



# Agilent 34450A Multimeter

## 5.5 Digit Dual Display, Benchtop DMM

### Data Sheet

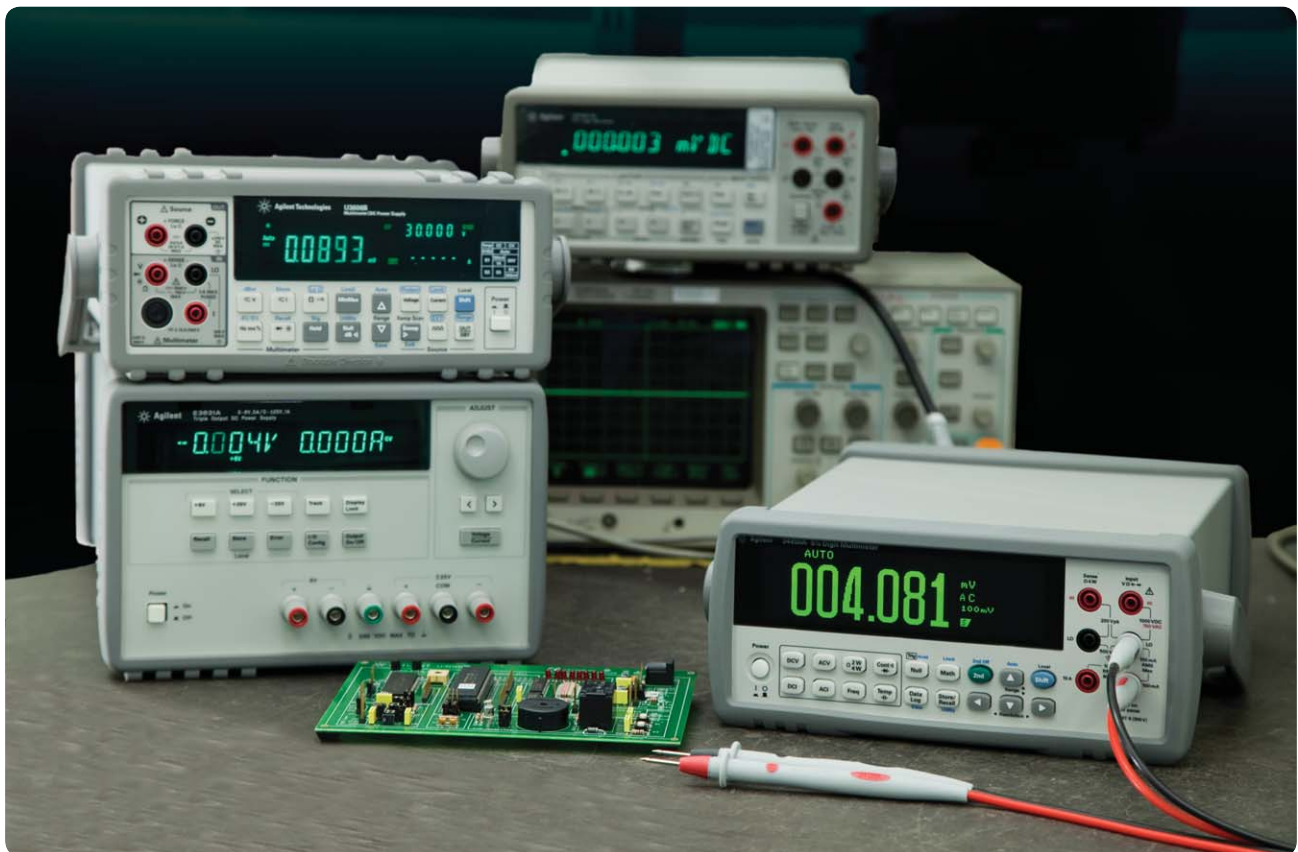


## ► Features

- Fast reading speed of up to 190 readings/sec
- 0.015% DCV accuracy
- Multiple connectivity options – USB 2.0, Serial Interface (RS-232) and GPIB
- 11 measurement functions; DC voltage & current, True RMS AC voltage & current, 2- and 4-wire resistance, frequency, continuity, diode test, capacitance and temperature
- Ultra-bright OLED with dual display capability
- Up to 50,000 memory points for data logging
- Built-in Histogram function
- With Fluke 45 and Fluke 8808A code compatibility

## Achieve throughput breakthrough

Turbo charge your production line with the 34450A digital multimeter. With its fast speed of up to 190 readings per second you can now increase your manufacturing throughput tremendously. Get highly accurate, repeatable and trustworthy measurements with the 0.015% DCV accuracy designed to meet general industrial and educational needs.



**Figure 1. Bright OLED display for excellent viewing experience when making measurements.**

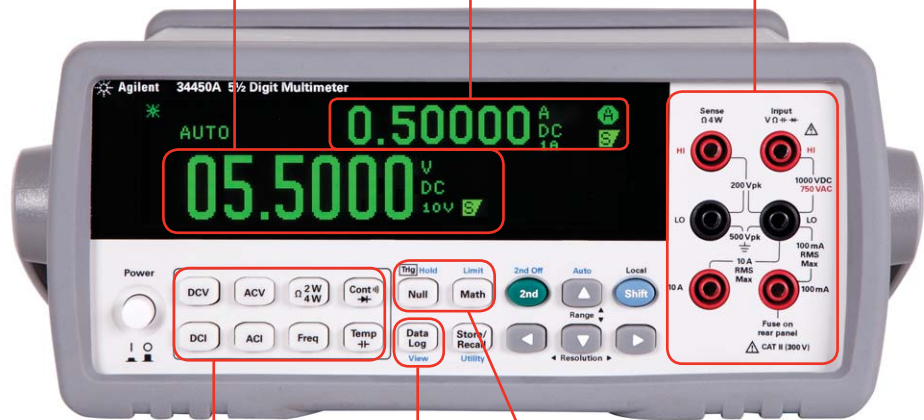
## Intuitive and Multipurpose device

The 34450A is an intuitive and easy to use tool that provides a wide range of measurement functions such as DC voltage, DC current, True RMS AC voltage and AC current, 2-wire and 4-wire resistance, frequency, diode test, continuity, capacitance and temperature. Simplify your day-to-day task with up to 50,000 memory points, allowing you to capture and log up to 14 hours of data. Built-in with histogram and basic statistical functions, you can now do simple data analysis within the unit itself. With its ultra-bright OLED dual display, different measurements can be performed ensuring you get the right readings at first glance.

Fast 190 readings/sec and 0.015% DCV accuracy to help you achieve throughput breakthrough

5.5 digit OLED dual display allows clear and quick view on measurements

Input terminals



## More flexibility with multiple connectivity

Multiple connectivity options such as USB 2.0, Serial Interface (RS-232) and GPIB port provides greater flexibility to connect DMM to a PC for data access and retrieval for analysis. With the option to connect to a PC, this enables the 34450A to work with Agilent Connectivity software and can be controlled remotely via SCPI commands or Command Expert. The IVI-COM driver is also included to ensure an easy integration with different programming environments.

11 measurement functions; DC voltage & current, True RMS AC voltage & current, frequency, continuity, diode test, capacitance and temperature

Built-in Math functions

Up to 50,000 memory points for data logging and histogram function

## Easy migration

Upgrading your obsoleted DMM is made easy with minimal changes to test program. To ensure both forward and backward compatibility, the 34450A includes SCPI, Fluke 45 or Fluke 8808A commands. Experience a quick, easy and painless migration as it allows you to quickly transfer your existing test programs on the Agilent 34450A.

Multiple choices of connectivity and trigger in/out capability for production data analysis

Kensington lock to better secure the unit



## DC Specifications

Specifications are for 90 minutes warm- up time, slow mode, and calibration temperature within 18 °C - 28 °C

**Table 1. DC Accuracy  $\pm$  (% of reading + % of range)**

| Function                            | Range <sup>1</sup> | Test Current or Burden Voltage | Input Impedance                  | 1 Year<br>23 °C $\pm$ 5 °C | Temperature Coefficient<br>0 °C - 18 °C<br>28 °C - 55 °C |
|-------------------------------------|--------------------|--------------------------------|----------------------------------|----------------------------|----------------------------------------------------------|
| DC Voltage                          | 100.000 mV         | —                              | 10 M $\Omega$ or > 10 G $\Omega$ | 0.018 + 0.008              | 0.0020 + 0.0008                                          |
|                                     | 1.00000 V          | —                              | 10 M $\Omega$ or > 10 G $\Omega$ | 0.015 + 0.005              | 0.0015 + 0.0008                                          |
|                                     | 10.0000 V          | —                              | 10 M $\Omega$                    | 0.015 + 0.005              | 0.0020 + 0.0008                                          |
|                                     | 100.000 V          | —                              | 10 M $\Omega$                    | 0.015 + 0.005              | 0.0020 + 0.0008                                          |
|                                     | 1000.00 V          | —                              | 10 M $\Omega$                    | 0.015 + 0.005              | 0.0020 + 0.0008                                          |
| Resistance<br>(2-wire) <sup>2</sup> | 100.000 $\Omega$   | 1 mA                           | —                                | 0.050 + 0.008              | 0.0060 + 0.0008                                          |
|                                     | 1.00000 k $\Omega$ | 500 $\mu$ A                    | —                                | 0.050 + 0.008              | 0.0060 + 0.0005                                          |
|                                     | 10.0000 k $\Omega$ | 100 $\mu$ A                    | —                                | 0.050 + 0.005              | 0.0060 + 0.0005                                          |
|                                     | 100.000 k $\Omega$ | 10 $\mu$ A                     | —                                | 0.050 + 0.005              | 0.0060 + 0.0005                                          |
| Resistance<br>(4-wire) <sup>2</sup> | 1.00000 M $\Omega$ | 1 $\mu$ A                      | —                                | 0.060 + 0.005              | 0.0060 + 0.0005                                          |
|                                     | 10.0000 M $\Omega$ | 100 nA                         | —                                | 0.250 + 0.005              | 0.0250 + 0.0005                                          |
|                                     | 100.000 M $\Omega$ | 100 nA/10 M $\Omega$           | —                                | 2.000 + 0.005              | 0.3000 + 0.0005                                          |
| DC Current                          | 100.000 $\mu$ A    | < 0.02 V                       | —                                | 0.05 + 0.015               | 0.007 + 0.0015                                           |
|                                     | 1.00000 mA         | < 0.2 V                        | —                                | 0.05 + 0.007               | 0.007 + 0.0010                                           |
|                                     | 10.0000mA          | < 0.02 V                       | —                                | 0.05 + 0.015               | 0.008 + 0.0015                                           |
|                                     | 100.000mA          | < 0.2 V                        | —                                | 0.05 + 0.007               | 0.008 + 0.0010                                           |
|                                     | 1.00000A           | < 0.2 V                        | —                                | 0.10 + 0.015               | 0.012 + 0.0015                                           |
|                                     | 10.0000A           | < 0.6 V                        | —                                | 0.25 + 0.007               | 0.015 + 0.0010                                           |
| Continuity <sup>3</sup>             | 1000 $\Omega$      | 0.5 mA                         | —                                | 0.05 + 0.03                | 0.005 + 0.005                                            |
| Diode Test <sup>4</sup>             | 1.0000V            | 0.5 mA                         | —                                | 0.05 + 0.03                | 0.005 + 0.005                                            |

**Notes on Specifications:**

1. 20% over range on all ranges except 1000 VDC and 10 A range.
2. Specifications are for 4-wire  $\Omega$  or 2-wire  $\Omega$  using NULL function. If without NULL function, add 0.2  $\Omega$  additional error.
3. Continuity thresholds is fixed at less than 10  $\Omega$
4. Specifications are for the voltage measured at the input terminals only.

## AC Specifications

Specifications are for 90 minutes warm- up time, slow mode, and calibration temperature within 18 °C - 28 °C

**Table 2. AC Accuracy  $\pm$  (% of reading + % of range)**

| Function                         | Range <sup>1</sup>      | Frequency                     | 1 Year<br>23 °C $\pm$ 5 °C | Temperature Coefficient<br>0 °C - 18 °C<br>28 °C - 55 °C |
|----------------------------------|-------------------------|-------------------------------|----------------------------|----------------------------------------------------------|
| True RMS AC Voltage <sup>2</sup> | 100.000 mV              | 20 Hz – 45 Hz                 | 1.0 + 0.1                  | 0.02 + 0.02                                              |
|                                  |                         | 45 Hz – 10 kHz                | 0.2 + 0.1                  | 0.02 + 0.02                                              |
|                                  |                         | 10 kHz – 30 kHz               | 1.5 + 0.3                  | 0.05 + 0.02                                              |
|                                  |                         | 30 kHz – 100 kHz <sup>3</sup> | 3.0 + 0.3                  | 0.10 + 0.02                                              |
|                                  | 1.00000 V to 750.00 V   | 20 Hz – 45 Hz                 | 1.0 + 0.1 <sup>4</sup>     | 0.02 + 0.02                                              |
|                                  |                         | 45 Hz – 10 kHz                | 0.2 + 0.1                  | 0.02 + 0.02                                              |
|                                  |                         | 10 kHz – 30 kHz               | 1.5 + 0.3                  | 0.05 + 0.02                                              |
|                                  |                         | 30 kHz – 100 kHz <sup>3</sup> | 3.0 + 0.3 <sup>5</sup>     | 0.10 + 0.02                                              |
| True RMS AC Current <sup>2</sup> | 10.0000 mA to 10.0000 A | 20 Hz – 45 Hz                 | 1.5 + 0.1                  | 0.02 + 0.02                                              |
|                                  |                         | 45 Hz – 1 kHz                 | 0.5 + 0.1                  | 0.02 + 0.02                                              |
|                                  |                         | 1 kHz – 10 kHz <sup>6</sup>   | 2.0 + 0.2                  | 0.02 + 0.02                                              |

**Notes on Specifications:**

- 20% over range on all ranges except ACV 750 V and ACI 10 A
- Specifications are for sine-wave inputs more than the 5 % of range except 750 V range. Input signal must be more than 50 Vrms for 750 V range. Maximum crest factor of 3 at full scale. Input impedance is 1 M $\Omega$  in parallel with capacitance less than 120 pF, AC couple with up to 400 DCV
- Additional error to be added as frequency > 30 kHz and signal input < 10% of range. 30 kHz to 100 kHz: 0.003% of full scale per kHz
- For input < 200 V rms
- For input < 300 V rms
- For 1A and 10 A ranges, the frequency is verified for less than 5 kHz

**Table 3. Frequency Accuracy  $\pm$  (% of reading + 3 counts)**

| Function  | Range <sup>1</sup>                  | Frequency                    | 1 Year<br>23 °C $\pm$ 5 °C | Temperature Coefficient<br>0 °C - 18 °C<br>28 °C - 55 °C |
|-----------|-------------------------------------|------------------------------|----------------------------|----------------------------------------------------------|
| Frequency | 100.000 mV to 750.00 V <sup>1</sup> | 20 Hz – 300 kHz <sup>2</sup> | 0.02 + 3                   | 0.005                                                    |
|           | 10.0000 mA to 10.0000 A             | 20 Hz – 10 kHz <sup>3</sup>  | 0.02 + 3                   | 0.005                                                    |

**Notes on Specifications:**

- The frequency can be measured up to 1 MHz as 0.5 V signal to 100 mV / 1 V ranges.
- 10% of range to full scale input on all ranges except where noted. 100 mV range specifications are for full scale or greater inputs. For inputs from 10 mV to 100 mV, multiply total % of reading error by 10.
- 10% of range to full scale input on all ranges except where noted. 10 mA range specifications are for full scale or greater inputs. For inputs from 1 mA to 10 mA, multiply total % of reading error by 10.

**Table 4. Frequency resolution**

| Function  | Range                               | Frequency   | Resolution  |
|-----------|-------------------------------------|-------------|-------------|
| Frequency | 100.000 mV to 750.00 V <sup>1</sup> | 119.999 Hz  | 0.001 Hz    |
|           |                                     | 1.19999 kHz | 0.00001 kHz |
|           |                                     | 11.9999 kHz | 0.0001 kHz  |
|           |                                     | 119.999 kHz | 0.001 kHz   |
|           |                                     | 1.19999 MHz | 0.00001 MHz |

- The frequency can be measured up to 1 MHz as 0.5 V signal to 100 mV / 1 V ranges.

## Temperature and Capacitance Specifications

Specifications are for 90 minutes warm-up time, slow mode, and calibration temperature within 18 °C - 28 °C

**Table 5 Temperature and Capacitance Accuracy  $\pm$  (% of reading + % of range)**

| Function    | Range <sup>1</sup>     | Probe Type or Test Current    | 1 Year<br>23 °C $\pm$ 5 °C | Temperature Coefficient<br>0 °C - 18 °C<br>28 °C - 55 °C |
|-------------|------------------------|-------------------------------|----------------------------|----------------------------------------------------------|
| Temperature | – 80.0 °C to 150 °C    | 5 k $\Omega$ thermistor probe | Probe accuracy + 0.2 °C    | 0.002 °C                                                 |
|             | – 110.0 °F to 300.0 °F | 5 k $\Omega$ thermistor probe | Probe accuracy + 0.4 °F    | 0.0036 °F                                                |
| Capacitance | 1.000 nF               | 100 nA                        | —                          | —                                                        |
|             | 10.00 nF               | 100 nA                        | 1 + 0.5                    | 0.02 + 0.001                                             |
|             | 100.0 nF               | 1.0 $\mu$ A                   | 1 + 0.5                    | 0.02 + 0.001                                             |
|             | 1.0000 $\mu$ F         | 1.0 $\mu$ A                   | 1 + 0.5                    | 0.02 + 0.001                                             |
|             | 10.000 $\mu$ F         | 10 $\mu$ A                    | 1 + 0.5                    | 0.02 + 0.001                                             |
|             | 100.00 $\mu$ F         | 100 $\mu$ A                   | 1 + 0.5                    | 0.02 + 0.001                                             |
|             | 1000.0 $\mu$ F         | 0.5 mA                        | 1 + 0.5                    | 0.02 + 0.001                                             |
|             | 10,000 $\mu$ F         | 1.0 mA                        | 2 + 0.5                    | 0.02 + 0.001                                             |

**Notes on Specifications:**

1. 20% over range on all ranges.

## Operating Specifications

**Table 6. Operating Specifications on single display (approximate)**

| Function               | Resolution | Function Change (sec) <sup>1</sup> | Range Change (sec) <sup>2</sup> | Auto Range (sec) <sup>3</sup> | Reading Rate /sec <sup>4</sup> |      |        |
|------------------------|------------|------------------------------------|---------------------------------|-------------------------------|--------------------------------|------|--------|
|                        |            |                                    |                                 |                               | USB                            | GPIO | Serial |
| ACV                    | Slow (5.5) | 2.6                                | 2.5                             | 4.6                           | 1.9                            | 1.9  | 1.9    |
|                        | Med (4.5)  | 1.2                                | 1.2                             | 1.5                           | 19                             | 19   | 19     |
|                        | Fast (4.5) | 1.1                                | 1.1                             | 1.2                           | 160                            | 99   | 33     |
| DCV                    | Slow (5.5) | 1.3                                | 1.3                             | 1.6                           | 1.7                            | 1.7  | 1.7    |
|                        | Med (4.5)  | 0.6                                | 0.7                             | 0.8                           | 49                             | 49   | 24     |
|                        | Fast (4.5) | 0.6                                | 0.7                             | 0.7                           | 190                            | 117  | 34     |
| 2-Wire $\Omega$        | Slow (5.5) | 1.2                                | 1.3                             | 1.6                           | 1.4                            | 1.4  | 1.4    |
|                        | Med (4.5)  | 0.4                                | 0.5                             | 0.6                           | 49                             | 49   | 24     |
|                        | Fast (4.5) | 0.4                                | 0.5                             | 0.5                           | 165                            | 110  | 32     |
| 4-Wire $\Omega$        | Slow (5.5) | 1.2                                | 1.4                             | 1.9                           | 1                              | 1    | 1      |
|                        | Med (4.5)  | 0.6                                | 0.6                             | 1.1                           | 5.2                            | 5.3  | 4.7    |
|                        | Fast (4.5) | 0.6                                | 0.6                             | 1                             | 5.9                            | 5.9  | 5.3    |
| Frequency <sup>5</sup> | Slow (5.5) | 2.1                                | 2.1                             | 2.6                           | 0.9                            | 0.9  | 0.9    |
|                        | Med (4.5)  | 1.2                                | 1.2                             | 1.7                           | 0.9                            | 0.9  | 0.9    |
|                        | Fast (4.5) | —                                  | —                               | —                             | —                              | —    | —      |
| ACI                    | Slow (5.5) | 2.6                                | 2.6                             | 6.2                           | 1.9                            | 1.9  | 1.9    |
|                        | Med (4.5)  | 1.2                                | 1.2                             | 1.7                           | 19                             | 19   | 33     |
|                        | Fast (4.5) | 1.1                                | 1.2                             | 1.3                           | 160                            | 99   | 33     |
| DCI                    | Slow (5.5) | 1.3                                | 1.3                             | 1.9                           | 1.7                            | 1.7  | 1.7    |
|                        | Med (4.5)  | 0.6                                | 0.7                             | 0.9                           | 49                             | 49   | 24     |
|                        | Fast (4.5) | 0.6                                | 0.7                             | 0.7                           | 190                            | 116  | 36     |
| Diode                  | 4.5        | 0.1                                | —                               | —                             | 190                            | 117  | 38     |
| Continuity             | 4.5        | 0.1                                | —                               | —                             | 165                            | 111  | 33     |
| Temperature            | 4.5        | 0.5                                | —                               | —                             | 4.2                            | 4.2  | 3      |

**Notes on Specifications:**

1. Time to change from 2-wire resistance to this specified function and to take at least one reading using SCPI "FUNC" and "READ?" commands.
2. Time to change from one range to the next higher range and to take at least one reading using SCPI "FUNC" and "READ?" commands.
3. Time to automatically change one range and to take at least one reading using SCPI "CONF AUTO" and "READ?" commands.
4. Number of measurements using SCPI "READ?" command when front panel display is off using "DISP OFF" command.
5. Reading rate depends on signal frequency  $\geq 20\text{Hz}$ .

## Supplemental Measurement Specifications

**Table 7. Supplemental measurement specifications**

|                             |                                                                   |                                                                                                                                                      |
|-----------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| DC Voltage                  | Measuring Method:                                                 | Sigma Delta A-to-D converter                                                                                                                         |
|                             | Input Resistance:                                                 | > 10 G $\Omega$ $\pm$ 2% range (Selectable 100 mV, 1 V ranges)<br>10 M $\Omega$ $\pm$ 2% range (typical)                                             |
|                             | Input Protection:                                                 | 1000 V on all ranges (HI terminal)                                                                                                                   |
| Resistance                  | Measurement Method:                                               | 2-wire or 4-wire Ohms                                                                                                                                |
|                             | Open circuit voltage:                                             | Limited to < 2.8 V                                                                                                                                   |
|                             | Input Protection:                                                 | 1000 V on all ranges (HI terminal)                                                                                                                   |
| DC Current                  | Shunt Resistance:                                                 | 1 $\Omega$ for 10 mA, 100 mA<br>90 $\Omega$ for 100 $\mu$ A, 1mA<br>0.01 $\Omega$ for 1 A, 10 A                                                      |
|                             | Input Protection:                                                 | Externally accessible at Rear Panel 0.4 A, 500 V fuse for I terminal<br>Internal 11 A, 1000 V fuse for 10 A terminal                                 |
| Continuity / Diode Test     | Measurement Method:                                               | Uses 0.5 mA $\pm$ 0.2% constant current source                                                                                                       |
|                             | Response Time:                                                    | • Continuity : 165 samples/second with audible tone<br>• Diode : 190 samples/second with audible tone                                                |
|                             | Continuity Threshold:                                             | 10 $\Omega$ fixed                                                                                                                                    |
|                             | Input Protection:                                                 | 1000 V (HI terminal)                                                                                                                                 |
| Temperature                 | Measurement Method:                                               | 2-wire Ohms measurement of 5 k $\Omega$ thermistor sensor (YSI 4407) with computer conversion<br>Auto-ranging measurement, no manual range selection |
|                             | Input Protection:                                                 | 1000 V (HI terminal)                                                                                                                                 |
| Measurement Noise Rejection | CMR (Common Mode Rejection)<br>For 1 k $\Omega$ unbalance LO lead | DC 140 dB<br>AC 70 dB                                                                                                                                |
|                             | NMR (Normal Mode Rejection)<br>For 60 Hz (50 Hz) $\pm$ 0.1%       | Slow mode 5½ digits 90 dB<br>Medium mode 4½ digits 55 dB<br>Fast mode 4½ digits 0 dB                                                                 |
| AC Voltage                  | Measurement Method:                                               | AC coupled true-rms - measures the AC component with up to 400 VDC bias any range                                                                    |
|                             | Crest Factor:                                                     | Maximum 3:1 at full scale                                                                                                                            |
|                             | Input Impedance:                                                  | 1M $\Omega$ $\pm$ 2% in parallel with < 100 pF of all ranges                                                                                         |
|                             | Input Protection:                                                 | 750 V rms on all ranges (HI terminal)                                                                                                                |

**Table 7 .Supplemental measurement specifications (continued)**

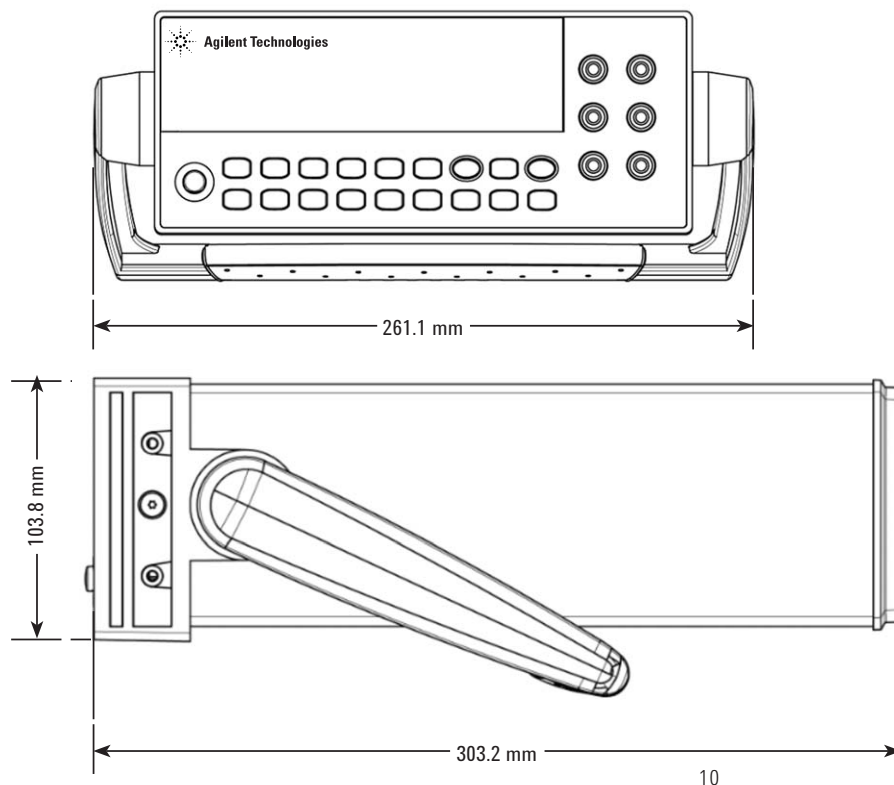
|                       |                                              |                                                                                                                      |
|-----------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| AC Current            | Measurement Method:                          | DC coupled to the fuse and current shunt, AC coupled true rms measurement (measures the AC component only)           |
|                       | Shunt Resistance:                            | 90 $\Omega$ for 10 mA, 100 mA<br>0.01 $\Omega$ for 1 A, 10 A                                                         |
|                       | Input Protection:                            | Externally accessible at rear panel 0.4 A, 500 V fuse for I terminal<br>Internal 11 A, 1000 V fuse for 10 A terminal |
| Frequency             | Measurement Method:                          | Reciprocal counting technique. AC coupled input using AC voltage function.                                           |
|                       | Signal Level:                                | 10% of range to full scale input on all ranges except where noted.<br>Auto or manual range selection                 |
|                       | Gate Time:                                   | 0.1 second or 1 period of the input signal.                                                                          |
|                       | Input Protection:                            | 750 V rms on all ranges (HI terminal)                                                                                |
| Math Functions        | Null, dBm, dB, Min/Max/Avg, Hold, Limit Test |                                                                                                                      |
| Data Log              | Info, List, Histogram                        |                                                                                                                      |
| Triggering and Memory | Samples per Trigger:                         | 1 to 5,000 (typical), 1 to 50,000 (optional)                                                                         |
|                       | Trigger Delay:                               | 0 to 3600 sec (100 us step size)                                                                                     |
| Trigger Out           | 3.3 V Logic output                           |                                                                                                                      |
|                       | Polarity:                                    | Negative pulse                                                                                                       |
|                       | Pulse width:                                 | Approximately 3 $\mu$ s                                                                                              |
| Non-volatile Memory   | 50,000 readings                              |                                                                                                                      |
| Sample Timer          | Range:                                       | Up to 3600 sec in 100 $\mu$ s steps                                                                                  |
| Remote Interface      | USB 2.0 Standard, GPIB IEEE-488 (Optional)   |                                                                                                                      |
| Programming Language  | SCPI-1994.0, IEEE-488.2                      |                                                                                                                      |

## General Characteristics

**Table 8. General Characteristics**

|                       |                                                                                                                                                                                                                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Supply          | <ul style="list-style-type: none"> <li>• 100 V/120 V(127 V)/220 V(230 V)/240 V <math>\pm</math> 10%</li> <li>• AC line frequency 45 Hz - 66 Hz and (360 Hz - 440 Hz, 100/120 V operation)</li> <li>• Automatically sensed at power -on</li> </ul> |
| Power Consumption     | 45 VA maximum, <11 W average                                                                                                                                                                                                                      |
| Operating Environment | Full accuracy at 0° C to 55° C                                                                                                                                                                                                                    |
|                       | Full accuracy to 80% RH at 30° C (non-condensing)                                                                                                                                                                                                 |
|                       | Altitude up to 3000 meters                                                                                                                                                                                                                        |
| Storage Compliance    | -40 °C to 70 °C                                                                                                                                                                                                                                   |
| Safety Compliance     | <ul style="list-style-type: none"> <li>• IEC 61010-1:2001 / EN 61010-1:2001 (2nd Edition)</li> <li>• Canada: CAN/CSA-C22.2 No. 61010 -1 -04</li> <li>• USA: ANSI/UL std No. 61010-1:2004</li> </ul>                                               |
| Measurement Category  | CAT II, 300 V: CAT I 1000Vdc, 750Vac rms, 2500 Vpk transient over voltages<br>Pollution degree 2                                                                                                                                                  |
| EMC Compliance        | Certified to IEC61326-1: 2005 / EN61326-1:2006<br>CISPR 11:2003 / EN 55011:2007 Group 1 Class A<br>Canada: ICES/NMB-001:Issue 4, June 2006<br>Australia/New Zealand: AS/NZS CISPR 11:2004                                                         |
| Shock and Vibration   | Tested to IEC/EN 60086-2                                                                                                                                                                                                                          |
| Dimension (HxWxD)     | Rack: 88.5 mm x 212.6 mm x 272.3 mm<br>Bench: 103.8 mm x 261.1mm x 303.2 mm                                                                                                                                                                       |
| Weight                | 3.75 kg (8.27 lb.)                                                                                                                                                                                                                                |
| Warm Up Time          | 90 minutes                                                                                                                                                                                                                                        |
| Warranty              | 3 year                                                                                                                                                                                                                                            |

## Dimensions



## Standard shipped accessories:

- Test lead set
- Power cord
- USB interface cable
- Quick Start Guide
- Product Reference CD
- Agilent IO Library Suite CD-ROM

## Upgradable Options:

- 3445GPBU - GPIB connectivity upgrade
- 3445MEMU - 50,000 memory points upgrade for data logging

## Agilent Optional Accessories:



34138A Test Lead Set



E2308A Thermistor Temperature Probe



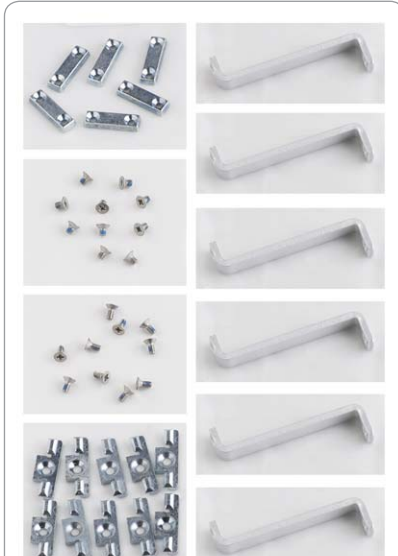
10833A/B/C/D/F/G GPIB Cable in various lengths (0.5 m, 1 m, 2 m, 4 m, 0.5 m, 6 m and 8 m)



34190A Rackmount kit:  
designed for use with only one instrument, mounted on either the left or the right side of the rack.



34191A 2U Dual flange kit:  
secures the instrument to the front of the rack. This kit can be used with the 34194A dual lock link kit to mount two half-width, 2U height instruments side-by side.



34194A Dual lock link kit:  
recommended for side-by-side combinations and includes links for instruments of different depths. This kit can be used with the 34191A 2U dual flange kit to mount two half-width, 2U height instruments side-by-side.



82350B PCI High-Performance GPIB Interface Card



82357B USB/GPIB Interface High-Speed USB 2.0



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