OMNIA™ Series

Fully-Automated Multi-Function Electrical Safety Compliance Analyzers

U.S. Patent Nos. (6,054,865, 6,011,398, 5,936,419, 5,828,222, 5,548,501) Other patents pending

4-IN-1 AC Hipot, DC Hipot, IR and Ground Bond/Continuity With Optional HV and HC Scanner

5-IN-1 AC Hipot, DC Hipot, Insulation Resistance, Ground Bond/Continuity and Functional Run Test

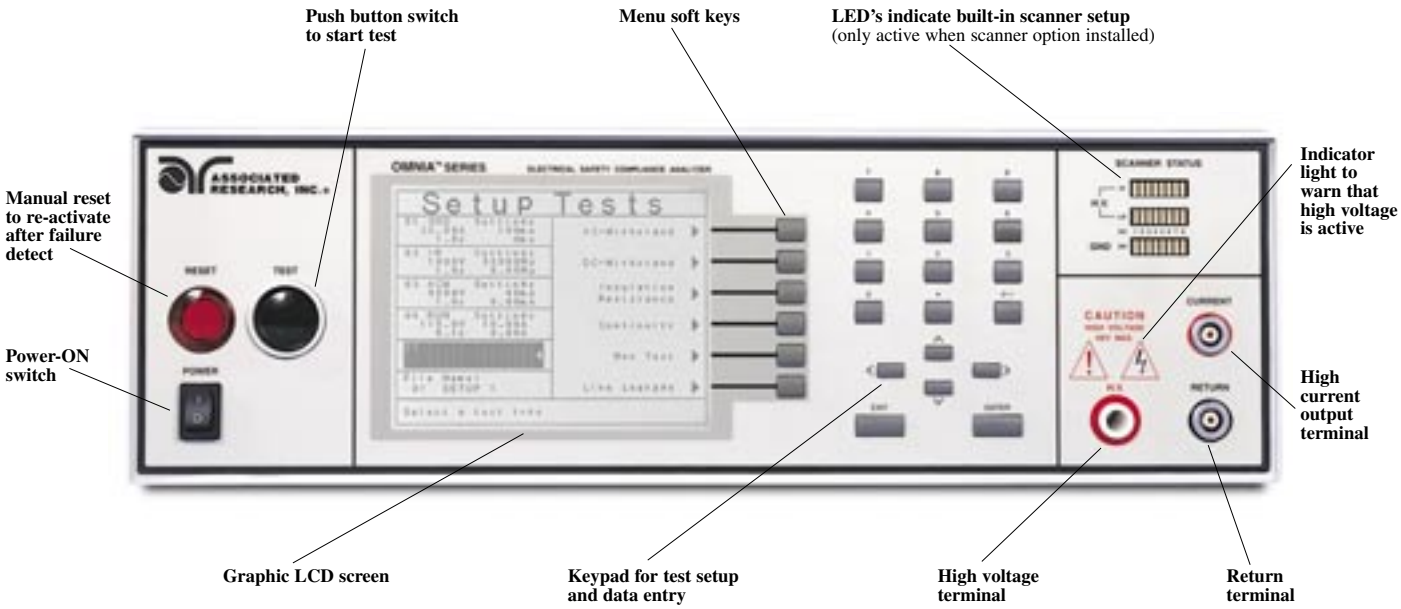
6-IN-1 AC Hipot, DC Hipot, IR, Ground Bond/Continuity, Functional Run Test and Line Leakage Test

ASSOCIATED RESEARCH, INC.®

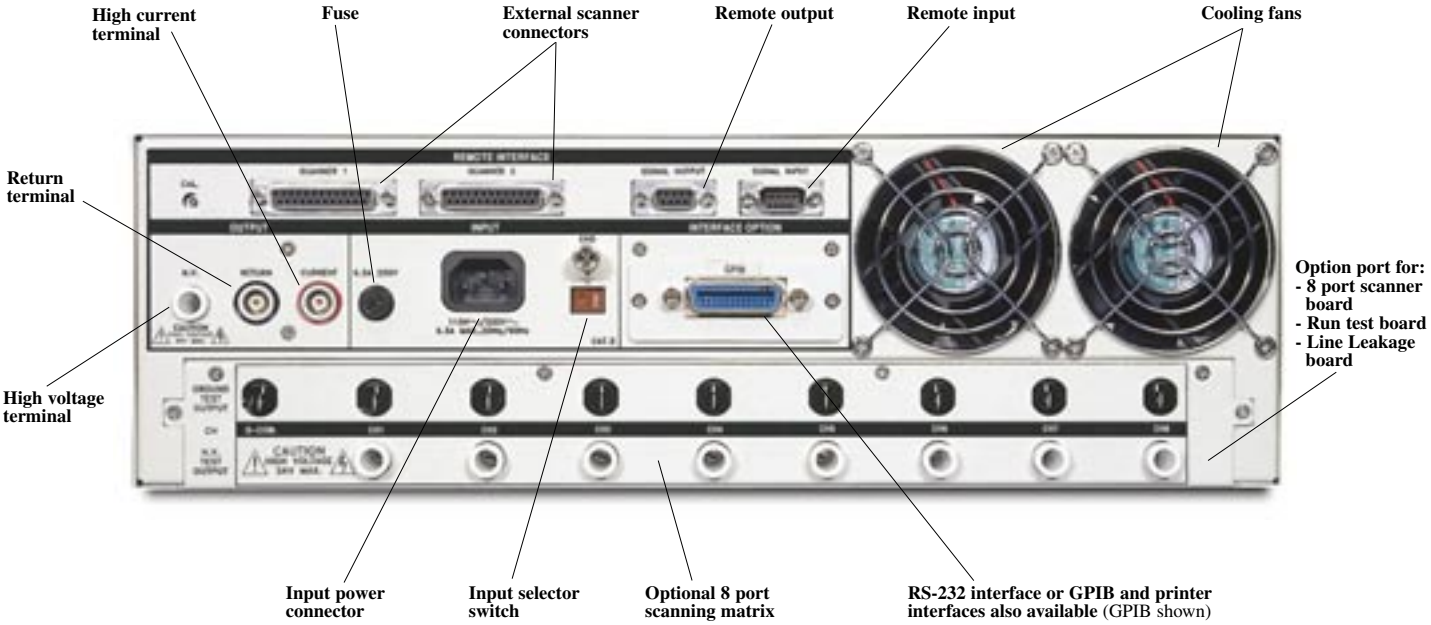
OPERATOR-FRIENDLY FEATURES

- **Graphic Liquid Crystal Display**
- **Patented Multi-Function Tests**
- **Dual Ground Bond/ Ground Continuity Test**
- **SmartGFI™ Circuit** (Patent Pending)
- **Single DUT Connection**
- **RS-232, GPIB & Printer Port**
- **Internal** (OMNIA 4 Only) **& External Scanner Matrixes**

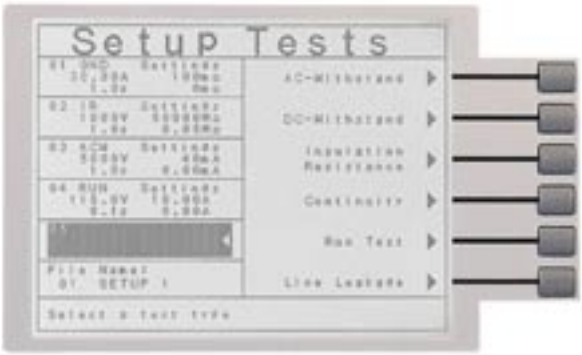
FRONT PANEL



BACK PANEL



FEATURES & BENEFITS



THE FIRST PATENTED SAFETY TESTING INSTRUMENT WITH AN ENHANCED GRAPHIC LCD DISPLAY

This provides the operator with complete test setup and results in an easy-to-use interface which eliminates the need to decipher cryptic abbreviations. The graphic display makes testing safer, easier and more reliable than ever before.

OMNIA, a complete all-in-one system, combines all of the most common electrical safety tests required by safety agencies (AC Hipot, DC Hipot, IR, Ground Bond/Continuity, Line Leakage and Functional Run tests) into a single instrument which takes up less rack space and enables a single DUT connection. OMNIA is also available in 4-in-1 and 5-in-1 versions for those who do not need to perform all of the above mentioned tests.

FEATURE **Built-in Cal-Alert™**
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 function Ground Bond and Ground Continuity**
BENEFIT The user can select whether to perform a high current Ground Bond test or a low current Ground Continuity test. The Ground Continuity test can be run independently or it can be performed simultaneously with the Hipot test. Both tests can be run through the optional built-in scanner.

FEATURE **Exclusive SmartGFI™ function**
BENEFIT The SmartGFI™ function provides maximum protection to the user. The circuit monitors the ground configuration of the DUT and automatically sets up the GFI circuit for the user. The circuit detects current between the high voltage output and earth ground. If excessive leakage is detected, the high voltage is immediately shut down.

FEATURE **Optional printer port**
BENEFIT This option allows direct connection of OMNIA to a printer. The user can select between several different print modes and all printouts are time and date stamped.

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

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 **Exclusive prompt and hold function**
BENEFIT OMNIA 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 the test. This is a very convenient feature for applications where test leads or probes need to be moved or when DUT switches need to be activated as part of the test cycle.

FEATURE **Built-in Real Current measurement**
BENEFIT OMNIA allows for simultaneous monitoring of Real and Total current in AC Hipot mode. This allows the user to monitor reactive and real current on a single screen.

FEATURE **Patented RAMP HI and CHARGE LO testing**
BENEFIT The RAMP HI feature allows the user to set a higher trip point during the ramp cycle and allows for quicker charging of the DUT without nuisance tripping. This increases throughput which allows for more effective DC Hipot testing. The CHARGE LO provides the user with the capability to ensure that the device under test is connected correctly by detecting a minimum level of current during the initial application of voltage to the DUT.

FEATURE **Built in Veri-Chek™ menu**
BENEFIT Regular verification is required by some agencies to validate that the instrument is functioning correctly. The Veri-Chek feature, by prompting the user through the correct steps, allows for quick and easy validation. This is a built-in feature that eliminates the need and additional cost of having to use external boxes for verification.

FEATURE **Digitally controlled arc detection system**
BENEFIT Most Hipot testers can detect catastrophic arc conditions because they usually exceed the current trip level. Arc detection 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 **Four wire measurement and milliohm offset**
BENEFIT The four-wire measurement (Kelvin Method) technique eliminates test lead resistance when using the standard test leads. The milliohm-offset function allows the use of longer test leads and test fixtures without compromising test results in the Ground Bond mode.

FEATURE **Ramp up and down**
BENEFIT This feature allows the user to setup the instrument for gradual increase and decrease of test voltage to avoid damage to DUT's that are sensitive to rapid changes in voltage.

FEATURE **True Line Leakage test (OMNIA 6)**
BENEFIT OMNIA 6 performs all 8 Line Leakage tests as called out in IEC specifications. All measurements can be made without using an external isolation transformer. The OMNIA 6 can also be used to perform Applied Part and Enclosure Leakage tests.

SPECIFICATIONS

INPUT SPECIFICATIONS	
VOLTAGE	115 / 230 V selectable, ± 10% variation
FREQUENCY	50/60 Hz ± 5%
FUSE	115 VAC, 230 VAC - 6.3 A Slow-Blo 250 VAC

DIELECTRIC WITHSTAND TEST MODE	
OUTPUT RATING	5 KV @ 40 mA AC 5 KV @ 20 mA DC
VOLTAGE DISPLAY	Range: 0.00 - 5.00 KV Full Scale Resolution: 0.01 KV Accuracy: ± (2% of reading + 10 V)
HI & LO-LIMIT AC TOTAL AC REAL DC	 Range: 0.000 mA - 40.00 mA Range: 0.000 mA - 40.00 mA Range: 0.0 - 20,000 µA
CURRENT DISPLAY AC TOTAL AC REAL DC	 Range: 0.000 mA - 40.00 mA Range: 0.000 mA - 40.00 mA Range: 0.0 µA - 20,000 µA
RAMP HI	Range: 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 KV DC @ 20 mA, Resistive Load
DISCHARGE TIME	≤ 200 ms
MAXIMUM CAPACITIVE LOAD 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 WAVEFORM	Sine Wave, Crest Factor = 1.3 - 1.5
OUTPUT FREQUENCY	Range: 50/60 Hz, user selectable Accuracy: ± 0.1%
OUTPUT REGULATION	± (1% of output + 5 V) from no load to full load and over input voltage range.
DWELL TIMER	Range: AC 0.4 - 999.9 sec (0 = Constant) DC 0.3 - 999.9 sec (0 = Constant) 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 0.0 = OFF 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

CONTINUITY TEST MODE	
OUTPUT CURRENT	DC 0.1A ± 0.01A, fixed
RESISTANCE DISPLAY	Range: 0.00 - 10.00 Ω,
HI & LO-LIMIT	Range: 0.00 - 10.00 Ω
DWELL TIMER	Range: 0.0, 0.3 - 999.9 sec (0 = Constant)
MILLIOHM OFFSET	Range: 0.00 - 2.00 Ω

GROUND BOND TEST MODE	
OUTPUT VOLTAGE (Open Circuit Limit)	Range: 3.00 - 8.00 VAC Resolution: 0.01 V Accuracy: ± (2% of setting + 0.03 V) O.C. Condition
OUTPUT FREQUENCY	Range: 50/60 Hz, user selectable Accuracy: ± 0.1%
OUTPUT CURRENT	Range: 1.00 - 30.00 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 - 9.99 A, 0 - 600 mΩ 10.00 - 30.00A, 0 - 150 mΩ
CURRENT DISPLAY	Range: 0.00 - 30.00 A
RESISTANCE DISPLAY	Range: 0 - 600 mΩ
HI & LO LIMIT	Range: 1.00 - 9.99 A, 0 - 600 mΩ
DWELL TIMER	Range: 0.5 -999.9 sec (0 = Constant)
MILLIOHM OFFSET	Range: 0 - 200 mΩ

INSULATION RESISTANCE TEST MODE	
VOLTAGE SETTING	Range: 50 - 1000 VDC Resolution: 1 V Accuracy: ± (2% of setting + 2 counts)
CHARGING CURRENT	Maximum >20 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 0.05 MΩ - 999.9 MΩ, ± (2% of reading +2 counts) 1000 MΩ - 9999 MΩ ± (5% of reading +2 counts) 10000 MΩ - 50000 MΩ, ± (15% of reading +2 counts)
RAMP HI	Range: 20 mA peak maximum, ON/OFF selectable
CHARGE LO	Range: 0.000 - 3.500 µA or Auto Set
HI & LO-LIMIT	Range: 0.05 MΩ - 50,000 MΩ Accuracy: Same as Resistance Display Accuracy
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% + 0.05 sec)
DELAY TIMER	Range: 1.0 - 999.9 sec (0 = Constant)
GROUND FAULT INTERRUPT	GFI Trip Current: 450 µA max (AC or DC) HV Shut Down Speed: < 1 ms

SPECIFICATIONS & OPTIONS

GENERAL SPECIFICATIONS	
PLC REMOTE CONTROL	Input: Test, Reset, Interlock, Recall File 1 through 10 Output: Pass, Fail, Test-in-Process
SAFETY	Built-in SmartGFI™ circuit
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	320 x 240 Monographic LCD
ALARM VOLUME SETTING	10 ranges set by the numeric key on the front panel
CALIBRATION	Adjustments are made through the front panel **Cal-Alert™ function to signal operator when calibration is due**
MECHANICAL	Bench or rack mount with tilt up front feet
DIMENSIONS	3U (WxHxD) 16.9 x 5.2 x 15.7 in. (430 x 133 x 400 mm)
WEIGHT	51.68 lbs (23.44 kgs) varies with options

OPTIONS	
OPT-01 (INTERNAL)	8 port high voltage and high current switching matrix (OMNIA 4 only)
HS-8A (EXTERNAL)	8 port high voltage and high current switching matrix
HS-16 (EXTERNAL)	16 port high voltage and high current switching matrix with RS-232 and GPIB interface

MODEL NUMBERS	
OMNIA 4 Model 8004	4-in-1 System AC Hipot, DC Hipot, Insulation Resistance and Ground Bond/ Ground Continuity tests
OMNIA 5 Model 8005	5-in-1 System AC Hipot, DC Hipot, Insulation Resistance, Ground Bond/ Ground Continuity and Functional Run tests
OMNIA 6 Model 8006	6-in-1 System AC Hipot, DC Hipot, Insulation Resistance, Ground Bond/ Ground Continuity, Functional Run test and Line Leakage tests

OMNIA 5 & 6 FUNCTIONAL RUN TEST MODE

DELAY & DWELL TIMER SETTINGS	
DELAY TIME SETTING	Range: 0.2 - 999.9 seconds
DWELL TIME SETTING	Range: 0.0 - 999.9 seconds 0 = constant

TRIP POINT SETTINGS & METERING	
VOLTAGE VOLT-HI VOLT-LO	Range: 0.0 - 277.0 VAC Accuracy: ± (1.5% of setting + 0.2 V)
CURRENT AMP-HI AMP-LO	Range: 0.1 - 15.00 AAC Accuracy: ± (2.0% of setting + 0.02 A)
WATTS WATT-HI WATT-LO	Range: 0 - 4200 W Accuracy: ± (5.0% of setting + 3 W)
POWER FACTOR PF-HI PF-LO	Range: 0.000 - 1.000 Accuracy: ± (8% of setting + 2 Counts)
LEAKAGE CURRENT LEAK-HI LEAK-LO	Range: 0.00 - 10.00 mA (0 = OFF) Accuracy: ± (2% of setting + 0.02 mA) Leakage current measuring resistor MD=2 KΩ ± 1%
TIMER DISPLAY	Range: 0.0 - 999.9 seconds Accuracy: ± (0.1% of reading + 0.05 sec)

OMNIA 6 LINE LEAKAGE TEST MODE

DUT POWER	
VOLTAGE	0 - 277 VAC Single Phase Unbalanced (1 Hot or Line conductor and 1 Neutral)
CURRENT	15 AAC max. constant
SHORT CIRCUIT PROTECTION	23 AAC, Response Time < 3 sec

LEAKAGE CURRENT	
CURRENT DISPLAY	Range: 0.0 μA - 6,000 μA
MEASURING DEVICE	A UL544 Non Patient B UL544 Patient C IEC601-1, UL2601, EN60601-1 D UL1563 E IEC1010, UL3101, IEC950, UL1950
MD A - D components	Accuracy: Resistance ± 1% Capacitance ± 5%
MD E components	Accuracy: Resistance ± 0.1% Capacitance ± 1%
MD Voltage Limit	Maximum 30 V peak or 30 VDC
HI & LO-LIMIT	Range: 0 - 6000 μA (0 = OFF)
DELAY TIMER	Range: 0, 1.0 - 999.9 sec (0 = Constant) Accuracy: ± (0.1% + 0.1 sec)

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.

HYPOTULTRA II
3-in-1 Dielectric Analyzers with AC, DC or AC/DC Hipot, Insulation Resistance, and built-in scanner available on some models. All models available with either IEEE-488 (GPIB), RS-232 or printer interface. Available in 500 VA output versions.

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

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.

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.

QUADCHEK II
4-in-1 Electrical Safety Compliance Analyzers include AC/DC Hipot, Insulation Resistance, Ground Bond tester and optional built-in scanner 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.

RUNCHEK
The 905D functional run test system measures 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.

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.

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

Catalog # OMNIA 05/02

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