EXTECH INSTRUMENTS

INSTRUCTION MANUAL

Model 42520
IR Thermometer

- Precise non-contact Measurements

- Switchable C/F Temperature units

- Automatic Data Hold

- Laser target pointer

1. INTRODUCTION

Congratulations on your purchase of Extech's 42520 IR Thermometer. This professional meter, with proper care, will provide years of safe reliable service.

2. SAFETY

⚠ CAUTION   🔺 Laser Radiation

Use extreme caution when the laser beam is ON.
Do not let the beam enter your eye, another person's eye, or the eye of an animal.
Be careful not to let the beam from a reflective surface strike your eye.
Do not use the laser near explosive gases or in other potentially explosive areas.

CAUTION

LASER RADIATION
DO NOT STARE INTO BEAM

DIODE LASER
<1mW Output at 675nm
CLASS II LASER PRODUCT

3. SPECIFICATIONS

3.1 General Specifications

Display	Backlit LCD display
Measurement Ranges	0 to 600°F (-20 to 320°C)
Sample rate	1 sec. approx.
Power off	Automatic shutoff after 5 seconds
Operating Temperature	0 °C to 50 °C (32 °F to 122 °F).
Operating Humidity	Max. 80% RH.
Power Supply	9V battery
Power Current	Approx. 12 mA DC
Weight	200 g / 6.4 oz.
Size	6.7 x 1.7 x 1.6" (170 x 44 x 40 mm)

3.2 Range Specifications

Resolution/Ranges	1°C/F	0 to 600°F (-20 to 315°C)
Accuracy	± 2% rdg or 4°F/2°C whichever is greater	
Accuracy notes	1. Accuracy specified for ambient temperature	
	2. Accuracy specified for emissivity of 0.95	
Emissivity settings	0.95 fixed	
Distance Factor	D/S = Approx. 6:1 (D=distance, S=spot)	
Measurement Field and Target Size	Refer to Chart on top of meter or Fig. 2 in Section 6.1	

4. FRONT PANEL DESCRIPTION

1   Laser pointer beam
2   IR sensor
3   LCD Display
4   Units select key
5   Backlight select key
6   Measure key
7   Laser key
8   Battery compartment

5.1 Meter Power
Power the meter by pressing the ON/HOLD key. The meter powers down automatically, approximately 5 seconds after the ON/HOLD key is released.

5.2 Taking Measurements
Press the Measure key to take a reading. Read the measured temperature on the LCD.

5.3 Selecting Temperature units (C/F)
Select temperature units (degrees C or F) by first pressing and holding the ON/HOLD key and then pressing the C/F key momentarily until the desired units are shown on the LCD. The units character will blink on the LCD while programming. Release all keys when completed.

5.4 Data Hold
This meter automatically holds the last temperature reading on the LCD for five seconds after the MEASURE key is released. No extra key presses are necessary to freeze the displayed reading.

5.5 Backlit LCD
To turn the LCD backlight ON, press and hold the ON/HOLD key and then press the BACKLITE key. Repeat this procedure to turn the backlight OFF.

5.6 Laser Pointer
To turn the laser pointer ON, press the LASER key while pressing and holding the ON/HOLD key. Repeat the procedure to turn the laser OFF.

5.7 Measurement Considerations
a. Holding the meter by its handle, point the IR Sensor toward the object under test.
b. The object under test should be larger than the target size calculated in Fig. 2 Section 6.1 (or chart on top of meter).
c. The meter automatically compensates for temperature deviations from ambient temperature. Keep in mind that it will take up to 30 minutes to adjust to wide ambient temperature changes.
d. When low temperatures are to be measured followed by high temperature measurements, some time (several minutes) is required before the high temperature measurements can be made accurately.

6. IR MEASUREMENT TECHNIQUES

6.1 Measurement Field/Distance
The object being measured must be at least as large as the required target size calculated by the field/distance ratio nomogram shown in Fig. 2 and on top of the meter.
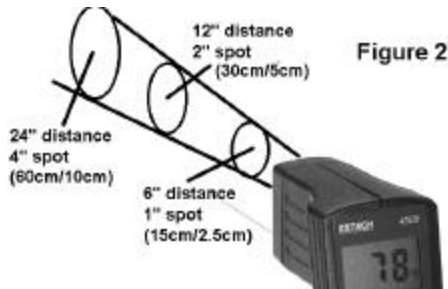
6.2 High InfraRed Energy Disturbances

Objects having low emissivity and objects with low temperatures but high emissivity emit little infrared energy. Because of this, measurements are adversely effected by powerful infrared energy radiated from nearby objects having high emissivity or high temperature. For example, when such objects are measured in sunlight, erratic measurements are caused by powerful radiated energy from the sun reflected on the surface of an object.

6.3 Measurement Surface Hindrances

If the surface of an object to be measured is covered with frost, dust or other materials, surface cleaning must be performed before accurate measurements can be made.

6.4 High Reflective Surfaces

If the surface of an object to be measured is highly reflective, apply masking tape or apply flat black paint to the surface since this paint has a known emissivity value.

7. BATTERY REPLACEMENT

A flashing display indicates that the battery voltage has fallen into the critical region (6.5 to 7.5 V). Reliable readings can be obtained for several hours however, after the first appearance of the low battery indication. Open the Battery compartment, replace the battery, and close the compartment cover.

8. CALIBRATION / REPAIR SERVICES

Extech offers complete repair and calibration services for all of the products we sell. For periodic calibration, NIST certification or repair of any Extech product, call customer service for details on services available. Extech recommends that calibration be performed on an annual basis to insure calibration integrity.

9. WARRANTY

EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 for authorization. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product.
The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.