



## Thermocouple Source Model 22



- **Direct temperature output**  
22 precise steps
- **0.1% accuracy**  
25, 50, or 100 degree resolution
- **Rugged design**  
Field, shop and control room use
- **Pocket sized**  
1 year battery life
- **Models for types B, E, J, K, R, S, T**  
°C & °F cold-junction compensated

## General description

Altek Model 22 Thermocouple Sources provide 22 precise temperatures for inputs to transmitters, recorders, controllers, alarms, data acquisition and computer systems. The Model 22 provides thermocouple wire output and is cold-junction compensated for ambient temperature variations. Conformity to the particular thermocouple vs millivolt curve is in accordance with the latest ASTM and IPTS standards for exact temperature simulation. Thermocouple types B, E, J, K, R, S and T are available in both degrees F and C. Resolution is 25, 50 or 100 degrees, corresponding to full scale output of 500, 1000, 1700, 2100 and 3100 degrees respectively.

Dual ranges, with an individual "ON" position for each range, allow quick, easy settings for any output. Calibrated accuracy is  $\pm 0.1\%$  of span  $\pm 1$  degree. Negative temperatures add  $\pm 2$  degrees. Two built-in AA cells provide power for one year of everyday use. A front panel LED pulses every time the Model 22 is turned on to indicate proper battery voltage.

The low cost Altek Model 22 is a complete, compact source for checkout and calibration of all thermocouple instruments in the field, shop or control room.

## Operating instructions

Select the Altek Model 22 for the correct thermocouple type, the desired temperature scale (F or C), and range. Connect the Model 22 to the input terminals of the instrument to be tested, the field mounted head or junction box terminals.

Cold-junction compensation and instantaneous automatic standardization is built into the Model 22.

Set the temperature selection switch to the desired temperature and slide the "ON" switch to the selected scale. The Battery Check LED will pulse once indicating proper battery voltage. If no pulse is seen, the batteries should be replaced with 2 "AA" cells. Alkaline cells are preferred for longest life and widest operating temperature range.

End point calibration temperatures of the instrument are then selected on the Model 22 and any required adjustments are made. Intermediate points may then be selected to verify instrument linearity or check critical points.

## Specifications

(Unless otherwise indicated, specifications are in  $\pm\%$  of span@ 23°C)

Accuracy: Positive temperatures  $\pm 0.1\%$  of span  $\pm 1$  degree.

Negative temperatures  $\pm 0.1\%$  of span  $\pm 3$  degrees

Cold junction compensation: Built-in for specified T/C type

Cold junction temperature effect: Within  $\pm 0.25$  degree at 75°F (20°C)  $\pm 0.025$  degrees/degree change in ambient

Operating temperature range: -10 to +130°F (-25 to +55°C)

Ambient temperature effect: Zero: Included in cold junction effect

Span:  $\pm 0.01\%$  of span/degree

Storage temperature limits: -40 to +160°F (-40 to +70°C)

Output impedance: Fixed, 50 ohms nominal

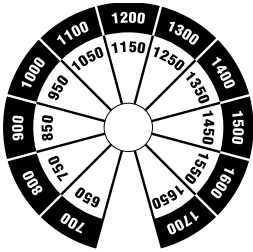
Batteries: 2 AA alkaline cells provide 1 year of use at nominal 4 hours each workday. Batteries should be removed when storing the unit longer than 3 months.

Battery indicator: LED light pulse at turn-on in either range

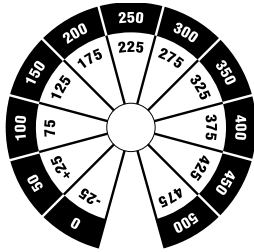
Size: 2 1/8 x 4 x 2 1/4 inches (54 x 102 x 55 mm)

Weight: 6 oz. (0.15 kg)

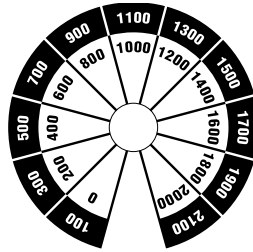
## Thermocouple types and ranges



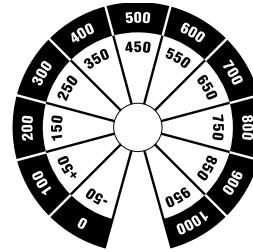
TYPE B,R,S DEG C



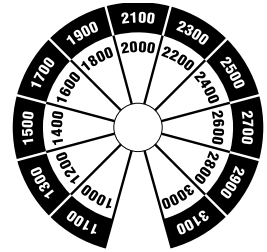
TYPE E,J,K,T DEG F  
TYPE E,J,K,T DEG C



TYPE J,K DEG F



TYPE E,J,K DEG F  
TYPE E,J,K DEG C



TYPE B,R,S DEG F

## Ordering information

Specify thermocouple type, scale range and °F or °C to insure prompt delivery of all the above standard ranges. A 22J 1000F completely describes an Altek 22 position source providing a maximum output of 1000°F for a type J thermocouple. Chromel and Alumel are registered trademarks of Hoskins Manufacturing Company.

22

B Pt 30% Rh - Pt 6% Rh  
E Chromel® - Constantan  
J Iron - Constantan  
K Chromel® - Alumel®  
R Pt - Pt 13% Rh  
S Pt - Pt 10% Rh  
T Copper - Constantan

500  
1000  
1700 Maximum  
2100 Scale  
3100 Reading

F - Degrees Fahrenheit  
C - Degrees Celsius

## Warranty

Altek products are warranted to be free from defects in material and workmanship (excluding fuses, batteries and leads) for a period of three years from the date of shipment. Warranty repairs can be obtained by returning the equipment prepaid to our factory. Products will be replaced, repaired, or adjusted at our option. *Altek gives no other warranties, including any implied warranty of fitness for a particular purpose.* Also, Altek shall not be liable for any special, indirect, incidental or consequential damages or losses arising from the sale or use of its products.

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PN 1886665 Rev A April 2002

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[Back to the Altek 22 Product Info Page](#)

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