TIF-101 Telephone Interface
Installation and Use

ACI-AppliCAD, Inc.

Version 1.6

Applies to serial # 098710100026 and higher

www.aci-applicad.com

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Introduction

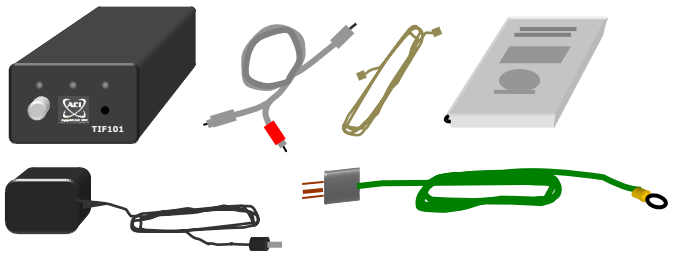
The *TIF-101 Telephone Interface* extends listening to the sound of your meeting or event over regular phone lines. Microprocessor control provides easy operation. The *TIF-101* appears as an ordinary telephone set to your phone line, thus works with all teleconferencing services. Your Telephone Interface can make a real difference for those who need to hear yet cannot be present. Its quality construction should provide years of reliable service.

Features and Benefits

***TIF-101* Feature**	**What It Does**	**User Benefit**
One-Button Operation	No switches or knobs to leave in the wrong position.	Easy to use, hard to make mistakes.
Phone Line Release	Disconnects if the caller hangs up, the connection drops, or after 3 or 8 hours elapsed time*	Won't unnecessarily tie up your phone line or run up conference service charges.
Microprocessor Control System	Continuously performs and monitors all functions.	Provides smart, simple operating features.
LED Status Lights	Indicate telephone line status and audio level.	You *know* that your program's going out OK.
Compression	Manages your sound level.	Provides comfortable listening.
Compress Output *for external FM Transmitter*	Outputs a level-compressed version of your program.	Consistent sound level for your hearing-impaired attendees.
FCC Approval	Entire unit tested to comply with FCC Rules, Parts 15 & 68.	Approved and registered for use on the telephone network.
Phone Line Protection	Built-in phone surge protection.	Reliable operation and long life. No external protector needed.

* The TIF-101 disconnects from your phone line after **three hours** by default. To extend this time limit to **eight hours**, hold down the **CONNECT** button while plugging in the unit's AC adapter (at either end). The LED blinks **red** several times to confirm, and the eight-hour limit remains programmed until power is interrupted.

What's in the Box?



- ***TIF-101*** Telephone Interface
- AC **Power Adapter**
- 1/8" – Dual RCA **Cable**
- **Telephone Cord**
- Green **Grounding Cord**
- This **Manual**

Anything missing?

If an item listed above appears damaged or missing, please call us at ACI-AppliCAD instead of your vendor, as we are better able to respond to your needs. Find our phone number in the *Service and Warranty* section of this manual.

Power Requirements

Your Telephone Interface operates on 120 VAC 60 Hz AC power (as supplied throughout the United States), using the included AC adapter. Please do not attempt to use another power source.

Please read and follow our instructions!

Installation is relatively simple but differs from other telephone products you may have used or installed. Please do not assume your new Telephone Interface hooks up the same way as do others. In particular, ***do not*** connect any speaker line (4-8 ohm or 25/70V) to any jack on this unit. All audio inputs and outputs are "preamp" level RCA jacks (see pages 5, 8, 10).

FCC Information

FCC Part 68 – This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. Its product identifier **8T5BR03BTIF101** also appears on the unit's rear panel. If requested, this number must be provided to the telephone company.

This equipment is designed to be connected to **RJ-11C** modular telephone jack(s). Plugs, jacks, and cords used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. See installation instructions (Page 9) for details.

Ringer Equivalence – The *TIF-101's* Ringer Equivalence Number (**REN**) is **0.3**. The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

If trouble is experienced with your Telephone Interface, please do not attempt repairs yourself, but see Page 15 in this manual. If the *TIF-101* is causing harm to the telephone network, the telephone company may request that you disconnect it until the problem is resolved. Otherwise, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify you as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice so you can make necessary modifications to maintain uninterrupted service.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

If your building has specially wired alarm equipment connected to the telephone line, ensure the installation of your Telephone Interface does not disable your alarm equipment. If you have questions about what would disable alarm equipment, consult your telephone company or a qualified installer.

FCC Part 15 – The *TIF-101* generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. This equipment has been tested and found to comply with the limits for a Class B digital device as applicable, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in both residential and commercial installations. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the affected receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Because your Telephone Interface complies with the tight *FCC Part 15 Class B* guidelines, it is unlikely to interfere with your wireless microphones or other sound equipment.

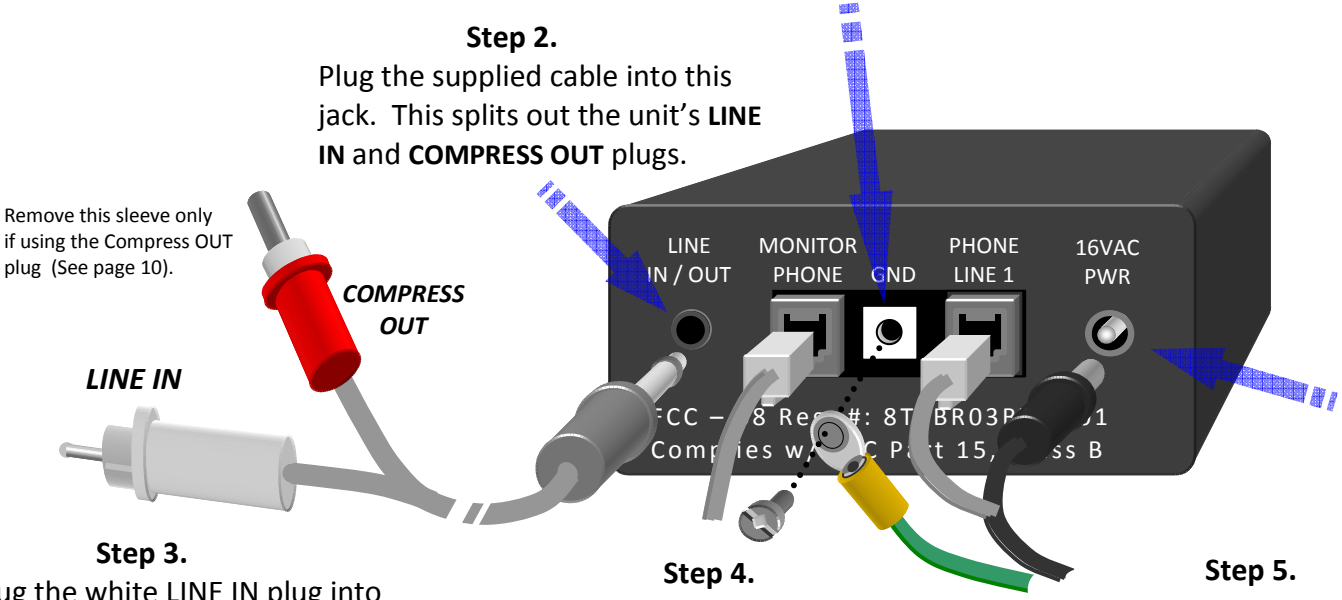
Quick Start Guide – Rear Panel Hookup

The best way to get familiar with your Telephone Interface is to put it to use. This **Quick Start Guide** takes you through the simple connections, and then shows how to operate its features. If desired, you can skip ahead to the **Installation Guide** (page 8), then turn to Page 6 for operating instructions.

To set up your *TIF-101* for this run-through, you'll need a standard desk telephone, a live phone jack, two telephone cords, some AC outlets, and a line-level audio source (CD player, etc.).
A screwdriver is the only tool needed.

Step 1. Attach the included green cord to the **GND** terminal. Plug the other end into a grounded AC outlet.

Step 2.
Plug the supplied cable into this jack. This splits out the unit's **LINE IN** and **COMPRESS OUT** plugs.



Step 3.
Plug the white LINE IN plug into your audio source output.
Don't connect a speaker line or 70V line to this input.

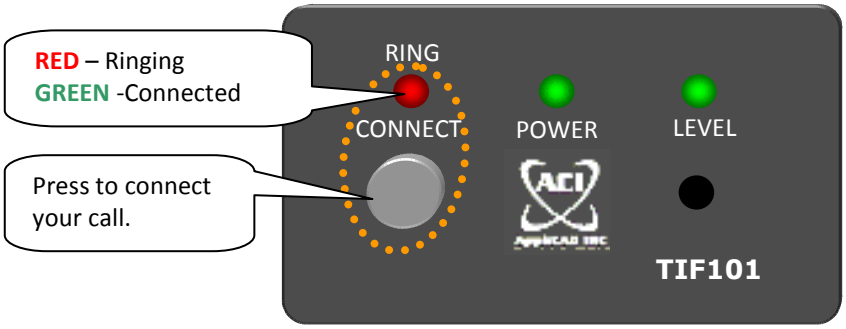
Step 4.
Plug the cord from your telephone into the **MONITOR PHONE** jack.

Step 5.
Plug your telephone line into the **PHONE LINE 1** jack.

Step 6.
Plug the cable from the included AC adapter here. Plug the other end into a free AC outlet.

Quick Start Guide – Basic Operation

Now you're ready to try out your Telephone Interface:



Power Up – The *TIF-101* is powered whenever its adapter is plugged in. The **POWER** LED glows **green** to show that the unit is ready to operate. Many users prefer to plug the *TIF-101's* adapter into an outlet strip along with the rest of their sound equipment. This way, everything gets powered at once.

Answering a call – Have an assistant call from a "remote phone" (on another line). You can try this yourself with a cell phone. The **CONNECT** LED lights **red** to indicate an incoming call. Simply pick up your telephone's receiver to answer.

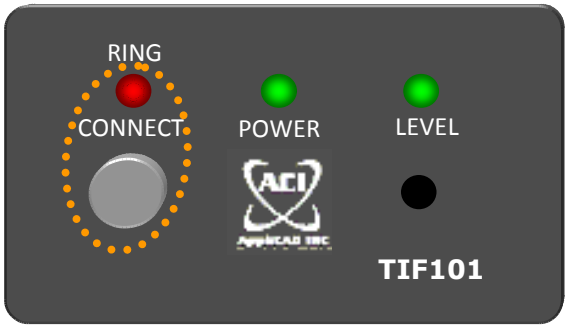
Next, you'll connect the caller to your audio source. Please start the source playing, and then continue:

Connecting the caller – Press the **CONNECT** button. This connects the phone line to the audio from your source. The **CONNECT** LED lights **green**, and you'll hear your source playing through both your phone and the remote phone.

Cradle your phone, and your party remains connected to the program.

Line Release – Hang up the remote phone. After a few seconds, the **CONNECT** light goes out. The line is now available for another call.

Quick Start Guide – Serving your Listeners



Using A Teleconferencing Service – For best results, use your service's "Listen Only" function (if available). Dial out to the service on your phone. Follow the service's instructions to establish the conference. Then press **CONNECT** to begin sending your program there. You may now hang up your phone. After the program ends: Pick up your phone if necessary, press **CONNECT** again to disconnect the *TIF-101*, and follow the conference service's instructions (if any) to end the conference.

If you forget to disconnect your *TIF-101*, it will disconnect automatically after three hours (to increase this time to eight hours, see Page 2). This feature limits unnecessary conference charges. Removing power also makes the *TIF-101* disconnect from the phone line.

Serving A Single Caller – You can also have your *TIF-101* send your program directly to one party. Have them call your number, answer your phone and then press CONNECT to begin transmitting the program.

Conversing with your caller – To check on your caller, just pick up your phone. To silence the program, press the **CONNECT** button. To resume the program, press it again *before* cradling your phone.

To keep your party on the line – Keep them connected to the program and/or have them on your phone. The **CONNECT** function and your phone act like "extensions" on your line -- as long as one is active, the call stays alive.

Disconnecting your call – After you say "Goodbye" to a caller who's *not* connected to the program, simply cradle your phone.

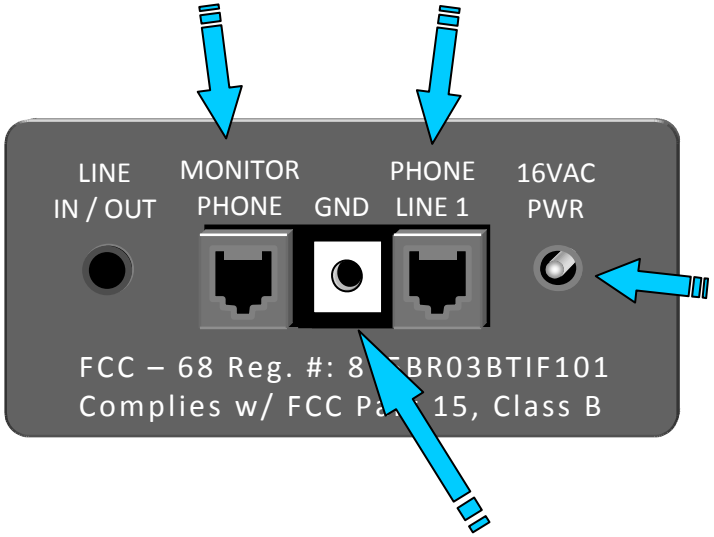
Installation Guide – Rear Panel Diagram

Compress Output

This plug provides a level-compressed version of your program. Feed a FM transmitter or recorder from this output. D*on't connect this output to your mixer or amplifier (feedback would result)*. To use this output, remove its insulating sleeve and use a RCA extension cable (not included) to route the signal where needed.

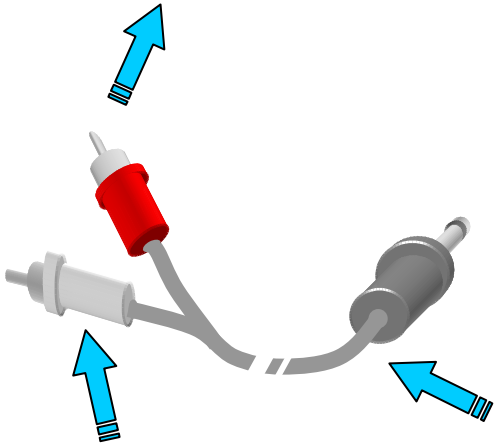
Phone Jacks

Connect the **PHONE LINE1** jack to your telephone line, and the **MONITOR PHONE** jack to your nearby telephone.



Power Jack

Plug in the AC adapter (included).



Line Input

Receives program pickup from your sound system. Connect to an unbalanced, line level feed from your mixer. ***Do not connect to a speaker or 70V line output!***

1/8" – RCA "Y" Cable (Supplied)

Plug this cable, included with your *TIF-101*, into the **LINE IN / OUT** jack to access these audio connections.

GND Terminal

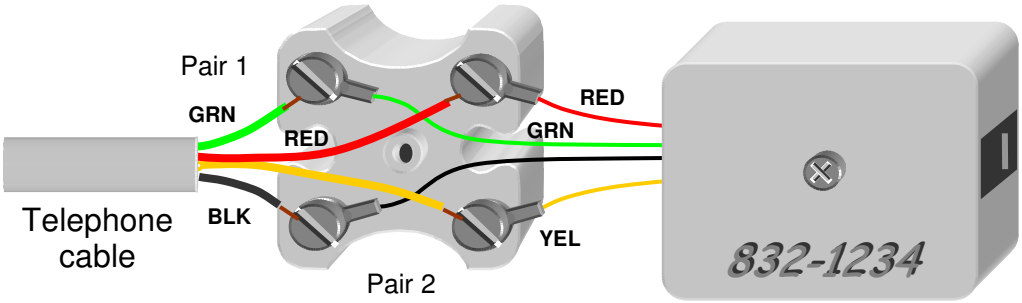
Provides telephone line surge protection. Use the included green cord to connect to a grounded AC outlet.

Installation Guide – Telephone Jacks

Your Telephone Interface connects to one standard phone line. This line can be shared with phones, however we recommend you keep one of your building's lines free for emergency calls. Don't connect that line to your Telephone Interface. If your line already has a RJ-11 phone jack, connect it to your Telephone Interface using the supplied phone cord. If you need to install a jack, find one at a hardware store or home center. They're not difficult to install.

Caution: To reduce the risk of electric shock, either unplug the affected phone line at the building's network interface (if equipped), or leave a telephone on this line "off hook" while wiring the jack.

If your wiring uses two-pair cables, its four colors should be red, green, yellow, and black. Wire your jack as shown below. If your cable has only one pair, connect its wires (regardless of color) to the red and green terminals of the jack:



Tip – After wiring your phone jack, plug in a telephone and check for dial tone. Then use that phone to call a nearby cell phone -- its Caller ID display identifies your line's telephone number. Label your jack with its number as shown.

If with a four-wire cable you find that your jack is dead or on the wrong line, try interchanging the green / red pair of wires with the black / yellow pair (in other words, swap green with black, and separately swap red with yellow).

Mounting –Place your Telephone Interface where the operator can reach it, as well as away from heat-generating gear such as power amplifiers. For rack mounting, use our *TIF-101RMK* rack-mount kit (purchased separately).

Installation Guide – Making Rear Panel Connections

Power – Locate the included AC Adapter. Plug its cord into the Telephone Interface's **POWER** jack. Plug the adapter into a 120 VAC outlet or power strip.

Ground – Your Telephone Interface includes phone line surge protection. Any effective surge protection must provide an alternative path for surge currents. You provide this path by connecting the included green cord between the **GROUND** terminal on your Telephone Interface and a grounded AC outlet. Use either a nearby wall outlet or an outlet on the power strip feeding your sound gear.

Telephone Line – Connect your line to the **PHONE LINE 1** jack. If the line includes DSL Internet service, install a DSL filter ahead of the Telephone Interface.

Monitor Phone – Connect any standard telephone set to the **MONITOR PHONE** jack using a phone cord. You'll use this phone to dial out and/or answer calls.

Line In – Your callers hear the audio you provide at the **white LINE IN** plug. Connect a feed of your program to this input, usually available as an "Auxiliary Output" at your sound system's microphone mixer. If your sound system has an "integrated amplifier" or a "powered mixer", examine its rear panel for a suitable output. If there's an RCA jack labeled "Auxiliary Output", "To Tape Recorder", etc., this should work fine. If not, your amplifier may have an "EQ or Effects Loop" – a pair of jacks possibly labeled "Mixer Out" and "Power Amp In". You'll find these jacks either jumpered together or wired to your equalizer if equipped. Insert a Y-adapter into this loop to tap your program feed for the Telephone Interface. If you can't find a suitable output, please call us for help. ***Don't use a speaker or 70 volt line feed***.

Compress Out (Optional) – The **red** plug provides a compressed version of your program. If your sound system includes a low-power FM transmitter for hearing-impaired attendees, connect a RCA extension cable (not included) to this **red** plug, then connect the extension's other end into your transmitter's audio input. The **COMPRESS** output's consistent level provides better results than would a direct feed from your mixer.

Caution – Because this output is the compressed program feed from your mixer (supplied to the **LINE IN** plug), never run it back into your mixer! Use this output only for devices independent from your sound system.

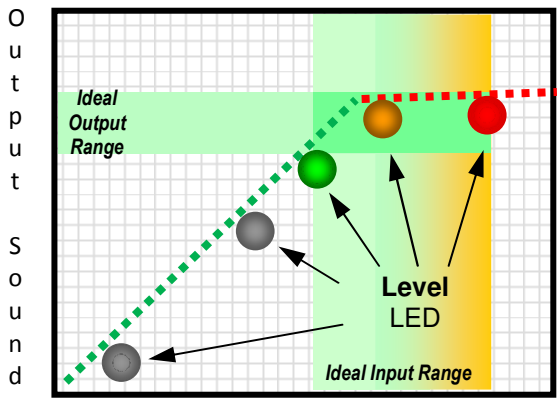
Installation Guide – Using A Gated Microphone Mixer

A gated mixer automatically shuts off unused microphones, reducing background noise and feedback. We highly recommend using one. However, we also suggest leaving one microphone ON at all times for the benefit of your telephone listeners. Most gated mixers can accommodate both these goals. Depending upon the model of gated mixer you have, try one of these settings:

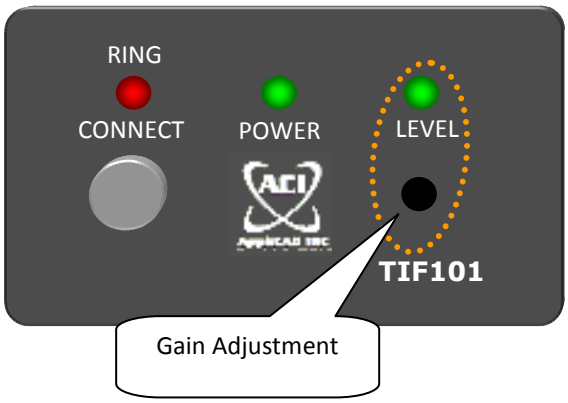
- **"Force ON"** (disable gating of) the microphone channel that's used the most (typically the "main" or "chairman's" mic)
- Set the mixer (if not by default) for **"Last mic ON"** -- the previously used channel remains live until sound triggers a new channel

Installation Guide – Adjusting Gain

The gain is factory set to accept a normal level at the **LINE IN** jack. Adjust it if needed to accommodate the level of your sound system. Correctly adjusted, incoming sound reaches the ***ideal input range*** shown on the graph below. Then the *TIF-101* maintains its ***ideal output range*** as shown. The **LEVEL** LED responds to sounds within the ideal range, helping you find the correct setting. Make the adjustment at the front panel, using a fine slot screwdriver.



Sound before Compression



To Adjust – Set up your sound system with its most-used microphone. While someone speaks into this mic (reading a book works well), adjust your sound system's volume for good auditorium listening. Then, watch the **LEVEL** LED at your Telephone Interface:

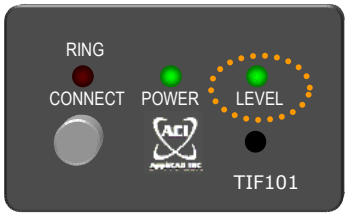
- If the LED remains dark, <u>increase</u> the gain by turning the screw <u>clockwise</u>. The LED should illuminate green and blink orange with program peaks when your auditorium level is comfortable. It's OK for the **LEVEL** LED to light continuously red when playing music, etc. at levels higher than normal speech.
- If the LED lights for background noise levels in your auditorium, <u>reduce</u> the gain by turning the adjustment <u>counterclockwise</u>.

Reference – Troubleshooting

If you experience any difficulty with your Telephone Interface, please use the following suggestions to work the problem and find out what's wrong:

Power – Is all your equipment powered ON? Someone may have inadvertently switched OFF a component. Test outlets with a lamp or voltmeter. If the *TIF-101's* **POWER** LED doesn't light even though you've confirmed that power is available, please see *Service and Warranty*, Page 15.

Sound – Watch the **LEVEL** LED while your participants speak. If it remains dark, the Telephone Interface is not finding enough sound at its input. Continue below to resolve this problem:



- **Input** – The **white** plug from the included "Y" cable is the input to your *TIF-101*. Check that the input is connected to the AUX output of your sound system's mixer. Be sure that this cable is fully inserted at both the source and the *TIF-101*.

- **Gain Adjustment** – Are callers having difficulty hearing the program? If only one caller is affected, it could be their telephone or line. Otherwise, adjust the gain according to the procedure on page 11. Note that if this adjustments is inadvertently set to zero (fully counterclockwise), no sound will transmit.

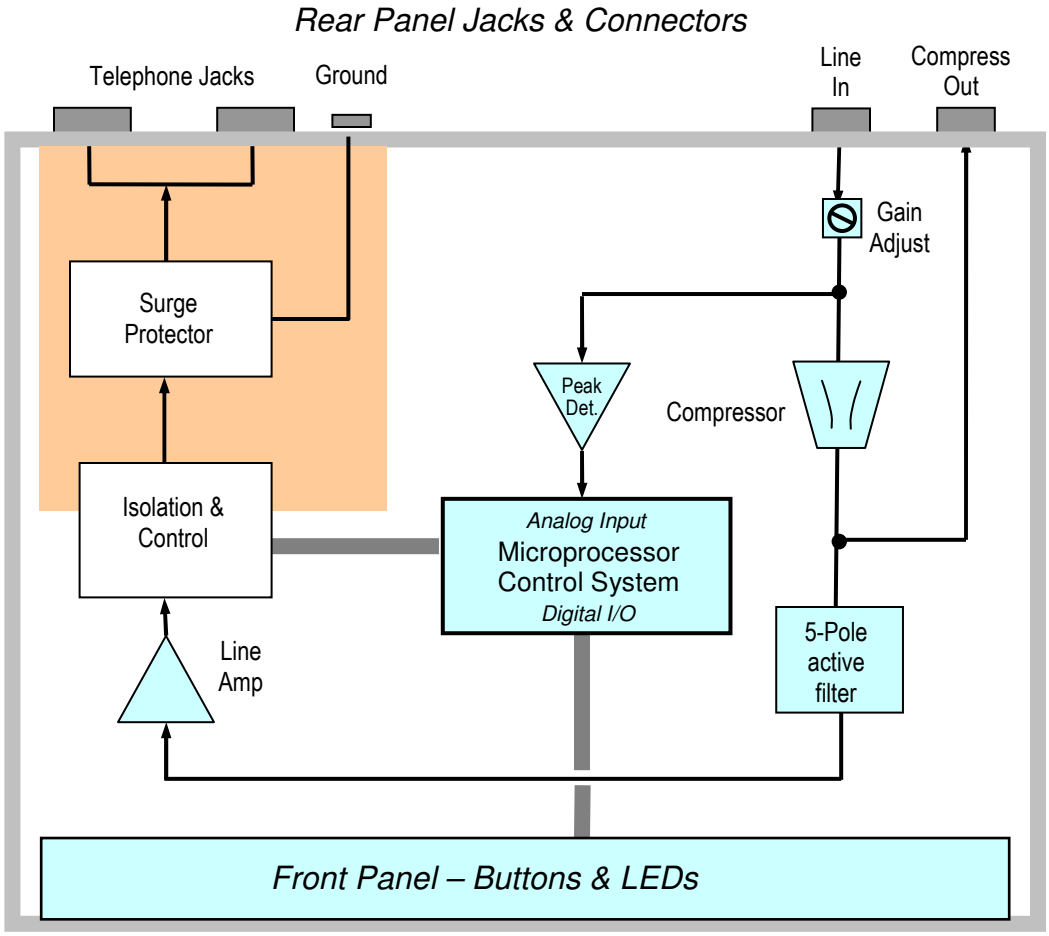
Phone Line – The *TIF-101* automatically tests your phone line for continuity. If the **CONNECT** LED doesn't remain illuminated when you attempt to connect, your line is either not plugged in or is out of order. Try using a standard telephone set (such as your Monitor Phone) with your line as a test. If the line tests good but your *TIF-101* doesn't recognize it, try another phone cord.

Conferencing – To help discern any difficulties with your conference service, test your *TIF-101* separately, as described on Pages 5-6 of this manual. Also try the conferencing service using only regular telephones.

If all your tests point to your Telephone Interface as causing the problem, please see *Service and Warranty*, Page 15.

Reference – How It Works

If you have questions about how sound travels between the input and output jacks of this equipment, the diagram below may help answer them. The diagram also shows how your Telephone Interface, though simple on the outside, is sophisticated inside.



- **Isolation** – This simply means there's no direct connection from the phone line jacks to the unit's electronics. Isolation maintains the integrity of the telephone network and the safety of users. The *TIF-101* isolates using a transformer and solid-state optical couplers.

- **Surge Protection** – Built-in protection uses PTC thermistors to limit surge currents, and Sidactors® (solid-state triggered switches) to shunt surges to ground. You supply a reliable ground point by connecting the supplied green cord from the GROUND terminal to a grounded AC outlet.

- **Line Sensing** – About ten seconds after a call concludes, your phone company momentarily drops the DC power ("loop current"). This is called **CPC** (**C**alling **P**arty **C**ontrol). The *TIF-101* senses this to determine that a call has ended. Then it disconnects and frees the line. Most telephone exchanges also drop loop current when they quit sending dial tone after a phone has been left "off hook". Thus, a needlessly connected line often disconnects automatically.

Reference – Specifications

Audio Connections:

LINE input, 1/8" (tip) unbalanced
COMPRESS Output, 1/8" (ring) unbalanced
With supplied 1/8" to dual RCA adapter:
LINE input White, **COMPRESS** Output Red

Phone Line Connections:

(2) parallel RJ-11 line jacks:
Phone Line
Monitor Phone
Isolation – Transformer & Optical Couplers
Surge Protection – PTCs and Sidactors®
Loop Sensing – Nominal 15 mA
Off Hook Impedance – Nominal 600 Ohms
FCC ID # – **8T5BR03BTIF101**

Power:

3 Watts from 16VAC wall adapter.

Audio Specs:

COMPRESS Output Level approx. 0dBv
LINE Input Level Max +10dBv (recommended 0dBv)
Total Harmonic Distortion < 0.9%
Output level to telephone lines (-9) dB max. per FCC regulations.
Frequency response : (to phone lines) 200 Hz – 3.2 KHz (-29 dB @ 4 KHz per FCC).
(**LINE** input to **COMPRESS** output) 200 Hz – 20 KHz

Sidactor® is a registered trademark of Teccor Corporation.

Reference – Service & Warranty

We hope you won't need the following information, but please be assured that should your Telephone Interface malfunction, we're here to help.

You may call ACI-AppliCAD at **(732) 751-2555** during normal business hours (Eastern Time) to get help with installing, using, or troubleshooting your Telephone Interface. If it appears that your Telephone Interface is defective, we'll issue a **RMA** (**R**eturn **M**aterial **A**uthorization) number for expert factory service. Please note that this product uses surface mount technology extensively. We don't recommend you attempt internal repairs yourself, even if you're comfortable around electronics. Firmware source code is not available to customers.

Your limited warranty is one year from date of purchase. Out of warranty, our current repair charge is a flat rate of $65 plus shipping (subject to change). Whether your Telephone Interface is in or out of warranty, you'll receive fast, courteous service. Like the *TIF-101* itself, we are devoted to solving problems in sound communication.