

USPT2, UPT2, USPW2, UPW2 Models

Type 2CA (In-Line) Surge Protective Device

Series Wired SPDs with Voltage Responsive Circuitry™ (All Models),
Frequency Responsive Circuitry™ (USPT2 and USP2 Models) and Discrete All-Mode Protection (All Models)



The USPT2, UPT2, USPW2, and UPW2 Models of In-Line (series connected) SPDs provide superior transient voltage mitigation and protection for individual load or equipment applications. They are designed specifically to provide protection at locations feeding sensitive, mission critical equipment. These models are exceptionally effective in limiting transients generated within the facility; yet, they are strong enough to be the first line defense for connected equipment. All models have a 20 kA per mode (60 kA total) peak surge current rating and component level thermal fusing. Our encapsulated **Voltage Responsive Circuitry™ (VRC)** mitigates the adverse effects of impulse surges due to external sources such as lightning. Further, our **Frequency Responsive Circuitry™ (FRC)** mitigates and virtually eliminates ring wave, oscillating and switching transients.

Providing effective and reliable surge suppression, these SPDs are compact in size which allows for versatile application and optimal installation particularly in space constrained applications.

GENERAL	
Typical Applications:	Individual Sensitive/Microprocessor-Based Load Circuits, Power Supplies, Programmable Logic Controllers/Cabinets, Drive Controller Circuits, Traffic Control Circuits, Lighting Circuits and Controllers, Fire/Alarm Systems, Uninterruptible Power Supplies, UL 508A Cabinets
Warranty:	25 Year Unlimited Free Replacement
Certification:	Type 2CA SPD - <i>Recognized Component Assembly</i> ANSI/UL 1449 (VZCA2.E315947) and CSA C22.2 No. 269.4-2 (VZCA8.E315947); Complementarily Certified as <i>Electromagnetic Interference (EMI) Filters to UL 1283*</i> (FOKY2.E315947) and CSA-C22.2 No. 8-13* (FOKY8.E315947) <i>Suitable for Field or Factory Wiring</i> ISO 9001 Certified Manufacturing Facility by NQA <small>*Models with FRC</small>

MECHANICAL	
Enclosure:	ABS Plastic, UL 94-5VA Flame Rating (UL's highest rating)
Mounting:	DIN rail mounting feet optional (see options on page 2)
Connection Method:	USPT2/UPT2: 3 position terminal block on the line / equipment sides of the SPD USPW2/UPW2: 12 AWG wire connection on the line / equipment sides of the SPD (≈24 inches)
Shipping Weight:	< 2 lbs.

ELECTRICAL																																							
Protection Modes:	Dedicated protection circuitry for every possible mode. With Neutral: Discrete Phase to Neutral (Normal Mode), and Discrete Phase to Ground and Neutral to Ground (Common Mode) Without Neutral: Discrete Phase to Phase (Normal Mode) and Discrete Phase to Ground for each Phase (Common mode)																																						
Input Power Frequency:	50-60 Hz (AC)																																						
Load Current:	15 or 20 Amps (see model number sequence on page 2)																																						
Insertion Loss Data (L-N): <small>(USPT2-1P1 model)</small>	<table border="1"> <thead> <tr> <th>Frequency:</th> <th>10 kHz</th> <th>100 kHz</th> <th>1 MHz</th> <th>Max Attenuation & Freq.</th> </tr> </thead> <tbody> <tr> <td>Attenuation:</td> <td>14 dB</td> <td>34 dB</td> <td>41 dB</td> <td>53 dB @ 478 kHz</td> </tr> </tbody> </table>	Frequency:	10 kHz	100 kHz	1 MHz	Max Attenuation & Freq.	Attenuation:	14 dB	34 dB	41 dB	53 dB @ 478 kHz																												
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Peak Surge Current:	20 kA per mode / 60 kA total																																						
Nominal Discharge Current (I_n):	3 kA																																						
Circuit Diagnostics:	Green LED, normally on. Remote LED ("-LP") option available.																																						
Circuit Interrupt:	External (see installation instructions for details).																																						
Voltage Configurations:	<table border="1"> <thead> <tr> <th>Voltage Code (Single Phase)</th> <th>System Voltage (V_{rms} - P, N, G)</th> <th>Voltage Code (Single Phase Delta)</th> <th>System Voltage (V_{rms} - P, P, G)</th> </tr> </thead> <tbody> <tr> <td>1P1</td> <td>120 to 127</td> <td>2N1</td> <td>120</td> </tr> <tr> <td>1P2</td> <td>240 to 277</td> <td>2N2</td> <td>240</td> </tr> <tr> <td>1P22</td> <td>220</td> <td>2N22</td> <td>220</td> </tr> <tr> <td>1P23</td> <td>230</td> <td>2N23</td> <td>230</td> </tr> <tr> <td>1P24</td> <td>240</td> <td>2N24</td> <td>240</td> </tr> <tr> <td>1P3</td> <td>347</td> <td>2N3</td> <td>380</td> </tr> <tr> <td>1P4*</td> <td>Use 2N4 - 480 V</td> <td>2N40</td> <td>400</td> </tr> <tr> <td colspan="2" rowspan="2">*Note: 2N4 voltage configuration is used for all 480 V applications (neutral can be used in place of one phase)</td> <td>2N41</td> <td>415</td> </tr> <tr> <td>2N4</td> <td>480</td> </tr> </tbody> </table>	Voltage Code (Single Phase)	System Voltage (V _{rms} - P, N, G)	Voltage Code (Single Phase Delta)	System Voltage (V _{rms} - P, P, G)	1P1	120 to 127	2N1	120	1P2	240 to 277	2N2	240	1P22	220	2N22	220	1P23	230	2N23	230	1P24	240	2N24	240	1P3	347	2N3	380	1P4*	Use 2N4 - 480 V	2N40	400	*Note: 2N4 voltage configuration is used for all 480 V applications (neutral can be used in place of one phase)		2N41	415	2N4	480
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NOTE: FRC only available on models that are 277 Volts or less																																							

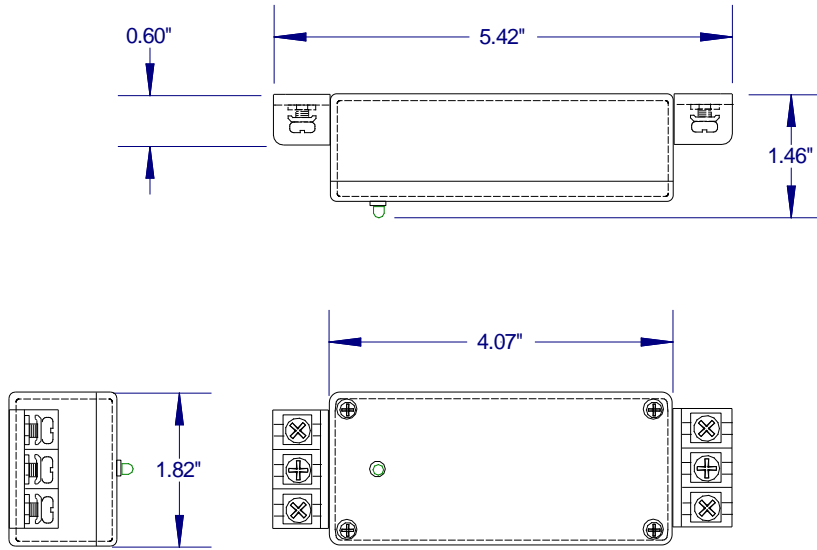
Model Number Format:			
Prefix	Configuration	Voltage Code	Options
U	SPT2-	1P1	DIN
	SPW2-	1P2	WX
	PW2-	1P22	-LP
	PT2-	1P23	-xxIN
		1P24	WX1
		1P3*	T
		2N1	-LPN
		2N2	-LPX
		2N22	
		2N23	
		2N24	
		2N3*	
		2N40*	
		2N41*	
	2N4*		

* Indicates that this model is only available as the UPT2- or UPW2-model (no FRC).

Configuration:	Option Codes:
USPT2 includes VRC, FRC with terminals	DIN – DIN rail mounting
USPW2 includes VRC, FRC with wires	WX – SPD mounted inside a NEMA 4X Composite enclosure
UPT2 includes VRC with terminals	-LP – Remote LED
UPW2 includes VRC with wires	-xxIN – Extended wire lengths for SP2 and FSP2 (Standard wire length is ≈24 inches)

Surge Protective Device				
Measured Limiting Voltage Performance Testing				
Reference ANSI/IEEE Standards C62.41.1™-2002, C62.41.2™-2002, C62.45™-2002, and C62.62™-2010				
Model	Mode	MCOV (V _{rms})	UL 1449 VPR	Cat A, 30 Ω 100 kHz Ring Wave 2 kV / 67 A 270° Phase Angle
USPT2-1P1	P-N	150	600	≤ 50*
	P-G	150	600	
	N-G	150	600	
USPT2-1P2	P-N	320	1200	≤ 50*
	P-G	320	1000	
	N-G	320	1000	
USPT2-2N1	P-P	150	600	≤ 50*
	P-G	150	600	
USPT2-2N2	P-P	320	1200	≤ 50*
	P-G	320	1000	
UPT2-1P3	P-N	420	1800	* Results above are for phase to neutral or phase to phase where the SPD is equipped with FRC.
	P-G	420	1800	
	N-G	420	1800	
UPT2-2N3	P-P	420	1200	
	P-G	420	1200	
UPT2-2N4	P-P	552	1800	
	P-G	552	1500	

Measured Limiting Voltage (MLV) Test Parameters: Positive polarity, Category A: Line power applied for 120 V only. Voltages are peak (±10%). Measured Limiting Voltages are measured from the insertion point on the sine wave to the peak of the surge for powered tests. In order to duplicate the results, the specified mode of protection must be tested 10 times in all modes and the individual results are averaged together. (Individual mode or shot results may vary by more than 10%. Scope Settings: Time Base = 10 microseconds per division, Sampling Rate = 2.5 GigaSamples/sec, Bandwidth = 400 MHz, Probes: Tektronix P5100/P6015A. These settings help to assure MLV results are accurate.)



Dimensional drawing shown with terminals. Actual unit may vary.