

Soundcraft

SM 16






SM16

# WORKING FOR A LIVING

Monitor mixing is a unique art requiring special skills and dedicated equipment. Soundcraft's twenty years' experience in the live sound industry have resulted in a new generation of mixing consoles specifically designed for on-stage use, marking an end to the days of inadequate or inappropriate facilities on monitor boards.

### A Tough Job

Designed in conjunction with some of the world's top monitor engineers, the SM16 is a purpose-built 16 bus monitor console which provides the level of performance and reliability demanded by today's leading professionals. Soundcraft's reputation for sonic excellence and superb value for money is further enhanced by the SM16.

### Easy to Use

Controls on the SM16 are logically positioned and clearly marked for ease of identification; all major switches are illuminated for better visibility in low level lighting. Unwanted clutter has been removed leaving precisely the facilities the engineer needs for monitor mixing.

### The Right Facilities

The SM16 is available in 32, 40 and 48 input versions, and will readily connect to any other console for submixing. The dedicated stereo output may be used to generate a sidefill mix, and means that the console can double as a front-of-house desk should the need arise. A unique logic-controlled soloing system gives the engineer instant access to any signal; all output solo points are switchable pre or post insert for quick comparisons. Multiple solos can be cleared instantly with a single button. Wide range input amplifiers and a low noise floor allow easy connection to any source.

### Built to Last

The compact extruded frame, strong enough to withstand the rigours of touring, yet light enough to be easily lifted, means that the SM16 takes up minimum space both on the stage and on the road. High quality components and a modular design mean that the SM16 will perform reliably for years to come.

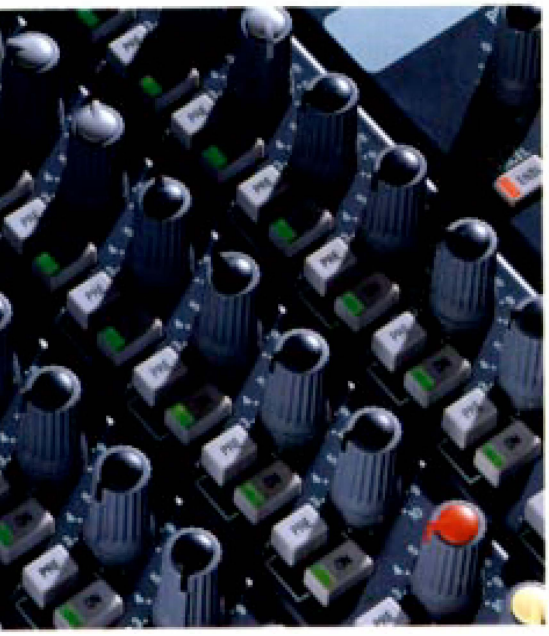
### The Logical Choice

These benefits, coupled with the value for money that has made Soundcraft world famous, ensures that whatever the job, the SM16 will always earn its keep.

# THE INPUT MODULE

SM 16







### Wide Range Input Section

The SM16's standard mono input module features a unique wide range low-noise electronically balanced input amplifier which is adjusted by the SENS control. This allows any low impedance source to be connected to the rear-mounted XLR, simplifying input connections to the console. Input sensitivity is adjustable between +10dBu and -70dBu to cater for low-level microphones and high-ouput active splitter units. The input gain range may be selected via the RNGE switch, and a separate high impedance input is provided. Phantom mic power is enabled by the 48V switch, and the input signal phase is reversed by the Ø button, which may be used to compensate for incorrect system wiring or to help to cancel feedback. Transformer isolation is available as an option.

### Precise 4-Band Sweep EQ

Each input benefits from a 4-band sweep EQ section plus an additional 12dB/octave high-pass filter which may be varied between 30Hz and 400Hz or disabled by a built-in switch. The HF and LF controls have sweepable shelf points to cover frequencies from 1kHz to 20kHz and 20Hz to 400Hz; the HMF (600Hz to 12kHz) and LMF (150Hz to 3kHz) peak/dip sections are equipped with HI-Q switches which alter the Q value from 1.3 to 2.6. All four EQ bands allow up to +/-15dB of control, and may be switched in or out as a group independently of the high-pass filter. The insert point may be internally linked to be pre or post EQ.

### Sixteen Mono Group Sends plus Stereo Mix

The SM16 provides sixteen mono groups for individual wedge outputs with dedicated send controls on each input module, each of which may be independently selected to be pre or post fade, with separate illuminated ON switches and colour-coded rotary level controls. In addition, a pre or post fade stereo bus is provided for the creation of a dedicated sidefill mix. The mono input signal is routed to the stereo bus via an illuminated ON switch, level control and pan pot. The pre-fade input signal may be monitored via the engineer's monitor wedge or headphones using the PFL switch under the control of the SM16's advanced soloing system.

### Channel Level Control and Indication

Overall channel level is controlled by a high quality 60mm fader, providing better visual indication than the traditional rotary control. An illuminated CUT switch is also provided, as well as selector switches for the SM16's four mute groups. A channel may be assigned to any of four mute groups, which are controlled from the Master module. A PEAK LED indicates level in excess of +14dB at any one of four critical points in the signal path, and the pre-fade pre-EQ input signal is displayed by a 16-segment LED bargraph meter in the console overbridge.

# THE OUTPUT MODULE









**Dedicated Output Groups**

Unlike many other monitor consoles, the SM16 is equipped with sixteen dedicated output groups specifically designed for monitor mixing. These output groups are conveniently located towards the centre of the console. Each of the eight Output modules contains two identical output sections which are positioned above each other. The lower sections control groups 1-8, while the upper sections control groups 9-16.

**External Input and Insert Point**

An external balanced line level mono signal may be added to the group output for slaving a second console to the SM16, and is adjusted via the EXT IN level control and the illuminated ON switch. The external signal may also be monitored using the LSTN switch. The output group is provided with a post fade insert point (balanced input and output) which may be bypassed using the INSERT OUT switch enabling the engineer to 'drop out' external processors in an emergency.

**Signal Routing and Talkback**

Each output may be routed to the stereo group via the L and R selectors to enable the SM16 to act as a front-of-house console with traditional sub-group routing. A phase reverse and illuminated CUT switch are provided, as well as a momentary TB switch for routing the external talkback mic to the respective output. Pressing the TB switch dims the engineer's wedge output by 20dB and the group output by 6dB to avoid feedback.

**Level Control, Monitoring and Metering**

Output level is controlled by a high quality 100mm long-throw fader, giving up to 10dB of additional gain to the signal chain. The electronically balanced outputs may be fitted with transformers as a custom-wired option. Group level is indicated by a 16-segment LED bargraph meter adjacent to the fader, which may be internally linked to display peak or average levels. The AFL switch is used to monitor the group output, and may be selected pre or post the insert point using the INSERT PRE switch, allowing instant comparison of dry and processed signals where a limiter or external EQ is in use. The AFL level may also be trimmed by +/-10dB. For easy recognition, all faders are colour-coded to match the respective rotary controls on each input module, and all major switches are illuminated for clarity in low ambient lighting conditions.

# THE MAIN MODULE

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### Full Feature Oscillator

A multi-function oscillator is located at the top of the single-width Main module, switchable between pink noise and a single frequency between 63Hz and 10kHz. The oscillator is routed automatically to the group and stereo outputs via the LEVEL control.

### Comprehensive Talkback Facilities

The talkback section allows communication to and from the SM16, routed by the FOH and INT switches to the front-of-house console and the group and stereo outputs respectively. The EXT button routes the front-of-house talkback mic to the group and stereo outputs to allow the FOH engineer to talk to the stage. All talkback switches are illuminated for clarity.

### Stereo Mix Ouptut

The stereo output section is used to generate a stereo sidefill mix and incorporates an external stereo input which may be added to the internally-generated mix and is controlled by the EXT IN level control and ON switch. The input may be mixed to mono by the MONO switch, and is monitored using the LSTN switch. The stereo group post fade insert point is bypassed using the illuminated INSERT OUT switch. The PHASE switch inverts the phase of both left and right outputs. The stereo group level is controlled by a long throw 100mm fader, and may be monitored and metered by using the AFL button; the AFL point is switchable pre or post insert; AFL send may also be trimmed by +/-10dB.

### Logical Soloing System

The SM16's logic controlled Solo system operates in one of three modes: Normally, all PFL and AFL signals are mixed as each switch is activated, and are removed individually by pressing each switch again. All solos may be removed using the SOLO CLEAR button. With AUTO CANCEL selected, the AFL and PFL switches become interlocking, and each new selection clears the last. The third mode (with INPUT PRIORITY selected) allows the engineer to select a group or stereo output using its AFL switch, and then to monitor any input using the PFL switches. As soon as the last PFL switch is released, the original AFL signal is reselected. External PFL and AFL inputs are available at the rear of the SM16 for syncing; the PFL output level may be varied by +/-10dB using the PFL TRIM control. PFL is a mono bus; AFL may be monitored in stereo using both Left and Right wedge outputs.

The four Mute Groups are controlled by large illuminated switches adjacent to the wedge fader; any muted input is indicated by the illumination of the relevant CUT switch.

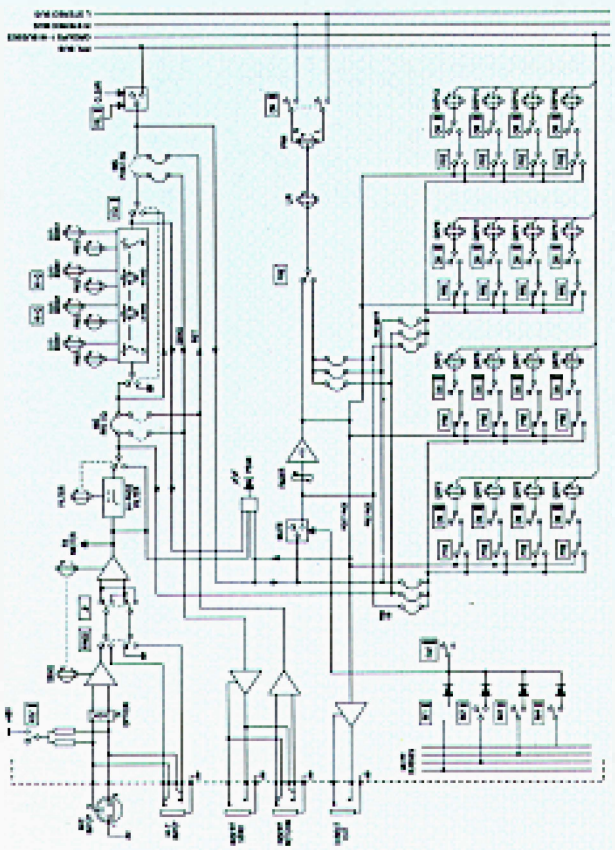
### Engineer's Wedge and Headphones

The engineer's electronically balanced stereo wedge output is controlled by a 100mm fader at the bottom of the Main module; headphone output is sent via a rotary control.

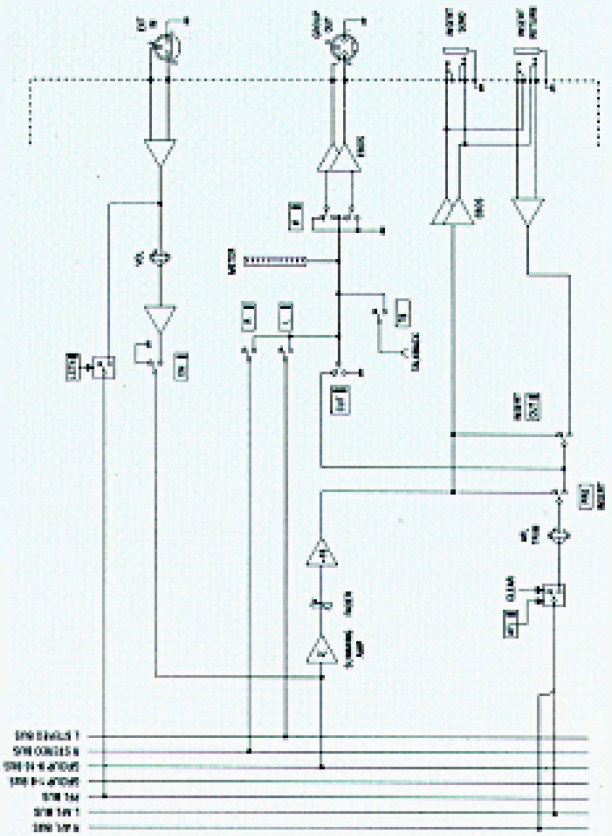


# SYSTEM DIAGRAM

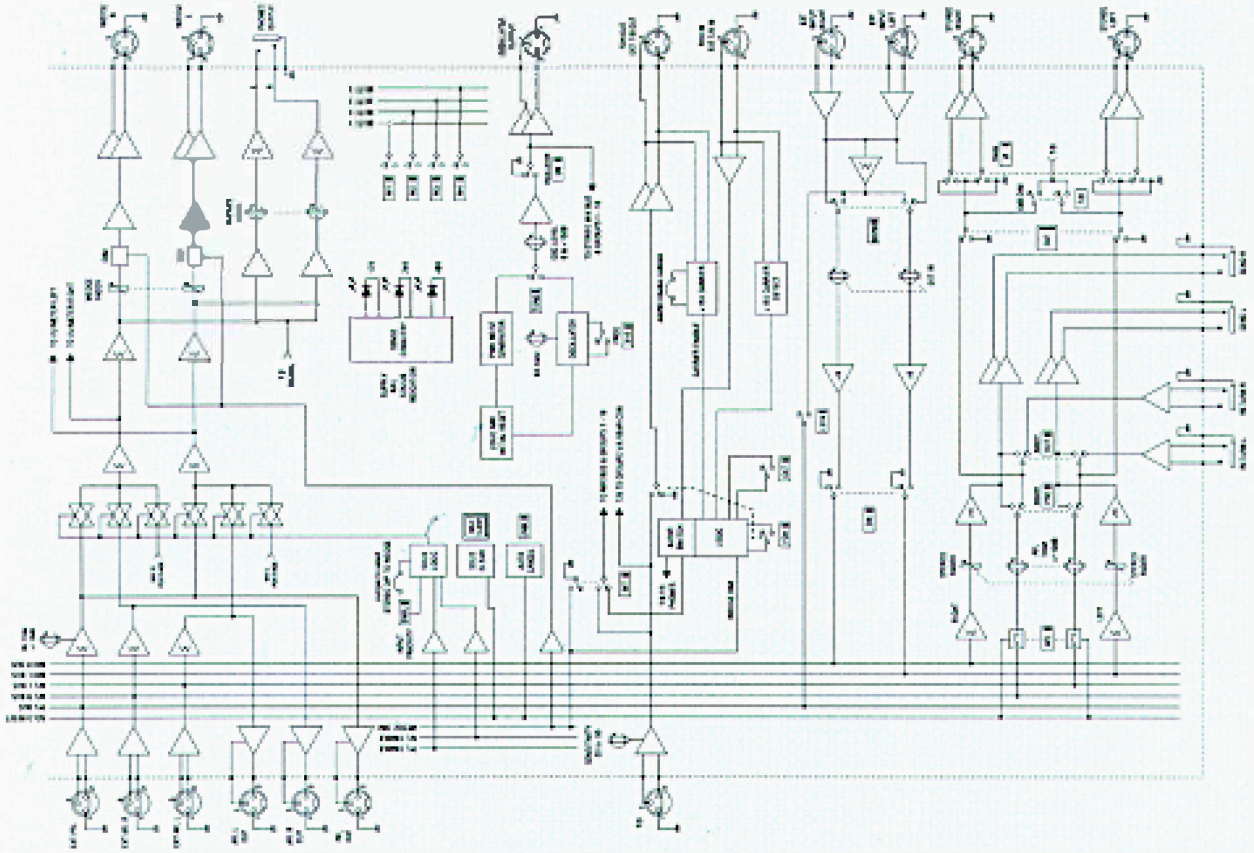
INPUT



OUTPUT

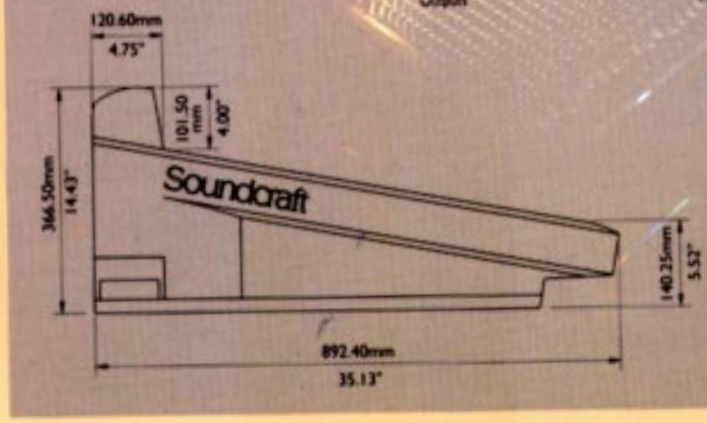


MAIN



## SM16 SPECIFICATIONS

| | | |
|---|---|---|
| **Frequency Response** | Any input to any output | 20Hz - 20kHz, +0/-0.5dB |
| **Total Harmonic Distortion** | (All measurements at 20dBu)<br>Line In to Group or Mix out | <br>Less than 0.005% @ 1kHz<br>Less than 0.025% @ 10kHz |
| **Noise** | (22Hz-22kHz bandwidth, unweighted)<br>Mic Input Equivalent Input Noise (200ohm source)<br>Group Output Noise<br>Mix Output Noise | <br>Less than -127.5dBu<br><br>Less than -85dBu (40 ch routed)<br>Less than -85dBu (40 ch routed) |
| | (All measurements at 1kHz)<br>Input Channel Mixing<br>Input Channel Send Pot Isolation<br>Input Channel Send ON Isolation<br>Group Fader Isolation<br>Group CUT Isolation<br>Group to Group crosstalk<br>Group to Mix crosstalk<br>Mix to Group crosstalk | <br>Greater than 100dB<br>Greater than 90dB<br>Greater than 100dB<br>Greater than 100dB<br>Greater than 100dB<br>Less than -90dB<br>Less than -100dB<br>Less than -90dB |
| **Input and Output Impedances** | Mic Input<br>Hi-Z and Line Input<br>Input Insert Send<br>Input Insert Return<br>Output Insert Send<br>Output Insert Return<br>Outputs | 2kΩ balanced<br>Greater than 10kΩ balanced<br>Less than 75Ω grd comp<br>Greater than 10kΩ balanced<br>Less than 75Ω balanced<br>Greater than 10kΩ balanced<br>Less than 75Ω balanced |
| **Input/Output Capability** | Mic Maximum Input Level<br>Line Maximum Input Level<br>Input Insert Sends<br>Input Insert Returns<br>Output Insert Sends<br>Output Insert Returns<br>All Balanced Outputs<br>Headphone Output | +28dBu<br>+30dBu<br>+20dBu into 2kΩ<br>+20dBu<br>+26dBu into 600Ω<br>+26dBu<br>+26dBu into 600Ω<br>+20dBu into 600Ω<br>150mW into 8Ω |
| **Input and Output Levels** | Mic Input Sensitivity (XLR)<br>Line Input Sensitivity (0.25" jack)<br>Input Insert Send/Return<br>Output Insert Send/Return<br>Outputs | -20dBu to -70dBu, +10dBu to -20dBu<br>+10dBu to -20dBu<br>-2dBu nominal<br>+4dBu nominal<br>+4dBu for 0VU |




| CONSOLE | WIDTH |
|---|---|
| 32 ch | 1575.90mm 62.04" |
| 40 ch | 1859.10mm 73.19" |
| 48 ch | 2142.30mm 84.34" |

*Soundcraft Electronics Limited reserve the right to improve or otherwise alter any information supplied in this document or any other documentation supplied hereafter.*

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Harman International Industries Limited
Cranborne House, Cranborne Industrial Estate, Potters Bar, Hertfordshire, EN6 3JN, England.
Tel: 0707 665000 Fax: 0707 660482

Soundcraft JBL Professional, 8500 Balboa Blvd, Northridge, CA 91329
Phone: 1-818-893-4351, Fax 1-818-893-0358

H A Harman International Company

Part no. ZL0074 (UK)
Part no. ZL0077 (US)