

Preliminary  
**Technical Datasheet #TDAX184200**  
**20 PT1000 RTD Scanner**

**Twenty (20) 2-wire PT1000 Inputs**  
**CAN, SAE J1939**  
*with Electronic Assistant*  
**P/N: AX184200**

**Description:** The 20 PT1000 RTD Scanner monitors 20 2-wire PT1000 inputs from a diesel engine and the temperature information is provided to the engine control system over a SAE J1939 CAN bus. Each channel operates independently. Temperature information can include exhaust temperature, winding temperature, and fluid temperature monitoring. All channels of temperature data are automatically sent over the CAN bus when power is applied with no additional programming or configuration required. Integral diagnostics determine RTD integrity. RTD inputs are isolated from the CAN communication and power supply.



During set-up, using an USB-CAN converter and a PC, the operator can configure the controller via the Electronic Assistant to suit the application.

The RTD Scanner features rugged packaging and watertight Deutsch IPD connectors for an IP67 rating. The RTD Scanner is designed to meet the environmental, EMC and vibration requirements of vehicle applications.

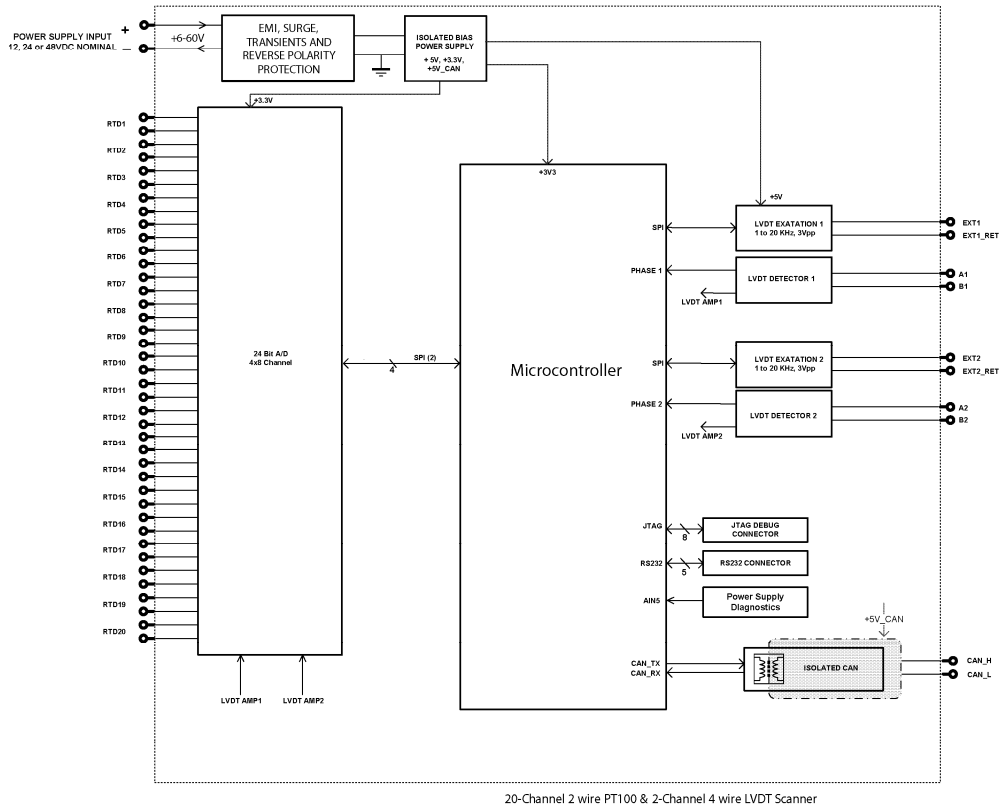
**Applications:**

- Military COTS applications for vehicles
- Power Generator Sets

**Ordering Part Numbers:**

20 PT1000 RTD Scanner Module, SAE J1939 P/N: <b>AX184200</b> <i>(Contact us about baud rate. Rates of 250 or 500 kbps or 1 Mbps are available.)</i>
Electronic Assistant – P/N: <b>AX070502</b>
Mating Connectors: For 40-pin connector, order P/N: <b>AX070210</b> For 12-pin connector, order P/N: <b>PL-DTM06-12S</b>

## Block Diagram – LVDT interface is no longer included.



## Technical Specifications

### Power and Protections

Power Supply Input	12V, 24V or 48Vdc nominal (8...65 VDC power supply range) 50 or 60 Hz is user selectable.
Supply Current	70 mA at 12 Vdc Typical 35 mA at 24 Vdc Typical Inrush does not exceed 500 mA.
Protection	Reverse polarity protection is provided. Power supply input section protects against transients, surges (up to 175V) and short circuits and is isolated from RTD inputs

### RTD Inputs

RTD Types	Up to 20 channels, independently configurable for 2-wire RTDs. Each channel operates independently.
RTD Inputs	The device accepts inputs within the following range of 200 - 4000 Ohms.  Accuracy: +/- 1°C with offset calibration performed at R = 1000 Ohms (typical at ambient temperature) Resolution: 0.001°C Isolation voltage is 400V.
Shield	To connect a Shield, use the grounding stud provided on the base plate.
Scan Rate	2 samples per second for all inputs
Common Mode Readings	Input range +/- 0-2Vdc maximum Rejection is 115 db at 5Vp-p (50-60Hz)
Thermal Drift	40 ppm/°C of span (maximum)
Isolation	Digital isolation is 400VDC from input to ground. Three-way isolation is provided for the CAN line, inputs and power supply.

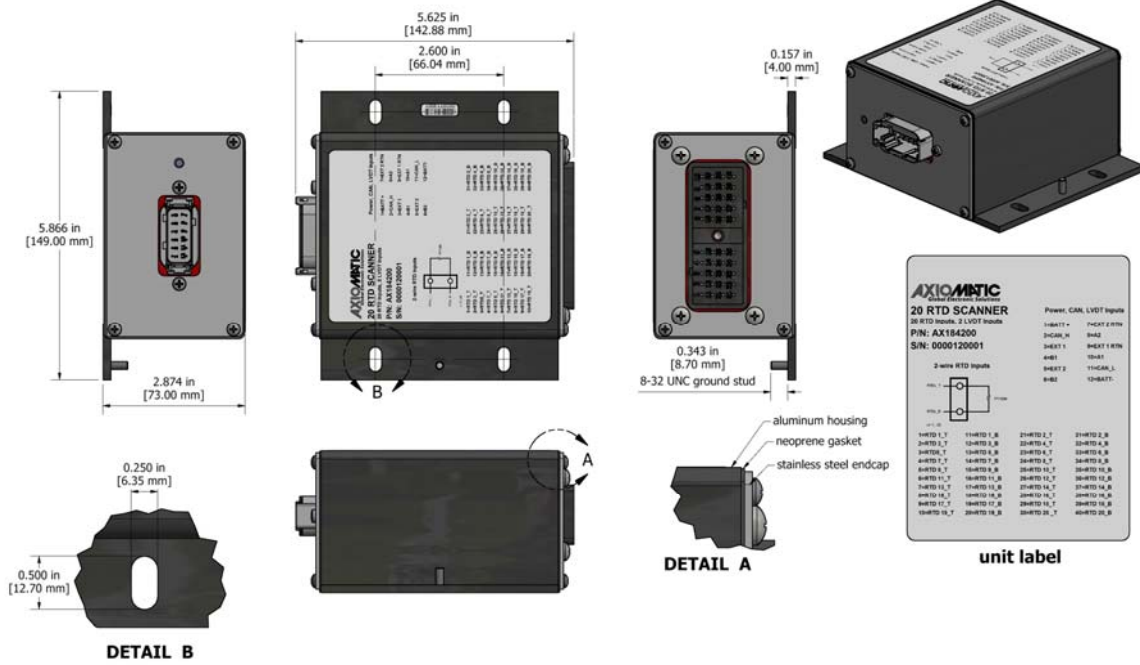
## Communications

CAN	1 CAN 2.0B port, protocol SAE J1939 Model AX184200: 500 kbps Baud Rate Digital isolation is provided for the CAN line.
Network Termination	According to the CAN standard, 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.

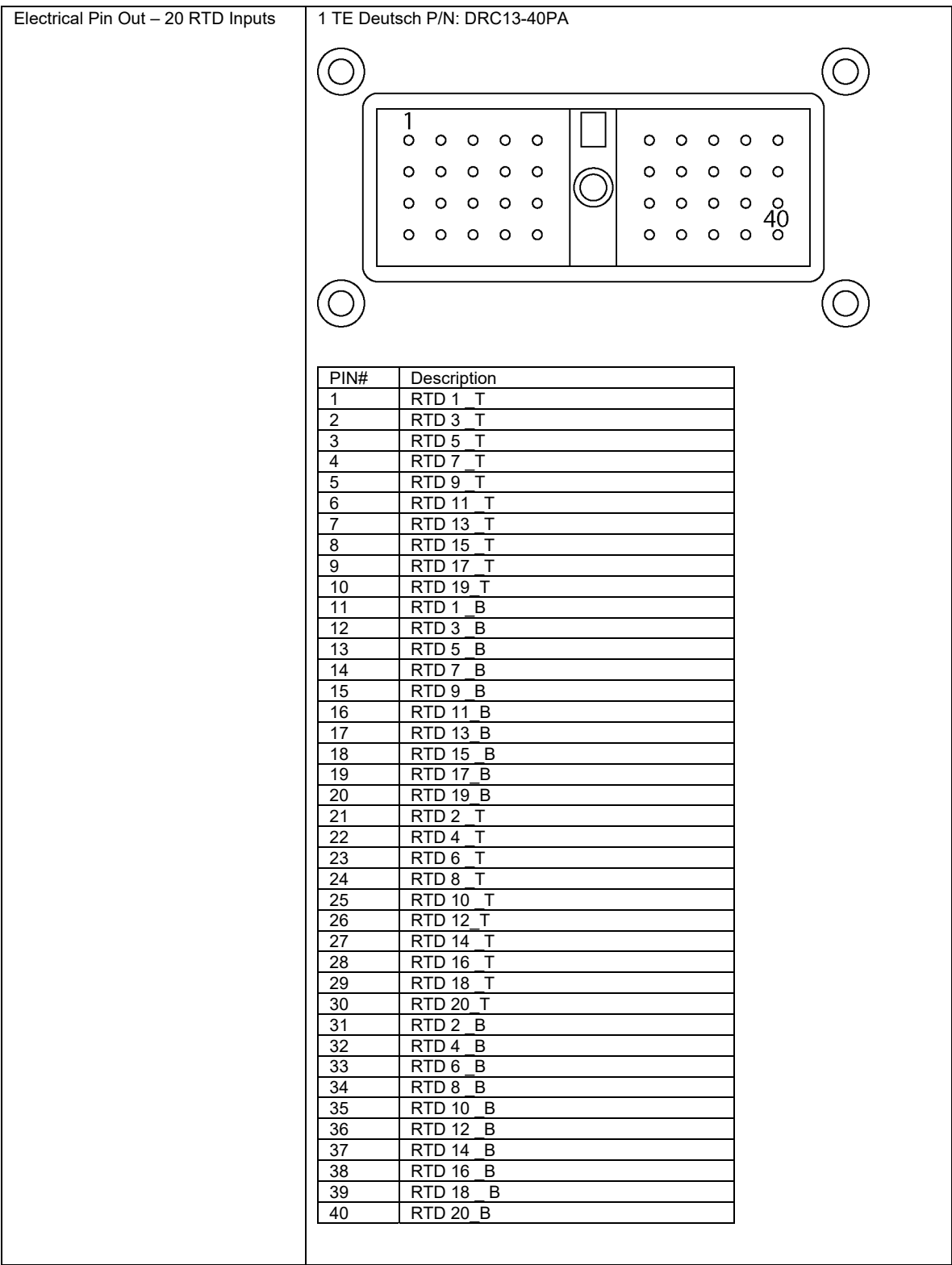
## General Specifications

Microprocessor	STM32F405RG 12-bit, 1 Mbyte Flash Memory
Control Logic	User programmable functionality with the Electronic Assistant. Refer to the User Manual.
SAE J1939 Profile	For J1939 compliance (SAE, Recommended Practice for a Serial Control and Communications Vehicle Network, October 2007) all modules comply with the applicable portions of the following: SAE J1939-21, December 2006, Data Link Layer SAE J1939-71, January 2009, Vehicle Application Layer SAE J1939-73, September 2006, Application Layer – Diagnostics SAE J1939-81, May 2003, Network Management <i>Customer specific proprietary extensions can also be included in the SAE J1939 profile on request.</i>
User Interface	Electronic Assistant, P/N: AX070502 Updates for the EA are found on <a href="http://www.axiomatic.com">www.axiomatic.com</a> under the log-in tab.
Vibration	MIL-STD-202G, Test 204D and 214A (Sine and Random) 10 g peak (Sine); 7.86 Grms peak (Random)
Shock	MIL-STD-202G, Test 213B, 50 g
Operating Temperature Range	-40 to 85 °C (-40 to 185 °F)
Storage Temperature Range	-50 to 120 °C (-58 to 248 °F)
Humidity	Protected against 95% humidity non-condensing, 30 °C to 60 °C
Protection	IP67
Weight	2.15 lb. (0.98 kg)
Enclosure	Rugged aluminum housing, stainless steel end plates, neoprene gaskets 142.88 x 149.00 x 73.00 mm (5.63 x 5.86 x 2.87") L x W x H Connectors, Deutsch IPD P/N: 1 12-pin DTM13-12PA, 1 40-pin DRC13-40PA Can be mounted directly on the power generator set or remotely Suitable for moist, high shock, vibrating and non-hazardous environments
Mating Connectors	Axiomatic P/N: <b>AX070210</b> The 40 pin connector mates with TE Deutsch DRC16-40S (1) connector and 0462-201-16141 (40) SOLID CONTACT SOCKET, Nickel, SIZE 16 for 16-20 AWG wire, 13A maximum current rating. These are available by ordering AX070210.  Axiomatic P/N: <b>PL-DTM06-12S</b> The 12 pin connector mates with TE Deutsch DTM06-12SA (1), WM-12S (1) and 0462-201-20141 (12) SOLID CONTACT SOCKET, Nickel, SIZE 20 for 20AWG WIRE, 7.5A maximum current rating. These are available by ordering PL-DTM06-12S.

**Dimensional Drawing – An update is pending as LVDT interface is no longer included.**



<p>Electrical Pin Out – Power, CAN</p>	<p>1 TE Deutsch P/N: DTM13-12PA</p> <table border="1"> <thead> <tr> <th>PIN#</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>1</td><td>BATT +</td></tr> <tr><td>2</td><td>CAN H</td></tr> <tr><td>3</td><td>Not Used</td></tr> <tr><td>4</td><td>Not Used</td></tr> <tr><td>5</td><td>Not Used</td></tr> <tr><td>6</td><td>Not Used</td></tr> <tr><td>7</td><td>Not Used</td></tr> <tr><td>8</td><td>Not Used</td></tr> <tr><td>9</td><td>Not Used</td></tr> <tr><td>10</td><td>Not Used</td></tr> <tr><td>11</td><td>CAN L</td></tr> <tr><td>12</td><td>BATT -</td></tr> </tbody> </table>	PIN#	Description	1	BATT +	2	CAN H	3	Not Used	4	Not Used	5	Not Used	6	Not Used	7	Not Used	8	Not Used	9	Not Used	10	Not Used	11	CAN L	12	BATT -
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<p>RTD Input Wiring</p>	<p>2-wire RTD Input:</p> <p>x= 1...20</p>																										



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).  
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