Block Diagram

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

Power Input	12 V _{DC} or 24 V _{DC} nominal (9 to 36 V _{DC})
Quiescent Current	TBD
Reverse Polarity Protection	Provided
Surge and Transient Protection	Provided
Undervoltage Protection	Provided
Overvoltage Protection	Hardware shuts down at 45 V

Outputs

Universal Outputs	2x signal outputs configurable as: analog voltage, analog current, PWM, frequency or digital types <u>Analog Voltage Output:</u> Range: 0-5 V, 0-10 V, ± 5 V or ± 10 V Minimum load: 1 kΩ Accuracy: ± 0.5 % (full scale) <u>Analog Current Output:</u> Range: 0-20 mA or 4-20 mA Maximum load resistance: 500 Ω Compliance voltage: 10 V Maximum Output Voltage (open circuit): 16V Accuracy: ± 0.5 % (full scale) <u>PWM or Frequency Output:</u> Frequency Range: 0.1 Hz to 20 kHz Duty Cycle: 0 to 100 % Accuracy: ± 0.1 % Adjustable Amplitude: 3 to 12 V Push-Pull Output Max. Output Current: 20 mA <u>Digital Output:</u> Adjustable Amplitude: 3 to 12 V Push-Pull Output Max. Output Current: 20 mA 16-bit digital to analog (DAC) resolution
Protections	Protected against short circuits to ground Overcurrent protection: ± 32 mA Overvoltage protection: ± 33 V_{DC} (continuous)

Relay

Relay	1x isolated Form C relay Resistive Load: 5 A (Normally Open / NO) / 5 A (Normally Closed / NC) at 24 V_{DC} (Note: Please see IM03DGR datasheet for details) <u>Note:</u> • There is no special overcurrent/overvoltage protection on the relay outputs. The user is advised to provide a fast acting 6 A fuse or adequate external protection, if necessary. • If the relay is used, the operating temperature should not exceed 75 °C (167 °F).
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General Specifications

Microcontroller	STM32H725RGV3, 32-bit, 1 MB flash program memory, 564 kB RAM																										
Isolation	Power supply and relay are isolated from the rest of the circuit.																										
Control Logic	Pre-programmed with standard logic. Refer to the user manual.																										
Communication	1x CAN port (SAE J1939) Supported baud rates: 250 kbps, 500 kbps, 1 Mbps auto-baud-rate detection (TBD)																										
User Interface	Axiomatic Electronic Assistant P/N – AX070506K																										
Compliance	RoHS																										
Ingress Protection	IP67																										
Operating Temperature	-40 to 85 °C (-40 to 185 °F) If the relay is used, the operating temperature should not exceed 75 °C (167 °F).																										
Storage Temperature	-40 to 85 °C (-40 to 185 °F)																										
Weight	TBD lb. (TBD kg)																										
Enclosure and Dimensions	Molded enclosure, integral connector, Nylon 6/6, 30 % glass, ultrasonically welded Flammability rating: UL 94 V-0 3.5 in. x 2.8 in. x 1.3 in. (90.0 mm x 70.0 mm x 33.3 mm) L x W x H including integral connector Refer to dimensional drawing																										
Electrical Connections	Integral 12-pin receptacle (equivalent to TE Deutsch P/N: DTM04-12PA) <table border="1"> <thead> <tr> <th>Pin</th><th>Description</th></tr> </thead> <tbody> <tr><td>1</td><td>Relay (Normally Closed / NC)</td></tr> <tr><td>2</td><td>CAN shield</td></tr> <tr><td>3</td><td>Signal Ground</td></tr> <tr><td>4</td><td>Signal Ground</td></tr> <tr><td>5</td><td>CAN High</td></tr> <tr><td>6</td><td>CAN Low</td></tr> <tr><td>7</td><td>Battery +</td></tr> <tr><td>8</td><td>Battery -</td></tr> <tr><td>9</td><td>Signal Output 2</td></tr> <tr><td>10</td><td>Signal Output 1</td></tr> <tr><td>11</td><td>Relay (Common / C)</td></tr> <tr><td>12</td><td>Relay (Normally Open / NO)</td></tr> </tbody> </table>	Pin	Description	1	Relay (Normally Closed / NC)	2	CAN shield	3	Signal Ground	4	Signal Ground	5	CAN High	6	CAN Low	7	Battery +	8	Battery -	9	Signal Output 2	10	Signal Output 1	11	Relay (Common / C)	12	Relay (Normally Open / NO)
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Mating Plug KIT	A mating plug KIT is available from Axiomatic under P/N: PL-DTM06-12SA . It includes 1x DTM06-12SA plug, 1x WM-12S wedgelock, 12x 0462-201-20141 contacts, and 6x 0413-204-2005 sealing plugs.																										

Dimensional Drawing

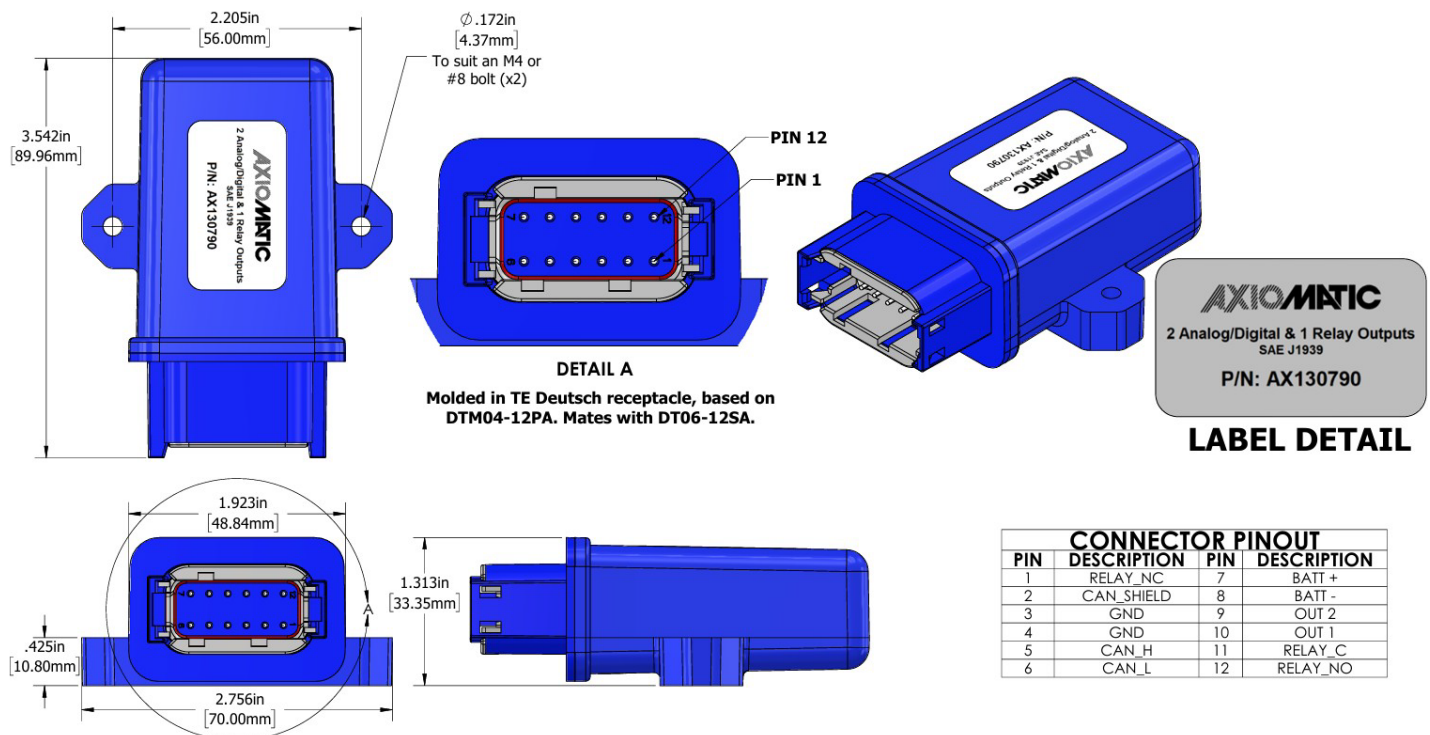


Figure 2.0 – AX130790 Dimensional Drawing