

### Features

- Multi Frequency Options
- Eliminate Monitor Crosstalk
- Remove Multiple Ground Problems
- Monitor and Control Over Power Cables



The GAI-Tronics® GM8950 combined Ground Check Monitor / Ground Fault Relay (GFR) consists of a GM8900 Ground Check Monitor (Ground Sentinel®) and a GFR in a shared housing. GM8950 are intended to be used on the same three-phase AC mine electrical circuit. The trip contacts of the Ground Sentinel and GFR are internally pre-wired for series or shunt trip of the mine circuit breaker. The GAI-Tronics® Ground Sentinel along with its associated filters are designed to monitor the continuity of the ground circuit of electrical power circuits in mines. The three-phase wires or the pilot wire are used as a return signal path for the Ground Sentinel. If the ground circuit has 15 ohms or less loop resistance, the internal relay will be energized and the circuit breaker that feeds power

to the cable can be energized if the Ground Fault Relay is not tripped. A disruption of the ground circuit that lasts longer than one-fourth of a second will de-energize the relay and trip the circuit breaker, this time delay prevents false trips. LED's indicate the condition of the ground check circuit. The three-frequency system is intended for applications on circuits where the ground circuit cannot be isolated by "Arc Traps" or when the elimination of two "Arc Traps" is desired. The GAI-Tronics® GFR along with its associated GAI-Tronics® Current Transformer are designed to trip when ground fault currents exceed preset thresholds. Trip occurs within a few cycles of the onset of the excessive ground fault current.

### Specifications

#### Mechanical:

Size (LWH) .....7.46" x 2.32" x 5.62" (189.5 x 58.9 x 142.7mm)  
(Fits on a GM1000 Footprint)

Construction.....Stainless Steel  
Serviceability..... One plug-in board contains all electronics, including relay

#### Power:

Supply Voltage .....117V ± 15% 60 Hz (105-135)  
Supply Voltage Dip For One Minute  
No Trip w/Good Loop.....Down to 84V

#### Transmitter:

Frequency.....4000Hz or 3125Hz(NOM)  
(Request Frequency When Ordering)

#### Receiver:

Loop Resistance for Trip  
(over voltage and temperature range) ..... 13 ohms ± 2 ohms  
Trip Time Delay (after loop opened) .....250 msec (max)  
Instantaneous Trip..... Opens relay coil circuit  
Loop Resistance for Pickup..... 15 ohms ± 2 ohms  
Output Short Circuit Trip ..... .0-1 ohm  
Loop Current Indication..... LED brightness  
proportional to loop resistance

#### Ground Fault Relay:

Power ..... 84-135 V ac  
Supply Current ..... 82 ma no fault 168 ma tripped

### Ordering Information

#### Ground Sentinel

**GM8950/2250**.....2250Hz  
**GM8950/3125**.....3125Hz  
**GM8950/4000**.....4000Hz

**FI2567**..... Filter, 3 Phase, 1000V, 2250 Hz  
**FI2569**..... Filter, 3 Phase, 1000V, 3125 Hz  
**FI2559**..... Filter, 3 Phase, 1000V, 4000 Hz

**GM1004**..... Ground Wire Trap  
**FI2560**..... Pilot Wire Filter  
**FI2558**..... Pilot Wire Choke  
**CO4449**..... Current Transformer, 1/0  
**CO4450**..... Current Transformer, 500 MCM

#### Ground Sentinel Kit

**MOD-GM8950/4000**.....GM8950/4000  
GM1004  
MODFI2559

### TYPICAL SINGLE FREQUENCY CONNECTION

