



*FSM8*

*STEREO MIXER*

*USERS MANUAL*

## **THE FSM8**

### **8 CHANNEL STEREO MIXER.**

#### **Introduction**

The "FSM8" is a compact easy-to-use, 8 channel mixer with a host of facilities to meet the ever increasing needs of today's entertainment venues.

The eight channels are configured as 4 mono input channels (Microphone section) and 4 stereo input channels (Music section) each section having its own equalisation (tone controls), screwdriver adjustable through holes in the front panel. All inputs have a pre set gain control screwdriver adjustable through holes in the back panel. Tamper resistance is provided by fitting black plastic snap rivets (which are supplied with each unit) to blank the holes provided for setting E.Q. and gain.

The rivets are simple to fit requiring no tools. They can be removed if necessary. The appearance is neat and as their removal is not obvious reasonable security is achieved. To fit the snap rivets simply insert into the hole and push down the head. To remove a snap rivet lift the head by prising with a thin object, strong finger nails will usually suffice.

#### **Voice over**

A voice override section is provided and when enabled (by a switch on the rear panel) operates when there is any signal present in the Mic path which then triggers the attenuation of the music path. When the signal is removed the music will fade back to normal level. The voice override threshold and the amount of attenuation is internally adjustable. See drawing DRG 782 for the positions of these presets.

#### **Priority Input, and Remote Music Mute**

The auxiliary input will automatically take priority over all other music channels. This may be a juke box input or an other line input which needs to take priority. A preset gain control accessible through the back panel is provided. An internal threshold preset is also provided for this input. (See DRG 782)

When a signal is present at the Aux input all other music channels will be faded out. When the signal is no longer present the other music channels will be faded back. There is a delay before fade back to ensure pauses are not treated as end of signal. The voice override section functions when the aux input is in use.

As back panel space is limited a 5 pin DIN socket is fitted to provide connections to the auxiliary input and the remote music mute. If both these functions are being utilised it may be more convenient to use a 4 phono plugs to 5 pin DIN tape recorder cable, (readily available) to provided the connection.

#### **Remote Music Mute.**

To cater for the increasing requirement to mute music signals in entertainment venues when the fire alarm is activated the FSM8 has provision to remotely mute all music sources by linking two pins on the aux connector. All microphone channels will operate normally to control evacuation. (See Specifications for pin out detail)

## **Internal options**

Several internal options are available to expand the facilities. These are selected by the position of jump plugs mounted on the printed circuit board. They are all labelled. (see DRG 782 )

Internal jumpers provide:-

1. The option for phantom microphone power on any or all microphone inputs.
2. The option to convert any mono input from Mic to Line, both balanced.
3. The option to route channels 3 and or 4 to the output via the music E.Q. path and configure as 2 mono inputs or 1 stereo input.
4. The option to convert the mixer output from stereo to mono.
5. Channel 5 may be reconfigured to provide an effects facility for microphone channels. This would be used to provide a connection to an external effects loop. The two phono sockets on channel 5 would become effects out and effects in. An example would be to provide connection to an external reverberation (echo) unit.

## **Changing internal options**

**We would advise that adjustments to the internal options are undertaken by a skilled audio engineer only.**

### **DISCONNECT THE UNIT FROM THE MAINS SUPPLY**

Remove the top case cover by removing 6 screws located at the sides of the unit and 2 screws located on the top of the unit.

DRG 782 shows the positions of the jumper links and internal presets - select as required.

Refit the cover and replace and tighten all the screws.

### **THIS UNIT MUST BE EARTHED**

## **NOTE ON THE BEST USE OF GAIN**

It is likely that more gain is available in the "FSM8" than you are likely to need. This is so that low output sources & microphones, etc can be used. For best performance always use the minimum amount of gain to achieve the required volume. Never set the gain controls to maximum and hold gain on the front panel controls. This will degrade the signal to noise performance and may cause overload distortion (clipping). A good rule is never to have controls set lower than 3/4 of their full rotation for normal operating.

**N.B.** Note that on music channels the gain control can also act as an attenuator. If set at minimum the channel will appear not to be working, therefore, always check the settings of gain controls before suspecting a fault.

## FSM8 Specifications

FREQUENCY RESPONSE (EQ. set flat)  
20Hz - 20KHz +/- 0.5dB

Distortion THD @ 1KHz

O/P +10dBV < .01%  
O/P +20dBV < .02%

---

E.Q. RANGE  
(Mono and Stereo sections)

Treble +/- 12dB @ 10KHz  
Bass +/- 12dB @ 80Hz

---

### OUTPUTS

Connector type 2 XLRs  
Balanced output  
Output impedance  
Max O/P level

<100R Balanced  
+20dBV into 600R load

Balanced output is self compensating and may be linked for unbalanced operation without any degradation in performance

---

Microphone inputs (channels 1 - 4)

Connector type XLR

Internally selectable phantom power (18V)  
Internally selectable to line input.

Gain max  
Noise ref 150R  
Max I/P level  
Mic at min gain  
Mic channel set to line input  
Input impedance (Mic)  
set to line

+70dB  
EIN -127dBV  
0dBV  
+25dBV  
>2K ohms active balanced  
>10K ohms active balanced

---

Stereo inputs (channels 5 - 8)

Connector type twin gold plated phono sockets

Gain max  
Noise (Din audio band)  
@ 10dB gain  
Max I/P level  
Input impedance

+20dB  
EIN -90dBV  
+20dBV  
10K ohms

---

Priority input and fire alarm interface  
connector type 5 pin(180) din socket

Connections

Pin 1 Left input Hot  
Pin 2 Audio ground  
Pin 3 Right input Hot  
Pin 4 Music Mute  
Pin 5 Music Mute

Priority input Gain max  
Max I/P level

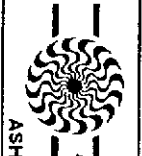
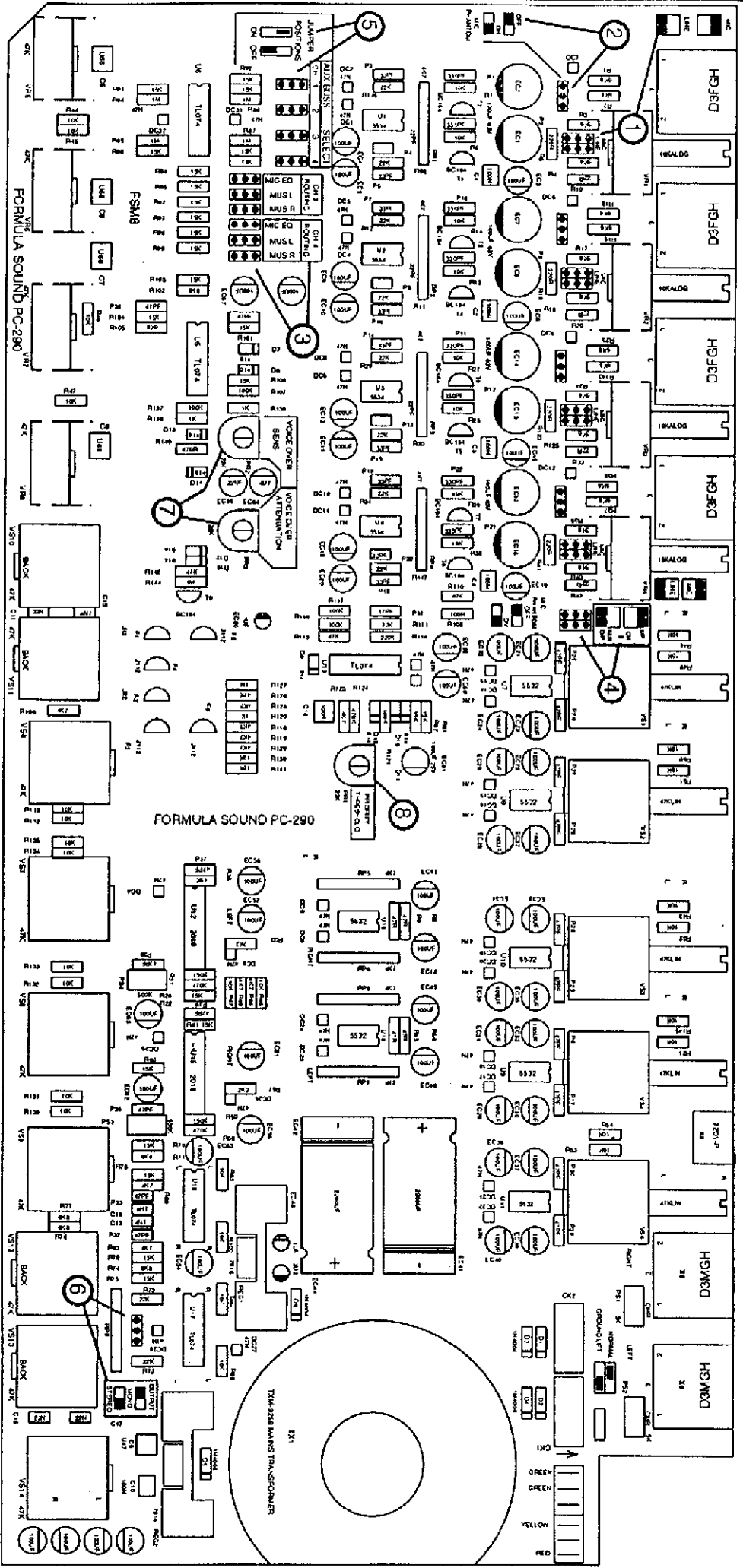
+20dB  
+20dBV

---

Fire alarm switching requirements  
1 pole Normally Open. fully isolated low voltage.

---

- 1 MIC LINE SELECT CHANS 1-4
- 2 PHANTOM POWER SELECT CHANS 1-4
- 3 ROUTING OF CHANS 3-4
- 4 CHANGE CHAN 5 TO AUX SEND AND RETURN
- 5 ASSIGN CHANS 1-4 TO THE AUX BUSS (USE WHEN CHAN 5 IS AUX SEND & RETURN)
- 6 SELECT OUTPUT TO BE MONO OR STEREO
- 7 VOICE OVER PRESET ADJUSTMENTS
- 8 PRIORITY INPUT THRESHOLD ADJUSTMENT
- 9 GROUND LIFT



**FORMULA  
SOUND**

TEL 061 494 5550 (+44 61 494 5550)  
 FAX 061 494 5651 (+44 61 494 5651)  
 ASHTON ROAD, BREDBURY, STOCKPORT, CHESHIRE, SK6 2SR, UK

TITLE	FSM8 INTERNAL OPTION SETTINGS
DRG NO.	782
DATE	7-7-93
ISSUE	1



FORMULA SOUND LIMITED  
STUART ROAD, ASHTON ROAD, BREDBURY STOCKPORT, CHESHIRE SK6 2SR  
TELEPHONE +44 (0)161-494-5650 FAX +44 (0)161-494-5651



### 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

**FSM8, SHADOW, ZM243 MIXERS**

The CE mark was first applied in 1995

Signed.....*R. A. Cockell*.....

R. A. Cockell Managing Director

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**