

Dual 12 Vdc, 1.2A Lithium-ion Battery Charger

SAE J1939

P/N: AX090690

Features:

- 10Vdc to 13 Vdc, 1.2A (31 Watts) Converter
- Charges 2 12 Vdc, 1.2A Lithium-ion Batteries
- Non-isolated
- 1 CAN port (SAE J1939) - Battery charge status is communicated over CAN
- Auto-baud-rate detect for CAN bus
- Operates from 21Vdc to 28Vdc (24Vdc nominal)
- Typical efficiency of 89%
- Thermal protection for over temperature
- Reverse battery, over and under-voltage protection
- Short circuit and overcurrent protection
- -40 to 70 °C (-40 to 158 °F) operating temperature
- Compact, ultrasonic welded enclosure
- 12-pin TE Deutsch type connector
- LED Indicator
- IP67
- EMI/EMC compliant
- User configurable with the Axiomatic Electronic Assistant USB-CAN converter and software



Applications: The Charger/Converter is suitable for Lithium-ion battery charging applications on vehicle CAN based systems.

- ❖ Mining Equipment
- ❖ Off-highway Equipment
- ❖ Fire trucks and municipal vehicles

Ordering Part Numbers:

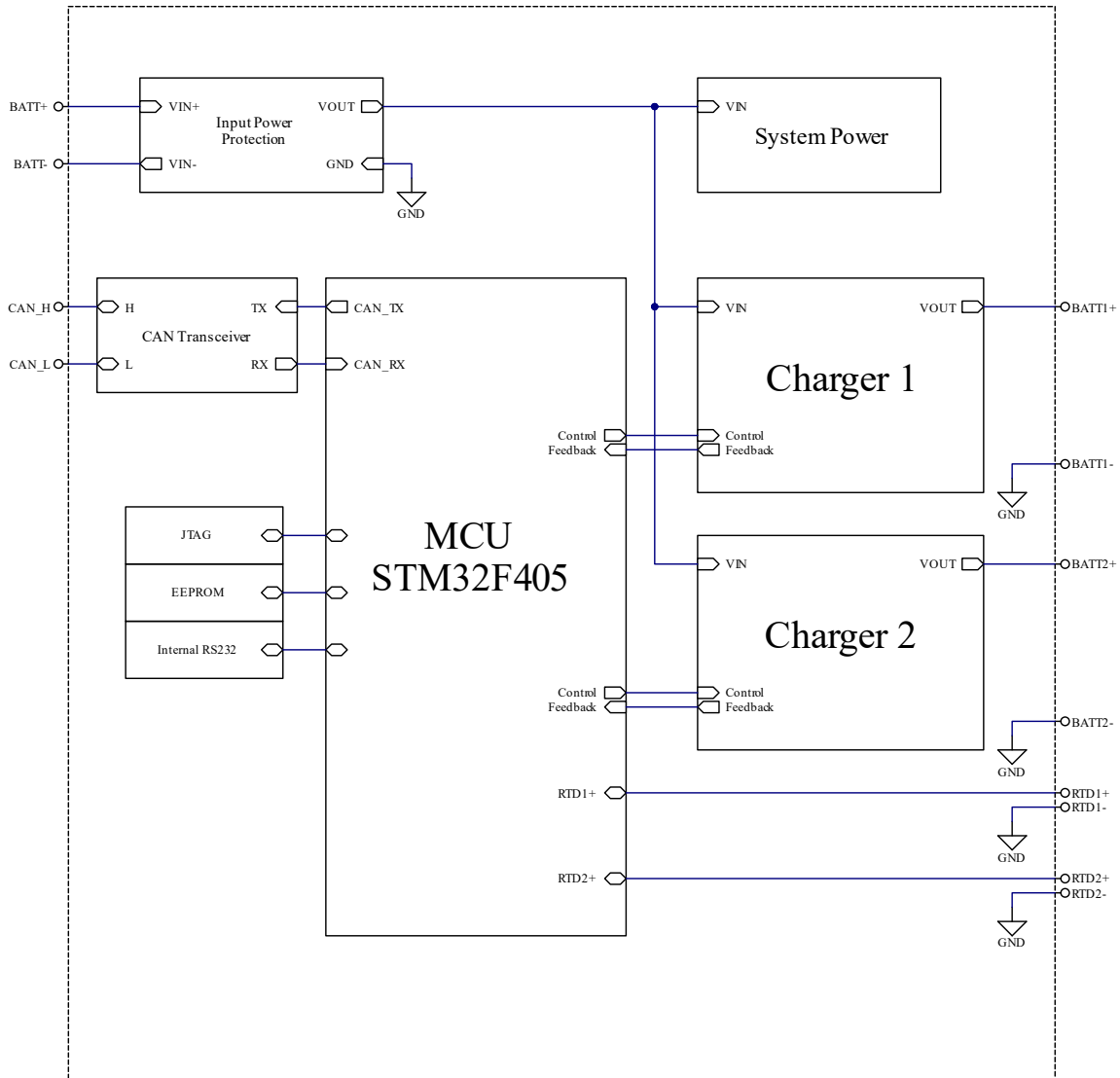
Dual 12Vdc, 1.2A Charger/Converter, SAE J1939 with auto-baud-rate detect P/N: **AX090690**

Accessories:

Mating Plug KIT: **PL-DTM06-12SA**

Axiomatic Electronic Assistant Configuration KIT, P/Ns: **AX070502, AX070505K, or AX070506K**

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/>.

Input Specifications

Power Supply Input - Nominal	24 Vdc nominal
Operating Voltage Range	21 to 28 Vdc
Maximum Input Current	1.7 ADC @ 20 Vdc
Engine Load Dump	Designed to meet load dump conditions (up to 120 Vdc)
Reverse Voltage Protection	Provided
Surge Protection	Provided
Under-voltage Shutdown	20 Vdc typical
Over-voltage Shutdown	29 Vdc typical

Output Specifications

Nameplate Rating (Output Power)	15 W nominal
Output Current (DC)	Two Outputs 1.2 A continuous
Output Voltage	12.6Vdc \pm 2%
Output Voltage Ripple	$V_{O(RIPPLE)} \leq 100$ mVpp
Turn-on time (at full load)	<100 ms typical
Stability	Stable at all loads (no minimum load requirement)
Short Circuit Current	Protection provided Self-recovery 1.6A current limit
Thermal Protection	A connection point is provided for an external NTC thermistor (not supplied) to protect the battery. The input is 5V via a 1K00 Ohm pull-up resistor inside the charger.

General Specifications

Microprocessor	STM32F405RGT7 1 MB Flash Program Memory																										
Quiescent Current	21.01 mA @ 24 Vdc typical 42.88 mA @ 12 Vdc typical																										
Communications	1 CAN port (SAE J1939)																										
Baud rate	SAE J1939, 250kbit/s, 500kbit/s, 667kbit/s, 1Mbit/s. Automatic Baud Rate Detection																										
LED	Red/Green Flashing: Idle Green Flashing: Charging Green: Charging completed Red: Fault																										
Control Logic	Standard embedded software Battery charger setpoints can be viewed and configured through the CAN bus using the Axiomatic Electronic Assistant (EA).																										
User Interface	The Axiomatic Electronic Assistant KIT, P/Ns: AX070502, AX070505K, or AX070506K																										
Operating Temperature	-40 to 70 °C (-40 to 158 °F)																										
Efficiency	89% in buck and boost modes; 83% in buck-boostmode																										
Weight	0.163 lb (0.074 kg)																										
Vibration	MIL-STD-202G, Method 204D test condition C (Sine) and Method 214A, test condition B (Random) 10 g peak (Sine) 7.65 Grms peak (Random)																										
Shock	MIL-STD-202G, Method 213B, test condition A 50g (half sine pulse, 9ms long, 8 per axis)																										
Enclosure	Molded Enclosure, integral connector Nylon 6/6, 30% glass, Ultrasonically welded 3.47 x 2.75 x 1.31 inches (88.2 x 70.0 x 33.3 mm) L x W x H including integral connector Refer to the dimensional drawing.																										
Electrical Connections	Integral 12 pin receptacle (equivalent TE Deutsch P/N: DTM04-012PA) 18 AWG wire is recommended for use with contacts 0462-201-16141. <table border="1" data-bbox="548 1556 1133 1936"> <thead> <tr> <th>Pin #</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>V IN -</td> </tr> <tr> <td>2</td> <td>BATT 1 -</td> </tr> <tr> <td>3</td> <td>BATT 2 -</td> </tr> <tr> <td>4</td> <td>BATT TEMP SENSOR 1 -</td> </tr> <tr> <td>5</td> <td>BATT TEMP SENSOR 2 -</td> </tr> <tr> <td>6</td> <td>CAN L</td> </tr> <tr> <td>7</td> <td>CAN H</td> </tr> <tr> <td>8</td> <td>BATT TEMP SENSOR 2 +</td> </tr> <tr> <td>9</td> <td>BATT TEMP SENSOR 1 +</td> </tr> <tr> <td>10</td> <td>BATT 2 +</td> </tr> <tr> <td>11</td> <td>BATT 1 +</td> </tr> <tr> <td>12</td> <td>V IN+</td> </tr> </tbody> </table>	Pin #	Function	1	V IN -	2	BATT 1 -	3	BATT 2 -	4	BATT TEMP SENSOR 1 -	5	BATT TEMP SENSOR 2 -	6	CAN L	7	CAN H	8	BATT TEMP SENSOR 2 +	9	BATT TEMP SENSOR 1 +	10	BATT 2 +	11	BATT 1 +	12	V IN+
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Mating Plug Kit	PL-DTM06-12SA Mating Plug Kit is comprised of 1 DTM06-12SA, 1 WM-12S wedge, 10 0462-201-20141 contacts, and 2 0413-204-2005 Sealing Plugs.
Mounting	Mounting holes are sized for #8 or M4 bolts. The bolt length will be determined by the end-user's mounting plate thickness. The mounting flange of the controller is 0.425 inches (10.8 mm) thick. It should be mounted with connectors facing left or right to reduce 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).

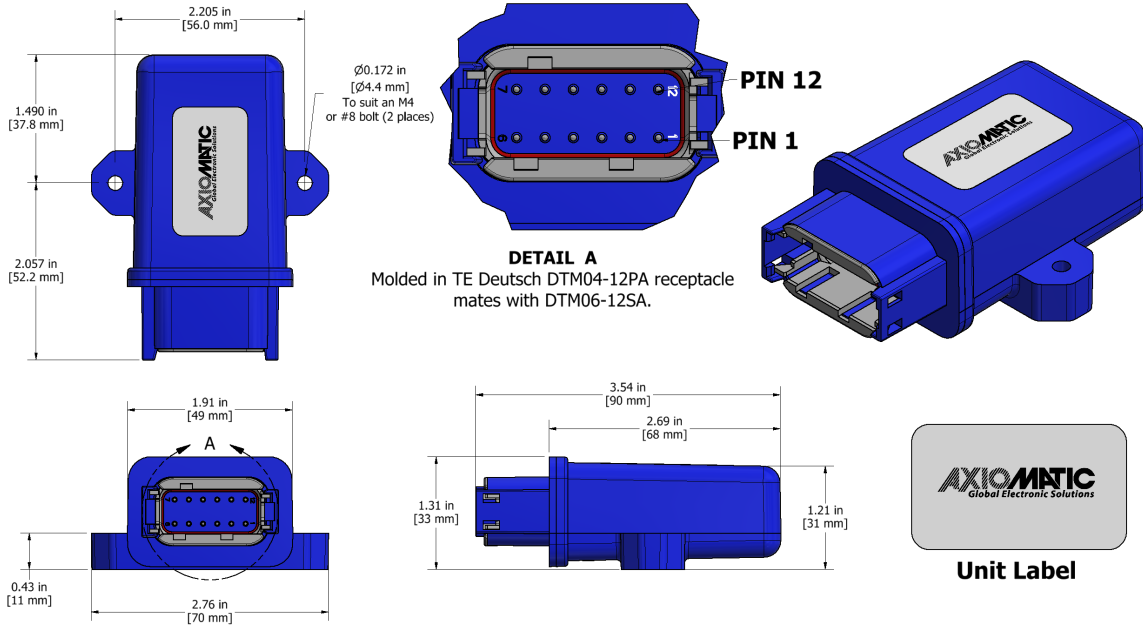


Figure 1.0 – Dimensional Drawing

Form: TDAX090690-06/27/23