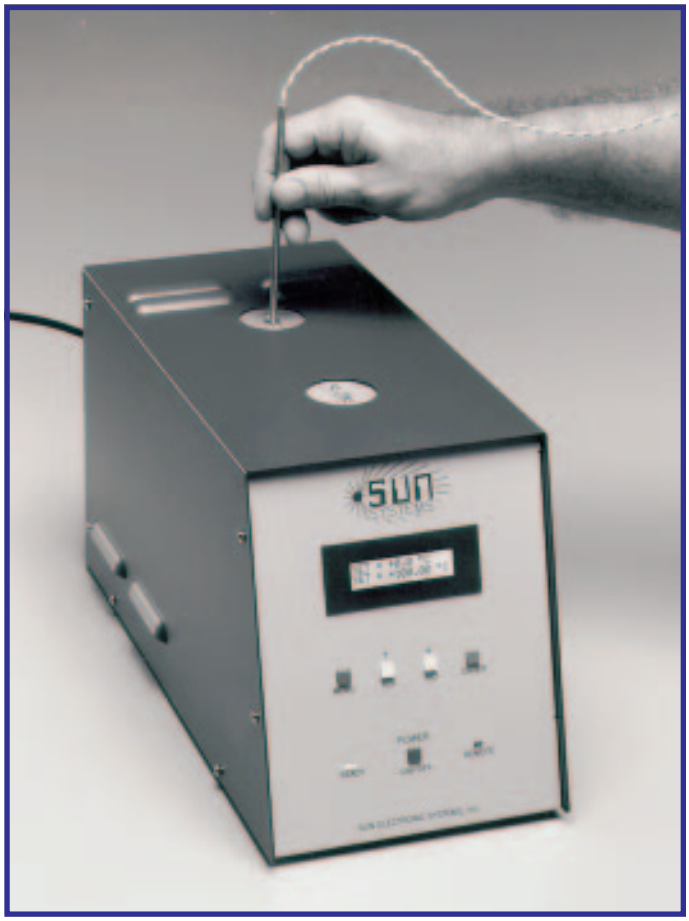
DUAL TEMPERATURE PROBE CALIBRATOR TCAL2

- **DUAL TEMPERATURE CALIBRATION**
- **BELOW & ABOVE AMBIENT CALIBRATION CAPABILITIES**
- **FRONT PANEL & RS232 CONTROL**
- **DUAL ANALOG CHART OUTPUTS**
- **NIST TRACEABLE**
- **AUTO TIME OF DAY POWER ON/OFF**
- **ACCOMMODATES SENSORS up to 3/8" DIAMETER**
- **ºC, ºF, & K OPERATION**



The TCAL2 is a Dual Temperature Probe Calibrator specifically designed for precise calibration of temperature instrumentation. The TCAL2 provides two places [Thermal Wells] to insert probes for calibration. One well can be set to any temperature between -5.0ºC [23ºF] to slightly below room ambient, this is the cold well. The other well can be set to any temperature between slightly above ambient to 125ºC [257ºF], this is the hot well. For the majority of users the cold well is set for 0ºC and the hot well is set for 100ºC. The cold well uses solid state Thermoelectric modules for cooling while the hot well uses an electric heating element. The well temperatures are maintained to within ±0.05ºC or better of their respective set temperatures.

Calibrating your temperature instrumentation with the TCAL2 is more accurate than using a probe simulator. When a simulator is used the assumption is made that the sensor to be used will exactly match its table values. In reality that assumption is usually not true. Most sensors have an inherent offset error and may have a slight gain error as well. By calibrating the instrument with its sensor at two known temperatures, any sensor related offset and gain error, relative to a perfect table value, will be factored out. Calibrating with the TCAL2 is also usually easier than using a voltage/resistance simulator. Simply place the sensor into the cold well, wait for the probe to stabilize, then adjust your instrument's offset control so that its reading matches the cold well temperature. Then move the sensor to the hot well, wait for the probe to come to temperature, and adjust your instrument's gain so that its temperature matches the hot well temperature.

The TCAL2 is small, quiet and operates from standard 110 VAC 60 Hz line power. The unit can be controlled from its front panel or its remote RS232 port. The front panel's two line LCD display provides well temperature information and simple prompts for setting parameters. Keys are provided for data input. A LED on the front panel lights up when both well temperatures are at their set temperatures providing you with a quick visual READY indication. Another LED is illuminated whenever the

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TCAL2 is under remote RS232 control. The actual well temperatures and set temperatures are constantly displayed. The unit can even be programmed to automatically turn on, Monday through Friday, at a user selectable time then automatically turn itself off at another time. This insures that the unit will be ready when you arrive in the morning and will turn itself off in the evening when you don't need it. The TCAL2 contains a MENU key that is accessed from the front panel to perform tasks such as calibrate the wells, change the scale to degrees C, F, or K, set RS232 parameters (ie baud rate), set the deviation limit, modify the time and day of internal real time clock, set the cold and hot well temperatures, and set and enable automatic time of day power on/off. The RS232 command set allows similar tasks for setting and reading parameters. The TCAL2 also has dual analog chart recorder outputs, built in battery backup and performs automatic restart after a line power outage.

The unit is supplied with a high accuracy NIST traceable mercury thermometer. The thermometer covers the range of -1.0ºC to 101.0ºC. It has graduations every 0.1ºC. When recalibration of the well temperatures is necessary, a front panel menu is used to move the well temperature to match the thermometer reading.

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Specifications

Number of Well Temperatures	2 [1 Cold , 1 Hot]
Temperature Range	
Hot Well	Ambient to 125ºC [257ºF]
Cold Well	Ambient to -5ºC [23ºF]
Ambient Temp Range	10 to 35ºC [50-95ºF]
Maximum Sensor Diameter	3/8" [.375"] dia.
Maximum Immersion Depth	4"
Well Temp Resolution	0.01ºC
Local Operation	2 Line LCD, 2 Status LEDs 5 Key Keyboard
Remote Operation	Built-In RS232 Interface
Stability	
Short Term	0.05ºC
Long Term	0.15ºC/1000 Hours
Analog Recorder Outputs	0 to 5Vdc Outputs
Safety	Bimetal Safety Cut-off
Power On To Ready Time	Approx. 15 min.
Power Required	95-125 VAC, 60 Hz, 3 Amp
Size	15.5"D x 7"W x 9"H
Weight	13.5 lbs.

Call Sun Systems for further information on our complete line of temperature & process controllers and environmental chambers.

07/02