

# User Guide

## KSM141



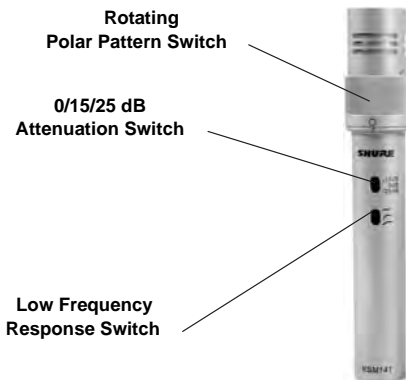
SHURE INCORPORATED  
**KSM141 DUAL POLAR PATTERN CONDENSER MICROPHONE**



**Thank you for selecting the KSM141.**

Over 75 years of audio experience has contributed to making the KSM141 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](http://www.shure.com).



**FIGURE 1. KSM141 CONDENSER MICROPHONE**

## **GENERAL DESCRIPTION**

The Shure® KSM141 is an end-addressed condenser microphone with mechanically switching dual polar patterns (cardioid and omnidirectional). Designed for studio use, yet rugged enough for live applications, the KSM141 can withstand extremely high sound pressure levels (SPL). Its low self-noise and extended frequency response make it ideal for recording musical instruments.

## **FEATURES**

- *A mechanical polar pattern switch for highly consistent cardioid and true omnidirectional polar patterns. Provides flexibility in a wide variety of recording applications.*
- *Ultra-thin, 2.5  $\mu\text{m}$ , 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.*
- *Subsonic filter eliminates low frequency rumble (less than 17 Hz) caused by mechanical vibration.*
- *Three-position switchable pad (0 dB, 15 dB, and 25 dB) for handling extremely high sound pressure levels (SPLs).*
- *Three-position switchable low-frequency filter to reduce background noise and counteract proximity effect.*

## PERFORMANCE CHARACTERISTICS

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

## MODEL VARIATIONS

<b>KSM141/SL</b>	<b>KSM141/SL ST PAIR</b>
One KSM141 Condenser Microphone	Two KSM141 Condenser Microphones
One A141C Carrying Case	One A141SPC Carrying Case
One A100WS Windscreen	Two A100WS Windscreens
One A57F Stand Mount	Two A57F Stand Mounts
One European-threaded adapter that mates the A57F to European-threaded microphone stands	Two European-threaded adapters that mate the A57F to European-threaded microphone stands

## APPLICATIONS

The KSM141 produces 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*
- *Room ambience pick-up (guitar amplifier or drums)*
- *Orchestras, choirs, wind ensembles*
- *Low-frequency instruments such as double bass and kick drum*

**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 various room treatments.

## USING THE KSM141

### Mounting the Microphone

To secure the KSM141 to a floor stand or boom, thread the mount onto the microphone stand and insert the microphone into the microphone clip.

### Power Requirements

This microphone 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  $\Omega$ . When used with modern microphone preamplifiers rated at about 2500  $\Omega$ , the KSM141 provides higher maximum SPL capability and output clipping level. When the attenuation switch is set to the -25 dB position, it can handle up to 164 dB SPL, and can output +15 dBV into a load of 5000  $\Omega$  or greater.

### Selecting a Polar Pattern

To select either the cardioid or omnidirectional polar pattern, rotate the knurled ring on the microphone in either direction until you feel a detent. The image of the desired polar pattern should be directly above the notch at the base of the ring.

**NOTE:** Operating the KSM141 in a non-detent position (no polar pattern selected) will produce an unpredictable polar pattern and may adversely affect frequency response.

 **Cardioid.** When this pattern is selected, the microphone picks up sounds directly in front of the microphone and is least sensitive to those in back. This is the most commonly used pattern in studio recording and live-sound applications. See Figure 4.

 **Omnidirectional.** Picks up sounds from all directions. This pattern is best for picking up room ambience and for miking several sources, such as an ensemble or multiple singers, simultaneously. The omnidirectional polar pattern exhibits no proximity effect. See Figure 4.

**WARNING:** Rotating the polar pattern switch produces mechanical noise which, when amplified, may damage the loudspeakers. Turn down any loudspeakers or mute the microphone at the mixing console before changing the polar pattern.

## Setting Low-Frequency Response

A three-position switch on the KSM141 lets you adjust the low frequency response of the microphone. The low frequency filters can be used to reduce wind noise, room noise, or proximity effect. Refer to Figure 2.

— **Flat response.** This setting provides the most natural sound reproduction in most applications.

▮ **Low-frequency cutoff.** This setting provides an 18 dB-per-octave cutoff at 80 Hz. It helps eliminate floor rumble and low-frequency noise produced by heating and air conditioning systems. This setting may also be used to compensate for proximity effect or to reduce low frequencies that make an instrument sound dull or muddy.

▮ **Low-frequency rolloff.** This setting provides a 6 dB-per-octave rolloff at 115 Hz. Use this setting to compensate for proximity effect or to reduce low frequencies that could make an instrument sound dull or muddy.

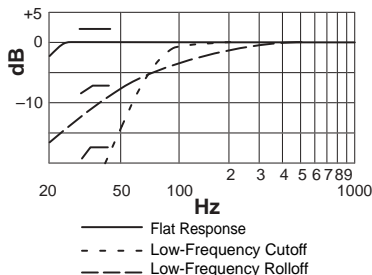


FIGURE 2. LOW FREQUENCY FILTERS

## Setting Attenuation

The attenuation switch lets you reduce the signal level by up to 25 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 kick drum, snare drum, or electric guitar cabinet.

**-25 dB** - Move the switch to this position when the microphone is 4 inches (10 cm) or less from extremely loud sound sources such as kick drum, snare drum, or guitar cabinets.

## SPECIFICATIONS

<b>Cartridge Type</b>	Permanently Biased Condenser
<b>Frequency Response</b>	20-20,000 Hz (see Figures 3 and 5)
<b>Directional Polar Pattern</b>	Cardioid/Omnidirectional (see Figures 4 and 6)
<b>Output Impedance</b>	150 $\Omega$ (actual)
<b>Attenuation Switch</b>	0 dB, 15 dB, or 25 dB attenuation
<b>Low Frequency Response Switch</b>	Flat; -6 dB/octave below 115 Hz; -18 dB/octave below 80 Hz
<b>Phantom Power</b>	48 Vdc $\pm$ 4 Vdc (IEC-268-15/DIN 45 596), positive pins 2 and 3
<b>Current Drain</b>	4.65 mA typical at 48 Vdc
<b>Common Mode Rejection</b>	$\geq$ 50 dB, 20 Hz to 20 kHz
<b>Polarity</b>	Positive pressure on diaphragm produces positive voltage on output pin 2 relative to pin 3
<b>Dimensions and Weight</b>	20 mm (0.8 in.) diameter, 145 mm (5.75 in.) long; 156 grams (5.5 oz.) (see Figure 7)
<b>Sensitivity (typical, at 1000 Hz; (1 Pa = 94 dB SPL)</b>	-37 dBV/Pa
<b>Self-noise (typical, equivalent SPL; A-weighted, IEC 651)</b>	14 dB
<b>Maximum SPL at 1 kHz 5000 <math>\Omega</math> load (Attenuator on) 2500 <math>\Omega</math> load (Attenuator on) 1000 <math>\Omega</math> load (Attenuator on)</b>	145 (160, 170) dB 139 (154, 164) dB 134 (149, 159) dB
<b>Output Clipping Level* 5000 <math>\Omega</math> load 2500 <math>\Omega</math> load 1000 <math>\Omega</math> load</b>	15 dBV 9 dBV 3 dBV
<b>Dynamic Range 5000 <math>\Omega</math> load 2500 <math>\Omega</math> load 1000 <math>\Omega</math> load</b>	131 dB 125 dB 120 dB
<b>Signal to Noise Ratio**</b>	80 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 difference between 94 dB SPL and equivalent SPL of self-noise A-weighted.

## CARDIOID RESPONSE GRAPHS

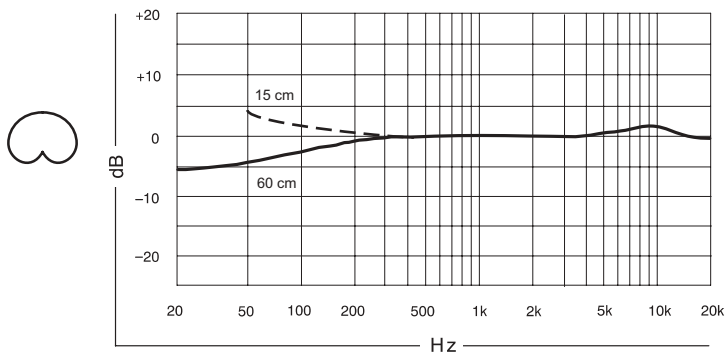


FIGURE 3. CARDIOID FREQUENCY RESPONSE

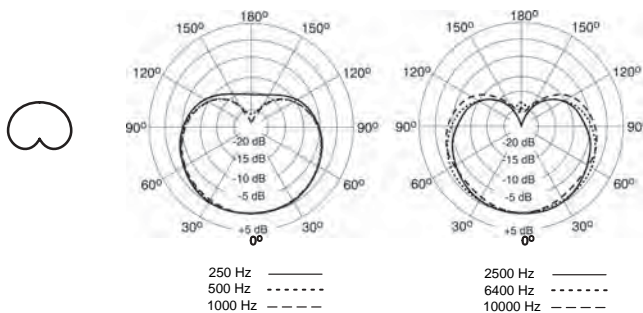
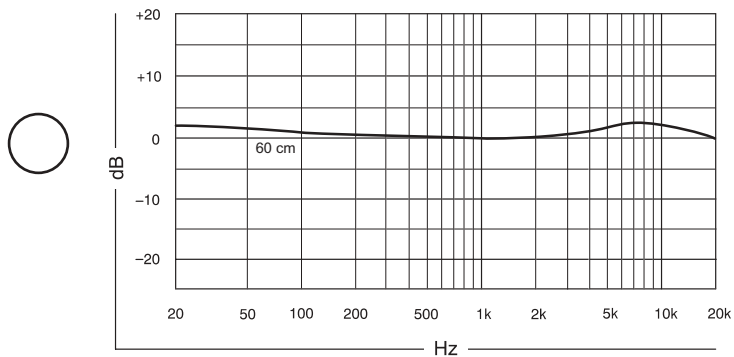


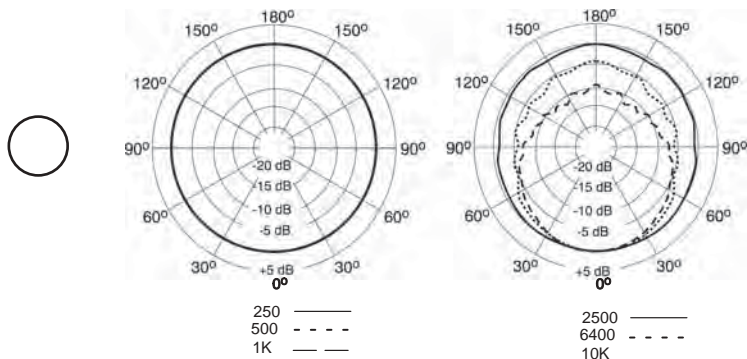
FIGURE 4. CARDIOIDE POLAR PATTERNS



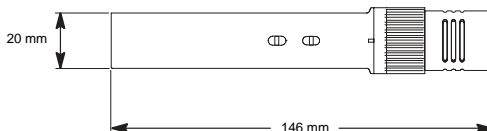
## OMNIDIRECTIONAL RESPONSE GRAPHS



**FIGURE 5. OMNIDIRECTIONAL FREQUENCY RESPONSE**



**FIGURE 6. OMNIDIRECTIONAL POLAR PATTERNS**



**FIGURE 7. 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 KSM141 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**

Case .....	A141C
Case (Stereo Pair) .....	A141SPC
Windscreen .....	A100WS
Microphone Clip .....	A57F

## **OPTIONAL ACCESSORIES**

SHOCKSTOPPER™ Shock Mount .....	A53M
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.

Trademark Notices: The circular S logo, the stylized Shure logo, and the word "Shure" are registered trademarks of Shure Incorporated in the United States. "SHOCKSTOPPER" is a trademark of Shure Incorporated in the United States. "Mylar" is a registered trademark of E.I. duPont de Nemours and Company in the United States. These marks may be registered in other jurisdictions.

Patent notice: U.S. Patent Des 478068.



**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**