



Dancer Design

INNOVATION IN ELECTRONICS

Custom solutions for Neuroscience and Psychology Research

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Mini-Tactamp User Guide

The Mini-Tactamp is a portable, battery-powered two-channel amplifier designed to drive tactor vibrotactile stimulators from Dancer Design. Its small size and long battery life make it ideal for use in experiments in which freedom of movement is important.

The inputs to the Mini-Tactamp are stereo audio signals on a standard 3.5mm jack plug, sometimes referred to as an aux input. The inputs are designed to accept analog signals such as the sound outputs of a PC or an MP3 player.





Using the amplifier with tactors

Each amplifier is a DC-coupled audio frequency amplifier capable of delivering 1 watt (RMS sine wave) into an 18 ohm load such as a tactor. Amplifier input and output connectors are 3.5mm mono jack sockets.

The Mini-Tactamp is very simple to use, simply connect a stereo audio signal to the input connector and one or two tactors to the outputs. The level controls adjust the amplitude of the vibration, and in addition the control for level 1 acts as an on/off switch.



Power cable, power adapter, charger and Mini-Tactamp

Charging the batteries

Note that the amplifier cannot be used when it is being charged.

A low battery condition will be indicated by the LED on the front panel becoming dim or flickering in use, or reduction in amplitude of the stimulation from the tactors. The Mini-Tactamp is supplied with a smart battery charger which will recharge the battery quickly and end the charge automatically when charging is complete.

To charge, connect the charger to the Mini-Tactamp charge connector on the rear panel, connect the power adapter to the charger, and connect the power adapter to the mains electricity supply (110 – 240V AC, 50-60Hz). Switch on power. Leds on the charger indicate the state of charging as follows:

- 1-4 flashing red LEDs: Charging at max rate, number of LEDs indicates level of charge.
- 4 green LEDs: Fully charged.
- Flashing red and green: Faulty battery
- No LEDs: battery disconnected or cable broken.

Once charging is complete (green LEDs) the charger will continue to put a small current through the battery to keep it topped up. It is not recommended to leave the Mini-Tactamp on charge in this condition for more than about 24 hours because it may reduce the battery life.

Restoring battery after long period of disuse

If the Mini-Tactamp has not been used for some time the smart charger may not end the charge correctly and the battery could be damaged. When charging the device after it has not been used for some time, monitor the charging process. The battery should be fully charged after about 1 hour 45 minutes. If the charge is continuing after this time and the case of the amplifier is beginning to get hot, stop the charge.

Cycling the batteries one or more times may cure this problem. Leave the amplifier switched on to drain the battery fully. This may take a day or more but can be accelerated by driving a load such as a tactor, a small loudspeaker or a resistor (~18 ohms 1W) connected to one of the outputs. In this case you will need to find a signal source capable of driving the amplifier with a signal continuously. A signal generator is ideal, but failing that connecting it to the headphones output of a radio or MP3 player set to continuous play would work.

Once the battery is discharged fully, charge it again, monitoring the process as before. Repeat as often as necessary until the charging process ends automatically.

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Specifications

General

Dimensions (mm) 114 (l) x 63 (w) x 29 (h)

Weight 232 g

Battery 7.2V 1000mAh

Charge time 1.75 hours (typical)

Amplifiers

Gain 14.4x at max. level

Input impedance 3.2 to 10 k Ω

Frequency range 4Hz to >20 kHz

Output voltage max. +/- 6V into 18 Ω