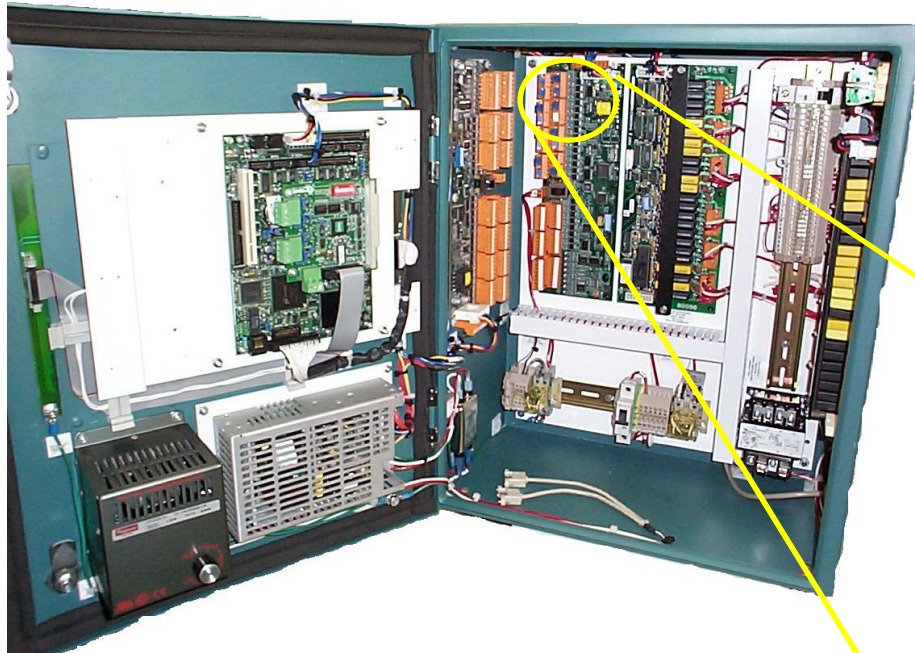# Quantum LX
Temperature Input Signal Testing

Quantum LX
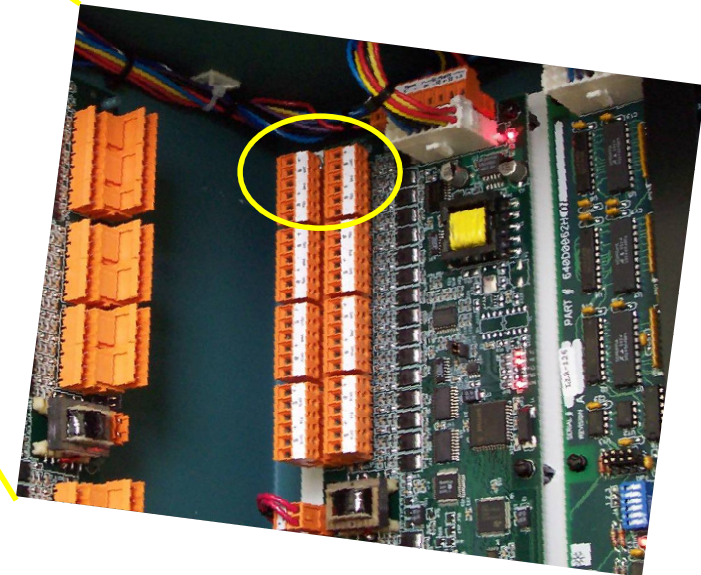## Temperature Input Signal Testing

- The Quantum LX control panel is capable of reading external analog devices, such as temperature sensors called ICTD's (Integrated Circuit Temperature Devices). It uses these input signals for the purpose of monitoring and control.

- These input signals from the ICTD's are received on an analog board input channel.

- The analog board provides the supply voltage to the ICTD's .

- The typical ICTD's outputs a microamp signal.

- Refer to the Quantum LX Analog board wiring diagram for detailed wiring and connections. The standard ICTD inputs are on analog board 1, connectors P4A, P4B.

- Review the following instructions in their entirety before beginning the testing. Example Quantum LX screens and pictorials are provided for your reference.

Analog Board
P4A & P4B

Quantum LX
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- Measure the supply voltage to the transducer from the analog board across the + and - terminals. You should read a steady voltage in the range between 12 vdc & 15 vdc. Refer to the Analog board wiring diagram for the correct channel and connector.

- If this voltage is outside this range, remove the connector from the analog board and measure the voltage directly on the analog board pins (for the connector).

- If the voltage remains out of range, with the connectors disconnected, you may have a defective analog board.

- If the voltage is within the proper range with the connectors disconnected, reconnect the connector to the analog board and unplug the connector at the sensor for that channel. Recheck the voltage at the analog board.

- If the voltage is outside the proper range, you may have a defective cable.

- If the voltage is within the proper range with the sensor disconnected, you may have a defective sensor.

- If the supply voltage is within the proper range with all connectors connected, measure the microamps of the signal from the sensor. Measure the microamps with your meter in series with the signal wire (terminal 2 or 5). Refer to the Analog board wiring diagram for the correct channel and connector. If the microamps signal is erratic and the actual temperature is steady, you may have a defective sensor.

- If the measured microamps is steady, compare the microamps to the following calculation, to see if it is within +/- 5 degrees Celsius of the actual temperature. If it is out of this acceptable window, you may have a defective sensor.

- The microamps reading for 0 degrees C or 32 degrees Fahrenheit is 273 uA, or 0.273 mA. For every degree Celsius above 0, the microamps should increase by 1 uA. For every degree Celsius under 0, the microamps should decrease by 1 uA.

- For example, if the actual temperature is 20 degrees Celsius, the microamps reading should be 293 uA (+/- 5). If it is out of this window, you may have a defective sensor.

Quantum LX
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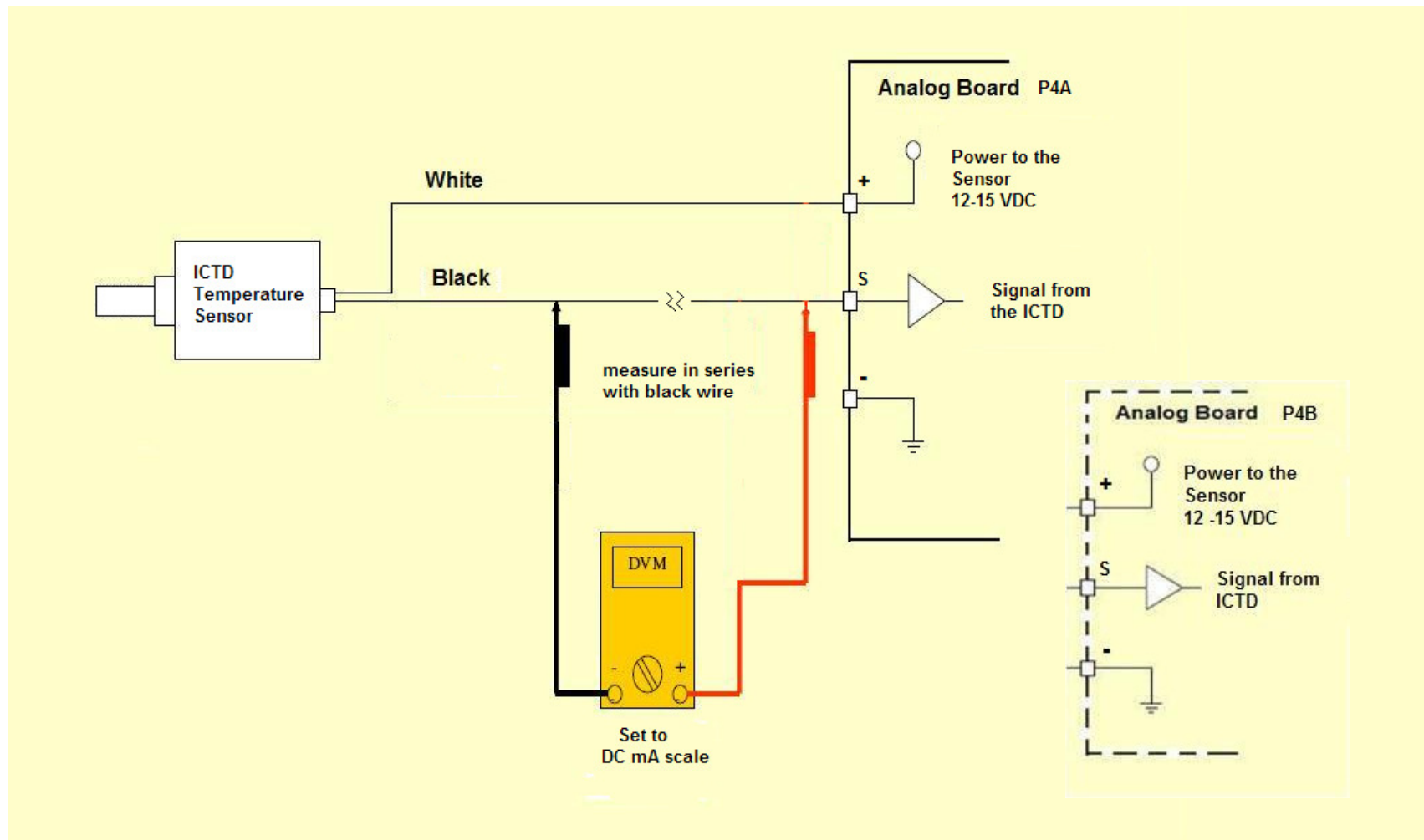
- If the measured microamps signal from the sensor to the analog board is steady and within the correct window, check the Service screen readings and the displayed temperature value on the Quantum LX.

Analog Inputs	(data units are Volts DC)
Board 1 Channels	
1 0.00	13 0.00
2 0.00	14 0.00
3 0.00	15 0.00
4 0.00	16 0.00
5 0.00	

Johnson Controls

■ If these readings are erratic, confirm that the "Sensor Signal" type of the sensor on the Calibration Screen for that analog channel is correct. If this is correct, the problem may be a defective analog board.

■ If the reading is steady, but incorrect, you can offset the reading by entering the actual temperature value in the "Current Value" box on the Temperature Calibration screen.