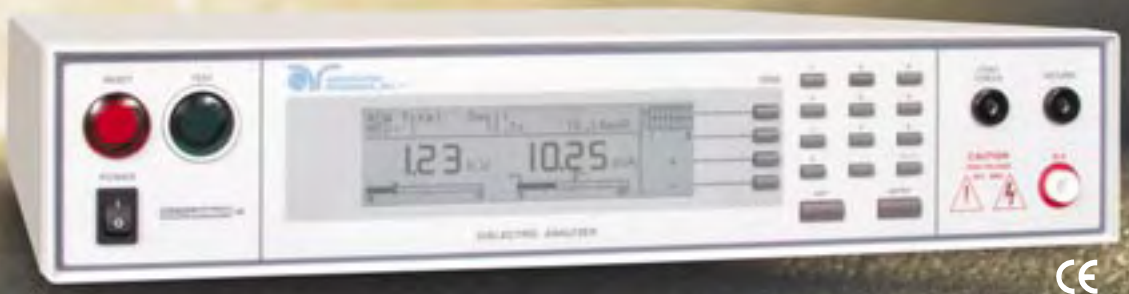
HYPOTULTRA® III

Fully-Automated Dielectric Analyzers

For Safety Agency Production Line Compliance Testing

SmartGFI® inside



U.S. Patent Nos. (6,549,385, 6,515,484,6,054,865, 5,828,222, 5,936,419, 5,548,501) Other patents pending

TÜV Rheinland GS geprüfte Sicherheit c UL® us

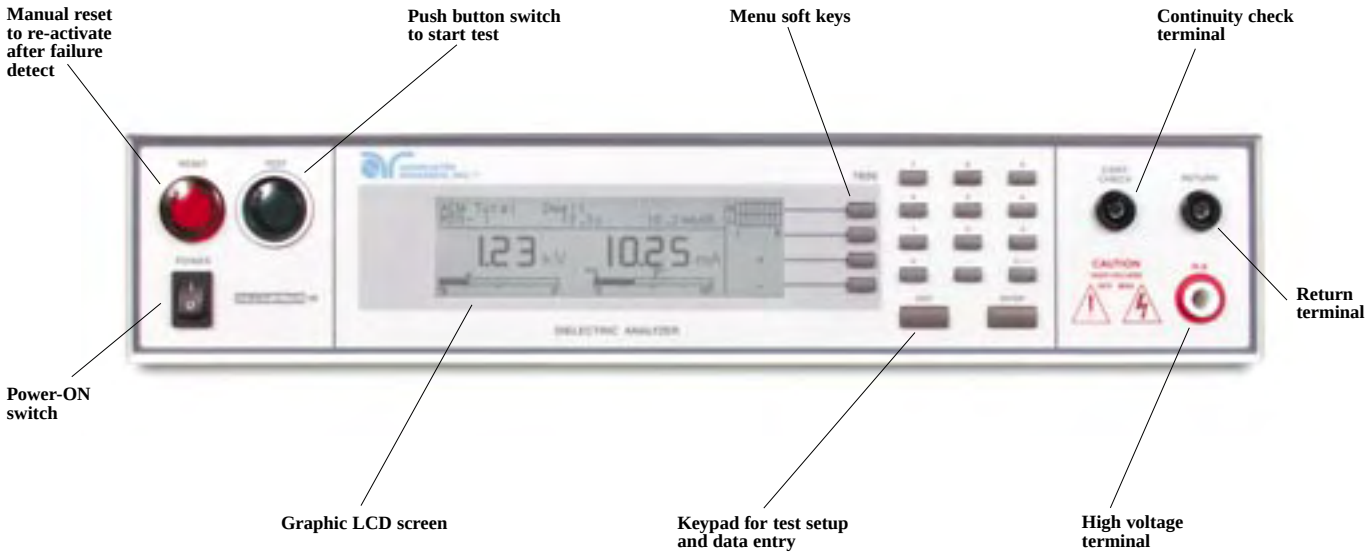
Safety agency listed.

ASSOCIATED RESEARCH, INC.®

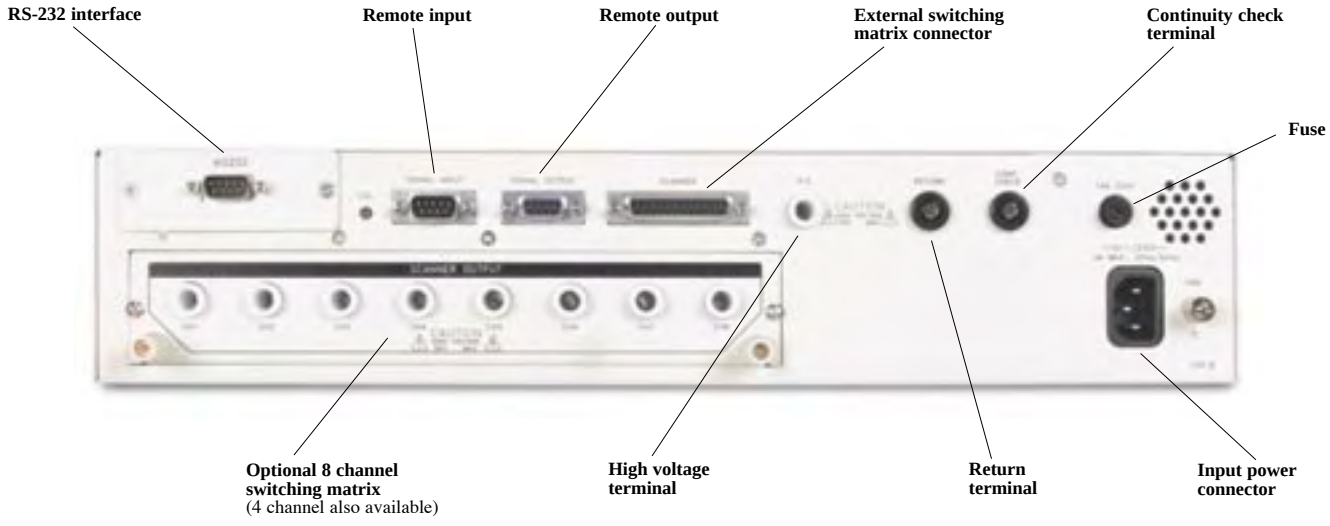
OPERATOR-FRIENDLY FEATURES

- Graphic Liquid Crystal Display
- SmartGFI® Circuit
- Exclusive Prompt Function
- RS-232, GPIB & Printer Port
- Compact 2U Rack Mount Cabinet
- Dual Continuity Test Modes
- Optional Internal 4 or 8 Channel Switching Matrix Plus External Switching Matrix Interface
- Patented Technologies
- Single DUT Connection

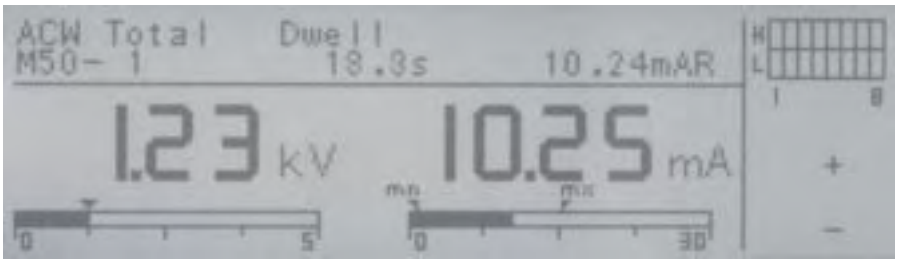
FRONT PANEL



BACK PANEL



FEATURES & BENEFITS



ENHANCED GRAPHIC LCD WITH ANALOG BAR GRAPH

This provides the operator with complete test setup and results in an easy-to-use interface. Plus the analog bar graph can be used to monitor test results versus limit settings. The graphic display makes testing safer, easier and more reliable than ever before.

FEATURE **Complete all-in-one system**
BENEFIT HypotULTRA®III combines the four most common electrical safety tests as required by safety agencies (AC Hipot, DC Hipot, IR and Ground Continuity test) into a 2U single 19 inch rack mount cabinet that takes up less space and enables a single DUT connection.

FEATURE **Built-in CAL-ALERT® function**
BENEFIT This feature automatically alerts the user when the instrument is due for re-calibration. This eliminates the need for manual tracking of calibration dates.

FEATURE **Dual Continuity test modes**
BENEFIT The user can select whether to perform a low current continuity test simultaneously with the hipot test, or use the separate continuity test mode to perform an independent continuity test. In this mode the range is adjustable from 0.01 to 2000 ohms. In addition, point-to-point continuity tests can be run through the optional built-in or external switching matrix.

FEATURE **Patented SmartGFI® safety circuit**
BENEFIT The SmartGFI provides maximum operator protection. If the circuit detects excessive leakage to ground it shuts down the high voltage in less than 1 millisecond. SmartGFI is automatically activated if the DUT is not grounded. The operator does not need to make the decision whether to activate the SmartGFI.

FEATURE **Built-in Security settings**
BENEFIT This allows the instrument to be setup to allow for different levels of access to the instruments setup programs. Users can setup passwords for restricting access to certain parts of the menu.

FEATURE **Storage of up to 50 setups with 30 steps per setup**
BENEFIT A real benefit for manufacturers that test different products. Each setup can store up to 30 steps, which can be configured to perform any of the safety tests. Each setup can be stored and named any combination of alphanumeric characters so it can be easily identified for recall.

FEATURE **Real Current measurement**
BENEFIT HypotULTRA III allows for simultaneous monitoring of real and total current in AC Hipot mode. This allows the user to monitor real current rather than measuring total current and then excluding AC reactive current from the measurement.

FEATURE **Exclusive prompt and hold function**
BENEFIT HypotULTRA III allows users to setup prompts in the test cycle so that the test can be paused. During the pause, a user-configured message is displayed instructing the test operator on the action they need to perform before continuing with the test. This is a very convenient feature for applications where test leads need to be moved or when DUT switches need to be activated as part of the test cycle.

FEATURE **Patented CHARGE LO and RAMP HI testing**
BENEFIT These features allow for more effective DC Hipot testing. RAMP HI allows the user to set a higher trip rate during the ramp to allow for quick charging of the product without nuisance tripping thereby increasing throughput when testing with DC. CHARGE LO provides the user with the capability to ensure that the device under test is connected correctly.

FEATURE **Max output current 30 mA AC and 10 mA DC**
BENEFIT HypotULTRA III has enough output current to test even highly capacitive loads while allowing it to be versatile enough to monitor leakage current of items with very low leakage measurement requirements. Additionally it has resolutions of 1 microamp in AC and 0.1 microamps in DC.

FEATURE **Digitally controlled arc detection system**
BENEFIT Allows the operator to select whether low-level arcs should be detected and provides the operator with the ability to digitally select and program multiple sensitivity levels.

FEATURE **Electronic ramping (up and down)**
BENEFIT This provides a gradual and timed method to increase or decrease output voltage to the DUT, which minimizes any damage from quick high voltage changes to sensitive DUT's.

FEATURE **Built in VERI-CHEK® self verification system**
BENEFIT Some safety agencies require that the hipot tester be checked and verified at various intervals. VERI-CHEK (patent pending) is a menu driven process by which the instruments failure detectors are proven to be functioning properly, "Verifying" the functionality of the electrical safety tester and connected accessories.

FEATURE **Extended IR measurement range**
BENEFIT The Insulation Resistance measurement range allows for measurements up to 50 Gigohms. This extended range is useful for component and material testing.

SPECIFICATIONS

INPUT SPECIFICATIONS	
VOLTAGE	115 / 230 VAC ± 10%, automatically selected
FREQUENCY	50/60 Hz ± 5%
FUSE	4 Amp 250 V Slo-Blo

DIELECTRIC WITHSTAND TEST MODE	
OUTPUT RATING	5 KV @ 30 mA AC 5 KV @ 10 mA DC*
VOLTAGE DISPLAY	Range: 0.00 - 5.00 KV Full Scale Resolution: 10 volts Accuracy: ± (2% of reading + 2 counts)
MAXIMUM & MINIMUM LIMIT	**AC Total** Range: 0.000 - 30.00 mA **AC Real** Range: 0.000 - 30.00 mA **DC*** Range: 0 - 10000 µA
CURRENT DISPLAY	**AC Total** Range: 0.000 mA - 30.00 mA **AC Real** Range: 0.000 mA - 30.00 mA **DC*** Range: 0.0 µA - 9.99 mA
RAMP HI	12 mA peak maximum, ON/OFF selectable
CHARGE LO	Range: 0.0 - 350.0 µA DC or Auto Set
ARC DETECTION	Range: 1 - 9
FAILURE DETECTOR	Audible and Visual
DC OUTPUT RIPPLE*	≤ 4% Ripple RMS at 5 KV DC @ 10 mA, Resistive Load
DISCHARGE TIME	≤ 200 ms
MAXIMUM CAPACITIVE LOAD DC MODE	1 µF < 1 KV 0.08 µF < 4 KV 0.75 µF < 2 KV 0.04 µF < 5 KV 0.5 µF < 3 KV
AC OUTPUT WAVE FORM	Sine Wave, Crest Factor = 1.3 - 1.5
OUTPUT FREQUENCY	Range: 50 or 60 Hz, User Selectable Accuracy: ± 0.1%
OUTPUT REGULATION	± (1% of output + 5 V) from no load to full load and over input voltage range.

DIELECTRIC WITHSTAND TEST MODE cont.	
DWELL TIMER	Range: 0.0, 0.4 - 999.9 sec (0 = Continuous) Resolution: 0.1 sec Accuracy: ± (0.1% + 0.05 sec)
RAMP TIMER	Range: 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 Resolution: 0.1 sec Accuracy: ± (0.1% + 0.05 sec)
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: < 1ms

INSULATION RESISTANCE TEST MODE*	
VOLTAGE SETTING	Range: 50 - 1000 Volts DC Resolution: 1 volt Accuracy: ± (2% of reading + 2 volts)
SHORT CIRCUIT CURRENT	Maximum: 12 mA peak
RESISTANCE DISPLAY	Range: 0.05 MΩ - 50000 MΩ (5 Digit, Auto Ranging) 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 & MINIMUM LIMIT	Range: 0.05 MΩ - 50000 MΩ 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 Resolution: 0.1 sec Accuracy: ± (0.1% + 0.05 sec)
DELAY TIMER	Range: 0.0, 1.0 - 999.9 sec 0 = Continuous Resolution: 0.1 sec Accuracy: ± (0.1% + 0.05 sec)
GROUND FAULT INTERRUPT	GFI Trip Current: 450 µA max HV Shut Down Speed: < 1 ms

SPECIFICATIONS & OPTIONS

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: 0.0 - 2000 Ω Accuracy: 0.00 - 19.99 Ω ± (1% of reading + 0.05 Ω) 20.0 - 199.9 Ω ± (1% of reading + 0.2 Ω) 200.0 - 2000 Ω ± (1% of reading + 2 Ω)
MAXIMUM & MINIMUM LIMIT	Range: 0.00 - 2000 Ω Accuracy: 0.00 - 19.99 Ω ± (1% of reading + 0.05 Ω) 20.0 - 199.9 Ω ± (1% of reading + 0.2 Ω) 200.0 - 2000 Ω ± (1% of reading + 2 Ω)
DWELL TIMER	Range: 0.0, 0.3 - 999.9 sec (0 = Continuous)
MILLIOHM OFFSET	Range: 0.00 - 2.00 Ω

OPTIONS	
OPT-01 (INTERNAL)	8 channel high voltage switching matrix.
OPT-03 (INTERNAL)	4 channel high voltage switching matrix.
HS-8A (EXTERNAL)	8 channel high voltage and high current switching matrix.
HS-16 (EXTERNAL)	16 channel high voltage and high current switching matrix with RS-232 and GPIB interface.
OPT-08	Printer port interface.
OPT-10	GPIB interface.
AUTOWARE 7600	Software designed to store, analyze and retrieve data.

GENERAL SPECIFICATIONS	
PLC REMOTE CONTROL	Input: Test, Reset, Interlock, Recall Memory 1 - 10 Output: Pass, Fail, Test-in-Process & Reset
REMOTE OUTPUT RELAYS	125 VAC @ 1 AAC, 30 VDC @ 0.5 ADC*
SAFETY	Built-in SmartGFI® circuit, fast auto discharge, interlock circuit, redundant safety circuits.
MEMORY	50 memories, 30 step/memory
INTERFACE	RS-232 standard or select GPIB or Printer Port with time & date stamp.
SECURITY	Tamper proof front panel with programmable password lockout avoids unauthorized access to test setup programs.
GRAPHIC DISPLAY	240 x 64 dot resolution, monographic LCD
ALARM VOLUME SETTING	10 ranges set by the numeric keys on the front panel.
CALIBRATION	Adjustments are made through the front panel. **CAL-ALERT® function to signal operator when calibration is due.**
ENVIRONMENTAL	Temperature: 0 - 40° C Humidity: 0 - 80%
MECHANICAL	Bench or rack mount (2U height) with tilt up front feet. Dimensions: (W x H x D) 16.9 x 3.5 x 19.7 inches (430 x 89 x 500 mm)
WEIGHT	31.38 lbs (14.23 kgs) varies with options

MODEL NUMBERS	
MODEL 7620	AC Hipot with optional 4 channel or 8 channel switching matrix.
MODEL 7650	3-in-1 system with AC Hipot, DC Hipot Insulation Resistance and optional 4 channel or 8 channel switching matrix.

*Model 7650 only.

ACCESSORIES

ACCESSORIES:		
RESISTOR KIT	Precision 1% resistor is ideal as a load to set current trip points. Meets 120 k ohm requirements.	**35445**
FOOT SWITCH	Ideal for applications where an operator needs to start a test “hands off” the instrument.	**35822**
RETRACTABLE PROBE	High voltage retractable probe for safe testing and application of high voltage.	**38081**
RETRACTABLE RETURN PROBE	This retractable probe is used on the return side of the instrument.	**38082**
SAFE-T-PROBE®	Test gun with trigger that controls retractable probe and activates instruments high voltage circuit.	**38083-01**
ADJUSTABLE RESISTOR BANK	Provides test loads from 120 K to 2.148 k ohms, 6 terminals with 12 settings. Helps to verify regulation.	**36956**

At Associated Research, Safety Compliance Testing Is Our Only Focus!

The Industry's Most Complete Line of Instruments for Electrical Safety Compliance Testing

autoware

Software designed to store, analyze and retrieve data on automated Associated Research instruments, while performing Line Leakage, Insulation Resistance, Dielectric Withstand, Ground Bond and Functional Run tests. Autoware also allows for bar coding inputs and provides basic statistical analysis graphs.

OMNIA

The first fully-automated, multi-function Electrical Safety Compliance Analyzer with an enhanced graphic LCD. OMNIA provides 4-in-1, 5-in-1 and 6-in-1 models that include AC Hipot, DC Hipot, Insulation Resistance, Ground Bond, Functional Run and Line Leakage testing. All models available with IEEE-488 (GPIB), RS-232 or printer interface.

QUADCHEK II

4-in-1 Electrical Safety Compliance Analyzers include AC/DC Hipot, Insulation Resistance, Ground Bond tester and optional built-in switching matrix in a single instrument. Complete with IEEE-488 (GPIB), RS-232 or printer interface. Available in 500 VA output versions.

LINECHEK

Designed to automate line leakage testing in production line or lab environments. The 510L is a stand-alone system and the 520L can interconnect with other AR safety testers to form a complete automated testing system.

SWITCHING MATRIX

The HS-8A is an 8 channel and the HS-16 is a 16 channel matrix. Both models are high voltage and high current matrices for multi-point or multi-product testing. (For use with QUADCHEK®II, HypotULTRA®III or OMNIA®.)

RUNCHEK

The 905D functional run test system powers and runs a product while measuring current, voltage, power factor and watts. It can be interconnected to our safety testers so all tests can be performed through a single DUT connection. Available with standard GPIB or RS-232 interface.

HYPOTPLUS II

The first semi-automated microprocessor controlled Dielectric Withstand testers available in AC or AC/DC versions. All models include enhanced PLC control, remote memory recall, advanced failure detection systems. Available optional 10 V analog signal and real current.

HYAMP II

30 Amp Ground Bond tester that works as a stand-alone instrument or can be interconnected to the HypotPLUS®II to form a semi-automated test system with a single DUT connection.

HYPOT III

The first Manual Dielectric Withstand Testers with an enhanced graphic LCD for production line safety agency compliance testing. Available in AC, AC/DC and AC/DC/IR versions.

HYAMP III

The first 30 Amp and 60 Amp Ground Bond testers with an enhanced graphic LCD that work stand-alone or interconnected to the Hypot III to form a complete mid-range test system with a single DUT connection.

Catalog # ULTRA3 09/03

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