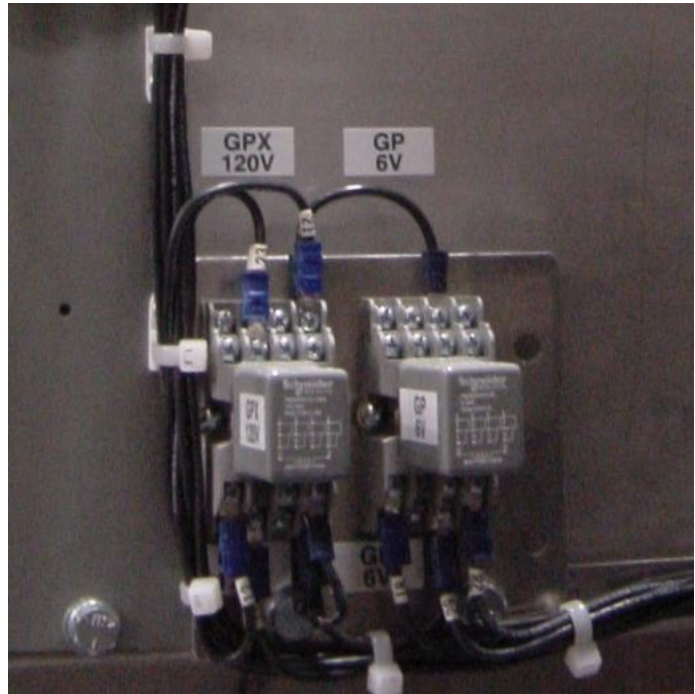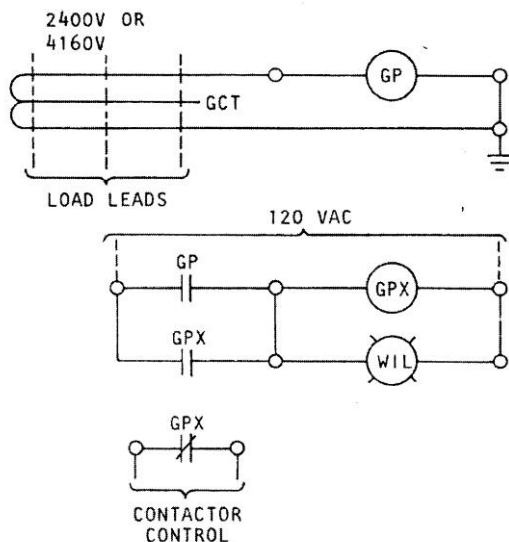# GROUND FAULT SENSOR

SCOPE This bulletin describes the Elliott Control 818 Ground Fault Sensor optionally included in Type 211, 230 and 230-PM controllers on 2400-volt and 4160-volts systems.

APPLICATION In Elliott controllers, which include current limiting fuses for high speed fault protection, the Ground Fault Sensor provides added protection against ground faults on resistance or impedance ground systems for which the maximum ground current equals 3600-amps or less . The Ground Fault Sensor senses ground current flow in 3-phase load leads and initiates opening of main contactor.

DESCRIPTION The Ground Fault Sensor consists of "GCT" Ground Current Transformer, "GP" Ground Protective Relay, "GPX" Auxiliary Relay, and "WIL" White Indicating Light. GCT is a window-type current transformer which encircles the three load leads near the load conduit entrance. The turns ratio of GCT is not specified, since it is sized only in coordination with GP. Both GP and GPX are plug-in relays, hermetically sealed, and mounted together on mounting plate fastened to controller door. The Ground Fault Sensor has been reviewed by Underwriters Laboratories (U.L.) as an optional feature for Elliott controllers that accords UL-347, UL Category NRAA and ANSI/ISA 12.12.01.

SCHEMATIC DIAGRAM

OPERATION GP and GCT are coordinated to sense approximately 10-amps primary ground current (zero-sequence). GP operates instantaneously when this ground current is sensed. As shown in the Schematic Diagram, GPX instantaneously seals-in to energize WIL and to open main contactor. Opening time for opening main contactor is the sum of operating times for GP, GPX, and main contactor. Opening times for Ground Faults of 10-12 amps or higher, are -

      Type 211 Controllers - 0.4 secs
      Type 230 & 230-PM 0.3 secs

RESET The Ground Fault Sensor prevents reclosing the main contactor until GPX resets when de-energized. If reset only by qualified person is wanted, no reset switch is provided, and reset is effected by opening the controller Isolating Switch. Or, for external reset, a reset switch is optionally included on the controller door.