FSM 8PLUS

1RU MIXER

USERS MANUAL

THE FSM 8PLUS

Introduction

The FSM 8PLUS is a 9 channel stereo mixer, 1 channel is a stereo priority input the other 8 channels are usually configured as 4 stereo channels (Music section) and 4 balanced mono input channels (Microphone section).

Music and microphone sections each have their own bass and treble equalisation (tone controls). All inputs have pre-set gain controls on the rear panel.

The mono inputs are factory set for microphones but an internal jumper allows a line input, there are also jumpers for phantom power if required.

Two of the stereo channels (channels 5 and 6) may be set to operate as low Z balanced microphone inputs to give up to 6 microphone inputs, two sets of input connectors, phono sockets and XLR's are provided on these channels, selection is by dip switches on the rear panel. Channels 5 and 6 may be set (internally) to use the microphone or music equalisation path to the output.

Channel 1 (microphone) and channel 7 (music) have their normal inputs on the rear panel and switching jack inputs on the front panel. This allows a microphone or music source to be plugged into the front panel without having to access or disconnect the corresponding connection to the rear panel.

The stereo priority input is typically a jukebox, which when playing will automatically mute the other music inputs. The sensitivity of this is internally adjustable.

Any number of channels can be sent to a buss by operating a push switch above that channels volume control, this buss may operate as headphone monitoring or an auxiliary buss. The send can be internally set for either pre or post fade (volume control).

The mode of operation (headphone monitoring or auxiliary buss) for each channel is selected by internal jumpers (can be a mix of auxiliary and monitor settings).

In headphone monitoring mode the selected inputs can be monitored via the ¼" stereo phones jack, in auxiliary mode the selected inputs are available as an output on 2 pins of a 3 way connector on the rear panel. The master output can be monitored on the headphones by operating the push switch above the master volume control (this operates whether auxiliary or monitor is selected for the inputs). Headphone impedance must be no less than 32 Ohms.

A mute facility is provided on two pins of a back panel connector, when these pins are connected together the music is muted (microphones are not affected), this may be interfaced to a fire alarm.

A voice over facility is enabled by a push button on the front panel that automatically reduces the music level when the microphones are used, the sensitivity and music attenuation of this is internally adjustable.

There is a balanced stereo output (can be strapped for unbalanced use) on XLR's, the output may be set internally for mono output. A bass output is available on 2 pins of a 3 way connector, the output level may be increased by 6dB by an internal jumper.

Factory setting for the FSM 8PLUS is 4 microphone (channels 1-4) and 4 stereo inputs (channels 5-8), phantom power off, channels 1-4 set for auxiliary post fade, channels 5-8 set for monitor pre fade, bass set for normal output level and main output set for stereo.

INSTALLATION

Decide what configuration you require for the FSM 8PLUS, if it is different to the factory setting follow the instructions below, otherwise go to the **set up** section.

To change the internal settings first ensure mains power is disconnected, then remove 3 screws from each side of the top cover and 2 screws from the top of the top cover (8 screws total, retain for refitting).

The setting of the options is described below with references to drawing 1018 later in the manual for the positions of the relevant jumpers.

Microphones and/or mono line inputs

For setting mono line inputs move the appropriate jumpers shown in drawing 1018 fig B.

To set channel 5 and/or channel 6 to microphone input set the appropriate switch(es) on the rear panel adjacent to the channel 5 inputs.

If channel 5 and/or channel 6 is set to microphone they may be routed to the microphone equalisation by moving the appropriate jumpers shown in drawing 1018 fig E.

For microphones requiring phantom power (including channels 5 & 6 if selected) move the appropriate jumpers shown in drawing 1018 fig B.

Auxiliary and monitor selection

The setting of auxiliary or monitor selection is by moving the appropriate jumpers shown in drawing 1018 fig C.

To select pre or post fade move the appropriate jumpers shown in drawing 1018 fig D and fig F.

Bass level select

The bass output level may be increased by 6dB by moving the jumper shown in drawing 1018 fig G to the “HI” position.

Stereo or mono main output

The main output may be set to mono by moving the jumper shown in drawing 1018 fig H.

Priority Input

The priority input is on the rear panel 3 pin connector located between the inputs for channels 7 and 8. This is a stereo input (for mono link pins 2 and 3). This could be a jukebox or any other input that needs to take priority, a pre-set gain trimmer accessible through a hole above the connector is provided to adjust the level.

An internal sensitivity pre-set is also provided for this input, see drawing 1018 fig L.

When a priority signal is present all other music signals cut. When the priority signal is no longer present the other music signals will fade back. There is a delay before fade back to ensure pauses are not treated as end of signal. The voice override facility still functions when the priority input is in use.

Voice over

A voice override facility is provided that is enabled by an illuminated push switch on the front panel. When enabled, if a signal is detected in the microphone equalisation path it triggers attenuation of the music path allowing the microphone to be heard clearly, when the signal is no longer detected the music will fade back to normal level.

The voice override sensitivity and the amount of attenuation may be adjusted if required via internal pre-sets, see DRG 1017 fig J and fig K.

Set up

Connect music and microphone/mono sources to the channels required. Connect the priority input if required to the 3 pin connector as indicated by the rear panel legend (for mono priority input link pins 2 and 3).

Bass and AUX(iliary) outputs are located on a 3 pin connector below input 6.

To cater for the requirement to mute music signals in entertainment venues when the fire alarm is activated the FSM8 Plus has provision to remotely mute all music sources by linking the two pins on the back panel connector adjacent to input 7, this is normally done by a relay operated by the fire alarm. All microphone channels routed through the microphone equalisation section will operate normally.

Connect the output(s) to amplifiers as required.

Switch the unit on, set tone controls to mid position and master volume to ¾ clockwise. Set all channel volume controls fully anti-clockwise. Ensure there is no priority signal.

Set channel 1 volume control to ¾ clockwise and apply a signal. On the rear panel adjust the recessed gain pre-set adjacent to that input (using a small flat blade screwdriver) for the required level.

Turn the volume control anticlockwise and repeat the procedure for all channels that are to be used.

If the priority input is to be used play music through a music channel (volume set to ¾ clockwise) and then apply a signal to the priority input, on the rear panel adjust the recessed gain pre-set above the priority input for the required level.

If the mute is being used play music through a music channel and operate the mute trigger (fire alarm), check the music mutes and recovers when the trigger is removed.

Press the voice over button (VO) on the front panel and check it illuminates, play music and use then use a microphone to check for satisfactory operation.

Play a signal through each channel in turn and check monitor and/or auxiliary is operating as it should be.

Typical application

Channels 1 to 3 (microphone inputs) set so they are sent post fade to the auxiliary output which is connected to an effects unit. The effects unit output is returned on the channel 4 input (set to mono line level).

The music / stereo inputs would be set so that tracks would be monitored pre-fade on the phones output. An operator would then be able set up and to cue tracks by monitoring on the phone output.

Jukebox connected to the priority inputs and the mute connected to the fire alarm .

This would be a typical set up for vocals and backing tracks (Karaoke cabaret etc) with background music at other times when the jukebox would take priority.

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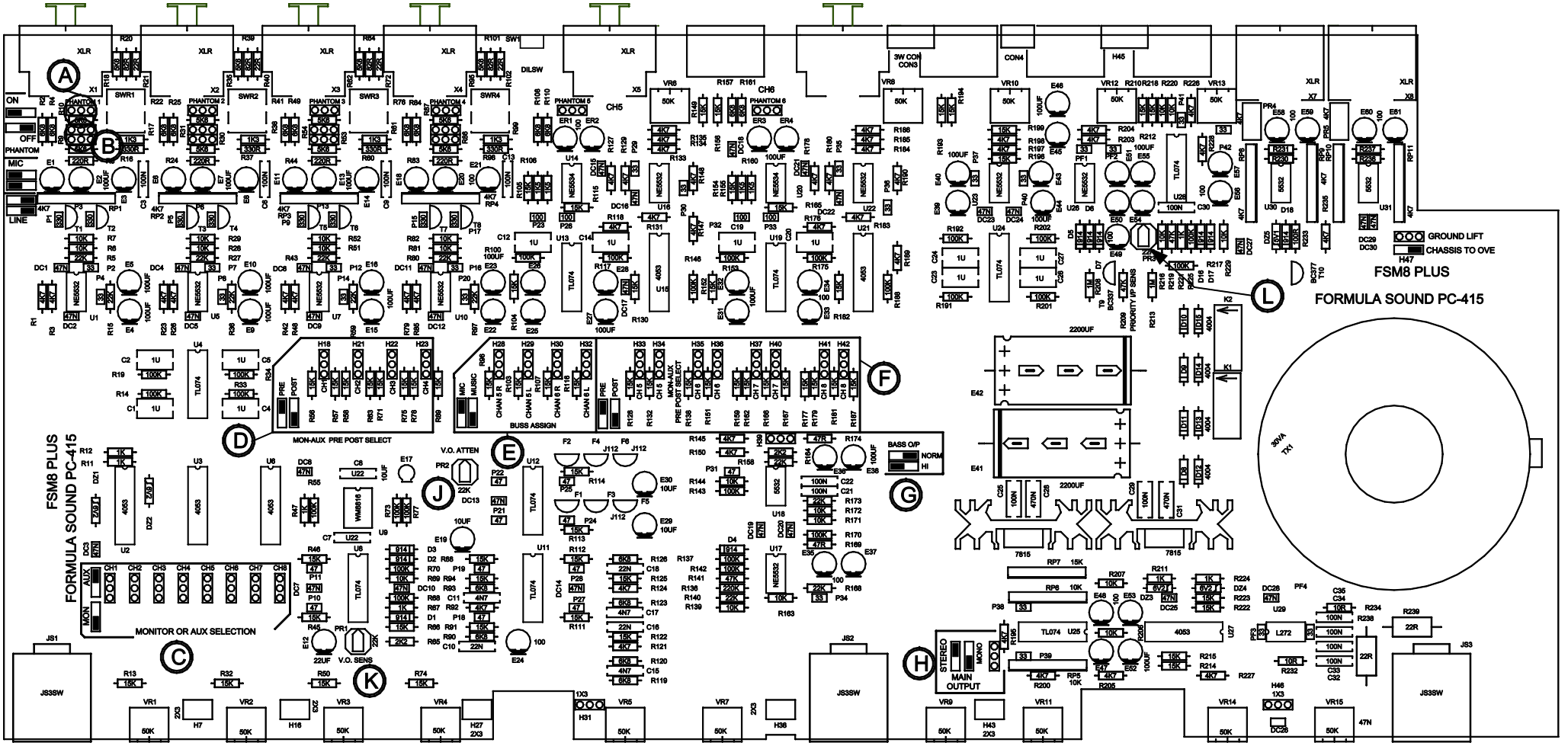

A. Phantom selection chans 1 - 4

B. Microphone or line input selection chans 1 - 4

C. Monitor or Auxilliary selection chans 1 - 8

D. Monitor/Aux - Pre or post selection chans 1 - 4

E. Mic or Music E. Q. Chans 5 & 6

F. Monitor.Aux - Pre or Post selection chans 5 - 8

G. Bass output level select

H. Main Output stereo or mono selection

J. Voice over. Music attenuation level

K. Voice over. Sensitivity

L. Priority Input. Sensitivity

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TITLE	FSM 8PLUS CONNECTIONS	DRG No.	1018
		DATE 29-03-2012	ISSUE 01

TECHNICAL SPECIFICATION

Frequency Response (EQ. set flat)		20Hz - 20KHz +/- 0.5dB
Distortion THD @ 1KHz @ operating level +10dBu		<.01%
MICROPHONE/MONO INPUTS 1-4 (5 & 6 if set to mic)		Internal selection for Mic or Line
Connector type XLR		
Internally selectable phantom power (15V)		
Gain selection by 6 position rotary switch		
Gain Min / Max	Mic input	10dB/+60dB
Gain Min / Max	Line input	-25/+25dB
Noise ref 150R		EIN -126dB 20Hz-20KHz
Input impedance		>2K ohms active balanced
Maximum input level		+10dBu 2.45 V
Equalisation Microphone channels		HF (Treble) +/- 12dB @ 10KHz
		LF (Bass) +/- 12 dB @ 200Hz
STEREO INPUTS (Channels 5-8)		
Connector type gold plated phono sockets		
Gain selection continuously variable via rotary potentiometer		
Gain Min / Max		-25dB / +12dB
Nominal input level		0dBu 775mV
Maximum input level		+20dBu 7.7V
Input impedance		>10K ohms
Noise @max gain		EIN -100dB 20Hz - 20KHz
Equalisation Stereo channels		HF (Treble) +/- 12dB @ 10KHz
		LF (Bass) +/- 12 dB @ 200Hz
PRIORITY INPUT		3 pin connector
Nominal input level		0dBu 775mV
MAIN OUTPUT		
Balanced output May be strapped for unbalanced		Connector type XLR
Maximum output level		+20dBu 7.7V
Output impedance		<100ohms Balanced
BASS output and Auxiliary output		3 Pin connector
Headphones		¼ Jack no less than 32 Ohms
Remote mute		2 Pin connector

Power
220-240V AC standard (115V to order. Or consult user manual to change)
Mains fuse 220-240v operation 250mA slow blow
Mains fuse 110-115v operation 500mA slow blow
I.E.C. Mains connector

Finish
Front and Rear panel 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 reserve the right to alter the specification without notice.

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E.U. CERTIFICATE OF CONFORMITY

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

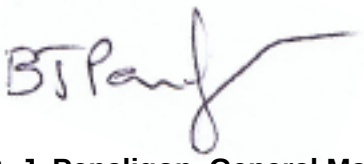
89/336/EEC amended by 92/31/EEC and 93/68/EEC

BS EN 50082-1 BS EN 50081-1

PRODUCT TYPE

FSM 8PLUS

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