

Model 34

Talent Amplifier

User Guide

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This User Guide is applicable for serial numbers:
M34-00151 and later

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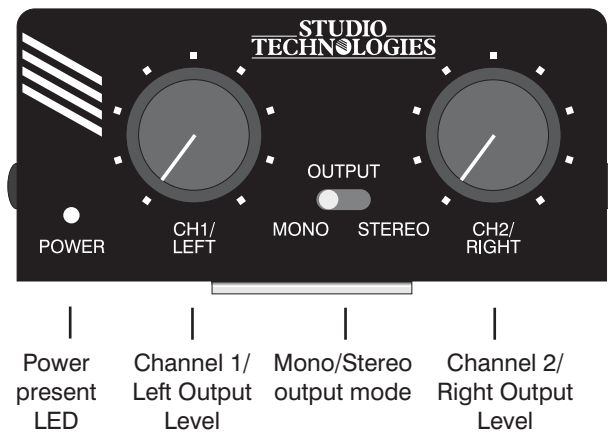
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Introduction

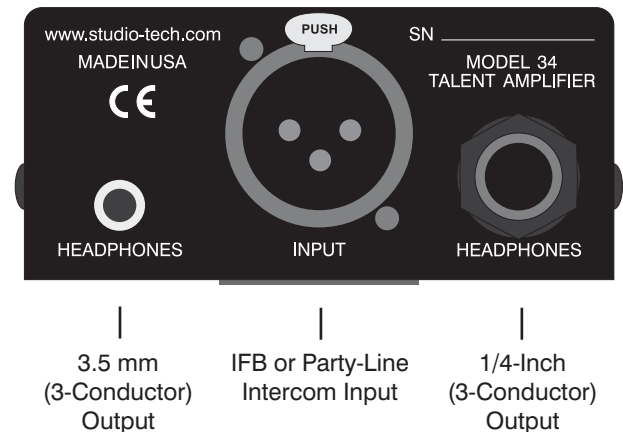
The Model 34 Talent Amplifier is a self-contained listen-only “belt pack” unit that drives talent earpieces or headsets. The unit is powered by, and receives audio from, single- or dual-channel broadcast-standard IFB or party-line intercom circuits. A 3-conductor microphone-type cable links the IFB or intercom circuit with the Model 34’s input. The unit’s resources were selected so that a range of single- and dual-channel applications can be supported. For flexibility the dual-channel audio output is provided on both ¼-inch and 3.5 mm jacks. The jacks are 3-conductor and are compatible with both monaural (2-conductor) and stereo (3-conductor) plugs. An LED indicator lights whenever input power is present, providing setup assistance and user confidence. The Model 34 is housed in a lightweight, yet rugged, aluminum housing. A belt clip allows it to be directly attached to clothing or accessories. An optional mounting adapter is available, enabling the Model 34 to be installed in a permanent location.

The Model 34 is intended for use by on-air broadcast and production support personnel. The unit provides two user-accessible rotary level controls and an output mode switch. The switch is used to select how the one or two audio input sources are routed to the connected earpiece or headset. In the switch’s stereo position input channel 1 (XLR pin 2) is sent to the left output channel while input 2 (XLR pin 3) is sent to the right output channel. The two controls allow the left and right output levels to be independently set. When the output mode switch is set to the mono position, a “mix” of input channels 1 and 2 can be created. Using the level controls, camera or production personnel can create a unique cue mix of either or both audio inputs. This allows independent IFB signals, such as those intended for use by on-air talent and technicians, to be simultaneously monitored. By design, the Model 34’s level controls cannot be set to fully attenuate (“mute”) the input sources. This helps to ensure that users will never accidentally miss important “cues” from directors or producers. While audio quality is not normally considered

Model 34 Front Panel



Model 34 Back Panel



a factor in IFB or intercom systems, the Model 34 is built to “pro audio” standards. This helps to ensure that the best possible audio reproduction is provided.

The Model 34 is compatible with virtually every standard broadcast IFB and party-line intercom circuit. This type of circuit typically uses 3-pin XLR-type connectors for interfacing with connected equipment. XLR pin 1 serves as common for DC power and audio. Pin 2 provides DC power and, in the case of a dual-channel circuit, DC power and channel 1 audio. Pin 3 provides channel 2 audio in dual-channel systems or channel 1 audio in single-channel systems.

Model 34 units have been tested for correct operation with IFB and intercom circuits associated with systems from RTS™/Telex®, Clear-Com®, and Studio Technologies. Good performance can be expected when the Model 34 is used with IFB circuits associated with the ubiquitous RTS Model 4010 Central Controller and IFB-828 Interface. With IFB circuits provided by interface units from Studio Technologies, excellent audio quality and support for lengthy cable runs can be expected.

Connection and Operation

As expected, connecting and using the Model 34 is quite simple. The IFB or party-line intercom circuit that is going to provide the unit’s power and audio signals is connected to the Model 34’s 3-pin female XLR-type connector. It is located on the back panel and labeled INPUT. The

cabling associated with the IFB or intercom circuit must conform to the broadcast standard. With dual-channel circuits pin 1 serves as common for power and audio, pin 2 has positive DC with channel 1 audio superimposed on it, and pin 3 has channel 2 audio. With the less-common single channel IFB or intercom circuits, pin 2 will have power only while pin 3 will have channel 1 audio. Upon connecting the IFB or intercom circuit the power-present LED, located on the front panel, will light.

Virtually any pair of headphones, headsets, or earpieces can be connected to the Model 34’s audio outputs. For convenience both ¼-inch and 3.5 mm 3-conductor (“stereo”) jacks are provided. The jacks, located on the back panel, are internally connected in parallel (“multed”) with the same circuitry driving both. Devices that use monaural (2-conductor) or stereo (3-conductor) plugs can be connected into either jack without impacting the unit’s performance. Protection resistors, electrically in series with the left and right output circuitry, prevent damage when mono (2-conductor) plugs are inserted.

Level Controls and Output Mode Select Switch

Two rotary level controls and a 2-position output mode select switch are located on the Model 34’s front panel. How the controls and switch function depends on the type of IFB or intercom circuit that’s been connected to the unit, as well as the specific type of headset or earpiece being used. The main variables are whether the IFB or intercom audio source is dual- or single-channel, and if the connected transducer uses a monaural (2-conductor) or stereo (3-conductor) plug.

The level control labeled CH1/LEFT adjusts the output level of the signal associated with pin 2 of the connected IFB or intercom circuit. In television sports broadcasting applications this is often called the “interrupt” channel but actually consists of program audio that is interrupted with talkback audio. In live radio applications the user cue signal might be stereo, with the left channel normally carried on pin 2. The level control labeled CH2/RIGHT adjusts the output level of the signal associated with pin 3 of the connected IFB or intercom circuit. In the television IFB world this is often referred to as the “program” or “program only” channel. For a stereo source this would most likely be the right channel.

When the Model 34 is used in on-air broadcast applications, the level controls are specifically configured to prevent full attenuation of the audio signals. By limiting the maximum attenuation to 40 dB, important talent cue signals will be less likely to go unrecognized. A user can’t accidentally (or purposefully) turn “off” their cue feed.

The output mode select switch allows the Model 34 to be used as a standard stereo/2-channel listen-only unit, or to allow the user to create a mix of the two audio input signals. When the switch is set to its stereo position, the channel 1/left rotary control adjusts the level of the audio input associated with pin 2, which is then routed to the left channel output. (This is the tip lead of the output connectors.) The control labeled channel 2/right adjusts the level of the audio input associated with pin 3, which is routed to the right channel output. (This is the ring lead of the output connectors.)

When the output mode switch is set to its mono position, the signals coming from the two level controls is mixed (summed or added), then routed to both output channels. In this mode the channel 1/left control adjusts the level of the same signal source (pin 2 of the input connector) but sends it to both the left and right (tip and ring leads) of the output connectors. The channel 2/right control adjusts the level of the pin 3 signal source that is sent to both the left and right output channels.

For most 2-channel IFB applications the mode switch will be placed in the stereo position. This will allow normal dual-ear listening with independent level controls. If a custom monaural mix of the two signals is desired the mode switch can be changed to the mono position. In the case of a single-channel IFB or intercom application, the setting of the switch will depend on which pin (2 or 3) the audio input signal is present on and the type of connected earpiece or headset.

Television Sports Applications

In television sports broadcast applications it’s common to have two audio sources associated with an IFB “feed.” If a “dual-muff” headset is used in this application the Model 34’s mode switch should be set to its stereo position. The rotary controls will be used to individually adjust the level going to the left and right output channels. If a “single-muff” headset is connected, the switch will typically remain in its stereo position and the channel 1/left level control is used to send “interrupt” audio to the user. The switch can also be set to its mono position and the two level controls are used to create the desired mix of IFB channel 1 and IFB channel 2.

There may be cases where only one audio source is provided by an IFB circuit. Depending on the type of IFB equipment supplying the circuit, the signal will either be on pin 2 or pin 3 of the associated XLR-type connector. In general, when a single audio source is present a monaural headset or earpiece will be connected. These user devices will typically employ a monaural (2-conductor) ¼-inch or 3.5 mm plug. These plugs provide only tip and sleeve leads which will only connect to the Model 34's left output. If the audio source is arriving on pin 2 of the IFB circuit, the mode switch should be placed in the stereo position. The channel 1/left control will be used to adjust the output level. If the audio source is arriving on pin 3, the mode switch must be placed in the mono position. This creates a mono signal by combining the two post-level-control signals, in this specific case sending the pin 3 audio source to both the left and right outputs. Then the channel 2/right control will be used to adjust the output level.

Connecting Multiple Headsets or Earpieces

As previously discussed, the Model 34's output circuitry is protected from overload and short-circuits. This makes it possible to connect more than one earpiece or headset to the Model 34's output connectors. However, there are two limitations when connecting multiple devices. The first is that all of the connected devices will "share" the one set of level controls. Users will not be able to independently set their listening levels. The second limitation is that the load impedance placed on the output circuitry will be significantly

less than any individual device. This may cause the maximum output level to be reduced because of the lower total impedance.

DC Power Draw/Maximum Number of Connected Devices

Unlike previous-generation listen-only devices, the Model 34 is quite efficient in its use of operating power. During normal operation the current draw is nominally 20 milliamperes. This will allow, conservatively, up to six units to be connected to a typical broadcast IFB circuit. Party-line intercom circuits often have greater current support capability. In this case connection of ten or more Model 34 units shouldn't prove to be an issue.

Specifications

Applications: listen-only portable user station compatible with standard single- and dual-channel broadcast IFB and party-line intercom circuits

Connectors:

IFB/Intercom Input: 3-pin female XLR-type

Headphone/Earpiece Output: ¼-inch and 3.5 mm 3-conductor jacks

IFB/Intercom Input:

Compatibility: broadcast-standard single- or dual-channel IFB or party-line intercom circuits

Wiring Scheme:

Pin 1: common for DC and audio

Pin 2: DC only (single-channel circuits) or DC with channel 1 audio (dual-channel circuits)

Pin 3: channel 1 audio (single-channel circuits) or channel 2 audio (dual-channel circuits)

Power Requirement: 18-35 volts DC, 20 mA nominal, 45 mA maximum with one output channel shorted at full level

Headphone/Earpiece Output:

Compatibility: intended for connection to mono (2-conductor) or stereo (3-conductor) headsets or earpieces with nominal impedance of 150 ohms or greater

Type: 2-channel voltage driver

Input/Output Gain: 19 dB, maximum

Audio Routing–Switch Set to Stereo Mode:

channel 1 (pin 2) input to left channel output;

channel 2 (pin 3) input to right channel output

Audio Routing–Switch Set to Mono Mode:

channels 1 & 2 summed (added) then routed to

both left and right channel outputs

Maximum Output Voltage: 8 V_{pp}, 1 kHz, 150 ohm load

Frequency Response: 40 Hz-20 kHz, ±1 dB, 150 ohm load

Distortion (THD+N): 0.03%, 1 kHz, 150 ohm load

Options: Model 36 Mounting Adapter allows Model 34 to be permanently mounted

Dimensions (Overall):

3.25 inches wide (8.3 cm)

1.80 inches high (4.6 cm)

3.95 inches deep (10.0 cm)

Weight: 0.6 pounds (0.3 kg)

Specifications and information contained in this User Guide subject to change without notice.

