

Manual Supplement

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This supplement contains information necessary to ensure the accuracy of the above manual. This manual is distributed as an electronic manual on the following CD-ROM:

CD Title:	5320A
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Change #1

On page 7-26, replace Figure 7-23 with the following:

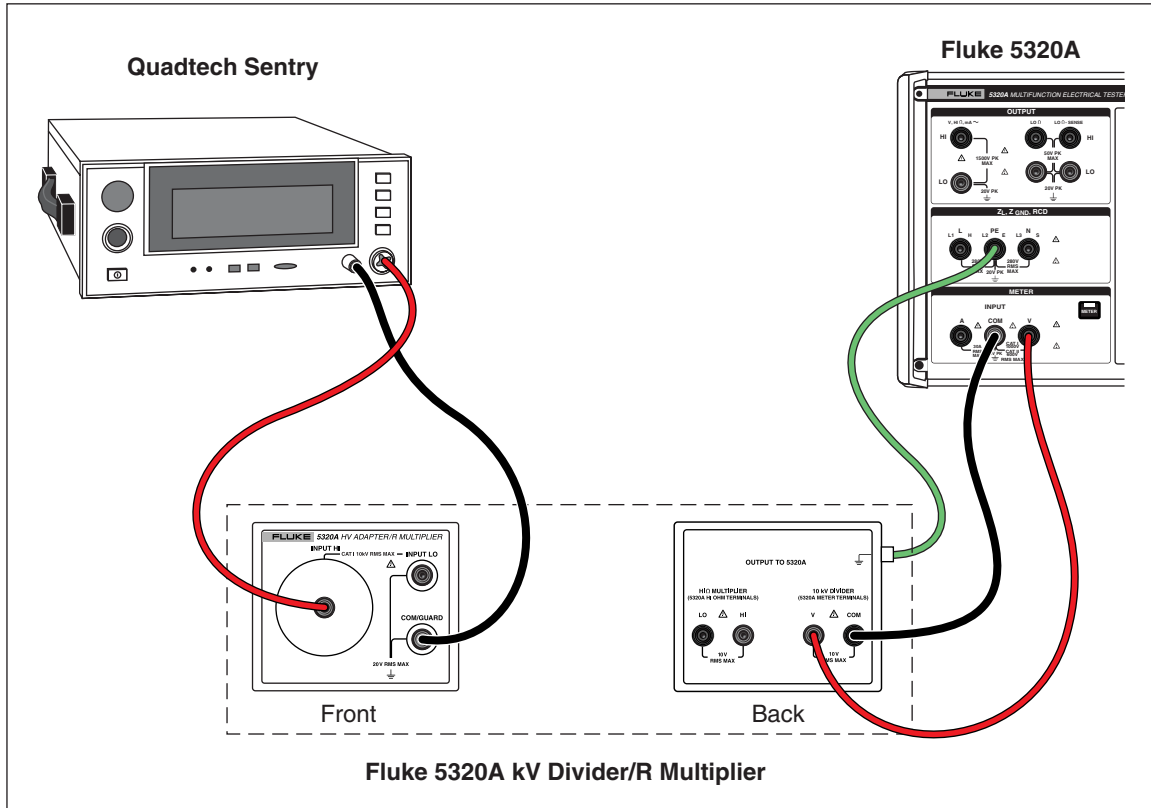


Figure 7-23. 10 kV High Voltage Adapter Application

Change #2

On page 5-15, change the following:

From: ***OUTPute[:STATus](?)<CPD>{ON/OFF}***

To: ***OUTPut[:STATe](?)<CPD>{ON/OFF}***

Change #3

On page 5-25, change the following:

From: `[SOUR]:SAF:IDP[:CURR]:RES?`

Description: This command returns the measured current flowing through the UUT. If not already selected, it also switches the Calibrator to the Passive Leakage Current function.

Query: SAF:IDP:RES? Returns the value of the instantaneous current flowing through the Calibrator.

To: `[SOUR]:SAF:IDP[:CURR]:RES?`

Description: This command returns the measured current flowing through the UUT. If not already selected, it also switches the Calibrator to the Passive Leakage Current function.

Query: SAF:IDP:RES? Returns the value of the resulting measured UUT current.

On page 5-26, change the following:

From: `[SOUR]:SAF:IDD[:CURR]: RES?`

Description: This command returns the measured current flowing through the UUT. If not already selected, it also switches the Calibrator to the Differential Leakage Current function.

Query: SAF:IDD:RES? Returns the value of the instantaneous current flowing through the Calibrator.

To: `[SOUR]:SAF:IDD[:CURR]: RES?`

Description: This command returns the measured current flowing through the UUT. If not already selected, it also switches the Calibrator to the Differential Leakage Current function.

Query: SAF:IDD:RES? Returns the value of the resulting measured UUT current.

Change #4

On page 6-6, after step 2 of High Resistance Source Verification, add the following note:

Note

For some megohmmeters, when using the Calibrator's 100 GΩ value or when using the resistance multiplier adapter, the leads must be swapped between the Calibrator's HI and LO ohms resistance output. The ground must be turned on (GDN ON) when swapping HI and LO lead positions in the high ohms resistance function. For example to make a proper measurement with the Quadtech 1865 megohmmeter, connect the HI terminal on the megohmmeter to the LO terminal on the Calibrator and connect the LO terminal on the megohmmeter to the HI terminal on the Calibrator. Turn the ground on and proceed to make the measurement.

Change #5

On page 1-8, delete the following from the Table:

Plug adapter (x2) 2743474

Change #6

On page 6-6, under **Performing Calibrator Verification**, add the following under the last bullet:

- Voltage divider to 10 kV

On page 6-8, add the following section under the Note:

10 kV AC/DC Voltage Divider Verification

1. Connect 10 kV divider adapter to the 5320A meter input terminals (V and COM). From the front panel of the 5320A, set the active function to METER mode.
2. Activate the 10 kV probe selection by pressing the Probe softkey until 10 kV is selected in the probe parameter.
3. Set the meter to DC mode by pressing the AC/DC softkey.
4. Apply DC voltage from a high voltage source to the 10 kV probe input terminals. The voltage reading on the calibrator display should not exceed specified limits (in Table 6-13).
5. Set the meter to AC mode by pressing the AC/DC softkey.
6. Apply AC voltage from a high voltage source to the 10 kV probe input terminals. The voltage reading on the calibrator should not exceed specified limits (in Table 6-13).

On page 6-12, following Table 6-12, add Table 6-13 and the note:

Table 6-13. 10 kV AC/DC Voltage Divider Verification

Nominal HV source voltage	Required standard voltage accuracy	Frequency (Hz)	Lower Limit (V)	Upper Limit (V)
1 kV DC	0.1 %	-	992	1008
1 kV AC	0.1 %	55	990	1010
5 kV DC	0.1 %	-	4980	5020
5 kV AC	0.1 %	55	4970	5030

Note

5 kV nominal voltage is recommended. If HV DC/AC source is not available, use multifunction calibrator with output voltage 1000 V.

Change #7

On page 3-15 add the following, prior to *Error Messages*:

Factory Settings

Table 3-3A lists the setup functions and their respective factory set values.

Table 3-3A. Factory Settings

Setup Item	Factory Set Value
Volume	15
Brightness	6
Beeper	ON
Calibration Password	0
Time	GMT
Date	GMT
Voltage calibrator	Yes/No
Compensator	Yes/No
Calibrator GND	ON
High Resistance source GND	ON
R multiplier input	0 M Ω
Low Resistance source GND	ON
Loop impedance correction	OFF
Loop impedance MAN value	0.000 Ω
Loop impedance SCAN value	0.000 Ω
Line impedance correction	OFF
Line impedance MAN value	0.000 Ω
Line impedance SCAN value	0.000 Ω
Substitute LC Rout	2.000 Ω
RCD I level	90 %
RCD Serial resistance	R0
Meter GND	OFF

On page 5-6, add the following prior to *Command Syntax Information*:

Factory Settings

Table 5-1A lists the setup functions for the remote interface and their respective factory set values.

Table 5-1A. Remote Interface Factory Settings

Setup Item	Factory Set Value
Active Interface	RS232
Baud rate	9600
IEEE488 address	02
IP addresss	192.168.1.82
Local network mask	255.255.255.0
Local network gateway	255.255.255.0

Change #8

On page 2-6, replace the first paragraph under Turning on the Calibrator with the following:

With the Calibrator setup for the proper line voltage, press the power switch on the back panel so the “I” side of the switch is depressed. During its power-up cycle, the Calibrator displays a power supply test screen while initializing internal circuits and checking the mains connection. The mains connection tests are:

- Power line voltage test – The line voltage must be within preset limits. For the 230 V setting, the range must be between 180 V and 260 V. For the 115 V setting, the limits are between 90 V to 130 V
- Power line frequency test – The frequency must be within preset limits. 49 Hz to 51 Hz or 59 Hz to 61 Hz.
- Potential difference and polarity test – The potential difference between neutral and protective earth must be less than 15 V.

Note

The polarity of the neutral and the line wires must be correct for the 5320A to power on. If the “L-N-PE” test fails during the power-on process, the neutral and the line wires should be swapped on the plug end of the 5320A power line cord. Only a qualified service technician should make this change.

The screen in Figure 2-2 is displayed when the Calibrator completes these tests.

Change #9, 39247, 40107, 40985, 41082, 41141

On pages 1-9 through 1-16, replace all the Specifications with the following:

General Specifications

Warm-Up Time.....	30 minutes
Specifications Confidence Level.....	99 %
Specifications Interval.....	1 year
Temperature Performance	
Operating Temperature.....	18 to 28 °C
Calibration Temperature (tcal).....	23 °C
Temperature Coefficient.....	Temperature coefficient for temperature outside of Tcal ± 5 °C between +5 °C to +40 °C is 0.1 x /°C
Storage Temperature.....	-20 to +70 °C
Relative Humidity (operating).....	<70 % to 28 °C
Altitude	
Operating.....	3,050 m (10,000 ft.)
Storage.....	12,200 m (40,000 ft.)
Dimensions.....	450 mm X 480 mm X 170 mm (17.7 in. X 18.9 in. X 6.7 in.)
Weight.....	18 kg (39.7 lbs.)
Power Line.....	115/230 V ac (50/60 Hz) ± 10 %
Power Consumption.....	150 VA Maximum
Safety Class.....	Class I, Bonded Enclosure
Electrostatic Discharge.....	This instrument meets class I for ESD requirements per EN 61326 (Criteria A)
⚠ Fuse Protection	
AC mains input.....	2 A, 250 V for 230 V, Time delay (T2L250 V – 5 x 20 mm) 4 A, 250 V for 115 V, Time delay (T4L250 V – 5 x 20 mm)
RCD input.....	3.15 A, 250 V, Fast (F3.15L250V – 5 x 20 mm)
Meter amps (A) input.....	20 A, 500 V, Fast (T20L500V – 6.3 x 32 mm)
Loop/Line impedance input.....	4 A, 250 V, Time delay (T4L250V – 6.3 x 32 mm)
Leakage current input.....	100 mA, 150V, Fast (F100mL150V – 5 x 20 mm)

Electrical Specifications

Low Resistance Source

Total Range.....	100 m Ω to 10 k Ω
Resolution.....	3½ digits (continuously variable)

Uncertainty and Maximum Ratings

Range	Resolution	Maximum AC or DC Current ^[1]	2-Wire Uncertainty ^[2] (tcal ± 5 °C)	4-Wire Uncertainty (tcal ± 5 °C)
100 m Ω to 4.99 Ω	0.1 m Ω	400 mA	0.3 % + 25 m Ω	0.3 % + 10 m Ω
5 to 29.9 Ω	0.01 Ω	250 mA	0.2 % + 25 m Ω	0.2 % + 10 m Ω
30 to 199.9 Ω	0.1 Ω	100 mA	0.2 % + 25 m Ω	0.2 % + 10 m Ω
200 to 499 Ω	1 Ω	45 mA	0.2 %	0.2 %
500 Ω to 1.999 k Ω	1 Ω	25 mA	0.2 %	0.2 %
2 to 4.99 k Ω	10 Ω	10 mA	0.2 %	0.2 %
5 to 10 k Ω	10 Ω	5 mA	0.2 %	0.2 %

Notes:

[1] Test current can exceed 120 % of maximum current for up to 3 seconds. Terminals automatically disconnect if test current exceeds 120 % of specified maximum current.

[2] Uncertainty is valid to 200 mW. For higher power rating, add 0.1 % per each 300 mW above 200 mW.

Test Current Measurement

Range..... 0 to 400 mA ac + dc rms
 Resolution 1 mA
 Uncertainty..... $\left(\left(\frac{20}{\sqrt{R}}\right)+0.1\right) mA$ R = set resistance between 0.5 Ω to 10 kΩ.

Short Mode

Nominal resistance..... <50 mΩ
 Maximum current..... 400 mA ac + dc rms

Open Mode

Nominal resistance..... 30 MΩ ±20 %
 Maximum input voltage allowed 50 V ac + dc rms
 Test voltage reading..... 0 to 50 V ac + dc rms
 Resolution 1 V
 Uncertainty..... 5 % + 2 V

High Resistance Source

Range..... 10 kΩ to 10 GΩ plus 100 GΩ single value selection.
 Resolution 4½ Digit (continuously variable for 10 kΩ to 10 GΩ range)

Uncertainty and Maximum Ratings

Range	Resolution	Maximum Voltage (ac+dc) Peak	Uncertainty ^[1] (tcal ±5 °C)
10.000 to 39.99 kΩ	1 Ω	55 V	0.2 %
40.00 to 99.99 kΩ	10 Ω	300 V	0.2 %
100.00 to 199.99 kΩ	10 Ω	800 V	0.2 %
200.0 to 999.9 kΩ	100 Ω	1100 V	0.2 %
1.0000 to 9.999 MΩ	100 Ω	1100 V	0.3 %
10.000 to 999.9 MΩ	1 kΩ	1575 V ^[2]	0.5 %
1.0000 to 10.000 GΩ	100 kΩ	1575 V ^[2]	1.0 %
100 GΩ	NA	1575 V ^[2]	3.0 % ^[3]

Notes:

- [1] Uncertainty is valid to 500 volts. For test voltages above 500 V, add 0.1% for each 200 V above 500 V.
- [2] Maximum test voltage with the supplied banana leads is 1000 Vrms. For higher voltages, use leads rated at 1575 V or above.
- [3] Calibration value uncertainty is specified in the table. Nominal value uncertainty is 15 %.

Test Voltage Measurement

Range..... 0 to 2000 V dc peak
 Resolution 1 V
 Uncertainty..... 1 % + 5 V for R above 1 MΩ
 1 % + 2 V for R below 1 MΩ
 Settling Time 2 seconds for input deviations of <5 %

Test Current Measurement

Range..... 0 to 9.9 mA dc
 Uncertainty..... 1.5 % + 5V/R A (where R is the selected resistance value)
 Settling time 2 seconds (for voltage reading deviations < 5 %)

Short Mode

Nominal resistance <100 Ω
 Maximum input current allowed 50 mA ac + dc rms
 Test current range 0 to 50 mA ac + dc rms
 Resolution 0.1 mA
 Uncertainty 2 % + 0.5 mA

Resistance Multiplier Adapter (x1000 multiplier)

Resistance range 350 MΩ to 10 TΩ

Uncertainty and Maximum Ratings

Range	Resolution	Maximum Voltage (ac+dc) Peak	Uncertainty (tcal ±5 °C)
350.0 MΩ to 99.99 GΩ	100 kΩ	5500 V	1.0 % + R ^[1]
100.00 GΩ to 999.9 GΩ	10 MΩ	5500 V	2.0 % + R ^[1]
1.0000 TΩ to 10.000 TΩ	100 MΩ	5500 V	3.0 % + R ^[1]

Notes:
 [1] R is the uncertainty of resistor to be multiplied by 1000.

Ground Bond Resistance Source

Range 25 mΩ to 1.8 kΩ
 Resolution 16 discrete values
 Minimum test voltage/current 10 V / 10 mA

Uncertainty and Maximum Ratings

Nominal Value	Deviation from Nominal Value	Absolute Uncertainty of Characterized Value (tcal ±5 °C)	Maximum Continuous Test Current ACrms or DC ^[1]	Maximum Short-term Test Current AC rms or DC ^[2]	Test Current Uncertainty
25 mΩ	±50 %	± 5 mΩ	30 A	40 A	1.5 % + 0.7 A
50 mΩ	±50 %	± 5 mΩ	28 A	40 A	1.5 % + 0.5 A
100 mΩ	±30 %	± 5 mΩ	25 A	40 A	1.5 % + 0.35 A
330 mΩ	±20 %	± 7 mΩ	14 A	40 A	1.5 % + 0.3 A
500 mΩ	±10%	± 8 mΩ	10 A	40 A	1.5 % + 0.2 A
1 Ω	±10 %	± 10 mΩ	8 A	40 A	1.5 % + 150 mA
1.8 Ω	±10%	± 18 mΩ	6 A	30 A	1.5 % + 100 mA
5 Ω	±10 %	± 30 mΩ	3.2 A	21 A	1.5 % + 70 mA
10 Ω	±10 %	± 60 mΩ	2.0 A	15 A	1.5 % + 50 mA
18 Ω	±10 %	± 100 mΩ	1.5 A	10 A	1.5 % + 30 mA
50 Ω	±10 %	± 300 mΩ	0.8 A	5.0 A	1.5 % + 20 mA
100 Ω	±10 %	± 500 mΩ	0.5 A	3.0 A	1.5 % + 10 mA
180 Ω	±10 %	± 1 Ω	0.25 A	1.35 A	1.5 % + 5 mA
500 Ω	±10 %	± 2.5 Ω	0.1 A	0.6 A	1.5 % + 3 mA
1 kΩ	±10 %	± 5 Ω	0.05 A	0.3 A	1.5 % + 2 mA
1.8 kΩ	±10 %	± 10 Ω	0.025 A	0.15 A	1.5 % + 2 mA

Notes:
 [1] Test currents up to 30 % of maximum continuous test current can be applied to the Calibrator with no time limitation. Test current between 30 % and 100 % of the maximum continuous test current can be applied to the Calibrator for a limited time. Minimum period of full current load is 45 seconds. The Calibrator calculates the allowed time period and when exceeded, the output connectors are disconnected.
 [2] Maximum short term test current is defined as the rms value of halfwave or fullwave test current flowing through the UUT. Maximum time of test is 200 ms. A time interval of 200 ms represents 10 full waves of power line voltage at 50 Hz and 12 full waves at 60 Hz.

Test Current Measurement

Range..... 0 to 40 A ac+ dc rms
Resolution 1 mA to 100 mA depending on resistance output and test current

Open Mode

Nominal resistance..... >100 kΩ
Maximum voltage 50 V ac+dc rms
Test voltage range 0 to 50 V ac+dc rms
Resolution 1 V
Uncertainty..... 2 % + 2 V

Line/Loop Impedance Source

Range..... 25 mΩ to 1.8 kΩ
Resolution 16 discrete values
Minimum test voltage/current 10 V/10 mA

Uncertainty and Maximum Ratings

Nominal Resistance Value	Deviation from Nominal Value	Absolute Uncertainty of Characterized Value (tcal ±5 °C)	Maximum Continuous Test Current AC rms or DC ^[1]	Maximum Short-term Test Current AC rms or DC ^[2]	Test Current Uncertainty
25 mΩ	±50 %	±5 mΩ	30 A	40 A	1.5 % + 0.7 A
50 mΩ	±50 %	±5 mΩ	28 A	40 A	1.5 % + 0.5 A
100 mΩ	±30 %	±5 mΩ	25 A	40 A	1.5 % + 0.35 A
330 mΩ	±20 %	±7 mΩ	14 A	40 A	1.5 % + 0.3 A
500 mΩ	±10%	±8 mΩ	10 A	40 A	1.5 % + 0.2 A
1 Ω	±10 %	±10 mΩ	8 A	40 A	1.5 % + 150 mA
1.8 Ω	±10 %	±18 mΩ	6 A	30 A	1.5 % + 100 mA
5 Ω	±10 %	±30 mΩ	3.2 A	21 A	1.5 % + 70 mA
10 Ω	±10 %	±60 mΩ	2.0 A	15 A	1.5 % + 50 mA
18 Ω	±10 %	±100 mΩ	1.5 A	10 A	1.5 % + 30 mA
50 Ω	±10 %	± 300 mΩ	0.8 A	5.0 A	1.5 % + 20 mA
100 Ω	±10 %	± 500 mΩ	0.5 A	3.0 A	1.5 % + 10 mA
180 Ω	±10 %	± 1 Ω	0.25 A	1.35 A	1.5 % + 5 mA
500 Ω	±10 %	± 2.5 Ω	0.1 A	0.6 A	1.5 % + 3 mA
1 kΩ	±10 %	± 5 Ω	0.05 A	0.3 A	1.5 % + 2 mA
1.8 kΩ	±10 %	± 10 Ω	0.025 A	0.15 A	1.5 % + 2 mA

Notes:

- [1] Test currents up to 30 % of maximum continuous test current can be applied to the Calibrator with no time limitation. Test current between 30 % and 100 % of the maximum continuous test current can be applied to the Calibrator for a limited time. Minimum period of full current load is 45 seconds. The Calibrator calculates the allowed time period and when exceeded, the output connectors are disconnected.
- [2] Maximum short term test current is defined as the rms value of halfwave or fullwave test current flowing through the UUT. Maximum time of test is 200 ms. A time interval of 200 ms represents 10 full waves of power line voltage at 50 Hz and 12 full waves at 60 Hz.

Test Current Measurement

Type of recognized test current Positive impulse (halfwave), negative impulse (halfwave), symmetrical (fullwave).
Range..... 0 to 40 A ac+dc rms
Resolution 1 to 100 mA depending on test current and resistance output

Prospective Fault Current

Range 0 to 10 kA

Correction Manual Mode

Residual Impedance Range 0 to 10 Ω

Resolution 1 m Ω

Uncertainty Uncertainty in manual (MAN) mode is the uncertainty of selected resistance value. See table above. Also, the uncertainty of the manually entered correction should be taken into consideration.

Correction Scan Mode

Residual Impedance Range 0 to 10 Ω

Resolution 1 m Ω

Uncertainty (1 % +15 m Ω) + uncertainty of selected resistance value.

Correction COMP Mode (Active Loop Compensation) (5320A/VLC only)

Residual Impedance Range 0 to 2 Ω

Maximum Test Current <25/N A pk, where N equals number of UUT generated test current periods.

Uncertainty of compensation (1 % + 15 m Ω) + uncertainty of selected resistance value. Uncertainty is valid at the point in time when the COMP function is initiated.

Leakage Current Source

Range 0.1 to 30 mA

Resolution:

Passive Mode 10 μ A setting, 1 μ A measurement

Differential Mode 10 μ A setting, 1 μ A measurement

Substitute Mode 10 μ A

Active Mode (5320A/VLC only) 10 μ A

Test Voltage:

Passive Mode 60 to 250 V ac+dc rms

Differential Mode 60 to 250 V ac+dc rms

Substitute Mode 10 to 250 V ac+dc rms

Active Mode (5320A/VLC only) 50 to 100 V ac+dc rms

Uncertainty:

Passive Mode 0.3 % + 2 μ A ac+dc rms

Differential Mode 0.3 % + 2 μ A ac+dc rms

Test uncertainty can be influenced by power line voltage instability

Substitute Mode 0.3 % + 2 μ A ac+dc rms

Active Mode (5320A/VLC only) 0.3 % + 1 μ A ac+dc rms

RCD (Residual Current Device)**Trip Current Range:**

0.5 X I and 1 X I mode: 3 to 3000 mA in 1 mA steps

1.4 X I and 2 X I Mode 3 to 1500 mA in 1 mA steps

5 X I Mode 3 to 600 mA in 1 mA steps

Trip Current Measurement Resolution 1 μ A on 30 mA range
 10 μ A on 300 mA range
 100 μ A on 3A range

Uncertainty:

- 0.5 X I and 1 X I mode:..... 1 % rms
- 1.4 X I and 2 X I Mode..... 2 % rms
- 5 X I Mode 5 % rms
- Trip Time Range**..... 10 to 5000 ms
- Trip Time Uncertainty**..... 0.02 % + 0.25 ms
- Series Resistance**..... 0.025 Ω, 0.05 Ω, 0.1 Ω, 0.33 Ω, 0.5 Ω, 1 Ω, 1.8 Ω, 5 Ω, 10 Ω, 18 Ω, 50 Ω, 100 Ω, 180 Ω, 500 Ω, 1000 Ω, 1800 Ω
- Line/Touch Voltage Range** 250 V
- Line/Touch Voltage Uncertainty**..... 5 % + 3 V

AC/DC Voltage Calibrator (5320A/VLC only)

- Range**..... 3 to 600 V, ac or dc
- Resolution** 4 digits
- Internal Ranges:**
 - AC Mode..... 30, 100, 300, and 600 V (Autoranging only)
 - DC Mode 30, 150, and 600 V (Autoranging only)
- Frequency:**
 - Range 40 to 400 Hz
 - Resolution..... 3 digits
 - Uncertainty..... 0.02 %
- Settling Time** 300 ms to 3 s, depending on output value

AC Voltage

Uncertainty and Maximum Burden Current

Range	Resolution	Uncertainty ±(% of Reading + mV)	Maximum Burden Current
3 – 29.99 V	0.001 V	0.1 % + 9	500 mA
30 – 99.99 V	0.01 V	0.1 % + 30	300 mA
100 – 299.9 V	0.1 V	0.1 % + 90	150 mA
300 – 600 V	0.1 V	0.1 % + 180	50 mA

DC Voltage

Uncertainty and Maximum Burden Current

Range	Resolution	Uncertainty ±(% of Reading + mV)	Maximum Burden Current
3 – 29.99 V	0.001 V	0.1 % + 9	2 mA
30 – 149.9 V	0.01 V	0.1 % + 45	3 mA
150 – 600 V	0.1 V	0.1 % + 180	5 mA

- AC Output Signal Distortion**..... 0.2 % ±10 mV (harmonic distortion and non-harmonic noise from 20 Hz to 500 kHz), for output power lower than 10 VA on each range.
- Sensing Ammeter Current Range**..... 500 mA
- Resolution** 1 mA
- Uncertainty**..... ±5 mA

Multimeter

Voltage

Range 0 to 1100 V ac rms or dc
Resolution 4½ digits
Internal Ranges 10, 100, and 1100 V (Autoranging only)
Frequency Range DC, 20 Hz to 2 kHz
Input Resistance 10 MΩ ±1 %
Time Constant 1.5 s
Readings/Second 2
Measurement Category 1000V CAT I, 300 V CAT II

AC/DC Voltage Uncertainty

Range	Resolution	Uncertainty ±(% of Reading + mV)
10 V	0.001 V	0.15 % + 5
100 V	0.01 V	0.20 % + 50
1100 V	0.1 V	0.20 % + 550

Current

Range 0 to 20 A continuous, 30 A for up to 30 minutes, ac rms or dc
Resolution 4½ digits
Internal Ranges 300 mA, 3 and 30 A (Autoranging only)
Frequency Range DC, 20 to 400 Hz
Time Constant 1.5 s
Readings/Second 2

AC/DC Current Uncertainty

Range	Resolution	Uncertainty ±(% of Reading + mA)
300 mA	0.1 mA	0.15 % + 0.15
3 A	1 mA	0.15 % + 1.5
30 A	10 mA	0.30 % + 15

Phantom Power

Range 0 to 33 kVA
Resolution 3 digits
Uncertainty $\sqrt{(V_{unc})^2 + (I_{unc})^2}$ where V_{unc} is specified uncertainty of measured voltage and I_{unc} is specified uncertainty of measured current.

Hipot Leakage Current Measurement Mode

Range 0 to 300 mA ac rms or dc
Resolution 4 1/2 digits
Frequency range DC, 20 Hz to 400 Hz
Time constant 1.5 s
Readings/second 2

