

BGM-500 Components



BGM-500 Complete System



Battery Ground Faults

Ground faults occur when electrical current from a DC battery plant deviates from the intended DC circuit and creates a conductive path from the battery system to ground. This conductive path is created by materials internal to the battery (cell or jar) leaking, wicking or connecting to the battery rack or cabinet; this conductive path can also be created by an inadvertent connection of the battery posts, buss bar or cable to the battery rack or cabinet.

Battery system ground faults are a dangerous and potentially catastrophic DC plant condition, if left un-detected several things can happen:

- Unintended grounds can expose field service personnel to electric shock
- Ground fault conditions can lead to battery system overheating and **Thermal Runaway**
- Battery system discharges with a ground fault present can exacerbate the condition and lead to a fire condition
- Battery system life can be severely limited
- Battery capacity is reduced

Why BTECH Is The World Leader In Battery Monitoring

BTECH is Proven: Over 7,000 Systems Installed Worldwide

BTECH's Products are Superior: BTECH's patented technologies and market leading engineering enable BTECH to provide solutions that deliver rock solid data accuracy and stability, allowing more time to respond. No other system comes close.

BTECH's Experience: With more than 22 years in the battery management business, our technical staff is there for you when you have questions.

BGM-500 Operation

UPS Battery systems float and are not electrically connected to the cabinets or racks supporting them and the UPS cannot detect if the battery system is shorted to the cabinet or racks. The cabinets and racks do have a ground cable, if current is present on the ground cable than a ground fault exists.

BTECH's system utilizes a very precise, specialized custom current transducer to detect current leakage. The ground wire runs through the Current Transducer, which is connected to the BGM-500, and the system continuously measures current flowing to ground.

If the BGM-500 detects current above a configurable threshold value, it indicates a ground fault alarm. Depending on the alarm behavior configuration, the alarm either latches until cleared manually or clears when alarm conditions are corrected and ground current returns below alarm threshold value.

The BGM-500 can function as a stand alone device or as an accessory to BTECH's S5 Battery Monitoring system. The BGM coupled with an optional smoke detector and BTECH's S5 system can virtually eliminate the hazard presented by **Thermal Runaway** and provides unprecedented compliance with the International Fire Code.

System Specifications

Power Requirements

- Power Input 110—240VAC —12 VDC Output (AC/DC Power Supply)
- Max Current 1A (5 Watts)

Measurement Capability

- Measurement Range 0-500 mA DC
- Measurement Uncertainty 1.0% F.S.
- CT Sensitivity 0.2% F.S.
- CT Linearity 0.5% F.S.

Communications

- USB (B)
- Ethernet (RJ45 TCP/IP)
- 1 NC/NO alarm relay

The alarm output relay changes to “alarm state” (normally closed → open, normally open → closed) when there is an active ground fault alarm, hardware fault, or when power is lost to the BGM-500.

Environmental

- Operating Temperature 5-40°C
- Operating Humidity 0-80% – (noncondensing) for 0-30°C
- 0-50% (noncondensing) for 31-40°C
- Operating Altitude 0-2000 meters

BGM-500 Mounting

The BGM-500 ships with a steel mounting bracket that can be oriented in parallel or perpendicular to the front panel.

- The BGM-500 Can be mounted directly to the cabinet or Rack
- Wall mounted inside a NEMA 1 enclosure
- DIN rail mounted

Dimensions

BGM-500 - H 4.12” x W. 4.3” x D1.41”

Current Transducer

CT Sensor Size (packaging) - W2” x H 3” x D 1.25”

CT Window Size: 5/8”

- Ground fault alarms can be triggered by positive or negative current, so the CT direction doesn’t affect the functionality of the BGM-500.

Modbus Settings

Device ID: 1

Address: 0001

(Coil Status) – set length to 16

Coil 1: Ground Fault Alarm

Coil 2: Equipment error

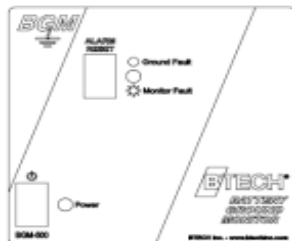
Coil 15: Reset alarm

Coil 16: Watchdog

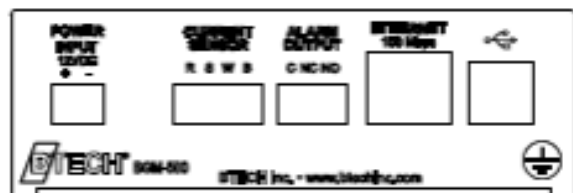
(Holding Register) – Set length to 2 – IEEE

2 word floating point of current reading.

- ETL, CE Pending



VIEW WITH GRAPHICS



VIEW SHOWN WITH GRAPHICS APPLIED