

Innkeeper PBX

Desktop Digital Hybrid

User Guide



JK Audio

Innkeeper PBX will allow you to send and receive audio through your multi-line PBX, ISDN or analog telephone. 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?

The Innkeeper PBX digital hybrid connects audio signals to and from the handset side of a telephone without the variations in quality found with analog hybrids. The main function of a hybrid is to bring in the caller's 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 audio signals from the telephone in order to properly separate transmit and receive audio. We use a 16 bit DSP to continuously monitor the audio signals from the telephone to deliver excellent separation. Our dual-convergence algorithm can achieve excellent trans-hybrid loss, also known as "separation".

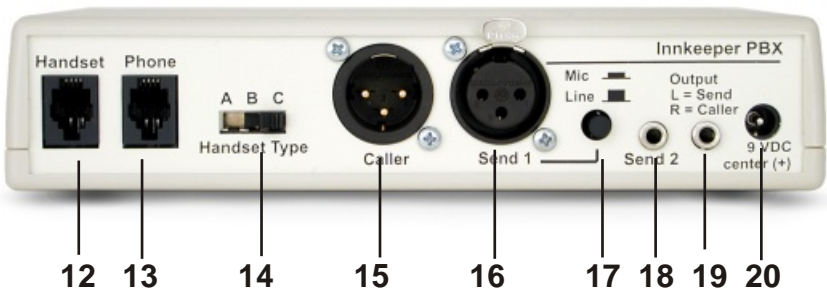
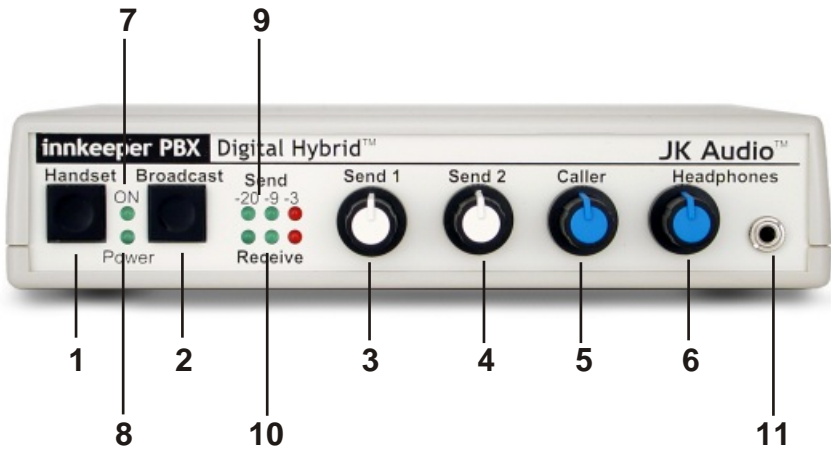
Ready to go?

The Innkeeper PBX 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.

Features



Features (cont)

1. Handset Button - Press this button to use the handset as if you were on a normal call.
2. Broadcast Button - Press this button to disable the handset and activate the Innkeeper PBX for use as a digital hybrid.
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. ON LED - Lit when you are on line with a call using the digital hybrid within the Innkeeper PBX.
8. Power LED - Lit when unit is plugged in and receiving power.
9. Send LEDs - Displays the signal level going out to the telephone line.
10. Receive LEDs - Displays the signal level coming from the phone line, after the DSP.
11. Headphones - The 3.5mm stereo headphone jack contains a mix of both the send input audio and the caller audio.

Features (cont)

12. Handset Jack - Connect your telephone handset to this jack.
13. Phone Jack - Connect this jack to the handset jack on your telephone using the supplied handset jumper cable.
14. Handset Type Selector Switch - Use this switch to select the correct type of handset microphone that your telephone uses. A=Electret, B=Carbon, C=Dynamic.
15. Caller Output - Male balanced XLR output contains the callers 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 line or auxiliary output of a mic mixer.
18. Send 2 Input - 3.5mm mono mini jack input for signals going into the phone line. Line level.
19. 3.5mm Output - Stereo mini jack output contains send and receive 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. Power Jack - For connection to supplied 9VDC regulated power supply only.

Connecting Cables

Although each application will require a slightly different setup, standard configuration is as follows:

Handset cable - Connect the supplied RJ-22 handset cable between the jack marked "Phone" on the back of Innkeeper PBX and to the handset jack of your telephone.

Handset - Connect your telephone handset to the RJ-22 jack on the back of the Innkeeper PBX marked "Handset".

Send Audio - Connect a microphone or mixing console output XLR cable to the Send jack on the Innkeeper PBX. Be sure to set the Innkeeper PBX mic/line switch to the proper position for your application.

Caller Audio - Connect the Caller Out jack to a line level input on your mixing console or recording device.

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

Your Innkeeper PBX is now ready to take calls.

Innkeeper PBX will disable the telephone handset when you press the Broadcast button. Use your telephone to place or screen a call. When you are ready to take the call on Innkeeper PBX, simply press the Broadcast button. Make sure you do not put the handset back in it's cradle while you are on a call. This will still drop the call even though the handset itself is disabled. If you need to take the call back on your telephone, simply press the Handset button on Innkeeper PBX. This will disable the inputs and outputs on Innkeeper PBX and connect your handset back to the telephone.

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 until you see occasional flashes of the red -3dB peak Send LED. These flashes should occur 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.

Receive 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.

Headphone Mix

The 3.5 mm headphone jack on the front of Innkeeper PBX is used for monitoring your call. This stereo jack contains a mix of both sides of the conversation on each headphone channel. The levels of this mix are determined by the Send 1 and Send 2 volume controls (for your local audio) and by the Caller volume control. The overall audio level from this jack is determined by the Headphones volume control.

The headphone mix allows you to monitor both send and receive signals. The true power of the Innkeeper PBX is its ability to separate send and caller audio. To hear this separation you must listen to the caller output on either the XLR or 3.5mm output jacks.

ABC Selector Switch

Use this switch to select the correct type of handset microphone that your telephone uses. A=Electret, B=Carbon, C=Dynamic. Trial and error seems to work best in determining which handset type to use. Your Innkeeper PBX will only function correctly if the handset type selector switch is in the correct position. This switch changes signal level, impedance, and wiring to accommodate the differences in handset microphone types. In order to determine the correct position, you must place a call to a nearby telephone, then try to send audio into the Innkeeper PBX through the inputs. While doing this, switch between the three different handset type positions. Choose the position that works best by monitoring the audio quality and send LED's.

Although not conclusive, the following guidelines may help:

The majority of newer telephones have electret type microphones and will use the "A" position.

Older telephones that have the round "screw type" handsets contain carbon microphones and use the "B" position.

Many Radio Shack® ,Panasonic®, and Nortel® telephones have dynamic microphone types and use the "C" position.

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 caller in both channels
- Phone Jack: RJ22
- Handset Jack: RJ22
- Isolation: 1500 VAC
- Frequency:
Response telephone side 200 Hz - 3600 Hz
- Power: 120-240 VAC power supply (included)
 9 VDC regulated center +
- 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. The FCC requires us to provide the following information:

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 FCC registered telephone.

This equipment may not be used with Party Line Service or Coin Telephone Lines.

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.

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.

If this telephone equipment is to be used with a telephone that is leased or owned by another party, permission to connect this telephone equipment to their telephone must first be obtained.

Warranty

Innkeeper PBX is covered by a 2-year warranty to be free from defective workmanship and materials. In the event that the Innkeeper PBX needs repair, you must call us to get an authorization, and then carefully pack and ship it to us. You will pay for shipping to us and we will pay for return back to you, UPS ground. No free repairs will be made if the defect was caused by misuse, weather conditions, or other cause, except for defective workmanship or materials. THERE ARE NO EXPRESS OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTY HERE MADE.

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