

Basic Keypad Operations

① EZ-Check™ Switch

Slide the switch to select from three user stored values for the desired calibration points. The user can select HI, DIAL, and LO positions. These values can easily be changed to suit the calibration requirements.

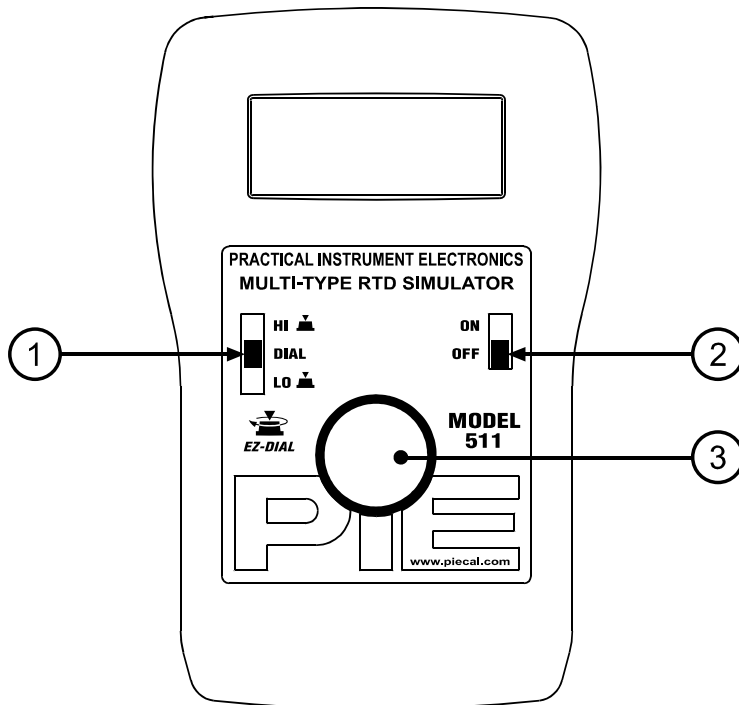
② ON/OFF Switch

Slide the **ON/OFF** to turn the Model 510/511 on or off.

③ EZ-Dial™ Knob

The **EZ-Dial™ Knob** has two adjustment speeds. Simply turning the **EZ-Dial™ Knob** will select fine adjustments. While pressing down and turning the **EZ-Dial™ Knob** will make course adjustments.

*Note: When the **EZ-Check™ Switch** is in the HI or LO position, pressing and holding the **EZ-Dial™ Knob** without turning will store a new HI or LO EZ-Check™ value.*



Model 510/511 Configuration

Instructions for Enabling and Disabling the Configuration Options

1. Turn the Model 510/511 on with the ON/OFF Switch ②.
2. Press the EZ-Dial™ Knob ③ while the "PRESS EZ-DIAL KNOB FOR CONFIGURATION" message is displayed.
3. Select options by turning the EZ-Dial™ Knob until the arrow points to the desired option.
4. The option can be enabled or disabled by tapping the EZ-Dial™ Knob.

The Model 510/511 configuration menu will exit automatically after 5 seconds of inactivity and go to normal operation with the options selected. These options are recalled at turn on until they are changed again.

PRESS EZ-DIAL KNOB
FOR CONFIGURATION

AUTO OFF ON
DISPLAY UNITS °C
RTD Pt100 α = 3350



Model 510/511 Operating Instructions

Model 510/511 Configuration

Model 510/511 Configuration Menu

Auto Off

ON (default)/OFF

If Auto Off is ON, the unit will turn off after 30 minutes to save battery life, if there is no user activity. If Auto Off is OFF the unit will stay on until it is turned off from the keypad. This is typically useful for manual loading or continuous use.

Display Units

°C (default)/°F

Pressing the EZ-Dial™ Knob toggles between °C or °F

RTD

{rtd type}

Model 510: The RTD type is fixed as ordered from the factory and cannot be changed.

{rtd type} is **one** of:

Pt100 $\alpha=3850$ (default), Pt100 $\alpha=3902$, Pt100 $\alpha=3916$, Pt100 $\alpha=3926$, Cu10 $\alpha=427$, Ni110 Bristol, Ni120 $\alpha=672$, Ω

Model 511: To change RTD type, press the EZ-Dial™ Knob. Turn the EZ-Dial™ Knob to scroll through the list of available types. Press again to save and return to the configuration menu.

{rtd type} is **any** of:

Pt100 $\alpha=3850$ (default), Pt100 $\alpha=3902$, Pt100 $\alpha=3916$, Pt100 $\alpha=3926$, Cu10 $\alpha=427$, Ni110 Bristol, Ni120 $\alpha=672$, Ω

EZ-Dial™ Knob

Turning the EZ-Dial™ Knob to adjust the output up or down. Fine adjustments can be made by turning the EZ-Dial™ Knob. Coarse adjustments can be made by pressing and turning the EZ-Dial™. New values can be stored into the HI and LO EZ-Check™ positions by pressing down on the EZ-Dial™ Knob until "STORED" is indicated on the display.

EZ-Check™ Switch

The EZ-Check™ Switch has three positions: HI, DIAL, and LO. Its position is shown at the left edge of the display with "HI" and "LO" indicators. The output is adjustable in all three positions. The EZ-Check™ Switch allows user-selected values to be stored in the HI and LO positions when used in combination with the EZ-Dial™ Knob.

To store new EZ-Check™ value(s):

1. Dial the display to match the desired stored outputs for the HI or LO positions.
2. Press down on the EZ-Dial™ Knob until the confirmation message "STORED" appears.
3. Recall the values by moving the switch between HI, DIAL, and LO.

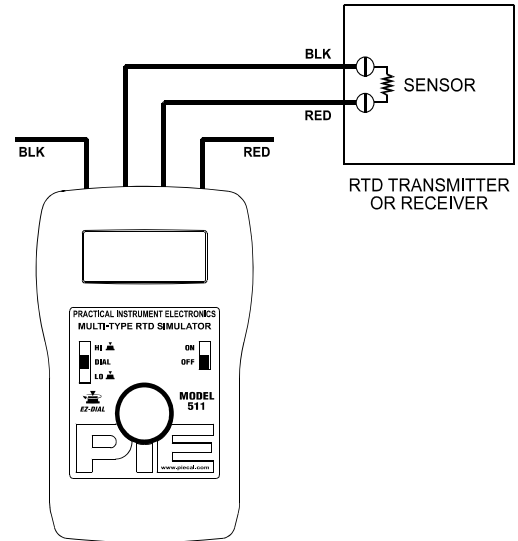
Operational description: When returning to previously set EZ-Check™ positions, the DIAL position always recalls the last output value it was dialed to. The HI and LO positions will recall the last STORED value, NOT the last output value it was last dialed to.

Hint: For faster calibrations, the product has been designed so the position of the switch can be felt. This tactile feature allows continuous monitoring of the device being calibrated without looking back at the Model 510/511 display. This is also useful in poor lighting or under difficult operating conditions.

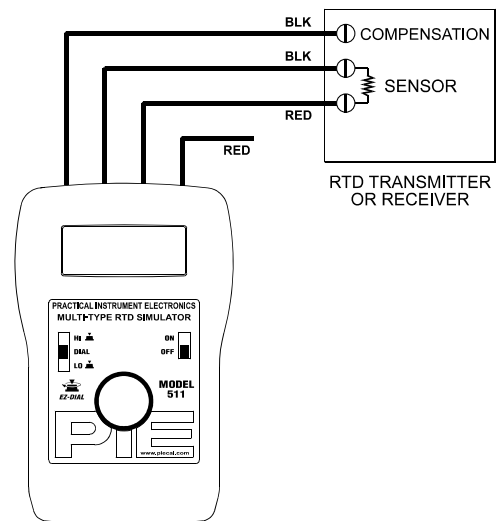


Model 510/511 Operating Instructions

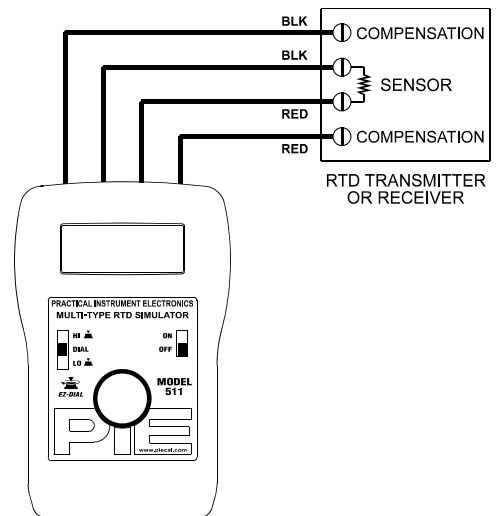
Connection Diagrams



Two Wire Connection to Transmitter



Three Wire Connection to Transmitter



Four Wire Connection to Transmitter



Model 510/511 Operating Instructions

Specifications

General Specifications:

(Unless otherwise indicated all specifications are rated from a nominal 23 °C, 70 % RH for 1 year from calibration)

Temperature Range	-25 to 60 °C (-10 to 140 °F)
Relative Humidity Range	10 % ≤RH≤90 % (0 to 35 °C), Non-condensing 10 % ≤RH≤ 70 % (35 to 60 °C), Non-condensing
Size	4.9 X 3.15 X 1.82 inches (125.5 X 80 X 46.2 mm)
Weight	9.1 oz (258 grams)
Battery	9V Alkaline provides 45 hours of continuous use
Miscellaneous	Low battery indication with nominal 1 hour of operation left Protection to 60V DC or AC peak up to 30 seconds in duration High contrast graphic liquid crystal display with 0.357" (9.07 mm) high digits

RTD Curve Simulation Specifications (ITS-90 Curves):

Accuracy	±(0.015% of Setting in Ω + 0.05Ω)
Typical accuracies for RTD curves are:	
Pt100	±0.25°C (±0.5°F)
Cu10	±1.5°C (±3°F)
Ni110, Ni 120Ω	±0.25°C (±0.5°F)
Allowable Excitation Current	100 μA to 10.2 mA, steady or pulsed/intermittent/smart
for accuracies below 100μA add	±10μV/Excitation Current (units are in Ω)
Pulsed Excitation Current	DC to 0.01 second pulse widths
Compatibility	
Output Dial Adjustment	0.1°F or 0.1°C Adjustment Resolution for Model 511
Resolution	1°C or 1°F Adjustment Resolution for Model 510
Temperature Coefficient	±0.05Ω/°C Ambient

WARRANTY

Our equipment comes with a NIST traceable Certificate and is guaranteed against defective material and workmanship (excluding batteries) for a period of three years from the date of shipment. Claims under guarantee can be made by returning the equipment prepaid to our factory. The equipment will be repaired, replaced or adjusted at our option. The liability of Practical Instrument Electronics (PIE) is restricted to that given under our guarantee. No responsibility is accepted for damage, loss or other expense incurred through sale or use of our equipment. Under no condition shall Practical Instrument Electronics, Inc. be liable for any special, incidental or consequential damage.