



Manufacturers of Audio Products for AV,  
Installed Sound, Broadcast Radio & Broadcast TV  
**SONIFEX**

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This handbook is for use with the following product:  
CM-BHA Beltpack Headphone Amplifier with Limiter & Loudspeaker  
Stock Code: 30-277  
Artwork: AW010625

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Made in the UK by **SONIFEX**

## Register Online for an Extended 2 Year Warranty

Product: \_\_\_\_\_

Serial No: \_\_\_\_\_

**[www.sonifex.co.uk/register](http://www.sonifex.co.uk/register)**

## Product Warranty - 2 Year Extended

As standard, Sonifex products are supplied with a 1 year back to base warranty. In order to register the date of purchase and so that we can keep you informed of any product design improvements or modifications, it is important to complete the warranty registration online. Additionally, if you register the product on the Sonifex website, you can increase your product warranty to 2 years. Go to the Sonifex website at: [www.sonifex.co.uk/register](http://www.sonifex.co.uk/register) to apply for your 2 year warranty.

### Sonifex Warranty & Liability Terms & Conditions

#### 1. Definitions

'the Company' means Sonifex Ltd and where relevant includes companies within the same group of companies as Sonifex Limited.

'the Goods' means the goods or any part thereof supplied by the Company and where relevant includes: work carried out by the Company on items supplied by the Purchaser; services supplied by the Company; and software supplied by the Company.

'the Purchaser' means the person or organisation who buys or has agreed to buy the Goods.

'the Price' means the Price of the Goods and any other charges incurred by the Company in the supply of the Goods.

'the Warranty Term' is the length of the product warranty which is usually 12 months from the date of despatch; except when the product has been registered at the Sonifex website when the Warranty Term is 24 months from the date of despatch.

'the Contract' means the quotation, these Conditions of Sale and any other document incorporated in a contract between the Company and the Purchaser.

This is the entire Contract between the parties relating to the subject matter hereof and may not be changed or terminated except in writing in accordance with the provisions of this Contract. A reference to the consent, acknowledgement, authority or agreement of the Company means in writing and only by a director of the Company.

#### 2. Warranty

- The Company agrees to repair or (at its discretion) replace Goods which are found to be defective (fair wear and tear excepted) and which are returned to the Company within the Warranty Term provided that each of the following are satisfied:
  - notification of any defect is given to the Company immediately upon its becoming apparent to the Purchaser;
  - the Goods have only been operated under normal operating conditions and have only been subject to normal use (and in particular the Goods must have been correctly connected and must not have been subject to high voltage or to ionising radiation and must not have been used contrary to the Company's technical recommendations);
  - the Goods are returned to the Company's premises at the Purchaser's expense;

- any Goods or parts of Goods replaced shall become the property of the Company;
- no work whatsoever (other than normal and proper maintenance) has been carried out to the Goods or any part of the Goods without the Company's prior written consent;
- the defect has not arisen from a design made, furnished or specified by the Purchaser;
- the Goods have been assembled or incorporated into other goods only in accordance with any instructions issued by the Company;
- the defect has not arisen from a design modified by the Purchaser;
- the defect has not arisen from an item manufactured by a person other than the Company. In respect of any item manufactured by a person other than the Company, the Purchaser shall only be entitled to the benefit of any warranty or guarantee provided by such manufacturer to the Company.
- In respect of computer software supplied by the Company the Company does not warrant that the use of the software will be uninterrupted or error free.
- The Company accepts liability:
  - for death or personal injury to the extent that it results from the negligence of the Company, its employees (whilst in the course of their employment) or its agents (in the course of the agency);
  - for any breach by the Company of any statutory undertaking as to title, quiet possession and freedom from encumbrance.
- Subject to conditions (a) and (c) from the time of despatch of the Goods from the Company's premises the Purchaser shall be responsible for any defect in the Goods or loss, damage, nuisance or interference whatsoever consequential economic or otherwise or wastage of material resulting from or caused by or to the Goods. In particular the Company shall not be liable for any loss of profits or other economic losses. The Company accordingly excludes all liability for the same.
- At the request and expense of the Purchaser the Company will test the Goods to ascertain performance levels and provide a report of the results of that test. The report will be accurate at the time of the test, to the best of the belief and knowledge of the Company, and the Company accepts no liability in respect of its accuracy beyond that set out in Condition (a).
- Subject to Condition (e) no representation, condition, warranty or other term, express or implied (by statute or otherwise) is given by the Company that the Goods are of any particular quality or standard or will enable the Purchaser to attain any particular performance or result, or will be suitable for any particular purpose or use under specific conditions or will provide any particular capacity, notwithstanding that the requirement for such performance, result or capacity or that such particular purpose or conditions may have been known (or ought to have been known) to the Company, its employees or agents.
- To the extent that the Company is held legally liable to the Purchaser for any single breach of contract, tort, representation or other act or default, the Company's liability for the same shall not exceed the price of the Goods.
  - The restriction of liability in Condition (g)(i) shall not apply to any liability accepted by the Seller in Condition (c).

- Where the Goods are sold under a consumer transaction (as defined by the Consumer Transactions (Restrictions on Statements) Order 1976) the statutory rights of the Purchaser are not affected by these Conditions of Sale.

### Unpacking Your Product

Each product is shipped in protective packaging and should be inspected for damage before use. If there is any transit damage take pictures of the product packaging and notify the carrier immediately with all the relevant details of the shipment. Packing materials should be kept for inspection and also for if the product needs to be returned.

The product is shipped with the following equipment so please check to ensure that you have all of the items below. If anything is missing, please contact the supplier of your equipment immediately.

Item	Quantity
Product unit	1
A3 Folded Handbook	1

### Repairs & Returns

Please contact Sonifex or your supplier if you have any problems with your Sonifex product. Email [technical.support@sonifex.co.uk](mailto:technical.support@sonifex.co.uk) for the repair/upgrade/returns procedure, or for support & questions regarding the product operation.

### CE Conformity

The products in this manual comply with the essential requirements of the relevant European health, safety and environmental protection legislation.

The technical justification file for this product is available at Sonifex Ltd.

The declaration of conformity can be found at:  
<https://www.sonifex.co.uk/declarations>

### WEEE Directive

 The Waste Electrical and Electronic Equipment (WEEE) Directive was agreed on 13 February 2003, along with the related Directive 2002/95/EC on Restrictions of the use of certain Hazardous Substances in electrical and electronic equipment (RoHS). The Waste Electrical and Electronic Equipment Directive (WEEE) aims to minimise the impacts of electrical and electronic equipment on the environment during their life times and when they become waste. All products manufactured by Sonifex Ltd have the WEEE directive label placed on the case. Sonifex Ltd will be happy to give you information about local organisations that can reprocess the product when it reaches its "end of use", or alternatively all products that have reached "end of use" can be returned to Sonifex and will be reprocessed correctly free of charge.

### Atmosphere/Environment

This apparatus should be installed in an area that is not subject to excessive temperature variation (<0°C, >50°C), moisture, dust or vibration.

This apparatus shall not be exposed to dripping or splashing, and no objects filled with water, such as vases shall be placed on the apparatus.

# CM-BHA Belt Pack Headphone Amplifier

## Introduction

The CM-BHA is a portable, battery powered headphone amplifier for use in live applications such as in-the-field news reports, providing audio feed monitoring by headphones, earpiece, or built-in speaker.

Up to +30dB of gain can be applied to the incoming signal. The volume control simultaneously modifies the output volume and the input gain, allowing input signals of up to +18dBu to be reproduced without distortion.

An adjustable limiter protects the listener from excessive levels. The limiter is only enabled when an earpiece or headphones are used, and when it is enabled by the toggle switch. It is disabled when no jack is inserted, allowing a higher volume to be passed to the speaker for "squawk mode" use.



Fig 1-1: CM-BHA Belt Pack Headphone Amplifier

A low battery warning LED flashes when the 9V PP3 battery has depleted to 6V, notifying the user to swap the battery. The low power circuitry of the CM-BHA gives up to 200 hours use from a single alkaline 9V PP3 battery.

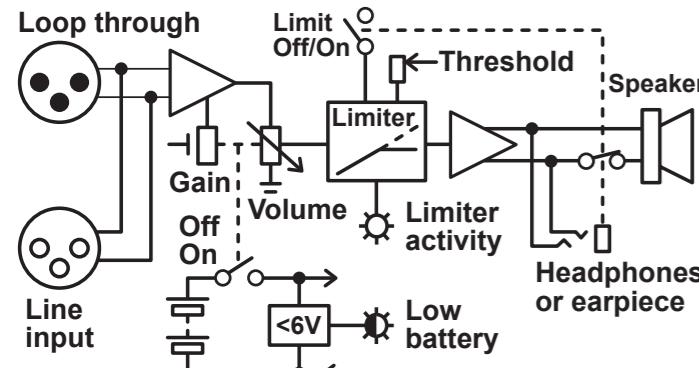


Fig 1-2: CM-BHA Block Diagram

## 2 Top Panel Controls & Indicators



Fig 2-1: Top Panel View of CM-BHA

### Headphone/Earpiece Socket

The headphone/earpiece connector is a ¼" jack socket that provides a differential signal to a mono earpiece, or to stereo headphones. When using stereo headphones, the right ear will be anti-phase, however speech will be perfectly discernible.

### Gain/Volume Control

The gain/volume control simultaneously modifies input gain and output volume, allowing the user to connect high level signals (up-to +18dBu) without distorting.

### Low Battery Indicator

Should the battery voltage fall below 6V, the 3mm red low battery indicator will flash, warning the user that the battery should be changed as soon as possible to prevent failure.

### Limit Level Control and Indicator

The output level limiter (when enabled) prevents large signals from damaging the user's ears. The limit level is adjusted between -6dBu and +6dBu using the recessed potentiometer, and limiter activity is indicated by a blue LED. Persistent illumination informs the user that the volume should be reduced.

## 3 Side Panel Controls



Fig 3-1: Side Panel View of CM-BHA

### Limiter On/Off Switch

The output level limiter is enabled/disabled using the toggle switch on the side panel. The limiter is disabled when the built-in speaker is active.

## 4 Bottom Panel Connections



Fig 4-1: Bottom Panel View of CM-BHA

The audio connections are found on the bottom panel, and both have the following connections:

- Pin 1: Ground
- Pin 2: Phase
- Pin 3: Non-phase

### Line Input

The line input is an electronically balanced audio input with 200kΩ input impedance, allowing multiple units to be daisy-chained together, without causing noticeable loss of signal level. The line input can accept input levels of up to +18dBu.

### Loop Through

The loop through is a non-driven, parallel connection of the line input, allowing multiple units to be daisy-chained together without specialist audio cables.

## 5 Technical Specification

Line Input Impedance:	200kΩ Electronically Balanced
Input Liiter Threshold:	Adjustable -6dBu to +6dBu
Maximum Input Level:	+18dBu
Input Gain/Volume:	Adjustable -60dB to +30dB
Frequency Response:	±0.5dB (ref 0dBu 1kHz)
Distortion:	<0.015% (ref +8dBu input, 0dB gain, 10kΩ load)
Maximum HP Output Level:	+16dBu (ref 9V battery voltage, <1% THD, 2kΩ load) +12dBu (ref 6V battery voltage, <1% THD, 2kΩ load)
Minimum HP impedance:	32Ω
Maximum Speaker Level:	+12dBu (ref 9V battery voltage, <1% THD) +6dBu (ref 6V battery voltage, <1% THD)
Dimensions (Raw):	12.5cm (W) x 6.7cm (D) x 4.8cm (H) 4.9" (W) x 2.6" (D) x 1.9" (H)
Dimensions (Boxed):	23cm (W) x 13cm (D) x 8cm (H) 9.1" (W) x 5.1" (D) x 3.1" (H)
Weight:	Nett: 0.3kg Gross: 0.4kg Nett: 0.7lbs Gross: 0.9lbs

**SONIFEX**

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