

Fiber Interface for Matrix Digital Intercoms



Two Channel FIM-202D



The FIM-202D is an optical fiber interface for use with Eclipse Digital Matrix and Matrix Plus3 intercom systems. Each pair of FIM-202D fiber interfaces allow one or two digital matrix intercom panels or interface modules to be remotely connected to the matrix card frame via optical fibre.

This transmission capability allows a set of panels to be located remotely from the matrix frame using existing fiber cabling or can be used to temporarily locate panels via fiber in live event production applications. Panels may be connected to the matrix frame at fiber lengths of up to 12 miles (20 km) when used with single mode fiber. The use of fiber for long runs eliminates all types of electromagnetic and RF interference to the signal and provides an intrusion secure link.

Connecting matrix Panels and Interfaces

Two fiber interface units are used for two connections - one at the matrix frame end and one at the remote panel end or interface module. For each connection between frame and interface, a port is connected to one of the two matrix connectors on the rear of the interface using RJ-45 connectors and 4-pair CAT-5 cable. At the other end, each panel is connected to one of the port connectors on the rear of the second interface using the same type of cabling. Once connected, the matrix frame sees the panels just as if they were directly connected via CAT-5 cable.

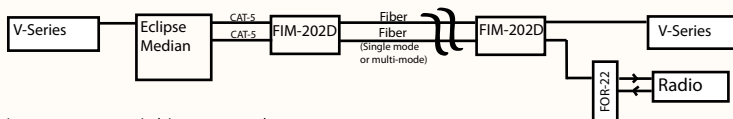


Fig. 1 Systems Linking example

Transmission and Operation

The FIM-202D interface that is connected to the digital matrix frame receives the audio and data that is directed to the individual panels connected on the other end of the fiber - each going to its own RJ-45 connector. The audio signals are sampled at 48kHz and time sequenced, together with RS-422 data. The consolidated signal is sent as a 24-bit digital stream through the outgoing fiber.

Incoming data from the panel is decoded by the interface and sent to the correct RJ-45 connector and then back to the matrix frame. The process is reversed by the FIM interface at the panel end. The audio signal is flat (+/- 0.2 dB) to 20 kHz, with a signal-to-noise ratio greater than 80 dB.

Features

- Remotely locates one or two digital matrix panels or interface models over fiber
- 24-bit digital DEMUX
- 48kHz audio sampling rate
- Sends and receives RS-422 control data
- Flat frequency response up to 20kHz, S/N >80dB
- Up to 20km (12 miles) range with fiber using single mode
- Up to 5km (3 miles) using multi mode fiber
- Works in demanding environmental conditions
- RJ-45 connectors for direct connection with matrix panels, frames and interfaces
- Can be used to extend any line level 4-wire audio signal / RS-422 signal

N.B. the FIM-202D can be used with the earlier FIM-102D but the audio will require 5dB of gain.

Electrical & Mechanical Specifications

The FIM-202D can operate in demanding conditions, over a temperature range of -40 degrees to +65 degrees Centigrade and with humidity range of 0% to 95%, non-condensing.

Input Voltage range: 9-18 Vdc
Power Consumption: < 5 Watts (at 13.8V per end, all channels at full level)



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