



TECHNICAL DATA

8558A 8.5 Digit Multimeter





Key features

- 5 mega-samples-per-second high resolution digitizing, providing exceptional speed and accuracy.
- Intuitive user interface on a color display for easy data viewing in various formats including trend plots, waveforms, FFT, histogram and statistics.
- Direct digitizing capability with a minimum of 100,000 readings per second at 4.5 digits across GPIB, USBTMC, or Ethernet.
- Onboard data memory that can hold up to 15 million readings.
- Programmable front/rear electronic switch for immediate ratio results through a single remote command, and several USB ports for quick and easy data download to a flash drive.

Product overview: 8558A 8.5 Digit Multimeter

Accurate data, delivered amazingly fast

Shorter test time on the 8588A/8558A high-speed digital platform enables you to increase throughput, improve yield and realize a greater return on your investment. The 8588A/8558A digitizes to memory at 200 nanoseconds per reading and delivers 4.5 digit data to a PC via USB, Ethernet and GPIB at 100,000 readings per second. Fast, high resolution data capture gives you the quantity and quality of information you need to make timely, correct decisions affecting system throughput and efficiency.

- 0 ns to 100 s aperture setting allows industry's widest flexibility to control data capture window
- Reading speed: 1 reading /s @ 8.5 digits to 100,000 reading /s @ 4.5 digits
- Data transfer from memory to PC: up to 500,000 readings /s in binary format through USB, up to 200,000 through Ethernet and GPIB

Debug and perfect your device under test

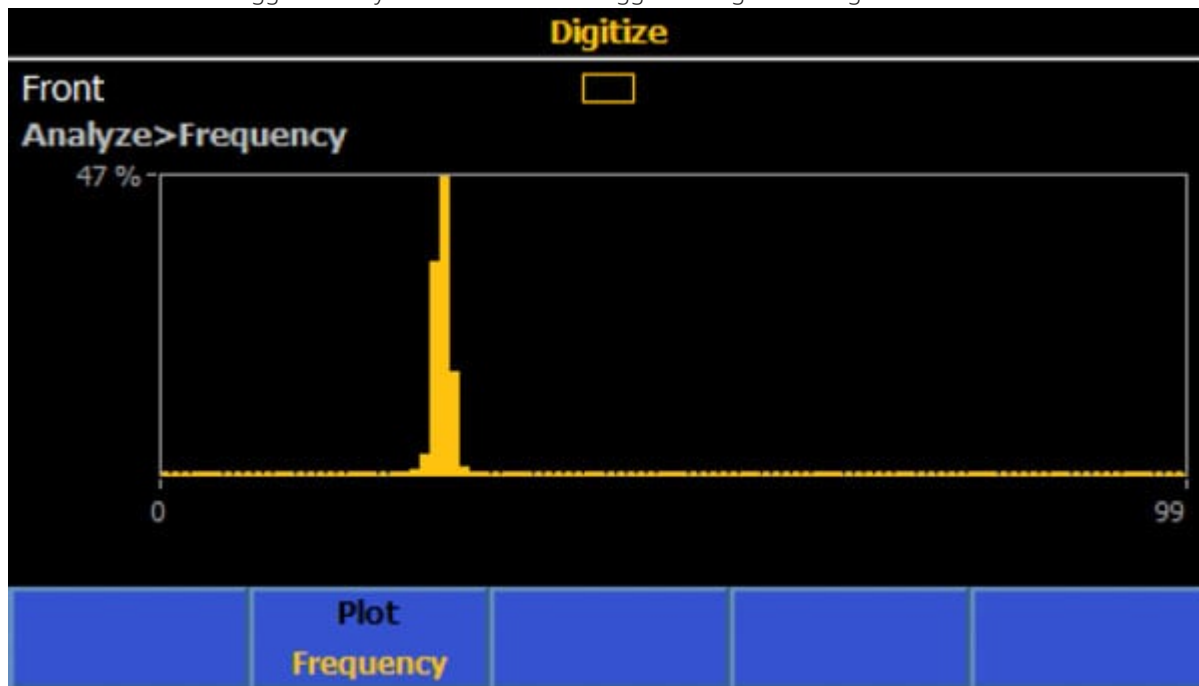
The 8558A features a 5 mega-sample digitizing rate with up to 20 MHz analog bandwidth, making it the first and only instrument on the market that can characterize extremely low level transient signals at 18-bit resolution. This capability makes it easier to debug designs, uncover anomalies and perfect your devices under test for use in real life environments.

- Voltage sensitivity to hundreds of nV and current sensitivity to hundreds of pA allows you uncover ultra-low level transient signals
- Up to 20 MHz bandwidth for voltage and 4 MHz for current retains high bandwidth content of the signal measured
- 18-bit SAR analog-to-digital converter that achieves 5 mega-samples per second
- 5 mega-samples per second sample rate, into buffer, for capturing complex, fast changing waveforms
- 15 million readings memory allows large amount of data storage eliminating the immediate need to transfer data to a PC
- Graphical waveform display enables real-time visualization of complex waveforms, increased productivity with faster access to results and answers

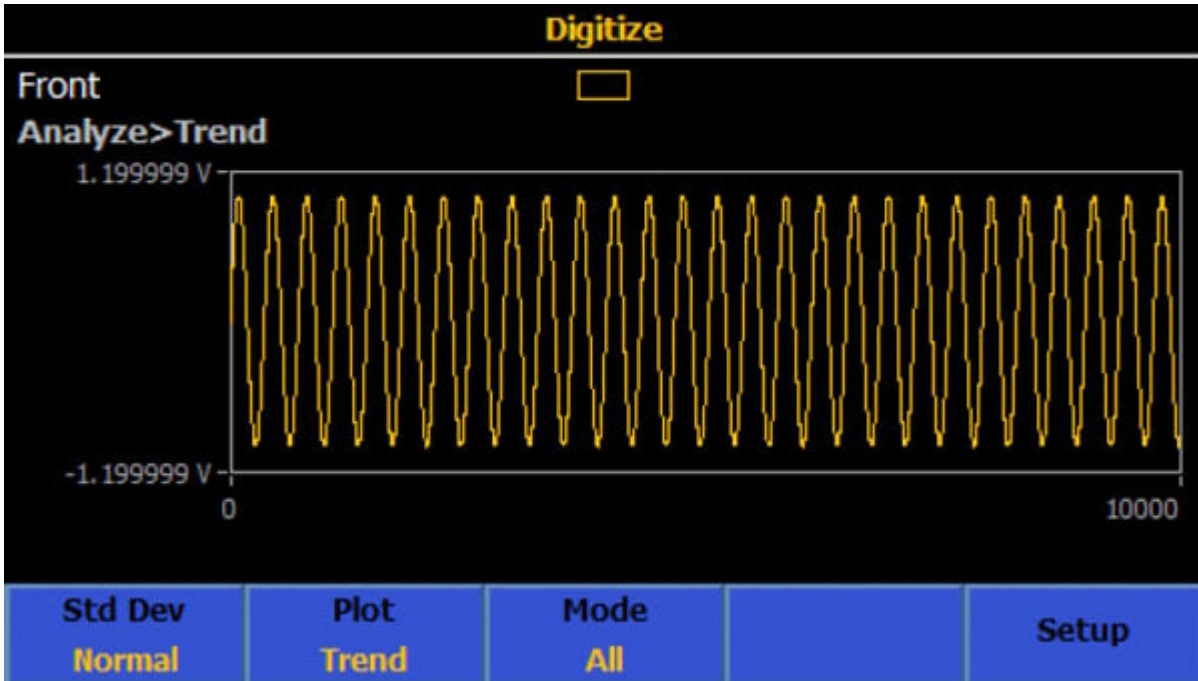
Fast, reliable and accurate system compatibility

Inserting a new instrument into a tightly synchronized system can create overhead and incompatibility. The 8558A's digital platform includes common connectivity interfaces plus precise triggering that lets it digitize, integrate and transfer data to anywhere in the system for analysis, with minimal obstruction and the highest reliability.

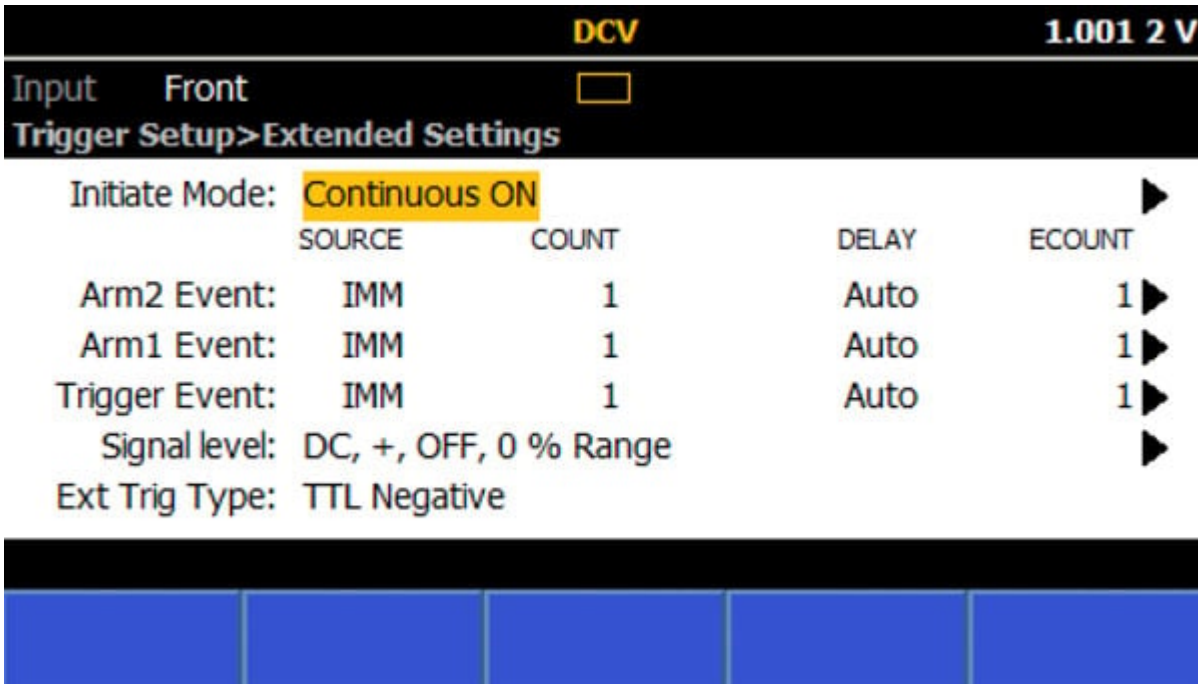
- GPIB, USBTMC, Ethernet allows industry standard selection of remote interface
- USB thumb drive enable quick and easy data transfer to PC in .csv format
- SCPI compliant commands with 8505A and 3458A emulation mode simplifies and accelerates system upgrade process to [8588A/8558A](#)
- Fully supports [MET/CAL calibration procedures](#) library that commands the Fluke 8508A
- IVI Driver for industry standard control of DMM on 8558A/8588A
- Trigger Mechanisms: External BNC Trigger Trig In and Trig Out, Edge or level trigger, Timer trigger, Epoch trigger, Line trigger
- Less than 100 ns trigger latency with external BNC trigger for digitize voltage and current



Analyze: FFT



Trend Plot



The image shows a digital multimeter screen in 'DCV' mode. The top display shows 'DCV' and '1.001 2 V'. The main display area shows the 'Trigger Setup>Extended Settings' menu. The menu items are: 'Initiate Mode: Continuous ON', 'Arm2 Event: IMM 1 Auto 1', 'Arm1 Event: IMM 1 Auto 1', 'Trigger Event: IMM 1 Auto 1', 'Signal level: DC, +, OFF, 0 % Range', and 'Ext Trig Type: TTL Negative'. Below the menu, there are five menu buttons.

Initiate Mode:	SOURCE	COUNT	DELAY	ECOUNT
Continuous ON				
Arm2 Event:	IMM	1	Auto	1
Arm1 Event:	IMM	1	Auto	1
Trigger Event:	IMM	1	Auto	1
Signal level:	DC, +, OFF, 0 % Range			
Ext Trig Type:	TTL Negative			

Trigger System

Usability features ease training and operation

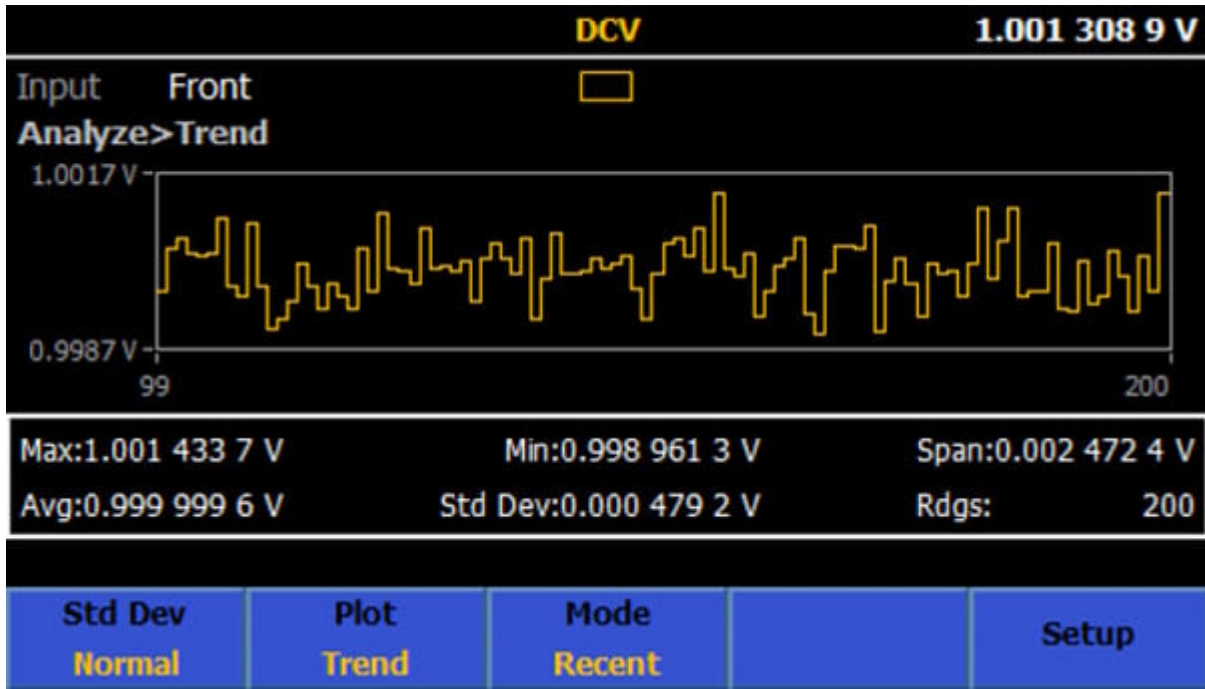
Some popular system digit multimeters have complex menu structures and unintuitive commands, while others lack



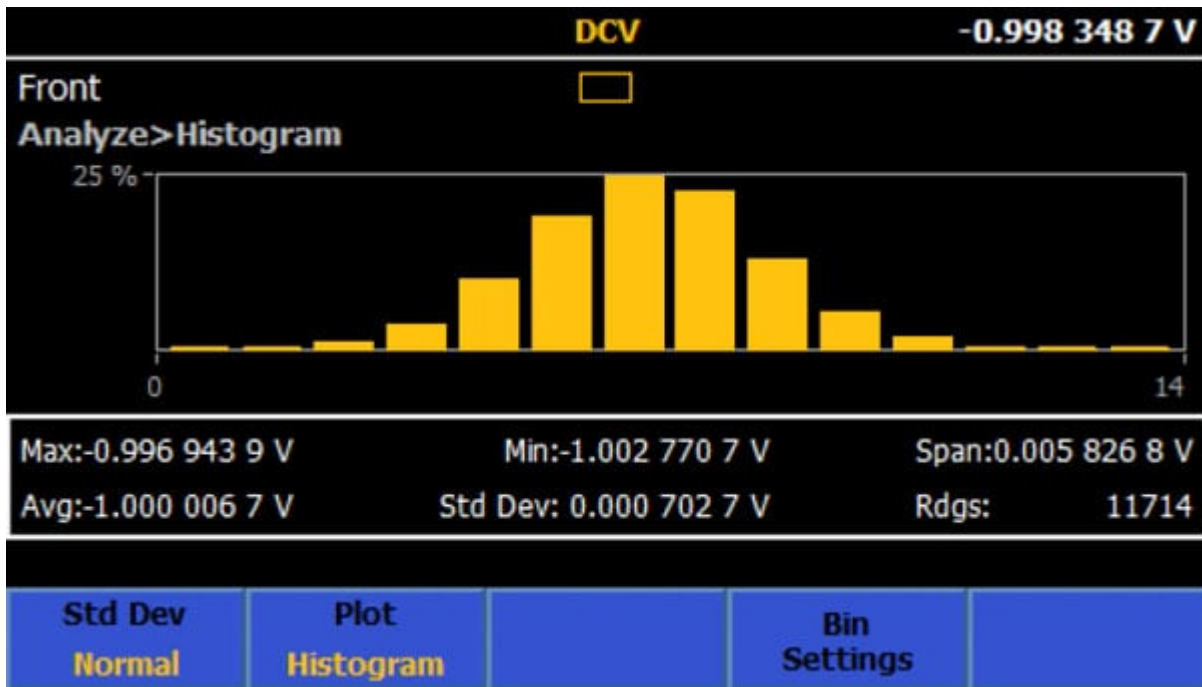
any user interface, presenting barriers to training and operation. By contrast, the 8558A features an easy-to-access configuration menu that makes it easy to train new users. Language choices include English, Chinese, French, German, Japanese, Korean, Russian and Spanish. The graphical display lets you easily visualize trends, histograms, complex waveforms, and statistics. Repeatable system-specific tasks can be automated quickly and easily.

The 8558A's front panel features Visual Connection Management™ output terminals that light up to show which terminals are active, guiding the user to make the correct connections. The handles and spin wheel are over-molded for comfort and easy transport.

USB host ports are placed both on the front and rear of the unit. Use them to export data to external memory devices and simplify firmware updates.



Trend Plot



Analyze: Histogram

The MET/CAL™ Calibration Management Software advantage

The 8588A and 8558A work with Fluke Calibration [MET/CAL™ Calibration Software](#) with native MET/CAL support or using 8508A emulation mode to increase throughput up to four times that of traditional manual and multi-product methods while ensuring calibrations are performed consistently every time. This powerful software documents calibration procedures, processes and results for ease in complying with ISO 17025 and similar quality standards.

Support and services when you need them

Fluke Calibration offers testing, [repair and calibration services](#) to meet your needs quickly and at a fair cost while maintaining the high level of quality that you expect. Our electrical calibration laboratories are accredited for conformance to ISO/IEC Guide 17025 and we maintain global calibration and repair facilities.

Get peace of mind and uptime with a Gold CarePlan service package

The 8588A/8558A multimeters come with a standard one year factory warranty. You can enhance warranty protection with a Priority Gold Instrument CarePlan service package.

A Priority Gold Instrument CarePlan includes an expedited annual calibration to reduce downtime by a week and extended warranty to help ensure the best long-term performance from your instruments. Choose from one-year, three-year or five-year Care-Plans. (Note: Priority shipping times vary by country. Contact your local Fluke Calibration

sales representative for details.)

Specifications: 8558A 8.5 Digit Multimeter

[8588A complete specifications](#)

[8558A complete specifications](#)

Key feature and specification comparison	8558A	8588A
DC voltage	100 mV – 1000 V	100 mV – 1000 V
AC voltage	10 mV – 1000 V, 1 Hz – 10 MHz	10 mV – 1000 V, 1 Hz – 10 MHz
Resistance, LoI, HV	1 Ω - 10 GΩ	1 Ω - 10 GΩ
DC current	10 uA – 2 A	10 uA – 30 A
AC current	10 uA – 2A, 1 Hz to 100 kHz	10 uA – 30 A, 1 Hz to 100 kHz
Digitize V	100 mV - 1000 V, 5 MSamples/s, up to 20 MHz BW	100 mV - 1000 V, 5 MSamples/s, up to 20 MHz BW
Digitize I	10 uA - 2 A, 5 MSamples/s, up to 4 MHz BW	10 uA - 30 A, 5 MSamples/s, up to 4 MHz BW
Frequency (V, I, BNC)	1 Hz to 10 MHz, 1 Hz to 100 kHz, 10 Hz to 100 MHz	1 Hz to 10 MHz, 1 Hz to 100 kHz, 10 Hz to 100 MHz
Temperature	PRT / Thermocouple (ext CJC)	PRT / Thermocouple (ext CJC)
Capacitance	No	1 nF – 100 mF
RF power	No	R&S NRP Series
Ext. dc current and ac current	No	A40B current shunt and other shunts
Graphical display	Yes	Yes
Visual Connection Management ®	Yes	Yes
Programmable front/rear input switching	Yes	Yes
Ratio difference, deviation - ohms, voltage	Yes	Yes
Extel 10 MHz ref clock, 50 Î©/Hi-Z	Yes	Yes
A40B and other shunt asset management	No	Yes
GPIB 488.2, Etheet, USB TMC	Yes	Yes
SCPI command compatibility	Yes	Yes
3458A emulation, 8508A emulation	Yes	Yes
Memory	15 million	15 million
Level and other trigger	Yes	Yes
FFT onboard	No	Yes

Reading rates: 5 MS/s into memory, bus: 100 kS/s at 4.5 digits, 1 rdg/s at 8.5 digits

Yes

Yes

Function			8558A uX/X of reading + uX/X of range		8588A uX/X of reading + uX/X of range	
			95%	99%	95%	99%
DC voltage	10 V	relative	4.0 + 0.06	5.2 + 0.08	2.7 + 0.05	3.5 + 0.06
		absolute	4.1 + 0.06	5.3 + 0.08	2.8 + 0.05	3.6 + 0.06
AC voltage	10 V, 1 kHz	relative	80 + 10	103 + 13	60 + 5	77 + 6.5
		absolute	90 + 10	116 + 13	64 + 5	83 + 6.5
Resistance	10 kΩ	relative	10 + 0.6	13 + 0.7	7 + 0.5	9 + 0.6
		absolute	10.3 + 0.6	13.3 + 0.7	7.2 + 0.5	9.2 + 0.6
DC current	1 mA	relative	9 + 5	12 + 6	6.5 + 4	8.4 + 5
		absolute	9.8 + 5	13 + 6	7.6 + 4	10 + 5
AC current	1 mA, 1 kHz	relative	300 + 100	387 + 129	250 + 50	323 + 65
		absolute	310 + 100	400 + 129	260 + 50	335 + 65
Frequency	1 kHz	relative	N/A	N/A	0.5	0.5
Temperature	PRT 100 Ω	relative	± 5 mK	± 5 mK	± 5 mK	± 5 mK
Capacitance	1 uF	relative	N/A	N/A	400 + 100	516 + 129
		absolute	N/A	N/A	406 + 100	523 + 129

95% 1 year relative specification. Fluke Calibration guarantees to 99% confidence interval $k=2.58$. For 99%, multiply by $(2.58/2)$

Looking for lower specs? See our other benchtop multimeters:

Bench Multimeter Selection Guide			
Model	Resolution	Accuracy	Application
8588A	8.5	2.7 μ V/V 95% confidence level, 1 year relative accuracy	Metrology
8558A	8.5	4.0 μ V/V 95% confidence level, 1 year relative accuracy	High-Speed Automation
8845A/8846A	6.5	Basic V dc accuracy of up to 0.0024 %	Bench
8808A	5.5	Basic V dc accuracy of 0.015 %	Bench

Ordering information



8558A

8.5 Digit Multimeter

Includes:

- Meter
- 8588A-LEAD KIT-OSP General purpose probe kit & pouch with 2x 4-way shorting PCB

8588A

Reference Multimeter

Includes:

- Meter
- 8588A-LEAD KIT-OSP General purpose probe kit & pouch with 2x 4-way shorting PCB

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

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