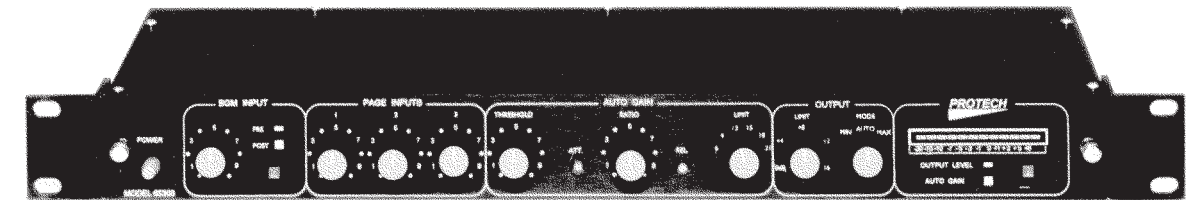


www.protechaudio.com

The Model 65306 Ambient Noise Sensing-Automatic Level Control/Limiter is designed for use in professional sound installations. The unit listens to the ambient noise level in a particular area, and raises and lowers the paging and background music levels, in accordance with changes in the ambient noise level. The Model 65306 has a number of user definable features, that allow the system designer to tailor the performance to a particular installation.

The unit is designed to be placed in the program chain prior to the power amplifiers, and after the paging and background music sources. A sensing microphone, or a sensing speaker, or even the paging speaker(s) may be used as an ambient noise sensing device. (The paging speakers may be used for sensing only when there is no background music.) The sensing device sends information on the present ambient noise condition, back to the Model 65306. Based on the information the unit receives from the sensing device, the 65306 raises or lowers the output level it sends to the power amplifier(s).

The 65306 has three separate inputs for paging sources, and one for the background music signal. Applying an audio signal to any paging channel will automatically mute the background music signal. In addition, applying an audio signal to any higher level paging channel will mute any lower level audio signal.

The 65306 may be used in either a freeze sensing mode, or a continuous sensing mode. The freeze sensing mode freezes the sensing level at the beginning of a page, and allows sensing to resume at the end of a page. The continuous sensing mode allows the unit to continue sensing throughout the paging announcements. The determination of which mode to use is controlled by the wiring of the sensing device on the rear barrier terminal.

The 65306 incorporates a relay which is automatically activated when an audio signal is applied to any program input. By wiring the sensing device thru the relay terminals, the sensing device may be disconnected during paging. Continuous sensing may be achieved, without fear of runaway gain, by simply adjusting the Auto-Gain ratio pot. The amount of Auto-Gain is controlled by the Gain Limit pot. This adjustment can be increased in 3dB increments, from 6dB to 21dB.

The output section incorporates a limiter, which can be adjusted to control maximum output level.

In order to facilitate set-up, a MIN/AUTO/MAX switch is incorporated into the 65306. The MIN position allows quick alignment of the input section, the MAX position allows a fast determination of how much Auto Gain should be allowed, and the AUTO position allows the unit to operate without operator intervention.

INSTALLATION

The Model 65306 is designed to be mounted in a standard 19" width EIA rack. The position of the unit in the rack is not critical, since it does not use significant power, and therefore does not produce heat.

After installing the Model 65306 in the audio rack, wire all audio inputs and output using double conductor shielded cable. Various operating methods may be used. In order to select the proper termination points for a particular operating method, refer to the wiring diagrams on pages 3 - 5. If the speaker grid is to be used as the sensing device, care must be taken to insure the wire gauge used is large enough to handle the output power of the power amplifier. Speakers may be used for sensing only when there is no background music. Also, the internal speaker switching relay in the Model 65306 is rated up to 100 watts. If power amplifiers rated over 100 watts are to be used, an external switching relay is required (see page 5).

INITIAL CONTROL POSITIONS

BGM Knob = Full CCW Position
BGM PRE/POST Switch = PRE Position
PGM #1 Knob = Full CCW Position
PGM #2 Knob = Full CCW Position
PGM #3 Knob = Full CCW Position

THRESHOLD Knob = Full CW Position
RATIO Knob = Full CW Position
GAIN LIMIT Knob = 6dB Position

LIMIT Knob = Full CW Position
MIN/AUTO/MAX Knob = MIN Position

METER SWITCH = Output Position

ALIGNMENT

With MIN/AUTO/MAX switch in MIN position, apply audio signals to each input, and adjust input control knob for nominal -10dB output.

Turn MIN/AUTO/MAX switch to MAX position. Apply audio signals to each input, and adjust AUTO GAIN LIMIT switch set maximum gain to be allowed (for high ambient noise condition).

Turn MIN/AUTO/MAX switch to AUTO position.

Set meter mode switch to AUTO GAIN.

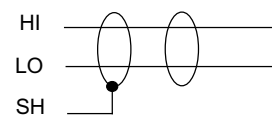
Slowly, turn THRESHOLD control knob counterclockwise until meter indicates additional gain is being added to output signal. Then, slowly turn THRESHOLD control knob clockwise until additional gain is removed from output signal. This will set the threshold of expansion for the current ambient noise condition. It may be necessary to repeat this adjustment several times, to fine tune the adjustment. If the ambient noise level increases, the Model 65306 will increase the output level.

IF NECESSARY ADJUSTMENTS-

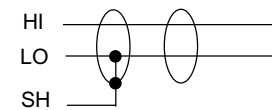
If AUTO GAIN should add gain at a faster rate than necessary, turn RATIO Knob CCW, until proper rate is achieved.

If necessary, adjust OUTPUT LIMIT knob CCW to limit the overall output level. Remember, this level must be higher than the combined initial output level and the AUTO GAIN switch setting. i.e., minus 10dB plus 12dB AUTO GAIN = +2dB.)

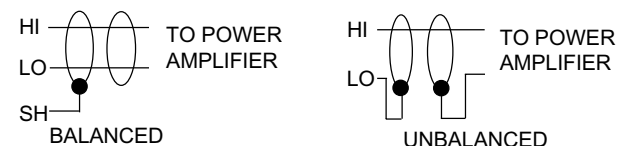
BALANCED INPUT CONNECTIONS



UNBALANCED INPUT CONNECTIONS



BALANCED & UNBALANCED OUTPUT CONNECTIONS



WHEN USING SPEAKERS FOR SENSING -

When using speakers for sensing, there are a few key items to consider.

First, sensing with speakers when background music is present, is not recommended. Although it has been tried by some manufacturers, sensing with speakers when background music is present, does not work very well. In order for the speaker to properly create the back EMF (electro-motor force) needed to send a signal to the sensing input, the speaker should be de-energized for a period of 1 to 2 seconds. This is to allow the speaker to reach a zero output condition. Next, the speaker should be allowed to react to the ambient noise condition for a period of 2-3 seconds. This allows the speaker to create an average output level, instead of reacting to a cough or a yell.

There are only two ways to create these 3-5 second pauses in the background music. One is to have the ambient level controller interrupt the music every 15 to 20 seconds. This creates a very noticeable, and unpleasant effect on the background music. The second is to purchase prerecorded music with the pauses built-in every 1-2 minutes. This condition does not allow the level controller to react properly to all changes in ambient noise condition.

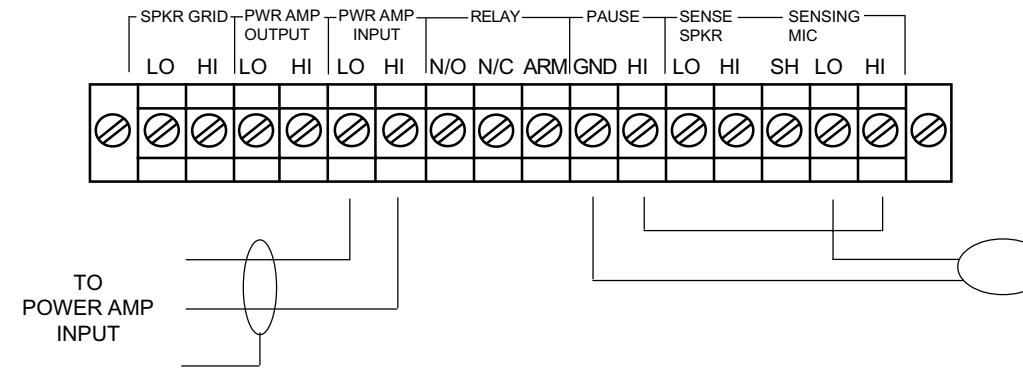
A WORD ON ADJUSTING THRESHOLD AND RATIO CONTROLS -

The threshold control determines when the Model 65306 starts to add additional gain, in relation to the ambient noise level. The control has been optimized for operation at 11:00. The majority of installations will work well at this adjustment level. However there are installations that may require a small adjustment from this 11:00 position. By turning the threshold control counterclockwise, the unit will react to lower ambient noise levels. This can be seen by setting the meter mode switch in the "AUTO GAIN" position, and the output mode switch to the "AUTO" position. When the threshold control is turned fully clockwise, no LED's will be illuminated. By turning the threshold control to the full counterclockwise position, some or all LED's will light up, depending on the type of sensing device that is attached to the sensing input, and the auto gain "LIMIT" switch position. This indicates the amount of additional gain the unit is adding to the initial signal level. During a quiet ambient noise period, the threshold control should be adjusted so that the lowest level LED just turns off. Remember, this is an average responding circuit, and will take 5-30 seconds to settle to the most recent adjustment.

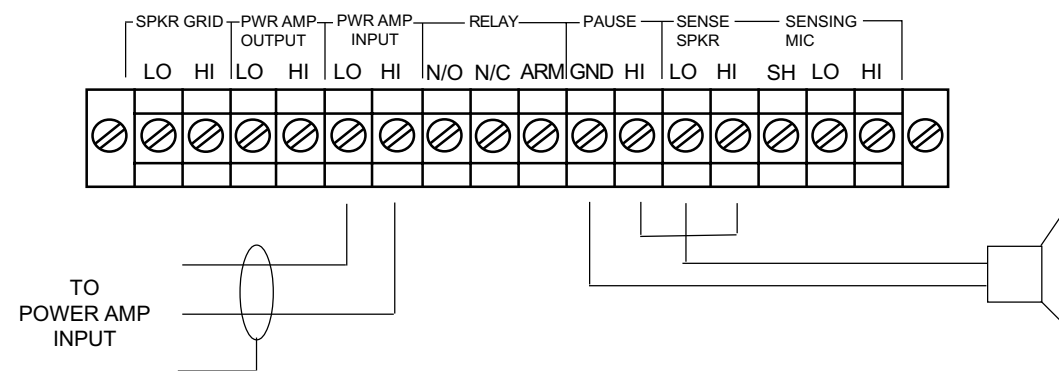
The ratio control determines how fast the Model 65306 adds gain, in relation to changes in the ambient noise level. In some installations, a slower than 1:1 ratio may be desired. Also, if the speaker system should create additional reverberations in the area of the sensing device, a slower ratio may be wanted. By slowing down the ratio (counterclockwise), the sensing device may receive reverberations from the near-field speakers, but would still require additional input noise before it could raise the out level any significant amount. For instance, if the ratio is set to 2:1, the unit would require 2dB of speaker reverberations and 2 dB of ambient noise level change, before it could raise the output level 2dB.

SENSING INPUT CONNECTIONS

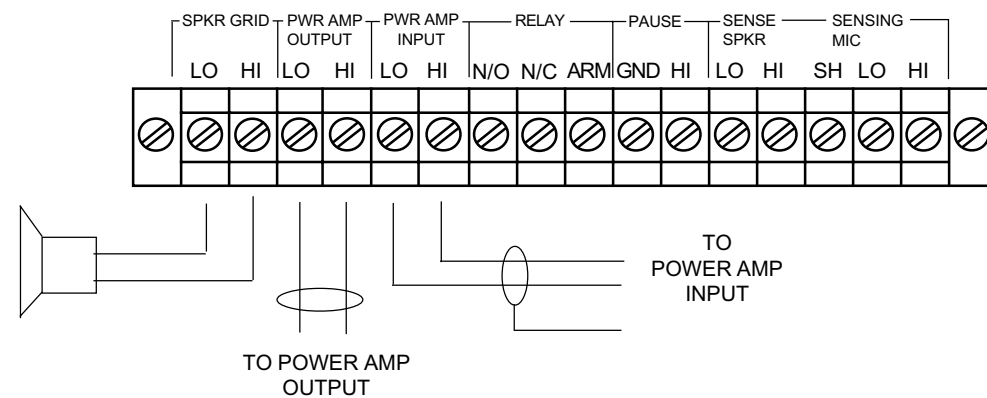
USING A MICROPHONE FOR PAUSE DURING PAGE NOISE SENSING.



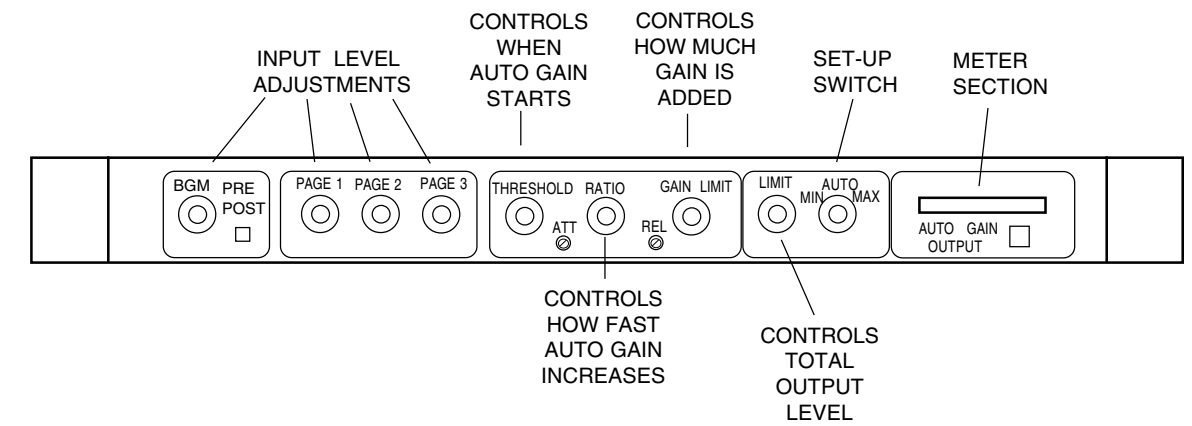
USING A SPEAKER FOR PAUSE DURING PAGE NOISE SENSING.



USING PAGING SPEAKER GRID FOR NOISE SENSING, UP TO 100 WATT AMPLIFIERS.



CONTROLS



USING PAGING SPEAKER GRID FOR NOISE SENSING WITH POWER AMPLIFIERS OVER 100 WATTS.

