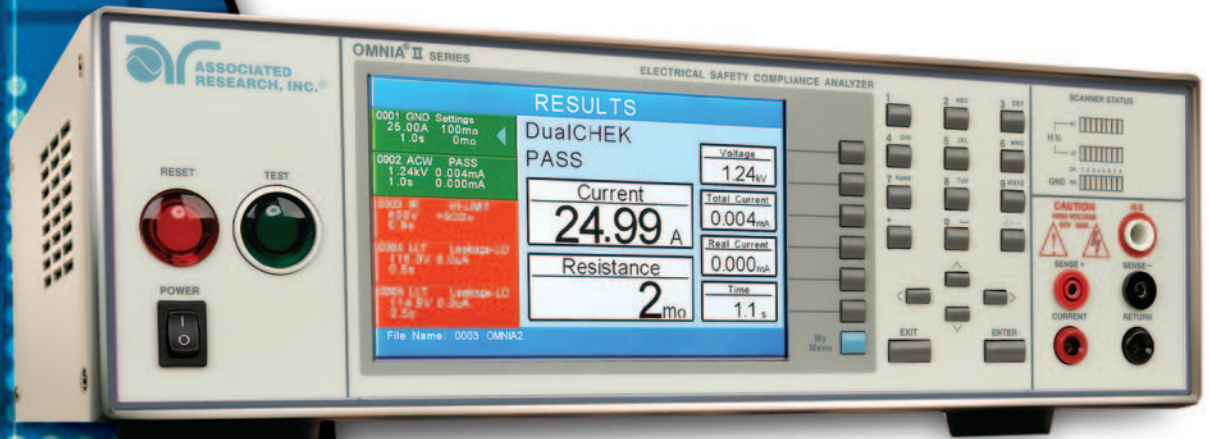


INSTRUMENTS FOR

# ELECTRICAL SAFETY COMPLIANCE TESTING



HI POT TESTERS

GROUND BOND TESTERS

INSULATION RESISTANCE TESTERS

LINE LEAKAGE TESTERS

MEDICAL TEST SYSTEMS

HV/HC SCANNING MATRICES

SOFTWARE SOLUTIONS

FUNCTIONAL RUN TESTERS

CUSTOM INSTRUMENTS





# HYPOTMAX®

## High Voltage or High Current Electrical Safety Compliance Analyzers

HypotMAX® is designed for automated applications requiring testers with either higher voltage or higher output current capability. The HypotMAX® family includes two high current testers: the 7700 3-in-1 version with 500 VA AC output and the 7704 4-in-1 version with 500 VA AC output. The high voltage testers are the 7705 10 kV AC Hipot, 7710 12 kV DC Hipot, 7715 20 kV AC Hipot and the 7720 20 kV DC Hipot. All testers come standard with USB and RS-232 interfaces. GPIB (IEEE-488) and other automation interfaces optional.

**Model 7700 - 5 kV @ 100 mAAC (500 VA), 6 kV @ 10 mADC & IR Test**

**Model 7704 - 5 kV @ 100 mAAC (500 VA), 6 kV @ 10 mADC, IR, 30 Amp GB**

**Model 7705 - 10 kV @ 20 mAAC**

**Model 7710 - 12 kV @ 10 mADC**

**Model 7715 - 20 kV @ 10 mAAC**

**Model 7720 - 20 kV @ 5 mADC**

### Features and Benefits

- Patented SmartGFI® safety circuit protects the operator from shock hazards
- 50 memories that can be stored and recalled. Multi-function testers include 8 steps per memory
- RAMP HI® and CHARGE LO® systems for more effective DC Hipot testing
- 500 VA testers available for Higher Current Hipot test applications
- Meets 200 mA short circuit requirements (Models 7700 & 7704)
- Up to 20 kV AC or DC Hipot testing for manufacturers with higher voltage testing requirements
- USB/RS-232 or GPIB automation interfaces available
- 4 wire measurement and milliohm offset for accurate Ground Bond test results (Model 7704)
- Autware Testing Software available for complete Automation Control



## Input Specifications

Voltage	7700/7704	100/115/200/230 VAC ± 10%, single phase, user selection
	7705/7710	115/230 VAC ± 10%, single phase, user selection
	7715/7720	
Frequency	50/60 Hz ± 5%	
Fuse	7700/7704	15 Amp 250 V fast blow internal
	7705/7710	6.3 Amp, 250 V Slow Blow
	7715/7720	

## Dielectric Withstand Test Mode

Output	7700/7704	5 kV @ 100 mAAC, 6 kV @ 10 mADC
Rating	7705	10 kV @ 20 mAAC
	7710	12 kV @ 10 mADC
	7715	20 kV @ 10 mAAC
	7720	20 kV @ 5 mADC
Output	7700/7704	Range: 0 - 5 kVAC, 0 - 6 kVDC
Adjustment		Resolution: 1 V/step Accuracy: ± (2% of setting + 5 V)
	7705	Range: 0 - 10 kVAC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
	7710	Range: 0 - 12 kVDC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
	7715	Range: 0 - 20 kVAC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
	7720	Range: 0 - 20 kVDC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
HI-Limit	7700/7704	AC Range: 0.00 - 99.00 mA
and LO-Limit	Hi-Limit	Resolution: 0.01 mA/step DC Range: 0 - 9999 µA Resolution: 1 µA/step Accuracy: ± (2% of setting + 2 counts)
	LO-Limit	AC Range: 0.000 - 9.999 mA Resolution: 0.001 mA/step DC Range: 0 - 999.9 µA Resolution: 1 µA/step Accuracy: ± (2% of setting + 2 counts)
	7705	Range 1: 0.0 - 9.999 mA Resolution: 0.001 mA/step Range 2: 10.00 - 20.00 mA Resolution: 0.01 mA Accuracy: ± (2% of setting + 2 counts)
	7710	Range 1: 0.000 - 999.9 µA Resolution: 0.1 µA/step Range 2: 1000 - 9999 µA Resolution: 1 µA Accuracy: ± (2% of setting + 2 counts)
	7715	Range: 0.00 - 9.999 mA Resolution: 0.001 mA/step Accuracy: ± (2% of setting + 2 counts)
	7720	Range 1: 0.0 - 999.9 µA Resolution: 0.1 µA/step Range 2: 1000 - 5000 µA Resolution: 1 µA/step Accuracy: ± (2% of setting + 2 counts)

## Dielectric Withstand Test Mode (continued)

DC Ramp HI	7700/7704	12 mA peak maximum, (ON/OFF selectable all testers)
	7710	13 mA peak maximum, 10 mADC, ON/OFF selectable
	7720	6.75 mA peak maximum, 5 mADC, ON/OFF selectable
DC Charge LO	7700/7704	Range: 0.0 - 350 µADC or auto set
	7710/7720	
Arc Detection	7700, 7704, 7710, 7720:	1-9
	7705:	1 - 9 at output voltage < 7.00 kV 1 - 8 at output voltage ≥ 7.00 kV
	7715:	1 - 9 at output voltage < 15.00 kV 1 - 7 at output voltage ≥ 15.00 kV
Voltage	7700/7704	Range: 0.00 - 6.00 kV full scale
Display		Resolution: 10 V/step Accuracy: ± (2% of reading + 2 counts)
	7705	Range: 0.00 - 10.00 kV Full scale Resolution: 10 V Accuracy: ± (2% of reading + 20 V)
	7710	Range: 0.00 - 12.00 kV Full scale Resolution: 10 V Accuracy: ± (2% of reading + 2 counts)
	7715	Range: 0.00 - 20.00 kV Full scale Resolution: 10 V Accuracy: ± (2% of reading + 20 V)
	7720	Range: 0.00 - 20.00 kV Full scale Resolution: 10 V Accuracy: ± (2% of reading + 20 V)
Current	7700/7704	Auto Range
Display	AC	Range 1: 0.000 mA - 3.500 mA Resolution: 0.001 mA/step Range 2: 3.00 - 99.00 mA Resolution: 0.01 mA/step
	DC	Range 0.0 µA - 350.0 µA Resolution: 0.1 µA/step Range 2: 300 µA - 3500 µA Resolution: 1 µA/step Range 3: 3000 µA - 9990 µA Resolution: 10 µA/step
	7705	Auto Range Range 1: 0.000 mA - 3.500 mA Resolution: 0.001 mA Range 2: 3.00 - 20.00 mA Resolution: 0.01 mA
	7710	Auto Range Range 1: 0.0 - 350.0 µA Resolution: 0.1 µA Range 2: 300 - 3500 µA Resolution: 1 µA Range 3: 3000 mA - 9999 µA Resolution: 10 µA
	7715	Auto Range Range 1: 0.000 mA - 3.500 mA Resolution: 0.001 mA Range 2: 3.00 - 10.00 mA Resolution: 0.01 mA
	7720	Auto Range Range 1: 0.0 - 350.0 µA Resolution: 0.1 µA Range 2: 300 - 5000 µA Resolution: 1 µA

## Dielectric Withstand Test Mode (continued)

DC Output	7700/7704	4% Ripple rms at 6 kVDC @ 3.5 mA, Resistive load
Ripple	7710	≤ 5% Ripple at 12 kV @ 9999 µA, Resistive Load
	7720	≤ 5% Ripple at 20 kV @ 4999 µA, Resistive Load
AC Output Waveform		Sine Wave, Crest Factor = 1.3 - 1.5
AC Output Regulation	7705/7710 7715/7720	± (1% of setting + 10 V) from no load to full load
Output Frequency		Range: 60 or 50 Hz, user selection Accuracy: ± 1%
Output Regulation	7700/7704 7705/7710 7715/7720	± (1% of output + 5 V) from no load to full load ± (1% of output + 10 V) from no load to full load ± (1% of output + 10 V) from no load to full load
Discharge Time	7700/7704 7710 7720	≤ 200 m secs No load ≤ 400 ms No load ≤ 500 ms
Dwell Timer	7700/7704	Range: 0, 0.3 - 999.9 sec (0 = Continuous) Resolution: 0.1 sec increments Accuracy: ± (0.1% + 0.05 sec)
	7705/7710/7715/7720	AC Range: 0, 0.3 - 999.9 sec or min (0 = Continuous) DC Range: 0, 0.4 - 999.9 sec or min (0 = Continuous) Resolution: 0.1 second or minute increments Accuracy: ± (0.1% + 1 count)
Ramp Timer	7700/7704  7705/7715 7710/7720 7705/7710/7715/7720	AC Range: 0.1 - 999.9 sec DC Range: 0.4 - 999.9 sec Resolution: 0.1 sec increments Accuracy: ± (0.1% + 0.05 sec) Range: 0.3 - 999.9 sec Range: 0.4 - 999.9 sec Resolution: 0.1 sec increments Accuracy: ± (0.1% + 1 count)
Ground Continuity	7700	Current: DC 0.1 A ± 0.01 A, fixed Max. Ground Resistance: 1 Ω ± 0.1 Ω, fixed
Ground Fault Interrupt	7700/7704 7705/7710/7715/7720	GFI Trip Current: 450 µA max (AC or DC) HV Shut Down Speed: < 1 ms GFI Trip Current: 1 mA max HV Shut Down response: < 1 ms

## Insulation Resistance Test Mode (Models 7700 & 7704 only)

Output Voltage	Range: 100 - 1000 VDC Resolution: 1 V/step Accuracy: ± (2% of reading + 2 V)		
Short Circuit Current	Maximum: 12 mA peak		
Voltage Display	Range: 0 - 1000 V Resolution: 1 V/step Accuracy: ± (2% of reading + 2 counts)		
Resistance Display	Range: 1 - 9999 MΩ (4 digit, auto ranging) Resolution: 500 VDC 1000 VDC MΩ MΩ MΩ		
	0.001	1.000 - 5.388	1.000 - 9.999
	0.01	1.40 - 53.88	2.80 - 99.99
	0.1	14.0 - 538.8	28.0 - 999.9
	1	140 - 9999	280 - 9999
	Accuracy: ± (2% of reading + 2 counts) at test voltage 500 - 1000 V and 1 - 1000 MΩ ± (8% of reading + 2 counts) at test voltage 500 - 1000 V and 1000 - 9999 MΩ ± (8% of reading + 2 counts) at test voltage 100 - 500 V and 0 - 1000 MΩ		

## Insulation Resistance Test Mode (Models 7700 & 7704 cont.)

Charge-LO	Range: 0.000 - 3.500 µA or auto set
HI-Limit	Range: 0 - 9999 MΩ (0 = OFF)
LO-Limit	Range: 1 - 9999 MΩ
Delay Timer	Range: 0, 0.5 - 999.9 sec (0 = Continuous) Resolution: 0.1 sec/step Accuracy: ± (0.1% + 0.05 sec)
Ground Fault Interrupt	GFI Trip Current: 450 µA max (AC or DC) HV Shut Down Speed: < 1 ms

## Ground Bond Test Mode (Model 7704 only)

Output Voltage (Open Circuit Limit)	Range: 3.00 - 8.00 VAC Resolution: 0.01 V/step Accuracy ± (2% of setting + 0.03 V) O.C. condition
Output Frequency	Range: 50 or 60 Hz, user selection Accuracy: ± 1%
Output Current	Range: 3.00 - 30.00 AAC Resolution: 0.01 A/step Accuracy: ± (2% of setting + 0.02 A)
Current Display	Range: 0.00 - 30.00 A Resolution: 0.01 A/step Accuracy: ± (2% of setting + 0.03 A)
Resistance Display	Range: 0 - 600 mΩ Resolution: 1 mΩ/step Accuracy: ± (2% of reading + 2 mΩ)
HI & LO Limit	Range: 0 - 600 mΩ for 3 - 10 A 0 - 150 mΩ for 3 - 30 A Resolution: 1 mΩ/step Accuracy: ± (2% of setting + 2 mΩ)
Dwell Timer	Range: 0, 0.5 - 999.9 sec (0 = Continuous) Resolution: 0.1 sec/step Accuracy: ± (0.1% + 0.05 sec)
Milliohm Offset	Maximum Offset Capability: 200 mΩ Resolution: 1 mΩ/step Accuracy: ± (2% of setting + 2 mΩ)

## General Specifications

Mechanical	Tilt up front feet	
Dimensions	7700/7704	(WxHxD) 17 x 5.8 x 16.5 in. (432 x 147 x 419 mm)
	7705/7710/7715/7720	(WxHxD) 16.93 x 5.24 x 15.75 in. (430x133x400mm)
Weight	7700	61.65 lbs (28 kg)
	7704	68.75 lbs (31.25 kg)
	7705	48.9 lbs (22 kg)
	7710	48.9 lbs (22 kg)
	7715	48.9 lbs (22 kg)
	7720	48.9 lbs (22 kg)
Interface	Standard USB/RS-232, Optional GPIB	
Memory	7700/7704	50 memories w/8 Steps per memory
	7705/7710	50 memories
	7715/7720	

Specifications subject to change without notice.

Accredited calibration service available. Includes ISO 17025, ANSI Z540.1-1994, CTL & Denan's Law requirements.

For more information on testing to a specific standard, refer back to the Common Safety Standard Reference Chart.

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