



Guardian

USES:

- Production Testing of Medical Electronic Products and Instruments in Accordance with UL, CSA, and IEC standards such as UL1950, IEC601-1, UL2601-1, UL1563 and UL544
- Electrical Safety Compliance Testing on a Variety of Products and Devices

FEATURES:

- Programmable output voltage to 5KV AC and 6KV DC
- Ground Bond Testing to 30A AC with Adjustable Limit
- Line/Earth Leakage Current Measurement(UL2601-1/UL1950)with 5 Human Body Models
- Insulation Resistance Measurements from 100k to 50G
- Monitoring of DUT Current Draw
- Programmable Ramp and Test Times
- Storage of 50 Tests Setups with 10 Steps per Setup
- Continuous Leakage Current Monitoring
- Trip Current Programmable to 40mA AC and 20mA DC
- Front Panel Lockout via Password
- Standard IEEE and Remote Control Interfaces
- Optional RS232 Interface

6100 Production Safety Analyzer For Electronic Medical Devices

Introduction

The Guardian 6100 is designed for fast, easy, production testing of single phase electronic medical devices and instruments. Without changing the connection to the device, the tester is able to perform five essential electrical safety tests in one unit, including AC Hipot, DC Hipot, Insulation Resistance, Line Leakage Current and Ground Bond measurements. Performing all these electrical safety tests in one box increases production by reducing test time and eliminating multiple test stations.

Description

AC Hipot Test Performs AC dielectric testing (hipot) over the voltage range from 50 to 5000VAC RMS. Leakage current detection is programmable from 1µA to 40mA, making the 6100 ideal for testing medical products and instruments having a wide range of leakage currents.

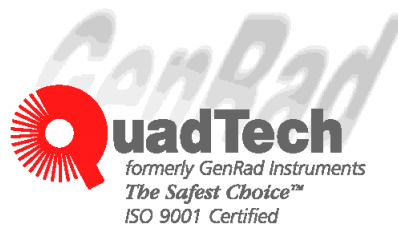
DC Hipot Test DC dielectric testing is possible from 50 to 6000VDC with leakage current detection down to 0.1µA. The maximum total output current of 20mA allows quick charging of capacitive devices and products.

Insulation Resistance The insulation resistance test (similar to DC Hipot) calculates and displays a product's insulation resistance value in ohms. This resistance can be measured over the range of 100k to 50G with test voltages programmable from 50 to 1000VDC.

Ground Bond The ground bond test, sometimes referred to as a high current continuity test, can be programmed from 1 to 30A for verifying the integrity of a product's ground system. Resistance measurements are displayed and a high limit programmable between 0.1m and 510m .

Line/Earth Leakage Current A line/earth leakage test can be performed directly on the 6100 in four possible configurations; normal operating conditions, reverse line, or a single fault normal and single fault reverse mode. Five different human body models can be selected in accordance with UL, IEC, and other standards. Leakage current limits are programmable from 0.1µA to 9.999mA.

Note: This test requires input isolation transformer for proper operation



For more detailed specifications, visit
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Guardian 6100

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: +/- (1% of reading + 5V)
 Resolution: 1Volt

AC Current Display: Total current
 Range: 1µA to 40mA AC
 Resolution: 0.001mA
 Accuracy: +/- (1% + 5cnt)

High/Low Limit Test: 1µA to 40mA AC
 Low limit can be turned OFF

Arc Detection: Programmable Level and OFF, 0.001mA/step

DC Output Voltage:

Range: 50V to 6000V DC, 1V resolution
 Regulation: <(1% +5V) at Rated Load

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

DC Current Display: Range: 0.1µA to 20mA DC
 Resolution: 0.0001mA
 Accuracy: +/- (1% or reading + 5cnt)

High/Low Limit Test: 0.1µA to 20mA DC
 Low limit can be turned OFF

Arc Detection: Programmable Level and OFF, 0.001mA/step

Insulation Resistance:

Range: 100k - 50G
 Accuracy: +/- 5% to +/- 15% depending upon voltage and resistance

Voltage Range: 50V to 1000V DC

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

High/Low Limit Test: 100k - 50G
 Low 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
 Accuracy: +/- (1% of setting + 0.3A)

Display: +/- (1% of reading + 3 counts)

Frequency: 50 or 60Hz Selectable

No Load Voltage: 6 to 15 V Programmable

Resistance: Range: 0.1m - 510.0m , 4 digits
 Accuracy: +/- (1% of reading + 3 counts)
 Resolution: 0.1m

Ordering Information

Guardian 6100 Production Safety Analyzer	G30	Corded Product Adapter (115V)	G26	RS232 Interface
Includes:			G27	Rack Mount Flanges
Guardian 6000 Electrical Safety Analyzer		Power Cable	G28	Printer Interface (replaces IEEE 488)
6000-04 Line Leakage Current Scan Unit		Calibration Certificate Traceable to NIST		
150528 Instruction Manual		Optional Accessories	G31	Isolation Transformer (500VA)
S02 HV Lead Set, 1m		Calibration Data	G32	Isolation Transformer (1000VA)
G15 Ground Continuity Lead Set	S05	Foot Switch		

Hi Limit: 0.1m to 510m
 Offset Function: 0 to 100m offset, user selectable
 Test Time: 0.5 - 999sec (+/-20ms)

Line Leakage Current:

Input Voltage: Range: 0V to 300V AC, 50 or 60Hz.

Line Voltage Meter: 0 - 300VAC, +/- (1% of reading + 5cnts)

Line Current Meter: 0 - 10A, +/- (5% of reading)

AC Current Display: Range Resolution Accuracy
 0.0001mA - 0.59mA 0.0002mA +/- (2% + 5cnts)
 0.6mA - 9.999mA 0.003mA +/- (2% + 5cnts)

Current Trip Limits: 0.1µA to 9.999mA, 1µA Resolution

Measuring Circuit: 5 Types of Human Body Models in accordance with UL544 NP, UL544P, UL1563, UL2601-1, IEC601-1, IEC 950, UL1950, UL3101 Standards

Measurement Modes: Normal, Reverse and Single Fault

Max. DUT Current: 10A

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
 Outputs: Pass/Fail/Under Test
 Connector: Terminal Strip and 9 pin D Series

Test Setups: 50 Test Setups with 10 Steps each

Rear Connectors: Input: Binding Posts (line & neutral)
 Isolation transformer (not included) is required for proper operation (10A, 300V max)

Output: High Voltage Sockets for connection to 115V corded adapter, G30 (included)

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

Interface: IEEE-488 Standard, RS-232 Optional

Dimensions: (w x h x d): 16.875x5.625x20.50in (421.9x140.6x512.5mm)

Weight: 53 lbs (24kg) - Net, 60 lbs (27kg) Shipping

Environmental: Operating: 0 to + 40° C,
 Humidity: <75%
 Storage: - 20 to + 70° C
 Warm-up Time: 1minute

Power: • 90 - 130V AC • 50 or 60Hz
 • 200 - 250V AC • 500W max

