

MEDICAL GRADE POWER PROCESSOR THE PERFECT FIT

HOW DOES A POWER LINE CONDITIONER HELP MEDICAL ELECTRONIC SYSTEMS? _____

Today's modern sophisticated medical equipment is at the mercy of the utility power. The power companies do a fairly good job generating clean and steady power, but loose control of that quality as the power is transmitted and distributed to the users. In many cases and unbeknown to most, the quality of the power is most effected by the user within their own facility.

Power within a facility has its own agenda; one that is not announced or provided with an itinerary. The variations in voltage will swing as high as 530 volts and as low as 408 volts. Not only voltage variations occur but switching transients and oscillating decay ringing also exists. These anomalies may only last for a few seconds but that's more than enough time to damage or degrade electronic equipment. The effects are noticeable in high maintenance, poor operation, image quality and systems restarts and patient re-scheduling.

Worried?

You should be.

Medical equipment is expensive, it provides the insight to patient diagnostics and it must be reliable.

The Series 700A/V Medical Power Processor line conditioners are designed to provide the equivalent of a new power source, dedicated for the specific modality in use.

Power line conditioners, designed for the demanding medical loads, smooth the voltage, keep it steady and remove all the anomalies other than power outages. The Power line conditioners, keep the voltage within 2% of the nominal (recommended) voltage values, providing optimum performance and a long maintenance-free operating life of the equipment. It also assists in preventing premature component degradation as well as it removes the disturbances that are associated with system restarts.

THE SERIES 700A/V AND SERIES 700A/MR MEDICAL POWER PROCESSOR _____

The Series 700A/V Medical Power Processor marries up to x-ray, Cath, MR, CAT, PET, Oncology and all the other demanding clinical equipment because it's designed specifically for the rigid power profile demands this type of equipment. These power demands are similar to elevators; from very little power draw to an enormous overload for a few seconds. Some Cardiology systems, like Fluoroscopy and Angiography, draw 10Kva at rest and demand in excess of 100Kva when the x-ray generator is activated, causing a dynamic electrical stress on the power distribution system within the facilities.

The x-ray beam is focused by a very high voltage potential. Thus, during the x-ray, it's extremely important that the power supply voltages remain stable.

Most installations will exhibit voltage drops because of the high power demand. These voltage drops cause a reduction in applied voltage to the medical device. Some reductions are so severe, that the x-ray focusing voltage will be insufficient to provide clear images needed for diagnostics by the physician.

The reduced voltage is a result of low voltage from the power grid, and is compounded by long power feeds and high system impedance. This is a formula for disaster with dynamic surge loads.

It is imperative that the power must be correct and stable. Remove the variables and the problems are rectified

DESIGNING AND DELIVERING THE DIFFERENCE

Controlled Power Company has refined the Medical Grade Power Processor for these dynamic loads. Ordinary Power Line Conditioners are typically supplied with only 6 selective voltage taps; rendering limited regulation. The entire Controlled Power Series 700 power conditioners use seven taps to obtain tighter regulation. The medical Series 700's bring the voltage regulating taps to within 2% of nominal, without sacrificing a wider input operating range. The major variable is the system impedance. Normal distribution transformers are rated at 5 to 6%, and ordinary power line conditioners are not much different. This plays a very important part in the voltage stability under dynamic conditions. For example, lets assume a power line conditioner exhibits 5% impedance and the feed wires have 1%. Under a 120% surge load, common to all nuclear and radiology equipment, the medical equipment will only receive 436 volts when connected to a 3% six tap regulator.

In the following similar application example, the Series 700A/V and Series 700A/MR exhibit an impedance under 2%. We will use 1.9%, add 1% for the wire and 2% for worst case regulation. Under a 120% surge load condition, the 480 volt line, worse case condition, only falls to 456 volts (-4.9%) for one cycle. That's almost 200x better than the conventional power line conditioners of other suppliers!

The regulation steps of the Series 700A/V and Series 700A/MR are microprocessor controlled by an averaging algorithm that prevents inappropriate tap changing; further maintaining stability.

Line synchronization is detected with linear devices, which provide the means to switch accurately and without delay. This approach, used only by Controlled Power Company, limits the addition of voltage THD to under 1%; a very important factor for clean sine wave reproduction.

Fully Tested and Proven

The Series 700A/V and Series 700A/MR are 100% load tested at the factory; insuring that each tap and associated components stand up to the rigorous power demands of medical equipment. These power conditioners have also been tested by the medical equipment manufacturers companies for compliance, compatibility and performance with a variety of modalities.

Most of all, they perform!

The Series 700A/V and Series 700A/MR power conditioners have over 15 years of a proven track record in the field.

 **CONTROLLED POWER COMPANY**
"WORLD'S RECOGNIZED AUTHORITY IN POWER TREATMENT"
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