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OPERATING INSTRUCTIONS for AMPROBE® **MULTI-TEMP ACCESSORY** MODEL TMA-1

AMPROBE INSTRUMENT®
DIVISION OF CORE INDUSTRIES INC., LYNBROOK, NEW YORK 11563

INTRODUCTION

The Amprobe multi-temp accessory (model TMA-1) consists of the multi-temp module and probe(s). The TMA-1 allows users of digital multimeters to measure temperature directly in terms of DC millivolts. It also allows direct measurement of temperature difference (two probes required). Fahrenheit or centigrade measurements are accomplished by selection of °F or °C probes. Probes are interchangeable and field replaceable.

The multi-temp accessory can be used with any 3½ (or more) digit multimeter with 200 millivolt and 2 volt DC ranges. Input impedance should be ≥ 10 megohms.

MODULE SPECIFICATIONS

Multi-Temp Model TMA-1 Module
Output: 1 millivolt per degree (F or C) ± .1%
Power: One 9 volt battery
Battery Life: 1,000 hours minimum continuous duty with alkaline battery (2 probes in use)
Ambient Temperature Range: 32°F to 120°F (0°C to 50°C)
Size: 3⅜ x 2 x 1⅜ (not including plugs)
Weight: 3 oz. (73G) with battery
Battery Test: Direct readout on users meter
Banana Plug Spacing: Standard ¾"

PROBE SPECIFICATIONS

Temperature Measuring Range:
- −50°F to 300°F (Probe Model TPIF)
- −55°C to 150°C (Probe Model TPIC)
- −50°F to 300°F (Probe Model TPSF)
- −55°C to 150°C (Probe Model TPSC)
- −50°F to 150°F (Probe Model TPAF)
- −55°C to 65°C (Probe Model TPAC)

Accuracy:
- ±2°F from 0°F to 230°F; ±3°F all other points (TPIF, TPSF)
- ±1°C from −10°C to 110°C; ±1.5°C all other points (TPIC, TPSC)
- ±3°F from −50°F to 0°F; ±2°F from 0°F to 150°F (TPAF)
- ±1.5°C from −55°C to 0°C; ±1°C from 0°C to 65°C (TPAC)

Do not use the air probe above 150°F (65°C).

Cord: Length - 7 ft.
Maximum Temperature +221°F (105°C)

OPERATION

a) BATTERY INSTALLATION:
1) Gently push down and at same time push battery cover away from case.
2) Snap a fresh 9V battery onto battery connector.
3) Place battery into compartment and replace cover.

b) MULTI-TEMP OPERATION:
1) Observe "+" and "−" symbols molded into multi-temp case near banana plugs.
2) Insert multi-temp banana plugs into digital multimeters banana jacks, "+" to "+" and "−" to "−".
3) Set digital multimeter to 200mV DC range.
4) Move "OFF/BATT TEST/ON" switch on multi-temp to "BATT TEST".
5) Digital multimeter should indicate approximately 9mV (Note: Actual battery voltage is divided by 1000). Battery should be replaced when reading indicates 7mV or less.
6) Move "OFF/BATT TEST/ON" switch on multi-temp to "ON". Digital multimeter should indicate zero mV.
7) Insert probe plug into multi-temp jack marked "A".
8) Move "A/B/A-B" switch on multi-temp to "A".

9) Digital multimeter should be indicating a mV reading equal to the temperature being measured (i.e. 72mV = 72°).
10) If a second probe is available, insert its plug into multi-temp jack marked "B".
11) Move "A/B/A-B" switch on multi-temp to "B". Digital multimeter should be indicating a mV reading equal to the temperature being measured by the "B" probe.
12) Move "A/B/A-B" switch to "A-B". Digital multimeter should be indicating a mV reading equal to the temperature *difference* of the "A" and "B" probes. Note: If reading is negative, "A" probe is at a lower temperature than "B" probe.
13) When temperature measuring is completed, remove probes from multi-temp jacks and move "OFF/BATT TEST/ON" SWITCH TO "OFF".

NOTE:

Reading Resolution — Resolution is determined by the number of digits the digital multimeter has and the DC voltage range selected.

Example: 3½ digit meter, 200mV range. °F resolution would be .1°F, from −55°F to +199.9°F. Above +199.9°F, the 2 volt range would have to be selected and resolution would be 1°F. °C resolution would be .1°C over its entire range of −55°C to +150°C.