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 500VA AC output and the 7704 4-in-1 version with 500VA AC output. The high voltage testers are the 7705 10kV AC Hipot, 7710 12kV DC Hipot, 7715 20kV AC Hipot and the 7720 20kV DC Hipot. All testers come standard with USB and RS-232 interfaces. GPIB (IEEE-488) and other automation interfaces optional.

Model 7700 - **5kV @ 100mA AC (500VA), 6kV @ 10mA DC & IR Test**

Model 7704 - **5kV @ 100mA AC (500VA), 6kV @ 10mA DC, IR, 30Amp GB**

Model 7705 - **10kV @ 20mA AC**

Model 7710 - **12kV @ 10mA DC**

Model 7715 - **20kV @ 10mA AC**

Model 7720 - **20kV @ 5mA DC**

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
- 500VA testers available for Higher Current Hipot test applications
- Meets 200 mA short circuit requirements
- Up to 20kV 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)
- Autoware Testing Software available for complete Automation Control

U.S. Patents: 6,744,259, 6,549,385, 6,515,484
6,054,865, 6,011,398, 5,936,419.
Other patents pending.

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Input Specifications

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

Dielectric Withstand Test Mode

Output Rating	7700/7704	5 KV @ 100 mA AC, 6 KV @ 10 mA DC
	7705	10 KV @ 20 mA AC
	7710	12 KV @ 10 mA DC
	7715	20 KV @ 10 mA AC
	7720	20 KV @ 5 mA DC
Output Adjustment	7700/7704	Range: 0 - 5 KV AC, 0 - 6 KV DC Resolution: 1 V/step Accuracy: ± (2% of setting + 5 V)
	7705	Range: 0 - 10 KV AC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
	7710	Range: 0 - 12 KV DC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
	7715	Range: 0 - 20 KV AC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
	7720	Range: 0 - 20 KV DC Resolution: 10 V/step Accuracy: ± (2% of setting + 10 V)
HI-Limit and LO-Limit	7700/7704 Hi-Limit	AC Range: 0.00 - 99.00 mA 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 mA DC, ON/OFF selectable
	7720	6.75 mA peak maximum, 5 mA DC, ON/OFF selectable
DC Charge LO	7700/7704 7710/7720	Range: 0.0 - 350 µA DC or auto set
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 Display	7700/7704	Range: 0.00 - 6.00 KV full scale 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 Display	7700/7704	Auto Range
	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

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Dielectric Withstand Test Mode (continued)

DC Output	7700/7704	4% Ripple RMS at 6 kV DC @ 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	± (1% of output + 5 V) from no load to full load
	7705/7710	± (1% of output + 10 V) from no load to full load
	7715/7720	± (1% of output + 10 V) from no load to full load
Discharge Time	7700/7704	≤ 200 m secs
	7710	No load ≤ 400 ms.
	7720	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	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)
	7705/7715	Range: 0.3 - 999.9 sec
	7710/7720	Range: 0.4 - 999.9 sec
	7705/7710/7715/7720	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	GFI Trip Current: 450 µA max (AC or DC) HV Shut Down Speed: < 1ms
	7705/7710/7715/7720	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 V DC 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 V DC	1000 V DC
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 V AC 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 A AC 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 stetting + 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. (430 x 133 x 400 mm)
Weight	7700	61.65 lbs (28 kgs)
	7704	68.75 lbs (31.25 kgs)
	7705	48.9 lbs (22 kgs)
	7710	48.9 lbs (22 kgs)
	7715	48.9 lbs (22 kgs)
	7720	48.9 lbs (22 kgs)
Interface		Standard USB/RS-232, Optional GPIB
Memory	7700/7704	50 memories w/8 Steps per memory
	7705/7710 7715/7720	50 memories

Specifications subject to change without notice.

We have local sales offices throughout the world to serve you more efficiently.

To find your nearest representative visit the "Local Sales Offices" section of our web site at www.asresearch.com or call us toll-free at 1-800-858-8378

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