

GFL-Series Quickstart Guide

1 First Steps



Danger!

This Equipment generates High Voltages. Follow Safety Precautions

- Plug in the test leads to the sockets on the front of the Signal Generator. Connect the red lead to the red socket marked (+) and the black lead to the black socket marked (-). Ensure these are correctly connected.
- Plug in the Current clamps to the connection at the top of Signal Receiver.
- Determine which bus (i.e. positive or negative) has a fault by connecting a multimeter, set to measure DC volts, between ground and each bus in turn. Generally the fault will be on the bus which gives the lowest voltage reading.
- Now connect the signal generator to the faulty bus.
 - If the positive bus appears faulty, connect the positive (red lead and connector) to that bus, and the negative (black lead and connector) to ground.
 - If the negative bus is faulty, connect the negative lead to it, and connect the positive lead to ground.
- Switch the units on at the power switch.

1.1 Setting up the Signal Generator

- On the main screen select **GND-Fault** using the arrow keys until it is highlighted; then press **ENT**. The next screen will allow the output signal to be adjusted.
- Set the output voltage and current limit by highlighting the appropriate value using the left and right arrow keys, adjusting the value using the up down arrow keys. Select the output voltage closest to the voltage of the bus under test
- Select **Next** to continue. The signal generator voltage and current waveforms will appear, together with calculated values of fault current, resistance and leakage capacitance.
- Press **Cont**. In the next screen adjust the current and voltage if necessary. Select **Next**. The screen should display current and voltage waveforms as before.

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The signal generator is now producing a continuous output voltage and current which is displayed on the screen.

1.2 Setting up the Signal Receiver

Select **GND-Fault** from the initial signal receiver screen. The green light above the screen should flash every second or so. This indicates normal operation.

1.2.1 Setting the Reference

Ensure the output of the signal generator has been set to continuous (**Cont**). Connect the black and red leads to the faulty bus side (if it's a positive fault connect red to positive and black to ground, if negative connect black to negative and red to ground). Check that there is current flowing from the signal generator by noting the reading on the screen. Clip one of the current clamps around the black or red voltage lead (whichever is connected to the bus side) from the signal generator with the arrow pointing in the direction of current flow.



Figure 1-1 Current Clamp Position for Reference Calibration

Allow the measurement to stabilize for five seconds, then select **Set Ref** on the signal receiver screen. The display will state **Setting Ref...** and after a few seconds will indicate **Setting Done!** All subsequent measurements will now be referenced to the signal generator output value, defined as 100% here.

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2 Tracing the Fault



Danger!

High Voltages may be present on System under test. Take suitable precautions.

The fault is traced by following the current from the signal generator through the wiring system until the faulty branch is located. Figure 2-1 shows how a fault can be traced by moving the clamp by following the green arrow, until the faulty branch is isolated.

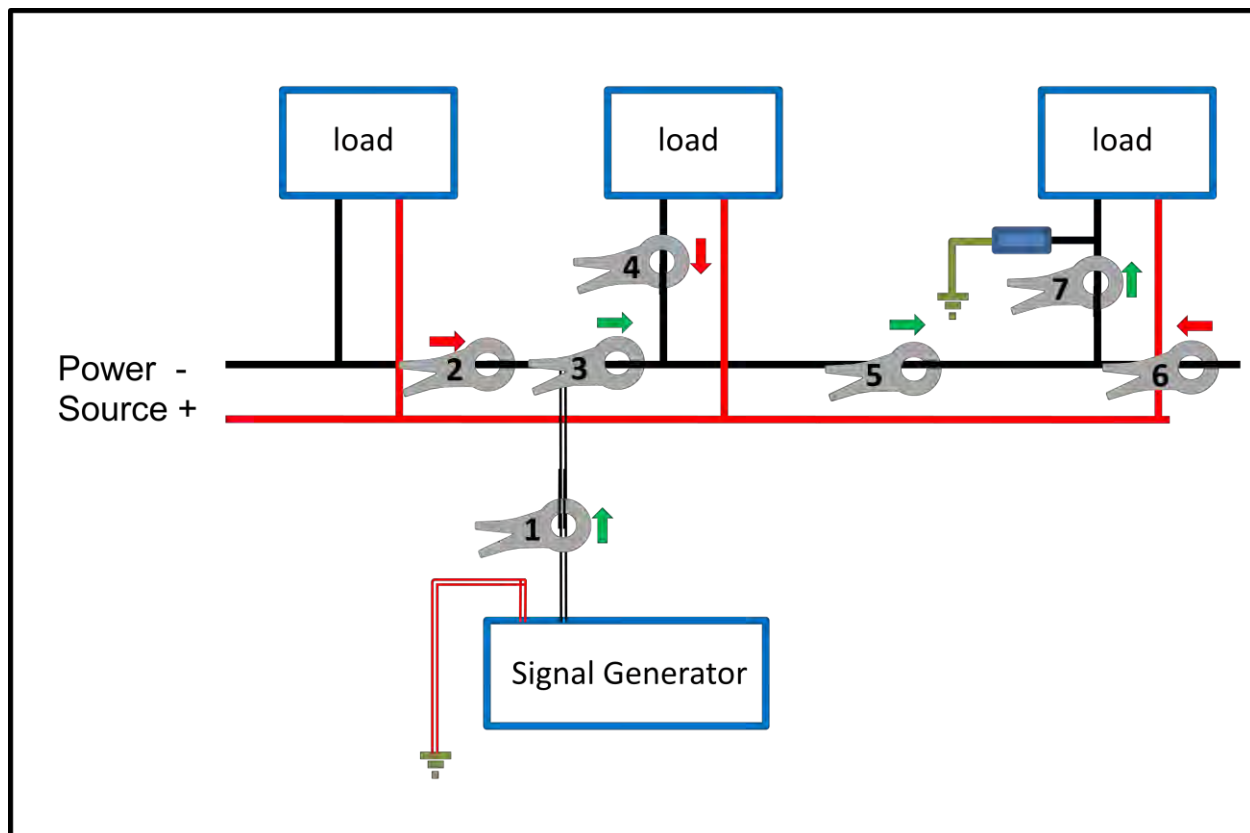


Figure 2-1 Tracing a Ground Fault

In Figure 2-1, at the first clamp position (1) the arrow on the display indicates that the current flow – and therefore the fault current, is present in this branch of the circuit. Therefore the clamp is moved to the next position (2). Here the arrow indicates the fault current isn't present here, so clamp is moved to position (3) and so on until the faulty branch is isolated at position 7. It is not necessary to separate positive and negative cables; the clamp may be placed around several cables during the fault tracing process.

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2.1 Using Two Current Clamps

The GFL – 1000 signal receiver is provided with two identical current clamps. Either clamp may be used to trace the signal from the Signal Generator by applying the clamp around as many or as few conductors as convenient. However, in systems that exhibit a high level of interference, it is recommended, if possible, to either use a single clamp around both main bus bars and cables, or to use both clamps, one around each bus bar. This will cancel system noise and make tracing the signal from the generator easier.

2.2 Hints and Tips

2.2.1 Resetting the Reference value

If the signal becomes weaker during tracing, the signal reference can be reset at any time by setting the reference as described in Section 1.2.1 with the current clamp at that position. That signal will become the new reference value.

2.2.2 Voltage and Current Selection

The generator output voltage and current can be changed to facilitate tracing. The voltage may be increased or decreased to vary the output current.

2.3 Help and Support.

For detailed instructions on setting up, using the GFL – 1000 to detect other types of faults, and for full information concerning features such as the Spectrum Analyzer and Oscilloscope, please refer to the full handbook.