

U.S. Patents: 6,549,385, 6,054,865, 5,936,419, 5,828,222 & 5,548,501. Other patents pending.

# HYPOTMAX®

## High Voltage and High Current Electrical Safety Compliance Analyzers

### Model 7700

AC/DC Hipot, Insulation Resistance with 500VA AC Output

### Model 7704

AC/DC Hipot, Insulation Resistance, Ground Bond/Continuity with 500VA AC Output

### Model 7705

10KV AC Hipot

### Model 7710

12KV DC Hipot

### Model 7715

20KV AC Hipot

### Model 7720

20KV DC Hipot

## Features and Benefits

- Patented SmartGFI® safety circuit protects the operator from shock hazards
- 50 memories that can be stored and recalled. Multi-function models include 8 steps per memory
- Patented RAMP HI and CHARGE LO systems for more effective DC Hipot testing
- 500VA models available for Higher Current Hipot test applications
- Up to 20kV AC or DC Hipot testing for manufacturers with higher voltage testing requirements
- RS-232 or GPIB automation interfaces available. Use your own software or our stand alone test software
- 4 wire measurement and milliohm offset for accurate Ground Bond test results (Model 7704)



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### Input Specifications

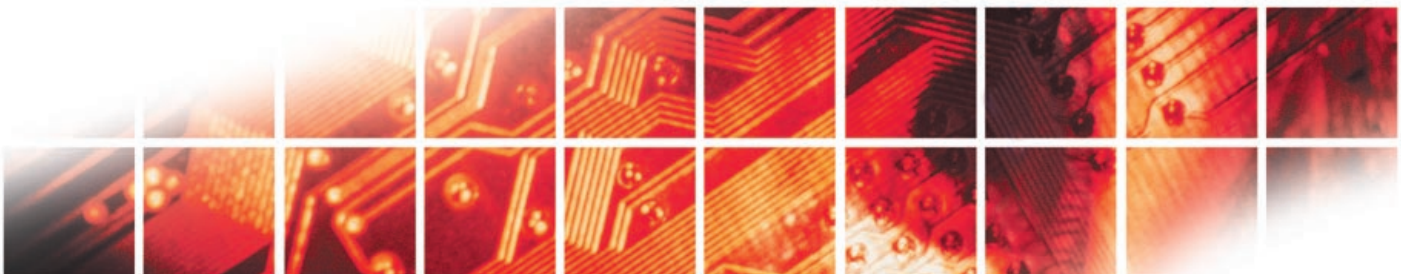
<b>Voltage</b>	7700/7704	100/115/200/230 VAC ± 10%, single phase, user selection
	7705/7710/7715/7720	115/230 VAC ± 10%, single phase, user selection
<b>Frequency</b>	7700/7704	47 - 63 Hz
	7705/7710/7715/7720	50/60 Hz ± 5%
<b>Fuse</b>	7700/7704	15 Amp 250 V fast blow internal
	7705/7710/7715/7720	6.3 Amp, 250 V slow blow

### Dielectric Withstand Test Mode

<b>Output Rating</b>	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
<b>Output Adjustment</b>	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)
<b>HI-Limit and LO-Limit</b>	7700/7704	AC Range: 0.00 - 99.00 mA Resolution: 0.01 mA/step DC Range: 0 - 9999 µA Resolution: 1 µA/step Accuracy: AC or DC ± (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/step 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/step 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: 1 µA/step Range 2: 1000 - 5000 µA Resolution: 1 µA/step Accuracy: ± (2% of setting + 2 counts)
<b>DC Ramp HI</b>	7700/7704	12 mA peak maximum, (ON/OFF selectable all models)
<b>DC Charge LO</b>	7700/7704	Range: 0.0 - 350 µA DC or auto set
<b>Arc Detection</b>		Range: 1 - 9
<b>Failure Detector</b>		Audible and visual

### Dielectric Withstand Test Mode (Continued)

<b>Voltage Display</b>	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 + 20 V)
	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)
<b>Current Display</b>	7700/7704	Auto Range Range 1: 0.000 mA - 3.500 mA Resolution: 0.001 mA/step Accuracy: ± (2% of reading + 0.003 mA) Range 2: 3.00 - 99.00 mA Resolution: 0.01 mA/step Accuracy: ± (2% of reading + 0.06 mA)
	AC	DC Range 1 µA - 350.0 µA Resolution: 0.1 µA/step Accuracy: ± (2% of reading + 0.3 µA) Range 2: 300 µA - 3500 µA Resolution: 1 µA/step Accuracy: ± (2% of reading + 2 µA) Range 3: 3000 µA - 9990 µA Resolution: 10 µA/step Accuracy: ± (2% of reading + 60 µA)
	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 Accuracy: ± (2% of reading + 3 counts)
	7710	Auto Range Range 1: 0.0 - 350.0 µA Resolution: .1 µA Range 2: 300 - 3500 µA Resolution: 1 µA Range 3: 3000 - 9999 µA Resolution: 10 µA Accuracy: ± (2% of reading + 3 counts)
	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 Accuracy: ± (2% of reading + 3 counts)
7720	Auto Range Range 1: 0.0 - 350.0 µA Resolution: 0.1 µA Range 2: 300 - 5000 µA Resolution: 1 µA Accuracy: ± (2% of reading + 3 counts)	
<b>DC Output Ripple</b>	7700/7704	≤ 4% Ripple RMS at 6 KV DC @ 3.5 mA, Resistive load
	7710	< 5% (12 KV/9999 µA at Resistive Load)
	7720	< 5% (20 KV/4999 µA at Resistive Load)
<b>AC Output Waveform</b>		Sine Wave, Crest Factor = 1.3 - 1.5
<b>AC Output Regulation</b>	7705/7710/7715/7720	± (1% of setting + 10 V) from no load to full load



**a Dielectric Withstand Test Mode (Continued)**

<b>Output Frequency</b>	Range: 50 or 60 Hz, user selection Accuracy: ± 1%
<b>Output Regulation</b> 7700/7704	± (1% of output + 5 V) from no load to full load
<b>Discharge Time</b> 7700 7710 7720	≤ 200 m secs ≤ 400 m secs ≤ 500 m secs
<b>Dwell Timer</b> 7700/7704	Range: 0, 0.3 - 999.9 sec (0 = Constant) 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 = Constant) DC Range: 0, 0.4 - 999.9 sec or min (0 = Constant) Resolution: 0.1 second or minute increments Accuracy: ± (0.1% + 1 count)
<b>Ramp Timer</b> 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)
7705/7710/7715/7720	Range: 0.1 - 999.9 sec Resolution: 0.1 sec increments Accuracy: ± (0.1% + 1 count)
<b>Ground Continuity</b> 7700	Current: DC 0.1 A ± 0.01 A, fixed Max. Ground Resistance: 1 Ω ± 0.1 Ω, fixed
<b>Ground Fault Interrupt</b> 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 Speed: < 1ms

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

<b>Output Voltage</b>	Range: 100 - 1000 V DC Resolution: 1 V/step Accuracy: ± (2% of reading + 2 V)															
<b>Short Circuit Current</b>	Maximum: 12 mA peak															
<b>Voltage Display</b>	Range: 0 - 1000 V Resolution: 1 V/step Accuracy: ± (2% of reading + 2 counts)															
<b>Resistance Display</b>	Range: 1 - 9999 MΩ (4 digit, auto ranging) Resolution: 500 V DC 1000 V DC <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>MΩ</th> <th>MΩ</th> <th>MΩ</th> </tr> </thead> <tbody> <tr> <td>0.001</td> <td>1.000 - 5.388</td> <td>1.000 - 9.999</td> </tr> <tr> <td>0.01</td> <td>1.40 - 53.88</td> <td>2.80 - 99.99</td> </tr> <tr> <td>0.1</td> <td>14.0 - 538.8</td> <td>28.0 - 999.9</td> </tr> <tr> <td>1</td> <td>140 - 9999</td> <td>280 - 9999</td> </tr> </tbody> </table> 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	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
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														
<b>Charge-LO</b>	Range: 0.000 - 3.500 µA or auto set															
<b>HI-Limit</b>	Range: 0 - 9999 MΩ (0 = OFF)															
<b>LO-Limit</b>	Range: 1 - 9999 MΩ															
<b>Delay Timer</b>	Range: 0, 0.5 - 999.9 sec (0 = Constant) Resolution: 0.1 sec/step Accuracy: ± (0.1% + 0.05 sec)															
<b>Ground Fault Interrupt</b>	GFI Trip Current: 450 µA max (AC or DC) HV Shut Down Speed: < 1 ms															

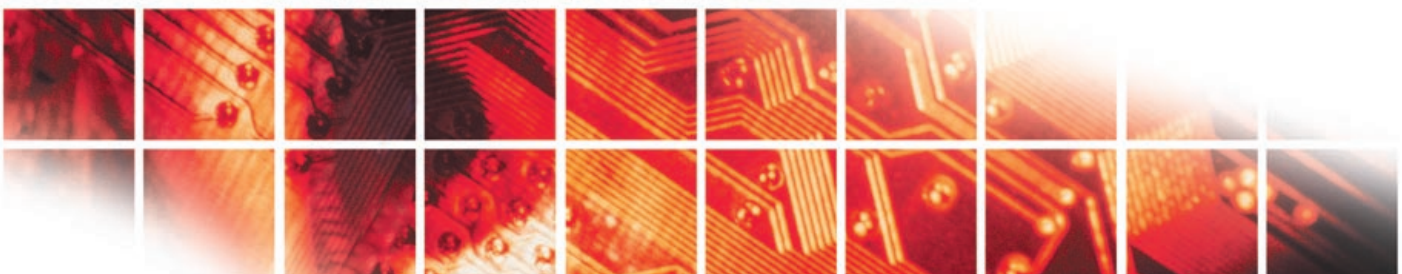
**Ground Bond Test Mode (Model 7704 only)**

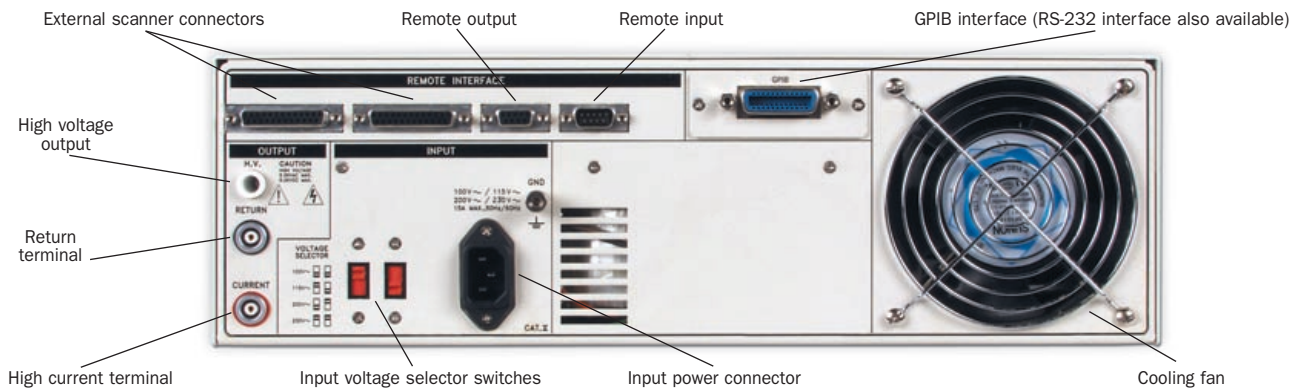
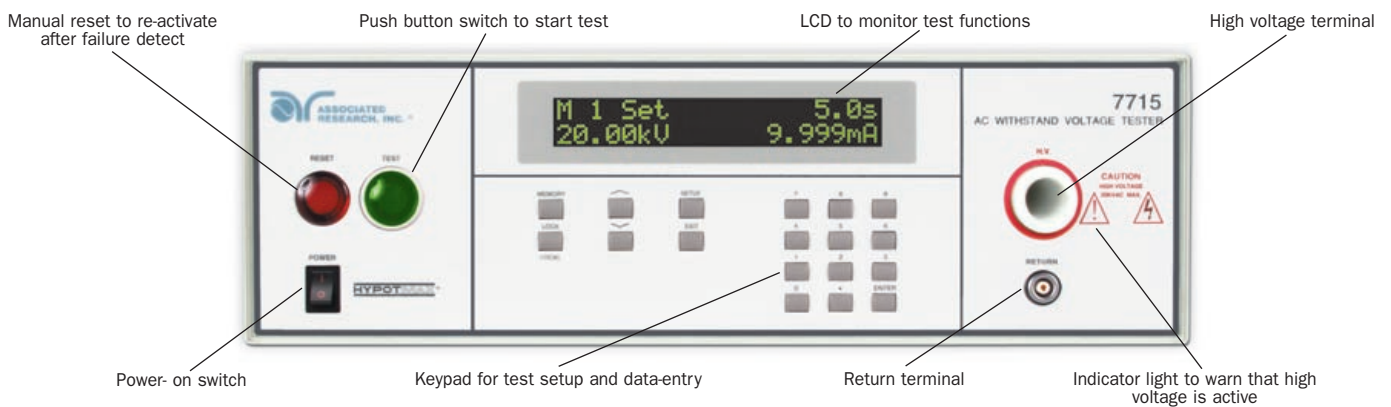
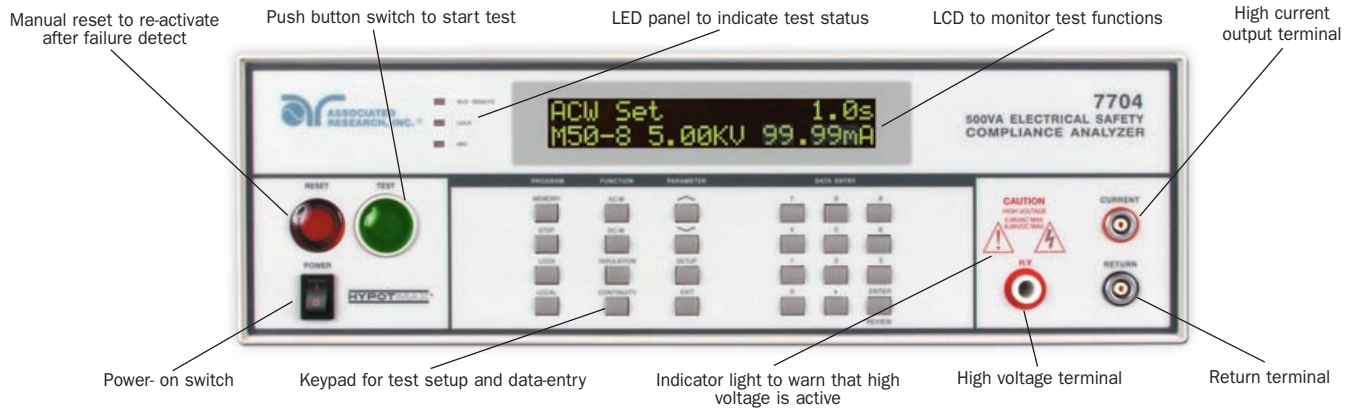
<b>Output Voltage</b> (Open Circuit Limit)	Range: 3.00 - 8.00 V AC Resolution: 0.01 V/step Accuracy: ± (2% of setting + 0.03 V) O.C. condition
<b>Output Frequency</b>	Range: 50 or 60 Hz, user selection Accuracy: ± 1%
<b>Output Current</b>	Range: 3.00 - 30.00 A AC Resolution: 0.01 A/step Accuracy: ± (2%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

**General Specifications**

<b>PLC Remote Control</b>	Input: Test, Reset, Recall 1 - 3, Remote Interlock (Remote Interlock optional on 7700/7704) Output: Pass, Fail, Test-in-Process
<b>Interface</b>	Standard RS-232, Optional GPIB
<b>Memory</b> 7700/7704 7705/7710/7715/7720	50 memories w/8 Steps per memory 50 Memories
<b>Security</b>	Programmable password lockout capability to avoid unauthorized access to test set-up program
<b>Safety</b>	Built-in SmartGFI® circuit
<b>Display</b>	2 x 20 characters with front panel contrast setting
<b>Alarm Volume Setting</b>	Front panel adjustable with 10 set points
<b>Line Cord</b>	Detachable 7 ft. (2.13 m) power cable terminated in a three prong grounding plug
<b>Terminations</b>	Detachable 5 ft. (1.52 m) high voltage & return lead with clips
<b>Mechanical</b>	Tilt up front feet
<b>Dimensions</b> 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)
<b>Weight</b> 7700	61.65 lbs (28 kgs)
7704	68.75 lbs (31.25 kgs)
7705/7710/7715/7720	48.7 lbs (22.1 kgs)
<b>Environmental</b>	Operating temperature: 32° - 104° F (0° - 40° C) Relative humidity: 20% - 80%
<b>Calibration</b>	Traceable to National Institute of Standards & 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.

Specifications subject to change without notice.





**Rear panel of 7704 shown.**  
(Some features may not be available on all models.)



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