

GPT-Series vs. Earth Continuity Test of IEC61010(6.5.2.4)/NEN3140

Earth continuity test can check that earth connection at power point of appliances, if it is intact and prevent people from electrical accidents or death. *IEC61010(6.5.2.4)* is applicable to most mains connected devices used in a business environment such as coffee makers, vacuum cleaners, computers, etc.

According to *IEC61010(6.5.2.4) Impedance of protective bonding of plug-connected equipment or NEN3140*. The impedance between the protective conductor terminal and each accessible part for which protective bonding is specified shall not exceed 0,1 Ω. If the equipment has a non-detachable power cord, the impedance between the protective conductor plug pin of the mains cord and each accessible part for which protective bonding is specified shall not exceed 0,2 Ω.

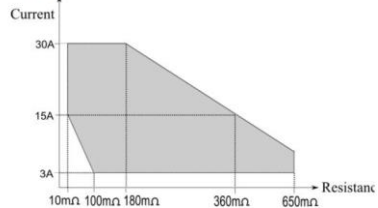
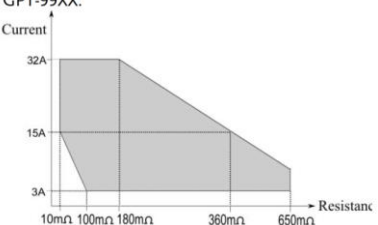
Conformity is checked by applying a test current for 1 min and then calculating impedance. The test current is the greater of

- a) 25 A a.c. r.m.s. at rated mains frequency or d.c.,
- b) a current equal to twice the rated current of the equipment.

If the equipment contains overcurrent protection devices for all poles of the MAINS supply, and if the wiring on the supply side of the overcurrent protection devices cannot become connected to accessible conductive parts in the case of a single fault, the test current need not be more than twice the rated current of the internal overcurrent protection devices.

Ground Bond Test of GPT-15004/12004/9904/9804 conforms with the test requirement of *IEC61010(6.5.2.4)*. Take features of GPT-9904/9804 as example as follows:

Ground Bond Test

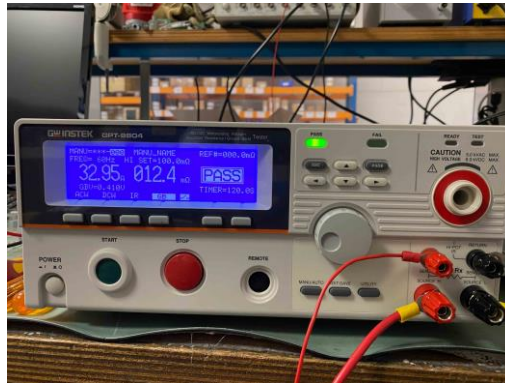
Output Current Range	3.00A ~ 30.00A (GPT-98XX) 3.00A ~ 32.00A (GPT-99XX)
Output Current Accuracy	±(1% of setting+0.2A) when 3A≤I ≤8A ±(1% of setting+0.05A) 8A < I ≤ 30A (GPT-98XX) ±(1% of setting+0.05A) 8A < I ≤ 32A (GPT-99XX)
Output Current Resolution	0.01A
Test Voltage	Approximately max. 6VAC (open-circuit)
Frequency	50Hz/60Hz selectable
Ohmmeter Measurement Range	10mΩ ~ 650.0mΩ (depending on output current) GPT-98XX:  GPT-99XX: 
Ohmmeter Measurement Resolution	0.1mΩ

Ohmmeter Measurement Accuracy	$\pm(1\% \text{ of reading} + 2\text{m}\Omega)$
Ohmmeter Judgment Accuracy	$\pm(1\% \text{ of setting} + 2\text{m}\Omega)$
Window Comparator Method	Yes
TIMER (Test Time)	0.5s~999.9s
TIMER Accuracy	+/- (100ppm+20ms)

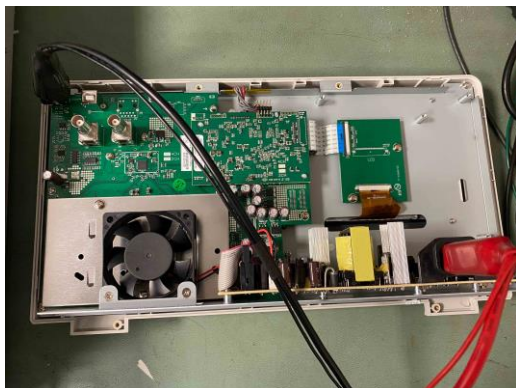
Examples of measurements:



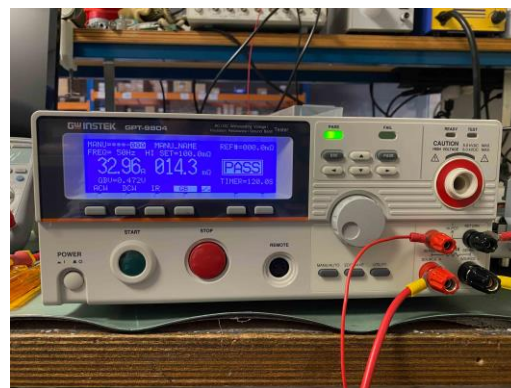
Measurements between power plug-in GND and enclosure.



GPT-9804: **12.4 mΩ**



Measurements between power plug-in GND and enclosure.



GPT-9804: **14.3 mΩ**

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