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## MESTEK IR02C, CM83E

# MESTEK Infrared Thermometer IR02C and Digital Clamp Meter CM83E User Manual

Model: IR02C (Infrared Thermometer), CM83E (Digital Clamp Meter)

## INTRODUCTION

This manual provides detailed instructions for the safe and effective use of your MESTEK Infrared Thermometer IR02C and MESTEK Digital Clamp Meter CM83E. Please read this manual thoroughly before operation and retain it for future reference.



Image: MESTEK Infrared Thermometer IR02C and Digital Clamp Meter CM83E Kit. This image displays both devices included in the kit, along with their respective accessories like test leads and a K-Type thermocouple probe.

## SAFETY INFORMATION

Always adhere to the following safety precautions to prevent personal injury or damage to the devices:

- Read all instructions carefully before use.
- Do not operate the devices if they appear damaged or are not functioning correctly.
- **For Digital Clamp Meter CM83E:** Ensure test leads are properly connected and remove protective caps before use. This device is rated CAT III 1000V and CAT IV 600V with full range overload protection.
- **For Infrared Thermometer IR02C:** Do not point the laser directly at eyes or reflective surfaces. Avoid using the thermometer near strong electromagnetic fields.
- Keep devices away from water, dust, and extreme temperatures.
- Only use specified batteries (2 x 1.5V AAA for CM83E, typically 2x AAA for IR02C).

## MESTEK INFRARED THERMOMETER IR02C

## Product Overview

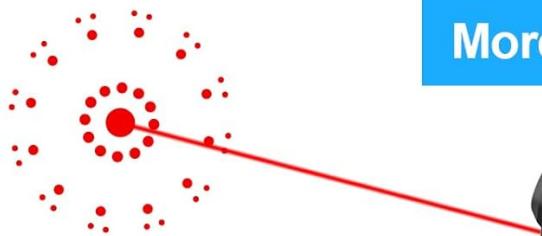
The MESTEK IR02C is a non-contact infrared thermometer designed for accurate temperature measurement across a wide range. It also features a K-Type thermocouple probe for contact measurements and humidity detection.



Image: MESTEK IR02C Infrared Thermometer. This image shows the infrared thermometer, its K-Type thermocouple probe, and the required AAA batteries.

- **Measurement Range:** -58°F to 1472°F (-50°C to 800°C) for infrared, 14°F to 932°F (-10°C to 500°C) for K-Type thermocouple.
- **Features:** Color LCD display, 13 laser points for targeting, adjustable emissivity (0.10-1.00), humidity measurement, high/low temperature alarm, °C/°F conversion, low battery indicator, backlight.
- **Response Time:** Less than 0.5 seconds.
- **Distance Spot Ratio:** 12:1.

## More Accurate with 13 Laser Points



- \* Non-contact Measurement
- \* K-probe Contact Measurement
- \* Spoilage Alarm Mode
- \* 13 Laser Pointers
- \* Color LCD Display
- \* Distance Spot 12:1
- \* -58°F~1472°F (-50°C~800°C)
- \* Response Time: <0.5 s
- \* Adjustable Emissivity ( 0.10 ~ 1.00 )
- \* Temperature
- \* Ambient Temperature
- \* Humidity
- \* Hight/Low Temperature Set Alarm Function
- \* °C/°F conversion
- \* Low Battery Indicator
- \* Backlight

Response Time	< 0.5s
High Precise	+ 1.5% or 2°C
IRT Temperature	-58°F ~ 1022°F

Image: MESTEK IR02C Thermometer Display. This image shows the thermometer's color LCD displaying temperature, humidity, emissivity, and other operational indicators.

## Setup

- Battery Installation:** Open the battery compartment and insert the required batteries (typically 2x AAA), observing polarity.
- Power On:** Press the trigger to power on the device.
- Unit Selection:** Use the MODE button to cycle through settings and the up/down arrows to select your preferred temperature unit (°C or °F).

## Operating Instructions

### 1. Non-Contact Measurement:

- Point the thermometer at the target object.
- Press and hold the trigger. The laser pointers will indicate the measurement area.
- The temperature reading will appear on the LCD. Release the trigger to hold the reading.



Image: MESTEK IR02C Thermometer with 13 Laser Points. This image illustrates the precise targeting capability using multiple laser points to define the measurement spot.

## 2. K-Type Thermocouple Measurement:

- Insert the K-Type thermocouple probe into the designated port on the thermometer.
- Place the probe tip in contact with the object to be measured.
- The display will show the contact temperature reading.

# K-Type Thermocouple Probe

Infrared measurement:-58~1472°F(-50~800°C)

Thermocouple measurement:14-932°F(-10-500°C)



Image: MESTEK IR02C Thermometer using K-Type Probe. This image shows the K-Type thermocouple probe immersed in a liquid for direct contact temperature measurement.

### 3. Adjusting Emissivity:

- Press the **MODE** button to navigate to the emissivity setting.
- Use the up/down arrows to adjust the emissivity value (0.10 to 1.00) to match the material being measured for improved accuracy.

4. **Humidity Measurement:** The device automatically displays ambient humidity on the main screen.

5. **High/Low Temperature Alarm:** Set desired high and low temperature thresholds using the **MODE** and arrow buttons. An alarm will sound if the measured temperature exceeds these limits.



Image: MESTEK IR02C Thermometer Wide Temperature Range. This image visually represents the thermometer's capability to measure temperatures from very low (-58°F) to very high (1472°F) for various applications.

## MESTEK DIGITAL CLAMP METER CM83E

### Product Overview

The MESTEK CM83E is a True-RMS digital clamp meter designed for accurate measurement of AC/DC current, AC/DC voltage, resistance, capacitance, continuity, temperature, and diode testing. It features non-contact voltage detection and a backlit display for ease of use.

# Digital Clamp Meter Auto Ranging

TRMS 6000 Counts



AC/DC Voltage



AC/DC Current



Temperature



Capacitance



Diode



Continuity



Resistance



NCV detector



Clear function



Data hold



Illumination



Backlight



Image: MESTEK CM83E Digital Clamp Meter Kit. This image displays the clamp meter, its test leads, and a protective carrying case.

- Measurement Capabilities:** AC/DC Current (up to 600A), AC/DC Voltage (up to 600V), Resistance, Capacitance, Continuity, Temperature, Diode.
- Special Features:** True-RMS, 6000 Counts display, Non-Contact Voltage (NCV) detection, VFD mode, LoZ mode, Backlit LCD, LED flashlight, Data Hold, Automatic Range, SEL function, Auto power off, Zero function.
- Safety Rating:** CAT III 1000V, CAT IV 600V.

## Setup

- Battery Installation:** Open the battery compartment and insert 2 x 1.5V AAA batteries, ensuring correct polarity.
- Test Lead Connection:** For voltage, resistance, capacitance, continuity, diode, and temperature measurements, insert the red test lead into the "INPUT" jack and the black test lead into the "COM" jack. Ensure protective caps are removed from the test leads.

## Operating Instructions

- Power On/Off:** Rotate the rotary switch to the desired measurement function to power on. Rotate to "OFF" to

power off.

## 2. Function Selection:

- Rotate the dial to select the primary measurement category (e.g., V for voltage, A for current, Ω for resistance).
- Press the **SEL** button to cycle through sub-functions within a category (e.g., AC Voltage, DC Voltage, Frequency).

## 3. AC/DC Current Measurement (Clamp):

- Rotate the dial to the "600A" position.
- Open the clamp jaws and enclose a single conductor (not a power cord with both live and neutral wires).
- Read the current value on the display.

## 4. Voltage Measurement:

- Rotate the dial to the "V" position. Use **SEL** to select AC or DC voltage.
- Connect the test leads in parallel to the circuit or component to be measured.
- Read the voltage value on the display.

## 5. Non-Contact Voltage (NCV) Detection:

- Rotate the dial to any function, then press the **NCV** button.
- Move the top of the clamp meter near a live AC voltage source. The device will beep and the NCV indicator will light up if voltage is detected.

# Non-contact AC Voltage detection



Image: MESTEK CM83E Clamp Meter NCV Feature. This image shows the clamp meter detecting non-contact AC voltage near an electrical outlet, indicated by the NCV icon.

6. **Backlight and Flashlight:** Press the backlight button (often labeled with a light bulb icon or integrated with SEL) to activate the display backlight or LED flashlight for use in dim conditions.

## Large LCD Screen with Backlit & Flashlight



Image: MESTEK CM83E Clamp Meter with Backlight and Flashlight. This image demonstrates the large, backlit LCD screen and the integrated flashlight for visibility in low-light environments.

7. **Data Hold:** Press the **HOLD** button to freeze the current reading on the display. Press again to release.
8. **Zero Function:** For DC current or capacitance measurements, press the **ZERO** button to eliminate residual readings or offset.

## MAINTENANCE

- **Cleaning:** Wipe the device with a dry, soft cloth. Do not use abrasive cleaners or solvents.
- **Battery Replacement:** Replace batteries when the low battery indicator appears on the display. Ensure correct polarity.
- **Storage:** Store the devices in a cool, dry place, away from direct sunlight and extreme temperatures. Remove batteries if storing for extended periods.
- **Calibration:** For professional use, periodic calibration may be required. Refer to MESTEK support for calibration services.

## TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	Dead or incorrectly installed batteries.	Replace batteries, ensuring correct polarity.
Inaccurate temperature readings (IR02C).	Incorrect emissivity setting; distance too far; dirty lens.	Adjust emissivity for the target material; ensure proper distance-to-spot ratio; clean the lens.
No reading or "OL" (Overload) on CM83E.	Incorrect function selected; range exceeded; poor test lead connection.	Select appropriate function; ensure measurement is within range; check test lead connections.
NCV not detecting voltage (CM83E).	Voltage too low; NCV function not activated.	Ensure NCV button is pressed; verify voltage presence with test leads if possible.

## SPECIFICATIONS

### MESTEK Infrared Thermometer IR02C

Parameter	Value
Infrared Temperature Range	-58°F to 1472°F (-50°C to 800°C)
K-Type Temperature Range	14°F to 932°F (-10°C to 500°C)
Accuracy (IRT)	±1.5% or ±2°C (whichever is greater)
Response Time	< 0.5 seconds
Distance Spot Ratio (D:S)	12:1
Emissivity	Adjustable 0.10 - 1.00
Humidity Measurement	Yes
Display	Color LCD with Backlight
Laser Pointers	13 points
Power Supply	2 x 1.5V AAA Batteries (Typical)

### MESTEK Digital Clamp Meter CM83E

Parameter	Value
Display	6000 Counts, Backlit LCD
AC/DC Current	Max 600A
AC/DC Voltage	Max 600V
Resistance	Yes
Capacitance	Yes

Parameter	Value
Continuity	Yes
Diode Test	Yes
Temperature Measurement	Yes (via K-Type probe, if included/supported)
NCV Detection	Yes
Safety Rating	CAT III 1000V, CAT IV 600V
Power Supply	2 x 1.5V AAA Batteries

## WARRANTY AND SUPPORT

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MESTEK products typically come with a manufacturer's warranty. For specific warranty details, technical support, or service inquiries, please refer to the official MESTEK website or contact their customer service directly. Keep your purchase receipt as proof of purchase.

You can visit the MESTEK Store for more information:[MESTEK Official Store](#)