Daking Audio

Daking Audio Mic Pre IV Manual

VERSION 1.4

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Safety Considerations

1. Read, follow and keep these instructions.
2. Heed all warnings.
3. Do not use this equipment in or near water. Do not place liquids on or near the device because the device might be damaged during a spill.
4. Clean only with a soft dry cloth.
5. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
6. Use only Daking supplied power supplies to prevent damage to your device or create safety hazards.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
9. Protect the power cord and all connecting cables from being walked on or pinched particularly at plugs, receptacles, and the point where they exit from the device.
10. Only use attachments/accessories specified by the manufacturer.
11. Unplug this device when unused for long periods of time.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when a power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
13. Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

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1 Daking Audio Mic Pre IV

1.1 About Daking Audio

Congratulations! You've purchased a Mic Pre IV, a very high end piece of gear! The MPIV uses all discrete transistor Class A circuits, Jensen input and output transformers and printed circuit board mounted switches. Signal capacitors are precision polypropylene or ultra low-leakage electrolytic types. Our boards are assembled on a mil-spec assembly line. The chassis are stainless steel for maximum RF and hum rejection and a long lasting finish. Every unit is hand finished, tested, burned in, and tested again in a second facility.

Also, we just couldn't stand to use plastic knobs, so we designed our own anodized, engraved aluminum knobs that give a much more precise and quality feel. We designed our gear to be gear you'd own for life, not some passing fancy you'd leave in the dust once you figured what the good stuff sounds like. This IS the good stuff.

-Geoff Daking

1.2 Quick Start Guide

1.2.1 Don't read the manual!

Most of you will already know how to use mic preamps perfectly well and might be even a little offended at the idea of reading the instruction manual. So don't read it. This manual is not for you.

This manual *is* for someone that knows enough to buy the very best (Daking of course!), but doesn't have a lot of experience using recording gear.

You might be a bass player who just got a DAW and wants a cleaner more accurate sound from your mics in your home studio. You might be a student that just got a check from Mom & Dad and who wants to go buy something nice for yourself.



You might be the guy standing ankle-deep in a pool of salt water, trying to yank the grounding pin off your mixer's power cord so you can plug it into your 2-prong ungrounded outdoor outlet.

This manual is especially for you!

Whenever you see the Duh! Guy, you can be assured that most professionals will already know this stuff. Be sure to explain this stuff to your friends in a snotty and condescending tone, so you too can be part of the tradition of know-it-all engineers and recordists!

1.2.2 Basic Set Up

The job of a microphone amplifier is to make a mic level signal into a line level signal so that it can be recorded, mixed or processed.

Plug a microphone into the **Mic Input Jack** on one of the four preamps on the Mic Pre IV using a microphone (XLR Female to XLR Male) cable. If the mic you are using is a condenser microphone that requires phantom power, push in the **+48 Button** to engage phantom power. Patch out of the **Output Jack** of the same preamp to the line level input of your recording device using either a microphone (XLR Female to XLR Male) cable or balanced line (XLR Female to a ¼" TRS Male) cable.

1.3 The Power Supply

Your Mic Pre IV ships with an external 48V DC power supply. External power supplies offer many advantages over internal power supplies like reducing hum from 50 or 60 cycle power sources and improving the safety of the equipment you are using.

1.4 Back Panel



1.4.1 In General: XLR Connectors and ¼" TRS Connectors

XLR connectors are more expensive, more reliable and offer a stronger connection than ¼" TRS connectors. They also have the option of a locking latch that helps to keep the cable from being pulled out accidentally. If worse comes to worse, you can connect two XLR cables together to make a longer run. The XLR connection is strong enough that you can swing a hand-held microphone around your head like a cowboy for quite a long time before the mic flies off and knocks someone's teeth out.



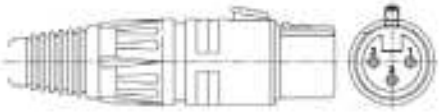
XLR males are used for Outputs and XLR female are used for Inputs. Makes sense, right? Many people confuse the male and female XLR parts, because the female plug fits into the male

plug to join together. The male XLR has 3 pins (male pins…) inside the plug and the female XLR has three holes inside the plug (female holes…). Check out the diagrams below:

Neutrik Male XLR Plug



Neutrik Female XLR Plug



¼" TRS (**T**ip, **R**ing, **S**leeve) cables have male 3 conductor ¼" diameter connectors on both ends. These connectors are cheaper, less reliable and offer less contact area for the electrical connection and are more often the site of intermittent connections. ¼" TRS cables are easier to use because you don't have to worry about which end is which, because both plug ends are the same. The TRS plug looks like stereo ¼" headphone plug but carries balanced line level not speaker level like with headphones. A mono ¼" cable (like a guitar cable) is not TRS plug as it is only 2 conductor -it won't work right in any TRS application as it is missing one of the three conductors!

Neutrik 1/4" TRS Plug



1.4.2 Microphone Input (XLR or ¼" TRS)

The microphone input accepts a mic-level signal. Mic level signals are generally very low in voltage around a couple of millivolts or 1000^{ths} of a volt. The job of the mic preamp is to increase the mic-level signal by up to 75 dB to be line level, which is between 1 and 2 volts.

1.4.3 Line Input (XLR or ¼" TRS)



The line input accepts a line-level signal, not a mic level or instrument level signal. You can connect to the input of your preamp with an XLR cable or a ¼" TRS cable.

This jack is not expecting a microphone-level signal and definitely not a speaker-level signal!

Plugging a speaker level signal into your Mic Pre IV may blow it up. This signal is far too hot to work properly with your preamp.

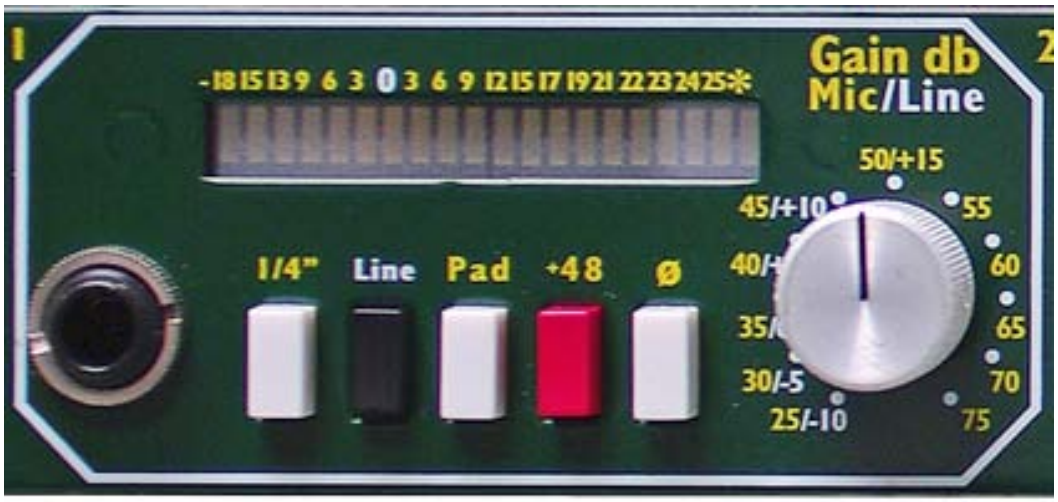
1.4.4 Line Output (XLR)

The output signal from your preamp comes from here. If you are connecting your preamp to a patch bay on a console instead of a line XLR input on another piece of gear, you will want to purchase (or make) a female XLR to male ¼" TRS adaptor cable to make this easier. The output signal is line level, not mic level, so patching it into a mic pre-amp afterwards is unnecessary and probably will just cause problems.

1.4.5 Power supply Connection

The jack is where you connect your external 48V DC power supply.

1.5 Front Panel



1.5.1 LED VU and Peak Meter



The VU Meter for the Mic Pre IV is a true VU Meter with 300ms averaging ballistics. The main difference between this meter and a mechanical VU meter is that this meter extends to +25dB, while a mechanical meter only goes up to +3dB. This feature allows the engineer to see level with much greater accuracy and detail above +3dB.

The highest point on the meter is labeled with an asterisk (*) which is the peak indicator. When this LED is lit, the signal has reached or exceeded 26dBu. Most audio interfaces will clip at +18dBu, while most professional mixing consoles will clip between +24dBu to +30dBu.

VU Meters measure the RMS (Root Mean Square) of an audio signal. Often the RMS is considered to the "continuous" level of the signal. A PPM (Peal Program Meter) measures the signal much more quickly and keeps track of the absolute value of the greatest voltage in the audio signal. This is why the Peak Indicator (*) can be lit when the VU meter is showing a much lower signal. The peaks of an audio signal are much higher than the RMS of the audio signal.

NOTE: While most VU meters are calibrated to 0dB VU = +4dBu, this meter is in fact a true dBu meter where 0dB on the meter is in fact 0dBu. This means that when the Mic Pre IV's VU meter is reading 0dB and you patch into another standard VU meter directly from the mic pre, you will show a reading of -4dB.

1.5.2 Rotary Switches vs. Potentiometers



Your Mic Pre IV is equipped with rotary switches which make a click when you turn them. Switches are more reliable and have a higher tolerance than rotary potentiometers, which are the smooth turning knobs on an electric guitar or your stereo's volume knob.

One of the biggest advantages of switches is that you can reproduce the same settings over and over again. With a rotary pot, you just can't be as precise. You can also set 2 devices exactly the same way when you use switches.

1.5.3 Gain Switch Knob

The Gain Switch Knob allows you to control the amount of gain added to the input signal. The switch works in 5dB increments and setting can be recalled easily because the knob is a switch. The gain should be set as high as possible without either seeing the peak indicator (*) flash on the VU meter, hearing audible clipping or distortion, or overloading the following stage in the signal chain. For instance, your Mic Pre IV can support outputs up to +26dB, but most audio interfaces clip at +18dB. The gain control would have to be set so as to not overload the audio interface. Professional consoles are capable of handling levels as high as +30dB in some cases.

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One common procedure for setting gain is to set the level while the channel is muted. Turn up with gain until the peak indicator (*) flashes during the loudest parts of the performance. Then reduce the gain by one or two clicks (5 – 10dB). Then disengage the mute of the console or DAW and listen to the signal. Note that many performers will be significantly

louder and more energetic when they believe they are recording compared to when they believe that levels are being set.

If you are still showing peaking on the VU meter, but the gain switch is turned down all the way, engage the Pad button to reduce gain by 20dB. This will not affect the timbre of the audio, just the level.

1.5.4 ¼" Instrument Input Jack

The ¼" Instrument Input Jack is specifically designed to allow users to plug a guitar, bass or keyboard into the front of the preamp. The signal from this jack does not pass though the input transformer, but rather is unbalanced.

You must engage the ¼" Button in order to use the front ¼" jack.

1.5.5 ¼" Button

This button switches the input of the mic pre to the front ¼" input and disengages both the rear mic and line inputs.

1.5.6 Line Button

This button switches the input of the mic pre to the rear Line Input XLR/ ¼" Combo Jack and disengages both the front ¼" instrument jack and the rear Mic Input XLR/ ¼" Combo Jack.

1.5.7 Pad Button

The Pad button is a 20dB attenuator usefully when the gain switch is in its lowest position and the peak indicator (*) is still being lit. Most commonly the Pad button will be required for extremely dynamic sources like drums and percussion, or extremely loud sources like electric guitar through a large amplifier.

1.5.8 +48 Button

This button controls the 48 volt phantom power which is used to power the onboard electronics in condenser microphones or active direct injection (DI) boxes.

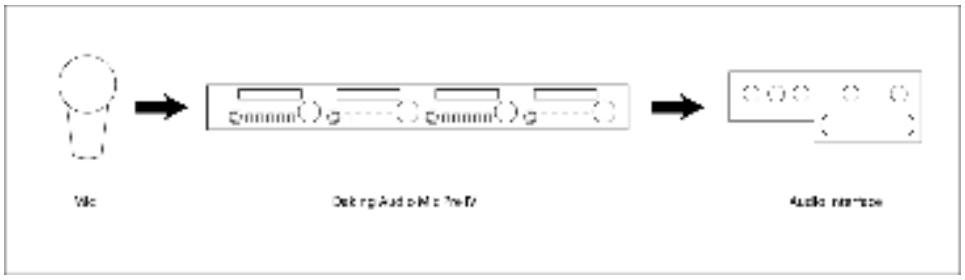
1.5.9 Ø Button

The Ø button flips the phase of the audio signal by swapping pin 2 and pin 3 of the XLR jack of the microphone input. Often it is used when two microphones are being used on the same source, like the top and bottom microphones for a snare drum. Often the phase is flipped on the bottom microphone so that the two microphone signals will be in phase. When two microphones are out of phase and mixed together the sound often is hollow sounding, with some frequencies boosted and some frequencies cut. Phase flip is also commonly used when two microphones are used on a single guitar speaker cabinet.

1.6 Signal Flow: Patching Into and Out of Your Mic Pre IV

1.6.1 Microphone to Mic Pre IV to Audio Interface or Mixer

Basic Cables Needed:
(1) Microphone Type Cable (Female XLR to Male XLR)
(1) Female XLR to Male ¼" TRS Balanced Cable



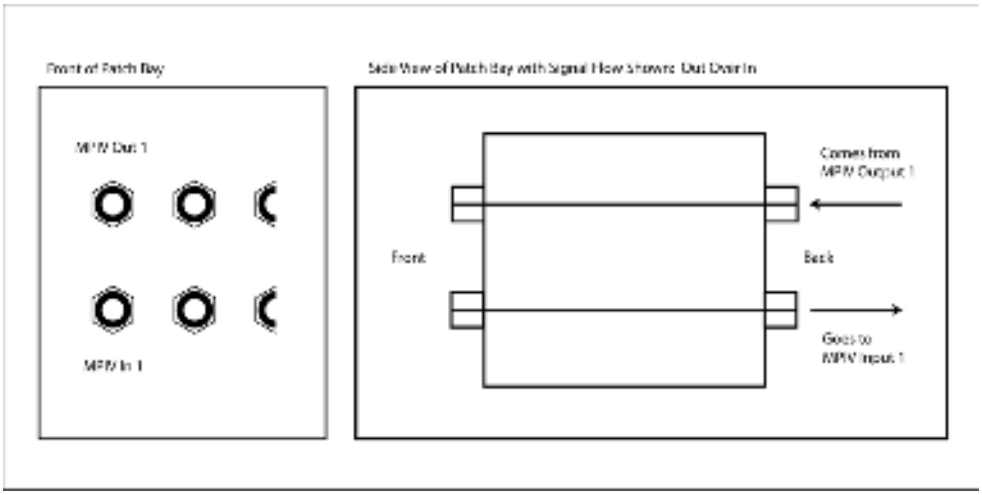
Patch from the microphone to the mic input on the MPIV using the female XLR to male XLR microphone cable. Patch out of the line output to a line input on your audio interface or console.

1.6.2 Via a Patch Bay

In most professional setups, processors are racked and then installed as part of a patch bay system. This makes it easier to make connections, because you don't need to go behind the rack to plug and unplug cables.

Patch bays are usually made up of modules with 2 jacks in the front, one over the other, and two jacks (or solder terminals, or DB25, etc) on the back. For the sake of this manual, we'll assume you're using a ¼" TRS patch bay with jacks on the front and back.

You do not want to normal the inputs and outputs from the compressor to each other. This will create a feedback loop. Converting a half-normal module to a non-normaled module is sometimes as simple as rotating the module in the patch bay. See the manual for your patch bay.



Cables Needed:
(1) XLR Male to ¼" TRS Male
(2) XLR Female to ¼" TRS Male

Steps:
1. Patch from the bottom back jack on the patch bay module to an input on the MPIV using the ¼" TRS to XLR Male cable.

2. Patch to top jack of the patch bay module from an output of the MPIV using the XLR Female to ¼" TRS cable.

3. Now you can patch into a mic pre from the front of the patch bay. Simply run a patch cable from your source microphone and into the bottom jack on the module and then run from the top jack on the module to wherever the signal needs to go.

1.7 Specifications

- Transformer balanced inputs and output
- All discrete transistor circuitry
- Class "A" amplifiers
- Stepped (5dB) Gain Control for quick, accurate recall
- 20 Segment vu Meter (-20 to +25)
- +26dB Peak indicator
- All relay switching w/gold bi-furcated contacts
- Switched +48v Phantom power
- 20dB pad on mic input
- Stainless steel construction for noise immunity
- Aluminum knobs
- Power supply included
- Output level control before last stage of gain
- 75dB gain