



Wildtronics, LLC



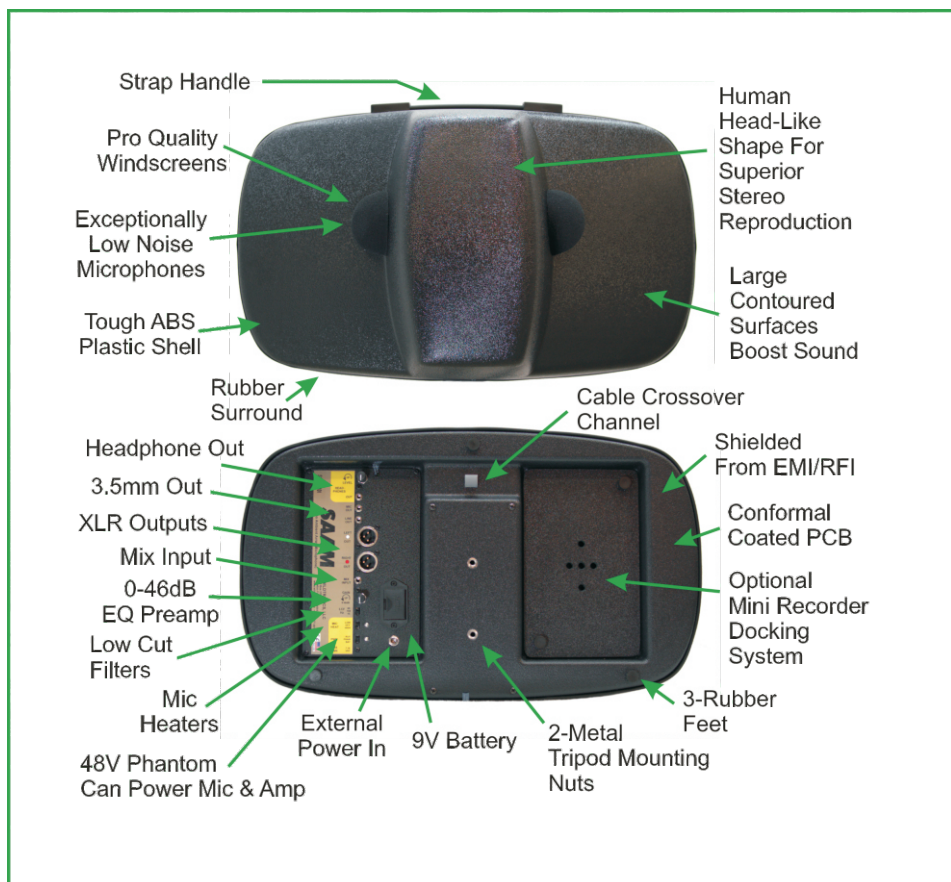
SAAM

(Stereo Ambient Array Microphone)

Instruction Manual

Thank you for purchasing the Wildtronics SAAM (Stereo Ambient Array Microphone). The SAAM is a superior system for capturing stereo field recordings. The human head derived shape provides superior stereo separation and life-like reproduction. The size and shape of the SAAM provides gain and lowers the equivalent noise floor. The exceptionally low noise microphones allow you to capture the faintest sounds. Built-in, low noise preamps allow the SAAM to produce excellent results with almost any type of recorder.

This manual will describe the features and operation of the SAAM. Please read the entire manual before operating your SAAM.



Powering the SAAM:

There are 3 ways to power the SAAM. The PWR slide switch selects which power source is used. When the unit is properly powered, the Green, Power Good LED beside the PWR switch will be steadily lit. If the green LED isn't lit, your battery needs replacement/recharge, your phantom power is not on, or your AUX power is not connected or too low.

Phantom Powering

You may power the SAAM using 48 Volt phantom power from your XLR based recorder, by switching the PWR switch to the PHAN position. 12 or 24 volt phantom power will not power the SAAM. You must turn your recorder's phantom power on and connect both channels. Your phantom power must deliver the standard

10mA/channel current. Note, phantom power will be used internally no matter where the PWR switch is positioned. So, if you are using the 9 Volt battery or AUX power, turn off the phantom power at your recorder for the channels used by the SAAM. Phantom power can power the headphone output, but only to about mid level. The Green Power Good LED must be steadily lit. For maximum battery life of your recorder, we do not recommend using phantom power since current draw is considerable. Phantom power is not connected to and does not power the microphone heaters, since the heaters require too much current.

9 Volt Battery Powering

You may also power the SAAM using a 9 volt battery. Open the 9 Volt Battery Drawer, insert the battery, note where + and - are, then re-insert the Battery Drawer. Switch the PWR Switch to the BAT position to turn the SAAM on. The green Power Good LED should be lit. If the green Power Good LED turns off or isn't lit, your battery is too weak for proper operation. To turn the SAAM off, slide the PWR Switch to the PHAN position. Using the 9 volt battery will give you full headphone output and can also power the microphone heaters. We recommend



using rechargeable lithium 9 volt batteries for best economy over time. See Specifications for battery life.

External 7-18 Volt Powering

External DC power, between 7 and 18 volts, can also fully power the SAAM, including the Headphone Output and Microphone Heaters. Using AUX PWR can be useful when making long recordings or when used in a remote location. Connect the DC power to the AUX PWR jack, a 5mm x 2.5mm DC jack just below the 9 Volt Battery Drawer. The center lead is positive power, and the sleeve is ground. The unit is protected against reverse power and overload with a thermal fuse. To turn the SAAM on using AUX power, slide the PWR Switch to the AUX position. To turn off the SAAM, disconnect the external power or slide the PWR Switch to the PHAN position. The green Power Good LED will indicate that the unit is properly powered. See Specifications for current consumption.

Microphone Heaters

Microphone heaters are uniquely available in the SAAM. Normally, mic heaters are only available in professional microphones that are designed to be used outdoors 24/7. Heaters are used to increase the temperature near the microphone elements to help displace moisture. Moisture can cause popping sounds or even a complete loss of signal if water droplets form on the element. The Mic Heaters can be turned Off, Low, or High using the Mic Heat slide switch on the back panel. The Mic Heaters will only be available when powering the SAAM from a 9 volt battery or AUX power, and not when using phantom power. The yellow LED will be lit indicating the Mic Heaters are on. The yellow LED has two levels of brightness that correspond to low and high heat. The heaters are fairly low power, so it will take time for them to heat the area around the microphone. If you need the heaters, High is generally for temporary use, and Low is for long term use in extreme conditions. Alkaline 9 volt battery life will be about 15 hours on Low, 7 hours on High, compared to 40 hours without heaters. Note, this is not a waterproof product that can be left in the rain.

The Mic Heaters are intended for use in extremely condensing environments such as dense fog or jungle-type conditions. The High position can be used if condensation occurs from rapid transitions in

temperature during setup. You may never need them, except for the most extreme conditions. We have tested the SAAM microphones under many extreme conditions and never needed to use the heaters. The heaters were added to assure success in difficult field recording situations.

Internal Preamps:

The SAAM's stereo microphone pair is internally connected to high quality, low noise preamplifiers. These preamplifiers also include equalization circuits for an optimal flat frequency response. The preamplifier gain is adjustable from 0-46dB, using the Gain control knob. Turn the control CCW to increase gain. All the outputs will be affected by this master Gain control. We recommend using the minimum gain on your recorder, without attenuation, and using sufficient gain in the SAAM to achieve normal record levels. This will result in the lowest noise floor, since the SAAM's preamp noise level is equal to or better than any recorder. If you set the Gain to zero, you will be adding the noise of the SAAM preamp to the noise of your recorder's preamp, resulting in a slightly higher noise floor. If your recorder has a higher noise floor, your recorder's noise will be overwhelmed by the high level, low noise SAAM preamp output as long as plenty of Gain is used. Lower cost recorders are generally very good except for their noise level, so they can perform much better with the low noise SAAM system.

Input Filters:

Input filter selections are available using the LCF slide switch on the back panel. These analog, low-cut filters are located between the mics and preamplifiers. The LCF Switch will select either a 15Hz, 160Hz, or 80Hz rolloff. These filters are useful for reducing low frequency rumble and wind buffeting. Many recorders use digital filters located past the preamps, so wind can easily cause clipping of the inputs. Using the SAAM's input filters will improve your ability to prevent input clipping during adverse conditions.

Outputs:

All the outputs from the SAAM can be used at once. This allows you to connect multiple equipment for simultaneous or backup recording. Note,

the Headphone output is limited when using phantom power.

XLR Outputs

Standard XLR outputs are located on the back panel, labeled Left Out and Right Out. The XLR Outputs are transformerless, balanced, buffered, and able to drive long cables. Connect them to any device that can accept balanced XLR inputs. You can connect them to Microphone or Line inputs. We recommend using at least some SAAM preamp Gain for best results, even when using top quality equipment. For output level details, see the specifications.



3.5mm Line Output

The 3.5mm Line Out on the back panel uses a stereo 3.5mm connector. This output is best suited for directly connecting low cost, handheld recorders. Use as much SAAM preamp gain as possible and turn the gain down on your recorder for best results. This output is -12dB referenced to the XLR outputs. If you need less gain, use the Mic Out.

3.5mm Microphone Output

The 3.5mm Mic Out on the back panel uses a stereo 3.5mm connector. This output is best suited for connecting to the external microphone inputs of cameras, smart phones, and tablets. These devices have lower input signal level requirements, without much gain control. This output is -30dB referenced to the 3.5mm Line Out. In combination with the SAAM Gain control, the ideal signal level can be obtained for each type of device. If you need more gain, simply use the Line Out. Between the two 3.5mm outputs, you have -30 to +46dB of gain control.

3.5mm Headphone Output

The Headphones Out uses a 3.5mm stereo connector. The headphone output can be used to monitor recordings being made, as a stand alone listening device, or even as an extra high gain output. The headphone

circuit is also very low noise, allowing you to hear what is picked up by the SAAM with perfect clarity. Using the SAAM system will improve the hearing ability of even someone with perfect hearing. The Headphone Out has a separate Level control, so you don't have to change the preamp Gain adjustment. Normally, if you have the preamp Gain adjusted for other outputs, there will be plenty of adjustment range using the headphone Level control. If you are using the SAAM as a stand alone listening device, you may need to increase the preamp Gain in conjunction with the headphone Level. You may also use the Headphones Out as an additional, and adjustable line level output. If you are using phantom power to power the SAAM, the headphone output is limited to about ½ the available power. The Green Power Good LED will blink if the headphone output level is too high when using phantom power.

Mix Input:

The 3.5mm Mix Input on the back panel allows you to connect a line level, stereo signal to the SAAM. This input signal will be combined with the microphone signals and be heard at the outputs. Adjust your input signal level and SAAM Gain for your idea mix. The Mix Input is useful for connecting a Wildtronic Amplified Parabolic Microphone to add in a specific featured subject. You can also concatenate SAAMs together for collecting sounds from multiple locations, such as in surveillance use.

Using the SAAM

There are several ways to mount the SAAM. You can use the strap handle on top to transport or hold the unit during use. Two tripod, 1/4-20 threads are available on the back.

The metal tripod threads are supported by a large metal plate inside the SAAM for secure mounting. The center tripod thread is for upright use, and the lower tripod thread is for use when tilting. You may also place the SAAM on any flat surface using the 3 built-in rubber feet.



There are two main methods of using the SAAM. Using the SAAM with the “nose” pointed in the general direction of the subjects, is for general purpose stereo recording. This is the most often used method, and is useful when you need to reject sounds from the rear, in favor of the intended subjects in front of the SAAM. Using your headphones, you can pan the unit left or right to adjust your stereo field. You can also point the “nose” straight up, resulting in a 360 degree stereo recording. The 360 degree method works especially well if you have lively sounds from a treetop canopy, are picking up conversations in a room or meeting, or want maximum coverage for surveillance use.



The SAAM design is similar to a human head model in the way it processes stereo sound. Place the SAAM at a convenient distance from your subject, similar to where you would be for enjoyable listening. Placement is the key to making a good balanced recording. Move around the location, away from the loudest subjects, to where sound levels are most pleasing to you. Experiment with the above two methods of recording for optimal results.

When the Gain is set to minimum, the maximum sound level or SPL is 115dB, for a 0dBu output. 115dB is as loud as thunder or very loud rock music. If your recorder can accept +10dBu on the line inputs, the SAAM will allow a SPL up to 125dB, which is near the threshold of ear pain. The SAAM is uniquely suited for quiet environments as well, due to its low noise microphones, sound boosting design, and low noise preamps.

Using preamplifier Gain

We recommend using the minimum gain on your recorder, without attenuation, and using sufficient gain in the SAAM to achieve normal record levels. This will result in the lowest noise floor, since the SAAM's preamp noise level is equal to or better than any recorder. If you set the Gain to zero, you will be adding the noise of the SAAM preamp to the noise of your recorder's preamp, resulting in a slightly

higher noise floor. If your recorder has a higher noise floor, your recorder's noise will be overwhelmed by the high level, low noise SAAM preamp output as long as plenty of Gain is used. Lower cost recorders are generally very good except for their noise level, so they can perform much better with the low noise SAAM system. Generally, setting SAAM Gain to at least 20dB, or about half way, will be sufficient to obtain full benefits. Lower gain settings are only required for loud environments, where noise levels are not an issue. You can use the preamps in the SAAM for a coarse gain, and use the gain in your recorder for fine level adjustments, if you are using long cables.

Many small recorders use the gain setting of 2 as zero gain, and below 2 as a signal attenuator. Avoid the attenuator settings unless you have very loud sounds. Use the Gain adjustment of the SAAM to set your levels so that your average signal is -15 to -20dB, and your peaks never exceed -5dB. If you are recording quiet outdoor locations, your average signal level may often be lower than -20dB, but monitor so you do not exceed the peak levels. The levels can be read on the display of your recorder.

Accessories Available Separately:

Recorder Dock:

The Recorder Dock is a kit that allows you to install a small, handheld recorder directly into a recess on the back of the SAAM. Mounting your recorder this way forms a versatile, incredibly portable recording system with no tangling cables. Your hand held recorder will perform exceptionally well when combined with the SAAM electronics. The kit consists of a mounting plate, 3 thumbscrews, and a cable. Your recorder is mounted, using it's tripod mount, to the plate with a thumbscrew. If your recorder does not have a tripod mount, you can use Velcro, not included. The plate is then secured to the SAAM with two thumbscrews. The 12-inch, 3.5mm cable connects Line Out to the input of your recorder. The cable clip, above the tripod mount, retains the cable.



Secondary Windscreen:

The Secondary Windscreen is a special stretchy material that fits tightly over the front of the SAAM. This fabric further improves the wind tolerance of the microphones and is completely transparent to sound. The built-in, primary windscreens allow use in winds of 10-15MPH; the Secondary Windscreen will extend use to winds of 20-25MPH. The Secondary Windscreen is available in black or camouflage, and is also very useful for concealment. This windscreen can be treated with waterproofing silicone spray to help shed occasional precipitation. Note, the SAAM is not waterproof. This Secondary Windscreen may also be used to cover the front of a Wildtronics Standard, 0.060 thick, parabolic dish for added wind protection or as a covert cover to prevent reflections off the clear dish.



Specifications:

Basic Dimensions: 19x11.25x8.25 inches

Weight: 2 lbs 11ozs

Frequency Response: 20-20KHz

Sensitivity @ gain of 1: -23dB @1V/Pascal or 70mV/Pascal

Max SPL: 115dB @ 0dBu Output; 125dB @ +10dBu Output

Signal to Noise Ratio: 86dB

Self Noise: 8dBA *

Preamp Gain: 1-46dB

Preamp EIN: -

129dBA

Headphone Gain: -15dB to 30dB (referenced to the XLR output)

Mix Input: 3.5mm Stereo Line Level, 6dB gain to output – 1K Ohm

Outputs:

Buffered XLR; +10dBu max output, 130 Ohm

3.5mm Stereo Line Jack (-12dB referenced to XLR), 1K Ohm

3.5mm Stereo Mic Jack(-24dB referenced to 3.5mm Line), 65 Ohm

3.5mm Stereo Headphone Jack

Powered By Any One of:

2 Channel, 48 Volt Phantom Power, 10mA/Channel max

9 Volt Battery, Rechargeable Lithium Recommended

7-18V DC External Power, 5x2.5mm DC Power Jack, Center (+)

Current Draw: 14mA, using headphones: 18mA, using Mic Heater:

Low: 31mA, High: 65mA

9 Volt Alkaline Battery Life:

40 hours using microphones only

25 hours using microphones and headphones

15 hours using microphones and low microphone heater

7 hours using microphones and high microphone heater

XLR Connectors: Neutrik Gold Plated **3.5mm**

Connectors: Switchcraft

External DC Jack: Switchcraft **Metal Tripod**

Tread: 1/4-20

Internally Shielded from EMI/RFI

Maximum Docking Compartment Dimensions: 5.0x 7.0 inches

Low Cut Filters: 15, 80, 160 Hertz, 6dB per octave.

*Most noise is above 10KHz and may be post filtered, for an equivalent system noise of 4dBA.

Care:

The Wildtronics SAAM doesn't require much maintenance. When dirty, blow off excess dirt, and clean with a surface cleaner, such as Windex, and a microfiber or a very soft cloth. ArmorAll Cleaning Wipes are the best to use. Use care not to tear off the windscreens as they are glued onto the shell. Avoid contact with DEET on any plastic products.

Do not keep the 9-volt battery in the unit for extended periods of time, as some batteries still leak and could corrode the battery holder connections. If you need expendable parts such as windscreen replacements, contact Wildtronics, LLC for service part pricing and availability.

Warranty:

The Wildtronics SAAM is warranted for 1 year against manufacturer defects and limited operational problems when used under normal conditions. Wildtronics will try to resolve any problems.

This product has been manufactured and tested to the highest quality standards by Wildtronics, LLC. This Limited Warranty offered by Wildtronics, LLC covers defects in material or workmanship in new Wildtronics, LLC products. This warranty extends to the original

purchaser only and is non-transferable. Only consumers purchasing Wildtronics, LLC products from authorized Wildtronics, LLC retailers, Wildtronics, LLC distributors, or through the Wildtronics, LLC website may obtain coverage under our limited warranties.

What is covered? Wildtronics, LLC warrants this product against defects in material or workmanship as follows: Wildtronics, LLC will replace at no charge parts, or at its option, replace any assembly of the product that proves defective because of improper workmanship and/or material, under normal use, service and maintenance. If repair is not practical, with consensual agreement, Wildtronics, LLC may elect to refund the purchase price in exchange for the return of the product.

How Long Does The Coverage Last? Our warranty period is 1year from the documented date of purchase.

What Our Warranty Does Not Cover? Our warranties do not cover any problem that is caused by:

- A. Conditions, malfunctions or damage not resulting from defects in material or workmanship.
- B. Conditions, malfunctions or damage resulting from normal wear and tear, improper installation, improper maintenance, misuse, abuse, negligence, accident or alteration.
- C. Accessories, connected materials and products, or related products not manufactured by Wildtronics, LLC, or problems that are caused by connecting products not manufactured by Wildtronics, LLC.

Our limited warranties are void if a product is returned with removed, damaged or tampered labels or any alterations (including removal of any component or external cover).

How to File a Claim? Wildtronics, LLC will not provide any warranty coverage unless claims are made in compliance with all terms of the warranty statement included with your Wildtronics, LLC product and you follow proper return procedure. To request warranty service, you will need to provide:

1. The sales receipt or other evidence of the date and place of purchase.
2. A description of the problem.
3. Obtain a RMA number by contacting Wildtronics, LLC for shipping information. You are responsible for the shipping to us, and we will ship the unit back to you (non-expedited) at our cost.

Product Registration:

Please register your microphone to hear about updates and for us to recognize your serial number if you purchased through a distributor.

Name:

Address:

Country:

Phone number:

Email address:

Model #:

Serial #:

Date of purchase:

Purchased from:

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