ProCast™ Mio

USB Studio Condenser
with XLR Output

Condensateur Studio
USB avec sortie XLR

Owner's Manual



Miktek™

www.miktekaudio.com

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES CLASS B. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MUST NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION. SUITABLE FOR HOME OR OFFICE USE.

Miktek, LLC
Nashville, TN USA
tel: 615.250.2434 • fax: 615.346.9298

© 2017 All Rights Reserved, Miktek, LLC. Printed May 2017 v1
www. miktekaudio.com

PRINTED IN CHINA

Table of Contents

Introduction 1
ProCast Mio Features 2
ProCast Mio Layout . . . . . 3 - 4
Installing the ProCast Mio . . . . . .5 - 10
Getting Started with Mac OS X 5
Getting Started with Windows. 6
ProCast Mio Quick Start . . . . . .11 - 12
Operating the ProCast Mio . . . . . .13 - 16
Stand mounting the ProCast Mio to USB and XLR inputs 13
Connecting the ProCast Mio to USB and XLR inputs. 13
Understanding Polar Patterns 14
Microphone Placment 14
Setting a Good Signal Level 15-16
Reducing P-popping 16
Applications 17
Specifications 19

Introduction

Congratulations on your purchase of the ProCast Mio studio condenser by Miktek! The Mio is a high quality, large diaphragm, side-address condenser microphone featuring a high quality analog to digital converter and USB output. "Plug and play" technology allows direct connection into a Windows or Macintosh computer's USB port providing simple operation with amazingly professional results. The Mio also incorporates a built-in 1/8th inch headphone output to monitor computer playback. What sets the Mio apart is that it's not only a digital USB microphone but also incorporates a standard 3 pin XLR output. This provides the flexibility to record direct with USB or through an external audio interface. The discrete analog XLR output can be used simultaneously with the USB output allowing the microphone to be used for recording and sound reinforcement at the same time. The ProCast Mio is perfect for podcasting or recording vocals, guitar, and other instruments. The ProCast Mio is one microphone that offers two solutions and boasts the Miktek sound quality professionals demand and value which everyone can appreciate. The ProCast Mio 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. The ProCast Mio faithfully reproduces a variety of sound sources including vocals, acoustic string and wind instruments, and percussion to name a few. The extended frequency and fast transient response ensures an accurate reproduction with linear characteristics from bottom to top. Whether you're recording your latest song idea, a podcast, or your band's next big hit, the ProCast Mio is one of the simplest solutions for high quality recording on a Mac or PC. Just plug it in and start recording great audio!

In these pages, you'll find a detailed description of the features of the ProCast Mio USB Studio Condenser Microphone, as well as step-by-step instructions for its setup and use, and full specifications. With proper care your ProCast Mio will operate trouble free for many years. We recommend you record your serial number in the space provided below for future reference.

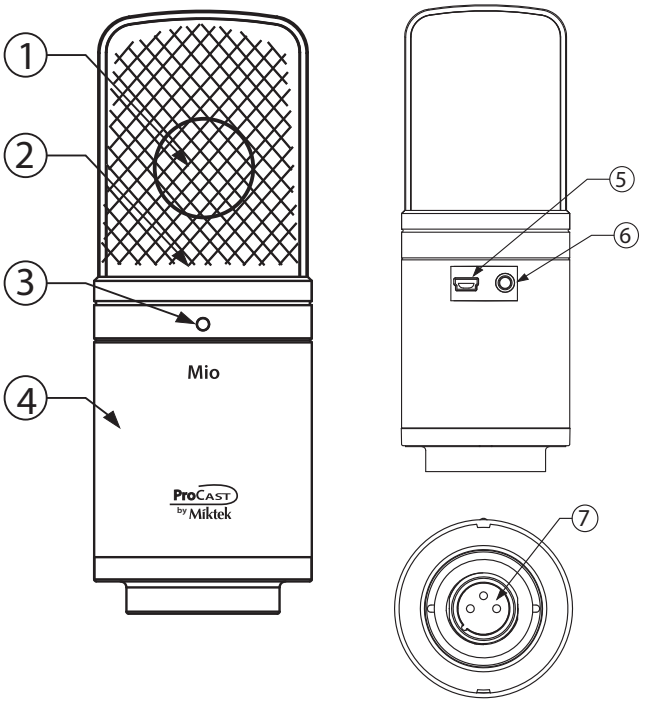
Serial number: _____ Date of purchase: _____

Please visit www.miktekaudio.com for additional information on this and other Miktek products.

ProCast Mio Features

- Cardioid (unidirectional) pickup pattern
- 19mm fixed charge capsule
- 3.5mm headphone output
- Mini USB and standard 3 pin XLR outputs provide both Digital and Analog Audio
- Phantom or USB bus power
- Steel grille - three stage windscreen
- Rugged diecast construction
- Includes mic clip, tripod desk stand, and 3m USB cable
- Compatible with most any Mac and PC based Digital Audio Workstation.

ProCast Mio Layout



1 **19mm CAPSULE** – 19mm Fixed charge capsule provides smooth and linear frequency response.

2 **STEEL GRILLE** – Steel mesh grille screen protects the capsule and the minimally intrusive design ensures a linear frequency response.

3 **POWER LED** – When illuminated the blue LED Indicates the ProCast Mio is receiving USB bus power.

4 **DIECAST BODY** – Heavy duty Zinc die-cast body provide the microphone with integral strength that

5 **PHONES** - 1/8-inch (.35mm) stereo jack for connecting stereo headphones to monitor the computer output when using in USB mode.

6 **USB** – Micro USB connector for interfacing with your PC or Mac.

7 **XLR OUT** – XLR low impedance balanced microphone output for connecting to standard mixer or audio interface.

Installing the ProCast Mio is a simple procedure that takes just a few minutes. Since the ProCast Mio is USB class 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 ProCast Mio 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.

Getting Started with Mac OS X

The following example is for setting up the ProCast Mio in Mac OS X .

1. Plug in the ProCast Mio. 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 Miktek Mio as the computer's audio input, open the System Preferences from the dock or the main Apple Menu.
3. Next open the Sound preference panel.
4. Now, click in the Input tab and select Miktek Mio.
5. Next, click in the Output tab and select Miktek Mio.

At this point you can begin using your microphone with most any audio recording software, but you need to select it as an input and output device within the DAW. When selecting the inputs and outputs just look for and select the Miktek ProCast.

Plug and Play - Most Mac OS DAWs, like Apple's GarageBand, will let you plug and play without going to the Sound preference set up. When you plug the ProCast Mio into the USB port you'll see a dialog box that will ask you if you want to select Miktek ProCast Mio . Select yes and you're ready to go.

Installing the ProCast Mio

Getting Started with Windows

1. The first time you plug the ProCast Mio into a USB port, Windows will install the universal drivers for that port. A balloon tip will pop up, telling you it has found the USB Audio codec.
2. When it is finished installing the drivers, it will say "Your new hardware is installed and ready to use". Note: This balloon will not pop up again for the same USB port.
3. Use the output volume from the computer to adjust the level, but sometimes it defaults to the middle of the slider, making the output very quiet. The volume can be increased in several ways. The simplest is to click the loudspeaker icon in the system tray and drag the slider to the top.
4. If the icon is not there, the volume can be changed by going to Control Panel and opening Sound and adjust system volume.
5. To use the ProCast Mio as your default input device (for system sounds and programs like Sound Recorder), ensure that it is set for playback and recording in the Audio tab.
6. The volume can then be set by pressing the Volume button.
7. To prevent system sounds from coming through the ProCast Mio, select a different sound card for the system default, and then choose the Miktek Mio manually within your DAW software.

A Word on Sample Rates and Bit Depth

The ProCast Mio is capable of recording and playing back various sample rates and bit depths. The sample rate is the resolution the converters use to capture the analog audio and convert it into digital information. The higher the resolution, the better the audio quality. While you can choose a higher sample rate, keep in mind that CD quality audio is at a sample rate of 44.1 kHz which is the choice of many professional recording engineers since that's the sample rate that will be used in the final mastered CD. In general, the larger the

bit depth the more dynamic range (another way to say signal to noise ratio), which helps keep recordings quieter. A common setting for most professional recording projects is with a sample rate at 44.1 kHz and depth of 16 bit. Most Mac and PC based DAW's allow you to select the bit depth and sample rate within the program. However, you can also select them at a system level with in the Mac "Audio MIDI Setup" utility or in the "Sound" control panel on the Windows based computers.

Selecting Sample Rates and Bit Depth on Apple-Macintosh

You can select the sample rate and bit depth in the "Audio MIDI Setup" utility located in the "Utilities" folder.

1. From the desktop select menu "GO" then, "Utilities" then, "Audio MIDI Setup" to launch the Audio MIDI set up utility.
2. Next, set the Output sampling rates by clicking on the Miktek Mio to select the sample rate.
3. At this point you can select the bit depth using the pull down menu.
4. Now, click Apply and the new settings will be in place.

Selecting the Sampling Rate and Bit Depth in Windows Systems

1. Connect your ProCast Mio to an available USB port on your computer.
2. Next, navigate to your computer's Control panel.
3. From the Control panel, click on the "Hardware & Sound" option.
4. Now, from the "Hardware & Sound" menu, choose the "Sound" icon.
5. Next, select the "Recording" tab.
6. Choose the "Miktek Mio" from the available input devices.
7. Click on "Properties" and select the "Advanced" tab.
8. Set the sample rate from the "Default Format" pull down menu.
9. Now set the Output by going to your computer's control panel, and from there, select the "Hardware & Sound" option.
10. From the "Hardware & Sound" menu, choose the "Sound" icon.
11. Once you're in the "Sound" set up, select the "Playback" tab and select the "Miktek Mio" as the output device.
12. Next click on "Properties" and choose the "Advanced" tab from the "Properties" window.
13. Now, set the sample rate and bit depth from the "Default Format" pull down menu.

ProCast Mio Quick Start

1. First, plug the USB cable into the ProCast Mio and into an available USB port on your computer. Note: Be sure to check the installation guide for Windows and Mac OS to confirm your computer will recognize the ProCast Mio. Also, make sure your computer's output level is turned up in order to hear the computer playback in the ProCast Mio headphone monitor.

2. Position the ProCast Mio's microphone towards the vocalist about 4 to 6 inches away. Since the Mio's microphone is a side address, unidirectional type, be sure to face the front side (the side with the ProCast Mio logo) of the microphone towards the sound source.

3. Connect your headphones to the headphone output located on the rear of the ProCast Mio.

4. Next, launch your DAW and select the Miktek ProCast for the input and outputs.

5. Set up a mono track in your DAW for the vocal and guitar track. Then, select Miktek ProCast Mio mono left for the vocal track.

Now follow the instructions of your DAW software to enable the track for recording and you're ready to record

A Note on Powering the ProCast Mio

The ProCast Mio 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 ProCast Mio receives its power from the USB bus. Simply connect the microphone to the computer's USB port and the microphone is ready to operate. The ProCast Mio features a power on LED, which will illuminate when USB power is present. *See the following section " Using Phantom Power' when connecting to a standard mixer or audio interface.*

Stand mounting the Procast Mio

The ProCast Mio can be mounted to any standard microphone stand using the included mic stand holder or the optional SMS-Mio shock-mount. If you are using a US standard 5/8-inch mic stand, remove the Euro adapter by unscrewing it from the mic holder. Screw the holder to a solid mic stand, then line up the bottom threaded section of the ProCast Mio to the holder and slowly rotate the microphone clockwise until it screws on hand tight. Be careful not to cross thread the screws. You can loosen the bottom thumbscrew on the holder to make left and right adjustments to the mic, and then re-tighten it once it's in place. Loosen the side thumbscrew to set the microphone angle and then tighten once it's in place.

Connecting the ProCast Mio to your computer

When using the Procast Mio as a stand alone USB microphone use the included mini-usb cable to connect between the ProCast Mio and your computer.

Connecting the ProCast Mio to your mixer or audio interface

Using an optional standard XLR balanced microphone cable, connect the female end to the XLR jack located at the bottom of the ProCast Mio Then, connect the male end to the mixer's or audio interface's microphone input.

Operating the ProCast Mio

Understanding Polar Patterns

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 unidirectional. Omni mics pick up sound from all directions, bidirectional mics pick up the sound directly in front and back of the microphone while rejecting the sound on the left and right sides, and unidirectional (cardioid) mics pick up the sound in front of the microphone.

While omni and bidirectional microphones are very useful for a variety of applications, a majority of "miking" situations in recording and live sound require unidirectional or cardioid microphones. The unidirectional pick-up pattern allows for better separation of instruments in the studio and more control over feedback in live sound reinforcement. The ProCast Mio's pick-up pattern is cardioid, which offers even more side-to-side rejection. When positioned correctly, the 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 ProCast Mio and how it is positioned for the instrument or vocalist that you are miking. Most microphones, not omni, but especially unidirectional or cardioid microphones, exhibit a phenomenon known as "proximity effect." Very simply put, the proximity effect is the increase in low frequency response a microphone exhibits as it is moved closer to the sound source. Vocalist tend to love this effect since when they get really close to the mic they get the "FM radio", big bass sound. A good vocalist with good mic technique will use the proximity effect to adjust their tonal response in real time. The key to developing the best mic technique is experimentation along with awareness of the general principle that the closer your Mio's microphone is to a signal source, the greater the bass response. 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 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!

Using Phantom Power

Using Procast Mio with a standard Mixer or Audio Interface

It is possible to use the ProCast Mio as a standard analog microphone connecting to a standard mixer or audio interface. Using a standard balanced XLR cable connect the ProCast Mio's XLR output to the mixers or audio interface's microphone input. Be sure that the mixer's or interface's on-board 48 volt Phantom power source is off before connecting the microphone. Then connect the microphone and turn on Phantom Power. Once the Phantom power switch is turned on, the external condenser receives the phantom power directly from a mic cable.

IMPORTANT NOTE: Do not plug and unplug any microphone with phantom power on since it will create an annoying pop. You should turn the phantom power off first before you plug or unplug a microphone.

Setting a Good Signal Level

Once you connect the Podcast Mio to your mixer or audio interface you'll need to set a good input level. Setting a good level with the ProCast Mio, or any other mic, may involve using one or more level controls in the audio path. The technique of adjusting the level is often referred to as Gain Staging. Proper Gain Staging it is one of the most important parts in making a quality recording.

Setting a Level using the USB output.

You can adjust the ProCast Mio's internal analog input gain stage by using your computer's Sound control panel. To set a good level using the USB output follow these simple steps:

1 Position the ProCast Mio in front of the desired sound source.

2 Turn the DAW's input fader down and slowly raise the mic trim control until you see the CLIP or Peak indicator light up.

3 Next, turn the mic trim level down until the indicator does not light red any more.

4 Now adjust the DAW's channel fader desired level.

Use the level controls on the DAW to set the balance between the instrument mic and stereo mix from the DAW. Once you set the input level controls you shouldn't need to change them during recording.

Setting and Level using the XLR output.

A good mixer or mic pre-amplifier will have a mic trim and PEAK indicator to show when the input signal is clipping. The purpose of the mic trim, or gain, controls are to optimize the amount of good signal coming from the microphone relative to any associated mixer or background noise. To set a good level using the XLR output follow these simple steps:

1 Position the ProCast Mio in front of the desired sound source.
2 Turn the mixer's input fader down and slowly raise the mic trim control until you see the CLIP or Peak indicator light up.
3 Next, turn the mic trim level down until the indicator does not light red any more.
4 Now adjust the mixer's channel fader desired level.

Reducing 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. Using a pop filter also makes it easy to maintain a good level by keeping the vocalist at a constant distance from the microphone.

Applications

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

Vocals

When using the ProCast Mio on vocals, position the microphone directly in front of the artist so that the microphone grille is approximately 4 to 10 inches away. You can record a group of vocalists by positioning them around the front of the microphone. Just remember that the extreme sides of the microphone pick up less with less response, so have them stand together tight, and/or move the microphone from one to two feet away from the group.

Acoustic Guitar

There are a variety of ways that the ProCast Mio 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.

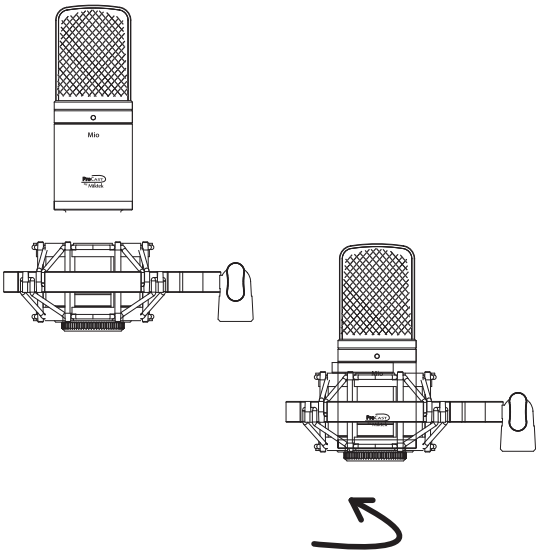
Piano

You can achieve outstanding results using the ProCast Mio 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 ProCast Mio 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.

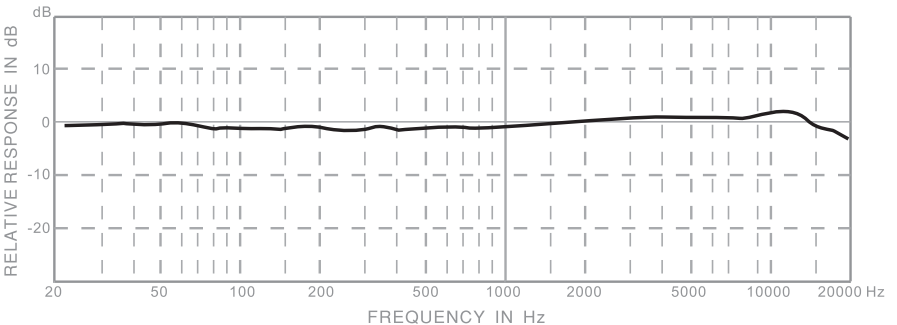
Installing the Optional SMS-Mio Shockmount

The ProCast Mio can be mounted on the optional SMS-Mio shockmount, which you can use to greatly reduce any noise transmitted through the mic stand. The shockmount is especially useful in reducing the problems caused by a boomy soundstage, for example when miking overhead cymbals, or even in the studio with talent that likes to move a lot on a floor that may not be as solid as it should be..

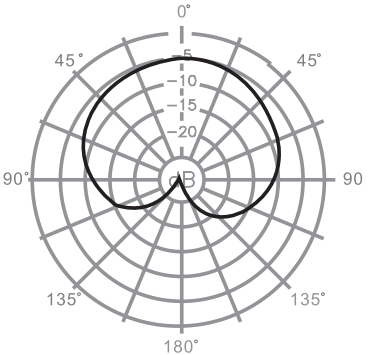
- To use the ProCast Mio with its shockmount, screw the shockmount on a solid mic stand. If you are using a US standard 5/8-inch mic stand, remove the Euro adapter by unscrewing it from the shockmount.
- Once the shockmount is mounted to the stand, line up the bottom threaded section of the ProCast Mio to the holder and slowly rotate the bottom thumbscrew clockwise until it screws on hand tight. Be careful not to cross thread the screws.
- You can loosen the bottom thumbscrew slightly to make left and right adjustments to the mic, and then re-tighten it once it's in place.
- Loosen the thumbscrew to set the microphone angle and then tighten once it's in place.



Polar pattern . . . . . .Cardioid
Element type . . . . . .Fixed charge condenser
Diaphragm thickness . . . . . .3 microns
Frequency Response . . . . . .20~16000 Hz
Sensitivity . . . . . .-40 +/- 3dB/Pa
SPL . . . . . .132 dB



ProCast Mio Typical Frequency Response



ProCast Mio Polar Response

Specifications are subject to change without notice.

www. miktekaudio.com

Nashville, TN USA
tel: 615.250.2434 • fax: 615.346.9298

© 2009 - 2017 All Rights Reserved, Miktek. Printed May 2017 v1.