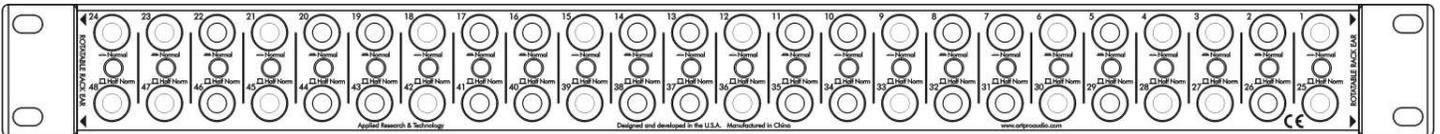
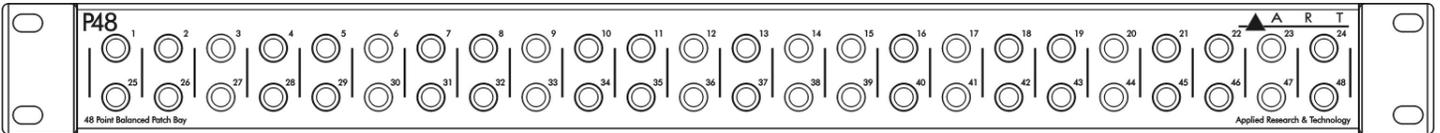


P48

48 Point Balanced Patch Bay



USER'S GUIDE



IMPORTANT SAFETY INSTRUCTIONS - READ FIRST



This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltages inside the enclosure that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

Read instructions

Retain these safety and operating instructions for future reference. Heed all warnings printed here and on the equipment. Follow the operating instructions printed in this user guide.

Do not open

There are no user serviceable parts inside. Refer any service work to qualified technical personnel only.

Power sources

Only connect the unit to mains power of the type described in this user guide or marked on the rear panel. The power source must provide a good ground connection.

Power cord

Use the power cord with sealed mains plug appropriate for your local main supply as provided with the equipment. If the provided plug does not fit into your outlet consult your service agent. Route the power cord so that it is not likely to be walked on, stretched or pinched by items placed upon or against.

Grounding

Do not defeat the grounding and polarization means of the power cord plug. Do not remove or tamper with the ground connection on the power cord.

Moisture

To reduce the risk of fire or electrical shock, do not expose the unit to rain, moisture or use in damp or wet conditions. Do not place container of liquid on it, which may spill into any openings

Heat

Do not locate the unit in a place close to excessive heat or direct sunlight, as this could be a fire hazard. Locate the unit away from any equipment, which produces heat such as: power supplies, power amplifiers and heaters.

Environment

Protect from excessive dirt, dust, heat, and vibration when operating and storing. Avoid tobacco ash, drink spillage and smoke especially that associated with smoke machines.

Handling

Protect the controls from damage during transit. Use adequate padding if you need to ship the unit. To avoid injury to yourself or damage to the equipment take care when lifting, moving or carrying the unit.

Servicing

Switch off the equipment and unplug the power cord immediately if it is exposed to moisture, spilled liquid or the power cord or plug becomes damaged during a lightning storm or if smoke odor or noise is noted. Refer servicing to qualified technical personnel only.

Installation

Install the unit in accordance with the instruction printed in the user guide.

OVERVIEW

The ART P48 48 Point Balanced Patch Bay is a deceptively simple, yet surprisingly useful addition to any serious collection of audio equipment. A patch bay organizes your cables and provides a convenient, easily accessible central location to make all of your audio connections. It also saves wear and tear on the connectors of your audio equipment because all connections are now made and changed at your patch bay. Application settings include use in professional or home recording studios, installed audio including PA, AV and home theater, and live sound.

Features

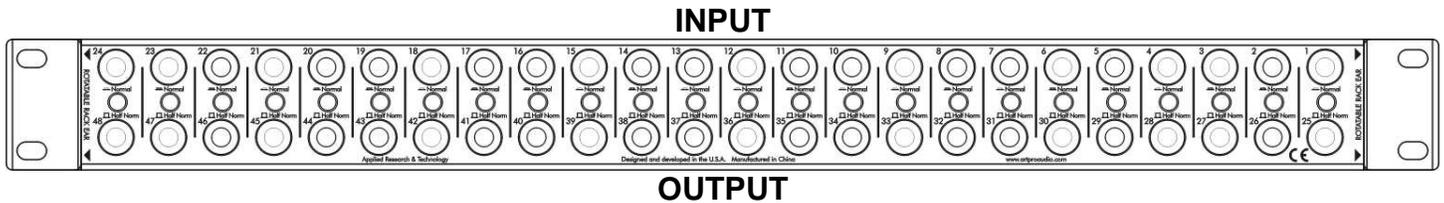
- 48 points of balanced direct signals, 24 channels of linked input/output pairs
- Switchable half normal and normal modes of operation (with through type connections)
- High quality passive interface
- 1/4" TRS phone jack connectors
- 19" 1U-high rack mount with rugged, fully shielded black all-steel enclosure
- Reversible rack ears for added system flexibility
- Three year warranty

SPECIFICATIONS

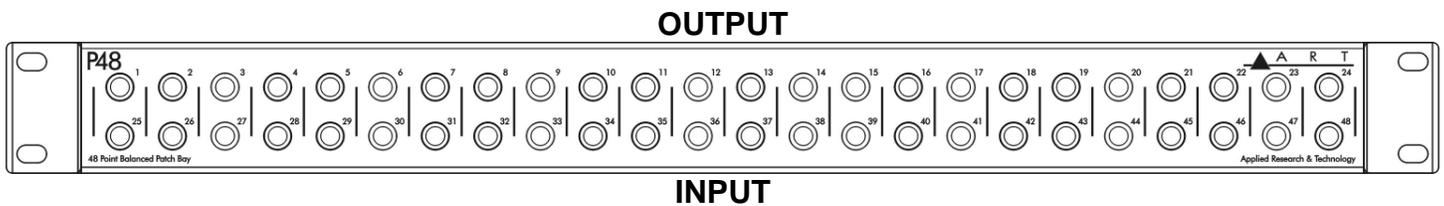
Connectors	1/4" TRS balanced phone jacks
CMRR	> -90 dB (typical)
Channel to channel isolation	> -80 dB (typical)
Enclosure	Steel 1U high, 19" rack mount
Dimensions (HWD)	1.75" x 19" x 3.5" 44mm x 483mm x 89mm
Weight	4.5 lbs. (2.0 kg)

USING A PATCH BAY

Although the ART P48, like all patch bays, is conceptually a simple device, there is a lot in the terminology and usage conventions that can potentially cause confusion. Each vertical grouping of two jacks on the front of the unit and the corresponding two jacks and switch on the rear of the unit comprise a module and provides one channel of linked input/output audio connections. For example, the jacks labeled 1 and 25 on the front panel and the jacks labeled 1 and 25 on the rear panel, along with the associated switch, are one module. All 24 modules are identical and each may be individually configured for Half Normal or Normal operation. Read on to find out what this means.

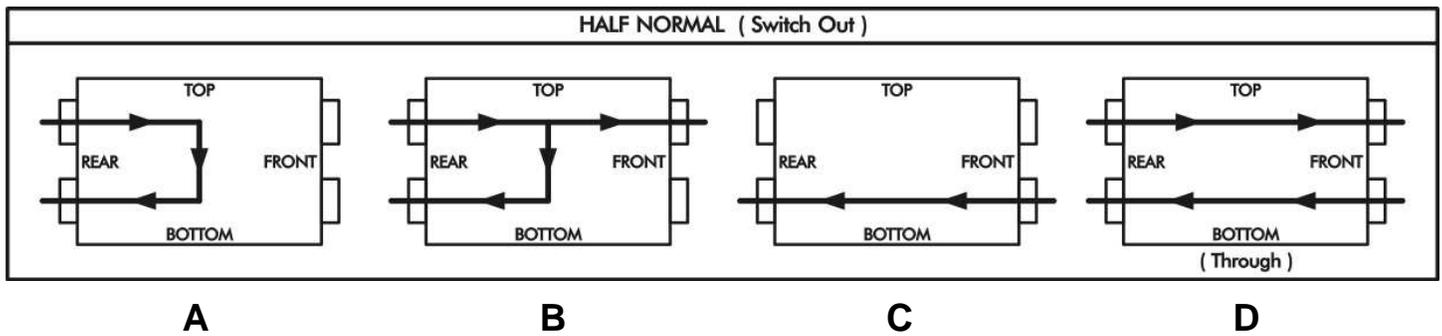


All connections start at the rear of the unit. By convention, the top jacks are inputs and are connected to audio sources or sends and the bottom jacks are outputs and are connected to audio destinations or receives (see above). With no connections at the front of the unit, the vertical pair of rear panel jacks are connected together internally. An audio signal will flow from the top jack to the bottom jack without any patch cords plugged in at the front in what is known as a **normaled** connection, shown in case **A** in the Half Normal and Normal diagrams below.

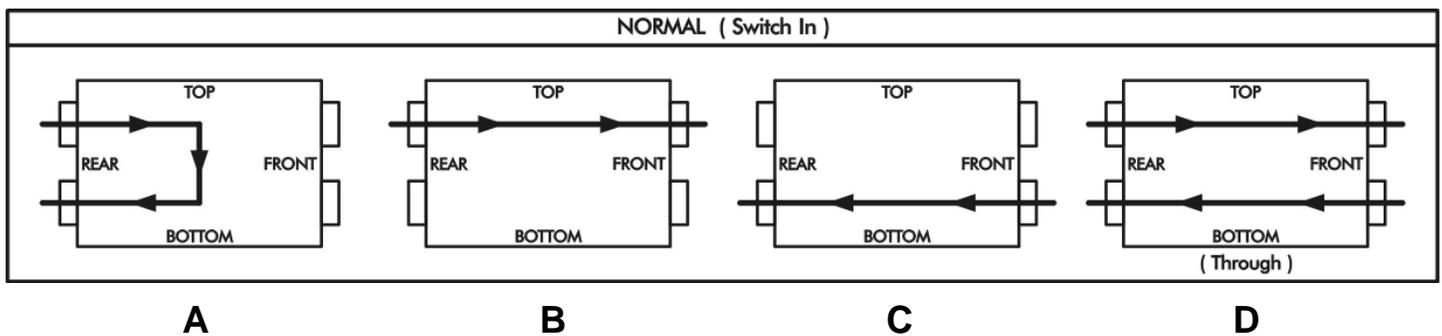


So far we've connected audio outputs to audio inputs, which we could have done with just cables. But using the jacks on the front of the unit is when things get interesting. The convention on the front of a patch bay is that the top jacks are outputs and the bottom jacks are inputs (see above). This is just the opposite of the rear connections, but makes sense if you think of signals flowing through the patch bay.

With the rear panel pushbutton in the out position (**Half Norm**), the Half Normal mode is selected (refer to the Half Normal diagram below). This is the patch bay mode most commonly used. In this mode we can plug a cable into the top jack and take out or monitor the signal flowing through the rear jacks by sending it to an amplifier input or a set of headphones. This is shown in case **B**. However, if we plug a cable into the bottom jack, we break the connection between the rear jacks. Thus we can put in or patch a signal that replaces the signal coming into the top rear jack, as shown in case **C**. Finally, we can plug into both front jacks and get two independent **through** signal paths where the original source goes to a new destination and the original destination gets a new source as shown in case **D**.



With the rear panel pushbutton pushed in (**Normal**), the Normal mode is selected (refer to the Normal diagram below). If you compare the two mode diagrams, you'll notice that they're pretty similar. Only case **B** is different. Now plugging a cable into the **top** jack breaks the connection between the rear jacks just like plugging a cable into the bottom jack does. Plugging a cable into either (or both) jack(s) breaks the normalled connection. All other aspects of the Normal mode are the same as for the Half Normal mode.



A normalled connection is desirable for many applications, but not all. For example, be careful not to connect a signal processor's output and input to the same module. Here a normalled connection would create a feedback loop which is definitely not what you want. Instead, use two separate modules, one for the output and one for the input.

FREQUENTLY ASKED QUESTIONS

Q: Can the P48 be used with unbalanced audio signals?

A: Absolutely! Although the ART P48 uses three-conductor Tip/Ring/Sleeve (TRS) 1/4" phone jacks and maintains balanced connections internally, nothing prevents you from using two-conductor Tip/Sleeve (TS) phone plugs connected to unbalanced equipment. However, once you use an unbalanced line in part of your signal path, you may lose some of the benefits of a balanced line (potentially lower noise and hum, especially with longer cables).

Q: What about stereo audio signals?

A: Sure, you can use the P48 with stereo signals, although you should be careful not to mix your stereo signals and balanced signals together. They really don't play well together!

Q: Can the P48 be used with both analog audio and digital audio signals at the same time?

A: Yes, depending on the bandwidth requirements of the digital signal. There are no inherent frequency rolloffs in the P48, but you wouldn't want to run an extremely high bandwidth digital signal through it. If you do run digital audio signals, we recommend that you group all the digital signals together and all the analog signals together and reserve some empty channels between them in order to minimize the pickup of noise in the analog signals. And, again, don't mix them together!

Q: Can I run phantom power for microphones through the P48?

A: While you can do this, we don't recommend it. For one thing, it would be very easy to inadvertently connect the 48V directly to an input or output that couldn't handle it, damaging your equipment. For another thing, and this is a problem whenever you use a phone plug with phantom power, as you plug into the jack you'll almost certainly momentarily short the 48V to ground, potentially damaging the phantom supply. It would be much better to use one of our XLR patch bays, like the **P16** or **XPatch**. With an XLR connector, it's almost impossible to accidentally short the phantom voltage to ground.

Q: Where can I go for more information on using patch bays?

A: Here are two links to good articles:

Sound On Sound Magazine, March 1998 - "BAY WATCH! - All About Patchbays"
<http://www.soundonsound.com/sos/mar98/articles/patchbays.html>

Sound On Sound Magazine, December 1999 - "Patchbays - Frequently Asked Questions"
<http://www.soundonsound.com/sos/dec99/articles/patchbay.htm>

WARRANTY INFORMATION

Limited Warranty

Applied Research and Technology will provide warranty and service for this unit in accordance with the following warrants:

Applied Research and Technology, (ART) warrants to the original purchaser that this product and the components thereof will be free from defects in workmanship and materials for a period of three years from the date of purchase. Applied Research and Technology will, without charge, repair or replace, at its option, defective product or component parts upon prepaid delivery to the factory service department or authorized service center, accompanied by proof of purchase date in the form of a valid sales receipt.

Exclusions

This warranty does not apply in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs. This warranty is void if the serial number is altered, defaced, or removed.

ART reserves the right to make changes in design or make additions to or improvements upon this product without any obligation to install the same on products previously manufactured.

ART shall not be liable for any consequential damages, including without limitation damages resulting from loss of use. Some states do not allow limitations of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific rights and you may have other rights, which vary, from state to state.

For units purchased outside the United States, an authorized distributor of Applied Research and Technology will provide service.

SERVICE

The following information is provided in the unlikely event that your unit requires service.

1. Be sure that the unit is the cause of the problem. Check to make sure that the unit has power supplied, that all cables are connected correctly, and that the cables themselves are in working condition. You may want to consult with your dealer for assistance in troubleshooting or testing your particular configuration.
2. If you believe that the ART unit is at fault, go to www.artproaudio.com. You may contact Customer Service for more assistance, or directly request a Return Authorization for service in the “resources” area of the website.
3. If you are returning the unit for service, pack the unit in its original carton or a reasonable substitute. The original packaging may not be suitable as a shipping carton, so consider putting the packaged unit in another box for shipping. Print the RA number clearly on the outside of the shipping box. Print your return shipping address on the outside of the box.
4. Include with your unit: a note with the RA number and your contact information, including a return shipping address (we cannot ship to a P.O. box) and a daytime phone number, and a description of the problem, preferably attached to the top of the unit. Also include a copy of your purchase receipt.



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P48
V1.0