



# **AutoHybrid™**

## Auto-Answer Hybrid



User Guide

**JK Audio**

# Welcome

## Thank You

Thank you for purchasing the JK Audio AutoHybrid. Please read this guide for instructions on setting up and using your new Auto-Answer Hybrid.

## Getting Assistance

If you have technical or application questions:

In the US & Canada, call us toll free at: **800-552-8346**

All other countries dial: **815-786-2929**  
(M-F 8:30-5:00pm Central Time Zone)

Email us at: [support@jkaudio.com](mailto:support@jkaudio.com)

Or, check out our FAQ section for answers to common questions.

## Limited Warranty

AutoHybrid is covered by a 2 year warranty to be free from defective workmanship and materials. To obtain service, contact JK Audio by phone or email for return authorization. Once authorized, you will carefully pack and ship the faulty product and all accessories to us. You will pay for shipping to us and we will pay for return back to you.

This warranty does not cover damages due to accident, weather, fire, flood, earthquake, misuse, unauthorized repairs or modifications, or damages occurred in shipping, only defective workmanship or materials.

**There are no expressed or implied warranties which extend beyond the warranty here made.**

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## Features

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### Passive Operation

- Draws power from the phone line

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### Full Duplex Hybrid

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### XLR Send Jack

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### XLR Receive Jack

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### Auto-Answer / Disconnect

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### Hybrid Null Adjust

- Up to 20 dB Separation

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### Detachable Remote Screw Terminal Block Provides:

- Off-Hook Control
  - Release Control
  - OH LED Signal
- 

## Accessories

### RA4 Rack Panel

Holds 4 AutoHybrids in a 1U rack space



### **Introducing the AutoHybrid.**

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.

## Controls & Indicators



### Call Button

Press this button to answer or place a telephone call.

### OH LED (Off-Hook)

Lit when you are on line with a call.

### Drop Button

Press this button to drop a call.

### 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.

### Null Adjust

Used to adjust the level of Send audio that is present on the Caller output jack.

## Inputs & Outputs



### Line Jack

Connect to a standard, single line, analog telephone line.

### Phone Jack

Connect a single line analog telephone for call setup and dialing.

### Remote Screw Terminals

**Call:** Momentary +5 VDC to seize line.

**Drop:** Momentary +5 VDC to release.

OH pulled to ground for OH LED.

### Caller Output

Male balanced line level XLR output contains audio from the phone line.

### Send Input

Female balanced line level XLR input for signals going into the phone line.

# Connecting Your AutoHybrid

## Connecting your AutoHybrid

1. Use the supplied RJ-11 cable to connect the **<Line>** jack on your AutoHybrid to an analog phone line wall jack.
2. Connect the audio you wish to send down the phone line to the XLR **<Send>** jack on your AutoHybrid.
3. Connect the **<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.
4. Connect an auxiliary telephone to the **<Phone>** 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).

**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.



# Using Your AutoHybrid

## 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.

## Remote Screw Terminal

| 1    | 2    | 3      | 4      |
|------|------|--------|--------|
| Call | Drop | OH LED | Ground |

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.

# Using Your AutoHybrid

## Null Adjust

The **<Null>** 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.

**Note:** The AutoHybrid null is adjusted at the factory to provide the maximum amount of null for typical phone lines. In most instances the null does not have to be adjusted.

### **Does the Null adjustment pot increase Caller/Send volume on the AH?**

No. The **<Null>** adjustment does not increase/decrease **<Caller>** or **<Send>** audio. The Null adjustment sets how much of your Send audio is present in the Caller output (to a certain extent). Please refer to **page 6** for more details, or contact JK Audio Technical Support.

## Technical Information

| Input                  | Impedance / Level                                                          |
|------------------------|----------------------------------------------------------------------------|
| Balanced Female XLR:   | 1k ohms / 500 mV RMS; -4 dBu nom.; +6 dBu max                              |
| Insertion Loss:        | 11dB Send XLR to Phone Line<br>Maximum transmit level at Phone Line -3 dBu |
| <b>Output</b>          |                                                                            |
| Balanced Male XLR:     | 600 ohms / 200 mV RMS; -12 dBu nom.                                        |
| <b>Screw Terminals</b> |                                                                            |
| Off-Hook Control:      | +5 VDC momentary                                                           |
| Release Control:       | +5 VDC momentary                                                           |
| OH LED Signal:         | Pulled to ground on OH                                                     |
| CPC Disconnect:        | 300 ms minimum                                                             |
| <b>MISC</b>            |                                                                            |
| Phone Line Connector:  | RJ11C                                                                      |
| Isolation:             | 1500 VAC                                                                   |
| Ringer:                | 0.8B REN                                                                   |
| Size:                  | 4" x 5" x 1.5" (10.5 x 13 x 4 cm)                                          |
| Weight:                | 12 oz (340 g)                                                              |

# Declaration of Conformity

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Manufacturer's Name: JK Audio, Inc.

Manufacturer's Address: 1311 E 6<sup>th</sup> Street, Sandwich, Illinois 60548 USA

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Declares that the product:

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Product Name: AutoHybrid Telephone Audio Interface

Model Numbers: AutoHybrid

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Conforms to the following Product Specifications:

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Safety: EN 60950 / AS/NZS 60950:2000

ESD: EN 61000-4-2:2001

Telecom: AS/ACIF S002:2001; FCC CFR 47, Part 68

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The product herewith complies with the requirements of the following Directives and carries the CE marking accordingly:

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R&TTE 1999/5/EC (telecom)  
EMC 89/336/EEC (ESD immunity)  
RoHS Directive 2002/95/EC

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The Technical File containing supporting documentation is maintained at:

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JK Audio, Inc (Corporate Headquarters)  
Compliance Manager  
1311 E 6th Street, Sandwich, Illinois 60548 USA  
815-786-2929 phone  
815-786-8502 fax

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# FCC Compliance Notice

## FCC-B 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

## FCC Compliance Notice

### FCC Registration Cont'd

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.

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