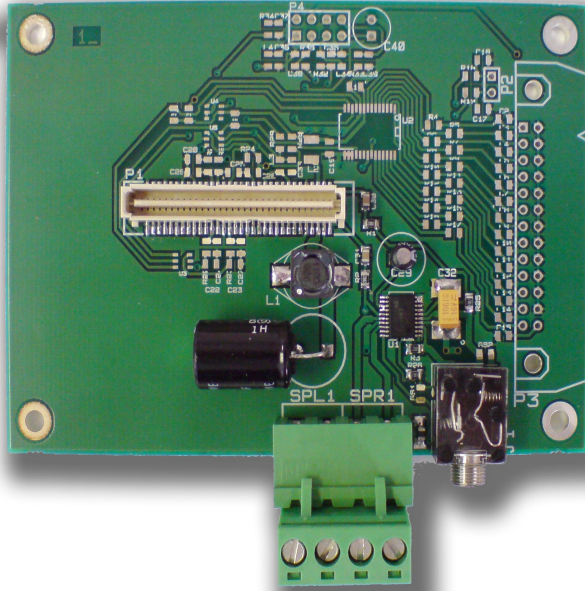


# H0415A

Power amplifier for the H0420 MP3 controllers



## User Guide

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2008-02-01

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## Preliminary

### Anti-static handling precautions

Please observe anti-static handling precautions when handling the device, as it contains components that are sensitive to static discharges.

### Power supply voltage range

The H0415A amplifier gets its power supply from the H0420 MP3 controller, via the extension bus. The power supply must be able to supply at least 1.2A (at 5V) for maximum output at low distortion.

### Legal disclaimer

ITB CompuPhase shall not be liable for the incidental or consequential losses or damage to tangible property, injury or death of a person in connection with the use of this device. Although the examples in this guide have been tested with care, they may contain errors and they are not guaranteed for any particular purpose.

## Overview of the H0415A

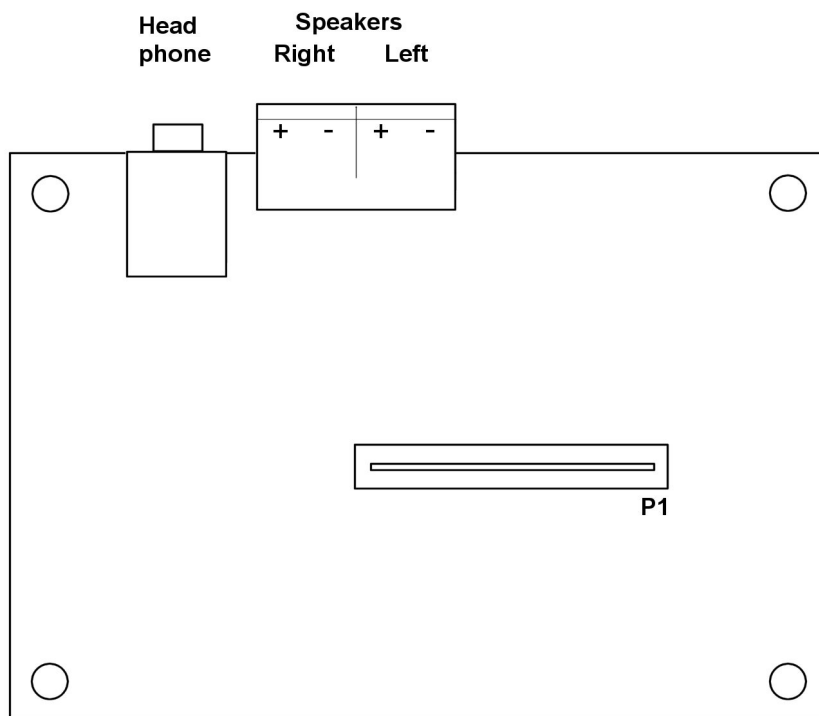
The H0415A is a low voltage power amplifier that mounts below of the H0420 or H0430 programmable MP3 players/controllers. The amplifier runs on the same 5V power supply as the MP3 controller. Through a “bridge-tied load” configuration, it provides up to  $2 \times 2.1$  Watts on  $4\Omega$  speakers.

The amplifier provides both speaker outputs and a head phone output. The speaker outputs are inactive when you insert a head phone plug.

### Audio control

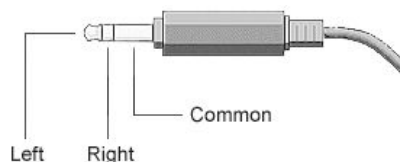
The H0420/H0430 MP3 controller configures the audio volume, balance and tone settings (treble & bass). Please see the functions `setvolume()`, `bass()` and `treble()` in the H0420 reference manual.

## Connecting the H0415A



### Head phone connector

The head phone connector is a 3.5 mm stereo TRS or “jack” plug. Of this connector, the ring is the right channel, the tip is the left channel and the sleeve is the “common” return line.



The amplifier uses a virtual ground for the head phone “common” line. That is, the head phone common line is not (and should not be) connected to the “ground” potential of the H0420 and H0415A. An electrical connection between the head phone common and the analogue/digital ground of the device will force the amplifier in shut-down mode (no audio out).

## Speaker outputs

A four-pin terminal block allows two speakers to be connected. Suitable speakers have an impedance of 4Ω or 8Ω.

There is no “common” line (or “ground wire”) for the speakers, meaning that you cannot connect two speakers over a three-wire cable. In other words, the two pins marked “-” in the diagram at page 3 may not be connected to each other (and neither may the two pins marked “+” in the same diagram).

The speaker outputs are inactive when you insert a head phone plug.

## Connection to the MP3 controller

Connector P1 allows the MP3 controller to be stacked on top of the power amplifier. You can use 15mm spacers and M3 machine screws to mount to the boards together.

## Specifications

### General

Power input requirements.....4.0 V to 5.5 V DC.  
Current consumption.....1.1 A max. at at 2 × 2.1 Watt output.  
Conformity.....EN 55022, EN 55024 (European Community); RoHS.

### Audio

Frequency response.....20 Hz to 20 kHz.  
Distortion.....THD < 0.3% at 2 × 2 Watt output (typical)  
Noise.....97 dB (typical)  
Power.....2 × 2.1 Watt / 4Ω speakers; 2 × 1.1 Watt / 8Ω speakers  
Speaker impedance.....4Ω to 8Ω  
Head phone impedance.....8Ω to 32Ω

### Mechanical

Dimensions.....70 × 100 × 13 mm (length × width × height).  
Weight.....0.040 kg.  
Mounting.....4 holes Ø 3.1 mm spaced (centre to centre) at 90 mm horizontally and 60 mm vertically; 2 mm of clearance is needed below the PCB.

### Operating conditions

Temperature.....designed for -40 °C to +85 °C.