

TRACEABLE[®] TWO-CHANNEL THERMOMETER INSTRUCTIONS

SPECIFICATIONS

Range: -58 to 2000°F (-50 to 1300°C)
Resolution: 1°
Accuracy: ±0.3% + 1°C
Probe: (2) Type-K thermocouple naked bead probe with 4' lead
Sampling Rate: 2.5 times per second
Display: 3½ digit LCD, 5/8 inches high (1.5CM)
Failsafe: Low battery indicator
Power: 9 volt alkaline battery
Accessories: 12 inch Velcro wrist strap, rubberized cover and a flip-out stand

FRONT PANEL QUICK REFERENCE

- ON** - Turns power on
- OFF** - Turns power off
- MAX** - Records and updates maximum values
- HOLD** - "Freezes" the display
- F/C** - Selects the temperature to be displayed in either Fahrenheit or Celsius
- T1** - Displays temperature reading from probe 1
- T2** - Displays temperature reading from probe 2
- T1/T2** - Displays the difference in temperature between probe 1 and probe 2

OPERATION

Insert the probe plugs into the receptacles located on the front of the thermometer. The plugs and receptacles are keyed with small and large pins. Make certain that the plugs are inserted correctly, do not force them.

NOTE: Only one probe is required for normal operation.

Press the **ON** button to turn the unit on.

Press the **F/C** button to display the temperature in Fahrenheit (°F will appear on the display) or Celsius (°C will appear on the display).

Press the **T1** button to display the temperature of probe 1 (T1 appears on the display).

Press the **T2** button to display the temperature of probe 2 (T2 appears on the display).

Place the probe tip in contact with the material to be measured and read the temperature on the display.

MAX MODE

In the MAX mode, the thermometer will display the highest temperature reading achieved. It does not display the current temperature if it falls below the MAX reading.

Example: In the MAX mode

If the current temperature is...	The display will read...
42°F	42°F
60°F	60°F
40°F	60°F

Select the desired input (T1, T2 or T1-T2) then press the **MAX** button (MAX will appear on the display). The thermometer will display the maximum temperature reading on the LCD display. Press the MAX key again to exit MAX recording mode.

HOLD

Press the **HOLD** key to "freeze" the display at the current T1, T2 or T1-T2 reading (D-H will appear in the display). Press the HOLD key again to return to the current reading.

TEMPERATURE DIFFERENTIAL T1-T2

Press the **T1-T2** key to display the difference in temperature between probe 1 and probe 2. This feature takes the temperature being measured at probe 2 and subtracts it from the temperature being measured at probe 1 and displays the difference.

NOTE: Two probes must be connected to the unit to use this feature.

PROBES

The probes supplied are ultra-fast response Type-K thermocouple naked bead probes with 4' leads and teflon insulation. Operating temperature range for these thermocouples is 0 to 500°F (260°C).

An accessory stainless steel triple purpose probe with handle is available. An accessory surface probe is also available (see accessories).

Longer leads and extensions may be used. The lead effect for 164 feet (50 meters) is generally less than 0.2°C with a limit of error of 2.2°C. Type-K wire and Type-K connectors must be used.

OFFSET ADJUSTMENT (Fine tuning)

The offset controls are set at the factory to allow for the variations found in standard thermocouples. By adjusting the offset controls, found below the thermocouple plugs, you can optimize measurement accuracy for a particular thermocouple (or pair of thermocouples) at a particular temperature.

ADJUSTING FOR T1 OR T2 MEASUREMENTS

1. Plug in the T1/T2 thermocouple and turn the thermometer ON. Press the appropriate T1/T2 key to display reading.
2. Place the thermocouple in a known stable temperature environment at or near the temperature you wish to measure. Allow the reading to stabilize.
3. Slowly adjust the T1/T2 OFFSET control that corresponds to the selected input until the thermometer reading matches the temperature of the known environment. (Allow sufficient time between adjustments to allow for measurement lag).
4. The calibration of the thermometer-thermocouple combination is now optimized (fine-tuned) for measurement near the temperature used in step 2.

ZERO ADJUSTMENT FOR T1-T2 MEASUREMENTS:

1. Plug in both the T1 and T2 thermocouples.
2. Turn the thermometer on and press the T1-T2 button.
3. Place the thermocouples in a known stable temperature environment at or near the temperature you wish to measure and allow the reading to stabilize.
4. Slowly adjust either T1 or T2 (but not both) of the OFFSET controls until the thermometer reads "0". (Allow sufficient time between adjustments to allow for measurement lag).
5. The thermometer-thermocouple combination is now set for differential temperature measurement near the temperature used in step 3.

WRIST STRAP AND STAND

The unit is supplied with a Velcro wrist strap that attaches through the two slots in the back of the rubberized casing. Remove the rubberized cover and slip the end of the strap through the slots, Velcro side out, fasten at the buckle.

A bench stand is also supplied with this unit and is part of the rubberized case. Locate the rectangular opening at the back of the unit. Place your fingernail under the opening and flip the stand out. To close the stand, simply snap it shut.

ACCESSORIES

Control Cat. No. 4014—

Stainless Steel Triple Purpose Probe, probe diameter 1/8" (0.32cm), probe length 6" (15.2cm), overall length 9" (22.9cm), cable length 50" (127cm).

Control Cat. No. 4008—

Surface Probe, flat disk on end has a diameter of 0.39" (1cm), overall length 9" (23cm), cable length 36" (91.4cm).

Control Cat. No. 4028—

Ultra-fast response, naked bead thermocouple. (identical to probe supplied with unit) cable length 48" (122cm).

Control Cat. No. 8039—

Low-Temperature Probe - Stainless-steel with handle; triple purpose (liquids, air/gas, and semi-solids), Dimensions: diameter 0.17 inch; stem length 12 inches; overall length 17 inches.

Control Cat. No. 8613—

High-Temperature Probe - Ten-foot-long 0.19-inch diameter braided metal wire cable with smooth tip measures -73 to 982°C continuous or 1093°C short-term use.

DISPLAY MESSAGES:

OL indicates that no probe is present.




indicates that the battery is low and needs replacement (see battery replacement).

ALL OPERATIONAL DIFFICULTIES

If this thermometer does not function properly for any reason, please replace the battery with a new high quality battery (see "Battery Replacement" section). Low battery power can occasionally cause any number of "apparent" operational difficulties. Replacing the battery with a new fresh battery will solve most difficulties.

BATTERY REPLACEMENT:

A  symbol will appear on the LCD display when the battery needs replacement. Before replacing the battery turn the unit off and unplug the probes. Slide the unit out of its rubberized protective casing. Remove the three screws from the back of the meter and lift off the front of the case. Remove the exhausted battery and replace it with a new 9 volt alkaline battery. Replace the front of the meter, insert the screws and slide the unit back into its rubberized casing.

WARRANTY, SERVICE, OR RECALIBRATION

For warranty, service, or recalibration, contact:

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Control Company is ISO 9001 Quality-Certified by DNV and ISO 17025 accredited as a Calibration Laboratory by A2LA.