Configuring a Simple Fiber Optic Audio Paging System

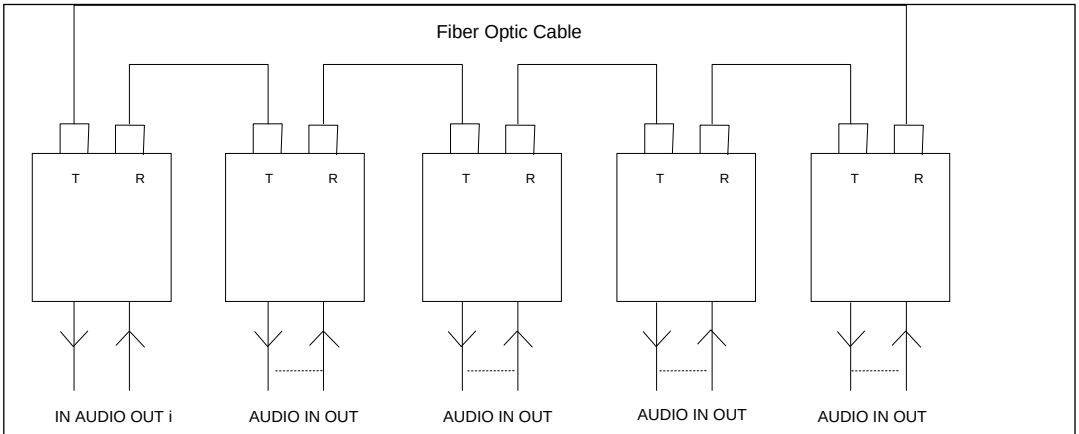
When audio signals must be routed to several locations over long distances from a single source such as in a public address system the use of fiber optic transmission techniques can assure high quality noise-free signals at each “node” without the problems normally encountered with copper cable. Since the fiber optic interconnecting cable in such a system is virtually immune to electrical interference, it can be routed wherever convenient without regard the proximity of electrical noise producers. In addition costs need not necessarily be a detriment especially where high quality performance is critical.

The first drawing shows a ring or loop-type system using relatively inexpensive components. Each transmitter/receiver pair will deliver high quality audio signals over distances of a mile or two between units with multimode optical fiber or tens of miles between units with single-mode optical fiber. The system will also operate from –35 to +75°C thereby allowing it to be used both indoors and outdoors.

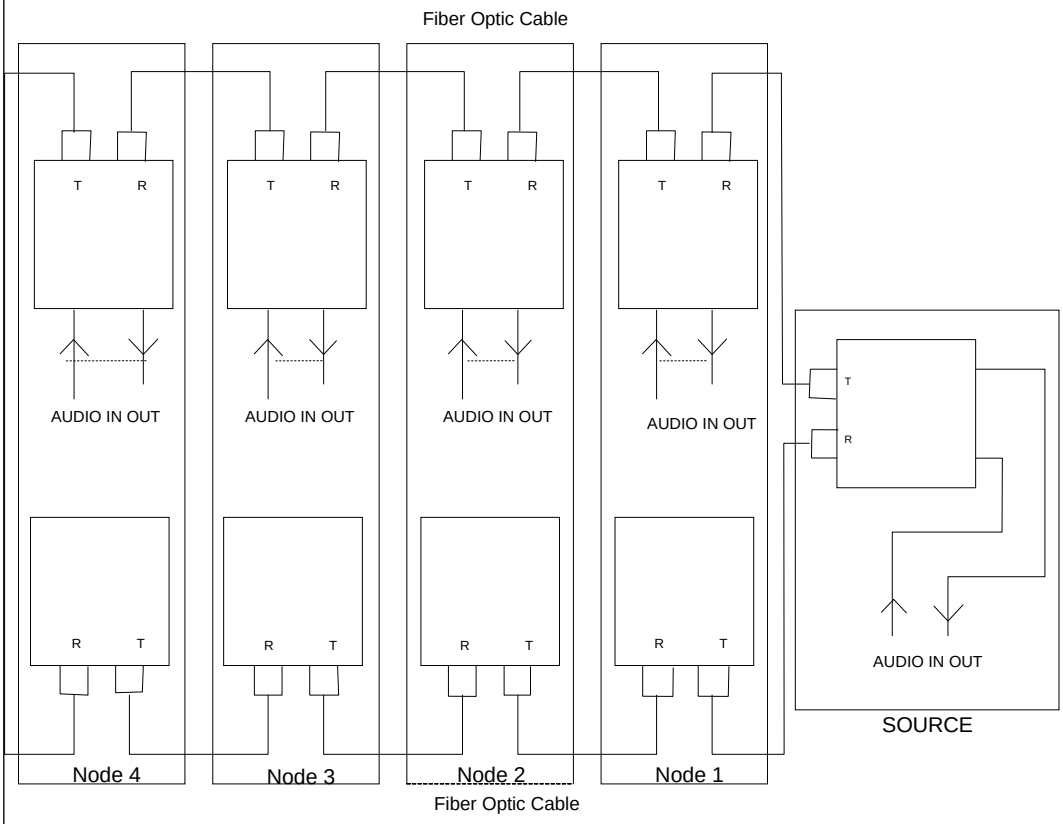
In operation an audio signal from the source is connected to the first fiber optic transceiver in the loop. The receiver portion of the transceiver detects the optical signal and provides an electrical audio output. This electrical output is also applied to the transmitter portion of the transceiver where it is converted back into an optical signal and transmitted to the next transceiver in the loop. This process then repeats until all transceivers receive output and re-transmit the signal. Once the transmission of the audio signal from the host is completed it will eventually wind up back at the source. You will notice that at the host the electrical connection between input and output is not used. Only the initial electrical audio signal is connected to the transmit portion of the transceiver and the electrical receive signal is used as an indication of system integrity or simply ignored.

The diagrams both employ ***Litelink***® AX-1001 Audio Transceivers and installation only requires a screwdriver to set desired audio levels and can be accomplished quickly (by ear) without the need for special test equipment.

The second drawing shows a linear-type audio system used where the distances between nodes (locations) is large. In this example two fiber optic transceivers are needed at each node, one for transmission and reception and the other for use as a repeater. Operation and connections are basically similar to the first case except that the long return fiber is eliminated due to the second “repeater” at each node. If the return signal is not needed then the long return fiber would not be required.



LOOP-TYPE AUDIO SYSTEM



LINEAR-TYPE AUDIO SYSTEM

*For more information contact **Liteway Inc.** at 516-931-2800 or at sales2@liteway.com*