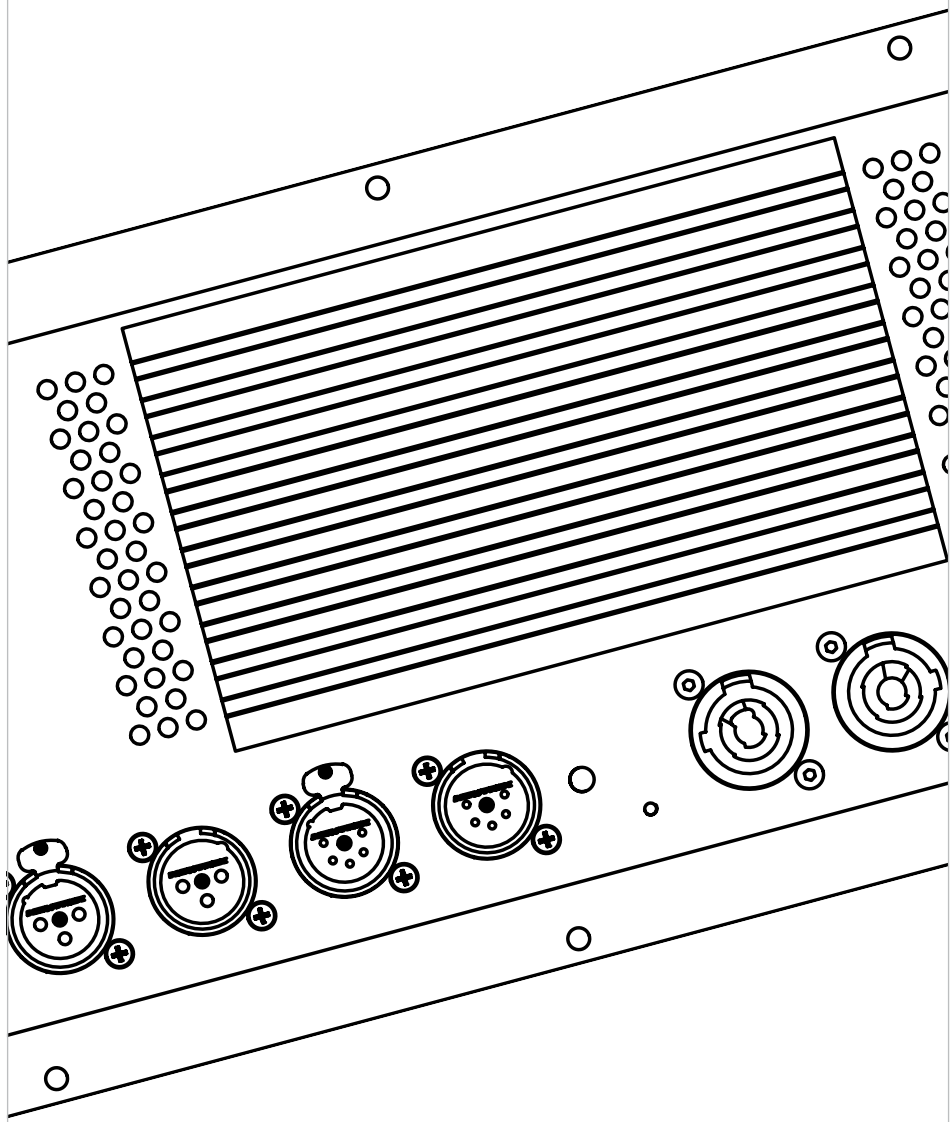
# User Guide

JBL Professional®
UniAmp Power Amplifier Module
Model 1214



# REFERENCE TO EC STATEMENT OF CONFORMITY

This document confirms that products manufactured by JBL Professional bearing the CE label meet all the requirements in the EMC directive 2004/108/EC and LV directive 2006/95/EC laid down by the Member States Council for adjustment of legal requirements. Furthermore the products comply with the rules and regulations from 30 August 1995 referring to the electromagnetic compatibility of devices. JBL Professional products bearing the CE label comply with the following harmonised or national standards:

**EMC:**
EN 55103-1 :1997
EN 55103-2 :1997

**Safety:**
IEC 60065 :2002

**Mains Harmonics:**
EN 61000-3-2 :2001

**Insulation:**
Class1

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Specifications and information contained in this manual are subject to change at any time without notice.

# TABLE OF CONTENTS

# 1. IMPORTANT SAFETY INSTRUCTIONS

This symbol is intended to alert you to the presence of uninsulated dangerous voltages within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

This symbol is used throughout this manual and is intended to alert you to the presence of important instructions.

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarised or grounding-type plug. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

**Warning** -To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture and objects filled with liquids, such as vases, should not be placed on this apparatus.

**Warning** - To disconnect this apparatus from the mains power supply, turn off the power at the switch labelled Power on the connector panel and remove the PowerCon® connector from the mains input socket labelled Mains Power Input.

**Warning** - The PowerCon® connector should never be plugged or unplugged when there is power on the connector, regardless of whether the amplifier is switched on or not. ALWAYS ensure that the mains supply is turned off at source before inserting or removing the PowerCon®.

**Warning** - This apparatus is a Class I device and must be connected to a mains socket outlet that provides a safety ground connection.

# 2. INTRODUCTION

This guide describes the operating procedures for the JBL Professional® UniAmp 1214 power amplifier module.

The UniAmp 1214 is a mains-powered power amplifier module incorporating a DSP (Digital Signal Processing) section. It has a single input and multiple speaker outputs, the number being model-dependent. The DSP section acts as a multi-band crossover and also controls equalization, per-channel levels, delays, limiting action, etc.

The DSP may be configured to suit individual applications and requirements via JBL Professional®'s WinControl software application. This level of configuration should not be confused with the per-model factory hardware configuration referred to in the next section (Applicable models and variants). WinControl also permits constant monitoring of all units in a multiple-cabinet system during operation. WinControl is available as download from www.jblpro.com.

This guide does not cover any aspects of the host loudspeaker system or installation thereof; these topics are the subject of a separate Installation Manual, supplied with each loudspeaker.

## APPLICABLE MODELS AND VARIANTS

The UniAmp 1214 is the power amplifier module fitted as standard to the following JBL Professional® powered loudspeakers:

**Flex range:**

U-12$^{G2}$

U-14$^{G2}$

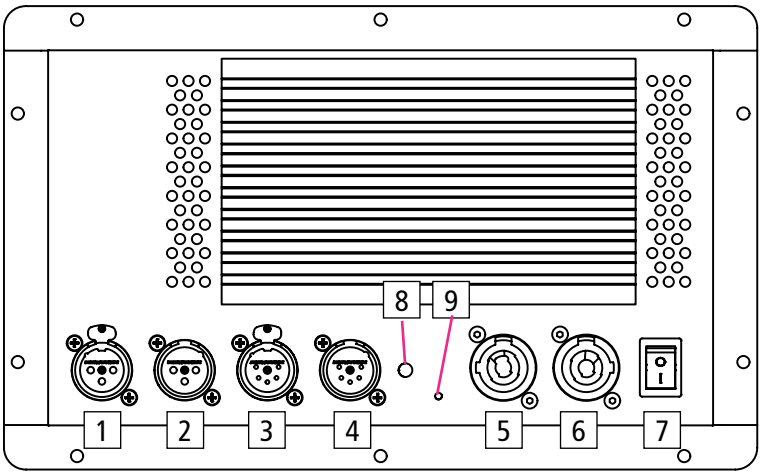
UFM-265$^{G2}$

**IMPORTANT** – Each UniAmp 1214 is configured in the factory to suit the loudspeaker type in which it is to be installed. These configuration differences can be at hardware level, and it is generally NOT possible to interchange UniAmp 1214 modules between loudspeaker types.

The UniAmp 1214 has no user-serviceable parts, and no attempt should be made to remove a module from its host enclosure. Please contact your JBL Professional® distributor in the event of faulty operation.

# 3. CONNECTOR AND WIRING DETAILS

## CONNECTOR PANEL DIAGRAM




Audio input connector

2 Audio link connector

3 RS-485 network input connector

4 RS-485 network link connector

5 AC mains input connector

6 AC mains link connector

7 Mains switch with internal neon indicator (red)

8 Status LED

9 Reset and Preset Control (access hole)

## AC MAINS

Two Neutrik® PowerCon® chassis connectors are fitted to the UniAmp 1214. The Input connector (coloured blue) is a Neutrik® Type A, and is intended for connection of the AC mains supply; the Link connector (coloured grey) is a Neutrik® Type B, and is to facilitate connection to another module in an adjacent enclosure.

Note that the Link connector is not independently fused.

The full-load power consumption of the amplifier module is model dependant but does not exceed 250 VA, please refer to the individual data sheets for model specific information. When "daisy-chaining" AC mains between several enclosures of the same type using the Input and Link connectors, ensure that the current capacity of the supply is sufficient for ALL amplifiers in the chain, and additionally, that the total current drawn by all the amplifiers does not exceed 16 A.

In practice, this means that the maximum number of amplifiers (including the first one) that may be daisy-chained in this way is fifteen (230 V operation) or eight (115 V operation).

Only wire AC mains connectors according to the table below:

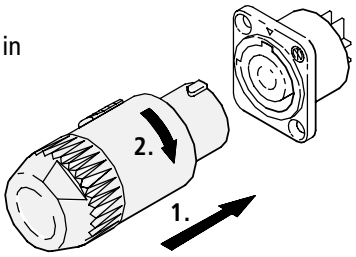
| PIN | CONNECT | COLOUR (Europe) | COLOR (US) |
|---|---|---|---|
| L | Live | Brown | Black |
| N | Neutral | Blue | White |
| ⏚ | Earth (Ground) | Geen/Yellow | Green |

The UniAmp 1214 incorporates a "universal" PSU, and will operate on all 50/60 Hz AC mains voltages from 100 V to 240 V.

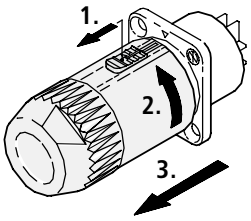
The AC mains fuse is integrated into the internal power supply and is not user replaceable.

The PowerCon® connectors are plugged and unplugged as shown in the diagram below.

Plugging in




Unplugging




**IMPORTANT** – The PowerCon® connectors should never be plugged or unplugged when there is power on the connectors, regardless of whether the amplifier is switched on or not. ALWAYS ensure that the mains supply is turned off at its source before inserting or removing either PowerCon®.

**Warning** – This apparatus is a Class I device and must be connected to a mains socket outlet that provides a safety ground connection.

**Warning** – If the mains switch of the UniAmp 1214 is not readily accessible after installation to disconnect the unit when necessary, the mains connection to the UniAmp 1214 should be easily accessible.

## AUDIO CONNECTIONS

Two latching 3-pin XLR connectors are fitted for audio interconnections. The Input connector (female) is for connection of an audio input signal; the Link connector (male) is hardwired to the input connector, and facilitates easy connection to another amplifier in an adjacent enclosure.

The UniAmp 1214's audio input and output are twin transformer-balanced, and are designed to operate at a nominal level of 0 dBV. Balanced system interconnection, using twin-and-screen microphone cables is strongly recommended.

Wire the audio connectors as follows:

** Typical colours, may vary with cable make and type.*

| PIN | CONNECT | COLOUR |
|---|---|---|
| 1 | Screen | Cable Screen |
| 2 | Hot (+) | Red* |
| 3 | Cold (-) | Black* |

### NETWORK CONNECTIONS

Two latching 5-pin XLR connectors are fitted for RS-485 network interconnections. A PC running WinControl may be connected, via an appropriate interface (either RS-232 to RS-485 or USB to RS-485) to the Input connector, if control and monitoring during operation are required. The Link connector (male) is to facilitate easy connection to another WinControl-supported device (e.g. an adjacent enclosure).

The network connectors should be wired as follows:

| PIN # | Function |
|---|---|
| 1 | Screen |
| 2 | Data Tx + |
| 3 | Data Tx - |
| 4 | Data Rx - |
| 5 | Data Rx + |


See page 11 for information regarding suitable network cable types. See Section 7 (Configuring with WinControl) for more information about network operation and software options.

# 4. PRESETS

The UniAmp 1214's DSP section includes 8 Presets; memory locations in which sets of configuration parameters can be stored. These permit the loudspeaker cabinet to be "fine-tuned" to suit different types of programme material and venue.

When a settings file is loaded into the unit from a PC, the user can specify in WinControl which Preset memory it will be loaded into.

### RECALLING PRESETS

The simplest method of recalling a previously-saved Preset is via WinControl. This necessitates a network connection to the loudspeaker system. Refer to the WinControl Help files for further information.

If a network connection is not in place, or a PC with WinControl is unavailable, Presets may be recalled manually using the Reset & Preset Control button. This button is hidden behind a small access hole on the amplifier module's conector panel, and can be accessed with an implement such as a fine jewellers' screwdriver or a straightened-out paper clip.

A single short press (< 1 sec) on this button will increment the current Preset number, i.e. if the system is currently running Preset 2, pressing the button will load Preset 3. While the button is pressed, the Status LED will change colour from green to red. Loading of the next Preset is confirmed by the LED flashing the appropriate number of times, i.e., it will flash 3 times when Preset 3 is loaded. Using this method, repeated button presses will load each Preset in turn.

Note that the amplifier module always powers-up with the last-used Preset active. Note also that a long (> 1 sec) button press has a different function (see following page).

# 5. RESET

One of the eight Preset memories acts as a "default" memory, referred to as the "preferential preset" by WinControl. Users are recommended to store a known base configuration in this Preset, and to protect it via WinControl. This Preset may be reloaded by a long (> 1 sec) press on the Reset & Preset Control button.

Resetting the UniAmp 1214 may also be carried out via WinControl; see the WinControl Help files for more information.

# 6. OTHER

**STATUS LED**

The bi-colour Status LED has several functions:

1. To indicate that the unit's power supply is functional, the LED shows green for normal operation. Note that the presence of mains voltage is indicated by a neon lamp that is integrated into the mains switch.
2. To indicate a fault state. The conditions for a fault state are defined as part of the WinControl settings file. If the conditions are met, the LED illuminates red and an error indication is also communicated via WinControl.
3. To confirm which Preset is being loaded (see Recalling Presets, Section 4).
4. Unit identification: if the LED is set (in software) to duplicate the functions of the LED on the front of the enclosure*, it will also confirm unit identity when requested by WinControl.

**COOLING**

The UniAmp 1214 depends on convection cooling. To ensure trouble free operation of the unit you must:

1. Always ensure that the unit is installed in compliance with the "Important Safety Instructions" found in Section 1 of this document.
2. Always ensure that the ventilation openings are not blocked or covered and are free from obstruction.
3. Where possible avoid installing the unit in such a way that the amplifier module is in direct sun light. Failure to follow this advise might result in a significant increase of chassis temperature and may result in the amplifiers thermal protection being activated.

*This front LED is not supported on Flex range powered loudspeaker models with early serial numbers. Please contact your JBL Professional® dealer for more information.*

# 7. CONFIGURING WITH WINCONTROL

Correct operation of a UniAmp 1214 module may be confirmed using WinControl software.

A full description of WinControl is beyond the scope of this manual and further information is available in the application's Help files. Instructions on how to install WinControl on a PC are included with the Program Set. Instructions on the use of the JBL Professional® RS-485 interface are included with the interface itself.

### CONNECTING TO A PC

The PC connects to the amplifier module via an RS-485 interface adapter. (Two versions of adapter are available from JBL Professional, for connecting to PCs either via a USB or an RS-232 port). Use either a 5-pin XLR female to 5-pin XLR male cable or a 9-pin Dsub to 5-pin XLR male. These cables (5 m in length) are supplied with the WinControl Program Set, the type depends on the RS-485 interface type. The RS-485 interface should then be connected to either the PC's 9-pin COM port (in the case of a RS-232 to RS-485 interface) or a USB port (in the case of a USB to RS-485 interface).

### BASIC SOFTWARE OPTIONS

WinControl allows the various parameters of the UniAmp's DSP section to be set according to the installer's wishes. This enables the performance of the loudspeaker enclosure to be accurately optimised to suit both the venue and the type of programme material being handled (speech, rock, opera, etc.)

The particular set of parameters which can be adjusted via WinControl varies with loudspeaker model. Typically, it includes delay, gain and multi-band parametric EQ.

In addition to the parameters determining the audio performance, the various Preset memories may have alternative configurations stored in them, and recalled as required. Unit monitoring may also be configured, with the conditions for a fault state to be signalled being registered. Additionally, units may be 'grouped' together in software, allowing very rapid adjustment of multiple devices.

Full details of the options available within WinControl are available in the application's Help files.

# 8. APPENDIX

## NETWORK CABLES

The type of cable necessary for correct operation of the RS-485 network is twin twisted pair with each pair individually shielded. Numerous cables of this type are readily available and cables broadly meeting the specifications given below (which are those of a common commercially-available cable) are likely to be suitable.

| PARAMETER | VALUE |
|---|---|
| Characteristic impedance | 100 ohms |
| Capacitance (core to core) | 41 pF/m |
| Capacitance (core to screen) | 72.5 pF/m |
| DC resistance (core) | 78.7 ohms/km |
| DC resistance (screen) | 59.1 ohms/km |

Additional information regarding network connections and grounding strategies may be obtained at :

**www.jblpro.com**

## SPECIFICATIONS

Please refer to the download section of our website for product specifications.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www.jblpro.com