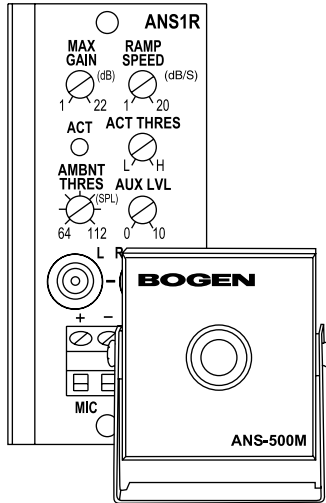


ANS1R

Ambient Noise Sensor Output Module



Package Contents

- 1 - ANS1R Module
- 1 - ANS500M Sensor Microphone
- 2 - Module Screws
- 1 - Instruction Manual & Warranty

Module Features

- Maximum gain control
- Gain ramp speed control
- Activity threshold control
- Ambient MIC input threshold control
- Stereo unbalanced AUX inputs (summed mono) with low priority
- AUX input can bypass gain control function
- AUX input level control (active in AUX input processing “Bypass Mode” only)
- Compact sensor microphone (one included)
- Connect up to 4 sensor microphones for large area coverage
- Remote defeat connections
- Gradual fade back from mute for AUX IN

Module Front Panel Controls & Connectors

Maximum Gain

Sets the maximum amount of gain added. Range of 1 dB to 22 dB of added gain.

Activity LED

Bi-color LED illuminates when different thresholds are triggered to assist in setup.

Ambient Threshold Control

Adjusts the microphone ambient noise input threshold from 64 dBspl to 112 dBspl.

AUX Input

Mono summing, stereo, unbalanced RCA inputs. The input can be used as a normal input or set to bypass the gain adjustment process of ANS1R.

MIC (Sensor)

Connections to ANS500M sensor microphone(s) are made here.

Ramp Speed

Sets the speed by which gain is increased or decreased to the signal, from less than 1 dB/s (slow) to greater than 20 dB/s (fast).

Activity Threshold

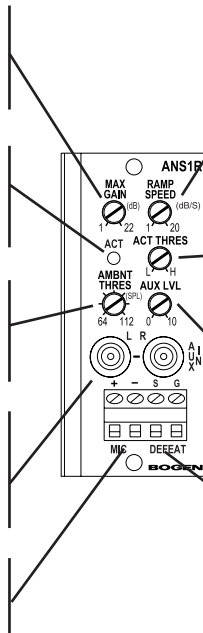
Activity threshold is set just above typical operating level of the program material applied to the gain processing stage ANS1R.

AUX Level Control

Controls the input source level when internal jumper is set to Bypass mode (AUX signal bypasses gain riding).

Defeat

The effects of the ANS1R will be defeated when these terminals are shorted together.



Module Installation

1. Turn off all power to the unit.
2. Make all necessary jumper selections.
3. Position module in front of desired output module bay opening, making sure that the module is right-side up. Output modules will not fit in an input module bay. Do not force an output module into an input module bay.
4. Slide module on to card guide rails. Make sure that both the top and bottom guides are engaged.
5. Push the module in to the bay until the faceplate contacts the unit's chassis.
6. Use the two screws included to secure the module to the unit.

WARNING:
Turn off power to unit and make all jumper selections before installing module in unit.

Jumper Selections

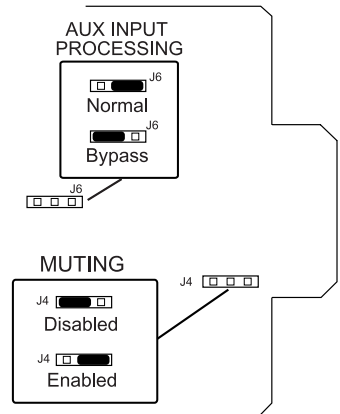
AUX Input Signal-Processing Jumper

- The AUX input available on the module can be set to feed its signal to the amplifier's front level control by setting the jumper in the "Normal" position. The signal applied to this input will eventually be processed to the gain riding function of the ANS1R like every other input installed in the amplifier.
- By setting the jumper to "Bypass" position, the AUX input will not be affected by any gain level changes of the ANS1R. The amplifier's front panel level control will be inactive when the module is set in this mode. Any AUX signal level adjustment must be made using the module's AUX LVL control.

There are situations where it may be undesirable for this AUX input to be affected by the gain riding function of the ANS1R. A typical example would be where low level background music is desired in a lounge when there are only a few people present. When the lounge is crowded and the ambient noise level is high, it is not desirable for the background music level to increase since it will only add to the high ambient noise. This is a case where the AUX input "Bypass" setting would be appropriate.

Muting Jumper

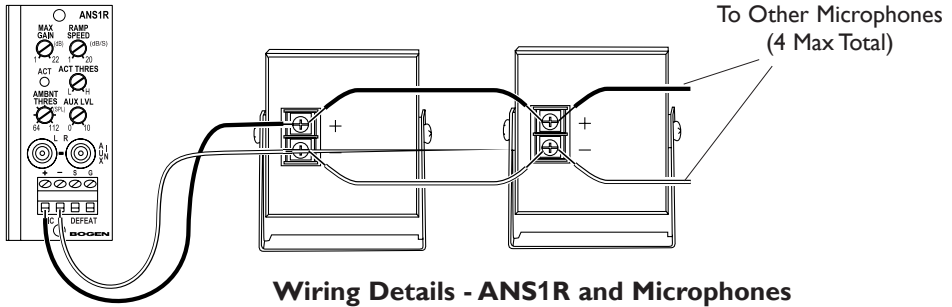
Jumper placement only affects the module's unbalanced input signal. The jumper placement determines whether the module's input can be muted by other input modules or not. When enabled, the input is permanently set to the lowest priority level. When disabled, the module will not respond to mute signal and remains active continuously.



Sensor Microphone Connections

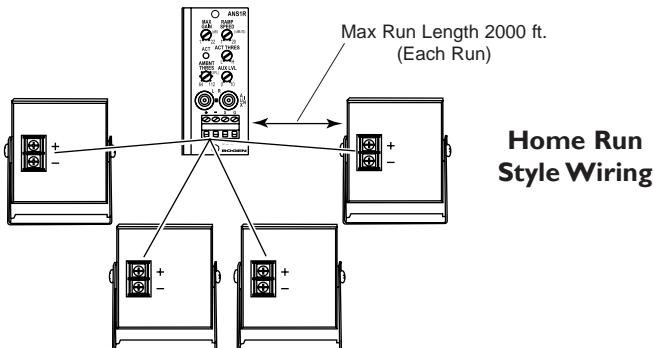
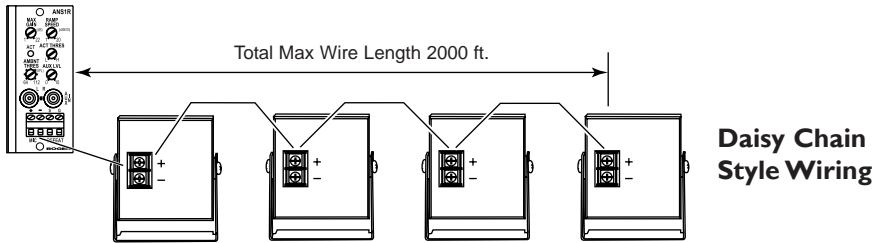
Sensor Microphone Wiring

- The ANS1R requires connection of at least one sensor microphone (ANS500M) for operation. To allow for better ambient noise sensing of large areas, up to 4 sensor microphones can be connected to a single ANS1R module.
- All microphones are wired in parallel matching the polarity markings on the sensor mic with the marking of the two MIC terminals on the ANS1R.



Wiring Multiple Microphones

Physical connections can be made using either Home Runs back to the module from each sensor or by daisy-chaining sensors, depending on the installation. The maximum total wire length from sensor mics to the ANS1R must be kept below 2000 ft.



Module Setup

Normal Mode:

In this mode, all inputs into the system from other modules and the ANS1R module's AUX input will be affected by the automatic gain adjustments of the ANS1R.

An AUX input is provided on this output module so that when it is installed the input function of the module bay is not forfeited. When this module is set for "Normal Mode", the front panel control of the unit functions normally, controlling the level of the source plugged into the module's AUX input. This input signal is applied to the unit's mix bus like all other input signals and is applied to the gain adjusting process of the ANS1R. Therefore, the input applied to the ANS1R's AUX input, in this mode, will be affected by the gain adjusting process just like all the other inputs in the unit.

Note: When the AUX Input Processing jumper is in the "Normal" position, the AUX LVL control on the ANS1R module will be inoperable and the module bay's front panel control will function.

1. Ensure that the AUX Input Processing jumper (J6) is in the "Normal" position (this is optional if the ANS1R's AUX Input will not be used).
2. Connect all input sources to their respective inputs on the unit.
3. Set the desired levels of all the inputs using the unit's front panel level controls (the ANS1R module's AUX LVL control is inoperable in this mode).

Go to Step 4 on next page.

Bypass Mode:

In this mode, all inputs into the system from other modules, but not the AUX input on this module, will be affected by the automatic gain adjustments of the ANS1R.

In audio systems that provide continuous background music, it may be desirable to have the background music stay at a fixed level but have all other amplifier inputs (like a paging microphone) change level in response to the ambient noise level in an area. Background music is typically provided to make a venue seem less empty during slow periods or to help cover conversation during quiet times. It is often undesirable to have this background music level increase as ambient noise increases since it only adds to the overall noise in the area. The ANS1R provides a means to bypass its AUX input around the gain adjustment process so that it does not change with ambient noise levels.

Note: When the AUX Input Processing jumper is in the "Bypass" position, the module bay's front panel control will be inoperable and the AUX LVL control on the ANS1R module will function.

1. Ensure that the AUX Input Processing jumper (J6) is set to the "Bypass" position.
2. Connect the background music source to the module's RCA jacks.
3. Set the background music to the desired operating level using the modules AUX LVL control (the front panel input level control for the installed bay is inoperable in this mode).

Setup continues on next page.

Module Setup - Continued

4. Set the ACT THRES control to a point just before the ACT LED flashes amber. If audio activity is intermittent, see *Operating In Systems With Intermittent Audio Activity*.
- 5a. Using the chart and diagram on page 7, set the AMBNT THRES to the dBspl level where automatic increases to the system volume would be desired; or
- 5b. If the live ambient noise level while making these adjustments is at the desired trip point, then adjust the AMBNT THRES control to a point where the ACT LED flashes green.
6. Adjust the MAX GAIN to limit the maximum amount of gain the ANS1R can add to the system.
7. Adjust the RAMP SPEED control to the desired amount of signal gain per second (dB/s). Lower gain per second (dB/s) settings allows for gradual increases and decreases and ignores short bursts of noise. Higher gain per second (dB/s) settings allow the system to react quickly to shorter bursts of noise.
8. Test the system's response to noise and, if necessary, set the ACT THRES control higher if the maximum signal level is not achieved. Tweaking adjustments to Max Gain and Ramp Speed controls may also be necessary.

Operation In Systems With Intermittent Audio Activity

The ANS1R monitors the audio activity on the mix bus of the main unit. Using this information and the ambient noise level information, it regulates the amount of gain added to the system. This manner of operation allows the proper amount of gain to be added to keep the sources at the desired intelligible level without allowing it to become too great.

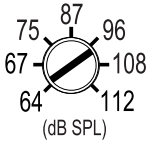
When working in systems that do not have continuous mix bus signals, like simple paging systems, the ANS1R will behave differently than mentioned above. In these types of systems, when the ambient noise threshold has been exceeded, the ANS1R will ramp up to the max gain setting during the time when there is no signal on the mix bus. When audio activity appears on the bus, the ANS1R may begin to reduce system gain, at the RAMP SPEED rate, in an attempt to reach an optimum sound level.

With this type of intermittent audio operation, the setting of the MAX GAIN and RAMP SPEED controls will be the major factors in the operation of the system. The MAX GAIN should be set for a level that will allow the paging to sound intelligible over the worst case noise but not higher. The RAMP SPEED should be set to match the type of response to noise changes wanted. If it is for an area with loud machinery that turns on and off, then a fast ramp, 10-20dB/s, would be applicable. If it is an area where the noise gradually rises and lowers, then a slow ramp speed, 1-5 dB/s, would be used. The slower ramp speed keeps the system from boosting gain when short loud noises are encountered.

Ambient Level Settings

Use this table to estimate the general dBspl level of the area's ambient noise if no actual measurements are available.

Ambient Threshold Control (Detailed Markings)



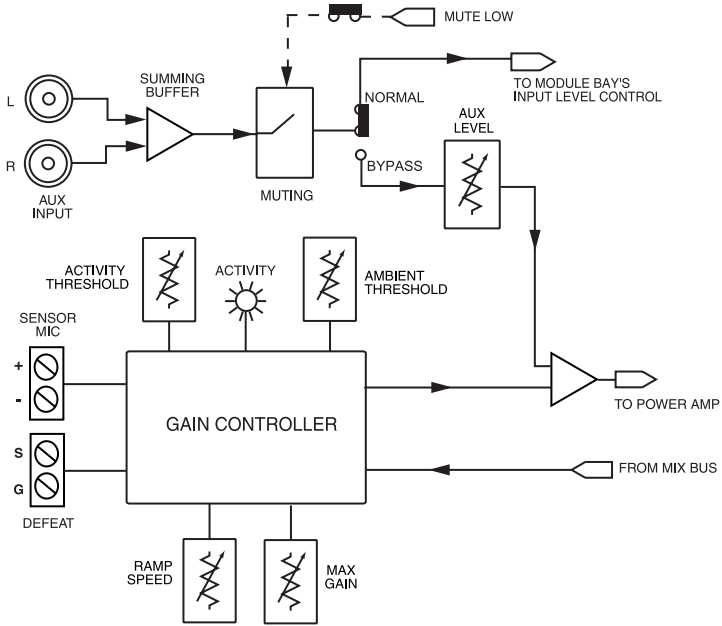
Because of space limitations on the front panel, detailed calibration markings for the Ambient Threshold Control do not exist. Use this figure as a setting reference.

Noise Level Description	Approximate Ambient Noise Level (dBspl)
Very Quiet Restaurant/Bar Hotel Lobby	55
Conversational Speech	60
Closed Supermarket Department Store Partially Filled Restaurant/Bar	70
Open Supermarket Bus/ Transit Waiting Area Crowded/Full Restaurant/Bar	75
Very Noisy Restaurant/Bar Crowded Bus/Transit Waiting Area Printing Shop	80
Machine Shop	85
Loud Machine Shop Construction Site	90

Electrical Specifications

Gain (Boost)	0 dB to 22 dB (± 1 dB)
Frequency Response	5 Hz to 80 kHz (+0 / -3 dB)
S/N (20 Hz - 20 kHz)	-96 dBV
Distortion	<0.007%
Input Impedance (Aux)	20 k-ohms
Gain Ramp Speed	1 dB/s to 20 dB/s
Power	± 24 V DC
AUX Muting Level	-50 dB
Controls	Maximum Gain, Gain Ramp Speed, Activity Threshold, Ambient MIC Input Threshold, & Auxiliary Level
Priority	Level 4 only (for AUX IN)
Connector	(2) RCA types & 4-position barrier strip
Weight	2.8 oz.
Dimensions	1 $\frac{3}{8}$ " W x 3 $\frac{1}{8}$ " H x 3 $\frac{1}{2}$ " D

Block Diagram



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