BravoAV Integration. Automation. Imagination.

Power Conditioners

A power conditioner (line conditioner or power line condition) is an electrical device that provides "clean" AC power to sensitive electrical equipment. It does this by stopping excess voltage and AC noise from reaching your AV equipment. A typical power conditioner for home or office has up to 8 or more receptacles or outlets and commonly provides surge protection as well as noise filtering. Many models also provide Ethernet, cable and phone line conditioning. Protection and purification are necessary for reliable trouble-free use and to ensure peak performance.

Many people are familiar with surge protectors, which guard against damage due to sudden spikes in the electrical current. While surge protectors safeguard equipment, a power conditioner *cleans* the signal, eliminating interference on the line. Power conditioners reduce electromagnetic interference (EMI) and radio frequency interference (RFI) which come from a number of sources. Power conditioners, by removing surges, spikes, EMI and RFI, provide better quality picture and sound for home theater and audio systems.

Why do I need a Power Conditioner?

While power-line noise and voltage fluctuations have been around for years they are increasing on frequency, amplitude and bandwidth. The primary reason you need a power conditioner is that today's more sophisticated gear uses components that are more susceptible to damage by surges and spikes and compromised performance by "dirty" power. Keep in mind that nothing can prevent your equipment from frying if your house takes a direct hit.

Sources of dirty power.

Line noise can result from a number of issues including random fluctuations in the AC current, inferior or damaged wiring, interference from other machines or appliances, overhead fluorescent lighting, motors, switching power supplies or even bad weather. "Dirty power" impedes signal clarity by causing disruption of signal integrity. Dirty power degrades picture quality, causes distortion in audio signals and can shorten the live of you sensitive electronic gear.

Benefits

- Clean power will prolong the life of electronics, improve the performance of both the sound and video
- Surge Suppression will protect your valuable investment.
- Surge protection insurance is offered by some manufactures'

Dedicated electrical circuits & whole house protection:

To get the most from your AV system we recommend that your electrician install a dedicated 20-amp circuit for your AV system. Further protection can be gained, for all you electrical devices, by installing whole house surge suppression at your main electrical panel.

What to look for:

Power conditioners can vary greatly in terms of specific functionality and size with both parameters generally determined by the application. Some power conditioners provide only minimal voltage regulation while others provide protection from half a dozen or more power quality problems. While no single power conditioner can correct all power quality problems, many can correct a variety of power quality problems.

Network Connectivity: A power conditioner that is tied into the web allows us to get notifications if the power is lost to that unit. It also allows us to remotely trouble shoot your system.

Surge protection: up to 6000 amps should be tolerated for up to 10 microseconds without damage.

Extreme Voltage protection: The unit shut down to protect your equipment for prolonged voltages under 80 volts or over 140volts.

Non-sacrificial design: Well-designed power conditioners use a non-sacrificial surge suppression that will protect components and survive to protect again.

Discrete Isolated Conditioning: A good quality power conditioner that uses internal filter banks to isolate the individual power outlets or receptacles on the power conditioner provides discrete isolated conditioning. This eliminates interference or "cross-talk" between components.

Power Factor Technology (PFT): Another feature to look for is Transient Power Factor Technology. This technology lowers AC impedance and provides an instant current reservoir for today's power-starved receivers, and multichannel amplifiers. PFT technology keeps your amplifier sounding consistent no matter what the program material or volume.

Noise Suppression: If the application will be a home theater system, whole house audio system or listening room the noise suppression rating listed in the technical specifications of the power conditioner will be very important. This rating is expressed in decibels (dB). The higher the db. rating, the better the noise suppression. Good units start at a rating of about 40-60db for noise filtering.

Linear noise filtration: The power conditioner must filter power-line noise in a linear fashion. Non-linear filtering causes an unnatural representation across the frequency spectrum emphasizing certain frequencies and suppressing other frequencies. This is akin to a poor equalization job.

Size: Power conditioners are rated in watts or amps. A 15-amp power conditioner is fine for a typical media room application. A home theater needs a 20-amp power conditioner.

Joule Rating: The power conditioner may also have a joule rating. A joule is a measurement of power or heat required to sustain one watt for one second, known as a watt-second. Since electrical surges are momentary spikes, the joule rating indicates how much watt-energy the suppressor can absorb at once before becoming damaged itself. This is a number that the marketing department may "fudge." Therefore you should not make decisions based primarily on this factor. The higher the joule rating, the greater the potential protection.

Clamping Voltage: The power conditioner should have a surge voltage rating or clamping voltage less than 200 volts. This is the amount of voltage that the power conditioner lets through before the protection kicks in. It also has to be fast. You need a response time of 1 nanosecond or less

Ground: The power conditioner must not contaminate the ground.

Status Indicator: A front panel indicator that tells you if there is a problem.

Number of outlets and location: Minimum of six outlets on the back and perhaps one convenience outlet on the front for temporary use.

Line Conditioners

Although the term "power conditioner" is often used interchangeably with "line conditioner," these terms can also refer to devices that not only condition power but also regulate voltage. This type of line conditioner will boost voltage when it drops or act as a surge suppressor when it peaks, maintaining a steady flow of electricity within a set range of voltage parameters. The typical power conditioner used by the householder for computer and home theater systems does not commonly include voltage regulation.

Uninterruptible Power Supplies (UPS)

UPS or battery backups provide power in the event of a power outage. UPS are extremely helpful in supporting control system equipment or any equipment that has volatile memory. Additionally, UPS are helpful in protecting projector lamps allowing them to be properly cooled off. UPS are rated in Volt-Amps (VA).