

INLINE PATCH

Telephone Audio Interface



User Guide

JK Audio

Description

The Inline Patch gives you access to the audio from both sides of your telephone call. Simply install this little box "inline" between the telephone wall jack and the base of your telephone. You can use any single-line residential (analog) corded or cordless telephone or if available the data / modem port on a digital or PBX telephone. Add a pair of powered speakers and everyone in the room will hear both sides of the conversation. Separate volume controls ensure that both sides of the call are heard at the same level. Inline Patch is not the same as a speakerphone. Only the person with the telephone handset can talk while everyone else listens in. You can pass around the handset with more control over your teleconference or IVR demo.

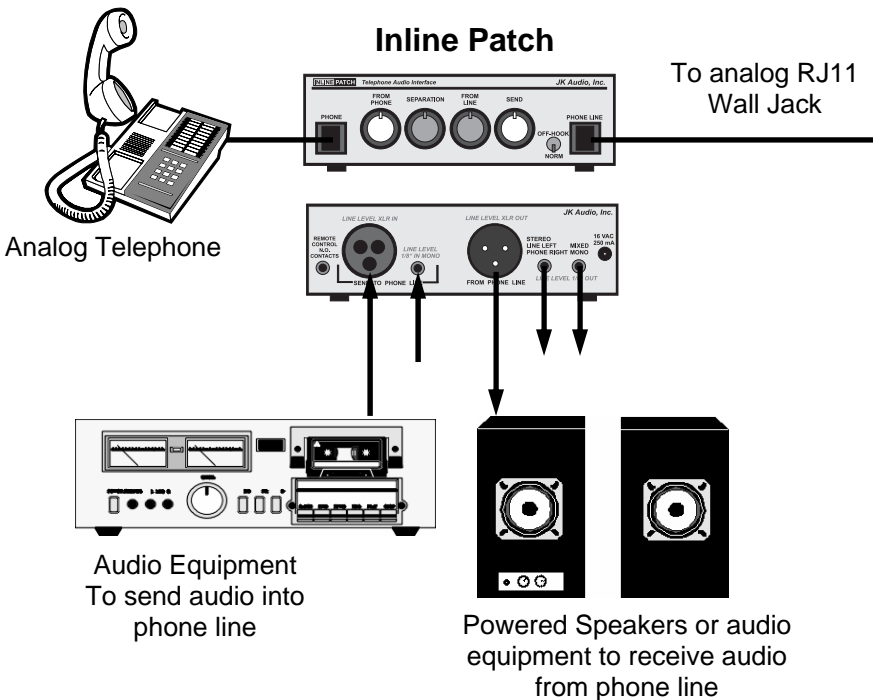
You can also use Inline Patch to add audio to your conversation, or send audio into the phone line instead of your voice.



Connection

Setup for use with residential / analog telephones:

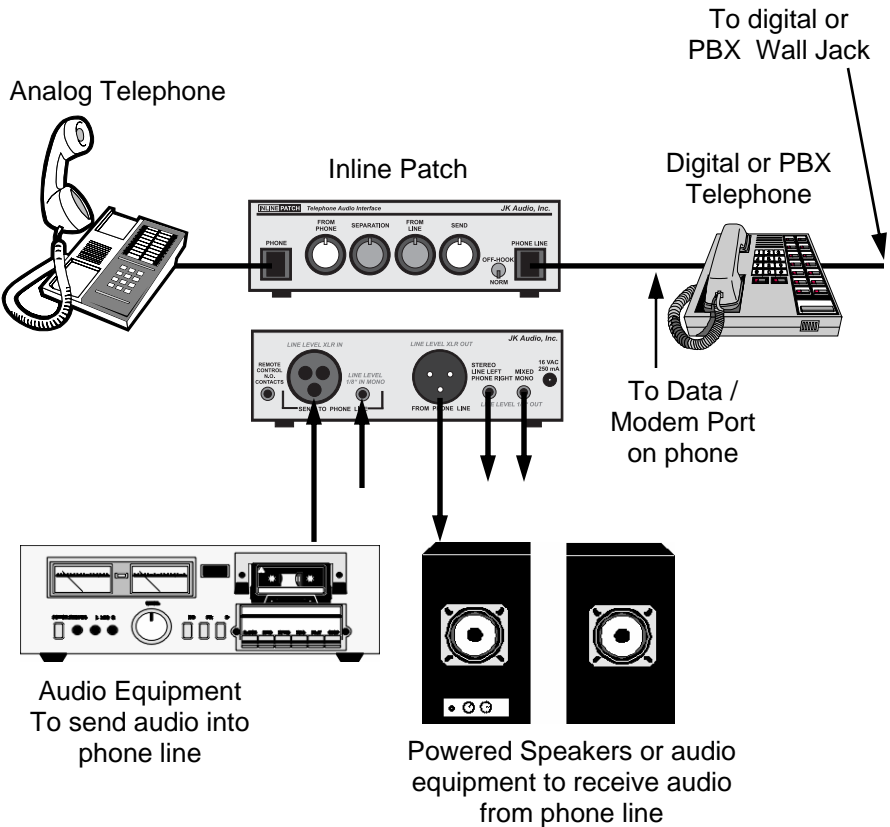
1. Unplug the telephone cord from the base of your telephone.
2. Plug that telephone cord into the jack on the Inline Patch marked "Phone Line".
3. Using the telephone cable we have provided, plug one end into your Inline Patch marked "Phone" and the other end of the cable into your telephone.
4. Connect your audio equipment to the 3.5mm and / or XLR line input and output jacks on the Inline Patch.
5. Connect the power supply to the back of the Inline Patch.



Connection (continued)

Setup for use with PBX phone systems:

Setup for use with PBX phone systems is the same as for analog telephones with one exception. Instead of connecting the *Phone Line* jack of the Inline Patch to a wall jack, you will connect to the data / modem jack on your PBX phone. You will still need a regular analog telephone connected to the *Phone* jack of the Inline Patch. When dialing out you will need to take the necessary steps to get a direct connection to the main analog phone line (example: dialing 9 + 1 + phone number). You will not physically use your PBX phone while operating the Inline Patch. It simply acts as your connection to the telephone line. Dialing, speaking, etc. will be done through the separate analog telephone.



Operation

Output Jacks

The Inline Patch has three audio output jacks on the back panel. The 3.5 mm stereo jack has phone line audio on the left channel and your voice on the right channel. The second 3.5 mm jack has both sides of the call combined on both left and right channels. You may use either a mono or stereo plug in this jack. The third output is a balanced male XLR jack which contains only the audio coming from the phone line with a nominal 20 dB of trans-hybrid loss (your voice will be mixed with the caller's audio, but about 20 dB lower).

There are three output controls on the front of the Inline Patch. *From Phone* adjusts the level of your voice on both output mini jacks. *From Line* adjusts the level of the audio coming from the phone line on all three output jacks.

The *Separation* control is used to achieve the best match between your voice and the audio coming from the phone line. When you send your voice into the phone line it comes back to you mixed in with the audio from the other side of the call, although it will be about 20 dB lower than your original transmit level. This means that if your audio is sent at 0 dB, and you receive the caller's audio at -10 dB, then you would have 10 dB of separation between your voice and the caller audio. The goal is to have a minimum amount of your voice coming back to you from the phone line.

To fine tune the separation, first connect your audio equipment (powered speakers, mixer with a VU meter, etc.) to the mixed mono output jack on the back of the Inline Patch. Next turn the *From Phone* control all the way down and the *From Line* control all the way up. Now place a phone call. Without any audio coming from the other end of the call, hold down a touch tone on your telephone while adjusting the *Separation* control to find the most quiet position. Now turn the *From Line* control to about 12:00 and use the *From Phone* control to bring your voice up to a suitable level.

Operation (continued)

The hybrid circuitry in the Inline Patch can provide a nominal 20 dB of transmit / receive isolation. When using the stereo jack with stereo speakers, the 20 dB isolation will give you substantial left / right separation. The separation on FM stereo is typically around 20 dB.

Send Side (To Phone Line)

The Inline Patch includes a balanced female XLR jack and a 3.5mm (1/8") mono mini jack to send audio to the telephone line. These jacks can be connected to an audio output such as the headphone output jack on a tape recorder, or the line output of a PC audio card, CD player or audio mixer.

If you want to use a microphone to add extra audio to the call, you will first need to add an amplifier to your microphone so that the signal is boosted to line level. You can use both the XLR and the mini jack input at the same time, and add it to the audio coming from the handset microphone. The level of the audio you send through the input jacks into the phone line can be adjusted with the *Send* control. Note that this audio will come back mixed with the caller audio, so be sure not to overpower the caller's voice with your own audio.

Off Hook - Norm Switch

This switch allows you to seize the phone line without using a telephone. The switch should be set to "Norm" to dial out using a telephone. Set the switch to "Off-Hook" to seize the line and answer an incoming call without using a telephone. This switch can be remotely operated using your own switch contacts connected to the N.O. Contacts jack on the back of the unit. Simply wire a 3.5 mm plug to a normally open switch. A short across tip and ring on a stereo or mono plug will take the phone line off-hook.

Note: Seizing the phone line activates the internal circuitry of the Inline Patch, essentially "turning it on". The green LED on the front panel only indicates that the unit is receiving power.

Specifications

Inputs (to phone line):

Balanced Connector	Female XLR
Input Impedance	1 k ohms
Level	250 mV RMS (-10 dBm nom.)

Line Connector	1/8" (3.5mm) mono mini jack
Input Impedance	20 k ohms
Level	250 mV RMS (-10 dBm nom)

Outputs:

Balanced Connector	Male XLR
Output Impedance	50 ohms
Level	500 mV RMS (+12 dBm max.)

Stereo Connector	1/8" (3.5mm) stereo mini jack
Output Impedance	50 ohms
Level	250 mV RMS (+12 dBm max.)

Mono Connector	1/8" (3.5mm) stereo mini jack
Output Impedance	50 ohms
Level	250 mV RMS (+12 dBm max.)

Remote:

Connector	1/8" (3.5mm) TRS stereo jack Connect tip to ring to go Off-hook
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Phone line:

Connector	RJ11C
Isolation	1500 volts

Phone:

Connector	RJ11C
Voltage	32 VDC

FAQ's

? I recently purchased the Inline Patch, which works great, but I don't seem to be getting as much volume out of the XLR output as promised in your catalog. What's wrong?

! Check your XLR Cable. Some Sound Engineers are in the habit of connecting the "ground wire" (pin 1) and the "negative wire" together. This is sometimes done to convert transformer output signals into a single ended output. Inline Patch uses an active differential output so grounding one of the hot pins will drop the output in half. Separate these two wires and you should hear a difference.

? We purchased an Inline Patch to take callers on our radio show. It functions just as promised but we've now found that 20 dB of separation really isn't enough for us. What can we do?

! The Inline Patch was designed primarily for interview recording and telecom demos. If you're looking for something to put callers on the air for a radio show you should purchase a digital hybrid instead. Our Broadcast Host and innkeeper 1x digital hybrids typically provide greater than 50 dB separation between send and receive and have great sound quality.

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

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

FAQ's

- ? I'm using a CD player with an Inline Patch to send audio down the phone line and then recording that audio with the caller's comments. The CD audio is overpowering the caller audio even when I turn the "From Phone" control all the way down. How should I set this up?**
- !** The "From Phone" control only adjusts the output of your voice that is sent through your telephone. The audio you are feeding into the inputs on the back of the Inline Patch comes back mixed with the caller's voice. The Inline Patch does not attempt to separate audio sent into the inputs, only your voice sent through your telephone. You'll have to lower the "Send" level on the Inline Patch to correct this problem.
- ? There is a small amount of hum in the background of my recordings made from the Inline Patch. What's wrong?**
- !** Try turning up the "From Line" volume control knob to around 2:00. That should decrease line resistance and help eliminate the hum.

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.

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.

FCC Registration (continued)

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.

Warranty

Inline Patch is covered by a 2 year warranty to be free from defective workmanship and materials. In the event that the Inline Patch 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 EXPRESSED OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTY HERE MADE.

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