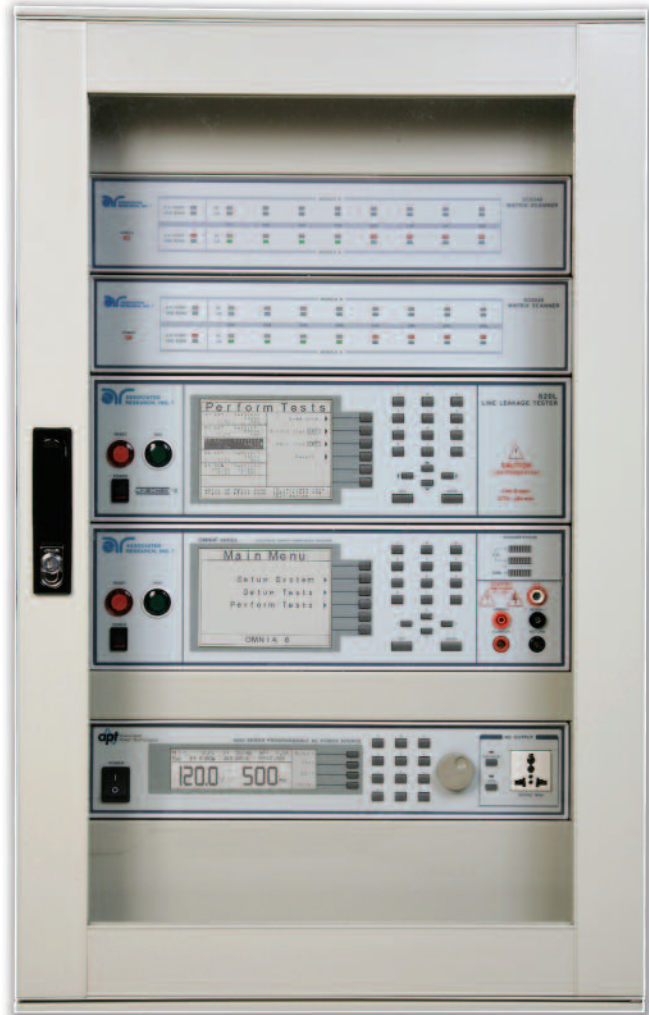


MEDTEST™

Medical Safety Testing System



MEDTEST™

- Perform patient lead testing while continuously running your DUT even in reverse polarity
- Perform Hipot, Ground Bond and Line Leakage tests within a single system
- Perform all B, BF, and CF type applied part testing
- Perform Mains to Applied Parts Line Leakage testing easily and safely
- Reduce total test time
- Expanded reporting capability makes documentation quick and easy
- 6 Built-in measuring devices with external connection capability



AR ASSOCIATED
RESEARCH, INC.®

www.asresearch.com
1.800.858.TEST [8378]

MedTEST provides advanced test functionality while increasing efficiency for medical device manufacturers.

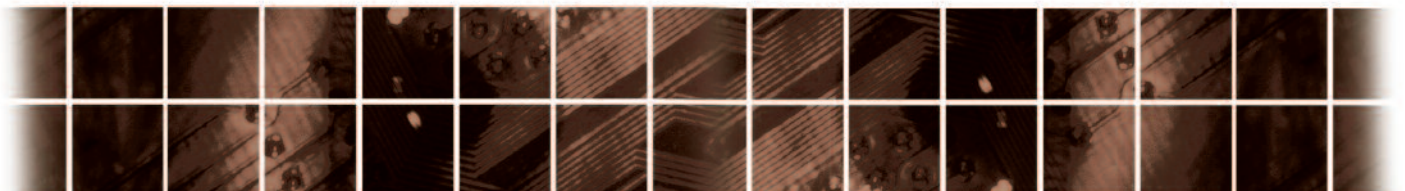
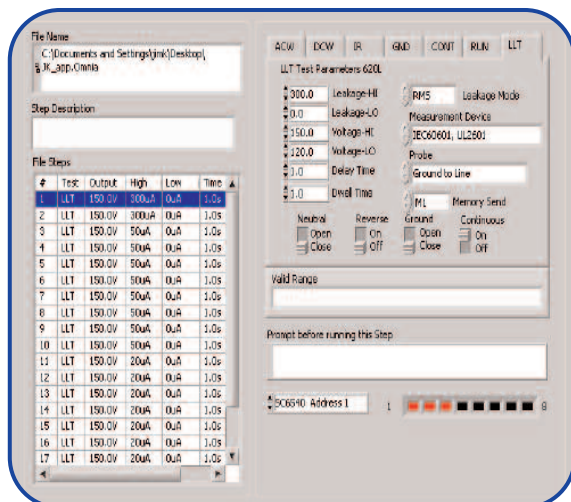
MedTEST complies with test requirements called out in common medical electrical safety specifications such as UL2601, UL60601-1, IEC601-1, IEC60601-1, EN60601-1 and more. The MedTEST System performs patient lead testing on medical devices and also includes a continuous run feature. With the continuous run feature enabled, polarity reversal can be accomplished fast enough to keep the DUT from shutting down. In many applications this can reduce test time significantly.

MedTEST can accommodate several types of tests including hipot, ground bond and various line leakage tests. MedTEST provides all this without requiring the test operator to disconnect and reconnect test leads to perform the different tests.



MedTEST is setup to run with our Autoware® software which enables the user to have complete computer control of the test system. Our Autoware software allows for the test system to be remotely programmed and set-up. It provides programmable memories and steps which can be saved and recalled resulting in more efficient testing. Complete data capture is also possible with our Autoware solution. Test results can be viewed statistically, exported for database archiving, or even directly sent to a print report.

MedTEST can be custom configured to meet almost any application. With our SC6540 Modular Scanner as part of the system, manufacturers can perform patient lead tests on a virtually endless amount of points. With its advanced functionality and the ability to improve test efficiency, MedTEST is the most cost-effective solution on the market!



Features**Benefits****A complete test system with up to 6 testing functions**

MedTEST combines all of the most common electrical safety tests required by safety agencies (AC Hipot, DC Hipot, IR Test, Ground Bond/Continuity, Line Leakage and Functional Run Test) into a single system which can be enclosed into a standard rack mount cabinet. The test system can also perform all B, BF and CF type applied part tests.

Continuous Run capability

MedTEST allows the DUT to run without shutting down between line leakage tests. MedTEST can accomplish this even in reverse polarity conditions. This allows for devices to be tested more quickly and with no operator involvement. This is extremely helpful and time saving in applications for devices that require an initial startup time.

Up to 40 Amp continuous current capability

MedTEST can handle loads that require up to 40 amps of continuous current during Line Leakage and Run testing.

Completely automated scanner matrix setup

MedTEST can be set up with a series of scanners in order to perform tests on an unlimited number of patient leads for any type of patient lead testing. The scanners are controlled through software for a completely automated setup.

Advanced Software Control

The MedTEST system includes complete software control. The software allows the user to control all the different instruments as a single system with one user interface.

Expanded Reporting Capability

MedTEST allows for full test parameter and result descriptions as part of a test report. This format incorporates headers, all test parameters, results, step descriptions, and step numbers in the printout of the test report.

Integration with AC Power Source

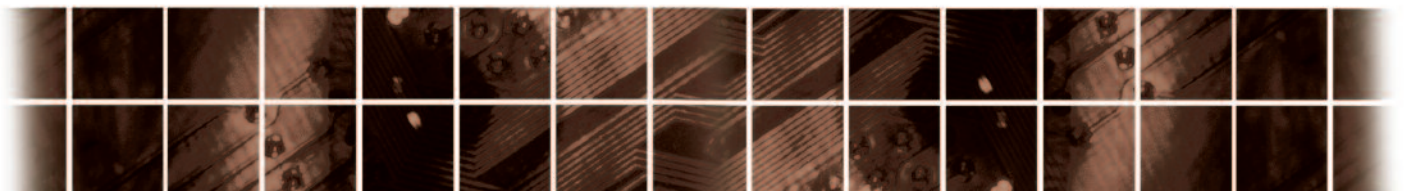
MedTEST is integrated with an Associated Power Technologies AC Source for clean DUT power. Up to 7 pre-set memories may be selected from the system's menu.

Programmable test setups with accompanying steps

Each test setup can store up to 30 steps which can be configured to perform any of the safety tests. All steps can be linked together to form a complete automated test sequence. All program files may also be linked creating a virtually unlimited number of test steps. Each setup can be named for easy identification and recall.

6 built-in measuring devices with external connection capability

MedTEST has 6 built-in measuring devices as specified in common industry standards. In addition, operators may connect a custom measuring device of their own to the external measuring device inputs.



Line Conditions

Power Switch	Reverse polarity switch for normal condition
Neutral Switch	Neutral switch on/off selection for single fault condition
Ground Switch	Ground switch on/off selection for class I single fault condition

Probe Settings

Patient Auxiliary Leakage (Surface to Surface / PH - PL)

Enclosure Leakage (Surface to Line / PH - L)

Earth Leakage (Ground to Line / G - L)

Leakage Limit Settings*

Touch Current High/Low Limit (RMS)	Range: 0.0µA - 999.9µA / 1000µA - 9999µA / 10.00mA - 20.00mA Resolution: 0.1µA/1µA/0.01mA
Touch Current High/Low Limit (Peak)	Range: 0.0µA - 999.9µA / 1000µA - 9999µA / 10.00mA - 30.00mA Resolution: 0.1µA/1µA/0.01mA

Dielectric Withstand Test Mode

Output Rating	5 KV @ 40 mA AC 5 KV @ 20 mA DC 50/60 Hz user selectable
Ramp HI	>20 mA peak maximum, ON/OFF selectable
Charge LO	Range: 0.000 - 350 µA DC or Auto Set
DC Output Ripple	≤ 4% Ripple RMS at 5 KV DC @ 20 mA, Resistive Load
Discharge Time	≤ 200 ms
Maximum Capacitive Load DC Mode	1 µF < 1 KV 0.08 µF < 4 KV 0.75 µF < 2 KV 0.04 µF < 5 KV 0.5 µF < 3 KV
Ground Fault Interrupt	GFI Trip Current: 450 µA max (AC or DC) HV Shut Down Speed: < 1ms

Continuity Test Mode

Output Current	DC 0.1A ± 0.00001A
-----------------------	--------------------

Ground Bond Test Mode

Output Voltage (Open Circuit Limit)	Range: 3.00 - 8.00 VAC 50/60 Hz, user selectable
Output Current	Range: 1.00 - 40.00 A, Resolution: 0.01 A

Insulation Resistance Test Mode

Voltage Setting	Range: 50 - 1000 VDC
Resistance Display/ HI and LO Limit	Range: 0.05 MΩ - 50000 MΩ (4 Digit, Auto Ranging) Accuracy: 50 - 499 V DC 0.05 MΩ - 999.9 MΩ, ± (7% of reading +2 counts) 500 - 1000 V DC 0.05 MΩ - 999.9 MΩ, ± (2% of reading +2 counts) 1000 MΩ - 9999 MΩ, ± (5% of reading +2 counts) 10000 MΩ - 50000 MΩ, ± (15% of reading +2 counts)

Measuring Device Module*

MD1	UL544NP, UL484 , UL923, UL471, UL867, UL697
MD2	UL544P
MD3	IEC 60601-1
MD4	UL1563
MD5	IEC60990 Fig4 U2, IEC60950-1, IEC60335-1, IEC60598-1, IEC60065, IEC61010
MD6	EC60990 Fig5 U3, IEC60598-1
MD7	IEC60950, IEC61010-1 FigA.2 (2K ohm) for Run function
External MD	Basic measuring element 1k ohm
MD Voltage Limit	70Vdc

DUT Power*

AC Voltage:	0.0 - 277.0V
AC Current:	40Arms max continuous
Over Current Protection	50Arms, Response Time < 3 sec / 250A peak Response Time <10µ sec
AC Voltage High/Low Limit	Range: 0.0 - 277.0V Resolution: 0.1V/step
AC Voltage Display	Range: 0.0 - 277.0V Resolution: 0.1V / step Accuracy: ± (1.5% of reading + 2 counts), 30.0 - 277.0V
Delay time setting	Range: 0.5 - 999.9 sec
Resolution: 0.1 sec	
Dwell time setting	Range: 0, 0.5 - 999.9 sec (0=Continuous) Resolution: 0.1 sec Accuracy: ± (0.1% of reading + 0.05 seconds)

General Specifications

Interface	RS-232 Standard, GPIB Optional. Data Storage and Ethernet available on some configurations.
Safety Memory	Built-in SmartGFI® circuit 50 memories, 30 step/memory

AC Power Source

AC Power Source Configuration	Up-to 4KVA compatible power sources available. AC Power Source configuration depends on application.
--------------------------------------	---

MedTEST hardware is configured for testing products with one side of the supply mains at earth potential (Fig 10 UL60601-1).

Specifications subject to change without notice.

Custom Configurations available. Contact us for details.

MedTEST hardware is configured for unbalanced 220V DUT input power.



ASSOCIATED RESEARCH, INC.®
www.asresearch.com
1.800.858.TEST [8378]

- Customer support & technical services
- 5-Year extended warranty**
- 24-Hour turn-around on calibrations
- Industry seminars, expert training & education programs
- Local sales offices throughout the world

**With annual calibration from Associated Research.

