



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 material internal to the battery (cell or jar) leaking, wicking or connecting to the battery rack cabinet; this conductive path can also be created by an inadvertent connection of the battery posts, buss or bar or cable to the Battery rack or cabinet.

Battery Room Safety

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 catastrophic failure.

Thermal Runaway

- Battery system discharges with a ground fault present can exacerbate the condition and can lead to a dangerous thermal condition and fire
- Battery system life can be severely limited
- Battery capacity is reduced

BGM-500 Operation

Battery systems are not electrically connected to the cabinets or racks supporting them. The cabinets and rack are connected to Earth ground, if current is present on the ground cable then a ground fault exists. BTECH's system utilizes a precise, specialized custom current transducer to detect current leakage. The ground wire runs through the Current Transducer (CT), 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. Ground fault alarms can be triggered by positive or negative current, so the CT direction doesn't affect the functionality of the BGM-500.

Alarm and Data

Acquisition Ports:

- USB
- 1 Ethernet Port
- 1 Dry Contact

Why BTECH Is The World Leader In Battery Monitoring

WE'RE SUPERIOR

With over 7,000 systems installed worldwide, BTECH's patented impedance method provides rock solid data accuracy and stability, allowing more time to respond – no other system comes close.

WE'RE NON-DESTRUCTIVE

With a load signal optimized to the battery type, our system never subjects your batteries to a stressful load test. Plus, our system is not powered by your batteries.

WE KNOW YOUR BATTERIES

With more experience than anyone in the business, our sales and service staff is there for you when you have questions.



System Specifications

Power Requirements:

- Power Input 110-240VAC-12VDC 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°
- Operating Humidity 0-80%
- (non-condensing) for 0-30°C
- 0-50% (non-condensing) 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 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 D 1.41”

Current Transducer

CT Sensor Size (packaging) – W2” x H3” x D 1.25

CT Window Size: 5/8”

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 Approved

