C01U

USB Studio Condenser Microphone

Owners Manual

SAMSON
A U D I O

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Congratulations on your purchase of the Samson C01U studio condenser. The C01U features a large, 19mm ultra thin diaphragm capsule with an onboard high quality Analog-to-Digital converter and USB output. The C01U is perfect for recording your music, or any acoustic audio source on your favorite DAW (Digital Audio Workstation). Just plug in the supplied USB cable, launch your DAW and start recording. For expanded control, install the Samson C01U driver software and you'll have additional features like programmable GAIN, Low Cut Filter, Input Metering and Phase switch. The C01U faithfully reproduces a variety of sound sources including vocals, acoustic instruments and overhead cymbals, to name a few. The extended frequency and fast transient response insures an accurate reproduction with linear characteristics from bottom to top.

In these pages, you'll find a detailed description of the features of the C01U Studio Condenser Microphone, as well as step-by-step instructions for its setup and use, and full specifications. You'll also find a warranty card enclosed—please don't forget to fill it out and mail it in so that you can receive online technical support and so we can send you updated information about these and other Samson products in the future.

With proper care and adequate air circulation, your C01U will operate trouble free for many years. We recommend you record your serial number in the space provided below for future reference.
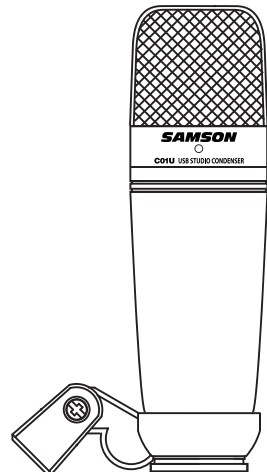
Serial number: _____

Date of purchase: _____

Should your unit 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.

C01U Features
- Large Diaphragm, 19mm, Studio Condenser with USB Digital Output.

- Compatible with any computer based Digital Audio Workstation.

- The extremely detailed sound reproduction makes it ideal for recording vocals, acoustic instruments and just about any other sound source.

- High Quality AD convertor with 16 Bit, 48K sampling rate.

- Software drivers for MAC and PC provide additional features like Programmable Gain, LED Input Metering, Low Cut Filter, and Phase.

- 19mm Capsule with 3-micron Diaphragm.

- Hyper Cardioid pick-up pattern.

- Solid Die Cast construction.

- Swivel Stand Mount and 10 foot USB cable included.

Installing the C01U

Installing the C01U is a simple procedure that takes just a few minutes. Since the C01U is USB compliant, you can use either a MAC or PC, connect the included USB cable and plug and play. You will be able to control your C01U using the standard audio interface controls in the MAC or Windows operating system. You will find detailed instructions on setting up with MAC OS and Windows in the following sections of this manual.

For expanded control you can install the Samson C01U driver software which will give you programmable Gain and the digital Input Meter so you can adjust the internal digital microphone pre-amplifier to the correct level. You can also use the Low Cut Filter to remove unwanted low frequency rumble. There's even a Phase switch so you can invert the signal polarity when using multiple microphones.

Since it is possible to adjust the level of the signal from the operating system preferences, and in your recording software, it's a good idea to be familiar with these controls in the MAC or Windows operating system. Therefore, we recommend that you follow the section Getting Started with Windows XP (and 98) or Getting Started with MAX OS X before installing the C01U software driver.

Getting Started with MAC OS X

The following example is for setting up the C01U in MAC OS X .

1. Plug in microphone. The LED will light to indicate it is receiving USB power. The MAC will recognize the USB audio device and automatically install a universal driver.

2.To select the C01U as the computers audio input, open the System Preferences from the dock or the main Apple Menu (figure 1).

Figure 1

3. Next open the Sound preference (figure 2).

4. Now, click in the Input tab and select C01U (figure 3).

At this point you can begin using your micro-phone, or if you want, you can use the C01U's expanded software features by loading the C01U driver as described in the following section, Using the C01U Driver Software " on page 9 of this manual.
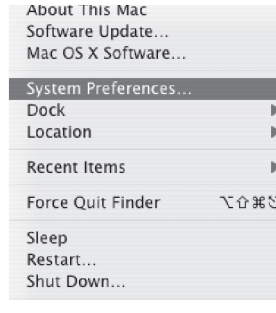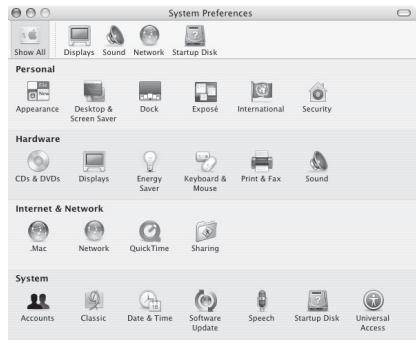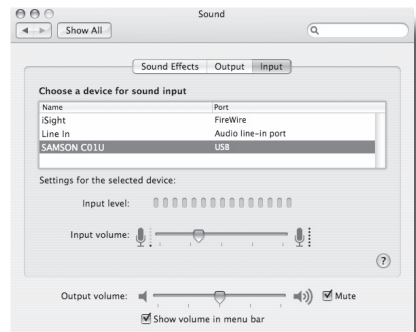

Figure 2

Figure 3

Getting Started with Windows XP

The following example is for setting up the C01U in Windows XP with Service Pack 2. Other versions may vary slightly.

1. Plug in microphone. The LED will light to indicate it is receiving USB power. Windows will recognize the USB audio device and automatically install the universal drivers (figure 1). (These balloons will not appear next time you plug it in, as the microphone drivers are already installed.)

The C01U is now recognized as a Windows audio device under the name Samson C01U. Each additional C01U will have a number added, such as Samson C01U (2), and so on. To set it as the default device and change computer-controlled gain, access control panel.

2. Access Sounds and Audio Devices through Control Panel (figure 2).

3. Select Samson C01U as Sound recording Default device under the Audio tab. The default device is used in simple programs like those for teleconferencing or Sound Recorder. In most pro audio programs you can select which device (or multiple devices) to use within the program itself. To set computer-controlled gain, click the Volume button (figure 3).

4. The Wave In window sets the computer-controlled gain or mutes the microphone. The gain is from –62 dB to +48 dB (figure 4).
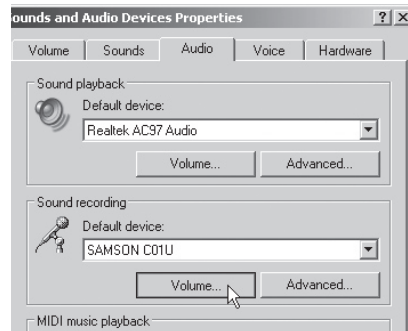

Figure 1

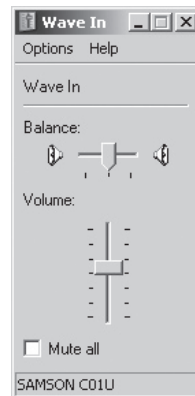*Figure 2*

Figure 3

Figure 4

Getting Started with Windows 98

The following example is for setting up the C01U in Windows 98.

Note that the Samson C01U is not fully supported in Windows 98; the gain range is limited. It is still usable, however.

This example is in Windows 98 version 4.10.1998. Other versions may vary.

1. Plug in microphone. The LED will light to indicate it is receiving USB power. Windows will recognize the USB audio device and automatically begin the install process. Press Next.

2. Select Search for the best driver for your device.

3. The driver is in the internal driver database, but you can tell it to search in other locations if you know you have an updated driver.

4. Press Next to install the internal universal driver. (If it asks to replace a newer file with an older file, it is recommended to keep the newer file.)

5. Windows will indicate that it has finished installing the device.

Getting Started with Windows 98

6. Windows will then install the other components of the USB device. Follow the same procedure again (figure 2).

7. The C01U is now recognized as a Windows audio device by the name USB Audio Device (1). Each additional C01U will have a number added, such as USB Audio Device (2), and so on. To set it as the default device and change computer-controlled gain, access Control Panel (figure 3).

8. Access Multimedia (figure 4).

9. Select USB Audio Device (1) as Default device under the Audio tab. The default device is used in simple programs like those for teleconferencing or Sound Recorder. In most pro audio programs you can select which device (or multiple devices) to use within the program itself (figure 5).

10. To set computer-controlled gain, click the button with the volume icon. The Wave In window sets the computer-controlled gain or mutes the microphone. The gain in Windows 98 is limited to −∞ dB to 0 dB, instead of +20 dB. This is a limitation of the Windows 98 drivers (figure 6).
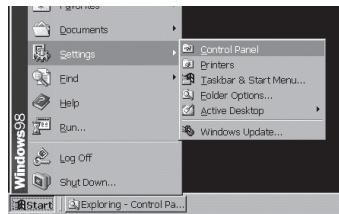

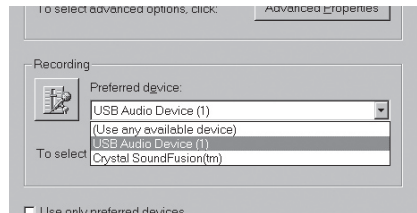
Figure 2
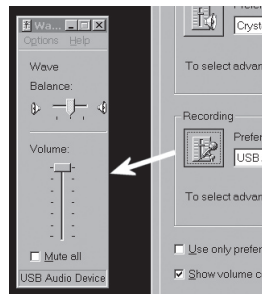

Figure 3

Figure 4

Figure 5

Figure 6

Using the C01U Driver Software

Installing the C01U Software

The C01U can work with most audio software by simply connecting the microphone to your computer using the supplied USB cable. However, to take advantage of the advance features you should install the Samson C01U software. Getting the software is easy. Just type samsontech.com into your favorite internet browser, look for the C01U driver link and follow the on screen instructions to download the driver. After you download the driver software, run the installation program and start to use the C01U software.
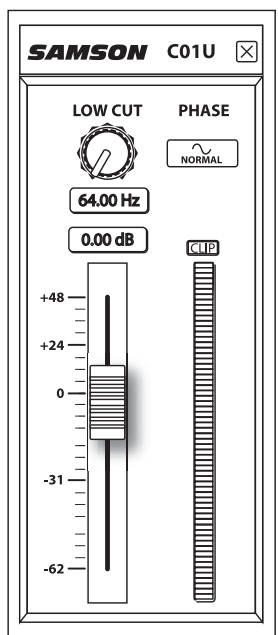
Once you have the C01U software installed you can operate your C01U by following the simple instructions outlined in the following sections of this manual.

Setting a Good Level

One of the most important fundamentals of good audio engineering is setting proper levels. Even on a small typical mixer, or basic multi-track recorder, there are several controls that affect the level of a signal as it makes it's way from your sound source to your speakers and then, ultimately, the level of your headphone or monitor system. These include pre-amp gain, EQ, aux sends and returns, channel fader level, bus or group levels, and finally, the master fader. That's not to mention the level of the 5:15 train on its way to Pennsylvania station who's thunderous crossing horn can be picked up from 5 miles away while miking a nylon string guitar, despite the use of double moving blankets over the windows of your project studio. But that's another story with another set of disciplines. Start off by being aware that anytime you change any control in the audio path, you are probably affecting gain somewhere. Then, be sure to carefully monitor the levels on your input and output meters to avoid a clipped signal with too many peaks. Also, remember your ear is the most sophisticated and calibrated piece of test gear you have. So, setting a good level should be approached from a technical point of view, and then confirmed, by a creative point of view.

INPUT GAIN – Fader

The C01U has a onboard, digitally controlled analog INPUT GAIN stage which is controlled by the C01U software Fader. The fader control provides a range of gain from -62 to +48 dB. The C01U can accept levels from most microphones by using the INPUT GAIN fader. You can use the INPUT GAIN control to adjust the level of your input signal. It is a good idea to start with the level low and raise it up as you need. Be sure to monitor the input digital VU METER and try to set the INPUT GAIN control so that the meter reads just below the CLIP indicator. If you see the CLIP indicator light you are "Over–Loading" and the sound may become distorted. If this happens, simply back down on the INPUT GAIN Fader. The CLIP indicator will stay red until you clear it by clicking on the CLIP icon.

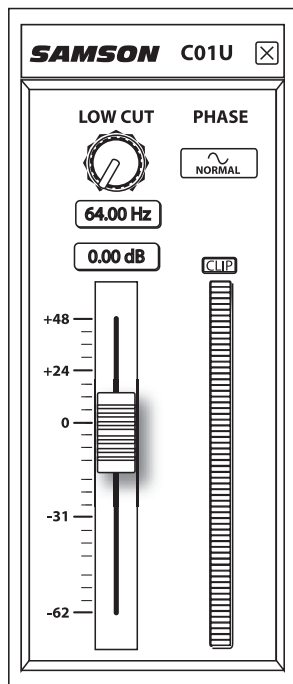# Using the C01U Driver Software

DIGITAL VU METER - Input Level

To monitor the signal being sent from the C01U, there is an digital VU METER with a scale from infinity to Digtal Mximum or CLIP. The level displayed on the meter will be affected by the Input Gain Fader so be sure that you have that set to the correct position for your sound source. The digital VU METER features "VU" ballistics, which means it reacts to the signal based on an average level. Use the VU METER when you are setting your input level using the GAIN control. Try to set the level so that the meter reads about just below CLIP but so that it never goes to CLIP. If you see the CLIP indicator light you are "Over–Loading" and the sound may become distorted. If this happens, simply back down on the INPUT GAIN Fader. The CLIP indicator will stay red until you clear it by clicking on the CLIP icon.

Using the Low Cut Filter

Like any good mic pre, the C01U software features a Low Cut, (or High Pass), filter for attenu-ating the bottom-end frequencies. The Low Cut filter allows you to remove the lower frequencies that you sometimes just don't want to pick up. For example, when you are miking a high-hat you only want to capture the frequencies that the hi-hat is producing. Therefore, by using the Low Cut filter, you can reduce the amount of pick-up from the low toms and bass drum that may leak into the hi-hat mic. You can use the same technique on other instruments like acoustic guitar, violin, piano and even on vocals. In live sound applications, the Low Cut filter is especially useful for removing stage rumble. The MikMaster software provides a variable Low Cut filter that allows you to adjust the exact frequency at which the low frequencies begin to roll-off, or attenuate.

PHASE – Switch

For a variety of miking and mixing techniques, it may be necessary to invert the signal phase from the source you have plugged into your C01U and MikMaster software. When the PHASE switch is pressed in, the yellow LED will light showing that the input signal is now out-of-phase.

Powering the C01U

The C01U is a condenser microphone, and like all condenser microphones, it has internal electronics that require an active power supply. Traditional studio condensers are almost always powered by a Phantom Power supply which is usually derived from the mixing console. The C01U receives its power from the USB bus. Simply connect the microphone to the computers USB port and the microphone is ready to operate. The C01U features a power on LED, which will illuminate when USB power is present.

Polar Pattern

The most important characteristic of any microphone is its directionality or "pick-up pattern". There are three basic categories of pick up patterns; omni, bi and uni-directional. Omni mics pick up sound from all directions, bi-directional (figure 8) mics pick up the sound directly in front and back of the microphone while rejecting the sound on the left and right sides, and uni-directional (cardioid) mics pick up the sound in front of the microphone.

While omni and bi-directional microphones are very useful for a variety of applications, the majority of "miking" situations in recording and live sound require uni-directional or cardioid microphones. The uni-directional nature allows for better separation of instruments in the studio and more control over feedback in live sound reinforcement. The C01U condenser's pick-up pattern is hyper-cardioid, which offers even more side-to-side rejection. When positioned correctly the hyper-cardioid pick-up pattern allows you to pick up more of the sound you want and less of the sound you don't want.

Microphone Placement

In order to maximize the sound quality, you must pay careful attention to the placement of your C01U and how it is positioned for the instrument or vocalist that you are miking. All microphones, especially 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.

For most vocal applications you'll want to position the microphone directly in front of the artist. The same may be true for miking instruments, however, you

Operating the C01U

can make some pretty amazing equalization adjustments by slightly changing the angle of the capsule to the sound source. This can be a very useful technique in capturing the optimum sound of drum set, acoustic guitar, piano or other instruments in a live room or sound stage. Experimentation and experience are the best teachers in getting good sounds, so plug in!

Setting Up the Signal Level

You can adjust the C01U's internal digitally controlled analog Input Gain stage by using the C01U software, or you can control the input gain by using the software control in your computer's operating system and/or digital audio workstation. Either way, the purpose of the mic trim control is to optimize the amount of good signal to any associated noise. A good mic pre, like the C01U software control panel, also will have a LEVEL or CLIP indicators. To set a good level on the mic, set the C01U up in front of the desired sound source and slowly raise the input trim control until you see the CLIP or Peak indicator light up. Then, turn the input trim control down until the indicator does not light any more. *For more information on setting the Input Gain with the C01U software, see the section "INPUT GAIN - Fader" on page 7 in this manual.*

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.

Stand Mounting the C01U

The C01U can be mounted to a standard microphone stand using the included swivel mount adapter. If you are using a U.S. 5/8" mic stand, you will need to remove, by unscrewing, the Euro stand adapter. Simply screw the swivel adapter on to your mic stand or boom arm. Now, loosen the thumbscrew and adjust the microphone to the desired angle. Once set, tighten the thumbscrew to secure the microphone in place.
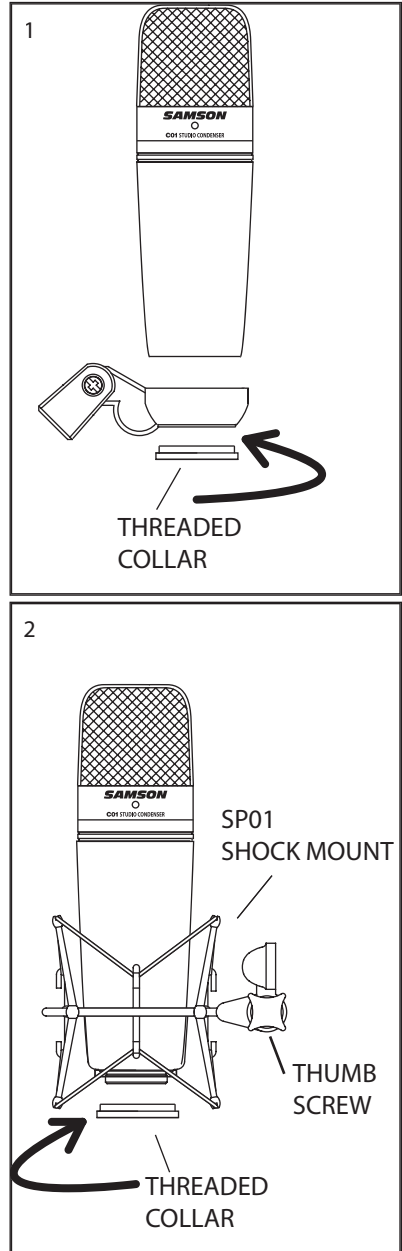
Using the Optional SP01 Shock-Mount

Using the Optional SP01 "Spider" Shock-Mount

For additional isolation the C01U can be fitted on the optional SP01 "Spider" shock mount. Follow the steps below the to install the SP01.

- First, screw the SP01 shock mount onto your mic stand or boom arm. If you're using a US 5/8" mic stand or boom, remove the Euro adapter.

- Remove the C01U swivel mount by rotating the threaded collar counter-clockwise as shown in figure 1.

- Install the C01U into the SP01 by fitting the microphone into the center of the web, positioning the C01U onto the bottom mounting plate.

- Secure the SP01 by reinstalling the threaded collar, rotating clockwise until tight. (Figure 2)

- Now, loosen the thumb screw to adjust the angle of the microphone and position the C01U to the desired location. Once set, tighten the thumbscrew to secure the microphone in place.

    Note: Be careful not to cross thread or over tighten the threaded collar or thumb screw.
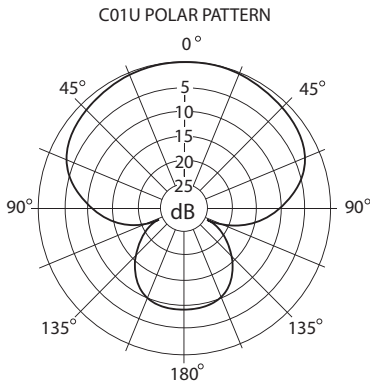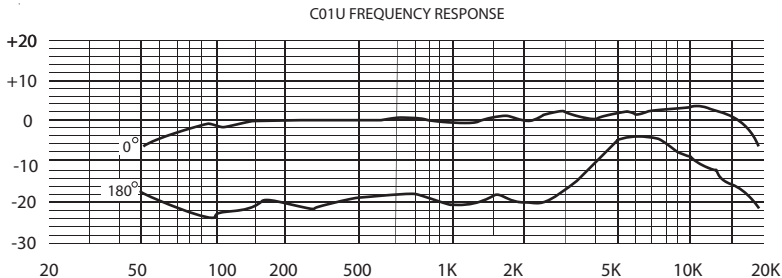
1

THREADED COLLAR

2

SP01 SHOCK MOUNT

THUMB SCREW

THREADED COLLAR

C01U Specifications

C01U Specifications

Frequency Response	20~18000 HZ
Polar pattern	Hyper- cardioid
Element type	Back condenser type
Diaphragm thickness	3 microns
Sensitivity	-33 dB/Pa
SPL	136 dB
Weight	2 lbs. (30.9 kg)
Dimensions	Height: 7" (180 mm)
	Width: 2.125" (54 mm)
	Depth: 2.125" (54 mm)
Shipping Weight	2.5 lbs.(1.15 Kg)

Specifications subject to change without notice.

C01U FREQUENCY RESPONSE

C01U POLAR PATTERN

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