FLUKE®

Fluke 8808A Digital Multimeter

Extended Specifications

Making measurements is as simple as pushing a button

The Fluke 8808A 5.5 digit multimeter has a broad range of functions, measuring volts, ohms and amps with a basic V dc accuracy of 0.01 %. It is remarkably easy to use, even by unskilled operators, because it makes the measurements you perform most often extremely easy and fast to do.

Six setup buttons on the 8808A front panel operate like a car radio's station presets. Simply set up the meter for a common measurement, then press shift followed by a setup button (S1 to S6) to save the setup. Now each time you perform that measurement, you simply press the appropriate setup key. It's that easy!

The setup buttons eliminate the need to follow complex work instruction sheets. Operators no longer need to press multiple buttons to set up a measurement function and range, test limits, or enter other parameters to make a measurement.

Eliminate production mistakes

The Fluke 8808A 5.5 digit multimeter dependably performs the most common measurements required by today's applications. Whether you are performing functional tests or making critical measurements on test points, using the limit compare mode with pass/fail indicators eliminates production mistakes, especially those where results are "on the edge."

The 8808A display has built-in enunciators that clearly show the operator whether a test passes or fails. The pass/fail indicators take the guesswork out of testing: the result is either within limits or it's out.

Features at a glance

- 5.5 digit resolution
- Basic V dc accuracy of 0.01 %
- Dual display
- Dedicated dc leakage current measurement
- 2x4 ohms 4-wire measurement technique
- Six dedicated buttons for fast access to instrument setups
- Hi.Lo limit compare for Pass/Fail testing
- Fluke 45 remote command emulation

General Specifications

Voltage

100V Setting ..... 90 V to 110 V
120V Setting ..... 108 V to 132 V
220V Setting ..... 198 V to 242 V
240V Setting ..... 216 V to 264 V
Frequency ..... 47 Hz to 440 Hz
Power Consumption ..... 15 VA peak (10 W average)

Dimensions

Height ..... 88 mm (3.46 in)
Width ..... 217 mm (8.56 in)
Depth ..... 297 mm (11.7 in)
Weight ..... 2.1 kg (4.6 lb)

Display

Vacuum Fluorescent Display, segment

Environment

Temperature

Operating ..... 0 °C to 50 °C

Storage ..... -40 °C to 70 °C

Warm Up ..... ½ hour to full uncertainty specifications

Relative Humidity (non-condensing)

Operating ..... Uncontrolled (< 10°C)
<90 % (10 °C to 28 °C)
<75 % (28 °C to 40 °C)
<45 % (40 °C to 50 °C)

Storage ..... -40 °C to 70 °C <95 %

Altitude

Operating ..... 2,000 Meters

Storage ..... 12,000 Meters
Vibration ..... Complies with MIL-PRF-28800F Class 3

Safety

Complies with IEC 61010-1:2001, ANSI/ISA 61010-1 (S82.02.01):2004, UL 61010-1:2004, CAN/CSA C22.2 No. 61010.1:2004, CAT I 1000V/CAT II 600 V

EMC

Designed to comply with IEC 61326-1:1997+A1:1998+A2:2000

Triggering

Trigger Delay ..... 400 ms
External Trigger Delay ..... <2 ms
External Trigger Jitter ..... <1 ms
Trigger Input ..... TTL Levels
Trigger Output ..... 5 V max

Math Functions

Min/max, relative, hold, compare and dB functions

Electrical

Input Protection ..... 1000 V all ranges
Overrange ..... 10 % on the largest ranges of all functions except continuity and diode test

Remote Interfaces

RS-232C

Warranty

One year

Electrical Specifications

Specifications are valid for 5-½ digit mode and after at least a half-hour warm-up.

DC Voltage Specifications

Maximum Input.....1000 V on any range
Common Mode Rejection.....120 dB at 50 or 60 Hz ±0.1% (1 kΩ unbalance)
Normal Mode Rejection.....80 dB at Slow Rate
A/D Nonlinearity.....15 ppm of range
Input Bias Current.....<30 pA at 25 °C
Settling Considerations.....Measurement settling times are affected by source impedance, cable dielectric characteristics, and input signal changes

Input Characteristics

Range	Full-Scale (5-1/2 Digits)	Resolution			Input Impedance
		Slow	Medium	Fast	
200 mV	199.999 mV	1 µV	10 µV	10 µV	>10 GΩ[1]
2 V	1.99999 V	10 µV	100 µV	100 µV	>10 GΩ[1]
20 V	19.9999 V	100 µV	1000 µV	1000 µV	10 MΩ±1 %
200 V	199.999 V	1 mV	10 mV	10 mV	10 MΩ±1 %
1000 V	1000.00 V	10 mV	100 mV	100 mV	10 MΩ±1 %

Notes:
[1] At some dual display measurements, the input impedance of 200 mV and 2 V ranges may be changed to 10 MΩ.

Range	Uncertainty [1]		Temperature Coefficient/°C Outside 18 – 28 °C
	90 days	1 year	
	23 °C ± 5 °C	23 °C ± 5°C	
200 mV	0.01 + 0.003	0.015 + 0.004	0.0015 + 0.0005
2 V	0.01 + 0.002	0.015 + 0.003	0.001 + 0.0005
20 V	0.01 + 0.003	0.015 + 0.004	0.0020 + 0.0005
200 V	0.01 + 0.002	0.015 + 0.003	0.0015 + 0.0005
1000 V	0.01 + 0.002	0.015 + 0.003	0.0015 + 0.0005

Notes:
[1] Uncertainty given as ± (% of reading + % of range)

AC Voltage Specifications

AC Voltage specifications are for ac sinewave signals >5 % of range. For inputs from 1 % to 5 % of range and <50 kHz, add an additional error of 0.1 % of range, and for 50 kHz to 100 kHz, add 0.13 % of range.

Maximum Input ..... 750 V rms or 1000 V peak or 8 x 10^7 Volts-Hertz product
Measurement Method ..... AC-coupled true-rms. Measures the ac component of input with up to 1000 V dc bias on any range.
AC Filter Bandwidth ..... 20 Hz – 100 kHz
Common Mode Rejection ..... 60 dB at 50 Hz or 60 Hz (1 kΩ unbalance)
Maximum Crest Factor ..... 3:1 at Full Scale
Additional Crest Factor Errors (<100 Hz) ..... Crest Factor 1-2, 0.05 % of full scale
Crest Factor 2-3, 0.2 % of full scale
Only applies for non-sinusoid signals

Input Characteristics

Range	Full-Scale (5-1/2 Digits)	Resolution			Input Impedance
		Slow	Medium	Fast	
200 mV	199.999 mV	1 µV	10 µV	10 µV	1 MΩ ±2 % shunted by <100 pf
2 V	1.99999 V	10 µV	100 µV	100 µV	
20 V	19.9999 V	100 µV	1000 µV	1000 µV	
200 V	199.999 V	1 mV	10 mV	10 mV	
750 V	750.00 V	10 mV	100 mV	100 mV	

Range	Frequency	Uncertainty [1]		Temperature Coefficient/°C Outside 18 – 28 °C
		90 days	1 year	
		23 °C ± 5 °C	23 °C ± 5 °C	
200 mV	20 Hz – 45Hz	0.8 + 0.05	0.9 + 0.05	0.01 + 0.005
	45 Hz – 20 kHz	0.15 + 0.05	0.2 + 0.05	0.01 + 0.005
	20 kHz – 50 kHz	0.3 + 0.05	0.35 + 0.05	0.01 + 0.005
	50 kHz – 100 kHz	0.8 + 0.05	0.9 + 0.05	0.05 + 0.01
2 V	20 Hz – 45Hz	0.8 + 0.05	0.9 + 0.05	0.01 + 0.005
	45 Hz – 20 kHz	0.15 + 0.05	0.2 + 0.05	0.01 + 0.005
	20 kHz – 50 kHz	0.3 + 0.05	0.35 + 0.05	0.01 + 0.005
	50 kHz – 100 kHz	0.8 + 0.05	0.9 + 0.05	0.05 + 0.01
20 V	20 Hz – 45 Hz	0.8 + 0.05	0.9 + 0.05	0.01 + 0.005
	45 Hz – 20 kHz	0.15 + 0.05	0.2 + 0.05	0.01 + 0.005
	20 kHz – 50 kHz	0.3 + 0.05	0.35 + 0.05	0.01 + 0.005
	50 kHz – 100 kHz	0.8 + 0.05	0.9 + 0.05	0.05 + 0.01
200 V	20 Hz – 45Hz	0.8 + 0.05	0.9 + 0.05	0.01 + 0.005
	45 Hz – 20 kHz	0.15 + 0.05	0.2 + 0.05	0.01 + 0.005
	20 kHz – 50 kHz	0.3 + 0.05	0.35 + 0.05	0.01 + 0.005
	50 kHz – 100 kHz	0.8 + 0.05	0.9 + 0.05	0.05 + 0.01
750 V	20 Hz – 45Hz	0.8 + 0.05	0.9 + 0.05	0.01 + 0.005
	45 Hz – 20 kHz	0.15 + 0.05	0.2 + 0.05	0.01 + 0.005
	20 kHz – 50 kHz	0.3 + 0.05	0.35 + 0.05	0.01 + 0.005
	50 kHz – 100 kHz	0.8 + 0.05	0.9 + 0.05	0.05 + 0.01

Notes:
[1] Uncertainty given as ± (% of reading + % of range)

Resistance

Specifications are for 4-wire resistance function, or 2-wire resistance with REL. If REL is not used, add 0.2 Ω for 2-wire resistance plus lead resistance.

Measurement Method ..... Current source referenced to LO input
Max Lead Resistance (4-wire ohms) ..... 10 % of range per lead for 200 Ω, 2 kΩ ranges. 1 kΩ per lead on all other ranges.
Input Protection ..... 1000 V on all ranges

Input Characteristics

Range	Full-Scale (5-1/2 Digits)	Resolution			Current Source
		Slow	Medium	Fast	
200 Ω	199.999 Ω	0.001 Ω	0.01 Ω	0.01 Ω	0.8 mA
2 kΩ	1.99999 kΩ	0.01 Ω	0.1 Ω	0.1 Ω	0.8 mA
20 kΩ	19.9999 kΩ	0.1 Ω	1 Ω	1 Ω	0.08 mA
200 kΩ	199.999 kΩ	1 Ω	10 Ω	10 Ω	0.008 mA
2 MΩ	1.99999 MΩ	10 Ω	100 Ω	100 Ω	0.9 µA
20 MΩ	19.9999 MΩ	100 Ω	1 kΩ	1 kΩ	0.16 µA
100 MΩ	100.000 MΩ	1 kΩ	10 kΩ	10 kΩ	0.16 µA || 10 MΩ

Range	Uncertainty [1]		Temperature Coefficient/°C Outside 18 – 28 °C
	90 days	1 year	
	23 °C ± 5 °C	23 °C ± 5 °C	
200 Ω	0.02 + 0.004	0.03 + 0.004	0.003 + 0.0006
2 kΩ	0.015 + 0.002	0.02 + 0.003	0.003 + 0.0005
20 kΩ	0.015 + 0.002	0.02 + 0.003	0.003 + 0.0005
200 kΩ	0.015 + 0.002	0.02 + 0.003	0.003 + 0.0005
2 MΩ	0.03 + 0.003	0.04 + 0.004	0.004 + 0.0005
20 MΩ	0.2 + 0.003	0.25 + 0.003	0.01 + 0.0005
100 MΩ	1.5 + 0.004	1.75 + 0.004	0.2 + 0.0005

Notes:
[1] Uncertainty given as ± (% of reading + % of range)

DC Current

Input Protection ..... Tool accessible 11 A / 1000 V and 440 mA / 1000 V fuses.
Shunt Resistance ..... 0.01 Ω for 2 A and 10 A ranges
1 Ω for 20 mA and 200 mA
Burden voltage < 5 mV for 200 µA and 2 mA range.

Input Characteristics

Range	Full-Scale (5-1/2 Digits)	Resolution			Burden Voltage
		Slow	Medium	Fast	
200 µA	199.999 µA	0.001 µA	0.01 µA	0.01 µA	<5 mV
2 mA	1999.99 µA	0.01 µA	0.1 µA	0.1 µA	<5 mV
20 mA	19.9999 mA	0.1 µA	1 µA	1 µA	<0.05 V
200 mA	199.999 mA	1 µA	10 µA	10 µA	<0.5 V
2 A	1.99999 A	10 µA	100 µA	100 µA	<0.1 V
10 A	10.0000 A	100 µA	1 mA	1 mA	<0.5 V

Range	Uncertainty [1]		Temperature Coefficient/°C Outside 18 – 28 °C
	90 days	1 year	
	23 °C ± 5 °C	23 °C ± 5 °C	
200 µA	0.02 + 0.005	0.03 + 0.005	0.003 + 0.001
2 mA	0.015 + 0.005	0.02 + 0.005	0.002 + 0.001
20 mA	0.03 + 0.02	0.04 + 0.02	0.005 + 0.001
200 mA	0.02 + 0.005	0.03 + 0.008	0.005 + 0.001
2 A	0.05 + 0.02	0.08 + 0.02	0.008 + 0.001
10 A	0.18 + 0.01	0.2 + 0.01	0.008 + 0.001

Notes:

[1] Uncertainty given as ± (% of reading + % of range)

AC Current

The following ac current specifications are for sinusoidal signals with amplitudes greater than 5 % of range. For inputs from 1 % to 5 % of range, add an additional error of 0.1 % of range.

Input Protection .....Tool accessible 11 A / 1000 V and 440 mA / 1000 V fuses
Measurement Method .....AC-coupled True RMS
Shunt Resistance .....0.01 Ω for 2 A and 10 A ranges
1 Ω for 20 mA and 200 mA
AC Filter Bandwidth.....20 Hz – 100 kHz
Maximum Crest Factor .....3:1 at Full Scale
Additional Crest Factor Errors (<100 Hz) .....Crest Factor 1–2, 0.05 % of full scale
Crest Factor 2–3, 0.2 % of full scale
Only applies to non-sinusoid signals

Input Characteristics

Range	Full-Scale (5-1/2 Digits)	Resolution			Burden Voltage
		Slow	Medium	Fast	
20 mA	19.9999 mA	0.1 µA	1 µA	1 µA	<0.05 V
200 mA	199.999 mA	1 µA	10 µA	10 µA	<0.5 V
2 A	1.99999 A	10 µA	100 µA	100 µA	<0.1 V
10 A	10.0000 A	100 µA	1 mA	1 mA	<0.5 V

Range	Frequency	Uncertainty [1]		Temperature Coefficient/°C Outside 18 – 28 °C
		90 days	1 year	
		23 °C ± 5 °C	23 °C ± 5 °C	
20 mA	20 Hz - 45Hz	1 + 0.05	1.25 + 0.06	0.015 + 0.005
	45 Hz - 2 kHz	0.25 + 0.05	0.3 + 0.06	0.015 + 0.005
200 mA	20 Hz - 45Hz	0.8 + 0.05	1 + 0. 06	0.015 + 0.005
	45 Hz - 2 kHz	0.25 + 0.05	0.3 + 0.06	0.015 + 0.005
2 A	20 Hz - 45Hz	1 + 0.05	1.25 + 0.06	0.015 + 0.005
	45 Hz - 2 kHz	0.25 + 0.05	0.3 + 0.06	0.015 + 0.005
10 A	20 Hz - 45Hz	1 + 0.1	1.25 + 0.12	0.015 + 0.005
	45 Hz - 2 kHz	0.35 + 0.1	0.5 + 0.12	0.015 + 0.005

Notes:

[1] Uncertainty given as ± (% of reading + % of range)

Frequency

Gate Time ..... 131 ms
Measurement Method ..... AC-coupled input using the ac voltage measurement function.
Settling Considerations ..... When measuring frequency after a dc offset voltage change, errors may occur. For the most accurate measurement, wait up to 1 second to allow input blocking RC time constant to settle.
Measurement Considerations ..... To minimize measurement errors, shield inputs from external noise when measuring low voltage, low frequency signals.

Range	Frequency	Uncertainty		Temperature Coefficient/°C Outside 18 – 28 °C
		90 days	1 year	
		23 °C ± 5 °C	23 °C ± 5 °C	
100 mV to 750 V[1,2]	20 Hz – 2 kHz	0.01 + 0.002	0.01 + 0.003	0.002 + 0.001
	2 kHz – 20 kHz	0.01 + 0.002	0.01 + 0.003	0.002 + 0.001
	20 kHz – 200 kHz	0.01 + 0.002	0.01 + 0.003	0.002 + 0.001
	200 kHz – 1 MHz	0.01 + 0.004	0.01 + 0.006	0.002 + 0.002

Notes:
[1] Input > 100 mV
[2] Limited to $8 * 10^7$ V Hz

Continuity

Continuity Threshold ..... 20 Ω
Test Currents ..... 1 mA
Response Time ..... 100 samples/sec with audible tone
Rate ..... Fast
Maximum Reading ..... 199.99 Ω
Resolution ..... 0.01 Ω

Diode Test

Response Time ..... 100 samples/sec with audible tone
Rate ..... Fast
Maximum Reading ..... 1.9999 V
Resolution ..... 0.1 mV

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Ordering information

Models	Description
8808A 120V	5.5 Digit Multimeter
8808A 220V	5.5 Digit Multimeter
8808A 100V	5.5 Digit Multimeter
8808A 240V	5.5 Digit Multimeter

8808A/SU includes
8808A package plus, FlukeView Forms basic software, USB to RS-232 interface adapter cable.

8808A/SU 120V	5.5 Digit Multimeter, SW USB Cable Kit
8808A/SU 220V	5.5 Digit Multimeter, SW USB Cable Kit
8808A/SU 100V	5.5 Digit Multimeter, SW USB Cable Kit
8808A/SU 240V	5.5 Digit Multimeter, SW USB Cable Kit

8808A includes
Meter, TL71 test leads, line cord, spare line fuse, statement of cal practices, WEEE information sheet, Warranty statement, Getting Started guide (English, French, German, Spanish, Italian, Simplified Chinese, Japanese), CD Rom with user manual (English).

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

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