

**CO2**



**Condenser Microphone**

**Owners Manual**

**SAMSON**<sup>®</sup>  
A U D I O

## Table of Contents

<b>Introduction and Features</b>	<b>3</b>
<b>Operating the C02</b>	<b>4</b>
<b>C02 Applications</b>	<b>5</b>
<b>C02 Characteristics</b>	<b>6</b>
<b>Wiring Guide</b>	<b>7</b>
<b>Specifications</b>	<b>7</b>

Copyright 2003, Samson Technologies Corp.  
Printed February, 2003  
Samson Technologies Corp.  
575 Underhill Blvd.  
P.O. Box 9031  
Syosset, NY 11791-9031  
Phone: 1-800-3-SAMSON (1-800-372-6766)  
Fax: 516-364-3888  
[www.samsontech.com](http://www.samsontech.com)

## Introduction and Features

Thank you for purchasing the Samson C02 Condenser Microphone. The C02 condenser microphone brings a high level of accuracy and audio performance to instrument miking applications.

The C02 is a pencil style condenser microphone that excels in both live performance and recording applications. Equipped with a linear frequency response for superior reproduction, it is also designed to withstand high sound pressure levels. Extremely sensitive, it employs a tight cardioid pattern to reduce feedback. A special shock-mounted mic holder is included to minimize noise and provide additional protection.

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.

### Features

The Samson C02 utilizes state-of-the-art microphone technology and is engineered to the finest detail. Here are some of its main features:

- Extended range frequency response for optimum reproduction and exceptionally clear, crisp sound with great transient response.
- Ultra sensitive, low mass element picks up all of the nuances of any performance.
- Tight cardioid polar pattern minimizes feedback problems and effectively rejects signals not originating directly in front of the mic capsule.
- Withstands high SPLs, lending itself to a wide range of miking situations.
- Special shock-mounted mic holder is included to minimize noise and provide additional protection.
- Rugged brass case ensures reliable performance in even the most demanding environments.
- The included foam wind screen can be fitted to greatly reduce wind noise when used in an outdoor environment, or for reducing “P Popping” in vocal applications.
- Lightweight and compact, the C02 can be mounted on any standard microphone stand using the included shock-mounted mic clip.
- Included foam-lined impact resistant carrying case for convenience when transporting three C02 microphones from venue to venue.
- Gold plated XLR Connector.

# Operating the C02

## Microphone Placement and Tone Quality

Listed are some common microphone placement techniques. Use these suggestions as a guide and let your ears determine what works best in your situation.

- Sound source less than 6 inches away from mic—Full sound, pronounced bass, increased isolation from background noise.
- Sound source 6 inches to 2 feet away from mic—Balanced natural sound, less bass, some background noise.
- Sound source 3 to 6 feet away from mic—Thinner ambient sound.

## Guidelines for Microphone Use

- Aim the microphone at the desired source. Keep unwanted sound sources at a 135° angle from the front of the microphone (see polar pattern).
- Place the microphone as close to the sound source as possible.
- Use the proximity effect to your advantage: The closer the mic is to the sound source, the more emphasized the bass response will be.
- Use the windscreen to suppress unwanted wind noise.
- Never cup your hand over the microphone grill.

## Operating Notes

- The C02 will boost bass frequencies when the microphone is between 0—6 inches from the sound source. As you move the sound source further away from the microphone, the bass response will gradually roll off.
- The C02 has a built-in wind screen which protects against most wind and breathing noise. Under adverse conditions, such as high winds, an optional foam windscreen can be used.
- For maximum signal handling capability and minimal distortion, a minimum load impedance of 800 ohms should be used. A reduction in output signal strength and output clipping level will result with the load at 150 ohms.

# C02 Applications Notes

## Application Notes

The C02 is a great microphone choice for many instrument miking situations. Below is a brief guide on using the C02 in some typical applications.

### Acoustic Guitar

There are a variety of ways that the C02 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 boomiens. 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 C02's, try one positioned at the fingerboard and the second over the sound hole.

### Piano

You can achieve outstanding results using the C02 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 C02 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 C02'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 C02 performs outstandingly when used as an overhead cymbal microphone. You can position one C02 on a boom mic stand directly above the kit pointing from front to back. For stereo miking, use two C02'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

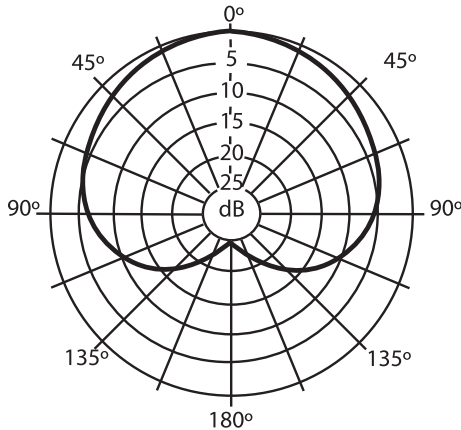
The C02 is a perfect microphone for miking Hi Hats thanks to its smooth top end and the ability to capture fast attack transients. Try placing the microphone over the edge of the top cymbal. Experiment by moving the mic further over the cymbal to produce more of a stick sound, but keep in mind it may pick up more of the kit. Remember that the C02 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.

## C02 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, omnidirectional mics 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 cardioid pattern is utilized by the C02 (as shown in the illustration below). For this reason, the C02 excels in environments where there is a good deal of unwanted ambient sound—it delivers those signals originating directly in front of the mic capsule itself while rejecting those that originate from behind.

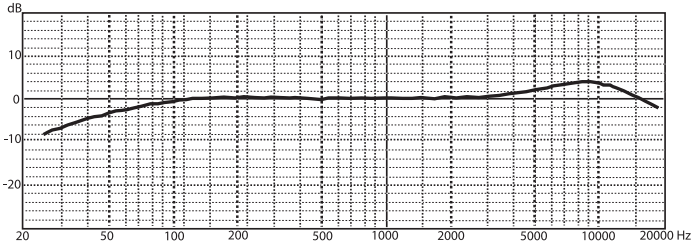
The polar pattern also determines how prone a particular mic is to inducing feedback. Feedback is that characteristic nasty howling sound that occurs when a mic is placed too close to a loudspeaker—the signal from the loudspeaker is fed into the mic, then into the loudspeaker, then into the mic, over and over again until an oscillating tone is generated. Because the cardioid pattern utilized by the C02 is so good at rejecting signal not coming from directly in front of the mic, you'll find that use of the C02 greatly minimizes feedback problems.



*C02 Polar Pattern*

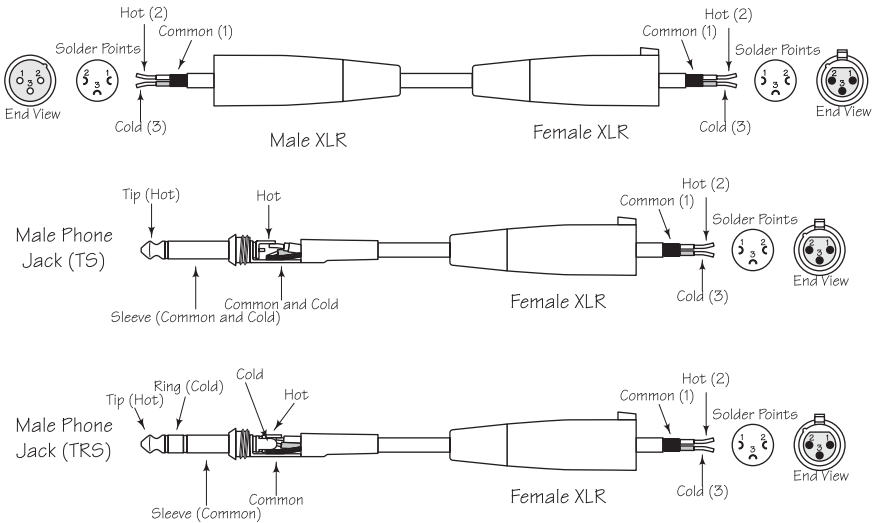
The C02 can be mounted to any standard microphone stand (using the included mic clip) or can be handheld. If handheld, take care not to cover the any part of the head grille with your hand. Be aware of a phenomenon called the proximity effect which causes a noticeable increase in low frequencies (bass 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 C02 is to a signal source, the greater the bass response.

# Wiring Guide and Specifications



*C02 Frequency Chart*

The C02 can be connected to any mixer, mixer/amplifier, or mic preamp using a standard microphone cable. As shown in the wiring diagrams below, connect the female XLR end directly to the C02's gold-plated connector and the other end (normally a male XLR end, although some mixers use 1/4" connectors) to the mixer, mixer/amplifier, or mic preamp.



## C02 Specifications

Type	Condenser
Polar Pattern	Cardioid
Frequency Response	40~20000 Hz
Sensitivity	-40 dBV/pa (10mv/pa)
Rated Impedance	200Ω
Equivalent Noise level	22 dB (A weighted IEC/DIN 651)
Max. SPL	134 dB (THD <sub>≤</sub> 0.5% 1000 Hz)
Dynamic Range	112 dB
Power Supply	48V Phantom Power (IEC 268-15/DIN 45596)
Current Consumption	3.5 mA
Dimensions	ø 20 x 150 mm
Weight	170g

Samson Technologies Corp.  
575 Underhill Blvd.  
P.O. Box 9031  
Syosset, NY 11791-9031  
Phone: 1-800-3-SAMSON (1-800-372-6766)  
Fax: 516-364-3888  
[www.samsontech.com](http://www.samsontech.com)