

GETTING A PERSPECTIVE ON NOISE IN AUDIO

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The complexity of audio systems continues to grow — consoles get larger with more inputs and outputs, use of signal processing increases, loudspeaker systems grow and use more power, multi-channel wireless microphone use is standard in even the smallest productions, MIDI, PA422, ATR machine control and other control technologies abound. In short, there is more and more signal and control interconnection and the subsequent possibility of noise entering systems.

Despite increased system sophistication there exists, at least on some fronts, a vacuum within the industry on how to ensure that systems integrate and function as a whole in a reliable and noise-free way. With ongoing system problems, there is generally little consensus on just where things have gone astray. In many cases, operators and users of systems have become so familiar with the inadequacies of the interconnections scheme and the resultant noise and interference that they ignore or work around interface problems without complaining about it. They've concluded that "this is just the way it is." In really unfortunate cases, the operators lose confidence in the system.

There are a couple of key circumstances at work here.

1. Equipment manufacturers continue to design incredibly sophisticated equipment that suffers from simplistic thinking in the systems design department. Witness unbalanced inserts and other key outputs (such as monitor out) on at least one top-of-the-line console; high impedance unbalanced outputs from leading signal processing manufacturers; unbalanced outputs on multi-channel digital tape recorders, and a host of other glaring examples.

2. System designers and operators contribute by actions such as, lifting the equipment (safety) ground to audio equipment and providing it with either no ground or a ground reference through the interconnecting signal cable shield. (This strategy, while it may work in some situations, is not the choice solution technically, and certainly is not responsible from a life safety standpoint.) System grounding solutions like this can result from a simple lack of planning, preparation, knowledge or desire to do it right.

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