

Digital Multimeters

Educational Training Equipment for the 21st Century

Bulletin 424-100A

H-444-1 Digital Multimeter



MODEL H-444-1 Digital Multimeter



Optional MODEL H-444-9
Thermistor Probe



Test Leads

Special Functions

- Data hold
- Auto hold
- MIN/MAX hold with elapsed time display
- Relative and % display
- W zero adjustment
- Average reading
- Automatic diode test
- Diode test
- Continuity check
- ADP adapter
- Center zero bar graph
- Over input alarm
- Fuse alarm
- Fuse check
- Auto power off
- Safety lock shutter
- -50°C ~ +150°C temperature test with H-444-9 probe

Features

- 6 - DC Voltage Ranges: 40mV to 1kV
0.3% of reading + 1 digit accuracy
- 6 - AC Voltage Ranges: 40mV to 1kV
1.0% of reading + 2 digits accuracy
- 5 - DC Current Ranges: 400 μ A to 10A
1.0% of reading + 2 digits accuracy
- 5 - AC Current Ranges: 40 μ A to 10A
1.5% of reading + 5 digits accuracy
- 6 - Resistance Ranges: 400 Ω to 40M Ω
0.5% of reading + 1 digit accuracy

Stated accuracy is typical and may vary depending on range and frequency. Complete specifications are available upon request.

Optional Equipment

- Model H-444-9 Thermistor Probe

Purpose

The Model H-444-1 Digital Multimeter is a hand-held laboratory-grade multimeter designed for accurate measurements in any environment. The casing is constructed of an elastomer material for better grip and impact resistance as well as added safety and ease of use.

Specifications

Structure: Dust proof

Measuring Method:

Dual integration mode

Display:

LCD 4 digit display max. reading of "4000" with 40 segments analog bar graph display and annunciators ("9999" for Hz)


Polarity:

Automatic no indication for positive polarity, minus (-) sign for negative polarity

Over Range Indication:

"OL" mark indication

Low Battery Indication:

"" mark is displayed when the battery voltage drops below operating voltage.

Sampling:

Digital display 2.3 times/sec.

(1 time/sec. for Hz)

Analog bar graph display 23 times/second

Operational Temperature & Humidity:

-10°C~50°C,
0°C~40°C @80% RH max.
40°C~50°C @70% RH max
(Non-condensing)

Storage Temperature & Humidity:

-25°C~60°C @70% RH max.
(Non-condensing)

Temperature Coefficient:

Accuracy of: 23°C \pm 5°C x 0.07/°C
(-10°C~18°C & 28°C~50°C) max.

Common Mode Voltage:

Max. 1000V rms (between input terminals and earth)

Power Supply:

1.5V (AA size, UM-3) x 2

Battery Life:

Approximately 1000 hours
(Alkaline batteries in DCV range)

Size & Weight:

3.4"W x 7.5"H x 1.5"D, Approx. 1.4 lbs.

Safety Class:

Complies with IEC348 safety class II

Accessories:

Instruction Manual (1)

Test Lead (1 set)

Batteries (2)

Spare fuse (500mA) (1)

All Hampden units are available for operation at any voltage or frequency

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MEASUREMENT RANGE

DC Voltage

| Range | Resolution | Accuracy | Input Resistance | Max Input Voltage |
|-------|------------|----------|------------------|-------------------------|
| 400mV | 100µV | 0.3 + 1 | 10MΩ | DC 1000V AC 1000Vrms |
| 4V | 1mV | | 11MΩ | |
| 40V | 10mV | | | |
| 400V | 100mV | | 10MΩ | |
| 1000V | 1V | | | |

Response time: 1 second max. to rated accuracy within selected range
NMRR: >60dB (50/60Hz) CMRR: >120dB

AC Voltage

| Range | Resolution | Accuracy | | Input Impedance | Max Input Voltage |
|-------|------------|-----------|------------|-----------------|-------------------------|
| | | 40-500 Hz | 500Hz-1KHz | | |
| 400mV | 100µV | 1% + 2 | 1.5% + 4 | 10MΩ//<50pF | AC 1000Vrms DC 1000V |
| 4V | 1mV | | | 11MΩ//<50pF | |
| 40V | 10mV | | | 10MΩ//<50pF | |
| 400V | 100mV | | | | |
| 1000V | 1V | | | | |

Response time: 2 second max. to rated accuracy within selected range
Conversion Type: AC coupled average sensing, calibrated to read the RMS value of sine wave
CMRR: >60dB ~ 60Hz (Rs = 1kΩ).

DC Current

| Range | Resolution | Accuracy | Input Resistance | Max Input Current |
|--------|------------|----------|------------------|---|
| 400µA | 100nA | 1% + 2 | <550Ω | 400mA rms (500mA/600 V fuse-protected) |
| 4000µA | 1µA | | <8Ω | |
| 40mA | 10µA | | | |
| 400mA | 100µA | 1.2% + 2 | <0.05Ω | 10A (15A/600V fuse protection) |
| 10A | 10mA | | | |

Response time: 1 second max. to rated accuracy within selected range

AC Current

| Range | Resolution | Accuracy 40Hz - 500Hz | Input Resistance | Max Input Current |
|--------|------------|--------------------------|------------------|--|
| 400µA | 100nA | 1.5% + 5 | <550Ω | 400mA rms (500mA/600 V fuse protection) |
| 4000µA | 1µA | | <8Ω | |
| 40mA | 10µA | | | |
| 400mA | 100µA | | <0.05Ω | |
| 10A | 10mA | | | |

Response time: 2 second max. to rated accuracy within selected range

Resistance

| Range | Resolution | Accuracy 40Hz - 500Hz | Input Resistance | Open Circuit Voltage |
|-------|------------|--------------------------|------------------|----------------------|
| 400Ω | 100mΩ | 0.5% + 1 | 0.8mA | <2.5 V |
| 4kΩ | 1Ω | | 80µA | |
| 40kΩ | 10Ω | | 10µA | |
| 400kΩ | 100Ω | | 1.1µA | |
| 4MΩ | 1kΩ | | 110nA | |
| 40MΩ | 10kΩ | 1% + 2 | | |

*400Ω range: Accuracy is specified after Ω zero adjustment
Response time: 400Ω-400Ω range - 2 second max. to rated accuracy within selected range
4MΩ-40MΩ range - 10 second max. to rated accuracy within selected range
Input protection: 660V rms
Ω zero adjustment: External lead wire resistance is zero adjustable (Max. 9.9Ω)
Full scale voltage: 400Ω-4MΩ<300mV DC, 4MΩ range<810mV DC

Temperature Test (°C) (H-444-9)

| Range | Resolution | Accuracy | Input Protection |
|---------------|------------|--|------------------|
| -50.0 ~ 150°C | 0.1°C | 0° C ~ 70.0°C: ±1°C -30.0°C ~ 0°C, 70.0°C ~ 150.0°C: ±2°C | 660V rms |

Continuity Check

| Range | Resolution | Continuity Beeper | Max Test Current | Open Circuit Voltage | Input Protection |
|-------|------------|-------------------|------------------|----------------------|------------------|
| 400Ω | 100mΩ | <20Ω | 0.8mA | 3.4V | 600V rms |

Diode Test

| Range | Resolution | Accuracy | Test Current | Open Circuit Voltage | Input Protection |
|-------|------------|----------|----------------------------|----------------------|------------------|
| 2V | 1mV | 1% + 2 | Approx. 0.5mA (Vf=0.6V) | <3.4V | 600V rms |

Diode Test

Range: 2V
Resolution: 1mV
Accuracy: 1+ 2
Test Current: Approx. 0.5mA (Vf = 0.6V)

Adapter Range

Range: ...4000/~4000
Resolution: 100mV
Accuracy: 0.3+2*1+2
Input Resistance: 10MW
Input Protection: 660V rms

All Hampden units are available for operation at any voltage or frequency

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