

MITRA

3D MIC PRO

Immersive microphone systems

Instruction Manual

Version 1.0





Record immersive sound with your 3D MIC PRO

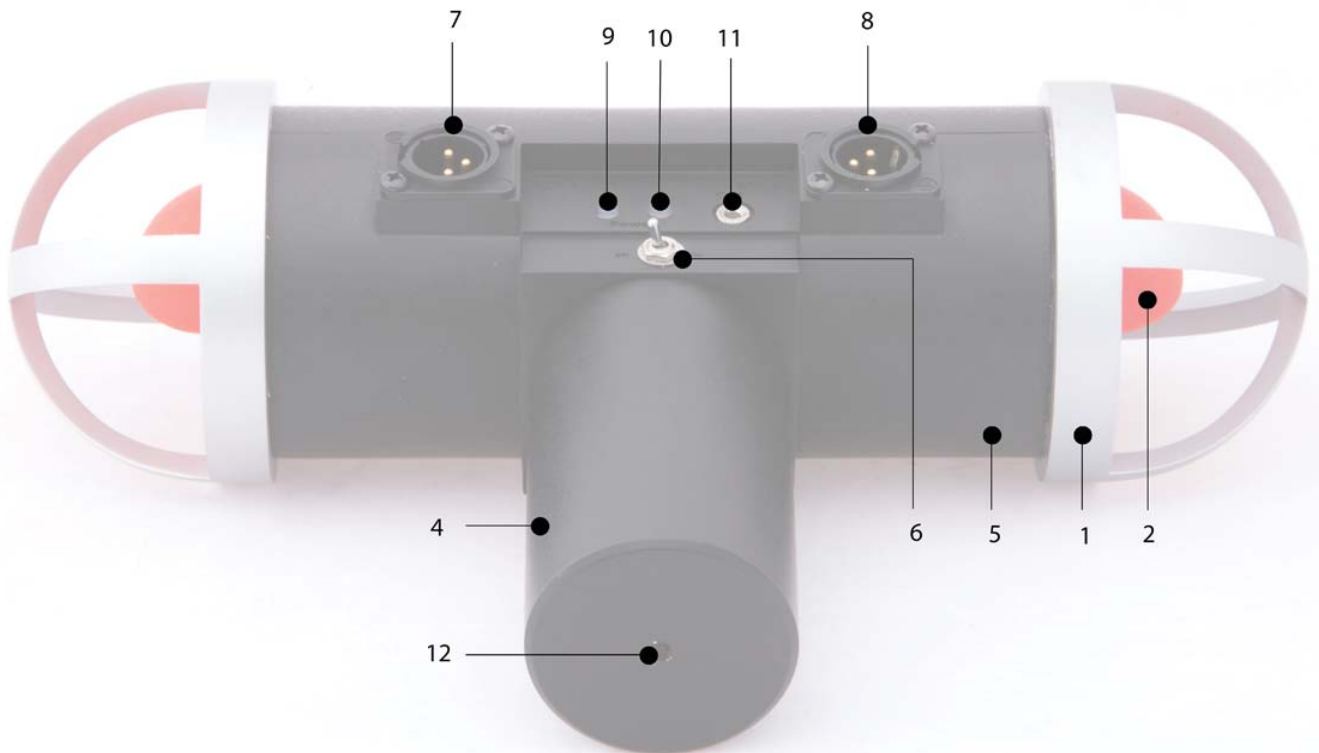
Preserve your most treasured memories, family events, music performances in life-like, high definition, 3D sound image. You may not need to watch the video, just close your eyes and you will feel as if you are there. It is an experience you have never had before; it will be as if you can touch and feel the sound.

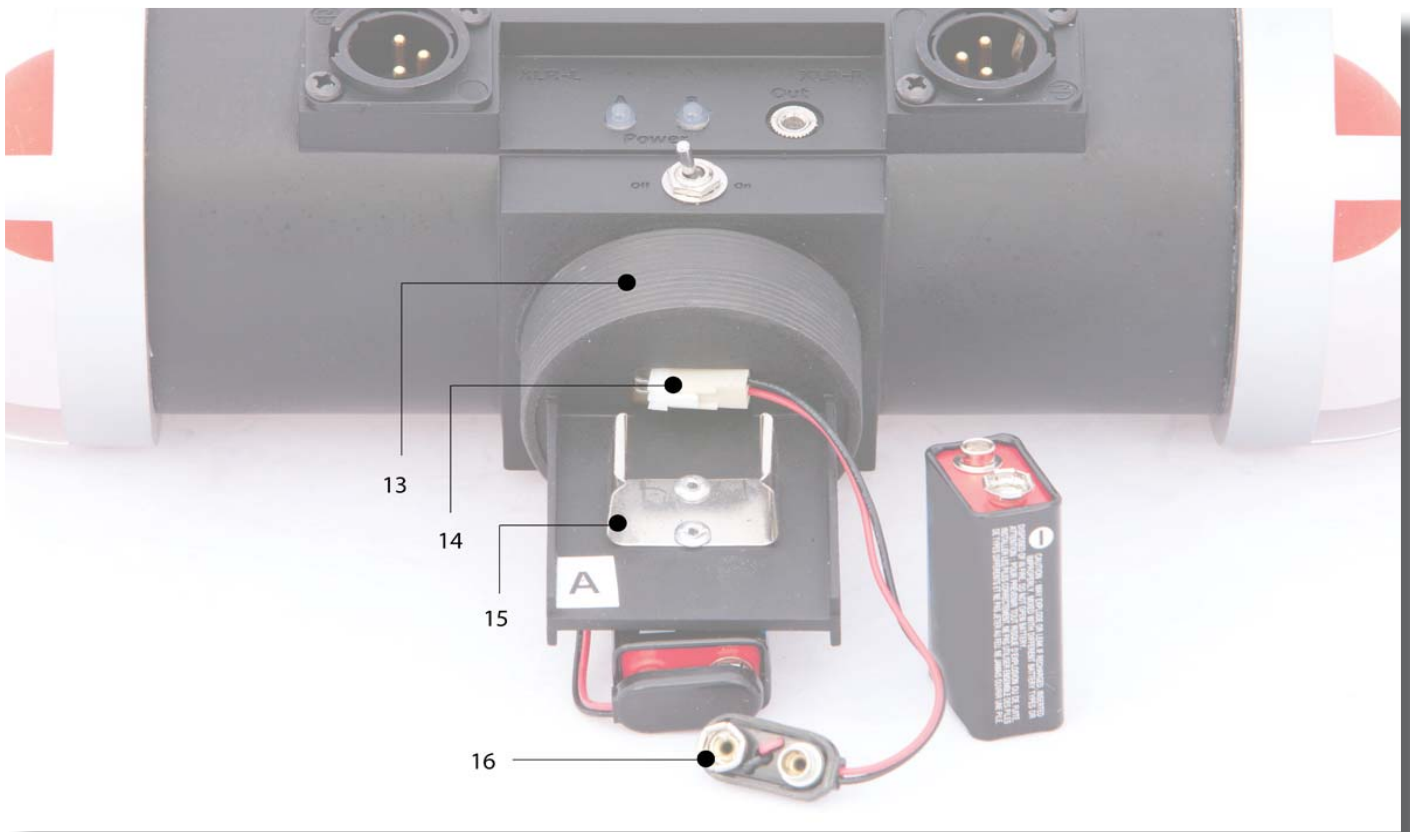


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Guide to parts





- 1) End grills
- 2) SHEM (Simplified Human Ear Model)
- 3) Handle base
- 4) Hand grip
- 5) Microphone barrel
- 6) Power Switch
- 7) XLR connector left channel
- 8) XLR connector right channel
- 9) Fuel gauge for battery A
- 10) Fuel gauge for battery B
- 11) Phono output
- 12) ¼" tripod mount hole
- 13) Handle screw mount
- 14) Battery cable connector
- 15) Battery clamp
- 16) Battery snap

Installing Batteries

- Unscrew the hand grip from the handle screw mount
- Connect battery snaps to two 9V PP3 battery terminals
- Secure the batteries in the battery clamps
- Turn on the power switch and check to see that both battery fuel gauges are glowing equally bright and green
- Turn off the power switch
- Screw in the hand grip on handle screw mount



Connecting to cameras and recorders

You can connect your **3D MIC PRO** to any audio/video recorder, DSLR and video cameras by using a XLR or 3.5 mm stereo phono connector. The **3D MIC PRO** provides low impedance Line level output so that you can run long phono wires and XLR cables from the **3D MIC PRO** to your camera or recorders Line level input without picking up electro magnetic interference and power supply hum.

Many DSLRs and video cameras only accept Mic level input. Use the supplied attenuator cable to connect your **3D MIC PRO** to Mic input of DSLRs or video cameras. The attenuator cable will reduce the **3D MIC PRO** Line level output for perfect Mic level recording. You can identify the attenuator cable by the white "attenuator cable" labeled flag and the blue ring in the phono jack.



The **3D MIC PRO** connected to a DSLR using a third party hot shoe ball head.



A typical hot shoe ball head, which you must use to mount the **3D MIC PRO** to any standard camera hot shoe.

The **3D MIC PRO** connected to a consumer HD camera using a third party hot shoe ball head.





The 3D Mic Pro connected to a professional audio recorder using XLR cable.



Phantom Power Warning while using XLR connector

Audio recorders or video cameras with XLR inputs may also provide 48 volt phantom power for the condenser microphone through the XLR cable. The **3D MIC PRO** is self powered and injection of 48 volt phantom power to the XLR output of the **3D MIC PRO** may damage its internal electronic circuit. We have built a protection mechanism to prevent such damage, however prolonged exposure to phantom power or high voltage/current from a faulty phantom power supply can still damage the **3D MIC PRO**'s internal electronics. Such damage is not covered under limited lifetime warranty. So please make sure to turn off phantom power in the recorder or the video camera before connecting the **3D MIC PRO**.

Aligning the 3D MIC PRO

The **3D MIC PRO** should be aligned correctly to the camera lens optical axis to get the accurate 3D sound image. Mounting the **3D MIC PRO** on most camera hot shoes will help you to achieve this. If your camera hot shoe is off the optical axis of the camera, you will need to mount the **3D MIC PRO** on a camera bracket, tripod or a boom and then align it with the camera optical axis. The figure below illustrates correct alignment of the **3D MIC PRO** on a DSLR.



Examples of incorrect alignment



Recording Process

- Connect the **3D MIC PRO** to your audio recorder or a video camera
- Turn on the **3D MIC PRO**
- Adjust the recording level in your camera or audio recorder
- Start Recording
- Stop recording
- Turn off the **3D MIC PRO**

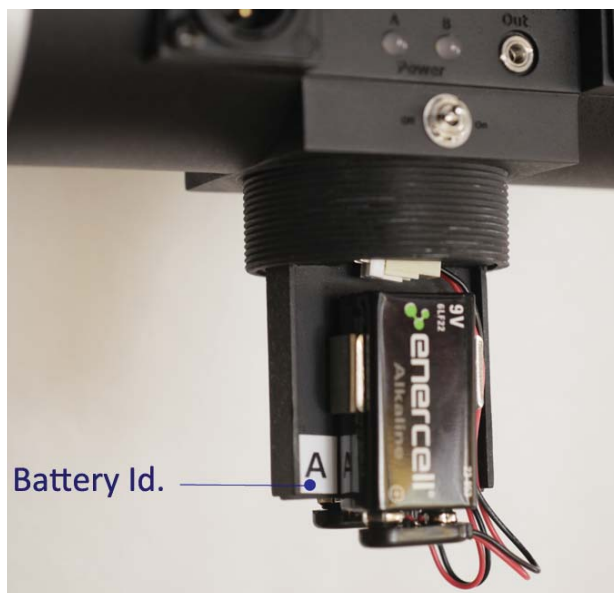
Battery fuel gauge

3D MIC PRO is designed for long battery life. A pair of 9V Alkaline LP3 battery will power it for 12 hours.

The two battery fuel gauges A and B indicate the voltages of battery A and B respectively. The battery IDs are marked at the bottom left corner of the battery clamps

When the **3D MIC PRO** is tuned on, and both the batteries are within operating voltage range, the gauges glow green.

When any battery voltage falls to approximately 7 volt, the corresponding battery gauge turns red. At this point the microphone may still work for several minutes but you should promptly replace that battery.



Both batteries are within operating voltage range



Battery 'A' voltage is low, needs replacement

Mounting to a speaker stand

You can mount the **3D MIC PRO** to any standard speaker stand by using the **3D MIC PRO** shock mount. This optional accessory allows you to attach the **3D MIC PRO** to speaker stand or camera support system equipped with 1/4" or 3/8" 20 pitch screw lugs.



Mounting to a boom pole

3D MIC PRO can be fitted on a **3D MIC PRO** boom pole or any third party boom pole by using a **3D MIC PRO** shock mount. The **3D MIC PRO** should be hung upside down as shown in the photograph.

MITRA 3D MIC BOOM POLE →



Hanging the microphone upside down will laterally invert the 3D sound image. To correct this, connect the **3D MIC PRO** left XLR output to the right XLR input of the recorder and **3D MIC PRO** right XLR output to left XLR input of the recorder.

If you use a stereo phono cable, then you may not be able to swap the channels like with a XLR cable. In that case, during post production, swap the left and right audio channels in the audio or video editor. This 3D sound image correction is necessary because the mic is hanged upside down.

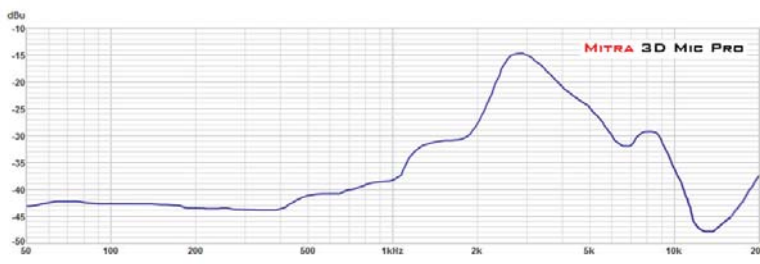


Editing 3D MIC PRO recording

3D MIC PRO does not employ any proprietary encoder to record the psychoacoustic information in the audio recording. 3D MIC PRO records everything as sound, so the sound recordings are nothing but 100% regular digital sound files. They can be edited in your existing video NLE or audio DAW using the same workflow you used to use. The edited 3D recording can be played back in any MP3 players, smartphones, tablet computers and home theater systems.

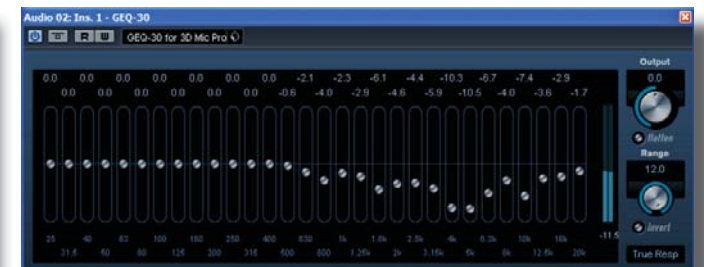
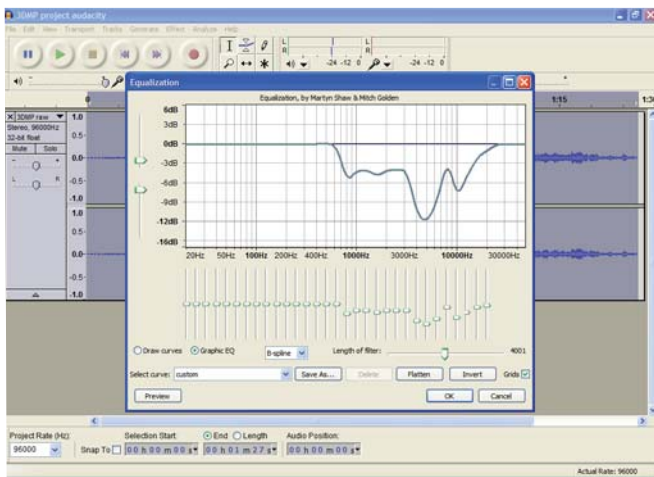
Equalizing the audio

Human ear is more sensitive at certain sound frequencies due to its complex outer ear structure. The 3D MIC PRO's patent pending technology adds a similar transfer function to the recorded sound to create the psychoacoustics. This also makes the 3D MIC PRO more sensitive towards certain sound frequencies just like human ear. The frequency response graph of this transfer function is shown below.



In some recording application, you may like to equalize this transfer function by using equalizer plugin of your audio editor. The figures below show some typical equalization setups using open source audio editor Audacity and popular commercial audio editor Cubase.

Please check the Support/F.A.Q section at 3dmicpro.com website for more information and sound samples on this subject.



▲ Equalization using Cubase GEQ-30

◀ Equalization using Audacity Equalization plugin

Recording Tips

Grip technique

Consumer digital HD video cameras are getting smaller everyday. While using the **3D MIC PRO** with such a small camera, it is easier to grip the whole system by the **3D MIC PRO**'s hand grip. This technique will allow you to shoot more stable videos by balancing **3D MIC PRO** and the camera like a camera stabilizer. You will also find it easier to shoot low angle shots by using this grip technique.



Panning technique

While shooting video, it is absolutely necessary to keep the **3D MIC PRO** aligned with the video camera. However, while recording only audio, you can physically move or rotate the mic to create a panning effect for a stationary sound source. For example, if you record someone singing while standing at the same spot and you slowly rotate the **3D MIC PRO** about its handle axis, then in the 3D sound recording the listener will feel the singer is singing while walking around the listener.

Reducing the wind noise

Recording clean audio in a windy situation is always a great challenge for everyone. Use a **3D MIC PRO** Grey Fox windscreens. This optional accessory will cut the wind noise and allow you to record clean audio.

**MITRA 3D MIC
GREY FOX
WINDSCREEN**



Care and maintenance

3D MIC PRO is designed for rugged field use and does not require much care or maintenance except changing batteries as required. To get the most enjoyment from your **3D MIC PRO**, just clean the surface of your **3D MIC PRO** using a micro fiber cloth. You may wet the micro fiber cloth with plain water and wring it dry to prevent any dripping water. Then use that damp micro fiber cloth to wipe off any dirt or grime.

- Do not use any solvents, chemicals, or cleaning solutions containing alcohol, ammonia, or abrasives.
- Do not allow any liquids to spill into any openings.
- Do not poke or insert any object in the SLEM opening.

Limited lifetime warranty

The **3D MIC PRO** covered by a limited lifetime warranty of the product. Details of the limited warranty are provided on the product registration card that came with your system. Please fill out the information section on the card and mail it to Mitra Corp. or register online at <http://www.3dmicpro.com> within 15 days of the purchase.

Customer service

For additional help in solving problems, send email to support@3dmicpro.com.



The **3D MIC PRO** cabinet and electronic components are sealed to protect them from elements. No user-serviceable parts inside. Any attempt to open the cabinet will result in physical damage of the unit and void the warranty. Please contact support@3dmicpro.com or use <http://www.3dmicpro.com/info/contactUs> page for your any service and support needs. We will get you going in no time.

Technical Specifications

Directional pattern:	Very similar to human ear
Principle of operation:	Pressure transducer with patent pending SHEM
Cartridge type:	Back plate Pre-polarized condenser capsule
Frequency range:	20 Hz to 20 kHz
Sensitivity \pm 4 dB at 1 kHz:	-35 dB (0db = 1V/pa)
Signal to Noise Ratio:	> 62 dB
Output impedance:	50 ohms balanced, < 200 ohms unbalanced
Phono line out max. signal voltage:	< 200 ohm
Cable drive capability:	150 m (487 ft)
Output balance principle:	Impedance balancing with Active Drive
Power supply:	2 x 9V PP3 battery
Current consumption:	2 x 25mA
Connector:	XLR-3M. Pin 1: shield, Pin 2: signal + phase, Pin 3: - phase
Color:	Matte black
Microphone hand grip diameter:	60 mm
Microphone length:	198 mm (7.8 in)
Weight (without batteries):	625 g (1 lb 6 oz)
Height:	190mm (7.5")
Width:	305mm (12")
Tripod hole:	1/4" 20 pitch