

The Rad-X Medical Power Filtration System® (Rad-X Filter)

Specifications

1.0 GENERAL

The Rad-X Filter is a low pass, bi-directional, pi configuration power filtration system with transient voltage surge suppression (TVSS). It is manufactured exclusively for imaging, diagnostic and interventional radiology, neurology, oncology and nuclear medicine systems. The Rad-X Filter attenuates high frequency electrical noise and voltage impulses in three ways:

- 1.1 Prevents electrical noise generated by sources outside of the protected equipment (line generated disturbances) from getting into the protected equipment.
- 1.2 Prevents electrical noise generated by the protected equipment itself (load generated disturbances) from echoing back into the protected equipment.
- 1.3 Prevents electrical noise generated by the protected equipment from affecting other equipment in the area that shares common electrical wiring.

2.0 PERFORMANCE

During normal operation of the protected equipment, the Rad-X Filter will:

- 2.1 Reduce high frequency electrical noise to below 0.8 volts peak to peak from 1 kHz to 5 MHz, regardless of the electrical noise levels recorded during pre-filter startup monitoring. Monitoring is performed with a BMI, Model 8800 eight-channel disturbance analyzer.
- 2.2 Eliminate >99% of all voltage impulse activity recorded during the pre-filter startup monitoring.
- 2.3 Maintain these levels for as long as the protected equipment is in operation.

3.0 OPERATING SPECIFICATIONS

3.1	Input voltages:	240, 208/120, 480/277, 480
3.2	Input voltage configuration:	Delta or Wye
3.3	Maximum continuous current:	160 Arms
3.4	Current overload capacity	200% for 3 minutes
3.5	Impedance	1.5%
3.6	Operating frequency:	60 Hz \pm 5%

4.0 DIMENSIONS

4.1	Main cabinet	30" High	24" Wide	12" Deep
4.2	Wireway cabinet	8" High	24" Wide	8" Deep
4.3	Horizontal unistrut dimensions:	22 1/2" from mounting bracket center to mounting bracket center.		
4.4	Vertical unistrut dimensions:	31 1/2" from mounting bracket center to mounting bracket center.		

5.0 WEIGHT

5.1	Main cabinet	125 lbs (56 kg)
5.2	Wireway cabinet	20 lbs (9 kg)

6.0 WIREWAY CABINET JUMPERS

6.1	Wire size range	#6 AWG to 250 MCM
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7.0 ENVIRONMENTAL

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|-----|-------------------------------------|---|
| 7.1 | Operating temperature:
Humidity: | 10°F (-12°C) to 120°F (48°C)
10% to 90% non-condensing |
| 7.2 | Storage temperature:
Humidity: | 0°F (-17°C) to 140°F (60°C)
10% to 90% non-condensing |

8.0 MEAN TIME BETWEEN FAILURES (MTBF)

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|-----|---------------|--|
| 8.1 | Total system: | >100,000 hours Mil Spec Standard 217E. |
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9.0 INDUSTRY STANDARDS

- 9.1 UL 508
- 9.2 IEEE 587
- 9.3 UL 1449
- 9.4 UL 1283

10.0 RECOMMENDED MAINTENANCE

- 10.1 Yearly preventive maintenance

11.0 WARRANTY

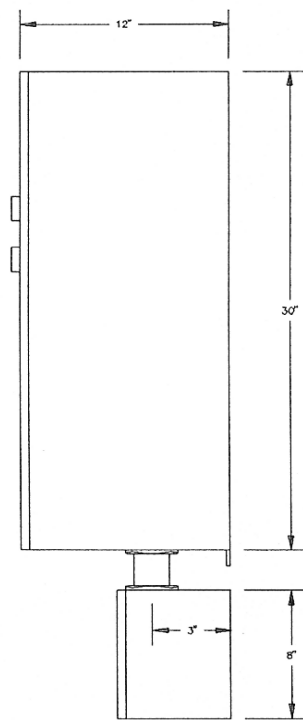
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|------|---------------|--------------------------------------|
| 11.1 | Total system: | Five years from date of installation |
| 11.2 | TVSS modules: | Ten years from date of installation |

REACTOR SPECIFICATIONS

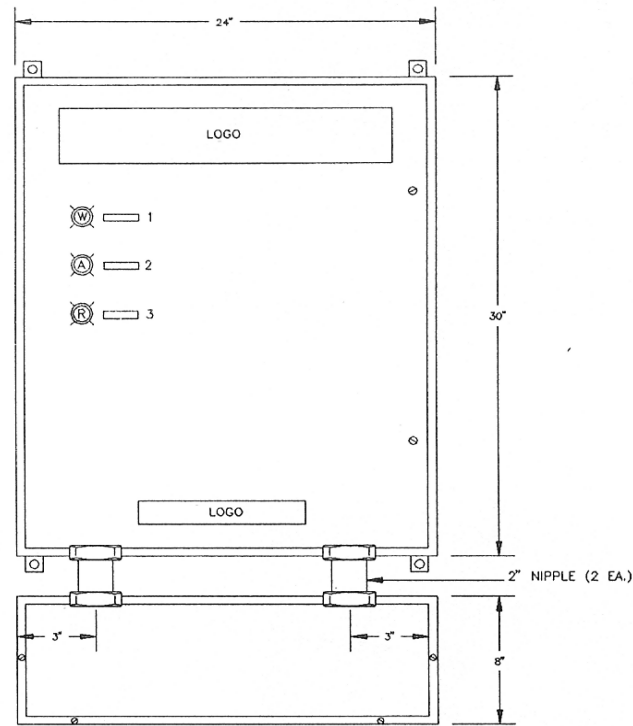
Impedance Protection:	2.4 to 3% eliminates bus overvoltage tripping 5 to 6% protects against physical damage to most drive components and offers harmonic reduction without added capacitance 1.5% is the recommended input minimum.
System Voltage:	208/240 VAC, 480 VAC, 575/600 VAC
Insulation System:	Class H (180° C) or Class R (220° C)
Temperature Rise:	115° C or 155° C
Ambient Temperature:	40° C
Altitude (Maximum):	1000 meters (Derating necessary above 1000 meters)
Fundamental Frequency:	60 hz
Short Term Overload Rating:	Tolerate 200% rated I for a minimum of 3 minutes
Agency Approvals:	CE Marked, UL and CUL Recognized
Inductance Characteristics:	Minimum 95%L at 110% Load Minimum 80%L at 150% Load
Input and Output:	Applicable on either the line or load side of a PWM drive
Inductance:	Distributed Gap Technology™
Enclosures:	Open, UL Type 1 and UL Type 3R enclosures
Harmonics Reduction:	Three Phase Reactors will reduce RMS current through the reduction in harmonic content, thereby improving the total power factor.

TVSS SPECIFICATIONS

Input Voltage	480Y/277 V	240 V	480 V	240/120 CT	480/240 CT
	Three Phase Wye 4 wire + Ground	Three Phase Δ 3 wire + Ground		Three Phase Δ 4 wire + Ground	
Maximum Continuous Operating Voltage (MCOV)	125% of the nominal level for 120 V; 115% for all other input voltages				
Line Frequency	47-63 Hz				
Connection /Mounting Type	Parallel/Flange				
Enclosure	Metal, NEMA 12 Enclosure				
Dimensions (H x W x D)	4 x 6 x 4 (inches)				
Weight	8 lbs. max				
Modes Of Protection	All Mode: L - N , L - L, L - G, N - G				
Safety Agency Approvals	UL 1449-2, cUL, UL 1283				
UL 1449 (2nd Edition) Suppressor Classification					
L-N	800 V	N/A	N/A	400 V	800 V
L-L	1500 V	1500 V	1500 V	800 V	1500 V
L-G	800 V	1500 V	1500 V	400 V	800 V
N-G	800 V	N/A	N/A	400 V	800 V
AIC Rating	65 kAIC				
Status Indication	3-Green LEDs, 1 per phase, 1-Red LED, Form C Contacts, Audible Alarm				
Response Time	<0.5 nsec				
Operating Temperature	-40°C to +60°C				
Operating Humidity	0% to 95% Non-condensing				
Fusing	Thermal and Fault Current				
Noise Attenuation	40 dB Max				
Peak Surge Current Capability					
Per Phase	100 kA	100 kA	100 kA	100 kA	100 kA
Line to Neutral	50 kA	N/A	N/A	50 kA	50 kA
Line to Line	50 kA	50 kA	50 kA	50 kA	50 kA
Line to Ground	50 kA	50 kA	50 kA	50 kA	50 kA
Neutral to Ground	50 kA	N/A	N/A	50 kA	50 kA
Warranty	10 Years				



SIDE ELEVATION WITH
WIRE DUCT



FRONT LAYOUT WITH
WIRE DUCT
NEMA 12 ENCLOSURE
(EGGSHELL WHITE)

SIGMA CONTROLS, INC.		217 South 5th Street, Perkasie, Pa. 18944 Phone: (215) 257-3412 Fax: (215) 257-3416	
MECHANICAL DETAIL			
Client: APPLIED POWER QUALITY			
Dwg. No.: 05-67-2	Date: 4-6-05	Rev: "A" 4-25-05 (AS BUILT)	
Sheet 2 of 2	Scale: N.T.S.		
P.O. # VERBAL-ED.		JOB # 504268	

