



EF-701M Front Panel

The **EF-701M** interface converts a single channel of standard or TW party line intercom to four-wire audio, while also converting call signals to RS-422 data (and back). The resulting four-wire audio plus RS-422 data can then be sent to a Clear-Com Matrix port, fiber-optic converter (modem) or connected to another EF-701M over twisted-pair cable such as CAT-5E. When used with a Matrix system, the EF-701M allows a party-line channel to be connected to the frame with up to 5000' of cable. With its excellent hybrid null and wide-range level controls the unit may also be used as a best-quality stand-alone two-to-four-wire converter.

For travelling systems that require long connecting runs between stations or systems, EF-701M's can quickly recover their cost in space and weight savings, as fiber-optic and UTP cables are lighter and more compact than standard shielded mic cable. Two EF-701M's can be connected directly to each other over low-cost four-pair, unshielded, twisted-pair cable (UTP). The EF-701M's low profile and compact size add to its portability. It can easily be mounted on a utility rack shelf and up to three units will fit across in a standard 1-RU rack space. No additional power connection is required, as the EF-701M obtains its DC operating current through the party-line connection on pin 2 of the XLR connector.

Matrix

For systems where only one or two of part-line channels are needed, the EF-701M is ideal. Simply run UTP cable from the Matrix frame to the EF-701M, which is connected to and powered by the party-line system. A rear panel dip-switch on the EF-701M selects connection for the four-wire audio and data as the RJ-45 jack, instead of the DB-15, simplifying set-up.

Call Signalling

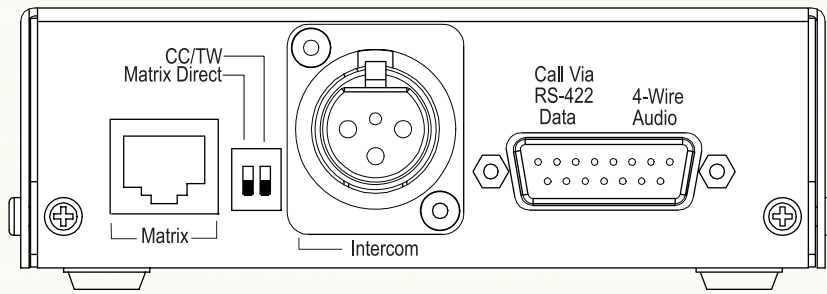
In addition to its acting as a visual indicator, call signalling can be used to trigger relays or functions in other intercom equipment. An amber data LED provides the user with continuous status on the data link between two EF-701M's and will indicate whether or not a proper link has been established. The EF-701M also includes internal jumpers to select different baud rates for the RS-422 data.

Nulling Circuitry

The superior hybrid nulling circuitry of the EF-701M allows multiple units to be used together on a single party-line channel. Wide-range controls are provided for audio level adjustments along with three front-panel trim pots for complete hybrid null adjustments.

Features:

- High quality party-line to four-wire audio conversion
- Maintains hybrid null with multiple units on a channel
- Converts call signals to RS-422 data with selectable baud rate
- Connect intercom w/call signal over fiber-optic systems
- Clear-Com and RTS® compatible
- Built-in test tone and jack for nulling
- Multi-mode Data status LED
- Powered by intercom line
- Connects with standard XLR's and RJ-45 or DB-15
- Rugged, compact package can fit up to three across on standard 1-RU rack shelf CC/TW



EF-701M Back Panel

Technical Specifications:

dBu is an absolute measurement. 0 dBu is referenced to 0.775 volts RMS

Clear-Com Format

Line Characteristics

Max Level Before Clipping: ≥ 20 dBu
Impedance: $\geq 10K\Omega$

Signalling

Receive: ≤ 4 VDC
Send: ≥ 11 VDC

RTS Format

Line Characteristics

Max Level Before Clipping: ≥ 20 dBu
Impedance: $\geq 10K\Omega$

Signalling Tone

Send frequency: 20kHz ± 1 KHz
Receive frequency: 20kHz ± 500 Hz
Send level: ≥ -6 dBu
Receive level: ≤ -20 dBu

General Characteristics

Frequency response

Party Line - Matrix: 200-10KHz ± 3 dB
Matrix - Party Line: 200-10KHz ± 3 dB

Distortion

Party Line - Matrix: $\leq 0.5\%$
Matrix - Party Line: $\leq 0.5\%$

Noise

Party Line - Matrix: ≤ -50 dBu
Matrix - Party Line: ≤ -70 dBu

Max Gain

Party Line - Matrix (CC setting): 20dB ± 3 dB
Party Line - Matrix (RTS setting): 16dB ± 3 dB
Matrix - Party Line (CC setting): -5dB ± 3 dB
Matrix - Party Line (RTS setting): -1dB ± 3 dB

Min Gain

Party Line - Matrix (CC setting): -7dB ± 3 dB
Party Line - Matrix (RTS setting): -12dB ± 3 dB
Party Line (CC setting): -33dB ± 3 dB
Matrix - Party Line (RTS setting): -29dB ± 3 dB

Power Requirements

Input Voltage Range: 20-30VDC
Quiescent Current: ≤ 70 mA
Max Current: ≤ 80 mA

Rear Panel Connectors and Controls

Party Line: (1) XLR3F
RTS: (1) DB-15F
Matrix: (1) RJ-45
(2) Mode Switches

Front Panel Connectors and Controls

TS1 Earphone: (1) 3.5mm Jack Socket
Level Adjust: (2) Rotary Control
Null Adjust: (3) Rotary Control
Power Indicator: (1) Green LED
Data Indicator: (1) Amber LED

Dimensions

Height: 1.62 in. H x 5.94 in. W x 4.80 in D
(41 mm x 151 mm x 122 mm)

Weight

1.75 lbs (.794 kgs)

Accessories

Wiring diagram, adhesive backed
TS-1 testing earphone

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.

Applications:

- Broadcast facilities, theme parks, campuses, sports complexes, large research and test facilities with fiber-optic infrastructure
- Portable systems requiring long cable runs
- Extend connection lengths between stations or systems up to a mile with standard UTP* cable
- Connect a Clear-Com channel to a channel of RTS-TW with fiber or UTP in between
- Connect Clear-Com PL or RTS-TW to a Matrix Plus 3 frame
- Utilize existing, installed UTP to connect intercom locations



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