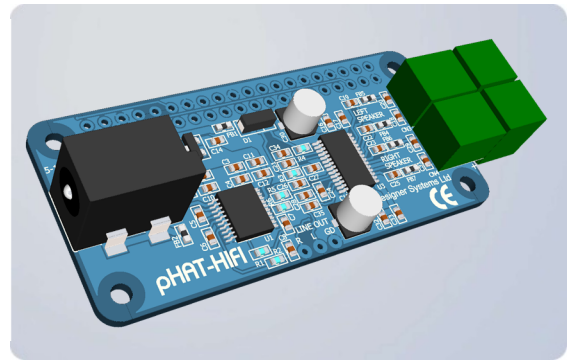


# pHAT-HIFI

## 32bit DAC and 12+12Watt Digital Audio Module

for Raspberry-Pi boards



pHAT-HIFI is a high fidelity 32bit stereo DAC audio module with a high efficiency 12+12Watt Class-D power amplifier to drive 4 or 8Ω speakers. Specifically designed for the Raspberry-Pi Zero user (can also be used on all the other Raspberry-Pi variants) the pHAT-HIFI features 32bit 3 wire I<sup>2</sup>S (PCM) communication to reproduce low noise, high quality audio in any voice or music application.

pHAT-HIFI features a wired stereo line level output, for external amplification, a wide 5-15VDC external speaker power supply range (solder jumper option to power the speakers from the Raspberry-Pi supply) and high quality pluggable screw terminal speaker connections.

pHAT-HIFI is fully ALSA driver compatible, requires only minimal setup for high quality audio reproduction and is compatible with XiXMusicPlayer, qmmp, MusicBox and Shairport AirPlay speakers emulator to name but a few.



### Key Benefits

- ✓ 32bit DAC and high fidelity audio amplifier on one module
- ✓ Stereo 6 Watt output into 8Ω speakers or 12 Watt output into 4Ω speakers (external 12V supply required)
- ✓ High speed I<sup>2</sup>S interface to Raspberry-Pi for high quality audio reproduction.
- ✓ Low Total Harmonic Distortion (THD) and high Signal-to-Noise ratio in both DAC and amplifier
- ✓ Class-D filterless speaker drive for low noise wide frequency response of 20Hz to 22kHz.
- ✓ Stereo Line level output for external amplification and Raspberry-Pi power option (solder jumper selectable)
- ✓ Fully ALSA driver compatible



32bit high  
performance  
DAC



Class-D Speaker  
Driver



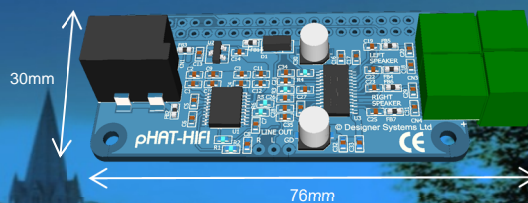
Stereo Line level  
output



Fully Raspberry-  
Pi compatible

# pHAT-HIFI

## 32bit DAC and 12+12Watt Digital Audio Module



### DAC features

#### Audio:

16, 24 & 32bits  
384kHz PCM

### DAC Audio Performance

#### Dynamic Range:

112dB typ.

#### Signal-to-Noise:

112dB typ.

#### Total Harmonic Distortion:

-93dB typ.

#### Channel Separation:

100dB typ.

### DAC Audio Data

#### Audio bit length:

16, 24 & 32 bits

#### Sampling frequency:

8 ~ 384kHz

#### System Clock:

50MHz max.

### DAC Interface

#### I<sup>2</sup>S level:

3.3V

#### I<sup>2</sup>S interface:

3 wire

#### Connection:

40pin Raspberry-Pi header

### DAC Line Output

#### Type:

Stereo

#### Output Level:

2.1Vrms typ.

#### Impedance:

1kΩ min.

#### Connection:

3x PCB holes

### Speaker Amplifier

#### Type:

Stereo Class-D

#### Speaker Impedance:

4 ~ 8Ω (32Ω if 5V power)

#### Output Power (12V supply):

6+6Watts into 8Ω

12+12Watts into 4Ω

#### Harmonic Distortion:

0.06% typ.

#### Gain:

20dB typ.

#### Features:

Anti-pop

Short-circuit protect

Thermal protect

#### Connection:

2x 3.5mmP screw terminals

### Electrical

#### DAC Supply Voltage:

4.5V ~ 6VDC

#### DAC Power Consumption:

41mA @ 5VDC typ.

#### Amplifier Supply Voltage:

9.0V ~ 15.0VDC

#### Amplifier Power Consumption:

20mA @ 12VDC Idle typ.

1A @ 12VDC into 8Ω typ.

2A @ 12VDC into 4Ω typ.

### General Features

12V DC adaptor required for 6/12Watt output (not supplied)

High Fidelity (HIFI) quality

Temperature range: -20°C ~ +50°C

Dimensions: 76 x 30 x 12mm

Weight: 18g approx.

### Approvals

RoHS Compliant

CE (Europe)