



– NV Series –  
– Microphone Preamplifier –  
&  
– DI –

## User's Guide

## **Introduction**

The MP-2NV and the ME-1NV are professional quality microphone preamplifiers designed to re-create the vintage sound characteristics of the early 1970s large consoles. Modern components give the NV Series more clarity, punch and performance under normal use. In addition, features like metering before and after the major gain stages let the user drive them “hard” to greatly expand the range of sonic options. All microphones will benefit from the power of the NV series preamplifiers, including dynamic, condenser and especially ribbon types.

On the MP-2NV, each channel is an independent system. All power supply regulation is duplicated on each audio channel card. For both units, gain staging, phantom power, polarity, impedance and loading are individually controlled. In addition, each channel is equipped with dual LED meters and a true HI-Z instrument jack with its own input amplifier.

The ME-1NV uses the same audio and metering circuit boards as the MP-2NV, only the power supply is smaller due to the reduced demands of the single channel. All specifications and performance details are identical with the exception of size and weight.

Be sure to register your NV series microphone preamplifier online at **www.greatriverelectronics.com**. We welcome and look forward to your comments.

To best understand and utilize your NV, please read the following user’s guide.

## Front Panel Controls and Buttons

### Gain Staging

The NV Series preamplifiers offer comprehensive gain staging capabilities, controlled by two knobs on the front panel. The large gain knob adds an increment of 5db of gain with each step, while the small output knob, the pot, delivers continuous adjustment of the output level. The input range of the large knob is 0db to 60db and the output range of the small knob is approximately -22db to +10db relative to the "CAL" marking on the front panel. The overall maximum gain is 70db in the 1200 ohm input impedance mode.

#### Great River Tips:

*Generally, the signal will be affected the least by keeping the large knob turned down and the small one up. More coloration occurs when the input stage does most of the work, so cranking the large knob and trimming back the output control will tend towards a thicker sound. When the input stage clips, it gets ugly, so keep an eye on it.*

### Hi-Z (Direct Injection)

The Hi-Z or Direct Injection (DI) jack presents approximately 1.2 megohm impedance and utilizes a unique FET/Bipolar buffer amplifier to drive the input transformer. This presents the proper input load to an instrument, yet allows tonal shaping by changing the load on the input buffer with the impedance switch.

#### Great River Tips:

*Many instruments will benefit from the added coloration of this input. More coloration will happen sooner with the impedance button in.*

*This is an "instrument" level input, not "line" level, so putting a full "+4dBu" signal into it is likely to distort on peaks.*

### Phantom

When the phantom button is *pushed in*, a 48v supply to the microphone is activated. This supply is compliant with the P48 standard, it supplies a full 48v, the resistors are matched 6.81K, and will withstand a short circuit indefinitely.

#### Great River Tips:

*Be sure you use the phantom supply only with microphones or DI boxes that require powering. It is possible to damage some devices plugged into the preamp if long-term application of phantom power is allowed.*

### Polarity

When the polarity button is *pushed in*, the polarity of the output XLR jacks is reversed. Note, this does not invert the polarity of the -10dBv output.

#### Great River Tips:

*The polarity is inverted by a relay that cross connects pins 2 and 3 of the output XLR. Try the polarity button when doing vocals, many times the quality of the signal fed to the headphones can be dramatically improved for the singer by getting the polarity "right".*

Be sure to check the polarity of all of your mic inputs when doing a multiple input mix, such as a drum kit, or a guitar amp with several mics. For instance, if you are miking the top and bottom of a snare simultaneously, the bottom mic should have it's polarity reversed in relation to the rest of the set. If you are miking an open backed guitar amp from in front and in back, the rear mic should have it's polarity reversed. Listen both ways, at least, to determine what works best for the track.

## Impedance

The input load for the microphone and the Hi-Z buffer can be switched from 1200 ohms to 300 ohms. When the button is in the *out* position, the input load is 1200 ohms. When the button is *pushed in*, the input load is 300 ohms.

### Great River Tips:

*Most microphones will work best with the 1200 setting. Best isn't always what you want though. With most microphones, the result of using the 300 ohm setting will be a roll off of the lowest frequencies and a tilt upwards of the highs. This effect is highly dependant on the particular microphone, and the only way to know for sure is to try it.*

*Keep in mind that the impedance change is accomplished by changing the step-up ratio of the input transformer, so a gain change happens as well. Don't let the volume difference mask the tonal difference when determining your preference.*

*In general, the best mics to try changing the impedance selection effect on are dynamics and ribbons. Condenser microphones have built in amplifiers, and the usual effect of running them into a lower impedance than they like to see is just a large increase in distortion and lower headroom, with minimal tonal changes.*

*The DI is similar to a condenser microphone, in that it doesn't change tonally much, but has much different distortion characteristics with the different loads presented by the two impedance selections. This can be used to great advantage when recording electronic instruments that need a little more body.*

## Loading

This button controls the output termination relay. When in the *out* position, the output transformer is unloaded. When *pushed in*, a 600 ohm resistor is connected across the secondary.

### Great River Tips:

*The output transformer has an inherent resonant peak that affects the frequency response at high frequencies. This peak is at approximately 50kHz, and is about 6db up from flat and is cable and load dependant. The amplifier is designed to be correctly loaded by 600 ohms for best flatness in both frequency and phase response, but some interesting effects happen when unterminated.*

*A gentle high frequency lift, like an "air band" EQ and a bit grittier midrange are the effects you should hear when the loading button is out.*

## Rear Panel Connections

### Mic In

The Mic In jack is a female XLR type and uses a standard XLR cable. Its impedance level and phantom power supply are controlled from the channel specific front panel buttons. Pin 2 is hot.

#### Great River Tips:

*Turn the phantom on and off with the microphone connected, this will assure an equal ramp up and down to both the input transformer of the preamp and the microphone, preventing any inadvertent magnetization.*

### Line Out

The balanced line level output jack is a male XLR type and uses a standard XLR cable. Through its channel specific front panel control, engaging the loading button will activate a termination resistor. Pin 2 is hot.

#### Great River Tips:

*This output is transformer isolated and balanced. It may be connected to unbalanced inputs by simply connecting pin 2 to the hot lead and tying pins 1 and 3 together. Do not float pin 3, it must be connected to complete the circuit.*

### Patch

This patch jack or insert point jack is a 1/4" TRS (tip, ring, sleeve) type. The *Tip* is send, the *Ring* is return, and the *Sleeve* is ground. The nominal level is approximately -10dBv.

#### Great River Tips:

*This is a great place to plug in an RNC™ compressor! The Speck ASC™ also works great here. You can also plug "stomp box" type effects units into this loop. Obviously the performance of the chain will be limited by the effects box, but it may be just the sound you want.*

### -10dBv Out

The unbalanced line level output is a 1/4" TS (tip, sleeve) jack type. This output will drive a 600 ohm load.

#### Great River Tips:

*This output can be used to feed your monitoring system while tracking with a digital system that has latency issues.*

*The -10 output is derived ahead of the output transformer, so it has a bit less of the "iron" characteristic. You might try this output if you are going for a very clean signal. This output won't put out enough to drive a +4dBu input to full level though, so it won't always be useable.*

### Power

The NV series preamplifiers are shipped to operate on standard 110Vac. To operate the unit on 220Vac, first remove fuse and replace with correct size. Then turn the voltage select card over and replace fuse into the NV series preamplifier.

## Specifications

### Inputs

Microphone: 300 / 1200 ohm input (via front panel impedance selector)  
3 Pin balanced XLR connector on rear panel (XLR pin 2 is hot)  
Hi-Z or DI: > 1.2 Megohms  
1/4" phone jack on front panel

### Outputs

Balanced: XLR 3 Pin connector on rear panel (XLR pin 2 is hot)  
Unbalanced: 1/4" -10dBV, 1/4" TRS Insert Patch Jack Maximum output: +18 dBm

### Controls

Input Gain: 12 position gold-plated switch, independent per channel +5dB to +60dB (5dB steps)  
Output Level: continuous control, independent per channel -25dB to +10dB  
Output Transformer Loading In/Out: gold-plated relay, independent per channel w/LED  
Input Impedance Selector 300/1200 ohm: gold-plated relay, independent per channel w/LED  
Phantom power: +48 Volts DC, independent per channel w/LED  
Output signal polarity: gold-plated relay, independent per channel w/LED  
Metering: 6 LED ladder for input, 6 LED ladder for output  
Power: switch w/LED

### Performance

Overall Gain: -20dB to +70dB, fully adjustable  
Noise: EIN <-125dbm with 150 ohm source at 40db gain.

Distortion @ -40dbm input. Gain set at 40db:

20 Hz	0.25%
100 Hz	0.06%
1 kHz	0.016%
10 kHz	0.014%
20kHz	0.014%

Freq Response, 40db gain, output loaded:

20 Hz	-0.07 dB
1 kHz	0.00 dB
20 kHz	-0.27 dB
35 kHz	-1.30 dB
50 kHz	-3.19 dB
75 kHz	-10.5 dB

Freq Response, 40db gain, output unloaded:

20 Hz	0.19 dB
1 kHz	0.00 dB
20 kHz	1.29 dB
35 kHz	3.49 dB
50 kHz	5.48 dB
75 kHz	0.59 dB

### Size

MP-2NV: 1.75" high x 19" wide x 10" depth, weight: 11 lbs.  
ME-1NV: 1.75" high x 8.6" wide x 10" depth, weight: 6.5 lbs.

### Power

110/220 Volts AC @ 50/60 Hz (rear panel selectable) 1 amp, IEC connector

## **Great River 2 Year Limited Warranty**

The Great River Electronics Inc. 2 year limited warranty, effective from date of purchase, applies to all Great River products purchased from authorized dealers. Studio hardware components are warranted against defects in materials and workmanship. Upon receipt of notice of defective materials or workmanship, Great River shall, at its option, either repair or replace hardware products that prove to be defective.

The Great River warranty does not apply to defects resulting from the following:

1. Improper or inadequate maintenance by the registered Buyer;
2. Unauthorized modification or misuse;
3. Buyer supplied interfacing;

The remedies provided herein are the Buyers sole and exclusive remedies. In no event shall Great River Electronics Inc. be liable for direct, indirect, special, incidental or consequential damages (including loss of profits) whether based on contract, tort, or any other legal theory.

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