

P-1A Control Electronics Unit

Operating Instructions

The Meyer Sound P-1A is an active signal processor designed for use with Meyer Sound UPM-1 loudspeakers. It is a single channel device, and occupies a single 1 3/4-inch rack space. The functions of the P-1A are:

- Loudspeaker frequency response and phase response alignment
- SpeakerSense™ driver protection
- Low frequency cut for system equalization

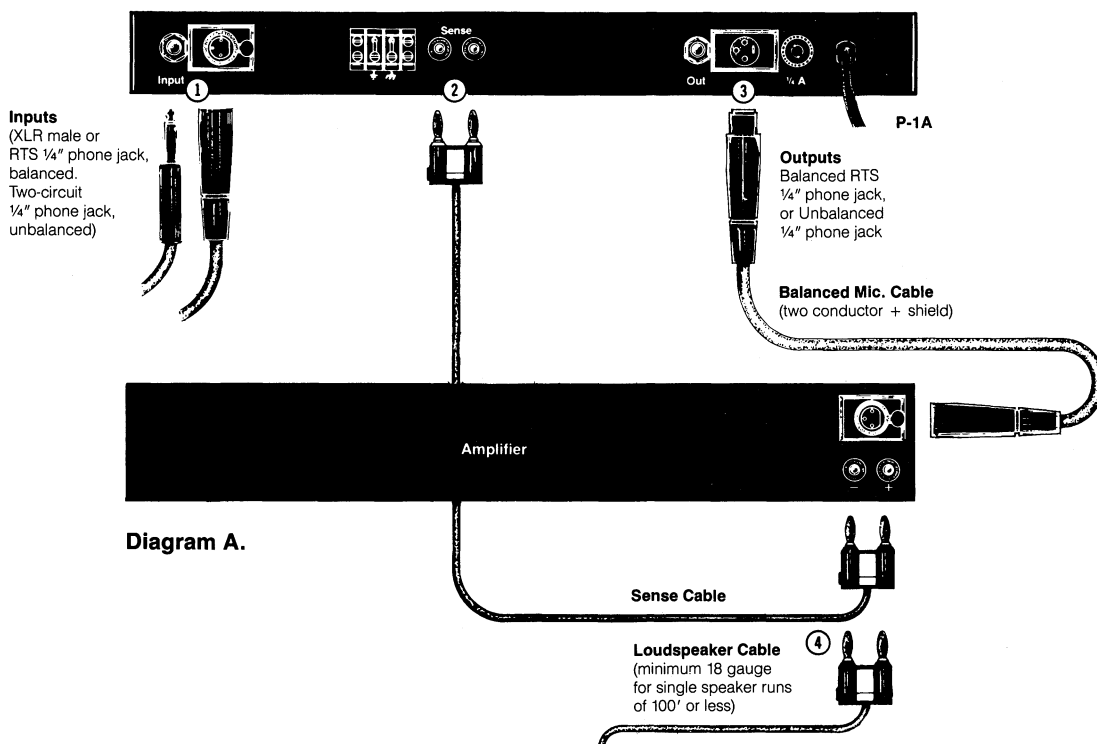


Diagram A.

Connections

The P-1A operates at line level, and is designed to be the last component in the chain before the power amplifier. Connections to the P-1A should be made according to diagram A.

1. Signal **Inputs** to the P-1A may be either balanced or unbalanced. For best signal-to-noise ratio, the average input level should be at least 1 volt RMS. The P-1A will accept peak inputs of up to +26dBv balanced, or +20dBv unbalanced.
2. **SpeakerSense** connections are made from the output of the power amplifier back to the P-1A **Sense** inputs. The connection **must** be made in order for the **SpeakerSense** driver protection circuitry to operate properly.
Note. Polarity of this connection does not matter.

3. Signal **Outputs** from the P-1A may be either balanced or unbalanced. The maximum output levels before clipping are +26dBv balanced, +20dBv unbalanced.

4. Connections between the power amplifier outputs and the Meyer Sound UPM-1 loudspeaker should be made according to the instructions for the loudspeaker. These connections **must be verified for correct polarity.**

Note. The grounding strap on the P-1A rear panel connects signal common (circuit ground) to earth ground (U-ground). Lifting this strap from the terminal block disconnects signal common from earth ground (the chassis remains connected to U-ground). This feature may be used to control ground loops in the system.

Operation

Once all the connections have been made and verified, the system is ready to operate.

- The P-1A **Level** control should be set at minimum
- Switch on AC to the P-1A first, then to the power amplifier
- Set the power amplifier level controls (if any) to maximum

▪ Advance the P-1A **Level** control to set the system sensitivity. If the system is not operating properly, recheck all connections

Note. The **Level** control markings are merely a visual aid and should not be used to balance two systems. The output of the P-1A is calibrated only when the **Level** control is fully clockwise.

Lo Cut Switch

The **Lo Cut** switch on the P-1A Front Panel introduces a 6dB/octave high pass filter at 160Hz. This filter is designed to reduce any low frequency emphasis caused

by corner placement of the UPM-1 loudspeaker, but can also be used to compensate for the proximity effect of cardioid microphones.



SpeakerSense™ Driver Protection

Through the **Sense** connections back to the P-1A from the power amplifier, the **SpeakerSense** circuitry of the P-1A continuously monitors the voltages across the loudspeaker drivers. If the amplifier output exceeds the safe operating limits of the drivers, either an **RMS limiter** or a **Peak limiter** will be automatically activated, holding down the power level of the P-1A output. The operation of the SpeakerSense circuitry is indicated by a pair of LEDs located on the front panel.

▪ **Sense** Indicator. This functions as a signal presence indicator, and verifies that the **Sense** connections back

to the P-1A are made. This indicator will be lit whenever a signal is present, or will flicker at low signal levels

▪ **Limit** Indicator. This indicator will come on whenever the limiter is activated, and a moderate amount of flashing of this indicator is acceptable. The RMS limiter has an attack time of 100 msec. and is designed to protect the system for sustained high level use.

Limiter Operation

To verify limiter operation in the field:

- Disconnect loudspeakers, leaving the amplifier and the P-1A in their standard connection configuration
- If your amplifier requires a load, use resistive loads sufficient to dissipate the full power of the amplifier
- Turn on both the P-1A and the amplifier
- Set the **Lo Cut** out

▪ Supply an input to the P-1A, preferably a sine-wave oscillator. If you do not have an oscillator, use a microphone and a mixer to produce a line level signal

▪ Set the input frequency of the oscillator to 1kHz, or whistle into the microphone

▪ Bring up the input until you see the limit indicator come on. Since the indicator will light **only** if the limiter actually operates, it provides a positive indication that the limiter is functioning

Specifications

Input Type	Balanced (active), 47k ohms
Output Type	Active push-pull, will drive 600 ohms
Maximum Input/Output Level	
Balanced	+ 26dBv
Unbalanced	+ 20dBv
Hum and Noise	- 90dBv ("A" weighted)
Dynamic Range	110dB
Sense Inputs	10k ohm true differential
Driver Protection Circuitry	RMS limiter, 100msec integration time. LF sliding filter
Indicators	
Sense	Green LED
Limit	Red LED
Power	Green LED
Front Panel Controls	Level control, AC on/off switch, Lo Cut switch
Connectors	
Balanced Inputs/Outputs	XLR-type (A-3), 1/4" RTS phone jacks
Sense Inputs	Banana jacks
Power	120V AC 240V AC option available
Physical Dimensions	19"W x 1 3/4"H x 7 3/4"D
Weight	7 lbs. (3.1 kg)

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