

ASSOCIATED RESEARCH

7650

The Associated Research HypotULTRA® III Model 7650 is a fully-automated, 3-in-1 electrical safety analyzer designed for AC Hipot, DC Hipot, and Insulation Resistance testing. Engineered for both automated systems integration and standalone bench applications, the 7650 features an enhanced graphic LCD, an analog bar graph, and a 2K Ohm point-to-point continuity test mode that enables users to execute safety checks with a single set of connections.

SPECIFICATIONS

General

Interfaces	RS-232, PLC Remote, Signal Input, Signal Output (Standard); GPIB, USB, Ethernet (Optional)
Display	Enhanced graphic LCD with analog bar graph
Cal-Alert Calibration Warning	Yes

Physical

Power Supply	115 / 230 V AC $\pm 10\%$ (switch selectable), 50 / 60 Hz $\pm 5\%$, 400 VA max
Operating Temperature	0 to 40 °C °C
Dimensions (W×H×D)	430 x 133 x 400 mm
Weight	20.8 kg kg

AC Dielectric Withstand (AC Hipot)

Output Voltage Range	0 to 5000 V AC
Voltage Resolution	1 V
Voltage Accuracy	$\pm(1\%$ of setting + 5 V)
Output Frequency Range	50 / 60 Hz selectable
Output Waveform	Sine wave
Max Rated Current	40 mA
Current Measurement Range	0.00 to 40.00 mA
Current Resolution	0.01 mA
Current Accuracy	$\pm(1.5\%$ of reading + 0.05 mA)
Arc Detection Threshold Range	1 to 9 levels (sensitivity)

DC Dielectric Withstand (DC Hipot)

Ripple Peak-to-Peak	< 5% (at 6 kV DC / 10 mA)
Auto-Discharge Device Function	Yes, automatic safe discharge of EUT after testing

Insulation Resistance (IR)

Resistance Measurement Range	1 MΩ to 9999 MΩ
Resistance Resolution	1 MΩ
Resistance Accuracy	±(2% of reading + 2 MΩ) (1 - 999 MΩ), ±(5% of reading + 5 MΩ) (1000 - 9999 MΩ)
Max Charging Current	12 mA max

Ground Bond / Continuity (GB)

Test Current Range	100 mA DC fixed
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Test Control & Timing

Ramp-Up Time Range	0.1 to 999.9 s
Ramp-Down Time Range	0.0 to 999.9 s
Dwell Time (Test Time) Range	0.0 to 999.9 s (0 for continuous)
Delay Time Range	0.0 to 999.9 s
Timing Resolution	0.1 s
Timing Accuracy	±(0.1% + 0.05 s)

Safety & Protection Features

Ground Fault Interrupt (GFI) Trip Current	< 450 μA
Safety Interlock Type	Remote Interlock (Signal Input)
Fast Cut-Off Response Time	< 2 ms
Visual Fail/Pass Indicators	Pass/Fail LEDs on front panel, plus LCD screen icons
Audible Alarm Output	Yes, with adjustable volume
High Voltage Active Light Status	Flashing red High Voltage indicator LED

System, Memory & Programming

Internal Memory Capacity	50 steps
Step Link / Auto-Sequence Capability	Yes
Key Lock / Security Password Protection	Key lock and software lockout

Connectivity & Interfaces

Remote I/O (PLC) Interface	Standard 9-pin D-sub
External Scanner/Matrix Interface	Optional built-in 4 or 8 port scanning matrix

Power & Physical Specifications

AC Input Voltage Range	115 / 230 V AC ±10%
Line Frequency Range	50 / 60 Hz ±5%

Environmental & Compliance

Storage Temperature Range	-20 to 70 °C
Operating Humidity Range	0 to 80% RH (non-condensing)
Calibration Interval	1 Year

AC Hipot

Max AC Output Power	500 VA
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DC Hipot

Max DC Output Power	120 W
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Safety & Protection

SmartGFI	Yes
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Measurement & Control

Ramp-HI Charging Current Limit	Yes
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Charge-LO Detection	Yes
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Options

Optional Internal Scanner	8-channel high voltage scanner (Option 01)
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Compliance

Safety Certifications	CE, cTUVus
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Interfaces & Control

PLC Control Inputs	Start, Stop, Interlock
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PLC Control Outputs	Pass, Fail, Test-In-Progress
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Continuity Test Specifications

Continuity Test Current	0.1 A DC $\pm$ 0.01 A
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Continuity Resistance Range	0.00 Ω - 10.00 Ω
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Continuity Resistance Resolution	0.01 Ω
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Continuity Resistance Accuracy	$\pm$ (1% of reading + 0.02 Ω)
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Insulation Resistance Test Specifications

Insulation Resistance Voltage Range	100 V - 1000 V DC
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Insulation Resistance Voltage Resolution	1 V
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Insulation Resistance Voltage Accuracy	$\pm$ (1.5% of setting + 2 V)
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Environmental & Safety

Operating Altitude	Up to 2,000 meters
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Pollution Degree	2
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Installation Category	CAT II
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TECHNOLOGY

Dielectric Analyzer

APPLICATIONS

Automated AC/DC Hipot, Insulation Resistance, and high-voltage point-to-point continuity testing for electrical safety compliance.

