SYNERGY AU4

The Synergy AU4 series of audio controllers from iKON AVS.

Introduction

The Synergy AU4 series are a 4 input to 1 output stereo audio router and volume control. They also features a microphone input that is mixed with the program audio

The AU4L has a line level output whilst the AU4P is fitted with a 10W stereo class D amplifier.

Supplied Parts

The AU4L is supplied complete with:-

- The AU4L itself.
- 12V plug top power supply[1].
- Instruction manual.

The AU4P is supplied complete with:-

- The AU4P itself.
- 12V switched mode power supply.
- Mains power cable[1].
- Instruction manual.

Please either retain packaging for future use or dispose of via recycling. All packaging is recyclable.

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[1] The mains power cable / power supply will be country specific and may be supplied external to the main amplifier packaging.

Overview

The AU4's are a 4 input to 1 output stereo audio router and volume control. They also feature a microphone input that is mixed with the program audio. The microphone can be muted via either a dedicated switch input, from a Synergy or SPC controller or from an RS232 serial string.

The AU4L has a line level output whilst the AU4P is fitted with a 10W stereo class D amplifier.

They can be connected to any of the Synergy panels via the Syn-Link port and requires no additional programming other than the assigning of buttons on the Synergy panel to audio inputs on the AU4 in the Synergy panel software.

Installation

Warning   Disconnect power and unplug the unit from the power source before installing or removing.

The AU4 is designed be either free standing or secured to a surface using suitable screws (not supplied). Consideration should be given to cable support next to the unit.

Power   The amplifier is DC powered and this should be fed from either the supplied power supply or suitable alternative. A mains power connection will be required for the power supply achieved by plugging the supplied cable into an adjacent socket.

For all screw terminal connections it is recommended to twist the cables before inserting but do not tin as over time this leads to cold forming and can loosen the connection.
The use of crimp ferrules is recommended.

Connecting – Audio

Line Inputs   Phono (RCA) sockets are provided for the connection of stereo unbalanced line level sources into the AU4.

Microphone Input   A low impendence microphone can be connected to the screw terminals provided. Either a dynamic or electret type can be used. Turn ON the phantom power for electret and OFF for dynamic. In the rare occasions when an unbalanced microphone is used (two conductors only with one the screen) connect to + and – only.

The microphone input can be locally enabled and disabled by using the MIC ON connections. To enable the microphone insert a link between these terminals. Use a switch if local On/Off of the microphone is required.

Line Output   Phono (RCA) sockets are provided for the connection of the AU4 to an external amplifier's unbalanced inputs.

Loudspeakers   On the AU4P additional rear screw terminals are provided for the connection of loudspeakers.
The minimum load impedance in stereo is 8 Ohms per channel. The amplifier is a bridge design, there is no loudspeaker common, and so each pair of loudspeaker cables MUST be connected back to the amplifier terminals. Please observe polarity for correct 'in phase' operation.
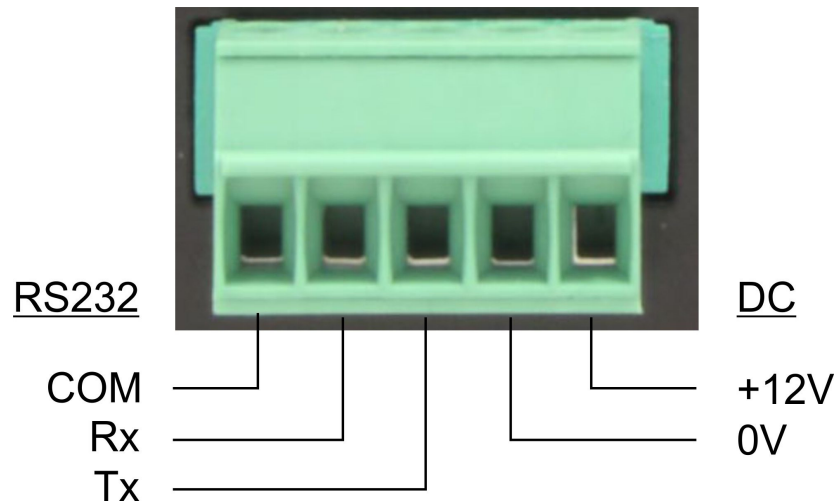
Connecting – DC Power

The AU4 can be powered two ways:-

Option 1.   Connect the supplied 12V DC power supply to the DC socket on the rear of the AU4. The Screw terminals can be used to loop DC power to a Synergy or SPC control panel.

Option 2.   Power the AU4 from the Synergy or SPC panel by feeding 12V DC into the screw terminals on the rear.

On the AU4P the supplied DC power supply MUST be connected to the DC input socket. Power can be fed to a Synergy or SPC control panel via the screw terminals if required.

Connecting - Remote

RS232   DC

COM   +12V
Rx   0V
Tx

DC   Use for either powering the Synergy AU4 from an external 12V DC source or for feeding DC to a Synergy or SPC control panel.

RS232   Use to connect the AU4 to a Synergy or SPC control panel for control or for external RS232 control.

Connection to a Synergy Panel

Connect as follows

SYNERGY Panel   **AU4**

A -- Rx
B -- TX
C -- COM

Connection to a SPC Controller

When used with the SPC controllers the synergy AU4 is inserted into the RS232 TX line between the SPC and the display as follows:-

SPC   **AU4**   **Display**

Tx ------------------------------ Rx
                                        Tx ------------------------------ Rx
Rx --- Tx
Com --------------------------- COM --------------------------- Com

In this mode you will need to program the SPC and the AU4 with the same program.

AU4 Setup

The AU4 is shipped ready to connect to a Synergy panel for operation. There are a few user adjustments that can be made by using the four way DIP switched on the rear of the unit. Two of these adjust the audio control parameters and two set the units operation.

Rear Panel DIP switch settings

Switch 1   ON = 0dBu   OFF = Previous Setting

This sets the audio level at power on. When ON the inputs
are reset to 0dBu to ensure a known audio level is achieved.
When set OFF they retain the last user adjusted setting.

[**Recommendation**. If using the restricted range of +15dBu
to –15dBU use 'retain last level'. If using the full range of
control set to 0dBu as this will ensure that there is also audio
when powered.]

Switch 2   ON = 48dBu   OFF = 15dBu

Used to set the range of audio control when ON the range is
limited to +15dBu to –15dBu to allow user adjustment within
set main and max parameters.

When set OFF the full range of control is available ranging
from +15dBu to –48dBu. If taken below –48dBu input is
muted

Switch 3   ON = IKON protocol with SW4   OFF = RS232

Sets the method of control for the AU4 between pre-
configured IKON protocol and user controlled RS232.

Switch 4   ON = Synergy   OFF = SPC

Set which Ikon controller the AU4 is to be used with.

Microphone Operation

There are three installer options for the microphone input selected by
the DIP switches on the side of the unit.

Switch 1   Phantom power ON / OFF for powering electret
microphones.

Switch 2   20dB pad ON/OFF to allow the feeding of the AU4
microphone input from an external microphone mixer
(e.g. the iKON AVS iCS-FM2 module).

Switch 3   Hi-Pass filter in (OFF) /out (ON) for use if using a
close talking microphone to reduce the low
frequency content.

When ON, the microphone input is always mixed with the selected
program source and is adjusted by its own volume control and local
equalisation.

Operation from a Synergy Controller

Operation of the AU4 requires enabling within the Synergy software.
Once enabled operation of the AU4 is transparent and required no
additional programming.

Input Select   Just select the assigned input from the Synergy
panel.

Volume   Adjust from the Synergy panel using the VOL+ and
VOL- buttons. A single press will increase or
decrease the volume 1dB and a press and hold will
ramp the volume.
All volume adjustments are PER INPUT and not
global allowing input levels to be matched and
recalled.

Microphone   If configured the microphone can be turned ON and
OFF.

Operation from a SPC Controller

Operation of the AU4 requires the same configuration that is loaded into the SPVC panel loading into the AU4 via the RS232 port.. Once loaded operation of the AU4 is transparent and required no additional programming.

Input Select Selected by the SPC with the following assignments:-

> PC1 = Input 1
> PC2 = Input 2
> Video 1 = Input 3
> Video 2 = Input 4

Volume Adjust from the SPC panel using the VOL+ and VOL- buttons. A single press will increase or decrease the volume 1dB and a press and hold will ramp the volume.
All volume adjustments are PER INPUT and not global allowing input levels to be matched and recalled.

Microphone Not available from the SPC panel.

Operation from an external RS232 controller

The AU4 can be operated from an external RS232 controller. To use the AU4 in this mode set the rear dip switch 3 to OFF. Use the following protocol for control.

AU4 – RS232 control protocol

The following RS232 protocol allows the Synergy AU4 range of audio controllers to be operated by a third party RS232 controller. It is not required when used with the iKON Synergy controllers.

To use set the rear bit switch to the RS232 position prior to powering the unit. All communications is at 9600 Baud with 8 data bits, 1 stop bit and no parity. All commands are plain ASCII text

Microphone Control

Command	Action	AU4 Reply
MN	Turn microphone ON	M1
MO	Turn microphone OFF	M0
RM	Request microphone status	M1 if ON, Mo if OFF

Mute Control
This mutes the program audio only and not the microphone

Command	Action	AU4 Reply
UN	Set mute ON	U1
UO	Set mute OFF	U0
RU	Request mute status	U1 if ON, U0 if OFF

AU4 Level Range
The level range available on the AU4 can be +15dBu to –15dBu OR +15dBu to –48dBu depending upon the setting of the rear panel bit switch. The returned level will be signed + or -.

The start up level when power is applied can be set to 0dBu or the last user setting dependent upon the position of a rear panel bit switch.

Input Select

Command	Action	AU4 Reply	Notes
IN1	Select input 1	IN1##	Where ## is
IN2	Select input 2	IN2##	the current
IN3	Select input 3	IN3##	level of the
IN4	Select input 4	IN4##	selected input
RI	Request number of currently selected input	In##	Where ## is the input number.

Input Volume Control

Input 1 shown other inputs identical just substitute 1 with 2,3or4

Command	Action	AU4 Reply	Notes
V1##	Set level to	V1 ##	## is the level
RV1	Request level	V1 ##	from +12 to - 48

Output Volume Control

Command	Action	AU4 Reply	Notes
VU	Volume up 1 step	V ##	Where ## is
VD	Volume down 1 step	V ##	the current
V+	Ramp volume up		level of the
V-	Ramp volume down		selected input
VS	Stop ramp	V##	

Example command

To select Input 2 and increment its volume
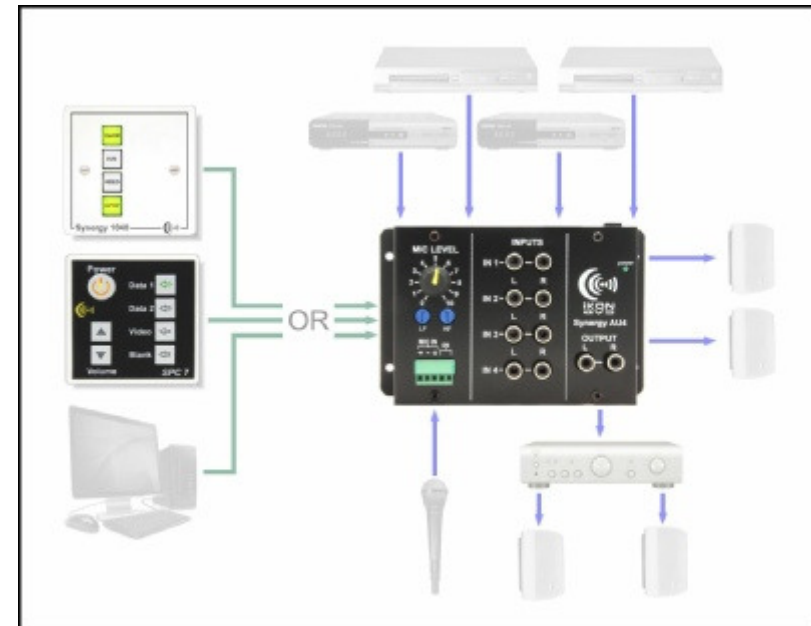
Send in ASCII the command

IN2

Followed by the command

VU

This will increase the volume of Input 2 by 1 step
Send the command 'VU' repeatedly to increase the volume by further steps.

Typical Application

Technical Specification

AU4L

Frequency Response:	20Hz to 20KHz +/- 1.0dB
THD:	< 0.03% @ +0dBu O/P
Equiv. Input Noise:	-126dBu
Maximum Gain:	
Mic to main output	80dB
Line to main output	30dB
Mic Equalisation:	
HF:	+/- 14dB @ 10KHz
LF:	+/- 14dB @ 100Hz
Input Impedance:	
Mic input:	>2K ohms
Line inputs:	20K ohms
Output Impedance:	
Main outputs:	<150 ohms
Maximum Output:	+18dBu

AU4P Amplifier section

Power Output ,	10W RMS* per channel into 8 Ohms
Bandwidth	20Hz to 22KHz +/- 1dB
THD & Noise	<0.8%
S/N Ratio	76dB
Protection	Integral, auto resetting, current limit & thermal protection. Integrated click & pop suppression.
No signal current (12V)	28mA
Standby current (12V)	10mA

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*   The Amplifier is a class D switching amplifier so the RMS values are RMS equivalent, this is that they give the same Sound Pressure Level using music or speech from a loudspeaker as a linear amplifier delivering the quoted RMS level.

Environmental

The AU4 is not IP rated and should not be used in Bathrooms, outdoors or similar damp environments unless provided with additional protection of suitable IP rating.

WEEE

Under the Waste Electrical & Electronic Equipment (WEEE) Directive & Regulations, when customers buy new electronic equipment from Ikon AVS they are entitled to:-

1.   Send old equipment back for recycling on a one-for-one, like-for-like basis.
2.   Send the new equipment back for recycling when it ultimately becomes waste.

Recycling instructions and documentation for both Customers and Recyclers is available on the Ikon website.

Electromagnetic Compatibility

This equipment has been designed, manufactured and tested to conform to the European EMC directives EN55103-1 & EN55103-2 for classifications E2 and E4.

Additional EMC information for installation to comply with the EMC directives 2004/108/ec and SI 2006 No. 3418 is available on the Ikon website.

Warranty

In common with most Ikon Products, the AU4 range carry a 3 year RTB warranty that covers parts and labour only.

There are no user serviceable parts inside and the unit should be returned to the supplier for warranty repair.

Full details of our warranty is available on the Ikon website.

Manufacturers Information

The iKON AVS products are manufactured in England by Nebula Audio Ltd.

For service or warranty advice please initially contact your supplier. Alternatively contact the manufactures at:-

Nebula Audio Ltd
40 Saint Dunstans Close
Worcester
WR5 2AJ

Telephone: +44 (0) 1299 250991

Website:-   www.ikonavs.com
Technical support e-mail:-   support@ikonavs.com

All iKON products are designed applying the "Reliability through quality and simplicity" principle, only components of the highest quality are used throughout, highly skilled staff are used during all stages of manufacture and product design is kept as simple as possible to increase reliability and reduce costs.