PHOENIX STUDIO
Multi-Function Stationary Audio Codec

AEQ

The Most Versatile and Powerful Stationary IP Audio Codec In The Industry

ISDN (RDSI), X21/V35, 3G and 4G, WIFI ...

Dual Stereo Channel, Full Duplex, Audio Codec - specifically designed for use with a wide array of communications connections and full list of codec protocols.

Complete and Versatile Communications Platform - includes Ethernet connectivity for use with audio over IP networks, X.21 / V.35 for point-to-point links, USB for maintenance operations.

Unique Design Features - fully independent Main Program and Coordination / Talk-Back channels. Connect simultaneously two stereo or mono feeds to diverse locations. Easy to navigate advanced user interface.

Maximum Compatibility – connects with virtually all manufacturer's codecs over IP and ISDN. Fully compliant with N/ACIP EBU Tech 3326 recommendations. Complete SIP support. Employs widely used industry standard encoding / decoding algorithms.

IP Advantages - Adaptive buffer mitigates network jitter. DHCP automatically configures IP connection parameters. Dual, independent IP interface connections – one for audio over IP and the other for remote control.

AEQ SIP Server - To simplify IP connections, AEQ puts its own SIP server at your disposal – and at no cost to you.

The ideal solution for your station´s communications needs.

GENERAL DESCRIPTION

The Phoenix Studio is a rack mounted, dual channel, stationary codec designed to communicate with others Phoenix Studio and Phoenix Mobile or other compatible IP codecs. The Phoenix Studio can connect with two other audio codecs simultaneously. Its optional communications modules provide diverse connectivity with other codecs as well. Its front panel controls and associated on-screen menus are very complete and easy to use.

AEQ's Phoenix family of audio codecs are fully compliant with the N/ACIP EBU Tech 3326 recommendations. AEQ customers can simplify IP connectivity by using AEQ's own SIP server - at no cost what so ever.

The serial port provides connectivity to an external equipment (a PC, for instance) in order to transmit and receive auxiliary data embedded in an audio flow (continous data channel) in a transparent way. Also, the Phoenix Studio is equipped with an X.21/V.35 interface for full-full-duplex, point-to-point links. Further, the unit provides a USB port to facilitate maintenance operations in the event that this would be required. The port can be configured as master or slave, this latter being considered as factory default.
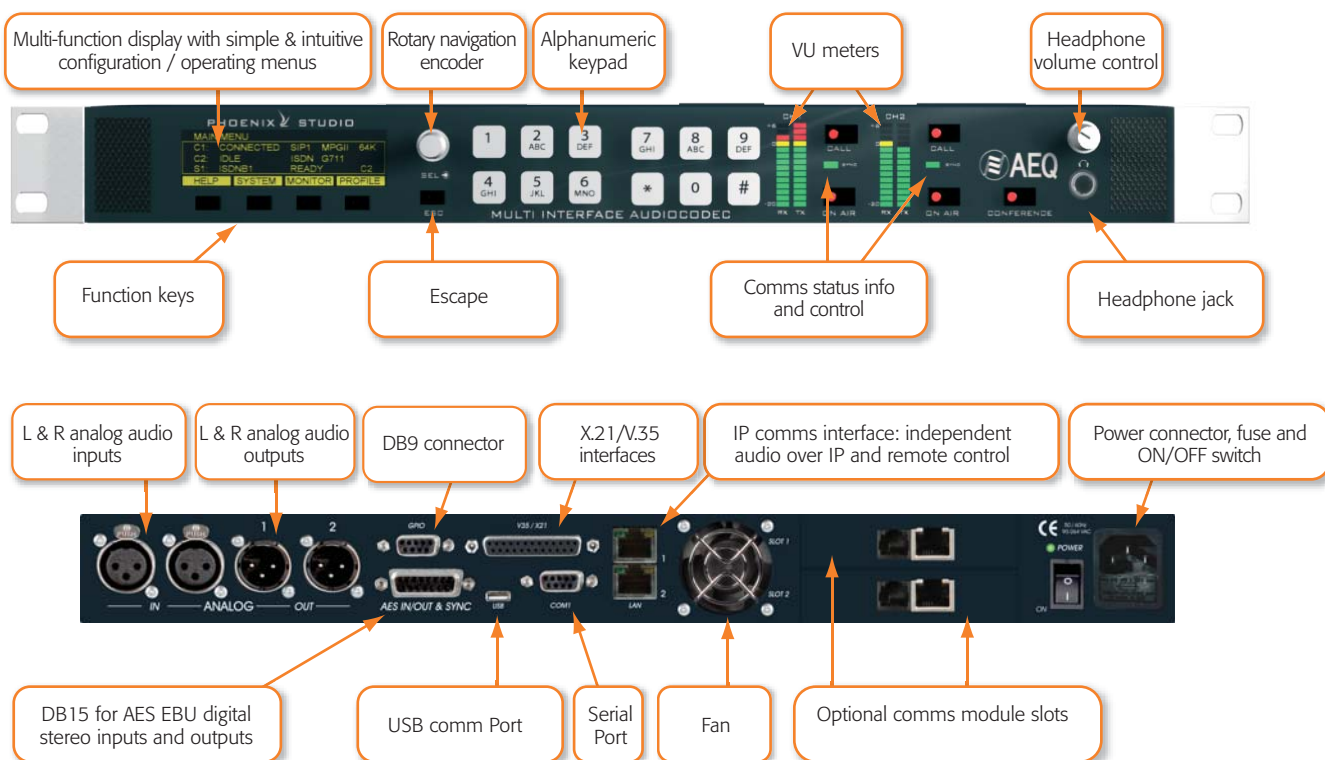
The Phoenix Studio is a very flexible and extremely versatile communications platform. In addition to the built-in IP, it includes two slots which accommodate additional comms interfaces, allowing you to connect via ISDN lines. Additional comms modules will be developed and following what the market may demand.

Housed in a single rack unit, the Phoenix Studio has two independent codecs which are used to establish stereo, mono, dual, or joint stereo feeds using any of the many default communication interfaces, or with the optional comms modules.

The Phoenix Studio is designed for total compatibility with all existing and future equipment made by AEQ, as well as those of other equipment manufacturers. It comes equipped with a wide variety of codec modes, including optionally AAC, allowing it to connect with other compatible IP codecs. And, its optional comms modules allow it to connect with virtually any ISDN codec on the market.

The Phoenix Studio allows you to select the desired encoding mode and output bit rate which is best suited to your particular network's bandwidth. It also includes an adaptive buffer which mitigates network jitter, as well as a DHCP option for automatic Ethernet parameter configuration when making connections via IP.

FRONT AND REAR PANELS

Multi-function display with simple & intuitive configuration / operating menus — Rotary navigation encoder — Alphanumeric keypad — VU meters — Headphone volume control

Function keys — Escape — Comms status info and control — Headphone jack

L & R analog audio inputs — L & R analog audio outputs — DB9 connector — X.21/V.35 interfaces — IP comms interface: independent audio over IP and remote control — Power connector, fuse and ON/OFF switch

DB15 for AES EBU digital stereo inputs and outputs — USB comm Port — Serial Port — Fan — Optional comms module slots

APPLICATION SCENARIOS AND CONNECTION METHODS

Using The IP Communications Interface

The Phoenix Studio's built-in IP ports allow it to connect to another Phoenix Studio, Phoenix Mobile, or to any compatible equipment, Ethernet or the Internet, and circuits which can be adapted to IP such as 3G, WiFi and satellite.

To simplify operation of the unit over Internet IP networks, AEQ offers its customers (at no additional cost) the use of its own SIP server. The SIP server facilitates communication with any other user by making the physical location of the codec independent of its network identifier. You only need to know the identifier of the destination equipment in order to establish a connection - no additional information is required. Phoenix Studio also supports private user groups.

The Phoenix Studio also works with STUN servers. This allows it to connect between private networks and the Internet using the routers as gateways. Phoenix Studio simplifies sending and receiving uni-cast and multi-cast communications by means of a SAP server.

The Phoenix Studio's IP interface parameters can be configured either manually (by the user), or automatically (by Phoenix Studio) using its built-in DHCP protocol.

The Phoenix Studio provides two Ethernet ports. One is used to send audio over an IP network, and the other is for remote control via an IP network. The ports are independent of each other, and act as a physical firewall between public audio distribution networks and private networks typically used for control.

Using the Phoenix Studio over a public IP network.
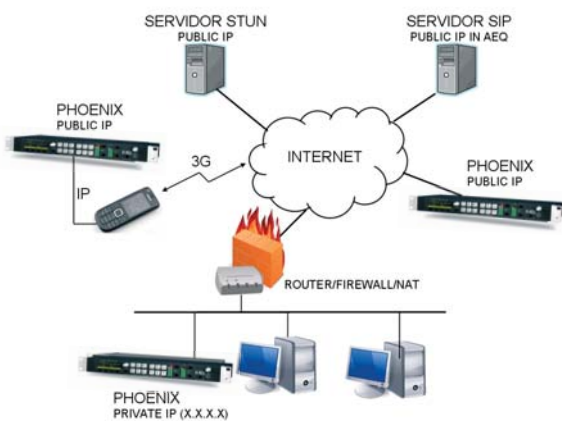
Use Phoenix Studio over switched digital ISDN networks.
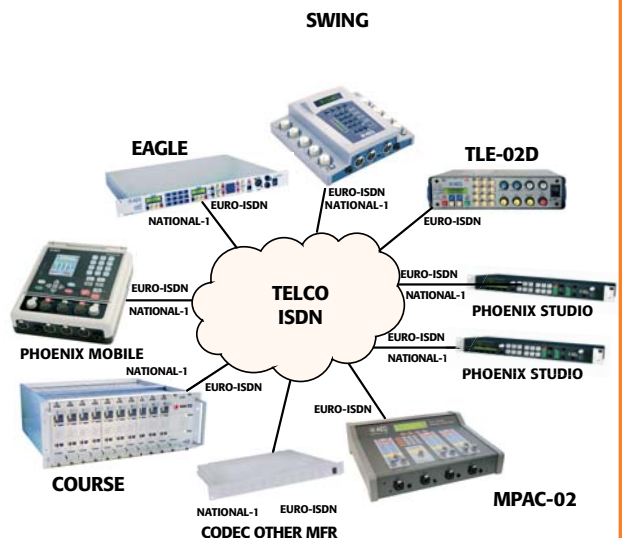
Total Versatility Using ISDN / RDSI Comms Connections

Using the optional PGA-03 comms module (ISDN / RDSI), the Phoenix Studio can connect to practically any ISDN codec on the market -including another Phoenix Studio, Phoenix Mobile, Eagle, Course ISDN, SWING, MPAC and TLE02. The PGA-03 includes both S and U interfaces, RJ45 and RJ11 connectors, and supports the Euro ISDN as well as the National-1 protocols. Phoenix Studio facilita using both B channels in ISDN allowing simultaneous, yet independent communications.

When using the equipment in 64 and 128Kbps modes over ISDN interface, the Phoenix Stidio include the option of carrying a continuous data channel at 9600 bps.

SPECIFICATIONS*:

Analog Audio Inputs: 2 x Female XLR, 9 K Ω, Electronically Balanced, Line Level

Analog Audio Outputs: 2 x Male XLR, 50 Ω, Electronically Balanced, Line Level

Digital Audio Input: DB15, Stereo AES/EBU interface with SRC for independent inputs (different sampling frequencies available), M/JS/S selectable

Digital Audio Output: DB15, Stereo AES/EBU interface with SRC (16, 32, 48KHz)

Headphone Output: 1 x ¼" Stereo Jack, with front panel volume control

Synchronization: 1 x Sync I/O (on DB15)

AUDIO

Input Nominal Level: 0 dBu
Input Max. Level: + 22 dBu
Output Nominal Level: + 0 dBu
Output Max Level: 10 dB over nominal
Distortion: < 0.2%.
THD+N In SRC: @ 1 KHz: -117dB
Dynamic Range: > 95dB
Cross-Talk: < -70dB
Frequency Response: (+/- 0.2 dB)
    50Hz – 15 KHz in MPEG 1 L II
    20Hz – 20 KHz in MPEG 4 AAC*
    50Hz – 7 KHz in G722
    50Hz – 3 KHz in G711
Analog I/O: A/D and D/A converter, 24 bit Sigma-Delta, 48 KHz max
Modes: Mono, Dual, Stereo

COMMUNICATIONS INTERFACES

- IP Standard Interface: 2 x RJ45 Ethernet ports. Independent IP connections for audio over IP and remote control. LAN 10/100 base T RJ45 connector. N/ACIP EBU Tech 3326 specification compliant.
- X.21/V.35 Interface: DB25, Binary rates of 64/128/256 Kbps
- USB OTG Interface: Slave/Master operation, to integrate external devices. Max power 500 mA
- PGA-03 ISDN/RDSI Interface: Supports use of Euro ISDN and National 1 comms module, with up to two B channels supported per module. "S" interface (2B+D) Euro RDSI compliant (ETS 300 012, ETS 300 125, ETS 300102), RJ-45 connector. "U" interface (2B1Q) ANSI compliant (ANSI T1.601-1992, T1.602-1996, T1.607-1998), RJ-11 connector.
- Satellite Communications: An external satellite phone can be connected to the IP interface or the ISDN module.
- Back-Up: Automatic between V.35 and RDSI
- Multi-Cast IP: TX and RX. SAP Server compliant
- SIP: Complies with EBU-Tech 3326 spec. Allows private user groups

GENERAL FEATURES

Temperature Range: -10º to +45º C (+14º to +114º F)
Front Panel Control:
    1 x 12 key, Alphanumeric Keypad
    1 x OLED Display
    4 x Function Keys (used with display menus)
    1 x Rotary Encoder and Escape Key (used with display menus)
    4 x 14 Segment LED VU Meters
    4 x Comm Status LED Indicators
    Configuration Wizard (Internal Menu)
Dimensions: 1 RU 486 x 280 x 44 mm - 19 x 11 x 1.75"
Weight: 3.5 kg (7.7 lbs)
Input Power: 90 - 250 VAC, 15 VA, Auto-ranging, 3 PIN IEC connector
Ventilation: Ultra-low noise, Inside-studio operation compliant

***Specifications are subject to change without prior notice.

Available audio compression algorithms***: sampling frequencies, bit rates, bandwidths, delays and compliance with the EBU N/ACIP recommendation:								
Codec	Bit rate (Kbps)	Fs (kHz)	Mode	IP	V.35	RDSI	Band-width KHz	Delay	EBU N/ACIP status
G.711 A Law	64	8	Mono	x		x	3,5	Low	Mandatory
G.711 µ Law	64	8	Mono	x		x	3,5	Low	Mandatory
G.722 Statistical	64	16	Mono	x	x	x	7	Low	Mandatory
AEQ-LD	64	16	Mono	x			7	Low	Proprietary
	128	32	Mono	x	x	x	15	Low	Proprietary
		16	Stereo	x			7	Low	Proprietary
	192	48	Mono	x			20	Low	Proprietary
	256	32	Stereo	x	x		15	Low	Proprietary
	384	48	Stereo	x			20	Low	Proprietary
MPEG-1 Layer II	64	48	Mono	x	x	x	10,5	Medium	Mandatory
		32	Mono	x	x	x	15	Medium	Mandatory
	128	48	Mono	x	x	x	16,5	Medium	Mandatory
		48	Stereo	x	x	x	10,5	Medium	Mandatory
		48	JStereo	x	x	x	15	Medium	Mandatory
		48	Dual Channel	x	x	x	10,5	Medium	Not nedeed
		32	Mono	x	x	x	15	Medium	Mandatory
		32	Stereo	x	x	x	15	Medium	Mandatory
		32	JStereo	x	x	x	15	Medium	Mandatory
		32	Dual Channel	x	x	x	15	Medium	Not nedeed
	192	48	Mono	x			16,5	Medium	Mandatory
		48	Stereo	x			16,5	Medium	Mandatory
		48	JStereo	x			18	Medium	Mandatory
		48	Dual Channel	x			16,5	Medium	Not nedeed
		32	Mono	x			15	Medium	Mandatory
		32	Stereo	x			15	Medium	Mandatory
		32	JStereo	x			15	Medium	Mandatory
		32	Dual Channel	x			15	Medium	Not nedeed
	256	32	Stereo	x	x		15	Medium	Mandatory
	384	48	Stereo	x			16,5	Medium	Mandatory
MPEG-2 Layer II	64	24	Mono	x	x	x	11,25	Hight	Mandatory
		16	Mono	x	x	x	7,5	Hight	Mandatory
	128	24	Mono	x	x	x	11,25	Hight	Mandatory
AAC-LC (*)	32	24	Mono	x			11,52	Hight	Recommended
		32	Mono	x			9	Hight	Recommended
		48	Mono	x			16	Hight	Recommended
	64	24	Mono	x	x	x	11,52	Hight	Recommended
		24	MsStereo	x	x	x	11,52	Hight	Recommended
		24	Stereo	x	x	x	11,52	Hight	Recommended
		32	Mono	x	x	x	15,636	Hight	Recommended
		32	Stereo	x	x	x	9	Hight	Recommended
		32	MsStereo	x	x	x	9	Hight	Recommended
		48	Mono	x	x	x	20	Hight	Recommended
		48	Stereo	x	x	x	10	Hight	Recommended
		48	MsStereo	x	x	x	10	Hight	Recommended
	96	24	Mono	x			11,52	Hight	Recommended
		24	Stereo	x			11,52	Hight	Recommended
		32	Mono	x			15,636	Hight	Recommended
		32	Stereo	x			9	Hight	Recommended
		48	Mono	x			20	Hight	Recommended
		48	Stereo	x			16	Hight	Recommended
		48	MsStereo	x			16	Hight	Recommended
	128	24	Mono	x	x	x	11,52	Hight	Recommended
		24	Stereo	x	x	x	11,52	Hight	Recommended
		32	Mono	x	x	x	15,636	Hight	Recommended
		32	Stereo	x	x	x	15,636	Hight	Recommended
		48	Mono	x	x	x	20	Hight	Recommended
		48	Stereo	x	x	x	20	Hight	Recommended
	192	32	Mono	x			15,636	Hight	Recommended
		32	Stereo	x			9	Hight	Recommended
		48	Mono	x			20	Hight	Recommended
		48	Stereo	x			20	Hight	Recommended
	256	48	Mono	x	x		20	Hight	Recommended
		48	Stereo	x	x		20	Hight	Recommended
AAC-LD (*)	32	48	Mono	x			8	Low	Recommended
	64	48	Mono	x	x	x	20	Low	Recommended
		48	Stereo	x	x	x	8	Low	Recommended
		48	MsStereo	x	x	x	8	Low	Recommended
	96	48	Mono	x			20	Low	Recommended
		48	Stereo	x			15	Low	Recommended
		48	Ms Stereo	x			15	Low	Recommended
	128	48	Mono	x	x	x	20	Low	Recommended
		48	Stereo	x	x	x	20	Low	Recommended
	192	48	Mono	x			20	Low	Recommended
		48	Stereo	x			20	Low	Recommended
	256	48	Mono	x	x		20	Low	Recommended
		48	Stereo	x	x		20	Low	Recommended
PCM (linear)	12 (DAT)	32	Mono	x			15	Very Low	Optional
		32	Stereo**	x			15	Very Low	Optional
		48	Mono	x			20	Very Low	Optional
		48	Stereo**	x			20	Very Low	Optional
	16	32	Mono	x			15	Very Low	Mandatory
		32	Stereo**	x			15	Very Low	Mandatory
		48	Mono	x			20	Very Low	Mandatory
		48	Stereo**	x			20	Very Low	Mandatory
	20	32	Mono	x			15	Very Low	Mandatory
		32	Stereo**	x			15	Very Low	Mandatory
		48	Mono	x			20	Very Low	Mandatory
		48	Stereo**	x			20	Very Low	Mandatory
	24	32	Mono	x			15	Very Low	Mandatory
		32	Stereo**	x			15	Very Low	Mandatory
		48	Mono	x			20	Very Low	Mandatory
		48	Stereo**	x			20	Very Low	Mandatory

Other algorithms on demand for special projects
* The AAC coding algorithms are optional for the family of Phoenix Audiocodecs
** Only one stereo

MINISTERIO DE INDUSTRIA, TURISMO Y COMERCIO

Project endorsed by Spain's Ministry Of Industry, Tourism, and Commerce