

## CAN to SINE/Square Wave Output and PWM Output Controller

2 SAE J1939  
+5V Reference  
with Electronic Assistant  
P/N: AX030550

### Features:

- 1 Signal output configurable as SINE or Square wave (0-5V)
- 1 PWM output signal
- 12V or 24Vdc nominal power
- +5V Reference
- 2 Isolated CAN (SAE J1939) ports
- Rugged IP67 packaging and connector
- **Electronic Assistant** runs on a *Windows* operating system for user configuration and programming. An Axiomatic USB-CAN converter links the PC to the CAN bus.



**Applications:** Construction equipment trucks, interface between ECM and turbocharger.

### Ordering Part Numbers:

SAE J1939 Controller: For baud rate, refer to the table below for the appropriate P/N.

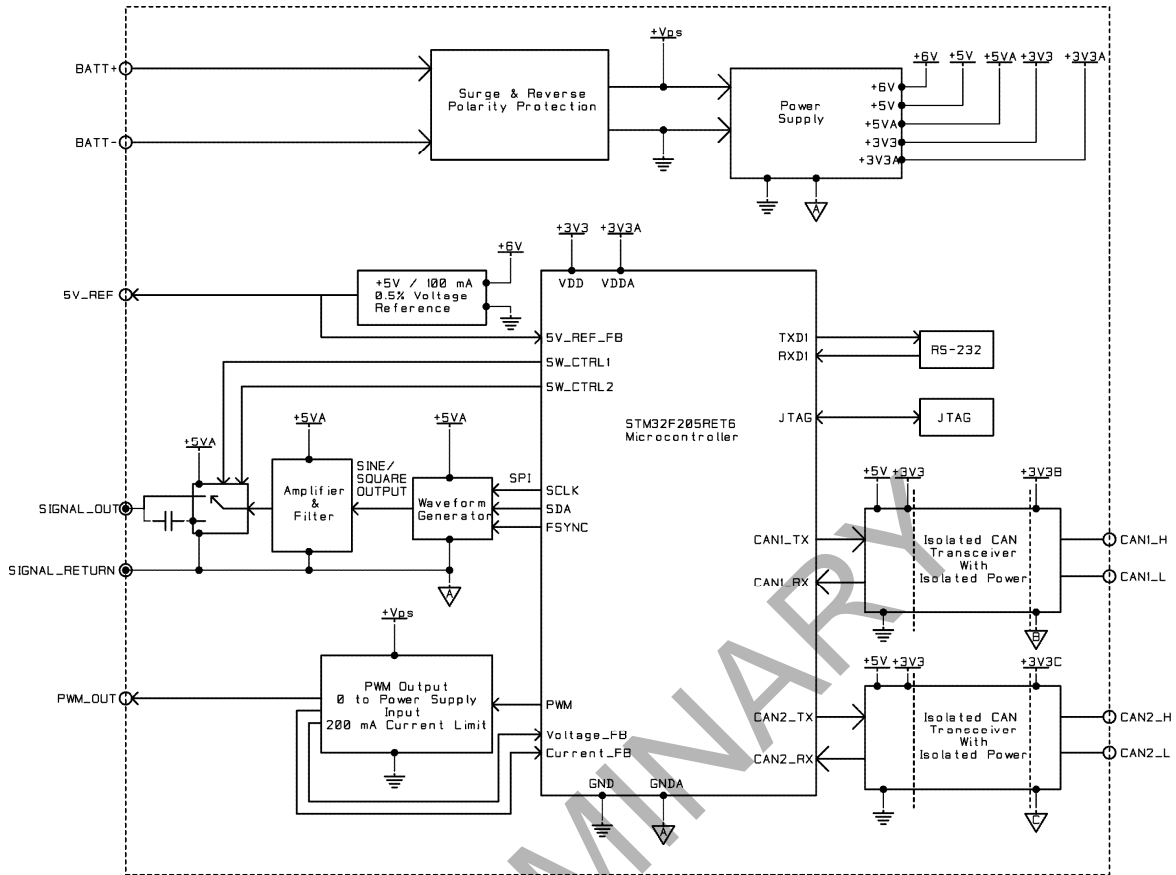
Model P/N	Baud Rate
AX030550	250 kBit/s

### Accessories:

**AX070105** Mating Plug Kit

Electronic Assistant Configuration KIT: **AX070502**

## 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 [www.axiomatic.com/service.html](http://www.axiomatic.com/service.html).

### Input Specifications

Power Supply Input - Nominal	12V or 24Vdc nominal (9...36 VDC power supply range)
Protection	Surge and reverse polarity protection are provided. Load dump protection for 12V systems
Under-voltage Protection	Hardware shuts down at 6V.
Over-voltage Protection	Hardware shuts down at 45V.
Voltage Reference	1 +5V +/- 0.5%, 100 mA maximum

### Output Specifications

Signal Output	1 Signal output configurable as: SINE wave Square wave  Frequency is user selectable from 10 Hz to 20 kHz Minimum load 10 kΩ Amplitude: 5V peak-to-peak
PWM Output	1 PWM Output from 0 to 36Vps 1 Hz to 1 kHz Frequency Current limited to 200 mA
Output Accuracy	+/-1%

Ground Connections	One (1) analog GND connection is provided to be used as the sinusoidal signal output return. Two (2) Ground connections are provided for the Voltage Reference GND and PWM GND. All ground connections are connected together internally.
Protection for Output + Terminal	Fully protected against short circuit to ground Unit will fail safe in the case of a short circuit condition, self-recovering when the short is removed.

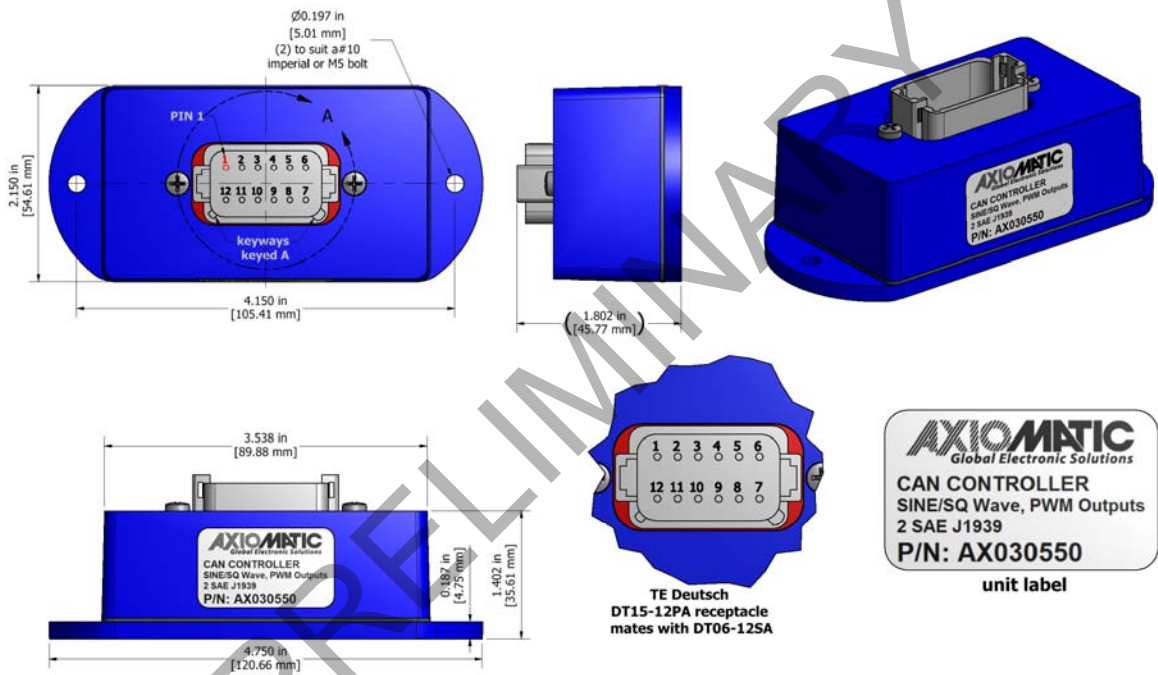
### General Specifications

Microprocessor	STM32F405RGT7 32-bit, 1 MByte flash program memory						
Control Logic	Standard embedded software is provided. Refer to the User Manual.						
CAN	2 CAN ports (SAE J1939)  For baud rate, refer to the table below. <table border="1" data-bbox="591 598 1235 653"> <thead> <tr> <th>Model P/N</th> <th>Baud Rate</th> <th>Standard Reference</th> </tr> </thead> <tbody> <tr> <td>AX030550</td> <td>250 kBit/s</td> <td>J1939/11, J1939/15.</td> </tr> </tbody> </table>	Model P/N	Baud Rate	Standard Reference	AX030550	250 kBit/s	J1939/11, J1939/15.
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AX030550	250 kBit/s	J1939/11, J1939/15.					
User Interface (PC-based)	PC-based Axiomatic Electronic Assistant AX070502						
Quiescent Current Draw	82 mA @ 12V and full load 48 mA @ 24V and full load						
Response Time	Contact Axiomatic.						
Weight	0.71 lbs. (0.32 kg) preliminary						
Operating Conditions	-40 to 85 °C (-40 to 185 °F)						
Storage Temperature	-55 to 125 °C (-67 to 257°F)						
Vibration and Shock Compliance	4 g IEC publication 60068-2-6, Test Fc						
Protection	IP67, PCB is conformal coated and protected by the housing.						
Enclosure and Dimensions	Aluminum enclosure, Integral TE Deutsch connector, Encapsulation Refer to dimensional drawing.						
Mounting	Mounting holes sized for #10 or M4.5 bolts. The bolt length will be determined by the end-user's mounting plate thickness. The mounting flange of the controller is 0.19 inches (4.75 mm) thick.  If the module is mounted without an enclosure, it should be mounted to reduce the likelihood of moisture entry. 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).  The CAN wiring is considered intrinsically safe. The power wires are not considered intrinsically safe and so in hazardous locations, they need to be located in conduit or conduit trays at all times. The module must be mounted in an enclosure in hazardous locations for this purpose.  All field wiring should be suitable for the operating temperature range of the module.  All chassis grounding should go to a single ground point designated for the machine and all related equipment.						
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.						

Pinout

12 pin Deutsch IPD connector P/N: DT15-12PA  
 A mating plug kit is available as Axiomatic P/N: **AX070105**.

CAN and I/O Connector	
Pin #	Description
1	+5V Reference
2	Ground
3	PWM Output
4	Ground
5	CAN_L
6	CAN_H
7	Signal Output
8	Signal Ground
9	CAN 2_H
10	CAN 2_L
11	BATT-
12	BATT+



**AXIOMATIC**  
 Global Electronic Solutions  
**CAN CONTROLLER**  
 SINE/SQ Wave, PWM Outputs  
 2 SAE J1939  
**P/N: AX030550**  
 unit label

Form: TDAX030550-08/25/20