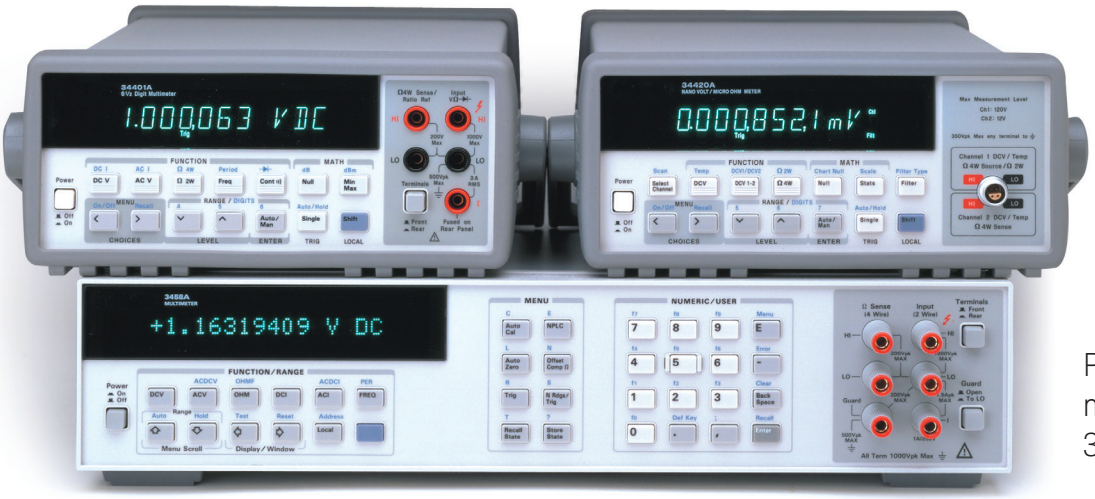
Keysight Technologies
Tips for Preventing Damage to Digital Multimeter
Application Brief



Popular Keysight models: 3458A, 34401A

Ensure proper grounding

- Always use the three-prong AC power cord supplied with the instrument.
- Proper grounding of the instrument will prevent a build-up of electrostatic charge which may be harmful to the instrument and the operator.
- Do not damage the earth-grounding protection by using an extension cable, power cable or autotransformer without a protective ground conductor.
- Check AC power quality and polarity; typical AC voltage required is 100 V, 120 V, 220 V ±10 % or 240 V +5 %/-10 %. Typical expected grounding wire resistance is < 1 Ω, the voltage between neutral and ground line is < 1 V. Install uninterruptible power supply [UPS] if necessary.
- For more information, visit **www.metrologyforum.tm.keysight.com/grounding.shtml**

Read the warning labels and specifications

- Do not exceed the values provided in the specifications guide or as indicated by the yellow warning labels on the instrument.
- Refer to the specification guide for conditions required to meet the listed specification. Note information regarding stabilization time, instrument settings and calibration/alignment requirements.

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Avoid overpowering the analyzer

- Avoid damage to the digital multimeter (DMM) by having some idea of the signal level to be measured. Overpowering the DMM can cause damage to the front end components.
- Before turning on or turning off the connected equipment or the DUT, reduce the signal level to the minimum safety level. This will prevent unexpected voltage or current swell or sag affecting the input or the out of instrument.
- Current input terminals (I) are rated at ± 1.5 A peak with a maximum non-destructive input of < 1.25 A RMS.

	Maximum non-destructive input
HI to LO input	±1200 V peak
HI/LO Ω sense to LO input	±350 V peak
HI to LO Ω sense	±350 V peak
LO input to guard	±350 V peak
Guard to earth ground	±1000 V peak
HI/LO input, HI/LO Ω sense, or I terminal to earth ground	±1500 V peak
Front terminals to rear terminals	±1500 V peak

Check for proper temperature and humidity

- Keep DMM in a clean and dry environment. Temperature for typical storage condition is between -40 °C and 75 °C, Humidity < 95% RH.
- Ensure proper ventilation among racks. Temperature for optimal operating is 23 °C to -5 °C, always keep DMM ambient temperature at < 30 °C.
- Cooling vents and fans should be inspected and cleaned frequently.

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- Check for updated service notes: **www.keysight.com/find/servicenotes**
- For worldwide service locations visit: **www.keysight.com/find/assist**

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