



Instruments for Electrical Safety Compliance Testing



Experts In Electrical Safety Compliance.®

Hipot • Ground Bond • Insulation Resistance • Leakage Current • Functional Run
Medical Test Systems • HV/HC Multiplexers • Software Solutions

CUSTOMER HAPPINESS PROMISE

We aim to provide an amazing experience and quality testers that last a long time. If you're not satisfied with your tester, return it within 45 days for a full refund. Calibrate annually with us, or one of our authorized partners, and we'll extend your warranty an additional year for the service life of your tester, and at least five years after discontinuation. If it breaks during that time, we promise to fix it for free (unless abuse or excessive damage is present). When your tester reaches the end of its service life, we'll responsibly recycle it and give you a discount on a replacement.



*Annual calibration and inspection must be made in each successive year starting one year after the original purchase date in order to remain eligible for extended warranty coverage beyond the standard warranty period (five years).

5 YEAR WARRANTY

Your new tester is warranted to be free from defects in workmanship and material for a period of (5) years from date of shipment.

**5 year warranty is valid on any model purchased in 2021 or after.



ONGOING SUPPORT

We work to provide the best service and support in the industry. With decades of industry experience we are the pros you can trust to help you be compliant to NRTL standards. We'll work closely with you to help you achieve your goals. We've built a worldwide network of knowledgeable partners, so you're covered no matter where you are.



A HISTORY OF INNOVATION

- 1936** Associated Research was founded.
- 1939** We introduced the first battery operated Megohmmeter, the Vibrotest, in the United States.
- 1966** We commenced the first Cable Testing/Fault Location school known as ARU. ARU continued for over 25 years.
- 1993** We introduced the first complete family of microprocessor-controlled electrical safety instruments.
- 1995** We developed the first multi-function electrical safety compliance analyzer.
- 1997** We released the first electrical safety instrument with a built-in multiplexer for multi-point testing.
- 1999** We introduced Autaware, the first software package for automated instrument control, in the EST industry.
- 2001** We released our patented safety feature, SmartGFI®, to provide our customers with maximum operator protection during high voltage testing.
- 2012** We launched the first electrical safety compliance analyzer with a built-in AC power source.
- 2013** We developed the first mobile app in the electrical safety testing industry.
- 2017** We launched the Applications Consulting program.
- 2020** We Introduced Withstand®, a Software as a Service (SaaS) platform, that is a cloud storage of your tests and data in one platform.
- 2021** Associated Research joins the IKONIX family to become and IKONIX Brand.
- 2023** Ikonix globalizes it's product portfolio.

FOCUSED ON EDUCATION

With over 80 years of industry experience, we have the resources and expertise to assist you with your educational needs throughout the life of your product.

- Quick Start Videos
- On-Site Training
- Quick Start Guides
- White Papers & Articles

SERVING THE COMMUNITY

Proud Sponsor of



We donate a portion of our profits to raising awareness about the dangers of electricity.

PRODUCT REFERENCE CHART



AC Hipot



DC Hipot



Ground Bond



Ground Continuity



Insulation Resistance



Leakage Current



Functional Run



Built-in AC Power

Hypot®

Model	AC Hipot	DC Hipot	Ground Bond	Ground Continuity	Insulation Resistance	Leakage Current	Functional Run	Built-in AC Power
3805	•			•				
3855	•			•	•			
3865	•	•		•				
3870	•	•		•	•			

HypotULTRA®

Model	AC Hipot	DC Hipot	Ground Bond	Ground Continuity	Insulation Resistance	Leakage Current	Functional Run	Built-in AC Power
7800 500 VA		•		•	•			
7804	•	•	•	•	•			
7820	•			•				
7850	•	•		•	•			
7854 500 VA		•	•	•	•			

OMNIA® II

Model	AC Hipot	DC Hipot	Ground Bond	Ground Continuity	Insulation Resistance	Leakage Current	Functional Run	Built-in AC Power
8204	•	•	•	•	•			
8254 500 VA		•	•	•	•			
8206	•	•	•	•	•	•	•	
8256 500 VA		•	•	•	•	•	•	
8207	•	•	•	•	•	•	•	•
8257 500 VA		•	•	•	•	•	•	•

HYAMP®

3240			•					
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HypotMAX®

7705	•							
7710		•						
7715	•							
7720		•						

LINECHEK® II

620L						•	•	
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SC6540

- HN
- HH
- HG
- GN
- GG



USB



RS-232



Ethernet



GPIB

Internal
MultiplexerModular
MultiplexerWithStand
CompatiblePower Source
Recommended**Hypot®**

3805	•	Opt.					•
3855	•	Opt.					•
3865	•	Opt.					•
3870	•	Opt.					•

HypotULTRA®

7800	•	•	Opt.	Opt.		•	•
7804	•	•	Opt.	Opt.		•	•
7820	•	•	Opt.	Opt.	•	•	•
7850	•	•	Opt.	Opt.	•	•	•
7854	•	•	Opt.	Opt.		•	•

OMNIA® II

8204	•	•	Opt.	Opt.	•	•	•	
8254	•	•	Opt.	Opt.	•	•	•	
8206	•	•	Opt.	Opt.		•	•	•
8256	•	•	Opt.	Opt.		•	•	•
8207	•	•	Opt.	Opt.		•	•	
8257	•	•	Opt.	Opt.		•	•	

HYAMP®

3240	•						•
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HypotMAX®

7705	•	•		Opt.			•
7710	•	•		Opt.			•
7715	•	•		Opt.			•
7720	•	•		Opt.			•

LINECHEK® II

620L	•	•	Opt.	Opt.		•	•	•
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SC6540

HN						•	•
HH						•	•
HG						•	•
GN						•	•
GG						•	•

MedTEST is the most comprehensive Electrical Safety Compliance test system in the industry designed exclusively for medical applications. Customize it to meet your specific medical safety testing needs in order to comply with standards such as UL60601, IEC60601-1, EN60601-1, UL2601, and IEC601-1. See page 24 for more details.

Hypot®

Production Line Hipot Testing
at its Finest



Our Hypot® Series raises the bar for production line Hipot testing. Improve traceability with onboard data storage and easily transfer test result data and test settings via convenient front panel USB. Take the guesswork out of your production line with the direct barcode connection to quickly associate products with pre-programmed test files. We've included advanced features like improved security and a touch screen interface that provides custom pop-up prompts displayed before each test step. We've dramatically reduced the weight and footprint of the Hypot® Series to make safety compliance a less strenuous ordeal. Quickly interconnect with the HYAMP® Series to form a complete safety compliance system.



Find the Model that Fits Your Testing Needs



AC Hipot



DC Hipot



Ground Continuity



Insulation Resistance

EN 50191
COMPLIANT

3805	•		•	
3855	•		•	•
3865	•	•	•	•
3870	•	•	•	•

AVAILABLE INTERFACES



USB



RS-232

SAFETY & PRODUCTIVITY FEATURES



SmartGFI®
Automatic operator shock protection



Remote Safety Interlock
Easily disable HV output



Data Transfer
Easily import/export test files and data via USB



Barcode Capability
Direct barcode connection



Multiple Languages
Multi-Language user interface



PLC Remote
Basic PLC relay control



Prompt & Hold
Provides alerts & instructions between tests



Advanced User Security
Customize ID & password protection



Interconnection
Interconnect with HYAMP® to form a complete test system



Ramp-HI®
Reduce ramp time during DC Hipot



Charge-LO®
Confirms proper DUT connection



FailCHEK™
Confirms failure detection



Accredited Cal
Accredited calibration options available



WithStand® Automation Software



On Board Data Storage
Save up to 1,500 Test Results on-board

INPUT SPECIFICATIONS			
Voltage	100 – 120 VAC / 200 – 240 VAC ± 10% Auto Range		
Frequency	50/60 Hz ± 5%		
Fuse	3.15 A, Fast Blow 250 VAC		
DIELECTRIC WITHSTAND TEST MODE			
Output Rating	3805/3855/ 3865/3870	5 kVA @ 20 mAAC 6 kVA @ 7.5 mADC (3865/3870 only)	
Maximum Limit	3805/3855/ 3865/3870	AC	Range: 0.00 – 20.00 mA Resolution: 0.01 mA
		DC	Range: 0 – 7500 µA Resolution: 1 µA Accuracy: AC and DC ± (2% of setting + 2 counts)
Minimum Limit	3805/3855/ 3865/3870	AC	Range: 0.000 – 9.999 mA Resolution: 0.001 mA
		DC	Range: 0.0 – 999.9 µA Resolution: 0.1µA Accuracy: AC and DC ± (2% of setting + 2 counts)
Arc Detection	Range:	1 – 9 (9 is most sensitive)	
Ground Fault Interrupt	GFI Trip Current: 450 µA max (AC or DC), Fixed		
	HV Shut Down Speed: < 1 msec		
Current Display	3805/3855/ 3865/3870	AC	Range 1: 0.000 – 4.000 mA Range 2: 3.50 – 20.00 mA
		DC	Range 1: 0.0 µA – 400.0 µA Range 2: 0.350 mA – 4.000 mA Range 3: 3.50 mA – 7.50 mA
		Accuracy:	All Ranges ± (2% of reading + 2 counts)
DC Output Ripple	≤ 5% Ripple rms at 6 kVDC @ 7.5 mA Resistive Load		
RAMP-HI Selectable	Range: 0.0 – 7,500 µA, User Selectable		
Charge-LO	0 – 350 µA DC or Auto Set		
Discharge Time	< 50 msec for no load, < 100 msec for capacitive load The maximum capacitive load vs. output voltage: 1µF < 1KV 0.08µF < 4KV 0.75µF < 2KV 0.04µF < 5KV 0.5µF < 3KV 0.015µF < 6KV		
AC Voltage Waveform/ Frequency	Sine Wave, Crest Factor = 1.3 – 1.5		
	Range:	50 or 60 Hz, User Selectable	
Dwell Timer	Range:	AC 0, 0.2-999.9 sec (0=Continuous) DC 0, 0.4-999.9 sec (0=Continuous)	
Ramp Timer	Range:	Ramp-Up: 0.1 – 999.9 sec Ramp-Down: AC 0.0 – 999.9 sec DC 0, 1.0 – 999.9 sec, (0=OFF)	
Ground Continuity Current	DC 0.1A ± 0.01 A, fixed		
Ground Continuity Maximum Limit	Range:	0.00 – 1.50 Ω	
	Resolution: Accuracy:	0.01 Ω ± (3% of setting + 0.02 Ω)	
Ground Continuity Auto Offset	Range: Resolution: Accuracy:	0.00 – 0.50 Ω 0.01 Ω ± (3% of setting + 0.02 Ω)	

INSULATION RESISTANCE TEST MODE			
Voltage Setting	Range:	30 – 1,000 VDC	
	Resolution: Accuracy:	1 V ± (2% of setting + 5 V)	
Resistance Display	Range:	1 – 50,000 MΩ	
	Resolution:	30 – 99 VDC	100 – 499 VDC
	MΩ	1.000 – 1.999 MΩ	1.000 – 9.999 MΩ
	0.001	2.00 – 19.99	2.00 – 19.99
	0.01	20.0 – 199.9	20.0 – 199.9
	0.1	200 – 10,000	200 – 20,000
	1		1000 – 50000
	Accuracy:	± (8% of reading+2 counts) at test voltage 30 – 499 V and 1.00–999.9 MΩ	
	At test voltage 500-1000 V ± (2% of reading + 2 counts) for 1.00 – 999.9 MΩ ± (5% of reading + 2 counts) for 1000 – 9999 MΩ ± (15% of reading + 2 counts) for 10000 – 50,000 MΩ		
HI & LO-Limit	Range:	0, 1.00 – 99.99 MΩ (0=OFF, HI-Limit ONLY)	
	Resolution:	0.01 MΩ 1000-50000 1 MΩ	
	Accuracy:	At test voltage 500-1000 V ± (2% of setting + 2 counts) for 1.00 – 999.9 MΩ ± (5% of setting + 2 counts) for 1000 – 9999 MΩ ± (15% of setting + 2 counts) for 10000 – 50,000 MΩ	
Charge-LO	Range:	0.000 – 3.500 µA DC or Auto Set	
Ramp Timer	Range:	Ramp-Up: 0.1 – 999.9 sec Ramp-Down: 0, 1.0 – 999.9 sec, (0=OFF)	
Delay Timer	Range:	0.5 – 999.9 sec (0=OFF)	
Dwell Timer	Range:	0, 0.5 – 999.9 sec (0=continuous)	

GENERAL SPECIFICATIONS			
Remote Control and Signal I/O	Inputs: Test, Reset, Hardware Interlock, File Recall Outputs: Pass, Fail, Test-in-Process, Reset-Out, Start-Out		
Vmax	Displays the maximum voltage value recorded during a breakdown		
Imax	Displays the maximum leakage current value read during a test		
Memories	50 steps 1500 test results		
Interface	USB standard		
Language	English, Traditional Chinese, Simplified Chinese, Turkish, Portuguese, Spanish, German, French		
Security	Multiple user setups with ID and password		
Dimensions (W x H x D)	3805/3855/ 3865/3870	8.5" x 3.5" x 11.9" (215 mm x 88.1 mm x 300 mm)	
Weight	3805/3855/ 3865/3870	12 lbs (5.46 kg)	

Why We Use Counts
Associated Research publishes some specifications using "counts" which allows us to provide a better indication of the instrument's capabilities across measurement ranges. A count refers to the lowest resolution of the display for a given measurement range. For example, if the resolution for voltage is 1V then 2 counts = 2 V.

Specifications subject to change without notice.

HypotULTRA®

The Most Flexible and Feature-Rich Automated Dielectric Analyzer Available



Our HypotULTRA® models provide all the tools you need to modernize your production line with best-in-class 4-in-1 test capability and a slim 2U design. We've added 40A AC Ground Bond test capability to HypotULTRA's already impressive feature list for manufacturers that aim to adopt best testing practices without sacrificing productivity. Whether you're looking to improve traceability with onboard data storage, increase efficiency with our intuitive touch screen interface and direct barcode scanner connection, or automate with a variety of communication interfaces, HypotULTRA was designed to take your production line to the next level.



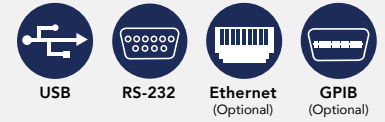
Find the Model that Fits Your Testing Needs



Model	VA*	AC Hipot	DC Hipot	40A Ground Bond	Ground Continuity	Insulation Resistance
7800	500 VA*	•	•	•	•	•
7804		•	•	•	•	•
7820		•	•	•	•	•
7850		•	•	•	•	•
7854	500 VA*	•	•	•	•	•

*Meets 200 mA short circuit requirements

AVAILABLE INTERFACES



SAFETY & PRODUCTIVITY FEATURES

- SmartGFI®**
Automatic operator shock protection
- Remote Safety Interlock**
Easily disable HV output
- Data Transfer**
Easily import/export test files and data via USB
- Barcode Capability**
Direct barcode connection
- Multiple Languages**
Multi-Language user interface
- Ground Bond Voltage Drop**
Monitor voltage drop vs resistance
- ProVOLT®**
Multi-dwell cycles at different voltages for ACW/DCW/IR
- Internal Multiplexer**
Available with optional HV multiplexer (4 or 8 ports)
- Modular Multiplexer**
Compatible with SC6540 multiplexers
- FailCHECK™**
Confirms failure detection
- Prompt & Hold**
Provides alerts & instructions between tests
- WithStand®**
Automation Software
- Advanced User Security**
Customize ID & password protection
- Ramp-HI®**
Reduce ramp time during DC Hipot
- Charge-LO®**
Confirms proper DUT connection
- PLC Remote**
Basic PLC relay control
- Negative DC Hipot & Insulation Resistance (Optional)**
- On Board Data Storage**
Save up to 100,000 Test Results on-board

INPUT SPECIFICATIONS

Voltage	100 – 120 VAC / 200 – 240 VAC ± 10% Auto Range	
Frequency	50/60 Hz ± 5%	
Fuse	7804/7820/7850:	6.3A, Slow Blow 250 VAC
	7800/7854:	15A, Fast Blow 250 VAC

AC WITHSTAND TEST MODE (All Models)

Output Voltage	Range: 0 – 5,000 VAC Resolution: 1 VAC Accuracy: ± (2% of setting + 5V)
Output Frequency	50/60 Hz ± 0.1%, User Selection
Output Waveform	Sine Wave, Crest Factor = 1.3 – 1.5
Output Regulation	± (1% of output + 5V)
HI and LO-Limit Total	Total Range: 0.000 – 9.999 mA Resolution: 0.001 mA Range: 10.00 – 40.00 mA (10 – 99.99 mA, Models 7800/7854) Resolution: 0.01 mA Accuracy: ± (2% of setting + 2 counts) 7804/7820/7850 ± (2% of setting + 6 counts) 7800/7854
	Real Range: 0.000 – 9.999 mA Resolution: 0.001 mA Range: 10.00 – 40.00 mA (10 – 99.99 mA 7800/7854) Resolution: 0.01 mA Accuracy: ± (3% of setting + 50 µA)
Ramp Up Timer	Range: 0.1 – 999.9 sec
Ramp Down Timer	Range: 0.0 – 999.9 sec
Dwell Timer	Range: 0, 0.2 – 999.9 sec (0=Continuous)
Ground Continuity	Current: DC 0.1A ± 0.01A, fixed
Current	Max. Ground Resistance: 1.0 Ω ± 0.1 Ω
Arc Detection	Range: 1 – 9 (9 is most sensitive)

DC WITHSTAND TEST MODE (Models 7800/7804/7850 & 7854 Only)

Output Voltage	Range: 0 – 6000 VDC Resolution: 1 V Accuracy: ± (2% of setting + 5 V)
DC Output Ripple	<4% (6 KV/10 mA at Resistive Load)
HI and LO-Limit	Range: 0.0000 – 0.9999 µA Resolution: 0.0001 µA Accuracy: ± (2% of setting + 10 counts), Low Range is ON
	Range: 1.000 – 9.999 µA Resolution: 0.001 µA Accuracy: ± (2% of setting + 10 counts), Low Range is ON
	Range: 10.00 – 99.99 µA Resolution: 0.01 µA Accuracy: ± (2% of setting + 10 counts), Low Range is ON
	Range: 100.0 – 999.9 µA Resolution: 0.1 µA Accuracy: ± (2% of setting + 2 counts)
	Range: 1,000 – 20,000 µA range (7804/54) 1,000 – 10,000µA range (7800/50) Resolution: 1 µA Accuracy: ± (2% of setting + 2 counts)
Ramp Up Timer	Range: 0.4 – 999.9 sec, Low Range is OFF 0.5 – 999.9 sec, Low Range is ON
Ramp Down Timer	Range: 0.0, 1.0 – 999.9 sec (0=OFF)
Dwell Timer	Range: 0, 0.4 – 999.9 sec (0=Continuous) 0, 1.0 – 999.9 sec, Low Range is ON
Ramp-HI Selectable	Range: 0 – 20 mA selectable
Charge-LO	Range: 0.0 – 350.0 µA DC or Auto Set
Discharge Time	< 50 ms for no load, < 100 ms for capacitive load
Maximum Capacitive Load DC Mode	1µF < 1kV 0.0 µF < 4 kV 0.75 µF < 2 kV 0.04 µF < 5 kV 0.5 µF < 3 kV 0.015 µF < 6 kV
Arc Detection	Range: 1 – 9 (9 is most sensitive)

INSULATION RESISTANCE MODE (Models 7800/7804/7850 & 7854 Only)

Output Voltage, DC	Range: 10 – 1,000 VDC Resolution: 1 VDC Accuracy: ± (2% of setting + 2 counts)
	Range: 1,001 – 6,000 VDC Resolution: 1 VDC Accuracy: ± (2% of setting + 5 V)

INSULATION RESISTANCE MODE (Models 7800/7804/7850 & 7854 Only)

Charging Current HI and LO-Limit	Maximum > 20 mA peak
	Range: 0.10 MΩ – 99.9 MΩ (HI-Limit: 0=OFF) Resolution: 0.01 MΩ Accuracy: ± (2% of setting + 2 counts)
	Range: 100.0 MΩ – 999.9 MΩ Resolution: 0.1 MΩ Accuracy: 1,000 – 9,999 ± (5% of setting + 2 counts)
	Range: 1,000 MΩ – 50,000 MΩ Resolution: 1 MΩ Accuracy: 10,000 – 50,000 ± (15% of setting + 2 counts)
Ramp Up Timer	Range: 0.1 – 999.9 sec
Ramp Down Timer	Range: 1.0 – 999.9 sec
Dwell Timer	Range: 0.5 – 999.9 sec (0=Continuous)
Delay Timer	Range: 0.5 – 999.9 sec
Charge-LO	0.000 – 3.500 µA or Auto Set

CONTINUITY TEST MODE (All Models)

Output Current, DC	1 A for 0.000 – 1.000 Ω, 0.1 A for 1.01 – 10.00 Ω 0.01 A for 10.01 – 100 Ω, 0.001 A for 101 – 1,000 Ω 0.0001 A for 1001 – 10,000 Ω, 1 A is Max
Resistance Display Max & Min Max-Lmt	Range: 0.000 – 1.000 Ω Resolution: 0.001 Ω Accuracy: ± (1% of setting + 3 counts)
	Range: 1.01 – 10.00 Ω Resolution: 0.01 Ω Accuracy: ± (1% of setting + 3 counts)
	Range: 10.1 – 100.0 Ω Resolution: 0.1 Ω Accuracy: ± (1% of setting + 3 counts)
	Range: 101 – 1,000 Ω Resolution: 1 Ω Accuracy: ± (1% of setting + 3 counts)
	Range: 1,001 – 10,000 Ω Resolution: 1 Ω Accuracy: ± (1% of setting + 10 counts)
Dwell Timer	Range: 0, 0.4 – 999.9 sec (0=Continuous)
Resistance Offset	Range: 0.000 – 10.00 Ω

GROUND BOND TEST MODE (Models 7804 & 7854 Only)

Output Voltage (Open Circuit Voltage)	Range: 3.00 – 8.00 VAC Resolution: 0.01 VAC Accuracy: ± (2% of setting + 3 counts) Open Circuit
Output Current	Range: 1.00 – 40.00 A Resolution: 0.01 A Accuracy: ± (2% of setting + 2 counts)
Maximum Loading	1.00 – 10.00 A, 0 – 600 mΩ 10.01 – 30.00 A, 0 – 200 mΩ 30.01 – 40.00 A, 0 – 150 mΩ
HI and LO-Limit	Range: 0 – 150 mΩ for 30.01 – 40.00 A 0 – 200 mΩ for 10.01 – 30.00 A 0 – 600 mΩ for 1.00 – 10.01 A Resolution: 1 mΩ Accuracy: ± (2% of setting + 2 counts)
	Range: 0 – 600 mΩ Resolution: 1 mΩ Accuracy: ± (3% of setting + 3 counts)
Dwell Timer	Range: 0, 0.5 – 999.9 sec (0=Continuous)
Milliohm Offset	0 – 200 mΩ
Voltage Offset	0.0 – 6.0 V

GENERAL SPECIFICATIONS

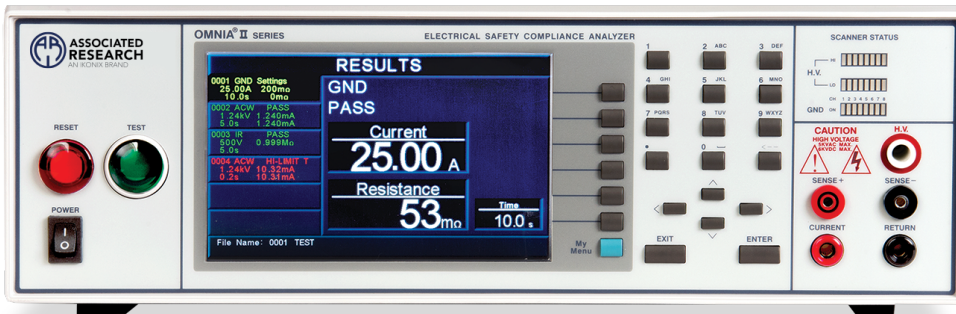
Memory	2,000 steps, 200 steps per test file max 100,000 test results
Mechanical	Bench or rackmount (2U height) with feet
Interface	Standard: USB, RS-232 Optional: GPIB (IEEE-488.2), Ethernet or USB Printer
SmartGFI®	0, 0.4 – 5.0 mA (0=OFF)
Dimensions (W x H x D)	16.92" x 3.50" x 15.75" (430 x 88.1 x 400mm)
Weight	7800: 45 lbs (20.4 kg)
	7804: 41 lbs (18.6 kg)
	7820: 34 lbs (15.4 kg)
	7850: 35 lbs (15.9 kg)
	7854: 46.3 lbs (21 kg)

OMNIA® II

The Most Advanced Electrical Safety Compliance Analyzer in the Industry



Our OMNIA® II Series is a complete line of multi-function electrical safety compliance analyzers designed to satisfy even the most demanding application requirements. We've included exclusive productivity-enhancing features and the latest in safety technology to make this product line the envy of the industry. With 6 models to choose from, a multi-language menu system and a variety of automation interfaces available, the OMNIA® II is ready for global deployment.



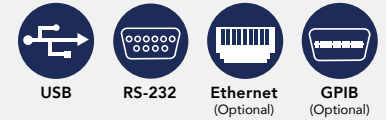
Find the Model that Fits Your Testing Needs



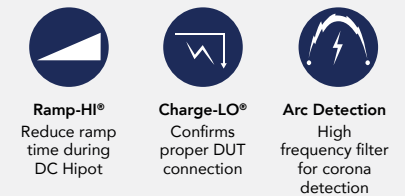
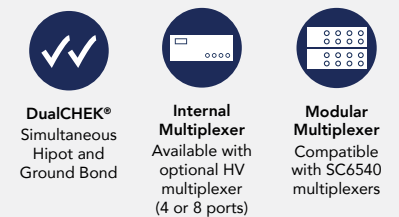
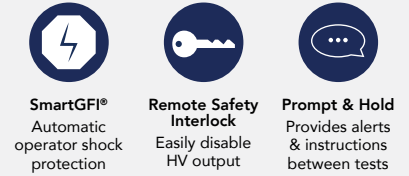
Model	500 VA*	AC Hipot	DC Hipot	Ground Bond	Ground Continuity	Insulation Resistance	Leakage Current	Functional Run	Built-in AC Power	Power Source Recommended
8204		•	•	•	•	•	•	•	•	•
8254	500 VA*	•	•	•	•	•	•	•	•	•
8206		•	•	•	•	•	•	•	•	•
8256	500 VA*	•	•	•	•	•	•	•	•	•
8207		•	•	•	•	•	•	•	•	•
8257	500 VA*	•	•	•	•	•	•	•	•	•

*Meets 200 mA short circuit requirements

AVAILABLE INTERFACES



SAFETY & PRODUCTIVITY FEATURES



INPUT SPECIFICATIONS	
Voltage	115/230 V Auto Range, ± 15 % Variation
Frequency	50/60 Hz ± 5%
Fuse	115 VAC, 230 VAC – 10 A Slow Blow 250 VAC
DIELECTRIC WITHSTAND TEST MODE	
Output Rating	5 kV @ 50 mAAC 5 kV @ 100 mAAC (Models 825X) 6 kV @ 20 mADC
Voltage Setting	Resolution: 1 V Accuracy: ± (2% of setting + 5 volts)
HI and LO-Limit	AC Total
	Range: 0.000 – 9.999 mA Resolution: 0.001 mA
	Range: 10.00 – 50.00 mA (100.00 mA, models 825X) Resolution: 0.01 mA
	Accuracy: ± (2% of setting + 2 counts)
	AC Real
	Range: 0.000 – 9.999 mA Resolution: 0.001 mA
Range: 10.00 – 50.00 mA (100.00 mA, models 825X) Resolution: 0.01 mA	
Accuracy: ± (3% of setting + 50 µA)	
DC	Range: 0 – 999.9 µA Resolution: 0.1 µA
	Range: 1,000 – 20,000 µA Resolution: 1 µA
	Accuracy: ± (2% of setting + 2 counts)
Arc Detection	Range: 1 – 9 (9 is most sensitive)
Ground Continuity	Current: DC 0.1 A ± 0.01 A, fixed Max. Ground Resistance: 1 Ω ± 0.1 Ω, fixed
Ground Fault Interrupt	GFI Trip Current: 0.4 mA – 5.0 mA (AC or DC) HV Shut Down Speed: < 1 ms
DC Output Ripple	≤ 4% Ripple rms at 5 kVDC at 20 mA Resistive Load
Discharge Time	≤ 50 ms No Load, < 100 ms for Capacitive Load
Max Capacitive Load, DC Mode	1 µF < 1 kV 0.08 µF < 4 kV 0.75 µF < 2 kV 0.04 µF < 6 kV 0.5 µF < 3 kV
AC Output Waveform	Sine Wave, Crest Factor = 1.3 – 1.5
Output Frequency	Range: 60 or 50 Hz, User Selection (400/800 Hz optional)
Output Regulation	± (1% of output + 5 V) from no load to full load and over input voltage range
Dwell Timer	Range: AC 0.4 – 999.9 sec (0=Continuous) DC 0.3 – 999.9 sec (0=Continuous)
Ramp Timer	Ramp-up: AC 0.1 – 999.9 sec, DC 0.4 – 999.9 sec Ramp-Down: AC 0.0 – 999.9 sec, DC 0.0, 1.0 – 999.9 sec (0=Continuous)
INSULATION RESISTANCE TEST MODE	
Voltage Setting	Range: 30 – 6000 VDC
HI and LO-Limit	Range: 0.05 MΩ – 99.99 MΩ Resolution: 0.01 MΩ
	Range: 100.0 MΩ – 999.9 MΩ Resolution: 0.1 MΩ
	Range: 1,000 MΩ – 50,000 MΩ Resolution: 1 MΩ (HI-Limit: 0=OFF)
Ramp Timer	Ramp-up: 0.1 – 999.9 sec Ramp-Down: 0.0, 1.0 – 999.9 sec (0=Continuous)
Delay Timer	Range: 0.5 – 999.9 sec (0=Continuous)

GROUND BOND TEST MODE	
Output Voltage (Open Circuit Limit)	Range: 3.00 – 8.00 VAC
Output Frequency	Range: 60 or 50 Hz, User Selectable
Output Current	Range: 1.00 – 40.00 A Resolution: 0.01 A Accuracy: ± (2% of setting + 0.02 A)
Maximum Loading	1.00 – 10.00 A, 0 – 600 mΩ 10.01 – 30.00 A, 0 – 200 mΩ 30.01 – 40.00 A, 0 – 150 mΩ
HI and LO-Limit	Range: 0 – 150 mΩ for 30.01 – 40.00 A 0 – 200 mΩ for 10.01 – 30.00 A 0 – 600 mΩ for 1.00 – 10.00 A Resolution: 1 mΩ Accuracy: ± (2% of reading + 2 mΩ)
	Range: 0 – 600 mΩ for 1.00 – 5.99 A Resolution: 1 mΩ Accuracy: ± (3% of reading + 3 mΩ)
	Dwell Timer
Milliohm Offset	Range: 0 – 200 mΩ
CONTINUITY TEST MODE	
Output Current	DC 0.01 A ± 0.00001 A
Resistance Display	Range: 0.00 – 10000 Ω
HI and LO-Limit	Range: 1: 0.00 – 10.00 Ω Resolution: 0.01 Ω
	Range 2: 10.1 – 100.0 Ω Resolution: 0.1 Ω
	Range 3: 101 – 1,000 Ω Resolution: 1 Ω Accuracy: ± (1% of reading + 3 counts)
	Range 4: 1,001 – 10,000 Ω Resolution: 1 Ω Accuracy: ± (1% of reading + 10 counts) (Max Limit: 0=OFF)
Dwell Timer	Range: 0.0, 0.3 – 999.9 sec (0=Continuous)
Milliohm Offset	Range: 0.00 – 10.00 Ω
RUN TEST MODE (Models 82X6 & 82X7 only)	
DUT Power	Voltage: 0 – 277 VAC single phase unbalanced Current: 16 AAC max continuous Range: 0.0 – 277.0 VAC Full Scale Resolution: 0.1 V Accuracy: ± (1.5% of reading + 0.2 V), 30.0 – 277.0 VAC Short Circuit Protection: 23 AAC, Response Time < 3 sec
Delay Time Setting	Range: 0.2 – 999.9 seconds
Dwell Time Setting	Range: 0.1 – 999.9 seconds (0=Continuous)

RUN TEST MODE CONTINUED (Models 82X6 & 82X7 only)

Trip Point Settings & Metering	Voltage	
	Volt-Hi Volt-LO	Range: 30.0 – 277.0 VAC Resolution: 0.1 V Accuracy: ± (1.5% of setting + 0.2 V), 30.0–277 VAC
	Current	
	Amp-HI Amp-LO	Range: 0.0 – 16.00 AAC Resolution: 0.01 A Accuracy: ± (2.0% of setting + 2 counts)
	Watts	
	Power-HI Power-LO	Range: 0 – 4,500 W Resolution: 1 W Accuracy: ± (5.0% of setting + 3 counts)
	Power Factor	
	PF-HI PF-LO	Range: 0.000 – 1.000 Resolution: 0.001 Accuracy: ± (8% of setting + 2 counts)
	Leakage Current	
	Leak-HI Leak-LO	Range: 0.00 – 10.00 mA (0=OFF) Resolution: 0.01 mA Accuracy: ± (2% of setting + 2 counts)
Timer Display	Range: 0.0 – 999.9 seconds Resolution: 0.1 second Accuracy: ± (0.1% of reading + 0.05 seconds)	

LEAKAGE CURRENT TEST MODE (Models 82X6 & 82X7 only)

DUT Power	Voltage: 0 – 277 VAC Current: 16 AAC max continuous
	Voltage Display Range: 0.0 – 277.0 VAC Full Scale Resolution: 0.1 V Accuracy: ± (1.5% of reading +0.2 V), 30.0 – 277.0 VAC
	Short Circuit Protection: 23 AAC, Response Time < 3 s
Reverse Power Switch	Reverse polarity switch setting select ON/OFF/AUTO ON: Reverse power OFF: Normal AUTO: Automatic Reverse Polarity
Neutral Switch	ON/OFF selection for single fault condition
Ground Switch	ON/OFF selection for Class I single fault condition
Probe Setting	Surface to Surface (PH – PL) Surface to Line (PH – L) Ground to Line (G – L)
Touch Current High Limit (rms)	Range: 0.0 µA ~ 999.9 µA 1000 µA ~ 10.00 mA Resolution: 0.1 µA / 1 µA / 0.01 mA

LEAKAGE CURRENT TEST MODE CONTINUED (Models 82X6 & 82X7 only)

Touch Current Display (rms)	Range 1: 0.0 µA ~ 32.0 µA, frequency DC, 15 Hz – 1 MHz	
	Range 2: 28.0 µA ~ 130.0 µA, frequency DC, 15 Hz – 1 MHz	
	Range 3: 120.0 µA ~ 550.0 µA, frequency DC, 15 Hz – 1 MHz	
	Resolution for Ranges 1, 2, 3: 0.1 µA	
	Accuracy for Ranges 1, 2, 3: DC: 15 Hz < f < 100 KHz: ± (2% of reading + 3 counts) 100 KHz < f < 1 MHz: ± 5% of reading (10.0 µA – 999.9 µA)	
	Range 4: 400 µA ~ 2100 µA, frequency DC, 15 Hz – 1 MHz	
	Range 5: 800 µA ~ 8500 µA, frequency DC, 15 Hz – 1 MHz	
	Resolution for Ranges 4 & 5: 1 µA	
	Accuracy for Ranges 4 & 5: DC: 15 Hz < f < 100 KHz: ± (2% of reading + 3 counts) 100 KHz < f < 1 MHz: ± 5% of reading (10 µA – 8500 µA)	
	Range 6: 8.00 mA ~ 10.00 mA, frequency DC 15 Hz – 100 kHz	
	Resolution: 0.01 mA	
	Accuracy: DC: 15 Hz < f < 100 KHz: ± 5% of reading (0.01 mA -10.00 mA)	
Touch Current Display (Peak)	Range 1: 0.0 µA ~ 32.0 µA, frequency DC – 1 MHz	
	Range 2: 28.0 µA ~ 130.0 µA, frequency DC – 1 MHz	
	Range 3: 120.0 µA ~ 550.0 µA, frequency DC – 1 MHz	
	Resolution for Ranges 1, 2, 3: 0.1 µA	
	Accuracy for Ranges 1, 2, 3: DC: ± (2% of reading + 2 µA) 15 Hz < f < 1 MHz: ± 10% of reading + 2 µA	
	Range 4: 400 µA ~ 2100 µA, frequency DC – 1 MHz	
	Range 5: 1800 A ~ 8500 µA, frequency DC – 1 MHz	
	Resolution for Ranges 4 & 5: 1 µA	
	Accuracy for Ranges 4 & 5: DC: ± (2% of reading + 2 µA) 15 Hz < f < 1 MHz: ± (10% of reading + 2 µA)	
	Range 6: 8.0 mA ~10.00 mA, frequency DC – 100 KHz	
	Resolution: 0.01 mA	
	Accuracy: DC: ± (2% of reading + 3 counts) 15 Hz < f < 100 KHz: ± (10% of reading + 2 counts)	
MD Circuit Module	MD1: UL544NP, UL484 , UL923, UL471, UL867, UL697 MD2: UL544P MD3: IEC 60601-1 MD4: UL1563 MD5: IEC60990 Fig4 U2, 62368-1, IEC60335-1, IEC60598-1, IEC60065, IEC61010 MD6: IEC60990 Fig5 U3, IEC60598-1 MD7: 62368-1, IEC61010-1 FigA.2 (2K ohm) for Run function MD8: IEC60990/62368-1 Fig4 U1	
	External MD	Basic measuring element 1 kΩ
	Scope Output Interface	BNC type connector on rear panel for Oscilloscope connection

AC POWER SOURCE (82X7 only)	
Output	Power: 630 VA and 500 W Maximum
	Voltage: 0 – 150.0 V / 0 – 277.0 V
	Current: 4.20 A maximum for 0 – 150 V range 2.10 A maximum 0 – 277 V range
	Distortion: ≤ 1% at 45- 500 Hz and output voltage within the 80 ~ 140 VAC at Low Range or the 160 ~ 277 VAC at High Range (Resistive Load)
	Regulation: ≤ 0.5% + 5 V (resistive load), from no load to full load and Low Line to High Line (combined regulation)
	Crest Factor: > 3
	Test Timing: < 350 ms at start and between
	Limit: Steps when internal AC source is ON
Settings	Voltage
	Low Range: 0.0 – 150.0 V
	High Range: 0.0 – 277.0 V
	Resolution: 0.1 V
	Accuracy: ± (1.5% of setting + 2 counts)
	Frequency
	Range: 45.0 Hz – 99.9 Hz Resolution: 0.1 Hz Accuracy: ± 0.1% of setting
Range: 100 Hz – 500 Hz Resolution: 1 Hz Accuracy: ± 0.1% of setting	
A-HI-Limit	
Range: 4.20 A / 2.10 A Resolution: 0.01 A Accuracy: ± (2% of reading + 2 counts)	
Measurement	Voltage
	Range: 0.0 – 277.0 V Resolution: 0.1 V Accuracy: ± (1.5% of reading + 2 counts)
	Current
	Range: 0.00 – 16.00 A Resolution: 0.01 A Accuracy: ± (2% of reading + 2 counts)
	Power:
	Range: 0 – 4500 Resolution: 1 Accuracy: ± (5% of reading + 3 counts) for PF > 0.100
Power Factor:	
Range: 0.000 – 1.000 Resolution: 0.001 Accuracy: ± (8% of reading + 5 counts)	
Frequency:	
Range: 45 – 500 Hz Resolution: 0.1 Hz Accuracy: ± 0.1 Hz	

GENERAL SPECIFICATIONS	
PLC Remote Control	Input: Test, Reset, Interlock, Recall File 1 through 3 Output: Pass, Fail, Test-in-Process
Safety	Built-in SmartGFI circuit
Memory	10,000 Steps
Interface	Standard: USB/RS-232 Optional: Ethernet or GPIB
Security	Advanced security system with access levels and username/password requirements
Dimensions (W x H x D)	16.93" x 5.24" x 19.69" (430 x 133 x 500 mm)
Weight	8204: 82 lbs (37 kg)
	8254: 92 lbs (42 kg)
	8206/8207: 83 lbs (38 kg)
	8256/8257: 103 lbs (47 kg)

Why We Use Counts

Associated Research publishes some specifications using “counts” which allows us to provide a better indication of the instrument’s capabilities across measurement ranges. A count refers to the lowest resolution of the display for a given measurement range. For example, if the resolution for voltage is 1V then 2 counts = 2 V.

Specifications subject to change without notice.

HYAMP®

The Industry Leading Production Line Ground Bond Instrument



Our HYAMP® Series provides manufacturers with data-driven results and greater test flexibility required in today's complex test environment. Quickly collect test data and test settings from the convenient front panel USB port onto a standard USB flash drive. Use the front panel barcode connection to associate products with preprogrammed test files. Test with greater flexibility by performing either AC Ground Bond or DC Ground Bond at a maximum of 40 A of current. The HYAMP® features a drastically reduced weight and footprint making it the ideal lightweight Ground Bond solution for laboratory and production line testing applications. Easily interconnect with the Hypot® Series to form a complete safety compliance system.



Find the Model that Fits Your Testing Needs



Ground Bond

3240

AC/DC

AVAILABLE INTERFACES



USB

SAFETY & PRODUCTIVITY FEATURES



PLC Remote
Basic PLC relay control



Remote Safety Interlock
Easily disable HV output



Data Transfer
Easily import/export test files and data via USB



Barcode Capability
Direct barcode connection



Multiple Languages
Multi-Language user interface



Ground Bond Voltage Drop
Monitor voltage drop vs resistance



FailCHEK™
Confirms failure detection



Prompt & Hold
Provides alerts & instructions between tests



Advanced User Security
Customize ID & password protection



Accredited Cal
Accredited calibration options available



4-Wire Measurement
More accurate milliohm measurement



Interconnection
Interconnect with Hypot® to form a complete test system



On Board Data Storage
Save up to 1,500 Test Results on-board



WithStand® Automation Software

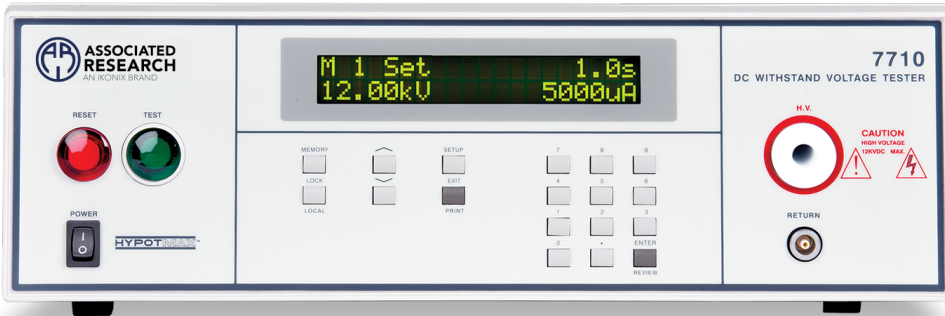
INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage	100 – 120 VAC / 200 – 240 VAC ± 10% Auto Range		
Frequency	50/60Hz ± 5%		
Fuse	10 A, Slow Blow 250 VAC		
GROUND BOND TEST MODE			
Output Voltage (Open Circuit Voltage)	Range: Resolution: Accuracy:	3.00 – 8.00 VAC/DC 0.01 VAC/DC ± (3% of setting + 3 counts)	
Output Frequency	50 or 60 Hz, User Selectable/DC		
Output Current	Range: Resolution: Accuracy:	0 – 150 mΩ for 30.01 – 40.00 A 0 – 200 mΩ for 10.01 – 30.00 A 0 – 600 mΩ for 1.00 – 10.01 A 0.1 A ± (3% of setting + 3 counts)	
Maximum Loading	Range: Resolution: Accuracy:	1.00 – 10.00 A, 0 – 600 mΩ 10.01 – 30.00 A, 0 – 200 mΩ 30.01 – 40.00 A, 0 – 150 mΩ 1 mΩ ± (2% of setting + 2 counts)	
HI and LO-Limit Resistance	Range: Resolution: Accuracy:	0 – 150 mΩ for 30.01 – 40.00 A 0 – 200 mΩ for 10.01 – 30.00 A 0 – 600 mΩ for 1.00 – 10.01 A 1 mΩ ± (2% of setting + 2 counts)	
HI and LO-Limit Voltage	Range: Resolution: Accuracy:	0.00 – 6.00 V 0.01 ± (2% of settings + 2 counts)	
Dwell Time Setting	Range:	0, 0.5 – 999.9 sec (0=Continuous)	
Ω Offset Capability	Range: Resolution: Accuracy:	0 – 100 mΩ 1 mΩ ± (2% of setting + 2 counts)	
V Offset Capability	Range: Resolution: Accuracy:	0.00 – 4.00 V 0.01 V ± (2% of setting + 2 counts)	
Current Display	Range: Resolution: Accuracy:	0.00 – 40.00 AAC/DC 0.01 AC/DC ± (3% of reading + 1 count)	
Voltage Display	Range: Resolution: Accuracy:	0.00 – 8.00 VAC/DC 0.01 AC/DC ± (2% of reading + 2 counts)	
Ohmmeter Display	Range: Resolution: Accuracy:	0 – 600 mΩ for 1.00 – 5.99 A 1 mΩ ± (3% of reading + 3 counts)	
	Range: Resolution: Accuracy:	0 – 600 mΩ for 6 – 40 A 1 mΩ ± (2% of reading + 2 counts)	
Remote Control and Signal I/O	The following input and output signals are provided through two 9 pin D type connectors: Inputs: Test, Reset, Hardware Interlock, File Recall Outputs: Pass, Fail, Test-in-Process, Reset-Out, Start-Out Hardware Interlock (safety)		
Memories	50 steps 1500 test results		
Interface	USB standard		
Language	English, Traditional Chinese, Simplified Chinese, Turkish, Portuguese, Spanish, German, French		
Security	Multiple user setups with ID and password		
Dimensions (W x H x D)	8.5" x 3.5" x 11.9" (215 x 88.1 x 300 mm)		
Weight	11 lbs (5 kg)		
Why We Use Counts			
Associated Research publishes some specifications using "counts" which allows us to provide a better indication of the instrument's capabilities across measurement ranges. A count refers to the lowest resolution of the display for a given measurement range. For example, if the resolution for voltage is 1V then 2 counts = 2 V.			
Specifications subject to change without notice.			

HypotMAX[®]

The Safest and Most Reliable Automated High Voltage Hipot Instrument Available



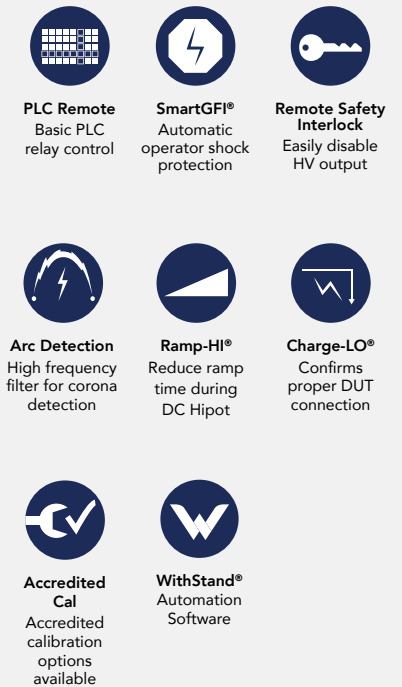
Our HypotMAX[®] Series is a complete line of automated Hipot instruments designed to meet the demanding requirements of high voltage applications. We've included our patented SmartGFI[®] feature for maximum operator safety as well as a variety of advanced features to increase productivity on the production line and in the lab. Set up and run tests with confidence from our intuitive user interface or automate with a PC.



AVAILABLE INTERFACES



SAFETY & PRODUCTIVITY FEATURES



Find the Model that Fits Your Testing Needs



AC Hipot



DC Hipot

7705	•	
7710		•
7715	•	
7720		•

INPUT SPECIFICATIONS		
Voltage	115/230 VAC ± 10%, Single Phase, User Selection	
Frequency	50/60 Hz ± 5%	
Fuse	6.3 A, 250 V Slow Blow	
DIELECTRIC WITHSTAND TEST MODE		
Output Rating	7705: 10 kV @ 20 mAAC 7710: 12 kV @ 10 mADC 7715: 20 kV @ 10 mAAC 7720: 20 kV @ 5 mADC	
HI-Limit and LO-Limit	7705	Range 1: 0.0 – 9,999 mA Resolution: 0.001 mA Range 2: 10.00 – 20.00 mA Resolution: 0.01 mA
	7710	Range 1: 0.00 – 999.9 µA Resolution: 0.1 µA Range 2: 1,000 – 9,999 µA Resolution: 1 µA
	7715	Range: 0.00 – 9,999 mA Resolution: 0.001 mA
	7720	Range 1: 0.0 – 999.9 µA Resolution: 0.1 µA Range 2: 1,000 – 5,000 µA Resolution: 1 µA/step
	77XX	Accuracy: ± (2% of setting + 2 counts)
DC Ramp HI	7710	13 mA peak maximum, 10 mADC, ON/OFF selectable
	7720	6.75 mA peak maximum, 5 mADC, ON/OFF selectable
DC Charge LO	7710/7720	Range: 0.0 – 350 µADC or auto set
Arc Detection	7705	1 – 9 at output voltage < 7.00 kV 1 – 8 at output voltage ≥ 7.00 kV
	7710/7720	1 – 9
	7715	1 – 9 at output voltage < 15.00 kV 1 – 7 at output voltage ≥ 15.00 kV
Voltage Display	7705	Range: 0.00 – 10.00 kV Full scale Accuracy: ± (2% of reading + 20 V)
	7710	Range: 0.00 – 12.00 kV Full scale Accuracy: ± (2% of reading + 20 V)
	7715/7720	Range: 0.00 – 20.00 kV Full scale Accuracy: ± (2% of reading + 20 V)
Current Display	7705	Auto Range Range 1: 0.000 – 3.500 mA Range 2: 3.00 – 20.00 mA
	7710	Auto Range Range 1: 0.0 – 350.0 µA Range 2: 300 – 3500 µA Range 3: 3,000 – 9,999 µA
	7715	Auto Range Range 1: 0.000 – 3.500 mA Range 2: 3.00 – 10.00 mA
	7720	Auto Range Range 1: 0.0 – 350.0 µA Range 2: 300 – 5,000 µA
DC Output Ripple	7710	< 5% Ripple at 12 kV @ 9,999 µA, Resistive Load
	7720	< 5% Ripple at 20 kV @ 4,999 µA, Resistive Load
AC Output Waveform	Sine Wave, Crest Factor = 1.3 – 1.5	
Output Frequency	Range:	50/60 Hz, User Selection ± (1% of output + 5 V) from Regulation No load to full load
Output Regulation	± (1% of output + 10 V) from no load to full load	
Discharge Timer	7710	No load < 400 ms
	7720	No load < 500 ms
Dwell Timer		Range: 0, 0.3 – 999.9 sec (0=Continuous) AC Range: 0, 0.3 – 999.9 sec or min (0=Continuous) DC Range: 0, 0.4 – 999.9 sec or min (0=Continuous)
Ramp Timer	7705/7715	Range: 0.3 – 999.9 sec
	7710/7720	Range: 0.4 – 999.9 sec
Ground Continuity	Max. Ground Resistance 1 Ω ± 0.1 Ω, fixed	

DIELECTRIC WITHSTAND TEST MODE		
Ground Fault Interrupt	HV Shut Down Speed < 1 ms GFI Trip Current 1 mA max	
GENERAL SPECIFICATIONS		
Memory	50 memories w/ 8 steps per memory	
Mechanical	Tilt-up front feet	
Interface	Standard: USB, RS-232 Optional: GPIB	
Dimensions (W x H x D)	16.93" x 5.24" x 15.75" (430 x 133 x 400 mm)	
Weight	7705:	63.3 lb (28.7kg)
	7710:	63.1 lb (28.6kg)
	7715:	59.4 lb (26.9kg)
	7720:	61.6 lb (27.9 kg)

Why We Use Counts

Associated Research publishes some specifications using "counts" which allows us to provide a better indication of the instrument's capabilities across measurement ranges. A count refers to the lowest resolution of the display for a given measurement range. For example, if the resolution for voltage is 1V then 2 counts = 2 V.

Specifications subject to change without notice.

SC6540

The Patented Multiplexer that Revolutionized Production Line and Laboratory Electrical Safety Compliance Testing



Our patented SC6540 multiplexer pioneered the largest productivity improvement in the electrical safety compliance industry in years. With up to 16 independent high voltage or high current channels in a convenient 2U design, the SC6540 can be customized in 10 different configurations for multi-point Hipot, Ground Bond, Insulation Resistance, and Leakage Current testing. Configure the SC6540 according to your needs, and interface with your OMNIA® II, HypotULTRA® or LINECHECK® II instrument to improve production line throughput or expand lab testing capability. Operate from the front panel of your AR instrument or utilize a variety of automation interfaces for direct PC control.



Find the Model that Fits Your Testing Needs



High Voltage



High Current



8 Channel



16 Channel

HN	•		•	
HH	•			•
HG	•	•		•
GN		•	•	
GG		•		•

Available in both main and secondary configurations

AVAILABLE INTERFACES



USB



RS-232



Ethernet
(Optional)



GPIB
(Optional)

PRODUCTIVITY ENHANCING FEATURES



Interconnection
Interconnect with the HypotULTRA®, OMNIA® II or LINECHECK® II to form a complete test system



WithStand®
Automation Software

FOR USE WITH THE FOLLOWING TESTS



AC Hipot



DC Hipot



Ground Bond



Ground Continuity



Insulation Resistance



Leakage Current

MODULAR MULTIPLEXER SPECIFICATIONS

Input (Main only)	115 VAC (± 10%), 50/60 Hz, single phase 230 VAC (± 10%), 50/60 Hz, single phase User selectable
Fuse (Main only)	250 V/2 A/fast-blow
PC Control (Main only)	Standard: USB, RS-232 Optional: Ethernet, GPIB
Multiplexer Control	Main: One Multiplexer bus output controls, up to 4 additional secondaries Secondary: One output and one input
Maximum HV Rating	5 kV AC and DC
Maximum HC Rating	40 A
Number of Possible Channels	8 or 16
HV Output	100' reel HV cable rated for up to 30 kV Terminations with 8 HV connectors
GND Output	20 terminals provided, to accept 10/12 AWG Terminations hook-up wire (user supplied wire)
Temperature	32° – 104° F (0° – 40° C)
Humidity	0 – 80%
Altitude	6,560 ft. (2,000 m)
Mechanical	2U with tilt-up front feet
Dimensions (W x H x D)	17" x 4.07" x 12.96" (432 x 103 x 329 mm)
Weight	Main: 20.05 lbs. max. (9.09 kg) (with 2 high voltage modules) Secondary: 15.45 lbs. max. (7.01 kg) (with 2 high voltage modules)

CONFIGURATIONS

The modular design can be customize to fit your application. In addition to main or secondary control, the SC6540 can be set up in the following configurations: 8 or 16 high voltage channels, 8 or 16 high current channels, and 8 high voltage channels and/or 8 high current channels. Refer to the images for details.

The different configurations (shown below) are indicated by the following alpha designators

- M – Main Multiplexer
- H – 8 High Voltage Channels
- HH – 16 High Voltage Channels
- G – 8 Ground Bond Channels
- GG – 16 Ground Bond Channels
- N – Empty Module
- S – Secondary



MODEL SC6540 HNM*
8 Channel High Voltage Multiplexer



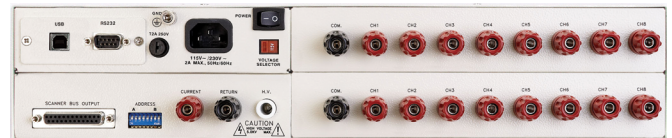
MODEL SC6540 HHM*
16 Channel High Voltage Multiplexer



MODEL SC6540 HGM*
8 Channel High Voltage Multiplexer
8 Channel High Current Multiplexer



MODEL SC6540 GNM*
8 Channel High Current Multiplexer



MODEL SC6540 GGM*
16 Channel High Current Multiplexer

*Also available in secondary configuration

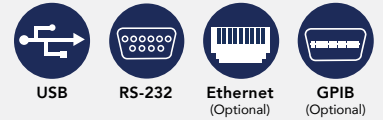
LINECHEK® II

The Fully Automated Leakage Current Instrument that Changed the Industry

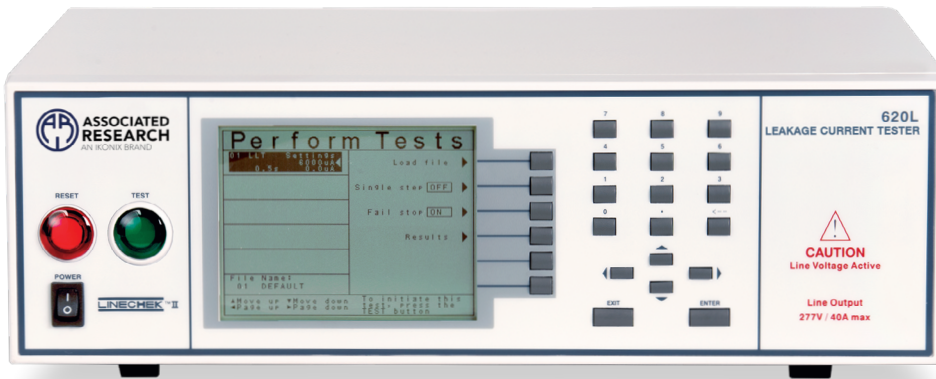
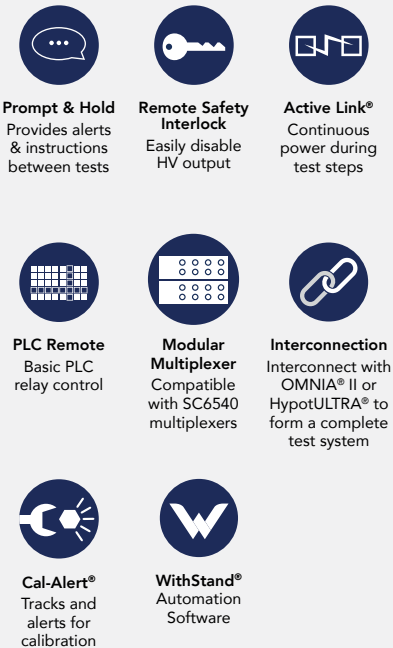


Our LINECHEK® II model 620L provides 7 measuring devices (MD's) compliant with international certification bodies as well as a convenient switching network to simulate all 8 required fault conditions, everything you need for full Leakage Current compliance. Utilize the intuitive user interface or control via a PC for more advanced automated applications that require data storage and analysis. The 620L handles up to 40 A of continuous current and can be interfaced to an SC6540 modular multiplexer for multi-point testing. Interconnect the 620L to an OMNIA® II instrument to form a complete electrical safety compliance testing system.

AVAILABLE INTERFACES



SAFETY & PRODUCTIVITY FEATURES



Find the Model that Fits Your Testing Needs



Leakage Current



Functional Run



Power Source Recommended

620L



INPUT SPECIFICATIONS	
Voltage	115/230 VAC ± 10%, User Selection
Frequency	50/60 Hz ± 5%
Fuse	2 A Slow Blow 250 VAC
LINE CONDITIONS	
Reverse Power Switch	Switch for power polarity reversal
Neutral Switch	Neutral switch on/off selection for single fault
Ground Switch	Ground switch on/off selection for class I single fault
PROBE SETTINGS	
Surface to Surface	(PH – PL)
Surface to Line	(PH – L)
Ground to Line	(G – L)
LEAKAGE LIMIT SETTINGS	
Touch Current High/Low Limit (rms)	Range: 0.0 µA – 999.9 µA / 1,000 µA – 9,999 µA / 10.00 mA – 20.00 mA Resolution: 0.1 µA / 1 µA / 0.01 mA
Touch Current High/Low Limit (Peak)	Range: 0.0 µA – 999.9 µA / 1,000 µA – 9,999 µA / 10.00 mA – 30.00 mA Resolution: 0.1 µA / 1 µA / 0.01 mA
DISPLAY	
Touch Current Display (rms)	Range: 0.0 µA – 550 µA, frequency DC, 15 Hz – 1 MHz Resolution: 0.1 µA Accuracy: DC: 15 Hz ≤ f ≤ 100 kHz: ± (2% of reading + 3 counts) 100 kHz ≤ f ≤ 1 MHz: ± 5% of reading (10.0 µA – 999.9 µA)
	Range: 400 µA – 8,500 µA, frequency DC, 15 Hz – 1 MHz Resolution: 1 µA Accuracy: DC: 15 Hz ≤ f ≤ 100 kHz: ± (2% of reading + 3 counts) 100 kHz ≤ f ≤ 1 MHz: ± 5% of reading (10.0 µA – 8,500 µA)
	Range: 8.00 mA – 20.00 mA, frequency DC, 15 Hz – 100 KHz Resolution: 0.01 mA Accuracy: DC: 15 Hz ≤ f ≤ 100 MHz: ± 5% of reading (0.01 mA – 20.00 mA)
Touch Current Display (peak)	Range: 0.0 µA – 550 µA, frequency DC – 1 MHz Resolution: 0.1 µA Accuracy: ± (2% of reading + 2 µA) 15 Hz ≤ f ≤ 1 MHz, ± 10% of reading + 2 µA
	Range: 400 µA – 8,500 µA, frequency DC – 1 MHz Resolution: 1 µA Accuracy: ± (2% of reading + 2 µA) 15 Hz ≤ f ≤ 1 MHz, ± 10% of reading + 2 µA
	Range: 8.00 mA – 30.00 mA, frequency DC – 100 kHz Resolution: 0.01 mA Accuracy: ± (2% of reading + 3 counts) 15 Hz ≤ f ≤ 100 kHz, ± 10% 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, 62368-1, IEC60335-1, IEC60598-1, IEC60065, IEC61010
MD6	IEC60990 Fig5 U3, IEC60598-1
MD7	62368-1, IEC61010-1 FigA.2 (2 kohm) for Run function
External MD	Basic measuring element 1 kohm
MD Voltage Limit	70 VDC

DUT POWER	
AC Voltage	0.0 – 277.0 V
AC Current	40 A max continuous
AC Voltage High/Low Limit	Range: 0.0 – 277.0 V Resolution: 0.1 V/step
AC Voltage Display	Range: 0.0 – 277.0 V Resolution: 0.1 V/step Accuracy: ± (1.5% of reading + 2 counts), 30.0 – 277.0 V
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)
Failure Protection	On Start-Up – Neutral Voltage Check (Neutral – V) Over current and ground current check (Line – OC)
GENERAL SPECIFICATIONS	
Memory	50 Memories, 30 steps per each memory File locations can link 900 steps max
Mechanical	Bench or rackmount with tilt-up feet
Interface	Standard: USB, RS-232 Optional: Ethernet, GPIB
Dimensions (W x H x D)	16.93" x 5.24" x 11.81" (430 x 133 x 300 mm)
Weight	26.45 lbs (12 kg)

Why We Use Counts

Associated Research publishes some specifications using "counts" which allows us to provide a better indication of the instrument's capabilities across measurement ranges. A count refers to the lowest resolution of the display for a given measurement range. For example, if the resolution for voltage is 1V then 2 counts = 2 V.

Specifications subject to change without notice.

MedTEST

A Complete Electrical Safety Testing System that Satisfies the Most Demanding Medical Compliance Requirements

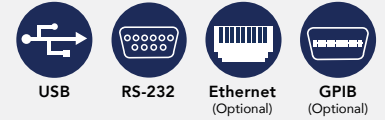


Our MedTEST system can be designed to provide a complete test solution for medical device manufacturers in need of conforming to IEC 60601-1 3rd Edition Standard. Customize your MedTEST system to satisfy your individual testing requirements including Hipot, Ground Bond, Insulation Resistance, Functional Run and leakage current testing for all B, BF and CF type applied parts including Mains on Applied Parts (MOAP) tests. Up to 40 A of continuous DUT current combined with our Active Link® technology reduces overall test time and integration with our SC6540 modular multiplexer allows for multi-point sequential testing without the need to change test leads. Get the most from your test system by utilizing our WithStand® software for maximum productivity-enhancing benefits.

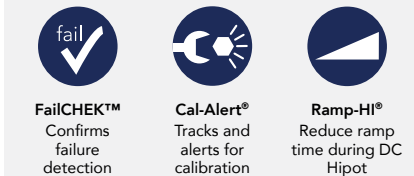
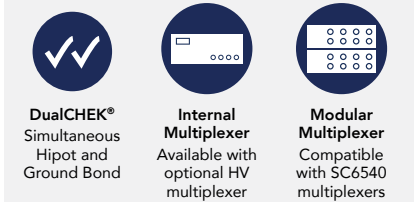
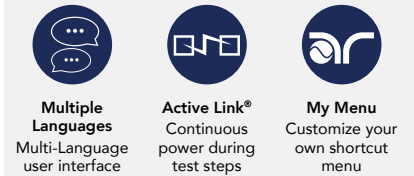
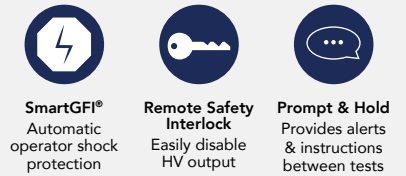


Rack cabinet shown in image is for illustration only. Ikonix does not sell or distribute the rack cabinet.

AVAILABLE INTERFACES



SAFETY & PRODUCTIVITY FEATURES



POPULAR MEDTEST CONFIGURATIONS



OMNIA® II 8207 AND SC6540

- All-in-one testing system (Hipot, Ground Bond, Insulation Resistance, and Leakage Current)
- Built in 500 VA AC power source
- Efficient use of rack space
- SC6540 provides automated multi-point testing
Most common applications incorporate 8 or 16 port multiplexers



OMNIA® II 8206, SC6540 AND POWERED BY AN AC POWER SOURCE

- All-in-one testing system (Hipot, Ground Bond, Insulation Resistance, and Leakage Current)
 - Compatible EEC power source provides power to DUT*
 - SC6540 provides automated multi-point testing.
Most common applications incorporate 8 or 16 port multiplexers
- *Choose from EEC 8500 Series.



OMNIA® II 8204, 620L, SC6540 AND POWERED BY AN AC POWER SOURCE

- All-in-one testing system (Hipot, Ground Bond, Insulation Resistance, and Leakage Current)
 - Compatible EEC power source provides power to DUT*
 - SC6540 provides automated multi-point testing
Most common applications incorporate 8 or 16 port multiplexers
 - Up to 40 A continuous current capability for applications that draw greater than 16 A of current
- *Choose from EEC 8500 Series.

LINE CONDITIONS	
Reverse Power Switch	Switch for power polarity reversal
Neutral Switch	Neutral switch on/off selection for single fault
Ground Switch	Ground switch on/off selection for class I single fault
PROBE SETTINGS	
Surface to Surface	(PH – PL)
Surface to Line	(PH – L)
Ground to Line	(G – L)
LEAKAGE LIMIT SETTINGS	
Touch Current High/Low Limit (rms)	Range: 0.0 µA – 999.9 µA / 1,000 µA – 9,999 µA / 10.00 mA – 20.00 mA Resolution: 0.1 µA / 1 µA / 0.01 mA
Touch Current High/Low Limit (Peak)	Range: 0.0 µA – 999.9 µA / 1,000 µA – 9,999 µA / 10.00 mA – 30.00 mA Resolution: 0.1 µA / 1 µA / 0.01 mA
MEASURING DEVICE MODULE	
MD1	UL544NP, UL484 , UL923, UL471, UL867, UL697
MD2	UL544P
MD3	IEC 60601-1
MD4	UL1563
MD5	IEC60990 Fig4 U2, IEC62368, IEC60335-1, IEC60598-1, IEC60065, IEC61010
MD6	IEC60990 Fig5 U3, IEC60598-1
MD7	IEC62368, IEC61010-1 FigA.2 (2 kohm) for Run function
External MD	Basic measuring element 1 kohm
MD Voltage Limit	70 VDC
DUT POWER	
AC Voltage	0.0 – 277.0 V
AC Current	40 A max continuous
AC Voltage High/Low Limit	Range: 0.0 – 277.0 V Resolution: 0.1 V/step
AC Voltage Display	Range: 0.0 – 277.0 V Resolution: 0.1 V/step Accuracy: ± (1.5% of reading + 2 counts), 30.0 – 277.0 V
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)
Failure Protection	On Start-Up – Neutral Voltage Check (Neutral – V) Over current and ground current check (Line – OC)

DIELECTRIC WITHSTAND TEST MODE			
Output Rating*	5 kV @ 50 mAAC 6 kV @ 20 mADC		
Voltage Setting	Range: 0 – 5,000 VAC, 0 – 6,000 VDC Resolution: 1 V Accuracy: ± (2% of setting + 5 V)		
HI and LO-Limit	AC Total	Range:	0.000-9.999 mA
		Resolution:	0.001 mA
	Accuracy:	± (2% of setting + 2 counts)	
	AC Real	Range:	10.00 – 50.00 mA
		Resolution:	0.01 mA
	Accuracy:	± (2% of Setting + 2 counts)	
DC	Range:	0.00 – 999.9 µA	
	Resolution:	0.1 µA	
Accuracy:	± (2% of setting + 2 counts)		
Ramp HI	> 20 mA peak maximum, ON/OFF selectable		
Charge LO	Range:	0.000 – 350.0 µA or Auto Set	
DC Output Ripple	≤ 4% Ripple rms at 5 kVDC @ 20 mA, Resistive Load		
Discharge Timer	< 50 msec for no load, < 100 msec for capacitor load (All capacitance values in MAX load spec below)		
Maximum Capacitive Load	1 µF < 1 kV	0.08 µF < 4 kV	
	0.75 µF < 2 kV	0.04 µF < 6 kV	
	0.50 µF < 3 kV		
Output Frequency	50/60 Hz ± 0.1% , User Selection, 400/800 Hz Option		
AC Output Waveform	Sine Wave, Crest Factor = 1.3 – 1.5		
Output Regulation	± (1% of output + 5 V) from no load to full load and over input voltage range		
Dwell Timer	AC 0, 0.4 – 999.9 sec (0=Continuous) DC 0, 0.3 – 999.9 sec (0=Continuous)		
Ramp Timer	Ramp-Up AC: 0.1 – 999.9 Ramp-Down AC: 0.0-999.9 Ramp-Up DC: 0.4 – 999.9 Ramp-Down DC: 0.0, 1.0-999.9		
Ground Continuity	Current: DC 0.1 A ± 0.01 A, fixed Max. Ground Resistance: 1 Ω ± 0.1 Ω, fixed		
Ground Fault Interrupt	GFI Trip Current: 5.0 mA max HV Shut Down Speed: < 1 ms		

*Output voltage limited to 3.5 kV with 620L option 03

CONTINUITY TEST MODE	
Output Current	DC 0.1 A ± 0.00001 A
Resistance Display	Range: 0.00 – 10,000.00 Ω
HI and LO-Limit	0.00 – 10,000 Ω
Dwell Timer	Range: 0.0, 0.3 – 999.9 sec (0=Continuous)
Milliohm Offset	Range: 0.00 – 10.00 Ω
GROUND BOND TEST MODE	
Output Voltage	Range: 3.00 – 8.00 VAC
Output Frequency	50/60 Hz ± 0.1%, User Selection
Output Current	Range: 1.00 – 40.00 A Resolution: 0.01 A Accuracy: ± (2 % of setting + 2 counts)
Output Regulation	± (1% of output + 0.02 A) Within maximum load limits, and over input voltage range
Maximum Loading	1.00 – 10.00 A, 0 – 600 mΩ 10.01 – 30.00 A, 0 – 200 mΩ 30.01 – 40.00 A, 0 – 150 mΩ
HI and LO-Limit	Range: 0 – 150 for 30.01 – 40.00 A
	Range: 0 – 200 for 10.01 – 30.00 A
	Range: 0 – 600 for 6.00 – 10.00 A
	Range: 0 – 600 for 5.99 – 1.00 A
	Resolution: 1 mΩ
	Accuracy: 6.00 – 40.00 A, ± (2% of setting + 2 Counts) 1.00 – 5.99 A, ± (3% of setting + 3 Counts)
Milliohm Offset	Range: 0 – 200 mΩ
INSULATION RESISTANCE TEST MODE	
Output Voltage	Range: 30 – 1,000 VDC
Charging Current	Maximum > 20 mA peak
HI and LO-Limit	Range: 0.05-99.99 MΩ Resolution: 0.01 MΩ
	Range: 100.0 – 999.9 MΩ Resolution: 0.1 MΩ
	Range: 1000 – 50,000 MΩ Resolution: 1 MΩ
Charge-LO	0.000 – 3.500 μA or Auto Set
Ramp Timer	Ramp Up: 0.1 – 999.9 secs
	Ramp Down: 0.0, 1.0 – 999.9 secs
Dwell Timer	0, 0.5 – 999.9 (0=Continuous)
Delay Timer	0.5 – 999.9 secs
Ground Fault Interrupt	GFI Trip Current: 5.0 mA max HV Shut down Speed: < 1 ms

GENERAL SPECIFICATIONS	
Interface	Standard: USB, RS-232 Optional: Ethernet, GPIB
Safety	Built-in SmartGFI® circuit
Memory	620L: 50 memories, 30 steps per memory OMNIA® II: 10,000 steps
AC POWER SOURCE	
AC Power Source	Up-to 4 kVA compatible power sources available
Configuration	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).
	MedTEST hardware is configured for unbalanced 0-277 V DUT input power.
	Custom Configurations available. Contact us for details.

Why We Use Counts

Associated Research publishes some specifications using "counts" which allows us to provide a better indication of the instrument's capabilities across measurement ranges. A count refers to the lowest resolution of the display for a given measurement range. For example, if the resolution for voltage is 1V then 2 counts = 2 V.










Specifications subject to change without notice.

SYSTEMS

Production Line Electrical Safety Compliance in a Convenient Stackable or Rackable Configuration

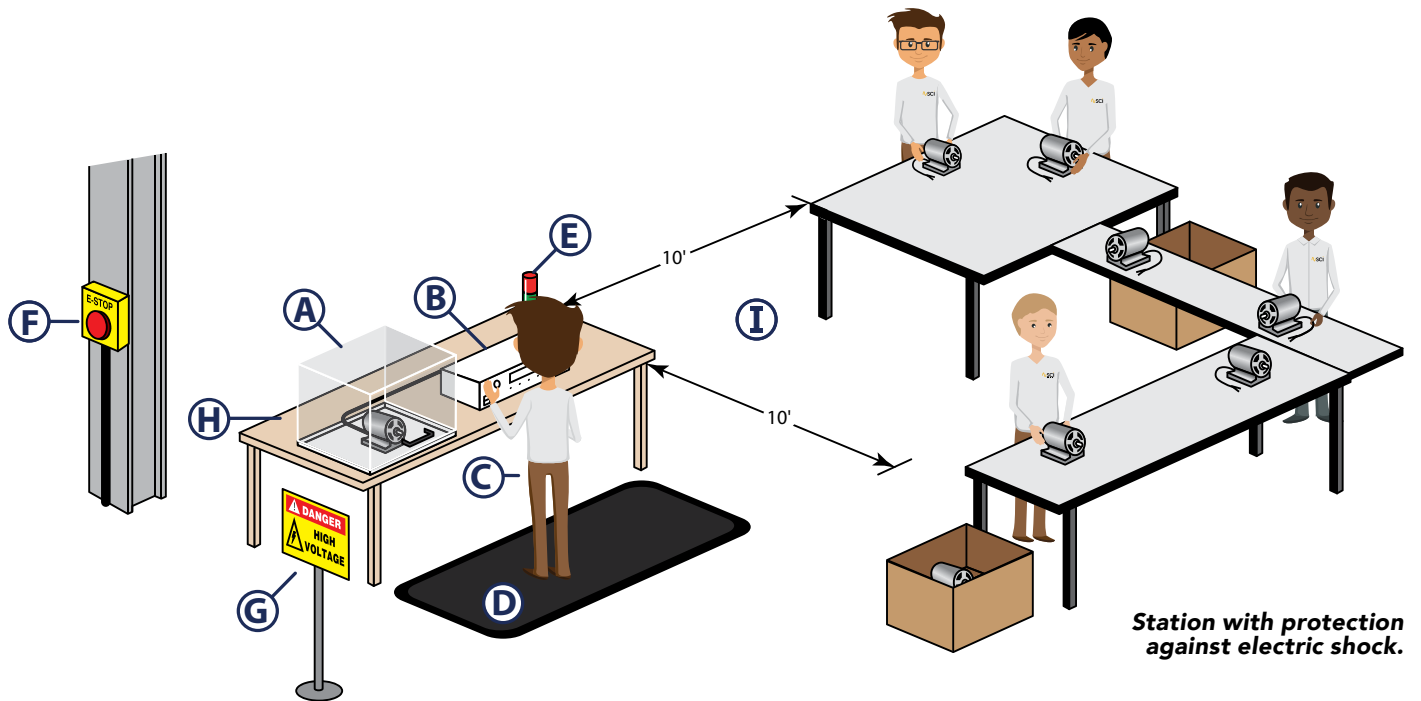


Interconnect our Hypot® Series Hipot Instrument with our HYAMP® Series Ground Bond instrument to form a complete safety compliance system. Easily operate both instruments from a single point of control on the production line or in a rack. All test systems are safety agency listed, include interconnect cables, and detailed directions on effortlessly interconnecting your system.

	Hypot® 3805	Hypot® 3855	Hypot® 3865	Hypot® 3870
	 AC Hipot	  AC Hipot Insulation Resistance	  AC Hipot DC Hipot	   AC Hipot DC Hipot Insulation Resistance
HYAMP® 3240  40A Ground Bond	System 32-05	System 32-55	System 32-65	System 32-70

SETTING UP A SAFE WORKSTATION

Setting up a safe and secure workstation is one of the best ways to protect your test operators. You can setup test stations with or without direct protection depending on your requirements.



Station with protection against electric shock.

Description	
A	DUT Safety Enclosure - This is wired to the Hipot tester's Remote Safety Interlock. This protects you from touching the DUT while a test is in progress. When you open the enclosure door, it will immediately disable the instrument's high voltage output.
B	Hipot Tester - Performs test on the DUT
C	Test Operator
D	High Voltage Insulation Mat - This isolates you from ground which provides an additional means of protection when operating high voltage equipment.
E	Signal Tower Light - Gives an indication as to the status of the testing area. A green light indicates the Hipot instrument is not outputting high voltage and the test area is safe. A red light indicates that the Hipot instrument is active and to stay clear of the test area.
F	Emergency Stop Button - An E-stop button is located on the perimeter of the test area. In the event of an emergency, someone outside the test area can hit the E-Stop button to immediately cut off power to the entire test station.
G	Warning Signs - Mark the testing area with clearly posted signs that read: DANGER-HIGH VOLTAGE TEST AREA. AUTHORIZED PERSONNEL ONLY.
H	Non-Conductive Work Bench - Only use a work bench made of non-conductive material such as plastic or wood. This ensures no stray leakage current could flow through you during a test.
I	NEC (National Electric Code) and NFPA (National Fire Protection Agency) stipulate that any unqualified workers shall not come within 10 feet of an EXPOSED energized circuit.

ESSENTIAL WORKSTATION PPE & ACCESSORIES

Class 3 Insulation Mat 40396

Thickness:
3/8" (9.53 mm)

Dimensions:
3' x 3' (91.44 x 91.44 cm)



High Voltage Warning Sign 39538



DUT Enclosure Wood Frame with Foam Interior 39067

Protect your operator from electric shock by enclosing your DUT. Our enclosures automatically disable the instrument's output when the enclosure door is opened. Our DUT Enclosures are designed to protect the operator from electric shock during testing. Interface an enclosure with our Remote Safety Interlock feature to automatically disable the instrument's output when the enclosure door is opened.

Outside dimensions (W x D x H): 24" x 19" x 11.5" (610 x 483 x 293 mm)

Inside dimensions (W x D x H): 20" x 16" x 10" (508 x 407 x 254 mm)

3/4" Walls, 3/4" Flame Retardant Foam, 1/4" Plexiglass cover



Dual Palm Remote Switch DPR-01

Prevent your operator from touching a DUT as their hands must stay on the test switches to continue to run a test.



Remote Test Box w/LED Indicators RTB-02

Helps maintain a safe distance between the operator and test instrument when starting and restarting a test. Compatible with all models except SC6540.



E-Stop ESTOP

Immediately stop the flow of electric current to your instrument when the E-Stop is triggered. The E-Stop provides the safest and fastest way for a rescuer to save an operator from injury.



Test Verification Box TVB-2

The TVB-2 is a go/no-go daily test verification box designed to ensure that the failure detectors of an Associated Research electrical safety testing instrument are functioning properly. We designed the TVB-2 to verify Hipot, Insulation Resistance, Ground Bond, and Ground Continuity test functionality. If you perform daily verifications on your testing equipment, then the TVB-2 is an ideal solution. An accessory cord is available to customers who prefer to verify their test instrument using an adapter box.



TVB-2 Accessory Cord 39514

Accessory line cord for the TVB-2 allows convenient connection to a standard adapter box.



Leakage Current Verification Box LVB-2

Verify the failure detectors of your Associated Research Leakage Current Test instrument are functioning properly with this go/no-go load box.



Signal Tower Light 24V 40417

Our Signal tower light gives operators a visual indication of the status of the testing area. A green light indicates the Hipot tester is not outputting high voltage and the test area is safe. A red light indicates that the Hipot tester is active and to stay clear of the test area. Compatible with OMNIA® II Series, HypotULTRA® Series, Hypot® Series, HYAMP® Series, HypotMAX® Series, and LINECHECK II (620L).



Magnetic Hipot Return Cable CBLSR-05M



Magnetic Ground Bond Return Cable CBLHR-05M

High Voltage Pistol Probe with Switch 38814



2 Wire 40A Ground Bond Probe 38539



4 Wire 40A Ground Bond Probe 38538

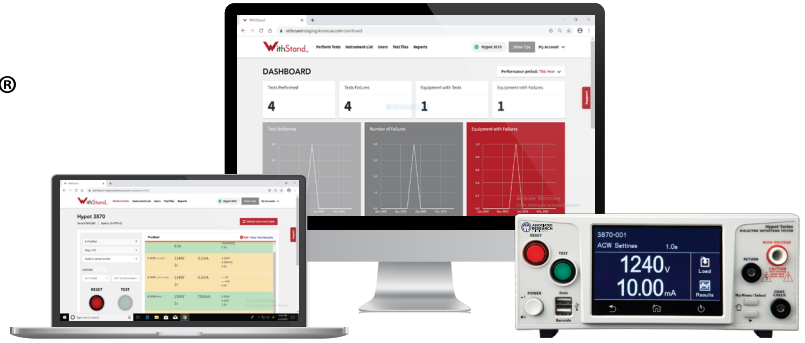
High Voltage Probe 38081

Return Probe 38082



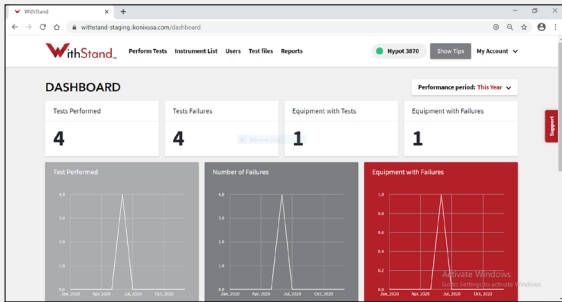


Record, track and store your data with our software as a service.

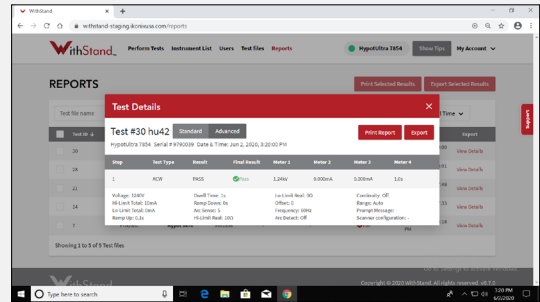


- Unlimited Users
- Remote Instrument Connection
- Intuitive User Interface
- Immediate Cloud Storage

► Compatible with Hypot®, HypotULTRA®, OMNIA® II, HYAMP®, HypotMAX®, LINECHECK® II and SC6540.



The platform’s interface introduces an intuitive user experience making it easy to setup, run tests and view your reports.



Cloud storage ensures that your tests and data will never be lost or altered – all information is stored immediately to the cloud for access at any time.

► Try it out for yourself with a free 30-day trial withstand.ikonixusa.com/auth/signup/create



WithStand® Desk

Record, track and store your data **locally** with our brand new desktop software. (No internet required) **Learn More** ►

APPLICATIONS CONSULTING

Applications Consulting provides customized training tailored to your specific company needs.



OUR CONSULTING PACKAGES

Digital Packages

A web-based learning program. Choose from 2 packages; our Consulting on Demand or Customized Digital Package.

On-site Training Package

1-4 day on-site, hands-on training for your production line or R&D lab.

On-site Validation Package

2 or 4 day on-site training to completely satisfy your organization's validation needs.

Visit ikonixusa.com/consulting to learn how we can help your team
WE WILL HELP MAKE SURE YOUR SYSTEM IS SAFE AND EFFECTIVE

COMMON SAFETY STANDARD REFERENCE CHART

Standard/ Harmonized Standard	Testing Type	Dielectric Withstand			Ground Bond/Continuity			
		Test Voltage	Max I.	Test Time	Test Current	V Limit	Max. R	Test Time
IEC/UL 60601-1 3rd Edition Medical Electrical Equipment	Performance	500 – 4000 VAC or 707 – 5656 VDC	No Breakdown	60 s	10-25 A	≤ 6 V	≤ 0.1 Ω	5 s
	Production*	1000 – 3000 VAC		1 or 60 s	10-25 A	≤ 6 V	≤ 0.1 Ω	5 s
IEC 61730-2 UL 1703 Photovoltaic Modules & Panels	Performance	1000 VAC + 2 x rated V or 2000 VAC + 4 x rated V	50 uA	60 s	2.5 x Max Over Current Protection	≤ 12 V	≤ 0.1 Ω	120 s
	Production	1000 VAC + 2 x rated V or (1000 VDC + 2 x rated V) X 120%	50 uA	1 or 60 s	Continuity			
IEC 60335-1 Household Electrical Appliances	Performance	500 – 2400 VAC x rated V + 2400 VAC	No Breakdown	60 s	≥ 10 A	≤ 12 V	0.1 – 0.2 Ω	≤ 120 s
	Production	400 – 2500 VAC	5-30 mA	1 s	≥ 10 A	≤ 12 V	0.1 – 0.2 Ω	No time specified
UL 60335-1 Household Electrical Appliances	Performance	500V – 2400 VAC x rated V + 2400 VAC	No Breakdown	60 s	40 A	≤ 6.5 V	≤ 0.5 Ω	120 s
	Production	400 – 2500 VAC	5-30 mA	1 s	40 A	≤ 12 V	0.1 – 0.2 Ω	No time specified
IEC 60598-1 Luminaires	Performance	500 – 4 x rated V + 2000 VAC	No Breakdown	60 s	≥ 10 A	≤ 12 V	≤ 0.5 Ω	60 s
	Production	Not Specified – Responsibility of Manufacturer						
UL 1598 Luminaires	Performance	1000 VAC – 1000 VAC x 2 x rated V	No Breakdown	60 s	30 A	≤ 4 V	≤ 0.1 Ω	120 s
	Production	1200 VAC		1 s	Continuity		≤ 0.1 Ω	Continuity
IEC/UL 61010-1 & CSA 22.2 No. 61010-1 Laboratory Control Test & Measurement Equipment	Performance	840 – 11940 VAC or 1200 – 7500 VDC	No Breakdown	5 – 60 s	25 or 30 A	≤ 10 V or ≤ 12 V	≤ 0.1 Ω or < 4 V 0.133 Ω	60 or 120 s
	Production			5 s max ramp up 2 s dwell	Continuity			
EN 60204-1 Electrical Equipment of Machines	Performance	2 x rated V or 1000 VAC	No Breakdown	1 s	0.2 – 10 A	≤ 24 V	Refer to Section 18.2.2	No time specified
	Production	Not Specified – Responsibility of Manufacturer						
UL 2202 Electric Vehicle Charging System Equipment	Performance	500 VAC or 1000 VAC + 2 x rated V	No Breakdown	60 s	≤ 60 A	≤ 12 V	Continuity	120 – 240 s
	Production	1000 – 1700 VAC + 3.4 x rated V		60 or 1 s	Continuity			
IEC 61851-1 Electric Vehicle Conductive Charging System	Performance	1200 VAC + rated V or DC Equivalent	No Breakdown	60 s	Continuity			
	Production	Not Specified – Responsibility of Manufacturer						
IEC 62368-1 Audi/Video, Information & Communication Technology Equipment	Performance	1000 – 3000 VAC or 1414 – 4242 VDC	No Breakdown	60 s	≤ 40 A	≤ 12 V	≤ 0.1 Ω	60 s
	Production	Continuity						

*As a result of performing risk analysis, many medical device manufacturers are performing leakage tests as part of 100% production line testing.

	Earth Leakage		Insulation Resistance			Suggested Model	Testing Type	Standard/ Harmonized Standard
	Test Voltage	Max I.	Test Time	V Limit	Min. R	AR Instrument		
	110% x rated V	5-10 mA		N/A		8206, 8207, 8256, 8257 or MedTEST	Performance	IEC/UL 60601-1 3rd Edition Medical Electrical Equipment
	110% x rated V	5-10 mA		N/A		7804 or 7854	Production*	
	Max rated V	10 uA – 1 mA	10 uA – 1 mA	500 VDC or Max rated V	40-400 MΩ	3240, 8206, 8207, 8256, 8257 or MedTEST	Performance	IEC 61730-2 UL 1703 Photovoltaic Modules & Panels
	N/A			N/A		3240, 3870 or 7850	Production	
	1.06 x rated V	0.25 – 5.0 uA		N/A		8256 or 8257	Performance	IEC 60335-1 Household Electrical Appliances
	N/A			N/A		7804	Production	
	1.06 x rated V	0.25 – 5.0 uA		N/A		8256 or 8257	Performance	UL 60335-1 Household Electrical Appliances
	N/A			N/A		7804	Production	
	Rated V	0.5 – 10 mA	60 s	500 VDC	1-4 MΩ	8206, 8207, 8256 or 8257	Performance	IEC 60598-1 Luminaires
	Not Specified – Responsibility of Manufacturer					Hypot® or 7850	Production	
	N/A		No time specified	500 VDC	≥ 2 MΩ	7804 or 7854	Performance	UL 1598 Luminaires
	N/A			N/A		Hypot® or 7850	Production	
	< 300 V	0.5 mA		N/A		8256, 8257 or MedTEST	Performance	IEC/UL 61010-1 & CSA 22.2 No. 61010-1 Laboratory Control Test & Measurement Equipment
	N/A			N/A		3865 or 7850	Production	
	N/A		No time specified	500 V	≥ 1 MΩ	7804 or 7854	Performance	EN 60204-1 Electrical Equipment of Machines
	Not Specified – Responsibility of Manufacturer					Hypot® or 7850	Production	
	Rated V	0.5 – 0.75 mA or 5 mA		N/A		8206, 8207, 8256, 8257 or MedTEST	Performance	UL 2202 Electric Vehicle Charging System Equipment
	N/A			N/A		Hypot® or 7850	Production	
	Touch Current Only		60 s	500 V	≥ 1 MΩ or ≥ 7 MΩ	8206, 8207, 8256, 8257 or MedTEST	Performance	IEC 61851-1 Electric Vehicle Conductive Charging System
	Not Specified – Responsibility of Manufacturer					Hypot® or 7850	Production	
	< 300 V	0.25 – 3.5 mA	60 s	500 V	≥ 2 MΩ	8206, 8207, 8256, 8257 or MedTEST	Performance	IEC 62368-1 Audi/Video, Information & Communication Technology Equipment
	N/A			N/A		Hypot® or 7850	Production	



**ASSOCIATED
RESEARCH**
AN IKONIX BRAND

HEADQUARTERS

28105 N. Keith Drive
Lake Forest, IL 60045 USA
Telephone +1-847-367-4077
Fax +1-847-367-4080
Email info@ikonixusa.com
www.ikonixusa.com

Ikonix Taiwan

16F-2., No.237, Sec. 1, Datong Rd.,
Xizhi Dist., New Taipei City 221, Taiwan
Telephone +886-2-21653066
Fax +886-2-21653077
Email contact@ikonixasia.com
www.ikonixasia.com

Ikonix Asia

Unit D3-5-2 (2ND Floor) Block D3, Dana
1 Commercial Centre, Jalan PJU 1A/46,
47301 Petaling Jaya, Selangor, Malaysia
Telephone +60-3-78429168
Fax +60-3-78426168
Email contact@ikonixasia.com
www.ikonixasia.com



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