



## What is a 777-HRG?

- A SymCom 777-HRG is an enhanced overload relay that includes all of the same voltage, current, and power protection features as the 777-P2, but adds the capability to monitor low level ground fault currents typically seen in High Resistance Grounded (HRG) systems. This is accomplished using an internal or external zero sequence CT to measure the earth leakage current:
  - o For applications with full load currents from 2-90 Amps
    - Select either the 777-HRG-P2 or the 777-575-HRG-P2, both of which include an internal zero-sequence ground fault current transformer (CT)
  - o For applications with full load currents from 91-800 Amps
    - Select either the 777 LR-HRG-P2 or the 777-575-LR-HRG-P2. External current transformers and an external zero-sequence ground fault CT are required for these units (customer supplied)
  - o Instead of using a standard ground fault trip delay curve, the 777-HRG products include a programmable ground fault trip delay as well as a programmable ground fault inhibit delay.

## When are High Resistance Grounded (HRG) systems used?

- High resistance grounding is used when it is desirable to add the safety of a grounded system while minimizing the risk of service interruptions due to ground faults.
  - o Basically, the concept is to provide a path for ground current through a resistance that limits the magnitude of the current (usually less than 5 amps).
  - o High resistance grounding minimizes the risk of arc flash and/or equipment damage due to accidental line to ground faults.
- High resistance grounding is also used in an attempt to avoid immediate power interruption on phase to ground faults, preventing disorderly shutdowns of equipment which may result in severe financial losses or production delays.

## Why should I use a 777-HRG?

- Successful implementation of HRG systems require a method of detecting ground faults. The 777-HRG is easily configured to detect these ground fault conditions PLUS provide motor or pump protection against common voltage, current, and/or power problems.
  - o Effectively, the ground fault condition may be used as an alarm instead of a tripping condition to allow maintenance personnel the opportunity to repair the fault at their convenience.
  - o If a SymCom CIO module is used in conjunction with the 777-HRG, the combination can provide both alarming and protection against catastrophic failures.

## Where would I use a 777-HRG?

- SymCom 777-HRG devices should only be applied in applications where high resistance grounding exists.
- High resistance grounding is typically used in the following applications:
  - o Pulp/Paper Mills
  - o Mining Operations
  - o Steel Mills
  - o Process Industries
- Who should I talk with about the 777-HRG products?
  - o Consulting Engineers designing power systems for new facilities
  - o Electrical Engineers involved with major plant upgrades
  - o Distributors, OEMs, Integrators selling and/or specifying HRG products/systems

