

Dielectric Withstand and Ground Bond Testers

For Safety Agency Production Line Compliance Testing

SmartGFI[®]
inside



CE

U.S. patent#: 6,549,385, 6,515,484, 6,054,865, 5,548,501. Other patents pending.

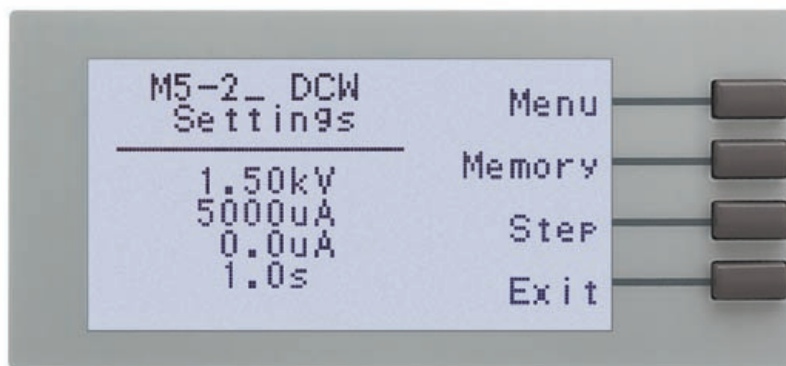


Safety agency listed.



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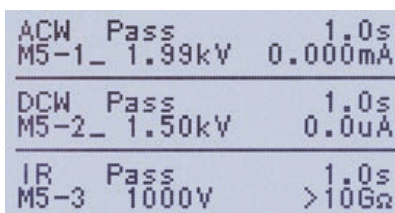
ENHANCED GRAPHIC LCD



The enhanced graphic liquid crystal display on the Hypot®III and the HYAMP®III provides the operator with complete test setup and results in an easy-to-use interface. The graphic LCD makes testing safer, easier and more reliable than ever before.
(Above display is shown at actual size.)



Clear test parameters can be displayed on a single screen



Configurable test result screen can be set up to show detailed test results



The test result screen can be set up to show a simple PASS/FAIL indication.

INTERCONNECT CAPABILITIES



A COMPLETE MID-RANGE SYSTEM TO MEET THE MOST COMMON ELECTRICAL SAFETY COMPLIANCE TESTS

With its 2U 1/2 rack mount cabinet design the Hypot®III family of products can be interconnected to the HYAMP®III, model 3130 Ground Bond tester that is also designed in a 2U 1/2 rack mount style cabinet. These two instruments can then be rack mounted side by side in a single 19" 2U rack space. The interconnect capability of these two instruments also provides a single DUT connection and automates the test sequence or sequences chosen by the operator such as AC Hipot, DC Hipot, IR test and Ground Bond test.

USER-FRIENDLY FEATURES



- **Tamper Proof Front Panel Controls To Limit User Access**
- **User Selectable Output Voltage & Frequency**
- **Complete User Configurable System Capability**
- **Built-In Security Settings**
- **Multiple Test Memories & Steps**
- **Electronic Dwell Setting**
- **No Load Setup Of Voltage Current**
- **Minimum & Maximum Trip Settings**

NEW TO HYPOT[®] III & HYAMP[®] III

FEATURE Enhanced graphic LCD

BENEFIT The enhanced graphic LCD provides the operator with an advanced user-interface. This backlit graphic display makes viewing and interpreting test results and data easier than ever before. The LCD can display text and symbols eliminating the need to decipher abbreviations.

FEATURE Built-in VERI-CHEK[®] self verification system

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 built-in feature eliminates the additional cost of having to purchase an external box for verification.

FEATURE Remote Safety Interlock

BENEFIT The Remote Safety Interlock prevents the high voltage from being activated without the interlock enabled. The interlock works as a safety feature by using a set of contacts to enable or disable the instrument's high voltage output. If the interlock contacts open during a test the high voltage output is shut down.

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.

NEW TO HYPOT[®] III

FEATURE Patented SmartGFI[®] function

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

FEATURE Max output current 20 mA AC and 7.5 mA DC

BENEFIT Hypot[®] III is a true hipot tester with enough output current to test capacitive loads in AC mode and allows the instrument to comply with the UL "120 K ohm" requirements.

FEATURE Switchable Floating and Grounded Return

BENEFIT This feature is included within the software of the instrument. The instrument automatically detects if the DUT is floating or connected to Earth Ground. If the DUT is grounded the SmartGFI circuit turns off the GFI detector. If the DUT is floating the GFI circuit is enabled.

FEATURE Digitally controlled arc detection system

BENEFIT The arc detection system 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 Built-in adjustable Continuity test mode

BENEFIT Hypot[®] III meets ground continuity test requirements called out by UL and other safety agencies.

FEATURE Electronic ramping (up & down)

BENEFIT Electronic ramping provides a gradual and timed method to increase or decrease output voltage to the DUT effectively minimizing any damage from quick high voltage changes to sensitive DUTs.

FEATURE Resistance Range of 1-9999 MΩ

BENEFIT Model 3670 AC/DC/IR includes an increased maximum resistance limit, which will allow for increased resistance measurement of the insulation of a DUT.

INPUT	
VOLTAGE	115/230 V selectable $\pm 10\%$ variation
FREQUENCY	50 - 60 Hz $\pm 5\%$
FUSE	115 VAC, 230 VAC - 3.15 A fast acting 250 VAC

DIELECTRIC WITHSTAND TEST MODE	
OUTPUT	Rating: AC 0 - 5000 V, 20 mA DC 0 - 6000 V, 7.5 mA
VOLTAGE SETTING	Rating: 0 - 5.00 KV AC 0 - 6.00 KV DC Resolution: 0.01 KV Accuracy: $\pm (2\% \text{ of setting} + 5 \text{ V})$
OUTPUT FREQUENCY	AC models: 50/60 Hz selectable AC & DC models: DC and 50/60 Hz selectable
WAVE FORM	Sine Wave, Crest Factor = 1.3 - 1.5
RIPPLE	$\leq 5\%$ at 6 KV DC/7.5 mA, Resistive Load
DWELL TIME SETTING	AC: 0 and 0.3 - 999.9 secs, (0 = Constant) DC: 0 and 0.4 - 999.9 secs, (0 = Constant) Resolution: 0.1 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 Resolution: 0.1 sec
FAILURE SETTINGS	<div>AC</div> <div>Max. Limit: 0.00 - 20.00 mA, 0.01 mA Min. Limit: 0.0 - 9.999 mA, 0.001 mA Accuracy: $\pm (2\% \text{ of setting} + 2.0 \text{ counts})$</div> <div>DC</div> <div>Max. Limit: 0.00 - 7.50 mA, 0.001 mA Min. Limit: 0.0 - 9.999 mA, 0.0001 mA Accuracy: $\pm (2\% \text{ of setting} + 2 \text{ counts})$</div>
DISCHARGE TIME	$\leq 200 \text{ ms}$ The maximum capacitive load vs. output voltage: <div>0.20 μF < 1 KV 0.050 μF < 4 KV</div> <div>0.10 μF < 2 KV 0.040 μF < 5 KV</div> <div>0.06 μF < 3 KV 0.015 μF < 6 KV</div>
VOLTAGE DISPLAY	Range: 0.00 - 5.00 KV AC 0.00 - 6.00 KV DC Resolution: 0.01 KV Accuracy: $\pm (2\% \text{ of reading} + 0.01 \text{ KV})$
CURRENT DISPLAY	<div>Auto Range</div> <div>AC</div> <div>Range 1: 0.000 mA - 3.500 mA Resolution: 0.001 mA</div> <div>Range 2: 3.00 - 20.00 mA Resolution: 0.01 mA</div> <div>DC</div> <div>Range 1: 0.0 μA - 350.0 μA Resolution: 0.1 μA</div> <div>Range 2: 0.300 mA - 3.500 mA Resolution: 0.001 mA</div> <div>Range 3: 3.00 mA - 7.50 mA Resolution: 0.01 mA</div> <div>ACCURACY</div> <div>All Ranges: $\pm (2\% \text{ of reading} + 2 \text{ counts})$</div>
TIMER DISPLAY	Range: 0.0 - 999.9 secs Resolution: 0.1 sec Accuracy: $(0.1\% \text{ of reading} + 0.05 \text{ secs})$
GROUND CONTINUITY CHECK	Current: DC 0.1 A $\pm 0.01 \text{ A}$, fixed Resistance: 0.01 Ω - 1.50 Ω
GROUND FAULT INTERRUPT	GFI Trip Current: 450 μA max (AC or DC) HV Shut Down Speed: < 1 ms

INSULATION RESISTANCE TEST MODE (Model 3670)	
VOLTAGE SETTING	Range: 30 - 1000 V DC Resolution: 1 V Accuracy: $\pm (2\% \text{ of reading} + 5 \text{ V})$
RESISTANCE DISPLAY	<div>Range: 1 - 9999 MΩ (4 Digit, Auto Ranging)</div> <div>Resolution: 500 V DC - 1000 V DC</div> <div>MΩ MΩ</div> <div>0.001 1.000 - 9.999</div> <div>0.01 10.00 - 99.99</div> <div>0.1 100.0 - 999.9</div> <div>1 1000 - 9999</div> <div>Accuracy: $\pm (2\% \text{ of reading} + 2 \text{ counts})$ at test voltage 500 - 1000 V and 1 - 999.9 MΩ</div> <div>$\pm (5\% \text{ of reading} + 2 \text{ counts})$ at test voltage 500 - 1000 V and 1000 - 9999 MΩ</div> <div>$\pm (8\% \text{ of reading} + 2 \text{ counts})$ at test voltage 30 - 500 V and 1 - 1000 MΩ</div>
IR VOLTAGE DISPLAY	Range: 0 - 1000 V Resolution: 1 V Accuracy: $\pm (2\% \text{ of reading} + 2 \text{ counts})$
MAXIMUM RESISTANCE LIMIT	Range: 0,1 - 9999 M Ω (0 = OFF)
MINIMUM RESISTANCE LIMIT	Range: 1 - 9999 M Ω
IR DELAY SETTING	Range: 0, 0.5 - 999.9 sec (0 = Constant) Resolution: 0.1 sec Accuracy: $\pm (0.1\% + 0.05 \text{ sec})$
GROUND FAULT INTERRUPT	GFI Trip Current: 450 μA max HV Shut Down Speed: < 1 ms

GENERAL SPECIFICATIONS	
REMOTE CONTROL & SIGNAL OUTPUT	The input and output signals are provided through two 9-pin D sub-miniature connectors: <ol style="list-style-type: none"> 1. Test, Reset, and Remote Interlock 2. Remote recall of memory program #1, #2 & #3 3. Outputs: Pass, Fail, Test-in-Process, & Reset.
PROGRAM MEMORY	10 Sets 3 steps per set-up with ability to link tests in any order.
SECURITY	Lockout capability to avoid unauthorized access to test set-up program.
DISPLAY	128 x 64 dot resolution with front panel contrast setting.
BUZZER	Alarm with volume control.
LINE CORD	Detachable 7 ft. (2.13 m) power cable terminated in a three prong grounding plug.
TERMINATIONS	Detachable 5ft. (1.52 m) high voltage and return leads (2) with clips and a standard U.S. style (NEMA 5 - 15) remote receptacle box for testing items terminated with a line cord. International receptacles also available. Front and Rear outputs standard.
MECHANICAL	Tilt up front feet. 2U 1/2 rack. Dimensions: 8.5 W. x 3.5 H. x 14.9 D. inches (215 W. x 89 H. x 380 D. mm) Weight: approx. 22 lbs. (10 kgs)
ENVIRONMENTAL	Operating Temperature: 32° - 104° F (0 - 40° C) Relative Humidity: 0 to 80%
CALIBRATION	Traceable to National Institute of Standards and Technology (NIST). Calibration controlled by software. Adjustments are made through front panel keypad in a restricted access calibration mode. Calibration information stored in non-volatile memory.

GROUND BOND TEST MODE	
INPUT VOLTAGE	115/230V selectable, $\pm 10\%$ variation 50/60 Hz, $\pm 5\%$
FUSE	6.3 A fast blow 250 VAC
OUTPUT	Current: AC 1 - 30 A, 0.01 A/step Regulation: $\pm (2\% \text{ of setting} + 0.02 \text{ A})$ Voltage: AC 6 V fixed
OUTPUT FREQUENCY	50/60 Hz selectable
DWELL TIME SETTING	0 and 0.5 - 999.9 secs, 0.1 sec/step 0 for continuous running Accuracy: $\pm (0.1\% \text{ of setting} + 0.05 \text{ secs})$
FAILURE SETTINGS	Max. limit: 0 - 120 m Ω for 1 - 30 A, 1 m Ω /step 0 - 510 m Ω for 1 - 10 A, 1 m Ω /step Accuracy: $\pm (2\% \text{ of setting} + 2 \text{ m}\Omega)$ Min. limit: 0 - 120 m Ω for 1 - 30 A, 1 m Ω /step 0 - 510 m Ω for 1 - 10 A, 1 m Ω /step Accuracy: $\pm (2\% \text{ of setting} + 2 \text{ m}\Omega)$
MILLIOHM OFFSET	Offset Capability: 0 - 100 m Ω , 1 m Ω /step Accuracy: $\pm (2\% \text{ of setting} + 2 \text{ m}\Omega)$
METERING	Ammeter (3 digits) Range: 0 - 30 A Resolution: 0.01 A/step Accuracy: $\pm (3\% \text{ of reading} + 0.03 \text{ A})$ Ohmmeter (3 digits) Range: 0 - 510 m Ω Resolution: 1 m Ω /step Accuracy: $\pm (2\% \text{ of reading} + 2 \text{ m}\Omega)$ Timer (4 digits) Range: 0 - 999.9 secs Resolution: 0.1 secs/step Accuracy: $\pm (0.1\% \text{ of reading} + 0.05 \text{ secs})$

GENERAL SPECIFICATIONS	
VERIFICATION SYSTEM	Built-in software driven verification menu to test fault detection circuits.
REMOTE CONTROL & SIGNAL OUTPUT	The input and output signals are provided through two 9-pin D sub-miniature connectors: 1. Test, Reset, Remote Interlock and Withstand Processing 2. Remote recall of memory program #1, #2 & #3 3. Outputs: Pass, Fail, Test in Process, Start Out, and Reset Out
PROGRAM MEMORY	10 Memories, 3 Steps per memory.
SECURITY	Key Lock capability to avoid unauthorized access to all test parameters. Memory Lock capability to avoid unauthorized access to Memory locations.
LINE CORD	Detachable 7 ft. (2.13m) power cable terminated in a three prong grounding plug.
DISPLAY	128 x 64 dot resolution with front panel contrast setting.
ALARM VOLUME SETTING	Front panel adjustable volume setting with 10 set points.
CALIBRATION	Traceable to National Institute of Standards and Technology (NIST). Calibration controlled by software. Adjustments are made through front panel keypad in a restricted access calibration mode. Calibration information stored in non-volatile memory.
MECHANICAL	Tilt up front feet. 2U 1/2 rack. Dimensions: 8.5 W. x 3.5 H. x 14.9 D. inches (215 W. x 89 H. x 380 D. mm) Weight: 19.65 lbs. (8.9 Kgs)
ENVIRONMENTAL	Operating Temperature: (0° - 40° C) Relative Humidity - 0 to 80%

Unless otherwise stated, accuracies are relative to a laboratory standard measurement. Specifications subject to change.

ACCESSORIES

ACCESSORIES:		
Rack Mount Kit	Connects the instruments & provides the necessary flanges for mounting the system into a 19" rack.	38321
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 5 KV AC probe for safe testing & application of high voltage.	38081
Retractable Return Probe	This retractable probe is used on the return side of the Hypot®III.	38082
Safe-T-Probe®	Test gun with trigger that controls retractable probe & activates instruments high voltage circuit.	38083
Adjustable Resistor Bank	Provides test loads from 120 K to 2.148 k ohms. 6 terminals with 12 settings. Helps verify regulation.	36956
Interface Kit	Includes cables & adapter box so multiple tests can be performed through a single DUT.	260-01

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

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



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.



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.



MODULAR SCANNER SC6540

NEW!

Modular Scanner for multi-point or multiple product testing. It can be configured with 8 HV, 16 HV, 8 GB, 8 HV and 8 GB or even 16 GB ports. The SC6540 can be used stand-alone or interconnected to OMNIA® or HypotULTRA®III. Available with IEEE-4888 (GPIB) and RS-232 interfaces.



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.



HYPOTULTRA III

NEW!

Multi-function electrical safety tester with an enhanced graphic LCD. Models include the 7620, AC Hipot tester and the 7650, AC/DC/IR tester. Both models include an optional 4-port or 8-port built-in switching matrix and are available with IEEE-488 (GPIB), RS-232 or printer interface.



LINECHECK

Designed to automate line leakage testing in production line or lab environments. Automatically performs the eight most common line leakage tests.



RUNCHECK

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.



HYAMP III Models 3140 and 3160

40 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.

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