



TECHNICAL BULLETIN

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OPTICAL CONNECTION SYSTEM SPECIFICATION NOTES **For Optocore® system in DiGiCo and Soundtracs consoles**

The following notes are intended as a guide to system engineers planning external optical systems for permanent building installation, external patch systems etc.

Standard external cables are supplied by DiGiCo (2, 5, 100 or 150 m) supplied with the standard HMA expanded beam military connector.

Digico and Soundtracs mixers can be supplied as a special option built with ST sockets (twist locking bayonet style optical). These are recommended ONLY for very occasional disconnection, for example during maintenance only.

Using standard cables:

The maximum length of cables used is normally limited by the number of connections present. The loss in a connector usually equals or exceeds the cable loss. The maximum typical acceptable loss is about 6dB between mixer and mixer or mixer and rack. Each "leg" in the system is considered separately. i.e. the Loss from FOH mixer to a rack can be up to 6dB, the loss from the Monitor mixer to the other connection on the same rack may also be up to 6dB.

The typical loss in a 5m cable is 2dB, the typical loss in a 150m cable is 2.5dB. therefore 2x 150m cables can be connected in series (to make 300m) and be expected to work. 3 x 150m in series (making 450m) will normally work, but is at the limit of the system performance.

Cont:

Using installed custom cabling

The external cables used for Optocore are 50um multimode.

The maximum run node to node is 600m. The worst case maximum loss allowable node to node is 7.5dB. System designers should work to this figure. The best case allowable is 16dB, therefore a typical acceptable loss is 10dB.

Note a "node" is the SC connector internal to the Digico unit on the interface PCB itself, NOT the panel connector. The internal cables to the rear panel with add typically 0.5 - 1dB per end.

Therefore external systems around 6dB overall loss should be acceptable.

"Looping out" an unused node (mixer or rack) to maintain the Optocore redundant operation introduces 2 extra connections in the optical circuit and therefore adds the associated losses.

The use of an optical patch bay typically also adds 2 connection per patch and therefore adds the associated losses.

It should be noted that the HMA connector is hermaphrodite but Sc and ST connectors used in installed system are not and cable connectors will not connect "in line" with other cables but only with their companion panel connectors. In line "barrel" connections (back to back connectors) are available but introduce a loss at least the same as 1 panel connection.