



On  
Stage  
with  
the Best

TradeTools™

HJ4P

PROFESSIONAL HEADPHONE JUNCTION BOX



BACK OF UNIT

## FEATURES:

- » For Studio Cue Systems or Sound Reinforcement
- » XLR Input and Loop Out
- » LEFT/RIGHT Switch Selects 1 of 2 Mono Mixes
- » Mil-Spec Left and Right Volume Controls
- » Resistive Isolation Protects Amplifier
- » Heavy-Duty Steel Enclosure

## DESCRIPTION:

The Pro Co TradeTools HJ4P Professional Headphone Junction Box is designed to provide trouble-free distribution and control of audio signals from stereo power amplifiers to up to four sets of 150-600Ω stereo headphones (lower impedance phones may be used with some loss in power efficiency). The HJ4P is intended primarily for use in recording or broadcast studios to deliver cue or foldback mixes to groups of musicians or vocalists. It may also be used in sound reinforcement systems where headphones for hearing-impaired individuals are required.

The XLR-type input and loop-through connectors are compatible with most studio cue system outputs, and permit the HJ4P to be connected with standard low-impedance microphone cables. The loop-through function allows multiple HJ4Ps to be "daisy-chained" if necessary. The STEREO/MONO and LEFT/RIGHT switches allow the HJ4P to be used to select either a stereo cue mix, or either of two monaural mixes. This is very useful in tracking sessions when, for example, the drummer may require a drastically different mix from the rest of the musicians. This feature could be used in bilingual sound reinforcement applications, with the speaker's voice on

one channel and a translator's on the other. The LEFT VOL and RIGHT VOL controls allow stereo balancing to be individually tailored, and by switching to MONO and turning one VOL control to minimum a mix can be delivered to one ear only, leaving the other free for "natural" listening.

The four 1/4" (6.3mm) headphone outputs are individually isolated with resistors to prevent the amplifier output from momentary short-circuits when plugging in or out, thus eliminating annoying pops from the cue system. Resistive isolation also prevents one defective set of headphones from affecting the levels of the others, or from completely "shorting out" the system.

The HJ4P is ruggedly constructed of 16 gauge steel, painted with durable black semigloss epoxy paint, and has all controls and connectors clearly identified with white silkscreened labels. All components are of top-grade quality, including the sealed "J"-style level controls and the miniature "rocker" switches. The heavy base and non-skid feet prevent tip-over problems, and the enclosure design effectively recesses all controls and connectors to prevent accidental damage.

# ENGINEERING SPECIFICATIONS:

The headphone junction box shall be suitable for the connection of four (4) sets of stereo headphones to the outputs of a stereo or monaural power amplifier. The junction box shall have one (1) 3-pin female XLR-type input connector for both channels. The input shall be wired in parallel to one (1) 3-pin male XLR-type loop-through output to permit "daisy-chain" connection of units. There shall be a switch to select monaural or stereo operating modes. The stereo mode shall route the left input to the left channel and the right input to the right channel. The monaural mode shall route either the left or right input to both channels. There shall be a switch to select left or right monaural modes. The switches shall be of the miniature "rocker" type. There shall be separate level controls for left and right channels. The controls shall be of the 2-watt sealed "J"-type. There shall be four (4) 1/4" (6.3mm) 3-conductor phone jacks for headphone connections. The left and right channel inputs shall be distributed to each of these jacks through current-limiting resistors to protect the output of the amplifier from short-

circuits. All jacks shall be of the insulated-bushing type and shall be electrically insulated from the enclosure.

The enclosure shall consist of a 16 gauge steel cover to which the controls and connectors shall be mounted and a 16 gauge steel base. The design shall be such that the controls and connectors are protected from accidental damage. The enclosure shall be painted with black semigloss epoxy paint, and the controls and connectors shall be identified by white epoxy silkscreening. The enclosure shall be provided with four (4) non-conductive feet. The dimensions of the unit shall be approximately 4-7/8" D by 4-1/4" W by 3-3/8" H. (123.2mm D by 108mm W by 87.7mm H)

The headphone junction box shall be a Pro Co TradeTools HJ4P.

# TYPICAL PERFORMANCE:

As a passive device the performance of the HJ4P largely dependent upon the type and quantity of headphones connected to it.

- INPUT IMPEDANCE:** > 60ohm (MONO mode, 4 sets of 8 ohm stereo headphones).  
> 30 ohm (MONO mode, 4 sets of 600 ohm stereo headphones).
- OUTPUT IMPEDANCE:** Nominally 47 ohm
- POWER EFFICIENCY:** Approximately 15% (8 ohm headphones).  
Approximately 93% (600 ohm headphones).

### ABSOLUTE MAXIMUM OUTPUT LEVEL:

Approximately 340 milliwatt (8 ohm headphones).  
Approximately 25.5 watt (600 ohm headphones).  
Outputs current-limited by 2.0 watt 47 ohm resistors to approximately 200 milliampere. Exceeding these limitations will cause destruction of these resistors and possible damage to the HJ4P.

# CONTROLS:

- AMP IN:** Female 3-pin XLR-type connector accepts signals from unbalanced speaker-level sources (power amplifier outputs)
- LOOP OUT:** Male 3-pin XLR-type connector for "daisy-chain" connection of multiple HJ-4P units using standard microphone cables.
- STEREO/MONO:** Rocker switch selects stereo mode (left input drives left side of headphones, right input drives right side) or mono mode (one input drives both sides of phones).
- LEFT/RIGHT:** Rocker switch selects which input drives both sides of phones when MONO mode is selected. (Has no effect in STEREO mode.)

- LEFT VOL:** Controls volume of left side of headphones.
- RIGHT VOL:** Controls volume of right side of headphones.
- HEADPHONE OUTPUTS:**

1/4" (6.3mm) stereo phone jacks for connection of 4 sets of stereo headphones, each with resistive isolation from the inputs. Recommended headphone nominal impedance is 150 to 600 ohm, but the HJ4P is usable with virtually any headphones. The amount of input power actually delivered to the headphones depends of the headphone impedance, with higher impedance phones receiving a higher percentage of input power.

### NOTES FOR HOOK UP:

1. **Use of high-power headphone amplifiers can cause irreversible hearing impairment! Always exercise caution when connecting phones and adjusting levels! Never take chances with your hearing or that of others!**
2. Do not attempt to drive loudspeakers with the HJ-4P as it will almost certainly cause damage to the VOL controls and current-limiting resistors.
3. For best results, use only stereo headphones. Avoid mixing headphones of widely differing impedances (i.e. don't mix 8 ohm headphones with 600 ohm headphones).

