

## GENERAL DESCRIPTION

The Peavey Electronics Instrument Preamplifier IP-1 is designed for low noise, wide dynamic range, and reliable amplification of signals from electrical musical instruments. In addition to the standard preamp and line level outputs, the IP-1 incorporates an active crossover network which provides high and low pass outputs for bi-amplified systems. The IP-1 preamplifier is completely self-contained and is mounted in one standard 1 $\frac{3}{4}$ " relay rack space. A transformer coupled 600-Ohm line output is provided for correct matching to professional equipment.

## INSTALLATION

The IP-1 may be mounted in one standard 19" relay rack space. The unit is not temperature sensitive; however, it should not be mounted directly over a tube-type amplifier. There are two reasons for this: First, the very high temperatures will shorten the component lifetime and secondly, there is a possibility that strong fields may be induced into the preamplifier with resulting hum.

## CONNECTIONS TO EXTERNAL EQUIPMENT

All outputs from the IP-1 are of the low impedance type. The XLR-3 connector is wired in accordance with standard commercial practice; pin 1 is shield, pin 2 is common and pin 3 is positive with respect to pin 2. In Europe, the phase relationship between pins 2 and 3 are reversed. All wiring from the IP-1 must be made with shielded cable for minimum noise pickup.

Whenever the preamplifier is used for a "direct" pickup from an instrument, care should be taken to prevent ground loops between the various pieces of equipment. Often different ground systems can cause hum problems which can only be solved by using the balanced line output for this direct feed. As previously noted, the shield is always pin 1 of the XLR connector. The active crossover network outputs are unbalanced 600-Ohm standard  $\frac{1}{4}$ " phone jacks. It is very important to connect the high pass output to the power amplifier associated with the treble or top end speaker system and the low pass output connected to the power amplifier associated with the bass speaker system. Failure to correctly connect the preamp output to the proper power amplifier and speakers will, in most cases, cause distortion or speaker destruction.

The effects send and return jacks associated with Channel 1 are designed to be used with professional equipment. The send level is approximately 2.0 Volts RMS with a source impedance of 600 Ohms. The return jack is designed to accept an input level of approximately 2.0 Volts RMS and presents a load of 50 K Ohms. The percentage of mix (effects level) is accomplished at the effects unit.

## OPERATION

There are no special operational considerations when using the IP-1. All control functions are the same as found in conventional instrument amplifiers. The only control which is not included is a power switch. There is a good reason for this omission. Power switches have a bad habit of being turned off accidentally during performances or recording sessions; and therefore, in professional applications, they are usually not included or in some way bypassed.

Channel 1 is designed for absolute purity of reproduction and it is difficult to overdrive with most instrument inputs. The equalizer controls are of the active type and offer a great deal of operational flexibility. The rear panel mounted effects send and return jacks are functionally associated with Channel 1.

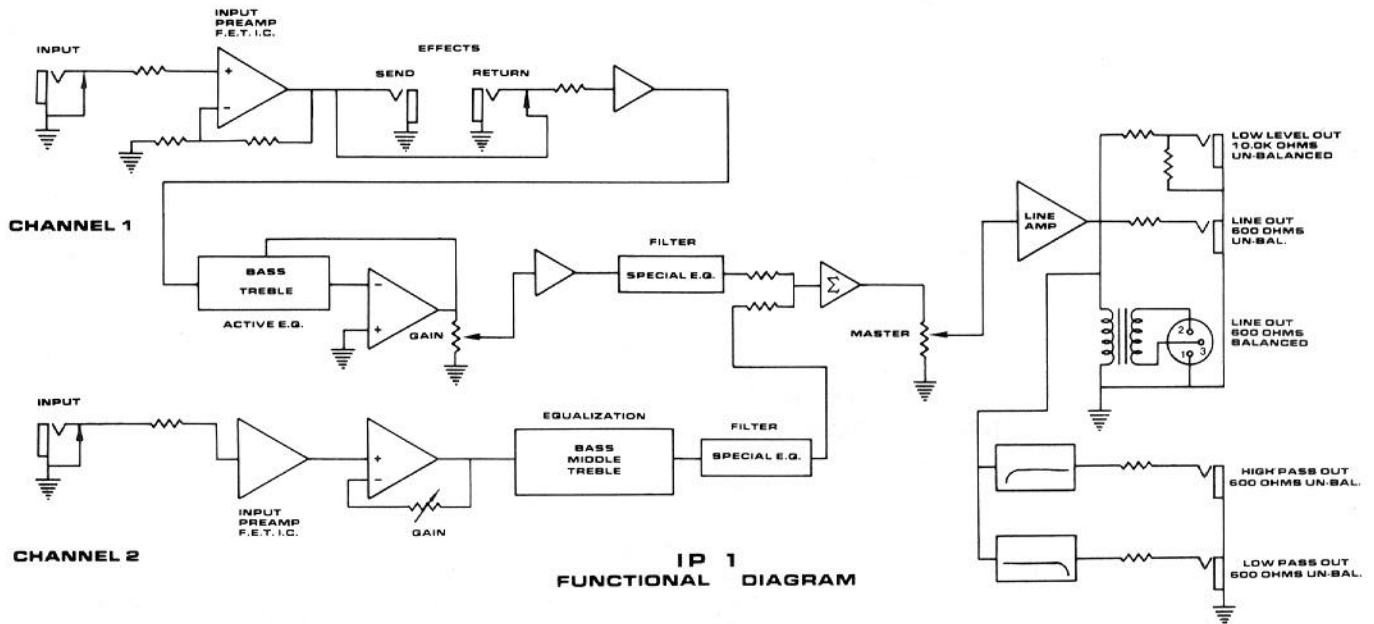
Channel 2 features Gain, Low EQ, Mid EQ, and High EQ controls. The EQ system on this channel is passive and very similar to the bass, mid, and treble controls found on conventional tube type guitar amplifiers. Channel 2, like Channel 1, is designed for maximum dynamic range and minimum distortion. Rather than try to put in some mystical "sound" and make the often-stated claim that "it sounds like a tube amplifier," we have engineered the IP-1 to make electric guitars and basses sound like the instruments they really are without the coloration associated with tubes, transistors or other amplification devices. Over the years, it has been found that the "fix it in the mix" approach is used whenever all else fails and the results are generally poor. The engineering of the IP-1 reflects this philosophy in that you can always add external sound modification devices when required but it is unwise to put a "sound" in a device that cannot be removed.

The master level control adjusts the IP-1 output which is applied to the power amplifier. As illustrated in the functional block diagram, the output of both input channels are controlled by the master level control. In normal operation, the power amplifier input level control should be adjusted to near maximum. This will allow maximum control flexibility when using the IP-1 master. During recording or other applications when an optimum signal-to-noise ratio is desired, the master control should be adjusted as low as possible. The input channel level control should then be adjusted upward as required.

The electronic crossover network is functionally operational with both channels of the IP-1. The primary usage of a bi-amplified system will be with a bass guitar or extended range keyboard instrument. The advantages of bi-amplification are quite obvious after a little thought. Most bass speaker systems are designed for maximum acoustical output and projection on the fundamental bass guitar frequency range. When using a folded horn, it is almost impossible to hear any second harmonics or "string slap". This is because the basic design of horn enclosures act as a sharp cutoff low pass filter which greatly limits the radiation of high frequency energy. When using the bi-amplified system, you realize optimum performance from your folded horn or bass system because it is used in its optimum operation range. The addition of a separate power amplifier and speaker system to handle the second and higher order harmonic energy will give most bass players a new definition of clarity. The high frequency power amplifier and its related speaker system does not have to be as powerful as the low frequency system. In most applications, a two-to-one ratio is desirable. For example, if you use a 300-Watt power amplifier for the low bass frequency range, a 150-Watt power amplifier for the high frequency range will prove to be adequate for most speaker systems.

The crossover frequency is preset at the factory at approximately 200 Hz. In actual application, this frequency was found to be most satisfactory. It is interesting to note that most people are more sensitive to the relative level between the high and low frequency speaker systems than to a change in crossover frequency.

The IP-1 is completely solid-state and all inputs and outputs are overload and short-circuit protected. The IP-1 Instrument Preamp will give years of reliable service if not physically abused. For maximum protection and portability, the preamplifier should be mounted in a rack or other suitable enclosure.



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