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IPC Irwin Rubens' Tube Amplifier

Part Number IPC-4315-W

User Instructions



INTRODUCTION.

This IPC Irwin Rubens' Tube Amplifier unit represents a simple and convenient way to set up and demonstrate a range of Rubens' Tube experiments. The unit consists of a high-quality stereo pre-amplifier and mono power amplifier, this combination allows the option of either a Stereo input (such as an iPad etc.) or a Signal Generator input, such as the IPC Irwin units: IPC-4885-W and IPC-4744-W.

DESCRIPTION.

The unit uses an external 5VDC mains adaptor (supplied) to supply the electronic amplifier, the power on/off switch is incorporated in the output gain (level) control and the loudspeaker output is via two blue 4mm sockets. The 'Signal Generator' input option is via a white 4mm socket (positive) and a green 4mm socket (ground), while the 'Stereo' input option is via a 3.5mm stereo jack socket (**note:** a 1.2m stereo jack to jack cable is supplied). The Rubens' Tube Amplifier unit itself is housed in a robust ABS enclosure.

To perform the experiments a suitable Rubens' Tube incorporating a loudspeaker (4 to 8 ohm), and fitted to a suitable gas supply, is required.

INSTRUCTIONS.

First connect the Rubens' Tube loudspeaker input to the Amplifier sockets marked 'Speaker 4 – 8 Ohm' using two 4mm test leads, **note:** polarity is not important.

Stereo Input Option:

Connect your audio source into the socket marked 'Stereo Input' using the 3.5mm stereo cable supplied, **note:** the two stereo channels are mixed in the pre-amplifier to a mono signal.

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Signal Generator Input Option:

Connect your signal generator into the 4mm sockets mark 'Signal Gen. Input' using a pair of 4mm test lead (not supplied), the white 4mm socket is signal input and green is ground.

If using either the IPC-4885-W or IPC-4744-W signal generators, again connect to the two 4mm sockets: connecting green to green (ground) and white to white (signal). **Note:** if using the IPC-4885-W generator then either the 4Ω or 600Ω outputs may be used.

Operating the Amplifier:

First set the 'ON/OFF Output Level' control to the off position (fully anti-clockwise), then plug the connector plug from the 5VDC mains adapter into the socket marked '5V dc Power'. Next set your audio source or signal generator output level to its lowest setting and switch on the output. Now switch the Rubens' Tube Amplifier unit on by turning the level control clockwise to a mid-range position, then adjust both the input source and Amplifier output level controls to set the audio/signal output to an acceptable level. Audio should be heard from within the Rubens' Tube, by varying the input frequency a louder audio should then be produced, this happens when the frequency is nearer to the Tube's natural resonant frequency or multiples thereof. **Note:** a steady sinewave around 300Hz will produce the most obvious resonance, if distortion is heard reduce the level controls to provide a purer audio.

NOTE: Please carefully read and follow the instructions supplied with the Rubens' Tube before connecting the gas supply and igniting the Tube itself.

SPECIFICATIONS.

Input Supply Voltage	= 5VDC (3.5mm socket, centre pin positive).
Dimensions	= 145 x 65 x 45mm overall.
Mass	= 0.15kg.
Loudspeaker Impedance	= 4 to 8 ohms.
Input Impedance	= 10K ohms (per channel).
Output Power	= 2.8 Watts into 4 ohms / 1.8 Watts into 8 ohms.
Frequency Range	= 20Hz to 20kHz.

Please Note: This Equipment is for Education, Training, or research Purposes Only.

Thank you for choosing this IPC Irwin product, which has specifically been designed for education and we know it will bring you good service long into the future. This is just one product of a wide range of UK designed and manufactured products to enhance a STEM education. Please see www.ipcirwin.com website for more details on the products and service we provide to support teaching and learning in science and technology.

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