

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.

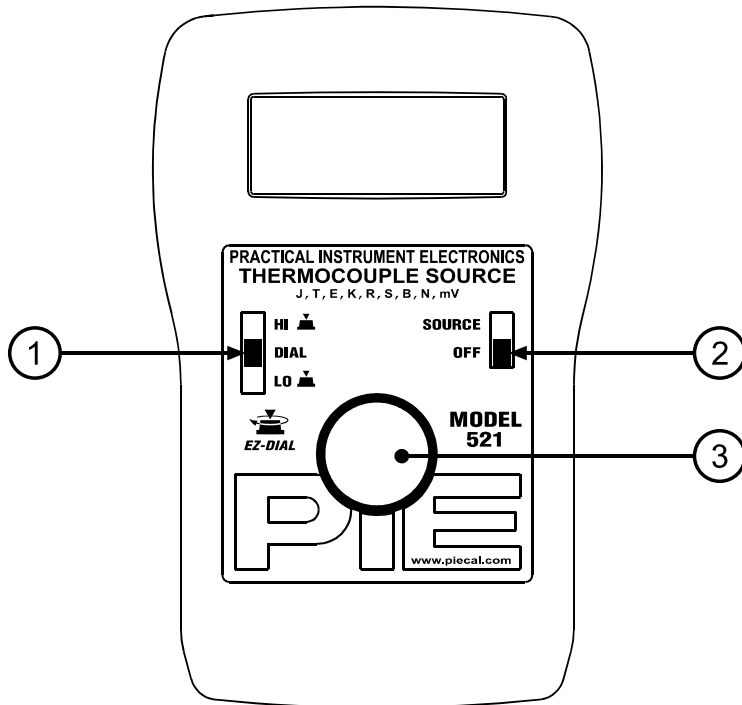
② ON/OFF Switch

Slide the **ON/OFF Switch** to turn the Model 520/521 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 new HI or LO values.*



Model 520/521 Configuration

Instructions for Enabling and Disabling the Configuration Options

1. Turn the Model 520/521 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 520/521 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 TYPE K



Model 520/521 Operating Instructions

Model 520/521 Configuration

Model 520/521 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

T/C

{T/C type}

Model 520: The T/C type is fixed as ordered from the factory and cannot be changed.

{T/C type} is **one** of:
B, E, J, K, N, R, S, T, or mV

Model 521: To change T/C 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.

{T/C type} is **any** of:
B, E, J, K, N, R, S, T, or mV

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.

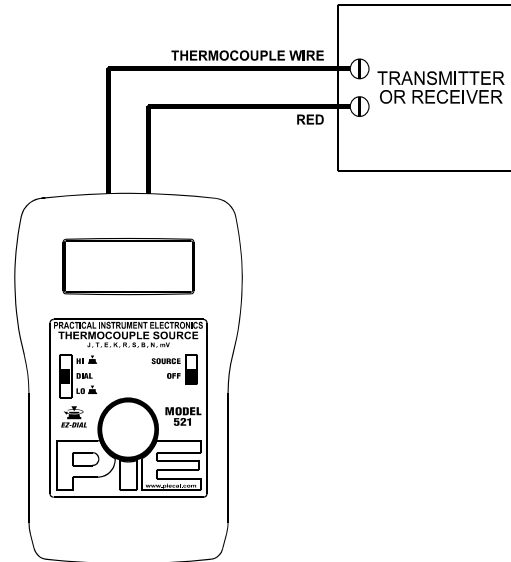
Operational description: When returning to previously set EZ-Check™ positions, the DIAL position always recalls the last output value it was dialed to. The HI and LO positions will recall the last STORED value, NOT the last output value it was last dialed to.

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 520/521 display. This is also useful in poor lighting or under difficult operating conditions.



Model 520/521 Operating Instructions

Connection Diagram



Two Wire Connection to Transmitter

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	10 % ≤ RH ≤ 90 % (0 to 35 °C), Non-condensing
Range	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	7.2 oz (204 grams)
Battery	9V Alkaline provides 45 hours of continuous use
Miscellaneous	Low battery indication with nominal 1 hour of operation left Overload Protected to 60V for 30 seconds or less High contrast graphic liquid crystal display with 0.357" (9.07 mm) high digits

Source Thermocouple Specifications (ITS-90 Curves):

Millivolt Uncertainty	±(0.015% of mV Setting + 0.009 mV)
Temperature Coefficient of mV Source	±0.005mV/°C Ambient
Output Noise	±5µVpp from 0.1 Hz to 10 Hz
Output Impedance	0.2Ω
Cold Junction Uncertainty	±0.25°C (0.5°F)
Cold Junction Sensor Temperature Coefficient	±0.05°/° in ambient temperature (°C or °F)
General Temperature Accuracy	±(0.015% of mV setting + 0.009mV) ± 0.25°C (0.5°F)
Output Dial Adjustment Resolution	0.1°C or °F for Model 521/1°C or °F for Model 520
Span	-13.000 - 80.000 mV



Model 520/521 Operating Instructions

Curve Types

T/C Type B	594 – 1820°C (1101.2 – 3308.0°F)
T/C Type E	-260 - 1000°C (-436.0 – 1832.0°F)
T/C Type J	-210 – 1200°C (-346.0 – 2192.0 °F)
T/C Type K	-245 - 1372°C (-409.0 – 2501.6°F)
T/C Type N	-229 - 1300°C (-380.2 – 2372.0°F)
T/C Type R	24 - 1768°C (75.2 – 3214.4°F)
T/C Type S	21 - 1768°C (69.8 – 3214.4°F)
T/C Type T	-251 - 400°C (-419.8 – 752.0°F)

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.