Broadcast Host

Desktop Digital Hybrid

User Guide

06/06

JK Audio

Broadcast Host will allow you to send and receive audio over analog telephone lines. While this may seem like a simple task that any telephone can do, the challenge is getting the best quality audio from such a limited audio path.

What is a Digital Hybrid?

A digital hybrid connects audio signals to a standard analog telephone line without the variations in quality found with analog hybrids. The main function of a hybrid is to bring in the callers voice from the phone line, as clear and clean as possible. In the real world, when you send your voice down the telephone line it has a tendency to bleed over into the caller's audio. The hybrid must adapt to the phone line in order to properly separate transmit and receive audio. We use a 16 bit DSP to continuously monitor the phone line and audio signals to deliver excellent separation. Our dual-convergence algorithm can achieve excellent trans-hybrid loss, typically exceeding 50 dB, without any setup.

Ready to go?

The Broadcast Host controls and connectors are clearly marked and ready for operation. The feature diagram will help you pinpoint any minor questions that you may have. If this is your first exposure to a hybrid, we suggest that you read the entire manual to allow you to take advantage of all these features.

Any Questions?

Before you pick up the phone... Please thumb through the rest of this manual. You might find those deep technical questions are covered on later pages.

1. **Connection and use with the nationwide telephone network**
    The FCC requires that you connect this telephone equipment to the national telephone network through a USOC RJ-11C modular telephone jack.
    This equipment may not be used with Party Line Service or Coin Telephone Lines
    This equipment is hearing aid compatible.

2. **Information for the telephone company**
    Upon request from your local telephone company, you are required to provide the following information:
    a) The "line" to which you will connect the telephone equipment (that is, your telephone number), and
    b) The telephone equipment's FCC registration number. This can be found on the bottom of your telephone equipment, and,
    c) the ringer equivalence number (REN) for this equipment.
    The REN is used to determine the quantity of devices which will be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed 5.0. To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the local telephone company.

3. **Repair Instructions**
    If it is determined that your telephone equipment is malfunctioning, the FCC requires that it not be used and that it be unplugged from the modular outlet until the problem has been corrected. Repairs to this telephone equipment can only be made by the manufacturer or its authorized agents or by others who may be authorized by the FCC. For repair procedures, follow the instructions outlined under the warranty section of the manual.

4. **Rights of the telephone company**
    If telephone equipment is causing harm to the network, the telephone company may temporarily discontinue your telephone service. If possible, they'll notify you before they interrupt service. If advanced notice isn't practical, you'll be notified as soon as possible. You'll be given the opportunity to correct the problem, and you'll be informed of your right to file a complaint with the FCC.
    Your telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of your JK Audio product. If such changes are planned, you'll be notified by your telephone company.

Specifications

Inputs:

Send 1:	Balanced Female XLR, 1k ohm, -10 mV RMS (-35 dBv nom) Mic/Line pad switch = +4 dBv max
Send 2:	3.5mm mono,20k ohm, 250 mV RMS (-10 dBv nom)

Outputs:

|	
Balanced:	Male XLR, 200 ohm, 500 mV RMS (+4 dBv max)
Unbalanced:	3.5mm stereo, 50 ohm, 250 mV RMS (0 dBv max), Left = send, Right = caller
Headphone:	3.5mm stereo, 8 ohms, 250 mW mixed send and receive
Aux Phone:	RJ11C
Phone Line:	RJ11C
Isolation:	1500 VAC
Ringer:	0.5B REN
Frequency Response:	Telephone side 200 Hz - 3600 Hz
Power:	120-240 VAC power supply (included)
Size:	7" x 6" x 1.6" (18 x 15 x 4.2 cm)
Weight:	2.2 pounds (1 kg)

FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by JK Audio can void the user's authority to operate the equipment.
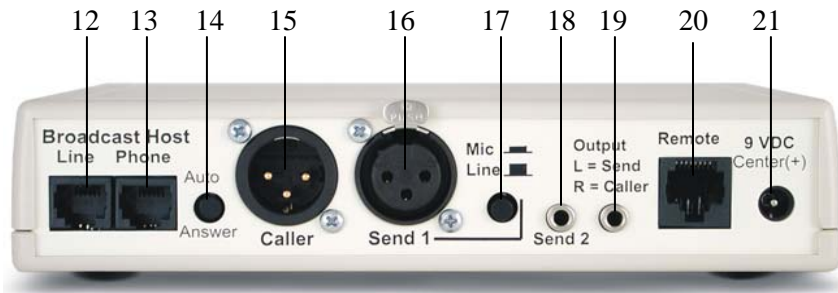
FCC Registration

Your new JK Audio product has been registered with the Federal Communications Commission (FCC). This product complies with the standards in Part 68 of the FCC rules.

Features
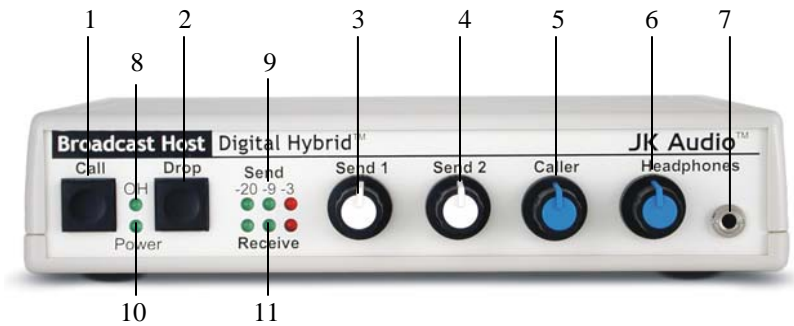
1. Call Button - Press this button to answer or place a telephone call (takes the line off-hook).

2. Drop Button - Press this button to drop (hang up) a call

3. Send 1 Level - Adjusts the signal level that you are sending down the telephone line, through the female XLR input.

4. Send 2 Level - Adjusts the signal level that you are sending down the telephone line, through the 3.5mm mini jack input.

5. Caller Level - Adjusts the level of the signal coming in from the telephone line, going out the output jacks.

6. Headphone Level - Adjusts the signal level coming from the 3.5mm front panel headphone jack.

7. Headphones - The 3.5mm stereo headphone jack contains a mix of both the Send input audio and the Caller audio.

8. OH LED - Lit when you are on line with a call (Off-Hook).

9. Send LEDs - Displays the signal level going to the phone line.

10. Power LED - Lit when unit is plugged in and receiving power.

11. Receive LEDs - Displays the signal level coming from the phone line, after the DSP.

Features (continued)

12 13   14   15   16   17   18 19   20   21

Broadcast Host
Line   Phone
       Auto
       Answer   Caller   Send 1   Send 2
Mic ▬
Line ▬
Output
L = Send
R = Caller
Remote   9 VDC
Center(+)

12. Line Jack - Connect to a standard, single line, analog telephone line.

13. Phone Jack - Connect a single line analog telephone for call setup / dialing, or producer call screening.

14. Auto-Answer - Press this switch to enable the Broadcast Host to automatically answer an incoming call and then disconnect after the caller hangs up. Auto answer will occur on the first ring.

15. Caller Output - Male balanced XLR output contains only the caller's voice.

16. Send 1 Input - Female balanced XLR input for signals going into the phone line. Mic or line level input.

17. Mic / Line switch - Sets the front end sensitivity of the Send 1 XLR jack. Set to *Mic* if you intend to plug a microphone directly to the Send jack. Set to *Line* if you are connecting to the output of a mic mixer.

18. Send 2 Mono Input - 3.5mm mono mini jack input for signals going into the phone line. Line level.

19. Stereo Output - 3.5 mm stereo mini jack output contains Send and Caller audio determined by the Send 1 and Send 2 levels and the caller level controls. Left channel contains your local Send audio and right channel contains the Caller's audio from the telephone line.

20. Remote Control Jack - 8 pin modular jack for connection to the JK Audio Guest Module 1 Remote Keypad or your broadcast console switch contacts.

21 Power Jack - For connection to supplied 9VDC regulated power supply only.

FAQ's

? Does Broadcast Host work with Vonage IP telephony?

! Yes, however customers have reported one glitch in the Vonage system. If the Broadcast Host is set to auto-answer or if the call is manually answered on the first ring there will be a considerable amount of noise on the call. This can be avoided by initiating the call from your location or manually answering after the second ring. If auto-answer is an integral part of your application you may contact Vonage directly to downgrade to a previous version of their firmware. This information is valid as of January 23, 2006. We have no direct connection with Vonage and therefore will not know when this particular problem is resolved.

? Will your digital hybrid provide phantom power for my condenser microphone?

! No, this device will not provide phantom power. If you are connecting your microphone directly to the Broadcast Host, you should use a dynamic mic.

? What happens if someone takes a second phone off-hook when the Broadcast Host is on a call?

! Broadcast Host will treat the other local voice the same as the caller. It will attempt to keep transmit audio from returning back with the caller's audio, but this becomes more difficult with this scenario. The local voice will certainly sound much louder than the distant caller's voice.

? Why is there a Send 2 mini-jack on the back of my Broadcast Host?

! This is a second line level input to the Broadcast Host. This is where you can connect another device, such as a CD player, the *Line Out* from your Computer or even the output of your personal audio player, to add audio to the conversation. This enables you to play background music or other sound bites during your discussion. Do not connect a microphone to this jack. This is a mono input. If you connect a stereo output here, such as a computer line out, you will only receive Left channel audio.

? There is a loud hum on the output of my Broadcast Host, even when nothing else is connected. What else could it be?

! Make certain you are using the regulated power supply that was shipped with the unit. Power supplies are not all the same.

? How do I record onto my computer and edit the files?

! You will need to purchase or download any audio editing software of your choice. You may also need to edit the audio configuration files on your computer or in your software to allow recording in stereo. Broadcast Host just allows you to access the audio from your phone line.

Send Signal Level

The Send LEDs display the signal level as it goes out over the phone line. The goal is to drive the phone line at high enough levels to avoid phone line noise, but not so loud as to cause excessive clipping. Adjust the Send level control so that you rarely see flashes of the red -3dB peak Send LED. These flashes should occur only during loud speech bursts. If the red LED stays lit for extended periods you can assume that much of your speech is being clipped or distorted. In this case you should back down on the Send volume control for the input that is causing the clipping.

Caller Signal Level

The receive LEDs display the signal coming from the phone line and out of the DSP. The Caller level control does not change what you see on these LEDs. Adjust the Caller level control to give you the best signal at your equipment.

Remote Control Jack

The RJ-45 jack on the back of the Broadcast Host provides connection to a JK Audio Guest Module Remote Control, or to the switch contacts on your broadcast console.

RJ45 Pinout:
- Pin 1: Ground
- Pin 2: Call / Drop Control (main control pin)
- Pin 3: Ring / OH LED
- Pin 4: DTMF Input
- Pin 5: +4.3 VDC
- Pin 6: Reserved
- Pin 7: Reserved
- Pin 8: Reserved

Momentarily connect pin 2 to pin 5 (power) through a 100 ohm 1/4 watt resistor to take Broadcast Host off-hook.
Momentarily connect pin 2 to pin 1 (ground) through a 100 ohm 1/4watt resistor to release the phone line.
Pin 3 contains a 4.3 VDC, 40 mA current limited output to drive a signal LED. We suggest adding a 200 ohm 1/4w resistor in series with an LED connected to ground.
Pin 5 supply output is current limited to 100 mA with a resettable fuse for use with the Guest Module and pin 2 connections. Do not attempt to power additional circuitry from this pin.
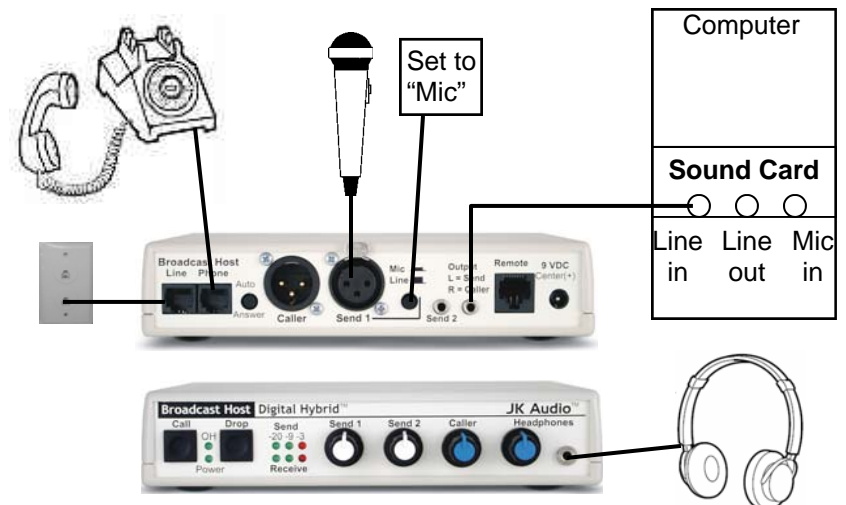
Contact your JK Audio dealer for additional information. Guest Module remote keypad not available for sale in Europe, Australia or New Zealand.

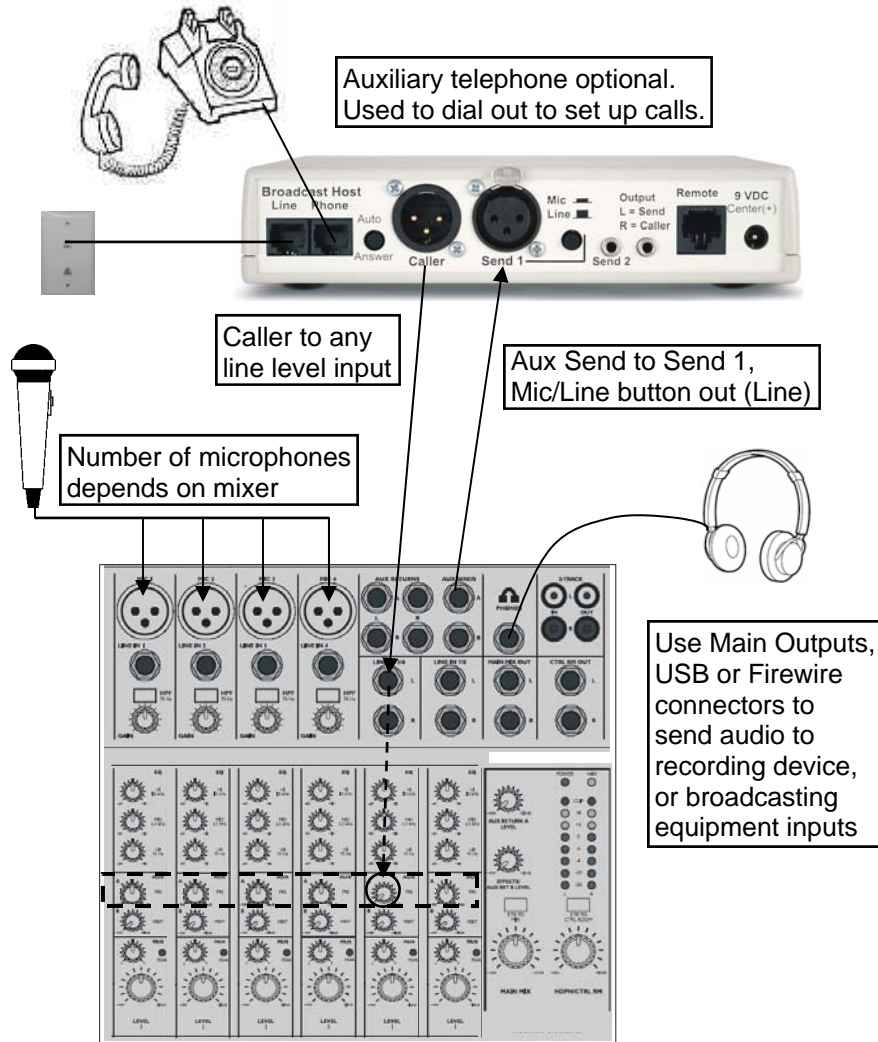Although each application may require a slightly different setup, there are two primary configurations.

For a direct connection to Broadcast Host:

- Phone Line - Connect the supplied RJ-11 phone line cable between the jack marked "Line" and your wall jack. Be sure this jack can support standard single line analog telephone operation.

- Send Audio - Connect a dynamic microphone cable to the Send jack on the Broadcast Host. Be sure to set the Broadcast Host Mic/Line switch to the "Mic" position.

- Output - Connect a stereo cable from the mini-jack "Output" on the Broadcast Host to the "Line In" on your computer sound card or other recording equipment.

- Power - Connect the supplied DC power supply to the back of the Broadcast Host and then to an AC power outlet.

- Your Broadcast Host is now ready to take calls. You may want to connect an auxiliary telephone to the Broadcast Host "Phone" jack for call setup, or simply use the "Auto-Answer" feature to answer incoming calls.

- Place a call to a quiet location. Set the "Send" level control so that while you are speaking into the microphone, the Send LED's on the hybrid light the -20 dB green LED consistently and flash the -9 dB green LED. If you flash the -3 dB red LED, lower the level. Set the "Caller" control for good recording level of the caller audio.

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Connection *(continued)*

To Connect Broadcast Host through a mixer—<u>Mix Minus Setup</u>

Auxiliary telephone optional. Used to dial out to set up calls.

Caller to any line level input

Aux Send to Send 1, Mic/Line button out (Line)

Number of microphones depends on mixer

Use Main Outputs, USB or Firewire connectors to send audio to recording device, or broadcasting equipment inputs

For whichever input channel you have the Caller connected to, turn the corresponding Aux control to minimum (usually hard left). All other Aux controls should be set for what you want to send to the phone line. Each Aux Send bus is completely separate from all other outputs, so these Aux controls will not affect what is heard on the Main outputs or on any other Aux buses. This Aux Send bus should be pre-fader, so you can use the fader controls to set the levels of each channel to the main output.

Operation

- Make all cable connections.

- On your mixer and on the Broadcast Host, set all controls to nominal levels, usually 12:00.

- On your mixer, set local microphone channel input sensitivity for microphone level.

- On your mixer, set the main mix control for good recording level of the local audio.

- On your mixer, set the headphone level for comfortable listening.

- On your mixer, set the Caller channel input gain to line level, if applicable.

- On your mixer, set the Caller channel aux control to minimum (zero).

- Place a call. On your mixer, set the Aux Send control so that while you are speaking into the microphone the Send LED's on the hybrid light the -20 dB green LED consistently and flash the -9 dB green LED. If you flash the -3 dB red LED, lower the level.

- On your mixer, set the Caller channel output level for good recording level of the caller audio. If you need more control of this level, on the mixer first adjust the caller channel input gain (if applicable), then adjust Caller control on the Broadcast Host.

Mix-Minus Setup
A mix-minus signal is an audio signal that contains a mix of your local microphones plus any other audio, minus the Caller's own voice. Sending the Caller's audio back to the Broadcast Host through Send 1 will cause an echo, or feedback. If your mixer does not have an Aux Send bus, you can achieve the same results using Pan controls with the Left and Right outputs. Simply pan all the microphones, etc. to the Left output and pan the Caller to the right output. Then connect only the Left output to the Broadcast Host Send 1.

Auxiliary Telephone
Broadcast Host will disconnect the auxiliary telephone when you press the Call button. You can use an auxiliary telephone to place or screen a call, and then you can place the call on hold. When you are ready to take the call on Broadcast Host, simply press the Call button. Your telephone will automatically release the hold while you talk. If you need to take the call back on the aux telephone, simply pick up the phone before the Broadcast Host Drop button is pressed.

Auto-Answer
The Auto-Answer feature will answer on the first ring. When Auto-Answer is enabled, you can still take calls manually using the Call button. When finished, you can either drop the call manually or allow the call to Auto-Disconnect. Broadcast Host will look for a disconnect signal from the phone company to determine when a call has disconnected. This can take up to a minute.