Detailed Technical Information

TALENT

AUDIO INPUT AND OUTPUT CHARACTERISTICS

- **XLR-3 female microphone input.**
  2 KΩ input impedance.
  High quality, low noise, electronically balanced preamplifier.
  Switchable 12V phantom supply.
  Gain between 0 and 60dB, adjustable from the front panel, mobile App or control software.
  MUTE key.

- **Stereo ground-referenced line input via 3.5mm jack.**
  Input impedance > 15 KΩ.
  Gain selectable between - 6 dB. and + 20 dB from mobile App or control software.
  Input level (LINE IN Gain set to 0 dB):
  • Maximum:1V rms (0 dBV).
  • Nominal: 178 mV rms (-15 dBV).
  Compatible with PCs, tablets, phones and other sound players.

- **Bluetooth 5.0 audio input. Stereo A2DP**
  Gain selectable between - 6 dB. and + 20 dB from mobile App or control software.
  • A2DP profile for high-quality audio reception (Bluetooth 5.0 with AAC encoding, among others).
  • HFP voice profile (with G711 or G722 encoding, depending on the phone or conferencing App used).

Line & Bluetooth gain selection is common. These inputs are mixed together by hardware.

- **Headphone output: stereo ¼" jack.**
  Power >=100 mW with low or high impedance headphones (between 16 and 500 Ω).
  Volume control and TX/RX panorama selection from the front panel, by App and by software.

- **Stereo ground-referenced line output via 3.5mm jack.**
  Output impedance: < 50 Ω.
  Adjustable gain from front panel, mobile app and control software.
  Output level:
  • Maximum output: 825 mV. RMS.
  Compatible with PCs, tablets, phones and other sound recorders.

- **Bluetooth 5.0 audio output. Stereo A2DP.**
  Adjustable output level from front panel, mobile App and software.
  • HFP voice profile (with G711 or G722 encoding, depending on the phone or conferencing App used).

Line & Bluetooth output gain adjustment is common. These signals are distributed simultaneously.

Detailed technical information

ENCODING

OPUS coding
AEQ recommends its customers the OPUS family of encoding algorithms. OPUS offer extraordinary sound quality, low delay and great bitrate efficiency. There is a selection of 4 mono and 3 stereo modes provided, with Fs=48 kHz, operating at bitrates between 12 and 192 kbps offering audio bandwidths between 6 and 20 kHz.

Other coding algorithms
N/ACIP from EBU with legacy stationary or third-party codecs, or to adapt to each station's preferences, TALENT supports a wide selection of coding algorithms:

- G711A-law, u-law (64 kbps, low delay, 3.5 KHz audio bandwidth).
- G722 (64 Kbps, low delay, 7 KHz audio bandwidth).
- AEQ-LD with Fs=16, 32 or 48 KHz, mono or stereo. Available bit rates between 64 and 384 Kbps, audio bandwidth between 7 and 19 KHz.
- MPEG 1 y 2 - LII, with Fs between 16 and 48 KHz, mono, stereo, dual channel and Joint stereo. Binary bit rate between 64 and 384 Kbps. Audio bandwidth between 10.5 and 20 kHz.
- PCM (linear) very low delay, transparent quality. Fs=48 KHz or 32 KHz with 12, 16, 20 or 24 bits/samples, mono or stereo. Bit rates between 576 and 2304 Kbps), audio bandwidth between 16 and 20 KHz.

Please ask us about compatibility with other algorithms.

IP CONNECTIVITY

REMOTE CONTROL

Active or "Incoming" remote control:

• If codec is within the same LAN as control PC.
• Otherwise, if Talent's public IP is known (when there is no NAT or, if there is, by configuring a port-forwarding rule in the router: port 4422 TCP+UDP to Talent's local IP address).

"Outgoing" remote control:

• Use this mode when Talent's public IP address is unknown or dynamic (mobile connections, or using Talent in ADSL/Fiber residential connections, etc).
• Talent must be pre-configured from ControlPhoenix to always send a remote control request to the studio's public IP address.
• A port-forward rule is required in the studio router (port 4422 TCP+UDP directed towards the IP address of the PC where ControlPhoenix is running).

SMART RTP

Includes the SMART RTP automatic call establishment mode, greatly easing RTP connectivity with AEQ Phoenix audiocodecs (also helping connection with third-party codecs).

SIP SERVER

A free account is provided to Talent users at no additional cost in a SIP server maintained by AEQ, easing connectivity between all devices registered on it.

RTP-RELAY SIP SERVER

An account can be provided to Talent users in a SIP server maintained by AEQ which relays audio between devices, helping with connectivity in complex environments between devices registered on it.

EBU N/ACIP

Can connect to codecs from most major manufacturers due to its compliance to the EBU N/ACIP standard.

In order to configure and connect the device in several usage scenarios, look for the relevant Application Notes in AEQ website.

OPERATION OF TALENT BLUETOOTH LINK

The device is provided with an integrated mixed-mode (audio + control) Bluetooth 5.0 device, providing several functions:

- Insertion of high-quality stereo sound from a mobile device (phones, tablets, PCs with BT) by means of A2DP profile.
- Sending and receiving high quality voice signals by means of the HFP (Hands Free Profile) during voice calls made or received by the paired mobile device.
- Remote control by means of the TALENT PILOT App, available for iOS and Android operating systems.

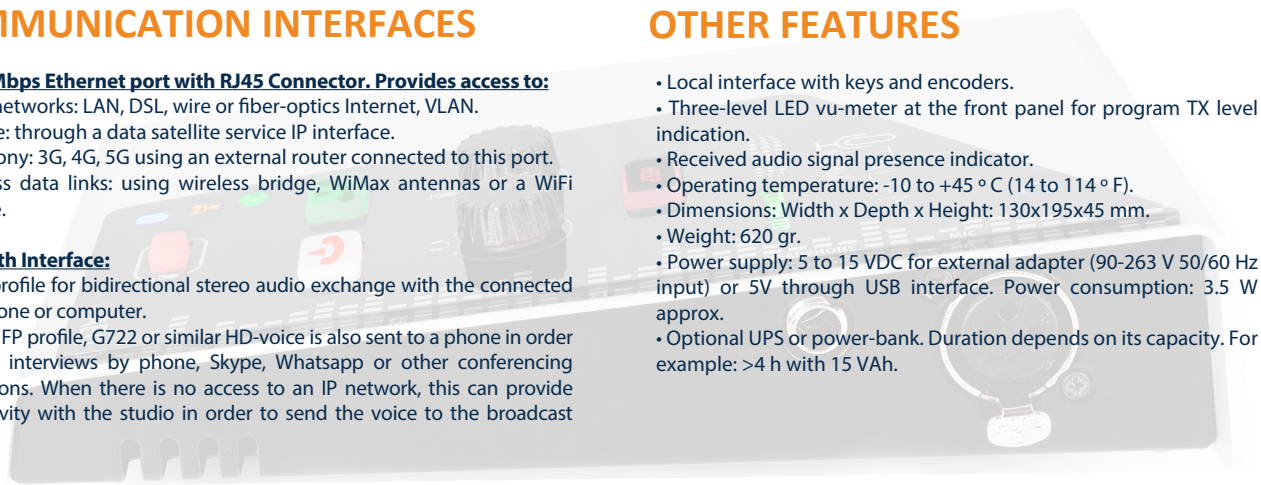
COMMUNICATION INTERFACES

10/100Mbps Ethernet port with RJ45 Connector. Provides access to:
• Wired networks: LAN, DSL, wire or fiber-optics Internet, VLAN.
• Satellite: through a data satellite service IP interface.
• Telephony: 3G, 4G, 5G using an external router connected to this port.
• Wireless data links: using wireless bridge, WiMax antennas or a WiFi interface.

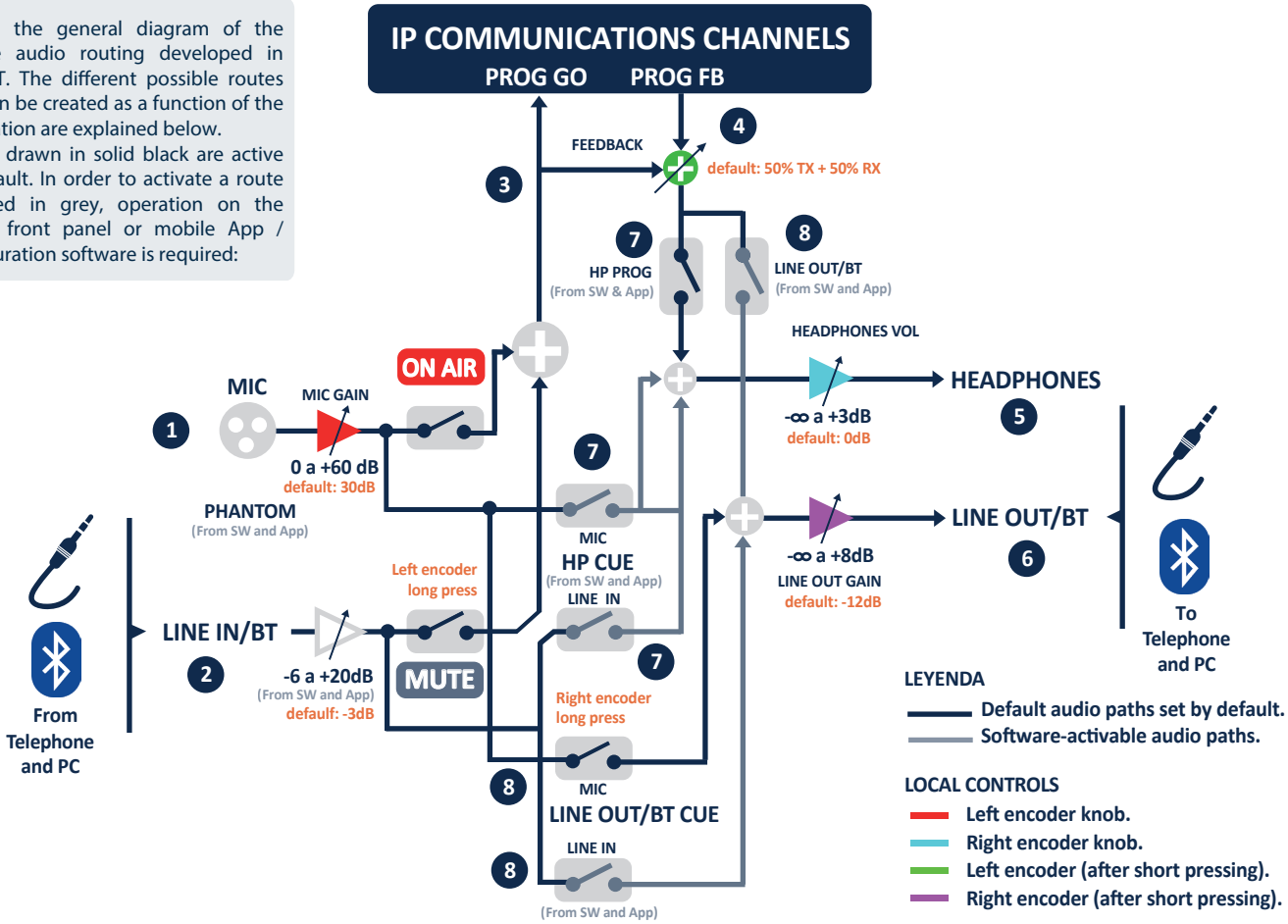
Bluetooth Interface:
• A2DP profile for bidirectional stereo audio exchange with the connected smartphone or computer.
• Using HFP profile, G722 or similar HD-voice is also sent to a phone in order to make interviews by phone, Skype, Whatsapp or other conferencing applications. When there is no access to an IP network, this can provide connectivity with the studio in order to send the voice to the broadcast mixer.

OTHER FEATURES

• Local interface with keys and encoders.
• Three-level LED vu-meter at the front panel for program TX level indication.
• Received audio signal presence indicator.
• Operating temperature: -10 to +45 º C (14 to 114 º F).
• Dimensions: Width x Depth x Height: 130x195x45 mm.
• Weight: 620 gr.
• Power supply: 5 to 15 VDC for external adapter (90-263 V 50/60 Hz input) or 5V through USB interface. Power consumption: 3.5 W approx.
• Optional UPS or power-bank. Duration depends on its capacity. For example: >4 h with 15 VAh.



This is the general diagram of the flexible audio routing developed in TALENT. The different possible routes that can be created as a function of the application are explained below.
Routes drawn in solid black are active by default. In order to activate a route depicted in grey, operation on the device front panel or mobile App / configuration software is required:



AUDIO ROUTING

AUDIO INPUTS:

1.- **MIC** Microphone input:
- o With XLR connector, Phantom switchable supply and gain up to 60 dB. ON AIR switch.

2.- **LINE IN / BT:** hardware-mixed line and Bluetooth inputs. Default gain is -3 dB, selectable between -6 dB and +20 dB. MUTE switch operated on the left encoder (by holding it pressed). It includes:
- o Stereo LINE IN input. Consumer-grade level on 3.5 mm jack.
- o Bluetooth receiver: A2DP profile, automatically switching to HFP when making/receiving voice calls.

MAIN ROUTING

o Microphone input (1) and stereo line input (combined with Bluetooth reception) (2), are mixed together and sent to the IP communications channel, as the PROGRAM GO circuit (3), when activated by their ON AIR and MUTE switches, respectively.
o A MONO copy of the PROGRAM GO signal (3) is mixed with the PROGRAM FEEDBACK circuit (4) with adjustable TX/RX ratio (use the left encoder to adjust this balance after shortly pressing its button), towards the local output source selectors (7) to the HEADPHONES (5) and LINE OUT / Bluetooth (6).

DIRECT ROUTING OR "PRE-LISTENING" OF INPUTS TOWARDS LOCAL OUTPUTS

o Microphone input (1) is sent to the local output source selectors (7), so it can be heard through LINE OUT / BT by default and through the HEADPHONES if required.
o The stereo LINE IN, combined with Bluetooth reception (2) is sent, if required, to the local output source selectors (7) towards the HEADPHONES and/or LINE OUT / Bluetooth.

LOCAL OUTPUT SOURCE SELECTORS AND MIXERS (7 AND 8):

From ControlPhoenix software and Talent Pilot SmartPhone App, the state of the different signal selectors routing audio to the HEADPHONEs and LINE OUT / Bluetooth can be configured.
Headphones local output source selector (7) sends to headphones local output mixer signals from:
- o Microphone input (1).
- o Stereo LINE IN, mixed with Bluetooth reception (2).
- o PROGRAM bus, carrying the RX/TX balanced mix of PROG FB and PROG GO (4).

LINE OUT local output source selector (8) sends to LINE OUT local output mixer signals from:
- o Microphone input (1) .
- o Stereo LINE IN, mixed with Bluetooth reception (2).
- o PROGRAM bus, carrying the RX/TX balanced mix of PROG FB and PROG GO (4).

The local HEADPHONE mixer signal is sent to the headphone amplifier (5), with level adjusted by means for the headphone encoder (right knob), in parallel with the mobile App and control software.

The local LINE OUT / Bluetooth mixer delivers the signal to the output LINE OUT / BT (6) amplifier, with level adjusted as the secondary function of the headphone encoder (right knob, after pressing its button), in parallel with the mobile App and control software. This signal is delivered to both the 3.5 mm LINE OUT jack and the Bluetooth transmitter.

Detailed technical information

Broadcast from everywhere!

AEQ - SPAIN
Margarita Salas, 24
28919 Leganés · Madrid · España
Tel.: +34 91 686 13 00
Fax: +34 91 686 44 92
website: www.aeq.eu
e-mail: aeqsales@aeq.es

AEQ - CATALUNYA
el.: +34 93 414 03 96
e-mail: nolivella@aeq.es

AEQ - PORTUGAL
Tel.: +351 917 529 243
e-mail: apicarra@aeq.es

AEQ - INDIA
Tel.: +91 987 363 32 11
e-mail: nirav@aeq.es

AEQ - KROMA MEXICO
Tel.: +55 54132716
e-mail: creyna@aeq.es

AEQ - USA
Tel.: +1 (954) 581 79 99
e-mail: sales@aeqbroadcast.com