

# Guardian

# 5000 Safety Analyzer

## AC/DC/IR/GC Electrical Safety Analyzer

### USES:

- Production and Compliance Testing of Appliances, Instruments and Information Technology Equipment in Accordance with UL, CSA, IEC, TUV and Other Standards such as EN60335, EN60950, EN61010, CSA C22.2 No. 1010.1, UL3111 and UL1950
- Transformer Electrical Safety Testing
- Electric Motor Safety Testing
- Power Supply Safety Testing
- Verification of the Ground Connection on Products with a Three Prong Power Cord

### FEATURES:

- Programmable output voltage to 5KV AC and 6KV DC
- Ground Bond Testing to 30A AC with Adjustable Limit
- Multi-point Scanner Option for High Voltage Switching of up to 64 Points
- Programmable Ramp and Test Times
- Storage of 50 Tests Setups with 15 Steps per Setup
- Trip Current Programmable to 40mA AC and 20mA DC
- Front Panel Lockout via Password
- Standard IEEE and Remote Control Interfaces
- Optional RS232 Interface
- LabVIEW® Instrument Driver Software
- Insulation Resistance Measurements from 10MW to 10GW 1ohm Limit

### Introduction

The Guardian 5000 is four instruments in one providing AC Hipot, DC Hipot, Insulation Resistance, and Ground Bond measurements from a single test connector in one versatile instrument. This provides a cost effective solution to electrical safety compliance testing with maximum flexibility for present and future requirements. Performing all of the electrical safety tests in one box can reduce test time, increase productivity and reduce the number of boxes requiring calibration.

### Description

The **Guardian 5000 AC Hipot Tester** performs AC dielectric testing (hipot) over the voltage range from 100V to 5000VAC RMS. The maximum leakage current of 40mA RMS makes the Guardian 5000 ideal for testing devices with high leakage currents such as power supplies which have large filter or "Y" capacitors for noise reduction. Both the actual test voltage and total current are displayed during testing.

The **Guardian 5000 DC Hipot Tester** voltage range for DC dielectric testing is 100V to 6000VDC with a resolution of 10V. The maximum current leakage is 20mA which allows quick charging of capacitive devices. A quick discharge of the device when the measurement is complete, also minimizes test times.

The **Guardian 5000 Insulation Resistance** measurements are similar to a DC hipot but rather than displaying leakage current, resistance is calculated and displayed. The insulation resistance can be measured over the range of 10MΩ to 10GΩ with test voltages from 50VDC to 1000VDC in 1V steps.

The **Guardian 5000 Ground Bond** provides up to 30A AC for ground bond testing. The test current can be programmed from 1A to 30A in 0.1A steps. Hi current limit, test time, frequency and open circuit no load voltage can all be programmed. The offset feature can automatically compensate for any lead resistance.



For more detailed specifications, visit [www.quadtech.com](http://www.quadtech.com)

For more information about special purchase, rent & lease options, call



1-800-253-1230  
Fax 1-978-461-4295  
Intl. 1-978-461-2100

## Guardian 5000

### AC Output Voltage:

**Range:** 100V to 5000V AC  
 Resolution: 10 Volts / step  
 Frequency: 50/60 Hz selectable  
 Waveform: Sinusoidal  
 Regulation: +/- (1% of setting +5V)

**Voltage Display:** Accuracy: +/- (1% of reading + 5V)  
 Resolution: 1Volt

**AC Current Display:** Total current  
 Range: 0.001 to 40mA AC  
 Resolution: 0.001mA  
 Accuracy: +/- (1.5% of reading + 5cnt)

**High/Low Limit Test:** 1mA to 40mA AC  
 Accuracy: +/- (1% of limit +1mA)  
 Low limit can be turned OFF

**ArcDetection:** Arc Level: >1mA to 40 mA & OFF in  
 0.001mA / Step

### DC Output Voltage

**Range:** 100V to 6000V DC  
 Resolution: 10Volts / step  
 Regulation: +/- (1% of setting +5V)

**Voltage Display:** Accuracy: +/- (1% of reading + 5V)  
 Resolution: 1Volt

**DC Current Display:** Range: 1mA to 20mA DC  
 Resolution: 0.001mA  
 Accuracy: +/- (1% of reading + 5cnt)

**High/Low Limit Test:** 0.001mA to 20mA DC  
 Low limit can be turned OFF

**Arc Detection:** Arc Level: >1mA to 40 mA & OFF in  
 0.001mA / Step

### Insulation Resistance

**Range:** 10MΩ - 10GΩ

**Accuracy:** +/- 5% >= 500V 10MΩ - 1GΩ  
 +/-15% > 500V, 1GΩ - 10GΩ  
 +/-10% < 500V, 1MΩ - 200MΩ  
 +/- 15% < 200V, 200MΩ - 1GΩ

**Voltage Range:** 50V to 1000V DC

**Voltage Accuracy:** +/- (1% of setting +5V)

**High/Low Limit Test:** 10MΩ - 10GΩ  
 High limit can be turned OFF

**IR Test Delay:** 0.3 to 99.9 seconds programmable in  
 0.1 second steps

### Ground Bond

**Output Current:** Range: 1.0 to 30.0A AC, setting  
 0.1A / step

### Ordering Information

<b>Guardian 5000 Electrical Safety Analyzer</b>		<b>Optional Accessories:</b>	
<b>Includes:</b>		S05	Foot Switch
150206	Instruction Manual	S06	High Voltage Probe
700070	Power Cable	S10	HV Lead, 2 meters, unterminated
S02	Test Leads	S11	Gun Probe with remote start
G15	Ground Continuity Lead Set	S12	Load Box, resistive
Calibration Certificate Traceable to NIST		S14	Load Box, custom resistors
		S08	Gun Probe
		S09	HV Lead, 1 meter, unterminated
		G13	Corded Product Adapter
		G14	Power Entry Adapter
		G15	GC Lead Set, high & low
		G16	International Power Strip
		G22	Rear Panel Connection (factory installed)
		G23	Rack Mount Ears
		G25	Corded Product Adapter (240V)
		G26	RS232 Interface

**Display:** +/- (1% of setting + 0.3A )

**Frequency:** 50 or 60Hz Selectable

**No Load Voltage:** 6 to 15 V programmable

**Resistance:** Range: 0 - 500.0mV, 4 digits  
 Accuracy: +/- (1% of reading + 3 cnts)

**Hi Limit:** 10 mV to 510 mV

**Offset Function:** 0 to 100 mV, user selectable

**Test Time:** 0.5 - 999sec(+/-20ms)

### Common Features

**AC/DC Test Time:** Ramp: 0.1 to 99.9s (+/- 20ms)  
 Test: 0.1 to 999s (+/- 20ms) and Continuous

**Remote Control:** Inputs: Start, Stop  
 Characteristics: Optically Isolated with +24V Active Low, Pulse Width >1ms.  
 Outputs: Pass/Fail/Under Test  
 Characteristics: Dry Contact relay  
 Ele. Characteristics: 120V 100mA max.  
 Logic: Closed if True  
 Connect: Terminal Strip & 9 pin D Serie

**Test Setups:** 50 Test Setups with 15 Steps each

**Connectors:** Front Connection and Rear Connections

**Front Panel Lockout:** Password

**Safety Features:** Fast Cutoff (<0.4ms) and Fast Discharge

**Miscellaneous:** Continuous Voltage on Fail  
 Scanner Delay: 0.1 to 99.9, 0.1s/step

**Indication:** Pass/Fail lights, audible sound

**Buzzer Level:** 1,2,3 and Off

**Standard Interface:** IEEE488

**Optional Interface:** RS232  
 Data Bits: 8, Parity: None, Stop Bits: 1  
 Default Baud Rate: 9.6k  
 EOS: CR + LF, Echo: Off

**Dimensions:** (w x h x d): 17 x 6.8 x 17.7in  
 (430 x 175 x 450mm)

**Weight:** 53 lbs (24kg), Net  
 60 lbs (27kg), Ship

**Environmental:** Operating: 0° to + 4°C  
 Humidity: <75%  
 Storage: - 10° to + 60°C

**Power:**

- 90 - 130V AC • 50 or 60Hz
- 200 - 250V AC • 300W max

For more detailed specifications, visit [www.quadtech.com](http://www.quadtech.com)  
 For more information about special purchase, rent & lease options, call  
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