

2559-FCAL

Precision Calibration Connector

Classic



Calibrating the Module

The 2559-RTD is calibrated at the factory and needs no calibration when installed. The module should be calibrated yearly for best accuracy. If the module operates in an environment where the ambient temperature cycles outside the range of 20 °C to 30°C, more frequent calibration may be required. Also, if the ambient temperature is constantly outside the range of 20 °C to 30°C, calibration at the ambient temperature may improve accuracy.

NOTE:

The 2559-RTD Input Module is calibrated at the factory for initial installation. Further calibration may be required depending on the environment in which the module and/or the RTD operates.

Refer to the 2559-RTD Installation and Operation Guide for more information on the 2559-RTD.

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Calibration Requirements

CTI has developed a specialized wiring connector the 2559-FCAL to make the calibration much easier for the user. The 2559-FCAL has been prewired with the appropriate precision resistors required for the calibration.

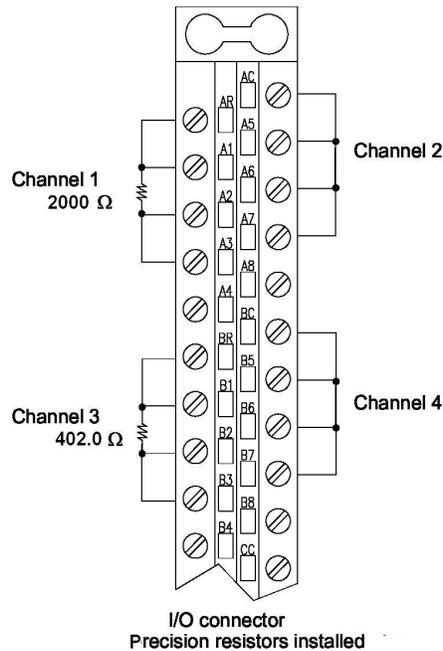


Figure 2 2559-FCAL Calibration Connector Wiring Diagram

Calibration Procedure

The following steps are needed to ensure proper calibration of the module:

1. Remove power from the 2500 Series® rack that contains the 2559-RTD module.
2. Remove the field wiring connector from the 2559-RTD module.
3. Remove the module from the rack.
4. The calibration procedure requires all positions of SW1 on the 2559-RTD set to ON. On SW2 Positions 1 - 7 set to ON and position 8 set to OFF.

SW1	SW2
11111111	11111110

5. Set dipswitch 8 SW2 to the Cal (0) position.
6. Install the 2559-FCAL with its precision resistors
7. Reinsert the module into the rack.
8. Apply power to the rack. The module LED will begin to blink slowly and, after around 3 minutes, the LED will begin to blink rapidly to indicate completion of the calibration.
9. Work through the above steps in a backward progression to return the module to operation. Be sure to reset SW1 and SW2 to your application requirements. Refer to the 2559-RTD Installation and Operation Guide.

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Calibration Connector Wiring Instructions

Precision resistor values for calibration have been installed on the 2559-FCAL connector which **MUST** be in place prior to initiating the calibration.

The connector has been wired as follows:

Channel 1	Four Wire 2000.0 Ohm Resistor	(500 Ohm Range)
Channel 2	Short all four terminals	
Channel 3	Four Wire 402.0 Ohm Resistor	(100 Ohm Range)
Channel 4	Short all four terminals	
Channel 5	Four Wire 20.00 Ohm Resistor	(10 Ohm Range)
Channel 6	Short all four terminals	
Channel 7	Four Wire 4020.0 Ohm Resistor	(1K Ohm Range)
Channel 8	Short all four terminals.	

The 2559-FCAL calibration connector wiring for channels 1-4 is illustrated in Figure 2 Channels 5-8 are wired similarly, just substitute resistor values from the preceding list.

Calibration Process

During the calibration process, the front panel LED will blink at a rate indicating the Calibration Phase.

1. 0.25 Hz - Phase 1 Acquiring 2000 Ohm data
2. 0.5 Hz - Phase 2 Acquiring 0 Ohm data (for 200/500 Ohm Range)
3. 1 Hz - Phase 3 Acquiring 402 Ohm data
4. 2 Hz - Phase 4 Acquiring 20 Ohm data
5. 4 Hz - Phase 5 Acquiring 4020 Ohm data

Solid - Calibration complete - set Run/Calibrate switch to Run and restart module.

The calibration process is terminated in one of three ways.

1. A successful completion leaves the Active LED SOLID ON. Power off the base, remove the module. Return dipswitch 8 on SW 2 to the Run position, reinstall the module and power up the base.
2. An EEPROM write failure leaves the Active LED SOLID OFF.
3. Any out of range condition detected during the acquisition phase causes the Active LED to blink out Morse Code S - O - S, i.e. three short flashes, three long flashes, and three short flashes. A pause occurs, then the pattern repeats. The calibration failed but the existing calibration in the module is UNAFFECTED.

Calibration Troubleshooting

If the LED does not follow the slow-fast blinking that describes a successful calibration, one or more of the calibration resistors may be out of range. Call CTI if module does not properly calibrate after re-checking the procedure and calibration connector.

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