

Powerware® TVSS

Features

Powerware's comprehensive line of TVSS products provides complete protection from the most severe transients, from the facility entrance to the outlet.

- ▶ Patented MOV technology ensures excellent control of all transients for high system availability
- ▶ Modular design means:
 - solutions can be tailored to meet site-specific needs
 - easy, on-site upgrades
- ▶ Comprehensive 10-year warranty is the best in the industry. If any module fails within 10 years, it will be replaced.....no questions asked.



Powerware TVSS products provide decades of uninterrupted surge protection with their unique patented MOV technology. With their sturdy design, wide variety of configuration options and reliable technology, Powerware TVSS are an important part of ensuring your overall system availability.

Powerware ZoneMaster Plus and Powerware ZoneMaster

Designed for use in protecting an entire facility or large area from transients. These TVSS solutions are typically situated at the service entrance and major distribution panels, providing a first line of defense against surges and spikes that can wreak havoc on critical systems.



▶ **Powerware ZoneMaster Plus** features large block MOV technology that provides maximum control over all transients. One of the industry's only custom-configurable designs with ratings from 150kA to 600kA, the ZoneMaster Plus can be easily upgraded on-site, and modules can be easily replaced by removing the two mounting bolts. Large surface area bus plates ensure ultra low impedance to fast-rise time transients. Standard features include a 200kAIC fused disconnect, form-C contacts for remote module diagnostics, and multiple visual indicators of module status. Options include an internally mounted UL1283 EMI/RFI, multimode surge counter, remote monitoring unit and Silicone Avalanche Diode (SAD) modules, which further reduce the "let-through" voltage.

▶ **Powerware ZoneMaster 250 & 300** use the same large block MOVs with a tested surge capacity of up to 300kA, which assures a high level of protection from the most severe lightning strikes. Four redundant independent stages of protection are included for each phase to provide the ultimate in protection redundancy. And because the ZoneMaster 250 & 300 series is 50% smaller than competitive devices, it is ideal when space is at a premium. This series standard features include ultra low impedance construction, replaceable bolt-in modules, remote indication capability and visual module diagnostics. Options include a UL1283 EMI/RFI filter and remote monitoring unit.



▶ **Powerware ZoneMaster All Mode** provides the lowest suppression voltages available when all four modes of protection (line-neutral, line-ground, line-line, and neutral-ground) are a requirement. Available in either 90kA or 150kA surge capacity per mode (180kA or 300kA per phase), with standard features including replaceable bolt-in modules, low impedance construction, visual module diagnostics and remote indication capability. Options include UL 1283 EMI/RFI filter and remote monitoring unit.



▶ **Powerware ZoneMaster 150** features 150kA per phase capability in a very small footprint for those sites with extremely limited wall space. This series' standard features include ultra low impedance construction, replaceable bolt-in modules, remote indication capability and visual module diagnostics. Options include an integral fused disconnect, UL1283 EMI/RFI filter and remote monitoring unit.

▶ **Powerware ZoneMaster PE** (panel extension) series has been designed for those applications where there may not be room on the side of a panelboard for an external surge protector. These units have been designed to easily retrofit onto all of the major brands of branch panels, including Square D, General Electric and Siemens. Standard units come in either 90kA or 150kA per mode (180kA or 300kA per phase) ratings and include replaceable bolt-in modules, UL1283 EMI/RFI filter, surge counter, fault monitor and audio alarm. Optional features include a main lug, 200kAIC main disconnect, and remote monitoring unit. The PE Series can also be installed as a standalone device adjacent to the electrical panel.



Powerware ZoneSentinel and Powerware ZoneDefender

Designed to protect critical equipment and applications from transients initiated inside the facility, the Powerware ZoneSentinel and Powerware ZoneDefender are typically situated before and/or after the UPS and power distribution units.

▶ **Powerware ZoneSentinel** provides modular, cost-effective, high capacity surge protection for small service entrances or distribution panel boards. When used at a distribution panel, in combination with a ZoneMaster at the service entrance, ZoneSentinel provides the lowest suppression voltage available today, as well as full protection in all modes. Rated at 90kA, the standard features include bolt-in replaceable modules, low impedance construction, remote indication capability and visual module diagnostics. Options include a UL1283 EMI/RFI filter and remote monitoring unit.





► **Powerware ZoneDefender and Powerware ZoneDefender Plus** are specifically engineered to protect interior lighting and small distribution panels. Designed for small spaces or attachment to the side of a panel board these units are an easy fit in any location. These models are available for either single- or three-phase applications, with the Plus series offering 150kA of protection and the standard ZoneDefender 80kA. Standard features include low impedance construction, LED module diagnostics, close nipple mount and remote indication capability. Options include flush mount capability and remote monitoring unit. The Plus series also offers optional SAD devices to limit let-through even lower than the standard unit.

Options:

► **Remote Monitoring Unit** offers a clear audio/visual indication of the monitored Powerware TVSS. The unit can be easily wall mounted and features red and green LED status indicators and a 90dB audible alarm, with both test and silence switches.



► **Extended Range Power Filter** offers high performance, bi-directional filtering for any ZoneMaster or ZoneSentinel product. The UL 1283 filter attenuates up to -75dB in the 100kHz to 100MHz frequency range. The filter performs sine wave tracking so precision attenuation of transients at any point on the sine wave can be accomplished. Tested to the ANSI/IEEE ringwave standard, the filter performed with a peak recorded let-through of only 200V. This 75dB attenuation equals a 5600-fold reduction in noise.



Independently tested high current suppressed voltage levels (8/20µWaveform)								
Test Current	Module voltage	ZoneMaster 250/300	ZoneMaster 150	ZoneMaster All-Mode (300kA)	ZoneMaster All-Mode (180kA)	ZoneMaster PE (300kA)	ZoneMaster PE (180kA)	Zone Sentinel
150,000	120	1300	X	1300	X	1300	X	X
150,000	277	1790	X	1790	X	1790	X	X
100,000	120	956	X	956	X	956	X	X
100,000	277	1490	X	1490	X	1490	X	X
90,000	120	X	X	X	1210	X	1210	1210
90,000	277	X	X	X	1750	X	1750	1750
75,000	120	X	1110	X	X	X	X	X
75,000	277	X	1630	X	X	X	X	X
50,000	120	673	816	673	X	673	X	X
50,000	277	1140	1340	1140	X	1140	X	X
45,000	120	X	X	X	808	X	808	808
45,000	277	X	X	X	1240	X	1240	1240
25,000	120	X	584	X	X	X	X	X
25,000	277	X	1100	X	X	X	X	X

The Large Block MOV Advantage

The patented, large block three terminal MOVs (40mm) used in the Powerware ZoneMaster Plus, ZoneMaster and ZoneSentinel series of TVSS, withstand the real surge environment. These MOVs are the same diameter as those used in high-voltage arrestors for the past 30 years. The modules are independently tested to 150kA, including all fusing mechanisms. The MOVs use a three-leg terminal design, which permits the paralleled MOVs to be formed from the same slice of zinc oxide so that any transient events are shared evenly between the paralleled devices. Some competitive devices using paralleled, off-the-shelf 18mm or 20mm MOVs could have large tolerance

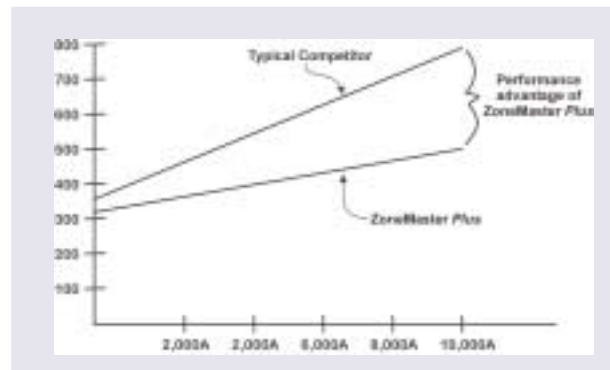
differences, and could fail under the smallest transient event. Additionally, the patented Eutectic alloy thermal fusing used in the ZoneMaster and ZoneSentinel modules stands up to lightning surge levels, unlike the standard thermal fusing used in competitive products which could fail in events less than 10kA. A fuse failure means critical equipment is exposed to dangerous transients until the device is replaced. Each module enclosure is UL-94 5V-rated, and features two independent protection stages. All of these unique features add up to the ability to withstand long duration surges, translating into high reliability and system availability.



Surge Protection Performance

The key performance parameter of any surge protector is how well it controls surges. At the service entrance and main panel, the lower the voltage let-through to the facility, the better the protection. A high let-through voltage at the facility entrance will stress other equipment and small surge protectors located within the facility.

Powerware ZoneMasterPlus' patented large block MOV technology achieves excellent control of all transients. As the severity of the incoming surge increases, the performance of the Powerware ZoneMasterPlus actually improves when compared to competitive products.



ANSI/IEEE C62.41 test surge current

 1449 Listed
Second Edition

10 Year No Fuss Warranty If it fails, we replace it immediately!

In the event that any component or subassembly within the unit fails to perform as specified during the Ten-Year Warranty period, just call our customer hot line, (800)843-9433, to obtain a Return Authorization Number. A replacement unit will immediately be shipped free of charge (installation labor and site preparations excluded). The defective unit must be returned to Powerware Corporation within 21 days of receiving the replacement. It's just that simple.

No Hidden Limits – No Nonsense

Note: This warranty excludes the SAD modules which are 10 years or two free replacements, which ever comes first.

Model #	Service voltage	Let-through voltage levels ANSI/IEEE C62.41, ANSI/IEEE C62.45				Maximum Surge Current in each protection mode (8/20µs)				Independently-tested UL1449 suppressed voltage ratings				Duty Cycle Performance (Surge Life)				
		CAT B1 1000A	CAT B2 2000A	CAT B3 3000A	CAT C3 10,000A	Per phase I MAX	L to L kA	L to N kA	L to G kA	N to G kA	L to L	L to N	L to G	N to G	Max Surge I per mode kA	Repetitive surge I>4 impulses kA	Max number of I impulses @ 10kA (8/20 per mode)	Long duration surge I (10/1000us) Amps
ZM Plus 600																		
PT18500	120/240V 3 Wire, Split Phase	297	327	357	500	600	600	300	300	75	800	400	400	400	300	200	3500	5800
PT18501	208Y/120V 4 Wire, 3 Phase	297	327	357	500	600	600	300	300	75	800	400	400	400	300	200	3500	5800
PT18502	240/120 4 Wire Delta, 3 Phase	297	327	357	500	600	600	300	300	75	800	400	400	400	300	200	3500	5800
PT18504	480Y/277V 4 Wire, 3 Phase	640	690	726	900	600	600	300	300	75	1500	800	800	400	300	200	3500	5800
PT18507	380Y/220V 4 Wire, 3 Phase	640	690	726	900	600	600	300	300	75	1500	800	800	400	300	200	3500	5800
PT18508	415Y/240 4 Wire, 3 Phase	640	690	726	900	600	600	300	300	75	1500	800	800	400	300	200	3500	5800
ZM Plus 450																		
PT18400	120/240V 3 Wire, Split Phase	300	333	360	517	450	450	300	150	75	700	330	330	400	300	200	3500	5800
PT18401	208Y/120V 4 Wire, 3 Phase	300	333	360	517	450	450	300	150	75	700	330	330	400	300	200	3500	5800
PT18402	240/120 4 Wire Delta, 3 Phase	300	333	360	517	450	450	300	150	75	700	330	330	400	300	200	3500	5800
PT18404	480Y/277V 4 Wire, 3 Phase	653	693	733	916	450	450	300	150	75	1500	700	700	400	300	200	3500	5800
PT18407	380Y/220V 4 Wire, 3 Phase	653	693	733	916	450	450	300	150	75	1500	700	700	400	300	200	3500	5800
PT18408	415Y/240 4 Wire, 3 Phase	653	693	733	916	450	450	300	150	75	1500	700	700	400	300	200	3500	5800
ZM Plus 300																		
PT18300	120/240V 3 Wire, Split Phase	307	340	373	533	300	300	150	150	75	700	330	330	400	150	100	2500	2900
PT18301	208Y/120V 4 Wire, 3 Phase	307	340	373	533	300	300	150	150	75	700	330	330	400	150	100	2500	2900
PT18302	240/120 4 Wire Delta, 3 Phase	307	340	373	533	300	300	150	150	75	700	330	330	400	150	100	2500	2900
PT18304	480Y/277V 4 Wire, 3 Phase	653	706	740	950	300	300	150	150	75	1500	700	700	400	150	100	2500	2900
PT18305	600Y/347V 4 Wire, 3 Phase	980	1000	1100	1600	300	300	150	150	75	2400	1200	1200	400	150	100	2500	2900
PT18307	380Y/220V 4 Wire, 3 Phase	653	706	740	950	300	300	150	150	75	1500	700	700	400	150	100	2500	2900
PT18308	415Y/240 4 Wire, 3 Phase	653	706	740	950	300	300	150	150	75	1500	700	700	400	150	100	2500	2900
ZM Plus 250																		
PT18200	120/240V 3 Wire, Split Phase	307	340	373	533	250	250	125	125	75	700	330	330	400	125	100	2500	2900
PT18201	208Y/120V 4 Wire, 3 Phase	307	340	373	533	250	250	125	125	75	700	330	330	400	125	100	2500	2900
PT18202	240/120 4 Wire Delta, 3 Phase	307	340	373	533	250	250	125	125	75	700	330	330	400	125	100	2500	2900
PT18204	480Y/277V 4 Wire, 3 Phase	653	706	740	950	250	250	125	125	75	1500	700	700	400	125	100	2500	2900
PT18205	600Y/347V 4 Wire, 3 Phase	980	1000	1100	1600	250	250	125	125	75	2400	1200	1200	400	125	100	2500	2900
PT18207	380Y/220V 4 Wire, 3 Phase	653	706	740	950	250	250	125	125	75	1500	700	700	400	125	100	2500	2900
PT18208	415Y/240 4 Wire, 3 Phase	653	706	740	950	250	250	125	125	75	1500	700	700	400	125	100	2500	2900
ZM Plus 150																		
PT18100	120/240V 3 Wire, Split Phase	320	363	400	583	150	150	150	N/A	75	700	330	N/A	400	150	100	2500	2900
PT18101	208Y/120V 4 Wire, 3 Phase	320	363	400	583	150	150	150	N/A	75	700	330	N/A	400	150	100	2500	2900
PT18102	240/120 4 Wire Delta, 3 Phase	320	363	400	583	150	150	150	N/A	75	700	330	N/A	400	150	100	2500	2900
PT18104	480Y/277V 4 Wire, 3 Phase	673	746	760	1020	150	150	150	N/A	75	1500	700	N/A	400	150	100	2500	2900
PT18107	380Y/220V 4 Wire, 3 Phase	673	746	760	1020	150	150	150	N/A	75	1500	700	N/A	400	150	100	2500	2900
PT18108	415Y/240 4 Wire, 3 Phase	673	746	760	1020	150	150	150	N/A	75	1500	700	N/A	400	150	100	2500	2900

Model #	Service voltage	Suppression voltage levels				Maximum Surge Current in each protection mode (8/20 µs)					Duty Cycle Performance (Surge Life) (8/20 µs waveform)						
		UL1449	ANSI/IEEE C62.41-1992		Up kV	Per phase I MAX kA	L to L kA	L to N kA	L to G kA	N to G kA	impulses @ 200,000A	impulses @ 100,000A	impulses @ 10,000A	impulses @ 200A	impulses @ 150A		
			CAT B3 3kA	CAT C3 10kA (I _n)													
ZM 300	PT 17100	120/240V 3 Wire, Split Phase	330	333	406	0.4	300	300	300	N/A	75	> 4	>8	> 3500	Infinite	Infinite	
	PT 17101	208Y/120V 4 Wire, 3 Phase	330	333	406	0.4	300	300	300	N/A	75	> 4	>8	> 3500	Infinite	Infinite	
	PT 17102	240/120 4 Wire Delta, 3 Phase	330	333	406	0.4	300	300	300	N/A	75	> 4	>8	> 3500	Infinite	Infinite	
	PT 17103	240V 3 Wire Delta, 3 Phase	700	726	826	0.8	300	300	N/A	300	N/A	> 4	>8	> 3500	Infinite	Infinite	
	PT 17104	480Y/277V 4 Wire, 3 Phase	700	726	826	0.8	300	300	300	N/A	75	> 4	>8	> 3500	Infinite	Infinite	
	PT 17106	480V 3 Wire Delta, 3 Phase	1500	1480	1680	1.8	300	300	N/A	300	N/A	> 4	>8	> 3500	Infinite	Infinite	
	PT 17107	380Y/220V 4 Wire, 3 Phase	700	726	826	0.8	300	300	300	N/A	75	> 4	>8	> 3500	Infinite	Infinite	
	PT 17108	415Y/240 4 Wire, 3 Phase	700	726	826	0.8	300	300	300	N/A	75	> 4	>8	> 3500	Infinite	Infinite	
ZM 250	PT 17000	120/240V 3 Wire, Split Phase	330	333	406	0.4	250	250	250	N/A	75	> 2	>6	> 3000	Infinite	Infinite	
	PT 17001	208Y/120V 4 Wire, 3 Phase	330	333	406	0.4	250	250	250	N/A	75	> 2	>6	> 3000	Infinite	Infinite	
	PT 17002	240/120 4 Wire Delta, 3 Phase	330	333	406	0.4	250	250	250	N/A	75	> 2	>6	> 3000	Infinite	Infinite	
	PT 17003	240V 3 Wire Delta, 3 Phase	700	726	826	0.8	250	250	N/A	250	N/A	> 2	>6	> 3000	Infinite	Infinite	
	PT 17004	480Y/277V 4 Wire, 3 Phase	700	726	826	0.8	250	250	250	N/A	75	> 2	>6	> 3000	Infinite	Infinite	
	PT 17006	480V 3 Wire Delta, 3 Phase	1500	1480	1680	1.8	250	250	N/A	250	N/A	> 2	>6	> 3000	Infinite	Infinite	
	PT 17007	380Y/220V 4 Wire, 3 Phase	700	726	826	0.8	250	250	250	N/A	75	> 2	>6	> 3000	Infinite	Infinite	
	PT 17008	415Y/240 4 Wire, 3 Phase	700	726	826	0.8	250	250	250	N/A	75	> 2	>6	> 3000	Infinite	Infinite	
ZM 150	PT 11200	120/240V 3 Wire, Split Phase	400	350	446	0.5	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	PT 11201	208Y/120V 4 Wire, 3 Phase	400	350	446	0.5	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	PT 11202	240/120 4 Wire Delta, 3 Phase	400/700	350	446	0.5	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	PT 11203	240V 3 Wire Delta, 3 Phase	800	760	886	0.9	150	150	N/A	150	N/A	N/A	> 4	> 2500	N/A	Infinite	
	PT 11204	480Y/277V 4 Wire, 3 Phase	800	760	886	0.9	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	PT 11206	480V 3 Wire Delta, 3 Phase	1500	1480	1680	1.8	150	150	N/A	150	N/A	N/A	> 4	> 2500	N/A	Infinite	
	PT 11207	380Y/220V 4 Wire, 3 Phase	800	760	886	0.9	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	PT 11208	415Y/240 4 Wire, 3 Phase	800	760	886	0.9	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
ZM 150 with disconnect	PT 11200D	120/240V 3 Wire, Split Phase	500	450	546	N/A	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	PT 11201D	208Y/120V 4 Wire, 3 Phase	500	450	546	N/A	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	PT 11202D	240/120 4 Wire Delta, 3 Phase	500	450	546	N/A	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	PT 11204D	480Y/277V 4 Wire, 3 Phase	900	860	986	N/A	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	PT 11207D	380Y/220V 4 Wire, 3 Phase	900	860	986	N/A	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	PT 11208D	415Y/240 4 Wire, 3 Phase	900	860	986	N/A	150	150	150	N/A	75	N/A	> 4	> 2500	N/A	Infinite	
	ZM All Mode 300kA	PT 17300	120/240V 3 Wire, Split Phase	400	350	446	N/A	300	150	150	150	150	>4	>8	>3500	Infinite	Infinite
		PT 17301	208Y/120V 4 Wire, 3 Phase	400	350	446	N/A	300	150	150	150	150	>4	>8	>3500	Infinite	Infinite
PT 17302		240/120 4 Wire Delta, 3 Phase	400/800	350	446	N/A	300	150	150	150	150	>4	>8	>3500	Infinite	Infinite	
PT 17304		480Y/277V 4 Wire, 3 Phase	800	760	886	N/A	300	150	150	150	150	>4	>8	>3500	Infinite	Infinite	
PT 17307		380Y/220V 4 Wire, 3 Phase	800	760	886	N/A	300	150	150	150	150	>4	>8	>3500	Infinite	Infinite	
PT 17308		415Y/240 4 Wire, 3 Phase	800	760	886	N/A	300	150	150	150	150	>4	>8	>3500	Infinite	Infinite	
ZM All Mode 180kA		PT 17200	120/240V 3 Wire, Split Phase	400	395	533	N/A	180	90	90	90	150	N/A	>4	>2500	Infinite	Infinite
		PT 17201	208Y/120V 4 Wire, 3 Phase	400	395	533	N/A	180	90	90	90	150	N/A	>4	>2500	Infinite	Infinite
	PT 17202	240/120 4 Wire Delta, 3 Phase	400/800	395	533	N/A	180	90	90	90	150	N/A	>4	>2500	Infinite	Infinite	
	PT 17204	480Y/277V 4 Wire, 3 Phase	800	875	1030	N/A	180	90	90	90	150	N/A	>4	>2500	Infinite	Infinite	
	PT 17207	380Y/220V 4 Wire, 3 Phase	800	760	1030	N/A	180	90	90	90	150	N/A	>4	>2500	Infinite	Infinite	
	PT 17208	415Y/240 4 Wire, 3 Phase	800	760	1030	N/A	180	90	90	90	150	N/A	>4	>2500	Infinite	Infinite	

*Maximum continuous operating voltage for all models listed above is nominal plus 25%

Model #	Service voltage	Suppression voltage levels				Maximum Surge Current in each protection mode (8/20 μs)					Duty Cycle Performance (Surge Life) (8/20 μs waveform)					Maximum Continuous Operating Voltage
		UL1449	ANSI/IEEE C62.41-1992			Per phase I MAX kA	L to L kA	L to N kA	L to G kA	N to G kA	impulses @ 140,000A	impulses @ 70,000A	impulses @ 45,000A	impulses @ 10,000A	impulses @ 100A	
			CAT B3 3kA	CAT C3 10kA (I _p)	Up											
ZM PE 300kA																
PT 15200	120/240V 3 Wire, Split Phase	400	350	446	N/A	300	150	150	150	150	>8	>12	>20	>3500	Infinite	Nom + 25%
PT 15201	208Y/120V 4 Wire, 3 Phase	400	350	446	N/A	300	150	150	150	150	>8	>12	>20	>3500	Infinite	Nom + 25%
PT 15202	240/120 4 Wire Delta, 3 Phase	400/800	350	446	N/A	300	150	150	150	150	>8	>12	>20	>3500	Infinite	Nom + 25%
PT 15204	480Y/277V 4 Wire, 3 Phase	800	760	886	N/A	300	150	150	150	150	>8	>12	>20	>3500	Infinite	Nom + 25%
ZM PE 180kA																
PT 15100	120/240V 3 Wire, Split Phase	400	395	533	N/A	180	90	90	90	150	>2	>8	>14	>2500	Infinite	Nom + 25%
PT 15101	208Y/120V 4 Wire, 3 Phase	400	395	533	N/A	180	90	90	90	150	>2	>8	>14	>2500	Infinite	Nom + 25%
PT 15102	240/120 4 Wire Delta, 3 Phase	400/800	395	533	N/A	180	90	90	90	150	>2	>8	>14	>2500	Infinite	Nom + 25%
PT 15104	480Y/277V 4 Wire, 3 Phase	800	875	1030	N/A	180	90	90	90	150	>2	>8	>14	>2500	Infinite	Nom + 25%
Zone Sentinel (90kA)																
PT 12100	120/240V 3 Wire, Split Phase	330	395	533	0.6	90	45	45	45	45	N/A	>1	>4	>1500	Infinite	Nom + 25%
PT 12101	208Y/120V 4 Wire, 3 Phase	330	395	533	0.6	90	45	45	45	45	N/A	>1	>4	>1500	Infinite	Nom + 25%
PT 12102	240/120 4 Wire Delta, 3 Phase	330/700	395	533	0.6	90	45	45	45	45	N/A	>1	>4	>1500	Infinite	Nom + 25%
PT 12103	240V 3 Wire Delta, 3 Phase	700	740	1000	1.0	90	45	N/A	45	N/A	N/A	>1	>4	>1500	Infinite	Nom + 25%
PT 12104	480Y/277V 4 Wire, 3 Phase	700	875	1030	1.0	90	45	45	45	45	N/A	>1	>4	>1500	Infinite	Nom + 25%
PT 12106	480V 3 Wire Delta, 3 Phase	1400	1600	1880	2.0	90	45	N/A	45	N/A	N/A	>1	>4	>1500	Infinite	Nom + 25%
PT 12107	380Y/220V 4 Wire, 3 Phase	700	875	1030	1.0	90	45	45	45	45	N/A	>1	>4	>1500	Infinite	Nom + 25%
PT 12108	415Y/240 4 Wire, 3 Phase	700	875	1030	1.0	90	45	45	45	45	N/A	>1	>4	>1500	Infinite	Nom + 25%
Zone Defender Plus (150kA)																
PT 14200	120V 2 Wire, Single-Phase	400	435	730	N/A	80	40	40	40	24	1	>4	>10	>2500	Infinite	140
PT 14201	120/240V 3 Wire, Split Phase	400	435	730	N/A	80	40	40	40	24	1	>4	>10	>2500	Infinite	140
PT 14202	208Y/120V 4 Wire, 3 Phase	400	435	730	N/A	80	40	40	40	24	1	>4	>10	>2500	Infinite	140
PT 14204	480Y/277V 4 Wire, 3 Phase	700	890	1200	N/A	80	40	40	40	24	1	>4	>10	>2500	Infinite	320
PT 14206	480V 3 Wire Delta, 3 Phase	1500	1600	2100	N/A	80	40	N/A	40	N/A	1	>4	>10	>2500	Infinite	550
PT 14207	380Y/220V 4 Wire, 3 Phase	N/A	790	1200	N/A	80	40	40	40	24	1	>4	>10	>2500	Infinite	275
PT 14208	415Y/240 4 Wire, 3 Phase	700	890	1200	N/A	80	40	40	40	24	1	>4	>10	>2500	Infinite	320
PT 14209	220V 2 Wire, Single-Phase	N/A	790	1200	N/A	80	40	40	40k	24	1	>4	>10	>2500	Infinite	275
Zone Defender (80kA)																
PT 14100	120V 2 Wire, Single-Phase	330	416	628	N/A	150	75	75	75	75	N/A	1	>4	>2500	Infinite	140
PT 14101	120/240V 3 Wire, Split Phase	330	416	628	N/A	150	75	75	75	75	N/A	1	>4	>2500	Infinite	140
PT 14102	208Y/120V 4 Wire, 3 Phase	330	416	628	N/A	150	75	75	75	75	N/A	1	>4	>2500	Infinite	140
PT 14104	480Y/277V 4 Wire, 3 Phase	800	820	1180	N/A	150	75A	75	75	75	N/A	1	>4	>2500	Infinite	320
PT 14106	480V 3 wire Delta, 3 Phase	1500	1600	2100	N/A	80	40	N/A	80	40	N/A	1	>4	>2500	Infinite	275
PT 14107	380Y/220V 4 Wire, 3 Phase	800	820	1180	N/A	150	75	75	75	75	N/A	1	>4	>2500	Infinite	320
PT 14108	415Y/240 4 Wire, 3 Phase	800	820	1180	N/A	150	75	75	75	75	N/A	1	>4	>2500	Infinite	320
PT 14109	220V 2 Wire, Single-Phase	800	820	1180	N/A	150	75	75	75	75	N/A	1	>4	>2500	Infinite	320

Specifications

	Zone Master Plus	Zone Master 300	Zone Master 250	Zone Master 150	Zone Master All-Mode	Zone Master PE (180kA)	Zone Master PE (300kA)	Zone Sentinel	Zone Defender Plus	Zone Defender
Mechanical Specifications										
Enclosure										
High Impact Plastic	X	X	X	X	X			X	X	X
NEMA 1,2,3,3S,4,4X,12,13	X	X	X	X	X			X	X	X
UL-94 5V	X	X	X	X	X			X		
Transparent Cover	X	X	X	X	X			X		
UL 67 Metal enclosure						X	X			
Retrofits into existing major brand panelboards						X	X			
Dimensions										
H inches(cm)	16 (41)	12 (31)	12 (31)	10 (25) ¹	12 (31)	20 (51)	20 (51)	8 (20)	6.25 (15.9)	5.3 (13.5) ²
W inches(cm)	14 (36)	12 (31)	12 (31)	8 (20)	12 (31)	16 (41)	16 (41)	6 (15.5)	6.25 (15.9)	5.3 (13.5)
D inches(cm)	7 (18)	6 (15.5)	6 (15.5)	4 (10.2)	6 (15.5)	5.75 (15)	5.75 (15)	4 (10.2)	4 (10.2)	2.3 (5.8)
Weight lbs (kg)	20 (9)	12 (5.5)	12 (5.5)	7 (3.2)	12 (5.5)	25 (11.3)	25 (11.3)	4 (1.8)	8.8 (4)	3.6 (1.6)
Operating Environment -40C-85C, 95% Humidity	X	X	X	X	X	X	X	X	X	X
Bolt in modules with large surge plate	X	X	X	X	X	X	X	X		
Easy module replacement with 1/4" nuts	X	X	X	X	X	X	X	X		
Max wire size (AWG)	2	2	2	2	2	2/0	2/0	2	10 ³	12 ³
Enclosure mounting means (hole size)	4-.31"	4-.31"	4-.31"	4-.31"	4-.31"	Brackets ⁶	Brackets ⁶	4-.31"	4-.21"	4-.21"
Included 1/2" Close Nipple to attach to electrical panel									X	X
"In the wall" Flush mounting model available						X	X	X		X
Electrical Specifications										
UL1449 Second Edition Listed	X	X	X	X	X	X	X	X	X	X
Patented dual thermal and short circuit fusing	X	X	X	X	X	X	X	X	X	X
Patented Large Block three-terminal MOVs	X	X	X	X	X	X	X	X		
Independent redundant protection stages	X	X	X	X	X	X	X	X		
Field upgradeable from 150,000A to 600,000A	X									
Maximum continuous operating voltage (MCOV)						25% above nominal rated voltage			See Performance sheet	
Replaceable 1.25" x 5.3" x 2.5", UL94-5V modules	X	X	X	X	X	X	X	X		
NO/NC Remote indication contacts (125V, 2Amp)	X	X	X	X	X	X	X	X	X	X
"Protection Present" Green LED	X	X	X	X	X	X	X	X	X	X
Two Independent mechanical fuse link flags per module	X	X	X	X	X	X	X	X		
"High" neutral to ground voltage Red LED ⁴	X	X	X	X	X	X	X	X		
Multi-Mode surge counter (monitors surge current)	Optional					X	X			
UL1283 Listed EMI/RFI extnd range power filter	Optional	Optional	Optional	Optional ⁵	Optional	X	X	Optional	X	
EMI/RFI Max. dB reduction (100kHz to 10MHz)	-75	-75	-75	-75 ⁵	-75	-75	-75	-75	-55	
Optional remote monitoring unit available	X	X	X	X	X	X	X	X	X	X
Optional Silicon Avalanche Diode (SAD) available	X			X					X	
Integral 600VAC, 200,000 AIC fused disconnect						Optional	Optional			
Integral fused disconnect with safety interlock				Optional						

1 Size with disconnect 14" x 12" x 6" (36 x 31 x 15.5cm)

2 Dimensions for three-phase, (two phase 4.5" x 2.9" x 2.5", 2.0lbs), (single-phase 4.5" x 2.9" x 2.5", 1.9lbs)

3 Includes 18" of attached stranded conductor

4 Excludes 3 wire delta systems

5 Not available with disconnect model

6 No mounting holes, brackets included for panel mount applications

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invensys™
POWERWARE®

Powerware® TVSS (Transient Voltage Surge Suppression) ZoneMasterPlus

Features

ZoneMasterPlus

- ▶ Replaceable modules
- ▶ Full protection redundancy
- ▶ Module diagnostics
- ▶ Remote indication capabilities
- ▶ NO/NC dry contacts
- ▶ NEMA rated enclosures
- ▶ Ultra low impedance construction
- ▶ Thermal fusing
- ▶ Ten year warranty
- ▶ Patented technology (#5,311,393)
- ▶ UL 1449 2nd edition Listed

Optional Features

- ▶ UL1283 Listed extended range power filter
- ▶ Multi-mode surge counter
- ▶ Audio/Visual alarm annunciator panel
- ▶ Silicon avalanche diode modules

Product Snapshot

Up to 600,000A surge capacity per mode
Up to 300,000A maximum surge current per mode
Up to 200,000A in repetitive surge current
Up to 5,800A in long duration surge current
Model rating dependent – charts for specific rating information



Invensys Power Systems, the world leader in innovative power protection solutions, adds yet another product to its arsenal of availability-enabling solutions – the Powerware TVSS ZoneMasterPlus. The ZoneMasterPlus' innovative modular design allows for upgradability on site while still providing surge suppression capabilities up to 600,000 amps per phase. Housed in a small, lightweight footprint, this powerful solution is easy to install and provides better protection because it is mounted closer to the protected panel.

Powerware TVSS products provide decades of uninterrupted surge protection with their unique patented technology. Upgradability, redundancy, module diagnostics and easily replaceable modules are just a few features that set the ZoneMasterPlus apart from the other devices.

The measurement of any surge protection device is how well it controls surges. The Powerware TVSS ZoneMasterPlus patented large block MOV technology achieves the highest control of all transients. Because of its innovative design, the Powerware ZoneMasterPlus' performance actually improves as the severity of the surge increases.

Electrical Specifications

Powerware ZoneMasterPlus can be specified with full ten mode protection and surge current ratings up to 600,000A (8/20ms). Even more useful is the fact that models can be upgraded on site at any time. A Powerware ZoneMasterPlus 150 can be upgraded to a 450 or even a 600. This degree of flexibility is an industry first.

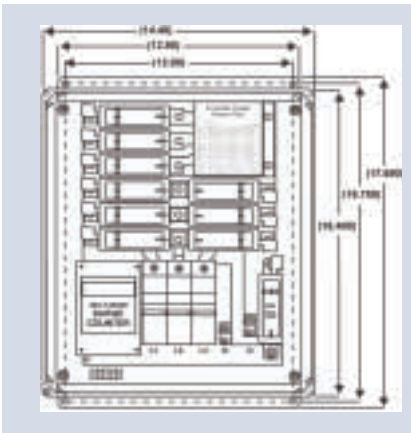
Models	Maximum Surge Current in Each Protection Mode				Maximum Surge Current Per Phase
	L-N	L-G	L-L	N-G	
ZoneMasterPlus 150	150,000A	----	150,000A	75,000A	150,000A
ZoneMasterPlus 250	125,000A	125,000A	250,000A	75,000A	250,000A
ZoneMasterPlus 300	150,000A	150,000A	300,000A	75,000A	300,000A
ZoneMasterPlus 450	300,000A	150,000A	450,000A	75,000A	450,000A
ZoneMasterPlus 600	300,000A	300,000A	600,000A	75,000A	600,000A

General

Maximum Continuous Operating Voltage:	25% above nominal
Remote Indication Contacts:	NO/NC, rated 125VAC, 2A
Module Diagnostics:	Green LED Mechanical (fuse link operated) flag Red LED
Standard Fused Disconnect:	600VAC 200,000A RMS Symmetrical Rating 200,000 AIC fusing
Redundant Protection Stages In All Modes:	Each module contains dual independent redundant protection circuits

Mechanical Specifications

Powerware ZoneMasterPlus is 20% to 50% smaller in size than other protectors claiming similar performance. Small size means easier installation closer to the panel, minimizing the effect of connecting lead length.



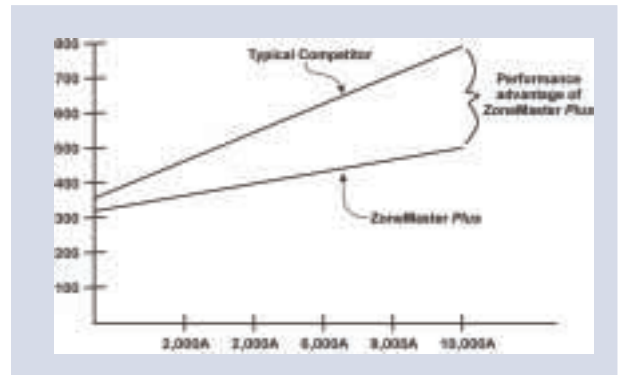
Specifications

Enclosure:	NEMA 1, 2, 3, 3S, 4, 4X, 12, and 13. Transparent cover for maximum visibility and safety.
Dimensions:	16" x 14" x 7" (42cm x 37cm x 18cm)
Weight:	Approx. 20 lbs.
Operating Environment:	-40°C to 85°C, 95% relative humidity (non-condensing)
Construction:	Ultra low impedance assembly. Modules are bolted to a corrosion resistant, tin plated copper bus bar. No plug-in modules in the surge path.
Terminal Lugs:	#2 AWG max wire size
Mounting:	0.31" diameter holes (16.75" x 12.00") (enclosure can be easily drilled for cable access)
Module Replacement:	Remove two bolts, unplug remote indication connector and remove module. Estimated replacement time: 2 minutes.
Module Dimensions:	1.25" x 5.3" x 2.5" (3.2cm x 13.5cm x 6.4cm)

Surge Protection Performance

The key performance parameter of any surge protector is how well it controls surges. At the service entrance and main panel, the lower the voltage let-through to the facility, the better the protection. A high let-through voltage at the facility entrance will stress other equipment and small surge protectors located within the facility.

Powerware ZoneMasterPlus' patented large block MOV technology achieves excellent control of all transients. As the severity of the incoming surge increases, the performance of the Powerware ZoneMasterPlus actually improves when compared to competitive products.



ANSI/IEEE C62.41 test surge current

1449 Listed
Second Edition

Duty Cycle Performance (Surge Life) Per Mode (e.g. L-N or L-G)

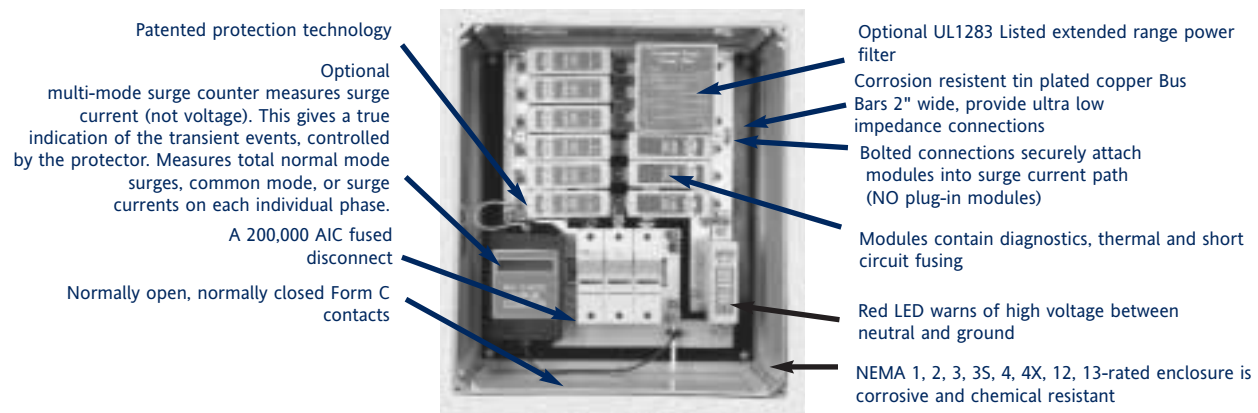
The extensive, independent testing performed on the Powerware ZoneMasterPlus with multiple test waveforms shows that ZoneMasterPlus will tolerate and protect against the most severe electrical environments. This evidence is supported by extensive field experience in areas known for lightning activity such as Africa and the Far East. Powerware's Ten Year, no-fuss warranty reflects our experience and confidence.

Models	Maximum Surge Current Per Mode	Repetitive Surge Current (>4 Impulses Per Mode)	Maximum Number of Current Impulses at 10,000A (8/20)	Long Duration Surge Current (10/1,000ms)
ZoneMasterPlus Series 150	150,000A	100,000A	2,500	2,900A
ZoneMasterPlus 250	125,000A	100,000A	2,500	2,900A
ZoneMasterPlus 300	150,000A	100,000A	2,500	2,900A
ZoneMasterPlus 450	300,000A	200,000A	3,500	5,800A
ZoneMasterPlus 600	300,000A	200,000A	3,500	5,800A

Note: Maximum surge current ratings and repetitive ratings are the result of independent testing.

Example of ZoneMasterPlus

Builds on the ZoneMaster® technology patented in 1991 and now in use throughout the world in some of the highest lightning activity areas.



Optional Features

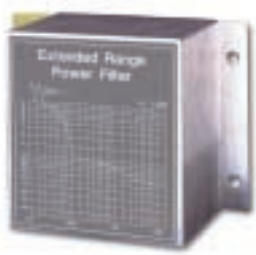
Silicon Avalanche Diode Modules

Powerware ZoneMasterPlus can be configured with modules using Silicon Avalanche Diode technology. These modules can be used alone or mixed with MOV modules. The primary advantage of silicon is a low let-through voltage.

Electrical Specifications

SAD Modules	ANSI/IEEE C 62.41 ANSI/IEEE C 62.45			
	B1	B2	B3	C3
Product Series				
ZoneMasterPlus SAD*	253V	287V	317V	450V

*Configured with two SAD modules per phase. Consult factory for configuration options when ordering.



Extended Range Power Filter Module

The unique filter module eliminates a broad range of load or line generated high frequency noise. Bi-directional in performance, this option complements the performance of any Powerware ZoneMasterPlus.

UL LISTED 1283
Second Edition



Multi-Mode Surge Counter

The optional surge counter, unlike many competitive products, actually counts the number of times a surge current is being discharged when a transient is suppressed. Many competitive products count only voltage impulses. These counters show the number of transient voltages that exceed the manufacturer's predetermined counter threshold, but not how many times the protector has controlled the transient. Every time a surge protector controls a transient voltage, surge current is discharged. Therefore, by counting only the surge current that is discharged, Powerware ZoneMasterPlus actually counts the number of times it has worked.

Audio/Visual Alarm Annunciator Panel

The optional alarm annunciator panel offers clear audio/visual indication of the status of the Powerware ZoneMasterPlus unit and a flexibility not offered by "built-in" products. This alarm panel can be installed adjacent to the Powerware ZoneMasterPlus unit or, if more convenient, remote installation is just as easy.

Size: 5.3" x 4" x 1.5"
(13.5cm x 10.2cm x 3.8cm)



UL 1449 Listed
Second Edition

10 Year No Fuss Warranty If it fails, we replace it immediately!

In the event that any component or subassembly within the unit fails to perform as specified during the Ten-Year Warranty period, just call our customer hot line, (800)843-9433, to obtain a Return Authorization Number. A replacement unit will immediately be shipped free of charge (installation labor and site preparations excluded). The defective unit must be returned to Powerware Corporation within 21 days of receiving the replacement. It's just that simple.

No Hidden Limits – No Nonsense

Note: This warranty excludes the SAD modules which are 10 years or two free replacements, whichever comes first.

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Powerware® TVSS (Transient Voltage Surge Suppression) ZoneMaster, ZoneSentinel, ZoneDefender

Features

ZoneMaster

- ▶ Replaceable modules
- ▶ Full protection redundancy
- ▶ Module diagnostics
- ▶ Remote indication capabilities
- ▶ NO/NC dry contacts
- ▶ NEMA rated enclosures
- ▶ Ultra low impedance construction
- ▶ Thermal fusing
- ▶ Extended range power filter
- ▶ Ten year warranty
- ▶ Patented technology (#5,311,393)
- ▶ UL 1449 2nd edition Listed

ZoneSentinel

- ▶ Replaceable modules
- ▶ Remote indication
- ▶ NO/NC dry contacts
- ▶ NEMA rated enclosures
- ▶ Ultra low impedance construction
- ▶ Extended range power filter
- ▶ Ten year warranty
- ▶ Patented technology (#5,311,393)
- ▶ UL1449 2nd edition Listed

ZoneDefender

- ▶ Solid state diagnostics
- ▶ Ten mode protection
- ▶ Remote indication
- ▶ Low impedance construction
- ▶ Ten year warranty
- ▶ UL1449 2nd edition Listed

Product Snapshot

ZoneMaster 250 & 300 - Up to 300,000A surge capacity per phase

ZoneMaster 150 - Up to 150,000A surge capacity per phase

ZoneSentinel - Up to 90,000A surge capacity per phase

ZoneDefender - Up to 70,000A surge capacity per phase



Invensys Power Systems, the innovative manufacturer of end-to-end power protection and management solutions, has introduced surge suppression devices to further insure the availability and reliability of your complex network systems. The Powerware TVSS line of products, the ZoneMaster, ZoneSentinel and ZoneDefender, are designed and engineered to protect critical systems from the most severe transients.

Powerware TVSS products provide complete facility protection at all levels, and its patented technology assures decades of uninterrupted surge protection. Full redundancy, module diagnostics and easily replaceable modules are all features that you have come to expect from the leader in power protection solutions.



Powerware TVSS -ZoneMaster 250 & 300

Designed and engineered to protect from the most severe transients, including lightning, at the main service entrance. The four redundant independent stages of protection, for each phase, provide the first line of facility defense.

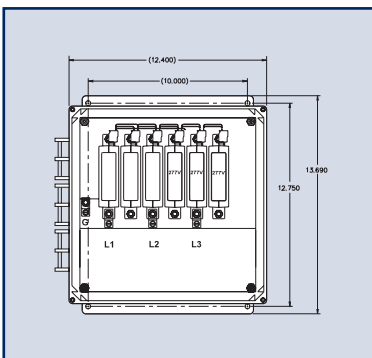


Electrical Specifications

		Powerware ZoneMaster 250	
Maximum Surge Current Capacity:	L - N	250,000A (8/20 ms)	300,000A (8/20 ms)
	L - L	250,000A (8/20 ms)	300,000A (8/20 ms)
	N - G	75,000A (8/20 ms)	75,000A (8/20 ms)
Duty Cycle Performance:	200,000A (8/20 ms)	>2 impulses	>4 impulses
(Surge Life)	10,000A (8/20 ms)	>3,000 impulses	>3,500 impulses
	200A (8/20 ms)	infinite	infinite
Long Duration Current Pulse (10/1,000ms) Capability:		5,000A	5,500A

Powerware ZoneMaster 250 & 300 Shared Specifications

Maximum Continuous Operating Voltage:		25% above nominal
Remote Indication Contacts:		NO/NC 125VAC
		2A rated
Module Diagnostics:	Protection present	Green LED
	Fault warning	Mechanical (fuse link operated) flag
	High voltage neutral to ground	Red LED
Protection Technology:		Patented large block, three terminal MOV
Module Protection:		Dual thermal and short circuit fusing mechanisms, UL94-5V rated plastic enclosure
EMI/RFI Noise Attenuation:		75db Maximum 100kHz to 100MHz



Mechanical Specifications

Enclosure: Durable, lightweight, corrosion resistant high impact plastic. Ultraviolet stabilized UL94-5V rated NEMA 1, 2, 3, 3S, 4, 4X, 12, and 13. Transparent cover for maximum visibility and safety.

Dimensions: 12" x 12" x 6" (31cm x 31cm x 15.5cm)

Weight: Approx. 12 lbs (5.5kg)

Operating Environment: -40°C to 85°C, 95% relative humidity (non-condensing)

Construction: Low impedance assembly. Modules are bolted (1/4" bolts) to a large surge return plate to minimize transient impedance and suppression voltage.

Terminal Lugs: # 2 AWG max wire size

Mounting: 4" x 0.31" diameter holes (12.75" x 10.00") (enclosure can be easily drilled for cable access)

Module Replacement: Remove two 1/4" nuts, unplug remote indication connector and remove module. Estimated replacement time 2 minutes.

Module Dimensions: 1.25" x 5.3" x 2.5" (3.2cm x 13.5cm x 6.4cm)



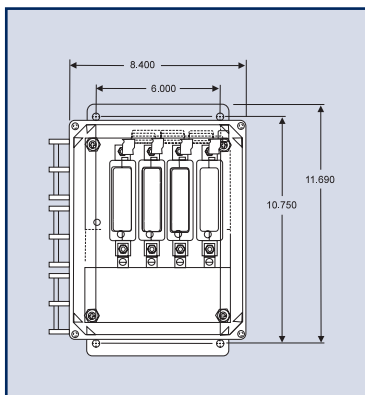
Powerware TVSS - ZoneMaster 150

Providing large service entrance panels with decades of protection from the most severe transients. The dual protection circuits provide redundancy to ensure your facility is never unprotected.



Electrical Specifications

Maximum Surge Current Capacity Per Phase:		150,000A (8/20 ms)
Maximum Surge Current Capacity:	L - N	150,000A (8/20 ms)
	L - L	150,000A (8/20 ms)
	N - G	75,000A (8/20 ms)
Duty Cycle Performance: (Surge Life)	100,000A (8/20 ms)	> 4 Impulses
	10,000A (8/20 ms)	> 2,500 impulses
	150A (8/20 ms)	infinite
Maximum Continuous Operating Voltage:		25% above nominal
Remote Indication Contacts:		NO/NC 125VAC
		2A rated
Module Diagnostics:	Protection present	Green LED
	Fault warning	Mechanical (fuse link operated) flag
	High voltage neutral to ground	Red LED
Protection Technology:		Patented large block, three terminal MOVs
Module Protection:		Dual thermal and short circuit fusing mechanisms,
		UL94-5V rated plastic enclosure.
EMI/RFI Noise Attenuation:		75dB Maximum 100kHz to 100MHz



Mechanical Specifications

Enclosure: Durable, lightweight, corrosion resistant, high impact plastic. Ultraviolet stabilized UL94-5V rated NEMA 1, 2, 3, 3S, 4, 4X, 12, and 13. Transparent cover for maximum visibility.

Dimensions: 10" x 8" x 4" (25cm x 20cm x 10cm)

Weight: Approx. 7lbs (3.2kg)

Operating Environment: -40°C to 85°C, 95% relative humidity (non-condensing)

Construction: Low impedance assembly. Modules are bolted ($1/4$ " bolts) to a large surge return plate to minimize transient impedance and suppression voltage.

Terminal Lugs: # 2 AWG max wire size

Mounting: 4" x 0.31" diameter holes (10.75" x 8.00") (enclosure can be easily drilled for cable access)

Module Replacement: Remove two $1/4$ " nuts, unplug remote indication connector and remove module. Estimated replacement time 2 minutes.

Module Dimensions: 1.25" x 5.3" x 2.5" (3.2cm x 13.5cm x 6.4cm)



Powerware TVSS - ZoneSentinel

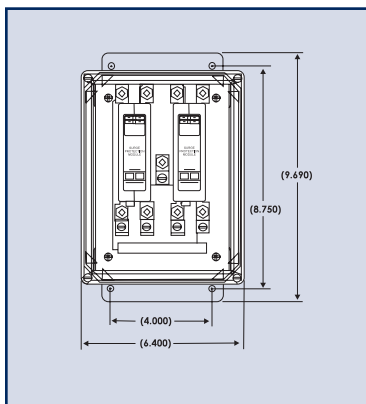
A high capacity, cost effective solution for the distribution boards and smaller service entrance locations. When combined with the ZoneMaster provides the lowest suppression voltage available today.



Electrical Specifications

Maximum Surge Current Capacity Per Phase:		90,000A (8/20 ms)
Maximum Surge Current Capacity:	L - N	45,000A (8/20 ms)
	L - L	45,000A (8/20 ms)
	L - G	45,000A (8/20 ms)
	N - G	45,000A (8/20 ms)
Duty Cycle Performance:	45,000A (8/20 ms)	> 4 Impulses
(Surge Life)	10,000A (8/20 ms)	> 1,500 impulses
	100A (8/20 ms)	infinite
Maximum Continuous Operating Voltage:		25% above nominal
Remote Indication Contacts:		NO/NC 125VAC 2A rated
Module Diagnostics:	Protection present	Green LED
	Fault warning	Mechanical (fuse link operated) flag
	High voltage neutral to ground	Red LED
Protection Technology:		Patented large block, three terminal MOV
Module Protection:		Dual thermal and short circuit fusing mechanisms, UL94-5V rated plastic enclosure
EMI/RFI Noise Attenuation:		75dB Maximum 100kHz to 100MHz

Notes: Surge current capacities are the results of independent testing on complete units, including all fusing mechanisms.



Mechanical Specifications

Enclosure: Durable, lightweight, corrosion resistant, high impact plastic. Ultraviolet stabilized UL94-5V rated NEMA 1, 2, 3, 3S, 4, 4X, 12, and 13. Transparent cover for maximum visibility.

Dimensions: 8" x 6" x 4" (20cm x 16cm x 10cm)

Weight: Approx. 4lbs (1.8kg)

Operating Environment: -40°C to 85°C, 95% relative humidity (non-condensing)

Construction: Low impedance assembly. Modules are bolted (1/4" bolts) to a large surge return plate to minimize transient impedance and suppression voltage.

Terminal Lugs: #2 AWG max wire size

Mounting: 4" x 0.31" diameter holes (8.75" x 4.00") (enclosure can be easily drilled for cable access)

Module Replacement: Remove four 1/4" nuts, unplug remote indication connector and remove module. Estimated replacement time 2.5 minutes.

Module Dimensions: 1.25" x 5.3" x 2.5" (3.2cm x 13.5cm x 6.4cm)

Powerware TVSS - ZoneDefender

For residential, interior lighting or small distribution panels, completes a facilities surge protection picture.



Electrical Specifications

Maximum Surge Current Capacity Per Phase:	70,000A (8/20 ms)	
Maximum Surge Capacity:	L-N	35,000A (8/20 ms)
	L-L	35,000A (8/20 ms)
	L-G	35,000A (8/20 ms)
	N-G	18,000A (8/20 ms)
Duty Cycle Performance:	70,000A 8/20 ms	1 impulse
	10,000A 8/20 ms	>1000 impulses
	100A 8/20 ms	infinite
Remote Indication:	Normally Closed Rated 2A, 125Vac	
Status Indication:	Protection Present:	Green LED ON
	Internal Failure:	Green LED OFF
Safety Fusing:	Thermal & Short Circuit Fusing	

Mechanical Specifications

Enclosure:	Durable , lightweight, corrosion resistant high impact plastic NEMA 1, 2, 3, 3R, 4, 4X, 12 and 13.	
Dimensions:	3 phase	5.3" x 5.3" X 2.3"
	2 phase	4.5" X 2.9" X 2.5"
	1 phase	4.5" X 2.9" X 2.5"
Weight:	3 phase	3.6 lb.
	2 phase	2.0 lb.
	1 phase	1.9 lb.
Connection:	#12 AWG stranded (approx. 18")	
Mounting:	Surface mount via 4" x 0.21" diameter holes	
	Close nipple via 1/2" nipple	
	Flush mount via mounting plate	
	(optional at time of ordering)	



UL 1449 Listed
Second Edition



Remote Indication Capability

Powerware offers an optional remote monitoring unit, capable of monitoring the status of all panel-mounted surge protectors in the facility. The remote monitoring unit provides audio and visual indication of protector status in one compact wall mounting case.

Specifications

Dimensions: 5.5" x 4" x 1.5" (13.5cm x 10cm x 4cm)

Weight: Approx. 1 lb.

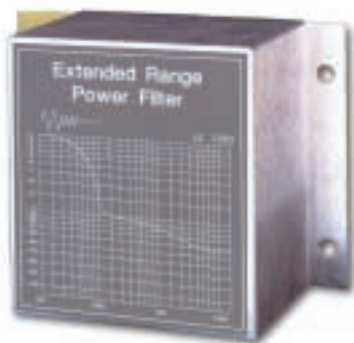
Indication: Protection present: bright green LED

Fault Indication: Bright red LED, audible alarm

Functions: Test switch (checks monitoring circuitry), audio alarm silence

Connections: Accepts wires up to #14 AWG

Order#: PT11000



Extended Range Power Filter Module

The unique filter module eliminates a broad range of load or line generated high frequency noise. Bi-directional in performance, this option complements the performance of any Powerware ZoneMasterPlus.

10 Year No Fuss Warranty If it fails, we replace it immediately!

In the event that any component or subassembly within the unit fails to perform as specified during the Ten-Year Warranty period, just call our customer hot line, (800)843-9433, to obtain a Return Authorization Numbers. A replacement unit will immediately be shipped free of charge (installation labor and site preparations excluded). The defective unit must be returned to Powerware within 21 days of receiving the replacement. It's just that simple.

No Hidden Limits – No Nonsense

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