

Daking Audio

Daking Audio Mic Pre One Manual

VERSION 1.0

Hendrik David Gideonse XIX

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1 Daking Audio Mic Pre One

1.1 About Daking Audio

Congratulations! You've purchased a Mic Pre One, a very high end piece of gear! The Mic Pre One uses all discrete transistor Class A circuits, THAT Corporation differential amps 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 1/4" TRS Male) cable.

1.3 The Power Supply

Your Mic Pre One 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



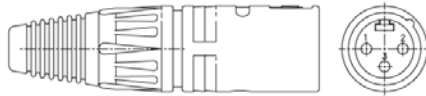
1.4.1 In General: XLR Connectors and 1/4" TRS Connectors



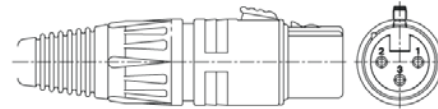
XLR connectors are more expensive, more reliable and offer a stronger connection than 1/4" TRS connectors. They also have the option of a locking latch that helps to keep the cable from being pulled out accidentally. If worse comes to worse, you can connect two XLR cables together to make a longer run. 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



1/4" TRS (**T**ip, **R**ing, **S**leeve) cables have male 3 conductor 1/4" 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. 1/4" 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 1/4" headphone plug but carries balanced line level not speaker level like with headphones. A mono 1/4" 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 1/4" 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 1/4" 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 1/4" 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 1/4" 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 One 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 +22dB, 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 be the “continuous” level of the signal. A PPM (Peak 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 One’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 The HPF (High Pass Filter) Knob



Why do we need it?

In the olden-timey days (or even now if you can afford it!) we recorded audio on magnetic tape which isn’t good at reproducing very low frequencies. Tracking at 30 IPS (Inches Per Second), frequencies below 40 Hz were severely attenuated and even at 15 IPS,

frequencies below 20 Hz were attenuated. Digital equipment happily records frequencies ranging from 40 Hz all the way down to DC.

There are a number of problems with tracking these low and unwanted frequencies. In a major studio that has been acoustically isolated and has wonderful full-range monitors, these very low frequencies don’t often make it into microphones and if they do you can hear them with the

monitors that are capable of producing the bottom octave (20Hz – 40 Hz). In home studios that don't have a perfect monitoring solution, the engineer can't hear that this low rumble is on the tracks. Low frequency problems can come from traffic or subway noise hundreds of feet away. A concrete or wood-joisted floor is essentially an enormous drum head and every footstep creates low frequency energy which can easily travel into microphones.

The other problem with recording unwanted low frequency sounds is wasting the available bandwidth on non-artistically essential frequencies. If you are recording a female vocal, for instance, you can be pretty sure that any frequencies below 80 Hz are not part of the vocal performance. There might be plosives from popped P's and rumble from the A Train and the HVAC system. That rumble will not only make your bass muddy sounding in the mix, but it will diminish the intensity of low frequency transients.

How to use it:

After you have set your gain level appropriately, start to turn the HPF knob clockwise until you can hear the low frequencies start to thin out in the audio. Now back the knob off counter-clockwise until you can't hear the HPF. Now you have removed the unwanted and unnecessary frequencies, but the filter isn't affecting the timbre of the audible frequencies of your source material.

1.5.3 The Gain Knob



The Gain Knob allows you to control the amount of gain added to the input signal. The knob is continuously variable allowing a high level of control over level. The gain should be set as high as possible without either seeing the peak indicator (*) flash on the VU meter or hearing

audible clipping or distortion.

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 a few dB. 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 through 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 the rear mic input.

1.5.6 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.

1.5.7 +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.

1.5.8 Ø Phase Button



The Ø button flips the phase of the audio signal by swapping pin 2 and pin 3 of XLR connectors or the Tip and Ring of ¼" TRS connectors.

Most often this 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.

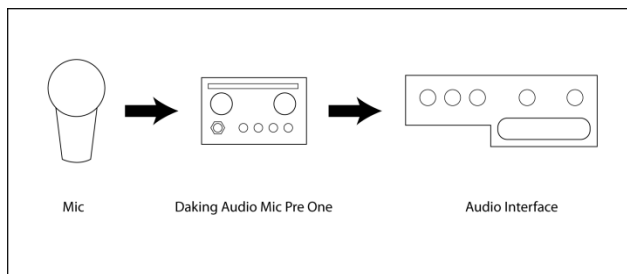
1.6 Signal Flow: Patching Into and Out of Your Mic Pre IV

1.6.1 Microphone to Mic Pre One to Audio Interface or Mixer

Basic Cables Needed:

(1) Microphone Type Cable (Female XLR to Male XLR)

(1) Female XLR (or Male ¼" TRS) to Male ¼" TRS Balanced Cable

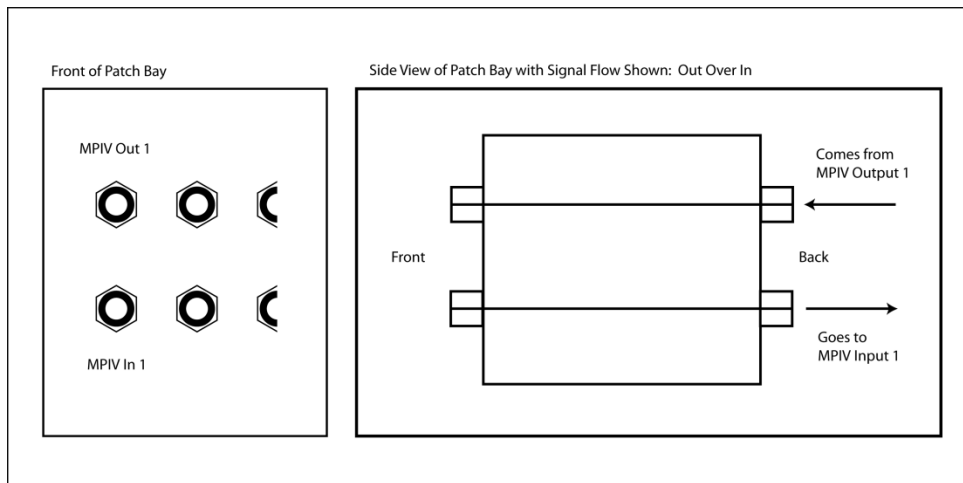


Patch from the microphone to the mic input on the Mic Pre One using the female XLR to male XLR microphone cable. Patch out of one of the line outputs to a line input on your audio interface or console using either a female XLR to ¼" TRS cable or a female XLR to male XLR cable.

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-normalized module is sometimes as simple as rotating the module in the patch bay. See the manual for your patch bay.

Cables Needed:

XLR Male to ¼" TRS Male

(1) 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 Mic Pre One 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 input
- THAT Corporation differential amp output
- All discrete transistor circuitry
- Class "A" amplifiers
- Continuously Variable Gain Control for quick, accurate recall
- 20 Segment vu Meter (-20 to +25)
- +23dB Peak indicator
- All relay switching w/gold bi-furcated contacts
- Switched +48 Volt 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