INSTRUMENTS FOR

ELECTRICAL SAFETY COMPLIANCE TESTING

HIPOT TESTERS

GROUND BOND TESTERS

INSULATION RESISTANCE TESTERS

LINE LEAKAGE TESTERS

MEDICAL TEST SYSTEMS

HV/HC SCANNING MATRICES

SOFTWARE SOLUTIONS

FUNCTIONAL RUN TESTERS

CUSTOM INSTRUMENTS

ASSOCIATED RESEARCH, INC.®

From our humble beginnings

Associated Research, Inc started as a repair company servicing panel meters and instruments back in 1936. Founder James Inman soon made Associated Research a manufacturer when he designed the Vibrotest. Vibrotest, the first battery operated Insulation Resistance Tester ever created, became standard issue on all U.S. Navy ships during World War II. This was the beginning of what would become many industry breakthroughs for Associated Research. As the number of electrical products increased during the post-war economic boom, Mr. Inman realized the need for rugged quality test instruments. AR was again on the leading edge this time with the introduction of the Hypot® high potential tester for electrical safety testing. Hipot testing soon became our forte. True to the beliefs that our founder, James F. Inman, instituted back in 1936, we continue to offer the highest quality instruments on the market.

To our commitment to innovation

AR has continued to innovate and develop advanced products in the electrical safety compliance testing industry from basic entry-level Hipot and Ground Bond testers to automated multi-function electrical safety compliance analyzers. Our instruments are designed to test to the requirements set forth by safety agencies such as UL, TUV, CSA, IEC, VDE, BSI and European norms. We offer a variety of testers capable of performing AC Hipot, DC Hipot, Insulation Resistance, Ground Bond, Ground Continuity, Line Leakage and Functional Run Testing. We also provide Medical Safety Test systems, modular scanning matrices, and our Autoware testing software to meet the testing needs and requirements of our customers. We have developed the most complete line of automation interfaces for our products, including Ethernet, GPIB, RS-232 and USB. All of our testers also incorporate easy-to-use menus.

We provide unmatched value

Our experience and leadership have helped to shape the industry and our dedication to product development continues to improve the safety testing process for manufacturers around the globe. We are committed to providing the highest quality, most advanced instrumentation on the market. Our instruments all carry the CE Mark and all of our standard testers carry a Nationally Recognized Testing Laboratory (NRTL) listing mark. This demonstrates our commitment to provide you with the safest and most innovative testers on the market – a commitment our competitors simply cannot make. Furthermore, Associated Research, Inc. is an ISO 9001 registered company which demonstrates our commitment to quality!

Satisfaction Guaranteed

As the industry leader we also guarantee our customers' satisfaction. If for any reason you are not completely satisfied with your purchase within 45 days, you can receive a full refund, exchange or credit towards another AR product, no questions asked. Our instruments are backed by the industry's best warranty. We offer a standard one year warranty on all of our instruments with the opportunity to extend that warranty for a full five years if the instrument is returned to our factory service center each year for its annual certification and safety inspection. We also offer a three year warranty for those who are unable to take advantage of the factory certification that is part of our extended warranty program.

AR is dedicated to making sure that your testing solution provides you with complete satisfaction for years to come. This is why we offer the most comprehensive service program in the industry. Our service program ensures that you receive the value you deserve when using an AR tester.

We offer expedient calibration and repair work performed by expert technicians who work exclusively with AR instruments. We have a host of calibration options to match the broad needs of all of our customers. We offer calibration services from our standard calibration to our accredited calibration including ISO 17025 calibration, ANSI Z540.1 calibration, CTL and Denan's Law calibration. We have industry leading turn-around time and guarantee 24-hour turn-around for standard calibrations. A guaranteed 48-hour turn-around time is provided on all of our flat rate repair work. If we don't ship your instrument in time, we'll pay the shipping cost. In addition, all of our calibration and service work is backed by a 90 day service warranty.

Educational Resources

We understand that finding the right electrical safety testing solution can be a difficult task. That is why we offer our customers a comprehensive selection of educational resources from regional seminars and online webinars to on-site factory sponsored training programs. We also offer an extensive library of technical booklets, articles and white papers. At AR, we want to ensure that your investment is maximized and that your tester performs safely and reliably.

At Associated Research, Electrical Safety Compliance Testing is Our ONLY Focus!

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						
UL 45A Portable Electrical Appliances	Performance	1000 VAC + 2 x rated V or DC equivalent	No Breakdown	60 s	Continuity			
	Production	1000 - 3000 VAC		1 s	Continuity			
EN 60950-1 EN 50116 Information Technology Equipment	Performance	1000 – 3000 VAC or 1414 – 4242 VDC	No Breakdown	120 s	30 A	≤ 12 V	≤ 0.1 Ω	60 s
	Production			1 - 4 s	25 A	≤ 12 V	≤ 0.1 Ω	1-4 s
UL 60950-1 CSA 22.2 No. 60950-1 Information Technology Equipment	Performance	1000 – 3000 VAC or 1414 – 4242 VDC	No Breakdown	60 s	≤ 40 A	≤ 12 V	≤ 0.1 Ω	60 s
	Production			1 – 6 s	Continuity			

EARTH LEAKAGE		INSULATION RESISTANCE			Suggested Model #	Testing Type	Standard / Harmonized Standard
Test Voltage	Max I.	Test Time	V Limit	Min R	ARI 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**
N/A		N/A			**8204 or 8254**	**Production**	
Max rated V	10 uA – 1 mA	60 s	500 VDC or Max rated V	40-400 MΩ	**8206, 8207, 8256, 8257 or MedTEST**	**Performance**	**IEC 61730-2 UL 1703 Photovoltaic Modules & Panels**
N/A		N/A			**3770 or 7650**	**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			**8254**	**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			**8254**	**Production**	
Rated V	0.5 – 10 mA	60 s	500 VDC	1-4 MΩ	**8206, 8207, 8256 or 8257**	**Performance**	**IEC 60598-1 Luminaires**
					Hypot III or 7650	**Production**	
N/A		No time specified	500 VDC	≥ 2 MΩ	**8204 or 8254**	**Performance**	**UL 1598 Luminaires**
N/A		N/A			**Hypot III or 7650**	**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			**3765 or 7650**	**Production**	
N/A		No time specified	500 V	≥ 1 MΩ	**8204 or 8254**	**Performance**	**EN 60204-1 Electrical Equipment of Machines**
					Hypot III or 7650	**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 III or 7650**	**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**
					Hypot III or 7650	**Production**	
< 300 V	0.5 – 3.5 mA	60 s	500 V	≥ 50 KΩ	**8206, 8207, 8256, 8257 or MedTEST**	**Performance**	**UL 45A Portable Electrical Appliances**
N/A		N/A			**Hypot III or 7650**	**Production**	
< 300 V	0.25 – 3.5 mA	60 s	500 V	≥ 2 MΩ	**8206, 8207, 8256, 8257 or MedTEST**	**Performance**	**EN 60950-1 EN 50116 Information Technology Equipment**
N/A		N/A			**8204 or 8254**	**Production**	
< 300 V	0.25 – 3.5 mA	60 s	500 V	≥ 2 MΩ	**8206, 8207, 8256, 8257 or MedTEST**	**Performance**	**UL 60950-1 CSA 22.2 No. 60950-1 Information Technology Equipment**
N/A		N/A			**Hypot III or 7650**	**Production**	

ASSOCIATED RESEARCH, INC.®

	AC Hipot	DC Hipot	IR	Ground Bond	Functional Run	Line Leakage	Built-in AC Power Source
OMNIA® II							
8204	✓	✓	✓	✓			
8254	✓ (500 VA)	✓	✓	✓			
8206	✓	✓	✓	✓	✓	✓	
8256	✓ (500 VA)	✓	✓	✓	✓	✓	
8207	✓	✓	✓	✓	✓	✓	✓
8257	✓ (500 VA)	✓	✓	✓	✓	✓	✓
HypotMAX®	AC Hipot	DC Hipot	IR	Ground Bond	Functional Run	Line Leakage	Built-in AC Power Source
7700	✓ (500 VA)	✓	✓				
7704	✓ (500 VA)	✓	✓	✓			
7705	✓						
7710		✓					
7715	✓						
7720		✓					
HypotULTRA® III	AC Hipot	DC Hipot	IR	Ground Bond	Functional Run	Line Leakage	Built-in AC Power Source
7620	✓						
7650	✓	✓	✓				
Hypot® III	AC Hipot	DC Hipot	IR	Ground Bond	Functional Run	Line Leakage	Built-in AC Power Source
3705	✓						
3765	✓	✓					
3770	✓	✓	✓				
3780	✓ (500 VA)						
HYAMP® III	AC Hipot	DC Hipot	IR	Ground Bond	Functional Run	Line Leakage	Built-in AC Power Source
3130				✓			
3140				✓			
3160				✓			
LINECHEK® II	AC Hipot	DC Hipot	IR	Ground Bond	Functional Run	Line Leakage	Built-in AC Power Source
620L					✓	✓	

MedTEST is our comprehensive Medical Electrical Safety Tester. MedTEST can be custom designed to meet all of your medical safety testing needs. It complies with test requirements called out in common medical electrical safety specifications such as UL2601, UL60601, IEC601-1, IEC60601-1 and EN60601-1.

PRODUCT REFERENCE CHART

	USB/RS-232	GPIB	Ethernet/ Data Storage/ RS-485	Internal Scanner	Interconnection to External Scanner	Autoware	DualCHEK	Color TFT Display
OMNIA® II								
8204	✓	✓	✓	✓	✓	✓	✓	✓
8254	✓	✓	✓	✓	✓	✓	✓	✓
8206	✓	✓	✓		✓	✓	✓	✓
8256	✓	✓	✓		✓	✓	✓	✓
8207	✓	✓	✓		✓	✓	✓	✓
8257	✓	✓	✓		✓	✓	✓	✓
HypotMAX®								
7700	✓	✓			✓	✓		
7704	✓	✓			✓	✓		
7705	✓	✓				✓		
7710	✓	✓				✓		
7715	✓	✓				✓		
7720	✓	✓				✓		
HypotULTRA® III								
7620	✓	✓	✓	✓	✓	✓		
7650	✓	✓	✓	✓	✓	✓		
Hypot® III								
3705	RS-232 Only							
3765	RS-232 Only							
3770	RS-232 Only							
3780	RS-232 Only							
HYAMP® III								
3130	RS-232 Opt.							
3140								
3160								
LINECHEK® II								
620L	✓	✓	✓		✓	✓		

Visit our Product Selection Wizard, designed to help find the right testers for your application. Through a series of questions we will be able to suggest the perfect tester for you. Go to www.asresearch.com and follow the link to the Product Selection Wizard.

NEW!

OMNIA® II

An Electrical Safety Compliance Analyzer That Is As Unique As Your Application!

OMNIA® II, our next generation of Electrical Safety Compliance Analyzers is designed around the way you test. We understand that every testing application is unique and finding the right tester can be difficult. OMNIA II provides you with customizable features and unmatched functionality.

Model 8204 - **5 kV @ 50 mAAC, 5 kV @ 20 mADC, IR Test, 40 Amp Ground Bond & Optional HV & HC Scanner**

Model 8254 - **5 kV @ 100 mAAC (500 VA), 5 kV @ 20 mADC, IR Test, 40 Amp Ground Bond & Optional HV & HC Scanner**

Model 8206 - **5 kV @ 50 mAAC, 5 kV @ 20 mADC, IR Test, 40 Amp Ground Bond, Functional Run Test & Line Leakage Test**

Model 8256 - **5 kV @ 100 mAAC (500 VA) , 5 kV @ 20 mADC, IR Test, 40 Amp Ground Bond, Functional Run Test & Line Leakage Test**

Model 8207 - **5 kV @ 50 mAAC, 5 kV @ 20 mADC, IR Test, 40 Amp Ground Bond, Functional Run Test, Line Leakage Test & Built-in AC Power Source**

Model 8257 - **5 kV @ 100 mAAC (500 VA), 5 kV @ 20 mADC, IR Test, 40 Amp Ground Bond, Functional Run Test, Line Leakage Test & Built-in AC Power Source**

Features and Benefits

- 800 x 480 Color TFT display makes setting up test files, viewing results, and performing tests easier than ever before. Choose from 3 different color schemes to match your preference.
- Expanded Test Memories allows users to link a total of 10,000 test steps. This allows users to create and save even the most complex test setups.
- My Menu interface allows operators to personalize menu settings by creating shortcuts to favorite screens and preferences.
- Patented Prompt and Hold function provides a unique method for performing multiple steps during a test cycle.
- DualCHEK® feature allows the user to perform a simultaneous Hipot and Ground Bond Test. This can safely increase productivity and throughput on the production line.
- Patented CAL-ALERT® and VERI-CHEK® features help to ensure that your instrument is calibrated and stays within specs.
- USB/RS-232, GPIB, Ethernet, or RS-485 automation interfaces available.
- Multiple Language Settings available for OMNIA II. Users can select to view the menu in English or Traditional Chinese.
- RAMP HI® and CHARGE LO® features for more effective DC Hipot Testing.
- Patented SmartGFI® safety circuit protects the operator from shock hazards.
- Cold Resistance Feature for Line to Neutral Continuity Testing.
- Line Leakage Tester with seven different measuring devices, RMS or PEAK leakage measurements, and a 500 VA Power Source built-in.
- AC/DC offset feature allows users to offset hipot test leakage current.
- Meets 200 mA Short Circuit Requirements (825X Models)

apt APT AC Power Source Compatible
www.aspowertechnologies.com

CE

Safety agency listed.

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) 5 kV @ 20 mADC
Voltage Setting		Range: 0–5000 VAC 0–5000 VDC Resolution: 1 V Accuracy: ± (2% of setting + 5 volts)
Ramp HI DC		>20 mA peak maximum, ON/OFF Selectable
Charge LO DC		Range: 0.0 – 350.0 µA DC or Auto set
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 (99.99 mA, Models 825x) Resolution: 0.01 mA Accuracy: ± (3% of setting + 50 µA)
	DC	Range: 0.0 – 999.9 µA Resolution: 0.1 µA Range: 1000 – 20000 µA Resolution: 1 µA Accuracy: ± (2% of setting + 2 counts)
Arc Detection		Range: 1 – 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: 450 µA max (AC or DC) HV Shut Down Speed: < 1 ms
DC Output Ripple		≤ 4% Ripple RMS at 5 kVDC @ 20 mA, Resistive Load
Discharge Time		≤ 50 ms no load, < 100 ms for capacitive load
Max Capacitive Load DC Mode		1 uF < 1 kV 0.08 uF < 4 kV 0.75 uF < 2 kV 0.04 uF < 5 kV 0.5 uF < 3 kV
AC Output Waveform		Sine Wave, Crest Factor = 1.3 – 1.5
Output Frequency		Range: 60 or 50 Hz, User Selection Accuracy: ± 0.1 %
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) Range: DC 0.3 –999.9 sec (0 = Continuous) Resolution: 0.1 sec Accuracy: ± (0.1% + 0.05 sec)
Ramp Timer		Range: 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 Resolution: 0.1 sec Accuracy: ± (0.1% + 0.05 sec)
Short Circuit Protection		Minimum current 100 mA peak (200 mA, Models 825x) at short circuit, response time < 2 ms

Insulation Resistance Test Mode

Voltage Setting	Range: 30 – 1000 VDC
Charging Current	Maximum >20 mA peak
Charge-LO	Range: 0.000 – 3.500 µA or Auto Set
HI and LO-Limit	Range: 0.05 M – 99.99 MΩ Resolution: 0.01 M Range: 100.0 M – 999.9 M Resolution: 0.1 M Range: 1000 M – 50000 M Resolution: 1 M (HI – Limit: 0 = OFF)
Ramp Timer	Ramp-Up: 0.1 – 999.9 sec Ramp-Down: 0.0, 1.0–999.9 sec
Delay Timer	Range: 0.5 – 999.9 sec (0 = Continuous)
Ground Fault Interrupt	GFI Trip Current: 450 µA max (AC or DC) HV Shut Down Speed: < 1 ms

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)
Output Regulation	Accuracy: ± (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 mΩ for 30.01 – 40.00 Amps 0 – 200 mΩ for 10.01 – 30.00 Amps 0 – 600 mΩ for 1.00 – 10.00 Amps Resolution: 1 mΩ Accuracy: ± (2% of reading + 2 mΩ) Range: 0 – 600 mΩ for 1.00 – 5.99 Amps Resolution: 1 mΩ Accuracy: ± (3% of reading + 3 mΩ)
Dwell Timer	Range: 0.5 – 999.9 sec (0 = Continuous) Resolution: 0.1 sec Accuracy: ± (0.1% + 0.05 sec)
Milliohm Offset	Range: 0 – 200 mΩ Resolution: 1 mΩ Accuracy: ± (2 % of setting + 2 mΩ)

Continuity Test Mode

Output Current	DC 0.01 A ± 0.00001 A
Resistance Display	Range: 0.00 – 10000 Ω
HI and LO-Limits	Range 1: 0.00 – 10.00 Ω Resolution: 0.01 Ω Accuracy: ± (1 % of reading + 3 counts) Range 2: 10.1 – 100.0 Ω Resolution: 0.1 Ω Accuracy: ± (1 % of reading + 3 counts) Range 3: 101 – 1000 Ω Resolution: 1 Ω Accuracy: ± (1 % of reading + 3 counts) Range 4: 1001 – 10000 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

General Specifications

PLC Remote Control	Input: Test, Reset, Interlock, Recall File 1 through 3 Output: Pass, Fail, Test-in-Process
Safety	Built-in Smart GFI circuit
Memory	1000 steps
Interface	Standard USB/RS-232, Ethernet, or GPIB
Security	Advanced security system with access levels and username/password requirements
Graphic Display	800 x 480 digital TFT LCD display
Mechanical	Bench or rack mount with tilt up front feet.
Dimensions	3U (WxHxD) (430 X 133 X 500 mm) (16.93" x 5.24" x 19.69")
Weight	8204 82 lbs (37 kg) 8254 92 lbs (42 kg) 8206/8207 83 lbs (38 kg) 8256/8257 103 lbs (47 kg)

Run Test Mode (Models 82X6 and 82X7)

DUT Power
- Voltage: 0 – 277 VAC Single Phase Unbalanced (One Hot or Line conductor and One Neutral)
- 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 < 3s

Delay Time Setting
- Range: 0.2 – 999.9 seconds
- Resolution: 0.1 second
- Accuracy: ± (0.1% + 0.05 sec)

Dwell Time Setting
- Range: 0.1 – 999.9 seconds (0 = Continuous)
- Resolution: 0.1 second
- Accuracy: ± (0.1% + 0.05 sec)

Trip Point Settings

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 – 4500 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)

Leakage current measuring resistor MD=2KΩ ± 1%

Run Test Mode (Models 82X6 and 82X7) (continued)

Voltmeter
- Range: 0.0 – 277.0 VAC
- Resolution: 0.1 V
- Accuracy: ± (1.5% of reading + 2 Counts), 30.0 – 277 VAC

Ammeter
- Range: 0.0 – 16.00 AAC
- Resolution: 0.01 A
- Accuracy: ± (2.0% of reading + 2 Counts)

Wattmeter
- Range: 0 – 4500 W
- Resolution: 1 W
- Accuracy: ± (5% of reading + 3 Counts)

Power Factor
- Range: 0.000 – 1.000
- Resolution: 0.001
- Accuracy: ± (8% of reading + 2 Counts)

Leakage Current
- Range: 0.00 – 10.00 mA
- Resolution: 0.01 mA
- Accuracy: ± (2% of reading + 2 Counts)
- Leakage current measuring resistor MD = 2KΩ ± 1%

Timer display
- Range: 0.0 – 999.9 seconds
- Resolution: 0.1 second
- Accuracy: ± (0.1% of reading + 0.05 seconds)

Line Leakage Test Mode (Models 82X6 and 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. With AUTO mode, the polarity switches for normal conditions in one step setting menu but will run two steps for both conditions. In this mode, the unit only records and displays the maximum leakage current value.

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 uA ~ 999.9 uA 1000 uA ~ 10.00 mA
- Resolution: 0.1 uA / 1 uA / 0.01 mA

Touch Current Low Limit (RMS)
- Range: 0.0 uA - 999.9 uA 1000 uA ~ 10.00 mA
- Resolution: 0.1 uA/ 1 uA/ 0.01 mA

Touch Current High Limit (Peak)
- Range: 0.0 uA - 999.9 uA 1000 uA - 10.00 mA
- Resolution: 0.1 uA/ 1 uA/ 0.01 mA

Touch Current Low Limit (Peak)
- Range: 0.0 uA - 999.9 uA 1000 uA - 10.00 mA
- Resolution: 0.1 uA/ 1 uA/ 0.01 mA

Line Leakage Test Mode (Models 82X6 and 82X7 Only) (continued)

Touch Current Display (RMS)

Range 1: 0.0 uA ~ 32.0 uA, frequency DC, 15 Hz - 1 MHz
Range 2: 28.0 uA ~ 130.0 uA, frequency DC, 15 Hz - 1 MHz
Range 3: 120.0 uA ~ 550.0 uA, frequency DC, 15 Hz - 1 MHz
Resolution for Ranges 1, 2, 3: 0.1 uA
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 uA - 999.9 uA)
Range 4: 400 uA ~ 2100 uA, frequency DC, 15 Hz - 1 MHz
Range 5: 1800 uA ~ 8500 uA, frequency DC, 15 Hz - 1 MHz
Resolution for Ranges 4, 5: 1 uA
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 uA - 8500 uA)
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 uA ~ 32.0 uA, frequency DC - 1 MHz
Range 2: 28.0 uA ~ 130.0 uA, frequency DC - 1 MHz
Range 3: 120.0 uA ~ 550.0 uA, frequency DC - 1 MHz
Resolution for Ranges 1, 2, 3: 0.1 uA
Accuracy for Ranges 1, 2, 3:
DC : ±(2% of reading + 2 uA)
15 Hz < f < 1 MHZ : ±10% of reading + 2 uA
Range 4: 400 uA ~ 2100 uA, frequency DC - 1 MHz
Range 5: 1800 A ~ 8500 uA, frequency DC - 1 MHz
Resolution for Ranges 4, 5: 1 uA
Accuracy for Ranges 4, 5:
DC : ±(2% of reading + 2 uA)
15 Hz < f < 1 MHZ : ±10% of reading + 2 uA
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, IEC 60950-1, IEC60335-1, IEC60598-1, IEC60065, IEC61010
MD6: IEC60990 Fig5 U3, IEC60598-1
MD7: IEC60950, IEC61010-1 FigA.2 (2K ohm) for Run function.

External MD

Basic measuring element 1k ohm

Scope Output Interface

BNC type connector on rear panel for Oscilloscope connection

MD Voltage Limit

Maximum 70 VDC

MD Component Accuracy

Capacitors = 5%
Resistors = 1%

AC Power Source

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% + 5V (Resistive Load), From no load to full load and Low Line to High Line (combined regulation)

Crest Factor: > 3

Test timing limit: < 350 mS at start and between 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
Accuracy: ± (1.5% of setting + 2 counts)

Frequency:
Range: 45.0 Hz - 99.9 Hz
Resolution: 0.1
Accuracy: ±0.1% of setting
Range: 100 Hz - 500 Hz
Resolution: 1
Accuracy: ±0.1% of setting

A-Hi-limit:
Range: 4.20 A/2.10 A
Resolution: 0.01
Accuracy: ± (2 % of reading +2 counts)

OC Fold Current:
Range: 4.20 A/2.10 A
Resolution: 0.01
Accuracy: ± (2 % of reading +2 counts)
Response Time: < 1500 ms

Measurement:

Voltage:
Range: 0.0-277.0 V
Resolution: 0.1
Accuracy: ± (1.5 % of reading +2 counts)

Current:
Range: 0.00-16.00 A
Resolution: 0.01
Accuracy: ± (2 % of reading +2 counts)

Power: 0-4500
Resolution: 1
Accuracy: ± (5% of reading +3 counts) for PF>0.100

Power Factor: 0.000-1.000
Resolution: 0.001
Accuracy: ± (8 % of reading +5 counts)

Frequency: 45-500 Hz
Resolution: 0.1
Accuracy: ±0.1 Hz

General:

Over Current Fold Back:
On/Off, When the output current exceeds the A-Hi value it will fold back output voltage to keep constant output current at A-Hi value.

Protection: OCP, OTP, OVP, OPP and Alarm

Specifications subject to change without notice.

Accredited calibration service available. Includes ISO 17025, ANSI Z540.1-1994, CTL & Denan's Law requirements.

For more information on testing to a specfic standard, refer back to the Common Safety Standard Reference Chart.

HYPOTMAX®

High Voltage or High Current Electrical Safety Compliance Analyzers

HypotMAX® is designed for automated applications requiring testers with either higher voltage or higher output current capability. The HypotMAX® family includes two high current testers: the 7700 3-in-1 version with 500 VA AC output and the 7704 4-in-1 version with 500 VA AC output. The high voltage testers are the 7705 10 kV AC Hipot, 7710 12 kV DC Hipot, 7715 20 kV AC Hipot and the 7720 20 kV DC Hipot. All testers come standard with USB and RS-232 interfaces. GPIB (IEEE-488) and other automation interfaces optional.

Model 7700 - **5 kV @ 100 mAAC (500 VA), 6 kV @ 10 mADC & IR Test**

Model 7704 - **5 kV @ 100 mAAC (500 VA), 6 kV @ 10 mADC, IR, 30 Amp GB**

Model 7705 - **10 kV @ 20 mAAC**

Model 7710 - **12 kV @ 10 mADC**

Model 7715 - **20 kV @ 10 mAAC**

Model 7720 - **20 kV @ 5 mADC**

Features and Benefits

- Patented SmartGFI® safety circuit protects the operator from shock hazards
- 50 memories that can be stored and recalled. Multi-function testers include 8 steps per memory
- RAMP HI® and CHARGE LO® systems for more effective DC Hipot testing
- 500 VA testers available for Higher Current Hipot test applications
- Meets 200 mA short circuit requirements (Models 7700 & 7704)
- Up to 20 kV AC or DC Hipot testing for manufacturers with higher voltage testing requirements
- USB/RS-232 or GPIB automation interfaces available
- 4 wire measurement and milliohm offset for accurate Ground Bond test results (Model 7704)
- Autoware Testing Software available for complete Automation Control

HYPOTMAX®

Input Specifications

Voltage	7700/7704	100/115/200/230 VAC ± 10%, single phase, user selection
	7705/7710 7715/7720	115/230 VAC ± 10%, single phase, user selection
Frequency		50/60 Hz ± 5%
Fuse	7700/7704	15 Amp 250 V fast blow internal
	7705/7710 7715/7720	6.3 Amp, 250 V Slow Blow

Dielectric Withstand Test Mode

Output Rating	7700/7704	5 kV @ 100 mAAC, 6 kV @ 10 mADC
	7705	10 kV @ 20 mAAC
	7710	12 kV @ 10 mADC
	7715	20 kV @ 10 mAAC
	7720	20 kV @ 5 mADC
Output Adjustment	7700/7704	Range: 0 - 5 kVAC, 0 - 6 kVDC Resolution: 1 V/step Accuracy: ± (2% of setting + 5 V)
	7705	Range: 0 - 10 kVAC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
	7710	Range: 0 - 12 kVDC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
	7715	Range: 0 - 20 kVAC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
	7720	Range: 0 - 20 kVDC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
HI-Limit and LO-Limit	7700/7704 Hi-Limit	AC Range: 0.00 - 99.00 mA Resolution: 0.01 mA/step DC Range: 0 - 9999 µA Resolution: 1 µA/step Accuracy: ± (2% of setting + 2 counts)
	LO-Limit	AC Range: 0.000 - 9.999 mA Resolution: 0.001 mA/step DC Range: 0 - 999.9 µA Resolution: 1 µA/step Accuracy: ± (2% of setting + 2 counts)
	7705	Range 1: 0.0 - 9.999 mA Resolution: 0.001 mA/step Range 2: 10.00 - 20.00 mA Resolution: 0.01 mA Accuracy: ± (2% of setting + 2 counts)
	7710	Range 1: 0.000 - 999.9 µA Resolution: 0.1 µA/step Range 2: 1000 - 9999 µA Resolution: 1 µA Accuracy: ± (2% of setting + 2 counts)
	7715	Range: 0.00 - 9.999 mA Resolution: 0.001 mA/step Accuracy: ± (2% of setting + 2 counts)
	7720	Range 1: 0.0 – 999.9 µA Resolution: 0.1 µA/step Range 2: 1000 – 5000 µA Resolution: 1 µA/step Accuracy: ± (2% of setting + 2 counts)

Dielectric Withstand Test Mode (continued)

DC Ramp HI	7700/7704	12 mA peak maximum, (ON/OFF selectable all testers)
	7710	13 mA peak maximum, 10 mADC, ON/OFF selectable
	7720	6.75 mA peak maximum, 5 mADC, ON/OFF selectable
DC Charge LO	7700/7704 7710/7720	Range: 0.0 - 350 µADC or auto set
Arc Detection		7700, 7704, 7710, 7720: 1-9 7705: 1 - 9 at output voltage < 7.00 kV 1 - 8 at output voltage ≥ 7.00 kV 7715: 1 - 9 at output voltage < 15.00 kV 1 - 7 at output voltage ≥ 15.00 kV
Voltage Display	7700/7704	Range: 0.00 - 6.00 kV full scale Resolution: 10 V/step Accuracy: ± (2% of reading + 2 counts)
	7705	Range: 0.00 - 10.00 kV Full scale Resolution: 10 V Accuracy: ± (2% of reading + 20 V)
	7710	Range: 0.00 - 12.00 kV Full scale Resolution: 10 V Accuracy: ± (2% of reading + 2 counts)
	7715	Range: 0.00 - 20.00 kV Full scale Resolution: 10 V Accuracy: ± (2% of reading + 20 V)
	7720	Range: 0.00 - 20.00 kV Full scale Resolution: 10 V Accuracy: ± (2% of reading + 20 V)
Current Display	7700/7704	Auto Range
	AC	Range 1: 0.000 mA - 3.500 mA Resolution: 0.001 mA/step Range 2: 3.00 - 99.00 mA Resolution: 0.01 mA/step
	DC	Range 0.0 µA - 350.0 µA Resolution: 0.1 µA/step Range 2: 300 µA - 3500 µA Resolution: 1 µA/step Range 3: 3000 µA - 9990 µA Resolution: 10 µA/step
	7705	Auto Range Range 1: 0.000 mA - 3.500 mA Resolution: 0.001 mA Range 2: 3.00 - 20.00 mA Resolution: 0.01 mA
	7710	Auto Range Range 1: 0.0 - 350.0 µA Resolution: 0.1 µA Range 2: 300 - 3500 µA Resolution: 1 µA Range 3: 3000 mA - 9999 µA Resolution: 10 µA
	7715	Auto Range Range 1: 0.000 mA - 3.500 mA Resolution: 0.001 mA Range 2: 3.00 - 10.00 mA Resolution: 0.01 mA
	7720	Auto Range Range 1: 0.0 - 350.0 µA Resolution: 0.1 µA Range 2: 300 - 5000 µA Resolution: 1 µA

HYPOTMAX®

Dielectric Withstand Test Mode (continued)

DC Output Ripple	7700/7704	4% Ripple rms at 6 kVDC @ 3.5 mA, Resistive load
	7710	≤ 5% Ripple at 12 kV @ 9999 µA, Resistive Load
	7720	≤ 5% Ripple at 20 kV @ 4999 µA, Resistive Load
AC Output Waveform		Sine Wave, Crest Factor = 1.3 - 1.5
AC Output Regulation	7705/7710 7715/7720	± (1% of setting + 10 V) from no load to full load
Output Frequency		Range: 60 or 50 Hz, user selection Accuracy: ± 1%
Output Regulation	7700/7704	± (1% of output + 5 V) from no load to full load
	7705/7710	± (1% of output + 10 V) from no load to full load
	7715/7720	± (1% of output + 10 V) from no load to full load
Discharge Time	7700/7704	≤ 200 m secs
	7710	No load ≤ 400 ms
	7720	No load ≤ 500 ms
Dwell Timer	7700/7704	Range: 0, 0.3 - 999.9 sec (0 = Continuous) Resolution: 0.1 sec increments Accuracy: ± (0.1% + 0.05 sec)
	7705/7710/7715/7720	AC Range: 0, 0.3 - 999.9 sec or min (0 = Continuous) DC Range: 0, 0.4 - 999.9 sec or min (0 = Continuous) Resolution: 0.1 second or minute increments Accuracy: ± (0.1% + 1 count)
Ramp Timer	7700/7704	AC Range: 0.1 - 999.9 sec DC Range: 0.4 - 999.9 sec Resolution: 0.1 sec increments Accuracy: ± (0.1% + 0.05 sec)
	7705/7715	Range: 0.3 - 999.9 sec
	7710/7720	Range: 0.4 - 999.9 sec
	7705/7710/7715/7720	Resolution: 0.1 sec increments Accuracy: ± (0.1% + 1 count)
Ground Continuity	7700	Current: DC 0.1 A ± 0.01 A, fixed Max. Ground Resistance: 1 Ω ± 0.1 Ω, fixed
Ground Fault Interrupt	7700/7704	GFI Trip Current: 450 µA max (AC or DC) HV Shut Down Speed: < 1 ms
	7705/7710/7715/7720	GFI Trip Current: 1 mA max HV Shut Down response: < 1 ms

Insulation Resistance Test Mode (Models 7700 & 7704 only)

Output Voltage	Range: 100 - 1000 VDC Resolution: 1 V/step Accuracy: ± (2% of reading + 2 V)
Short Circuit Current	Maximum: 12 mA peak
Voltage Display	Range: 0 - 1000 V Resolution: 1 V/step Accuracy: ± (2% of reading + 2 counts)
Resistance Display	Range: 1 - 9999 MΩ (4 digit, auto ranging)

Resolution:

500 VDC MΩ	1000 VDC MΩ	MΩ
0.001	1.000 - 5.388	1.000 - 9.999
0.01	1.40 - 53.88	2.80 - 99.99
0.1	14.0 - 538.8	28.0 - 999.9
1	140 - 9999	280 - 9999

Accuracy: ± (2% of reading + 2 counts) at test voltage
500 - 1000 V and 1 - 1000 MΩ
± (8% of reading + 2 counts) at test voltage
500 - 1000 V and 1000 - 9999 MΩ
± (8% of reading + 2 counts) at test voltage
100 - 500 V and 0 - 1000 MΩ

Insulation Resistance Test Mode (Models 7700 & 7704 cont.)

Charge-LO	Range: 0.000 - 3.500 µA or auto set
HI-Limit	Range: 0 - 9999 MΩ (0 = OFF)
LO-Limit	Range: 1 - 9999 MΩ
Delay Timer	Range: 0, 0.5 - 999.9 sec (0 = Continuous) Resolution: 0.1 sec/step Accuracy: ± (0.1% + 0.05 sec)
Ground Fault Interrupt	GFI Trip Current: 450 µA max (AC or DC) HV Shut Down Speed: < 1 ms

Ground Bond Test Mode (Model 7704 only)

Output Voltage (Open Circuit Limit)	Range: 3.00 - 8.00 VAC Resolution: 0.01 V/step Accuracy ± (2% of setting + 0.03 V) O.C. condition
Output Frequency	Range: 50 or 60 Hz, user selection Accuracy: ± 1%
Output Current	Range: 3.00 - 30.00 AAC Resolution: 0.01 A/step Accuracy: ± (2% of setting + 0.02 A)
Current Display	Range: 0.00 - 30.00 A Resolution: 0.01 A/step Accuracy: ± (2% of stetting + 0.03 A)
Resistance Display	Range: 0 - 600 mΩ Resolution: 1 mΩ/step Accuracy: ± (2% of reading + 2 mΩ)
HI & LO Limit	Range: 0 - 600 mΩ for 3 - 10 A 0 - 150 mΩ for 3 - 30 A Resolution: 1 mΩ/step Accuracy: ± (2% of setting + 2 mΩ)
Dwell Timer	Range: 0, 0.5 - 999.9 sec (0 = Continuous) Resolution: 0.1 sec/step Accuracy: ± (0.1% + 0.05 sec)
Milliohm Offset	Maximum Offset Capability: 200 mΩ Resolution: 1 mΩ/step Accuracy: ± (2% of setting + 2 mΩ)

General Specifications

Mechanical		Tilt up front feet
Dimensions	7700/7704	(WxHxD) 17 x 5.8 x 16.5 in. (432 x 147 x 419 mm)
	7705/7710/7715/7720	(WxHxD) 16.93 x 5.24 x 15.75 in. (430 x 133 x 400 mm)
Weight	7700	61.65 lbs (28 kg)
	7704	68.75 lbs (31.25 kg)
	7705	48.9 lbs (22 kg)
	7710	48.9 lbs (22 kg)
	7715	48.9 lbs (22 kg)
	7720	48.9 lbs (22 kg)
Interface		Standard USB/RS-232, Optional GPIB
Memory	7700/7704	50 memories w/8 Steps per memory
	7705/7710	50 memories
	7715/7720	

Specifications subject to change without notice.

Accredited calibration service available. Includes ISO 17025, ANSI Z540.1-1994, CTL & Denan's Law requirements.

For more information on testing to a specfic standard, refer back to the Common Safety Standard Reference Chart.

HYPOTULTRA® III

Fully-Automated Dielectric Withstand Analyzer

HypotULTRA®III is a multi-function dielectric analyzer with an enhanced graphic LCD. Choose from two models: the 7620 AC Hipot tester and the 7650 AC/DC/IR tester. Both testers include an optional 4-port or 8-port built-in scanner. An additional external modular scanner is available for use with both testers. All testers come standard with USB and RS-232 interfaces. Ethernet, GPIB, and RS-485 interfaces are also available.

Model 7620 - 5 kVAC Hipot Tester. Internal 4 or 8 Port Scanning Matrix available

Model 7650 - 5 kVAC Hipot Tester, 5 kVDC Hipot Tester & Insulation Resistance Tester. Internal 4 or 8 Port Scanning Matrix available

Features and Benefits

- Patented SmartGFI® safety circuit protects the operator from shock hazards
- Patented VERI-CHEK® feature prompts the users through steps to validate the instrument's operation
- Patented Prompt and Hold function provides a unique method for performing multiple steps during a test cycle
- Patented CAL-ALERT® alerts the operator when the HypotULTRA III is due for re-calibration
- RAMP HI® and CHARGE LO® for more effective DC Hipot testing
- Two Continuity Test modes allow for simultaneous continuity tests during Hipot testing as well as point-to-point continuity testing
- USB/RS-232, GPIB, Ethernet, or RS-485 automation interfaces available
- Data Storage card available for storing and transferring test data without a connection to a PC
- Graphic LCD and intuitive menu system to simplify the entire testing process from set-up to results
- 50 memories with 30 steps per memory that can be stored and recalled in any alphanumeric combination
- Real Current measurement allows operators to monitor total and real current on a single screen
- Advanced functionality available with an optional 4 or 8 port internal scanner
- Autoware Testing Software available for complete Automation Control

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Safety agency listed.

Input Specifications

Voltage	115 / 230 VAC ± 10%, Automatically Selected
Frequency	50/60 Hz ± 5%
Fuse	4 Amp 250 V Slow Blow

Dielectric Withstand Test Mode

Output Rating	5 kV @ 30 mAAC 5 kV @ 10 mADC for 7650 only	
Output Adjustment	Range:	0 – 5000 VAC 0 – 5000 VDC for 7650 only
	Resolution:	1 V
	Accuracy:	± (2% of setting + 5 volts) (Can be adjusted during operation. Disabled when key lockout is active.)
Ramp-HI	12 mA peak maximum, ON/OFF selectable	
Charge-LO	Range:	0.0 - 350.0 µA DC or Auto set
Maximum & Minimum Limits		
AC Total	Range 1:	0.000 – 9.999 mA
	Resolution:	0.001 mA
	Range 2:	10.00 – 30.00 mA
	Resolution:	0.01 mA
	Accuracy:	± (2% of setting + 2 counts)
AC Real	Range 1:	0.000 – 9.999 mA
	Resolution:	0.001 mA
	Range 2:	10.00 – 30.00 mA
	Resolution:	0.01 mA
	Accuracy:	(3% of setting + 0.05 mA) All Ranges PF > 0.1 V > 250 VAC
DC	Range 1:	0.0 – 999.9 µA for 7650 only
	Resolution:	0.1 µA
	Range 2:	1000 – 10000 µA for 7650 only
	Resolution:	1 µA
	Accuracy:	± (2% of setting + 2 counts)
Arc Detection	Range:	1 - 9
Voltage Display	Range:	0.00 - 5.00 kV Full Scale
	Resolution:	10 V
	Accuracy:	± (2% of setting + 2 counts)
Current Display	Auto Range	
AC Total	Range 1:	0.000 mA – 3.500 mA
	Resolution:	0.001 mA
	Range 2:	3.00 – 30.00 mA
	Resolution:	0.01 mA
	Accuracy:	± (2% of reading + 2 counts)
AC Real	Range:	0.000 mA – 30.00 mA
	Resolution:	0.001 mA or 0.01 mA
	Accuracy:	± (3% of reading + 0.05 mA) All Ranges PF > 0.1 V > 250 VAC

Dielectric Withstand Test Mode (continued)

Current Display		
DC	Range 1:	0.0 µA – 350.0 µA for 7650 only
	Resolution:	0.1 µA
	Range 2:	0.300 mA – 3.500 mA for 7650 only
	Resolution:	0.001 mA
	Range 3:	3.00 mA – 9.99 mA for 7650 only
	Resolution:	0.01 mA
	Accuracy:	± (2% of reading + 2 counts)
DC Output Ripple	≤ 4% Ripple rms at 5 kVDC @ 10 mA, Resistive Load	
Discharge Time	≤ 200 ms	
Maximum Capacitive Load in DC Mode	1 µF----< 1 kV 0.75 µF----< 2 kV 0.5 µF----< 3 kV	0.08 µF----< 4 kV 0.04 µF----< 5 kV
AC Output Wave Form	Sine Wave, Crest Factor = 1.3 - 1.5	
Output Frequency	Range:	60 or 50 Hz, User Selection
	Accuracy:	± 0.1%
Output Regulation	± (1 % of output + 5 V) From no load to full load and over input voltage range	
Dwell Timer	Range:	0.0, 0.4 - 999.9 sec (0 = Continuous)
Ramp Timer	Ramp-Up:	0.1 - 999.9 sec
	Ramp-Down:	AC 0.0 - 999.9 sec
	DC:	0.0, 1.0 - 999.9 sec 0.0=OFF
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: 450 µA max (AC or DC)	
	HV Shut Down Speed:	< 1 ms

Insulation Resistance Test Mode (Model 7650 Only)

Output Voltage	Range:	50 - 1000 VDC
	Resolution:	1 V
	Accuracy:	± (2% of reading + 2 counts)
Short Circuit Current Maximum:		12 mA peak
Voltage Display	Range:	0 – 1000 V
	Resolution:	1 V
	Accuracy:	± (2% of reading + 2 counts)

Insulation Resistance Test Mode Model 7650 Only (continued)

Resistance Display	Range:	0.05 MΩ - 50000 MΩ (5 Digit, Auto Ranging)	
	Resolution:	500 VDC	1000 VDC
	MΩ	MΩ	MΩ
	0.001	0.050 - 9.999	0.100 - 9.999
	0.01	1.00 - 99.99	1.00 - 99.99
	0.1	10.0 - 999.9	10.0 - 999.9
	1	100 - 50000	100 - 50000
	Accuracy:	50 – 499 V 0.05 MΩ – 999.9 MΩ ± (7% of reading + 2 counts)	
		500 – 1000 V 0.10 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)	
Charge-LO	Range:	0.000 - 3.500 µA or Auto Set	
Maximum and Minimum Limits	Range:	0.0, 0.05 MΩ – 99.99 MΩ	
	Resolution:	0.01 MΩ	
	Range:	100.0 MΩ – 999.9 MΩ	
	Resolution:	0.1 MΩ	
	Range:	1000 MΩ – 50000 MΩ	
	Resolution:	1 MΩ	
	(Max Limit: 0 = OFF)		
	Accuracy:	Same as Resistance Display Accuracy	
Ramp Timer	Range:		
	Ramp-Up:	0.1 - 999.9 sec	
	Ramp-Down:	0.0, 1.0 - 999.9 sec	
Delay Timer	Range:	0.0, 1.0 - 999.9 sec 0 = Continuous	
Ground Fault Interrupt	GFI Trip Current: 450 µA max		

HV Shut Down Speed: < 1 ms

Continuity Test Mode

Output Current	DC 0.1 A ± 0.01 A	Total Resistance*: 0.00-33.0 Ω
	DC 0.01 A ± 0.001 A	Total Resistance*: 31.0-330 Ω
	DC 0.001 A ± 0.0001 A	Total Resistance*: 310-2000 Ω
Resistance Display	Range 1: 0.00 – 19.99 Ω	
	Resolution: 0.01 Ω	
	Accuracy: ± (1 % of reading + 0.05 Ω)	
	Range 2: 20.0 – 199.9 Ω	
	Resolution: 0.1 Ω	
	Accuracy: ± (1 % of reading + 0.2 Ω)	
	Range 3: 200 – 2000 Ω	
	Resolution: 1 Ω	
	Accuracy: ± (1 % of reading + 2 Ω)	

*Total Resistance of Test Leads, Fixture and DUT.

Continuity Test Mode (continued)

Maximum and Minimum Limits	Range 1:	0.00 – 99.99 Ω
	Resolution:	0.01 Ω
	Accuracy:	± (1% of setting+0.05 Ω)
	Range 2:	100.0 – 999.9 Ω
	Resolution:	0.1 Ω
	Accuracy:	± (1% of setting+0.2 Ω)
	Range 3:	1000 – 2000 Ω
	Resolution:	1 Ω
	Accuracy:	± (1% of setting+2 Ω)
	(Max Limit:	0 = OFF)
Dwell Timer	Range:	0.0, 0.3 - 999.9 sec (0 = Continuous)
Milliohm Offset	Range:	0.00 - 10.00 Ω

General Specifications

Mechanical	Bench or rack mount (2U height) with tilt up front feet
Dimensions	(WxHxD) 16.92 x 3.50 x 15.75 in (430 x 89 x 400 mm)
Weight	31.38 Lbs (14.23 kg) variable with options
Interface	Standard USB/RS-232 Optional Ethernet, GPIB, Data Storage (RS-485) or Printer Port with Date and Time Stamp
Memory	50 memories, 30 steps/memory

Specifications subject to change without notice.

Accredited calibration service available. Includes ISO 17025, ANSI Z540.1-1994, CTL & Denan's Law requirements.

For more information on testing to a specfic standard, refer back to the Common Safety Standard Reference Chart.

HYPOT® III

Production Line Dielectric Withstand Testers

Hypot® III is a bench top Dielectric Withstand tester with an enhanced graphic LCD. Four models are available: the 3705 AC Hipot tester, the 3765 AC/DC Hipot tester, the 3770 AC/DC Hipot tester with built-in Insulation Resistance, and the 3780 500 VA AC Hipot tester. All testers feature an RS-232 interface for entry-level automation.

Model 3705 - 5 kVAC Hipot Tester

Model 3765 - 5 kVAC, 6 kVDC Hipot Tester

Model 3770 - 5 kVAC, 6 kVDC Hipot & Insulation Resistance Tester

Model 3780 - 500 VA (5 kVA @ 100 mA) AC Hipot Tester

Features and Benefits

- RS-232 interface standard for entry-level automation
- Patented SmartGFI® safety circuit protects the operator from shock hazards
- Patented VERI-CHEK® feature prompts users through steps to validate the instrument's operation
- Patented CAL-ALERT® feature alerts the operator that the tester is due for re-calibration
- Built-in adjustable Continuity test for checking basic continuity
- Graphic LCD provides intuitive menu system to simplify the entire testing process from set-up to results
- Remote Safety Interlock feature prevents the high-voltage from being activated without the interlock enabled
- 10 Memories with 3 Steps per memory for storing and recalling test parameters
- PLC Remote Control for simple remote operation
- Interconnects with a HYAMP III Associated Research Ground Bond tester to form a complete test system
- Digitally controlled arc detection circuit allows the operator to program sensitivity levels for detecting arcs
- Minimum and maximum trip settings for safer and more accurate testing
- Comes complete with an adapter box for products terminated in a line cord
- Meets 200 mA Short circuit requirements (Model 3780)

Models 3705, 3765 & 3770.

Model 3780.

3705, 3765, 3770 Specifications

Input Specifications

Voltage	115/230 VAC ± 10%, user selectable
Frequency	50/60 Hz ± 5%
Fuse	3.15 A, fast acting 250 VAC

Dielectric Withstand Test Mode

Output Rating			5000 V @ 20 mAAC 6000 V @ 7.5 mADC
Voltage Setting		Range:	0 - 5.00 kVAC 0 - 6.00 kVDC
		Resolution:	0.01 kV
		Accuracy:	± (2% of setting + 5 V)
Maximum Limit	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	AC	Range:	0.000 - 9.999 mA
		Resolution:	0.001 mA
	DC	Range:	0.0 - 999.9 µA
		Resolution:	0.1 µA
		Accuracy:	AC and DC ± (2% of setting + 2 counts)
Arc Detection		Range:	0 - 9, 0 disabled
Ground Fault Interrupt		GFI Trip Current:	450 µA max (AC or DC)
		HV Shut Down Speed:	< 1ms
Current Display		Auto Range	
	AC	Range 1:	0.000 - 3.500 mA
		Resolution:	0.001 mA
		Range 2:	3.00 - 20.00 mA
		Resolution:	0.01 mA
	DC	Range 1:	0.0 µA - 350.0 µA
		Resolution:	1: 0.1 µA
		Range 2:	0.300 mA - 3.500 mA
		Resolution:	0.001 mA
		Range 3:	3.00 mA - 7.50 mA
		Resolution:	0.01 mA
		Accuracy:	All Ranges ± (2% of reading + 2 counts)
DC Output Ripple			≤ 5% Ripple rms at 6 kVDC @ 7.5 mA, Resistive Load
Discharge Time			≤ 200 ms The maximum capacitive load vs output voltage: 0.20 µF < 1 kV 0.050 µF < 4 kV 0.10 µF < 2 kV 0.040 µF < 5 kV 0.06 µF < 3 kV 0.015 µF < 6 kV
AC Voltage Waveform			Sine Wave, Crest Factor = 1.3 - 1.5
Output Frequency			Range: 50 or 60 Hz, User Selectable
Output Voltage Regulation			± (1% of output + 5 V) from no load to full load and over input voltage range.
Dwell Timer		Range:	AC 0, 0.3 - 999.9 sec (0 = Continuous) DC 0, 0.4 - 999.9 sec (0 = Continuous)
		Accuracy:	± (0.1% of reading + 0.05 sec)
Ramp Timer		Range:	Ramp-Up: 0.1 - 999.9 sec Ramp-Down: AC 0.0 - 999.9 sec DC 1.0 - 999.9 sec (0=OFF)
		Accuracy:	± (0.1% of reading + 0.05 sec)

Dielectric Withstand Test Mode (continued)

Ground Continuity Current		DC 0.1 A ± 0.01 A, fixed
Ground Continuity Maximum Limit Minimum Limit	Range:	0.0 Ω - 1.50 Ω
	Resolution:	0.01 Ω
	Accuracy:	± (3% of setting + 0.02 Ω)
Ground Continuity Auto Offset	Range:	0.0 Ω - 0.50 Ω
	Resolution:	0.01 Ω
	Accuracy:	± (3% of setting + 0.02 Ω)

Insulation Resistance Test Mode

Voltage Setting	Range:	30 - 1000 VDC
	Resolution:	1 V
	Accuracy:	± (2% of setting + 5 V)
Resistance Display	Range:	1 - 9999 MΩ (4 Digit, Auto Ranging)
	Resolution:	500 VDC - 1000 VDC MΩ MΩ 0.001 1.000 - 9.999 0.01 10.00 - 99.99 0.1 100.0 - 999.9 1 1000 - 9999
	Accuracy:	± (2% of reading + 2 counts) at test voltage 500 - 1000 V and 1 - 999.9 MΩ ± (5% of reading + 2 counts) at test voltage 500 - 1000 V and 1000 - 9999 MΩ ± (8% of reading + 2 counts) at test voltage 30 - 500 V and 1 - 1000 MΩ
Maximum Limit	Range:	0, 1 - 9999 MΩ (0=OFF)
	Resolution:	1 MΩ
	Accuracy:	Same as Resistance Display
Minimum Limit	Range:	1 - 9999 MΩ
	Resolution:	1 MΩ
	Accuracy:	Same as Resistance Display
Ramp Timer	Range:	Ramp-Up: 0.1 - 999.9 sec Ramp-Down: 1.0 - 999.9 sec (0=OFF)
	Resolution:	0.1 sec
	Accuracy:	± (0.1% of reading + 0.05 sec)
Delay Timer	Range:	0, 0.5 - 999.9 sec (0 = Continuous)
	Resolution:	0.1 sec
	Accuracy:	± (0.1% of reading + 0.05 sec)
GFI Trip Current		450 µA max
HV Shut Down Speed		< 1 ms

General Specifications

Mechanical	Bench or rack mount with tilt up feet
Dimensions	(W x H x D) 8.46 x 3.5 x 14.57 in. (215 x 89 x 370 mm)
Weight	20.96 lbs (9.53 kg)
Interface	RS-232 interface standard for entry-level automation
Memory	10 Memories, 3 steps per memory

Specifications subject to change without notice.

3780 Specifications

Input Specifications

Voltage	115/230 VAC ± 15%, automatically selected
Frequency	50/60 Hz ± 5%
Fuse	15 Amp, Slow Blow 250 VAC

Dielectric Withstand Test Mode

Output Rating		5000 V @ 100 mAAC
Voltage Setting		Range: 0 – 5.00 kVAC Resolution: 0.01 kV Accuracy: ± (2% of setting + 0.01 kV) (Adjustable during operation. Disable when key lockout is active.)
Maximum Limit	AC	Range: 0.00 – 99.99 mA Resolution: 0.01 mA Accuracy: ± (2% of setting + 6 counts)
Minimum Limit	AC	Range: 0.000 – 9.999 mA Resolution: 0.001 mA Accuracy: ± (2% of setting + 6 counts)
Arc Detection		Range: 0 - 9, 0 disabled
Ground Fault Interrupt		GFI Trip Current: 450 µA max HV Shut Down Speed: < 1ms
Current Display		Auto Range AC Range 1: 0.000 mA – 3.500 mA Resolution: 0.001 mA Accuracy: ± (2% of setting + 2 counts) Range 2: 3.00 – 99.99 mA Resolution: 0.01 mA Accuracy: ± (2% of setting + 6 counts)
AC Voltage Wave Form		Sine Wave, Crest Factor = 1.3 – 1.5
Output Frequency		Range: 50 or 60 Hz, User Selectable Accuracy: ± 0.1%
Output Voltage Regulation		± (1 % of output + 5 V) from no load to full load and over input voltage range.
Dwell Timer		Range: 0, 0.3 – 999.9 sec (0 = Constant) Resolution: 0.1 sec Accuracy: ± (0.1% of reading + 0.05 sec)
Ramp Timer		Range: Ramp-Up: 0.1 - 999.9 sec Ramp-Down: AC 0.0 - 999.9 sec Resolution: 0.1 sec Accuracy: ± (0.1% of reading + 0.05 sec)
Ground Continuity Current		DC 0.1 A ± 0.01 A, fixed
Ground Continuity Maximum Limit Minimum Limit		Range: 0.0 Ω - 1.50 Ω Resolution: 0.01 Ω Accuracy: ± (3% of setting + 0.02 Ω)
Ground Continuity Auto Offset		Range: 0.0 Ω - 0.50 Ω Resolution: 0.01 Ω Accuracy: ± (3% of setting + 0.02 Ω)
Output Short Circuit Current		> 200 mA

General Specifications

Mechanical	Bench or rack mount with tilt up feet
Dimensions	(W x H x D) 16.93 x 5.24 x 13.78 in. (430 x 133 x 350 mm)
Weight	49 lbs (23 kg)
Interface	RS-232 interface standard for entry-level automation
Memory	10 Memories, 3 steps per memory

Specifications subject to change without notice.

Accredited calibration service available. Includes ISO 17025, ANSI Z540.1-1994, CTL & Denan's Law requirements.

For more information on testing to a specfic standard, refer back to the Common Safety Standard Reference Chart.

HYAMP® III

Production Line Ground Bond Testers

HYAMP® III is a microprocessor controlled Ground Bond tester with an enhanced graphic LCD. Three models are available: the 3130 with 30 Amp output, the 3140 with 40 Amp output and the 3160 with 60 Amp output. Model 3130 also has an optional external RS-232 interface. HYAMP III can be interconnected with Hypot® III to form a complete test system.

Model 3130 - 30 Amp Ground Bond Tester

Model 3140 - 40 Amp Ground Bond Tester

Model 3160 - 60 Amp Ground Bond Tester

Features and Benefits

- External RS-232 interface available for entry-level automation (Model 3130)
- Patented VERI-CHEK® feature prompts users through steps to validate the instrument's operation
- Graphic LCD provides intuitive menu system to simplify the entire testing process from set-up to results
- Patented CAL-ALERT® feature alerts the operator that the tester is due for re-calibration
- PLC Remote Control allows operators to remotely control the Ground Bond tester
- 10 Memories with 3 Steps per memory for storing and recalling test parameters
- Interconnects with an Associated Research Hipot tester to form a complete test system
- 4 wire measurement and milliohm offset for accurate Ground Bond test results
- Electronic Dwell timer for more consistent and reliable testing
- Adjustable output current and milliohm trip ranges to meet all safety agency specifications for Ground Bond test requirements

Safety agency listed.

Input Specifications

Voltage	115/230 VAC ± 10%, user selectable
Frequency	50/60 Hz ± 5%
Fuse - 3130	6.3 A, Slow Blow 250 VAC
Fuse - 3140	10 A, Slow Blow 250 VAC
Fuse - 3160	15 A, Slow Blow 250 VAC

Ground Bond Test Mode

Output Rating	Current 3130: 1.00 - 30.00 AAC Voltage 3130: 6 VAC, fixed Current 3140: 1.00 - 40.00 AAC Voltage 3140: 8 VAC, fixed Current 3160: 1.00 - 60.00 AAC Voltage 3160: 9 VAC, fixed Resolution: 0.01 A Regulation: ± (2% of setting + 0.02 A)
Output Frequency	Range: 50 / 60 Hz, User Selectable
Dwell Time Setting	Range: 0 and 0.5 - 999.9 secs 0 for continuous running Resolution: 0.1 sec Accuracy: ± (0.1% of setting + 0.05 secs)
Maximum & Minimum Limits	Range 3130: 0 - 120 mΩ for 1 - 30.00 A 0 - 510 mΩ for 1 - 10.00 A Accuracy 3130: ± (2% of setting + 2 mΩ) Range 3140: 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 Accuracy 3140: ± (3% of setting + 3 mΩ) Range 3160: 0 - 150 mΩ for 30.01 - 60.00 A 0 - 300 mΩ for 15.01 - 30.00 A 0 - 600 mΩ for 1.00 - 15.00 A Accuracy 3160: ± (3% of setting + 3 mΩ)
Offset Capability	Range: 0 - 100 mΩ Resolution: 1 mΩ Accuracy: ± (2% of setting + 2 mΩ)
Current Display 3130	Range: 0.00 - 30.00 A Resolution: 0.01 A / step Accuracy: ± (3% of reading + 0.03 A)
Current Display 3140	Range: 0.00 - 40.00 A Resolution: 0.01 A Accuracy: ± (3% of reading + 0.03 A)
Current Display 3160	Range: 0.00 - 60.00 A Resolution: 0.01 A Accuracy: ± (3% of reading + 0.03 A)
Ohmmeter Display 3130	Range: 0 - 510 mΩ Resolution: 1 mΩ / step Accuracy: ± (2% of reading + 2 mΩ)

Ground Bond Test Mode (Continued)

Ohmmeter Display 3140	Range: 0 - 150 mΩ for 30.01 - 40.00 A 0 - 200 mΩ for 10.01 - 30.00 A 0 - 600 mΩ for 6.00 - 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)
Ohmmeter Display 3160	Range: 0 - 150 mΩ for 30.01 - 60.00 A 0 - 300 mΩ for 15.01 - 30.00 A 0 - 600 mΩ for 6.00 - 15.00 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)
Timer Display	Range: 0.0 - 999.9 secs Resolution: 0.1 secs Accuracy: ± (0.1% of reading + 0.05 secs)

General Specifications

Mechanical	Bench or rack mount with tilt up feet.
Dimensions 3130	(W x H x D) 8.5 x 4.0 x 15.5 in. (216 x 103 x 390 mm) includes feet
Dimensions 3140	(W x H x D) 8.5 x 4.0 x 16.9 in. (216 x 103 x 430 mm) includes feet
Dimensions 3160	(W x H x D) 16.9 x 5.1 x 15.7 in. (430 x 130 x 400 mm) includes feet
Weight 3130	19.15 lbs (8.7 kg)
Weight 3140	30.9 lbs (14 kg)
Weight 3160	49.40 lbs (22.40 kg)
Remote Control & Signal Output	The following input and output signals are provided through two 9 pin D type connectors: 1. Remote control: Test, Reset, Interlock, and Withstand Processing 2. Remote recall of memory program #1, #2, and #3 3. Outputs: Pass, Fail, Test-in-process, Start Out and Reset Out
Program Memory	10 Memories, 3 steps per memory
Interface	External RS-232 interface for Model 3130

Specifications subject to change without notice.

Accredited calibration service available. Includes ISO 17025, ANSI Z540.1-1994, CTL & Denan's Law requirements.

For more information on testing to a specfic standard, refer back to the Common Safety Standard Reference Chart.

LINECHEK® II

Fully-Automated Line Leakage Tester

The 620L is a stand alone Line Leakage tester with an enhanced graphic LCD which automates leakage testing in production and laboratory environments. The 620L is configured for up to 40 Amps of current draw for DUT input power. It is designed to test to most safety agency standards for Line Leakage testing. The 620L comes standard with USB and RS-232 interfaces. Ethernet, GPIB, and RS-485 interfaces are also available.

Model 620L - Fully-Automated Line Leakage Tester

Features and Benefits

- Test operators can configure the 620L to perform all eight required Line Leakage tests
- Leakage current readings can be monitored using both PEAK and RMS measurements
- Most common measuring devices are already incorporated into the instrument's intuitive menu system
- 50 Memories with 30 steps per memory can be stored and recalled in any alphanumeric combination
- Compact 3U Rack Mount Design
- Optional Functional Run Testing for additional measurements
- Interconnection to APT Brand AC Power Source
- Interconnection to SC6540 Modular Scanner provides automated control of multiple test points
- Graphic LCD and intuitive menu system to simplify the entire testing process
- Patented CAL-ALERT® alerts the operator that the 620L is due for re-calibration
- Handles up to 40 Amp maximum continuous DUT Current
- Optional cold resistance measurement capability
- USB/RS-232, GPIB, Ethernet, or RS-485 automation interfaces available
- Easily Interconnect to any automated Associated Research Hipot Tester
- Autoware Testing Software available for complete Automation Control

apt APT AC Power Source Compatible
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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	Reverse polarity switch for normal condition
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 / 1000 µA - 9999 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/ 1000 µA - 9999 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 - 8500 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 µA - 8500 µA)
	Range:	8.00 mA - 20.00 mA, frequency DC, 15 Hz - 1 MHz
	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:	DC : ±(2% of reading +3 counts) 15 Hz ≤ f ≤ 1 MHZ : ±10% of reading +2 µA
	Range:	400 µA - 8500 µA, frequency DC - 1 MHz
	Resolution:	1 µA
	Accuracy:	DC: ±(2% of reading +3 counts) 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:	DC: ±(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, IEC60950-1, IEC60335-1, IEC60598-1,IEC60065, IEC61010
MD6	IEC60990 Fig5 U3, IEC60598-1
MD7	IEC60950, 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	(Start-Up) - Neutral Voltage Check (Neutral-V) Over current and ground current check (Line - OC)	

General Specifications

Dimension	(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)
Display	320 X 240 graphic LCD
Mechanical	Bench or rack mount with tilt up feet
Memory	50 Memories, 30 steps per each memory File locations can link 900 steps max
Interface	USB/RS232 Standard, Ethernet, GPIB, Data Storage (RS-485) Optional

Specifications subject to change without notice.

Accredited calibration service available. Includes ISO 17025, ANSI Z540.1-1994, CTL & Denan's Law requirements.

For more information on testing to a specfic standard, refer back to the Common Safety Standard Reference Chart.

SC6540

High Voltage and High Current Modular Scanning Matrix

The SC6540 modular scanner is designed to automate multi-point and multi-product testing when using OMNIA® II, HypotULTRA® III, LINECHEK® II or HypotMAX® testers 7700 and 7704. There are 10 different configurations available that are built off of two basic scanning configurations determined by the power module. A master scanner (M) is configured with its own power module and controlled directly through automation software. It is available with either a USB/RS-232, GPIB, or Ethernet Interface. A slave scanner (S) is configured without a power module and is controlled either by a master scanner or the electrical safety tester. The SC6540 can be configured with 8 HV (high voltage), 16 HV, 8 HV and 8 GB (Ground Bond), 8 GB or 16 GB testing channels. The patented modular design provides a flexible testing solution that is configurable to a manufacturer's needs. Designed to interconnect with most of our automated electrical safety testers, the SC6540 allows for automated multi-point or multi-product safety testing. This is an ideal solution for applications such as transformers, motors, cables or any DUT that requires tests between various points.

Model SC6540 HNM - 8 Channel High Voltage Scanner

Model SC6540 HHM - 16 Channel High Voltage Scanner

Model SC6540 HGM - 8 Channel High Voltage Scanner
8 Channel High Current Scanner

Model SC6540 GNM - 8 Channel High Current Scanner

Model SC6540 GGM - 16 Channel High Current Scanner

Features and Benefits

- Modular scanning matrix
- Multi-point or multi-product testing capabilities
- Automation interfaces for Autoware® control
- Point-to-point continuity tests
- Compatible with Hipot, Ground Bond, Line Leakage and Insulation Resistance Tests
- Up to 16 high voltage switching channels on a single scanner
- High current outputs rated up to 40 Amps
- Up to 80 testing points from a single power source
- Compact 2U rack mount design

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SC6540

Modular Scanning Matrix Specifications

Input (Master only)	115 VAC (+/- 10%), 50/60 Hz, single phase 230 VAC (+/- 10%), 50/60 Hz, single phase User selectable
Fuse (Master only)	250 V/2 A/fast-blow
PC Control (Master only)	Choice of Ethernet, GPIB or USB/RS-232
Scanner Control	Master: one scanner bus output controls up to 4 additional slaves Slave: one output and one input
Maximum HV Rating	5 kV AC and DC
Maximum HC Rating	40 Amps
No. of Possible Channels	8 or 16
HV Output Terminations	100 ft. reel HV cable rated for up to 30 kV with 8 HV connectors
GND Output Terminations	20 terminals provided, to accept 10/12 AWG hook-up wire (user supplied wire)
Temperature	32˚ - 104˚ F (0˚ - 40˚ C)
Humidity	0 - 80%
Altitude	6560 ft. (2000 m)
Dimensions	2U with tilt-up front feet (WxHxD) 17 x 4.07 x 12.96 in. (432 x 103 x 329 mm)
Weight	Master: 20.05 lbs. max. (9.09 kg) (with 2 high voltage modules) Slave: 15.45 lbs. max. (7.01 kg) (with 2 high voltage modules)

Configurations

The modular design allows for a variety of configurations. In addition to master or slave configurations, the scanners can also be set-up with the following configurations, 8 or 16 high voltage testing channels, 8 high voltage and ground bond testing channels, and 8 or 16 ground bond testing channels.

The different configurations (shown right) are indicated by the following alpha designators	**M**	**= Master Scanner**
	H	**= 8 High Voltage Channels**
	HH	**= 16 High Voltage Channels**
	G	**= 8 Ground Bond Channels**
	GG	**= 16 Ground Bond Channels**
	N	**= Empty Module**
	S	**= Slave**

Model SC6540 HNM*
8 Channel High Voltage Scanner

Model SC6540 HHM*
16 Channel High Voltage Scanner

Model SC6540 HGM*
8 Channel High Voltage Scanner
8 Channel High Current Scanner

Model SC6540 GNM*
8 Channel High Current Scanner

Model SC6540 GGM*
16 Channel High Current Scanner

*Also available in slave configuration.
Specifications subject to change without notice.

Accredited calibration service available. Includes ISO 17025, ANSI Z540.1-1994, CTL & Denan's Law requirements.

For more information on testing to a specfic standard, refer back to the Common Safety Standard Reference Chart."

MEDTEST™

Medical Safety Testing System

MedTEST™ provides advanced test functionality while increasing efficiency for medical device manufacturers. It 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. It performs patient lead testing on medical devices while continuously running your DUT. This feature can offer significant time savings as the Device Under Test (DUT) does not need to be powered down and up to perform the multiple leakage tests, even in reverse polarity conditions.

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.

Features and Benefits

- 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 in a standard rack mount cabinet
- MedTEST can also perform all B, BF and CF type applied part tests
- Continuous Run capability even in reverse polarity
- Up to 40 Amp continuous current capability
- Completely automated scanner matrix setup
- Advanced Software Control with Autoware II
- Expanded reporting capability with barcode scanning, data storage, report generation and data printouts
- Integration with APT Brand AC Power Source
- Programmable test setups with accompanying steps
- 7 built-in measuring devices with external connection capability

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MEDTEST™

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

MedTEST is designed to run with our Autoware software. This enables the user to have complete computer control of the test system. MedTEST will connect to a PC through a host of PC interfaces including USB/RS-232, Ethernet or GPIB.

Autoware allows the MedTEST 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. Each test memory can store up to 30 test steps which can be configured to perform any of the safety tests. All these test steps can be linked together to form a complete automated test sequence. Further, all test memories can be linked together creating a virtually unlimited number of test steps. Complete data capture is also easily achieved with the MedTEST system. Test results for every single test can be viewed in a statistical format, exported for database archiving, or even directly sent to a print report.

The MedTEST system is designed to provide you with a custom test solution. It can be configured to meet almost any application and since the configuration incorporates existing Associated Research testers you don't end up paying for a custom solution and still maintain the ability to meet ever changing demands for your test equipment.

The MedTEST configuration begins with the Associated Research 620L for Line Leakage Testing functionality, The OMNIA II 8204 for Hipot and Ground Bond testing functionality and an Associated Power Technologies AC power source.

Depending on the requirements of your application, MedTEST can be configured to 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!

MEDTEST

Line Conditions

Power Switch	Reverse polarity switch for normal condition
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 / 1000 µA - 9999 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 / 1000 µA - 9999 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, IEC60950-1, IEC60335-1, IEC60598-1, IEC60065, IEC61010
MD6	IEC60990 Fig5 U3, IEC60598-1
MD7	IEC60950, 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	(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 5 kV @ 20 mADC	
Voltage Setting	Range:	0-5000 VAC 0-5000 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) Range: 10.00 - 50.00 mA Resolution: 0.01 mA Accuracy: ± (2% of Setting + 2 Counts)
	AC Real	Range: 0.000-9.999 mA Resolution: 0.001 mA Accuracy: ± (3% of Setting + 50 µA) Range: 10.00 - 50.00 mA Resolution: 0.01 mA Accuracy: ± (3% of Setting + 50 µA)
	DC	Range: 0.00 - 999.9 µA Resolution: 0.1 µA Accuracy: ± (2% of Setting + 2 Counts) Range: 1000 - 20000 µA Resolution: 1 µA Accuracy: ± (2% of Setting + 2 Counts)
Ramp HI	>20 mA peak maximum, ON/OFF selectable	
Charge LO	Range: 0.000 - 350 µA or Auto Set	
DC Output Ripple	≤ 4% Ripple rms at 5 kVDC @ 20 mA, Resistive Load	
Discharge Time	< 50 msec for no load, < 100 msec for capcitor load (all capacitance values in MAX load spec below)	
Maximum Capacitive Load	1 µF < 1 kV 0.75 µF < 2 kV 0.50 µF < 3 kV	0.08 µF < 4 kV 0.04 µF < 5 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 0.4 - 999.9 sec (0 = Continuous) DC 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	

MEDTEST

Continuity Test Mode

Output Current	DC 0.1 A ± 0.00001 A
Resistance Display	Range: 0.00 – 10000.00 Ω
HI and LO-Limit	0.00 – 10000 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 + 0.02A), 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) Accuracy: 1.00 - 5.99 A, ± (3% of setting + 3 Counts)
Milliohm Offset	Range: 0 - 200 mΩ

General Specifications

Interface	USB/RS-232 Standard, Ethernet, GPIB Optional
Safety	Built-in SmartGFI® circuit
Memory	50 memories, 30 step/memory

Insulation Resistance Test Mode

Output Voltage	Range: 30 - 1000 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 - 50000 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

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 220 V DUT input power.

Specifications subject to change without notice.

Custom Configurations available. Contact us for details.

For more information on testing to a specfic standard, refer back to the Common Safety Standard Reference Chart.

SYSTEMS

System 3400

The system 3400 is a manual electrical safety test system. The base system includes: HYAMP® III 3140, 40 Amp Ground Bond tester, interconnect cables and a receptacle box with a choice of four Hypot® III Dielectric Withstand testers.

Model 34-05 - HYAMP® III 3140 with Hypot® III 3705
Model 34-65 - HYAMP® III 3140 with Hypot® III 3765
Model 34-70 - HYAMP® III 3140 with Hypot® III 3770
Model 34-80 - HYAMP® III 3140 with Hypot® III 3780

System 3100

The system 3100 is a manual electrical safety test system. The base system includes: HYAMP® III 3130, interconnect cables and a receptacle box with a choice of four Hypot® III Dielectric Withstand testers.

Model 31-05 - HYAMP® III 3130 with Hypot® III 3705
Model 31-65 - HYAMP® III 3130 with Hypot® III 3765
Model 31-70 - HYAMP® III 3130 with Hypot® III 3770
Model 31-80 - HYAMP® III 3130 with Hypot® III 3780

System 6000

The system 6000 is a manual electrical safety test system. The base system includes: HYAMP® III 3160, 60 Amp Ground Bond tester and interconnect cables with a choice of four Hypot® III Dielectric Withstand testers.

Model 60-05 - HYAMP® III 3160 with Hypot® III 3705
Model 60-65 - HYAMP® III 3160 with Hypot® III 3765
Model 60-70 - HYAMP® III 3160 with Hypot® III 3770
Model 60-80 - HYAMP® III 3160 with Hypot® III 3780

Safety agency listed.

Electrical Safety Compliance Software

Software that works in tandem with Associated Research, Inc. Testers to automate a testing workstation. Autoware® allows you to capture, store and analyze test data and results!

Autoware II is a user friendly software solution designed to work with Associated Research's OMNIA® II, OMNIA®, LINECHEK® II, and SC6540 instruments. Autoware II software automates testing procedures and increases production line efficiency by providing the ability to manage and remotely program instruments. Autoware II allows for the automatic loading of test files and the ability to drag and drop test files to and from the instrument and PC. It also allows for the operation and monitoring of the instrument in real time. Autoware II provides the backup assurance manufacturers need to prove their equipment meets electrical safety requirements established by safety agencies by allowing for statistical analysis, advanced print out, and archival of test data.

Autoware II is also compatible with Associated Power Technologies, Inc.'s 6000, 7000 & 300XAC series of AC power sources for RUN and LLT testing.

Features and Benefits

- Choice of Ethernet, USB/RS-232 or GPIB communication interfaces
- Graphical Drag and Drop User Interface
- Batch Processing
- Automated Instrument Identification and Setup
- Line Leakage Test Auto Fill Feature
- Pre-configured Instrument Verification Files
- Customizable Menu Display
- Two Versions Available (Full or Data Logging)
- Intelligent Error Handling
- Improved Prompt and Hold Feature Includes Multimedia Prompts

Control Panel Screen

Results Screen

System Settings

autoware®

Autoware S9870 is used in tandem with Associated Research Inc.'s QUADCHEK® II, HypotMAX®, HypotULTRA® III, LINECHEK® and RUNCHEK® series of instruments.

ACCESSORIES

NEW!

TVB-2

Test Verification Box

TVB-2 is a daily test verification box designed to be used with any Associated Research electrical safety testing instrument. This go/no-go daily test verification box is specially designed to verify that the failure detectors of an Associated Research electrical safety testing instrument are functioning properly. Many safety agencies will at minimum recommend that an electrical safety tester's functionality is verified on a regular basis. Simple and easy-to-use, the TVB-2 is the ideal solution for manufacturers who are required to conduct daily verifications on their test equipment. The TVB-2 will verify Hipot, Insulation Resistance, Ground Bond and Ground Continuity test functionality.

36541, 38482, 36544, 38777, 38578

Adapter Box

We have several adapter box options available to meet the broad needs of our customers. An adapter box is beneficial in that it allows for quick, safe and easy testing of line cord terminated productions. All the necessary connections are made within the adapter box allowing customer to simply connect the adapter box to the test instrument and plug their DUT into the adapter box. We have an adapter box for all of our test instruments and they are available in multiple country configurations.

Adapter Box	Available Configurations	Used With
36541	Universal US (Standard), European, Nema L5-20, Nema L6-20, IEC 60309	**3130, 7704**
36544	Universal US (Standard), European, Nema L5-20, Nema L6-20, IEC 60309	**37xx, 76xx, 7700**
38482	Universal US (Standard), European Nema L5-20, Nema L6-20, IEC 60309	**3140, 8204, 8254**
38777	Universal US (Standard), Universal UK, European	**620L**
38578	Universal US (Standard), Universal UK, European	**8206, 8256, 8207, 8257**
38306	Universal US (Standard), Universal UK, European	**76xx** (when configured with an internal scanner (Dual Wire))
38480	Universal US (Standard), Universal UK, European	**76xx** (when configured with an internal scanner (Three Wire))

ACCESSORIES

39067
Test Enclosure

Our DUT Enclosure is designed with a safety interlock that will eliminate the potential for electrical shock when used correctly. The interlock will disable the high voltage if the enclosure door is open. The DUT Enclosure is designed to be used with all interlocked Associated Research Hipot testers.

Compatible Models: All Hipot Testers with Interlock

Outside dimensions: (W x D x H) 24"x 19" x 11.5", 610 mm x 483 mm x 293 mm
Inside dimensions: (W x D x H) 20" x 16" x 10" , 508 mm x 407 mm x 254 mm
3/4" Walls
3/4" Flame Retardant Foam
1/4" Plexiglass cover

38814
High Voltage Pistol Probe with Switch

This high voltage test gun has a dual action test trigger that controls the retractable probe tip and activates the high voltage output of the instrument. The unique ergonomic shape makes this probe easy and comfortable to use.

38081
High Voltage Probe

38082
Return Probe

Retractable high voltage and return probes for safe high voltage testing up to 5 kV. The probe tips allow for safe and easy testing by extending and retracting with the press of a button.

38539
2 Wire 40 Amp Ground Bond Probe

38538
4 Wire 40 Amp Ground Bond Probe

These fixed tip probes allow for easy contact with the grounding points of the DUT. Separate test buttons to use in various positions. Three different tip styles included.

CBLSR-05M
Magnetic Hipot Return Cable

CBLHR-05M
Magnetic Ground Bond Return Cable

We have available test leads that are terminated in a magnetic tip that allow for easy application of the test lead to the DUT. These test leads are available in lengths from 5 to15 feet.

35822
Foot Switch

Ideal for use in applications where an operator needs to perform a test while using test probes.

39001
Small Shipping Case

39085
Large Shipping Case

We offer a large shipping case and a small shipping case each with custom inserts to protect your Associated Research tester. They are used for the shipping and transportation of an Associated Research tester.

39077
Test Cabinet

This test cabinet is used with any Associated Research rack mountable tester.

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We have local sales offices throughout the world to serve you more efficiently.

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