

MultiFlex I/O, CUB, and RTU Power Supply Wiring Guidelines and Instructions

Introduction

This technical bulletin clarifies the requirements for power wiring to the MultiFlex line of boards and controllers. This includes all models of the MultiFlex I/O boards, the MultiFlex Rooftop Unit board (RTU), and the MultiFlex Condensing Unit Board (CUB).

Center Tapped vs. Non-Center Tapped Power

All boards except the MultiFlex 16 require connection to a 24VAC **non-center-tapped** transformer. The MultiFlex 16 requires connection to a 24VAC **center-tapped** transformer.

Often, an technician installing a MultiFlex board will want to power several MultiFlex boards off one transformer, or to power MultiFlex boards off transformers that are already powering other CPC I/O boards like the 16AI or 8RO. When doing this, you must follow the following two rules.

Rule 1: Do not power a MultiFlex non-center-tapped board with a transformer that is also powering a center-tapped device.

This means you cannot connect a MultiFlex non-center tapped board to a transformer that is powering a MultiFlex 16, 16AI, 8RO, 4AO, 8DO, or any previous generation CPC board that uses center-tapped power. Doing so will destroy the MultiFlex board.

The MultiFlex manuals indicate you may use a center-tapped transformer to power a non-center-tapped transformer as long as the center tap is not connected. This is still true; however, once you connect the transformer to a non-center-tapped board, it may not be used to power any center-tapped device.

Rule 2: The secondary of the center-tapped transformer must not be grounded on any side. Verify that neither side of the transformer secondary is connected to earth ground before powering the MultiFlex board. A grounded secondary will damage the MultiFlex board.

Grounded Sensor Commons

Although CPC does not recommend the practice, some installation technicians connect the shield to signal ground. On center-tapped devices, this signal ground is connected to earth ground; however, on non-center-tapped devices, this introduces noise into the signal ground.

For this reason, do not connect sensor shield wires to the 0V terminal (signal ground) on the MultiFlex. The sensor shields should be connected to a separate earth ground point away from the board. To minimize noise, the length of shield wire leading to the earth ground point should be short (no more than three inches).