

Informational Bulletin

Objective

This bulletin will identify various situations that can cause the Leakage Current Detection and Interrupter (LCDI) cord to trip on the ACSC100.

Detailed Information

The ACSC100 ships with an LCDI cord that has an outer shield around the line and neutral conductors of the cord. If the cord is damaged such that the line or neutral conductor shorts to this shield, the cord will trip. The cord also contains a Ground Fault Circuit Interrupter (GFCI) that monitors the current flow between the line and neutral conductors. If there is an imbalance of current flow between the two conductors the cord will trip. The cord is designed to trip on an imbalance in the 4-6mA current range.

In the event of a tripped cord, the below items need to be verified:

- Verify that the cord has not been physically damaged. If damage is found, destroy the cord and replace it with a new cord, part number W960-0126.
- Verify that there are no phase-to-ground shorts within the ACSC (requires certified trained personnel to inspect the ACSC). If a short is present, make necessary repairs before re-applying power to the ACSC.
- Verify that the cord does not trip when connected to the branch circuit, but disconnected from ACSC. If this occurs there may be an issue with the branch circuit wiring, such as a phase reversed with the ground connection. This situation may require a licensed electrician to examine the branch circuit for possible problems.

If any of the above symptoms are not causing the cord to trip, it is possible that nuisance tripping is occurring due to normal electrical characteristics commonly found in information technology equipment power modules/supplies within the wiring closets/data centers, or on the same electrical supply panel. Normal electrical characteristics include harmonics that are induced from the power modules/supplies.

If it is believed that nuisance tripping is the main cause of the cord fault, please review APC's position below.

To Whom It May Concern:

The APC InRow SC Model ACSC100 is supplied with a cord set that includes a Leakage Current Detector and Interrupter (LCDI). The National Electrical Code (NEC) article 440.65 requires either an LCDI or an Arc Fault Circuit Interrupter (AFCI) for plug connected room air conditioners. However, this requirement is based on the assumption that the air conditioner is for seasonal use. The 2005 NEC Handbook article 440.65 provides the rationale for the code.

“Generally, portable room air conditioners are used only on a seasonal basis and are removed and stored at the end of the cooling season. During the life of a room air conditioner, the installation and removal occurs many times, and there is an increased likelihood of a damaged cord as a result of the unit being set on the cord or pushed against it. To provide enhanced protection against fires initiated by damaged supply cords, all single-phase cord-and-plug connected room air conditioners are required to be equipped with either leakage current detection and interruption protection or arc-fault circuit interrupter protection.”

The InRow SC is used in a fixed location. It is used in continuous operation, and as such is not the subject of the intention of the electrical code. The cord of the InRow SC is no more subject to damage than the cords of the other Information Technology Equipment (ITE) devices used in the same area. The electrical code does not require an AFCI or LCDI for ITE based on the intended use. The LCDI cord set is required when the InRow SC is used as a portable unit used on a temporary basis as described in the code handbook. If the user determines that the LCDI cord set is not required by the local code, cord AP9871 without the LCDI may be substituted.