



***AVC2***

***AUTOMATIC VOLUME CONTROL***

***USERS MANUAL***

## GENERAL DETAIL

The AVC2 will control a stereo channel to a preset maximum output level allowing the maximum sound level of a system to be controlled.

The AVC2 is installed between the Mixer and Amplifiers, the Amplifiers are either set at maximum or access to the Amplifiers must be restricted (change in Amplifier setting will still change the sound level).

If the average operating level is kept below the internally set threshold the AVC2 has no effect, if the average programme level exceeds the threshold the AVC2 will hold the output level at the threshold setting.

The led bargraph meter on the front panel of the unit indicates how much the input signal is being attenuated. Once the set threshold is reached any increase in the input signal is matched by an increase in attenuation so that the system will barely change in perceived level.

If driven to maximum attenuation the output level will be reduced by slightly more than the increase in input level, this is to encourage performers/DJ's to work at the threshold of AVC2 operation for maximum sound level.

A clip indicator LED is provided to show when the input stage of the AVC2 is being over driven. The AVC2 attenuates and releases the attenuation smoothly so the audio quality remains good..

The AVC2 has no external controls, the setting is made by an adjustment through the back panel. While playing music at a higher than required level the rotary adjustment is set to give the required sound level from the Audio system and that is all that is required to set the system.

An external remote warning indicator may be connected to warn the operator that the operating level is 3dB away from the threshold at which the AVC2 will start to control level.

A mute relay is fitted which can be operated by an external switch to improve system security or connected to a fire alarm to mute the system in case of fire.

A connection is also included to dim the unit by 20dB, this can be operated by a switch or relay (for example a magnetic relay on fire doors).

The AVC2 can have two different levels set if required (different sound levels may be required day and night or weekdays and weekends for example), switching between the two levels can be by relay or switch or time switch (not supplied) to switch between two output levels.

For more detail see the section on AUXILIARY CONNECTIONS on the next page.

## INSTALLATION

The unit should normally be installed in the signal chain either between the mixer or pre amp and the amplifiers, or in larger systems the mixer/ preamp and the electronic crossover.

The unit should ideally be mounted where the operator can see the indicator leds on the front panel or alternatively a remote indicator could be installed (see auxiliary connections section)

Connections are via XLR connectors for the audio and 2 connectors for auxiliary connections.

***A tamper proof cover is included which can be sealed. This cover prevents the connectors from being disconnected and is often a requirement when the unit is installed as a sound level controlling device specified in a licencing application .***

The unit features balanced inputs and outputs which are self compensating. Either side may be tied to the screen for unbalanced operation without loss of level or performance. (N.B. For unbalanced operation the negative output should be tied to the screen and not left single ended. An unbalanced connection between positive and screen with no connection to negative will result in a loss of signal level).

When wiring to balanced circuits for stereo operation both left and right channels should be identical to maintain phase.

To avoid ground loop problems, the audio common (cable screens) in this equipment is NOT connected to mains earth within the unit. The mains lead earth connection is only connected to the case and this must always be connected to MAINS EARTH.

As supplied the unit will be detecting the incoming signal to control the output level.

## AUXILIARY CONNECTIONS

A 4 way and 6 way connector are provided for the auxiliary connections. The connectors are labelled 1,2,3,4 for the first connector and 5,6,7,8 (pins 9 and 10 are unlabelled) for the second connector. The mating halves for these connectors are supplied with each unit.

The unit is supplied with a link which is fitted between pins 1 and 2. This is the security link and these two terminals need to be joined for the unit to operate. Removing the link will mute the unit.

Pins 3 and 4 when joined allow the unit to be dimmed by 20dB. When the connection is removed the unit will fade back to the previous level.

Pins 5 and 6 are provided to allow a warning indicator to be connected to the system. An led indicator may be connected directly to pins 5 and 6 observing polarity to avoid damaging the led. Alternatively a conventional effects lighting, switching pack may be connected that is compatible with a 10V D.C. input to provide larger warning indication. This output provides a current limited 10V D.C. signal 3dB before the unit starts to control volume levels.

Pins 7 and 8 are provided for switching between two output levels. This function may be controlled by a time switch if required. (Time switch not supplied).

Pin 9 is a drive connection for a remote display and Pin 10 is +18V (max 100mA).

**All the auxiliary connections are low voltage low current connections, When connected to external switches fire alarms etc. they must be totally isolated and fully floating from any other electrical circuit.**

## OPERATION AND SET- UP

As supplied the unit is adjusted to operate at an average nominal programme line level of 0Vu (+4dBu) and in most cases will not need any adjustment. This is the level that a standard Vu meter will read before going into the red (end section), therefore the operator can use the readings on the Vu meters fitted to his mixer to be an indication of maximum permitted volume level.

To achieve the required system volume level adjust the output level of the AVC2 by using the output pots on the rear panel. The output pot's are accessible through small holes located between the input and output connectors and are labelled 1 & 2, Pot 1 is used to set the first output level.

When level 2 is selected by joining pins 7&8 on the auxiliary connectors the output is set by pot 2 which should then be adjusted to provide the second required output level.

Check the level by driving the system until the first led illuminates on the attenuation meter located on the front panel of the AVC2 and readjusting outputs as necessary.

Black plastic snap rivets are provided to blank these holes after the initial set up. If these rivets need to be removed lift the head by prising with a thin object - finger and thumb nails will usually suffice.  
**Always refit the snap rivets after adjustments are complete.**

For different applications the unit may be set to operate at different levels by internal adjustments. See later section INTERNAL ADJUSTMENTS.

The "AVC2" is slow acting to differentiate between dynamic peaks of music and an increase in average level. Bear this in mind when making adjustments.

## INTERNAL ADJUSTMENTS

Do not attempt to make any internal adjustments unless you are qualified to do so and you know what you are doing.

### **ALWAYS DISCONNECT POWER BEFORE REMOVING COVERS.**

Access is gained by removing the top cover. Remove 3 screws from either side of the case. Remove 2 screws from the top and lift top cover off.

When the adjustments are completed refit the case top.

FIG 1.A. Shows the position of the range setting jump plug. This sets high and low operating ranges for the unit.

FIG 1.B. Shows the position of the sensitivity adjustment preset. This is a multi-turn preset. Use this if you wish to change the operating threshold of the unit. Use in conjunction with the range setting jump plug to increase or decrease the sensitivity of the unit.

FIG 1.C. Shows the position of 2 jump plugs. These are used to select the type of control chain used to trigger the attenuators. This may be set to linear, 'A' weighted or both.

The "AVC2" uses two control chains in parallel, one with a flat response and one 'A' weighted. The output of the highest chain is used to control the unit. In special applications either may be selected by setting the jump plugs as indicated on the P.C.B.

IF YOU ARE NOT SURE OR FOR GENERAL PURPOSE USE LEAVE AS FACTORY SET (BOTH).

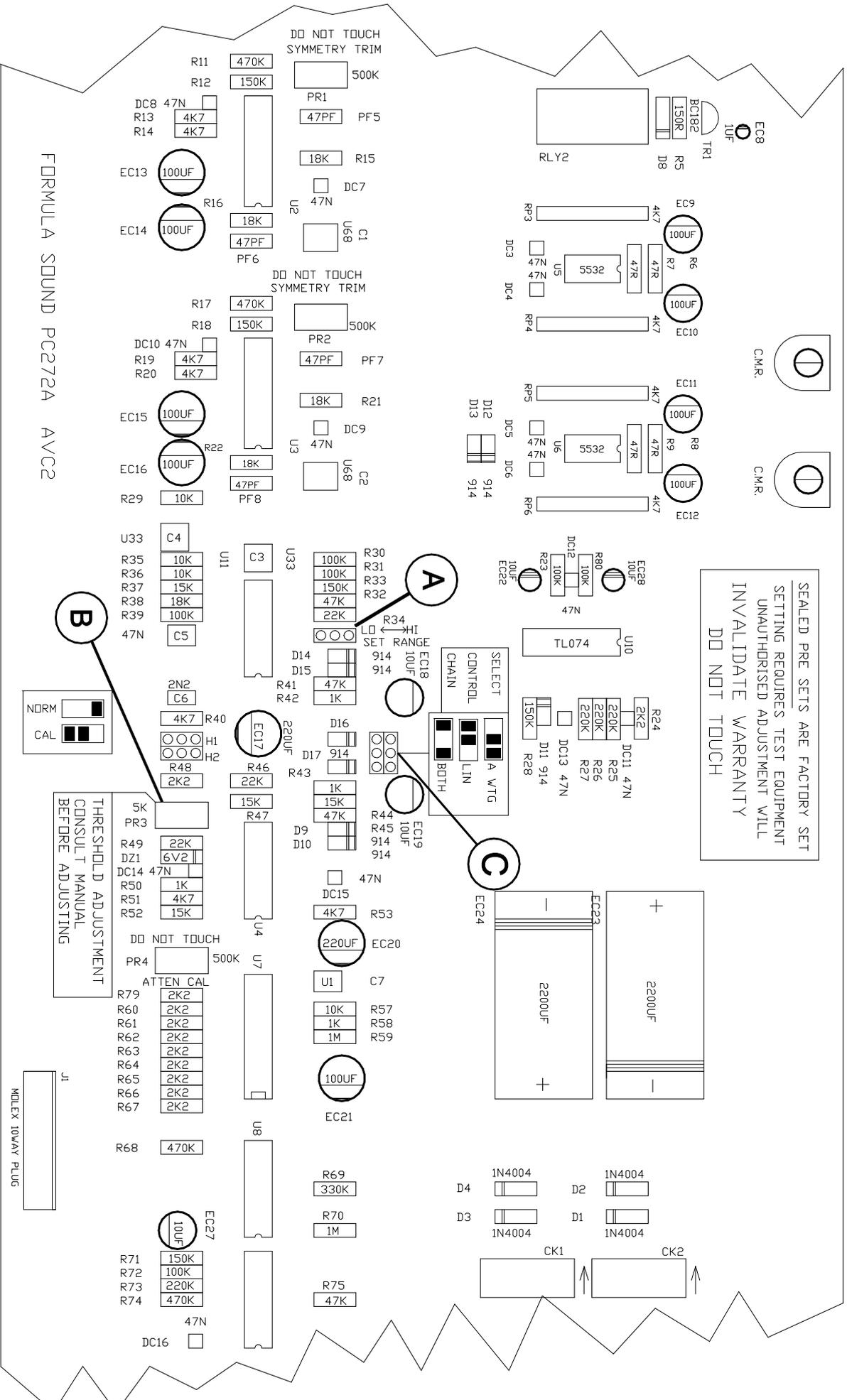
**ALL OTHER PRESETS AND JUMPERS ARE FOR ALIGNMENT AND TEST PURPOSES AND ARE FACTORY SET. DO NOT - REPEAT - DO NOT TOUCH!**

**INCORRECT SETTING OF ANY INTERNAL ADJUSTMENT WILL INVALIDATE THE WARRANTY.**



www.formula-sound.co.uk

DO NOT ATTEMPT ADJUSTMENTS UNLESS YOU ARE QUALIFIED TO DO SO



TITLE AVC2 USERS MANUAL PAGE 4

FIG 1

DRG No. 719

DATE 04-08-2010

ISSUE B

## AVC2 SPECIFICATION

---

Frequency response	20Hz - 30kHz	+/- 0.5dB
--------------------	--------------	-----------

---

Distortion (THD and noise) freq 1kHz	O/P level	Attenuation
	0dBu	0dB < 0.01%
	0dBu	12dB < 0.015%
	0dBu	30dB < 0.05%

---

Noise measured 20Hz-20kHz	Equiv. input noise	< -90dBu
---------------------------	--------------------	----------

---

INPUTS	Electronically balanced, connect pins 1 & 3 to screen pin 2 hot for unbalanced use	
XLR Connector	Pin 1 screen Pin 3 -Ve Non Phase Pin 2 +Ve Phase	
Input impedance	Balanced	20K ohms
	Unbalanced	10K ohms
Maximum input level	+22dBu	
Clip indicator	Indicates @ +20dBu	

---

OUTPUTS	Electronically balanced, connect pins 1 & 3 to screen pin 2 hot for unbalanced use	
XLR Connector	Pin 1 screen Pin 3 -Ve Non Phase Pin 2 +Ve Phase	
Source impedance	100 ohms	
Minimum load impedance	600 ohms	

---

Operating Threshold Range		
High range	Average level	adjustable +5 dBu -2dBu
Low range	Average level	adjustable -8 dBu -14dBu

N.B. If a signal generator is used as the source for making adjustments to the operating threshold, the threshold will be approx. 6dB lower than using a music source due to the averaging measurement which the unit uses for control. For operation outside the above ranges contact Formula Sound Ltd.

---

ATTENUATOR RANGE	-3dB -6dB -9dB -12dB -15dB -18dB -24dB -30dB
------------------	--

---

CONTROL CHAIN  
A control chain with a flat frequency response Linear, "A" weighted, or a combination of both may be selected to control the attenuators.

---

AUX CONNECTIONS	1 & 2 Mute 3 & 4 Dim output -20dB 5 & 6 Remote warning 7 & 8 Level 2 select
-----------------	---

---

POWER	220-240V AC (110V to order)	Mains Fuse 250mA slow blow	I.E.C. Mains connector
-------	-----------------------------	----------------------------	------------------------

---

FINISH  
Front and Rear panels - Black anodised aluminium with silver notation  
Case black plastic-coated steel.

---

DIMENSIONS  
19" Rack mounting 1RU  
Width 482mm (19") Depth 200mm (7.9") Height 44mm (1.75")

---

FORMULA SOUND LTD.  
Unit 23 Stadium Business Centre  
North End Road  
Wembley  
Middlesex  
UK  
HA9 0AT

TEL 0208 900 0947 (+44 208 900 0947)  
Email: [info@formula-sound.co.uk](mailto:info@formula-sound.co.uk)

FAX 0208 903 8657 (+44 208 903 8657)  
WWW.formula-sound.co.uk

---

Formula Sound reserve the right to alter specifications at any time without notice.



FORMULA SOUND LIMITED  
UNIT 23; STADIUM BUSINESS CENTRE; NORTH END ROAD; WEMBLEY; MIDDLESEX; HA9 0AT  
TELEPHONE +44 (0)208-900-0947 FAX +44 (0)208-903-8657  
www.formula-sound.co.uk email info@formula-sound.co.uk



## E.U. CERTIFICATE OF CONFORMITY

We declare that the products listed conform to the following directives and standards

89/336/EEC amended by 92/31/EEC and 93/68/EEC

BS EN 50082-1 BS EN 50081-1

### PRODUCT TYPE

**AVC 2**

**The CE mark was first applied in 1995**

Signed

**B. J. Penaligon General Manager**

**Attention**

The attention of the specifier, purchaser, installer, or user is drawn to the fact that good wiring practice must be observed when connecting the above equipment. Good quality connectors and screened cables must be used for all audio connections. Twin screened cables should be used for all balanced lines.

**THIS EQUIPMENT MUST BE EARTHED**  
CONSULT THE USERS MANUAL FOR TECHNICAL DETAILS