

OPERATING MANUAL
CT-3
TEMPERATURE STIMULATOR

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CT-3 OPERATING MANUAL

1.0 GENERAL DESCRIPTION

1.1 The CT-3 is a simple device that simulates thermocouple signals so that the accuracy of a thermocouple thermometer can be checked instantly, without waterbaths.

1.2 The regular CT-3 is designed for use with type T thermocouple thermometers and has fixed electrical signals corresponding to five temperatures: 0.0 °, 15.0 °, 37.0 °, 45.0 ° and 50.0 °C. It is possible to order CT-3 with other settings. Consult Physitemp Applications Department for further details.

1.3 **IMPORTANT, PLEASE NOTE:** This instrument is only designed to check calibration accuracy – it is not designed to be used to calibrate the instrument under test. Consult Physitemp Service Department for further details.

2.0 INTIAL INSTALLATION

2.1 Connect one end of the thermocouple extension lead to the recessed socket on the left end panel of the CT-3. Check the polarity – the connector will fit in one way only. Connect the other end to the probe input socket on the thermocouple thermometer to be tested. If the thermocouple thermometer under test is a multiple input device, be sure that the correct input is selected.

2.2 Press the red BATT CHECK button. If the green LED lights, the instrument is ready for operation. If the LED does not light, batteries may need reconnection or replacement. See section 4.0 for details.

3.0 OPERATING INSTRUCTIONS

3.1 All measurements should be taken in a room at a relatively constant ambient temperature (within $\pm 2^{\circ}\text{C}$ in the ambient range of 15 -35°C.) The CT-3 should be allowed to stabilize for at least 30 minutes if moved from one room to another.

3.2 After connecting the lead to the thermocouple thermometer, allow ten minutes for all spurious thermocouple voltages to stabilize. These spurious voltages can be generated by moving the CT-3 from one part of the same room to another or by touching the thermocouple connector with warm or cold hands.

3.3 Note the correction factor on the underside of the CT-3. (The correction factor is indicated on the underside of the instrument on the calibration sticker) Turn on the thermocouple thermometer. Add the appropriate correction factor to the mercury thermometer reading and compare this figure to the displayed temperature on the thermocouple thermometer. If they agree to within the accuracy specifications of the thermocouple

thermometer under test, continue the calibration check. If they do not, the thermocouple thermometer may require recalibration.

Note: ensure that the mercury thermometer is viewed perpendicular to the tip of the mercury column to avoid parallax effects.

3.4 Press the grey ON ADJUST button on the CT-3. While holding down this button, turn the ADJUST knob until the thermocouple thermometer displays 25.0 °C (77.0 ° F)

3.5 Continue to hold down the grey button. Press in turn the 0.0 °, 15.0 °, 37.0 °, 45.0 ° and 50.0 °C buttons. In each case, the thermocouple thermometer should display the temperature selected to within ± 0.2 °C. If the difference between the thermometer display and the temperature selected is greater than ± 0.2 °C, the thermocouple thermometer needs to be recalibrated.

If you are using a Physitemp thermocouple thermometer and do not have calibration facilities, the instrument can be returned to the factory for calibration.

4.0 BATTERY REPLACEMENT

4.1 CT-3 uses two EN90 1.5V alkaline cells.

4.2 Place the CT-3 on a flat surface and carefully remove the six screws, which secure the top cover to the base. Remove the cover carefully. Note the thin wire running between the thermometer block in the base and the circuit board in the top cover. **TAKE EXTREME CARE WHEN REMOVING THE TOP COVER AND ENSURE THAT THIS WIRE IS NOT DISLOCATED OR DAMAGED.**

4.3 Battery holder is on the underside of the circuit board. Note the orientation of the two batteries, then remove and replace with new cells of the same type. Press red BATT. **CHECK** to verify that the LED lights after new batteries are installed.

4.4 Re-assemble the top cover and base. Be sure that the wire is not caught between them. Replace washers and screws.

5.0 SPECIFICATIONS

Thermocouple Type:	Type T, copper-constantan
Temperature Simulated:	0.0 °, 15.0 °, 25.0 °, 37.0 °, 45.0 °, 50.0 °C
Accuracy:	Better than ± 0.1 °C
Ambient Operating Temperature:	15 to 35 °C (Mercury-in-glass thermometer)
Power Supply:	2 “N” size alkaline cells, 1.5v each
Expected battery life:	200 hours continuous operation. 2 years intermittent
Low Battery warning:	LED
Size:	11 3/16” L x 3 9/16”W x 2 3/8” H
Weight:	24 Oz.

6.0 CALIBRATION

It is recommended that the CT-3 be returned to Physitemp on a 12 month basis for calibration and re-certification to NIST standards

7.0 WARRANTY AND SERVICE

7.1 WARRANTY

Phystiemp warrants this instrument to be free from defects in material or workmanship for 12 months from date of shipment. Repair or replacement will be made at no charge at the discretion of Phystiemp if the defect is not the result of misuse or abuse. Phystiemp accepts no consequential liability for delay in delivery, alleged faulty performance of the product or any other cause.

7.2 SERVICE

For technical or applications information on this instrument call (201)779-5577.

In the event that the CT-3 is to be returned for service, please pack it with care and send it prepaid to:

Service Department
Phystiemp Instruments
154 Huron Avenue
Clifton, NJ 07013

Please include with instrument:

1. A note describing any problem encountered
2. the name and telephone number of a person we can contact
3. the complete return address for shipping

For your protection, please pack the item carefully and insure against possible damage or loss. Phystiemp will not be responsible for damage resulting from careless packaging.