



Technical Data

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Introduction

MH3 Multipurpose Live Console

Versatile design allows FOH, Monitors, or Monitors from FOH

Semi-modular for flexible layouts and easy serviceability

Frame sizes 24 mono/4 stereo, 32 mono/4 stereo, 40 mono/4 stereo, 48 mono/4 stereo, 56 mono/4 stereo

Flexible Auxiliary Bus structure with 2 stereo sends for in-ear monitoring

8 group busses and 12 aux busses in FOH mode

12 monitor busses (8 mono, 2 stereo) in Monitor mode

Swap mode allows fader control of Aux outputs in Monitor mode

Integral 12x4 matrix, can be expanded to 12x8 with optional matrix module

3-band EQ on FX returns 1-8, can be flipped into output fader path

New Mic Amp design with high headroom and outstanding CMRR

New EQ design with focused response

LCR panning on inputs

8 VCA groups and 8 Mute groups with snapshot automation and MIDI control

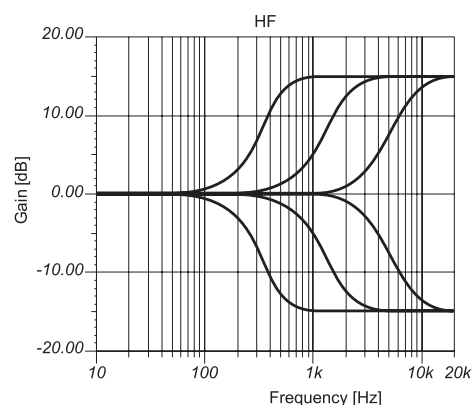
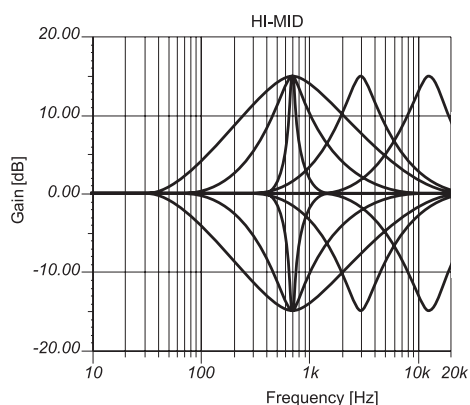
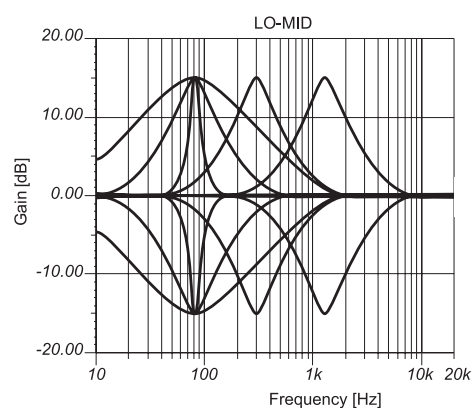
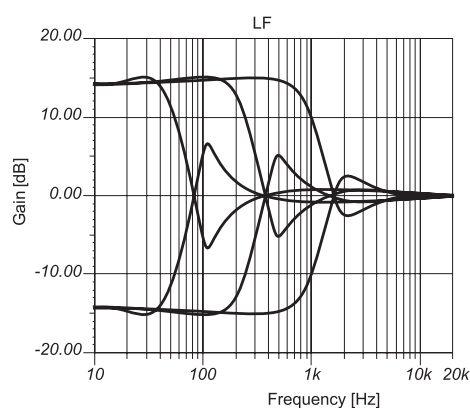
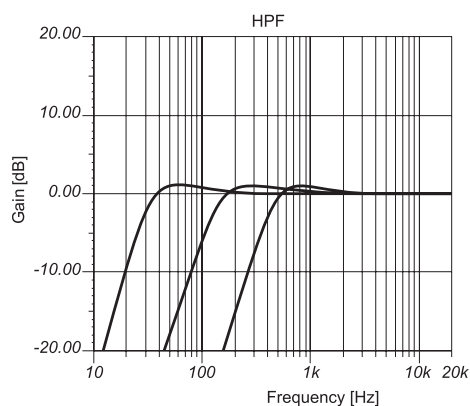
Integrated control of BSS Audio Varicurve™ and dbx DriveRack™

Integral LED bargraph metering for all inputs and outputs

Optional VU output meterbridge

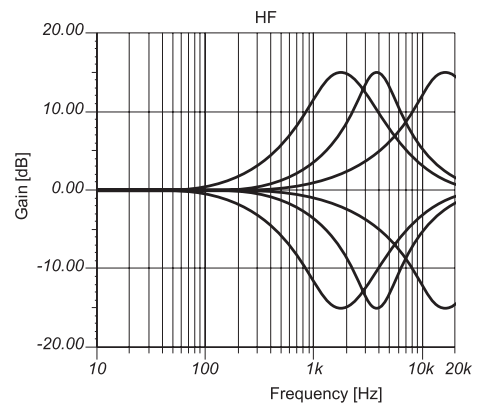
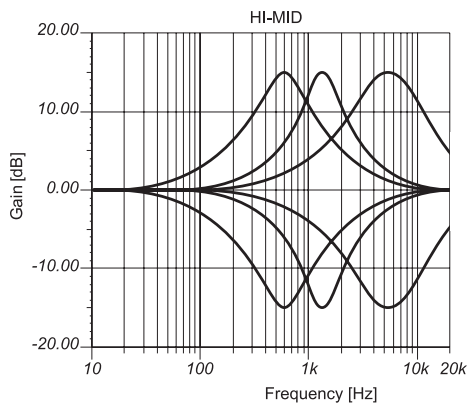
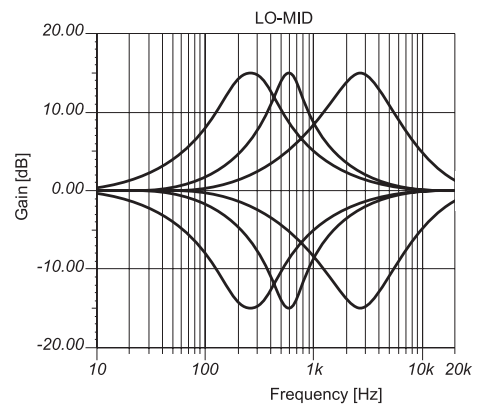
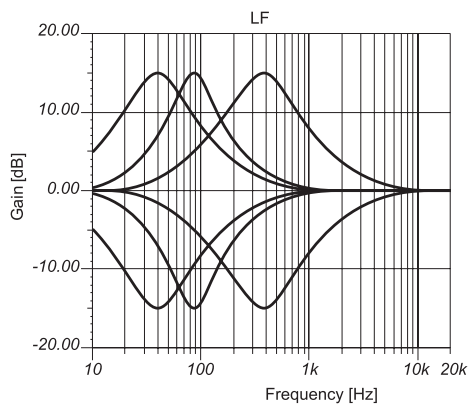
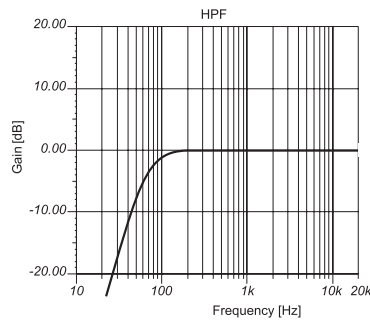


Typical EQ Curves Mono Inputs

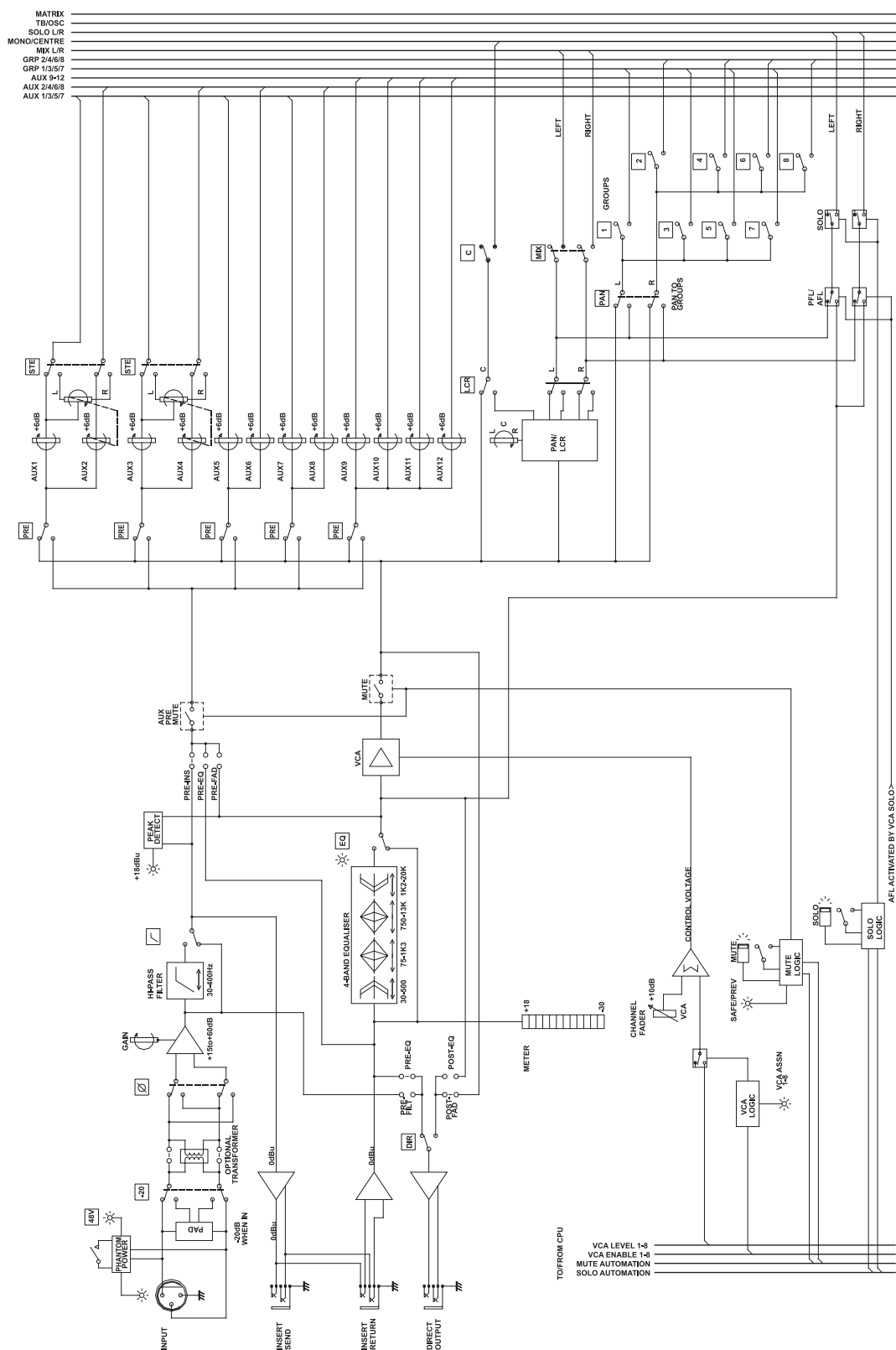




Typical EQ Curves Stereo Inputs

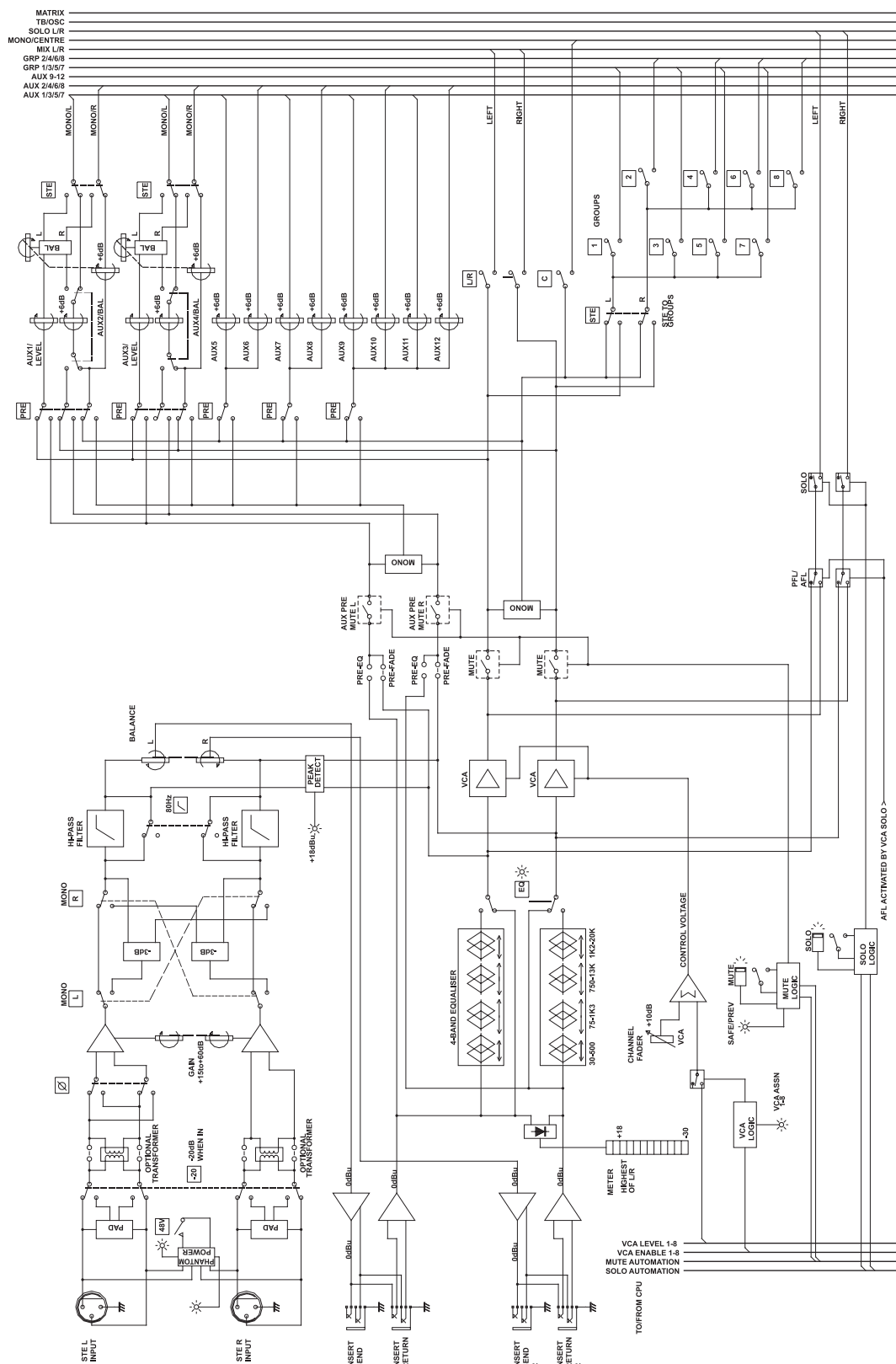


Mono Input Block Diagram



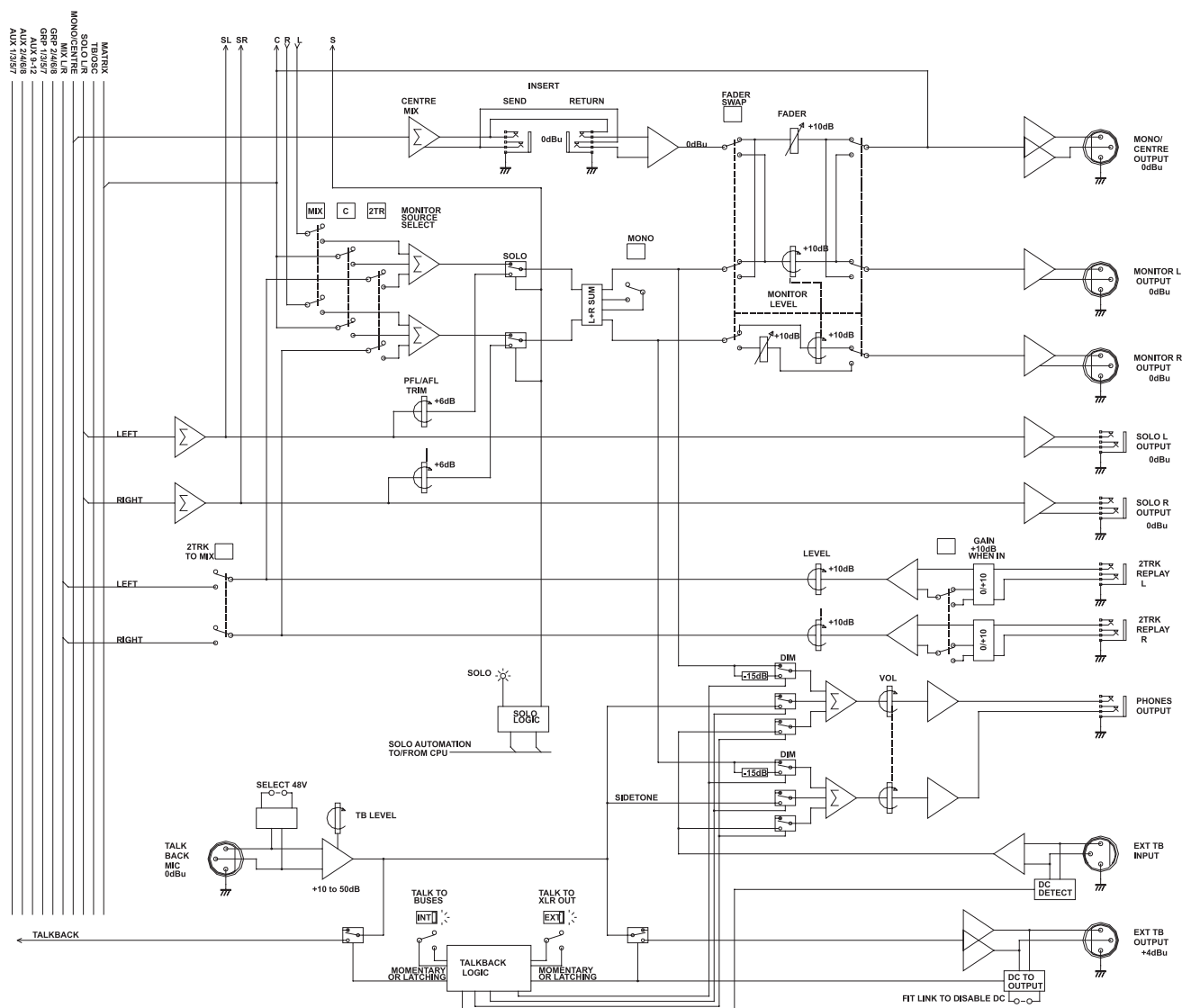


Stereo Input Block Diagram



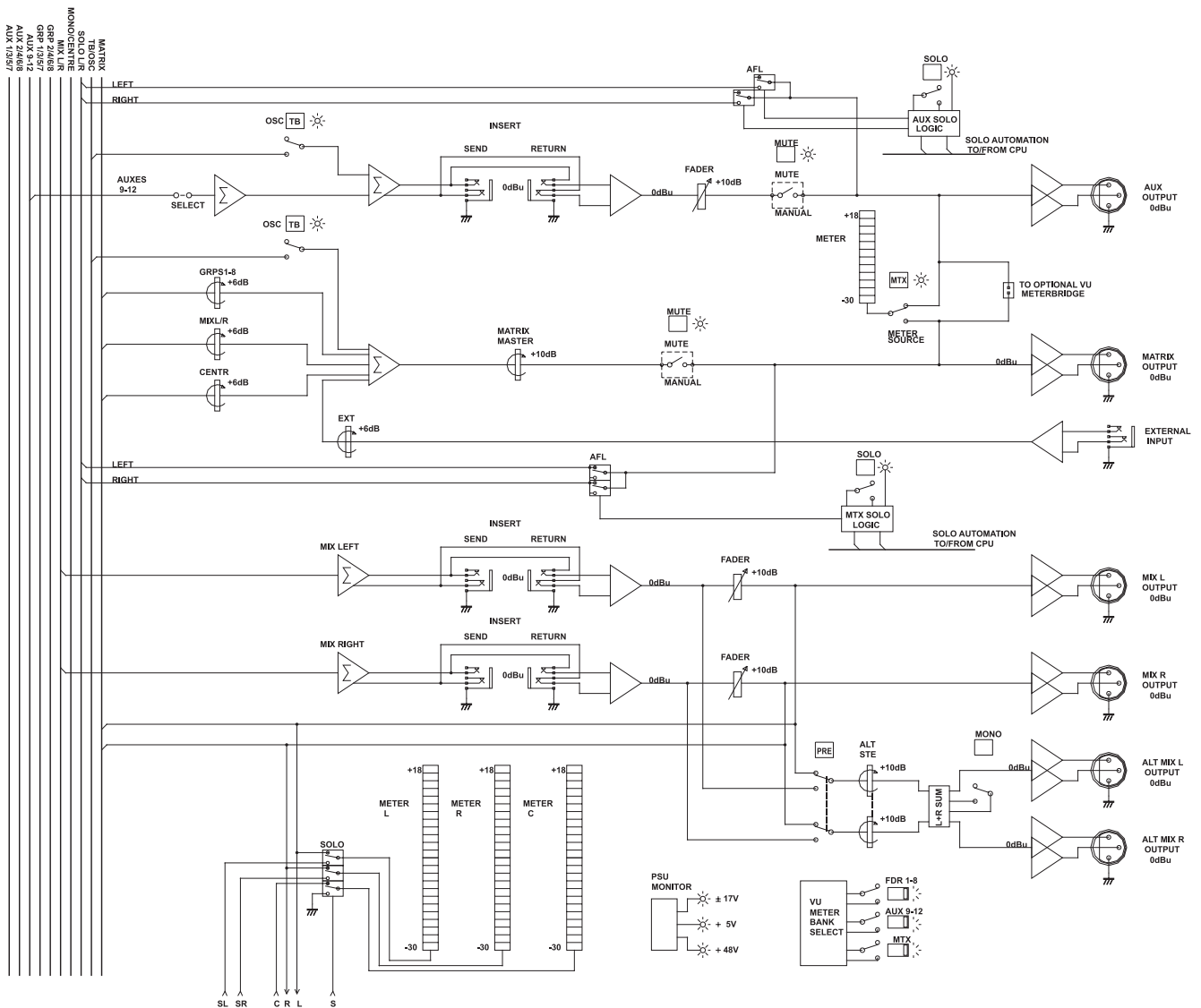


Metering, Monitoring & Console Linking Block Diagram



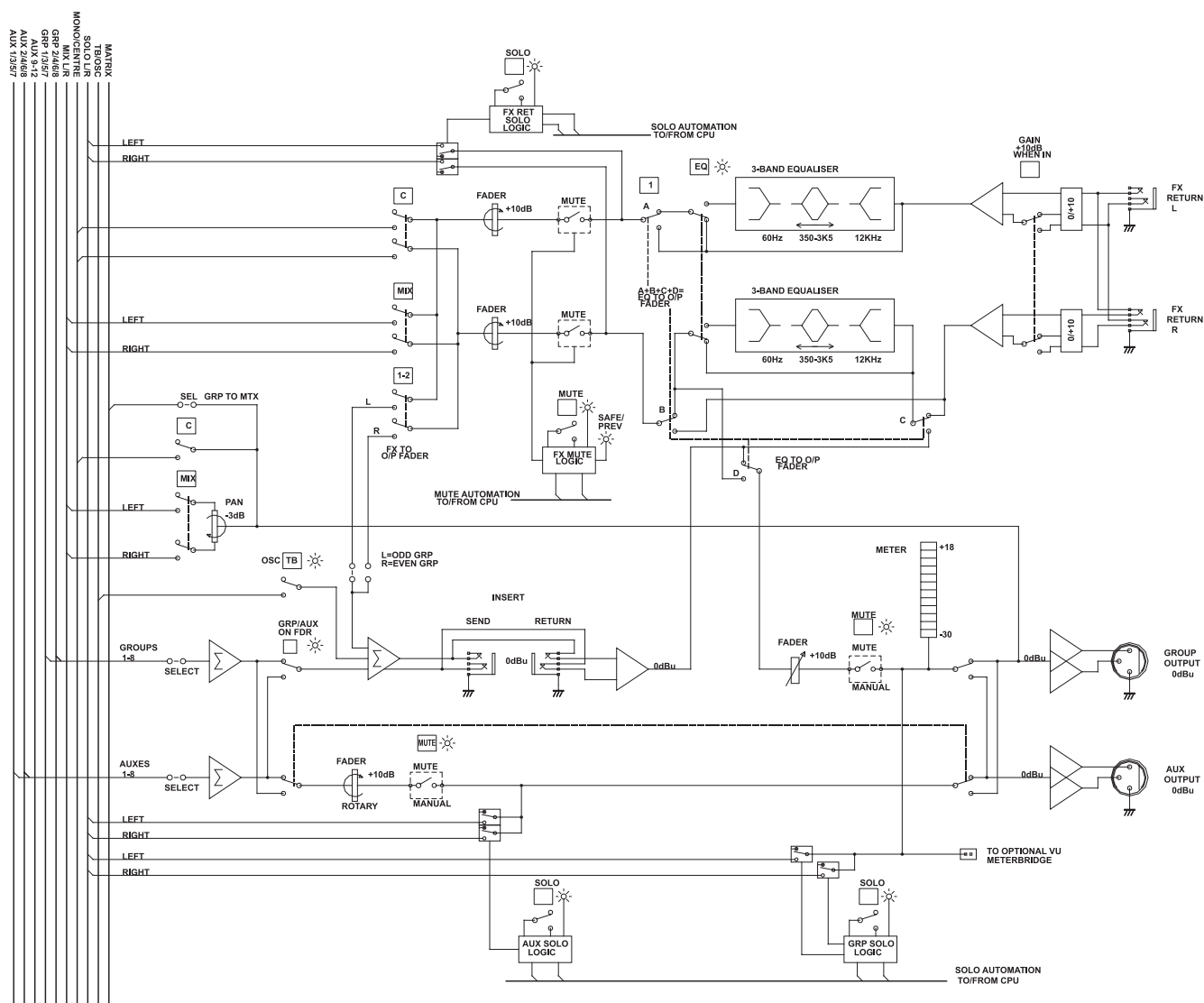


Mono Aux/ Matrix Output Block Diagram



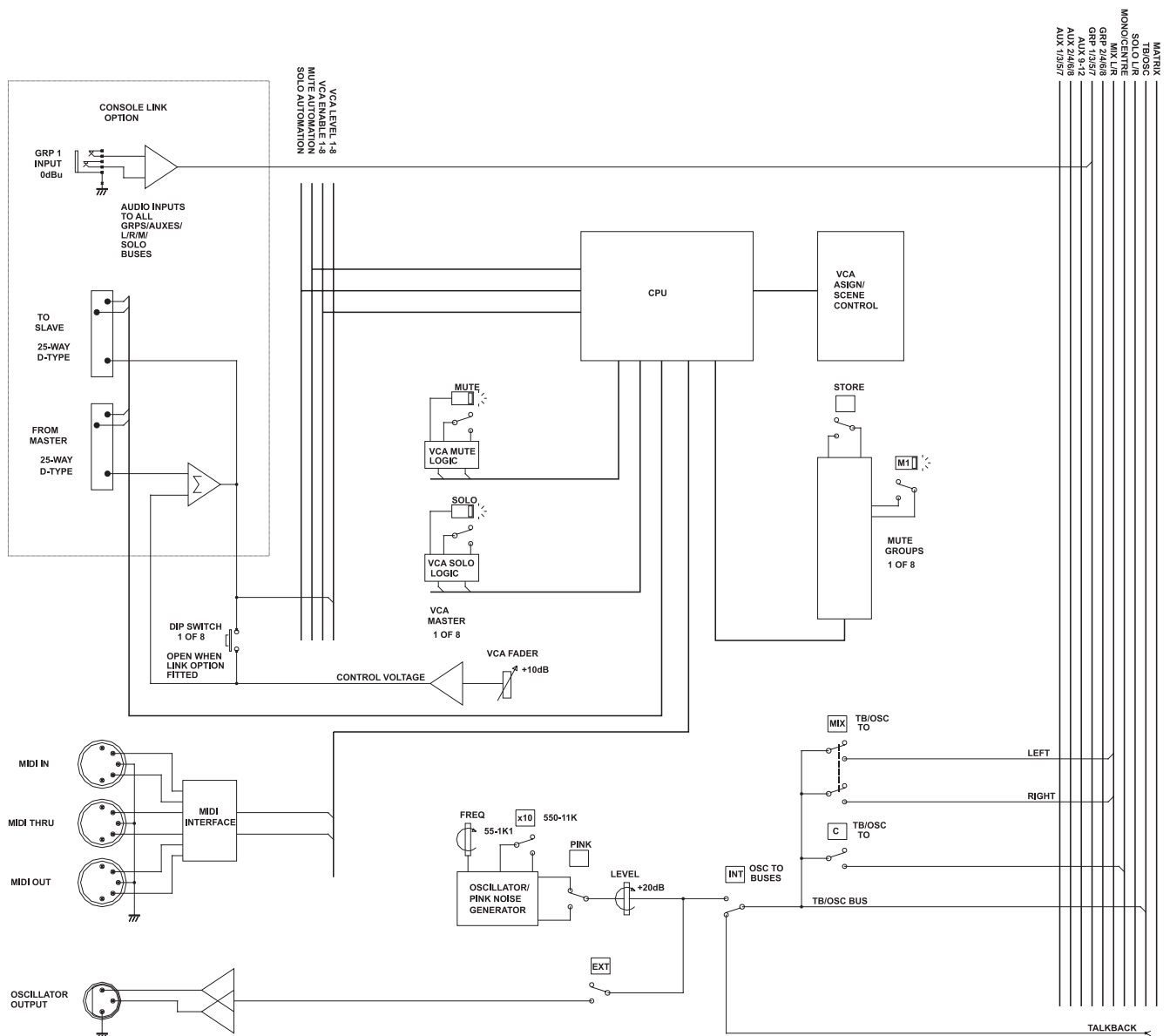


Group/ Stereo Aux Output Block Diagram





Mix & Mono Outputs Block Diagram

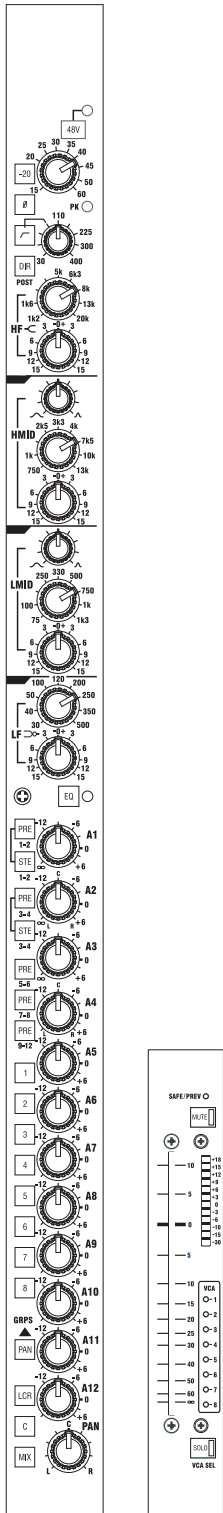




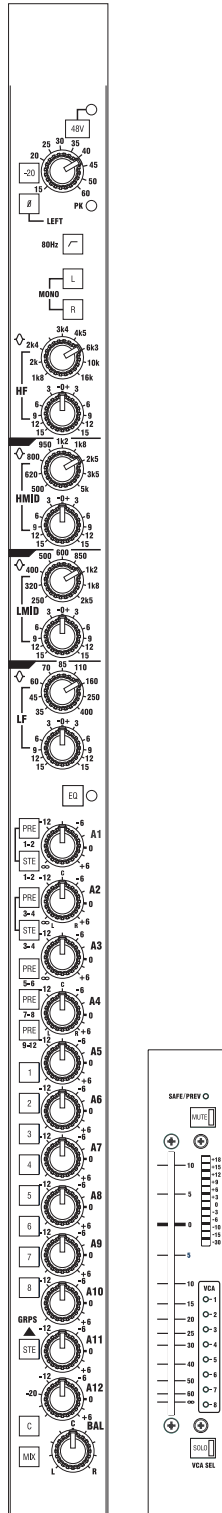
Technical Data

Modules

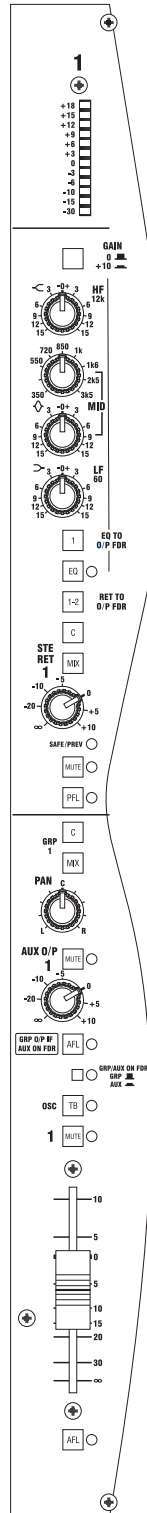
Mono Input



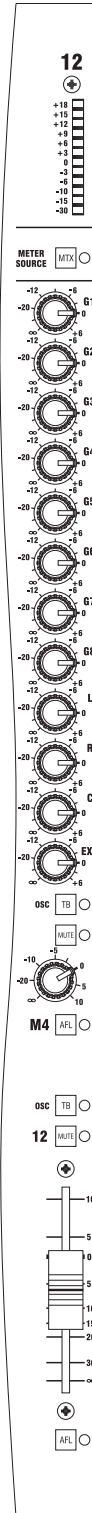
Stereo Input



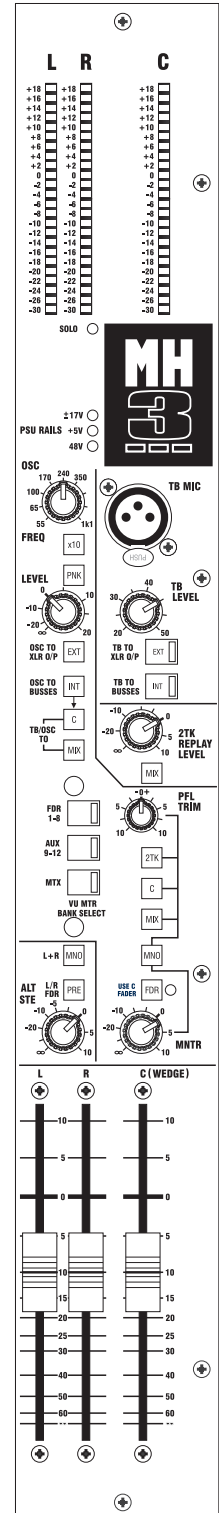
Group/
Return



Matrix



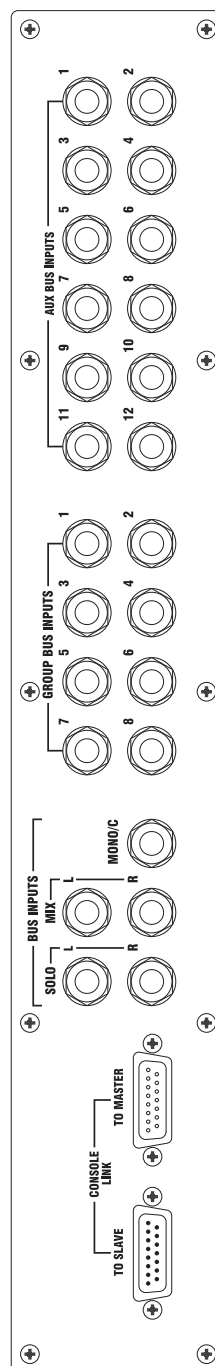
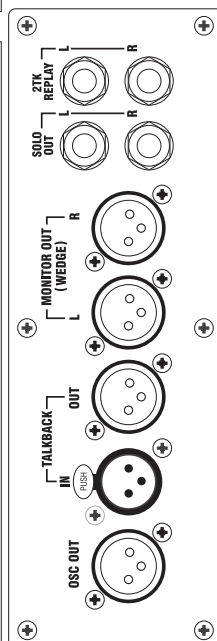
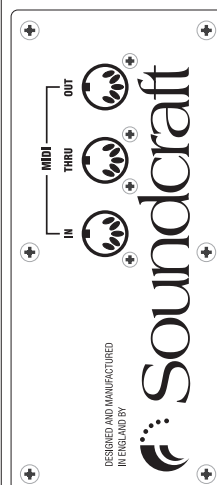
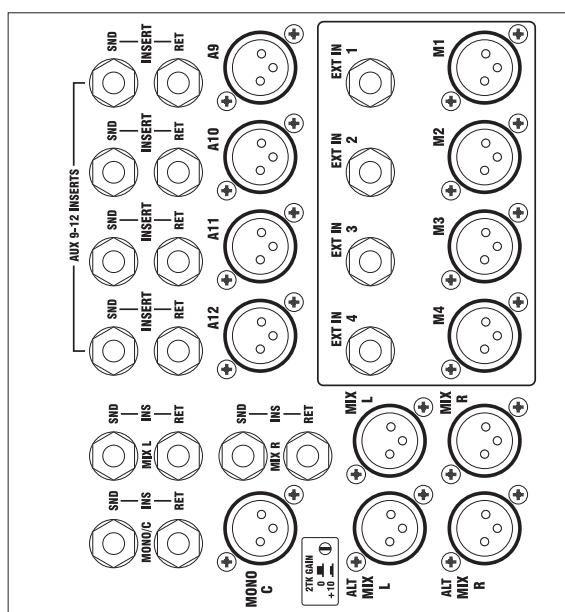
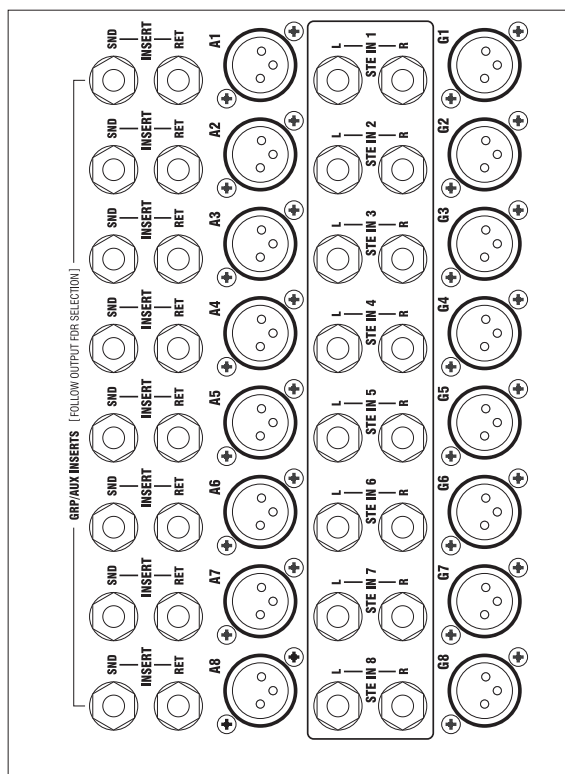
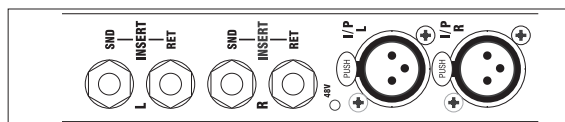
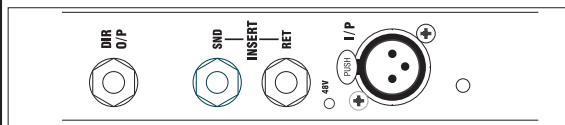
Master





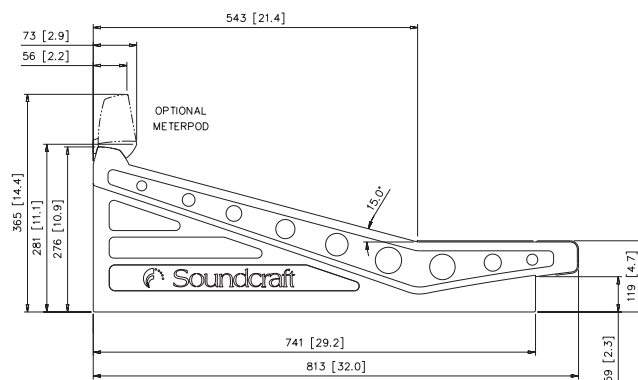


Rear Connectors

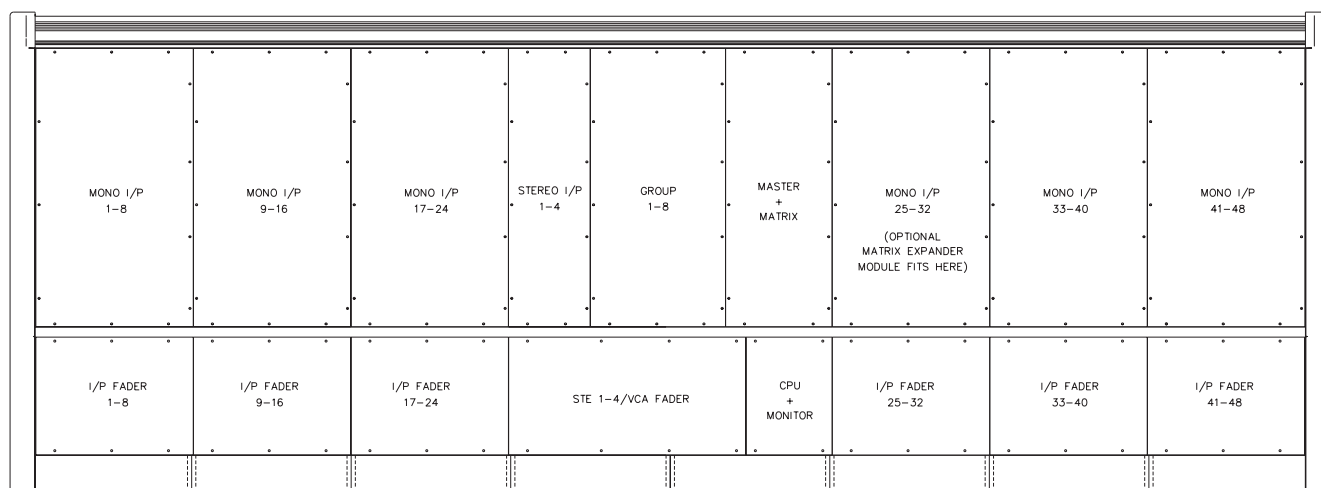
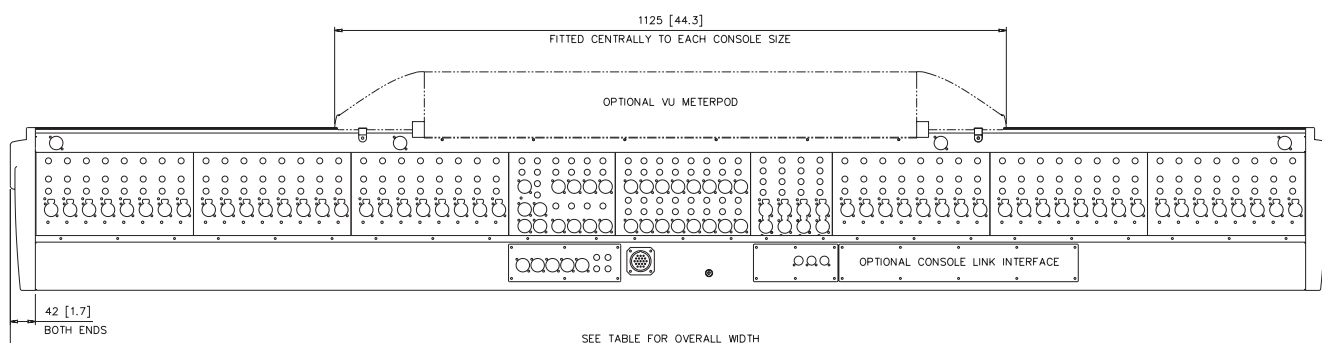




Console Dimensions



CONSOLE	OVERALL WIDTH mm [inches]
24CH	1419 [55.8]
32CH	1683 [66.2]
40CH	1947 [76.6]
48CH	2211 [87.0]
56CH	2475 [97.4]





MH3 Typical Specifications

Frequency Response

XLR input to any output +0/-1dB, 20Hz-20kHz

T.H.D. & Noise

All measurements at +10dBu

XLR in to Direct Out <0.015% @ 1kHz

..... <0.02% @ 10kHz

XLR in to Mix Out <0.015% @1kHz

..... <0.02% @10kHz

Mic Input E.I.N. <-128dBu (150 Ohm source)

22Hz-22kHz bandwidth, unweighted

Residual Noise -95dBu

Mix Output; no inputs routed, Mix fader @0dB Bus Noise

Mix Output, input faders @ $-\infty$, Mix fader 0dB 48 channels routed <-85dBu

Grp Output, input faders @ $-\infty$, Grp fader 0dB 48 channels routed <-85dBu

Aux Output, input sends @ $-\infty$, Aux fader 0dB 48 channels routed <-86dBu

Crosstalk

1kHz, +20dBu input signals

Input Channel Muting >95dB

Input fader cutoff >88dB

Input pan pot isolation >72dB

Mix routing isolation >100dB

Group routing isolation >99dB

Group-group crosstalk <-92dB

Group-Mix crosstalk <-100dB

Mix-Group crosstalk <-100dB

Aux send off <-80dB

CMRR Mono input 85dB @ 1kHz

Input & Output Levels

Mic Input +26dBu max

Balanced Inputs +21dBu max

Balanced Outputs +21dBu max

Nominal Operating Level 0dBu



Input & Output Impedances

Mic Input	2k Ω
All other inputs	>10k Ω
Headphone Output	0.33 Ω
Recommended h'phone impedance	4-600 Ω
All other Ouptuts	<75 Ω

Oscillator

..... 55Hz to 11kHz/Pink Noise, variable level

HP Filter (Mono Input)

..... 30-400Hz, 12dB per octave

EQ (Mono Input)

..... HF: 1kHz-20kHz, +/-15dB, shelving
..... Hi-Mid: 750Hz-13kHz, +/-15dB, Q=0.5-3.0
..... Lo-Mid: 75Hz-1.3kHz, +/-15dB, Q=0.5-3.0
..... LF: 30Hz-500Hz, +/-15dB, shelving

Metering

Internal 12-segment LED bargraphs for all inputs and Outputs (24-segment for L/R/C Outputs)

Optional VU Meterpod: 8 VU meters monitoring O/P Faders 1-8/Aux 9-12/Matrix 1-4 via bank selection, and L/R/C.

Power Consumption

Mains Power: 56ch: 600VA max, 24ch 300VA max

48Ch console: each 17V rail takes 8.5A (nominal, measured with 4 Littlites connected), the 8V rail takes 0.2A (nominal).

Weight

24Ch	68kg (150lb)
32Ch	80kg (176lb)
40Ch	92kg (202lb)
48 Ch	103kg (227lb)
56Ch	115kg (253lb)

Operating Conditions

Temperature Range	-10° to +30°
Relative Humidity	0% to 80%



Technical Data

Architect's and Engineer's specifications Soundcraft MH3

The Mixing Console shall be constructed in a steel monocoque chassis, and shall be available in 24, 32, 40, 48 and 56 mono input sizes. Each frame size shall also incorporate four stereo input modules, and it shall also be possible to fit additional stereo input modules in blocks of 4 or 8, by replacing 8 way mono inputs. Modules shall be arranged in blocks of 8 inputs, and shall be removable from the top of the console. Stereo input modules shall be arranged in blocks of four or eight stereo input channels, and also shall be removable from the top of the desk. The mixing console shall provide 8 group and 12 auxiliary send busses, the functions of which may be assigned differently according to mode of operation. Auxes 1-2 and 3-4 shall be selectable as stereo level and pan pairs individually on each input module. In FOH mode, there shall be 12 aux busses and 8 sub-groups. Subgroup levels shall be controlled by 60mm faders, with aux output levels 1-8 controlled via rotary potentiometers, and outputs 9-12 on 60mm faders. In Monitor mode, there shall be 12 monitor sends, controlled by 60 mm faders. The groups shall still be available and controlled via rotary potentiometers. The console shall have stereo and mono outputs, and have LCR panning facilities on each input. There shall be an alternative stereo output in addition to the main. It shall be possible to assign any input fader to any combination of 8 VCA groups. A Mute Scene set system shall be included, enabling up to 128 scenes to be stored and recalled, with eight mute groups. The console shall be provided with a Master Section and MIDI Scene Set Section. There shall be a fully flexible matrix system, with 4 outputs capable of accepting signal feeds from all group outputs, the mix Left, Right and Centre outputs, and an external line input signal. It shall be possible to expand the matrix output capability to 8 by adding a dedicated module in place of a block of input channels. The console will be supplied with a separate CPS800 19-inch rack-mounting Power Supply.

Mono Input

The Mono Input shall have the following features; electronically balanced low-impedance input via an XLR socket with a switched continuously variable gain range of +15dBu to +60dBu (high gain range), with a 20dB gain reduction switch, individually switchable 48V phantom power and a 30-400Hz variable High-pass filter. There shall be a repeater LED indicating 48V phantom power adjacent to the input XLR on the rear panel. A by-passable 4-band equaliser shall be provided, with shelving response HF and LF controls with cut-off points 1.2kHz-20kHz and 35Hz-500Hz, and two parametric mid-frequency controls covering the range of 750Hz-13kHz and 75Hz-1.3kHz. The mid bands shall have a Q factor which is variable between 0.5 and 3.0. All bands shall have a cut and boost of 15dB (centre detented). There shall be 8 group busses, assignable via eight conventional switches. A PAN to Groups switch shall allow any odd/even pair of group busses to follow the channel pan pot as a stereo pair. There shall be 12 auxiliary busses, which may be utilised differently according to the mode of operation:

1. In FOH mode, 12 auxiliary sends shall be provided, each with individual level control. It shall be possible to switch sends 1-2 and 3-4 as stereo level & pan pairs by a local switch on each module. The sends shall be switchable pre/post fader in pairs for sends 1-8, and as a group of four for sends 9-12. In this mode, the aux master outputs shall be controlled via rotary potentiometers on outputs 1-8, and 60mm faders on outputs 9-12.
2. In Monitor mode, there shall be 12 monitor sends. It shall be possible to switch sends 1-2 and 3-4 as stereo level & pan pairs by a local switch on each module. In this mode all the monitor send output levels are controlled via 60mm faders, and have access to a balanced insert point.

Determination of FOH or Monitor mode shall be via a recessed switch and indicator LED on each aux/group output section. The main pan control also feeds the stereo mix bus via the mix switch. Routing to the mono (centre) mix shall be via a separate switch. There shall also be an LCR switch that changes the mode of the pan pot from normal to true LCR panning. Solo and Mute switches shall control the main signal path and allow the pre and post fade signals to be monitored at all times. A mute safe mode shall allow the channel to be protected against remote muting from Mute Groups, VCA masters, Solo-in-Place or snapshots. Assignment switches to 8 VCA groups shall be provided using an assign mode and the input and VCA master solo switches. Eight Mute Groups shall be provided, using a central assignment system. There shall be a pre-EQ insert point using separate balanced jacks for send and return, operating at a nominal level of 0dBu. A 12-segment LED bargraph meter with a separate multipoint peak indicator shall be provided. A high quality 100mm fader shall control the channel level.

Stereo Input

The Stereo Input shall have the following features; stereo mic or line level input on balanced XLRs with a continuously variable gain range of +15dBu to +60dBu with a 20dB gain reduction switch, switchable 48V phantom power for left and right inputs, a fixed 80Hz High-pass filter, and a phase switch which operates on the left channel. A by-passable 4-band equaliser shall be provided, with sweepable frequencies on all bands. The frequency ranges shall be 1.8kHz-16kHz (HF), 500Hz-5kHz (HI-MID), 250Hz-2.5kHz (LO-MID) and 35Hz-400Hz (LF). All bands shall have a cut and boost of 15dB (centre detented) and have a Q of 1.1. Twelve auxiliary sends shall be provided: Sends 1-8 shall be switchable pre- and post- fade in pairs, with sends 9-12 switchable as one block. All sends shall be fed by a mono sum of the module stereo signal, except for sends 1 & 2 and 3 & 4 when switched locally to stereo mode. Routing to the 8 subgroups shall be switchable between mono or stereo, with individual routing switches to each group. Signal shall be fed to the stereo mix bus via the mix switch. Routing to the mono (centre) mix shall be via a separate switch. The balance control shall adjust left-right balance for pre and post-fade signals. Solo and Mute switches shall control the main signal path and allow the pre or post fade signal to be monitored at all times, with Mute Safe for protection from remote muting. A 12-segment LED bargraph meter with a separate multipoint peak indicator shall be provided, metering the highest of left or right signals. Assignment switches to 8 VCA groups shall be provided using an assign mode and the input and VCA master solo switches. Eight Mute Groups shall be provided, using a central assignment system.

Output Section

Eight Group Outputs, 12 Aux Outputs, and 4 Matrix Outputs shall be provided on two blocks of modules, each of which shall be removable from the top of the console. Each Aux output shall have a level control colour-coded to its aux sends, an illuminated Mute switch and an illuminated Solo switch. It shall be possible to swap the signals so that an aux output is under fader control with the group output on rotary control. The fader-controlled outputs (whether group or aux is selected) shall each have an external insert via separate balanced jacks. All group outputs shall be routable to the main mono (centre) bus via a switch, and to the main stereo busses via a pan pot and switch. The console shall have 8 stereo return inputs, each with 3 band equalisation with HF, LF and swept MID sections. This equaliser shall be switchable into the signal path of:

- a) The stereo return
- b) The output feed currently under fader control

The stereo returns shall be assignable to the MIX and MONO (Centre) outputs or to pairs of fader-controlled outputs by switches on each return. Four electronically balanced Matrix outputs shall be provided. Each Matrix O/P shall receive a contribution from each of the Group busses, Mix L, R and mono (centre), and an external line input. A master rotary fader shall control the Matrix output with associated illuminated Mute and Solo controls. The Master Section shall have 3 x 100mm master faders which control L, R and mono (centre) outputs, Talkback microphone socket and switching, and oscillator controls. The talkback system shall be compatible with other Soundcraft consoles. There shall be insert points for the L, R and C outputs on separate jack sockets. An Alternate Stereo Output shall be provided on a rotary potentiometer, derived from the main stereo output and switchable pre or post the main faders; this shall be switchable to a mono sum.

There shall be provision for playback from a 2-track system, and a headphone output connector recessed into the master fader panel. The master fader panel shall also provide master Solo mode switching, solo clear, solo priority and monitoring controls. The console will have integral 12-segment LED bargraphs, reading all of the fader-controlled outputs, and 24 segment meters reading the main L, R and C outputs. The L and R meters shall automatically switch to read AFL or PFL solo signals. There shall be an optional meterbridge having 3 large VU meters to monitor Left Mix, Right Mix and mono (centre) Mix and 8 medium-sized VU meters to monitor Faders 1-8, Aux 9-12 or Matrix 1-4 Outputs, as selected by a 3-position meter source switch bank. The left and right meters shall automatically switch to read an AFL or PFL solo, whenever one is activated. There shall be 4 connectors provided for console lighting arms. The console shall be provided with 8 VCA master faders with associated Mute and Solo switches, for control of the input channels. The Mute shall activate the Mute buttons of any assigned input channels. The VCA Solo shall activate the Solo buttons of any assigned channels, but shall force the input solo to be AFL rather than PFL. The MIDI Scene Set section shall be capable of storing up to 128 snapshots comprising mono and stereo input mutes, and vca group assignments from inputs. A MIDI Program change message shall be transmitted upon recalling a snapshot. A three-digit LED display shall be used to show snapshot number for the current snapshot. Eight mute master buttons shall be used to activate mute groups; these shall work independently of the snapshot system. Presetting of external devices shall be possible via MIDI Program Changes and Note On/Off data from mute groups or individual channel mutes. Remote control of either a BSS Varicurve or dbx DriveRack shall be possible from the output Solo switches, using a MIDI connection. There shall be optional modules as follows, each of which may replace a block of 8 mono input channels:

- a) 4 Stereo + 4 Mono Input modules
- b) 8 Stereo Input modules
- c) 4 Matrix Output + 4 Mono Input modules

The dimensions and specifications shall be as published in this data sheet. The console shall be the **Soundcraft MH3**.



H A Harman International Company

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