



INSTRUCTION MANUAL

MT632

DUAL CHANNEL DIGITAL THERMOMETER



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1. INTRODUCTION

The two input contact thermometers offer fast response and laboratory accuracy. These thermometers work with K-type or J-type thermocouples as temperature sensors, and it has 0.1°C/0.1°F resolution.

2. SPECIFICATIONS

Function	Range
Battery	AAA 1.5 x 3
Operating Temperature	0°C to +50°C (4°F to + 122°F) Noncondensing
Storage Temperature	-10°C to +50°C (14°F to + 122°F)
Temperature Range:	
K type thermocouples	-200°C to 1372°C (-328°F to 2501°F)
J type thermocouples	-210°C to 1100°C (-346°F to 2012°F)
Temperature accuracy:	
T1, T2 Above -100°C (-148 °F)	±[0.15%rgd+ 1°C(1.8°F)]
T1, T2 Below -100°C (-148°F)	±[0.5%rgd+2°C(3.6°F)]
T1-T2	[0.5%rgd+1°C(1.8°F)]
Display Resolution	0.1°C; °F; K <1000 1°C / °F / K >1000

3. FEATURES

1. Large backlit display shows any combination of T1, T2, T1-T2, plus MAX, MIN, AVG.
2. Relative time clock on MAX MIN and AVG provides a time reference for major events.
3. Electronic Offset function allows compensation of thermocouple errors to maximize overall accuracy.
4. Works with K-type or J-type thermocouples as temperature sensors.
5. Readout in °C, °F or Kelvin (K).
6. Auto Power Off mode (Sleep mode) increases battery life.

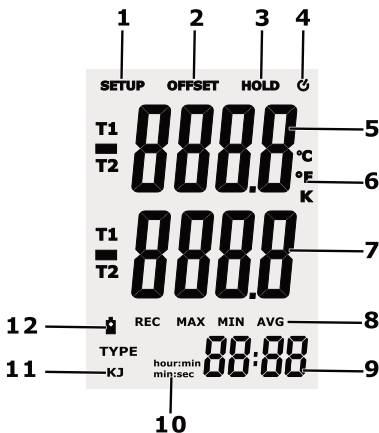
4. BUTTON

1. Press  to turn the thermometer on or off.
2. When the thermometer is in Setup mode, press  to enter a setup option and press  again to store the displayed setting in memory.
3. Press  to toggle showing the T1, T2, and T1-T2 (differential temperature measurement) in the primary and secondary.
4. Press  to switch between Celsius (°C), Fahrenheit (°F), and Kelvin (K).
5. Press  to freeze or unfreeze the displayed readings. When the thermometer is in Setup mode, press  to scroll to the Setup option you want to change or press  to increase the displayed setting.

6. Press  to step through the maximum, minimum, and average readings. When readings, shows the maximum, minimum, and average of the logged readings. To exit the MIN/MAX/AVG mode, press the  button for 3 seconds to return to normal operation. When the thermometer is in Setup mode, press  to scroll to the Setup option you want to change or press  to decrease the displayed setting.
7. Press  button to turn on the backlight. Press it again to turn off the backlight. Press  button for 3 seconds to start or exit Setup. (See "Changing Setup Options.")

4.1. DISPLAY ELEMENTS

- 1 - Entering or Exiting Setup.
- 2 - Offset option.
- 3 - Freeze the displayed readings.
- 4 - Auto Power Off mode sign.
- 5 - Primary Display: T1, T2, T1-T2 reading.
- 6 - The temperature units.
- 7 - Secondary Display: MAX, MIN, AVG, or offset, T1 or T2 reading.
- 8 - MAX, MIN, AVG display.
- 9 - Time display.
- 10 - Min:sec or hour: min Display.
- 11 - Thermocouple type K or J.
- 12 - Low battery. Replace the batteries.



4.2. USING THE THERMOCOUPLE (S)

1. Plug the thermocouple(s) into the T1 or T2 input connector(s).
2. Press  to turn on the thermometer. After 1 second the thermometer displays the first reading. If no thermocouple is plugged into the selected input or the thermocouple is "open," the display shows "- - - -".

4.3. CHANGING SETUP OPTIONS

Use Setup to change offset, sleep mode settings. The thermometer stores the settings in its memory.

4.4. SETUP OPTIONS

Option	Menu item	Settings
Type	TYPE	K or J
Offset	OFFSET	T1 or T2
Sleep Mode	SLP	(sleep mode on) or OFF (sleep mode off)

4.5. ENTERING OR EXITING SETUP

When the thermometer is in Setup mode, the display shows SETUP. Press  to start or exit Setup.

4.6. CHANGING A SETUP OPTION

1. Press  or  to scroll to the setup option you want to change.
2. Press  to indicate that you want to change this setting.
3. Press  or  until the setting you want to use appears on the display.
4. Press  to store the new setting in memory.

Notes: Setup is disabled in **MAX MIN** mode .

5. OFFSET

The primary display shows the temperature plus the offset and the secondary display shows the offset. You can store individual offsets for T1, T2.

6. AUTO POWER OFF MODE

The thermometer enters sleep mode (default). That is to say, the meter will automatically shut off after 20 minutes if no button press occurs for 20 minutes. When the thermometer is in Setup mode, the display shows SETUP. Press  or  to scroll to the "SLP" page . Press  to indicate "ON" or "OFF". Press  or  until the setting you want to use appears on the display (fig.2). Press  to store the new setting in memory. ON (sleep mode on) or OFF (sleep mode off).

7. MEASURING TEMPERATURES

7.1. CONNECTING A THERMOCOUPLE

To change the thermocouple type, see "Changing Setup Options."

The North American ANSI Color Code is:

Type	J	K
Color	Color	Yellow

1. Plug a thermocouple into the input connector(s). (Make sure that the polarity is correct.)
2. Set the thermometer for the correct thermocouple type.

7.2. DISPLAYING TEMPERATURES

1. Press  to select the correct temperature scale.
2. Hold or attach the thermocouple(s) to the measurement location. The temperature reading appears in the primary display.
3. Press  to toggle between showing the T1, T2, , and T1-T2 readings in the primary or secondary display.

Notes: The display shows "- - -" when a thermocouple is not connected. The display shows OL (overload) when the temperature being measured is outside the thermocouple's valid range.

7.3. HOLDING THE DISPLAYED READINGS

1. Press  to freeze the readings on the display. The display shows HOLD.
2. Press  to toggle showing the T1, T2, or T1-T2 readings in the primary or secondary display.
3. Press  again to turn off the HOLD function.

7.4. VIEWING THE MIN, MAX, AND AVG READINGS

1. Press  to step through the maximum (MAX), minimum (MIN), or the average (AVG) readings. The elapsed time since entering MIN MAX mode, or the time at which the minimum or maximum occurred appears on the display.
2. Press  button for 3 seconds to exit MAX, MIN and AVG mode.

7.5. USING THE OFFSET TO ADJUST FOR PROBE ERRORS

Use the offset option in Setup to adjust the thermometer's readings to compensate for the errors of a specific the thermocouple and IR temperature. The allowable adjustment range is $\pm 5.0^{\circ}\text{C}$ or $\pm 9.0^{\circ}\text{F}$.

1. Plug the thermocouple into the input connector.
2. Place the thermocouple in a known, stable temperature environment (such as an ice dry well calibrator).
3. Allow the readings to stabilize.
4. In Setup change the offset until the primary reading matches the calibration temperature. ("Changing Setup Options.")

7.6. REPLACING THE BATTERIES

1. Turn off the thermometer if necessary.
2. Loosen the screw and remove the battery door.
3. Replace 1.5V batteries.
4. Replace the battery door and tighten the screw.



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