GROUND-FAULT CURRENT TRANSFORMER LOCATION

A ground fault on a grounded system can be detected using a current-sensitive ground-fault monitor. The current transformer (CT) can be located either at the supply neutral or around the phase conductors.

The CTs in Figs. 1 and 2 measure current in the conductor that connects the supply neutral (X0) to ground. A CT at this location can detect a ground fault in any part of the system and is not subject to nuisance trips due to common-mode CT saturation or system charging current.

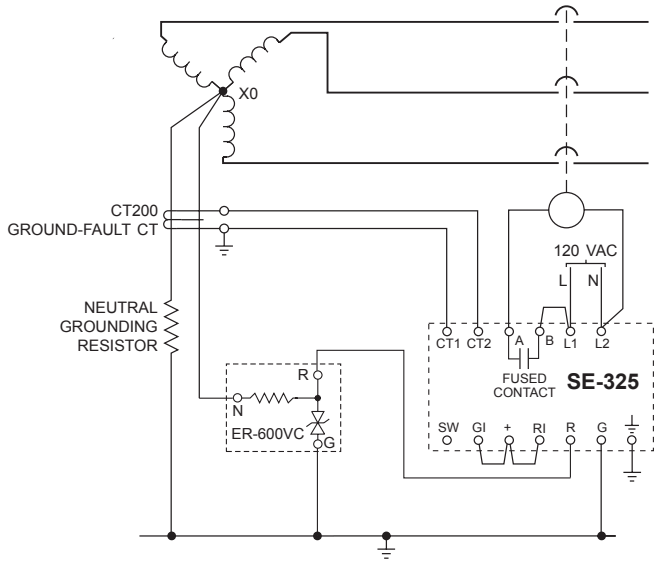


Figure 1: Neutral-Current Ground-Fault Detection on a Resistance-Grounded System

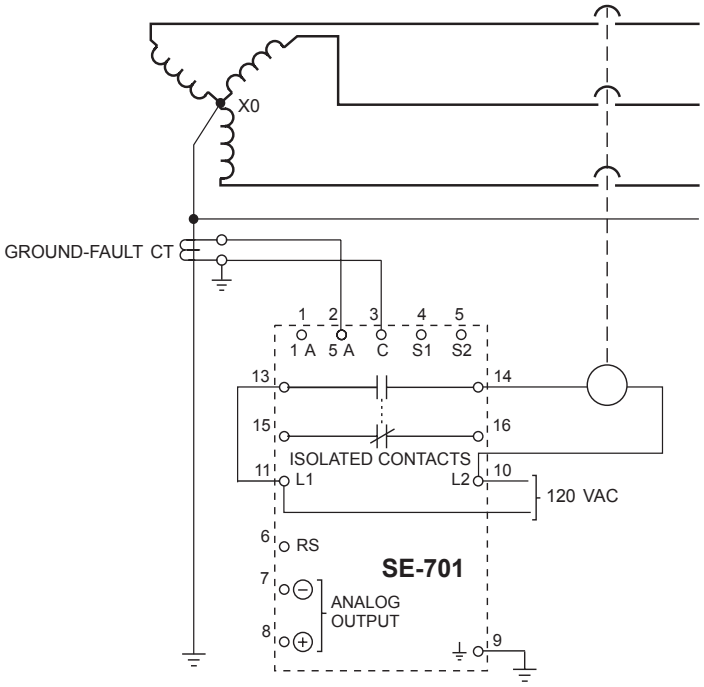


Figure 2: Neutral-Current Ground-Fault Detection on a Solidly Grounded Four-wire System

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GROUND-FAULT CURRENT TRANSFORMER LOCATION

The core-balance CT connections shown in Figs. 3 and 4 can be used for ground-fault detection and, to aid in ground-fault location, additional relays can be added on each feeder or load. When the fault is downstream of a CT, fault current is detected; a CT on an unfaulted feeder or load will not detect ground-fault current. To minimize the possibility of CT saturation, follow Technical Note CT-03 guidelines for conductor placement in the CT window and select a trip level and CT appropriate for the application. To eliminate the possibility of sympathetic tripping, select a current-pickup setting above the total system charging current.

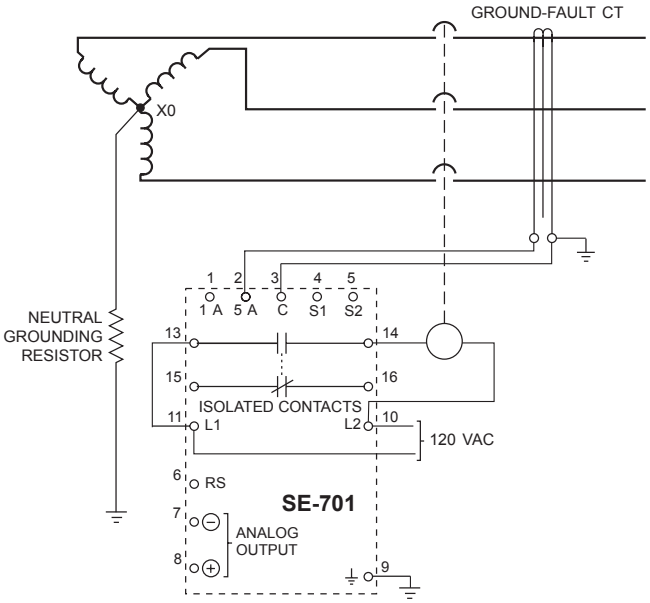


Figure 3: Core Balance Ground-Fault Detection on a Three-Wire System (Resistance Grounded or Solidly Grounded)

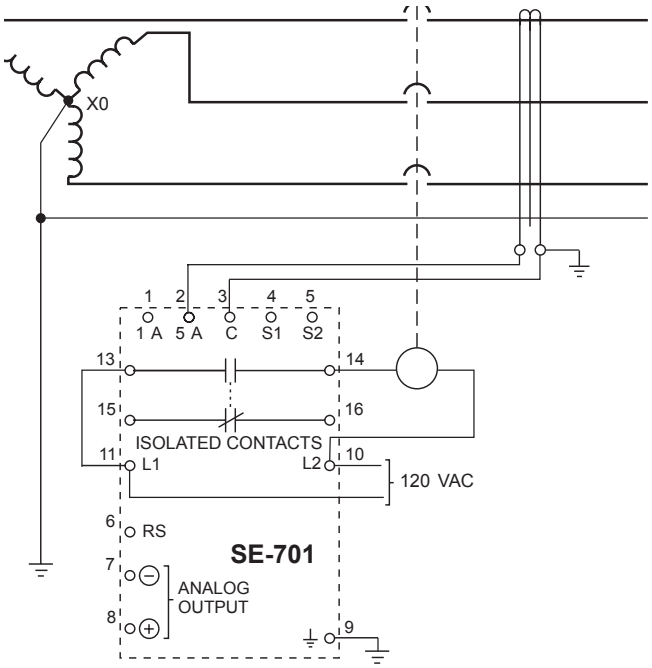


Figure 4: Core-Balance Ground-Fault Detection on a Four-wire System

CT burden can affect accuracy and should be considered when long CT lead lengths are required. Use manufacturer's data or field tests to verify accurate CT response. Larger secondary conductors may be required to reduce the burden.

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