

# Specifications

## TECHNICAL SPECIFICATIONS

**Display:** 3½ digit liquid crystal display (LCD) with a maximum reading of 1999.

**Overrange:** "OL" mark indication.

**Auto power off:** 60 minutes.

**Operating environment:** 32 to 122°F (0 to 50°C) at <70% R.H.

**Storage temperature:** -4 to 140°F (-20 to 60°C), 0 to 80% R.H. with battery removed.

**Accuracy:** Specifications good in ambient conditions of 73°F ±9°F (23°C ±5°C), <75% relative humidity.

**Temperature Coefficient:** 0.1x(specified accuracy) per °F/°C. (32 to 64°F (0 to 18°C), 82 to 122°F (28 to 50°C)).

**Power:** Single standard 9-volt battery, NEDA 1604, JIS 006P, IEC 6F22.

**Battery life:** 300 hours typical with alkaline.

**Accessories:** One pair test leads, one pair alligator clips, k-type thermocouple (HS33), 9V battery (installed), and operating instructions.

**Safety:** UL, CE, Cat III 600V, UL3111, IEC/EN61010-1, C-Tick certified.

### *Diode test*

**Test current:** ~1.0mA

**Accuracy:** ±(1.5% rdg + 3 dgts)

**Open circuit volts:** 3.0VDC typical

**Overload protection:** 500VDC or AC rms

### *Continuity*

**Audible indication:** Less than 100Ω

**Response time:** 100ms

Green LED will be on continuously.

**Overload protection:** 500VDC or AC rms

### *Capacitance*

**Range:** 200μF

**Resolution:** 0.1μF

**Accuracy:** ±(3% rdg + 5 dgts)

**Overload protection:** 500VDC or AC rms

### *DC volts*

**Ranges:** 200mV, 2000mV, 200V

**Resolution:** 0.1mV

**Accuracy:** ±(0.5% rdg + 1 dgt)

**Input impedance:** 560kΩ on V inputs, 10MΩ on mV input

**Overload protection:** 600VDC or AC rms, 500VDC/350VAC rms 15 sec on 200mV range

**Transient protection:** 6kV for 10μ sec

### *AC volts (50Hz - 500Hz)*

**Ranges:** 200mV, 200V, 600V

**Resolution:** 0.1mV

**Accuracy:**  $\pm(1.2\% \text{ rdg} + 3 \text{ dgts}) \pm(2.0\% \text{ rdg} + 5 \text{ dgts})$  on 600V range

**Input impedance:** 560k $\Omega$  on V input, 10M $\Omega$  on mV input

**Overload protection:** 600V DC or AC rms

**Transient protection:** 6kV for 10 $\mu$  sec

### ***Resistance***

**Ranges:** 200 $\Omega$ , 200k $\Omega$

**Resolution:** 0.1 $\Omega$

**Accuracy:**  $\pm(1.0\% \text{ rdg} + 4 \text{ dgts})$

**Open circuit volts:** 0.3VDC typical, (3.0VDC on 200 $\Omega$  range)

**Overload protection:** 500VDC or AC rms

### ***Temperature***

**Range:** -30 to 200°F (-34 to 93°C)

**Resolution:** 0.1°F/°C

**Accuracy:**  $\pm 1^\circ\text{F}$ , 32 to 120°F (0 to 48°C),  $\pm 1\% + 1.5^\circ\text{F}$ , -4 to 200°F (-20 to 93°C),  $\pm 2\% + 3^\circ\text{F}$ , -30 to -4°F (-34 to -20°C).

**Sensor type:** K-type thermocouple

**Overload protection:** 60 VDC or 30 VAC rms

### ***Field °F calibration***

For accuracies of  $\pm^\circ\text{F}$ , calibrate the HS33 to a known temperature. A glass of stabilized ice water is very close to 32°F (0°C) and is usually very convenient but any known temperature can be used.

1. Select the 200°F range.
2. Remove back case and hold the battery in place with a rubber band so terminals are touching.
3. Stabilize a large cup of ice water.
4. Immerse the thermocouple probe and let it stabilize.
5. Adjust VR3 (below battery) to get close to 32°F (0°C) then adjust VR1 (right of battery) to get within 0.1°F (0.1°C) of 32.0°F (0.0°C).
6. To calibrate in °C, close the jumper that is just below VR1.