

Appliance Testing with the Guardian 6200 Production Safety Analyzer

The Guardian 6200 Production Safety Analyzer is designed specifically for production testing on single-phase electrical products. The Guardian 6200 instrument can perform electrical safety compliance tests in accordance with UL, CSA, IEC, TÜV, VDE, and BEAB standards to name a few. Without ever changing the connection to the device under test, the 6200 instrument can perform all 5 of the essential electrical safety tests: AC/DC Hipot, Insulation Resistance, Ground Bond, Current Draw and Power Consumption.

An international appliance manufacturer called QuadTech looking for an AC hipot tester that could perform the electrical safety tests per BEAB Document 40. The BEAB (British Electrotechnical Approvals Board) Doc. 40 Standard recommends a ground bond test followed by an AC hipot test. The ground bond test which measures the resistance in the ground path of the appliance is performed at 25 Amps AC and less than 12Volts. The maximum allowable resistance is 100milliohms. A dielectric withstand test is then performed to check that there is no breakdown between the hot and neutral of the power cord and ground. This test is performed with a hipot test at 1250Volts AC for at least 1 second.

The UL982 House hold Appliance standard is similar to the BEAB test except that a ground continuity test is performed, to check connection between ground blade and any exposed metal on the appliance, in place of the ground bond test. The difference between ground bond and ground continuity is that ground continuity tests are normally performed at low current levels. A ground bond test can be substituted for the ground continuity test and performed at 25Amps (or 30A) AC. The ground bond test will check the integrity (or strength) of that ground connection. The hipot test is performed at 1000Volts plus 2 times the line voltage (AC) and no breakdown shall occur.



Figure 1: Guardian 6200 Production Safety Analyzer for Appliance Manufacturers

Test Setups

Figure 2 illustrates the basic 2-wire and 3-wire dielectric withstand (hipot) and ground bond/continuity test setups. Figure 3 illustrates the specific test setup of the Guardian 6200 and G13 Corded Product Adaptor for a ground bond and an AC hipot on an appliance.

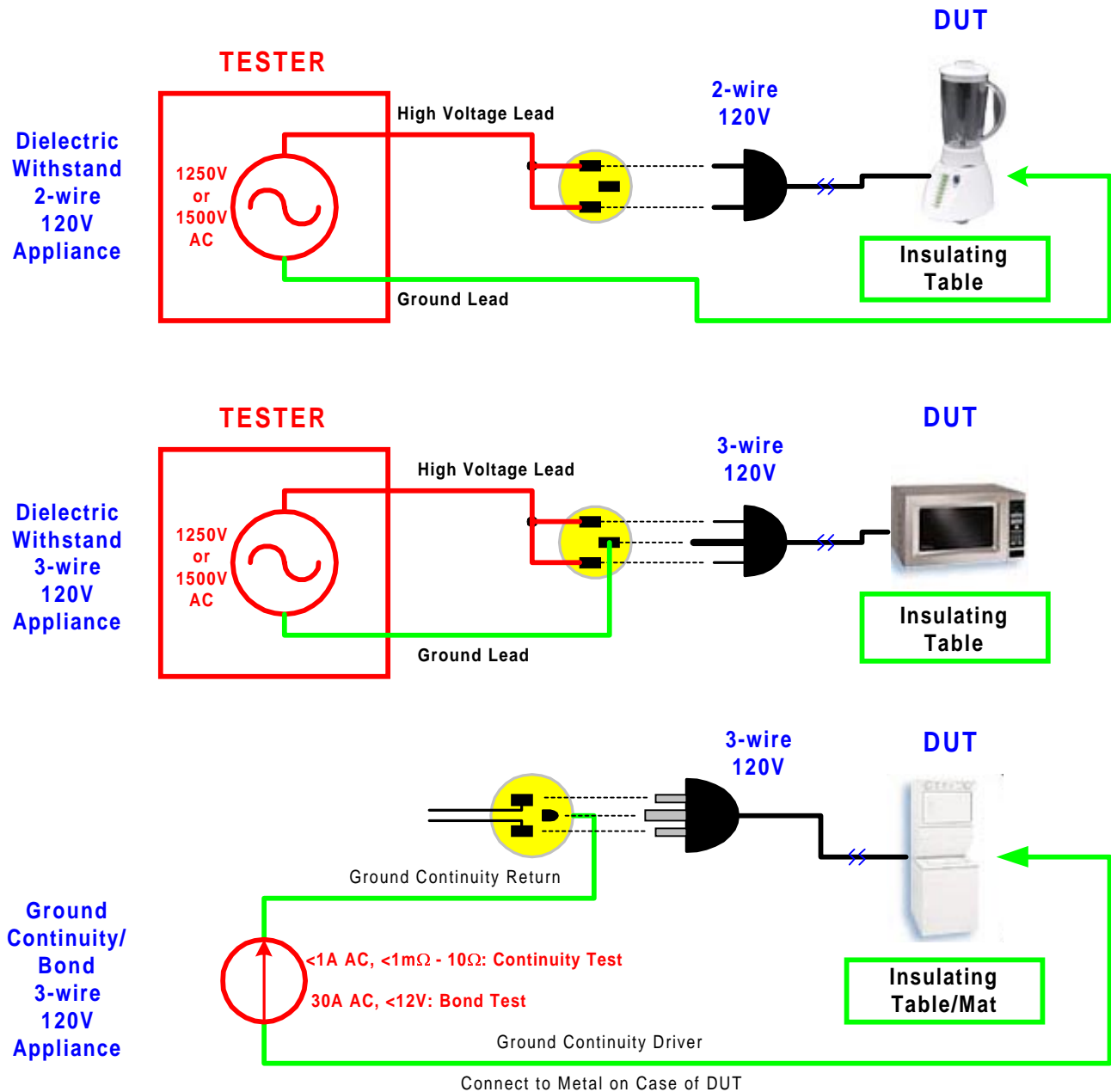


Figure 2: Dielectric Withstand (Hipot) & Ground Continuity Test Setups

Guardian 6200 & G13 Corded Product Adaptor Solution

To run a ground bond test and an AC hipot test on a single appliance use the setup illustrated in Figure 3. Simply connect the Guardian 6200 Production Safety Analyzer to the G30 Corded Product Adapter. Connect the G15 GC cable between the G6200 (+) Outputs and exposed metal on the case on the appliance. Plug the appliance under test into the G13 Adaptor and press [TEST}. The Guardian 6200 is configured to perform a 25A ground bond test followed by a 1250V AC hipot test. In addition the testing can be automated by using the remote interface on the Guardian 6200 or data can be transferred to a PC via the IEEE 488 interface for documentation or SPC.

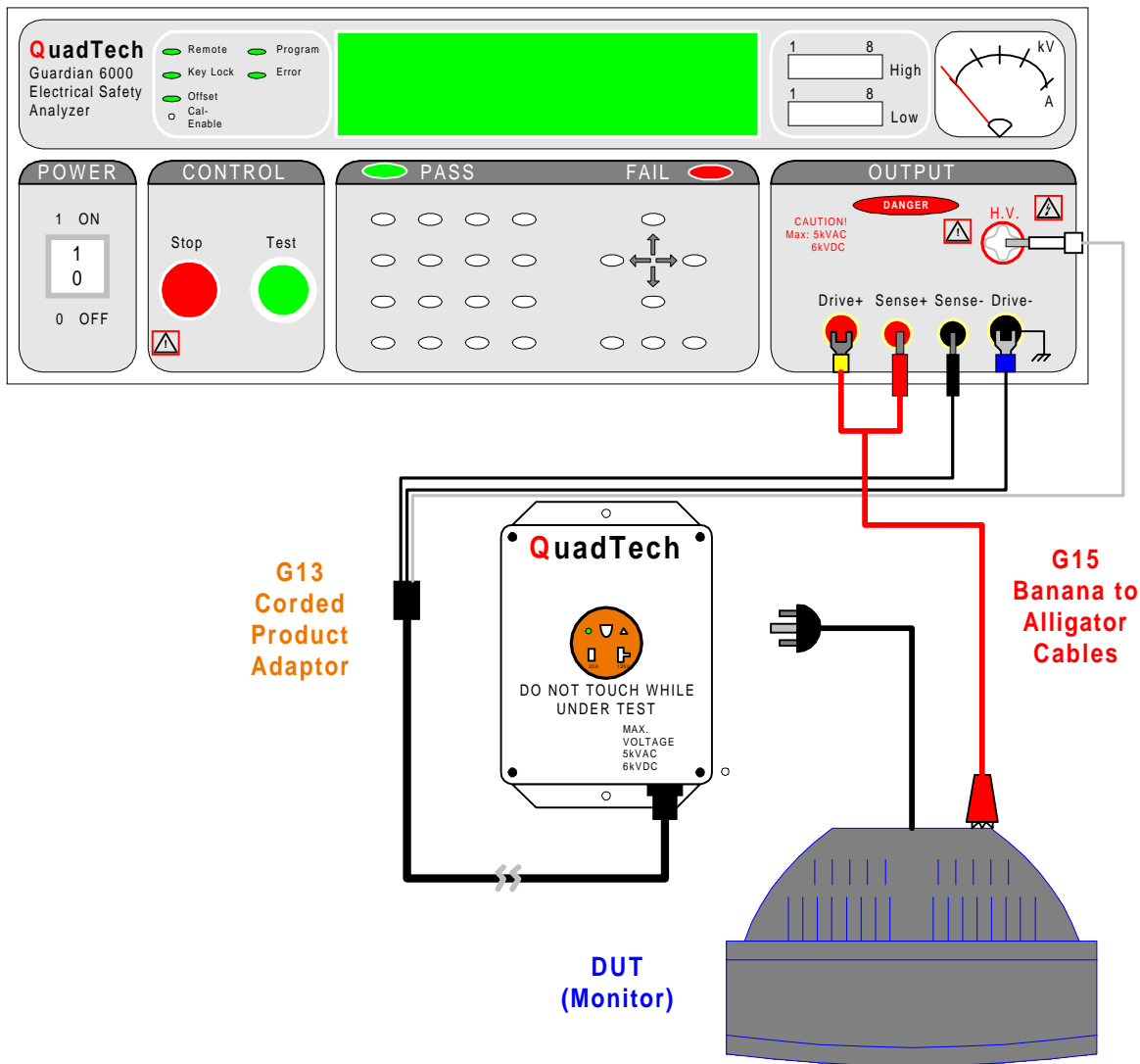


Figure 3: Guardian 6200 connection to Appliance under Test

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