WHITEPAPER

Detecting Ground Faults in AC Powered Systems

Normally circuit breakers or fuses provide protection when short circuits occur in the system. The circuit breaker opens or the fuse blows, and the dangerously high fault current is interrupted which prevents damage to equipment. However, circuit breakers and fuses do not normally provide adequate protection when ground fault current occurs as the ground fault current could be as low as 5A to 30A.

The ground fault sensor is installed over all of the phase cables including the neutral cable. When ground fault occurs, there will be imbalance in the phase currents and ground fault current flows through the neutral or ground cable. When the system detects a ground fault current that reaches a pre-selected current level and time delay, the ground fault relay initiates a trip signal to a shunt trip disconnect device that is installed in a circuit breaker which will open and clear the fault.

To detect and prevent ground faults, Flex-Core® recommends combining the GFP ground fault relays and GFL sensors to provide a reliable system for detecting ground fault current in a grounded AC powered system.

Features of the GFP ground fault current detector include:

- Optional zone interlocking
- Integral test panel with “Push to test” and “Shunt Trip Bypass”
- Power on indication (LED)
- Real time fault current level indicator
- Positive visual trip indicator
- Adjustable time delay
- Discrete current threshold adjustment
- Panel or door mounted
- Clear plastic cover
- Electro-mechanical relay output
- Optional Form C relay contacts
- Meets NEC service entrance equipment standards

The GFP ground fault detector has various trip current ratings of 5-60A, 30-360A and 100-1200A.

The GFL ground fault current sensors are commonly used in conjunction with the GFP ground fault current detectors. These units are UL listed and have window opening sizes up to 4.0”x 36.0”. These ground fault sensors are available as solid core for the toroidal current transformers and split core or solid core for the rectangular sensors. The split core configuration of the rectangular sensors allows the installation in the field without the disassembly of the primary bus or cables.

Related models

- Model# GFP Ground Fault Current Detector
- Model# GFL Ground Fault Current Monitor

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