

The Need For Power Management

Today's microprocessor-based circuits are more sensitive and vulnerable than ever. Though basic protection from catastrophic AC line surges and reduction of radio frequency noise from interfering with the signal have always been prudent, we must strive to eliminate far more from our AC power source if we expect to meet professional standards in the digital age.

In prior decades we primarily worked with circuits that were based on valve and solid-state (transistor) topologies. These circuits were robust, and capable of absorbing the daily onslaught of modest power spikes generated by the utilities' sub-stations and local appliances. Fast forward to the era of the first integrated circuit chips, and the circuits were still capable of handling all but the poorest of AC sources.

Unfortunately, today's miniature surface-mount, high-speed processing chips can be destroyed with an arc of as little as 3 volts to the wrong junctions. Long before that occurs, small voltage spikes can cause circuits to pit and fissure. This can increase distortion, promote lock-ups, and decrease signal resolution over time.

Advanced transient voltage surge protection has never been more necessary.

In environments where failure is not an option and time is money, it is not acceptable to replace an inferior surge strip that has sacrificed its protection devices, or lose a rack of critical components connected to a surge device that has lost its ability to protect beyond a single large surge event. Though a simple surge strip or bar may work once, many will allow unsafe power to pass long after they have lost their ability to protect. Employing a simple AC surge strip or power bar is simply not the professional choice.



Furman 220V-240V
Prestige Family

Fortunately, Furman's Prestige range of AC power management products have been manufactured and designed to a higher standard. With technologies such as our non-sacrificial SMP surge suppression, the equipment rack will be protected - as well as the Furman itself. No service call. No down time.

Professional Noise Suppression with the P-2300 IT E

Another critical consideration for today's broadcast and recording professional is noise. In the digital age, we can no longer be content with a signal-to-noise ratio of 20 to 60 dB. Though we still liberally employ compression for those environments that are better served with dynamically limited media, HDCD, CD, Blu-Ray, High Definition Digital Radio, and the entire range of sound files from WAV to MP3 may require 90dB or greater signal-to-noise ratios.

An 80 to 100 dB signal-to-noise ratio is already pushing the limit of many electronic circuits, and it certainly can not be met when broad bandwidth AC noise is coupled into our signal. Though a power supply will reduce a substantial amount of this noise, it cannot eliminate all of it, and in an era where part of the high resolution signal is in the microvolt range, any excess noise will do more than annoy with a buzzing, hiss, or ghosted image.....it can literally destroy or eliminate a significant portion of the high resolution signal.

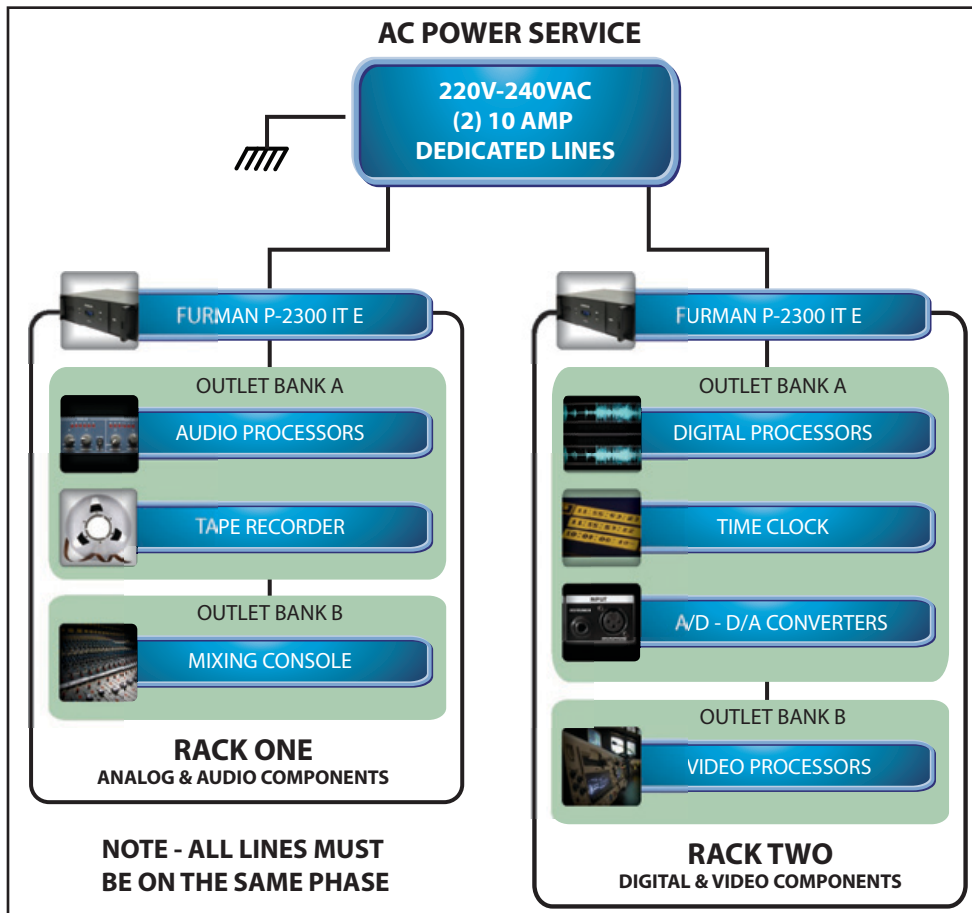
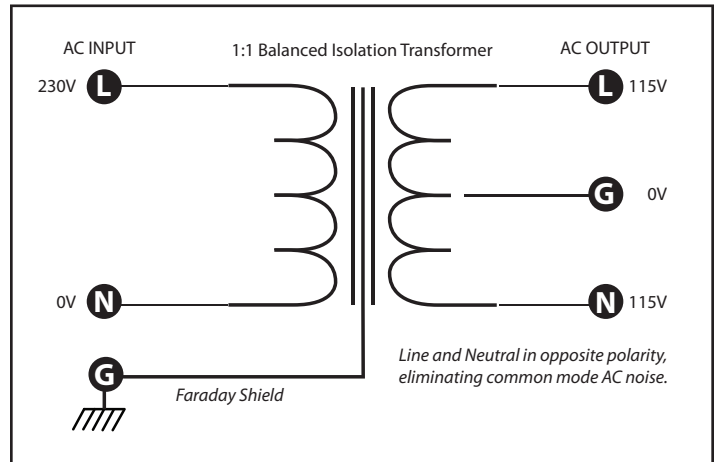
This occurs via a masking effect, when the noise mixes with the actual signal. Yesterday's AC noise suppression circuits were small, simple devices that reduced just enough noise for the limited dynamic range of the audio reproduction devices of the time. In the 21st century, however, ever-present switching power supplies and digital clocks have created wide bandwidth AC noise that is unprecedented in history. To combat this, an AC filtering technology must cover a large frequency range, and it must be linearized so that the masking effect is eliminated at all critical octaves (not just some). Though the challenges are great when we strive to meet professional low-noise standards for digital audio, video broadcast, and recording, it is possible to more than meet that challenge.

The answer is isolation

No AC noise suppression technology can work most effectively with a combination of an ultra-wide bandwidth linear filter for asymmetrical (transverse mode) AC noise, and an ultra-low-loss, toroidal balanced power isolation transformer to effectively reduce symmetrical or (common mode) AC noise. The Furman Prestige Series P-2300 IT E is just such a device.

The P-2300 IT-E's balanced isolation transformer takes incoming voltage from the AC line and splits the voltage to 50% on the line and 50% on the neutral when referenced to a new, 0V center-tapped ground. Because these voltage paths are in opposite polarity, all common-mode noise is cancelled from the incoming line, resulting in a drastic reduction of AC noise and providing a much lower noise floor for audio signals. The concept is identical to balanced audio on signal line, only at a much higher voltage.

Besides offering unyielding AC protection to your valuable equipment. Furman's P-2300 IT E can provide your studio a higher standard of resolution by significantly reducing your A/V system's noise floor. Hear and see what you've been missing!



P-2300 IT E Sample Application

One P-2300 IT E is satisfactory for many systems. However, many facilities will benefit from greater isolation between components and noise from the incoming line when employing multiple units for analog/audio components and digital/video components as illustrated in the sample application diagram above.

FURMAN P-2300 IT E

PRESTIGE SERIES
SYMMETRICALLY BALANCED POWER CONDITIONER



Designed for the most critical, ultra-low noise installations, the P-2300 IT E can supply 10 amps of balanced AC power for recording studios, broadcast stations, video production facilities, or any environment requiring a studio quality signal to noise ratio.

The P-2300 IT E features a specially wound and shielded toroidal balanced isolation transformer specifically designed to reduce hum pickup by sensitive equipment when ultra-low-noise is a must. Additionally, Furman's revolutionary Series Multi-stage Protection (SMP) circuits, as well as our exclusive Linear Filtering Technology (LiFT) are combined to ensure what our customers have grown to expect from Furman - uncompromised protection and purification.



Furman's exclusive SMP Technology provides the highest level of surge & spike protection available



LiFT offers linear AC power filtering to ensure clean power for unequaled audio & video clarity



Advanced EVS circuitry detects dangerous voltage irregularities and safely powers down itself and connected equipment in unsafe conditions



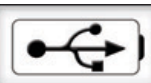
100 % isolated symmetrically balanced power for the lowest noise floor possible



Large LED voltmeter/ammeter displays incoming voltage and output current draw



Protection OK, Extreme Voltage and color-coded voltage range indicators provide information on power quality and operational status of unit



Front panel USB convenience outlet allows you to charge most media devices or power a USB lamp



Isolated outlet banks minimize inter-component interference and noise contamination



10 amp rating featuring a high inrush magnetic circuit breaker for added protection



Fourteen total outlets (Twelve rear panel outlets and two front panel convenience outlets)



SMP (Series Multi-Stage Protection)

Audio/Video professionals can never accept down time, corrupted data, or unreliability. It is for this reason that a virtually non-sacrificial transient voltage surge suppression systems, such as SMP, is the best choice for critical applications. With Furman's SMP, there is zero downtime. In fact, these circuits can typically handle multiple 6000 volts or 3000 amp pulses without sustaining any damage.



LiFT (Linear Filtering Technology)

With Furman's LiFT, differential AC noise is reduced linearly, across a very wide bandwidth, even extending into the video frequencies. This results in a lower noise floor for your audio system, improved picture on your video display, and protection from possible data corruption and losses caused by low-level differential AC noise fed into digital systems.



EVS (Extreme Voltage Shutdown)

Furman's EVS constantly monitors incoming voltage, and once any overvoltage condition over 275 volts AC is detected, a relay opens which immediately shuts down the unit and all connected equipment. An indicator light informs the user there is a problem, and once the condition has been corrected, the unit may be reset and will operate normally.



Symmetrically Balanced Power

For the most critical, low-noise applications, Furman's Symmetrically Balanced Power provides an invisible noise floor, while completely breaking ground loops without dismantling equipment or rewiring. This noise reduction is extraordinarily efficient and linear across a huge frequency range. The transformer has completely re-worked your incoming AC and the result is perfectly clean power devoid of the masking effects of AC noise.

SPECIFICATIONS *(Note - Preliminary Specifications, subject to change)*

MAXIMUM CURRENT:
10 AMPS

LINE CORD:
DETACHABLE CORD, 1mm² x 3, 2.5M LONG, SCHUKO PLUG
TO IEC C13

OPERATING VOLTAGE:
180 to 274 VAC, 50 Hz

OVER VOLTAGE SHUTDOWN:
275 VAC NOMINAL

SPIKE PROTECTION MODES:
LINE TO NEUTRAL, ZERO GROUND LEAKAGE

SPIKE CLAMPING VOLTAGE:
375 VAC PEAK @ 3,000 AMPS

RESPONSE TIME:
1 NANOSECOND

MAXIMUM SURGE CURRENT:
6,500 AMPS

NOISE ATTENUATION (TRANSVERSE MODE):
10 dB @ 10kHz, 40 dB @ 100 kHz, 50 dB @ 500kHz

NOISE ATTENUATION (COMMON MODE):
80 dB @ 20 kHz, 40 dB @ 20 kHz to 1MHz

POWER CONSUMPTION:
18 WATTS FOR DISPLAY AND CONTROL CIRCUITS

DIMENSIONS:
133mm H X 483mm W X 356mm D (5.25" H x 19" W x 14" D)

WEIGHT:
43kg. (95lbs.)

WARRANTY:
5 YEARS

RECEPTACLES:
FOURTEEN IEC C-13 (TWO FRONT PANEL, TWELVE REAR PANEL)

