WL93 SM93

Omnidirectional Condenser Lavalier Microphone

WL93 and SM93 omnidirectional lavalier microphones.

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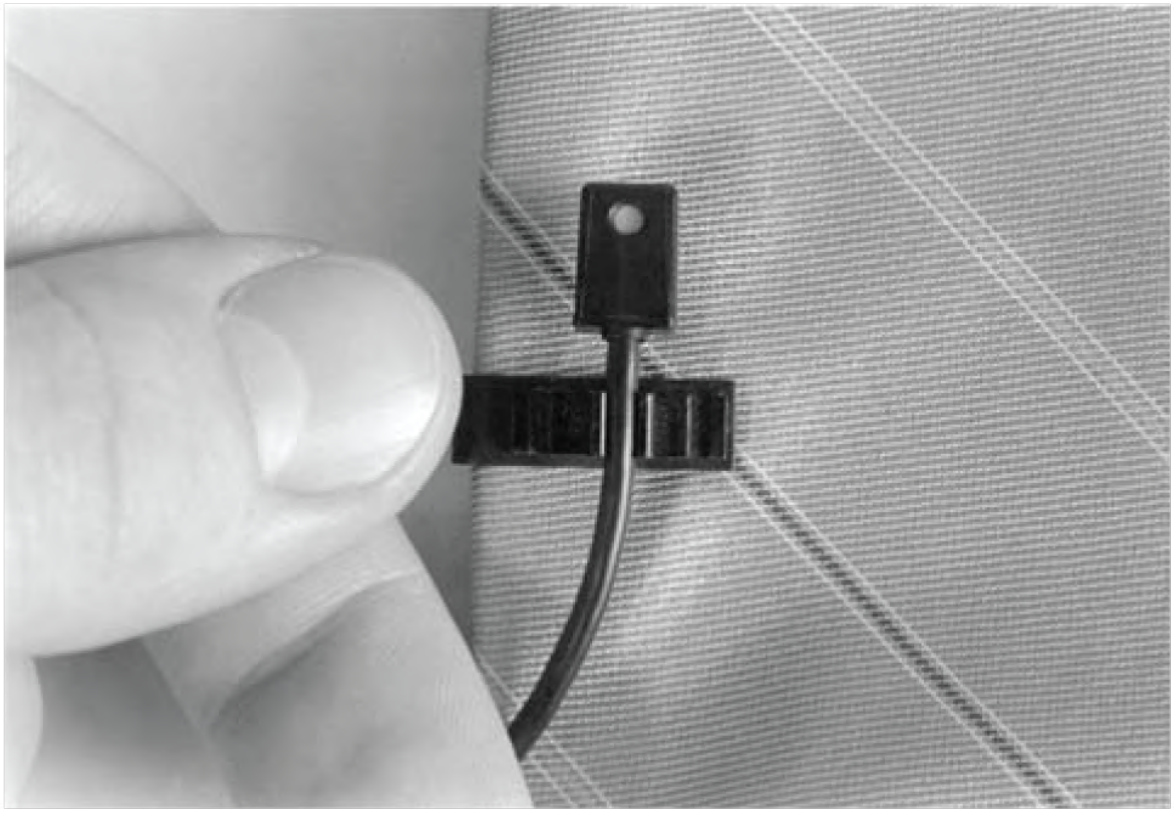
General Description

Shure Model WL93 and SM93 Microphones are omnidirectional, subminiature, lavalier electret condenser microphones. Their visually unobtrusive design and tailored frequency response make them ideal for body-worn applications in TV broadcasting, theater, and sound reinforcement. Both the Model WL93 and the SM93 feature a small microphone element that provides full, clear sound comparable to that of much larger microphones.

The WL93, intended for wireless use, connects directly to a Shure wireless body-pack transmitter. The SM93, intended for wired applications, includes a preamplifier assembly for connection to three-pin professional (XLR) audio connectors. The SM93 requires phantom power, and operates over a range of 11 to 52 Vdc, covering both DIN and IEC phantom power standards.



FEATURES

- Subminiature lavalier design; ideal size for theater, television broadcasting, video, film, and sound reinforcement
- Small, inconspicuous mounting hardware
- Full, clear sound comparable to larger microphones

- Smooth extended frequency response with presence rise specially tailored for chest-worn microphone operation
- Controlled low-frequency rolloff reduces low-frequency clothing and room noise
- Low distortion, wide dynamic range
- Uniform omnidirectional polar pattern
- Preamplifier assembly (SM93) can be pocketed, strapped to the body, or clipped to belt or waistband
- Wide-range phantom powering (SM93) accepts all commonly used voltages

VARIATIONS

Version	Cable	Color
WL93	1.2 m (4 ft.)	Black matte microphone and cable with black accessories
SM93		
WL93-6	1.8 m (6 ft.)	
WL93T	1.2 m (4 ft.)	Tan matte microphone and cable with tan accessories
WL93-6T	1.8 m (6 ft.)	

CONNECTIONS

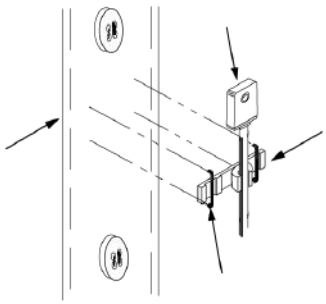
Connect the male, four-pin miniature connector (TA4M) at the end of the 93 microphone cable to the supplied preamplifier (SM93) or to a Shure wireless body-pack (WL93).

NOTE: *Do not connect the 93 microphone directly to a mixer without using the supplied preamplifier or body-pack.*

MOUNTING THE MICROPHONE

The tie clips and mounting bracket provided with the WL93 and SM93 allow the user to wear the microphone in a variety of ways. To achieve optimum pickup, attach the microphone to the user's chest. You can also obtain high-quality sound when the microphone is worn in the hair, sewn into clothing, or attached to an acoustic instrument such as a guitar.

- **Tie Clip.** A spring-loaded clasp attaches easily to a necktie, lapel, blouse, or shirt. Snap the microphone into the clip's mounting bracket and attach the clip to an article of clothing. The dual tie clip supplied with the SM93 provides simultaneous mounting of two microphones.
- **Sew-On Bracket.** Sew the supplied sew-on mounting bracket directly to a garment (Figure 1). Use dark or light thread as necessary to match the color of the bracket.



SEW-ON MOUNTING

MOUNTING THE SM93 PREAMPLIFIER

Use the spring-loaded belt clip to hold the amplifier to a belt, skirt or trouser waistband, or inside pocket.

WINDSCREENS

An acoustic foam windscreen is supplied to help reduce undesirable wind noise associated with outdoor miking.

POWERING THE SM93 PREAMPLIFIER

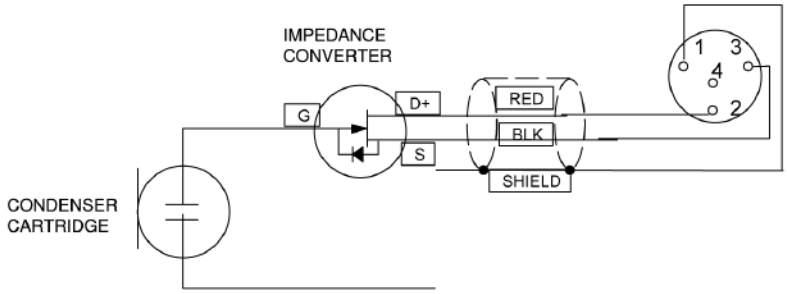
Power the preamplifier supplied with the SM93 using any phantom supply providing 11 to 52 Vdc, such as the Shure Model PS1A Power Supply.

SM93 PREAMPLIFIER IMPEDANCE

Use a minimum load impedance of 800 Ω or greater for maximum signal handling and minimum distortion. Load as low as 150 Ω can be used, but a reduction in output clipping level will result. Note that the power supply itself may add loading (3300 Ω in the Shure PS1A) to the microphone.

USING OTHER PREAMPLIFIERS OR BODY-PACKS

If connecting the 93 microphone to anything OTHER than a Shure wireless body-pack or the preamplifier supplied with the SM93, make sure it provides a regulated +5 Vdc source (40 µA minimum) at pin 2 of the microphone connector, as shown in "MICROPHONE WIRING DIAGRAM" Figure.



MICROPHONE WIRING DIAGRAM

Specifications

WL93 Specifications

Type

Condenser (electret bias)

Frequency Response

50 to 20,000 Hz

Polar Pattern

Omnidirectional , uniform with frequency

Output Impedance

3000 Ω

Sensitivity

open circuit voltage: −38 dBV/Pa(13 mV)

Clipping Level

at 1 kHz

0.25 V at 120 dB

Maximum SPL

120 dB

Dynamic Range (Maximum SPL, A-weighted)

102 dB

Self Noise

18 dB typical , A-Weighted

Signal-to-Noise Ratio

76 dB at 94 dB SPL (IEC 651)

Polarity

Positive pressure on microphone diaphragm produces positive voltage on pins 3 and 4 with respect to pin 1 (ground)*

Power Requirements

2 to 10 V; 5 V nominal (pin 2 to pins 3 and 4);Current Drain 40 µA typical

Environmental Conditions

Operating Temperature	: −18 to 57°C (0 to 135°F)
Storage Temperature	: −29 to 74°C (−20 to 165°F))

Cable

Black1.27 m (4.17 ft), attached , two-conductor , shielded , terminated by miniature Connector Type TA4F (: Tan 1.27 m[4.17 ft])

Housing

Microphone: Black ABS thermoplastic case with stainless-steel-mesh grille

Weight

Microphone: 16 g (0.57 oz.)

*Produces positive voltage at pin 2 of Shure L4/EC4 wireless receiver three-pin connector.

SM93 Specifications

Type

Condenser (electret bias)

Frequency Response

80 to 20, 000 Hz , dB/octave below 100 Hz

Polar Pattern

Omnidirectional , uniform with frequency

Output Impedance

rated at 150 Ω (90 Ω actual) Recommended minimum load impedance: 800 Ω (May be used with loads as low as 150 Ω with reduced clipping level)

Sensitivity

open circuit voltage: −43 dBV/Pa(7 .0 mV)

Clipping Level

at 1 kHz

−18 dBV (0.13 V) minimum

Maximum SPL

120 dB

Dynamic Range (Maximum SPL, A-weighted)

98 dB

Self Noise

A-Weighted	22 dB typical
weighted per DIN	26 dB 45 405

Hum Pickup

−4 dB equivalent SPL in a 1millioersted field (60 Hz)

Signal-to-Noise Ratio

72 dB at 94 dB SPL (IEC 651)

Polarity

Positive pressure on microphone diaphragm produces positive voltage on pin 2 relative to pin 3 of preamplifier output cable connector

Power Requirements

11 to 52 V DC phantom . Protected against reverse voltage application . Current Drain0.33 mA

Environmental Conditions

Operating Temperature	: −18 to 57°C (0 to 135°F)
Storage Temperature	: −29 to 74°C (−20 to 165°F)

Cable

Black1.27 m (4.17 ft), attached , two-conductor , shielded , terminated by miniature Connector Type (TA4F)

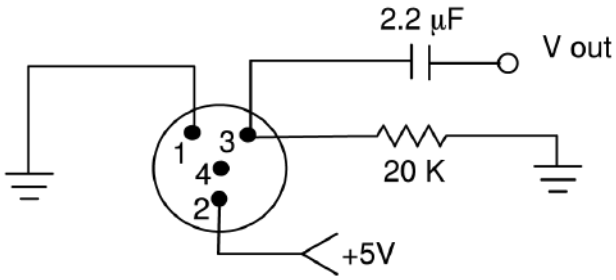
Housing

Microphone	Black ABS thermoplastic case with stainless-steel-mesh grille
Preamplifier	Steel case with non-reflective black finish, black-chrome belt clip

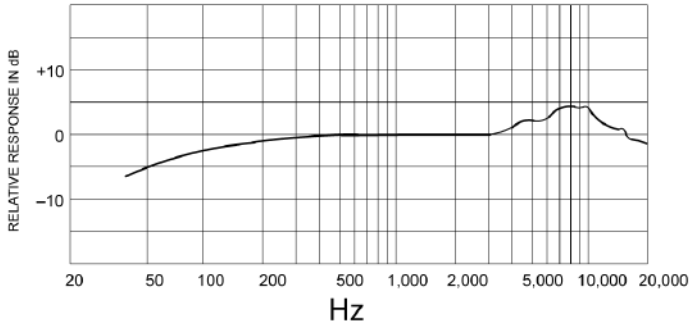
Weight

Microphone	16 g (0.57 oz.)
Preamplifier	: 118 g (4.17 oz.)

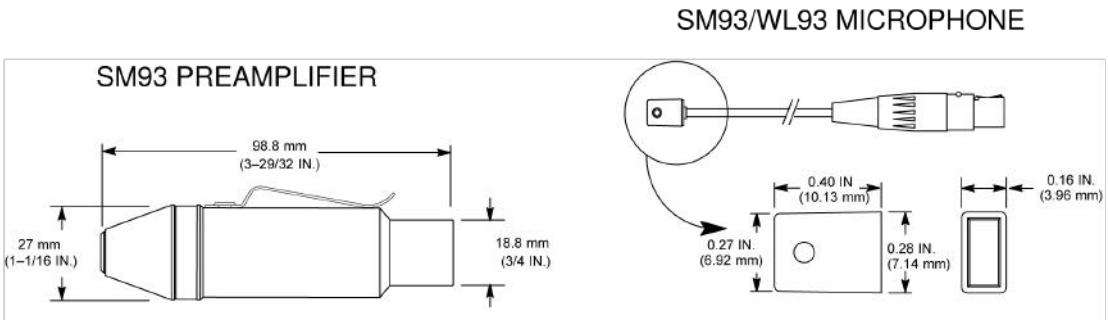
[1]1 Pascal = 94 dB SPL



TEST CIRCUIT



TYPICAL FREQUENCY RESPONSE



OVERALL DIMENSIONS