

TECHNICAL DATA

Fluke 116 HVAC multimeter with temperature and microamps



Compact true-rms meter for HVAC troubleshooting

The Fluke 116 was specifically designed for the HVAC professional. It has everything needed in an HVAC meter including temperature and microamp measurements to quickly troubleshoot problems with HVAC equipment and flame sensors.

Features

- Built in thermometer for HVAC applications
- Microamps to test flame sensors
- LoZ: helps prevent false readings due to ghost voltage
- Large white LED backlight to work in poorly lit areas
- Resistance, continuity, frequency and capacitance
- Min/Max/Average with elapsed time to record signal fluctuations
- Compact ergonomic design for one-handed operation
- Compatible with optional magnetic hanger (ToolPak™)

IDEAL FOR HVAC TECHNICIANS

- Measures μA for flame rods
- Thermometer measures from -40°C to 400°C (-40°F to 752°F)
- Resistance up to $6\text{ M}\Omega$
- Large white LED backlit display

SAFETY RATING

CAT III 600 V

WARRANTY

Three-year warranty

Specifications

Accuracy is specified for 1 year after calibration, at operating temperatures of 18 °C to 28 °C, with relative humidity at 0 % to 90 %. The accuracy specifications take the form of: \pm ([% of reading] + [counts])

General specifications			
Maximum voltage (between any terminal and earth ground)	600 V		
Display	Digital: 6000 counts, updates 4/sec		
Bar graph	33 segments, updates 32/sec		
Operating temperature	-10 °C to + 50 °C		
Storage temperature	-40 °C to + 60 °C		
Battery	9 volt Alkaline, IEC 6LR61		
Battery life	400 hours typical, without backlight		
Safety	IEC 61010-1, Pollution Degree 2 IEC 61010-2-033 CAT III 600 V		
EMC standards	IEC 61326-1: Portable		
Accuracy specifications			
Measurement	Range	Resolution	Accuracy \pm ([% of reading] + [counts])
DC millivolts	600.0 mV	0.1 mV	0.5 % + 2
DC volts	6.000 V 60.00 V 600.0 V	0.001 V 0.01 V 0.1 V	0.5 % + 2
Auto volts	600.0 V	0.1 V	2.0 % + 3 (dc, 45 Hz to 500 Hz) 4.0 % + 3 (500 Hz to 1 kHz)
AC millivolts ¹ true-rms	600.0 V	0.1 V	1.0 % + 3 (dc, 45 Hz to 500 Hz) 2.0 % + 3 (500 Hz to 1 kHz)
AC volts ¹ true-rms	6.000 V 60.00 V 600.0 V	0.001 V 0.01 V 0.1 V	1.0 % + 3 (45 Hz to 500 Hz) 2.0 % + 3 (500 Hz to 1 kHz)
Continuity	600 Ω	1 Ω	Beeper on < 20 Ω off > 250 Ω ; detects opens or shorts of 500 μ s or longer.
Ohms	600.0 Ω 6.000 k Ω 60.00 k Ω 600.0 k Ω 6.000 M Ω 40.00 M Ω	0.1 Ω 0.001 k Ω 0.01 k Ω 0.1 k Ω 0.001 M Ω 0.01 M Ω	0.9 % + 1
Diode test	2.000 V	0.001 V	0.9 % + 2
Capacitance	1000 nF 10.00 μ F 100.0 μ F 9999 μ F 100 μ F to 1000 μ F > 1000 μ F	1 nF 0.01 μ F 0.1 μ F 1 μ F - -	1.9 % + 2 1.9 % + 2 1.9 % + 2 - 1.9 % + 2 5 % + 20
Lo-Z capacitance	1 nF to 500 μ F	-	10 % + 2 typical
Temperature ² (Type-K thermocouple)	-40 °C to 400 °C -40 °F to 752 °F	0.1 °C 0.2 °F	1 % + 10 ² 1 % + 18 ²
AC μ amps true-rms (45 Hz to 500 Hz)	600.0 μ A	0.1 μ A	1.5 % + 3 (2.5 % + 3 > 500 Hz)
DC μ amps	600.0 μ A	0.1 μ A	1.0 % + 2
Hz (V or A input) ³	99.99 Hz 999.9 Hz 9.999 kHz 50.00 kHz	0.01 Hz 0.1 Hz 0.001 kHz 0.01 kHz	0.1 % + 2

¹ All ac voltage ranges except Auto-V/LoZ are specified from 1 % to 100 % of range. Auto-V/LoZ is specified from 0.0 V. Because inputs below 1 % of range are not specified, it is normal for this and other true-rms meters to display non-zero readings when the test leads are disconnected from a circuit or are shorted together. For volts, crest factor of ≤ 3 at 4000 counts, decreasing linearly to 1.5 at full scale. AC volts is ac-coupled. Auto-V LoZ, and ac mV are dc-coupled.

² Temperature uncertainty (accuracy) does not include the error of the thermocouple probe.

³ Frequency is ac coupled, 5 Hz to 50 kHz for ac voltage. Frequency is dc coupled, 45 Hz to 5 kHz for ac current.

Ordering information

Fluke-116 HVAC Multimeter with temperature and microamps

Included

TL75 Test Leads

80BK-A Integrated Temperature Probe

Holster

User documentation

9 V battery (installed)



Fluke. *Keeping your world up and running.*®

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TECHNICAL DATA

64 MAX, 62 MAX+ and 62 MAX IR Thermometers



Takes the heat, the dust and water and a 3 meter drop. And now, internal memory and unattended monitoring.

The Fluke 64 MAX, 62 MAX+ and 62 MAX IR Thermometers have the precision you need to do your job accurately and will not break the budget. Designed and tested to survive a 3 meter drop, you can count on these lightweight, compact infrared thermometers to work when you need them to work—even in the harshest environments and when you're not able to be there (64 MAX).

- Precise laser technology for more accurate and repeatable measurements
- Temperature accuracy of up to $\geq 0\text{ }^{\circ}\text{C}$: $\pm 1\text{ }^{\circ}\text{C}$ or $\pm 1\%$ of reading whichever is greater with 20:1 distance to spot ratio (64 MAX)
- Flashlight (64 MAX) and large, easy-to-read backlit LCD display for easy viewing even in dark environment
- IP54 rated for extra protection against airborne contaminants
- Get your tool to work when you can't—set time and desired interval between measurements and Auto Capture will capture spot temperatures unattended (64 MAX)
- 99 data point logging (64 MAX)
- Displays the minimum, maximum or average temperature, or the difference between two measurements
- Hi and Lo alarms for rapid display of measurements outside set limits
- The 62 MAX+ has dual rotating lasers to help you identify area to be measured. The measurement area is the spot between the dots (62 MAX and 64 MAX have 1).
- Small and lightweight, fits easily into your tool box

TEMPERATURE RANGE

64 MAX

-30 °C to 600 °C (-22 °F to 1112 °F)

62 MAX+

-30 °C to 650 °C (-22 °F to 1202 °F)

62 MAX

-30 °C to 500 °C (-22 °F to 932 °F)

TEMPERATURE ACCURACY

64 MAX

$\pm 1.0\text{ }^{\circ}\text{C}$ or $\pm 1.0\%$ of reading, whichever is greater
 $\pm 2.0\text{ }^{\circ}\text{C}$ at $-10\text{ }^{\circ}\text{C}$ to $0\text{ }^{\circ}\text{C}$
 $\pm 3.0\text{ }^{\circ}\text{C}$ at $-30\text{ }^{\circ}\text{C}$ to $-10\text{ }^{\circ}\text{C}$

62 MAX+

$\pm 1.0\text{ }^{\circ}\text{C}$ or $\pm 1.0\%$ of reading, whichever is greater
 $\pm 2.0\text{ }^{\circ}\text{C}$ at $-10\text{ }^{\circ}\text{C}$ to $0\text{ }^{\circ}\text{C}$
 $\pm 3.0\text{ }^{\circ}\text{C}$ at $-30\text{ }^{\circ}\text{C}$ to $-10\text{ }^{\circ}\text{C}$

62 MAX

$\pm 1.5\text{ }^{\circ}\text{C}$ or $\pm 1.5\%$ of reading, whichever is greater
 $\pm 2.0\text{ }^{\circ}\text{C}$ at $-10\text{ }^{\circ}\text{C}$ to $0\text{ }^{\circ}\text{C}$
 $\pm 3.0\text{ }^{\circ}\text{C}$ at $-30\text{ }^{\circ}\text{C}$ to $-10\text{ }^{\circ}\text{C}$

DISTANCE:SPOT

64 MAX

20:1

62 MAX+

12:1

62 MAX

10:1

INTERNAL MEMORY


64 MAX

99 data point logging

AUTO CAPTURE

64 MAX

Specifications

	64 MAX	62 MAX+	62 MAX
Key features			
Temperature range	-30 °C to 600 °C (-22 °F to 1112 °F)	-30 °C to 650 °C (-22 °F to 1202 °F)	-30 °C to 500 °C (-22 °F to 932 °F)
Accuracy (Calibration geometry with ambient temperature 23 °C +/- 2 °C)	± 1.0 °C or ± 1.0 % of reading, whichever is greater ± 2.0 °C at -10 °C to 0 °C ± 3.0 °C at -30 °C to -10 °C		± 1.5 °C or ± 1.5 % of reading, whichever is greater ± 2.0 °C at -10 °C to 0 °C ± 3.0 °C at -30 °C to -10 °C
Optical resolution	20:1 (calculated at 90 % energy)	12:1 (calculated at 90 % energy)	10:1 (calculated at 90 % energy)
Response time (95 %)	< 500 ms (95 % of reading)	< 300 ms (95 % of reading)	< 500 ms (95 % of reading)
Spectral response	8 to 14 microns		
Emissivity	0.10 to 1.00		
Display resolution	0.1 °C (0.2 °F)		
Repeatability (% of reading)	± 0.5 % of reading or ± 0.5 °C (whichever is greater)		± 0.8 % of reading or ± 1 °C (whichever is greater)
Auto Capture	Set time and interval to capture up to 99 measurements	-	
Internal memory	99 data point logging capability	-	
Flashlight	Yes	-	
Power	1 AA alkaline battery		
Battery life	30 hours with laser and backlight on	8 hours with laser and backlight on	10 hours with laser and backlight on
Weight	255 g (8.99 oz)		
Size	(175 x 85 x 75) mm (6.88 x 3.34 x 2.95) inches		
Operating temperature	0 °C to 50 °C (32 °F to 122 °F)		
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F) (without battery)		
Operating humidity	Non-condensing @ ≤ 10 °C (50 °F) ≤ 90 % RH @ 10 °C (50 °F) to 30 °C (86 °F) ≤ 75 % RH @ 30 °C (86 °F) to 40 °C (104 °F) ≤ 45 % RH @ 40 °C (104 °F) to 50 °C (122 °F)		
Operating altitude	2000 meters above mean sea level		
Storage altitude	12,000 meters above mean sea level		
Drop test	3 meters		
Implement standard	Q/ASFO1		
Standards and agency approval			
Compliance	IEC 61010-1: Pollution Degree 2		
Laser safety	IEC 60825-1 Class 2, 650 nm, < 1 mW 		
Ingress protection rating	IP 54 per IEC 60529		
Warranty	3 years		

Ordering information

Fluke-64 MAX IR Thermometer
Fluke-62 MAX+ IR Thermometer
Fluke-62 MAX IR Thermometer

Included with product

IR Thermometer
 Printed instruction sheet
 Carabiner (62 MAX+ only)
 Product manuals available for download from fluke.com

Kits

Fluke T5-600/62 MAX+/1AC II
 IR Thermometer, Electrical Tester
 and Voltage Detector Kit

Fluke 62 MAX+/323/1AC
 IR Thermometer, Clamp Meter and
 Voltage Detector Kit

Optional accessories

FLK-TI-TRIPOD Tripod Mounting Accessory for 64 MAX

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 up and running.®

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