SHURE

Circuitry Products

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circuitry products

GATED COMPRESSOR/MIXER

SE30

The SE30 is a professional mixer with a 600-ohm line output (for remote or studio applications) and a high-quality *"hands-free gain riding compressor in a single portable unit."* Makes output control in remote pickups, talk shows, recording, program line compression and professional sound reinforcement smoother, surer and more trouble-free than it's ever been before.

The SE30 provides a 40 dB compression range — adjustable to varying input requirements, with a compression ratio of approximately 10 to 1. Once set, the SE30 rides gain automatically, increasing or decreasing the system gain to maintain a constant output level. Because compression is properly achieved in the mixer itself, the signal-to-noise ratio is optimized for better telephone line transmission on remotes. In studio applications, it allows maximum modulation level without overloading other components. The SE30's variable response rate control allows the proper time constant to be selected for the type of program material involved; fast for voice applications such as sporting events; medium to slow for musical program sources.

A unique *Gated Memory circuit* solves the "pumping" problem normally associated with an audio compressor by noting when the desired signal (such as voice or music) is not present, and putting a "hold" on the compression level at that point. For example, this eliminates the crowd noise build-up when the announcer stops talking during a sporting event. As soon as the desired program material returns, the "hold" is released and the compressor goes back into action.

Loaded with useful features, such as: wide range of input and output options, microphone, line and high level auxiliary; feedback-type gain controls that automatically increase the input clipping level as the individual gain controls are turned down; a built-in low-distortion 1 kHz tone oscillator; three-function VU meter; stereo parallel jack, self-contained battery and ac power supply, with automatic switchover to battery in case of ac failure; auxiliary meter light source for battery operation; removable ac line cord; disable switches for compressor and Gated Memory; and extremely low distortion, noise and RF susceptibility.

SE30 108 to 132 volts ac, 50/60 Hz.
SE30-2E 108 to 132 or 216 to 264 volts ac, 50/60 Hz.

specifications

Models: ..... **SE30 and SE30-2E**

Frequency Response: ..... Flat ±2 dB, 30 to 20,000 Hz

Voltage Gain: ..... Below compression threshold, output terminated: Line 600 ohms, Microphone 150 ohms, Aux 47 kilohms

Input	Output: Line	Output: Microphone	Output: Aux
Low impedance microphone	103 dB	55 dB	85 dB
Line or Aux	57 dB	7 dB	37 dB

Noise (maximum): ..... Equivalent input noise: −129.5 dBV; Equivalent input hum and noise: −126 dBV

Distortion: ..... Below compression threshold, under 0.5% THD from 30 to 20,000 Hz at +15 dBm output

Compression Ratio: ..... 6:1 minimum from 10 to 20 dB compression; 6:1 minimum from 10 to 30 dB compression

Compression Threshold: ..... Microphone: −96 dBV at maximum input gain; Line: −48 dBV at maximum input gain

Attack and Recovery Time: ..... 300 milliseconds to 8 seconds.

Gated Memory: ..... In "hold" condition, less than 20 dB gain recovery after one minute.

Input Clipping Level: ..... Microphone: −38 dBV to −10 dBV; Line or Aux: +10 dBV to +38 dBV

Output Clipping Level (minimum): ..... Microphone: −34 dBV 20 mV; Line: −18 dBm 6.2V; Aux: −4 dBV 0.63V

Mix Bus: ..... Impedance 3.9 kilohms

Operating Voltage: ..... SE30: 108-132 volts, 50/60 Hz; SE30-2E: 108-132 or 216-264 volts, 50/60 Hz

Battery Operation: ..... Estimated 60 hours at 4 hrs. use per day. Six 9-volt. Eveready type 222 or 216 or equivalent. One heavy duty 1.5-volt "D" size cell

Certification: ..... SE30: UL Listed and CSA listed as Certified

Dimensions: ..... 98.9 mm H x 381 mm W x 254 mm D (3½ x 15 x 10 in.)

Net Weight: ..... 4.5 kg (9 lb, 13½ oz)

circuitry products

MICROPHONE MIXER

M267

Shure's new M267 compact, lightweight professional microphone mixer offers performance and capabilities never before available in a modestly priced professional mixer. It was designed to fill more of the specific needs of broadcasters in both studio and remote applications, recording studios and sound reinforcement. Its outstanding performance and versatility also make it an exceptional choice for use in public address systems and as a studio quality "add-on" mixer for expanding existing facilities.

The M267 has all the features that made the Shure M67 the *industry standard mixer*, plus additional features and performance improvements that promise to make *it* the new *industry standard*. Features new to the M267 include: peak program limiter—*eliminates overload distortion by monitoring program levels and power supply level*; simplex (phantom) power—*switchable 30 Vdc on all microphone inputs to power condenser microphones*; built-in battery pack—*switches silently to battery power if ac fails*; LED peak indicator—*indicates onset of limiting or when program levels approach overload*; headphone level control—*adjusts monitor volume*; gold contact headphone amp/line switch—*Amplifier position for high level monitoring or Line position for talkback*; automatic muting circuit—*prevents annoying clicks and thumps when unit is turned on or off*; active gain controls *provide lower noise, greater dynamic range and automatic input attenuation*; and electronic power supply regulation—*improved performance on low or high ac line voltage.*

Improvements over the M67 include: Gold contact Mic/Line switches—*on each XLR input and output*; battery check function—*does not interrupt program*; more headphone power; lower distortion and noise; and front panel headphone jack and gold contact tone oscillator switch.

The M267 has the same ruggedness and reliability that made the M67 the top selling mixer in the industry. It also includes all of these M67 features: transformer balanced inputs and outputs; mix bus; VU meter; low cut filters; low RFI and line noise susceptibility.

With the addition of two new brackets (RKC169), the M267 will fit into an M67 rack panel, or it may be mounted in the new accessory panel (A268R).

M267 105-125 volts ac, 50/60 Hz.
M267E 210-250 volts ac, 50/60 Hz. **Available in Winter, 1982.**

specifications

M267 and M267E

Models:

Frequency Response: ±2 dB from 30 to 20,000 Hz

Voltage Gain: Outputs terminated in 600 ohms, microphone 150 ohms, mix bus 3.3 k ohms, headphone 250 ohms, tip-sleeve, ring sleeve

Input	Output: Line	Output: Microphone	Output: Mix bus
Low-impedance microphone	92 dB	42 dB	25 dB
Line	40 dB	−10 dB	−27 dB
Mix bus	48 dB	−4 dB	

Noise: Equivalent input noise: 129.5 dBV
Equivalent input noise and noise = 127 dBV

Distortion: Under 0.35% THD from 30 to 20,000 Hz at +15 dBm output; under 0.5% IM distortion up to +15 dBm output level

Input Clipping Level: Microphone: 32 dBV at 5 dBV (depending on input control setting)
Line: +20 dBV
Mix bus: 38 dBV

Output Clipping Level: Microphone: −32 dBV
Line: +18 dBm

Limiter: Threshold: −15 dBm (line output level, adapts automatically to power supply variations)
Attack Time: 3 msec typical
Recovery Time: 300 msec typical

Peak Indicator: Lights 6 dB below clipping or at onset of limiter action

Simplex Power: 30 Vdc operation through 3.3 kilohms series resistance, input switches in MIC position only

Operating Voltage: M267: 105-125 volts, 50/60 Hz
M267E: 210-250 volts, 50/60 Hz
(can be rewired for 105-125 volts)

Battery Operation: Built-in battery compartment uses three readily available 9V alkaline batteries; provides approximately 20 hours of continuous operation

Certification: M267: UL Listed and CSA listed as Certified

Dimensions: 76.3 mm H × 369 mm W × 227 mm D (3" × 12⅝" × 8 15/16")

Net Weight: 2.3 kg (5 lb, 2 oz)

circuitry products

MICROPHONE MIXER

M268

The M268 is a compact, lightweight, five-channel microphone mixer that offers significant improvements in design, performance and versatility over other value-priced mixers including the Shure M68. It is ideal for public address and paging in hotels, schools, community centers, and hospitals, as well as an excellent add-on mixer for expanding current equipment. It is also an excellent mixer for use by the serious tape recording enthusiast.

Features new to the M268 include: mix bus—*for simple mixer interconnection;* simplex (phantom) power—*switchable 30 Vdc on all microphone inputs to power condenser microphones;* automatic muting circuit—*prevents annoying clicks and thumps when the unit is turned on or off,* active gain controls—*provide lower noise, greater dynamic range and automatic input attenuation;* and electronic power supply regulation—*improved performance on low or high ac line voltage.* In addition, when used with the optional accessory battery power supply (A268B), the M268 switches automatically and silently to battery power if the ac fails.

Improvements over the M68 include: a dramatic reduction in distortion—*typically less than 0.1%;* substantial increases in gain and dynamic range, lower hum and noise; and higher output.

The M268 also includes all these M68 features: four transformer balanced microphone inputs—*with individual gold contact switches for selection of low or high impedance;* high level auxiliary input—*suitable for tape recorder, tuner and accessories;* individual volume controls; a master volume control; and the ruggedness and reliability for which Shure mixers are recognized worldwide.

The M268 makes an ideal add-on mixer to the M267 Mixer. The two models are matched in performance and styling, and the mix bus gives the user nine inputs plus the peak indicator and metered output of the M267—no loss of inputs on either mixer.

With the addition of two new brackets (RKC169), the M268 will fit into an M68 rack panel, or, it may be mounted in the new accessory panel (A268R).

M268 105-125 volts ac, 50/60 Hz.
M268E 210-250 volts ac, 50/60 Hz. **Available in Winter, 1982.**

specifications

Models: ..... **M268 and M268E**

Frequency Response: ..... ±3 dB from 40 to 20,000 Hz

Voltage Gain: ..... Outputs terminated: mic 150 ohms/33 k ohms, aux 47 k ohms, mix bus 3.3 k ohms

Input	Output: Lo Z Mic	Output: Hi Z Mic	Output: Aux Out	Output: Mix Bus
Low-impedance microphone	30 dB	54 dB	79 dB	24 dB
High-impedance microphone	7 dB	31 dB	55 dB	[illegible] dB
Aux in	−15 dB	9 dB	33 dB	−2[illegible] dB
Mix bus	6 dB	18 dB	42 dB	—

Noise: ..... Equivalent input noise: −120 dBV
Equivalent input hum and noise: −125 dBV

Distortion: ..... Under 0.2% THD from 40 to 20,000 Hz, 8 V output

Input Clipping Level (minimum): Low-impedance microphone: −32 to −5 dBV*
High-impedance microphone: −10 to 18 dBV*
Aux: 14 to 30 dBV*
Mix bus: 0 dBV
*Depending on control setting.

Output Clipping Level (minimum): ..... Low-impedance microphone: −20 dBV (100 mV)
High-impedance microphone: 4.5 dBV (1.7 V)
Aux: 17 dBV (7.1 V)
Mix bus: −6 dBV (0.4 V)

Simplex Power: ..... 30 Vdc open circuit, 3.3 kilohms series resistance

Operating Voltage: ..... M268: 105-125 volts, 50/60 Hz
M268E: 210-250 volts, 50/60 Hz
(can be rewired for 105-125 volts)

Certification: ..... M268: UL listed and CSA listed as Certified

Dimensions: ..... 75.3 mm H × 309 mm W × 227 mm D
(2[illegible] × 12[illegible] × 9 in.)

Net Weight: ..... 1.9 kg (4 lb, 2 oz)

circuitry products

MICROPHONE MIXERS

M67

A compact, lightweight and economical microphone mixer/remote amplifier specifically designed for professional use in remote broadcasting, studio recording, sound reinforcement, and as an "add-on" mixer for expanding existing facilities and providing additional microphone inputs for audio and video tape recorders. The M67 features a wide, flat frequency response, with extremely low distortion up to +18 dBm output, and low noise and RF susceptibility.

Four low-impedance, balanced microphone inputs (one convertible to line level) are provided, with the line-level switchable for 600-ohm termination or bridging. Each input has a switchable lo-cut filter. The illuminated VU meter is calibrated for +4 and +10 dBm output, with a convenient range switch. Equipped with a headphone jack for monitoring and a mix bus jack for "stacking" mixers. Battery operation (with optional accessory A67B) permits automatic switchover if the ac power fails. A battery check switch monitors battery condition.

M67 108 to 132 volts ac, 50/60 Hz.
M67-2E 216 to 264 volts ac, 50/60 Hz.

M68

The M68 is a practical, efficient and economical way to increase the usefulness and flexibility of audio-visual, paging, sound reinforcement and tape recording systems requiring multiple microphone inputs. The M68 can also be used to provide additional microphone inputs to another mixer such as the M67, to another M68, or to a power console such as Shure's Model 700.

Each of four microphone-level inputs has its own switch for selection of low-impedance (balanced or unbalanced) or high-impedance (unbalanced) microphones, and a high-level auxiliary input is suitable for inputs from tape recorders, tuners, or other sources. The M68 has two outputs: one is a microphone-level output (low- or high-impedance, switch-selectable) for connection to a sound system amplifier or tape recorder input. The other is a high-impedance, high-level output to feed any power amplifier or tape recorder requiring a 0.5 to 2V input signal. The M68 can also be powered by an external power source such as the A67B.

M68 108 to 132 volts ac, 50/60 Hz, three-pin inputs.
M68FC 108 to 132 volts ac, 50/60 Hz, three-socket inputs.
M68FCE 105 to 130 or 210 to 260 volts ac, three-socket inputs.

specifications

M67 and M67-2E

Models:

Frequency Response: ±2 dB from 30 to 20,000 Hz

Voltage Gain: At 1,000 Hz

Input	Output: Line	Output: Microphone
Low impedance microphone	91 dB	31 dB
Line, bridging	41 dB	−19 dB
Line, terminating	35 dB	−25 dB

Noise: Equivalent input noise: −129 dBV
Equivalent input hum and noise: −125 dBV

Distortion: Under 1% THD from 23 to 20,000 Hz at +10 dBm output (0.5% typical)

Input Clipping Level (minimum): Low impedance microphone: −30 dBV
Line, bridging: Greater than +22 dBV
Line, terminated: Greater than +4 dBm

Output Clipping Levels (minimum): Microphone: 6 mV, −44 dBV
Line: +18 dBm

Operating Voltage: M67: 108 to 132 volts, 50/60 Hz
M67-2E: 216 to 264 volts, 50/60 Hz

Certification: M67: UL Listed and CSA listed as Certified

Dimensions: 69.9 mm (1¾ in.) H × 269 mm (10⅝ in.) W × 190 mm (7½ in.) D

Net Weight: 2.18 kg (4 lb, 13 oz)

M68, M68FC, and M68 FCE

±3 dB from 40 to 20,000 Hz

At 1,000 Hz

Input	Output: to 7 Mic	Output: Hi Z Mic	Output: Aux
Low impedance microphone	6 dB	30 dB	57 dB
High impedance microphone	16 dB	6 dB	35 dB
Aux	−36 dB	−14 dB	13 dB

Equivalent input noise: −123 dBV
Output hum and noise: −70 dB below rated output

Under 1% THD, 2.0 volt level

Low impedance microphone: −30 dBV
High impedance microphone: −7 dBV

Low impedance microphone: 60 mV, −24 dBV
High impedance microphone: 650 mV, 1 dBV
Aux: 4 volts, +2 dBV

105 to 132 volts, 50/60 Hz
105 to 130 or 210 to 260 volts, 50/60 Hz

M68 and M68FC: UL Listed and CSA listed as Certified

69.9 mm (1¾ in.) H × 269 mm (10⅝ in.) W × 133 mm (5¼ in.) D

1.8 kg (4 lb)

circuitry products

PROFESSIONAL MIXER

SR109

Only 5¼ in. high, the SR109 mixer-preamplifier is loaded with features that broadcasters and professional sound operators have asked for. Designed for rack- or case-mounting, it is the perfect complement to a high quality sound reinforcement system. Up to eight low impedance microphones can be mixed with individual high- and low frequency equalization. Channels 7 and 8 are switchable to microphone- or line-level sources. In addition, each input has a switchable 15 dB attenuator, and a feedback-type volume control that raises the clipping level and reduces circuit noise as the gain is reduced. An adjustable peak limiter with an LED indicator prevents output overload, and a peak-responding LED indicates output clipping level when the limiter is off.

The SR109 has two program outputs, a 600-ohm balanced, +18 dBm line level, and a low impedance, balanced, microphone-level output. The program output also has a rotary master level control, and a ballistically correct, illuminated VU meter calibrated for 0, +4, or +8 dBm. Dual line jacks provide for connection of external equipment such as equalizers, compressors, or additional mixers, and a switch permits phase reversal of both line- and microphone-level program outputs. A transformer coupled 8-ohm headphone output with separate level control is provided for monitoring, and a built-in 1 kHz tone oscillator facilitates checkout synchronization of all meters in the system.

The regulated power supply operates over an extremely wide range of voltages, permitting the SR109 to be used in many areas where voltage extremes and fluctuations are encountered, and with extremely long extension cables without performance degradation. A switched ac receptacle (SR109 only) provides for connection of accessory equipment drawing up to 500 watts.

SR109 90 to 132 volts ac, 50/60 Hz
SR109-2E 90 to 132 or 180 to 250 volts ac, 50/60 Hz

specifications

SR109 and SR109-2E

Models:
Frequency Response: ±3 dB from 20 to 20,000 Hz
Input Sensitivity: 0.775 mV max. for +4 dBm program output
Voltage Gain:

Input	Output: Line	Output: Monitor/Phone
Low impedance microphone	87 dB	37 dB
Line	37 dB	−13 dB

Noise: Equivalent input noise, −128 dBV
Equivalent input hum and noise, −95 dBV
Signal-to-Noise Ratio: (20 Hz–20 kHz) Typically 63 dB
Distortion: Under 1% THD from 30 to 20,000 Hz at +12 dBm output
Input Attenuation: 0, 15 dB (switch-selected)
Low-Frequency Equalization: ±13 dB at 100 Hz
High-Frequency Equalization: ±12 dB at 10 kHz
Limiter: Threshold (adjustable): Typically −10 to +20 dBm (at LINE LEVEL output)
Range: Approximately 30 dB
VU Meter Calibration: 0, +4, +8 dBm, switch-selectable
Operating Voltage: SR109: 90-132 volts, 50/60 Hz
SR109-2E: 90-132 or 180-250 volts, 50/60 Hz
Certification: SR109: UL listed and CSA listed as Component
Dimensions: 133 mm H x 483 mm W x 292 mm D (5¼ x 19 x 9⅝ in.)
Net Weight: 7.7 kg (17 lb)

circuitry products

AUDIO EQUALIZER

SR107

Only 1¾ in. of rack space is needed for this versatile, active audio frequency equalizer which is designed to adjust tonal balance on an octave by octave basis in sound system applications. The SR107 is used in live performances for feedback control or for improving the sound quality, and in prerecorded performances for playback equalization by correcting for equipment response and/or room acoustics. Equipment response correction includes eliminating such problems as transducer incompatibility, low-frequency overload (rumble), tape hiss, and disc surface noise. The SR107 is a balanced line-level input and output device, designed for installation between the audio console or mixer and the power amplifier in a sound system. Output is +18 dBm with a 600 ohm load.

Ten octave band, minimum phase, combining-type filters are each adjustable over a ±15 dB boost or cut range, on IEC octave centers over the frequency range of 31 Hz to 16 kHz. The equalizer output level is adjustable over a ±15 dB range, and overall gain of up to 20 dB may be introduced to compensate for low-level signals. A peak-responding LED indicator shows approaching overload by lighting approximately 3 dB before the onset of output clipping. A bypass switch provides for disconnecting the equalizer circuitry to allow equalized and unequalized comparisons. Two parallel-wired bridging inputs are supplied: three-socket barrier and balanced phone jack. Outputs are: three-pin balanced line-level (switchable to low-impedance microphone level), balanced or unbalanced line-level phone jack, and aux output jack.

specifications

Models: ..... **SR107 and SR107-2E**

Frequency Response: ..... ±2 dB from 30 to 20,000 Hz

Voltage Gain: ..... GAIN Control at UNITY: 0 dB (LINE INPUT to LINE OUTPUT
GAIN Control at +20 dB: +20 dB (LINE INPUT to LINE OUTPUT
LEVEL Control, ± 15 dB

Signal-to-Noise Ratio: ..... (20 to 20,000 Hz) typically 89 dB at maximum output

Distortion:
Intermodulation: ..... 0.25% max. at 12.2 dBm
Harmonic: ..... 1% max. total harmonic distortion at 12.2 dBm

Clipping Level (30 Hz – 20 kHz):
Input: ..... – 16.8 dBm minimum (– 16.8 dBV, 6.2V) GAIN Control at UNITY
– 2 dBm minimum (– 4.2 dBV, 0.62V) GAIN Control at – 20 dB
Output: ..... 18 dBm minimum (– 15.6 dBV, 6.2V) at LINE OUTPUT
+0.2 dBV minimum (0.31V) at AUX OUTPUT
+4.2 dBV minimum (1.9 mW) at MIC OUTPUT

Overload Indicator: ..... Illuminates 3 dB ± 1.5 dB before output clipping occurs

Input Impedance: ..... 20 kilohms actual, balanced bridging

Output Impedance:
MIC OUTPUT: ..... Balanced (for use with 25- to 600-ohm inputs)
LINE OUTPUT: ..... 75 ohms actual, balanced (for use with 600-ohm lines)
AUX OUTPUT: ..... 600 ohms actual, unbalanced (for use with auxiliary circuits of 600 ohms or more impedance)

Equalization Filters:
Center frequencies: ..... Octave spaced from 31 to 16,000 Hz
Characteristics: ..... ±15 dB boost or attenuation at center frequency

Operating Voltage: ..... SR107: 100/120 volts 50/60 Hz
SR107-2E: 105-125 volts or 210-250 volts 50/60 Hz

Certification: ..... SR107: UL Listed and CSA Class as Certified

Dimensions: ..... 44.4 mm H x 483 mm W x 216 mm D (1¾ x 19 x 8½ in.)

Net Weight: ..... 3.5 kg (7 lb. 12 oz)

circuitry products

AUDIO MASTER®

M63

The M63 provides versatile and economical control of audio response and a line-level amplifier in a compact, lightweight package. It may be used to equalize sound systems and to correct room acoustics in auditoriums, clubs, gymnasiums, and meeting rooms; to produce special sound effects; to reduce stand or stage noise; and to improve tape recording and duplication in production and transfer studios. It is an ideal low-cost equalizer and line amplifier for use in conjunction with an M68 Mixer.

The M63 features continuously variable high- and low-pass 6 dB per octave filters, plus separate bass and treble controls, for flexible control of response characteristics. The "hinge" effect of the bass and treble controls and the "slope" effect of the high and low filters can be combined for a frequency response curve "tailored" to the individual room.

Two high-level, high-impedance inputs accept signals from mixers, tape recorders, or tuners. A master volume control adjusts both inputs simultaneously. The M63 line-level amplifier provides up to +19 dBm output. Four outputs are provided: microphone level (high- or balanced low-impedance); 600-ohm balanced line level; high impedance, aux level; and headphone jack for monitoring. The M63 also contains a VU meter (calibrated for 600-ohm line termination) with a two-range sensitivity switch.

specifications

Model: **M63**

Frequency Response: ..... ±2 dB from 20 to 20,000 Hz

Voltage Gain:
- **Line Output:** ..... 32.6 dB
- **Aux Output:** ..... 39.0 dB
- **Hi-Imp Mic Output:** ..... 1.8 dB
- **Lo-Imp Mic Output:** ..... 21.0 dB

Tone Controls:
- **Bass:** ..... ±16 19 dB at 100 Hz Typical
- **Treble:** ..... ±16 19 dB at 10 kHz Typical

Filters: ..... Hi-Cut and Lo-Cut 6 dB per octave, continuously variable, –3 dB point

Noise Output (line with 600-ohm load)
- **Volume Control min.:** ..... 76 dB below +8 dBm, 20 to 20,000 Hz; 81 dB below +8 dBm, 330 to 20,000 Hz
- **Volume Control max. (4.7 kilohms source):** ..... 68 dB below +8 dBm, 20 to 20,000 Hz; 72 dB below +8 dBm, 330 to 20,000 Hz

Distortion: ..... Under 1% THD at +8 dBm output

Clipping Level: ..... +19 dBm (600-ohm load)

Inputs: ..... Two mixing, impedance 50 kilohms nominal

Outputs: ..... 600-ohm Line: Balanced and floating
Aux Hi-Imp: Unbalanced
Mic Hi-Imp: Unbalanced
Mic Lo-Imp: Balanced
Headphone: for 600- to 2,000-ohm headphones

Operating Voltage: ..... 108-132 volts 50/60 Hz

Certification: ..... UL listed and CSA listed as Certified

Dimensions: ..... 69.9 mm H × 298 mm W × 155 mm D (2¾ × 11¾ × 6 in.)

Net Weight: ..... 1.4 kg (3 lb. 2 oz.)

circuitry products

FEEDBACK CONTROLLER

M610

When the M610 Feedback Controller is included in a sound system, its special set of filters and rolloff switches smooths out the peaks in the system's frequency response, so that system gain can be increased to significantly higher levels before reaching the feedback threshold. The operator can "tune" the sound system to the room acoustics, quickly and easily. Use for a single microphone, or to tune the output of a mixer—connect it in a single microphone line (low- or high-impedance), or to the aux output of a mixer such as the M68. The M610 offers the basic advantages of room/system equalization—without the high costs of elaborate, complex, highly specialized equalization equipment.

The M610 has eight resonant dip filters, each controlled by a linear-motion potentiometer. Each filter, unlike a highly selective "notch" or single-frequency filter, acts on a band of frequencies around its center frequency, so that attenuation is smooth and complete. These filters function across the audio spectrum, with center frequencies at 63, 125, 250, 500, 1,000, 2,000, 4,000, and 8,000 Hz. Each is infinitely variable from 0 attenuation (flat) to a maximum cut of 12 dB. "High-end" (above 8 kHz) and "low-end" (below 63 Hz) rolloff switches are provided to control response outside the range of the filters.

A front-panel volume control allows the operator to conveniently increase the overall gain of the system to a level even higher than the original level. The M610 can also be used to improve sound quality and increase intelligibility by filtering out problem frequencies that cause oscillating ("ringing"), boominess and other disruptive resonances in acoustically difficult rooms, and to equalize program material and monitor speakers in studio and broadcast applications.

M610 108 to 132 volts ac, 50/60 Hz.
M610-2E 108 to 132 or 216 to 264 volts ac, 50/60 Hz.

specifications

Models: ..... **M610 and M610-2E**

Frequency Response: ..... (Net, filters and valve) ±2 dB from 40 to 20,000 Hz

Voltage Gain: ..... At 1,000 Hz

Bypass Mode:

Input	Output		
	Lo Z Mic	Hi Z Mic	Aux
Low-impedance microphone	0.5 dB	24.0 dB	47.0 dB
High-impedance microphone	24.0 dB	0.5 dB	23.5 dB
Aux	−23.0 dB	−23.5 dB	0.5 dB

Filter Mode: ..... (Filter Level control max gain)

Input	Output		
	Lo Z Mic	Hi Z Mic	Aux
Low-impedance microphone	24.5 dB	49.0 dB	72.0 dB
High-impedance microphone	1.0 dB	25.5 dB	48.5 dB
Aux	−23.0 dB	1.0 dB	24.5 dB

Noise: ..... Equivalent input noise: −125 dBV
Equivalent input noise and noise reduction: −93 dBV

Aux Output Clipping Level (minimum): ..... 5 volts

Input Clipping Levels (minimum): ..... Lo-Z Mic: 30 mV
Hi-Z Mic: 450 mV

Distortion: ..... Under 0.5% THD at 1,000 Hz, +7 volts output

Operating Voltage: ..... M610: 108–132 volts, 50/60 Hz
M610-2E: 108–132 or 216–264 volts, 50/60 Hz

Certification: ..... M610 only: U.L. listed and C.S.A. listed as Certified

Dimensions: ..... 62.7 mm (H) × 303 mm (W) × 177 mm (D)
(2⅜" × 11⅞" × 6⅞")

Net Weight: ..... 1.8 kg (3 lb 15 oz)

circuitry accessories

PROBLEM SOLVERS

A15 SERIES

"Plug-In" Microphone Attenuators, Equalizers and Adapters

Solve acoustic and electrical problems without time-consuming rewiring. Shure "in-line," low-impedance microphone attenuators, equalizers, and adapters plug in to give instant modifications of response and performance in microphones and sound systems. Only 114 mm (4½ in.) long x 19 mm (¾ in.) dia., with color-coded nameplates for quick identification. Units are intended to be driven from 150 ohm, low level source except for: A15LA—up to 50,000 ohms and +24 dBm; A15PRS—any balanced impedance, any level. Three socket input and three-pin output professional audio connectors.*

A15AS Switchable Microphone Attenuator: Prevents preamp overload in applications where very strong signals are applied to a microphone input. Inserts a 15, 20, or 25 dB loss. Optimized for use with simplex-powered condenser microphone or other low-impedance microphone.

A15BT Bridging Transformer: Matches balanced or unbalanced devices of different impedances. (33 kilohm primary, and 600 or 7,500 ohm secondary.)

A15HP High Pass Filter: Provides a low frequency cutoff to reduce unwanted low-frequency noises.

A15LA Line Input Adapter: Converts balanced low-impedance microphone input to bridging line level input.

A15LP Low Pass Filter: Provides a high frequency cutoff to reduce objectionable high-frequency noises.

A15PA Presence Adapter: Adds "presence" to vocals or instruments in recording, broadcasting, and PA applications.

A15PRS Switchable Phase Reverser: Instant switch selection of normal or reversed phase of a balanced line without modification of equipment.

A15RS Response Shaper: Provides subsonic filtering in recording, broadcasting, and PA applications.

A15TG Tone Generator: Produces a continuous 700 Hz balanced signal capable of driving low-impedance balanced lines, and is extremely useful in setting up and troubleshooting audio equipment. Plugs into microphone input to enable engineer to check levels, connections, mixer inputs, cables and speakers. Permits one person to do the work of two. Powered by a miniature mercury battery.

Special Note: Only the A15AS and A15PRS are recommended between phantom (simplex) powered condenser microphone systems and their power supplies.

*A15PRS and A15PA are symmetrical and can be used in either direction.

A95 SERIES

Low-Impedance to High-Impedance Line Matching Transformers

High-quality transformers that make it possible to connect a low-impedance (38 or 150 ohm) microphone to a high-impedance amplifier input or vice versa. Solve problems of excessive high-frequency loss and objectionable hum when long cable lengths are used.

A95U: Low-impedance connector—three-pin professional audio connector. High-impedance connector—Amphenol MC1M type connector with mating standard ¼ in. phone jack and phone plug.

A95UF: Low-impedance connector—three-socket professional audio connector.
High-impedance connector—Amphenol MC1M type connector with mating standard ¼ in. phone jack and phone plug.

A97A

Low-Impedance to Medium-Impedance Line Matching Transformer

High-quality transformer designed to properly match low-impedance (150 ohm to 600 ohm) microphone outputs to medium-impedance (1 kilohm to 10 kilohm) inputs, such as those frequently used in cassette recorders. Mating connectors for both sides are supplied with the transformer. Low-impedance connector—three-pin professional audio connector. Medium-impedance connector—Amphenol MC1M type connector.

circuitry accessories

CARRYING CASES, RACK PANELS, AND STACKING KIT

AC60
Attaché Carrying Case

Handsome, slimline vinyl covered attaché-type carrying case. Compartmented and foam-lined with space for any of the M63, M67, M68, or M610 Series components and as many as four microphones, cables, adaptors, and other accessories. Dimensions: 85.7 mm H x 467 mm W x 295 mm D (3⅜ x 18⅜ x 11⅝ in.)

A30A

A105A

A30A and A105A
Carrying Cases

Sturdy, weather-resistant cases designed to provide protection to Shure audio components during travel and portable use. Both front and back panels are hinged and completely removable for ease of access to controls and connections. Both the A30A and A105A are covered in heavy-duty, fabric-backed, black vinyl and feature a heavy-duty handle.

A30A Provides 3½ in. x 19 in. (89 mm x 483 mm) of rack-mounting area. Accommodates units up to 295 mm (11⅝ in.) in depth below the mounting surface. May be used with one M63, M67, M68 or M610 (with A68R Rack Panel), one M267 or M268 (with A26BR Rack Panel), one SE30 (with A100B Rack Panel), or two SR107's. Dimensions: 381 mm H x 515 mm W x 143 mm D (15 x 20⅜ x 5⅝ in.)

A105A Provides 7 in. x 19 in. (178 mm x 483 mm) of rack-mounting area. Accommodates units up to 210 mm (8¼ in.) in depth below the mounting surface. May be used to create a portable "custom" stack of Shure audio components. For use with Shure M63, M67, M68, and M610 Series components (with A68R Rack Panel), M267 and M268 (with A268R Rack Panel), SE30 (with A100B Rack Panel), SR107, and SR109. Dimensions: 533 mm H x 232 mm W x 311 mm D (21 x 9⅛ x 12¼ in.)

A68R A100B A268R

A68R, A68R-BL, A100B, and A268R Rack Panels

Equips Shure audio components for rack-mounting in standard 19 in. x 3½ in. (89 mm x 483 mm) audio equipment racks.

A68R For use with the M63, M67, M68, and M610 Series components. Dark gray/brown finish.
A68R-BL Same as A68R, except black finish (matching the case of Shure audio components).
A100B For use with the SE30. Black finish.
A268R For use with M267 and M268 Series components. Black finish.
RKC169 Accessory brackets for mounting M267 or M268 in an A68R Rack Panel.

A68S
Stacking Kit

Enables you to conveniently interconnect and stack two Shure audio components. Kit includes two support brackets and a phono-to-phono, interconnecting cable for connecting two M67's or M68's; or an M63 or M610 to an M68.

circuitry accessories

HANDLE/TILT STAND, SECURITY PANELS, PANEL LAMP, BATTERY POWER SUPPLIES AND MICROPHONE PREAMPLIFIER

A100A
Handle/Tilt Stand for SE30

Dual-function assembly serves as a convenient carrying handle (when positioned over the front panel of the SE30) or as a tilt stand that gives greater visibility and easier operation (when positioned under the SE30). Locking knurled knobs on each end give fast, positive positioning. Rubber feet provide an extra cushion and non-slip grip on smooth surfaces when the A100A is used in tilt stand position.

A68L and A107A
Security Panels

Steel panels that fasten to Shure audio components to prevent tampering of the controls once they have been set.

A68L For use with the M63, M67, M68 and M610 Series components. Includes small padlock and two keys.

A107A For use with the SR107, fastens with rack-mounting screws.

A101B
Panel Lamp

A small, low-intensity light unit to illuminate audio console controls in dimly lit areas. Attaches with screw down connector to Amphenol 80 PC2F receptacle (not supplied) and draws its power from the console. Flexible neck affords variable positioning.

A67B and A268B
Battery Power Supplies

Designed to power the Shure M-Line Series of audio components to full rated output. Eliminates the need for 120 Vac power.

A67B For use with M63, M67, M68, M610 Series components. May be used with the M67 as either the sole power source or as a standby safety during ac operation, providing automatic noiseless switchover in case of ac failure. The automatic switchover feature is not recommended for use with the M63, M68, or M610 as some battery drain may occur at line voltages less than 120 Vac. Uses three standard 9V transistor batteries.

A268B For use with the M268 Mixer. Features automatic, noiseless switchover in case of ac failure. Uses three standard 9V transistor batteries.

A68M
Microphone Preamplifier

Designed to provide a balanced line input for additional microphone input channel to Shure audio components. Mounts to the left side of the "master" component and is powered from this component's power jacks. The Input Selector Switches have positions for matching the input to either a balanced line, a low impedance balanced microphone, or a high-impedance unbalanced microphone. The Aux Output is terminated in a shielded cable with phono plug for connection to the Shure audio component. For use with the M63, M68 and M610.

ABOUT SHURE CIRCUITRY PRODUCTS

Each of the Shure circuitry products featured in this section is small in size, simple to operate and modest in cost, yet they can handle virtually any assignment in which multiple microphones or other audio sources must be controlled. They are ideal for practical, efficient, economical audio control in studio, broadcasting, public address, sound reinforcement and recording applications.

Dollar for dollar, Shure circuitry products provide more features and performance than competitive brands on the market. All units are built with the input-output flexibility that equips them for an extremely wide variety of audio control applications ... and by stacking or combining various Shure components, the user can get exactly the audio control needed for virtually any application.

For years, Shure portable microphone mixers have been the standard in the broadcast industry, as well as the most popular moderately-priced units in general use. They are recognized worldwide for their value, versatility, quality and reliability. And with the introduction of two new models, the M267 and M268, Shure continues to lead the way in the portable mixer field.

CIRCUITRY ACCESSORIES
On pages 67 and 68 of this section you'll find a complete line of accessories designed to make handling, installation, and use of Shure circuitry products easier and more trouble free.

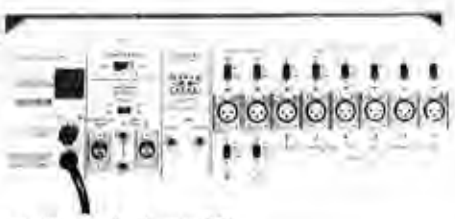
INFORMATION ON SHURE LOUDSPEAKERS
For information on the Shure line of professional loudspeakers, write to Shure Brothers Inc., Attention: Customer Services Department.

Below are photographs of the back panels of the circuitry products featured in this section.

SE30 Dated Compressor Mixer (page 67)

M687C Mixer (page 64)

M267 Mixer (page 62)



SR109 Mixer with Limiter (page 65)

M268 Mixer (page 63)

SR107 Audio Equalizer (page 66)

M67 Mixer (page 64)

M63 Audio Master (page 67)

M68 Mixer (page 64)

M610 Feedback Controller (page 68)

SHURE

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