
Technical File

HEAT Management

How can I make sure my Audio gear stays cool?

Audio Signal Processors and Amplifiers produce large amounts of heat, and our aim is to remove it as fast as possible.

For reasons of transport and protection, signal processors and amplifiers are usually housed in wood or metal racks with open or enclosed construction.

Racks should always be designed to ensure that airflow/natural convection can take place, and where possible convection should be assisted with fans. Always remember that you can never provide your processors and especially amplifiers with too much clean and cool air. If you're doing an outdoors show, make sure you shade the amp racks from the direct sun.

Clean air is a friend of audio electronics, and those foam filters on your amplifiers, mixer power supplies, digital recorders and other units are there for a reason. That reason is to protect the sensitive electronics inside from the enemy outside - *DUST*. Dust builds up on internal components and unfortunately is an excellent insulator, preventing the cooling air from getting where it's most needed.

Want proof? Here are two genuine unretouched photos from our service department of an SX 1500 that had been run for 3 months with the filters removed (because they kept getting dirty!).



As you can see, the dust buildup forms an insulating layer on the output devices, heatsink, and all the other components which prevents them from dissipating heat. This can cause an amplifier to shut down prematurely.



No, this is not a new amplifier, but the same amplifier after a good clean out! Now the output devices, heatsink and all the components can radiate heat from their top surface, the way they were designed to.

These filters are not there to be thrown away as soon as they look dirty. They should be washed or vacuumed out and then replaced!

Heat, signal processing and making it Rack.

Rack space is at a premium these days. As users demand smaller, less rack space hungry Audio Equipment, we have seen an increase in the number of products with **cooling vents on the top and/or bottom of the chassis.**

And, while Analog equipment may often run warm, a lot of digital gear runs warm to very hot!

Now let's just think about this for a minute. This gear goes in racks, right? And what happens in a rack?

Yes! you're right - **other** pieces of equipment get mounted both underneath and on top of our unit with the strategically placed vents!

No prize for guessing what happens - these vents get blocked!

This could be a major problem, since the engineers who designed this equipment were obviously concerned enough about the heat dissipation requirements of their unit to put vents in it. However they either assumed:

1. Your unit was going to be used free standing sitting on a bench top somewhere in signal processor heaven...or
2. Your 1 rack unit Wizz Bang processor in reality becomes a 3 rack space unit requiring two valuable rack units of wasted space above and below it!

If you're rack mounting top and bottom vented units like the one we've described, the best way around the heatflow problem is to try and space out your units **Deep / Shallow / Deep / Shallow.**

Remember. Those vents are there for a reason, so don't block them off unless you want a rack mounted meltdown halfway through a show or recording session!
