

# **BGL**

## **Battery Ground-Fault Locator**



- **Locates ground faults on floating battery systems**
- **Operates on live battery systems**
- **Multiple fault detection and tracking**
- **Automatic operation**
- **Battery operated**

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### **DESCRIPTION**

The Battery Ground-Fault Locator (BGL) simplifies the tracking of ground faults on floating dc-powered control systems.

It features automatic operation, can be used on live battery systems and has the unique capability of detecting, tracking and locating multiple faults on a battery system without having to resort to sectionalizing.

This is accomplished by injecting a low-amplitude 25 Hertz test signal on either the positive or negative side of the power bus and tracking the signal with one of several available clamp-on sensor probes.

A fault simulator also is provided with the instrument, allowing the periodic verification of the resistance and capacitance ranges of the BGL.

### **APPLICATIONS**

The BGL allows tracking and locating of ground faults on live or dead battery systems. Its locating ability is only limited by the accessibility of the battery cable.

The instrument can make measurements in the presence of dc current (up to 20 amperes) and ac ripple (charging current up to 0.5 ampere).

The BGL is useful for locating grounds on any type of battery system, including those in refineries, mines and utilities as well as UPS and continuous process systems.

The BGL operates on battery systems that are either floating or grounded through a resistor. Operators can

determine both the direction and magnitude of faults, allowing them to ignore high-impedance faults and concentrate on serious faults.

The BGL is designed to work on battery systems up to 260 volts dc. The instrument even operates in the presence of surge-suppression capacitors, effectively ignoring them. It is only sensitive to the power dissipated in the grounding resistance, hence the resistive paths to ground.

An additional feature of the BGL is its ability to measure battery system total capacitance to ground, or the capacitors of any branch of the system. This allows the operator to determine the maximum practical fault-resistance range and provides the user with information on the battery system.

### **PRINCIPLE OF OPERATION**

The instrument operates by injecting a 25 Hertz signal between the battery system and the ground. The resulting current is tracked by a clamp-on current probe. The magnitude of the injected signal is only 3.5 volts and will not cause any interference with the operation of sensitive protective relays on the system.

The instrument's circuitry measures the 25 Hertz power dissipated in the grounding resistance and calculates the value of the grounding resistance from knowledge of the applied voltage.

This method allows the instrument to effectively eliminate the effects of charging current due to capacitance on the battery system or surge suppression capacitors that may be installed on the system.

The wide dynamic range of the instrument allows the operator to simultaneously track two or more ground faults that may be different in value. The injected signal is low enough in amplitude that it should not interfere with the operation of relays, even of the sensitive variety, under normal operation.

### FEATURES AND BENEFITS

- Reads resistance directly (1 ohm to 100 kilohms)
- Locates single or multiple ground faults
- Operates on floating or resistance-grounded battery systems
- Operates on live battery systems
- Operates in the presence of surge-correction capacitors
- Fused output leads for maximum user safety
- Battery operated with internal automatic charger
- Measures capacitance
- Lightweight and portable
- Tough polyethylene plastic sealed enclosure that provides high shock and vibration resistance

### SPECIFICATIONS

#### Input (specify one)

120 V, 60 Hz, 30 VA OR 240 V, 50 Hz, 30 VA

#### Battery

Lead-acid rechargeable

#### Resistance Range

1  $\Omega$  to 100 k $\Omega$

#### Capacitance Range

1 to 100  $\mu$ F

#### Accuracy

$\pm 20\%$

#### Injected Signal

25 Hz nominal, 3.5 V rms maximum, 110 mA maximum

#### Maximum Ripple Current

0.5 A (ac)

#### Environmental

##### Operating Temperature

32 to 122° F (0 to 50° C)

##### Storage Temperature

-40 to +149° F (-40 to +65° C)

##### Relative Humidity

Up to 80%

##### Dimensions

13 H x 14 W x 10 D in. (330 H x 356 W x 254 D mm)

##### Weight

25 lb (11.3 kg)

### ORDERING INFORMATION

Item (Qty)	Cat. No.
Battery Ground-Fault Locator	
120 volt, 60 Hz	835140
240 volt, 50 Hz	835140-1
220 volt, 60 Hz	835140-2
120 volt, 50 Hz	835140-3
<b>Included Accessories</b>	
Clamp-on current sensor, 33 ft (10 m), 2 in. (50 mm) opening – maximum dc current: 20 A [1]	835142
Fault simulator [1]	835145
Output lead extension, 14.9 ft (4.5 m) [1]	835144
Output lead, 6.6 ft (2 m) [1]	835143
Power cord, ac	17032
Instruction manual [1]	AVTM835140
<b>Optional Accessories</b>	
Mini clamp-on current sensor, 0.5 in. (127 mm) opening – maximum dc current: 5 A	835146
Busbar clamp-on sensor, 2 x 4 in. (50 x 101 mm) opening – maximum dc current: 50 A	835147

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Registered to ISO 14001 Reg no. EMS 61597  
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