

The PM-100

# FREEDOM

series





# The PM-100 Modular Production Mixer

## INNOVATIVE FEATURES

- There is only one universal input module which has been cleverly designed to accept input sources of virtually any type. A rapid action lever switch on the front panel selects between 2 sources.
- 2 independent headphone monitoring sections.
- VCA controlled crossfader and contour control.
- Stereo inserts provided at either end of the crossfader to allow the connection of external filters, processors, etc.
- Priority input to help comply with fire regulations.
- The master module can be placed in any position in the mixer - right, left, centre, etc to suit the individual operator.

## OUTPUT MODULE

The output module contains all the electronics required for the various mix and output stages along with the monitoring and VU meter sections. This is a very versatile module which gives total control of all the facilities available and it can be placed in any position in the mixer to suit the individual user. Most of the connections are on the rear of the unit.

## MONITORING

Visual monitoring is provided by a stereo 24 segment led bar graph meter. Extensive monitoring options are provided via a monitor balanced control and split cue switch. Two powerful stereo headphone amplifiers are incorporated which are designed to drive headphones of 32 ohms or greater. The main phones output is situated on the top right hand of the front panel. A second output on the rear panel can be configured to provide for a second operator to have independent monitoring facilities via the AUX2 buss.

## ILLUMINATION

A 12 volt socket is provided to fit a lamp for working illumination.

## A.V.O. (Automatic Voice Over)

When activated any microphone signal present will dim the music signals to allow talk over. The amount the music is dimmed is determined by the attenuation control. The adjacent sensitivity control sets the triggering level of the AVO SYSTEM.

## AUX RET (Auxiliary Return)

A basic stereo input configured to accept balanced or unbalanced input signals via 2 x 1/4" 3 pole jack sockets.

## MASTER

Sets the output level of the main balanced output available via 3 pole XLR connectors on the rear panel.

## MONO

Allows the master output to be operated in mono mode.

## ZONE

Almost identical to the main output except that the signal is not available to the monitoring section and no insert sockets are provided. The output may also be used in mono or stereo as set by a rear mounted push switch located between the XLR sockets.

## AUX 1 MASTER

Adjusts the output level of the signals derived from the Aux 1 sends on the input modules.

## AUX 2 MASTER

Adjusts the output level of the signals derived from the Aux 2 sends on the input modules.

## AUX 2 OPTIONS

An illuminated push button switch (PROG TO AUX 2) routes the

programme mix to the AUX 2 output. This provides yet another zone output should this be required.

## BOOTH

Adjusts the level of the booth input which is a mix of music channels only.

## CUE TO BOOTH

Routes the main phones signal to the booth output so that all the phones monitoring facilities become available on the booth outputs.

## CROSSFADE

A 45mm crossfader controlling studio quality V.C.A.s (voltage controlled amplifiers) to improve crossfader life and ensure good attenuation at the ends of travel. All stereo inputs are fully assignable to the crossfade function.

## CONTOUR

Allows the operator to adjust the crossfader characteristics to suit personal taste, from a gentle fade between A and B to a more aggressive fade toward the ends of the fader.

## PUNCH

A fast momentary action push button is fitted to provide rapid switching effects.

## INSERTS

Sockets are provided for the connection of external signal processing equipment.

## RECORD

2 pairs of gold plated phono sockets are provided. One pair provides the complete programme mix; the other pair provides the mix of music sources only.

## SUB BASS

Provides a mono output for driving a sub bass loudspeaker system. Allows frequencies below 70Hz

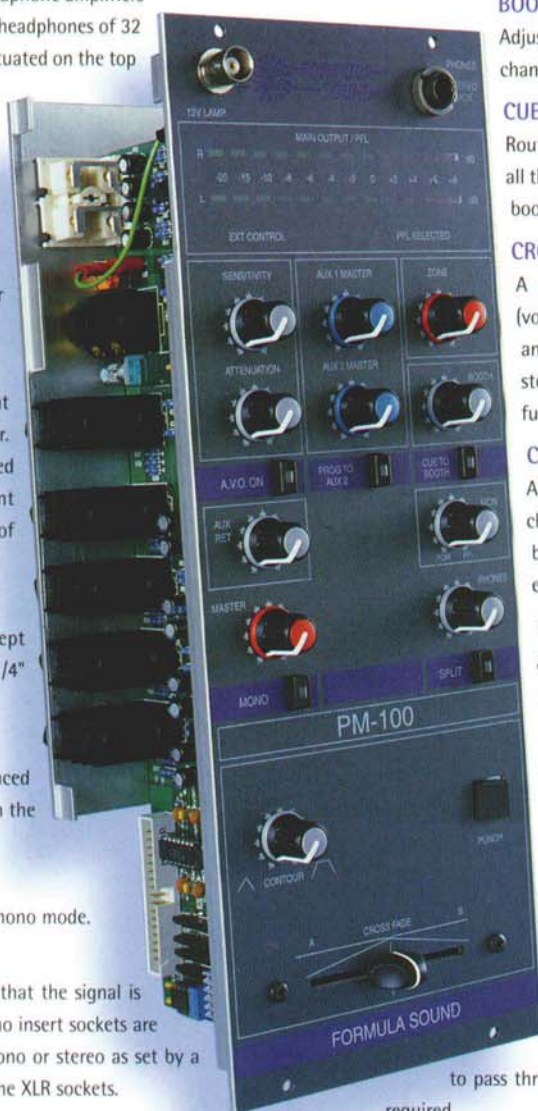
to pass through. An internal jumper allows higher bass output if required.

## LIGHTING TRIGGER

A mono fully floating transformer isolated trigger output provides safe connection to lighting equipment.

## PRIORITY

A priority input with adjacent level trim control and triggering socket are provided to help comply with fire regulations. Internal jumpers provide the option to mute all signals or leave mic signals active and introduce the priority signal.





The PM-100 is a creative tool designed to give complete flexibility for both the operator and the installer. The facilities it offers are extensive whilst still being easy to use.

For use in discotheques, clubs, broadcast and production studios, audiovisual presentations and any other situation where a combination of sources need to be controlled. The mixer is designed to give exemplary technical performance and is built to the highest standards of mechanical engineering.

Three different chassis sizes house a master module and up to 4, 8 (19" rack mounting) or 12 input or blank modules.

Integral switch illumination shows operators at a glance the status of various functions. Faders are easy to replace due to the use of plugs and sockets. The connections to the modules are via a flexible ribbon cable featuring gold plated connectors. The further use of gold plated connections throughout the mixer ensures maximum reliability. Alps pots and faders are used throughout the mixer.

## INPUT MODULE

This innovative universal module can be configured by small jumpers on the circuit board to accept inputs from low impedance balanced microphone, stereo line and phono (RIAA) input sources. Each module can be switched between 2 input sources.

The possible input selections are:- Mic - Phono; Mic - Line; Line - Line; Phono - Line.

### INPUT SELECTION

A toggle switch allows rapid selection of the A or B input. Red and Green leds provide clear visual indication of the input selected. Adjacent areas are provided to label the input sources.

### GAIN

Allows the operator to compensate for variations in programme material.

Rear panel gain trims are also provided to set the maximum gain available on any input.

### PEAK

A red led indicates when the peak signal level in the module is just below clipping.

### EQUALISATION

3 band eq on all inputs. +6dB boost -20dB cut. (Special eq versions to order).

### AUX 2

Push button with led illumination.

The signal in this module is mixed with any other source selected. The resulting mix is available at AUX 2 outputs on the master module. Can be pre or post fade.

### AUX 1

Similar to AUX 2.

A rotary control replaces the switch so that a separate level mix of channels is available at the AUX 1 outputs on the master module. Can be pre or post fade.

### BAL/PAN- Stereo balance and pan.

With a stereo source selected this control provides adjustment to balance stereo signals. With a microphone source selected or the mono switch depressed this control allows the source to be panned anywhere in the stereo image.

### PFL- Pre Fade Listen.

Push button with red led illumination. When depressed the signal in this module is connected to the PFL Mix Bus. Any number of channels may be selected simultaneously; the sum of which will be available in the master module for monitoring.

### MONO

Push button with red led illumination. When depressed this switch links left and right signals and allows stereo signals to operate in mono.

### XFA

Crossfade A select. Depressing the switch routes the channel signal via the VCA controlled crossfader channel A.

### XFB

Crossfade B select. Depressing the switch routes the channel signal via the VCA controlled crossfader channel B.

Red and green led switch illumination along with similar illumination on the crossfader gives good visual indication of routing status.

### FADER

A 60mm studio quality linear fader provided to fade up and down the volume of the channel.

### MUTE

Push button with red led illumination. When depressed signal feeds to the programme busses are muted. AUX 1 and AUX 2 are not affected. (Can be disabled if not required).

Factory option - may be rewired to provide low voltage remote start switch via a 3.5mm jack socket on the rear panel.



### JUMPERS

For selecting the various input options.

## POWER SUPPLY

The mixer requires an external power supply unit providing +/-17.5V for the audio electronics and 12V for the working illumination socket. A suitable power supply unit, the PSU5 is available.

This unit is designed to be surface mounted remotely from the mixer and features slow rise time characteristics to minimise turn-on thumps. The unit can be switched internally to operate from 220-240V ac or 110-120V ac.







## SPECIFICATIONS

Frequency Response:	E.Q. set flat	20Hz - 20kHz +/-0.5dB.
Maximum Output Level:	Main output and Zone output active balanced	+20dBV.
Distortion:	Stereo, auxiliary, mic busses etc. to related O/Ps	<0.01% typically <0.005%.
Noise Measured 20Hz-20kHz:	Stereo inputs e.q. flat gain set to max RIAA stage ref. 5mV 1kHz Input shorted Microphone input (ref 150R)	EIN <-98dB -80dBV 'A' weighted EIN <-124dBu
Gain:	Stereo inputs rear trim @ max Stereo inputs rear trim @ min Microphone input max Microphone input min	+/-15dB +0dB -20dB +75dB +0dB.
Maximum Input Level:	Stereo input A (line) Stereo input A (RIAA) Stereo input B Microphone	+20dBV -8dBV 400mV. +20dBV +4dBV.
Input Impedances:	Stereo input A Stereo input B Microphone input	>47k ohms >10k ohms >2k ohms active balanced.
Equalisation:	3 band e.q. per channel +6dB -20dB @  Internal channel jumpers allow the e.q. stage to be disabled if required.	Treble 10kHz Mid 1kHz Bass 100Hz.
Dimensions: (Exc. Knobs and connectors):	8 Channel 4 Channel 12 Channel  External PSU - PSU5 Width 175mm Height 75mm Length 230mm  Installation Cut-out Height 312mm Width:- 4 channel 280mm. 8 channel 433mm. 12 channel 585mm	Width 483mm (19") Width 330mm (13") Width 635mm (25") Height 312 (12.25" 7RU) Depth 110mm (4.33")

The chassis is constructed from custom aluminium extrusion and is available in 4, 8 and 12 input module configurations. Finish is gun-metal grey anodised aluminium.

Module metalwork is also constructed of custom aluminium extrusion and is silver anodised. The module colour and notation is on a dark grey inset reverse printed polyester film which provides a hard wearing attractive finish.

All Formula Sound products are designed and wholly manufactured in our own factory using the latest computer-aided technology, which enables us to maintain strict quality control at every stage of manufacture.

It is this attention to detail which has helped us to win many industry awards and has earned us a reputation for the high quality and reliability of our products throughout the world.



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