

FLUKE®

Calibration

8588A/8558A

Reference Multimeter / 8½ Digit Multimeter

Service Manual

July 2019

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Introduction

The Fluke 8558A 8 1/2 Digit Multimeter and 8588A Reference Multimeter (the Product or Multimeter unless otherwise specified) are for demanding and precise measurement applications. The Product functions in both stand-alone and systems applications. 8 1/2 digit resolution provides high performance and makes the Product well suited for application use in standards labs, calibration labs, engineering labs, and systems use. The 8588A includes more features and higher performance for the most demanding metrology applications.

Safety Information

A **Warning** identifies conditions and procedures that are dangerous to the user. A **Caution** identifies conditions and procedures that can cause damage to the Product or the equipment under test.

General Safety Information is located in the printed *Safety Information* document that ships with the Product. It can also be found online at www.flukecal.com. More specific safety information is listed where applicable.

Specifications

Safety Specifications are located in Safety Specifications section of the *Safety Information* document. Complete specifications are at www.flukecal.com. See the *8588A/8558A Product Specifications*.

Warning

If the Product is operated in any way not specified by this manual or other documentation provided by Fluke, the protection provided by the Product may be impaired.

Usage Information

Complete Product usage information is located in the *8588A/8558A Operators Manual* found online at www.flukecal.com.

Contact Fluke Calibration

To contact Fluke Calibration, call one of the following telephone numbers:

- Technical Support USA: 1-877-355-3225
- Calibration/Repair USA: 1-877-355-3225
- Canada: 1-800-36-FLUKE (1-800-363-5853)
- Europe: +31-40-2675-200
- Japan: +81-3-6714-3114
- Singapore: +65-6799-5566
- China: +86-400-810-3435
- Brazil: +55-11-3759-7600
- Anywhere in the world: +1-425-446-6110

To see product information and download the latest manual supplements, visit Fluke Calibration's website at www.flukecal.com.

To register your product, visit <http://flukecal.com/register-product>.

Calibration Interval and Performance

Fluke Calibration recommends that the Product be calibrated on one of 2-year, 365-day, or 90-day intervals depending on the requirements of the applications for which the Product is used.

During manufacture, the Product is adjusted and verified with low uncertainties, reflected in the Absolute Specifications. After recalibration, the user should apply the calibration uncertainties for the calibration standards and for the process applicable to that calibration by combining those calibration uncertainties with the Multimeter Relative to Standards specifications.

Required Equipment

Table 1 lists the necessary equipment to adjust Product calibration.

Table 1. Equipment for Calibration Adjustments and Performance Verification

Equipment Name	Recommended Models	Comment
Multifunction Calibrator	Fluke Calibration 5730A	
Amplifier	Fluke Calibration 5725A	To increase Volt Hz product and current range of the Multifunction Calibrator
Multiproduct calibrator	Fluke Calibration 5522A	For voltage >1 MHz and capacitance verification
Transconductance amplifier	Fluke Calibration 52120A	For currents >11 A, verification only
10 GΩ Standard Resistor		Verification only

Table 1. Equipment for Calibration Adjustments and Performance Verification (cont.)

Equipment Name	Recommended Models	Comment
1 GΩ Standard Resistor	Fluke Calibration 8508A-7000K	1 GΩ Standard, Low thermal emf leads, two 4-wire shorting PCB
100 MΩ Standard Resistor		
1 Ω Standard Resistor	Fluke 742-1	
1 nF Standard Capacitor		8588A adjustment only (not required for 8558A adjustment)
10 MHz Reference	Off-air standard	
4-wire short PCB		

Alternate equipment may be used, but users should ensure it provides adequate calibration uncertainties. Performance of the Product after calibration should be determined by combining the applicable calibration uncertainties provided by the calibration equipment with the 8508A Relative to Standards specifications. (Fluke Calibration recommends RSS summation).

Calibration Adjustment Overview

The Product has two sets of stores: Certified and Baseline. Only the Certified stores can be changed during adjustment. Store is populated at manufacture and would not normally be overwritten. The Baseline store provides a facility to monitor the long-term performance of the Product independent of regular adjustment.

Calibration of all functions of the Multimeter is done from the front panel or remotely. No hardware adjustments are necessary.

Manual Adjustment

The Product guides you through the manual adjustment process. Some early steps in the process are only required after the Product is repaired.

The adjustments are numbered in groups:

- 001 After first build or post repair
- 101 One-time factory characterizations
- 201 Voltage
- 301 Current
- 401 Resistance
- 501 Capacitance (not applicable to 8558A)
- 601 Frequency
- 701 Zero

The full list of adjustment points and required inputs is in Table 2. Routine adjustment starts at **Step 201: ADC Reference Characterize**.

Not all function range combinations need to be adjusted. To improve efficiency, some adjustments are derived from other adjustments, so it is important to follow the adjustment process in the given sequence. Individual points can be adjusted in isolation later if required.

To enter calibration adjustment mode:

1. Push **INST SETUP**.
2. Push **F4** (**Calibration Adjustment**).
3. To enter the adjustment mode, push **F5** (**Enter Passcode**).
4. Enter the passcode (**123456** is the default).
5. Make sure that **Set Active Stores** indicates **Certified**.
6. Push **▼** to highlight: **Certified Stores Adjustment** and push **SELECT**.

The screen for each adjustment step has two to four data fields, see Figure 1.

7. Use Table 2 to apply the input values.

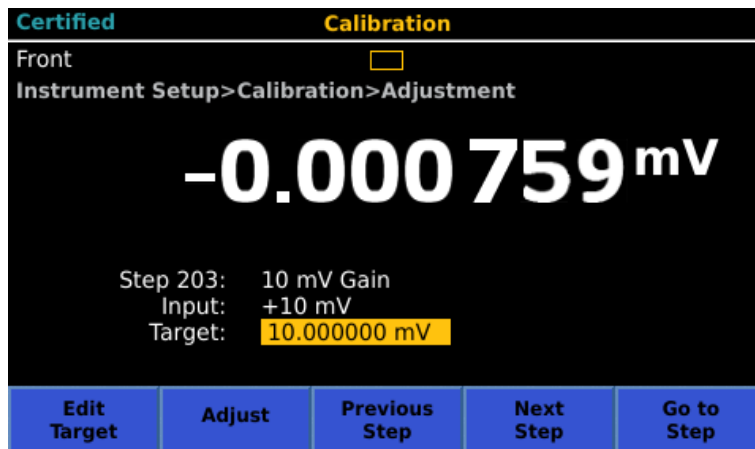


Figure 1. Calibration Adjustment Screen

Regarding the Calibration Adjustment screen (see Figure 1):

- **Step** number and a description is always present.
 - An **Input** value is always shown. The Input may be a discrete value or N/A (not applicable) if no input is required (terminals open circuit).
 - If **Target** shows, it is an editable value to allow non-nominal values to be entered, for example exact resistance reference values.
 - Some adjust steps show a measured value. For some steps, the value may not be obviously related to the step description.
8. When the input requirements (if any) have been applied, push **F2** (**Adjust**) to make the adjustment.
 - **Adjust operation: in progress...** shows as the adjustment takes place.
 - **Adjust operation: Done** indicates the adjustment is complete.
 9. Push **F4** (**Next Step**) to move to the next step in the process.

10. Continue through the adjustment process until all steps are complete.

The last adjustment for 8558A is: **Step 703: Current Zero**. The last step for 8588A is **Step 704: Capacitance zero**.

Table 2. Table Points

Step	Description	Input
201	ADC Reference Characterize	N/A
202	10 mV Offset	0 mV
203	10 mV Gain	+10 mV
204	100 mV Offset	0 mV
205	100 mV Gain	+100 mV
206	1 V Offset	0 V
207	1 V Gain	+1 V
208	10 V Offset	0 V
209	10 V Gain	+10 V
210	100 V Offset	0 V
211	100 V Gain	+100 V
212	1 kV Offset	0 V
213	1 kV Gain	+1 kV
214	ACV 1 MΩ HF 1 kHz Ref	100 V 1 kHz
215	ACV 1 MΩ HF 60 kHz	100 V 60 kHz
301	100 μA Offset	0 μA
302	100 μA Gain	+100 μA
303	1 mA Offset	0 mA
304	1 mA Gain	+1 mA
305	10 mA Offset	0 mA
306	10 mA Gain	+10 mA
307	100 mA Offset	0 mA
308	100 mA Gain	+100 mA
309	1 A Offset	0 A
310	1 A Gain	+1 A
311 ^[1]	10 A Offset	0 A
312 ^[1]	10 A Gain	+10 A

Table 2. Table Points (cont.)

Step	Description	Input
401	Ohms 4W Offset	0 Ω 4W
402	10 Ω Gain	10 Ω 4W
403	100 Ω Gain	100 Ω 4W
404	1 k Ω Gain	1 k Ω 4W
405	10 k Ω Gain	10 k Ω 4W
406	100 k Ω Gain	100 k Ω 4W
407	1 M Ω Gain	1 M Ω 4W
408	10 M Ω Gain	10 M Ω 4W
409	100 M Ω Gain	100 M Ω 4W
410	1 G Ω Gain	1 G Ω 4W
411	1 Ω Zero	0 Ω 4W
412	1 Ω Gain	1 Ω 4W
501 ^[1]	Capacitance Zero	N/A
502 ^[1]	1 nF Gain	1 nF
601	Frequency	10 MHz (Rear BNC)
701	Voltage Zero	N/A
702	Resistance Zero 4W	4W Short Circuit
703	Current Zero	N/A
704 ^[1]	Capacitance Zero	N/A

[1] Points are unavailable in 8558A.

Remote Adjustment

Refer to [Manual Adjustment](#) for the process steps. Remote commands are in the Calibration subsystem section of the *8588A/8558A Programmers Guide* found online at www.flukecal.com.

Calibration Verification

The permissible errors shown are the 99 % confidence, 1-year, absolute errors. These error values include Fluke Calibration calibration uncertainty. Adjust the permissible error values to reflect the actual measurement uncertainty if they are different from the listed values.

DC Voltage

Configuration: Z in Auto, Internal Guard, Front Input, Aperture = Auto, Resolution 7.5 Digits, Suggested Reference: 5730A

Configuration: Z in Auto, 7.5 Digits, Internal Guard, Front Input, Aperture = Auto

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
100 mV	0.000 00 mV	0.000 27 mV	0.000 27 mV	0.000 048 mV
100 mV	100.000 00 mV	0.000 92 mV	0.001 02 mV	0.000 320 mV
100 mV	200.000 00 mV	0.001 57 mV	0.001 78 mV	0.000 640 mV
100 mV	0.000 00 mV	0.000 27 mV	0.000 27 mV	0.000 048 mV
100 mV	-100.000 00 mV	0.00092 mV	0.001 03 mV	0.000 320 mV
100 mV	-200.000 00 mV	0.001 57 mV	0.001 79 mV	0.000 640 mV
1 V	0.000 000 0 V	0.000 000 4 V	0.000 000 5 V	0.000 000 16 V
1 V	1.000 000 0 V	0.000 004 0 V	0.000 005 8 V	0.000 000 86 V
1 V	2.000 000 0 V	0.000 007 6V	0.000 011 1 V	0.000 001 70 V
1 V	0.000 000 0 V	0.000 000 4 V	0.000 000 5 V	0.000 000 16 V
1 V	-1.000 000 0 V	0.000 004 0 V	0.000 005 8 V	0.000 000 86 V
1 V	-2.000 000 0 V	0.000 007 6 V	0.000 011 1 V	0.000 001 70 V
10 V	0.000 000 V	0.000 001 V	0.000 001 V	0.000 000 30 V
10 V	0.100 000 V	0.000 001 V	0.000 002 V	0.000 000 54 V
10 V	1.000 000 V	0.000 005 V	0.000 007 V	0.000 001 30 V
10 V	5.000 000 V	0.000 019 V	0.000 028 V	0.000 003 20 V
10 V	10.000 000 V	0.000 037 V	0.000 054 V	0.000 006 40 V
10 V	15.000 000 V	0.000 055 V	0.000 081 V	0.000 009 60 V
10 V	20.000 000 V	0.000 073 V	0.000 107 V	0.000 013 00 V
10 V	0.000 000 V	0.000 001 1 V	0.000 001 V	0.000 000 30 V
10 V	-0.100 000 V	0.000 001 5 V	0.000 002 V	0.000 000 54 V
10 V	-1.000 000 V	0.000 005 V	0.000 007 V	0.000 001 30 V
10 V	-5.000 000 V	0.000 019 V	0.000 028 V	0.000 003 20 V
10 V	-10.000 000 V	0.000 037 V	0.000 054 V	0.000 006 40 V
10 V	-15.000 000 V	0.000 055 V	0.000 081 V	0.000 009 60 V
10 V	-20.000 000 V	0.000 073 V	0.000 107 V	0.000 013 00 V

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
100 V	0.000 00 V	0.000 04 V	0.000 05 V	0.000 026 V
100 V	100.000 00 V	0.000 57 V	0.000 83 V	0.000 100 V
100 V	200.000 00 V	0.001 10 V	0.001 61 V	0.000 200 V
100 V	0.000 00 V	0.000 04 V	0.000 05 V	0.000 026 V
100 V	-100.000 00 V	0.000 57 V	0.000 83 V	0.000 100 V
100 V	-200.000 00 V	0.001 10 V	0.001 61 V	0.000 200 V
1000 V	0.000 0 V	0.000 7 V	0.001 7 V	0.000 30 V
1000 V	500.000 0 V	0.003 4 V	0.005 7 V	0.000 80 V
1000 V	1000.000 0 V	0.006 2 V	0.009 7 V	0.001 60 V
1000 V	-500.000 0 V	0.003 4 V	0.005 7 V	0.000 80 V
1000 V	-1000.000 0 V	0.006 2 V	0.009 7 V	0.001 60 V

Configuration: Z in 1 M Ω , 7.5 Digits, Internal Guard, Front Input, Aperture = Auto.

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
100 V	0.000 00 V	0.000 66 V	0.000 66 V	0.000 23 V
100 V	100.000 00 V	0.001 86 V	0.001 96V	0.000 10 V
100 V	200.000 00 V	0.003 06 V	0.003 26 V	0.000 20 V
100 V	0.000 00 V	0.000 66 V	0.000 66 V	0.000 03 V
100 V	-100.000 00 V	-0.001 86 V	0.001 96V	0.000 10 V
100 V	-200.000 00 V	-0.003 06 V	0.003 26 V	0.000 20 V
1000 V	0.000 0 V	0.032 05 V	0.032 1 V	0.000 30 V
1000 V	500.000 0 V	0.038 05 V	0.038 6 V	0.000 80 V
1000 V	1000.000 0 V	0.044 05 V	0.045 1 V	0.001 60 V
1000 V	-500.000 0 V	0.038 05 V	0.038 6 V	0.000 80 V
1000 V	-1000.000 0 V	0.044 05 V	0.045 1 V	0.001 60 V

Configuration: Z in Auto, 7.5 Digits, Internal Guard, Front Input, Aperture = 99 μs.

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
100 mV	0.000 00 mV	0.001 90 mV	0.001 90 mV	0.000 70 mV
100 mV	100.000 00 mV	0.007 70 mV	0.007 70 mV	0.000 74 mV
100 mV	200 000 00 mV	0.013 50 mV	0.013 50 mV	0.001 50 mV
100 mV	0.000 00 mV	0.001 90 mV	0.001 90 mV	0.000 70 mV
100 mV	-100.000 00 mV	0.007 70 mV	0.007 70 mV	0.000 74 mV
100 mV	-200 000 00 mV	0.013 50 mV	0.013 50 mV	0.001 50 mV
1 V	0.000 000 0 V	0.000 019 0 V	0.000 019 0 V	0.000 002 3 V
1 V	0.010 000 0 V	0.000 019 6 V	0.000 019 6 V	0.000 003 0 V
1 V	0.100 000 0 V	0.000 024 8 V	0.000 024 8 V	0.000 003 7 V
1 V	1.000 000 0 V	0.000 077 0 V	0.000 077 0 V	0.000 007 0 V
1 V	1.5000 000 0 V	0.000 106 0 V	0.000 106 0 V	0.000 007 1 V
1 V	2.0000 000 0 V	0.000 135 0 V	0.000 135 0 V	0.000 009 5 V
1 V	0.000 000 0 V	0.000 019 0 V	0.000 019 0 V	0.000 002 3 V
1 V	-0.010 000 0 V	0.000 019 6 V	0.000 019 6 V	0.000 003 0 V
1 V	-0.100 000 0 V	0.000 024 8 V	0.000 024 8 V	0.000 003 7 V
1 V	-1.000 000 0 V	0.000 077 0 V	0.000 077 0 V	0.000 007 0 V
1 V	-1.5000 000 0 V	0.000 106 0 V	0.000 106 0 V	0.000 007 1 V
1 V	-2.0000 000 0 V	0.000 135 0 V	0.000 135 0 V	0.000 009 5 V
10 V	0.000 000 V	0.000 190 V	0.000 190 V	0.000 023 V
10 V	10.000 000 V	0.000 770 V	0.000 770 V	0.000 070 V
10 V	20.000 000 V	0.001 350 V	0.001 350 V	0.000 140 V
10 V	0.000 000 V	0.000 190 V	0.000 190 V	0.000 023 V
10 V	-10.000 000 V	0.000 770 V	0.000 770 V	0.000 070 V
10 V	-20.000 000 V	0.001 350 V	0.001 350 V	0.000 140 V
100 V	0.000 00 V	0.001 90 V	0.001 90 V	0.000 23 V
100 V	100.000 00 V	0.007 70 V	0.007 70 V	0.000 70 V
100 V	200 000 00 V	0.013 50 V	0.013 50 V	0.001 40 V
100 V	1.000 000 V	0.001 90 V	0.001 90 V	0.000 23 V
100 V	-100.000 00 V	0.007 70 V	0.007 70 V	0.000 70 V
100 V	-200 000 00 V	0.013 50 V	0.013 50 V	0.001 40 V

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
1000 V	0.000 0 V	0.019 0 V	0.019 0 V	0.002 4 V
1000 V	500.000 0 V	0.048 0 V	0.048 0 V	0.003 5 V
1000 V	1000.000 0 V	0.077 0 V	0.077 0 V	0.007 1 V
1000 V	-500.000 0 V	0.048 0 V	0.048 0 V	0.003 5 V
1000 V	-1000.000 0 V	0.077 0 V	0.077 0 V	0.007 1 V

Configuration: Z in 1 M Ω , 7.5 Digits, Internal Guard, Front Input, Aperture = 99 μ s.

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
100 V	0.000 00 V	0.001 90 V	0.001 90 V	0.000 23 V
100 V	100.000 00 V	0.007 70 V	0.007 70 V	0.000 70 V
100 V	200.000 00 V	0.013 50 V	0.013 50 V	0.001 40 V
100 V	0.000 00 V	0.001 90 V	0.001 90 V	0.000 23 V
100 V	-100.000 00 V	0.007 70 V	0.007 70 V	0.000 70 V
100 V	-200.000 00 V	0.013 50 V	0.013 50 V	0.001 40 V
1000 V	0.000 0 V	0.019 0 V	0.019 0 V	0.002 40 V
1000 V	500.000 0 V	0.048 0 V	0.048 0 V	0.003 50 V
1000 V	1000.000 0 V	0.077 0 V	0.077 0 V	0.007 10 V
1000 V	-500.000 0 V	0.048 0 V	0.048 0 V	0.003 50 V
1000 V	-1000.000 0 V	0.077 0 V	0.077 0 V	0.007 10 V

Digitize DC Voltage

Configuration: Z in DC Auto, Aperture = 200 ns, Trigger count 101010, Low pass filter Off.

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
1 V	0.000 000 0V	0.000 054 0 V	0.000 054 0 V	0.000 006 0 V
1 V	1.000 000 0V	0.000 157 0V	0.000 157 0V	0.000 006 1 V
1 V	-1.000 000 0V	0.000 157 0V	0.000 157 0V	0.000 006 1 V

Configuration: Z in DC Auto, Aperture = 200 ns, Trigger count 101010, Low pass filter 100 kHz.

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
1 V	0.000 000 0V	0.000 019 0 V	0.000 019 0 V	0.000 006 0 V
1 V	1.000 000 0V	0.000 082 0V	0.000 082 0V	0.000 006 1 V
1 V	-1.000 000 0V	0.000 082 0V	0.000 082 0V	0.000 006 1 V

Configuration: Z in DC Auto, Aperture = 200 ns, Trigger count 101010, Low pass filter 3 MHz.

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
1 V	0.000 000 0V	0.000 019 0 V	0.000 019 0 V	0.000 006 0 V
1 V	1.000 000 0V	0.000 082 0V	0.000 082 0V	0.000 006 1 V
1 V	-1.000 000 0V	0.000 082 0V	0.000 082 0V	0.000 006 1 V

DC Current

Configuration: 7.5 Digits, Internal Guard, Front Input, Filter Off, Aperture = Auto.
Suggested Reference: 5730A

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
10 μ A	0.000 000 μ A	0.000 520 μ A	0.000 520 μ A	0.000 120 μ A
10 μ A	10.000 000 μ A	0.000 830 μ A	0.000 890 μ A	0.000 120 μ A
10 μ A	20.000 000 μ A	0.001 140 μ A	0.001 260 μ A	0.000 240 μ A
10 μ A	0.000 000 μ A	0.000 520 μ A	0.000 520 μ A	0.000 120 μ A
10 μ A	-10.000 000 μ A	0.000 830 μ A	0.000 890 μ A	0.000 120 μ A
10 μ A	-20.000 000 μ A	0.001 140 μ A	0.001 260 μ A	0.000 240 μ A
100 μ A	0.000 00 μ A	0.000 05 μ A	0.000 60 μ A	0.000 12 μ A
100 μ A	100.000 00 μ A	0.001 60 μ A	0.001 90 μ A	0.000 45 μ A
100 μ A	200.000 00 μ A	0.002 70 μ A	0.003 20 μ A	0.000 90 μ A
100 μ A	0.000 00 μ A	0.000 05 μ A	0.000 60 μ A	0.000 12 μ A
100 μ A	-100.000 00 μ A	0.001 60 μ A	0.001 90 μ A	0.000 45 μ A
100 μ A	-200.000 00 μ A	0.002 70 μ A	0.003 20 μ A	0.000 90 μ A
1 mA	0.000 000 0 mA	0.000 005 0 mA	0.000 010 0 mA	0.000 001 5 mA
1 mA	1.000 000 0 mA	0.000 015 0 mA	0.000 020 0 mA	0.000 003 9 mA
1 mA	2.000 000 0 mA	0.000 025 0 mA	0.000 030 0 mA	0.000 007 8 mA
1 mA	0.000 000 0 mA	0.000 005 0 mA	0.000 010 0 mA	0.000 001 5 mA
1 mA	-1.000 000 0 mA	0.000 015 0 mA	0.000 020 0 mA	0.000 003 9 mA
1 mA	-2.000 000 0 mA	0.000 025 0 mA	0.000 030 0 mA	0.000 007 8 mA
10 mA	0.000 000 mA	0.000 050 mA	0.000 060 mA	0.000 014 mA
10 mA	10.000 000 mA	0.000 160 mA	0.000 200 mA	0.000 039 mA
10 mA	20.000 000 mA	0.000 270 mA	0.000 340 mA	0.000 078 mA
10 mA	0.000 000 mA	0.000 050 mA	0.000 060 mA	0.000 014 mA
10 mA	-10.000 000 mA	0.000 160 mA	0.000 200 mA	0.000 039 mA
10 mA	-20.000 000 mA	0.000 270 mA	0.000 340 mA	0.000 078 mA
100 mA	0.000 00 mA	0.001 30 mA	0.001 90 mA	0.000 26 mA
100 mA	100.000 00 mA	0.005 60 mA	0.006 40 mA	0.000 58 mA
100 mA	200.000 00 mA	0.009 90 mA	0.010 90 mA	0.001 20 mA

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
100 mA	0.000 00 mA	0.001 30 mA	0.001 90 mA	0.000 26 mA
100 mA	-100.000 00 mA	0.005 60 mA	0.006 40 mA	0.000 58 mA
100 mA	-200.000 00 mA	0.009 90 mA	0.010 90 mA	0.001 20 mA
1 A	0.000 000 0 A	0.000 129 0 A	0.000 190 0 A	0.000 002 6 A
1 A	1.000 000 0 A	0.000 259 0 A	0.000 350 0 A	0.000 025 0 A
1 A	2.000 000 0 A	0.000 389 0 A	0.000 500 0 A	0.000 049 0 A
1 A	0.000 000 0 A	0.000 129 0 A	0.000 190 0 A	0.000 002 6 A
1 A	-1.000 000 0 A	0.000 259 0 A	0.000 350 0 A	0.000 025 0 A
1 A	-2.000 000 0 A	0.000 389 0 A	0.000 500 0 A	0.000 049 0 A
30 A	0.000 000 A	0.000 520 A	n/a	0.000 071 A
30 A	10.000 000 A	0.003 540 A	n/a	0.000 420 A
30 A	30.000 000 A	0.024 660 A	n/a	0.000 760 A
30 A	0.000 000 A	0.000 520 A	n/a	0.000 071 A
30 A	-10.000 000 A	0.003 540 A	n/a	0.000 420 A
30 A	-30.000 000 A	0.024 660 A	n/a	0.000 760 A

Configuration: 7.5 Digits, Internal Guard, Front Input, Filter Off, Aperture = 99 µs.

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
10 µA	0.000 000 µA	0.001 03 µA	0.001 03 µA	0.000 140 µA
10 µA	10.000 000 µA	0.001 63 µA	0.001 63 µA	0.000 240 µA
10 µA	20.000 000 µA	0.002 23 µA	0.002 23 µA	0.000 480 µA
10 µA	0.000 000 µA	0.001 03 µA	0.001 03 µA	0.000 140 µA
10 µA	-10.000 000 µA	0.001 63 µA	0.001 63 µA	0.000 240 µA
10 µA	-20.000 000 µA	0.002 23 µA	0.002 23 µA	0.000 480 µA
100 µA	0.000 00 µA	0.009 00 µA	0.009 00 µA	0.000 47 µA
100 µA	100.000 00 µA	0.014 70 µA	0.014 70 µA	0.000 79 µA
100 µA	200.000 00 µA	0.002 40 µA	0.002 40 µA	0.001 60 µA
100 µA	0.000 00 µA	0.009 00 µA	0.009 00 µA	0.000 47 µA
100 µA	-100.000 00 µA	0.014 70 µA	0.014 70 µA	0.000 79 µA
100 µA	-200.000 00 µA	0.002 40 µA	0.002 40 µA	0.001 60 µA

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
1 mA	0.000 000 0 mA	0.000 090 0 mA	0.000 090 0 mA	0.000 002 6 mA
1 mA	1.000 000 0 mA	0.000 147 0 mA	0.000 147 0 mA	0.000 005 8 mA
1 mA	2.000 000 0 mA	0.000 204 0 mA	0.000 204 0 mA	0.000 012 0 mA
1 mA	0.000 000 0 mA	0.000 090 0 mA	0.000 090 0 mA	0.000 002 6 mA
1 mA	-1.000 000 0 mA	0.000 147 0 mA	0.000 147 0 mA	0.000 005 8 mA
1 mA	-2.000 000 0 mA	0.000 204 0 mA	0.000 204 0 mA	0.000 012 0 mA
10 mA	0.000 000 mA	0.000 900 mA	0.000 900 mA	0.000 041 mA
10 mA	10.000 000 mA	0.001 470 mA	0.001 470 mA	0.000 077 mA
10 mA	20.000 000 mA	0.002 040 mA	0.002 040 mA	0.000 150 mA
10 mA	0.000 000 mA	0.000 900 mA	0.000 900 mA	0.000 041 mA
10 mA	-10.000 000 mA	0.001 470 mA	0.001 470 mA	0.000 077 mA
10 mA	-20.000 000 mA	0.002 040 mA	0.002 040 mA	0.000 150 mA
100 mA	0.000 00 mA	0.009 00 mA	0.009 00 mA	0.000 48 mA
100 mA	100.000 00 mA	0.014 70 mA	0.014 70 mA	0.001 20 mA
100 mA	200.000 00 mA	0.020 40 mA	0.020 40 mA	0.002 40 mA
100 mA	0.000 00 mA	0.009 00 mA	0.009 00 mA	0.000 48 mA
100 mA	-100.000 00 mA	0.014 70 mA	0.014 70 mA	0.001 20 mA
100 mA	-200.000 00 mA	0.020 40 mA	0.020 40 mA	0.002 40 mA
1 A	0.000 000 0 A	0.000 16 A	0.000 16 A	0.000 012 0 A
1 A	1.000 000 0 A	0.000 30 A	0.000 30 A	0.000 033 0 A
1 A	2.000 000 0 A	0.000 45 A	0.000 45 A	0.000 067 0 A
1 A	0.000 000 0 A	0.000 16 A	0.000 16 A	0.000 012 0 A
1 A	-1.000 000 0 A	0.000 30 A	0.000 30 A	0.000 033 0 A
1 A	-2.000 000 0 A	0.000 45 A	0.000 45 A	0.000 067 0 A
10 A	0.000 000 A	0.002 06 A	n/a	0.000 19 A
10 A	10.000 000 A	0.004 43 A	n/a	0.000 40 A
10 A	0.000 000 A	0.002 06 A	n/a	0.000 19 A
10 A	-10.000 000 A	0.004 43 A	n/a	0.000 40 A

Digitize DC Current

Configuration: Aperture = 200 ns, Trigger count 101010, Low pass filter Off.

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
10 mA	0.000 000 00mA	0.001 600 mA	0.001 600 mA	0.000 280 mA
10 mA	10.000 000 mA	0.002 620 mA	0.002 620 mA	0.000 280 mA
10 mA	-0.000 000 mA	0.001 600 mA	0.001 600 mA	0.000 280 mA
10 mA	-10.000 000 mA	0.002 620 mA	0.002 620 mA	0.000 280 mA

Configuration: Aperture = 200 ns, Trigger count 101010, Low pass filter 100 kHz.

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
10 mA	0.000 000 0 mA	0.000 900 mA	0.000 900 mA	0.000 230 mA
10 mA	1.000 000 0 mA	0.001 520 mA	0.001 520 mA	0.000 240 mA
10 mA	-0.000 000 0 mA	0.000 900 mA	0.000 900 mA	0.000 230 mA
10 mA	-1.000 000 0 mA	0.001 520 mA	0.001 520 mA	0.000 240 mA

Configuration: Aperture = 200 ns, Trigger count 101010, Low pass filter 3 MHz.

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
10 mA	0.000 000 0 mA	0.000 900 mA	0.000 900 mA	0.000 230 mA
10 mA	1.000 000 0 mA	0.001 520 mA	0.001 520 mA	0.000 240 mA
10 mA	0.000 000 0 mA	0.000 900 mA	0.000 900 mA	0.000 230 mA
10 mA	-1.000 000 0 mA	0.001 520 mA	0.001 520 mA	0.000 240 mA

AC Voltage

Configuration: Input: Front, Ext Guard: ON, Resolution: 6 digits, Measure Setup: DC 1 M Ω , Frequency Path Bandwidth Limit: OFF,

Band: Wideband (For frequencies >1 MHz: Extended High Frequency).

Note

Suggested Reference: 5730A

Range	Frequency	RMS Filter	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
				8588A	8558A	
10 mV	DC	10 Hz	0.000 00 mV	0.021 92 mV	0.023 08 mV	0.000 90 mV
10 mV	DC	10 Hz	10.000 00 mV	0.025 65 mV	0.030 93 mV	0.000 90 mV
10 mV	DC	10 Hz	-10.000 00 mV	0.025 65 mV	0.030 93 mV	0.000 90 mV
10 mV	10 Hz	1 Hz	10.000 00 mV	0.004 65 mV	0.009 93 mV	0.001 40 mV
10 mV	40 Hz	10 Hz	10.000 00 mV	0.004 65 mV	0.009 93 mV	0.001 30 mV
10 mV	105 Hz	10 Hz	10.000 00 mV	0.004 65 mV	0.009 93 mV	0.001 30 mV
10 mV	1 kHz	10 Hz	10.000 00 mV	0.004 65 mV	0.009 93 mV	0.001 30 mV
10 mV (AC)	1 kHz	10 Hz	10.000 00 mV	0.004 65 mV	0.009 93 mV	0.001 30 mV
10 mV	2 kHz	10 Hz	10.000 00 mV	0.004 65 mV	0.009 93 mV	0.001 30 mV
10 mV	10 kHz	10 Hz	10.000 00 mV	0.005 81 mV	0.008 03 mV	0.001 30 mV
10 mV	30 kHz	10 Hz	10.000 00 mV	0.005 81 mV	0.008 16 mV	0.001 60 mV
10 mV	60 kHz	10 Hz	10.000 00 mV	0.040 00 mV	0.056 60 mV	0.001 60 mV
10 mV	100 kHz	10 Hz	10.000 00 mV	0.040 00 mV	0.056 60 mV	0.001 60 mV
10 mV	300 kHz	10 Hz	10.000 00 mV	0.134 00 mV	0.214 70 mV	0.001 90 mV
10 mV	1 MHz	10 Hz	10.000 00 mV	0.263 00 mV	0.330 70 mV	0.007 20 mV
100 mV	DC	10 Hz	0.000 0 mV	0.025 7 mV	0.026 3 mV	0.000 0 mV
100 mV	DC	10 Hz	100.000 0 mV	0.039 4 mV	0.042 9 mV	0.001 0 mV
100 mV	DC	10 Hz	100.000 0 mV	0.039 4 mV	0.042 9 mV	0.001 0 mV
100 mV	10 Hz	10 Hz	100.000 0 mV	0.009 4 mV	0.018 1 mV	0.003 2 mV
100 mV	40 Hz	10 Hz	100.000 0 mV	0.009 4 mV	0.018 1 mV	0.002 5 mV
100 mV	105 Hz	10 Hz	100.000 0 mV	0.009 5 mV	0.018 1 mV	0.002 6 mV
100 mV	1 kHz	10 Hz	10.000 0 mV	0.001 5 mV	0.003 0 mV	0.001 2 mV
100 mV	1 kHz	10 Hz	100.000 0 mV	0.009 5 mV	0.003 0 mV	0.002 4 mV
100 mV (AC)	1 kHz	10 Hz	100.000 0 mV	0.009 5 mV	0.018 1 mV	0.002 4 mV
100 mV	1 kHz	10 Hz	120.000 0 mV	0.011 2 mV	0.021 5 mV	0.002 9 mV

Range	Frequency	RMS Filter	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
				8588A	8558A	
100 mV	2 kHz	10 Hz	100.000 0 mV	0.009 5 mV	0.018 1 mV	0.002 4 mV
100 mV	10 kHz	10 Hz	100.000 0 mV	0.014 8 mV	0.018 1 mV	0.002 4 mV
100 mV	30 kHz	10 Hz	100.000 0 mV	0.014 9 mV	0.032 3 mV	0.002 4 mV
100 mV	60 kHz	10 Hz	100.000 0 mV	0.072 3 mV	0.098 0 mV	0.002 4 mV
100 mV	100 kHz	10 Hz	100.000 0 mV	0.072 3 mV	0.098 0 mV	0.002 5 mV
100 mV	300 kHz	10 Hz	100.000 0 mV	0.300 0 mV	0.405 0 mV	0.005 8 mV
100 mV	1 MHz	10 Hz	100.000 0 mV	1.420 0 mV	2.070 0 mV	0.040 0 mV
100 mV	2 MHz	10 Hz	100.000 0 mV	2.590 0 mV	2.970 0 mV	0.140 0 mV
100 mV	4 MHz	10 Hz	100.000 0 mV	6.450 0 mV	7.490 0mV	0.140 0 mV
100 mV	6 MHz	10 Hz	100.000 0 mV	11.590 0 mV	13.150 0mV	0.150 0 mV
100 mV	8 MHz	10 Hz	100.000 0 mV	11.590 1 mV	13.150 0mV	0.150 0 mV
100 mV	10 MHz	10 Hz	100.000 0 mV	20.690 0 mV	24.150 0mV	0.150 0 mV
1 V	DC	10 Hz	0.000 000 V	0.000 080 V	0.000 083 V	0.000 013 0 V
1 V	DC	10 Hz	1.000 000 V	0.000 210 V	0.000 249 V	0.000 017 0 V
1 V	DC	10 Hz	-1.000 000 V	0.000 210 V	0.000 249 V	0.000 017 0 V
1 V	10 Hz	10 Hz	1.000 000 V	0.000 090 V	0.000 129 V	0.000 028 0 V
1 V	40 Hz	10 Hz	1.000 000 V	0.000 090 V	0.000 129 V	0.000 019 0 V
1 V	105 Hz	10 Hz	1.000 000 V	0.000 090 V	0.000 129 V	0.000 019 0 V
1 V	1 kHz	10 Hz	0.010 000 V	0.000 010 V	0.000 014 V	0.000 001 2 V
1 V	1 kHz	10 Hz	0.100 000 V	0.000 010 V	0.000 025 V	0.000 002 1 V
1 V	1 kHz	10 Hz	0.200 000 V	0.000 020 V	0.000 036 V	0.000 004 0 V
1 V	1 kHz	10 Hz	0.400 000 V	0.000 040 V	0.000 059 V	0.000 008 0 V
1 V	1 kHz	10 Hz	0.600 000 V	0.000 060 V	0.000 083 V	0.000 012 0 V
1 V	1 kHz	10 Hz	0.800 000 V	0.000 070 V	0.000 106 V	0.000 016 0 V
1 V	1 kHz	10 Hz	1.000 000 V	0.000 090 V	0.000 129 V	0.000 018 0 V
1 V (AC)	1 kHz	10 Hz	1.000 000 V	0.000 090 V	0.000 129 V	0.000 018 0 V
1 V	1 kHz	10 Hz	1.200 000 V	0.000 110 V	0.000 152 V	0.000 023 0 V
1 V	2 kHz	10 Hz	1.000 000 V	0.000 090 V	0.000 129 V	0.000 018 0 V
1 V	10 kHz	10 Hz	1.000 000 V	0.000 150 V	0.000 180 V	0.000 018 0 V
1 V	30 kHz	10 Hz	1.000 000 V	0.000 280 V	0.000 320 V	0.000 018 0 V

Range	Frequency	RMS Filter	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
				8588A	8558A	
1 V	60 kHz	10 Hz	1.000 000 V	0.000 720 V	0.000 980 V	0.000 018 0 V
1 V	100 kHz	10 Hz	1.000 000 V	0.000 720 V	0.000 980 V	0.000 020 0 V
1 V	300 kHz	10 Hz	1.000 000 V	0.003 100 V	0.004 050 V	0.000 051 0 V
1 V	1 MHz	10 Hz	1.000 000 V	0.014 300 V	0.020 700 V	0.000 300 0 V
1 V	2 MHz	10 Hz	1.000 000 V	0.025 900 V	0.029 700 V	0.001 400 0 V
1 V	4 MHz	10 Hz	1.000 000 V	0.064 500 V	0.074 900 V	0.001 400 0 V
1 V	6 MHz	10 Hz	1.000 000 V	0.115 900 V	0.131 500 V	0.001 400 0 V
1 V	8 MHz	10 Hz	1.000 000 V	0.115 900 V	0.131 500 V	0.001 500 0 V
1 V	10 MHz	10 Hz	1.000 000 V	0.206 900 V	0.241 500 V	0.001 500 0 V
10 V	DC	10 Hz	0.000 00 V	0.000 59 V	0.000 65 V	0.000 150 V
10 V	DC	10 Hz	10.000 00 V	0.001 91 V	0.002 31 V	0.000 190 V
10 V	DC	10 Hz	-10.000 00 V	0.001 91 V	0.002 31 V	0.000 190 V
10 V	10 Hz	10 Hz	10.000 00 V	0.000 90 V	0.001 29 V	0.000 300 V
10 V	40 Hz	10 Hz	10.000 00 V	0.000 89 V	0.001 29 V	0.000 170 V
10 V	105 Hz	10 Hz	10.000 00 V	0.000 89 V	0.001 29 V	0.000 170 V
10 V	1 kHz	10 Hz	1.000 00 V	0.000 15 V	0.002 46 V	0.000 018 V
10 V	1 kHz	10 Hz	10.000 00 V	0.000 89 V	0.001 29 V	0.000 170 V
10 V (AC)	1 kHz	10 Hz	10.000 00 V	0.000 89 V	0.001 29 V	0.000 170 V
10 V	1 kHz	10 Hz	12.000 00 V	0.001 06 V	0.001 52 V	0.000 220 V
10 V	2 kHz	10 Hz	10.000 00 V	0.000 89 V	0.001 29 V	0.000 170 V
10 V	10 kHz	10 Hz	10.000 00 V	0.001 49 V	0.001 81 V	0.000 170 V
10 V	30 kHz	10 Hz	10.000 00 V	0.002 84 V	0.003 23 V	0.000 170 V
10 V	60 kHz	10 Hz	10.000 00 V	0.007 23 V	0.009 80 V	0.000 170 V
10 V	100 kHz	10 Hz	10.000 00 V	0.007 23 V	0.009 80 V	0.000 170 V
10 V	300 kHz	10 Hz	10.000 00 V	0.031 00 V	0.040 50 V	0.000 290 V
10 V	1 MHz	10 Hz	10.000 00 V	0.143 00 V	0.207 00 V	0.001 500 V
10 V	2 MHz	10 Hz	3.000 00 V	0.123 20 V	0.152 10 V	0.004 500 V
10 V	4 MHz	10 Hz	3.000 00 V	0.645 00 V	0.749 00 V	0.004 500 V
10 V	6 MHz	10 Hz	3.000 00 V	1.159 00 V	1.315 00 V	0.004 400 V

Range	Frequency	RMS Filter	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
				8588A	8558A	
10 V	8 MHz	10 Hz	3.000 00 V	1.159 00 V	1.315 00 V	0.004 400 V
10 V	10 MHz	10 Hz	3.000 00 V	2.069 00 V	2.415 00 V	0.004 600 V
100 V	DC	10 Hz	0.000 0 V	0.005 7 V	0.006 3 V	0.001 50 V
100 V	DC	10 Hz	100.000 0 V	0.019 7 V	0.022 9 V	0.001 90 V
100 V	DC	10 Hz	-100.000 0 V	0.019 7 V	0.022 9 V	0.001 90 V
100 V	10 Hz	10 Hz	100.000 0 V	0.009 6 V	0.012 9 V	0.002 60 V
100 V	40 Hz	10 Hz	100.000 0 V	0.009 6 V	0.012 9 V	0.002 10 V
100 V	105 Hz	10 Hz	100.000 0 V	0.009 6 V	0.012 9 V	0.002 10 V
100 V	1 kHz	10 Hz	10.000 0 V	0.001 5 V	0.002 5 V	0.000 22 V
100 V	1 kHz	10 Hz	100.000 0 V	0.009 6 V	0.012 9 V	0.002 10 V
100 V (AC)	1 kHz	10 Hz	100.000 0 V	0.009 6 V	0.012 9 V	0.002 10 V
100 V	1 kHz	10 Hz	120.000 0 V	0.011 4 V	0.015 2 V	0.002 50 V
100 V	2 kHz	10 Hz	100.000 0 V	0.009 6 V	0.012 9 V	0.002 10 V
100 V	10 kHz	10 Hz	100.000 0 V	0.012 2 V	0.018 1 V	0.002 10 V
100 V	30 kHz	10 Hz	100.000 0 V	0.028 4 V	0.032 3 V	0.002 10 V
100 V	60 kHz	10 Hz	100.000 0 V	0.072 3 V	0.098 0 V	0.002 40 V
100 V	100 kHz	10 Hz	100.000 0 V	0.072 3 V	0.098 0 V	0.003 30 V
100 V	200 kHz	10 Hz	100.000 0 V	0.510 0 V	0.670 00 V	0.014 00 V
100 V	300 kHz	10 Hz	22.000 0 V	0.159 0 V	0.248 80 V	0.003 30 V
100 V	1 MHz	10 Hz	22.000 0 V	0.933 8 V	1.326 80 V	0.005 90 V
1 kV	DC	10 Hz	0.000 V	0.082 02 V	0.089 02 V	0.015 0 V
1 kV	DC	10 Hz	1000.000 V	0.248 02 V	0.320 02 V	0.019 0 V
1 kV	DC	10 Hz	-1000.000 V	0.248 02 V	0.320 02 V	0.019 0 V
1 kV	40 Hz	10 Hz	1000.000 V	0.148 00 V	0.220 00 V	0.021 0 V
1 kV	105 Hz	10 Hz	1000.000 V	0.148 00 V	0.220 00 V	0.021 0 V
1 kV	1 kHz	10 Hz	100.000 V	0.043 60 V	0.057 10 V	0.002 1 V
1 kV	1 kHz	10 Hz	500.000 V	0.090 00 V	0.129 50 V	0.010 0 V
1 kV	1 kHz	10 Hz	1000.000 V	0.148 00 V	0.220 00 V	0.021 0 V
1 kV (AC)	1 kHz	10 Hz	1000.000 V	0.148 00 V	0.220 00 V	0.021 0 V
1 kV	2 kHz	10 Hz	1000.000 V	0.148 V	0.220 V	0.021 0 V

Range	Frequency	RMS Filter	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
				8588A	8558A	
1 kV	10 kHz	10 Hz	1000.000 V	0.148 V	0.245 V	0.021 0 V
1 kV	30 kHz	10 Hz	1000.000 V	0.303 V	0.439 V	0.024 0 V
1 kV	60 kHz	10 Hz	500.000 V	0.458 V	0.619 V	0.016 0 V
1 kV	100 kHz	10 Hz	500.000 V	0.458 V	0.619 V	0.023 0 V

Configuration: Input: Front, Ext Guard: Off, Resolution: 6 digits, Measure Setup: DC 10 MΩ, Frequency Path Bandwidth Limit: OFF, Wideband.

Note

Points marked (AC) were measured with AC coupling.

Range	Frequency	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
			8588A	8558A	
100 V	DC	0.000 0 V	0.005 7 V	0.006 3 V	0.001 50 V
100 V	DC	100.000 0 V	0.040 4 V	0.041 0 V	0.001 90 V
100 V	DC	-100.000 0 V	0.040 4 V	0.041 0 V	0.001 90 V
100 V	10 Hz	100.000 0 V	0.030 3 V	0.031 0 V	0.002 60 V
100 V	40 Hz	100.000 0 V	0.030 3 V	0.031 0 V	0.002 10 V
100 V	105 Hz	100.000 0 V	0.030 3 V	0.031 0 V	0.002 10 V
100 V	1 kHz	10.000 0 V	0.003 6 V	0.004 3 V	0.000 22 V
100 V	1 kHz	100.000 0 V	0.030 3 V	0.031 0 V	0.002 10 V
100 V (DC)	1 kHz	100.000 0 V	0.030 3 V	0.031 0 V	0.002 10 V
100 V	1 kHz	120.000 0 V	0.036 3 V	0.036 9 V	0.002 50 V
100 V	2 kHz	100.000 0 V	0.129 6 V	0.131 0 V	0.002 10 V
100 V	10 kHz	100.000 0 V	2.581 3 V	2.58 3 V	0.002 10 V
1 kV	DC	0.000 V	0.063 V	0.063 V	0.015 0 V
1 kV	DC	1000.000 V	0.410 V	0.410 V	0.019 0 V
1 kV	DC	-1000.000 V	0.410 V	0.410 V	0.019 0 V
1 kV	40 Hz	1000.000 V	0.310 V	0.310 V	0.021 0 V
1 kV	105 Hz	1000.000 V	0.310 V	0.310 V	0.021 0 V
1 kV	1 kHz	100.000 V	0.043 V	0.043 V	0.002 1 V
1 kV	1 kHz	500.000 V	0.161 V	0.161 V	0.010 0 V
1 kV	1 kHz	1000.000 V	0.310 V	0.310 V	0.021 0 V

Range	Frequency	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
			8588A	8558A	
1 kV (AC)	1 kHz	1000.000 V	0.310 V	0.310 V	0.021 0 V
1 kV	2 kHz	1000.000 V	5.100 V	5.100 V	0.021 0 V
1 kV	10 kHz	1000.000 V	19.400 V	25.900 V	0.021 0 V

Configuration: 7.5 Digits, Internal Guard, Front Input, DC Coupled, Wideband. RMS Filter 40Hz.

Suggested Reference: 5730A

Range	Frequency	Reference Value	Permissible Error (±)		Fluke Uncertainty (±)
			8588A	8558A	
10 µA	10 Hz	10.000 00 µA	0.029 13 µA	0.036 25 µA	0.001 80 µA
10 µA	55 Hz	10.000 00 µA	0.029 13 µA	0.036 25 µA	0.002 10 µA
10 µA	305 Hz	10.000 00 µA	0.029 13 µA	0.036 25 µA	0.001 80 µA
10 µA	1 kHz	10.000 00 µA	0.029 13 µA	0.036 25 µA	0.001 80 µA
10 µA	2 kHz	10.000 00 µA	0.029 13 µA	0.036 25 µA	0.001 80 µA
10 µA	5 kHz	10.000 00 µA	0.029 13 µA	0.036 25 µA	0.001 80 µA
10 µA	10 kHz	10.000 00 µA	0.029 13 µA	0.036 25 µA	0.001 80 µA
10 µA	1 kHz	20.000 00 µA	0.055 03 µA	0.068 63 µA	0.003 50 µA
100 µA	10 Hz	100.000 0 µA	0.040 0 µA	0.052 9 µA	0.008 0 µA
100 µA	55 Hz	100.000 0 µA	0.040 0 µA	0.052 9 µA	0.007 4 µA
100 µA	305 Hz	100.000 0 µA	0.040 0 µA	0.052 9 µA	0.006 6 µA
100 µA	1 kHz	100.000 0 µA	0.040 0 µA	0.052 9 µA	0.006 6 µA
100 µA	2 kHz	100.000 0 µA	0.040 0 µA	0.052 9 µA	0.006 6 µA
100 µA	5 kHz	100.000 0 µA	0.072 3 µA	0.091 6 µA	0.006 8 µA
100 µA	10 kHz	100.000 0 µA	0.072 3 µA	0.091 6 µA	0.008 1 µA
100 µA	20 kHz	100.000 0 µA	0.099 4 µA	0.118 7 µA	0.015 0 µA
100 µA	30 kHz	100.000 0 µA	0.099 4 µA	0.118 7 µA	0.027 0 µA
100 µA	1 kHz	200.000 0 µA	0.073 5 µA	0.092 9 µA	0.009 6 µA
1 mA	10 Hz	1.000 000 mA	0.000 400 mA	0.000 529 mA	0.000 063 mA
1 mA	55 Hz	1.000 000 mA	0.000 400 mA	0.000 529 mA	0.000 055 mA
1 mA	305 Hz	1.000 000 mA	0.000 400 mA	0.000 529 mA	0.000 055 mA
1 mA	1 kHz	1.000 000 mA	0.000 400 mA	0.000 529 mA	0.000 055 mA
1 mA	2 kHz	1.000 000 mA	0.000 400 mA	0.000 529 mA	0.000 055 mA
1 mA	5 kHz	1.000 000 mA	0.000 723 mA	0.000 916 mA	0.000 055 mA

Range	Frequency	Reference Value	Permissible Error (\pm)		Fluke Uncertainty (\pm)
1 mA	10 kHz	1.000 000 mA	0.000 723 mA	0.000 916 mA	0.000 055 mA
1 mA	20 kHz	1.000 000 mA	0.000 994 mA	0.001 187 mA	0.000 057 mA
1 mA	30 kHz	1.000 000 mA	0.000 994 mA	0.001 187 mA	0.000 057 mA
1 mA	1 kHz	2.000 000 mA	0.000 735 mA	0.000 929 mA	0.000 068 mA
10 mA	10 Hz	10.000 00 mA	0.004 00 mA	0.005 29 mA	0.000 53 mA
10 mA	55 Hz	10.000 00 mA	0.004 00 mA	0.005 29 mA	0.000 51 mA
10 mA	305 Hz	10.000 00 mA	0.004 00 mA	0.005 29 mA	0.000 51 mA
10 mA	1 kHz	10.000 00 mA	0.004 00 mA	0.005 29 mA	0.000 51 mA
10 mA	2 kHz	10.000 00 mA	0.004 00 mA	0.005 29 mA	0.000 51 mA
10 mA	5 kHz	10.000 00 mA	0.007 23 mA	0.009 16 mA	0.000 51 mA
10 mA	10 kHz	10.000 00 mA	0.007 23 mA	0.009 16 mA	0.000 51 mA
10 mA	20 kHz	10.000 00 mA	0.009 94 mA	0.011 87 mA	0.000 64 mA
10 mA	30 kHz	10.000 00 mA	0.009 94 mA	0.011 87 mA	0.000 64 mA
10 mA	1 kHz	20.000 00 mA	0.007 35 mA	0.009 29 mA	0.000 60 mA
100 mA	10 Hz	100.000 0 mA	0.040 0 mA	0.051 6 mA	0.005 4 mA
100 mA	55 Hz	100.000 0 mA	0.040 0 mA	0.051 6 mA	0.005 2 mA
100 mA	305 Hz	100.000 0 mA	0.040 0 mA	0.051 6 mA	0.005 1 mA
100 mA	1 kHz	100.000 0 mA	0.040 0 mA	0.051 6 mA	0.005 1 mA
100 mA	2 kHz	100.000 0 mA	0.040 0 mA	0.051 6 mA	0.005 1 mA
100 mA	5 kHz	100.000 0 mA	0.040 0 mA	0.091 6 mA	0.005 1 mA
100 mA	10 kHz	100.000 0 mA	0.071 0 mA	0.091 6 mA	0.005 1 mA
100 mA	20 kHz	100.000 0 mA	0.096 8 mA	0.116 1 mA	0.006 4 mA
100 mA	30 kHz	100.000 0 mA	0.096 8 mA	0.116 1 mA	0.006 4 mA
100 mA	1 kHz	200.000 0 mA	0.073 5 mA	0.090 3 mA	0.010 0 mA
1 A	10 Hz	1.000 000 A	0.000 464 A	0.000 516 A	0.000 057 A
1 A	55 Hz	1.000 000 A	0.000 464 A	0.000 516 A	0.000 054 A
1 A	305 Hz	1.000 000 A	0.000 464 A	0.000 516 A	0.000 052 A
1 A	1 kHz	1.000 000 A	0.000 464 A	0.000 516 A	0.000 052 A
1 A	2 kHz	1.000 000 A	0.000 464 A	0.000 516 A	0.000 052 A
1 A	5 kHz	1.000 000 A	0.000 787 A	0.000 903 A	0.000 055 A
1 A	10 kHz	1.000 000 A	0.000 787 A	0.000 903 A	0.000 088 A
1 A	20 kHz	1.000 000 A	0.000 404 A	0.000 507 A	0.000 028 A

Range	Frequency	Reference Value	Permissible Error (±)		Fluke Uncertainty (±)
			8588A	8558A	
1 A	30 kHz	1.000 000 A	0.000 404 A	0.000 507 A	0.000 028 A
1 A	1 kHz	2.000 000 A	0.000 799 A	0.000 903 A	0.000 110 A
30 A	10 Hz	10.000 000 A	0.008 50 A	n/a	0.000 72 A
30 A	55 Hz	10.000 000 A	0.010 95 A	n/a	0.000 68 A
30 A	305 Hz	10.000 000 A	0.010 95 A	n/a	0.000 50 A
30 A	1 kHz	10.000 000 A	0.010 95 A	n/a	0.000 50 A
30 A	2 kHz	10.000 000 A	0.010 95 A	n/a	0.000 50 A
30 A	5 kHz	10.000 000 A	0.010 95 A	n/a	0.000 50 A
30 A	10 kHz	10.000 000 A	0.010 95 A	n/a	0.000 50 A
30 A	1 kHz	30.000 000 A	0.046 38 A	n/a	0.002 30 A

Resistance Normal

Configuration: 7.5 Digits, Aperture = Auto, 4-wire (2-wire at 100 MΩ), Lo Current Off, Internal Guard, Front Input, Filter Off, Zeros ≤10 MΩ performed into a 4-wire short circuit; Zeros >10 MΩ performed across the resistor with the current shorted as described in the Operators Manual.

Suggested Reference: 5730A

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
1 Ω	0.000 000 0 Ω	0.000 005 2 Ω	0.000 005 8 Ω	0.000 000 10 Ω
1 Ω	1.000 000 0 Ω	0.000 019 2 Ω	0.000 025 8 Ω	0.000 002 40 Ω
1 Ω	1.900 000 0 Ω	0.000 031 8 Ω	0.000 043 8 Ω	0.000 004 90 Ω
10 Ω	0.000 000 Ω	0.000 018 Ω	0.000 026 Ω	0.000 001 0 Ω
10 Ω	10.000 000 Ω	0.000 117 Ω	0.000 186 Ω	0.000 027 0 Ω
10 Ω	19.000 000 Ω	0.000 031 Ω	0.000 330 Ω	0.000 034 0 Ω
100 Ω	0.000 00 Ω	0.000 06 Ω	0.000 07 Ω	0.000 010 Ω
100 Ω	100.000 00 Ω	0.000 98 Ω	0.001 37 Ω	0.000 150 Ω
100 Ω	190.000 00 Ω	0.001 81 Ω	0.002 54 Ω	0.000 270 Ω
1 kΩ	0.000 000 0 kΩ	0.000 00 6 kΩ	0.000 000 7 kΩ	0.000 000 10 kΩ
1 kΩ	1.000 000 0 kΩ	0.000 009 7 kΩ	0.000 013 7 kΩ	0.000 001 20 kΩ
1 kΩ	1.900 000 0 kΩ	0.000 017 9 kΩ	0.000 025 4 kΩ	0.000 001 90 kΩ
10 kΩ	0.000 000 kΩ	0.000 006 kΩ	0.000 007 kΩ	0.000 001 0 kΩ
10 kΩ	10.000 000 kΩ	0.000 098 kΩ	0.000 137 kΩ	0.000 015 0 kΩ
10 kΩ	19.000 000 kΩ	0.000 181 kΩ	0.000 254 kΩ	0.000 027 0 kΩ

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
100 k Ω	0.000 00 k Ω	0.000 06 k Ω	0.000 07 k Ω	0.000 010 k Ω
100 k Ω	100.000 00 k Ω	0.001 00 k Ω	0.001 37 k Ω	0.000 190 k Ω
100 k Ω	190.000 00 k Ω	0.001 81 Ω	0.002 54 k Ω	0.000 270 Ω
1 M Ω	0.000 000 0 M Ω	0.000 01 3 M Ω	0.000 001 9 M Ω	0.000 000 10 M Ω
1 M Ω	1.000 000 0 M Ω	0.000 011 9 M Ω	0.000 015 9 M Ω	0.000 004 30 M Ω
1 M Ω	1.900 000 0 M Ω	0.000 021 4 M Ω	0.000 028 5 M Ω	0.000 008 00 M Ω
10 M Ω	0.000 000 M Ω	0.000 130 M Ω	0.000 190 M Ω	0.000 001 0 M Ω
10 M Ω	10.000 000 M Ω	0.000 270 M Ω	0.000 460 M Ω	0.000 052 0 M Ω
10 M Ω	19.000 000 M Ω	0.000 396 M Ω	0.000 703 M Ω	0.000 110 0 M Ω
100 M Ω	0.000 00 k Ω	0.012 90 M Ω	0.019 40 M Ω	0.000 010 M Ω
100 M Ω	100.000 00 M Ω	0.017 90 M Ω	0.026 00 M Ω	0.002 100 M Ω
1 G Ω	0.000 000 0 G Ω	0.001 29 G Ω	0.001 94 G Ω	0.000 000 10 G Ω
1 G Ω	1.000 000 0 G Ω	0.001 94 G Ω	0.002 72 G Ω	0.000 073 00 G Ω

Resistance – Tru Ohms

Configuration: 7.5 Digits, Aperture = Auto, 4-wire, Lo Current Off, Internal Guard, Front Input, Filter Off.

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
1 Ω	0.000 000 0 Ω	0.000 005 2 Ω	0.000 005 8 Ω	0.000 000 10 Ω
1 Ω	1.000 000 0 Ω	0.000 019 2 Ω	0.000 025 8 Ω	0.000 002 40 Ω
1 Ω	1.900 000 0 Ω	0.000 024 0 Ω	0.000 024 0 Ω	0.000 004 90 Ω
10 Ω	0.000 000 Ω	0.000 018 Ω	0.000 026 Ω	0.000 001 0 Ω
10 Ω	10.000 000 Ω	0.000 117 Ω	0.000 186 Ω	0.000 027 0 Ω
10 Ω	19.000 000 Ω	0.000 023 Ω	0.000 330 Ω	0.000 034 0 Ω
100 Ω	0.000 00 Ω	0.000 06 Ω	0.000 07 Ω	0.000 010 Ω
100 Ω	100.000 00 Ω	0.000 98 Ω	0.001 37 Ω	0.000 150 Ω
100 Ω	190.000 00 Ω	0.001 81 Ω	0.002 54 Ω	0.000 270 Ω
1 k Ω	0.000 000 0 k Ω	0.000 00 6 k Ω	0.000 000 7 k Ω	0.000 000 10 k Ω
1 k Ω	1.000 000 0 k Ω	0.000 009 7 k Ω	0.000 013 7 k Ω	0.000 001 20 k Ω
1 k Ω	1.900 000 0 k Ω	0.000 017 9 k Ω	0.000 025 4 k Ω	0.000 001 90 k Ω

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
10 kΩ	0.000 000 kΩ	0.000 006 kΩ	0.000 007 kΩ	0.000 001 0 kΩ
10 kΩ	10.000 000 kΩ	0.000 098 kΩ	0.000 137 kΩ	0.000 015 0 kΩ
10 kΩ	19.000 000 kΩ	0.000 181 kΩ	0.000 254 kΩ	0.000 027 0 kΩ

Resistance - Low Current

Configuration: 7.5 Digits, Aperture = Auto, 4-wire (2-wire at 100 MΩ), Lo Current On, Internal Guard, Front Input, Filter Off.

Note

The 1 Ω, 10 Ω and 1 GΩ ranges use the same current as Normal Ohms so do not need to be verified.

Range	Reference value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
100 Ω	0.000 00 Ω	0.000 26 Ω	0.000 26 Ω	0.000 010 Ω
100 Ω	100.000 00 Ω	0.002 12 Ω	0.002 12 Ω	0.000 210 Ω
100 Ω	190.000 00 Ω	0.003 79 Ω	0.003 79 Ω	0.000 270 Ω
1 kΩ	0.000 000 0 kΩ	0.000 02 6 kΩ	0.000 02 6 kΩ	0.000 000 10 kΩ
1 kΩ	1.000 000 0 kΩ	0.000 022 6 kΩ	0.000 022 6 kΩ	0.000 002 50 kΩ
1 kΩ	1.900 000 0 kΩ	0.000 040 6 kΩ	0.000 040 6 kΩ	0.000 002 50 kΩ
10 kΩ	0.000 000 kΩ	0.000 026 kΩ	0.000 026 kΩ	0.000 001 0 kΩ
10 kΩ	10.000 000 kΩ	0.000 276 kΩ	0.000 276 kΩ	0.000 084 0 kΩ
10 kΩ	19.000 000 kΩ	0.000 501 kΩ	0.000 501 kΩ	0.000 160 0 kΩ
100 kΩ	0.000 00 kΩ	0.000 08 kΩ	0.000 08 kΩ	0.000 010 kΩ
100 kΩ	100.000 00 kΩ	0.002 58 kΩ	0.002 58 kΩ	0.001 100 kΩ
100 kΩ	190.000 00 kΩ	0.004 83 Ω	0.004 83 Ω	0.002 100 Ω
1 MΩ	0.000 000 0 MΩ	0.000 001 0 MΩ	0.000 001 3MΩ	0.000 000 10 MΩ
1 MΩ	1.000 000 0 MΩ	0.000 018 0 MΩ	0.000 023 3 MΩ	0.000 004 50 MΩ
1 MΩ	1.900 000 0 MΩ	0.000 033 3 MΩ	0.000 043 1 MΩ	0.000 008 40 MΩ
10 MΩ	0.000 000 MΩ	0.000 130 MΩ	0.000 130 MΩ	0.000 001 0 MΩ
10 MΩ	10.000 000 MΩ	0.000 730 MΩ	0.000 730 MΩ	0.000 120 0 MΩ
10 MΩ	19.000 000 MΩ	0.001 270 MΩ	0.001 270 MΩ	0.000 230 0 MΩ
100 MΩ	0.000 00 kΩ	0.012 90 MΩ	0.012 90 MΩ	0.000 010 MΩ
100 MΩ	100.000 00 MΩ	0.079 30 MΩ	0.079 30 MΩ	0.011 000 MΩ

Resistance - Tru Ohms, Low Current

Configuration: 7.5 Digits, Aperture = Auto, 4-wire, Lo Current On, Internal Guard, Front Input, Filter Off.
Note

The 1 Ω and 10 Ω ranges use the same current as True Ohms and do not need to be verified.

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
100 Ω	0.000 00 Ω	0.000 26 Ω	0.000 26 Ω	0.000 010 Ω
100 Ω	100.000 00 Ω	0.002 12 Ω	0.002 12 Ω	0.000 210 Ω
100 Ω	190.000 00 Ω	0.003 79 Ω	0.003 79 Ω	0.000 270 Ω
1 k Ω	0.000 000 0 k Ω	0.000 02 6 k Ω	0.000 02 6 k Ω	0.000 000 10 k Ω
1 k Ω	1.000 000 0 k Ω	0.000 022 6 k Ω	0.000 022 6 k Ω	0.000 002 50 k Ω
1 k Ω	1.900 000 0 k Ω	0.000 040 6 k Ω	0.000 040 6 k Ω	0.000 002 50 k Ω
10 k Ω	0.000 000 k Ω	0.000 026 k Ω	0.000 026 k Ω	0.000 001 0 k Ω
10 k Ω	10.000 000 k Ω	0.000 276 k Ω	0.000 276 k Ω	0.000 084 0 k Ω
10 k Ω	19.000 000 k Ω	0.000 501 k Ω	0.000 501 k Ω	0.000 160 0 k Ω

Resistance - HV Ohms

Configuration: 7.5 Digits, Aperture = Auto, 4-wire (2-wire at 100 M Ω), Lo Current Off, Internal Guard, Front Input, Filter Off.

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
10 M Ω	0.000 000 M Ω	0.000 013 M Ω	0.000 013 M Ω	0.000 001 0 M Ω
10 M Ω	10.000 000 M Ω	0.000 203 M Ω	0.000 203 M Ω	0.000 052 0 M Ω
10 M Ω	19.000 000 M Ω	0.000 374 M Ω	0.000 374 M Ω	0.000 097 0 M Ω
100 M Ω	0.000 00 k Ω	0.001 29 M Ω	0.001 29 M Ω	0.000 010 M Ω
100 M Ω	100.000 00 M Ω	0.008 99 M Ω	0.008 99 M Ω	0.001 900 M Ω
1 G Ω	0.000 000 0 G Ω	0.000 13 G Ω	0.000 13 G Ω	0.000 010 G Ω
1 G Ω	1.000 000 0 G Ω	0.000 32 G Ω	0.000 32 G Ω	0.000 044 G Ω
10 G Ω	0.000 000 G Ω	0.012 90 G Ω	0.012 90 G Ω	0.000 001 0 G Ω
10 G Ω	10.000 000 M Ω	0.019 67 G Ω	0.019 67 G Ω	0.001 600 0 G Ω

Frequency

Configuration for frequencies ≤ 1 MHz: Bandwidth Limit Off, Input Path ACV signal, Range 1 V, Gate 1 s.

Configuration for frequencies >1 MHz, Input Path Rear BNC, Gate 1 s, Z in 50Ω .

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
10 Hz	10.000 000 0 Hz	0.000 010 0 Hz	0.000 010 0 Hz	0.000 001 0 Hz
1 kHz	1.000 000 00 kHz	0.000 001 00 kHz	0.000 001 00 kHz	0.000 000 10 kHz
10 kHz	10.000 000 0 kHz	0.000 010 0 kHz	0.000 010 0 kHz	0.000 001 0 Hz
100 kHz	100.000 000 kHz	0.001 00 kHz	0.001 00 kHz	0.000 010 kHz
1 MHz	1.000 000 00 MHz	0.000 001 00 MHz	0.000 001 00 MHz	0.000 000 10 MHz
10 MHz	10.000 000 0 MHz	0.000 008 6 MHz	0.000 009 2 MHz	0.000 001 0 MHz
100 MHz	100.000 000 MHz	0.000 086 MHz	0.000 092 MHz	0.000 010 MHz

Capacitance

Configuration: Resolution 5 digits, Lol Off.

Suggested Reference: Fluke 5522A, 1 nF Standard Capacitor.

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
1 nF	0. 000 00 nF	0.001 00 nF	n/a	0.000 020 nF
1 nF	1. 000 00 nF	0.002 54 nF	n/a	0.000 300 nF
1 nF	2.000 00 nF	0.003 88 nF	n/a	0.000 600 nF
10 nF	10.000 0 nF	0.010 4 nF	n/a	0.001 90 nF
10 nF	20.000 0 nF	0.018 2 nF	n/a	0.003 80 nF
100 nF	20.000 nF	0.023 39 nF	n/a	0.001 6 nF
100 nF	100.000 nF	0.065 47 nF	n/a	0.008 0 nF
100 nF	200.000 nF	0.118 07 nF	n/a	0.016 0 nF
1 μ F	0.200 00 μ F	0.000 23 μ F	n/a	0.000 014 μ F
1 μ F	1.000 00 μ F	0.000 65 μ F	n/a	0.000 068 μ F
1 μ F	2.000 00 μ F	0.001 18 μ F	n/a	0.000 570 μ F
10 μ F	2.000 0 μ F	0.002 3 μ F	n/a	0.000 20 μ F
10 μ F	10.000 0 μ F	0.006 5 μ F	n/a	0.000 91 μ F
100 μ F	100.000 μ F	0.091 μ F	n/a	0.007 7 μ F
100 μ F	200.000 μ F	0.169 μ F	n/a	0.015 0 μ F

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
1 mF	1.000 00 mF	0.000 91 mF	n/a	0.000 091 mF
1 mF	2.000 00 mF	0.001 70 mF	n/a	0.000 220 mF
10 mF	2.000 0 mF	0.003 11 mF	n/a	0.000 14 mF
10 mF	10.000 0 mF	0.010 38 mF	n/a	0.000 83 mF
10 mF	20.000 0 mF	0.019 47 mF	n/a	0.003 00 mF
100 mF	20.000 mF	0.031 08 mF	n/a	0.001 4 mF
100 mF	100.000 mF	0.058 35 mF	n/a	0.004 0 mF
100 mF	200.000 mF	0.103 80 mF	n/a	0.010 0 mF

Configuration: Resolution 5 digits, Lol On

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
1 mF	0.200 00 mF	0.000 29 mF	n/a	0.000 014 mF
1 mF	1.000 00 mF	0.000 91 mF	n/a	0.000 068 mF
1 mF	2.000 00 mF	0.001 70 mF	n/a	0.000 140 mF
10 mF	2.000 0 mF	0.003 11 mF	n/a	0.000 14 mF
10 mF	10.000 0 mF	0.010 38 mF	n/a	0.000 68 mF
10 mF	20.000 0 mF	0.019 47 mF	n/a	0.001 40 mF
100 mF	20.000 mF	0.031 08 mF	n/a	0.001 5 mF
100 mF	100.000 mF	0.058 35 mF	n/a	0.004 5 mF
100 mF	200.000 mF	0.103 80 mF	n/a	0.018 0 mF

Optional Checks

DC Voltage (Rear Input)

Configuration: Z in Auto, 7.5 Digits, Internal Guard, Rear Input, Aperture = Auto

Suggested Reference: 5730A

Range	Reference Value	Permissible Error (\pm)		Fluke Calibration Uncertainty (\pm)
		8588A	8558A	
10 V	0.000 000 V	0.000 001 V	0.000 001 V	0.000 000 30 V
10 V	10.000 000 V	0.000 037 V	0.000 054 V	0.000 006 40 V

DC Current (Rear Input)

Configuration: 7.5 Digits, Internal Guard, Rear Input, Filter Off, Aperture = Auto

Range	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
100 µA	0.000 00 µA	0.000 50 µA	0.000 60 µA	0.000 12 µA
100 µA	100.000 00 µA	0.001 60 µA	0.001 90 µA	0.000 45 µA
100 mA	0.000 00 mA	0.001 30 mA	0.000 60 mA	0.000 26 mA
100 mA	100.000 00 mA	0.005 60 mA	0.006 80 mA	0.000 58 mA

AC Voltage (Rear Input)

Configuration: Input: Rear, Ext Guard: Off, Resolution: 6 digits, Measure Setup: DC 1 MΩ, RMS Filter 40 Hz, Frequency Path Bandwidth Limit: OFF, Band: Wideband

Suggested Reference: 5730A

Range	Frequency	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
			8588A	8558A	
1 V	1 kHz	1.000 000 V	0.000 089 V	0.000 100 V	0.000 018 V
10 V	1 kHz	1.000 00 V	0.000 89 V	0.001 00 V	0.000 17 V

AC Current (Rear Input)

Configuration: 7.5 Digits, Internal Guard, Front Input, DC Coupled, Wideband RMS Filter 40 Hz.

Suggested Reference: 5730A

Range	Frequency	Reference Value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
			8588A	8558A	
100 µA	1 kHz	100.000 0 µA	0.040 0 µA	0.052 9 µA	0.006 6 µA
100 µA	10 kHz	100.000 0 µA	0.072 3 µA	0.091 6 µA	0.008 1 µA

Resistance – HV Ohms (Rear Input)

Configuration: 7.5 Digits, Aperture = Auto, 4-wire, Internal Guard, Rear Input, Filter Off.

Suggested Reference: 10 GΩ Standard Resistor

Range	Reference value	Permissible Error (±)		Fluke Calibration Uncertainty (±)
		8588A	8558A	
10 GΩ	0.000 000 GΩ	0.012 900 GΩ	0.012 900 GΩ	0.000 010 GΩ
10 GΩ	10.000 000 GΩ	0.019 677 GΩ	0.019 677 GΩ	0.001 600 GΩ

Maintenance

This section contains simple maintenance procedures and describes the built in self-test facilities. See [Safety Information](#) before doing the procedures in this section.

Inspection and Cleaning

⚠⚠ Warning

To prevent possible electrical shock, fire, or personal injury:

- Do not remove the covers from the Product unless you are qualified to do so.
- Do not operate the Product with covers removed or the case open. Hazardous voltage exposure is possible.
- Disconnect the mains power cord before you remove the Product covers.
- Remove the input signals before you clean the Product.
- Use only specified replacement parts.
- Have an approved technician repair the Product.

⚠ Caution

- Beyond removal of the external covers, removing the top cover voids calibration of the Product.
- Do not use aromatic hydrocarbons or chlorinated solvents for cleaning. They can damage the plastic materials used in the Product.
- Place the Product securely on an appropriate bench top or work surface before removing the covers.
- Do not unnecessarily touch any part of the PCAs or straighten component positions on the PCAs.
- Do not permit water to enter the Product.

Inspect the instrument exterior for signs of damage.

Clean the Exterior

To keep the Product looking new, clean the case, front panel keys, and display with a soft cloth slightly dampened with either water or a non-abrasive mild cleaning solution that is not harmful to plastics. Clean any dust from the exterior of the Product using a dry brush or vacuum cleaner.

Clean the Air Inlet

Air is drawn into the Product through the grill on the side and then exhausted through the rear panel. If the Product is used in dusty environment, it may become necessary to clean the air inlet. This can be done from the outside with a vacuum cleaner hose.

Fuse Replacement

The line and neutral wires are each protected by a fuse. The fuse rating label below the fuse holder shows the correct replacement fuses. Line and neutral are fused individually. The same fuses are used for both 100 V to 120 V and 200 V to 240 V operation.

Warning



To prevent possible electrical shock, fire, or personal injury:

- Turn the Product off and remove the mains power cord. Stop for 2 minutes to let the power assemblies discharge before you open the fuse door.
- Replace a blown fuse with exact replacement only for continued protection against arc flash.
- Use only specified replacement fuses, see Table 3.

To access the fuse, see Figure 2:

1. Disconnect the mains power cord.
2. With a standard screwdriver, release the fuse holder door.
3. Pull out the fuse holder.
4. If necessary, replace one or both fuses.
5. Reinsert the fuse holder.
6. Close the fuse holder door.

Table 3. Replacement Fuses

Line Voltage Range	Fuse Description- Mains Fuse	Fluke Part Number
 100 V – 120 V	T1.5AH 250 V	2059740
 220 V – 240 V		
Rear Input Current Protection Fuse		
-	1.6AH 250V	1582072

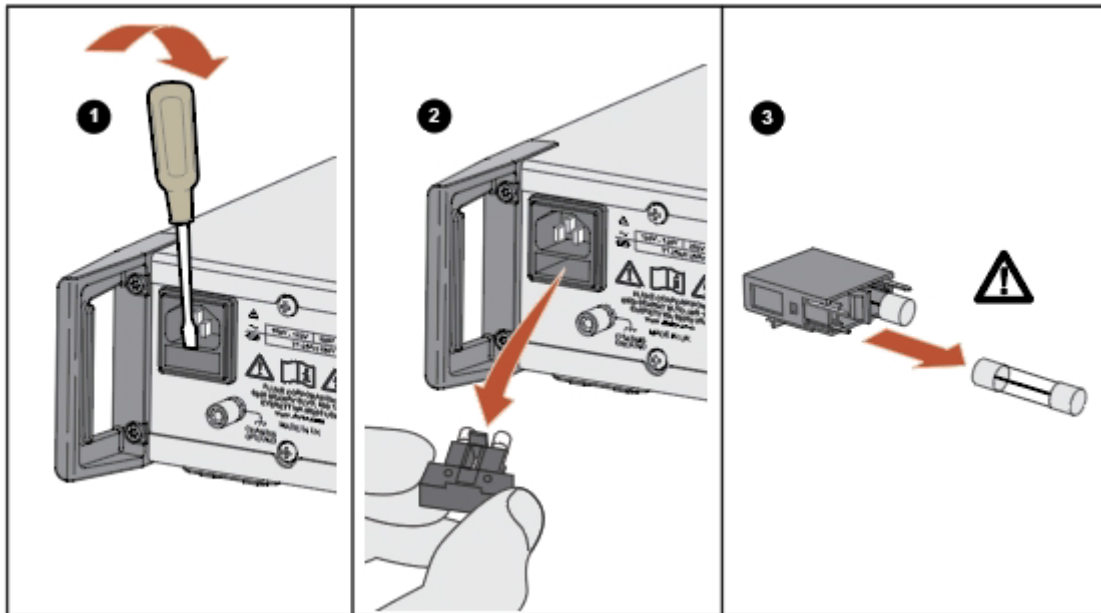


Figure 2. Access the Fuse

The Mains fuses are: 1.25A, 250V, Time Lag

Rear-Input Current Fuse

The Product is fitted with a 2 A fuse to protect the rear current input circuitry. The fuse is located at the rear of the Multimeter just to the left of the current input terminal (A). A half-twist of the fuse cap releases the fuse for inspection or replacement. See Table 2.

Self Test

The Product provides a self-test facility that tests instrument functionality.

To run the self-test:

1. Push **INST SETUP**.
2. Select **F5** (**Diagnostics**) and then **F1** (**Selftest**). The number of the test currently running is displayed on screen – for example: **Performing test 23 of 36**. The end of the self-test is indicated by: **All tests passed**, or if a failure occurs, the test number(s) and a brief description of the failed test(s) is displayed.
3. If one or more self-test failures is reported, note the test number(s) and contact your a Fluke Calibration Service Center.
4. Push **BACK** to Exit self-test mode.

List of Replaceable Parts

This section contains an illustrated list of replaceable parts for the Product. Parts are listed to the modular level only. Each assembly is accompanied by an illustration that shows the location of each part and its reference designator.

How to Obtain Parts

Electrical components may be ordered directly from the manufacturer by using the manufacturers part number, or from Fluke Calibration and its authorized representatives by using the part number listed in Table 4. The parts are shown in Figures 3, 4, and 5. To order components directly from Fluke Calibration, see [Contact Fluke Calibration](#). To ensure prompt delivery of the correct part, include the following information when you place an order:

- Fluke Calibration stock number
- Description (as given under the Description heading)
- Quantity
- Reference Designator
- Part number and revision level of the pca containing the part.
- Instrument model and serial number.

Table 4. List of Replaceable Parts

Reference Designator	Description	Fluke Stock Number	Qty
A1	Tested FRONT PCA ETC / BREAK OUT	5111995	1
A2	Tested ANALOG PCA	5111988	1
A3	Tested DIGITAL PCA	5111974	1
MP1	RIVETED CHASSIS ASSY	4840865	1
MP2	REAR PANEL	4840883	1
MP3	BEZEL BRACKET	4840890	2
MP4	BOTTOM COVER	4840911	1
MP5	TOP COVER	4840927	1
MP6	CABLE SHIELD	4840876	1
MP7	ANALOG INSULATOR	5007644	1
MP8	SIDE EXTRUSION	4869347	2
MP9	AIR DEFLECTOR	4876060	1
MP10	HIGH VOLTAGE COVER	4880061	1
MP11	FRONT CONNECTOR GROUNDING TAG	4888679	1
MP12	HANDLE 2U SOFT GRIP	4969691	1
MP13	KEYPAD	4840930	1
MP14	FRONT PANEL / BEZEL	4840948	1
MP15	POWER SWITCH PUSH ROD	4841054	1
MP16	GUARD VOLTAGE SPACER	4841068	4
MP17	DECAL INPUT 8588A	4870554	1
MP18	DECAL INPUT 8558A	4980989	1
MP19	DECAL MODEL 8588A	4870568	1
MP20	DECAL MODEL 8558A	4980992	1
MP21	DECAL POWER / USB	4870579	1
MP22	DECAL POWER	4870587	1
MP23	FOOT	5111762	4
MP24	TILT STAND BAIL	2650711	2
MP25	DISPLAY ASSEMBLY	4965173	1
MP26	POWER BUTTON CAP	4556931	1
MP27	BINDING POST-RED	2438103	3

Table 4. List of Replaceable Parts (cont.)

Reference Designator	Description	Fluke Stock Number	Qty
MP28	BINDING POST-BLACK	2438091	2
MP29	BINDING POST-GREEN	4496766	1
MP30	BINDING POST-BLUE	4496753	1
W1	TRANSFORMER ASSEMBLY	4840852	1
W2	FRONT TERMINALS CABLE ASSY	4841087	1
W3	REAR INPUT CABLE ASSEMBLY	4841093	1
W4	MAINS INPUT CABLE ASSY	4841112	1
W5	CONNECTOR ASSY TRIGGER	4841101	1
W6	CABLE RIBBON 50 WAY	4888687	1
W7	CABLE RIBBON 20 WAY	4888717	2
F1	FUSE MAINS	2059740	2
F2	FUSE REAR INPUT	1582072	1
F3	POWER ENTRY MODULE	4888721	1
H1	BINDING POST	102707	1
H2	BINDING HEAD	102889	1
H3	IEEE MOUNTING JACK SCREWS	836585	1
H4	WASHER M5 SPRING IEEE JACK SCREWS	4196138	2
H5	SCREW LOW PROFILE M4 TORX (HANDLE)	4880050	16

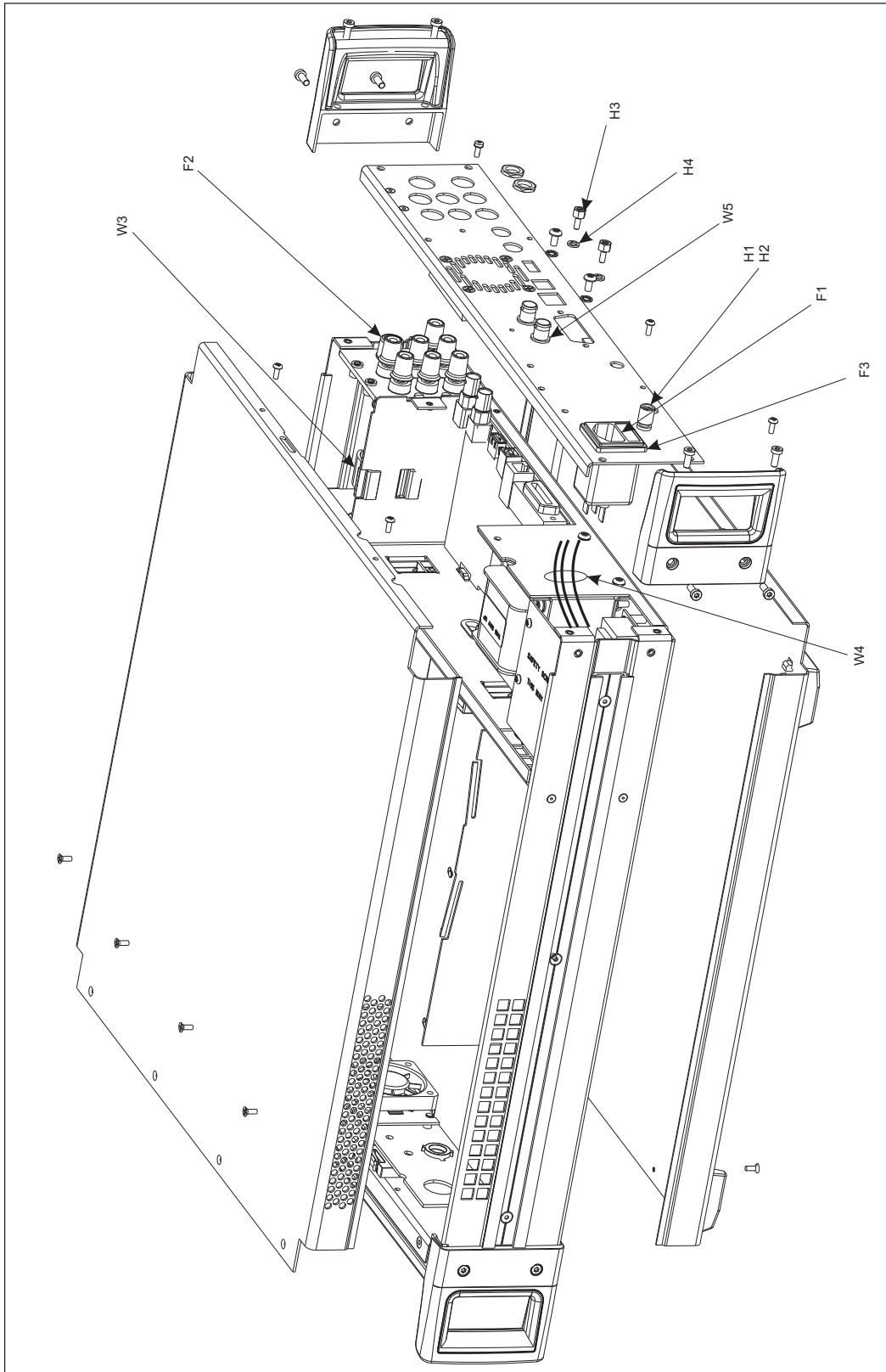


Figure 3. Main Chassis Exploded View

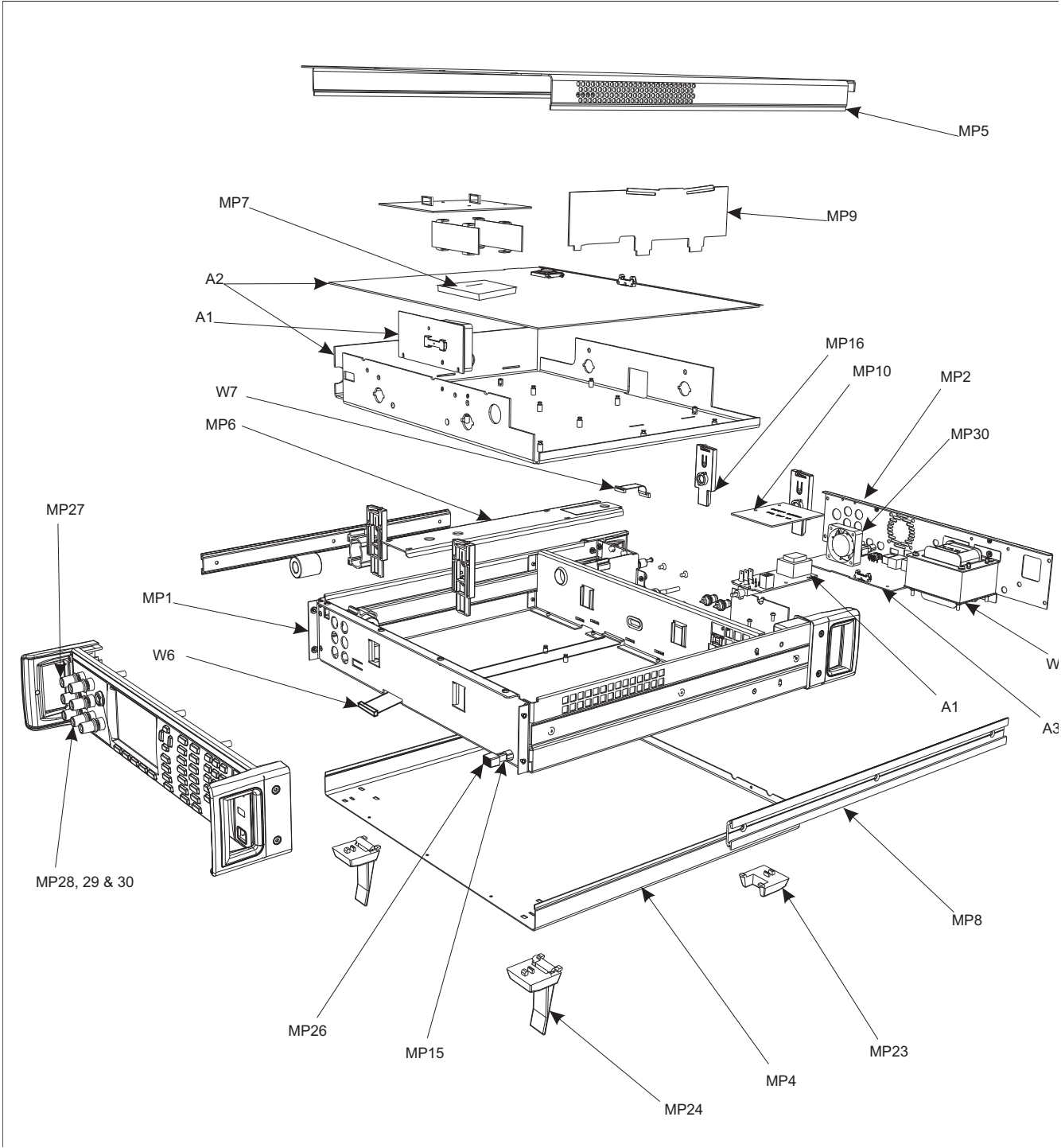


Figure 4. Replacement Parts

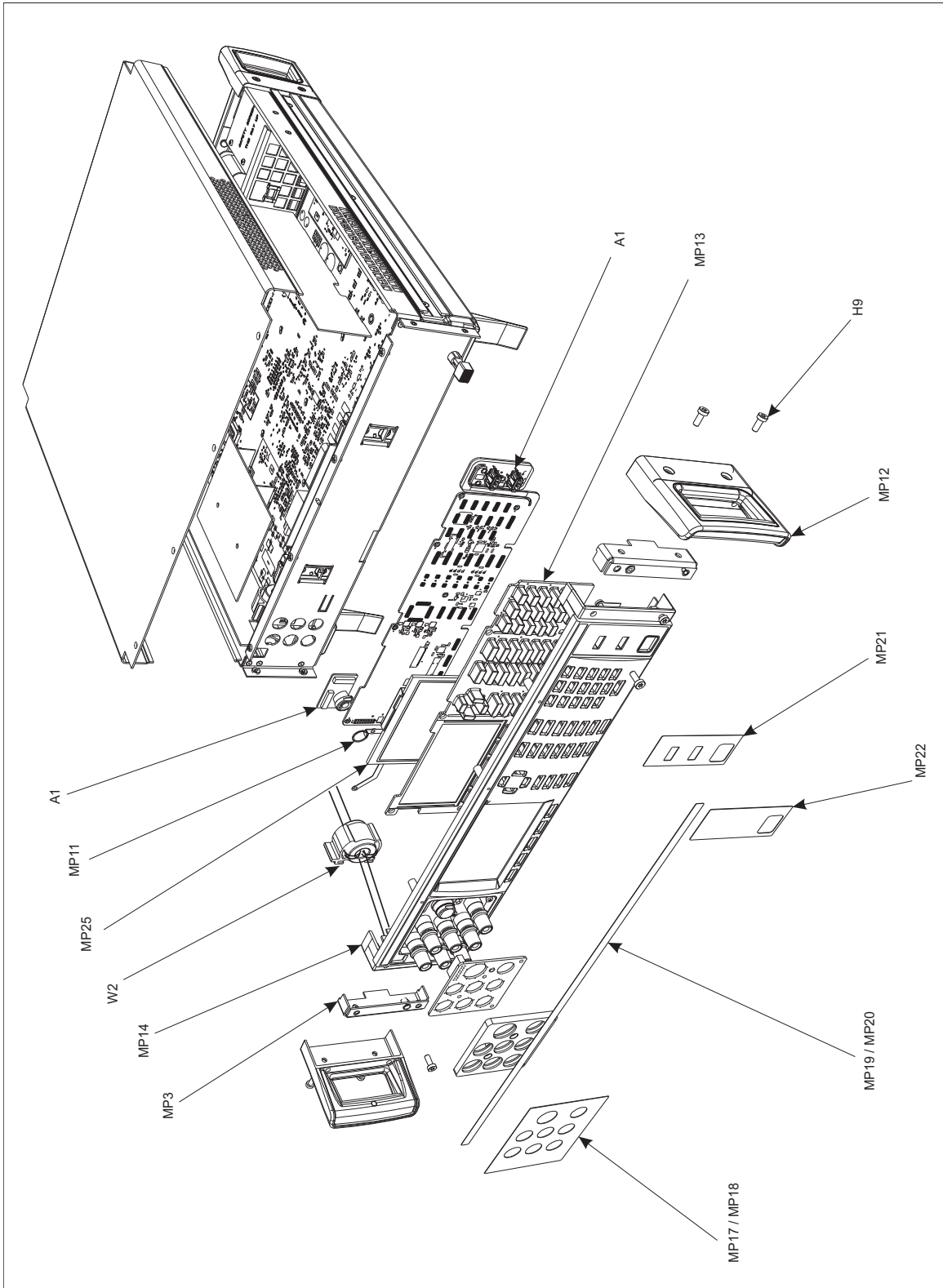


Figure 5. Replacement Parts (cont.)

Remove Hardware Components

Use the subsequent procedures to remove external hardware components from the Product. To gain access to the interior of the Product, remove all of the hardware components in sequence See Figures 3, 4, and 5.

To reassemble the Product, reverse the dismantling process.

Handles

The Product has four handles, two on the front panel and two on the rear panel. All four handles are the same and each is secured to the chassis using four screws, two on the front of the handle and two on the side.

To remove each of the handles:

1. Remove the two screws on the front of the handle.
2. Remove the two screws from the side of the handle.

Bottom Feet and Tilt Stand Bail

The Product has four protective feet on its bottom cover. The front two feet have captured tilt stand bails. To remove each foot:

1. Position the Product so that the bottom cover is facing up.
2. Push the release tab (as indicated on the foot molding), using a small screwdriver inserted into the open area to remove the foot.
3. Lift the foot from the bottom cover.

Top and Bottom Covers

The top and bottom covers of the Product are similar except for the feet on the bottom cover which hide 2 screws, see [Bottom Feet and Tilt Stand Bail](#).

To remove the top cover:

1. Position the Product so the top cover is facing up.
2. The top cover is secured with six screws.
3. Remove the two panhead screws that attach the cover to the rear panel.
4. Remove the four countersunk screws from the top face.
5. Lift the cover straight up to remove.

To remove bottom cover:

1. Position the Product so the bottom cover is facing up, the cover is secured with seven screws.
2. Remove the two panhead screws that attach the bottom cover to the rear panel.
3. Remove the front two feet, to gain access to all of the cover fixing screws.
4. Remove the five countersunk screws on the top face.
5. Lift the cover straight up to remove.

Front-Panel Assembly

1. Remove the top cover.
2. Open the small white cable guide nearest to the terminals.
3. Remove the 2 x M4 Torx panhead screws that hold the thick red and black cables to the Current Shunt PCA.
4. Locate the two large ferrite Beads held by white plastic clips, slide the plastic clips upwards and inwards to unsecure them from the metal chassis.
5. Unplug the five white connectors from the main Analogue PCA (Red, Black, Blue, Brown and White wires that emerge from the front panel).
6. Remove the two Handle side screws from each front handle.
7. Remove the 3 T10 torx panhead self-tapping screws located at the top of the Chassis front panel. Take care not to drop these inside the unit.
8. Pull the front panel straight forward to dislodge the panel from the chassis.
9. Unplug the front panel Ribbon Cable to release the front panel. Take care as the Green power switch is unsupported and vulnerable.

Rear Panel

1. Remove the Top Cover.
2. Remove the Bottom Cover.
3. Remove the two rear handles.
4. Remove 2 x T10 Torx Panhead screws from mains inlet protection PCA and move it to the side.
5. Unplug the Blue, Brown, and Green / Yellow wire connectors from the back of the mains inlet module.
6. Remove the 4 x Transformer fixing screws (T20 x Panhead), be careful as the transformer is now loose.
7. Remove the 2 IEEE jack screws and washers.
8. Unplug the "Trig In", "Trig Out", and Fan connectors from the A3 Digital PCA.
9. Remove the BNC securing nuts from the "Freq Ref" and "Freq Counter" connectors.
10. Remove 1 x T10 Torx panhead screw.
11. Remove 2 x T10 Torx countersunk screws.

The rear panel is now free from the unit, however the Mains Inlet, Chassis Ground connector, Fan, and Freq In / Out connectors are still attached to the rear panel.

Remove the Transformer Assembly

1. Remove the top cover.
2. Remove the 2 x T10 Torx Panhead screws from the mains inlet protection PCA, turn the PCA over and remove the wires from the cable guide.
3. Remove the 4 x Transformer fixing screws (T20 x Panhead), taking care as the transformer is now loose.
4. Unplug the connector to the A3 Digital PCA.
5. Unplug the connector to the A1 Mains Switching PCA.
6. Unplug the connector from the A2 Analog PCA, taking care to release the wires from the cable guide fixed to the chassis and thread the plug through the Chassis hole.
7. The Transformer is now free to be lifted from the chassis.

Remove A3 Digital PCA Assembly

1. Remove Rear Panel.
2. Unplug the connector to the Transformer.
3. Unplug the small ribbon connector that connects to the A2 Analog PCA.
4. Unplug the large ribbon connector from the Front-panel assembly.
5. Remove the 1 x T10 Torx panhead screw. The A3 Digital is now free from the unit.

Remove the A2 Analogue Assembly

1. Remove the top cover.
2. Open the 4 x small white cable guides and release wires
3. Unplug the 5-way and 2 x 2way connectors that connect the A1 Current Shunt PCA to the A2 Analogue PCA.
4. Remove the T10 Torx Panhead screw that holds the A1 Current Shunt PCA to the metalwork (located between the small fan and the large relay).
5. Move the A1 Current Shunt PCA including the large ferrite up and out of the way.
6. Unplug the 11 x 2-way connectors from the front panel and rear-input assemblies. Lift these out of the way, including the large ferrite near the front terminals.
7. Remove the glass fiber air deflector.
8. Unplug the 10-way connector to the transformer and move away.
9. Unplug the small ribbon cable going to the A3 Digital PCA. The A2 analog PCA including its mounting plate and Insulators, can now be lifted straight up and out of the chassis.
10. 14 x Light Grey insulators are keyed into the mounting plate. To remove, rotate approximately ¼ turn and lift away.

Remove the A1 Front PCA (Including Keypad and the Display)

1. Remove the Front PCA.
2. Carefully remove the front ext port connector securing nut.
3. Unplug the small PCA that the ext port connector is soldered to.
4. Remove the 12 x T10 Torx self-tap screws.
5. Remove the 1 x T10 Torx panhead screw that holds the wire to the bezel bracket.
6. Unplug the Display flexi PCB from the connector. The A1 Front PCA is now free from the instrument, also free is the front Keypad and Display assembly.