



BALDWIN BOXALL
COMMUNICATIONS

BVRAMB Ambient Noise Microphone

Installation Instructions

Instructions for use with VIGIL EVAS BVRD2M systems



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This equipment has been designed and manufactured to conform to the following EC Standards:

EMC: EN55103-1 Environment Classification: E1,

EMC: EN55103-2 Environment Classification: E5,

Safety: EN60065

Failure to use the equipment in the manner described in the product literature will invalidate the conformity.

A "Declaration of Conformity" statement to the above standards and a list of auxiliary equipment used for compliance verification is available on request.

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AMENDMENT RECORD

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SAFETY INFORMATION

Personnel who install, maintain or repair this equipment must read the safety information below before starting work.

Voltages in excess of 30 Volts RMS or 50 Volts DC are considered Hazardous and in certain circumstances can be lethal.

If Functional Testing, Maintenance, or Repair is to be completed with the Mains Power (and/or battery backup) connected then this should only be undertaken by personnel who are fully aware of the danger involved and who have taken adequate precautions and training.

This Manual contains Warnings, Cautions and Notes.

Warnings describe potential threats to health or life, e.g.



WARNING

Before attempting to remove this component, ensure the Mains Power Supply and Battery Backup have been disconnected.

Cautions describe potential threats to the equipment, e.g.



CAUTION

Notice must be taken of all cautions.
If a Caution is ignored the equipment may be damaged.



CAUTION: ELECTRO-STATIC SENSITIVE DEVICES

Observe the relevant precautions for the protection of Electro-static Sensitive Devices when handling this equipment.

Notes are statements that are useful to the user in the context of a particular section of the manual, e.g.



NOTE: Do not speak into the microphone until the "Speak Now" LED is illuminated.

COMMENTS

Comments regarding the content of this manual are welcome and should be addressed to mail@baldwinboxall.co.uk.

I Technical Description

I.1 INTRODUCTION

The BVRAMB Ambient Noise Sensing Microphone monitors the ambient noise in a given area that enables the Public Address / Voice Alarm system to change the volume to maintain intelligibility.

The BVRAMB uses a Dynamic Microphone capsule, the output of which is amplified and converted to produce a variable current output. The amplifier used to convert the signal has band pass filtering that ensures the system only responds to ambient noise that affects the intelligibility of announcements.

An on-board Surveillance Tone Generator permanently monitors the microphone capsule. A system fault will be announced should the microphone capsule or on board amplifier fail.

The BVRAMB includes an option to allow one of three response speeds to be selected.

If the Slow response is selected the system will only respond to an average change of Ambient Noise.

If Fast is selected the system will react to short duration changes in Ambient Noise.

Medium response is suitable for most installations.

I.2 BVRAMB AMBIENT NOISE MICROPHONE SPECIFICATIONS

Dimensions (H x W x D)	141mm x 81mm x 44mm	
Weight	Approx 0.4Kg	
Power requirements	Nominal 24V DC @ 20mA	
Max no. BVRAMB per input	2	
BVRD2M Attenuator Increase / Decrease time	For 10dB change	For 20dB change
Fast	2 seconds	4 seconds
Medium	9 seconds	18 seconds
Slow	26 seconds	52 seconds
Output pre-set busy freeze detector		
Sensitivity	-48dB	
Release	1.6 seconds	
Surveillance output with no ambient noise	Minimum 250mV DC	
Maximum output	Approx 13V DC	



NOTE: All BVRAMB Ambient Noise Microphones are tested and Factory Preset to ensure correct output levels are produced. It should not be necessary to adjust any internal settings within the BVRAMB.

BVRAMB Sensitivity (white noise source, SPL 'A' weighting, Slow response)	DC Output Voltage (@ Factory Preset Sensitivity) BVRAMB set to 'Medium' response
45dBA	0.29V
50dBA	0.35V
55dBA	0.45V
60dBA	0.65V
65dBA	1.02V
70dBA	1.77V
75dBA	3.10V
80dBA	6.1V
BVRAMB Response Timing	Time constant
Slow	Tc = 1 second
Medium	Tc = 0.5 second
Fast	Tc = 0.1 second

2 Installation Instructions

2.1 POSITIONING THE BVRAMB UNITS

The position of the BVRAMB units is important to ensure the optimum operation of the system.

The BVRAMB microphones need to be placed as close to the source of the ambient noise as possible, while remaining as far from the system loudspeakers as possible. They must not be positioned within the dispersion angle of loudspeakers, or close to any permanent noise source such as air conditioning units, fruit machines etc.

If used in rooms with high ceilings, the BVRAMB units should be placed closer to the floor than the ceiling.

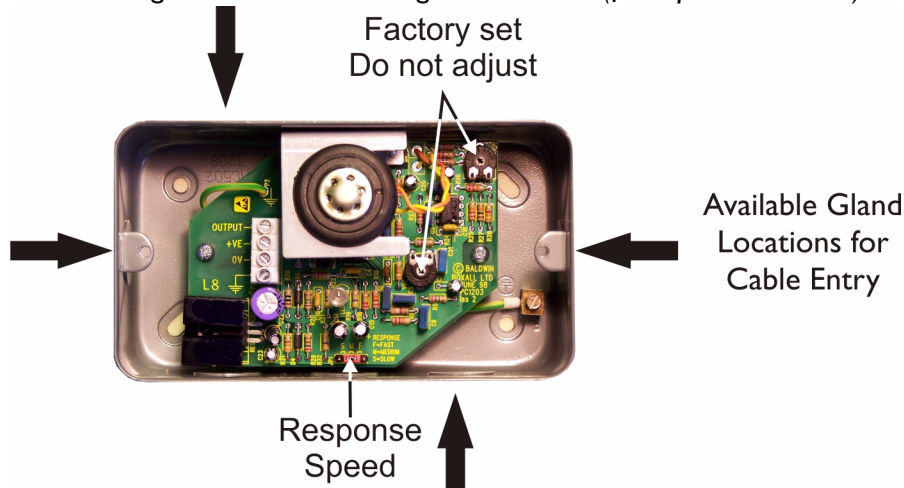
**CAUTION**

The BVRAMB Ambient Noise Microphone is not waterproof and must only be mounted in a position where it will remain dry.

2.2 INSTALLATION

The BVRAMB unit is mounted in a standard double gang surface mount back-box. Knockouts are located in all sides of the box, however please refer to Figure 2.1 for the available gland locations due to the position of internal components.

Figure 2.1 — Available gland locations (front panel removed)



2.3 CONNECTION DETAILS

As the BVRAMB Ambient Noise Microphone converts the ambient noise level to a variable current output only three wires are required to connect the BVRAMB to the BVRD2M or BVRDCI module.

The cables should have a conductor cross sectional area of 1.0mm or greater, and for VA systems should be fire rated.

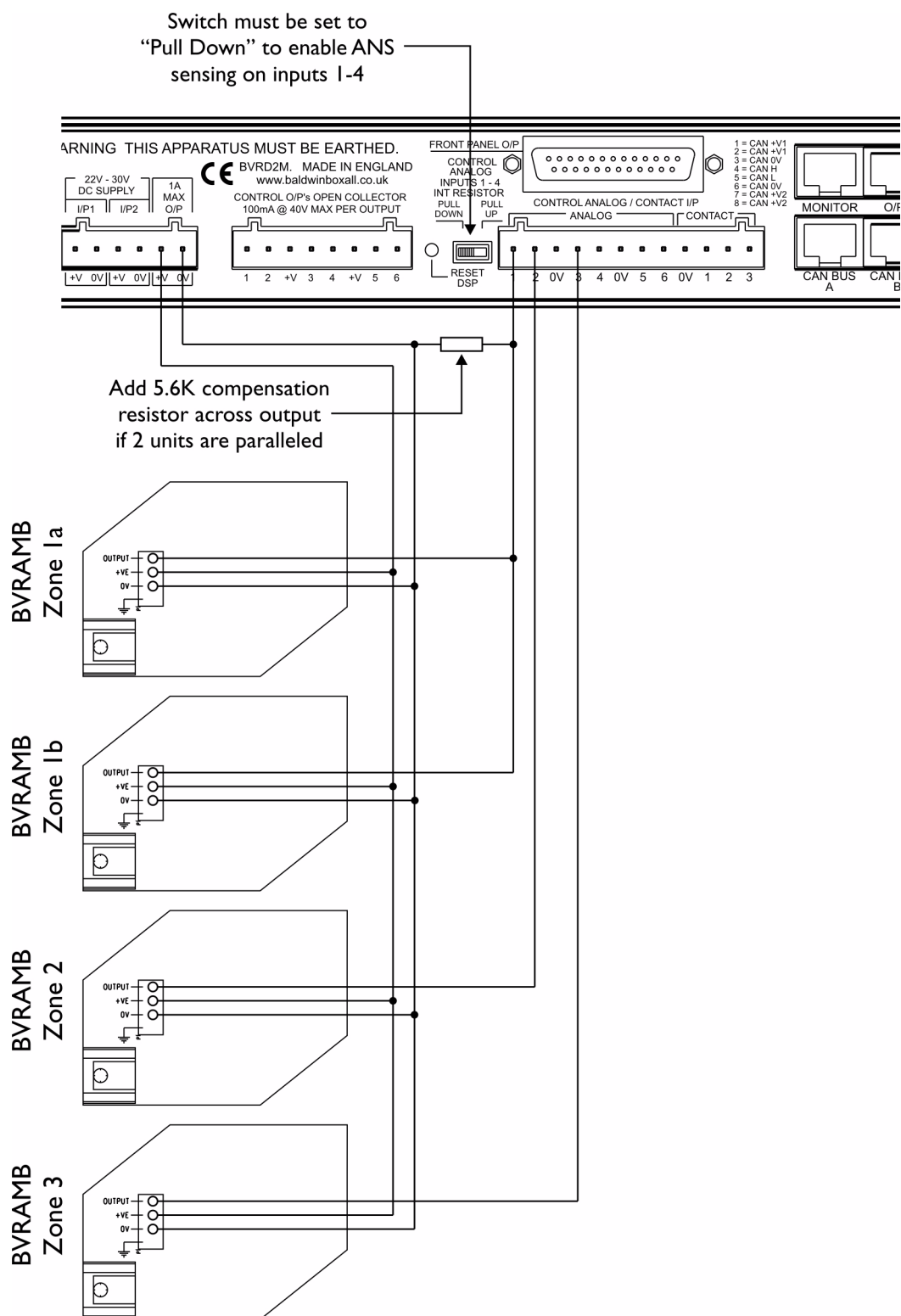
If required, two BVRAMB Ambient Noise Microphones can be wired in parallel on the same input to monitor the ambient noise over a larger area.

When two units are wired in parallel a $5.6K\Omega$ compensation resistor must be fitted to ensure the signal level accurately represents the level of ambient noise.

Typical connection details are shown in Figure 2.2 for BVRD2M and Figure 2.3 for BVRDCI.

In both examples the first two units are shown paralleled to the first input with the $5.6K\Omega$ compensation resistor fitted.

Figure 2.2 — Typical Connection details for BVRD2M

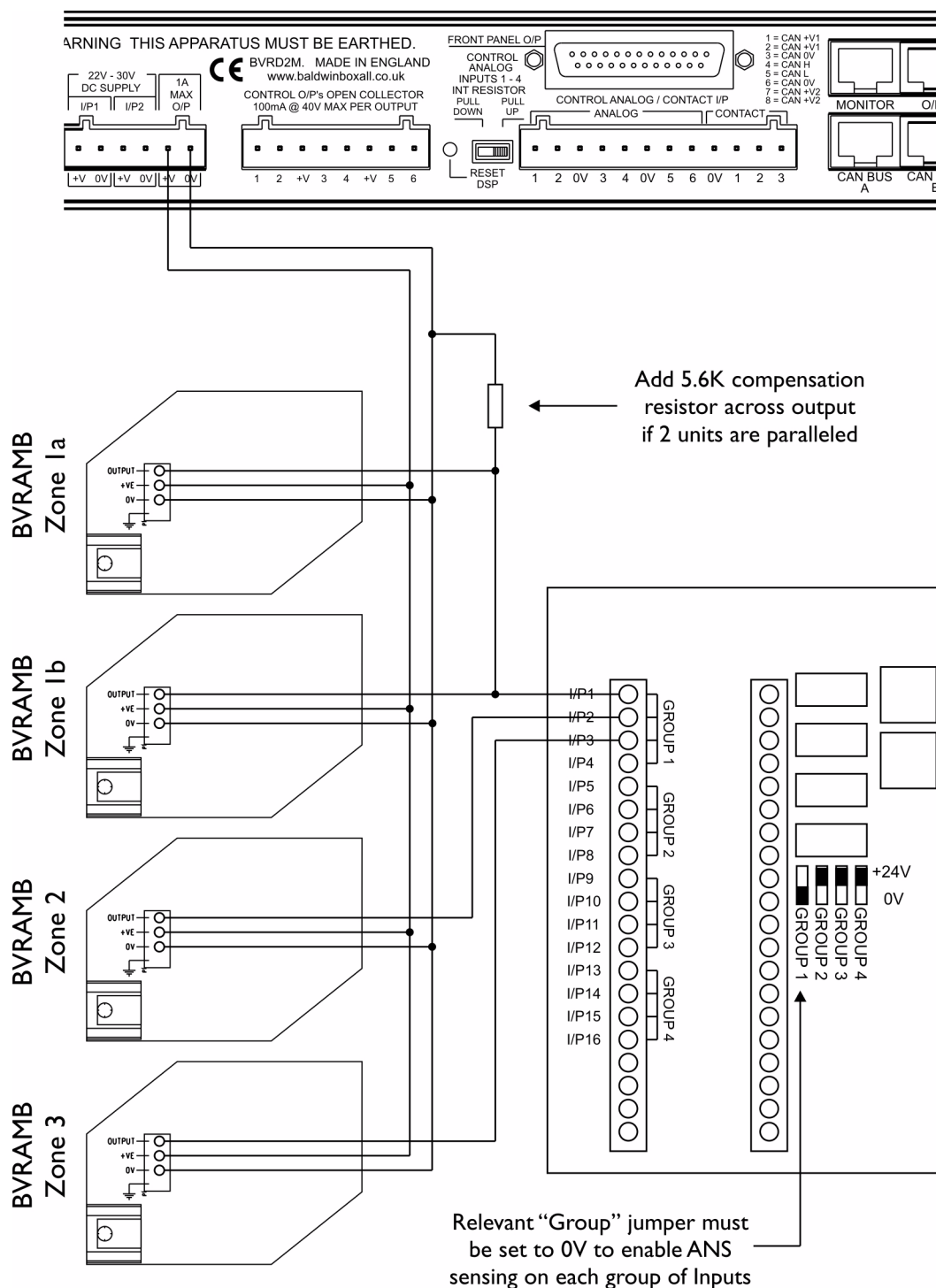


NOTE: For BVRD2M connections the rear panel switch must be set to "Pull Down". Only analogue inputs 1-4 can be used for ANS sensing.



NOTE: The system cabling for the BVRAMB modules does not need to be screened as there are no audio paths.

Figure 2.3 — Typical Connection details for BVRDCI



NOTE: For BVRDCI connections the relevant jumper must be set to "0V".
Group1 is for Inputs 1-4, Group2 is for inputs 5-8 etc.



NOTE: The system cabling for the BVRAMB modules does not need to be screened as there are no audio paths.

3 Commissioning

3.1 INTRODUCTION

The BVRAMB Ambient Noise Microphone permanently monitors the Ambient noise level in a given area, however the BVRD2M will only adjust the volume when it detects the audio output of the relevant zone is less than -48dB.

This automatic “Busy Freeze” is used to prevent the output of the System from being mistakenly identified as Ambient Noise.



NOTE: If a continuous 20kHz or 30Hz surveillance tone is broadcast the "Busy Freeze" condition will prevent the system from changing the volume. Ensure the surveillance tone is set to "Off" or "Intermittent".

The following procedure assumes the Operator is familiar with the operation of the BVRD2M using either the Front Panel controls or the Configuration Software.

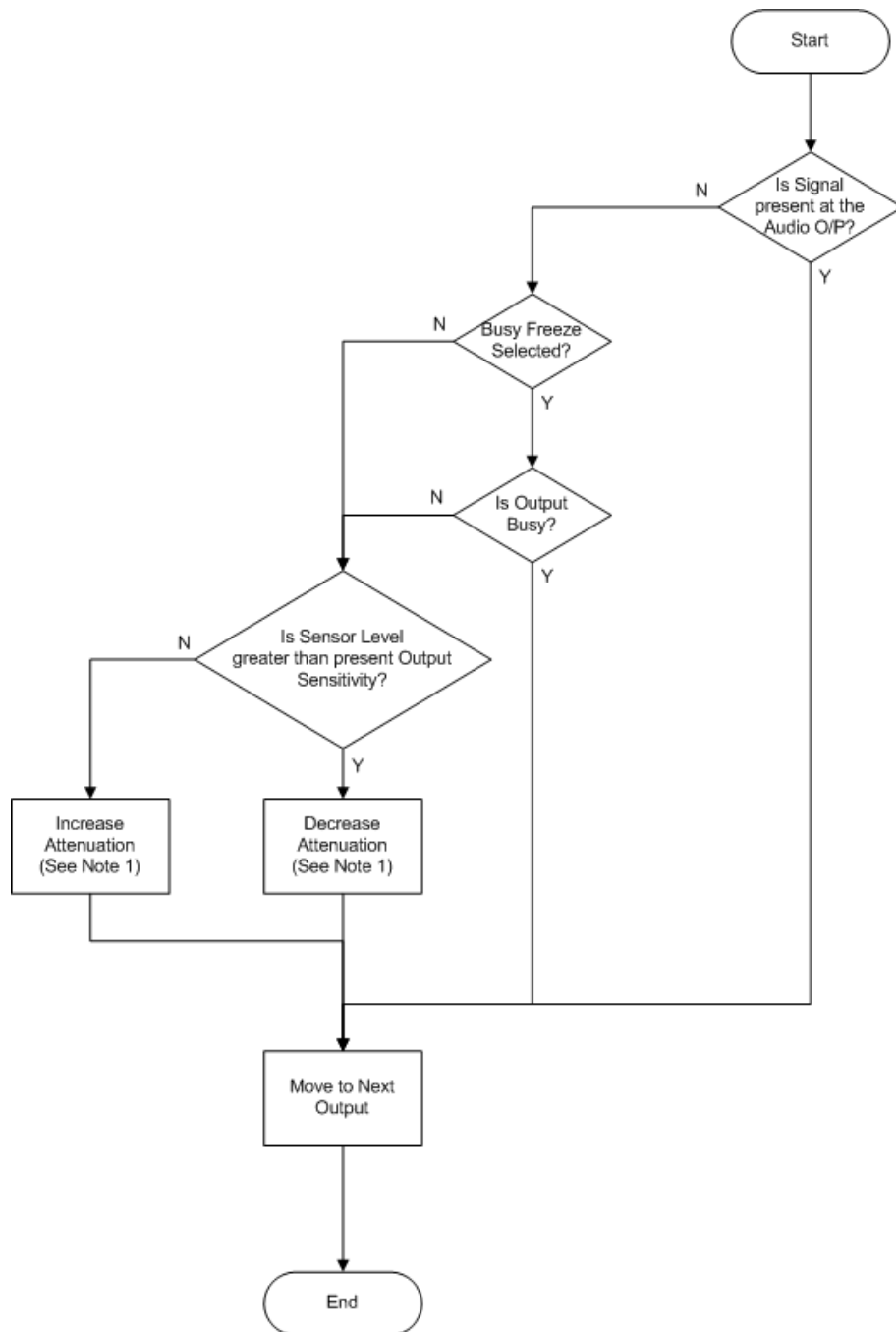
3.2 ANS SETUP PROCESS

1. Ensure no inputs are accessed or routed to the audio output to be controlled by the ANS system.
2. Ensure the Priority Range is set correctly to include the Priorities of the input(s) to be controlled by the ANS.

3. Set the Sensor Attenuation to -40dB (minimum sensitivity).
4. Set the Dynamic Range to 00dB (maximum output).
5. Set the Speed to Fast.
6. Set the Analogue Input to the input the BVRAMB Ambient Noise Microphone is connected to.
7. Set Busy Freeze to "N".
8. Ensure the Program Attenuation shows 00dB (max output).
9. Access each Audio Input in turn that will be controlled by the ANS, and set the Attenuation (in the Level/Priority menu) to give an SPL reading 10dB higher than the maximum predicted Ambient Noise level.
Ensure all inputs are then de-accessed.
10. Set the Dynamic Range to the minimum level required, this is typically -24dB.
Ensure the Program Attenuation indicates -24dB.
11. In the area served generate a representative constant Ambient Noise that is 10dB below the predicted maximum Ambient Noise Level.
Adjust the Sensor Attenuation until the Program Attenuation indicates -10dB.
12. In the area served generate a representative constant Ambient Noise that is equal to the predicted maximum Ambient Noise Level.
Ensure the Program Attenuation indicates 00-02dB.
If necessary adjust the Sens Attenuator to achieve this.
13. Access a DVA Message with periods of silence in excess of 4 seconds and subjectively ensure correct ANS operation while simulating varying levels of Ambient noise.
14. Set the speed to the required rate. Medium is suitable for most installations.
15. Set Busy Freeze to "Y" if there are no permanently accessed inputs (i.e. background music) and the area is highly reverbant.
This will prevent the ANS system from sensing the echo as ambient noise and falsely increasing the level.

3.3 BVRAMB FLOWCHART

Figure 3.1 — Flowchart showing BVRAMB Operation



Note 1:
BVR20 Attenuation changes by 2dB, 24dB MAX Dynamic Range
BVRD2M Attenuation changes by 1dB, 30dB MAX Dynamic Range

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