The SM5-EQ is a single channel audio equalizer and microphone interface designed for use in acoustically difficult environments such as interrogation rooms. Note- the audio output of the SMEQ-1 can be set for "microphone" or "line level output".

SM1 Microphone Placement
Locate the SM1 microphone as close as possible to the area of interest in the space to be monitored. Do not mount the microphone near air conditioning vents, light fixtures or electrical equipment. The SM1 should be placed as close as possible to the subject(s) to be monitored. The SM1 is still useable at distances of up to 25 feet but is dependent on the level of background noise in the area. Experimentation in the environment will determine what distances work best.

Adjusting the SM1 Gain
The SM1 output level is set by selecting the desired volume range and adjusting the gain control.

The "Volume Range" jumper should be set to the "LO" position when using the SM1 with IP cameras that utilize "microphone inputs" also known as "Mic. Level" inputs. This sets the maximum gain of the SM1's pre-amp to x14. The jumper should be placed in the "HI" position when using IP cameras with "Line level" inputs of DVRs and IP cameras. This sets the maximum gain of the SM1's pre-amp to x196.

The SM1 is shipped with the gain set at midrange. If the sound at the "head end" is distorted, rotate the control towards the – mark (counter-clockwise). If the volume at the "head end" is too low, rotate the control towards the + mark (clockwise).

Setting the SM1 Hi-Cut/Lo-Cut Jumpers
The normal frequency response of the SM1 microphone is 500-13Khz. When both jumpered "in", The "HI Cut" and "Lo Cut" filters set the SM1's frequency response to 900-6Khz . Enabling one or both of the filters is useful when background noise needs to be further reduced and intelligibility of speech emphasized. We recommend experimenting with the jumper settings to achieve the best acoustic result for your application.

SMEQ-1 location and power
The SMEQ-1 interface box is designed to be used as a stand alone DVR or I/P camera interface or it can be used "in line" with any ETS base station. When used as a DVR or I/P camera interface, use the supplied AC adaptor. When the SMEQ-1 is used with an ETS base station, The AC adaptor is not required because it draws power from the ETS base station.

Cable Runs
Run a 22 gauge, stranded, two conductor shielded cable between the SMEQ-1 module and the SM1 microphone and the SMEQ-1, and ETS base station or interface box. Keep the cable run distances under 1,000 feet and away from AC power sources, light fixtures and electrical equipment. *See Figure 1 for connection diagram.*

Audio input
Connect any SM1 series microphone to the microphone input OR any other "line level" signal to the audio input. Do not use both inputs at the same time.

Adjusting the microphone "gain" and SMEQ-1 "level" controls (audio output)
If the SMEQ-1will be plugged into a "microphone level" input of an IP camera, set the microphone gain of the SM1-xx slightly clockwise (or 1/8 of a full turn) from full counter-clockwise. Then use the "level control" on the SMEQ-1 to set a volume that produces an acceptable audio level at the head end.

If the SMEQ-1 will be used with a "line level" input, turn the gain control of the SM1-xx to 3/4 full clockwise and adjust the level control on the SMEQ-1 to produce the clearest audio level at the head end.

Setting the SMEQ-1 levels

Setting an equalizer for the desired overall sound is a subjective topic. Experimenting with the controls is the best way to learn and achieve good results. We recommend using headphones to evaluate the sound quality. Start with setting all controls to the mid-point (flat= no gain or cut). We suggest you do this when the desired sound source is present (people taking, being interviewed, etc.) Adjust each control clockwise and counter clockwise to get a feel for how each band affects the overall sound. Keep in mind that the human voice resides in the 1Khz-6Khz range. To focus on these bands the 60Hz, 150Hz, 400Hz and 10Khz controls can all be turned full counter clockwise. The remaining 3 controls (1Khz, 2.5Khz and 6Khz) can then be adjusted for best sound clarity and intelligibility. Note- turning any of the controls fully clockwise will produce noticeable amplifier noise (a hissing sound).
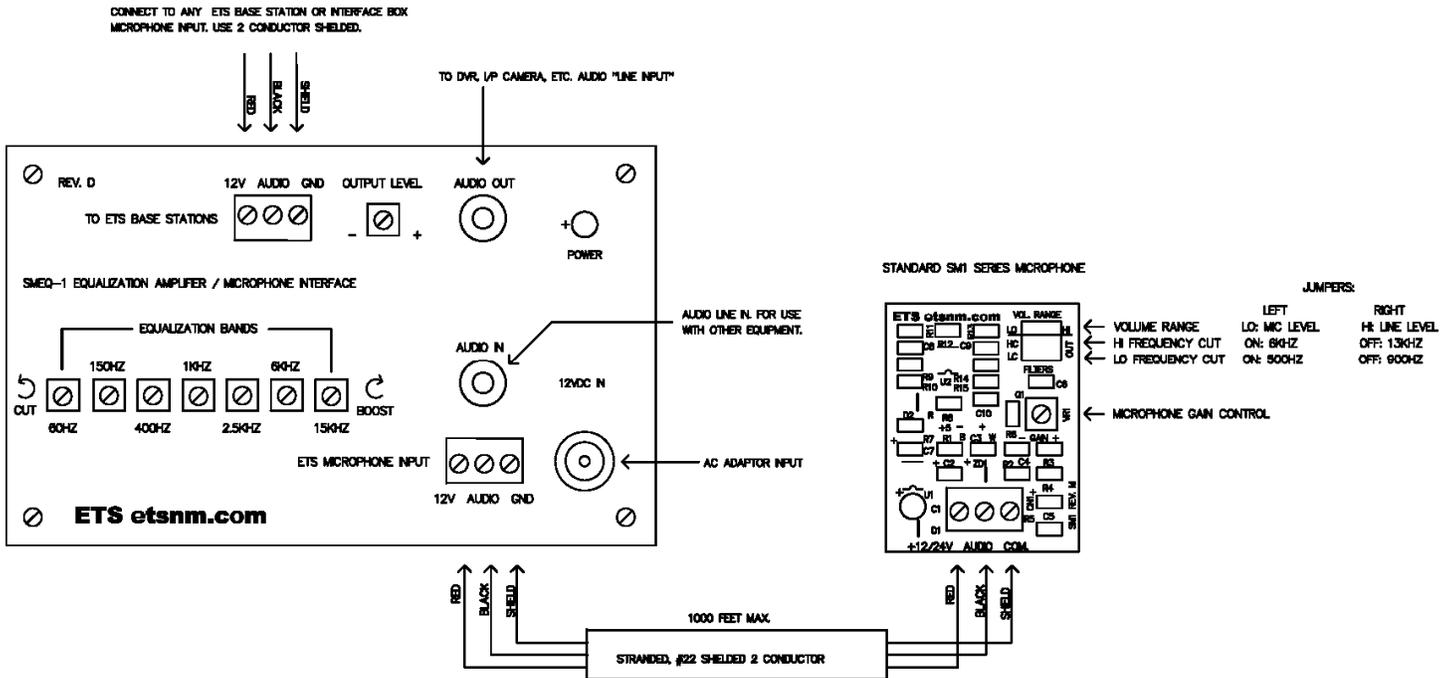

Figure 1.

Caution

It may be against the law to install this microphone kit in certain environments. It may also be against the law to record conversations of the person(s) being monitored without their knowledge. It is the responsibility of the installation company and end-user to determine if the application of this product is legal. These laws vary from state to state. If you are not informed on these matters, consult a qualified attorney or contact the appropriate state agency. A sticker is provided with this kit for the applications where notification must be posted.

Warranty

All ETS products carry a one year parts and labor warranty. This warranty does not cover damages as a result of misuse, improper handling of the unit or exposure to extreme temperatures or moisture. At its discretion, ETS reserves the right to repair or replace this unit under the conditions of the warranty. If you experience problems with your equipment call ETS at: 505-888-3923 to obtain a return authorization number. Equipment requiring repair beyond the warranty period or units that have been damaged or are not covered under the warranty can be repaired by ETS for a minimal cost under most conditions.

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by
ETS Inc.