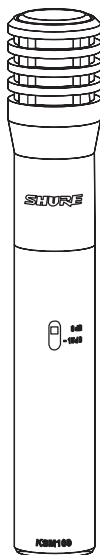


User Guide

KSM109



SHURE INCORPORATED
KSM109 CARDIOID CONDENSER MICROPHONE



Thank you for selecting the KSM109.

Over 75 years of audio experience has contributed to making the KSM109 one of the finest microphones available.

If you have any questions not answered in this booklet, please contact Shure Applications Engineering at 847-600-8440, Monday through Friday, from 8:00am to 4:30 pm, CST. In Europe, call 49-7131-72140. Our web address is www.shure.com.





FIGURE 1. KSM109

GENERAL DESCRIPTION

The Shure® KSM109 is an end-address condenser microphone with a cardioid polar pattern. Designed for studio use, yet rugged enough for live applications, the KSM109 delivers a clear reproduction of the original sound source. Its extended frequency response makes it ideal for recording musical instruments.

FEATURES

- *Cardioid polar pattern to reduce the pickup of unwanted sounds*
- *Ultra-thin, 2.5 μ m 24 karat gold-layered, low mass Mylar® diaphragm for superior transient response*
- *Class A, discrete, transformerless preamplifier for transparency, extremely fast transient response, no crossover distortion, and minimal harmonic and intermodulation distortion*
- *Premium electronic components, including gold-plated internal and external connectors*
- *Two-position switchable pad (0 dB and 15 dB) for handling extremely high sound pressure levels (SPLs)*

PERFORMANCE CHARACTERISTICS

- *Extended frequency response*
- *Low self-noise*
- *Can withstand high sound pressure levels (SPLs)*
- *High output level*
- *No crossover distortion*
- *Uniform polar response*
- *Superior common mode rejection and suppression of RFI (radio frequency interference)*

APPLICATIONS

The KSM109 will produce superior results in any application requiring a high quality microphone. Typical applications include:

- *Close miking of acoustic instruments such as piano, guitar, violins, drums, and percussion*
- *Overhead miking of drums and percussion instruments*
- *Electric guitar amplifiers*
- *Brass and woodwind instruments*
- *Orchestras, choirs, and wind ensembles*

Note: Sound quality is strongly affected by microphone location and room acoustics. To achieve the best overall sound for a particular application, it may be necessary to experiment with microphone placement and room treatments.

USING THE KSM109

Mounting the Microphone

To secure the KSM109 to a floor stand or boom, thread the mount onto the microphone stand and insert the microphone into the mount.

Power Requirements

The KSM109 requires phantom power and performs best with a 48 Vdc supply (IEC-268-15/DIN 45 596). It can operate on voltages as low as 11 Vdc, but headroom and sensitivity will be decreased slightly.

Note: Most modern mixers provide phantom power.

Cable Connections

Use a cable with XLR connectors at each end.

Load Impedance

Shure recommends a load impedance of at least 1000 Ω . When used with modern microphone preamplifiers rated at about 2500 Ω , the KSM109 provides higher maximum SPL capability and output clipping level. When the attenuation switch is set to the -15 dB position, the KSM109 can handle up to 165 dB SPL, and can output +15 dBV into a load of 5000 Ω or greater.

Setting Attenuation

The attenuation switch on the KSM109 lets you reduce the signal level by up to 15 dB without altering frequency response. This can prevent extremely loud sounds from overloading the microphone. Set the switch to the desired attenuation levels as follows:

0 dB - Move the switch to this position for “quiet” to “normal” sound levels.

-15 dB - Move the switch to this position when the microphone is approximately 0.75 meters (2 feet) from sound sources such as a snare drum, or electric guitar cabinet.

SPECIFICATIONS

Cartridge Type	Permanently Biased Condenser
Frequency Response	20-20,000 Hz (see Figure 2)
Directional Polar Pattern	Cardioid (see Figure 3)
Output Impedance	150 Ω (actual)
Attenuation Switch	0 dB or 15 dB attenuation
Phantom Power	48 Vdc \pm 4 Vdc (IEC-268-15/DIN 45 596), positive pins 2 and 3
Current Drain	5.2 mA typical at 48 Vdc
Common Mode Rejection	\geq 50 dB, 20 Hz to 20 kHz
Polarity	Positive pressure on diaphragm produces positive voltage on output pin 2 relative to pin 3
Dimensions and Weight	24 mm (0.95 in.) diameter, 162 mm (6.37 in.) long; 195 grams (6.9 oz.) (see Figure 4)
Sensitivity (typical, at 1000 Hz; 1 Pa = 94 dB SPL)	-41 dBV/Pa
Self-noise (typical, equivalent SPL; A-weighted IEC 651)	19 dB
Maximum SPL* (Attenuator on) 5000 Ω load 2500 Ω load 1000 Ω load	150 (165) dB 144 (159) dB 139 (154) dB
Output Clipping Level* 5000 Ω load 2500 Ω load 1000 Ω load	15 dBV 9 dBV 3 dBV
Dynamic Range (Attenuator on) 5000 Ω load 2500 Ω load 1000 Ω load	133 (136) dB 128 (130) dB 122 (125) dB
Signal to Noise Ratio**	75 dB

* 20 Hz to 20 kHz; THD < 1%. THD of the microphone preamplifier when applied input signal is equivalent to the cartridge output at specified SPL.

** S/N ratio is the difference between 94 dB SPL and equivalent SPL of self-noise A-weighted.

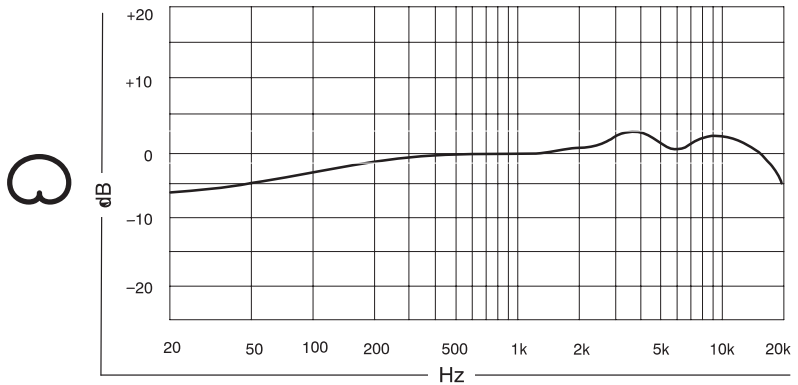


FIGURE 2. TYPICAL FREQUENCY RESPONSE

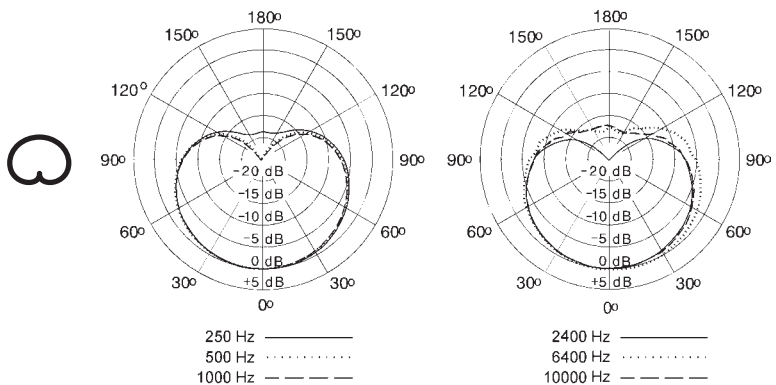


FIGURE 3. TYPICAL POLAR PATTERNS

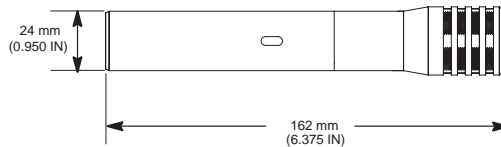


FIGURE 4. DIMENSIONS

CERTIFICATION

Eligible to bear CE Marking; Conforms to European EMC directive 89/336/EEC. Meets applicable tests and performance criteria found in European Professional Audio Products EMC Standard EN 55103 (1996); Part 1 (Emissions) and Part 2 (Immunity). The KSM109 is intended for use in environments E1 (residential) and E2 (Light Industrial) as defined in European standard EN 55103. EMC conformance is based on the use of shielded interconnecting cable.

FURNISHED ACCESSORIES

Vinyl Pouch	A109ZB
Windscreen	A3WS
Microphone Clip	A25D

OPTIONAL ACCESSORIES

SHOCKSTOPPER™ Shock Mount.	A55M, A55HM
Popper-Stopper™ Windscreen	PS-6

SERVICE

For additional microphone service or parts information, please contact the Shure Service Department at 1-800-516-2525. Outside the United States, please contact your Authorized Shure Service Center.

EU DECLARATION OF CONFORMITY

We,
of

Shure Incorporated
222 Hartrey Avenue
Evanston, IL 60202-3696, U.S.A

Declare under our sole responsibility that the following products

Model: KSM109 Description: Condenser Microphone

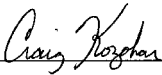
to which this Declaration relates

are in conformity to European Low Voltage Directive 73/23/EEC
are in conformity to European EMC Directive 89/336/EEC
are in conformity to European CE Marking Directive 93/68/EEC

The product complies with the following product family, harmonized or national standards:

EN 55103-1 1996
EN 55103-2 1996

Manufacturer: Shure Incorporated

Signed  Date SEPT 24, 2002

Name, Title Craig Kozokar
EMC Project Engineer, Corporate Quality, Shure Incorporated

European Contact: Shure Europe GmbH
Wannenäcker Str. 28, 74078 Heilbronn, Germany
Phone: 49-7131-7214-0, Fax: 49-7131-7214-14

SHURE®

SHURE Incorporated <http://www.shure.com>

United States, Canada, Latin America, Caribbean:

5800 W. Touhy Avenue, Niles, IL 60714-4608, U.S.A.

Phone: 847-600-2000 U.S. Fax: 847-600-1212 Intl Fax: 847-600-6446

Europe, Middle East, Africa:

Shure Europe GmbH, Phone: 49-7131-72140 Fax: 49-7131-721414

Asia, Pacific:

Shure Asia Limited, Phone: 852-2893-4290 Fax: 852-2893-4055