APPLICATION NOTE

ECM3 Application Note

APPLICATION OF ECM3 IN ENVIRONMENTS SUBJECTED TO EXTERNAL DC SOURCES

If your installation is experiencing nuisance tripping due to DC offset sources, and you are not required to use Earth Continuity Protection for touch potential safety, then the following application note may be a suitable solution.

The ECM3 Earth Continuity Relay utilises a DC sense signal to determine the Pilot Series and Shunt Resistance. In some applications where the relay is exposed to DC offset sources (i.e. when exposed to a cathodically protected wharf or pontoon to fight against corrosion), the applied DC source can interfere with the relay's sensing ability.

HOW DO WE REDUCE THIS INTERFERENCE

In applications that require the DC sources to be present, it is recommended that the termination earth point be tied back to the relay in isolation to the supply earth connection at the relay. It should be noted that the ECM3 relay's supply earth is isolated from the relay's system earth.

To achieve this, remove the system earth connection to the ECM3 relay (Terminal 11). It will then be necessary to wire an additional core from the termination module's earth connection point back to the ECM3 relay's system earth connection. The pilot circuit will remain connected as before, ECM3 Pilot termination point (Terminal 12) to Pilot connection of the termination module.

This configuration will ensure that the Pilot Sense signal will be referenced to the same earth potential of the termination module. This will ensure that the earth reference point of the relay's pilot circuit will not experience a DC offset with respect to the termination modules earth point. This offset can cause nuisance tripping if not removed.

To confirm that the cause of tripping is due to the induced DC offset, it is recommend that the suspected source be isolated from the system in its original configuration. If nuisance tripping stops during the isolation period, with no other aspects altered, you can be more confident that the suspected source is the cause. It is then recommended that the DC source be re-applied to the system to confirm the DC source is the cause of tripping.

APPLICATION WARNING

It should be noted that this application should **NOT** be utilised on installations requiring earth continuity protection for touch potential safety. Isolating the Pilot detection circuit from the supplies earth reference means that the earth bonding check performed by the EC relay, will no longer be provided. Instead this application will act as a continuity detection circuit. Design risk review of applications remains the responsibility of the user / system designer. It is recommended that the routine system earth checks be performed on maintenance days. This must be included within the site risk assessment due to the removal of the continuous earth system monitoring aspect of the relay.

TYPICAL WIRING APPLICATION

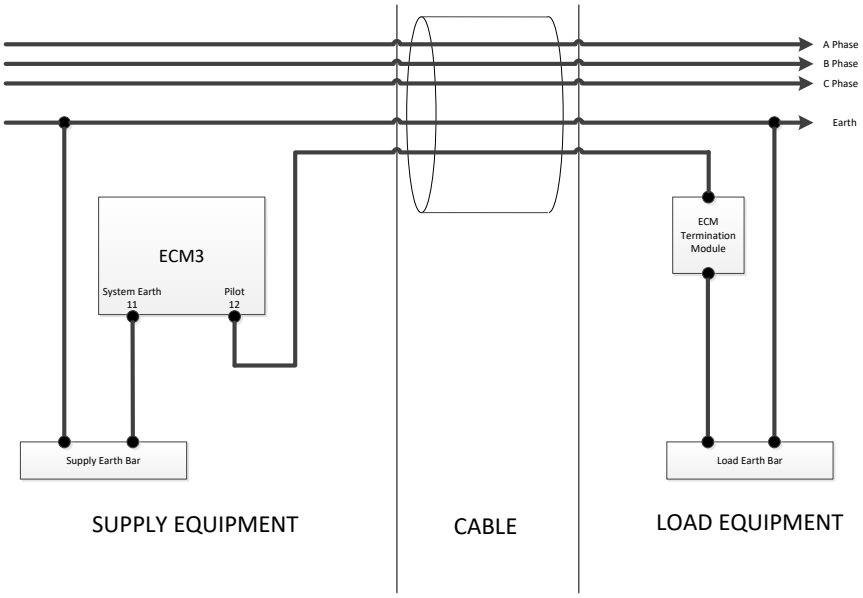

Figure 1: Typical Connection Circuit

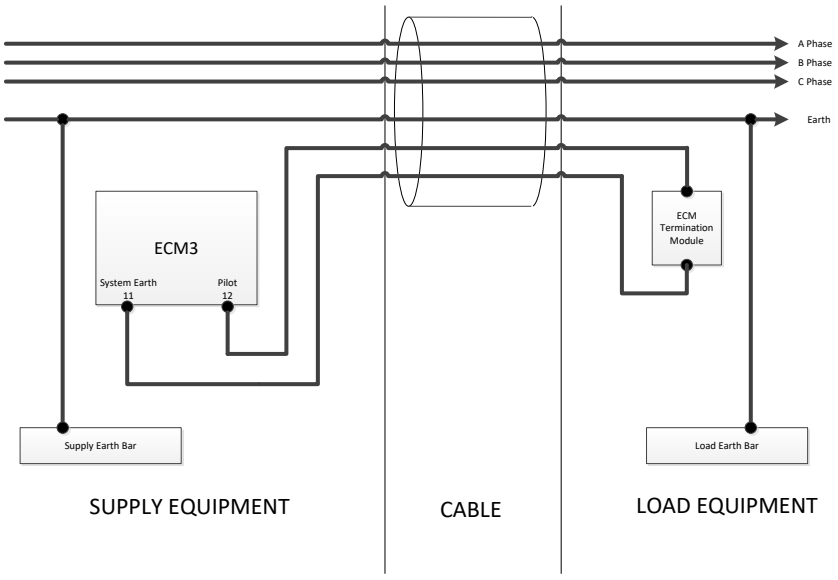

Figure 2: Modified Connection Circuit

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DISCLAIMER