



Sound Shadow® Sound Masking Central Control System

1.1.1

The Sound Shadow central system is composed of a noise generator and amplifier. An optional octave band equalizer and paging interface may be added. It is pre-engineered to plug into a standard wall outlet.

1.1.2

Noise Generator

Model M-101-RM (Rack Mount) is an analog noise generator with true randomness and Gaussian distribution or equivalent. It is capable of producing an output level of 1 volt into 600 Ohms or 8 Ohms (0 dB M). It shall have an adjustable low pass and high pass filter. The maximum intensity level shall be 90dB (A) to the NC 40 curve. The rack shall contain all the electronics in a standard RETMA 19in. rack.

1.1.2

Amplifier.

The Audio Amplifier is powered to accommodate the number of speakers in the system it supplies a signal to.

Features:

- Multiple Protections including relay, short circuit, and A/C circuit breaker.
- Separate input gain control for 600 Ohm/ Tel-Page
- Transformer isolated outputs for 70.7 volt line operation.
- Rack Mount Standard

Specifications:

Power Output: 1.1 Watts RMS per speaker

Distortion: 0.3% THD

Outputs : 4 Ohm Direct or 70.7V line.

Frequency Response: +0, -1dB 20 – 20kHz, Direct Output; +0, -1dB 50 to 15kHz, 70.7V Output

Input Impedance: Tel-Page: 600Ω; High Impedance: 10K Ω

Input Sensitivity: Tel-Page 50mV; 600 Ω: 0.50V; High Impedance: 0.50 V.

Controls: Tel-Page, Master Gain, Power On-Off

Hum and Noise: 90dB below rated Output (Unweighted)

General:

Power Source: 120VAC 60Hz (240VAC – 50Hz Optional)

Finish: Flat Black

Dimensions: 19" W x 5.25" H x 13.5"D (48.2 cm x 13.3 cm x 34.3cm)

Weight: 51 lbs (23.6kg)

Speaker Units

2.2.1 Acoustic Specifications

The speaker unit is rated to 2 watts and is designed to deliver up to an 88dBA level of sound when measured at four feet, axially from the speaker. A uniform spectrum of modified pink noise with speaker to speaker variation at less than ± 2 dB over any 1/3 octave band will be assured.

For spectrum curves see curve data. The nominal response range is from 200Hz to 6KHz.

The System is designed to deliver acceptable (44 to 52 dBA, with 48dBA optimal) at 48" above the floor to the workspace through very highly attenuative ceilings where the single pass STC rating approaches 40 dB.

2.2.2 Speaker Mounting

The speaker mounting shall be by means of the supplied single S-jack chain and eye hook. The nominal 3' chain assures uniform dispersion of the sound provided the interior plenum space is 48" high minimum with speakers on 16 foot centers maximum. Sound Management Group will advise on spacing configurations on plenums under 48" in height.

2.2.3 Speaker Connections

The interconnecting means built into the speaker allow for easy inter-wiring with pre-wired polarized connectors, thus saving installation time and preventing wiring errors. These connectors allow either "daisy chained" or "branched" speaker wiring, to give flexibility in installing wiring.

2.2.4 Speaker Level Control

Each speaker has a individual level control which is nominally set at 80% during initial installation. This control is used to balance the delivered dB level of the system to within ± 1 dB variance. The level control is additionally used in instances where speakers are placed by nearby air returns or other low or high STC ceiling elements cause level fluctuations. Additionally, special requirements may override the normal speaker placements and this control will again be used.

2.2.5 Speaker Dimensions

The speaker size is 6" (15.24cm) Diameter x 7" (17.78cm) high, approx. exclusive of mounting eye bolt, control knob, etc.

Wiring

All wiring shall consist of jacketed 18 Ga. Teflon or equivalent "low smoke" producing wire to NEC 725b Class 2.

2.3.1 Speaker Wiring

The speaker wiring shall have polarized two pin IDC connectors at each end with the nominal length of 20' being standard. Custom lengths are to be provided as required.

2.3.2 Transformer Wiring

The transformer wiring shall have a polarized five pin IDC connector at the master control end, a spade connector configuration will be assembled for the transformer end of the wire set.



2.3.3 Paging Wiring

The paging wiring using the optional connector consists of a polarized three pin IDC connector and the same Teflon wire as previously specified. Recommended product consultation and specific application notes will facilitate the implementation of the paging system. A shielded wire set is not required due to the paging voltages being at 2 to 3 v RMS typical.

Quality Assurance

2.4.1 Electrical Contractors

The electrical contractor shall be licensed to install power panels and circuits for powering transformers to all codes.

2.4.2 Masking System Installers

The masking system installers shall be trained and qualified to install and troubleshoot electrical hook-up and/or acoustical problems with authority to replace any damaged or defective masking system component without additional costs to customer.

2.4.3 Protection By Installers

All means will be employed to protect the system components from damage and likewise protection will be extended to protect the installed work of other trades.

2.4.4 Manufacturers

The manufacturer will be regularly engaged in the manufacturing of sound masking systems and will be responsible for manufacturing said product using transformers, wiring and other components in accordance with NEC725, Class 2 codes or their equal. WARRANTY of said system components will be for one year at full material value and then prorated for the next four years at 25% per year.

2.4.5 Performance

The sound masking system will deliver a uniform sound level of \pm dB in the areas shown on overhead floor layout drawings.

Note: When paging is installed as an option, some reduction in the number of speakers per master may be indicated depending on office layout, ceiling tile, and sound attenuation introduced by passive acoustic materials.

1/3 Octave Band Frequency	Octave Band Sound Pressure Level
200	+10 to +14
250	+9 to +12
315	+8 to +10
400	+6 to +9
500	+4 to +7
630	+3 to +4
800	+1 to +2
1000	-1 to 0
1250	-2 to -1
1600	-5 to -3
2000	-8 to -4
2500	-10 to -6
3150	-13 to -8
4000	-16 to -10
5000	-18 to -11