

## Features

- High energy MOV technology with Advanced Thermal Disconnecter (TD+)
- Status indicator
- Replaceable modular design
- For Common Mode and Differential Mode protection
- Remote signaling capability
- IEC/EN 61643-31 compliant Class I + Class II / T1+T2 SPD
- With 50 kA  $I_{max}$  (8/20  $\mu s$ ) and 7.5 kA  $I_{imp}$  (10/350  $\mu s$ ) current capability
- RoHS compliant\*

## 1440 Series – IEC Class II DC Surge Protective Device

### General Information

The Bourns® Model 1440 Series is an IEC Class I + Class II DC Surge Protective Device (SPD) designed to protect power systems from damage due to lightning, transients and power surges, up to rated limits.

The Model 1440 Series is a Din-Rail mountable SPD designed to protect DC power systems operating up to 1500 VDC.

### Additional Information

Click these links for more information:



### Electrical Characteristics

Characteristic	Model No.				
	1440-PV-48-P 1440-PV-48-D	1440-PV-60-P 1440-PV-60-D	1440-PV-100-P 1440-PV-100-D 1440-PV-100-Y	1440-PV-150-P 1440-PV-150-D	1440-PV-200-P 1440-PV-200-D 1440-PV-200-Y
Network Voltage ( $U_n$ ) DC	48 VDC	60 VDC	100 VDC	150 VDC	200 VDC
Compliance	IEC/EN 61643-31 Class I + Class II / T1 + T2				
Product Technologies	High energy MOV Technology Advanced Thermal Disconnecter (TD+)				
Protection Mode	Single CM <sup>1</sup>		Single CM CM/DM <sup>1</sup>	Single CM <sup>1</sup>	Single CM CM/DM <sup>1</sup>
Max. Operating Voltage ( $U_c$ ) DC	85 VDC	100 VDC	125 VDC 170 VDC (Y config.)	170 VDC	225 VDC 250 VDC (Y config.)
Nominal Discharge Current ( $I_n$ ) 8/20 $\mu s$	20 kA				
Max. Discharge Current ( $I_{max}$ ) 1 Impulse 8/20 $\mu s$	50 kA				
Impulse Discharge Current ( $I_{imp}$ ) 10/350 $\mu s$	7.5 kA				
Protection Level ( $U_p$ )	$\leq 0.6$ kV $\leq 0.6$ kV	$\leq 0.6$ kV $\leq 0.6$ kV	$\leq 0.7$ kV $\leq 0.7$ kV $\leq 1.0$ kV	$\leq 0.8$ kV $\leq 0.8$ kV	$\leq 1.0$ kV $\leq 1.0$ kV $\leq 1.2$ kV
Short Circuit Current Rating ( $I_{scpv}$ )	25 kA				
Leakage Current at $U_c$	< 100 $\mu A$				
Follow Current ( $I_f$ )	None				

Note 1. CM = Common Mode (+/PE or -/PE) and CM/DM = Common Mode and Differential Mode ( $\pm$ ).

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\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

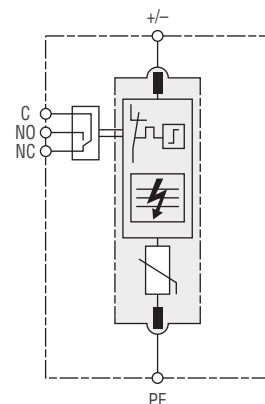
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### Electrical Diagram



## Applications

- DC power systems
- Photovoltaic systems
- EV charging stations

# 1440 Series – IEC Class II DC Surge Protective Device

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### Electrical Characteristics (continued)

Characteristic	Model No.				
	1440-PV-300-P 1440-PV-300-D 1440-PV-300-Y	1440-PV-400-P 1440-PV-400-D 1440-PV-400-Y	1440-PV-500-P 1440-PV-500-D	1440-PV-600-P 1440-PV-600-D 1440-PV-600-Y	1440-PV-750-P
Network Voltage ( $U_n$ ) DC	300 VDC	400 VDC	500 VDC	600 VDC	750 VDC
Compliance	IEC/EN 61643-31 Class I + Class II / T1 + T2				
Product Technologies	High energy MOV Technology Advanced Thermal Disconnect (TD+)				
Protection Mode	Single CM CM/DM <sup>1</sup>		Single CM <sup>1</sup>	Single CM CM/DM <sup>1</sup>	Single
Max. Operating Voltage ( $U_c$ ) DC	350 VDC 340 VDC (Y config.)	460 VDC 450 VDC (Y config.)	560 VDC	670 VDC 700 VDC (Y config.)	800 VDC
Nominal Discharge Current ( $I_n$ ) 8/20 $\mu$ s	20 kA				
Max. Discharge Current ( $I_{max}$ ) 1 Impulse 8/20 $\mu$ s	50 kA				
Impulse Discharge Current ( $I_{imp}$ ) 10/350 $\mu$ s	7.5 kA		6 kA	4.5 kA / 7.5 kA (Y config.)	
Protection Level ( $U_p$ )	$\leq 1.2$ kV $\leq 1.2$ kV $\leq 1.5$ kV	$\leq 1.5$ kV $\leq 1.5$ kV $\leq 2.0$ kV	$\leq 2.0$ kV $\leq 2.0$ kV	$\leq 2.2$ kV	$\leq 2.5$ kV
Short Circuit Current Rating ( $I_{scpv}$ )	25 kA				
Leakage Current at $U_c$	< 100 $\mu$ A				
Follow Current ( $I_f$ )	None				

Characteristic	Model No.			
	1440-PV-800-Y	1440-PV-1000-Y	1440-PV-1200-Y	1440-PV-1500-Y
Network Voltage ( $U_n$ ) DC	800 VDC	1000 VDC	1200 VDC	1500 VDC
Compliance	IEC/EN 61643-31 Class I + Class II / T1 + T2			
Product Technologies	High energy MOV Technology Advanced Thermal Disconnect (TD+)			
Protection Mode	CM/DM <sup>1</sup>			
Max. Operating Voltage ( $U_c$ ) DC	920 VDC	1120 VDC	1340 VDC	1500 VDC
Nominal Discharge Current ( $I_n$ ) 8/20 $\mu$ s	20 kA			
Max. Discharge Current ( $I_{max}$ ) 1 Impulse 8/20 $\mu$ s	50 kA			
Impulse Discharge Current ( $I_{imp}$ ) 10/350 $\mu$ s	7.5 kA	6 kA	4.5 kA	
Protection Level ( $U_p$ )	$\leq 2.8$ kV	$\leq 3.5$ kV	$\leq 4.0$ kV	$\leq 4.5$ kV
Short Circuit Current Rating ( $I_{scpv}$ )	25 kA			
Leakage Current at $U_c$	< 100 $\mu$ A			
Follow Current ( $I_f$ )	None			

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# 1440 Series – IEC Class II DC Surge Protective Device



## General Characteristics

Characteristic	1440-PV-xxx-x
Thermal Disconnecter	Internal green – normal; red - failure
Dimensions	See Product Dimensions
Connection	By Screw Terminal: Single-strand #2 AWG or 35 mm <sup>2</sup> ; multi-strand #4 AWG or 25 mm <sup>2</sup>
Disconnection Indicator	1 Mechanical Indicator
Mounting	Din-Rail, 35 mm Symmetrical
Remote Signaling	250 V / 0.5 A (AC) 125 V / 0.2 A (DC)
Enclosure Material	Thermoplastic UL 94V0

## Environmental Characteristics

Characteristic	1440-PV-xxx-x
Operating Temperature	-40 °C to +85 °C
Operating Altitude	≤4000 m
Environmental Rating	IP 20

## Standards Compliance

IEC/EN 61643-31 ..... Class I + Class II, T1 + T2  
 RoHS ..... RoHS Directive 2015/863, Mar 31, 2015 and Annex

## Agency Recognition

Agency	Category	Agency File No.
	IEC 61643-31	<a href="#">B118437</a>

## How to Order

1440 - PV - xxxx - x															
Model Designator	1440 = IEC Class II DC SPD														
Application Code	PV = Photovoltaic														
Network Voltage	<table border="0"> <tr> <td>48 = 48 VDC</td> <td>60 = 60 VDC</td> </tr> <tr> <td>100 = 100 VDC</td> <td>150 = 150 VDC</td> </tr> <tr> <td>200 = 200 VDC</td> <td>300 = 300 VDC</td> </tr> <tr> <td>400 = 400 VDC</td> <td>500 = 500 VDC</td> </tr> <tr> <td>600 = 600 VDC</td> <td>750 = 750 VDC</td> </tr> <tr> <td>800 = 800 VDC</td> <td>1000 = 1000 VDC</td> </tr> <tr> <td>1200 = 1200 VDC</td> <td>1500 = 1500 VDC</td> </tr> </table>	48 = 48 VDC	60 = 60 VDC	100 = 100 VDC	150 = 150 VDC	200 = 200 VDC	300 = 300 VDC	400 = 400 VDC	500 = 500 VDC	600 = 600 VDC	750 = 750 VDC	800 = 800 VDC	1000 = 1000 VDC	1200 = 1200 VDC	1500 = 1500 VDC
48 = 48 VDC	60 = 60 VDC														
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1200 = 1200 VDC	1500 = 1500 VDC														
Configuration	P = Single protection D = V configuration Y = Y configuration														

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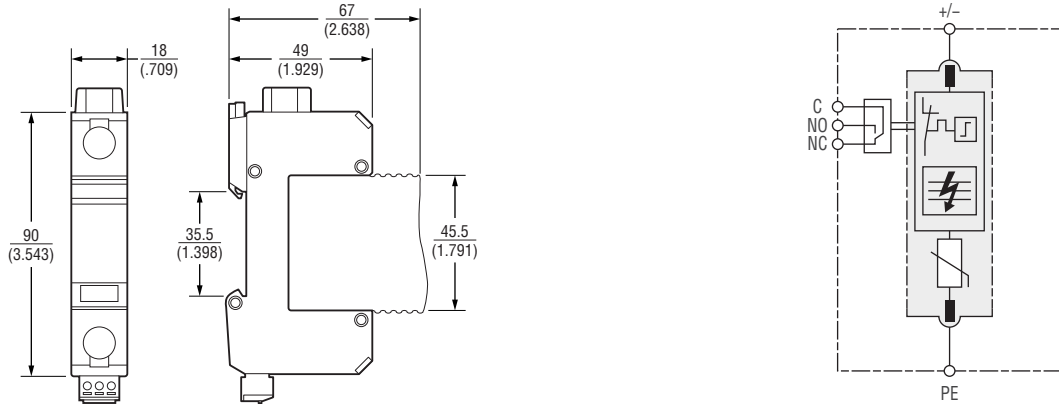
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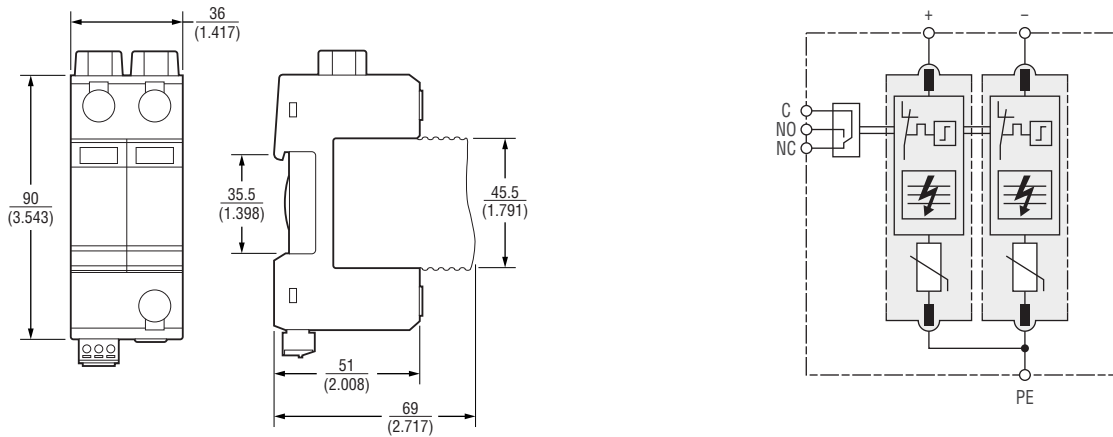
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## Product Dimensions and Schematics

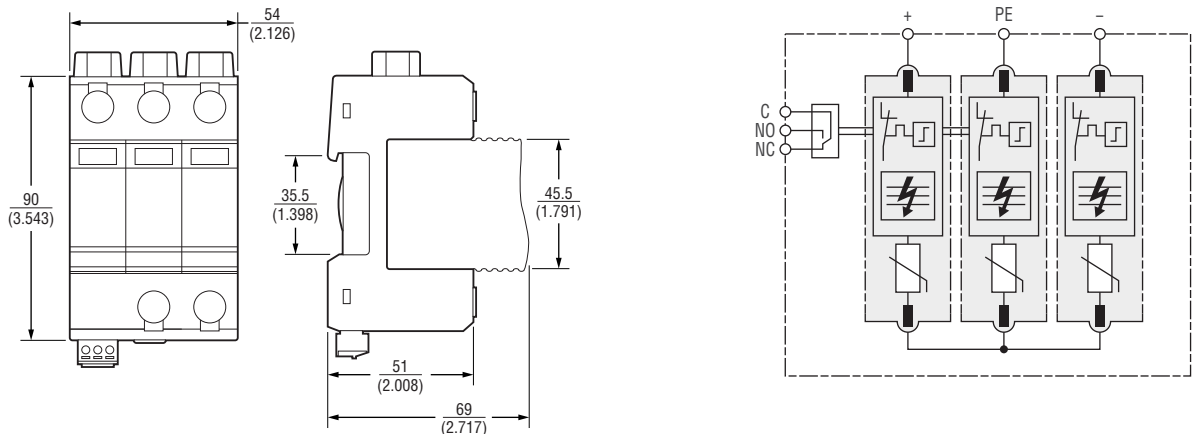
### Single Protection



### V Configuration



### Y Configuration



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