

AutoHybrid

Auto-Answer Hybrid



User Guide

JK Audio

Introduction

The JK Audio AutoHybrid is a simple, passive, auto-answer / disconnect telephone line hybrid. AutoHybrid allows simultaneous send and receive audio through analog telephone lines. Not just another half duplex auto-coupler, this is a full duplex AutoHybrid. Perfect for remote monitoring, IFB feeds, and many simple studio, conferencing, and PA telephone interface applications.

AutoHybrid's dual transformer hybrid circuit provides a nominal 20 dB separation of send and receive audio. This means that the level of your send audio on the caller output jack will be approximately 20 dB less than your transmit level.

Balanced XLR input and output jacks provide easy connection to your professional audio equipment and the detachable screw terminal block provides easy access to remote features.

Features

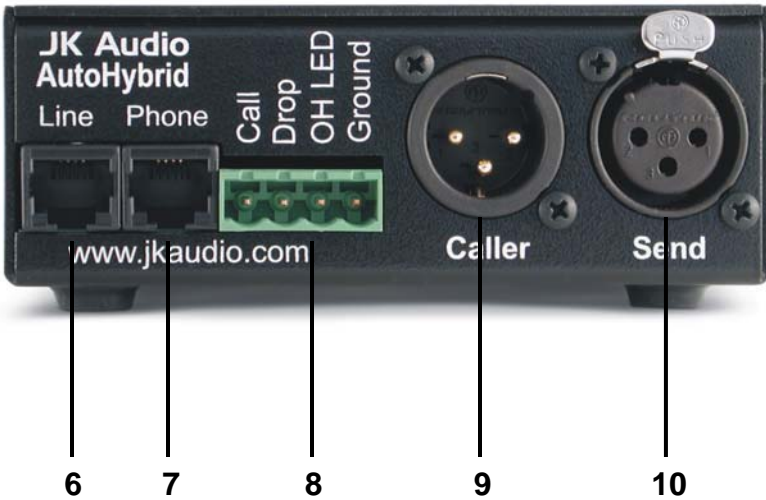
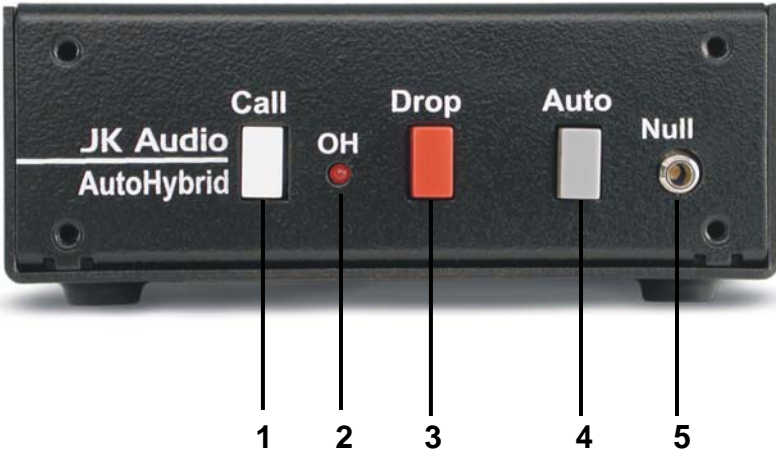
This small desktop unit easily converts to a rack-mount unit using the optional RA4 Rack Panel.



The RA4 holds four AutoHybrids in a 1U rack space.



Features (continued)



Features (continued)

1. Call Button - Press this button to answer or place a telephone call (takes the line off-hook).
2. OH LED - Lit when you are on line with a call (Off-Hook).
3. Drop Button - Press this button to drop (hang up) a call.
4. Auto-Answer - Press this switch to enable the AutoHybrid to automatically answer an incoming call and then disconnect after the caller hangs up. Auto answer will occur on the first ring.
5. Null Adjust - Used to adjust the level of Send audio that is present on the Caller output jack.
6. Line Jack - Connect to a standard, single line, analog telephone line.
7. Phone Jack - Connect a single line analog telephone for call setup and dialing.
8. Remote Screw Terminals -
Call - Momentary + 5 VDC to seize phone line.
Drop - Momentary + 5 VDC to release phone line.
OH pulled to ground for OH LED.
9. Caller Output - Male balanced line level XLR output contains audio from the phone line.
10. Send Input - Female balanced line level XLR input for signals going into the phone line.

Connection

Connecting Cables

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

Send Audio - Connect audio you wish to send into the phone line to the balanced line level XLR Send jack.

Caller Audio - Connect the balanced line level Caller XLR jack to a line level input on your audio equipment. The Caller output contains audio coming from the phone line. This audio signal will contain the caller's voice and any audio you send into the phone line at approximately 20 dB less than your transmit level.

Auxiliary Telephone

Connect an auxiliary telephone to this jack to dial calls. After connecting a call, press the Call button on the AutoHybrid and you may then hang up the telephone. When you are finished with the call, press the Drop button to release the phone line (place the line on hook).

Please note: When you drop a call, any audio delivered to the Send jack of AutoHybrid will still appear on the Caller output jack. AutoHybrid does not mute your Send audio when the phone line is On Hook.

Operation

Auto-Answer

When the Auto-Answer button is in the "in" position, AutoHybrid will answer on the first ring. AutoHybrid will look for a CPC disconnect signal from the phone company to determine when a call has disconnected. This will generally take only several seconds but can take up to a minute. If you are using a simulated analog phone line provided by a PBX system, the system must be configured to send a disconnect signal for the AutoHybrid's auto-disconnect function to operate. The CPC disconnect signal must be set at 300 ms minimum.

Detachable Remote Screw Terminal

The detachable remote control screw terminal block on the back of the AutoHybrid provides connection to switch contacts for remote operation.

A momentary + 5 VDC applied to Pin 1 takes the phone line off-hook. Another momentary + 5 VDC applied to Pin 2 will drop the call.

Pin 3 is an open collector opto-isolator terminal that is pulled to ground while AutoHybrid is off-hook. This terminal is protected by a 220 ohm series resistor. You can light a remote LED by simply connecting your LED from +5 VDC to pin 3.

Screw Terminal Pinout:

Pin 1: Call
Pin 2: Drop
Pin 3: OH LED
Pin 4: Ground

Operation (continued)

Null Adjust

The Null Adjust is a 15 turn pot used to determine how much of your Send audio is delivered to the Caller output jack. Use a small flatblade screwdriver to make adjustments to this control.

To find the absolute null for any telephone line, follow this procedure:

1. Place a call to a quiet location.
2. Send a signal into the AutoHybrid Send jack at a moderate level. A test signal or tone works best.
3. Connect the Caller output jack to a meter or scope, or listen to this signal through your external audio equipment.
4. Try to remember the position of the adjustment screwdriver blade and the number of turns you are making as you first adjust clockwise, then back to the original position, then counter clockwise.

When the level of this signal is at a minimum, you have achieved the maximum null for the phone line. The maximum null you can achieve is approximately 20 dB.

? Does AutoHybrid work with Vonage IP telephony?

! Yes, however customers have reported one glitch in the Vonage system. If the AutoHybrid 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.

Specifications

Input:

Transmit XLR: Balanced Female XLR, 800 ohms, 1 volt RMS (+4 dBv max)

Insertion Loss: 11dB Send XLR to Phone Line
Maximum transmit level at Phone Line -3 dBm

Output:

Receive XLR: Balanced Male XLR, 600 ohms, 200 mV RMS (-15 dBm nom)

Phone Line Connector: RJ11C
1500 VAC Isolation
0.8B REN

Aux Phone Connector: RJ11C

Screw Terminals:

Off-Hook Control: +5 VDC momentary
Release Control: +5 VDC momentary
OH LED Signal: Pulled to ground on OH
CPC Disconnect: 300 ms minimum

Size: 4" x 5" x 1.5" (10.5 x 13 x 4 cm)

Weight: 11 ounces

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.

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.

Warranty

AutoHybrid is covered by a 2-year warranty to be free from defective workmanship and materials. In the event that the AutoHybrid 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.

06/06
