FIM-S222 2-Channel Fiber Interface

Clear-Com Fiber Interface

Improving Workflows

Key Features

- Compact 2-channel interface box
- 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
- RJ-45 connectors for direct connection with matrix panels, frames and interfaces
- Can be used to extend any line level 4-wire audio signal
- Can be used to extend any RS-422 signal
- Compatible with FIM-202D

The FIM-S222 is a bi-directional optical fiber interface that converts analog audio and digital data for transmission over Fiber.

Description

The FIM-S222 optical fiber interface allows one or two digital matrix intercom user panels, interface modules or 4-wire sources to be remotely connected to Eclipse, Eclipse HX and Matrix +3 intercom systems over optical fiber. A pair of FIM-S222 interfaces is required for each fiber link; one at the matrix frame and the other at the matrix user panel.

Audio

The FIM-S222 provides two channels of any line level audio signal plus serial RS-422 data on a single pair of fiber. The consolidated signal is sent as a 24-bit digital stream through the outgoing fiber. The incoming data from the panel is decoded by the interface and is sent to the correct RJ-45 connector and then back to the matrix frame. The process is reversed by the FIM-S222 at the user panel. High speed analog-to-digital and digital-to-analog converters are present on each audio channel.

Connecting Panels and Interfaces

Two FIM-S222 interfaces are used for connecting a matrix frame to a remotely located user panel over fiber. For each connection between the frame and interface, a port is connected to one of the two matrix connectors on the FIM-S222 using the RJ-45 connectors and 4-pair CAT5 cable. At the other end, each panel is connected to one of the port connectors on the second FIM-S222 using the same cabling. Once connected, the matrix frame can see the user panels as if they were directly connected via CAT5 cable.

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Technical Specifications

Audio

Transmission Method: Digital, TDM, 24-bit, 48k samples/sec
Input Impedance: 600 Ohms, balanced
Output Impedance: 30 Ohms, balanced
Maximum Input Level (600 Ohms): +18 dBm (peak)
Maximum Output Level (from 30 Ohms): +18 dBm into 600 Ohms
Frequency Response (@0 dBm from 50 Hz to 15 kHz): ±0.2 dB
Total Harmonic Distortion + Noise: from 20 Hz to 20 kHz @ +8 dBm, <0.2% at 1 kHz @ +18 dBm, <0.007%
CMRR (Common Mode Rejection Ratio): ±55 db @ 1kHz
Signal to Noise Ratio: unweighted, 20 Hz - 20 kHz, ref. to +18 dBm clip level, >80 dB
Aggregate Digital Data Rate: 147.456 MB

Electro-Optical System Margin Data

Operating Wavelength: 1300 nm
TX output into cable: -8 to -15 dBm
RX sensitivity: ≤31 dBm
OP Margin Single Mode: 19 dBm
OP Margin Multi Mode: 12 dBm

Matrix Data Communications (Frame-to-Panel Digital Data)

Transmission Rate
RS-422, Balanced TTL Levels: 0 to 150 kBits/sec
Jitter: 1.12 msec*
*Higher rates possible dependent upon user system jitter tolerance

Connectors

Connectors: RJ-45, coaxial
Optical Connectors: ST-type
Power Connector: 2.5mm Circular

Power Supply

Input Voltage Range: 9-18 Vdc
Power Consumption: @13.8V per end, all channels at full level; <5 watts
A/C Adapter: Supplied

Temperature

Operating: -40°F - +149°F (-40°C - +65°C)
Humidity: 0 – 95%, non-condensing

Dimensions

7.1in W x 3.3in H x 1.1in D
(180.3mm x 83.8mm x 27.9mm)

Weight

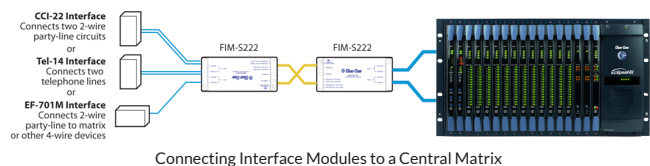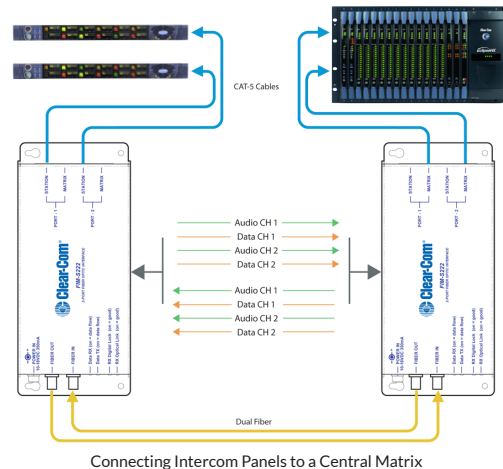0.5lbs (0.23kg)

Side Views

FIM-S222 Left Side Connectors

FIM-S222 Right Side Connectors

Fiber Diameter and Length

Fiber Core Diameter	Maximum Fiber Length
50 microns (multi-mode)	3 miles (5 km)
62.5 microns (multi-mode)	2 miles (3 km)
8 microns (single-mode)	12 miles (20 km)

Connection Pathways

Connecting Intercom Panels to a Central Matrix

Connecting Interface Modules to a Central Matrix

Notice About Specifications

While Clear-Com makes every attempt to maintain the accuracy of the information contained in its product manuals, that information is subject to change without notice. Performance specifications included in this manual are design-center specifications and are included for customer guidance and to facilitate system installation. Actual operating performance may vary.