

Tele-Link



The only stereo quality STL link to utilize the "Free Internet Highway" or any other ethernet connection

Features:

- ◆ Full Duplex Operation Permits Simultaneous Transmission in Both Directions
- ◆ Provides Reliable 22 KHz Stereo Audio Response or AES/EBU Digital
- ◆ The Only Usage Costs are the Wideband-Dedicated Connections
- ◆ Continuous Monitoring of Audio Quality and Automatic Restarting of Connections
- ◆ Can Provide Thousands of Miles of STL Stereo Service
- ◆ One Stereo Program can be Fed to Multiple Destinations
- ◆ Real Time Audio and Data Metering
- ◆ Facilities to Play Local Audio and Initiate Pager Alert Under Emergency Conditions
- ◆ Quick and Easy Installation - Pre-Configured Systems Enable Easy Plug and Play
- ◆ Supplied with All Hardware and Software Except Monitor and U.P.S. Power Supply
- ◆ Optional Kits Available for Remote Control of 8 Relays and 5 meter readings
- ◆ Can be Used for Surveillance of Remote Sites
- ◆ Only 128 KB Required for Stereo Transmission in One Direction
- ◆ Can be Used with any Reliable Internet Connection with Static IP, and Adequate Bandwidth (DSL, ISDN, T1, Cable Modem, and Satellite Receiver Systems such as "Starband")
- ◆ Mountable on Tabletop or in Standard 19" Rack



ENERGY-ONIX

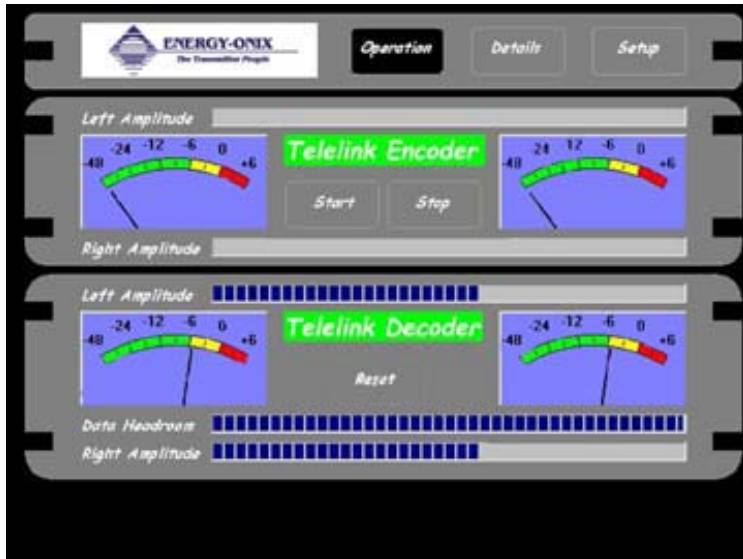
The Transmitter People

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Operations Screen

Tele-Link (2) Channel Operations Screen

The normal operating screen of the (2) channel **Tele-Link** is pictured to the left. Here it can be seen that there exists facilities on this screen to simultaneously monitor the audio levels that have been applied to the encoder as well as the audio outputs of the decoder.

The **Tele-Link** has automatic facilities to “start” the encoder and to restart the decoder, but it has the capability of manually stopping the audio being applied to the encoder as well as manually resetting the internet connections to the decoder.



Details Screen

Tele-Link (2) Channel Details Screen

Pictured to the left is the “Details” screen that is utilized in the **Tele-Link**. Here it should be noted that the data quality, data bit rate and data headroom are demonstratively displayed. In addition, the audio bandwidth that is utilized is described. Normally, this bandwidth indicates 22 K response. In addition to these meters, the 3 bars on the right hand corner provide monitoring details, such as the validity of the connection to the Internet, the amplitude of the audio, and the initiation of the local fill. Under normal conditions, there are not indications on any of these bars, they will only function in the event of problems in the system.



Backup Local Audio Recorder

Back-Up Local Recorder

Pictured on the left is the Local Recorder Series. This software permits the station to record and play when required, up to 12 hours of local fill in the unlikely event of an interruption of the Internet Connection. It has facilities to monitor this fill level. The "fill" program automatically restarts to its beginning when the normal program is restored.

Description

The Energy-Onix **Tele-Link** is the solution that Broadcasters have sought to provide high quality audio transmissions over long distances or from point to point where conventional facilities do not exist, or those that do are of exorbitant costs.

The **Tele-Link** consists essentially of an enhanced encoder and decoder that permit wideband, reliable transmission over the Internet using a wideband, dedicated connection to and from the Internet. Broadcasters use the free highway to deliver a noise free stereo program with 22KHz response on both left and right channels, as well as AES/EBU digital services.

The only operating cost of this system is the charge associated with the wideband Internet connections. Those facilities are now available at practically any location in the United States with either terrestrial or satellite delivered connections providing a data rate of 128kbps or more. Monthly rates for this service can be as low as \$20.00 per month for each end of the STL.

The **Tele-Link** has been thoroughly tested under the most challenging conditions and perfect, uninterrupted, noise free, 22 KHz stereo responses has been maintained. For example, in one month of tests, stereo programs were originated in Fort Collins, Colorado and connected via a wideband "cable modem" to the Internet. This signal on the Internet initially went to Salt Lake City, then to St. Louis, then to Nashville, then to Washington D.C. then to New York City and finally to a DSL connection that was attached to the **Tele-Link** decoder in the Energy-Onix factory in Valatie, N.Y. This Internet path represented well over 3000 miles and at least 25 local servers and yet no degradation occurred in frequency response and quality nor was there any interruptions in service.

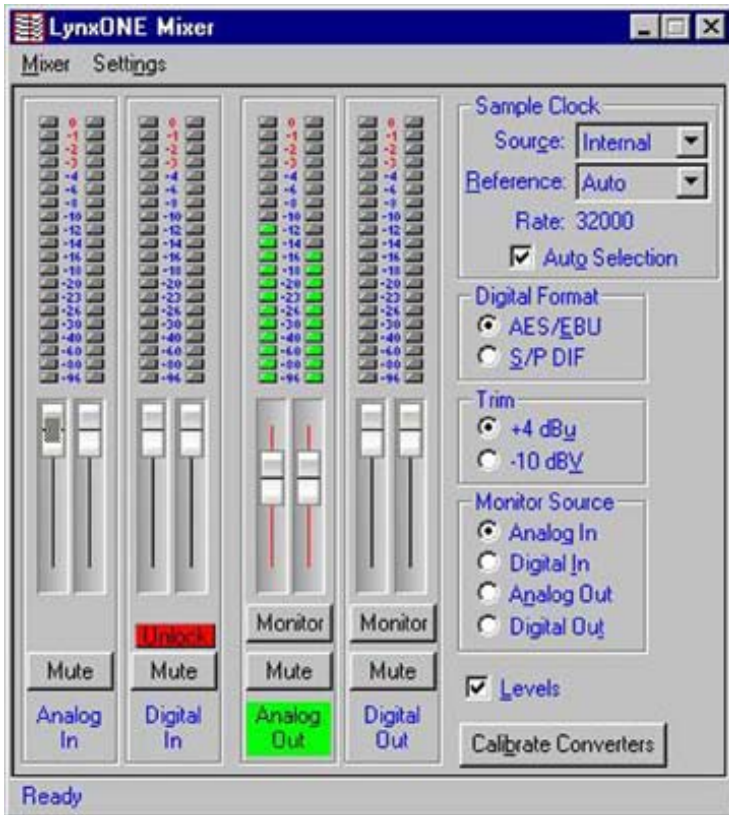
The Energy-Onix "Advanced Internet Protocol" and modern computer hardware as embodied in our **Tele-Link** have eliminated the problems prevalent with other users of the Internet.

We believe that the reliability of the average **Tele-Link** system is better than 99.99% but we cannot be responsible for all broadband servers with the system. The decoder of the **Tele-Link** contains a "smart system" which, in the event of an Internet overload or server overload will, in 2 seconds, reset the equipment. If audio is not present within 10 seconds, a local pre-recorded "fill" from the internal hard drive will serve as the program, and an appropriate "pager" will be notified. Thus, the two "unusual" possibilities of overloading a broadband connection and interruption of the Internet connection have been safeguarded by the **Tele-Link**.

The **Tele-Link** hardware consists essentially of (2) computers with "software" designed for full duplex on the Internet. Each terminal contains an Encoder and Decoder. Both computers are supplied with a keyboard and mouse. Customers are required to supply a UPS (Uninterrupted Power Supply), a video monitor and a wideband-dedicated connection to the Internet at each end of the system. These connections must have a minimum capacity of 128 kbps.

For those users who desire multiple destinations for the same stereo program source, only one Originating terminal is required. This combination is capable of delivering quality stereo information to as many as 5 terminations. Every termination requires a wideband – dedicated connection, a **Tele-Link** terminal, and an appropriate UPS, video monitor and audio distribution equipment.

The normal output level of the **Tele-Link** is 0 dBm @ 600 ohms unbalanced for both left and right outputs. This level is adjustable.



LynxOne Mixer

Each **Tele-Link** terminal utilizes “LynxOne”, high performance digital/analog audio mixer cards. Each card has the capacity of handling (2) balanced analog or (1) digital AES/EBU signal.

The (4) channel terminal utilizes (2) “LynxOne” cards to encode (2) stereo channels. The (6) channel terminal has (3) “LynxOne” cards, while the (8) terminal Tele-Link utilizes (4) cards to encode (4) stereo channels.

Selection of this screen permits the user to analyze and control analog inputs to the encoder and decoder.

Technical Specifications

Analog I/O

Number/Type	Two Inputs and two outputs/cross-coupled Electronically balanced or unbalanced, XLR Connectors on Audio Cable
Level	+4 dBu nominal / + 20 dBu max. or -10 dBV nominal +6 dBV max., 600 ohm load on outputs
Output Impedance	Balanced mode: 24 ohm, Unbalanced mode: 12k ohm
Output Drive Capacity	600 ohm impedance, 0.16uF capacitance
Bit Depth	8, 16, 24, or 32 bit file types
On-board Buffer Size	8 Kbytes X 2, for L/R input and output

Tele-Link Mechanical Specifications

Weight:	37 lbs
Dimensions:	19" W x 7" H x 21" D

Analog Performance

Frequency Response	20 Hz-20 KHz, +0/-0.35 dB
Dynamic Range	>103 dB, A-wtd., analog in to analog out using -60 DBFS measurement method
Signal to Noise	>99 dB, analog in to analog out, 1 KHz signal @ -1 DBFS
Channel Crosstalk	<-103 dB, analog in to analog out, 1kHz signal @ -1 DBFS
Input THD+N	0.0022% typ., 1KHz signal @ -1DBFS, 22 Hz - 22 KHz BW, analog input to digital output
Output THD+N	0.0015% typ., 1KHz signal @ -1DBFS, 22 Hz - 22 KHz BW, digital input to analog output

Digital I/O

Number/Type	One input and one output / AES/EBU or S/P DIF format transformer coupled, XLR connectors on Audio cable
Sample Rates	32 KHz, 44.1 KHz, 48 KHz, 88.2 KHz, 96 KHz
Bit Depth	8, 16, 24, or 32 bit file types
On-Board Buffer Size	8 Kbytes X 2, one each for input and output