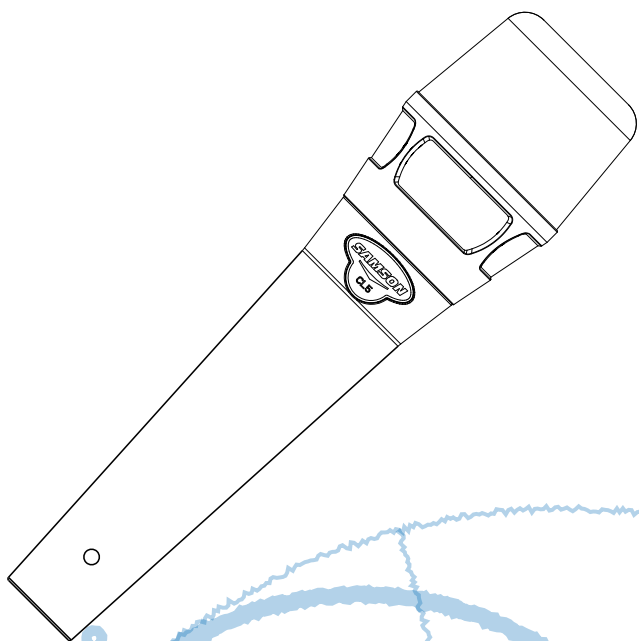


# CL5



**Condenser Microphone**

**Owners Manual**

**SAMSON**<sup>®</sup>  
A U D I O

**PROFESSIONAL MICROPHONES**

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## Introduction

Thank you for purchasing the CL5 Condenser Microphone from Samson Audio. The CL5 is a handheld, externally biased, true capacitor (condenser) pressure gradient microphone that excels in both live performance and recording applications. Designed for the discriminating artist and sound engineer, the CL5 provides the warmth, presence, air and detail of a high-end studio condenser in a convenient handheld body, ideal for on stage applications. The heart and soul of the CL5 is its sophisticated capsule and advanced head-amp electronics. The microphone employs a half-inch capsule with a 3 micron, gold sputtered, tensioned diaphragm with the ability to capture every detail of the sound source. The head-amp has been designed using high-speed, low-noise operational amplifiers along with carefully selected discrete components to provide extended bandwidth and low noise. In addition to its linear frequency response, the microphone has also been designed to withstand high sound pressure level capabilities of 148 dB. The CL5's cardioid pick up pattern ensures maximum gain before feedback and the dual stage windscreen, greatly reduces the chance of "p popping". The CL5's stylish and ergonomic body has been designed to provide comfort and maximum feedback rejection. The microphone can easily be mounted to any standard mic stand using the included mic clip. The microphone comes complete with a soft cloth mic sock and aluminum carry case. Ideal for a variety of miking applications from vocals to instruments, ensembles to soloist, to just about any sound source that needs to be amplified or recorded, the CL5 condenser microphone brings a high level of accuracy and audio performance. For the serious vocalist who wants a studio quality condenser microphone on stage, the CL5 is the perfect solution.

Should your microphone ever require servicing, a Return Authorization number (RA) must be obtained before shipping your unit to Samson. Without this number, the unit will not be accepted. Please call Samson at 1-800-3SAMSON (1-800-372-6766) for a Return Authorization number prior to shipping your unit. Please retain the original packing materials and if possible return the unit in the original carton and packing materials. If you purchased your Samson product outside the United States, please contact your local distributor for warranty information and service.

Also, be sure to check out our website ([www.samsontech.com](http://www.samsontech.com)) for complete information about our full product line.

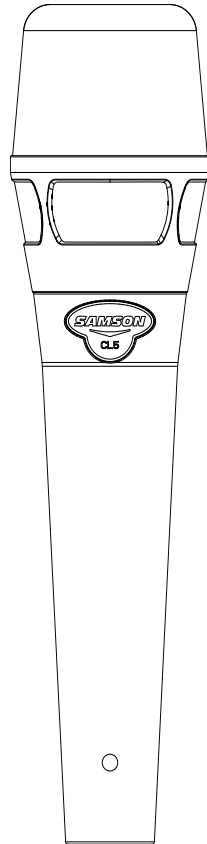
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# Features

## CL5 Features

The Samson CL5 condenser has been produced using state-of-the-art microphone technology and is engineered to the finest detail. Here are some of its main features:

- Extended range linear frequency response for optimum reproduction and exceptionally clear, crisp sound with great transient response.
- Ultra sensitive, low mass capsules featuring three micron, gold-sputtered diaphragms capture up all of the nuances of any performance.
- The cardioid polar pattern rejects signals not originating directly in front of the mic capsule minimizing feedback problems.
- High SPL capability of 148 db lending itself to a wide range of miking situations like brass and percussion.
- Special shock-mounted capsule to minimize handling noise and provide additional protection.
- The dual stage windscreen, greatly reduces the chance of "p popping".
- The CL5 can be mounted on any standard microphone stand using the included mic clip.
- Rugged die-cast case construction ensures reliable performance in even the most demanding environments.
- Gold plated XLR connector provides long-lasting reliable connections.
- Included foam-lined impact resistant aluminum carrying case for convenience when transporting the CL5 to or from studios and venues.



## Powering the CL5

The CL5 is a condenser microphone and therefore needs to be operated by connecting a phantom power supply. Phantom power is standard on most quality mixers, outboard mic-pres and hard disk recorders. If necessary, an external phantom supply (like the S phantom by Samson Audio) can also be used. The CL5 receives the phantom power directly from a mic cable when connected to a mixer or other microphone input that includes a phantom supply. The power is actually sent OUT of the microphone INPUT, riding silently along with the audio signal. (Fairly mysterious, eh?) Most mixers have a switch to engage the phantom power so be sure to check that the phantom power is on.

## Setting Up the Signal Level

When connecting the CL5 to a mixer or recorder input, be sure that the input is of microphone level. Also, be sure that the phantom power is engaged as explained in the previous section "Powering the CL5". Most mixers and recorders of reasonable quality will offer a microphone input with mic trim (usually called Trim or Gain) control. The purpose of the mic trim control is to optimize the amount of good signal to any noise associated with the mixers electronics. A good mic pre with trim also will have a PEAK or CLIP LED. To set a good level on the mic, set the CL5 up in front of the desired sound source and slowly raise the mic trim control until you see the PEAK LED light up. Then, turn the mix trim control down until the LED does not light any more. On most mixers, the ideal setting is that the trim control is turned up as much as possible without lighting the PEAK LED.

## Microphone Placement

In order to maximize the sound quality, you must pay careful attention to the placement of your CL5 and how it is positioned for the instrument or vocalist that you are miking. All uni-directional or cardioid microphones exhibit a phenomenon known as "proximity effect." Very simply put, proximity effect is a resulting change in the frequency response of a microphone based on the position of the mic capsule relative to the sound source. Specifically, when you point a cardioid mic directly at the sound source (on axis) you will get the best frequency response, however when you start pointing the microphone slightly away (off axis) you will notice the low frequency response dropping off and the microphone will start to sound thinner.

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## Operating the CL5

### CL5 Polar Characteristics

Every microphone has a characteristic polar pattern that determines how well it accepts or rejects signal coming from various areas around the microphone. For example, bi-directional or figure-eight microphones pick up directly from the front and back while rejecting the signal at the sides and omnidirectional microphones accept all signals regardless of where those signals originate (in front of the mic, behind it, to the side, etc.). In contrast, directional cardioid mics are specifically designed to accept mostly signal coming from directly in front, and to reject signal coming from behind or from the side. The CL5's cardioid polar pattern is ideal for live sound stage applications. Below is a description of the Cardioid pattern and how it's used in different applications.

While Omni and Bi-directional microphones are very useful for a variety of specialty applications, the majority of miking situations in recording and live sound require uni-directional or cardioid microphones. The uni-directional pick-up pattern allows for better separation of instruments in the studio and more control over feedback in live sound reinforcement. When positioned correctly, the cardioid pickup pattern allows you to pick up more of the sound you want and less of the sound you don't want. In live sound situations, the polar pattern also determines how prone a particular microphone is to inducing feedback. Feedback is that characteristic nasty howling sound that occurs when a mic is placed too close to a loudspeaker—the signal from the loudspeaker is fed into the mic, then into the loudspeaker, then into the mic, over and over again until an oscillating tone is generated. The cardioid pattern utilized by the CL5 is so good at rejecting signal not coming from directly in front of the microphone, you'll find that use of the CL5 greatly minimizes feedback problems.

### **P-Popping**

P-Popping is that annoying pop that you can get when the microphone diaphragm gets a blast of air from a vocalist pronouncing words with the letter “P” included. There are a few ways to deal with the problem including using an external pop filter. Some famous engineers have relied on an old nylon stocking over a bent clothes hanger, which actually works very well. You can also try placing the microphone slightly off axis (on a slight angle) from the vocalist. This can often solve the problem without using an external pop filter. However, for a more reliable solution, the CL5 matched pair kit comes with two micro perforated pop filters which are extremely useful in reducing p-popping. For outdoor use you may find the included foam windscreen useful for reducing the turbulent noise.

### **Stand Mounting the CL5**

The CL5 can be mounted to any standard microphone stand using the included mic clip . Be aware of a phenomenon called the proximity effect which causes a noticeable increase in low frequencies (bass response) when a microphone is close to the audio source. This can have positive impact—for example, it will cause your instrument or voice to sound much fuller when you sing close to the mic than when you mic it at a distance. The key to developing the best mic technique is experimentation, along with awareness of the general principle that, the closer your CL5 is to a signal source, the greater the bass response.

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# CL5 Applications Notes

## Application Notes

The CL5 is a great microphone choice for many instrument miking situations. Below is a brief guide on using the CL5 in some typical applications:

### Acoustic Guitar

There are a variety of ways that the CL5 can be used to mic an acoustic guitar. The microphone placement will depend on the type of instrument and what kind of sound you're looking to capture, for example the tonal quality you want to focus on, and how much finger slide or pick noise you may or may not want. When miking a standard steel string acoustic, a good place to start is with the microphone positioned pointing towards the end of the fingerboard at a distance of about 6 inches to 2 feet away from the instrument. You can experiment by moving the microphone slightly in the direction of the sound hole, which will produce more low frequencies, or move it in the direction of the fingerboard to capture more high-end or to remove any unwanted boominess. For nylon string acoustic, try positioning the microphone above the bridge to emphasize more of the attack from the sound of the finger picking, or for less, move the mic closer to the sound hole. If you have a pair of CL5's, try one positioned at the fingerboard and the second over the sound hole.

### Piano

You can achieve outstanding results using the CL5 on acoustic piano. Several placement approaches can be used depending on the size of the piano, and the type of sound you are looking to record. When miking a Grand Piano, (for an ambient sound like that used in a classical recital), a single CL5 can be positioned directly in front of the instrument. Open the lid to the full position and place the microphone five to twenty feet in front of the instrument. For a more contemporary ensemble sound, place two CL5's in the piano positioning one over the low strings and the other of the high strings.

### Overhead Drum Kit

Because of its extended high frequency response and fast transient response, the CL5 performs outstandingly when used as an overhead cymbal microphone. You can position one CL5 on a boom mic stand directly above the kit pointing from front to back. For stereo miking, use two CL5's placed over the drum set at a distance of three to five feet. You can experiment with the exact placement depending on the size of the room and whether you're looking for an ambient or close-miked sound. In general, when miking a drum kit, it's a good idea to start with the overhead mics. Even though you use the overhead mics mostly for the cymbals, try to get the entire kit to sound great in the overheads. Then it will be easier to just bring up your individual mics for more attack and thickness in the overall sound.

### Hi Hat

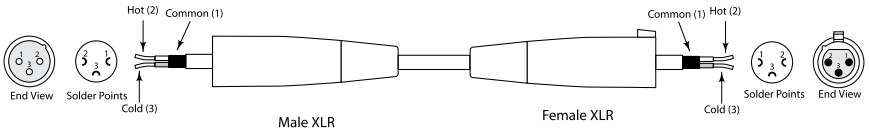
The CL5 is a perfect microphone for miking Hi Hats thanks to its smooth top end and the ability to capture fast attack transients. Try placing the microphone over the edge of the top cymbal. Experiment by moving the mic further over the cymbal to produce more of a stick sound, but keep in mind it may pick up more of the kit. Remember that the CL5 has a cardioid frequency response, so position the microphone in the direction of the Hi hat, but for increased separation, be sure to point the mic away from other drums or cymbals whenever possible.



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## Wiring Guide

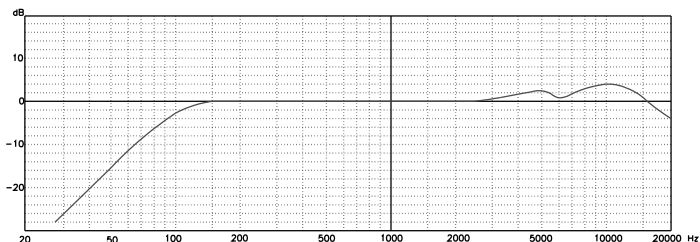
The CL5 can be connected to any mixer, mixer/amplifier, or mic preamp using a standard microphone cable. We recommend a high quality low noise mic cable like the Samson Tourtek TM20. Below is the wiring diagram for a standard mic cable if you choose to wire your own.



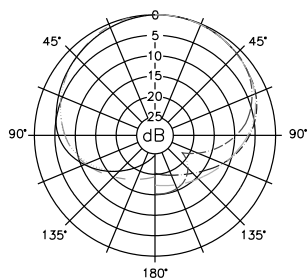
# Specifications

## CL5 Specifications

Type	Condenser
Polar Pattern	Cardioid
Frequency Response	20~20000 Hz
Sensitivity	-48 dBV/pa (14.1mv/pa)
Rated Impedance	50Ω
Equivalent Noise level	19 dB (A weighted IEC/DIN 651)
Max. SPL Cardioid	148 dB (THD $\leq$ 0.5% 1000 Hz)
Power Supply	48V Phantom Power (IEC 268-15/DIN 45596)
Current Consumption	< 3.5 mA
Dimensions	$\varnothing$ 45 x 175 mm
Weight	250g



CL5 Cardioid Frequency Chart



CL5 Cardioid Polar Pattern

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