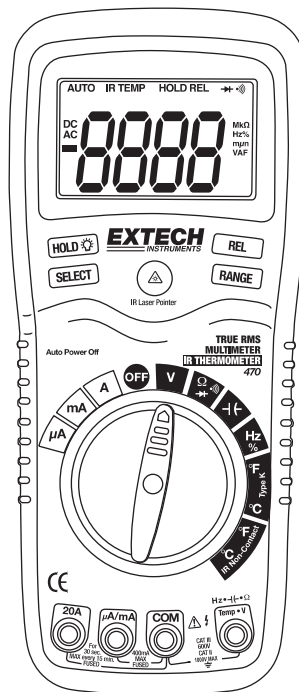


User's Guide

**EXTECH**  
INSTRUMENTS

**True RMS Multimeter  
plus IR Thermometer**

**Extech 470**  
Patent Pending



## Introduction

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Congratulations on your purchase of the Extech 470 (part number EX470) True RMS Autoranging Multimeter plus IR Thermometer. This meter measures AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Frequency, Duty Cycle, Diode Test, and Continuity plus Thermocouple and Non-Contact IR Temperature. Proper use and care of this meter will provide many years of reliable service.

## Safety

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This symbol adjacent to another symbol, terminal or operating device indicates that the operator must refer to an explanation in the Operating Instructions to avoid personal injury or damage to the meter.



This **WARNING** symbol indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.



This **CAUTION** symbol indicates a potentially hazardous situation, which if not avoided, may result damage to the product.



This symbol advises the user that the terminal(s) so marked must not be connected to a circuit point at which the voltage with respect to earth ground exceeds (in this case) 600 VAC or VDC.



This symbol adjacent to one or more terminals identifies them as being associated with ranges that may, in normal use, be subjected to particularly hazardous voltages. For maximum safety, the meter and its test leads should not be handled when these terminals are energized.



This symbol indicates that a device is protected throughout by double insulation or reinforced insulation.



This symbol indicates there is a potential hazard from a laser light source.

### OVERVOLTAGE CATEGORY III

This meter meets the IEC 610-1-95 standard for OVERVOLTAGE CATEGORY III. Cat III meters are protected against overvoltage transients in fixed installation at the distribution level. Examples include switches in the fixed installation and some equipment for industrial use with permanent connection to the fixed installation.

### SAFETY INSTRUCTIONS

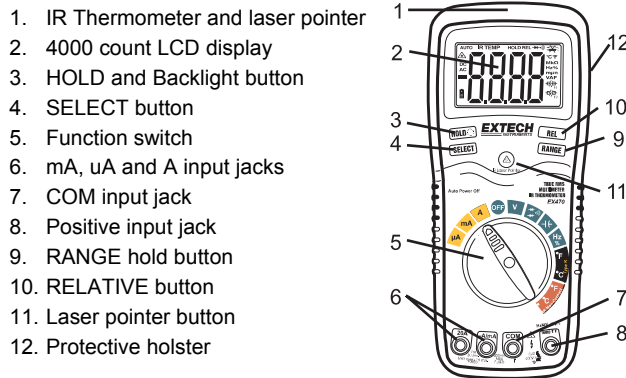
This meter has been designed for safe use, but must be operated with caution. The rules listed below must be carefully followed for safe operation.

1. **NEVER** apply voltage or current to the meter that exceeds the specified maximum:

Input Protection Limits	
Function	Maximum Input
V DC or V AC	1000VDC/750AC, 200Vrms on 400mV range
mA AC/DC	500mA 250V fast acting fuse
A AC/DC	20A 250V fast acting fuse(30 seconds max every 15 minutes)
Frequency, Resistance, Capacitance, Duty Cycle, Diode Test, Continuity	250Vrms for 15sec max
Temperature	60V DC/24V AC

2. **USE EXTREME CAUTION** when working with high voltages.
3. **DO NOT** measure voltage if the voltage on the "COM" input jack exceeds 600V above earth ground.
4. **NEVER** connect the meter leads across a voltage source while the function switch is in the current, resistance, or diode mode. Doing so can damage the meter.
5. **ALWAYS** discharge filter capacitors in power supplies and disconnect the power when making resistance or diode tests.
6. **ALWAYS** turn off the power and disconnect the test leads before opening the covers to replace the fuse or batteries.
7. **NEVER** operate the meter unless the back cover and the battery and fuse covers are in place and fastened securely.
8. **NEVER** look directly at the laser light source or aim the pointer at an eye.

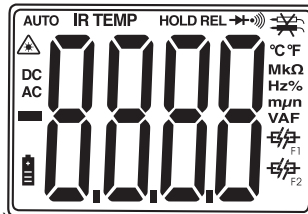
## Controls and Jacks



**Note:** Tilt stand and battery compartment are on rear of unit.

## Symbols and Annunciators

•)))	Continuity
▶	Diode test
▲	Laser pointer
🔋	Battery status
⚡	Test lead connection error
n	nano ( $10^{-9}$ ) (capacitance)
$\mu$	micro ( $10^{-6}$ ) (amps, cap)
m	milli ( $10^{-3}$ ) (volts, amps)
k	kilo ( $10^3$ ) (ohms)
M	mega ( $10^6$ ) (ohms)
Hz	Hertz (frequency)
%	Percent (duty ratio)
AC	Alternating current
DC	Direct current
°F	Degrees Fahrenheit



A	Amps
F	Farads (capacitance)
$\Omega$	Ohms
V	Volts
REL	Relative
AUTO	Autoranging
HOLD	Display hold
°C	Degrees Centigrade