NOTIFIER® by Honeywell
12 Clintonville Road
Northford, CT 06472-1610 USA
203-484-7161 • FAX 203-484-7118
www.notifier.com

ACT-4 Audio Coupling Transformer Product Installation Document

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This product has been certified to comply with requirements in the Standard for Control Units and accessories for Fire Alarm Systems, UL 864 9th Edition. Operation of this product with products not tested for UL 864 9th Edition has not been evaluated. Such operation requires the approval of the local Authority Having Jurisdiction.

Products mentioned in this document that have not received UL 864 9th Edition certification:

- AMG-1

Overview

The ACT-4 Audio Coupling Transformer couples low-level audio to analog audio amplifiers or other Notifier low-level audio inputs, such as the AA Series Amplifiers, or AUX B on a DVC or DAA. The unit can be used to couple a low-level audio signal to up to eight devices. Multiple ACT-4s are required for amplifiers on multiple channels. It provides electrical isolation for equipment powered by separate power supplies with ground fault detection enabled. In addition, the ACT-4 provides common mode noise rejection (CMNR), greatly reducing cross-talk from SLCs.

Applications

The ACT-4 can be installed in any application that uses Notifier low-level audio subject to the following restrictions:

- The amplifiers must mount remotely from the low-level audio source.
- The power supplies in the main control panel cabinet and the remote cabinets do not share the same common.
- Ground fault is enabled for both the input and output sides.

In larger systems, capacitance becomes a critical factor in creating sporadic and difficult-to-find ground faults along a single common connection. In these systems - as in systems that expand - use an ACT-4 if possible.

An ACT-4 may receive low-level audio from the following sources:

- a DVC-AO
- an AMG-1
- an RM-1

It can send low-level audio to the following destinations:

- AA Series amplifiers[1]
- an XPIQ-AIB
- AUX B on a DVC or DAA

Isolating Power Supplies

Isolated power supplies, each with respective ground fault detection circuits enabled, are often used to aid the quick location of ground faults in large systems. This task is more difficult if the entire system (main and all remote devices) share the same common and the power supply in the main control panel provides ground fault detection.

For example, take a system consisting of a distributed audio system made up of XPIQs; connected through a low level audio riser to the audio head end (Figure 1). A common connection occurs through the audio. In this case, the earth fault detection of all the XPIQs must be disabled and a good common connection must be made between each amplifier and the head end. Conversely, the use of an ACT-4 would allow each XPIQ to be isolated from the rest, allowing each one to

1. The ACT-4 is not approved by ULC for use with the AA-100 amplifier.

perform its own earth fault protection; reducing the likelihood of a false trouble and aiding in the troubleshooting and locating of a ground fault. An ACT-4 is not required for amplifiers mounted in a remote cabinet, but installation of an ACT-4 can also reduce common mode noise (CMN) from the SLC.

Installation

Connecting the ACT-4 to an Amplifier

To connect an ACT-4 to an AA Series amplifier, follow these steps and refer to Figure 1, “ACT-4 Connections”.

1. Connect the ACT-4 to the first amplifier in the chain by inserting the P1 pins of the the ACT-4 into terminal block P3 of the amplifier as shown. Tighten screws securely.
2. Using the supplied cable, connect the ground terminal (TB1, 7 EARTH) on each ACT-4 to P8 on the AA-100/AA-120 or to a screw on the upper left corner of the AA-30.
3. Connect the low-level AUDIO IN circuit from the audio source to terminal block TB1 on the ACT-4.

NOTE: For highest sound quality, observe polarity of audio signal when connecting speakers.

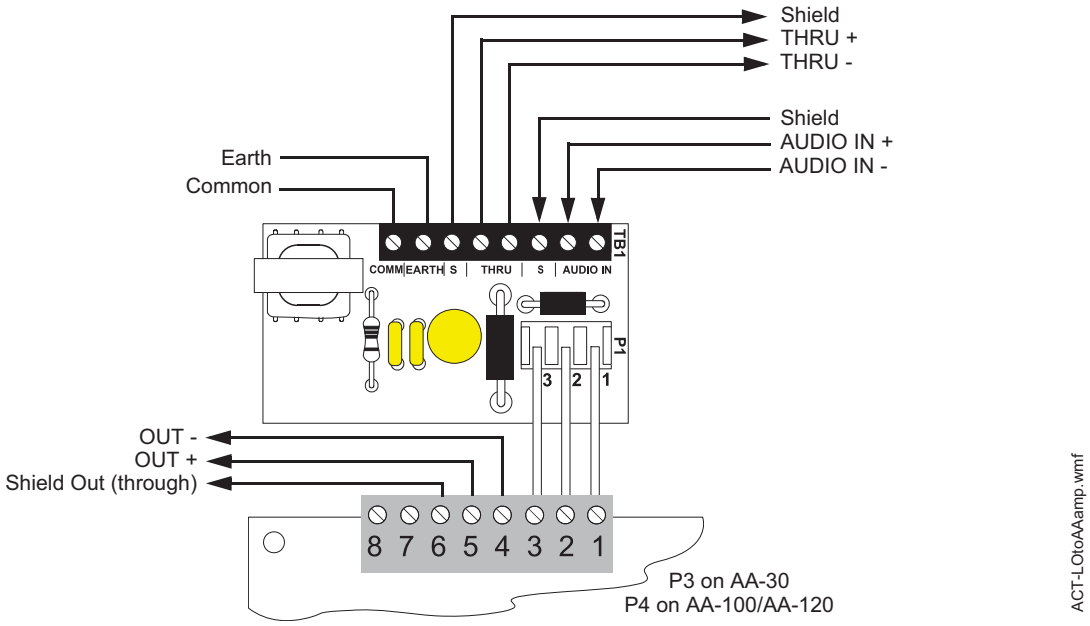


Figure 1 ACT-4 Connections

Wiring Amplifiers

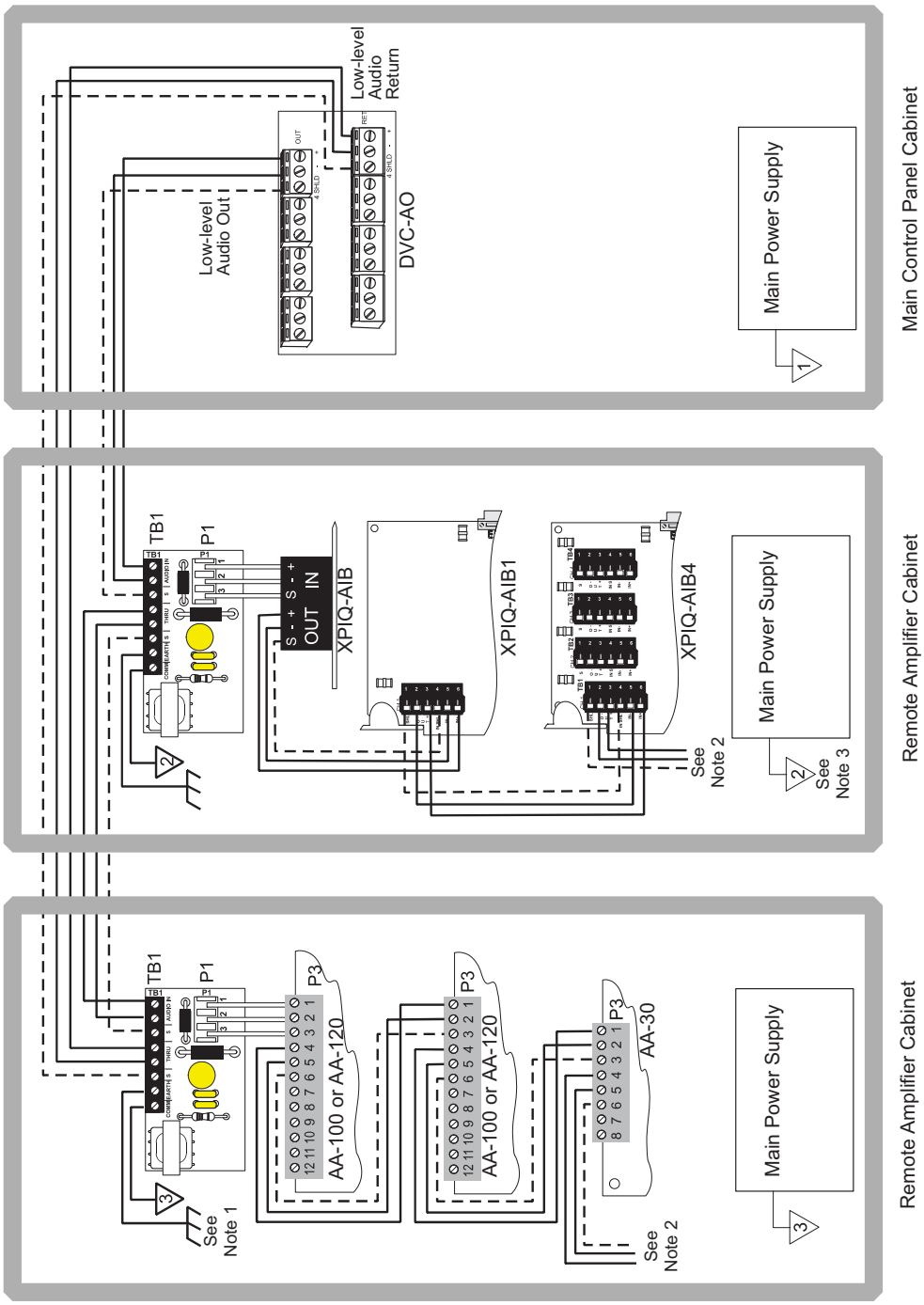


Figure 2 ACT-4 Wiring Diagram

NOTE:

1. The COM terminal is intended for optional shielding of the secondary side of the ACT-4 (low-level audio from the ACT-4 through each amplifier). To use shield, connect to the common of the local power supply—but do not connect this shield to the shield from the primary side of the ACT-4.
2. Daisy-chain the secondary side of the ACT-4 (low-level audio) up to a maximum of eight low-level inputs within the same cabinet or within another cabinet in the same room using conduit.
3. This symbol denotes a local common, in this case for supply number 2.