



AVC2

AUTOMATIC VOLUME CONTROL

USERS MANUAL

XLR VERSION

GENERAL DETAIL

The AVC2 is a stereo unit and performs as an intelligent volume control. The operation is very simple. 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 AVC2 will reduce its output level. The level is reduced in discreet steps indicated by the led bargraph meter on the front panel of the unit. The action of the AVC2 is to fade between these steps and is almost undetectable in use. The more one tries to increase the volume the more the AVC2 will decrease it so that the system will barely change in perceived level. If driven to maximum attenuation the output level will be reduced by more than the increase in input level. The mixer or pre-amp feeding the AVC2 will probably be clipping but the system will actually be at a lower than normal level. A clip indicator is provided to show when the input stage of the AVC2 is being over driven. Reducing the input level will gently release the attenuation provided by the AVC2.

The AVC2 has no external controls for the operator to worry about - just a bargraph meter and some indicator led's to inform the operator of the status of the unit.

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 a fire alarm connection to mute the system in case of fire.

A provision is also included to dim the unit by 20dB.

The AVC2 also has provision to connect an external time switch (not supplied) to switch between two output levels.

As local conditions and noise control specifications can vary these facilities allow the unit to be used in several ways to comply with regulations.

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 X 4 way connectors for auxiliary connections. ***A tamper proof cover is available which can be sealed. This cover prevents the connectors from being disconnected and is often a requirement when the unit is installed as a noise 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

2 X 4 way connectors are provided for the auxiliary connections. The connectors are labelled 1,2,3,4 for the first connector and 5,6,7,8 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).

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 normally to set the output level. When level 2 is selected by joining pins 7&8 on the auxiliary connectors the output is switched via number 2 pot 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.

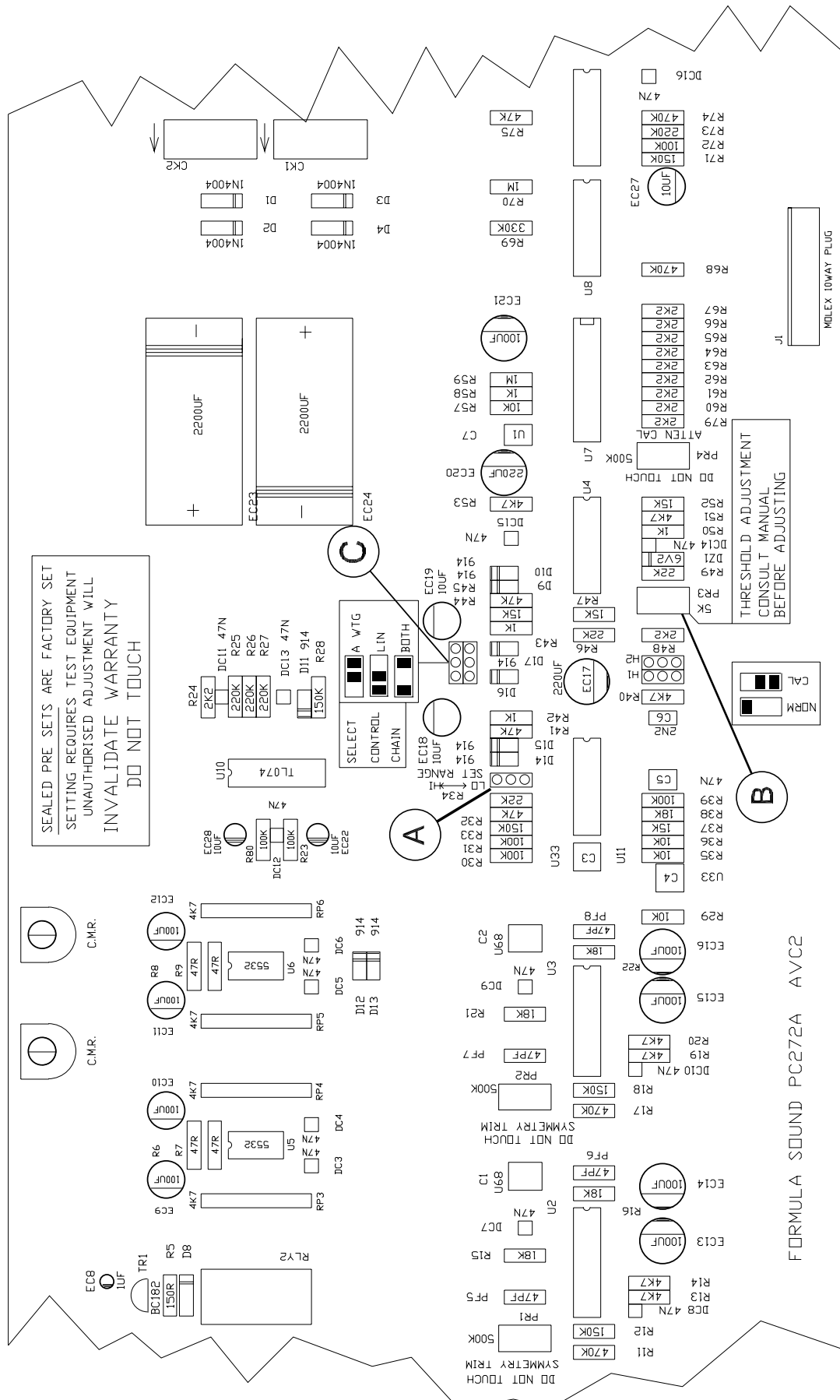
FIG 1.C. Shows the position of 2 jump plugs. These are used to select the type of control chain used to trigger the attenuators. This may be set to linear, 'A' weighted or both.

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.



SEALED PRE SETS ARE FACTORY SET
 SETTING REQUIRES TEST EQUIPMENT
 UNAUTHORISED ADJUSTMENT WILL
 INVALIDATE WARRANTY
 DO NOT TOUCH

FORMULA SOUND PC272A AVC2

DO NOT ATTEMPT ADJUSTMENTS UNLESS YOU ARE QUALIFIED TO DO SO

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	<p>FIG 1</p>	<p>DATE 12-06-1995</p>	<p>ISSUE 2</p>

AVC2 SPECIFICATIONS

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

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

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