

Guardian 500VA, 10kV AC, 12kV DC & 20kV DC Hipot Testers

USES:

- Production or Compliance Testing of Appliances, Wire, Cable and Other Electrical Products which have High Leakage Current
- Testing to Safety Standards which Require or Recommend a 500VA Tester
- Testing of Electrical Products Requiring the Application of High AC or DC Voltages
- Testing of Transformers, Coils and Large Horsepower Motors

FEATURES:

- Programmable Output Voltage to 10kV AC, 12kV DC & 20kV DC
- Programmable Ramp and Test Times
- Programmable Trip Current
- Continuous Leakage Current Monitoring
- Insulation Resistance Measurements from 100k Ω to 50G Ω
- High and Low Test Limits
- Pause Mode
- Store & Recall 99 Tests Setups with up to 99 Steps per Setup
- Fast HV Cutoff & DUT Discharge
- Front Panel Lockout via Password
- Front & Rear Panel Connection
- RS232, Remote I/O - Standard
- IEEE-488, Printer - Optional
- Multi-Point Scanner Option for High Voltage Switching

Introduction

The **Guardian 500VA, 10kVAC, 12kVDC and 20kVDC** are four different Hipot Testers designed for specific electrical safety test applications. The Guardian 500VA is intended for high leakage current measurements to 100mA, the Guardian 10kVAC for high voltage AC testing and the Guardian 12kVDC and 20kVDC for high voltage DC testing. The Guardian 500VA, 12kVDC and 20kVDC instruments also measure insulation resistance (IR). Selecting the right instrument for the specific application, provides a cost effective solution to special electrical safety compliance testing.

Description

The **Guardian 500VA Hipot Tester** is an economically priced AC/DC Hipot Tester for testing products which have high leakage current. With a programmable voltage range from 50 to 5000V AC and maximum current output of 100mA, the unit is ideal for load testing of capacitive devices. The instrument's DC dielectric testing capability covers the range from 50 to 6000V DC, with a maximum current output to 20mA for quick charging of capacitive devices. DC leakage current can be monitored down to 0.1 μ A.

The Guardian 500VA also performs Insulation Resistance (IR) measurements, similar to DC hipot, except the product's insulation resistance value is displayed directly in ohms. The resistance can be measured over the range of 100k Ω to 50G Ω at test voltages from 50 to 1000VDC.

In all cases, both high and low limits are operator programmable for quick and easy pass/fail testing. These dual limits are essential to ensure that the device under test is actually making contact with the tester. For consistent testing, up to 99 setups can be stored in instrument memory for later recall. An optional high voltage scanner is also available for testing multi-connection devices.

The **Guardian 10kVAC Hipot Tester** performs AC Hipot Testing only, over the voltage range from 100 to 10,000V AC. With maximum current output of 20mA, the instrument is capable of testing capacitive devices at high AC voltages. The 10kV unit contains many of the features of the 500VA Tester including programmable min/max limits, setup storage and arc detection.

The **Guardian 12kVDC Hipot Tester** performs DC Hipot Testing over the voltage range from 100 to 12,000V DC with a maximum leakage current output of 10mA. Additionally, the 12kV tester provides Insulation Resistance measurement capability over a range of 100k Ω to 50G Ω at test voltages from 100 to 1000V DC. The new improved discharge function allows for fast controlled discharge of the DUT.

The **Guardian 20kVDC Hipot Tester** performs DC Hipot Testing over the voltage range from 100 to 20,000V DC with a maximum leakage current output of 5mA. Additionally, the 20kV tester provides Insulation Resistance measurement capability over a range of 100k Ω to 50G Ω at test voltages from 100 to 1000V DC. The new improved discharge function allows for fast controlled discharge of the DUT.



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Guardian 500VA

AC Output Voltage:	Range: 50V to 5000V AC, 1V resolution Frequency: 50 or 60 Hz Programmable Waveform: Sinusoidal Regulation: <(1% +5V) at Rated Load
Voltage Display:	Accuracy: $\pm(1\%$ of reading + 5V) Resolution: 1Volt
AC Current Display:	Total current Range: 1 μ A to 100mA AC Resolution: 0.001mA Accuracy: $\pm(1\%$ + 5cnt)
High/Low Limit Test:	1 μ A to 100mA AC Low limit can be turned OFF
DC Output Voltage:	Range: 50V to 6000V DC, 1V resolution Regulation: <(1% +5V) at Rated Load
Voltage Display:	Accuracy: $\pm(1\%$ of reading + 5V) Resolution: 1Volt
DC Current Display:	Range: 0.1 μ A to 20mA DC Resolution: 0.1 μ A Accuracy: $\pm(1\%$ or reading + 5cnt)
High/Low Limit Test:	0.1 μ A to 20mA DC Low limit can be turned OFF
Insulation Resistance:	Range: 100k Ω - 50G Ω Accuracy: $\pm 5\%$ to $\pm 15\%$ depending upon V and R
Voltage Range:	50V to 1000V DC
Voltage Accuracy:	$\pm (5\%$ of setting + 5V)
High/Low Limit Test:	100k Ω - 50G Ω Low limit can be turned OFF

Guardian 10kVAC

AC Output Voltage:	Range: 100V to 10kV AC, 10V resolution Frequency: 50 or 60 Hz Programmable Waveform: Sinusoidal Regulation: <(1% +10V) at Rated Load
Voltage Display:	Accuracy: $\pm(1\%$ of reading + 10V) Resolution: 10Volt
AC Current Display:	Total current Range: 0.1mA to 20mA AC Resolution: 0.001mA Accuracy: $\pm(1.5\%$ + 5cnt)
High/Low Limit Test:	0.1mA to 20mA AC Low limit can be turned OFF

Guardian 12kVDC

DC Output Voltage:	Range: 100V to 12kV DC, 10V resolution Regulation: <(1% +10V) at Rated Load
Voltage Display:	Accuracy: $\pm(1\%$ of reading + 10V) Resolution: 10Volt
DC Current Display:	Range: 0.01mA to 10mA DC Resolution: 0.0001mA Accuracy: $\pm(1\%$ or reading + 5cnt)
High/Low Limit Test:	0.1 μ A to 10mA DC Low limit can be turned OFF
Insulation Resistance:	Range: 100k Ω - 50G Ω Accuracy: $\pm 5\%$ to $\pm 15\%$ depending upon V and R
Voltage Range:	100V to 1000V DC
Voltage Accuracy:	$\pm (5\%$ of setting + 5V)
High/Low Limit Test:	100k Ω - 50G Ω Low limit can be turned OFF

Guardian 20kVDC

DC Output Voltage:	Range: 100V to 20kV DC, 20V resolution Regulation: <(1.5% +5V) at Rated Load
Voltage Display:	Accuracy: $\pm(1.5\%$ of reading + 5 counts) Resolution: 10Volt
DC Current Display:	Range: 0.01mA to 5mA DC Resolution: 0.0001mA Accuracy: $\pm(1.5\%$ or reading + 5 counts)
High/Low Limit Test:	0.1 μ A to 5mA DC Low limit can be turned OFF
Insulation Resistance:	Range: 100k Ω - 50G Ω Accuracy: $\pm 5\%$ to $\pm 15\%$ depending upon V and R
Voltage Range:	100V to 1000V DC
Voltage Accuracy:	$\pm (5\%$ of setting + 5V)
High/Low Limit Test:	100k Ω - 50G Ω Low limit can be turned OFF

Common Features:

AC/DC Test Time:	Ramp: 0.1 to 99.9s (± 20 ms) Test: 0.1 to 999s (± 20 ms) and Continuous
Arc Detection:	Programmable Level and OFF, 0.001mA/step
Remote Control:	Inputs: Start, Stop Outputs: Pass/Fail/Under Test Connector: Terminal Strip and 9 pin D Series
Standard Interfaces:	Remote I/O, RS-232
Optional Interfaces:	IEEE-488, Printer
Test Setups:	99 Test Setups with 99 Steps each, Max. 500
Connectors:	Front and Rear HV and GND Connections
Front Panel Lockout:	Password
Safety Features:	Fast Cutoff (<0.4ms) and Fast Discharge
Miscellaneous:	Continuous Voltage on Fail
Indication:	Pass/Fail lights, audible sound
Buzzer Level:	1, 2, 3, and Off
Dimensions:	(w x h x d): 17x6.8x17.7in (430x175x450mm)
Weight:	Guardian 500VA 53 lbs (24kg) - Net, 60 lbs (27kg) Shipping Guardian 10kVAC 44 lbs (20kg) - Net, 51 lbs (23kg) Shipping Guardian 12kVDC 44 lbs (20kg) - Net, 51 lbs (23kg) Shipping Guardian 20kVDC 44 lbs (20kg) - Net, 51 lbs (23kg) Shipping
Environmental:	Operating: 0°C to + 40°C, Humidity: <75% Storage: -20°C to +70°C Warm-up Time: 1minute
Power:	• 90 - 130V AC • 50 or 60Hz • 200 - 250V AC • 500W max

Ordering Information

Guardian 500VA Hipot Tester	Optional Accessories	G16*	International Power Strip
Guardian 10kVAC Hipot Tester		G25*	Corded Product Adapter (240V)
Guardian 12kVDC Hipot Tester	S04	G26	RS232 Interface
Guardian 20kVDC Hipot Tester	S05	G27	Rack Mount Flanges
Includes:	S06*	G38	Printer Interface (replaces IEEE 488)
150514 Instruction Manual	S07*	G39	IEEE-488 Interface
S02 HV Lead Set, 1m	S08*	5000-03*	Scanner 8 Channel HV Rack Mount
S07* Power Entry Adapter Cable	S09		
700070 AC Power Cable	S10		
Calibration Certificate Traceable to NIST	S11*		
	G13*		

*Maximum Voltage Rating: 5kV AC & 6kV DC