

# bhi DSP Noise Cancelling products

## Compact In-Line Module User Guide - Iss 3



### Introduction

In many applications both amateur and professional, monaural noise cancellation is sufficient, but as radio technology moves forward the use of Stereo audio has started to become more popular, especially with SDR radios. This means that functions like aural spectrum visualisation may be used more particularly in the HF bands.

The bhi unit provides both mono and stereo noise cancellation. It caters for high level and medium level audio input signals and is mainly designed for headphone use but the unit will drive a pair of amplified speakers or a 4/8 ohm passive mono speaker.

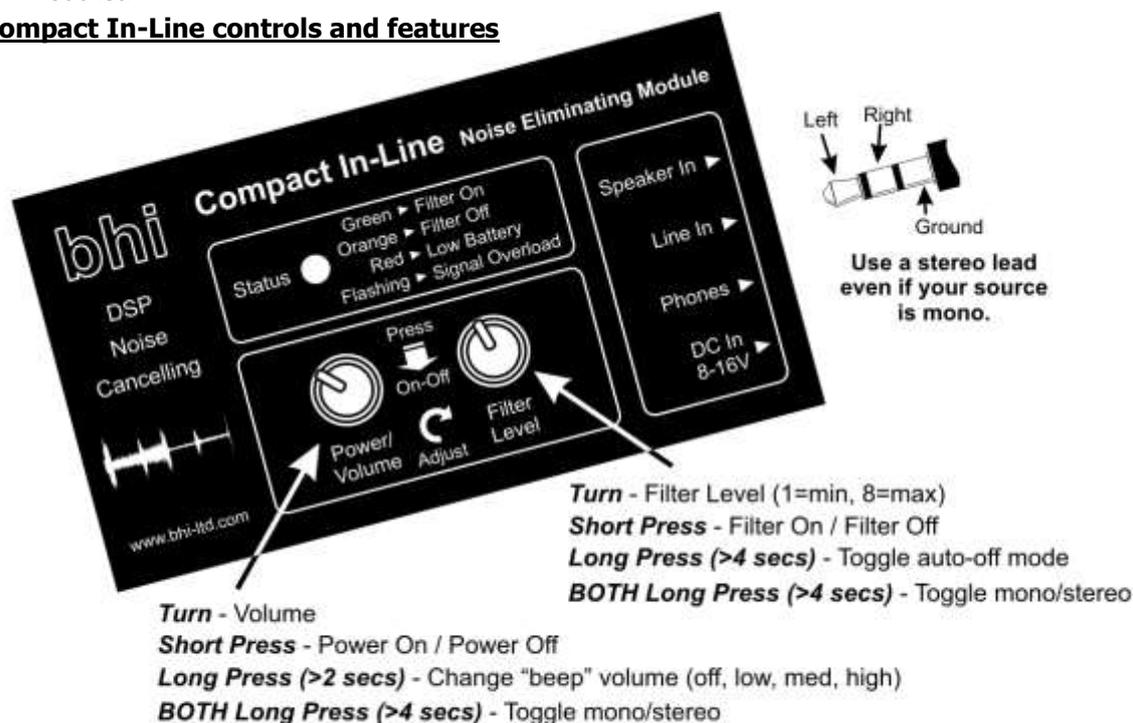
The bhi **Compact In-line** module makes use of bhi's improved dual channel DSP noise cancelling technology, which can handle mono and stereo signals, and has an improved noise suppression algorithm that brings improved speech quality to the listener. The resultant processed speech doesn't suffer as much with residual artefacts when operating in higher noise levels and is clearer and more intelligible.

## How to connect to your Compact In-Line Module:

Please refer to the connection diagrams on page 3 onwards to find the one that suits your setup.

1. Use the ALD-007 stereo plug lead supplied to connect your radio or receiver to the unit. If using the standard "EXT SPKR" socket on your radio or receiver connect this to the "Speaker In" socket. If using "Line Out" or the headphone socket on your radio or receiver connect to "Line In" on the unit. **Note:** It will not damage your radio if you connect the stereo lead to the standard 3.5mm mono extension speaker socket on your radio.
2. Use the fused DC power lead supplied to connect to a 12V DC power supply, or fit 2 x AA batteries by removing the battery housing using a suitable screwdriver. The batteries will be bypassed if a DC power lead is used. If NiMh batteries are used they must be charged externally as there is no trickle charge facility within the unit. A separate 12V DC power supply 1030-UKPA-COMPACT is available as an optional extra  
**Note: Ensure correct polarity of the power cable connections to your power supply to avoid potential damage to your bhi unit from reverse polarity connection.**
3. Connect a pair of headphones, powered stereo speakers, or a mono speaker to the Phones socket.

### Compact In-Line controls and features



#### **Auto-Off Mode**

The Auto-Off mode can be enabled or disabled by pressing and holding the Filter Level down for 4 seconds.

#### **Auto-Off Enabled:**

Confirmed with "falling" chimes.

Unit will power-off after 60 minutes of no audio signal being detected.

#### **Auto-Off Disabled:**

Confirmed with "rising" chimes.

Unit will remain powered-up until manually turned off (by pressing the Power/Volume.)

#### **Mono/Stereo Mode**

Always use a stereo lead to feed audio into this unit.

The unit can then be toggled between mono and stereo modes by holding down both knobs for 4 seconds.

#### **Mono Mode (Factory setting):**

Confirmed with 1 long beep when changing into this mode..

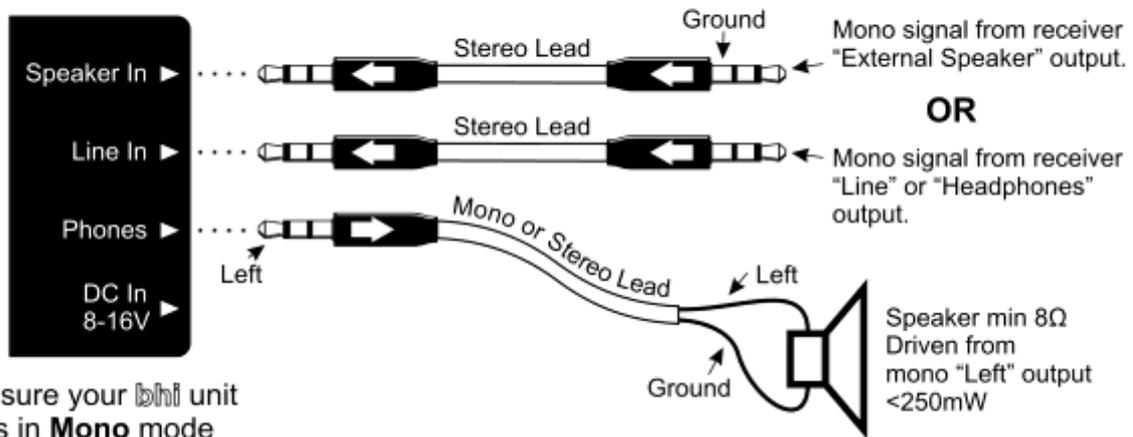
The 'Left' audio input signal (tip of 3.5mm jack) is routed simultaneously to both 'Left' and 'Right' outputs so will work with mono or stereo headphones/speakers.

#### **Stereo Mode:**

Confirmed with 2 long beeps when changing into this mode.

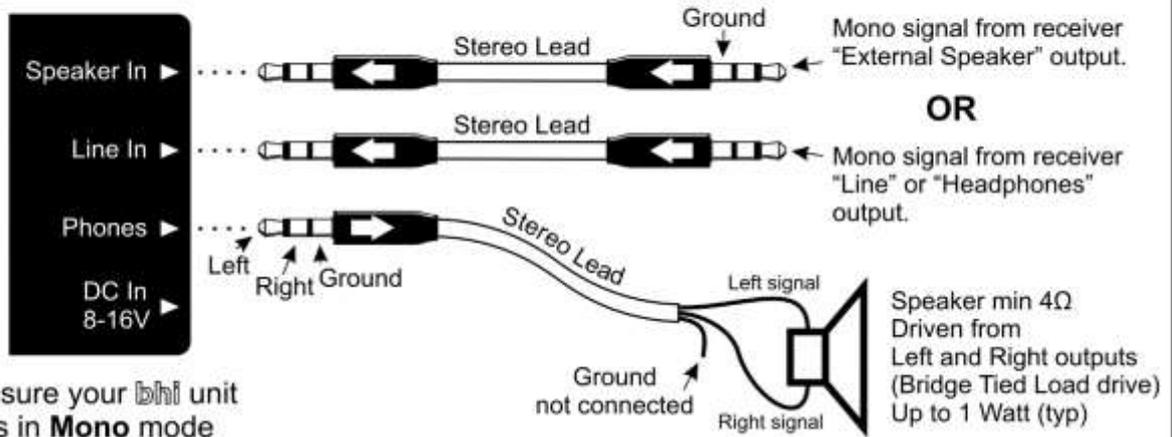
The 'Left' and 'Right' audio inputs are routed independently to the 'Left' and 'Right' outputs.

### Driving a mono speaker directly (mono signal):

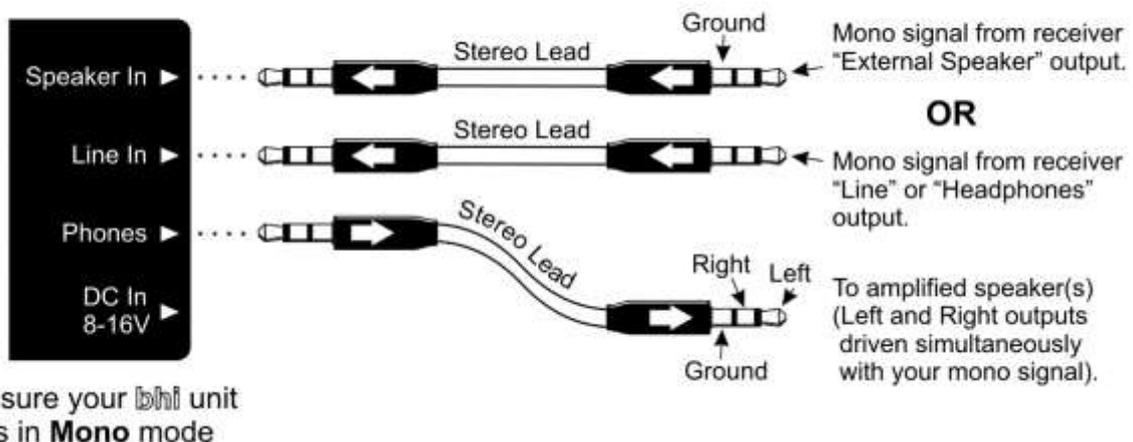


**Note:** The **Compact In-Line** is designed to be used mainly with headphones but can drive a 4 or 8 ohm mono speaker. Just connect your mono speaker to the "Phones" output socket. If you want to get the max audio output possible from your mono speaker then you will need to connect your mono speaker as in the diagram below "Bridge Tied Load".

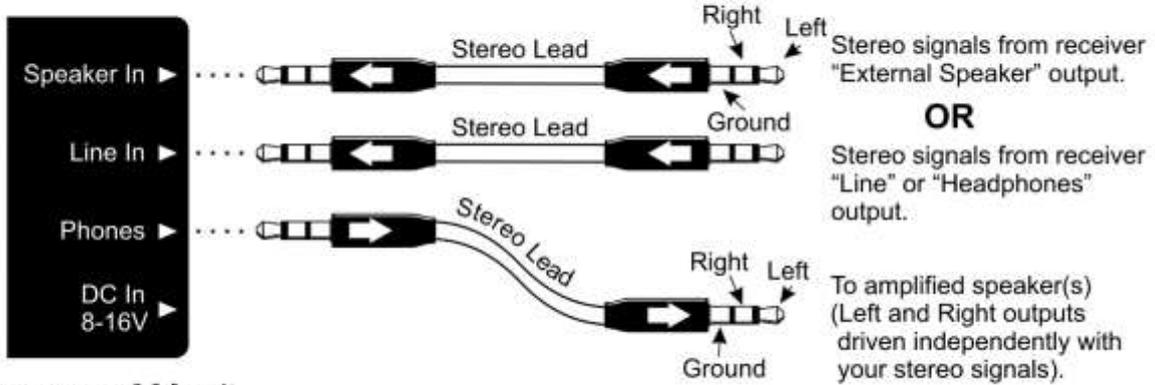
### Improved volume using "Bridge Tied Load" Driving a mono speaker directly (mono signal):



### Driving Amplified Speakers (mono signal):

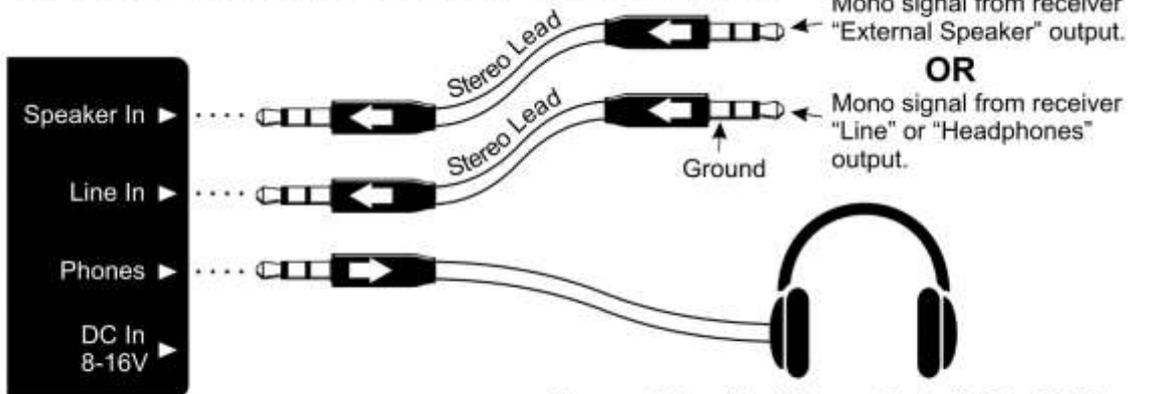


### Driving Amplified Speakers (stereo signals):



Ensure your **bhi** unit is in **Stereo** mode

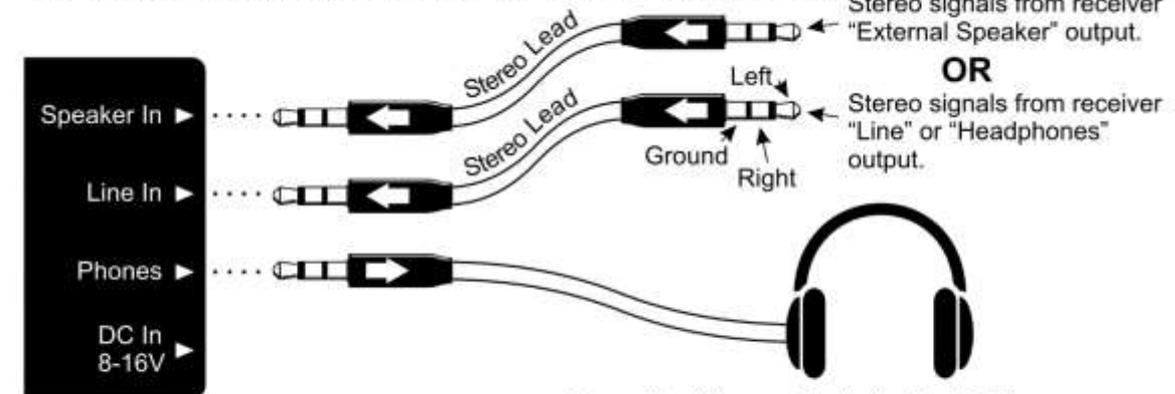
### Driving Headphones directly (mono signal):



Ensure your **bhi** unit is in **Mono** mode

Stereo or Mono Headphones, Typically 8 to 32 Ohms. Driven from Left and Right outputs simultaneously.

### Driving Headphones directly (stereo signals):



Ensure your **bhi** unit is in **Stereo** mode

Stereo Headphones, Typically 8 to 32 Ohms. Driven from Left and Right outputs simultaneously.

## Key Specifications

---

### Power Supply

External supply:	8 to 16V (nominally 30mA, max 350mA peak) Reverse polarity protected.
Internal batteries:	Type: AA x 2 (Alkaline or NiMh recommended) Reverse polarity protected. No trickle charge facility Batteries must be charged externally Low battery indication threshold: 2.1V $\pm$ 0.1V Low battery indication: LED colour changes to red. End-of-life threshold: <1.5V Life: 40 hours typical (Alkaline or 2500mAH NiMh).
Auto power-off:	60 minutes if input signal < 60mVpk-pk Auto power-off can be disabled if desired.

### Audio Inputs

Speaker level in:	Stereo or Mono Input Impedance: ~7 Ohms Max withstand input power: 2 Watts RMS per channel Max input amplitude: 3.9Vpk-pk
Line level in:	Stereo or Mono Impedance: 6.7k Ohms typical Max input amplitude: 1.6Vpk-pk
Overload indication:	LED flashes for at least 3 seconds

### Audio Outputs

Phones out:	Stereo or Mono
Impedance:	> 4 Ohms (Can also be used as Line Level output).
Max power output:	0.2 Watts RMS per channel
Volume levels:	16 levels in 3dB steps.

### DSP Noise Filtering

Modes:	Enabled / Disabled (0dB suppression)
Levels:	8
Noise suppression:	9.0dB typical (Level 1) 40dB typical (Level 8)

### Accessories/optional extras

**1030-UKPA-COMPACT** – UK 12V DC 500Ma mains plug-in power supply 2.1mm plug Centre +VE.  
(Supplied with a 1.3mm to 2.1mm adapter).

**PSU12-2A-WW + ADAPTER1.3MM worldwide** 12V DC 2A mains plug-in power supply 2.1mm plug  
Centre +VE. **Note:** Both items need to be ordered separately.

**ALD-007** – Spare 3.5mm stereo jack plug to 3.5mm jack plug lead 1.2M long.

**ALD-008** - 3.5mm stereo jack plug to 3.5mm jack plug lead 3M long.

**LSPKR** – 20W 4 Ohm mono extension speaker

**SPKR8** – 8W 8 Ohm mono extension speaker

**ADAPTER1.3MM** – 2.1 to 1.3mm power adapter for use with your own power supply. For use with a  
2.1mm centre positive power connector.

See our website [www.bhi-ltd.com](http://www.bhi-ltd.com) for more information on all our accessories and other amateur radio  
products.

## 1. bhi support

Every bhi noise eliminating product comes with a 12 month guarantee against defective materials and workmanship. If you do have a problem then please contact). If you have not resolved your problem then please contact us. Before you make your call please have the following information to hand:

1. Your serial number (found on the back of the unit).
2. Details of when and where you purchased the unit.

See our website [www.bhi-ltd.com](http://www.bhi-ltd.com) for FAQs and answers to common questions; otherwise most queries can be resolved over the telephone or via email. If not we will arrange with you to have your unit sent back to us for analysis, repair or replacement (if within 12 months from date of purchase, if outside the guarantee period an estimate of the cost of repair will be given). For contact details please refer to the back cover of this manual. If you have any suggestions for improvements please complete and return the customer feedback form. **Note:** Opening the case will void any warranty unless agreed beforehand by bhi Ltd. No user serviceable parts inside

### Important Information:

#### Copyright

This publication, including all photographs and illustrations is protected under international copyright laws, with all rights reserved. Neither this manual, nor any of the material within, may be copied or reproduced without the written consent of bhi Ltd.

#### Disclaimer

The information in this document is subject to change without notice. bhi Ltd makes no representations or warranties with respect to the contents hereof and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. Furthermore, bhi Ltd reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation of bhi Ltd to notify any person of such revision or changes.

### **Weee Statement for correct disposal of this product**



(Applicable in the European Union and other European countries with separate collection systems). This marking shown on the product or its literature, indicates that it should not be disposed of with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

**bhi Ltd, 22 Woolven Close,  
Burgess Hill, West Sussex, RH15 9RR, England  
Telephone: + 44 (0)1444 870333  
Email: [info@bhi-ltd.com](mailto:info@bhi-ltd.com) - Web: [www.bhi-ltd.com](http://www.bhi-ltd.com)**