

BALDWIN BOXALL

BV225 Amplifier

Installation Instructions

Firmware version: N/A



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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

Change Note Number	Nature of Amendment	Date of Amendment
DPI90	Initial release: Issue 1	Oct 2010
ECR2501	Issue 2: Updated "Master" Parallel DIL SW settings	Feb 2011

PROPRIETARY NOTICE

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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 Introduction

I.1 BV225 AMPLIFIER DESCRIPTION

The BV225 Amplifier module is a 225 Watt Class “D” Power amplifier with a 500mV Balance Line audio input and 100V Line output.

The front panel status indicators show “Power”, “Overload” and Output Level (10% and 100% output level).

The audio input is presented on two separate RJ45 connectors.

The output is presented on two 3-way plug/cage clamp termination connectors providing 50V or 100V output.

The 24V DC input is presented on a two 2-way crimp connected socket.

The power output stage of the amplifier is protected against overload conditions (i.e. short circuits or abnormal loads). Should an amplifier be subjected to an abnormal load the input to the relevant power amplifier is attenuated to a safe level and the “Overload” LED will be illuminated. The amplifier output voltages are also sensed and should they exceed 100V the relevant input signal will be attenuated ensuring safe operation without creating unnecessary distortion.

Over temperature protection is provided using sensors attached to the output stage heat sink. Should the temperature exceed 90 Degrees Celsius the input signal to the relevant amplifier will be attenuated to a safe level and the “Overload” LED will be illuminated.

If the system is under surveillance it will cause the surveillance detector to indicate a fault condition due to the gain reduction.

1.2 BV225 AMPLIFIER SPECIFICATIONS

Parameter	Value (Per Amplifier)
Rated output power less than 0.2% THD	225W @ 44.5Ω
Typical output power less than 1% THD	260W @ 38.6Ω
Output regulation 225W @ 44.5Ω	Better than 1.5dB
Output Voltages obtainable	50V & 100V
Frequency response 225W @ 44.5Ω (-3dB)	35Hz - 20kHz
Input sensitivity and impedance	500mV @ 40KΩ
Input common mode rejection ratio (50Hz - 20kHz)	Better then 40dB, typically 60dB
Output noise reference to rated output	Better than 85dB
Cross talk between amplifiers @ 1kHz	Better than 70dB
Supply Voltage	22V - 35V DC
Supply Current: Sleep mode @ 26V (Battery supply)	50mA
Supply Current: Quiescent @ 30V (Mains supply)	160mA
Supply Current: Rated output power 225W @ 44.5Ω	10A
Supply DC Fuse (Automotive Style Blade)	15A
Output Stage Protection: Thermal	Output stage above 90°C
Output Stage Protection: Load	Excessive Output Stage Current
Output Stage Protection: Action	Reduces input to a safe level
Front Panel Indicators	
Power (Green)	DC Supply Connected
Overload (Yellow)	Protection circuit operating
100% (Yellow)	100V Output Voltage
10% (Green)	10V Output Voltage
Terminations	
Loudspeaker 100V Line Output	2 off 3 way cage clamp
Balanced Line Inputs	2 off RJ45 connectors
DC Supply Input	2 pin crimp connectors

2 Installation Examples

The BV225 Amplifier has been designed for quick and simple connection and configuration.

The unit can either be used as an independent Amplifier Module, can be one of two amplifiers wired as an A-B Dual Circuit using a single input signal, or can be paralleled with other BV225 Amplifiers to enable higher power outputs.

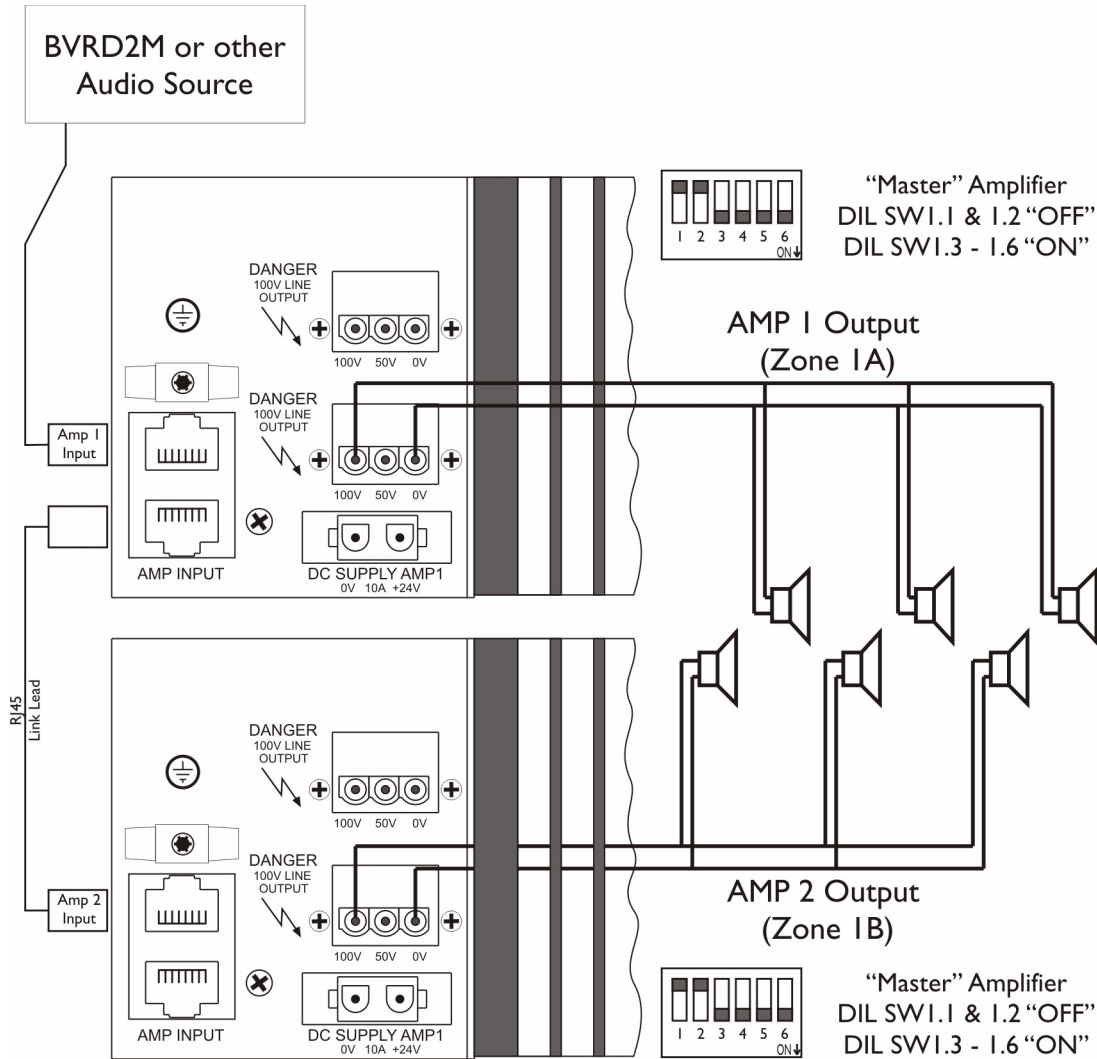
The amplifier has two paralleled input connectors to enable simple interconnection using standard RJ45 patch leads.

The 100V Line output connectors are “cage clamp” type as this type of connector is more reliable than screw terminals.

The DC connector is a polarised two way latching crimp connector.

2.1 EXAMPLE I: A-B DUAL CIRCUIT

Figure 2.1 — Both Amplifiers use the same Input Signal



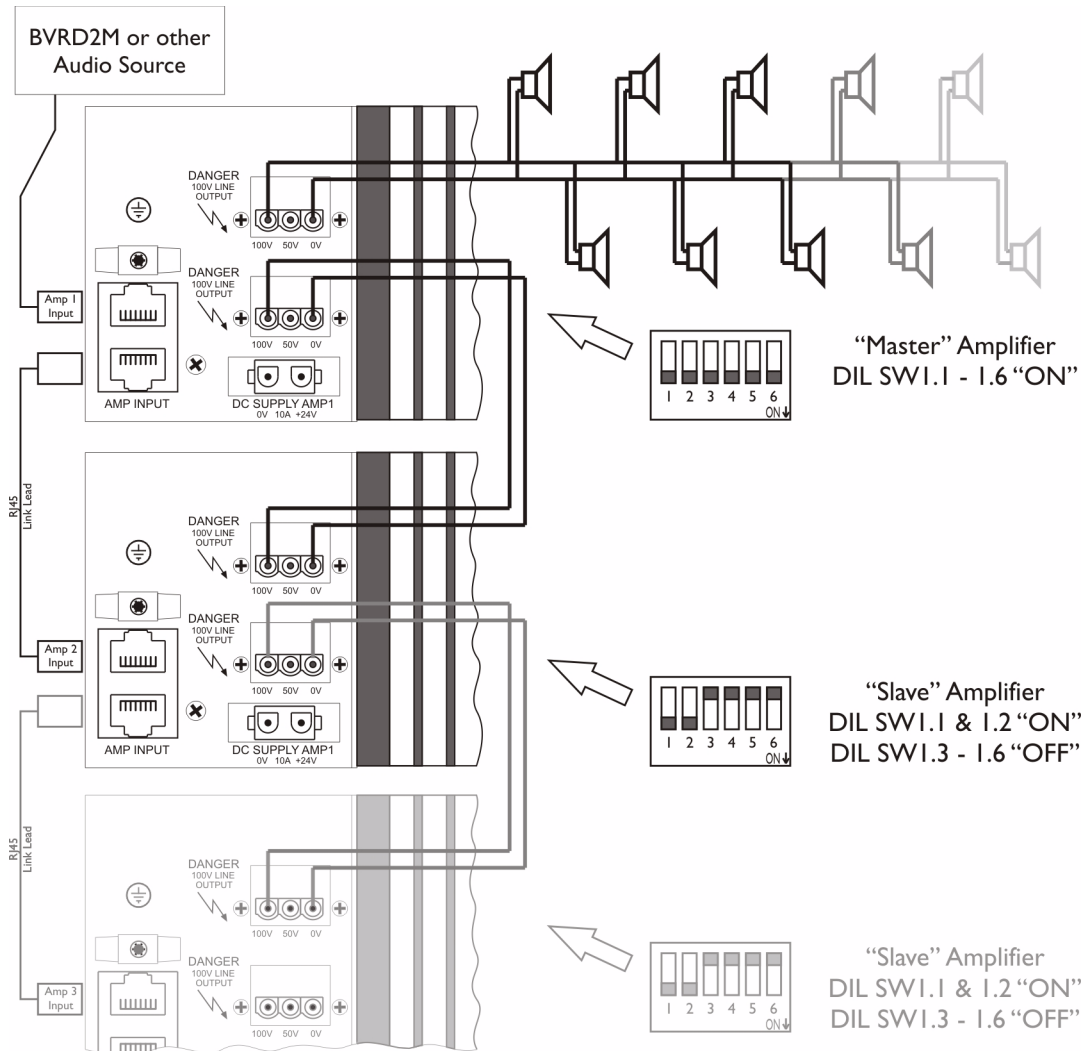
NOTE: A six way DIL switch is located on the side panel.

The switch does not need to be changed from factory default settings when the unit is used as an independent amplifier or as two amplifiers in A-B Dual Circuit.

Default (master) settings SW1.1 & SW1.2 "OFF" (Up), SW1.3 - 1.6 "ON" (Down).

2.2 EXAMPLE 2: PARALLELED OUTPUTS FOR HIGHER POWER

Figure 2.2 — Connection Details & Settings for Paralleled Amplifiers



NOTE: A six way DIL switch is located on the side panel.

The switch settings must be changed from factory default settings when the units are used paralleled together.

Master settings: SW1.1 - SW1.6 "ON"

Slave settings: SW1.1 & SW1.2 "ON", SW1.3 - 1.6 "OFF".

The "Slave" amplifier units obtain their input signal after the pre-amplifier stage of the "Master" unit. Only one pre-amplifier stage is required and this ensures the input signal to all power amplifiers is identical.

The 100V Line Outputs of all units are connected in parallel.

3 Basic Fault Finding

The BV225 Amplifier front panel provides indicators to show the current status of the unit. The following sections provide basic Fault Finding information should these indicators show a fault condition.

3.1 “POWER” LED NOT ILLUMINATED

The Supply LED should be permanently illuminated to show the 24V DC supply is present.

The BV225 Amplifier is protected by an internal 15A automotive style blade fuse.



CAUTION

To prevent damage to the unit only replace a blown fuse with the correct rating and type. Before replacing a blown fuse ensure the power supply has been disconnected from the unit.

If the internal fuse blows when power is applied then it has suffered an internal fault and should be replaced with a serviceable unit. The faulty unit should be returned to Baldwin Boxall for repair.

If the fuse has not blown but the “Supply” LED is not illuminated then the relevant BVSMP Power Supply should be checked.

3.2 “OVERLOAD” LED ILLUMINATED

3.2.1 Abnormal Load Condition

The output stage is protected against overload conditions (e.g. short circuits or abnormal loads) by sensing the current and voltage and using these to control an input attenuator.

Should the amplifier be subjected to an abnormal load the input to the power amplifier is attenuated to a safe level using the VCA.

The amplifier output voltage is also sensed and should it exceed 100V the VCA will be activated and will reduce the input signal ensuring safe operation without creating unnecessary distortion.

If the system is under surveillance it will cause the surveillance detector to indicate a fault condition due to the gain reduction.

3.2.2 Over Temperature Condition

Over temperature protection is provided using a sensor attached to the output stage heatsink.

Should the temperature exceed 90°C the input signal to the power amplifier is attenuated to a safe level using a Voltage Controlled Attenuator and the front panel indicator is illuminated.

If the system is under surveillance it will cause the surveillance detector to indicate a fault condition due to the gain reduction.

3.3 DISASSEMBLY PROCEDURES

There are no Disassembly Procedures for this unit.



WARNING

The BV225 Amplifier output stages contain Hot Parts, High Voltages, and operate at High Frequencies.

Do not attempt to disassemble these units or operate them without the covers in place.

4 Maintenance

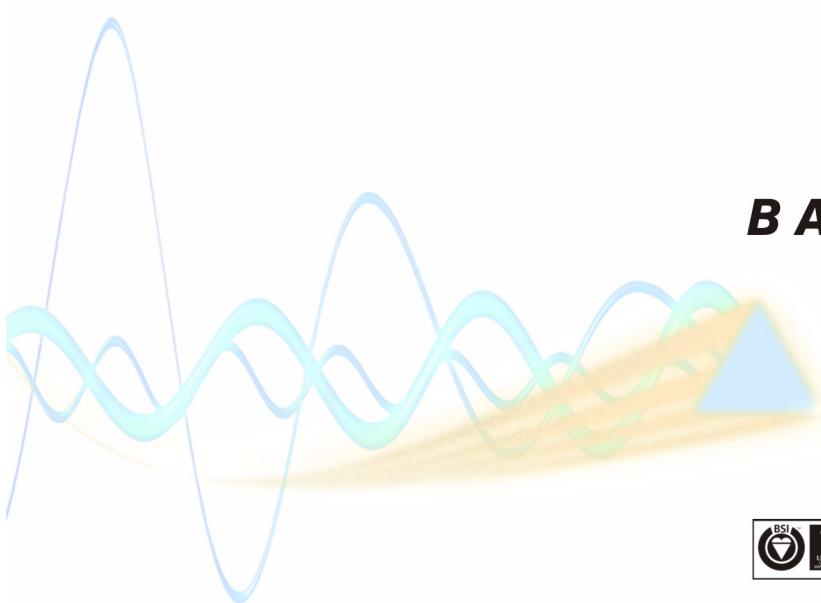
4.1 MAINTENANCE REQUIREMENTS OF BS5839-8

When the BV225 Amplifier is installed in a Voice Alarm System then the system must be maintained according to the requirements of BS5839-8.

4.2 BV225 AMPLIFIER ROUTINE MAINTENANCE

The BV225 Amplifier amplifier module requires a minimum of routine maintenance.

If the unit is operated in a particularly dusty environment, it may be necessary to occasionally remove accumulated dust from the external heatsink using a vacuum cleaner or similar.



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