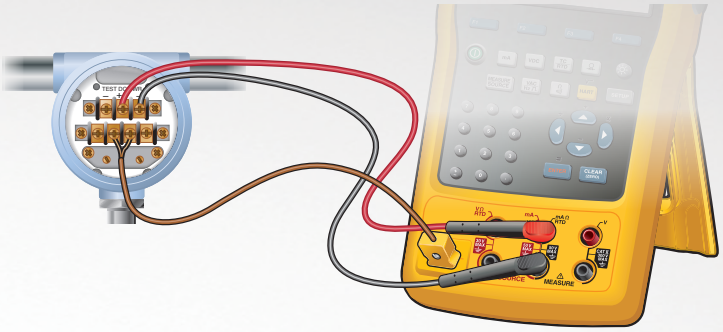
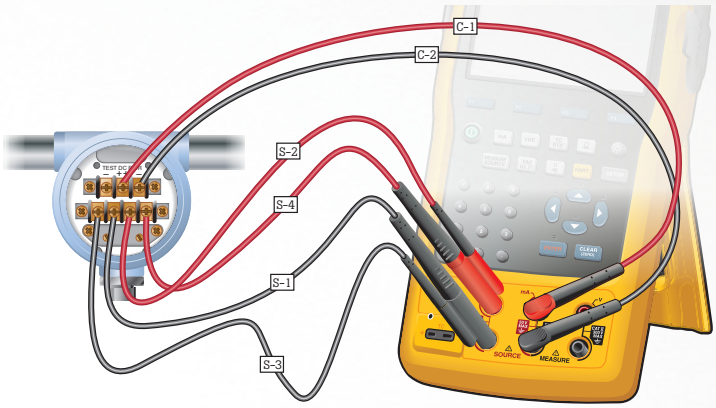


TC transmitter calibration connection




RTD transmitter calibration connection

# To perform the test:

## To use a thermocouple simulator to test a device with a thermocouple input:

**STEP 1** Disconnect the process measurement sensor and connect the test connection wires in its place (Figure A).

**STEP 2** Connect the mini-connector from the test wires to the TC source connection of the calibrator.

**STEP 3** Connect a DMM or other measurement tool to the tested device's mA output.

**STEP 4** Verify the devices range or span. Apply the 0% value with the simulator and verify with the DMM that the output mA value or voltage is as expected.

**STEP 5** Repeat the test, applying the 50% and 100% temperature signals.

**STEP 6** If the measured output of the device is within limits, the test is complete. If not, adjust the device at zero (offset, 0%) and span (gain, 100%).

**STEP 7** Repeat steps 4 and 5 and verify for a correct response.

## To use an RTD simulator to test a device with an RTD input:

**STEP 1** Connect the calibrator to the device input as shown in figure B.

**STEP 2** Connect the calibrator output with the right combination to match the device configuration (2, 3 or 4-wire).

**STEP 3** Use the test procedure at left for thermocouple testing, starting at step 3.

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# TECH TIPS

- When simulating a thermocouple signal from a simulator, always use the correct thermocouple wire for the test, either the exact same TC wire type or a compatible extension wire type.
- When simulating temperature using a calibrator with active reference junction compensation, remember the calibrator actively compensates for temperature changes. Changes in ambient temperature should be compensated for automatically.
- When testing 3-wire RTD circuits make sure to connect all three wires from the sourcing RTD simulator to the device being tested. Shorting out the compensation wire at the transmitter defeats the lead compensation circuit and introduces measurement errors.

## Additional resources

For more in depth information about this application check out these videos and application notes from Fluke.

*Testing, troubleshooting, calibrating process temperature devices* webinar

Temperature calibration application note

Fluke temperature calibrators deliver high accuracy, speed, and convenience