Models WL50/WL51 and MC50/MC51 User Guide

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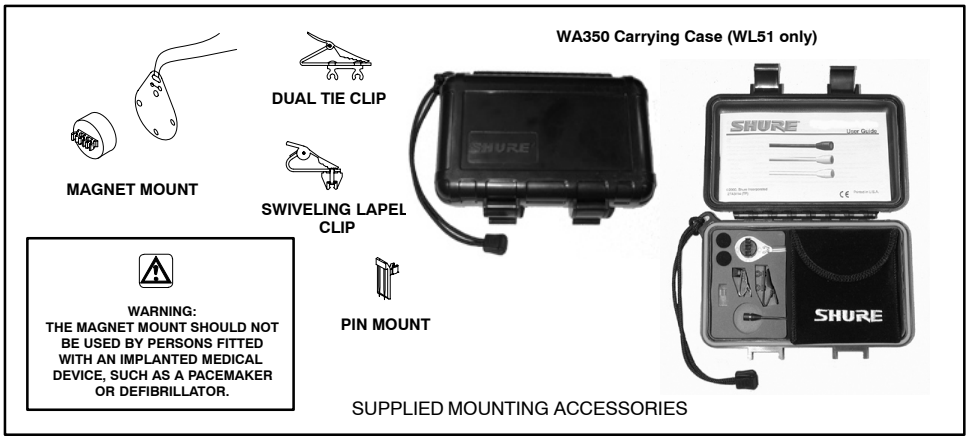


SUPPLIED MOUNTING ACCESSORIES

GENERAL

Shure models WL50/MC50 (omni) and WL51/MC51 (unidirectional) are subminiature, electret condenser lavalier microphones. They provide uncompromised sound quality and high reliability with minimal visibility in sound reinforcement applications such as television broadcasting and stage performances. Despite its small size, the microphone's condenser element provides full, clear and natural reproduction of speech. Each microphone is supplied with two foam windscreens to minimize wind noise. The supplied mounting accessories consist of a lapel clip, a tie clip, a pin mount, and a magnet mount, giving the user a wide variety of options for placement.

MODEL VARIATIONS

WL50 (omni)/WL51 (uni): Intended for wireless use. Connects to Shure wireless bodypack transmitters via a TA4F connector.

WL50X (omni)/WL51X (uni): Supplied with a 3 m (10 ft.) stripped and tinned cable for wiring to an alternate connector.

WL50–LO: A lower sensitivity variation of the WL50, supplied with a TA4F connector. (omnidirectional)

WL50X–LO: A lower sensitivity version of the WL50, supplied with stripped and tinned leads. (omnidirectional)

MC50 (omni)/MC51 (uni): Intended for hardwired applications. WL50 or WL51 microphone supplied with an in-line preamplifier with a three-pin male XLR audio connector.

FEATURES

- *Extended frequency response with user changeable equalization caps for response shaping (omni only)*
- *Low visibility with a variety of options for mounting*
- *WL50—(omnidirectional) offered in black, beige, and white with matching accessories*
- *WL51—(unidirectional) offered in black and white with matching accessories*
- *Low handling noise*
- *Legendary Shure quality, ruggedness, and reliability*

WINDSCREENS

Two acoustic foam windscreens are supplied to help reduce undesirable wind noise.

EQUALIZATION CAPS

The WL50 and the MC50 omnidirectional models are each supplied with two types of equalization caps for high frequency response shaping. The caps effect the response range between 5,000 and 20,000 Hz (see Figure 4), and can be distinguished by the color of their mesh screens. The mild boost equalization cap has a very fine mesh, silver color screen, and attenuates the natural high frequency peak of the microphone. The high boost equalization cap has an open mesh gold color screen and does not attenuate the high frequency peak. **The WL51 and MC51 unidirectional models are supplied with the high boost equalization cap only. The WL51 and MC51 models should never be used with the mild boost equalization cap because the unidirectional pick-up pattern will be severely altered. This is due to partial blocking of the front opening, and they will not perform correctly.**

NOTE: For best sound quality, replace the equalization caps if they become clogged with make-up.

USING THE MC50/MC51 WITH A MIXER

The preamplifier supplied with both the MC50 and MC51 requires phantom power ranging from 11 to 52 Vdc. Connect the preamplifier to a mixer input with a minimum load impedance of 800 Ω to maximize operating headroom.

USING THE WL50/WL51 WITH OTHER BODYPACK TRANSMITTERS

If connecting the WL50/WL51 to anything OTHER than a Shure wireless bodypack, make sure the device provides a regulated +5 Vdc (130 μA minimum) to the red conductor. Refer to the wiring diagrams in Figures 6 and 7.

WIRING THE WL50X/WL51X TO AN ALTERNATE CONNECTOR

Model WL50X/WL51X is supplied with a stripped and tinned cable for wiring to a variety of connectors. Refer to the WL50X/WL51X wiring diagram in Figure 6. For additional information on wiring the WL50X/WL51X to an alternate connector, contact Shure's Applications Department at (847) 600–8440 or 1–800–516–2525.

MOUNTING THE MICROPHONE

The WL50/WL51 and MC50/MC51 microphones come with the following mounting accessories:

Swiveling Lapel Clip. Features a spring-loaded clasp that attaches easily to a necktie, lapel, blouse or shirt, connected to a rotatable mounting clip. To mount, snap the microphone cable into the clip near the neck of the microphone, then attach the clasp to an article of clothing. Rotate the mounting clip to place the microphone at desired angle.

Dual Tie Clip. Features a spring-loaded clasp that attaches easily to a necktie or suit coat lapel, and a clip that holds one or two microphones. To mount, snap the microphone cable(s) into the clip near the neck of the microphone, then attach the clasp to an article of clothing.

Pin Mount. Features a translucent mounting clip with two straight pins that easily secure to an article of clothing. To mount, slide the straight pins into clothing, then snap the microphone cable into the mounting clip near the neck of the microphone.

Magnet Mount. Features a backplate that is worn under clothing and attaches to a magnetic mount capable of holding one or two microphones. To mount, place the magnetic backplate "necklace" around neck and under clothing, then align the magnet mount to the backplate and secure it to clothing. Snap microphone cable(s) into the clip near the neck of the microphone, and adjust the magnet mount to hold microphone at the desired angle.

WARNING: The magnet mount should not be used by persons fitted with an implanted medical device, such as a pacemaker or defibrillator.

FURNISHED ACCESSORIES

Foam Windscreen (2 pcs.): Black, beige or white

* Mild Boost Equalization Cap (2 pcs.): Black, beige or white

High Boost Equalization Cap (2 pcs.): Black, beige or white

Swiveling Lapel Clip: Black, beige or white

Dual Tie Clip: Black, beige or white

Preamplifier with hardware (MC50/MC51 only) RPM626

Magnet Mount
- Black 90A4694
- Beige 90B4694
- White 90C4694

Pin Mount 95A2162

OPTIONAL ACCESSORIES

Phantom Power Supply PS1A

Battery-Operated Preamplifier MX1BP

REPLACEMENT PARTS

High Boost Equalization Caps
- Black (5 pcs.) RPM208
- Beige (5 pcs.) (omni only) RPM212
- White (5 pcs.) RPM216

Mild Boost Equalization Caps (omni only)
- * Black (5 pcs.) RPM220
- Beige (5 pcs.) RPM214
- * White (5 pcs.) RPM218

Foam Windscreen
- Black (5 pcs.) RPM304
- Beige (5 pcs.) RPM306
- White (5 pcs.) RPM308

2 Swivel Lapel Clips and 2 Dual Tie Clips
- Black RPM500
- Beige RPM502
- White RPM504

Mini 4–pin (TA4F type) Connector WA331

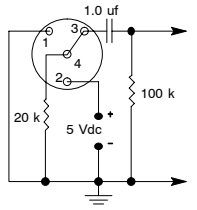
Carry Case (WL51 only) WA350

* Not used with WL51, MC51 models

SPECIFICATIONS	WL50†	WL50–LO†	MC50‡	WL51†	MC51‡
Type	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)
Polar Pattern	Omnidirectional	Omnidirectional	Omnidirectional	Cardioid	Cardioid
Output Impedance	N/A	N/A	136 Ω actual (rated at 150 Ω)	N/A	136 Ω actual (rated at 150 Ω)
Recommended Min. Input Impedance	20 kΩ	20 kΩ	N/A	20 kΩ	N/A
Output Level	–45.0 dBV/Pa (1 Pa=94 dB SPL)	–54.0 dBV/Pa (1 Pa=94 dB SPL)	–41.0 dBV/Pa (1 Pa=94 dB SPL)	–50.0 dBV/Pa (1 Pa=94 dB SPL)	–46.0 dBV/Pa (1 Pa=94 dB SPL)
Maximum SPL	133 dB at 1% THD/ 20k Ω load	142 dB at 1% THD/ 20k Ω load	138 dB at 1% THD/ 1 k ohm load	138 dB at 1% THD/ 20k Ω load	143 dB at 1% THD/ 1 k ohm load
Frequency Response	20 to 20,000 Hz (see Figure 5)				
Dynamic Range	103.0 dB	103.0 dB	108.0 dB	103.0 dB	108.0 dB
Output Noise (equivalent SPL, A-weighted)	30 dB typical; 33 dB maximum	39 dB typical; 42 dB maximum	30 dB typical; 33 dB maximum	35 dB typical; 38 dB maximum	35 dB typical; 38 dB maximum
Signal-to-Noise Ratio	64 dB at 94 dB SPL	55 dB at 94 dB SPL	64 dB at 94 dB SPL	59 dB at 94 dB SPL	59 dB at 94 dB SPL
Power Requirements	+5 Vdc on pin 2, return on pin 1 (ground).	+5 Vdc on pin 2, return on pin 1 (ground).	11 to 52 Vdc (positive on pins 2 and 3, return on pin 1).	+5 Vdc on pin 2, return on pin 1 (ground).	11 to 52 Vdc (positive on pins 2 and 3, return on pin 1).
Current Drain	60–130 μA	60–130 μA	4.6 mA	60–130 μA	4.6 mA
Polarity—Positive pressure on the diaphragm produces a positive voltage at:	Pin 3 relative to pin 1 at the output connector of the microphone.		pin 2 relative to pin 3 of the output connector of preamplifier.	pin 3 relative to pin 1 at the output connector of the microphone.	pin 2 relative to pin 3 of the output connector of preamplifier.
Overvoltage Protection	N/A	N/A	±75.0 Vdc maximum from pins 2 and 3 to pin 1.	N/A	±75.0 Vdc maximum from pins 2 and 3 to pin 1.
Cap and Overmold Material	Polypropylene				
Environmental Conditions	Operating Temperatures: –18° to 57° C (0° to 135° F) Storage Temperatures: –29° to 74° C (–20° to 165° F) Humidity: 0 to 95%				
Packaged Weight	188 g (6.63 oz.)	188 g (6.63 oz.)	305 g (10.76 oz.)	188 g (6.63 oz.)	305 g (10.76 oz.)
Cable and Connector	1.5 m (5 ft.), small-diameter, shielded, with miniature female 4-pin connector (TA4F type). WL50X: 3 m (10 ft.) small-diameter, shielded, with stripped and tinned leads.	1.5 m (5 ft.), small-diameter, shielded, with miniature female 4-pin connector (TA4F type). WL50X–LO: 3 m (10 ft.) small-diameter, shielded, with stripped and tinned leads.	1.5 m (5 ft.), small-diameter, shielded, with miniature female 4-pin connector (TA4F type).	1.5 m (5 ft.), small-diameter, shielded, with miniature female 4-pin connector (TA4F type). WL50X: 3 m (10 ft.) small-diameter, shielded, with stripped and tinned leads.	1.5 m (5 ft.), small-diameter, shielded, with miniature female 4-pin connector (TA4F type).
Microphone and Preamp Dimensions	See Figures 2 and 3				
Net Weight	WL50: 21 g (0.7 oz.) with cable and connector. WL50X: 28 g (1.0 oz.) with 3 m (10 ft.) stripped and tinned cable.	WL50–LO: 21 g (0.7 oz.) with cable and connector. WL50X–LO: 28 g (1.0 oz.) with 3 m (10 ft.) stripped and tinned cable.	121 g (4.3 oz.) with cable, connector, and preamplifier.	WL51 21 g (0.7 oz.) with cable and connector. WL51X: 28 g (1.0 oz.) with 3 m (10 ft.) stripped and tinned cable.	121 g (4.3 oz.) with cable, connector, and preamplifier.

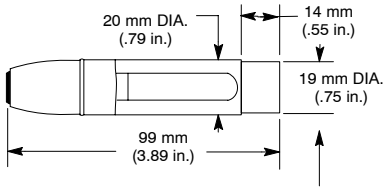
Certification: Eligible to bear CE marking. Conforms to European EMC directive 89/336/EEC. Meets applicable test and performance criteria in European EMC standard EN 55103 (1996) parts 1 and 2, for residential (E1) and light industrial (E2) environments.

† Measured with test circuit (see Figure 1).
‡ Measured with RPM626 Preamplifier.



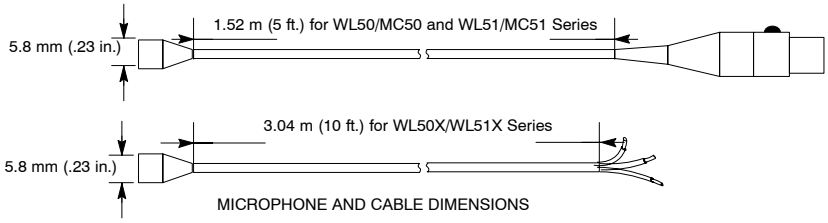
STANDARD TEST CIRCUIT

FIGURE 1



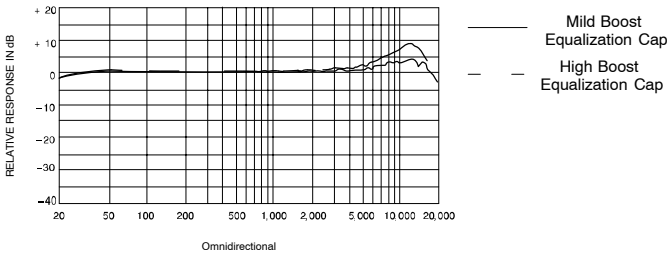
PREAMPLIFIER DIMENSIONS

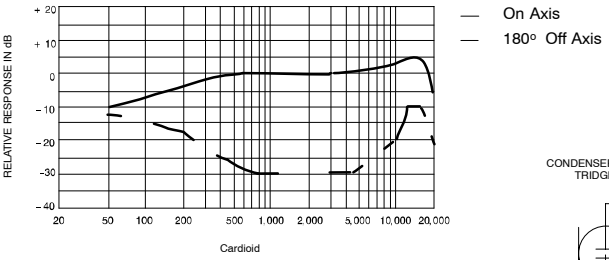
FIGURE 2



MICROPHONE AND CABLE DIMENSIONS

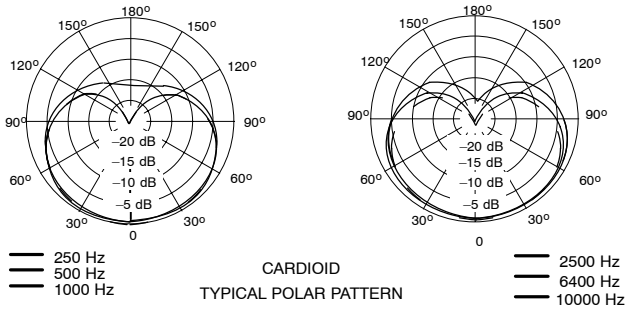
FIGURE 3





TYPICAL FREQUENCY RESPONSE

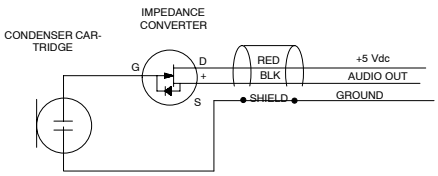
FIGURE 4



CARDIOID

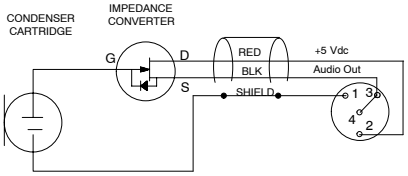
TYPICAL POLAR PATTERN

FIGURE 5



WL50X SERIES MICROPHONE WIRING DIAGRAM (UNTERMINATED)

FIGURE 6



WL50/MC50 and WL51/MC51 SERIES MICROPHONE WIRING DIAGRAM WITH TA4F CONNECTOR

FIGURE 7