

Ground Fault Locator Specifications

1. Summary

This document describes the specific requirements for a ground fault locator (GFL). Parameters measured or calculated and anomalies detected by a ground fault locator should include:

- System/Fault Voltage
- Output Current
- Leakage Capacitance
- Fault Resistance
- Fault Location

2. System Composition

The ground fault locator requires the following components unless stated as optional:

Signal Generator	Outputs a continuous or pulsing AC signal onto the system with respect to ground. This signal path is then traced to find the location of a fault.
Signal Receiver	Used with attachable current clamps to trace and measure the injected AC signal. Measures signal strength (compared to reference), phase angle, and signal direction.
Dual Current Clamps	Used with the signal receiver to detect and trace a signal, to determine the location of a fault.
Signal Test Leads	Connected from positive or negative bus to ground, to inject signal from signal generator onto the system and measure system/fault voltage.
Alligator Clips	Clips for attaching signal test leads to terminals.
Power Adaptors	Power adaptors used to charge the signal generator and receiver batteries.
Rechargeable Batteries	Provide power to the signal generator and receiver.
Carrying Case	Used to secure and carry all system components. Signal generator is built-in to the case. Includes carrying strap.
USB Cable	Allows for updating of firmware on signal receiver.

3. Ground Fault Locator Capabilities

3.1 The ground fault locator measures or calculates the following system parameters:

- System/Fault Voltage
- Leakage Capacitance
- Fault Resistance

3.2 Allows user to pinpoint ground fault locations on a DC system by accurately measuring grounding resistance and distributing capacitance. Typical faults encountered are:

- Fault from positive or negative bus to ground.
- Fault from part of a load to ground.
- Fault between bus bars (partial short circuit).
- Fault from a branch to ground.
- Fault from bus to a separate circuit ('Wire Mix' connection).
- Leakage capacitance (This is not a fault, but leakage capacitance may be distributed around the system and will influence measurement).

3.3 Displays voltage and current output waveforms injected into the system by the signal generator.

3.4 Provided with two identical current clamps, either or both can be used to trace the injected signal to a fault by applying them around as many or as few conductors as necessary. Signal strength, phase angle, and direction are measured by the current clamps and displayed on the signal receiver. These parameters are then used to navigate around the system.

3.5 A spectrum analyzer function on the signal receiver displays the range and magnitude of the frequencies present in the system under test. It may be used to identify sources of interference, which may then be isolated to facilitate signal tracing.

3.6 An oscilloscope function is available which may prove useful for monitoring, measuring, and checking signals on the system under test.

4. Hardware Performance

4.1 The ground fault locator is designed to work with DC systems up to 1000V.

4.2 The signal generator outputs an AC signal onto the system, between 0 and 40 mA at 10 Hz.

4.3 Designed for use on both online and offline DC systems.

4.4 The signal generator and receiver units are both powered by rechargeable batteries, which last approximately 4 hours during normal use on a full charge.

5. Technical Specifications

Output Voltage:	24, 48, 110, 220, 500, 1000 VDC
Output Frequency:	10 Hz
Output Current Limitation:	5 mA or Unlimited (max: 40 mA)
Fault Location Sensitivity:	$\leq 1 \text{ M}\Omega$
Current Detect Sensitivity:	AC/DC Circuit: $\geq 0.5 \text{ mA}$
Current Clamp Size:	55 mm (2.17 in) (diameter)
Jaw Opening Size:	60 mm (2.36 in)
Display:	Backlit Color LCD
Operating Environment:	Temperature: -5 – 40 °C (23 – 104 °F)
Power Requirements:	8.4 VDC Li-ion Battery
Dimensions:	360 x 260 x 135 mm (14.2 x 10.2 x 5.3 in)
Weight:	7 kg (15.4 lbs)

6. Warranty

12 Months