

Automatic Transfer Switch Option Ground Fault Indication

Introduction

Article 700-26 of the National Electric Code states “The alternate source for emergency systems shall not be required to have ground fault protection of equipment with automatic disconnecting means”. Although this is an exception to Article 230-95, it provides the designer of a system the ability to exercise judgment in the balance between risking damage to equipment versus loss of the emergency power source. This article does, however, require Ground Fault Indication be provided for the emergency source.

Article 700-6 of the National Electric Code states “Audible and visual signal devices shall be provided, where practicable, for Ground Fault. To indicate a ground fault in solidly grounded Wye emergency systems of 150 volts to ground and circuit protective devices rated 1,000 amperes or more. The sensor for the ground fault signal devices shall be located at, or ahead of the main system disconnecting means for the emergency source, and the maximum setting of the signal devices shall be for a ground fault current of 1200 amperes. Instruction on the course of action to be taken in event of indicated ground fault shall be located at or near the sensor location”.

Therefore, the detection of a ground fault on an emergency service is desirable. However, Automatic Disconnect in the event of such a fault may not be appropriate.

Article 517 requires that any Ground Fault sensing for onsite generating units shall be indication only.

Article 517.17 (A) states, “where ground fault protection is provided for operation of the service disconnecting means or feeder disconnecting means as specified by 230.95 or 215.10, an additional step of ground fault protection shall be provided in the next level of feeder disconnecting means downstream toward the load. Such protection shall consist of overcurrent devices and current transformers or other equivalent protective equipment that shall cause the feeder disconnecting means to open. The additional levels of ground fault protection shall not be installed as follows:

- 1) On the load side of an essential electrical system transfer switch.
- 2) Between the onsite generating unit(s) described in 517.35(B) and the essential electrical system transfer switches.
- 3) On electrical systems that are not solidly grounded Wye systems with greater than 150 volts to ground but not exceeding 600 volts phase-to-phase.

When Ground Fault Indication is specified on a Lake Shore Electric Corporation Transfer Switch the fault will be annunciated, however the ATS will remain in the automatic mode and will allow the closing of either source to the known fault.

For Delta connected systems, please consult the factory.

Product Features

- UL 1008 Listed
- Monitors for Ground Fault, but the System will Not be Tripped in the Event of a Ground Fault Condition Detected
- Aux Contact Provided for the Customers Remote Controls or for an Indication Light Only

Operation

This option provides Ground Fault monitoring on the normal source. When a Ground Fault Condition is detected, the provided GFI aux contact will change states.

One use for this contact may be by the customer for remote monitoring of the system. Another use would be to provide a door light to indicate to the local personal of the ground fault condition and to proceed with Caution.

Recommendations

Lake Shore Electric Corporation highly recommends that the specifying engineer recommend where any and all ground fault indication should be placed within the facility.

If GFI has already been specified, please consult the factory for ordering the appropriate equipment and further information.

Order Guide

Part Number Examples:

1. ICFA32000BPSB/**GFI** - Insulated Case ATS, 3 pole, 2000 Amp, 120/208Vac, **24Vdc Microprocessor Controls**, 65kAIC @ 480Vac, NEMA 1 Free Standing Enclosure with included option GFI.
2. MCDA31000CESA/**39B** - Molded Case ATS, 3 pole, 1000 Amp, 277/480Vac, **Electromechanical Controls**, 35kAIC @ 480Vac, NEMA 1 Wall Mount Enclosure with option 39B, Ground Fault Indication Only.