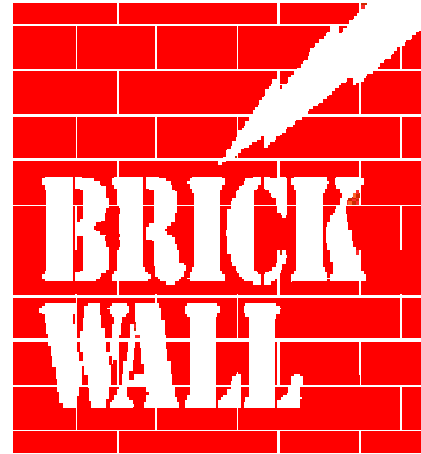


SELLCOM

Surge Protectors That WILL NOT Fail!

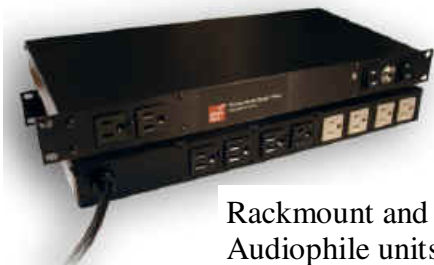
- **No Sacrificial or Wear Components, No MOV's, NO SURGE PROTECTOR FAILURES**
- **No Surge Diversion To Ground**
- **Exceptional Powerline Filtering**
- **Fastest Surge Protector Response Time Lowest Surge Protector Clamping Level**
- **Lowest Surge Protector Let-Through Voltage**
- **Tested by UL to one thousand surges of 6000V, 3000A**



Brick Wall PW2R15 15A Point of Use 2 plug Surge protector



Brick Wall PW2RAUD 20A Point of Use 2 plug Audiophile (isolated receptacles) Surge protector (uses 15A wall plug and 15A receptacles.) This has 20A electronics for more heavy duty use.



Rackmount and Audiophile units



Brick Wall PW8R15 15A Point of Use 8 outlet Surge protector (yes 8, see the two on the side)

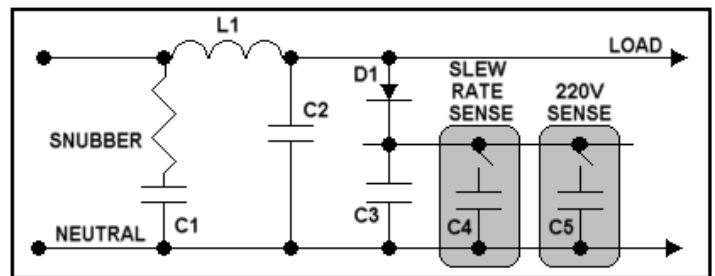
A Completely Different new surge protection Technology - Origins

Several years ago an engineer needed to protect mission critical pharmaceutical data acquisition systems from powerline voltage transients and noise. **He was stunned to find that almost all surge protection devices that were commercially available diverted surge current equally to the ground and neutral wires and were based on sacrificial components (MOV's).** He knew that dumping surges to the ground in these interconnected environments was going to place **unwanted current on his data lines.** **Think about that!** This was unacceptable. As to the use of sacrificial, limited life components that had unpredictable life and were virtually impossible to monitor...well, that didn't seem to fit with a mission critical protocol either.

How it Works

Most surge suppressor manufacturers make grand claims about their products but publish little of the technology involved. We claim that our Brick Wall surge filters offer performance, reliability and safety advantages that are unparalleled by other surge protection products. The following represent the basic engineering principles.

External surges first encounter the Series Mode surge reactor L1, and must pass through this reactor to reach the protected equipment. L1 resists the surge frequencies and immediately (zero response time) provides current limiting. The surge reactor behaves like a relatively high value resistor at the surge frequencies and dissipates some of the surge as heat. Unlike MOV's, TRANS-ZORBS and similar shunt elements that weigh less the 1/4 ounce, the Brick Wall surge reactor can easily absorb any surge repeatedly with absolutely no degradation.



The surge reactor in conjunction with the capacitor C2, *restricts the incoming voltage slew rate* of up to 5,000 volts per microsecond to a maximum of 100 volts per microsecond (1 volt per 10ns). L1 and C2 operate continuously and react instantly for surges or noise lying within the normal dynamic range of the power wave. If the surge exceeds the normal ± 180 volt peak dynamic range of the power wave, the *dynamic clamp circuit* (D1 C3) which tracks the peak of the power wave comes into play. With a diode clamp response time of 5ns, and maximum slew rate limited by L1 and C2 to 1 volt per 10ns, even a worst case surge will be clamped by the time the voltage exceeds the clamp voltage by 1 volt. The clamp circuit places a 180 μ f capacitor (C3) in parallel with C2, reducing the surge slew rate to about 8 volts per microsecond.

Two 'crowbar' circuits act on high energy surges. The series connected crowbar circuits consist of a SCR switch, inductor and a 180 μ f capacitor, chosen to *minimize the disturbance on the power wave*. The first crowbar circuit responds to the slew rate of the incoming surge. If a surge is large enough to generate more than 30 volts in less than 2 μ s across C3, then the slew rate crowbar neutralizes the surge. Should C4 become charged, and the voltage again begins to rise, a second crowbar will activate at 220 volts peak to provide a final measure of protection.

Since the surge reactor is a high impedance at the high frequencies of the surge, minimal high frequency current flows in the neutral wire and consequently *the 'common mode' problem created by simple shunt suppressors does not exist with Brick Wall products.*