

Digital Hybrid with Frequency Extender



The ultimate solution for interconnection between Telephone Lines and Radio and TV Programs

Telephone communications are performing a main role in broadcasting programs today and with no doubt, will still do in the future.

Their range of applications is constantly extending in order to achieve more creative Radio and TV programs, increasing the participation of the public. But studio engineers know the problems that usually occurs when carrying out an interconnection between a telephone line and a "live" program. The side rejection between the studio signals and the input signal is difficult to avoid with the conventional analog methods.

However, the arrival of digital audio processing techniques, together with the quick advance of micro-electronics, have allowed us to develop a telephone interface specially designed for the radio and TV broadcasting companies, the TH-02Ex Mk-II.

The TH-02Ex Mk-II is a configurable system, which can be used in the two-wire mode, as a digital hybrid, or in the four-wire mode as a full duplex intercom.

Due to its excellent technical and functional characteristics, the TH-02EX Mk-II has set the trend to follow by all other similar equipment.

The Mk-II version of the TH-02EX Mk-II hybrid gives users the option to activate the multiplex mode. In the last possibility, each line of the equipment operates as a single independent hybrid.

The TH-02EX Mk-II can work with one or two communication lines.

Working with two lines, the user takes advantage of the Mix-Minus bus fitted into the system.

Using this bus, it is possible to make a multiplex and full duplex communication between the studio and two communication lines connected to the TH-02EX Mk-II.

The user can select the working mode of each line so, there are different configurations that make the TH-02EX Mk-II a very versatile system, with a wide choice of applications.

The TH-02EX Mk-II incorporates a useful application, the Extended Mode. When connected, the frequency extensor displaces all the frequencies 250 Hz upwards in the emission band, and 250 Hz downwards in the reception band. For correct operation of the function, the inverse mode should be applied at the other end of the line with another TH-02EX Mk-II or TLE-02, TLE02-D, MPAC-02, EAGLE, COURSE or SWING.

The new feature permits to send through telephone line frequencies between 50 and 3.150 Hz, instead of those between 300 and 3.450 Hz, transmitting two and a half additional octaves in low frequencies, with a loss of only 1/10 octave in high frequencies, obtaining such perfect sound that you can not appreciate the transmission is made through telephone lines, disappearing the characteristic shortage of low frequencies.



BACK PANEL



TECHNICAL CHARACTERISTICS

AUDIO INPUTS:

Program inputs: Transformer balanced.
Input impedance: > 6 kOhms.
Nominal input level: 0 dBm.

Four Wire inputs: Transformer balanced.
Input impedance: > 1KOhm.
Nominal input level: 0 dBm.

AUDIO OUTPUTS:

Program outputs: Transformer balanced.
Nominal output level: 0dBm.

Four Wire outputs: Transformer balanced.
Nominal output level: 0 dBm.

TELEPHONE LINE INTERFACE:

Input/Output: Transformer balanced.
Impedance: 600 Ohm.
Nominal input level: -10 dBm.
Nominal output level: -6.5 dBm.

* In multiconference mode, the output level of the telephone line provient from the other line (nominal output level) is -7.5 dBm.

TWO WIRE MODE

BANDWIDTH (not active extensor)
Telephone line: 300-4.000 Hz +/- 1 dB
Program output: 300-4.000 Hz +/- 1 dB

BANDWIDTH (active extensor)
Telephone line: 50 - 3.750 Hz +/- 1 dB
Program output: 50 - 3.750 Hz +/- 1 dB

Distortion + THDN: 1 KHz with nominal input and output levels.
Telephone line: < 0.20%.
Program output: < 0.15%.

Absolute noise: TX = >-66 dBm. RX = - 68 dBm.

Frequency extensor: TX = 250 Hz. RX = - 250 Hz.

Cross-talk in any case: Lower than absolute noise.

SUPPRESSION ELECTRICAL ECHO:

One and Two lines connected: Impedance: 600 Ohm.
Signal source: One and Two lines: 1 Khz.
Nominal input and output levels.
Program output.
Level One line: < -64 dBm typical.
Level Two lines: < -58 dBm typical.

FOUR WIRE MODE:

BANDWIDTH (not active expansor).
Telephone line: 300-4.000 Hz +/- 1 dB.
Program output: 300-4.000 Hz +/- 1 dB.

BANDWIDTH (active expansor).
Telephone line: 50 - 3.750 Hz +/- 1 dB.
Program output: 50 - 3.750 Hz +/- 1 dB.

Distortion + THDN: 1 KHz with nominal input and output levels.
Four Wire output: < 0.10%.
Program output: < 0.10%.

Absolute noise:

TX = < - 66 dBm. RX = < - 68 dBm.

Frequency extensor:
TX = 250 Hz. RX = -250 Hz.

Cross-talk in any case: Lower than absolute noise.

AC POWER SUPPLY:

110/220 V. 50 - 60 Hz. 37 VA.

DIMENSIONS:

19" rack (1 Unit height).
Width: 482 mm. (19").
Height: 44.5 mm (1,75").
Depth: 356 mm. (14").

