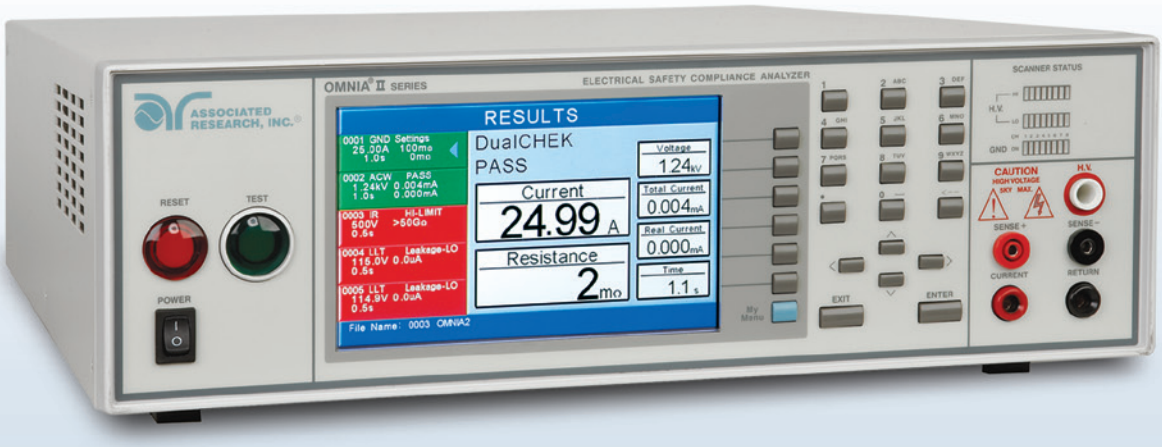
Instruments for

ELECTRICAL SAFETY COMPLIANCE TESTING



- HIPOT TESTERS
- GROUND BOND TESTERS
- INSULATION RESISTANCE
- LINE LEAKAGE TESTERS
- FUNCTIONAL RUN TESTERS
- MEDICAL TEST SYSTEMS
- HV/HC SCANNING MATRICES
- SOFTWARE SOLUTIONS

Safety Is Our Only Focus™

ASSOCIATED RESEARCH, INC.®

OMNIA® II

NEW!

The most advanced electrical safety compliance analyzers in the industry.

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

Safety agency listed.

CE EN 61010-1 EN 61010-31

Choose from the following at no charge:

USB · RS-232 · Ethernet · GPIB

	AC Hipot	DC Hipot	Insulation Resistance	40A Ground Bond	Ground Continuity	Line Leakage	Functional Run	Built-in AC Power	apt power source recommended
8204	✓	✓	✓	✓	✓				
8254	500 VA*	✓	✓	✓	✓				
8206	✓	✓	✓	✓	✓	✓	✓		✓
8256	500 VA*	✓	✓	✓	✓	✓	✓		✓
8207	✓	✓	✓	✓	✓	✓	✓	✓	✓
8257	500 VA*	✓	✓	✓	✓	✓	✓	✓	✓

*meets 200 mA short circuit requirements

PRODUCTIVITY-ENHANCING FEATURES

- **My Menu** — Customize your own shortcut menu
- **Dual CHEK®** — Simultaneous Hipot and Ground Bond
- **Active Link™** — Continuous power during test steps
- **Multiple Languages** — Includes foreign language menus
- **PLC Remote** — Basic PLC relay control
- **VERI-CHEK®** — Includes preset verification tests
- **CAL-ALERT®** — Tracks and alerts for calibration
- **RAMP HI®** — Reduce ramp time during DC Hipot
- **CHARGE LO®** — Confirms proper DUT connection
- **Arc Detection** — High frequency filter for corona detection
- **Internal Scanner** — Available with HV/HC scanning matrix
- **Modular Scanner** — Compatible with SC6540 scanning matrix
- **Autoware2** — Use with automation control software
- **Accredited Cal** — Accredited calibration options available

SAFETY FEATURES

- **Prompt & Hold** — Provides on-screen instructions between tests
- **Smart GFI®** — Automatic operator shock protection
- **Remote Safety Interlock** — Easily disable HV output

STANDARD 2-YEAR WARRANTY ON ALL NEW INSTRUMENTS

Input Specifications

Voltage	115 / 230 V auto-range, ± 15 % variation
Frequency	50/60 Hz ± 5%
Fuse	115 VAC, 230 VAC – 10 A Slow Blow 250 VAC

Dielectric Withstand Test Mode

Output Rating		5 kV @ 50 mAAC 5 kV @ 100 mAAC (Models 825x) 6 kV @ 20 mADC
Voltage Setting		Range: 0–5000 VAC 0–6000 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 400 mA - 5 mA adjustable
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 (400/800 Hz optional) 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	(WxHxD) 16.93 x 5.24 x 19.69 in. (430 X 133 X 500 mm)
Weight	8204 82 lbs (37 kg) 8254 92 lbs (42 kg) 8206/8207 83 lbs (38 kg) 8256/8257 103 lbs (47 kg)

Run Test Mode (Models 82X6 and 82X7)

DUT Power
Voltage: 0 – 277 VAC Single Phase Unbalanced
Current: 16 AAC max continuous
Range: 0.0 – 277.0 VAC Full Scale
Resolution: 0.1 V
Accuracy: ± (1.5% of reading +0.2 V), 30.0 – 277.0 VAC
Short Circuit Protection: 23 AAC, Response Time < 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.
MD8: IEC60990/60950 Fig4 U1

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 (82x7 Only)

Output:

Power: 630 VA and 500 W Maximum
Voltage: 0 - 150.0 V / 0 - 277.0 V
Current: 4.20 A maximum for 0-150 V range / 2.10 A maximum 0-277 V range

Distortion: ≤ 1% at 45-500 Hz and output voltage within the 80~140 VAC at Low Range or the 160~277 VAC at High Range. (Resistive Load)

Regulation: ≤ 0.5% + 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.
For more information on testing to a specfic standard, refer back to the Common Safety Standard Reference Chart.

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