MODEL 520/521

THERMOCOUPLE SIMULATORS

The Practical Instrument Electronics' Model 520/521 Thermocouple Simulators simulate a standard thermocouple curve over the entire industrial temperature range. Choose between eight standard T/C types or millivolts. The Model 520 can also be supplied with a custom thermocouple curve and range for your specific application.

The Model 520/521 sources precise temperatures for inputs to all types of instruments such as transmitters, recorders, controllers, alarms, data acquisition, and computer systems. Both models provide a miniature T/C connector and both are internally cold-junction compensated for changes in ambient temperature. The PIE Model 520/521 offers the highest performance and functions in its class by exceeding the accuracy and functions of many higher priced thermocouple calibrators.

The EZ-Check™ function allows the user to store three output temperatures for ease of use. This will save time for repetitive calibrations by instantly recalling the three stored temperature values. Three output settings can be stored, and all settings are saved, even with the power off.

The low cost PIE Model 520/521 is an "easy as PIE" to use thermocouple source for checkout and calibration of all thermocouple instruments in the field, shop or control room.

Features

- **Direct Temperature Output**
  Calibrate in temperature for your T/C type.
  Adjust temperature output in 0.1° or 1°.

- **8 Standard T/C Types Available**
  Types J, K, E, T, R, S, B, N and mV.
  Custom types and ranges are available.
  Ranges from -148°F to F.S. for most types.
  °C & °F Cold Junction Compensated.

- **High Accuracy**
  ±(0.015% of mV Setting + 0.009mV).
  Typical accuracy of ±0.35°C (0.6°F) for Type K.

- **EZ-Dial™ Knob**
  Easily adjust output by 0.1° (Model 521) or 1° (Model 520).
  Pressing down and turning will select a faster dialing speed

- **EZ-Check™ Switch**
  User selectable EZ-Check™ for 0% and 100% span adjustments.
  Store new EZ-Check™ values by pressing the EZ-Dial™ knob.

- **Uses a standard 9V Alkaline Battery**
  Superior battery life of 45 hours under typical continuous usage.
  Easy access to battery compartment.

- **Lightweight and Rugged with a Solid Feel**
  Small, tough and protected to 60V.

Models pictured above left:

Model 520: 1° resolution, Single Type or Custom Type.

Model 521: Selectable 8 Types, 0.1° resolution with selectable °C or °F and 0.001 mV resolution (J, K, E, T, R, S, B, N and mV).

Haven Automation Limited

Exclusive UK and Ireland Distributors to Practical Instruments Electronics (PIE)

General Specifications

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

Operating Temperature Range	-25 to 60°C (-10 to 140°F)
Storage 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	7.2 oz (204 g)
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 + 0.009mV)
Temperature Coefficient of mV Source	±0.005mV/°C Ambient
Output Noise	±5µVpp from 0.1 Hz to 10 Hz
Output Impedance	0.2Ω loading ≥1kΩ
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	0.1°C or 0.1°F for Model 521
Resolution	1°C or 1°F for Model 520
Span	-13.000 - 80.000 mV
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)

Available Options

Option:

UKAS Calibration Certificate

Authorised Representative:

ORDERING INFORMATION

T/C Source (Single Type/1° resolution)	with T/C extension wire: Model 520-* (*add choice of T/C type: B, E, J, K, N, R, S, T or mV) with miniature T/C connector: Model 520-M*
T/C Source (8 Types, mV/0.1° resolution)	Model 521

Warranty

Practical Instrument Electronics (PIE) equipment 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 Haven Automation Ltd. The equipment will be repaired, replaced or adjusted at our option. The liability of Practical Instrument Electronics (PIE) is restricted to that given under their 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. or Haven Automation Ltd. be liable for any special, incidental or consequential damage.

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