

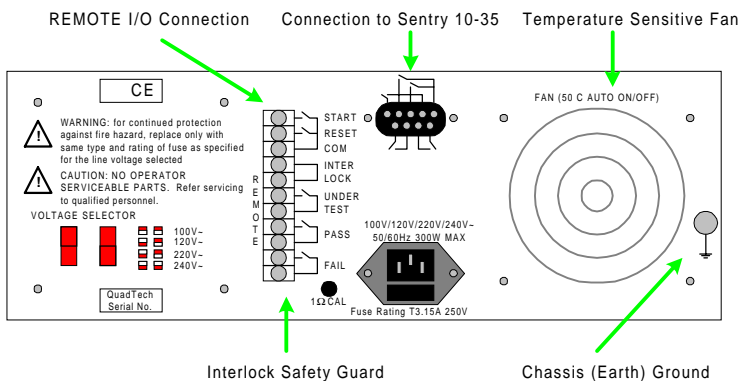
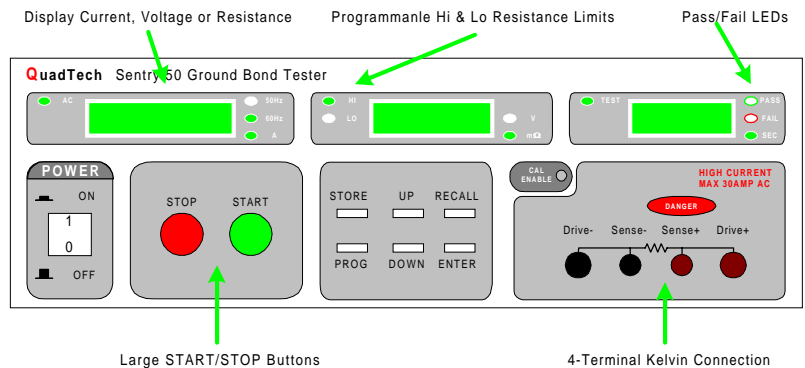
## Sentry 50 Ground Bond Tester

The Sentry 50 Ground Bond Tester provides high current testing of ground continuity between chassis and power cord ground on a wide variety of electrical products and appliances.

### Sentry 50 Ground Bond Tester Key Features

- ❑ Output Current: 1 to 30A AC
- ❑ Resistance Range: 0.1mΩ to 510mΩ
- ❑ Programmable High and Low Resistance Limits
- ❑ 4-Terminal Kelvin Connection
- ❑ Offset of Fixture Resistance
- ❑ Beeper ON/OFF
- ❑ Connection to Sentry Plus Hipot Testers
- ❑ Temperature Sensitive Fan (50°C Auto On/Off) for Increased Reliability
- ❑ I/O Interface via Terminal Strip and 9 Pin Connector
- ❑ Ground Terminal is Earth Ground for Safety
- ❑ Internal Storage for 10 Test Setups
- ❑ Front Panel Lock-out
- ❑ Rack Mount, Gun Probe, Load Box, International Power Strip (optional)
- ❑ Software Calibration (no internal adjustment)

**Figure 1: S50 Front Panel Features**



**Figure 2: Sentry 50 Rear Panel Features**

## Sentry 50 Key Features

### High Output Current:

User Programmable output current, 1A to 30A AC in 0.01A steps, provides extensive coverage for testing to UL, CSA, VDE, IEC and other agency requirements.

### Remote Control:

Provides Remote START, STOP and INTERLOCK inputs that are active low. The outputs indicating PASS, FAIL and UNDER TEST are via dry switch contacts that are closed if true.

### Four Terminal Kelvin Connection:

Provides more accurate measurement of resistance by eliminating test lead resistance.

### Automatic Offset:

Leakage current due to leads and test fixture can automatically be subtracted from later measurements. This is important in a production environment where operators cannot be relied upon to subtract out the leakage current or increasing the leakage current trip levels to adjust for the offset can cause problems with internal and external audits.

### Interlock:

For safety it is always recommended that an interlock device be used where possible to minimize contact with high voltage. This is achieved by connecting the interlock to a dry contact switch on the guard or cover of the test fixture so that only when the guard or cover is in place is the switch closed and high voltage supplied to the fixture. If at anytime during the test the switch is opened, the interlock on the Sentry 50 will quickly shut down the output current.

### Storage of 10 test setups:

Setups can quickly be stored and recalled for testing multiple devices on a production line or for common tests in the laboratory. All settings are stored with each setup. Each setup can have 2 steps.

### Front panel lockout:

Authorized personnel can access all parameters while end users can only perform tests and recall test setups.

### Connection for Other Hipots:

The Sentry 50 can be used alone or connected to a Sentry Plus Hipot Tester for complete product testing with the push of one button. When the Sentry 50 has completed a continuity test, with a pass indication, it can remotely start the Sentry Plus for a hipot test in sequence.

### Accessories:

Comes standard with alligator clips. US corded product adapter, international corded product power strip, foot switch, power entry cable and longer test leads are available as options.

## Sentry 50 Key Features (Continued)

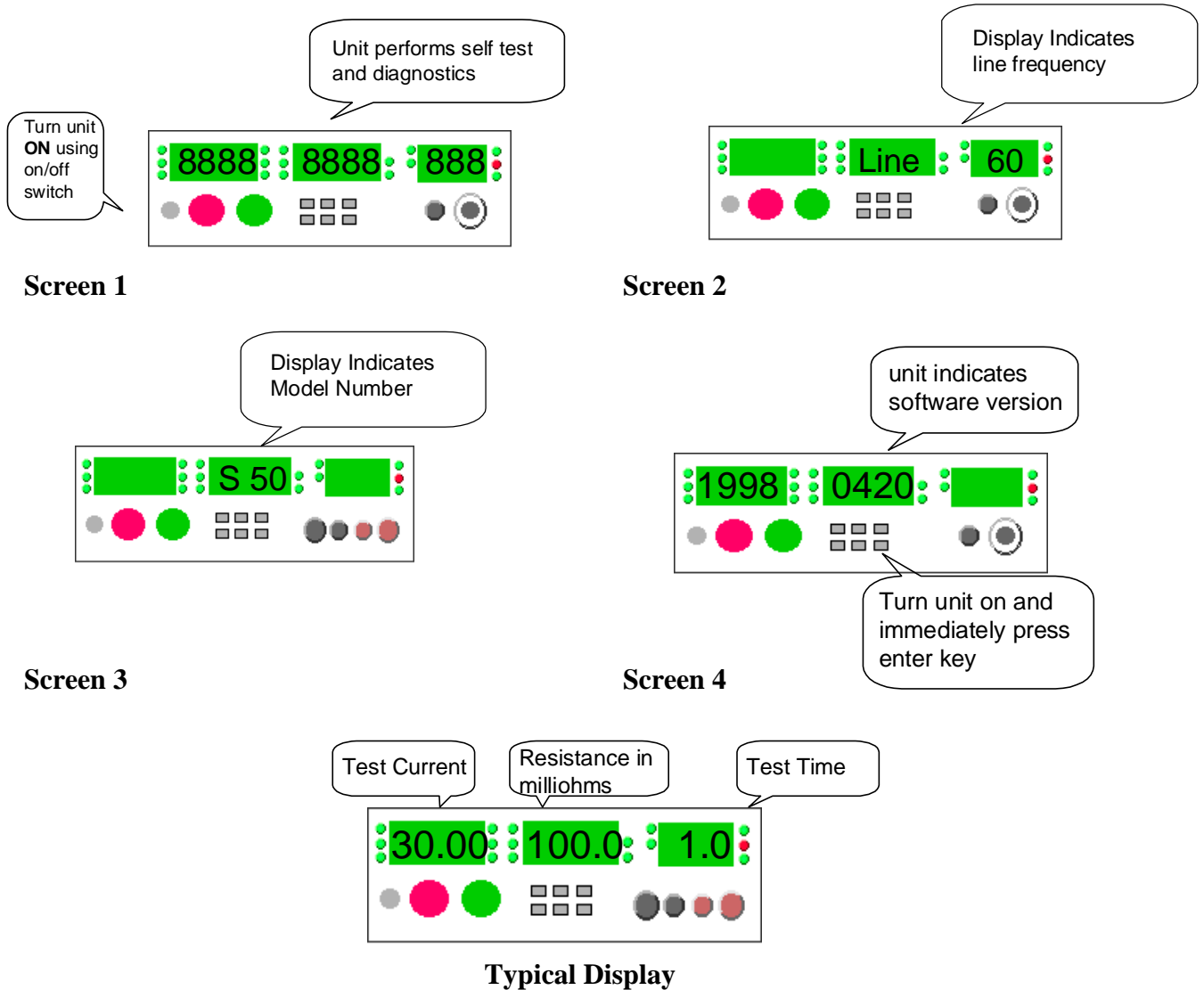
### Calibration:

All Sentry products are delivered with a calibration certificate traceable to NIST.

### 45 Day Money Back Guarantee (in the U.S.):

No strings attached money back guarantee with NO RESTOCKING FEE.

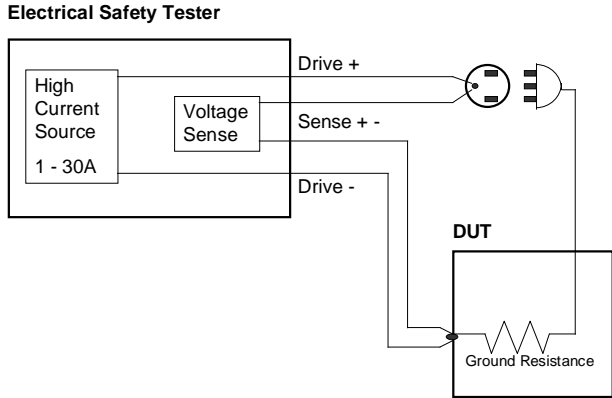
## Initial Start Up of a Sentry 50



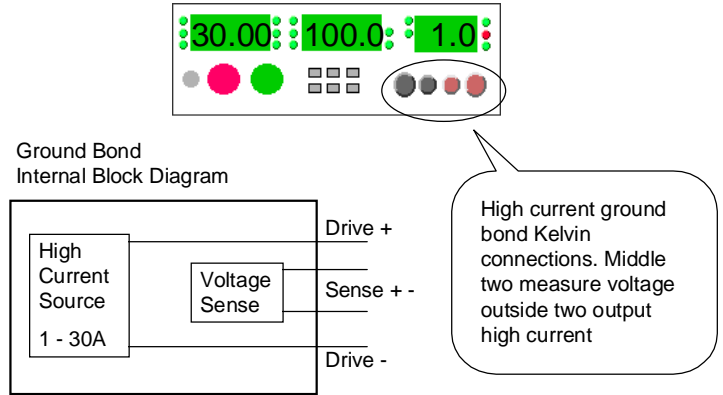
## Performing a Basic Ground Bond Test

The use of a high current AC test provides a better simulation of how the ground on the device would perform under actual conditions if the motor or wiring were to short to ground. This verifies that the grounds in the device can handle 25 or 30 amps until a circuit breaker trips or a fuse blows. Most European standards such as TÜV, IEC, VDE, BABT and CSA recommend this type of testing. In contrast, the ground continuity test that is part of most hipot testers just checks to make sure there is a connection.

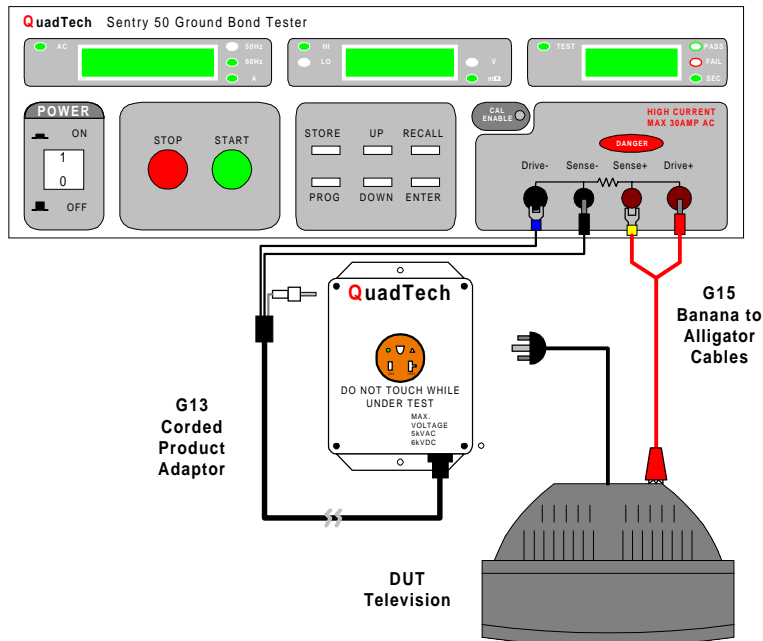
### Typical Hipot Connection



### Ground Bond Connection



In this example we will setup the Sentry 50 to perform a Ground Bond test at 30A AC. This test current will be held for 1 second. If the measured resistance exceeds 100mΩ at any time during the test the Sentry will indicate a **failure**. Note that the test current and measured resistance is held in the display until you press the [STOP] button.



**Figure 3: Connection of DUT to Sentry 50**

## Programming a Ground Bond Test

Insure that ground continuity feature is OFF by pressing [ENTER] [ENTER] [DOWN]. The display will show “CONt OFF” or “CONt ON”, use UP or DOWN arrows so that display shows “CONt OFF”. Press [ENTER].

Press [Button]

Display will show:

Press [ ▼ ] to select Step 1

(Last Test Setup)

Press [ PROGRAM ]

25.00	125.0	10.0
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Press [ ▼▲ ] to select Mode = AC

Press [ ENTER ] to accept

25.00	125.0	10.0
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Press [ ▼▲ ] to set Test Current = 30A

Press [ ENTER ] to accept

30.00	125.0	10.0
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Press [ ▼▲ ] to set Test Frequency = 60Hz

Press [ ENTER ] to accept

30.00	125.0	10.0
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Press [ ▼▲ ] to set HI Resistance Limit = 100mΩ

Press [ ENTER ] to accept

30.00	100.0	10.0
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Press [ ▼▲ ] to set Lo Resistance Limit = 0.0

Press [ ENTER ] to accept

30.00	0.00	10.0
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Press [ ▼▲ ] to set Test Time = 1.0s

Press [ ENTER ] to accept

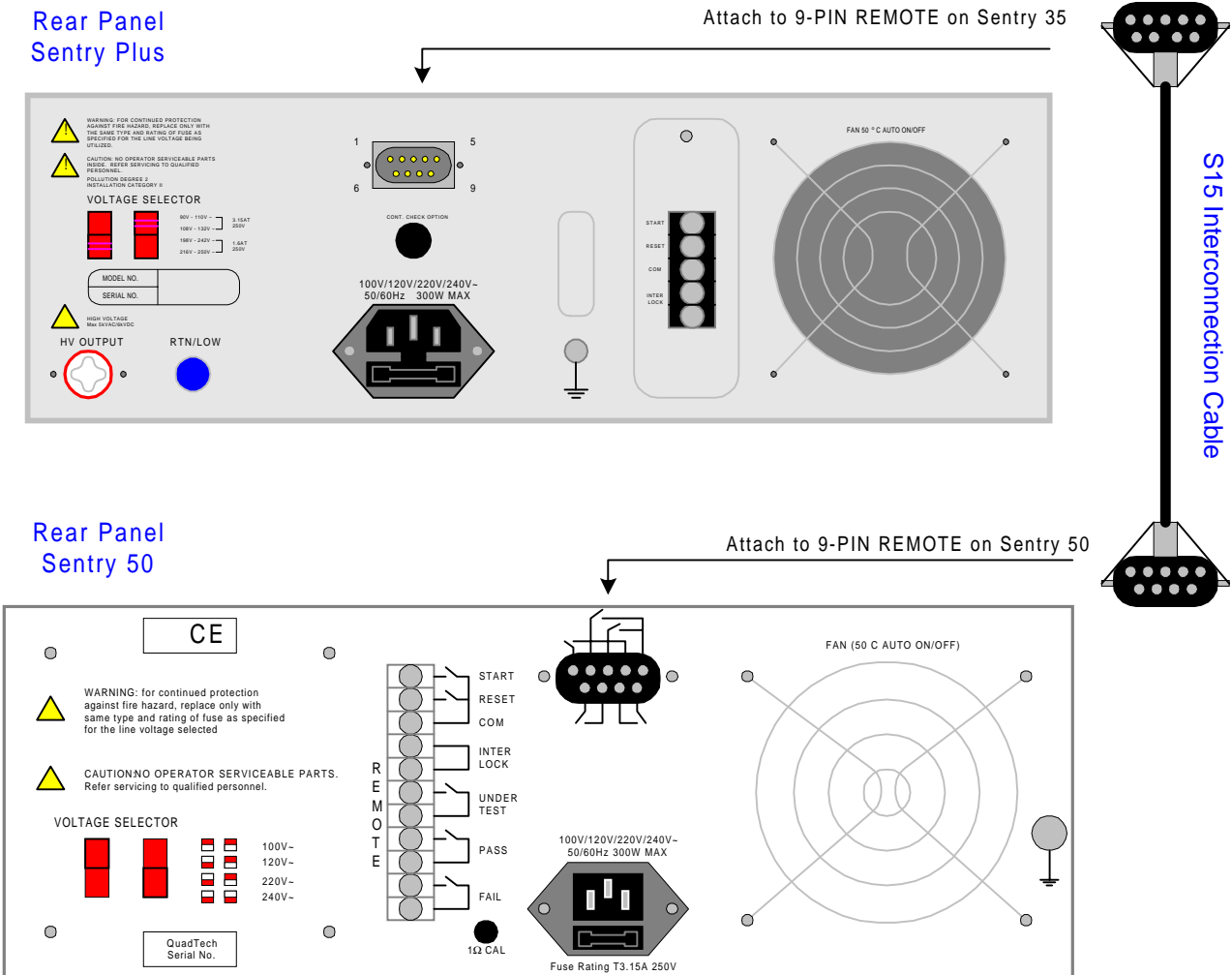
30.00	100.0	1.0
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Press [ PROGRAM ] to exit programming mode

<span style="color: green;">●</span> AC <span style="border: 1px solid black; padding: 2px;">30.00</span>	<span style="color: green;">●</span> HI <span style="border: 1px solid black; padding: 2px;">100.0</span>	<span style="color: green;">●</span> mΩ <span style="border: 1px solid black; padding: 2px;">1.0</span>
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## Connecting a Sentry 50 to a Sentry Plus

The Sentry Plus Series AC/DC/IR hipot testers are fully compatible with the Sentry 50 Ground Bond Tester. QuadTech offers a package consisting of a Sentry Plus 10, 20 or 30, a Sentry 50 and all interconnecting cables. This package is designed to with the push of one button perform a Ground Bond test followed by a dielectric withstand or hipot test. These are two of the most common electrical safety tests required by today's standards. Each unit is programmed separately. Refer to the Sentry Plus Instruction Manual for programming instructions. Figure 4 illustrates the connection of the two instruments to a DUT. Once the connections are made and both units programmed, pressing **[START]** on the Sentry 50 will initiate the ground bond test. If the ground bond test **passes** the Sentry 50 will **start** the Sentry hipot to perform the dielectric withstand test.



**Figure 4: Rear Panel Connection of Sentry 50 to Sentry Plus**

# Connecting a Sentry 50 to a Sentry Plus

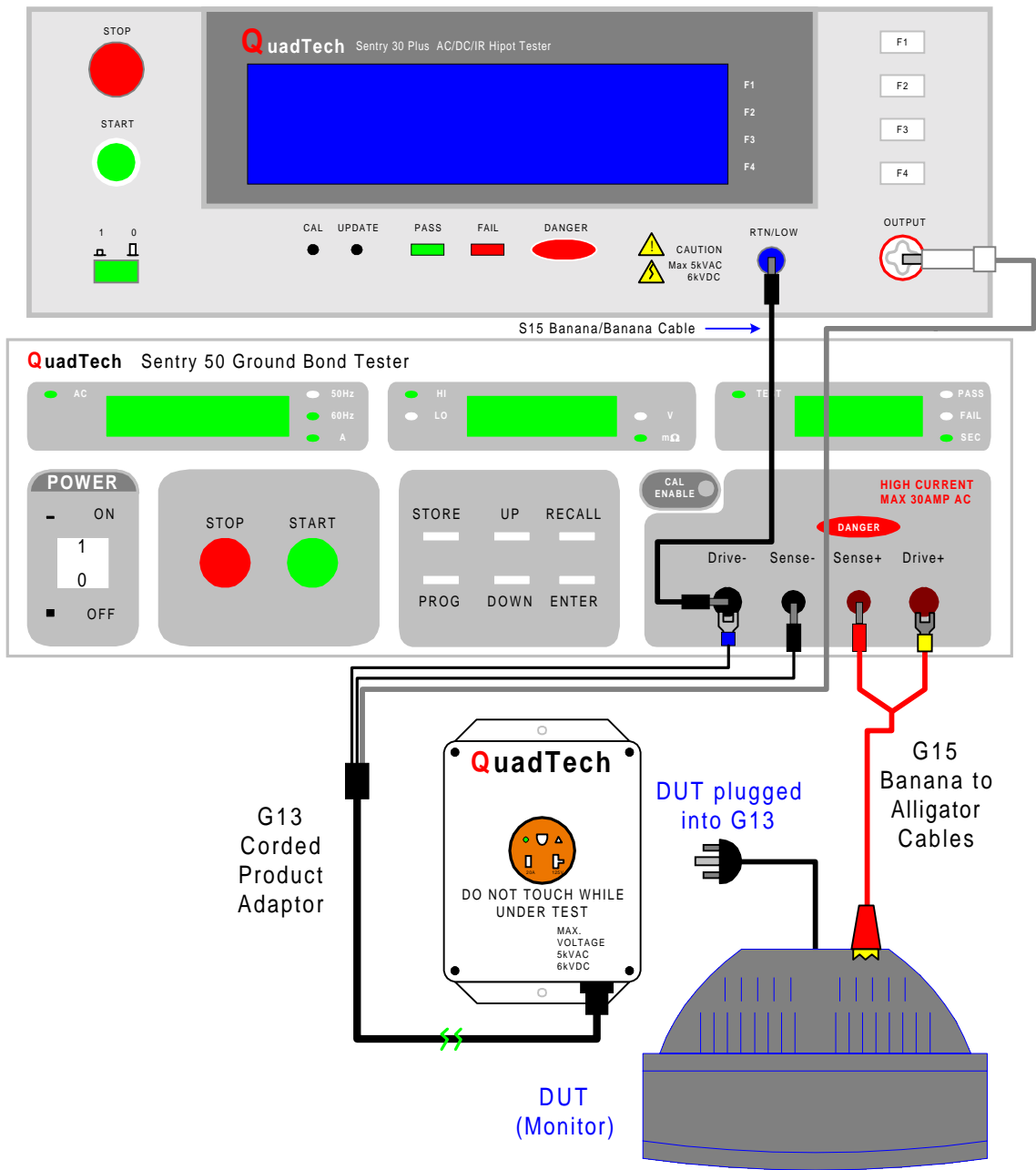


Figure 5: Front Panel Connection Sentry 50 to Sentry Plus and DUT

## Performing an Offset

Due to the resistance to ground usually being a very low value, the resistance of the connecting leads from the tester itself can cause errors in the measurement. Such errors can be corrected either by measuring the resistance of the leads before the test and then subtracting that value from the test value or by using a so-called “Kelvin” test setup. Even with a Kelvin connection there may be additional resistance in the test leads and fixtures that needs to be compensated for using offset. When Offset is selected, the Sentry 50 instrument makes a measurement, stores it in memory then subtracts it out of subsequent measurements. For maximum measurement accuracy it is recommended that the unit be zeroed after power-up and any time the test leads or fixtures are changed.

- Connect the (G15) Test Leads to the front panel Drive and Sense Terminals and then short the alligator clips together.
- Press [ENTER] two times.
- Press [UP] arrow key once. Display should read “OFSt \_\_\_\_\_” (GEt, oFF, or oN)
- Press [UP] or [DOWN] arrow key to display “OFSt GEt”.
- Press [START]. Sentry instrument will then get and store the offset value.
- Offset Function remains ON until turned OFF by pressing [ENTER] two times, pressing [UP] arrow and selecting “OFSt oFF”.

### Ordering Information:

#### Sentry 50 High Current Ground Bond Tester

##### Includes:

150285 Instruction Manual  
G15 GC Lead Set  
Calibration Certificate  
AC Power Cable

##### Optional Accessories

Calibration Data	G14 Power Entry Adaptor Cable
S05 Foot Switch	G16 International Power Strip
S15 S50 Interconnection Cable	G25 Corded Product Adaptor (240V)
S16 Rack Mount Kit	
G13 Corded Product Adaptor (115V)	

For complete product specifications on the Sentry 50 Ground Bond Tester or any of QuadTech’s products, visit us at <http://www.quadtech.com/products>. Call us at 1-800-253-1230 or email your questions to [info@quadtech.com](mailto:info@quadtech.com).

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