

bhi

‘Noise Away’

ANEMAR

**Amplified Noise Eliminating Marine
Module**

Operation and Installation Manual



1065-108D
Issue A

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.

Contents

Table of contents

1 Overview

1.1	bhi	4
1.2	Introduction	4
1.3	Audio DSP Noise cancellation	5
1.4	Unpacking	6

2 Installation

2.1	Overview	7
2.2	Connections	7

3. Operation

3.1	Operation	11
-----	-----------	----

4. Specification

4.1	Specifications	10
-----	----------------	----

5. Troubleshooting

5.1	Troubleshooting guide	11
-----	-----------------------	----

6. Other bhi products

6.1	NES10-2 dsp speaker	12
6.2	NES5 dsp speaker	12
6.3	NEIM1031 in line module	13
6.4	NEIM1031 accessories	13
6.5	DSP modules	13
6.6	1042 switch box	14
6.7	Audio adapters	14
6.8	Other bhi products	15

1. Overview.

1.1 bhi

bhi Ltd. are specialists in the design, development and manufacture of Digital Signal Processing (DSP) noise cancelling products and other specialist electronics.

1.2 Introduction

The bhi **ANEMAR Amplified Noise Eliminating Marine** module greatly improves the clarity and intelligibility of speech in radio communications. It is suitable for use in many applications where high background noise and interference mean that you cannot clearly hear what is being said. The **ANEMAR** enables the user to listen and concentrate “**stress-free**”.

The **ANEMAR** is compact and easy to install. It incorporates DSP technology and is fully adaptive to any change in noise levels and interference, requiring no further adjustment.

When the power is switched of the **ANEMAR's** circuitry is disconnected the module is bypassed and the extension speaker behaves as a normal extension speaker.

The module is powered by any 12 – 18 V_{dc} unregulated power source. The module is supplied with a fused power lead and a 1.2 metre long audio lead terminated in a 3.5mm mono jack plug.

Note:

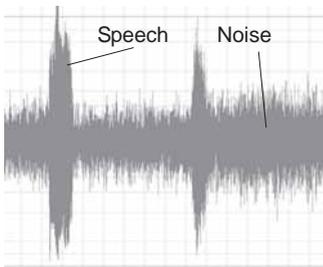
This product is designed for speech only, and isn't suitable for music broadcasts, unless the noise cancellation is switched off.

Features:

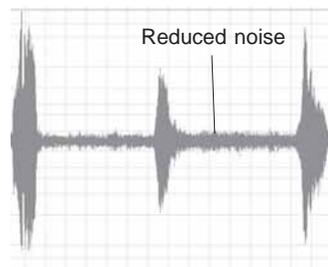
- Noise reduction 20dB
- Tone reduction 21 dB
- Power supply 12 – 18 V_{dc}
- Input signal > 50mV
- Output load 2.5W 8ohm
- Current consumption 300mA
- Audio bandwidth 50 – 4.3KHz
- Dimensions (WxDxH) 100 x 60 x 40mm
- Audio bypass when switched off

1.3 DSP Noise cancellation.

The bhi DSP processes the incoming signal and then differentiates the speech from the noise. The unwanted noise and interference is then attenuated to leave only the speech. The following diagrams are taken from actual audio signals and illustrate how the signal is being processed.



Original signal.
Speech with a lot of background noise



Processed speech.
Speech with reduced noise

Figure 1. Noise cancellation.

1.4 Unpacking.

The **ANEMAR** is supplied with the following. Please check that all of the items are present.

- 1 off **ANEMAR** module
- 1 off Fused DC power lead
- 1 off 3.5mm mono lead
- 1 off Operating manual

Please report any missing items or damage to your supplier as soon as possible.

2. Installation

2.1 Overview.

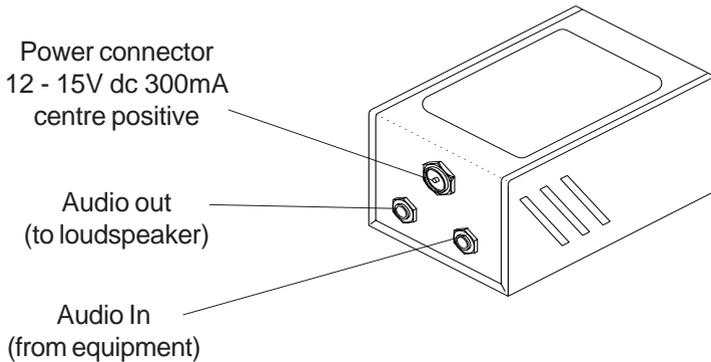


Figure 2. Connectors

2.2 Connections.

The **ANEMAR** is connected between the equipment and the loudspeaker, as shown in the following block diagram.

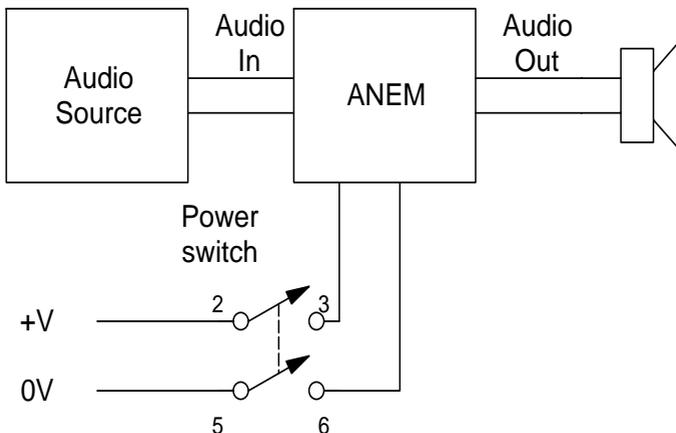


Figure 3. Block diagram

Connect the supplied 3.5mm mono lead to the extension speaker socket or your equipment and the audio in socket on the **ANEMAR**.

Connect the loudspeaker to the audio out socket on the **ANEMAR**, by using speakers integrated lead if applicable. If your loudspeaker or equipment isn't fitted with 3.5mm mono lead then refer to section 8 for a wide range of audio adapters to suit most applications.

Connect the fused DC power lead to a power supply capable of providing 12 - 18V_{dc} @ 300mA. The centre pin of the power connector is positive (the lead with the white stripe is positive). If you require a separate power supply then refer to section 8 for details.

The unit is now ready for use.

3. Module Operation.

3.1 Operation

The **ANEMAR** provides noise cancellation when power is applied to the module. Removing the power, or switching the **ANEMAR** off will remove the noise cancellation and the module circuitry will be bypassed.

To check the operation tune the radio into a band where there is a lot of background noise (turn the squelch off).

Turn on the **ANEMAR**, the red led will illuminate in the switch.

The level of noise will drop after a short delay as the DSP adapts to the noise present on the audio signal.

Turn the switch off and the noise will return.

If the **ANEMAR** doesn't operate as expected the please turn to section 5 - troubleshooting.

Note:

If a slight pop is heard when the speaker is switched on this is nothing to worry about and is normal.

There is no need to turn the noise cancelling off if the noise levels reduce, as the DSP is fully adaptive and will learn the new noise conditions, and will not interfere with the audio signal.

4. Specifications.

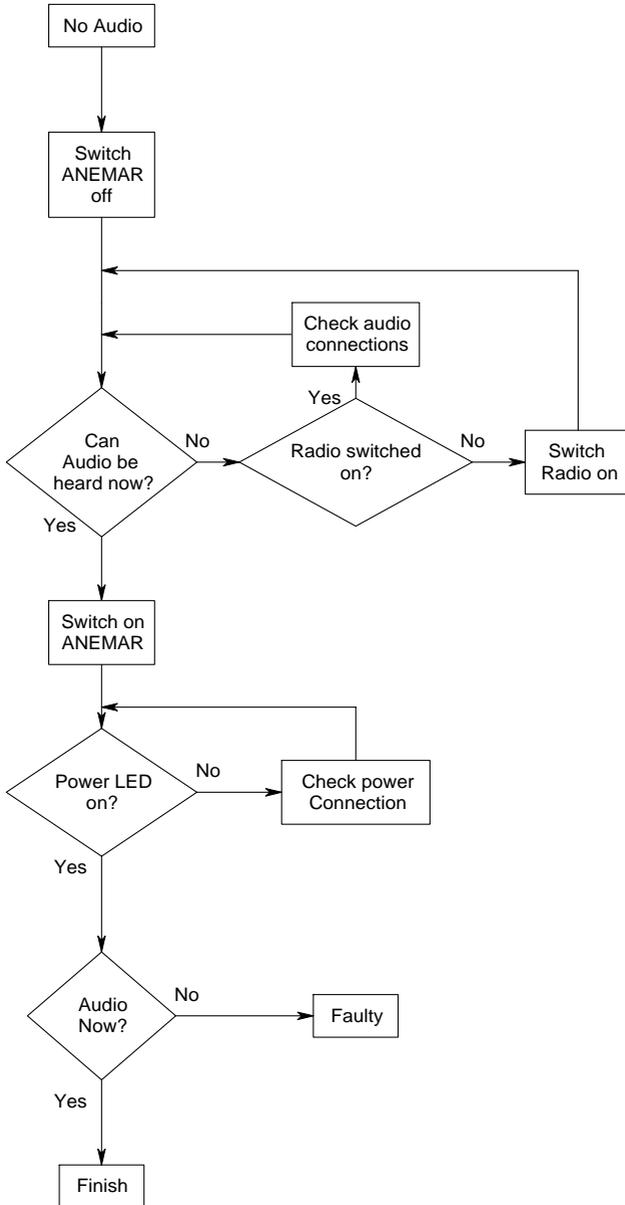
4.1 Electrical characteristics.

ELECTRICAL CHARACTERISTICS

($V_s=16V$, $T_{amb}=25^{\circ}C$ unless otherwise stated)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_s	Supply voltage		12	16	18	V
P_o	Output power	$d = 10\%$ $f = 1KHz$	12V 1.7	16V	18V 3.17	$\frac{V_s}{W}$
B	Frequency response (-3dB)	$P_o = 1W$ $R_L = 8\Omega$	50		4300	Hz
d	Distortion	$f = 1KHz$ $P_o = 0.2 - 2.4W$		0.8		%
R_i	Input resistance		21	22	23	W
T_s	System delay			26		mS
	Noise reduction			20		dB
	Tone reduction			21		dB

5. Troubleshooting.



5. Troubleshooting.

6. Other bhi products

Other noise cancellation products from bhi. Visit www.bhi-ltd.co.uk for more information.

6.1 NES10-2 MKII Noise Eliminating speaker.

DSP noise cancellation built into a compact speaker unit. the unit provides an easy to install solution to noise reduction



Features:

- Fully adaptive noise cancellation 9 -35dB
- 8 user selectable noise cancellation levels
- Mono earpiece socket
- Input sensitivity control
- Noise cancellation On/Off switch
- LED indication of power and noise cancellation
- 12-24VDC operation
- On/Off audio bypass switch.
- Greatly improved signal to noise ratio
- Easy to install with adjustable mounting bracket
- 2m audio lead
- Optional extras available.

6.2 NES5 Noise Eliminating speaker.



Basic plug and go noise cancelling speaker preset to 20dB of noise reduction.

Features:

- Fully adaptive noise cancellation 20dB
- 12-24VDC operation
- Compact robust speaker unit.
- Greatly improved signal to noise ratio
- Easy to install with adjustable mounting bracket
- 2m audio lead

6.3 NEIM1031 In-line module.

Then **NEIM1031** provides a flexible solution to noise reduction. It features both amplified inputs and outputs, along with line level signal processing. The unit also features an audio bypass when the unit is switched off, so there is no need to disconnect when not in use.

Features:

- Fully adaptive noise cancellation 9 -35dB
- 8 user selectable noise cancellation levels
- Mono earpiece socket
- Input sensitivity control
- Noise cancellation On/Off switch
- Line level in/out
- Input overload indication
- Power on/off with audio bypass.



6.4 NEIM1031 accessories.



LSPKR

20 Watt extension speaker for use with the NEIM1031. Fitted with a 3.5mm mono jack plug.



1031-STAND

Clear Acrylic stand to mount the NEIM1031. The NEIM1031 can be used horizontally or vertically



6.5 DSP modules.

DSP module range.

NEDSP1061-PCB:

NEDSP1061-KBD:

Low signal level module

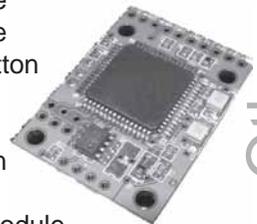
Low signal level module controlled by single button keyboard.

NEDSP1062 - KBD:

Amplified DSP module controlled by a 2 button keyboard.

NEDSP1062 - PCB:

Basic amplified DSP module



6. Other bhi products.

6.6 1042 Switch box



Allows connection of up to 6 pieces of equipment to one bhi noise elimination speaker or any other extension speaker.
(Includes 2 free ALD001 3.5mm audio leads)

6.7 Audio Adapters and Accessories.

Power adapters:

1030-UKPA 12V DC UK power adapter

1030-EUPA 12 VDC European adapter

1030-VEPL Fused vehicle power adapter

Audio leads:

ALD-001 1.2m 3.5mm - 3.5mm mono lead

ALD-002 2.5m 3.5mm - 3.5mm mono lead

ALD-003 phono -phono plug

ALD-004 3.5mm stereo plug - phono plug

ALD-005 3.5mm mono plug - phono plug

Audio adapters:

ADP-P001 6.35mm plug - 3.5mm mono socket

ADP-P002 6.35mm plug - 3.5mm mono socket

ADP-P003 3.5mm stereo plug - 3.5mm mono socket

ADP-P004 Phono plug - 3.5mm mono socket

ADP-P005 2.5mm mono plug - 3.5mm mono socket

ADP-P006 2.5mm stereo plug - 3.5mm mono socket

ADP-P007 6.35mm stereo plug - 3.5mm stereo socket

ADP-P008 3.5mm stereo - aircraft adapter

ADP-S001 3.5mm mono socket - 3.5mm mono plug

ADP-S002 6.35mm socket - 3.5mm mono plug

ADP-S003 6.35mm stereo socket - 3.5mm mono plug

ADP-S004 2.5mm stereo socket - 3.5mm mono plug

ADP-S005 2.5mm mono socket - 3.5mm mono plug

6.8 Other products. NCH Noise Cancelling Headphones



These headphones feed an inverted copy of the ambient noise to cancel it out.

The headphones effectively remove noise such as blower noise, ambient noise, jet engine noise or music from another room.

The headphones are supplied with an aircraft adapter, so you can now listen to the film, or CD player without all the jet engine noise. Also supplied with carry bag.



BBRP Banner Badge



Get the message across

Easy to program using push buttons on back: no cords, no wires, no software needed. Enter your message and watch it scroll across.

BBRP (Includes 2 CR2032 coin cells)

BBAT replacement CR2032 coin cell



Applications

- ID badge
- Club badge
- Restaurants
- Receptions
- Gifts
- Stag and Hen nights
- DJs
- etc...

What will yours say?

bhi



bhi Ltd
P.O. Box 318
Burgess Hill
West Sussex
RH15 9NR

tel: +44 (0)845 217 9926
fax: +44 (0)845 217 9936

sales@bhi-ltd.co.uk
www.bhi-ltd.co.uk
