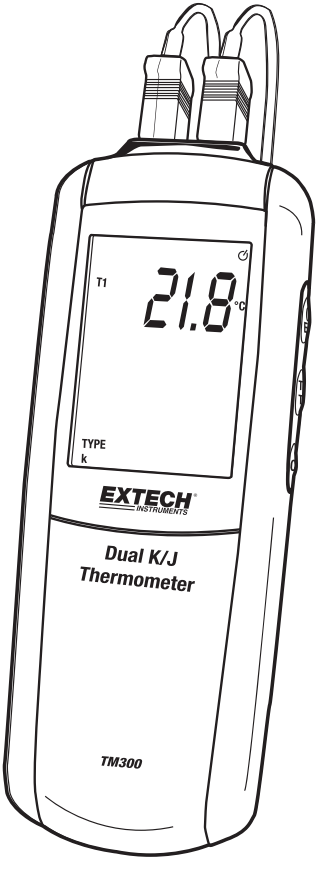
User's Guide

EXTECH®
INSTRUMENTS
A FLIR COMPANY

Dual Input J/K Type Thermometer

Model **TM300**



Introduction

Congratulations on your purchase of the Extech TM300 Digital Thermometer with K/J - type dual input. This meter is shipped fully tested and calibrated and, with proper use, will provide years of reliable service.

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. Readout in °C, °F, or Kelvin (K).
5. Auto Power Off mode (Sleep mode) increases battery life.

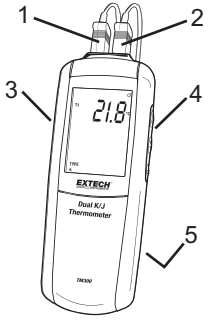
Safety

- To prevent personal injury or meter damage, use the meter only as specified in this guide
- If the low battery indicator appears, replace the batteries immediately. Inaccurate temperature reading could result from low battery voltage.
- Do not operate the meter in an explosive atmosphere

WARNING
To avoid electrical shock or personal injury, do not apply more than 20Vrms between the thermocouple inputs or between the thermocouple and earth ground

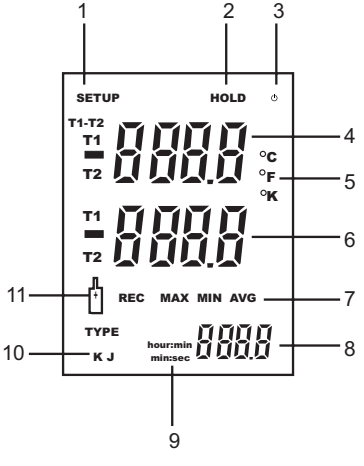
Meter Description

Meter



1. T1 Thermocouple input connector
2. T2 Thermocouple input connector
3. Function buttons (Hold, MAX/MIN, Set)
4. Function buttons (Power, Enter,T1 T2 T1-T2, C-F-K)
5. Battery compartment (rear)

Display



1. Setup mode
2. Hold mode
3. Auto power off mode active
4. Upper display: T1, T2 or T1-T2 reading
5. Temperature units
6. Lower display: T1 and T2 readings, MAX, MIN, AVG, and OFFSET values
7. MAX, MIN, and AVG mode icons
8. Timer display
9. MIN:SEC or HOUR:MIN display
10. K/J type thermocouple
11. Low Battery

Operation

Connecting thermocouples

1. This meter accepts one or two K or J-type thermocouples with spade lugs (sub-miniature type with one spade wider than the other).
2. Plug the thermocouple(s) into the meter's thermocouple input jack(s).

Measuring

1. Press the ⏻ button to turn on the thermometer on. After 1 second the thermometer will display the T1 reading in the upper display and the T2 reading in the lower display. The display will indicate dashes (----) if no thermocouple is connected to the input.
2. Press the **C-F-K** button to select the desired temperature unit of measure. A display icon will reflect the selection.
3. Contact the object to be measured with the probe. Read the measured temperature in the display.

   Note: If the display indicates “OL” the temperature is outside the measurement range. The display shows **"- - - -"** when a thermocouple is not connected.

MAX/MIN/AVG mode

Press the **MAX/MIN** button to begin recording the Maximum, Minimum and Average measure value. “**REC**” and “**MAX**” will appear on the display and the elapsed time display will appear.

1. Press **MAX/MIN** to enter this mode.
2. Press **MAX/MIN** to step through maximum, minimum and average readings.
3. Press and hold **MAX/MIN** for 3 seconds to return to normal mode.

Data Hold

Press the **HOLD** button to freeze the reading in the display. **HOLD** will appear at the top right of the display. Press the HOLD button again to return to normal operation mode.

T1 T2 T1-T2

Press the **T1 T2 T1-T2** button to cycle through the four display combinations.

No.	Upper Display	Lower display
1	T1	T2
2	T2	T1
3	T1-T2	T1
4	T1-T2	T2

C●F●K

Press the **C●F●K** button to select the displayed temperature units

Backlight

Press the **SETUP** 💡 button to turn the LCD backlight ON/OFF.

Setup Mode Options

Use the Setup mode to select the thermocouple type, program a display offset, or disable/enable the sleep mode. The thermometer stores the settings in its memory.

Press and hold the **SET** button for 3 seconds to enter or exit the Setup mode. When the thermometer is in Setup mode, the display shows the **SETUP** icon. Use the **ENTER** buttons or the arrow buttons to scroll through the "TYPE", "SLP" (sleep mode), and "T1/T2" (offset) parameters.

Set Type J or K thermocouple

1. From within the Setup mode (see the Setup Mode Options paragraph above for accessing Setup mode) use the ▲ or ▼ button to scroll to the "TYPE" setting.
2. Press **ENTER** to access the parameter.
3. Use the ▼ button to toggle between J and K.
4. Press **ENTER** to save the setting.
5. Press and hold the **SET** button for 3 seconds to return to the normal operating mode or press **ENTER** to move to the "SLP" setting (sleep mode).

Set Sleep/Non-sleep mode

The thermometer enables the sleep mode option by default where the meter will automatically shut off after 20 minutes of inactivity.

1. From within the Setup mode (see the Setup Options paragraph above for accessing Setup mode) use the ▲ or ▼ button to scroll to the "SLP" parameter if necessary.
2. Press **ENTER** to access the parameter.
3. Use the ▲ button to select ON (sleep mode enable) or OFF (sleep mode disabled).
4. Press **ENTER** to store the new setting in memory.
5. Press and hold the **SET** button for 3 seconds to return to the normal operating mode or press **ENTER** to move to the "T1" offset setting.

Set T1 or T2 Offset

Use the offset feature (**T1 or T2** Setup menu item) to adjust the thermometer's readings to compensate for a known temperature offset at a specific temperature. The allowable adjustment range is ± 5.0°C or ± 9.0 °F.

1. Plug the thermocouple into the input connector.
2. Place the thermocouple into a known, stable temperature environment (such as an ice bath or dry well calibrator). Allow the reading to stabilize.
3. From within the Setup mode (see the Setup Mode Options paragraph above for accessing Setup mode) press ▲ or ▼ to scroll to the "T1**"** or "T2" option and then press **ENTER**.
4. Use the arrow ▲ or ▼buttons to adjust the offset. The lower digits show the offset amount while the upper digits show the actual temperature with the offset applied.
5. Press the **ENTER** button to store the value and move to the next parameter.
6. Press and hold the **SET** button for 3 seconds to return to normal mode.

Replacing the Batteries

If the low battery icon appears, replace the batteries immediately to avoid inaccurate readings.

1. Turn off the thermometer.
2. Loosen the screw and remove the battery door.
3. Replace the AAA batteries.
4. Replace the battery door and tighten the screw.

You, as the end user, are legally bound (**EU Battery ordinance**) to return all used batteries, **disposal in the household garbage is prohibited!** You can hand over your used batteries / accumulators at collection points in your community or wherever batteries / accumulators are sold!

Disposal: Follow the valid legal stipulations in respect of the disposal of the device at the end of its lifecycle

Specifications

Temperature Range:

K type thermocouples	-328°F to 2501°F (-200°C to 1372°C) (73°K to 1645°K)
J type thermocouples	-346°F to 2012°F (-210°C to 1100°C) (63°K to 1373°K)

Temperature accuracy:

T1, T2	>-148°F (–100°C)	± [0.15%rdg+1.8°F (1°C)]
T1, T2	<-148°F (–100°C)	± [0.5%rdg+3.6°F (2°C)]
T1-T2	± [0.5%rdg+1°C (1.8 °F)]	

Display Resolution:	0.1°<1000°, 1°>1000°
Battery:	“AAA” 1.5V × 3
Operating Temperature:	32°F to 122°F (0°C to 50°C)
Storage Temperature:	14°F to 122°F (10°C to 50°C)
Dimensions:	8.7 x 2.5 x 1.1” (220 x 63 x 28mm)
Weight:	7 oz. (200g)

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