# HYPOTULTRA® III

## Fully-Automated Dielectric Withstand Analyzer

HypotULTRA®III is a multi-function dielectric analyzer with an enhanced graphic LCD. It features two testers: the 7620 AC Hipot tester and the 7650 AC/DC/IR tester. Both testers include an optional 4-port or 8-port built-in scanner. An additional external modular scanner is available for use with both testers. All testers come standard with USB and RS-232 interfaces. Ethernet, GPIB, and RS-485 interfaces are also available.

**Model 7620 - 5 KV AC Hipot Tester. Internal 4 or 8 Port Scanning Matrix available**

**Model 7650 - 5 KV AC Hipot Tester, 5 KV DC Hipot Tester & Insulation Resistance Tester. Internal 4 or 8 Port Scanning Matrix available**

### *Features and Benefits*

- Patented SmartGFI® safety circuit protects the operator from shock hazards
- Patented VERI-CHEK® feature prompts the users through steps to validate the instrument's operation
- Patented Prompt and Hold function provides a unique method for performing multiple steps during a test cycle
- Patented CAL-ALERT® alerts the operator when the HypotULTRA III is due for re-calibration
- RAMP HI® and CHARGE LO® for more effective DC Hipot testing
- Two Continuity Test modes allow for simultaneous continuity tests during Hipot testing as well as point-to-point continuity testing
- USB/RS-232, GPIB, Ethernet, or RS-485 automation interfaces available
- Data Storage card available for storing and transferring test data without a connection to a PC
- Graphic LCD and intuitive menu system to simplify the entire testing process from set-up to results
- 50 memories with 30 steps per memory that can be stored and recalled in any alphanumeric combination
- Real current measurement allows operators to monitor total and real current on a single screen
- Advanced functionality available with an optional 4 or 8 port internal scanner
- Autoware Testing Software available for complete Automation Control

U.S. Patents: 6,054,865 - 5,936,419.
Other patents pending.

Safety agency listed.

## Input Specifications

| | |
|---|---|
| Voltage | 115 / 230 VAC ± 10%, Automatically Selected |
| Frequency | 50/60 Hz ± 5% |
| Fuse | 4 Amp 250V Slo-Blo |

## Dielectric Withstand Test Mode

| | | | |
|---|---|---|---|
| Output Rating | | 5 KV @ 30 mA AC<br>5 KV @ 10 mA DC for 7650 only | |
| Output Adjustment | | Range: | 0 – 5000V AC<br>0 – 5000V DC for 7650 only |
| | | Resolution: | 1 Volt |
| | | Accuracy: | ± (2% of setting + 5 volts)<br>(Can be adjusted during operation.<br>Disabled when key lockout is active.) |
| Ramp-HI | | 12mA peak maximum, ON/OFF selectable | |
| Charge-LO | | Range: | 0.0 - 350.0 µA DC or Auto set |
| Maximum & Minimum Limits | AC Total | Range 1: | 0.000 – 9.999 mA |
| | | Resolution: | 0.001 mA |
| | | Range 2: | 10.00 – 30.00 mA |
| | | Resolution: | 0.01 mA |
| | | Accuracy: | ± (2% of setting + 2 counts) |
| | AC Real | Range 1: | 0.000 – 9.999 mA |
| | | Resolution: | 0.001 mA |
| | | Range 2: | 10.00 – 30.00 mA |
| | | Resolution: | 0.01 mA |
| | Accuracy: | | (3% of setting + 0.05 mA) All Ranges<br>PF > 0.1<br>V > 250 VAC |
| | DC | Range 1: | 0.0 – 999.9 µA for 7650 only |
| | | Resolution: | 0.1 µA |
| | | Range 2: | 1000 – 10000 µA for 7650 only |
| | | Resolution: | 1 µA |
| | | Accuracy: | ± (2% of setting + 2 counts) |
| Arc Detection | | Range: | 1 - 9 |
| Voltage Display | | Range: | 0.00 - 5.00 KV Full Scale |
| | | Resolution: | 10 Volts |
| | | Accuracy: | ± (2% of setting + 2 counts) |
| Current Display | | Auto Range | |
| | AC Total | Range 1: | 0.000 mA – 3.500 mA |
| | | Resolution: | 0.001 mA |
| | | Range 2: | 3.00 – 30.00 mA |
| | | Resolution: | 0.01 mA |
| | | Accuracy: | ± (2% of reading + 2 counts) |
| | AC Real | Range: | 0.000 mA – 30.00 mA |
| | | Resolution: | 0.001 mA or 0.01 mA |
| | | Accuracy: | ± (3% of reading + 0.05 mA) All Ranges<br>PF > 0.1<br>V > 250 VAC |

## Dielectric Withstand Test Mode (continued)

| | | | |
|---|---|---|---|
| Current Display | DC | Range 1: | 0.0 µA – 350.0 µA for 7650 only |
| | | Resolution: | 0.1 µA |
| | | Range 2: | 0.300 mA – 3.500 mA for 7650 only |
| | | Resolution: | 0.001mA |
| | | Range 3: | 3.00 mA – 9.99 mA for 7650 only |
| | | Resolution: | 0.01 mA |
| | | Accuracy: | ± (2% of reading + 2 counts) |
| DC Output Ripple | | ≤ 4% Ripple RMS at 5 KV DC @ 10 mA, Resistive Load | |
| Discharge Time | | ≤ 200 ms | |
| Maximum Capacitive Load in DC Mode | | 1uF----< 1KV<br>0.75uF----< 2KV<br>0.5uF----< 3KV | 0.08uF----< 4KV<br>0.04uF----< 5KV |
| AC Output Wave Form | | Sine Wave, Crest Factor = 1.3 - 1.5 | |
| Output Frequency | | Range: | 60 or 50 Hz, User Selection |
| | | Accuracy: | ± 0.1% |
| Output Regulation | | ± (1 % of output + 5 V)<br>From no load to full load and over input voltage range | |
| Dwell Timer | | Range: | 0.0, 0.4 - 999.9 sec (0 = Continuous) |
| Ramp Timer | | Ramp-Up: | 0.1 - 999.9 sec |
| | | Ramp-Down: | AC 0.0 - 999.9 sec |
| | | DC: | 0.0, 1.0 - 999.9 sec<br>0.0=OFF |
| 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 |

## Insulation Resistance Test Mode (Model 7650 Only)

| | | |
|---|---|---|
| Output Voltage | Range: | 50 - 1000 Volts DC |
| | Resolution: | 1 Volt |
| | Accuracy: | ± (2% of reading + 2 counts) |
| Short Circuit Current | Maximum: | 12 mA peak |
| Voltage Display | Range: | 0 – 1000 V |
| | Resolution: | 1 Volt |
| | Accuracy: | ± (2% of reading + 2 counts) |

## Insulation Resistance Test Mode Model 7650 Only (continued)

**Resistance Display**

Range: 0.05 MΩ - 50000 MΩ (5 Digit, Auto Ranging)

Resolution:

| | 500 VDC | 1000 VDC |
|---|---|---|
| MΩ | MΩ | MΩ |
| 0.001 | 0.050 - 9.999 | 0.100 - 9.999 |
| 0.01 | 1.00 - 99.99 | 1.00 - 99.99 |
| 0.1 | 10.0 - 999.9 | 10.0 - 999.9 |
| 1 | 100 - 50000 | 100 - 50000 |

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 and Minimum Limits**

Range: 0.0, 0.05 MΩ – 99.99 MΩ
Resolution: 0.01 MΩ
Range: 100.0 MΩ – 999.9 MΩ
Resolution: 0.1 MΩ
Range: 1000 MΩ – 50000 MΩ
Resolution: 1 MΩ
(Max Limit: 0 = OFF)
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

**Delay Timer**

Range: 0.0, 1.0 - 999.9 sec 0 = Continuous

**Ground Fault Interrupt**

GFI Trip Current: 450 µA max

HV Shut Down Speed: < 1 ms

## 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 1: 0.00 – 19.99 Ω
Resolution: 0.01 Ω
Accuracy: ± (1 % of reading + 0.05 Ω)
Range 2: 20.0 – 199.9 Ω
Resolution: 0.1 Ω
Accuracy: ± (1 % of reading + 0.2 Ω)
Range 3: 200 – 2000 Ω
Resolution: 1 Ω
Accuracy: ± (1 % of reading + 2 Ω)

*Total Resistance of Test Leads, Fixture and DUT.

## Continuity Test Mode (continued)

**Maximum and Minimum Limits**

Range 1: 0.00 – 99.99 Ω
Resolution: 0.01 Ω
Accuracy: ± (1% of setting+0.05 Ω)
Range 2: 100.0 – 999.9 Ω
Resolution: 0.1 Ω
Accuracy: ± (1% of setting+0.2 Ω)
Range 3: 1000 – 2000 Ω
Resolution: 1 Ω
Accuracy: ± (1% of setting+2 Ω)
(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

**Mechanical**

Bench or rack mount (2U height) with tilt up front feet

**Dimensions**

(w x h x d) 16.92 x 3.50 x 15.75 in
(430 x 89 x 400 mm)

**Weight**

31.38 Lbs (14.23 kgs) variable with options

**Interface**

Standard USB/RS-232
Optional Ethernet, GPIB, Data Storage (RS-485) or Printer Port with Date and Time Stamp

**Memory**

50 memories, 30 steps/memory

Specifications subject to change without notice.

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