

2020



COMPETITOR

正意防雷[®]
Competitor

深圳市正意浪涌防雷器制造有限公司

Competitor SPD Manufacturing (Shenzhen) Co., Ltd.

Company Profile

Competitor is a professional surge protection device manufacturer, the headquarter is located in Shenzhen, China. Our company dedicated to designing, manufacturing and selling all kinds of SPDs, such as power systems, IoT/AI equipments, communication base stations, construction machinery, Medical instruments, LED lighting and so on.

We are processing the well-known components with the high-quality. We have specialized in customized order for meet clients requirement. Our marketing strategy is flexible enough to adapt to different market situation. We also acquired the UL, TUV and CE certificate for overseas markets. Quality is always our first priority to clients. Therefore we have a lot of clients, including ODM, OEM clients.

Hope that with our efforts, Competitor Inc. will also be your ideal cooperative partner.

Product Application

Smart City

AI System

Rail Transit

Apparatuses

Equipment

Power System

Control Signal

Ethernet Terminal

Monitor Wiring

Medical Instrument

IoT Supply Power

Electric Appliances

Communication Base Station

Traffic Light System

Please don't hesitate to contact us if you have any needs !

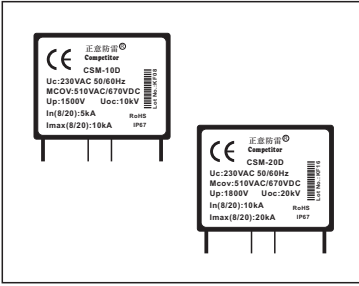
Thanks for your inquiry.

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If you need customized products, please contact us directly.

Communication Base Station Surge Protection Module



Description

The Competitor's module is based on thermal protection technology and applied to 5G base station, communication product circuit design on-board, communication transient over-voltage protection. It is constructed with Epcos varistor technology. It's built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *5G Base Station
- *Communication Circuit
- *Product Design On Board
- *Column communication cabinet
- *Telecommunication distribution cabinet
- *Base Station Main Board
- *Main Electrical Circuit
- *Base Station Basilar Plate
- *Telecommunications room
- *Power Distribution Cabinet

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

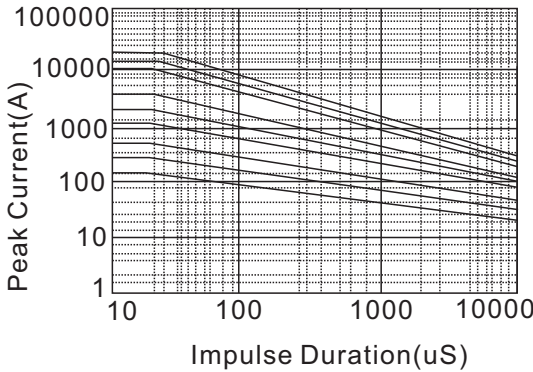
Continous:	CSM-10D/CSM-20D	Units
Max AC Voltage Range(V _{rms})	20 to 510	V
Max DC Voltage Range(V _{rms})	14 to 670	V
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000/20000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000/10000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability for Module



Pulse Rating(8/20µs)	
Strikes	Surge
1	10000A
2	6000A
15	5000A
100	1200A
1000	600A
10000	280A
100000	120A

Module Series Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE
CSM-02D*	DC5-24V	DC14-38V	2kA	5kA	36-100V	X
CSM-05D*	DC24-72V	DC65-125V	5kA	10kA	135-300V	X
CSM-10D*	AC100-480V	AC140-510V	5kA	10kA	360-2000V	X
CSM-15D*	AC100-480V	AC140-510V	8kA	15kA	360-2100V	X
CSM-20D*	AC100-480V	AC140-510V	10kA	20kA	360-2500V	X
CSM-25D*	AC100-480V	AC140-510V	12kA	25kA	360-3000V	X
CSM-30D*	AC100-480V	AC140-510V	15kA	30kA	360-3500V	X
CSM-40D*	AC100-480V	AC140-510V	20kA	40kA	360-4000V	X

Notes:

- 1.*=XXX,005=DC5V,012=DC12V;Part number with "RS"-Remote Signal only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20µs normal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the surege module.

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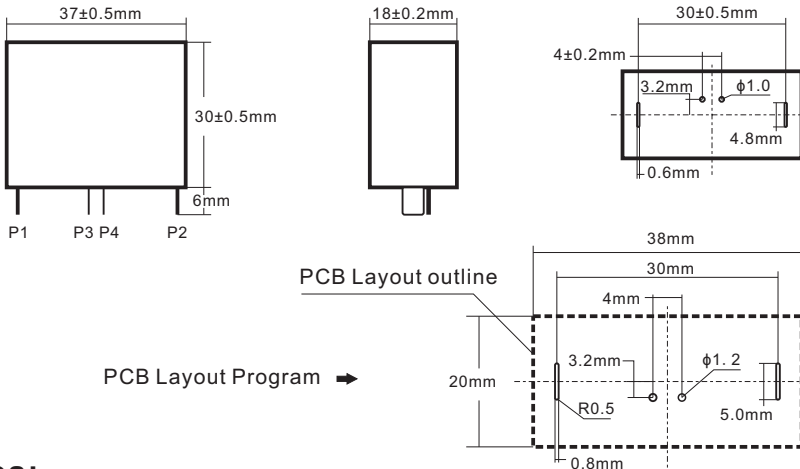
Specifications are subject to change without notice.

Revised:02.18.2020

Module Features

- *Maximum Discharge Current(I_{max}) 5kA/10kA/15kA/20kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel Connected Surge Protection Module
- *IP67 Water-proof and Dust-proof
- *Design in UL1449^{4th}(120VAC and 240VAC voltage ratings)
- *Parallel for 240VAC and 480VAC is IEC61643-11 Test Class III and EN61643-11 Type 3 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 480VAC
- *Compact form factor with mounting tabs
- *240VAC and 480VAC are CE compliant and available for Class II and Class III installation based on IEC protection classes
- *Series connected MOV thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Module Dimensions



Notes:

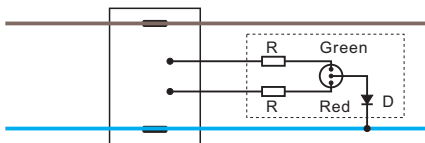
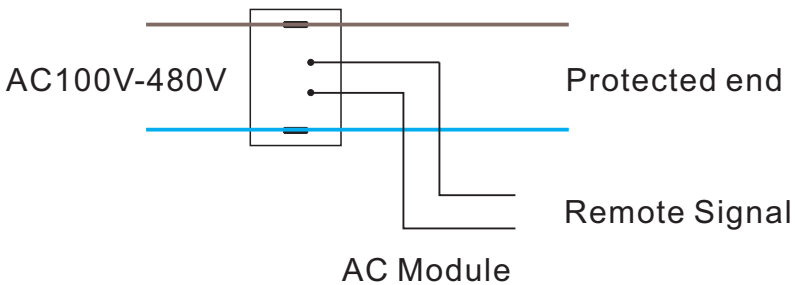
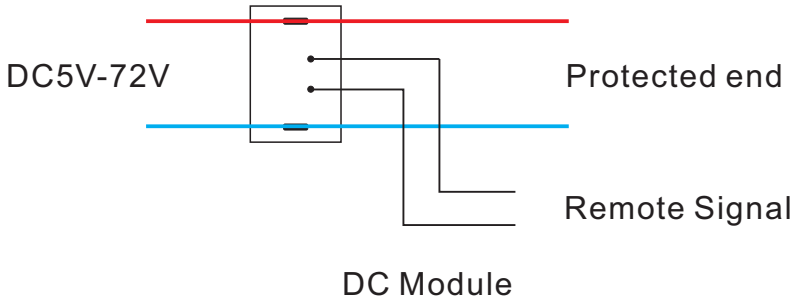
- 1.P1 and P2 are 4.8mm wide 0.6mm thick PCB terminals
- 2.P3 and P4 are 1.0mm diameter copper lead
- 3.Remote signal output is optional active and passive output

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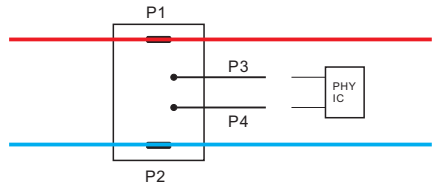
Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic



With LED indicating Module status
 -ON (Green):SPD is online
 -OFF(Red):SPD needs replacement



Normal:P3,P4 Closed
 Failure:P3 disconnected,has no voltage
 P4 has connected to P1

Notes:

- 1.Series module used in parallel connection for indication circuit connection.
- 2.LED indicator and associated circuitry are not included in the module.
- 3.L terminal is AC line voltage (hot);N terminal is AC neutral voltage.
- 4.L(AC) line voltage is cut off when SPD needs replacement.
- 5.R is current limiting resistor,it resistance/wattage is determined by AC line voltage and desired current driving LED. Example:AC line voltage 240VAC,LED :1.6mA.
- 6.External indicator must be current limiting resistor.

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Revised:02.18.2020

Part Number Code System

CSM 10 T I D 060 1

Competitor Inc.
Surge Protection Module

10kA(Maximum
Discharge Current)

Thermal Protection

Remote Signal

D:Terminal
W:Wires

Voltage Label
012:DC12V
060:DC60V
220:AC220V
.....

Other Options:

1:With ϕ 1mm lead pin,
tinned copper,length
6-10mm.

4:With 4.8mm terminal,
tinned copper,length
5mm,pins thickness
0.6mm.

W:With wires,optional
length,colors can be
customized.

Notes

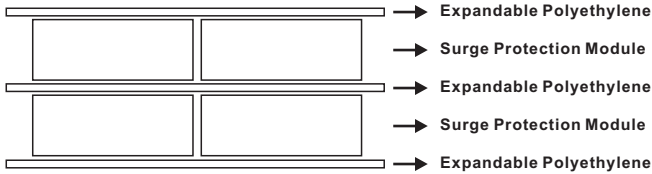
1. "I":with remote signal pins
- 2.W:wires connection type ,It's not a regular model. It's a customized product.
3. Series type and parallel type are optional,please ask us when you place an order.
- 4.Some contents in the model will not appear on the label, which is the recessive material code.

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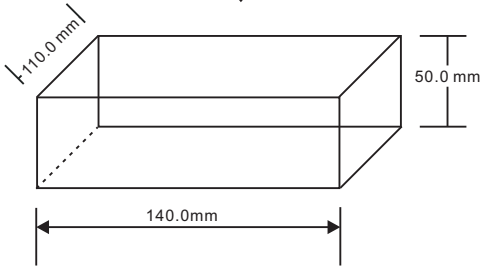
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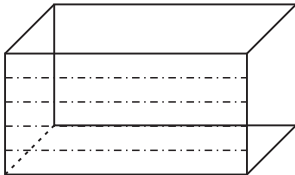
Products Packing



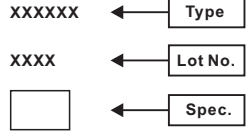
↓ 20PCS Module



↓ 20 Boxes Module



CSM-10D	52g
CSM-15D	52g
CSM-20D	55g
CSM-40D



Box	20PCS SPM
Carton	400PCS SPM

Shipping Mark

Customer:	_____
Products:	_____
Order Code:	_____
Part No.:	_____
Quantity:	_____
QC:	_____
Date:	_____
Made in China	

Carton

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 Revised:02.18.2020

<small>RED - Resistor Competitor® Surge Arrester Uc:275V~ Uoc:20kV Up:1.8kV In:10kA Imax:20kA</small>	<small>RED - Resistor Competitor® Surge Arrester Uc:275V~ Uoc:20kV Up:1.8kV In:10kA Imax:20kA</small>	<small>正電荷雷 Competitor® Surge Arrester Uc:385V~ Up:1.8kV In:20kA Imax:40kA</small>	<small>正電荷雷 Competitor® Surge Arrester Uc:385V~ Up:1.8kV In:20kA Imax:40kA</small>	<small>正電荷雷 Competitor® Surge Arrester Uc:385V~ Up:1.8kV In:20kA Imax:40kA</small>	<small>正電荷雷 Competitor® Surge Arrester Uc:235V~ Up:1.0kV In:20kA Imax:40kA</small>
<small>CSM-20I CSM-20I CSM-20I</small>	<small>CSM-20I CSM-20I CSM-20I</small>	<small>CSM-40I CSM-40I CSM-40I</small>	<small>CSM-40I CSM-40I CSM-40I</small>	<small>CSM-40I CSM-40I CSM-40I</small>	<small>CSM-40I CSM-40I CSM-40I</small>

Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in power supply systems for transient overvoltage protection. It is constructed with LKD varistor technology. It's built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Traffic lighting
- *Power supply box
- *Power Supply Systems
- *Municipal construction power supply
- *Centralized power supply for buildings
- *Elevator control box
- *Plant power supply system
- *Household power supply box
- *Computer room power supply
- *Industrial power supply system

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

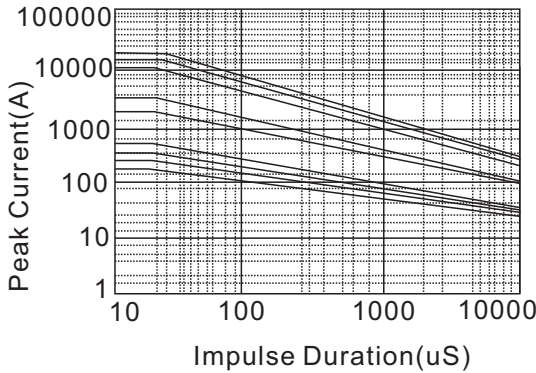
Continous:	CSM-20I/40I Series Units	
Max AC Voltage Range(V _{rms})	275/385/440	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	20/40	kA
Normal discharge Current 8/20uS Waveform(I _n)	10/20	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	20000A
2	13000A
15	10000A
100	2500A
1000	1300A
10000	600A
100000	350A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE	GB/T
CSM-20I275	220	275	10kA	20kA	1500	X	X
CSM-20I385	240	385	10kA	20kA	1800	X	X
CSM-20I440	347	440	10kA	20kA	2000	X	
CSM-20I550	380	550	10kA	20kA	2500	X	
CSM-40I275	220	275	20kA	40kA	1800	X	X
CSM-40I385	240	385	20kA	40kA	2000	X	X
CSM-40I440	347	440	20kA	40kA	2500	X	
CSM-40I550	380	550	20kA	40kA	3000	X	

Notes:

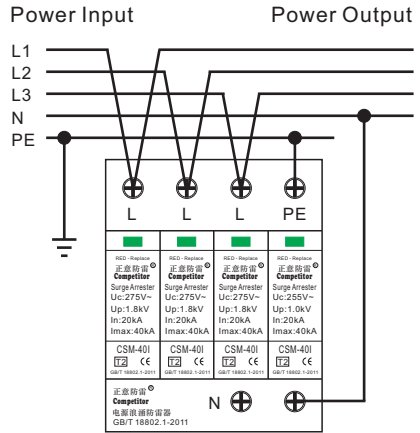
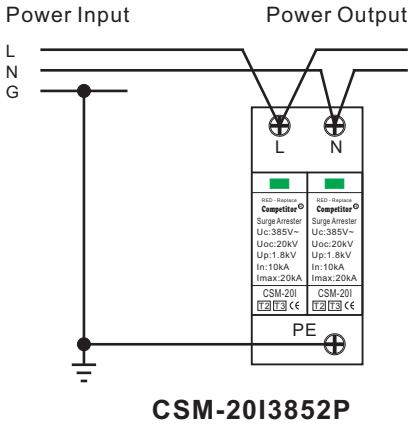
- 1.Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); a rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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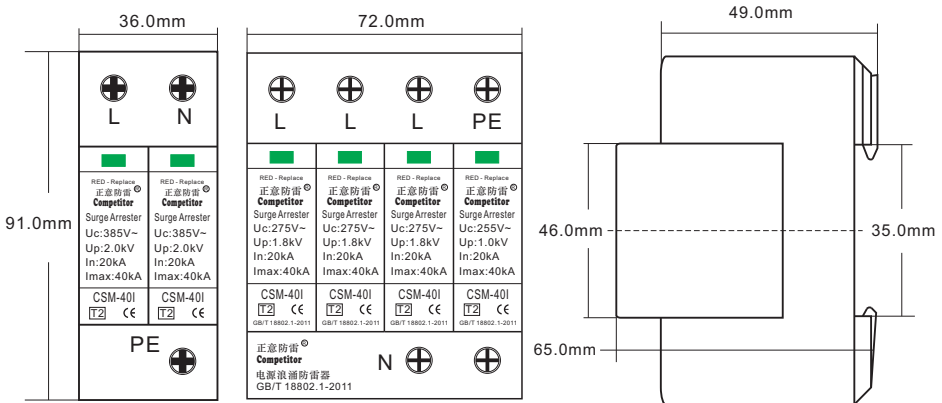
Application Installation Schematic



Notes:

1. Surge arrester must be Kevin connected(GB/T 18802.1).
2. Various application voltage products can provide.
3. For GB/T 18802.1-2011 approved, design in UL1449^{4th}.
4. When the indicator window is red, SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD structure is divided into 2P and 1P+N.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. Connection wires standard: 2.5-25mm².
2. CSM-60I series CSM-80I series and CSM-100I series are a split-type shell only.
3. Other series are single pin combination products, if there are special requirements, please put forward when ordering.

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

CSM 20 I 275 3P N RS

Competitor Inc.
Surge Arrester

20kA(Maximum
Discharge Current)

Failure Indication

Operating Voltage

Three PIN

N PIN WITH GDT

Other Options:

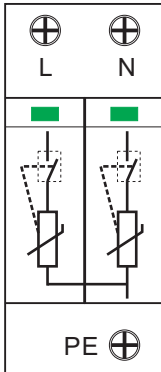
Blank:standard product.

RS:with remote signal

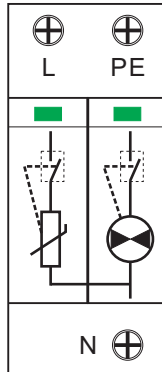
Else:customization

Notes:Remote signaling can choose terminal output and wire output.

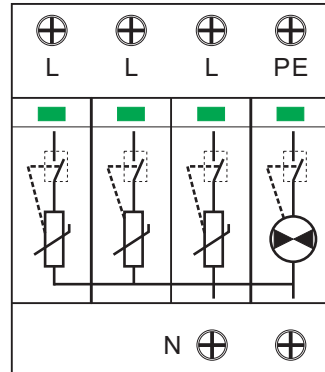
Circuit Diagram



2P Mode



1PN Mode



3PN Mode

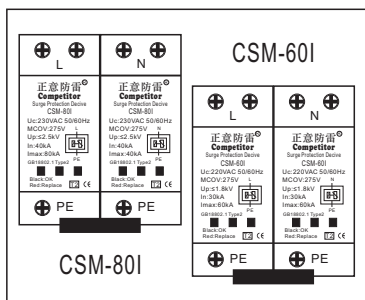
Notes:

1. With thermal protection technology .
2. 2PIN protection mode L-G and N-G .
3. 1PN protection mode L-G, N-G and L-N .

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Specifications are subject to change without notice.

Revised:02.18.2020



Description

The Competitor 's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in power supply systems for transient overvoltage protection. It is constructed with LKD varistertechnology. It's built in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *Traffic lighting
- *Elevator control box
- *Power supply box
- *Plant power supply system
- *Power Supply Systems
- *Household power supply box
- *Municipal construction power supply
- *Computer room power supply
- *Centralized power supply for buildings
- *Industrial power supply system

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

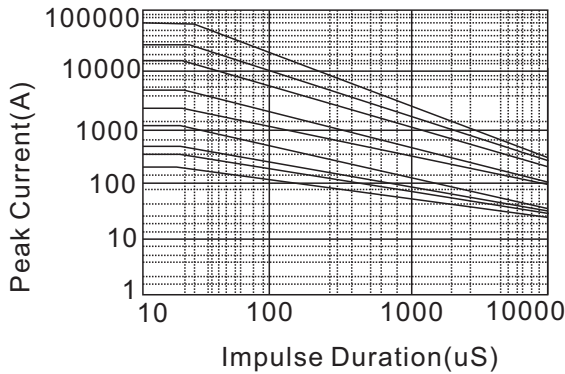
Continous:	CSM-60I/80I Series Units	
Max AC Voltage Range(V _{rms})	275/385/440	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	60/80	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	30/40	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{stg})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	80000A
2	50000A
15	40000A
100	30000A
1000	1500A
10000	600A
100000	400A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T	
CSM-60I275	220	275	30kA	60kA	1800	X	X
CSM-60I385	240	385	30kA	60kA	2000	X	X
CSM-60I440	347	440	30kA	60kA	2500	X	
CSM-60I550	380	550	30kA	60kA	3000	X	
CSM-80I275	220	275	40kA	80kA	2500	X	X
CSM-80I385	240	385	40kA	80kA	3000	X	X
CSM-80I440	347	440	40kA	80kA	3200	X	
CSM-80I550	380	550	40kA	80kA	3500	X	
CSM-100I275	220	275	50kA	100kA	2800	X	X
CSM-100I385	240	385	50kA	100kA	3000	X	X
CSM-100I440	347	440	50kA	100kA	3500	X	
CSM-100I550	380	550	50kA	100kA	4000	X	

Notes:

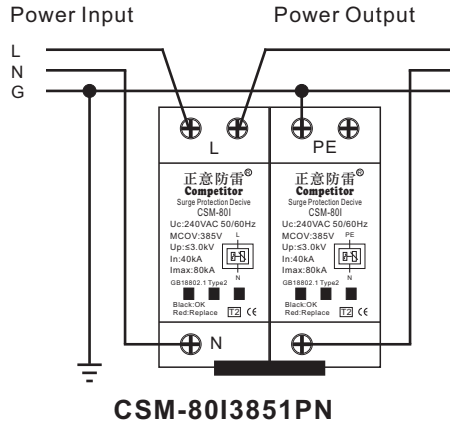
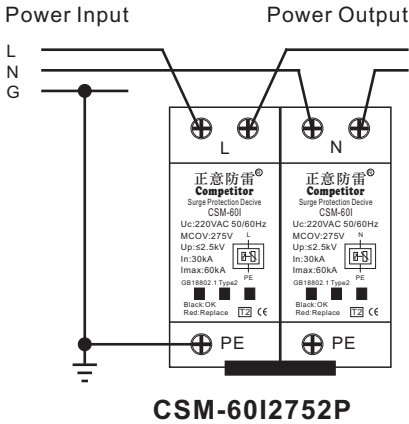
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- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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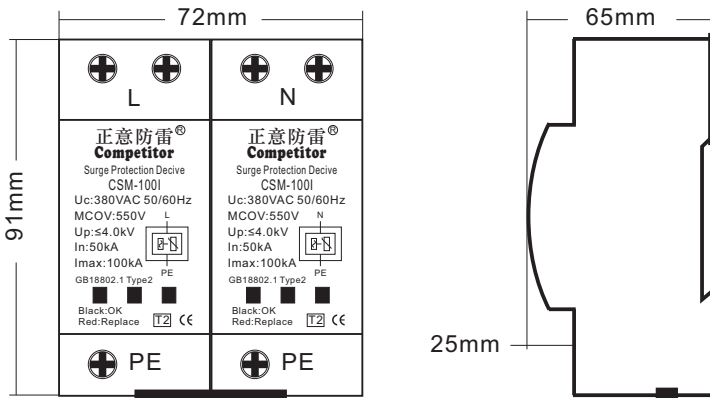
Application Installation Schematic



Notes:

1. Surge arrester must be Kevin connected(GB/T 18802.1).
2. Various application voltage products can provide.
3. For GB/T 18802.1-2011 approved, design in UL1449^{4th}.
4. When the indicator window is red, SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD structure is divided into 2P and 1P+N.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. Connection wires standard: 2.5-25mm².
2. CSM-20I series and CSM-40I series are an integrated shell only.
3. The other series are single pin combination products, if there are special requirements, please put forward when ordering.

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Revised: 02.18.2020

Part Number Code System

CSM 80 I 275 1P N RS

Competitor Inc.
Surge Arrester

80kA(Maximum
Discharge Current)

Failure Indication

Operating Voltage

One PIN

N PIN WITH GDT

Other Options:

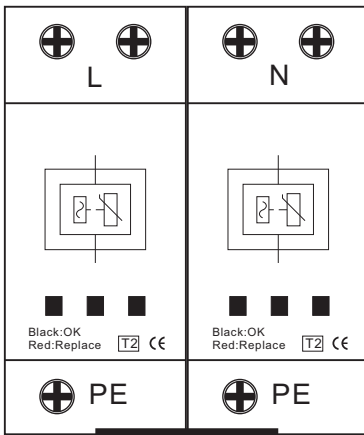
Blank:Standard product.

RS:with remote signal

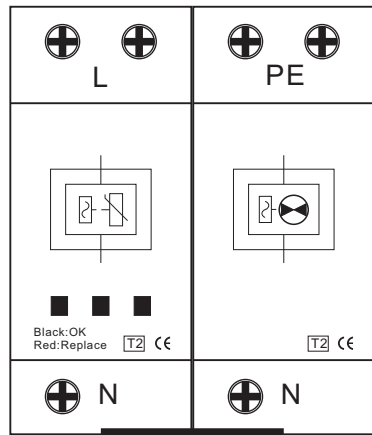
Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



2P Mode



1PN Mode

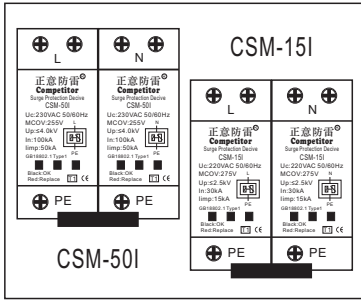
Notes:

1. With thermal protection technology.
2. 2P protection mode L-G and N-G .
3. 1PN protection mode L-G, N-G and L-N .

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- *Traffic lighting
- *Elevator control box
- *Power supply box
- *Plant power supply system
- *Power Supply Systems
- *Household power supply box
- *Municipal construction power supply
- *Computer room power supply
- *Centralized power supply for buildings
- *Industrial power supply system

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

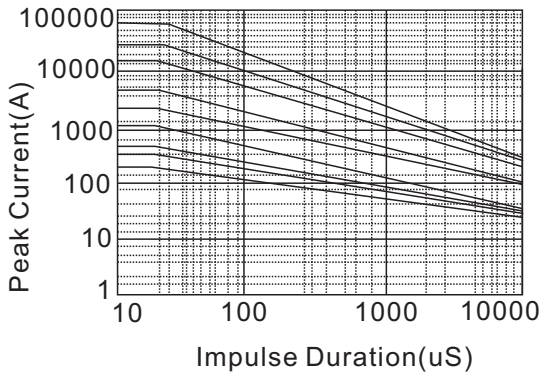
Continous:	CSM-15I/25I Series	Units
Max AC Voltage Range(V _{rms})	275/385/440	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 10/350uS Waveform(I _{imp})	15/25	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	30/50	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{stg})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	80000A
2	50000A
15	40000A
100	30000A
1000	1500A
10000	600A
100000	400A

Specifications

Part Number	Operating Voltage	MCOV	In	Iimp	Up	Safety CE GB/T	
CSM-15I275	220	275	30kA	15kA	1800	X	X
CSM-15I385	240	385	30kA	15kA	2000	X	X
CSM-15I440	347	440	30kA	15kA	2500	X	
CSM-15I550	380	550	30kA	15kA	3000	X	
CSM-20I275	220	275	40kA	20kA	2500	X	X
CSM-20I385	240	385	40kA	20kA	3000	X	X
CSM-20I440	347	440	40kA	20kA	3200	X	
CSM-20I550	380	550	40kA	20kA	3500	X	
CSM-25I275	220	275	50kA	25kA	2800	X	X
CSM-25I385	240	385	50kA	25kA	3000	X	X
CSM-25I440	347	440	50kA	25kA	3500	X	
CSM-25I550	380	550	50kA	25kA	4000	X	

Notes:

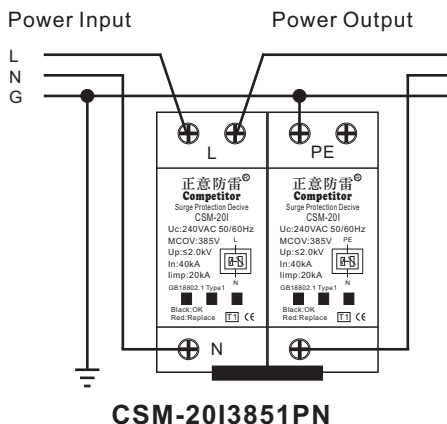
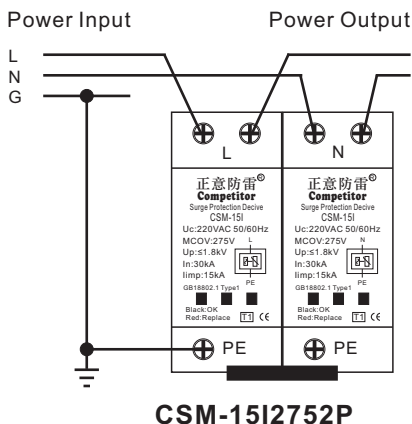
- 1.Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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Specifications are subject to change without notice.

Revised:02.18.2020

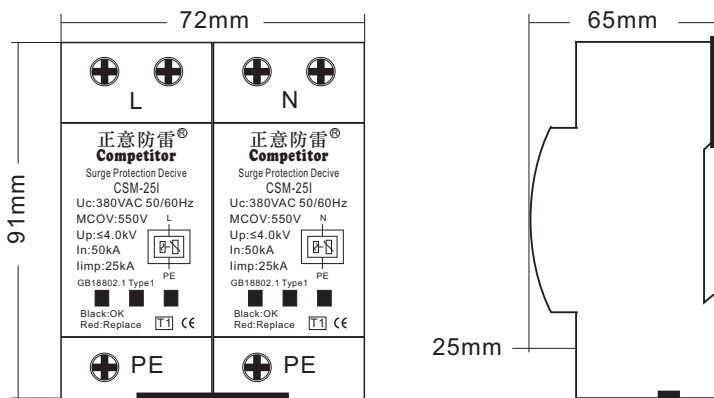
Application Installation Schematic



Notes:

1. Surge arrester must be Kevin connected(GB/T 18802.1).
2. Various application voltage products can provide.
3. For GB/T 18802.1-2011 approved, design in UL1449^{4th}.
4. When the indicator window is red, SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD structure is divided into 2P and 1P+N.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. Connection wires standard: 2.5-25mm².
2. CSM-201 series and CSM-401 series are an integrated shell only.
3. Other series are single pin combination products, if there are special requirements, please put forward when ordering.

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Specifications are subject to change without notice.

Revised: 02.18.2020

Part Number Code System

CSM 20 I 275 1P N RS

Competitor Inc.
Surge Arrester

limp:20kA(10/350uS)

Failure Indication

Operating Voltage

One PIN

N PIN WITH GDT

Other Options:

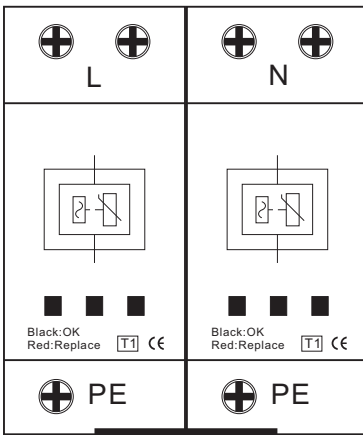
Blank:Standard product.

RS:with remote signal

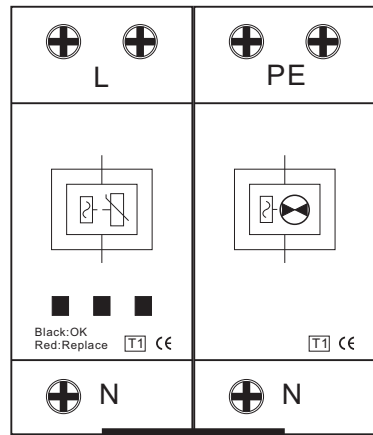
Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



2P Mode



1PN Mode

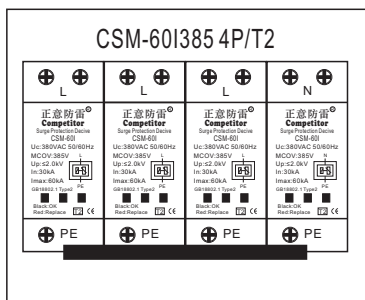
Notes:

1. With thermal protection technology .
2. SPD 2P protection mode L-G and N-G .
3. SPD 1PN protection mode L-G, N-G and L-N .

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Specifications are subject to change without notice.

Revised:02.18.2020



Description

The Competitor 's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in power supply systems for transient overvoltage protection. It is constructed with LKD varistortechonology. It's built in thermal disconnect function provides additional pottection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *Traffic lighting
- *Elevator control box
- *Power supply box
- *Plant power supply system
- *Power Supply Systems
- *Household power supply box
- *Municipal construction power supply
- *Computer room power supply
- *Centralized power supply for buildings
- *Industrial power supply system

Certification Standard

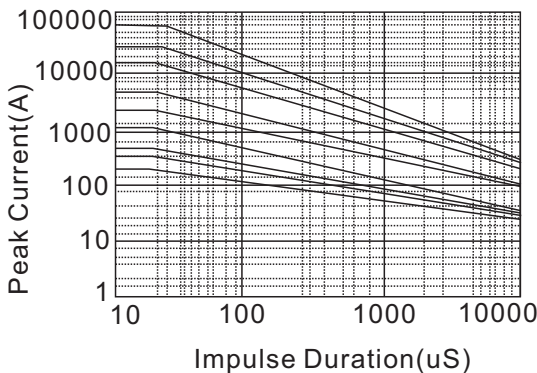
TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

Continous:	CSM-60I/80I Series Units	
Max AC Voltage Range(V _{rms})	275/385/440	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	60/80/100	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	30/40/50	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{stg})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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 Specifications are subject to change without notice.
 Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	80000A
2	50000A
15	40000A
100	30000A
1000	1500A
10000	600A
100000	400A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T	
CSM-60I275	220	275	30kA	60kA	1800	X	X
CSM-60I385	240	385	30kA	60kA	2000	X	X
CSM-60I440	347	440	30kA	60kA	2500	X	
CSM-60I550	380	550	30kA	60kA	3000	X	
CSM-80I275	220	275	40kA	80kA	2500	X	X
CSM-80I385	240	385	40kA	80kA	3000	X	X
CSM-80I440	347	440	40kA	80kA	3200	X	
CSM-80I550	380	550	40kA	80kA	3500	X	
CSM-100I275	220	275	50kA	100kA	2800	X	X
CSM-100I385	240	385	50kA	100kA	3000	X	X
CSM-100I440	347	440	50kA	100kA	3500	X	
CSM-100I550	380	550	50kA	100kA	4000	X	

Notes:

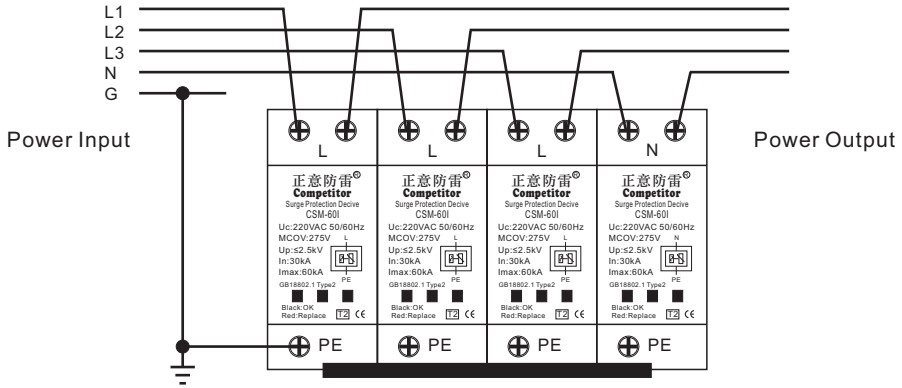
- 1.Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic

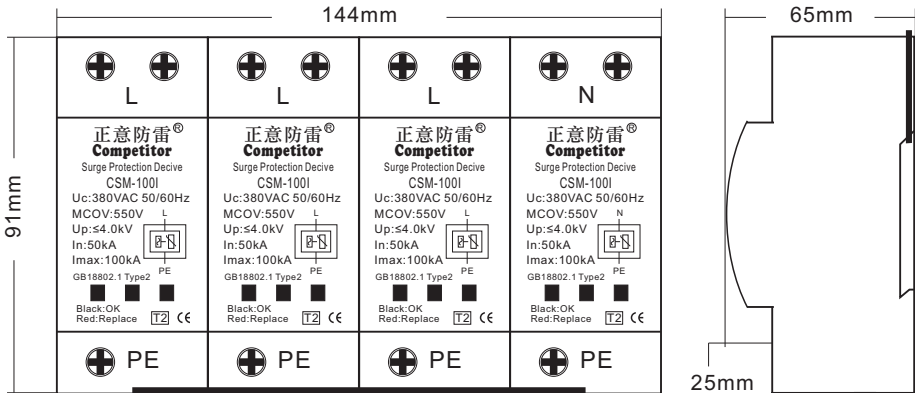


CSM-60I275 4P/T2

Notes:

1. Surge arrester must be Kevin connected(GB/T 18802.1).
2. Various application voltage products can provide.
3. For GB/T 18802.1-2011 approved, design in UL1449^{4th}.
4. When the indicator window is red, SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD structure is divided into 2P and 1P+N.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. Connection wires standard: 2.5-25mm².
2. CSM-20I series and CSM-40I series are an integrated shell only.
3. Other series are single pin combination products, if there are special requirements, please put forward when ordering.

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

CSM 80 I 275 3P N RS

Competitor Inc.
Surge Arrester

80kA(Maximum
Discharge Current)

Failure Indication

Operating Voltage

Three PIN

N PIN WITH GDT

Other Options:

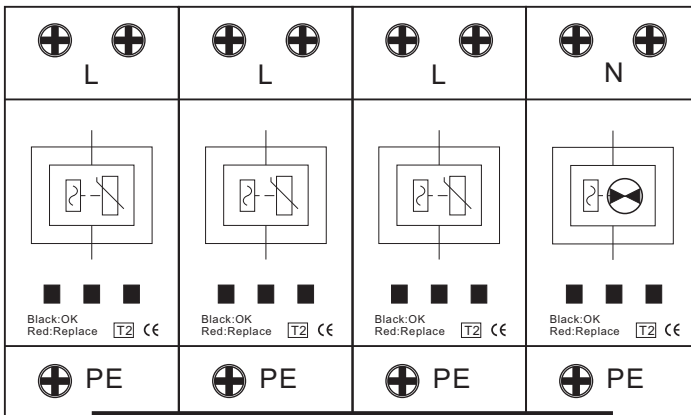
Blank:Standard product.

RS:with remote signal

Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



3PN Mode

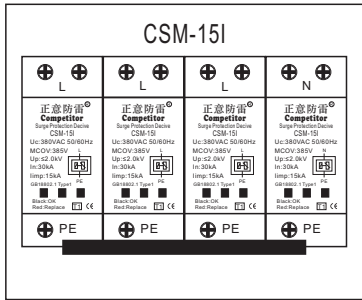
Notes:

1. With thermal protection technology .
2. 4P protection mode L1/L2/L3-G and N-G .
3. 3PN protection mode L1/L2/L3-N and N-G .

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Specifications are subject to change without notice.

Revised:02.18.2020



Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in power supply systems for transient overvoltage protection. It is constructed with LKD varistor technology. It's built in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Traffic lighting
- *Elevator control box
- *Power supply box
- *Plant power supply system
- *Power Supply Systems
- *Household power supply box
- *Municipal construction power supply
- *Computer room power supply
- *Centralized power supply for buildings
- *Industrial power supply system

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

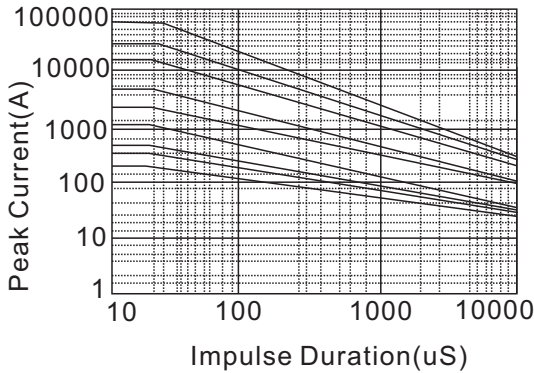
Continous:	CSM-60I/80I Series Units	
Max AC Voltage Range(V _{rms})	275/385/440	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 10/350uS Waveform(I _{imp})	15/25/50	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	30/50/100	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{stg})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	80000A
2	50000A
15	40000A
100	30000A
1000	1500A
10000	600A
100000	400A

Specifications

Part Number	Operating Voltage	MCOV	In	limp	Up	Safety CE GB/T	
CSM-15I275	220	275	30kA	15kA	1800	X	X
CSM-15I385	240	385	30kA	15kA	2000	X	X
CSM-15I440	347	440	30kA	15kA	2500	X	
CSM-15I550	380	550	30kA	15kA	3000	X	
CSM-20I275	220	275	40kA	20kA	2500	X	X
CSM-20I385	240	385	40kA	20kA	3000	X	X
CSM-20I440	347	440	40kA	20kA	3200	X	
CSM-20I550	380	550	40kA	20kA	3500	X	
CSM-25I275	220	275	50kA	25kA	2800	X	X
CSM-25I385	240	385	50kA	25kA	3000	X	X
CSM-25I440	347	440	50kA	25kA	3500	X	
CSM-25I550	380	550	50kA	25kA	4000	X	

Notes:

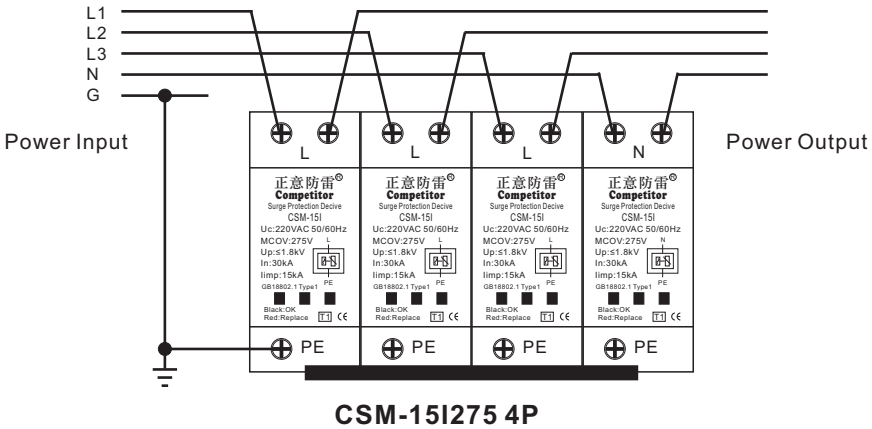
- 1.Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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Specifications are subject to change without notice.

Revised:02.18.2020

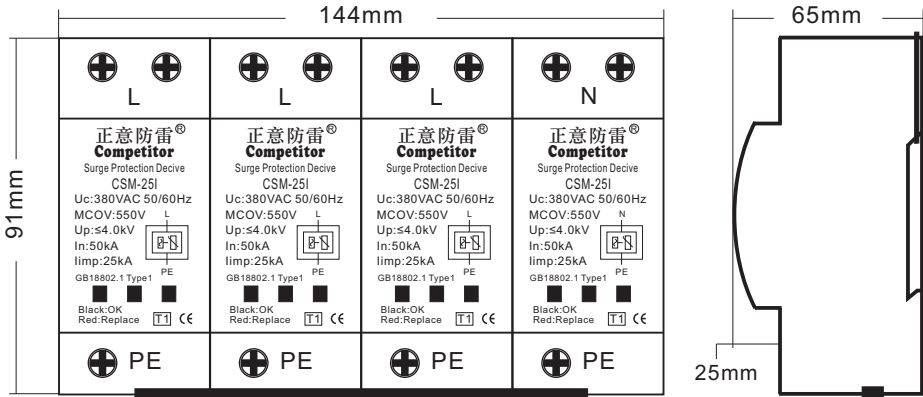
Application Installation Schematic



Notes:

1. Surge arrester must be Kevin connected(GB/T 18802.1).
2. Various application voltage products can provide.
3. For GB/T 18802.1-2011 approved, design in UL1449th.
4. When the indicator window is red, SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD structure is divided into 4P and 3P+N.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. Connection wires standard: 2.5-25mm².
2. CSM-20I series and CSM-40I series are an integrated shell only.
3. Other series are single pin combination products, if there are special requirements, please put forward when ordering.

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Specifications are subject to change without notice.

Revised: 02.18.2020

Part Number Code System

CSM 25 I 420 3P N RS

Competitor Inc.
Surge Arrester

Imp:25kA(10/350uS)

Failure Indication

Operating Voltage

Three PIN

N PIN WITH GDT

Other Options:

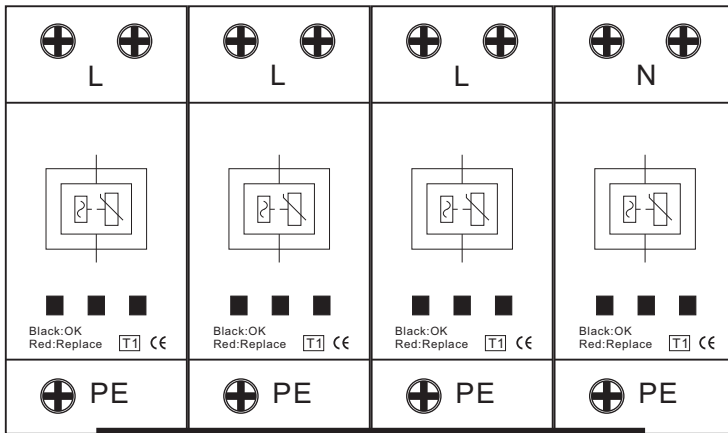
Blank:standard product.

RS:with remote signal

Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



4P Mode

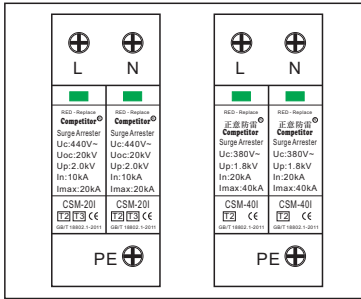
Notes:

1. With thermal protection technology .
2. 4P protection mode L1/L2/L3-G and N-G .
3. 3PN protection mode L1/L2/L3-N and N-G .

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Specifications are subject to change without notice.

Revised:02.18.2020



Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in power supply systems for transient overvoltage protection. It is constructed with LKD varistortechonlogy. It's built in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *Traffic lighting
- *Elevator control box
- *Power supply box
- *Railway wiring power box
- *Metro power supply
- *Railway power supply system
- *Bus power supply systems
- *Light rail transit power supply
- *Rail transit power supply box
- *Highway wiring power system

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

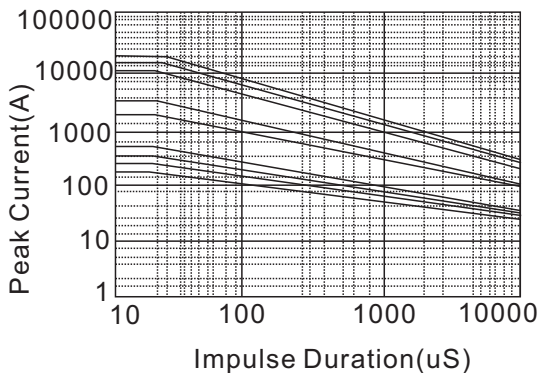
Continous:	CSM-20I/40I Series Units	
Max AC Voltage Range(V _{mrms})	275/385/440	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	20/40	kA
Normalind Discharge Current 8/20uS Waveform(I _n)	10/20	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

©2020 Competitor Inc.

Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20µS)

Strikes	Surge
1	20000A
2	13000A
15	10000A
100	2500A
1000	1300A
10000	600A
100000	350A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T
CSM-20I275	220	275	10kA	20kA	1500	X X
CSM-20I385	240	385	10kA	20kA	1800	X X
CSM-20I440	347	440	10kA	20kA	2000	X
CSM-20I550	380	550	10kA	20kA	2500	X
CSM-40I275	220	275	20kA	40kA	1800	X X
CSM-40I385	240	385	20kA	40kA	2000	X X
CSM-40I440	347	440	20kA	40kA	2500	X
CSM-40I550	380	550	20kA	40kA	3000	X

Notes:

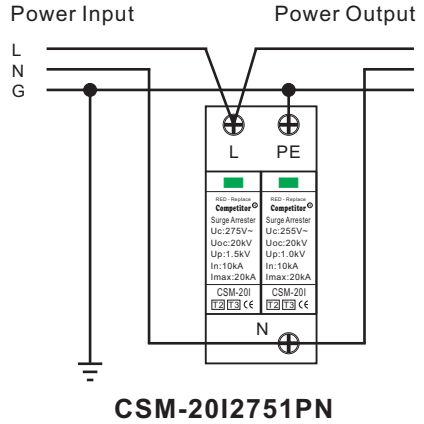
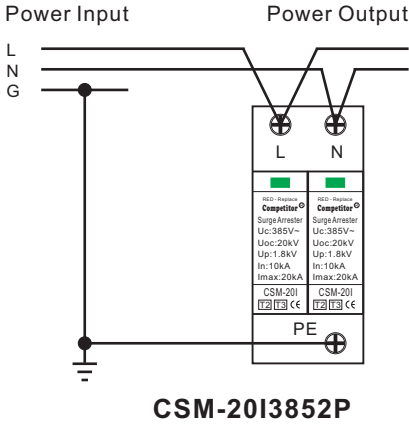
- 1.Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20µS nominal discharge current (I_n); an rounding voltage value of maximum measurement.
- 3.MCOV/U_c:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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Specifications are subject to change without notice.

Revised:02.18.2020

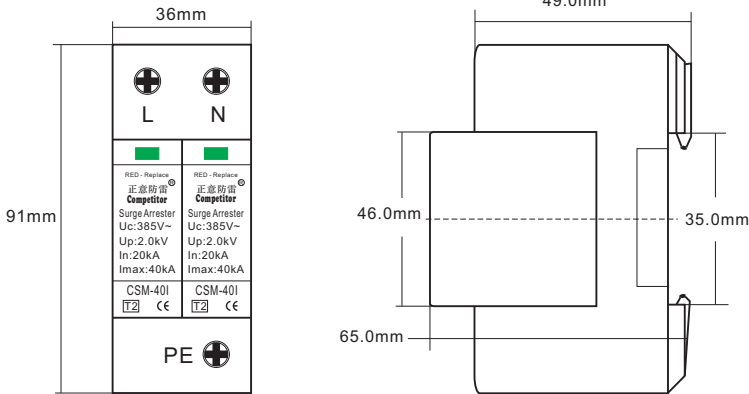
Application Installation Schematic



Notes:

- 1.Surge arrester must be Kevin connected(GB/T 18802.1).
- 2.Various application voltage products can provide.
- 3.For GB/T 18802.1-2011 approved,design in UL1449^{4th}.
- 4.When the indicator window is red,SPD needs to be replaced.
- 5.Design in CQC and IEC61643-11;SPD structure is divided into 2P and 1P+N.
- 6.The ground wire must be correctly connected,do not fall off to avoid electric shock.

Dimensions



Notes:

- 1.Connection wires standard:2.5-25mm².
- 2.CSM-60I series CSM-80I series and CSM-100I series are a split-type shell only.
- 3.Other series are single pin combination products.If there are special requirements, please put forward when ordering.

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

CSM 20 I 275 1P N RS

Competitor Inc.
Surge Arrester

20kA(Maximum
Discharge Current)

Failure Indication

Operating Voltage

One PIN

N PIN WITH GDT

Other Options:

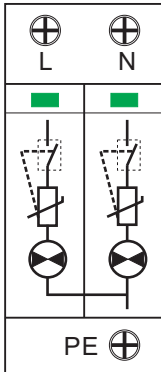
Blank:Standard product.

RS:with remote signal PIN

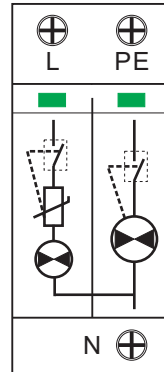
Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



2P Mode



1PN Mode

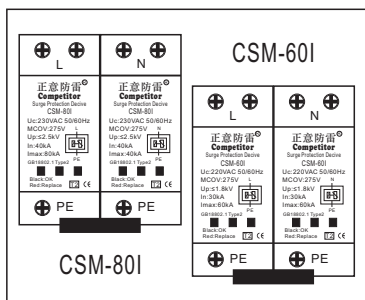
Notes:

1. With thermal protection technology .
2. 2P protection mode L-G and N-G.
3. 1PN protection mode L-G, N-G and L-N.

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Specifications are subject to change without notice.

Revised:02.18.2020



Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in power supply systems for transient overvoltage protection. It is constructed with LKD varistortechonlogy. It's built in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *Traffic lighting
- *Elevator control box
- *Power supply box
- *Railway wiring power box
- *Metro power supply
- *Railway power supply system
- *Bus power supply systems
- *Light rail transit power supply
- *Rail transit power supply box
- *Highway wiring power system

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

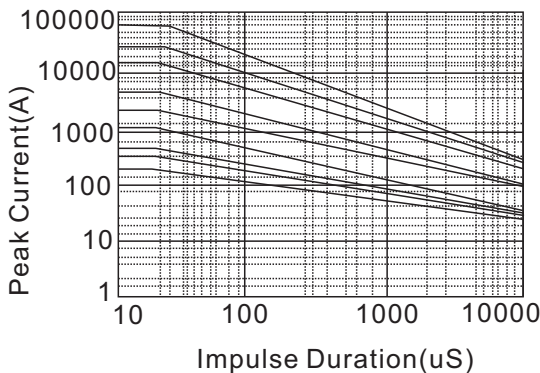
Continous:	CSM-60I/80I Series Units	
Max AC Voltage Range(V _{rms})	275/385/440	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	60/80	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	30/40	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{stg})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

©2020 Competitor Inc.

Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	80000A
2	50000A
15	40000A
100	30000A
1000	1500A
10000	600A
100000	400A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T	
CSM-60I275	220	275	30kA	60kA	1800	X	X
CSM-60I385	240	385	30kA	60kA	2000	X	X
CSM-60I440	347	440	30kA	60kA	2500	X	
CSM-60I550	380	550	30kA	60kA	3000	X	
CSM-80I275	220	275	40kA	80kA	2500	X	X
CSM-80I385	240	385	40kA	80kA	3000	X	X
CSM-80I440	347	440	40kA	80kA	3200	X	
CSM-80I550	380	550	40kA	80kA	3500	X	
CSM-100I275	220	275	50kA	100kA	2800	X	X
CSM-100I385	240	385	50kA	100kA	3000	X	X
CSM-100I440	347	440	50kA	100kA	3500	X	
CSM-100I550	380	550	50kA	100kA	4000	X	

Notes:

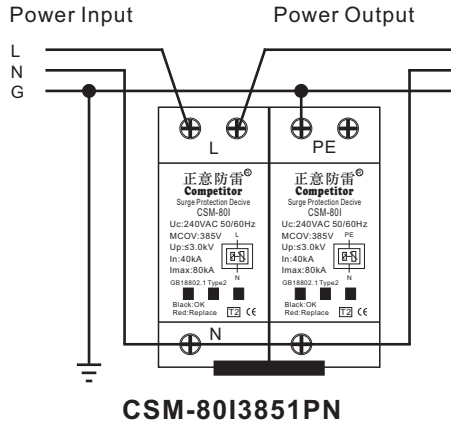
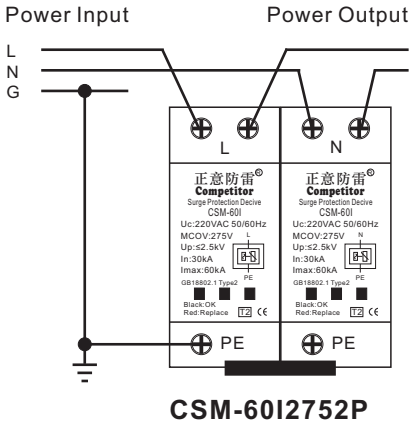
- 1.Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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Revised:02.18.2020

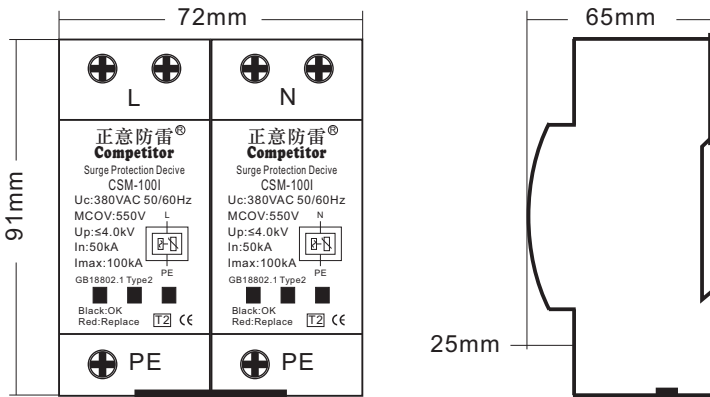
Application Installation Schematic



Notes:

1. Surge arrester must be Kevin connected(GB/T 18802.1).
2. Various application voltage products can provide.
3. For GB/T 18802.1-2011 approved, design in UL1449^{4th}.
4. When the indicator window is red, SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD structure is divided into 2P and 1P+N.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. Connection wires standard: 2.5-25mm².
2. CSM-201 series and CSM-401 series are an integrated shell only.
3. The other series are single pin combination products. If there are special requirements, please put forward when ordering.

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Specifications are subject to change without notice.

Revised: 02.18.2020

Part Number Code System

CSM 80 I 275 1P N RS

Competitor Inc.
Surge Arrester

80kA(Maximum
Discharge Current)

Failure Indication

Operating Voltage

One PIN

N PIN WITH GDT

Other Options:

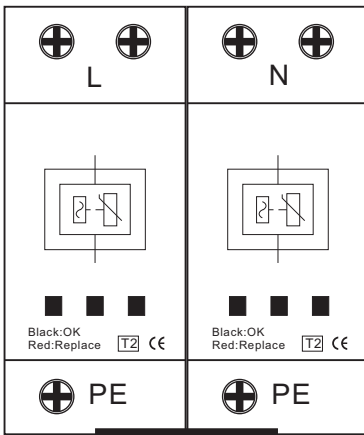
Blank:Standard product.

RS:with remote signal

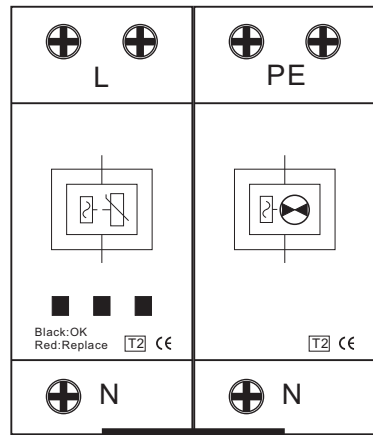
Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



2P Mode



1PN Mode

Notes:

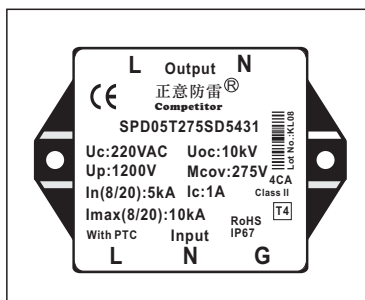
1. With thermal protection technology.
2. 2P protection mode L-G and N-G.
3. 1PN protection mode L-G, N-G and L-N.

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Specifications are subject to change without notice.

Revised:02.18.2020

Medical Equipment SPD



Description

The Competitor 's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in medical equipments for transient overvoltage protection. It is constructed with Epcos varistor technology. It's built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Medical Equipment
- *Medical Instruments
- *Apparatuses Control Board
- *Medical Device Main Board
- *X-ray Machine Main Control Board
- *Medical Machine
- *Medical Control Board
- *Oximeter control board
- *Operation Console Power
- *CT Scanner Main Control Board

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

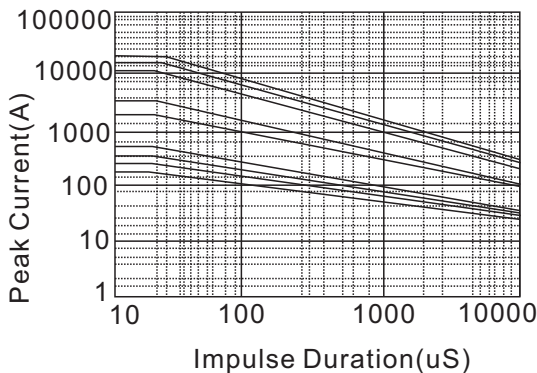
Continous:	CSM-20I/40I Series Units	
Max AC Voltage Range(V _{rms})	150/275/385/550	V
Max Continuous Current(Load Current)	1-10	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10/20	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	5/10	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{stg})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20µs)

Strikes	Surge
1	20000A
2	13000A
15	10000A
100	2500A
1000	1300A
10000	600A
100000	350A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T
SPD05T120*	120	150	10kA	20kA	800	X X
SPD05T220*	220	275	10kA	20kA	1200	X X
SPD05T347*	347	385	10kA	20kA	1500	X
SPD05T380*	380	550	10kA	20kA	1800	X
SPD10T120*	220	275	20kA	40kA	1000	X X
SPD10T220*	240	385	20kA	40kA	1500	X X
SPD10T347*	347	440	20kA	40kA	1800	X
SPD10T380*	380	550	20kA	40kA	2000	X

Notes:

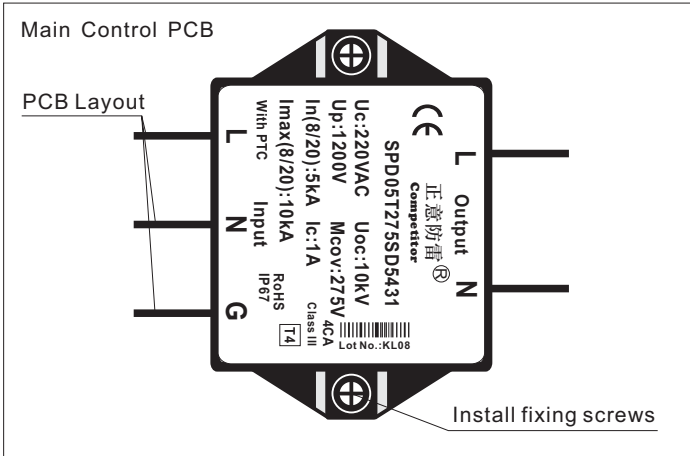
- 1.*=SDXXXX or PDXXXX, Part number with "I"-Indication only.
- 2.Up-IEC 61643-11 voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20µs nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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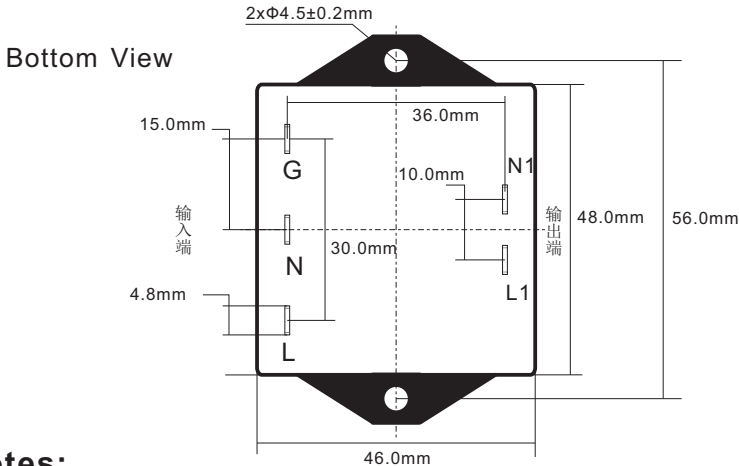
Application Installation Schematic



Notes:

1. Surge protection can be installed on PCB (GB/T 18802.1).
2. Various application voltage products can provide.
3. Uc: 277V product design in UI1449th by approved.
4. When the indicator is off, SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD parallel type can be customized.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. The layout width of copper foil depends on the load current.
2. This series only provides In: 5kA and In: 10kA products.
3. Connecting PIN is 4.8mm wide copper terminal and thickness 0.8mm.

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Specifications are subject to change without notice.

Revised: 02.18.2020

Part Number Code System

SPD 05 T I 275 S N DXXXX RS

Competitor Inc.
Surge Arrester

5kA(Normal
Discharge Current)

Thermal Protection

Failure Indication

Operating Voltage

S: Series Connection

N: Output with NTC

P: Output with PTC

Other Options:

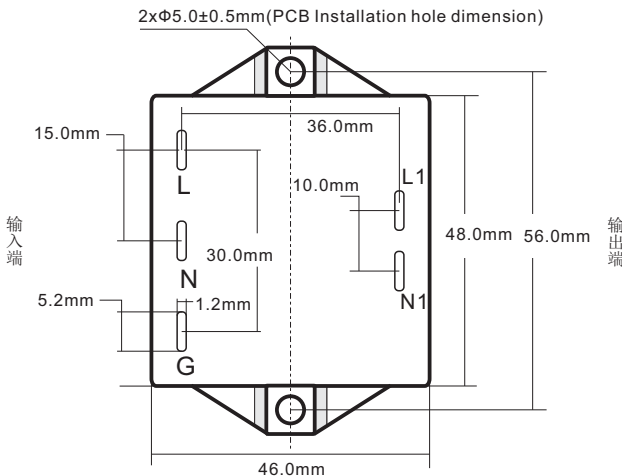
Blank: Standard product.

RS: with remote signal

Else: customization

Notes: Remote signaling can choose terminal output and wire output.

PCB Layout Diagram



Notes:

1. With thermal protection technology
2. Recommended PCB layout hole size: 5.2mm * 1.2mm.
3. Special specifications can be customized, for example: DIP circular PIN.

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Revised:02.18.2020



Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in construction machinery and equipments for transient overvoltage protection. It is constructed with Epcos varistortechonology. It's built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Piling machine
- *Engineering vehicle
- *Excavating machinery
- *Construction machinery
- *Geological exploration machinery
- *Sanitation vehicle
- *Disinfection vehicle
- *Engineering equipment
- *Seabed exploration machinery
- *Loading and unloading machinery

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

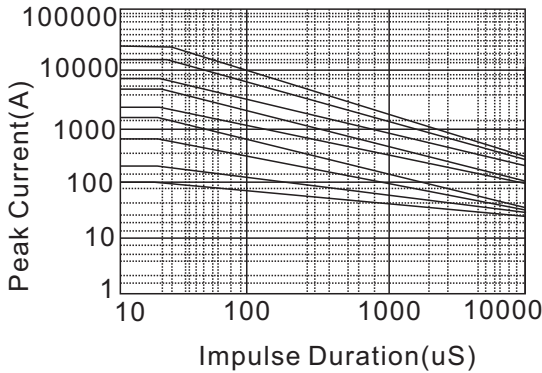
Continous:	CSM-40IM16 Series Units	
Max AC Voltage Range(V _{rms})	275/385/440	V
Max Continuous Current(Kevin Connection)	100	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	40	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	20	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{stg})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20µs)

Strikes	Surge
1	40000A
2	30000A
15	20000A
100	2000A
1000	800A
10000	300A
100000	100A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T	
CSM-20I275*	220	275	10kA	20kA	1200	X	X
CSM-20I385*	277	385	10kA	20kA	1500	X	X
CSM-20I440*	380	440	10kA	20kA	1800	X	
CSM-20I550*	480	550	10kA	20kA	2000	X	
CSM-30I275*	220	275	15kA	30kA	1300	X	X
CSM-30I385*	277	385	15kA	30kA	1800	X	X
CSM-30I440*	380	440	15kA	30kA	2000	X	
CSM-30I550*	480	550	15kA	30kA	2500	X	
CSM-40I275*	220	275	20kA	40kA	1500	X	X
CSM-40I385*	277	385	20kA	40kA	1800	X	X
CSM-40I440*	380	440	20kA	40kA	2000	X	
CSM-40I550*	480	550	20kA	40kA	2500	X	

Notes:

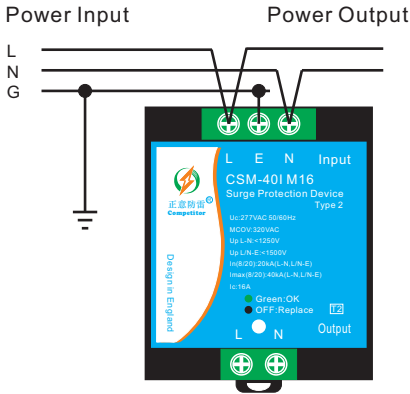
- 1."*"=M5 or M10 or M16,Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20µs nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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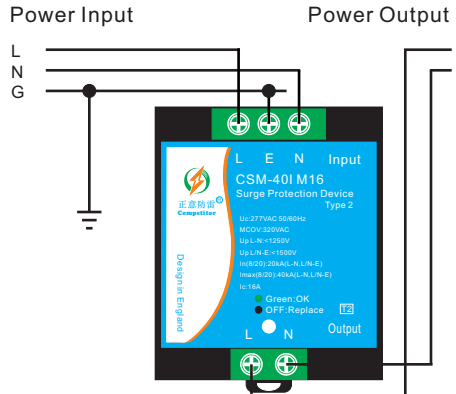
Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic



Parallel Connection

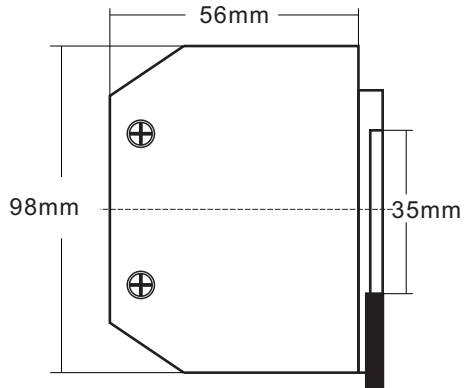


Series Connection

Notes:

- 1.SPД parallel connection must be Kevin connected(GB/T 18802.1).
- 2.Various application voltage products can provide.
- 3.For GB/T 18802.1-2011 approved,design in UL1449^{4th}.
- 4.When the indicator window is off,SPД needs to be replaced.
- 5.Design in CQC and IEC61643-11;SPД structure is terminal connection type.
- 6.The ground wire must be correctly connected,do not fall off to avoid electric shock.

Dimensions



Notes:

- 1.Connection wires standard:2.5-10mm².
- 2.When the circuit current exceeds the SPD load current, it must be connected in parallel.
- 3.Please contact us directly when ordering products with special requirements,we can customize more functions and specifications.

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

CSM 40 I 275 M16 RS

Competitor Inc.
Surge Arrester

80kA(Maximum
Discharge Current)

Failure Indication

Operating Voltage

Load Current:
M5,M10,M16...

Other Options:

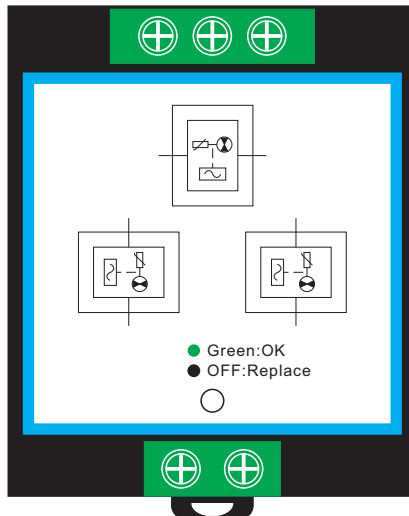
Blank:Standard product.

RS:with remote signal

Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



Notes:

1. Module With thermal protection technology .
2. SPD protection full mode L-N,L-G and N-G .
3. Each mode is MOV series GDT, with leakage current almost zero .

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Specifications are subject to change without notice.

Revised:02.18.2020



Description

The Competitor 's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in construction machinery and equipments for transient overvoltage protection. It is constructed with Epcos varistor technology. It's built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Piling machine
- *Engineering vehicle
- *Excavating machinery
- *Construction machinery
- *Geological exploration machinery
- *Sanitation vehicle
- *Disinfection vehicle
- *Engineering equipment
- *Seabed exploration machinery
- *Loading and unloading machinery

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

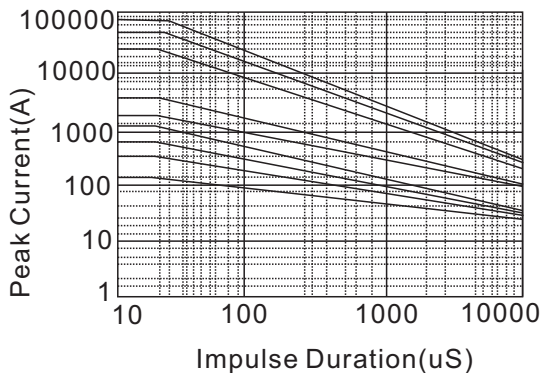
Continous:	CSM-80I Series	Units
Max AC Voltage Range(V _{rms})	275/385/440	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	80	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	40	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{stg})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	80000A
2	60000A
15	40000A
100	3000A
1000	1200A
10000	500A
100000	200A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T
CSM-40I275*	240	275	20kA	40kA	1200	X X
CSM-40I385*	277	385	20kA	40kA	1500	X X
CSM-40I440*	380	440	20kA	40kA	1800	X
CSM-40I550*	480	550	20kA	40kA	2000	X
CSM-60I275*	240	275	30kA	60kA	1500	X X
CSM-60I385*	277	385	30kA	60kA	1800	X X
CSM-60I440*	380	440	30kA	60kA	2000	X
CSM-60I550*	480	550	30kA	60kA	2500	X
CSM-80I275*	240	275	40kA	80kA	1800	X X
CSM-80I385*	277	385	40kA	80kA	2000	X X
CSM-80I440*	380	440	40kA	80kA	2500	X
CSM-80I550*	480	550	40kA	80kA	3000	X

Notes:

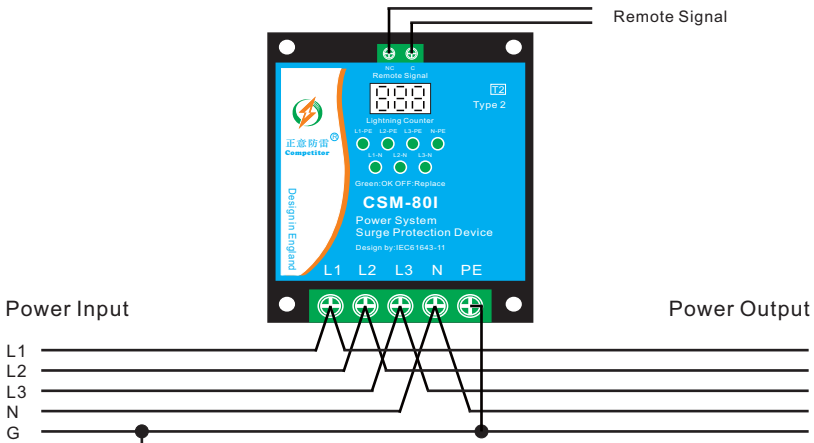
- 1."*"=RS or C or RSC,Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic

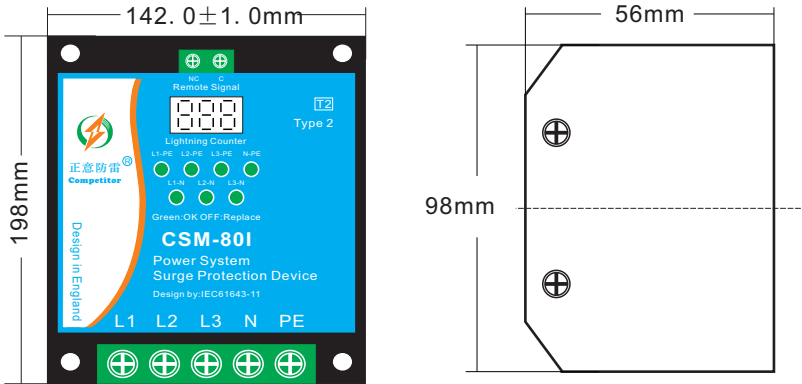


Notes:

Parallel Connection

- 1.SPД parallel connection must be Kevin connected(GB/T 18802.1).
- 2.Various application voltage products can provide.
- 3.For GB/T 18802.1-2011 approved,design in UL1449^{4th}.
- 4.When the indicator window is off,SPD needs to be replaced.
- 5.Design in CQC and IEC61643-11;SPD structure is terminal connection type.
- 6.The ground wire must be correctly connected,do not fall off to avoid electric shock.

Dimensions



Notes:

- 1.Connection wires standard:4.0-25.0mm² .
- 2.Kevin connection is adopted for surge protection device, it must be connected in parallel.
- 3.Please contact us directly when ordering products with special requirements,we can customize more functions and specifications.

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

CSM 80 I 275 RS C

Competitor Inc.
Surge Arrester

80kA(Maximum
Discharge Current)

Failure Indication

Operating Voltage

Remote Signal

Other Options:

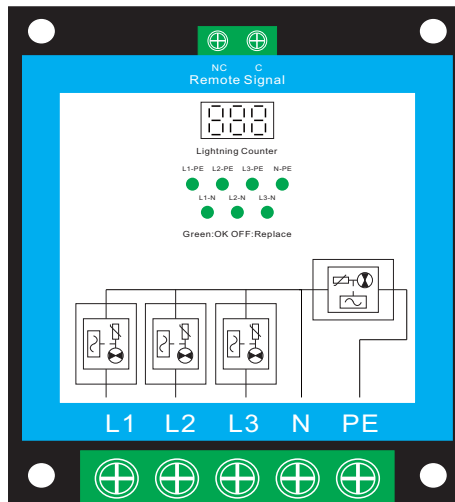
Blank:Standard product.

C:with Lightning counter

Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



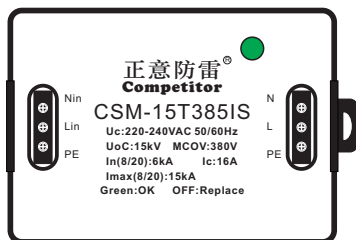
Notes:

1. Module With thermal protection technology .
2. SPD protection full mode L1/L2/L3-N, L1/L2/L3-G and N-G .
3. Each mode is MOV series GDT, with leakage current almost zero .

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Specifications are subject to change without notice.

Revised:02.18.2020



Description

The Competitor 's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in construction machinery and equipments for transient overvoltage protection. It is constructed with Epcos varistor technology. It's built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *Piling machine
- *Engineering vehicle
- *Excavating machinery
- *Construction machinery
- *Geological exploration machinery
- *Sanitation vehicle
- *Disinfection vehicle
- *Engineering equipment
- *Seabed exploration machinery
- *Loading and unloading machinery

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

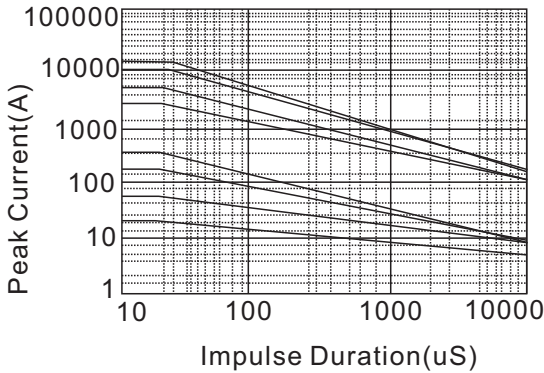
Continuous:	CSM-15T385IS Series Units	
Max AC Voltage Range(V _{rms})	275/385/440	V
Max Continuous Current(I _c)	16	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	15	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	6	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	15000A
2	8000A
15	6000A
100	500A
1000	200A
10000	75A
100000	40A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T
CSM-15T100IS	100	140	6kA	15kA	600	X
CSM-15T120IS	120	150	6kA	15kA	800	X
CSM-15T275IS	220	275	6kA	15kA	1200	X X
CSM-15T385IS	277	385	6kA	15kA	1500	X X
CSM-15T440IS	380	440	6kA	15kA	1800	X X
CSM-15T550IS	480	550	6kA	15kA	2000	X X
CSM-20T100IS	100	140	10kA	20kA	700	X
CSM-20T120IS	120	150	10kA	20kA	900	X
CSM-20T275IS	220	275	10kA	20kA	1500	X X
CSM-20T385IS	277	385	10kA	20kA	1800	X X
CSM-20T440IS	380	440	10kA	20kA	2000	X X
CSM-20T550IS	480	550	10kA	20kA	2500	X X

Notes:

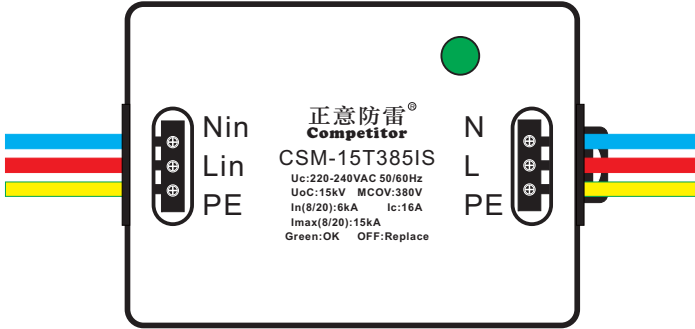
- 1."X":Design in IEC61643-11 and GB/T 18802.1,Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic

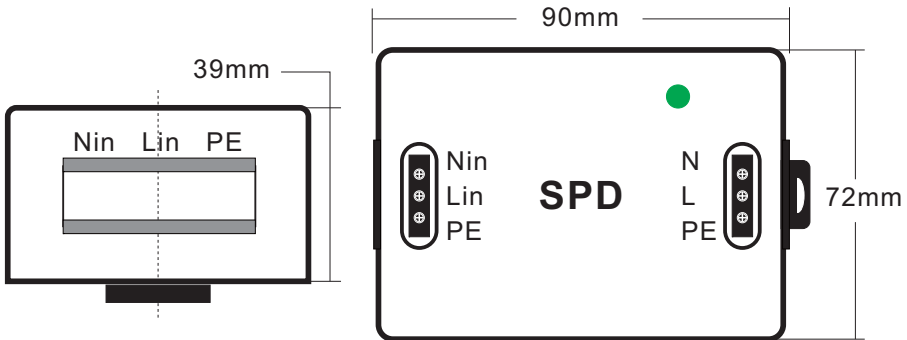


Series Connection

Notes:

- 1.SPД parallel connection must be Kevin connected(GB/T 18802.1).
- 2.Various application voltage products can provide.
- 3.For GB/T 18802.1-2011 approved,design in UL1449^{4th}.
- 4.When the indicator window is off,SPD needs to be replaced.
- 5.Design in CQC and IEC61643-11;SPD structure is terminal connection type.
- 6.The ground wire must be correctly connected,do not fall off to avoid electric shock.

Dimensions



Notes:

- 1.Connection wires standard:2.5-10mm².
- 2.When the circuit current exceeds the SPD load current, it must be connected in parallel.
- 3.Please contact us directly when ordering products with special requirements,we can customize more functions and specifications.

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Revised:02.18.2020

Part Number Code System

CSM 15 T 275 I S *

Competitor Inc.
Surge Arrester

15kA(Maximum
Discharge Current)

Thermal Protection

Operating Voltage

Failure Indication

Series Connection

Other Options:

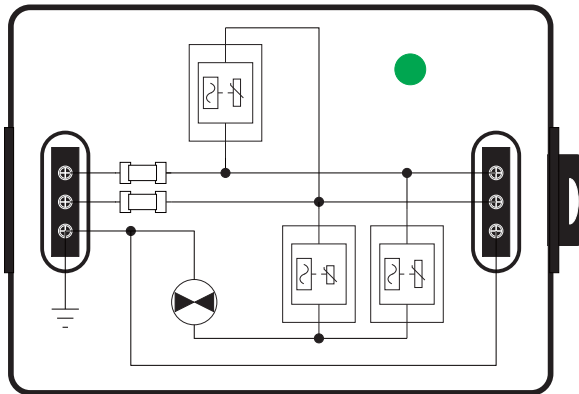
Blank:Standard product.

RS:with remote signal

Else:customization

Notes:1.Remote signaling can choose terminal output and wire output.
2.Customized products can be customized voltage and output type.

Circuit Diagram



Notes:

1. Module with current protection .
2. SPD protection full mode L-N,L-G and N-G .
3. Common mode is MOV series GDT, with leakage current almost zero .

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Revised:02.18.2020

IoT AI Equipment Terminal SPD



Description

The Competitor's IoT/AI equipment terminal SPD thermally protected surge protective device is a self-protected device which is specially design to be used in IoT and AI equipments for transient overvoltage protection. It is constructed with Epcos varistor technology. It's built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *IoT Equipment
- *IoT Terminal Products
- *IoT Remote Controller
- *IoT Protection Device
- *IoT Industrial Application Products
- *AI Robot
- *AI Equipment
- *AI Application Products
- *IoT Application Products
- *AI Remote Control Terminal

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

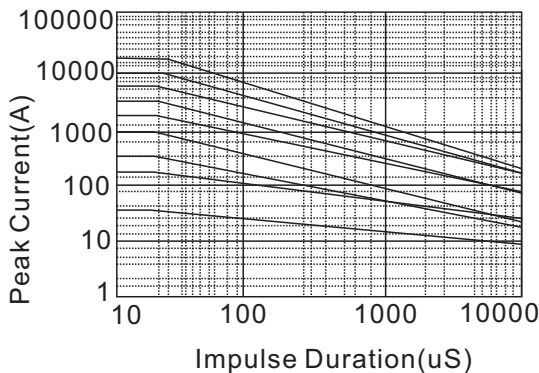
Continous:	CSM-10/20PD Series	Units
Max AC Voltage Range(V _{rms})	5 to 480	V
Max Continuous Operation Voltage(MCOV)	6.8 to 550	V
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	20	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	10	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{stg})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	20000A
2	12000A
15	10000A
100	1000A
1000	500A
10000	200A
100000	50A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T
CSM-10PD005*	5	11	2kA	5kA	20	X X
CSM-10PD012*	12	22	3kA	6kA	50	X X
CSM-10PD024*	24	38	3kA	6kA	100	X
CSM-10PD048*	48	65	5kA	10kA	200	X
CSM-10PD120*	120	150	5kA	10kA	500	X X
CSM-10PD220*	220	275	5kA	10kA	800	X X
CSM-10PD277*	277	320	5kA	10kA	1200	X
CSM-10PD480*	480	550	5kA	10kA	2000	X
CSM-20PD048*	48	65	10kA	20kA	300	X X
CSM-20PD220*	220	275	10kA	20kA	1000	X X
CSM-20PD277*	277	320	10kA	20kA	1500	X
CSM-20PD480*	480	550	10kA	20kA	2500	X

Notes:

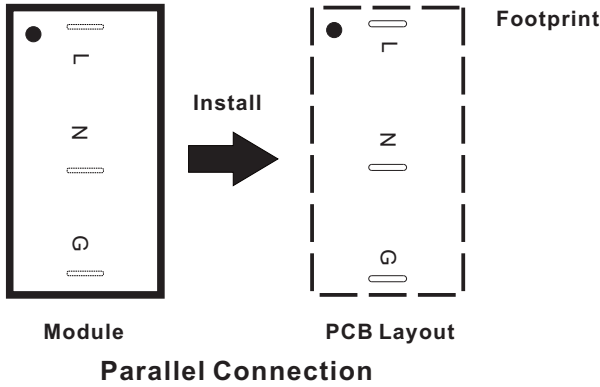
- 1."*" = M5 or M10 or M16, Part number with "I"-Indication only.
- 2.Up-IEC 61643-11 voltage protection level; the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc: Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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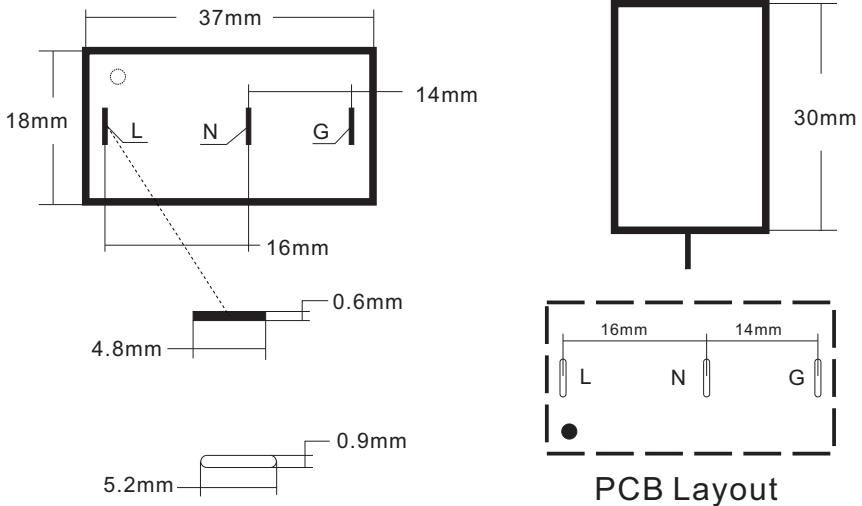
Application Installation Schematic



Notes:

- 1.SPД parallel connection installed on product PCB.
- 2.Various application voltage products can provide.
- 3.Design in UI1449^{4th} and GB/T 18802.1.
- 4.Design in IEC61643-11;SPД structure is terminal connection type.
- 5.The ground must be correctly connected,do not fall off to avoid electric shock.

Dimensions



Notes:

- 1.Connection wires standard:2.5-10mm².
- 2.When the circuit current exceeds the SPД load current, it must be connected in parallel.
- 3.Please contact us directly when ordering products with special requirements,we can customize more functions and specifications.

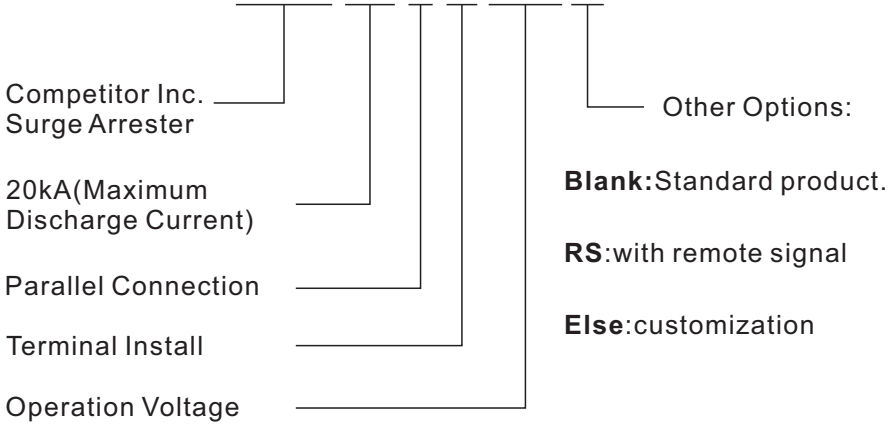
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Specifications are subject to change without notice.

Revised:02.18.2020

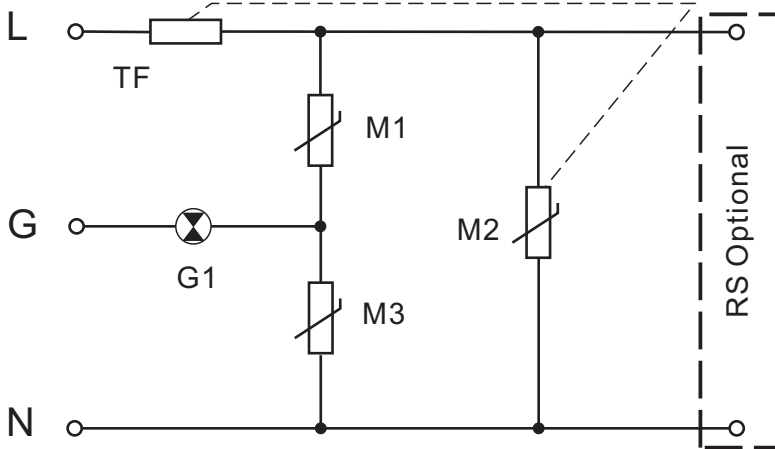
Part Number Code System

CSM 20 P D 275 X



Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



Notes:

1. Module With thermal protection technology .
2. SPD protection full mode L-N,L-G and N-G .
3. Common mode is MOV series GDT, with leakage current almost zero .

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Specifications are subject to change without notice.

Revised:02.18.2020

CTMOV10D Series

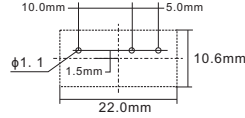
Product Features

- Remote Communication: Normal Closed
- Mounting Mode: DIP Install
- Designed in IEC61643-11
- Designed in UL1449
- RoHS Compliant

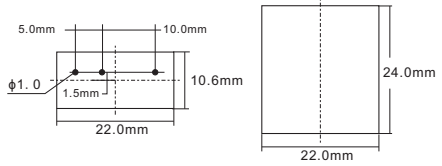
General Technical Data

- Response Time <math>< 25\text{ns}</math>
- Flame Rating UL 94-V0/V1
- Protection Class IP67
- Above Sea Level <math>< 5000\text{m}</math>
- Standard Leakage Current <math>< 50\mu\text{A}</math>
- Operating Temperature Range $-40\text{~}+85^\circ\text{C}$
- Storage Temperature Range $-40\text{~}+125^\circ\text{C}$

PCB Applications Diagram



Dimensions



Product Specification and Ordering Codes

Ordering Code	Type	$V_{RMS(V)}$	$V_{DC(V)}$	V_V	I_n	I_{max}	Clamping Voltage		Thermal Fuse	I_c
CTMOV10D005	K14	14	18	22	2kA	5kA	43V	15A	Y4F Ir:5A	3A
CTMOV10D012	K17	17	22	27	2kA	5kA	53V	15A	Y4F Ir:5A	3A
CTMOV10D024	K30	30	38	47	2kA	5kA	93V	15A	Y4F Ir:5A	3A
CTMOV10D036	K40	40	56	68	2kA	5kA	135V	15A	Y4F Ir:5A	3A
CTMOV10D048	K50	50	65	82	5kA	10kA	150V	75A	S115 Ir:10A	5A
CTMOV10D060	K60	60	85	100	5kA	10kA	165V	75A	S115 Ir:10A	5A
CTMOV10D110	K140	140	180	220	5kA	10kA	360V	75A	S136 Ir:10A	5A
CTMOV10D120	K150	150	200	240	5kA	10kA	395V	75A	S136 Ir:10A	5A
CTMOV10D220	K275	275	350	430	5kA	10kA	710V	75A	S136 Ir:10A	5A
CTMOV10D240	K275	275	350	430	5kA	10kA	710V	75A	S136 Ir:10A	5A
CTMOV10D250	K300	300	385	470	5kA	10kA	775V	75A	S136 Ir:10A	5A
CTMOV10D277	K320	320	420	510	5kA	10kA	840V	75A	S136 Ir:10A	5A
CTMOV10D347	K385	385	500	620	5kA	10kA	1025V	75A	S136 Ir:10A	5A
CTMOV10D480	K510	510	670	820	5kA	10kA	1355V	75A	S136 Ir:10A	5A
CTMOV10D480	K550	550	745	910	5kA	10kA	1500V	100A	S136 Ir:10A	5A
CTMOV10D500	K680	680	895	1100	4kA	8kA	1800V	100A	S136 Ir:10A	5A
CTMOV10D1K1	K112	1100	1465	1800	4kA	8kA	2970V	100A	S136 Ir:10A	5A
Customized.....										

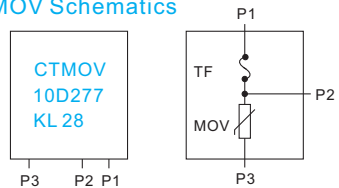
Product Applications

- Electrical Appliances
- Telecom Power Supplies
- 5G Base Stations
- Surge Protectors
- IoT Terminal Equipment
- AI Terminal Products
- Rail Transit Products
- Engineering Machinery

Product Packaging Information

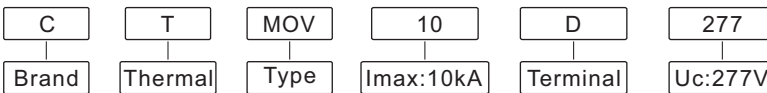
- Each Box: 20pcs
- Each Carton: 400pcs

TMOV Schematics



Ordering Part Number:

Example: CTMOV10D277



Remark: Remote communication output is high voltage, pay attention to safety in design.

Customization

- Product Voltage Optional
- Surge Current Optional
- Remote Communication Customized
- Failure Indication is Optional
- Product Load Current Optional
- Assembly and Embedment Optional

Specifications are subject to change without notice.
Revised: 02.18.2020

CTMOV15D Series

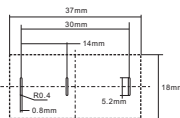
Product Features

- Remote Communication: Normal Closed
- Mounting Mode: DIP Install
- Designed in IEC61643-11
- Designed in UL1449
- RoHS Compliant

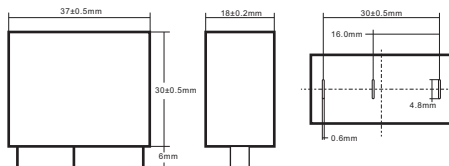
General Technical Data

- Response Time <math>< 25\text{ns}</math>
- Flame Rating UL 94-V0/V1
- Protection Class IP67
- Above Sea Level <math>< 5000\text{m}</math>
- Standard Leakage Current <math>< 50\mu\text{A}</math>
- Operating Temperature Range $-40\text{--}+85^\circ\text{C}$
- Storage Temperature Range $-40\text{--}+125^\circ\text{C}$

PCB Applications Diagram



Dimensions



Product Specification and Ordering Codes

Ordering Code	Type	$V_{RMS(V)}$	$V_{DC(V)}$	V_v	I_n	I_{max}	Clamping Voltage		Thermal Fuse	I_c
CTMOV15D005	K14	14	18	22	5kA	10kA	43V	15A	S115 Ir:10A	5A
CTMOV15D012	K17	17	22	27	5kA	10kA	53V	15A	S115 Ir:10A	5A
CTMOV15D024	K30	30	38	47	5kA	10kA	93V	15A	S115 Ir:10A	5A
CTMOV15D036	K40	40	56	68	5kA	10kA	135V	15A	S115 Ir:10A	5A
CTMOV15D048	K50	50	65	82	7kA	15kA	150V	75A	T115 Ir:15A	8A
CTMOV15D060	K60	60	85	100	7kA	15kA	165V	75A	T115 Ir:15A	8A
CTMOV15D110	K140	140	180	220	7kA	15kA	360V	75A	T136 Ir:15A	8A
CTMOV15D120	K150	150	200	240	7kA	15kA	395V	75A	T136 Ir:15A	8A
CTMOV15D220	K275	275	350	430	7kA	15kA	710V	75A	T136 Ir:15A	8A
CTMOV15D240	K275	275	350	430	7kA	15kA	710V	75A	T136 Ir:15A	8A
CTMOV15D250	K300	300	385	470	7kA	15kA	775V	75A	T136 Ir:15A	8A
CTMOV15D277	K320	320	420	510	7kA	15kA	840V	75A	T136 Ir:15A	8A
CTMOV15D347	K385	385	500	620	7kA	15kA	1025V	75A	T136 Ir:15A	8A
CTMOV15D480	K510	510	670	820	7kA	15kA	1355V	75A	T136 Ir:15A	8A
CTMOV15D480	K550	550	745	910	7kA	15kA	1500V	100A	T136 Ir:15A	8A
CTMOV15D500	K680	680	895	1100	6kA	12kA	1800V	100A	T136 Ir:15A	8A
CTMOV15D1K1	K112	1100	1465	1800	6kA	12kA	2970V	100A	T136 Ir:15A	8A
Customized.....										

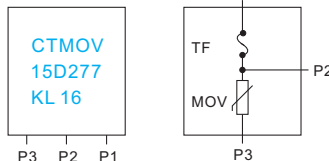
Product Applications

- Electrical Appliances
- Telecom Power Supplies
- 5G Base Stations
- Surge Protectors
- IoT Terminal Equipment
- AI Terminal Products
- Rail Transit Products
- Engineering Machinery

Product Packaging Information

- Each Box: 20pcs
- Each Carton: 400pcs

TMOV Schematics



Ordering Part Number:

Example: CTMOV15D277



Remark: Remote communication output is high voltage, pay attention to safety in design.

Customization

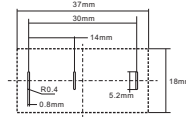
- Product Voltage Optional
- Surge Current Optional
- Remote Communication Customized
- Failure Indication is Optional
- Product Load Current Optional
- Assembly and Embedment Optional

CTMOV20D Series

Product Features

- Remote Communication: Normal Closed
- Mounting Mode: DIP Install
- Designed in IEC61643-11
- Designed in UL1449
- RoHS Compliant

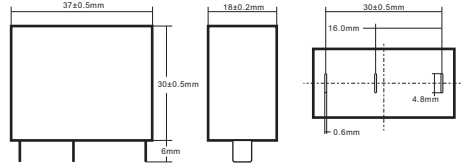
PCB Applications Diagram



General Technical Data

- Response Time <25nS
- Flame Rating UL 94-V0/V1
- Protection Class IP67
- Above Sea Level <5000m
- Standard Leakage Current <50uA
- Operating Temperature Range -40~+85°C
- Storage Temperature Range -40~+125°C

Dimensions



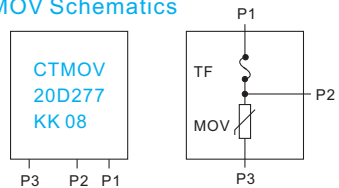
Product Specification and Ordering Codes

Ordering Code	Type	V _{RMS(V)}	V _{DC(V)}	V _V	I _n	I _{max}	Clamping Voltage		Thermal Fuse	I _c
CTMOV20D085	K115	115	130	180	10kA	20kA	300V	100A	P115 Ir:20A	16A
CTMOV20D100	K130	130	170	205	10kA	20kA	340V	100A	P115 Ir:20A	16A
CTMOV20D110	K140	140	180	220	10kA	20kA	360V	100A	P115 Ir:20A	16A
CTMOV20D120	K150	150	200	240	10kA	20kA	395V	100A	P115 Ir:20A	16A
CTMOV20D140	K175	175	225	270	10kA	20kA	455V	100A	P115 Ir:20A	16A
CTMOV20D180	K230	230	300	360	10kA	25kA	595V	100A	P115 Ir:20A	16A
CTMOV20D200	K250	250	320	220	10kA	25kA	650V	100A	P136 Ir:20A	16A
CTMOV20D220	K275	275	350	430	10kA	25kA	710V	100A	P136 Ir:20A	16A
CTMOV20D240	K275	275	350	430	10kA	25kA	710V	100A	P136 Ir:20A	16A
CTMOV20D250	K300	300	385	470	10kA	25kA	775V	100A	P136 Ir:20A	16A
CTMOV20D277	K320	320	420	510	10kA	25kA	840V	100A	P136 Ir:20A	16A
CTMOV20D347	K385	385	500	620	10kA	25kA	1025V	100A	P136 Ir:20A	16A
CTMOV20D380	K420	420	560	680	10kA	25kA	1120V	100A	P136 Ir:20A	16A
CTMOV20D480	K510	510	670	820	10kA	25kA	1355V	100A	P136 Ir:20A	16A
CTMOV20D480	K550	550	745	910	10kA	25kA	1500V	100A	P136 Ir:20A	16A
CTMOV20D500	K680	680	895	1100	10kA	20kA	1800V	100A	P136 Ir:20A	16A
CTMOV20D1K1	K112	1100	1465	1800	10kA	20kA	2970V	100A	P136 Ir:20A	16A
Customized.....										

Product Applications

- Electrical Appliances
- Telecom Power Supplies
- 5G Base Stations
- Surge Protectors
- IoT Terminal Equipment
- AI Terminal Products
- Rail Transit Products
- Engineering Machinery

TMOV Schematics

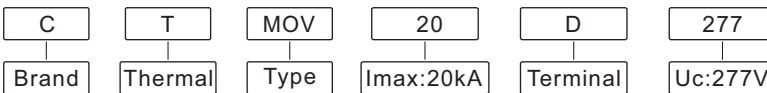


Product Packaging Information

- Each Box: 20pcs
- Each Carton: 400pcs

Ordering Part Number:

Example: CTMOV20D277



Remark: Remote communication output is high voltage, pay attention to safety in design.

Customization

- Product Voltage Optional
- Surge Current Optional
- Remote Communication Customized
- Failure Indication is Optional
- Product Load Current Optional
- Assembly and Embedment Optional

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CTMOV30D Series

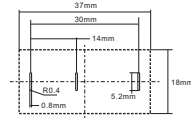
Product Features

- Remote Communication: Normal Closed
- Mounting Mode: DIP Install
- Designed in IEC61643-11
- Designed in UL1449
- RoHS Compliant

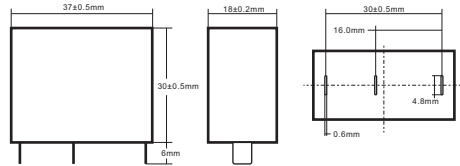
General Technical Data

- Response Time <25ns
- Flame Rating UL 94-V0/V1
- Protection Class IP67
- Above Sea Level <5000m
- Standard Leakage Current <50uA
- Operating Temperature Range -40~+85°C
- Storage Temperature Range -40~+125°C

PCB Applications Diagram



Dimensions



Product Specification and Ordering Codes

Ordering Code	Type	V _{RMS(V)}	V _{DC(V)}	V _v	I _n	I _{max}	Clamping Voltage	Thermal Fuse	I _c	
CTMOV30D085	K115	115	130	180	15kA	30kA	300V	100A	P115 Ir:20A	16A
CTMOV30D100	K130	130	170	205	15kA	30kA	340V	100A	P115 Ir:20A	16A
CTMOV30D110	K140	140	180	220	15kA	30kA	360V	100A	P115 Ir:20A	16A
CTMOV30D120	K150	150	200	240	15kA	30kA	395V	100A	P115 Ir:20A	16A
CTMOV30D140	K175	175	225	270	15kA	30kA	455V	100A	P115 Ir:20A	16A
CTMOV30D180	K230	230	300	360	15kA	30kA	595V	100A	P115 Ir:20A	16A
CTMOV30D200	K250	250	320	220	15kA	30kA	650V	100A	P136 Ir:20A	16A
CTMOV30D220	K275	275	350	430	15kA	30kA	710V	100A	P136 Ir:20A	16A
CTMOV30D240	K275	275	350	430	15kA	30kA	710V	100A	P136 Ir:20A	16A
CTMOV30D250	K300	300	385	470	15kA	30kA	775V	100A	P136 Ir:20A	16A
CTMOV30D277	K320	320	420	510	15kA	30kA	840V	100A	P136 Ir:20A	16A
CTMOV30D347	K385	385	500	620	15kA	30kA	1025V	100A	P136 Ir:20A	16A
CTMOV30D380	K420	420	560	680	15kA	30kA	1120V	100A	P136 Ir:20A	16A
CTMOV30D480	K510	510	670	820	15kA	30kA	1355V	100A	P136 Ir:20A	16A
CTMOV30D480	K550	550	745	910	15kA	30kA	1500V	100A	P136 Ir:20A	16A
CTMOV30D500	K680	680	895	1100	15kA	30kA	1800V	100A	P136 Ir:20A	16A
CTMOV30D1K1	K112	1100	1465	1800	15kA	30kA	2970V	100A	P136 Ir:20A	16A
Customized.....										

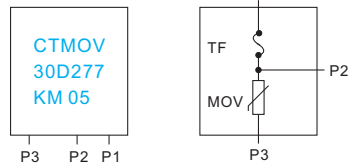
Product Applications

- Electrical Appliances
- Telecom Power Supplies
- 5G Base Stations
- Surge Protectors
- IoT Terminal Equipment
- AI Terminal Products
- Rail Transit Products
- Engineering Machinery

Product Packaging Information

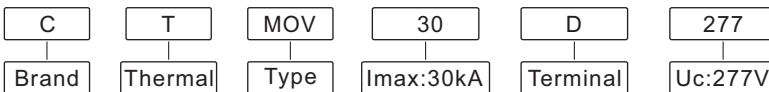
- Each Box: 20pcs
- Each Carton: 400pcs

TMOV Schematics



Ordering Part Number:

Example: CTMOV30D277



Remark: Remote communication output is high voltage, pay attention to safety in design.

Customization

- Product Voltage Optional
- Surge Current Optional
- Remote Communication Customized
- Failure Indication is Optional
- Product Load Current Optional
- Assembly and Embedment Optional

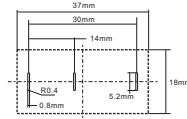
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Revised: 02.18.2020

CTMOV40D Series

Product Features

- Remote Communication: Normal Closed
- Mounting Mode: DIP Install
- Designed in IEC61643-11
- Designed in UL1449
- RoHS Compliant

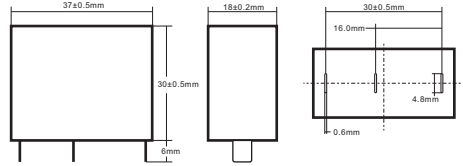
PCB Applications Diagram



General Technical Data

- Response Time <25nS
- Flame Rating UL 94-V0/V1
- Protection Class IP67
- Above Sea Level <5000m
- Standard Leakage Current <50uA
- Operating Temperature Range -40~+85°C
- Storage Temperature Range -40~+125°C

Dimensions



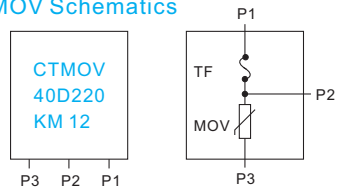
Product Specification and Ordering Codes

Ordering Code	Type	V _{RMS(V)}	V _{DC(V)}	V _V	I _n	I _{max}	Clamping Voltage		Thermal Fuse	I _c
CTMOV40D085	K115	115	130	180	20kA	40kA	300V	100A	Q115 Ir:25A	20A
CTMOV40D100	K130	130	170	205	20kA	40kA	340V	100A	Q115 Ir:25A	20A
CTMOV40D110	K140	140	180	220	20kA	40kA	360V	100A	Q115 Ir:25A	20A
CTMOV40D120	K150	150	200	240	20kA	40kA	395V	100A	Q115 Ir:25A	20A
CTMOV40D140	K175	175	225	270	20kA	40kA	455V	100A	Q115 Ir:25A	20A
CTMOV40D180	K230	230	300	360	20kA	40kA	595V	100A	Q115 Ir:25A	20A
CTMOV40D200	K250	250	320	220	20kA	40kA	650V	100A	Q136 Ir:25A	20A
CTMOV40D220	K275	275	350	430	20kA	40kA	710V	100A	Q136 Ir:25A	20A
CTMOV40D240	K275	275	350	430	20kA	40kA	710V	100A	Q136 Ir:25A	20A
CTMOV40D250	K300	300	385	470	20kA	40kA	775V	100A	Q136 Ir:25A	20A
CTMOV40D277	K320	320	420	510	20kA	40kA	840V	100A	Q136 Ir:25A	20A
CTMOV40D347	K385	385	500	620	20kA	40kA	1025V	100A	Q136 Ir:25A	20A
CTMOV40D380	K420	420	560	680	20kA	40kA	1120V	100A	Q136 Ir:25A	20A
CTMOV40D480	K510	510	670	820	20kA	40kA	1355V	100A	Q136 Ir:25A	20A
CTMOV40D480	K550	550	745	910	20kA	40kA	1500V	100A	Q136 Ir:25A	20A
CTMOV40D500	K680	680	895	1100	20kA	40kA	1800V	100A	Q136 Ir:25A	20A
CTMOV40D1K1	K112	1100	1465	1800	20kA	40kA	2970V	100A	Q136 Ir:25A	20A
Customized.....										

Product Applications

- Electrical Appliances
- Telecom Power Supplies
- 5G Base Stations
- Surge Protectors
- IoT Terminal Equipment
- AI Terminal Products
- Rail Transit Products
- Engineering Machinery

TMOV Schematics

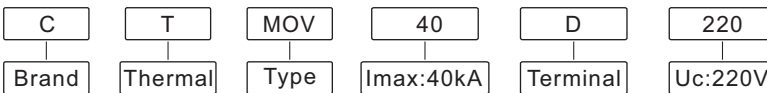


Product Packaging Information

- Each Box: 20pcs
- Each Carton: 400pcs

Ordering Part Number:

Example: CTMOV40D220



Remark: Remote communication output is high voltage, pay attention to safety in design.

Customization

- Product Voltage Optional
- Surge Current Optional
- Remote Communication Customized
- Failure Indication is Optional
- Product Load Current Optional
- Assembly and Embedment Optional

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CTMOV50D/60D/80D Series

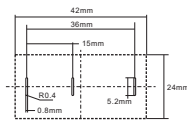
Product Features

- Remote Communication: Normal Closed
- Mounting Mode: DIP Install
- Designed in IEC61643-11
- Designed in UL1449
- RoHS Compliant

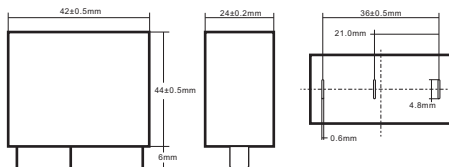
General Technical Data

- Response Time <25ns
- Flame Rating UL 94-V0/V1
- Protection Class IP67
- Above Sea Level <5000m
- Standard Leakage Current <50uA
- Operating Temperature Range -40~+85°C
- Storage Temperature Range -40~+125°C

PCB Applications Diagram



Dimensions



Product Specification and Ordering Codes

Ordering Code	Type	V _{RMS(V)}	V _{DC(V)}	V _v	I _n	I _{max}	Clamping Voltage		Thermal Fuse	I _c
CTMOV50D100	K140	140	180	220	25kA	50kA	360V	100A	N115 Ir:30A	20A
CTMOV50D120	K150	150	200	240	25kA	50kA	395V	100A	N115 Ir:30A	20A
CTMOV50D220	K275	275	180	220	25kA	50kA	710V	100A	N115 Ir:30A	20A
CTMOV50D240	K300	300	385	470	25kA	50kA	775V	100A	N115 Ir:30A	20A
CTMOV50D277	K320	320	420	510	25kA	50kA	840V	100A	N115 Ir:30A	20A
CTMOV50D380	K420	420	560	680	25kA	50kA	1120V	100A	N115 Ir:30A	20A
CTMOV50D480	K510	510	670	820	25kA	50kA	650V	100A	N136 Ir:30A	20A
CTMOV60D120	K150	150	200	240	30kA	60kA	395V	100A	N136 Ir:30A	25A
CTMOV60D220	K275	275	350	430	30kA	60kA	710V	100A	N136 Ir:30A	25A
CTMOV60D277	K320	320	420	510	30kA	60kA	840V	100A	N136 Ir:30A	25A
CTMOV60D380	K420	420	560	680	30kA	60kA	1120V	100A	N136 Ir:30A	25A
CTMOV60D480	K510	510	670	820	30kA	60kA	1355V	100A	N136 Ir:30A	25A
CTMOV80D220	K275	275	350	430	40kA	80kA	710V	100A	G136 Ir:40A	35A
CTMOV80D277	K320	320	420	510	40kA	80kA	840V	100A	G136 Ir:40A	35A
CTMOV80D380	K420	420	560	680	40kA	80kA	1120V	100A	G136 Ir:40A	35A
CTMOV80D480	K510	510	670	820	40kA	80kA	1355V	100A	G136 Ir:40A	35A
CTMOV80D480	K550	550	745	910	40kA	80kA	1500V	100A	G136 Ir:40A	35A
Customized.....										

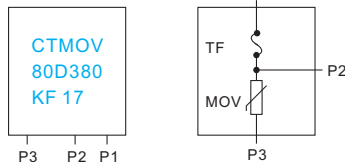
Product Applications

- Electrical Appliances
- Telecom Power Supplies
- 5G Base Stations
- Surge Protectors
- IoT Terminal Equipment
- AI Terminal Products
- Rail Transit Products
- Engineering Machinery

Product Packaging Information

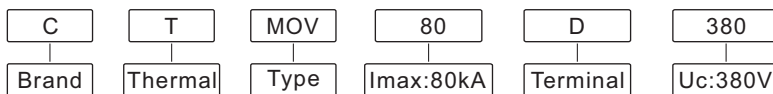
- Each Box: 50pcs
- Each Carton: 100pcs

TMOV Schematics



Ordering Part Number:

Example: CTMOV80D380



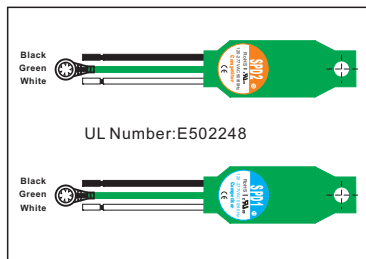
Remark: Remote communication output is high voltage, pay attention to safety in design.

Customization

- Product Voltage Optional
- Surge Current Optional
- Remote Communication Customized
- Failure Indication is Optional
- Product Load Current Optional
- Assembly and Embedment Optional

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Revised: 02.18.2020

LED Lighting Surge Protection Device



Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor and LED lighting fixtures for transient overvoltage protection. It is constructed with the Epcos varistor technology. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining overvoltage conditions.

Applications

- *Outdoor LED
- *Traffic lighting
- *Digital signage
- *Roadway lighting
- *High Bay Lighting
- *Special application LED
- *Street lighting
- *Flood lighting
- *Tunnel lighting
- *Low Bay Lighting
- *Wash wall lighting
- *Parking garage/lot lighting

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE TUV UL CSA



Absolute Maximum Rating

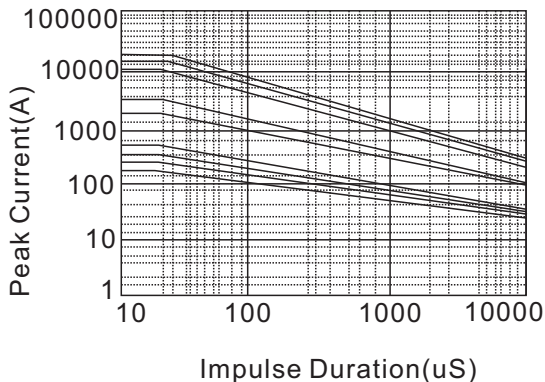
Continuous:	SPD1/2/3 Series	Units
Max AC Voltage Range(V _{rms})	120-277 and 347-480	V
Continuous Current	5	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000/20000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000/10000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	500	V
Insulation Resistance	>1000	MΩ

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Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	20000A
2	12000A
15	10000A
100	2000A
1000	1200A
10000	600A
100000	300A

Specifications

Part Number	Operating Voltage(V)	MCOV (V)	In	I _{max}	U _{oc}	U _p (V)	Safety CE TUV UL		
SPD1	120-277	320	5kA	10kA	10kV	1300	X	X	X
SPD1S	120-277	320	5kA	10kA	10kV	1300	X		
SPD1 HV	347-480	510	5kA	10kA	10kV	1800	X	X	X
SPD1 IP67	120-277	320	5kA	10kA	10kV	1500	X	X	X
SPD1 HV IP67	347-480	320	5kA	10kA	10kV	1500	X	X	X
SPD2	120-277	320	10kA	20kA	20kV	1500	X	X	X
SPD2 HV	347-480	510	10kA	20kA	20kV	2100	X	X	X
SPD3	120-277	320	7.5kA	15kA	15kV	1600	X		

Notes:

- 1.X-On behalf of the product has been certified.
- 2.SP1(UL) L-N In:10kA I_{max}:20kA;L/N-G In:5kA I_{max}:10kA only.
- 3.Up-IEC 61643-11 voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (I_n); an rounding voltage value of maximum measurement.
- 4.MCOV/U_c:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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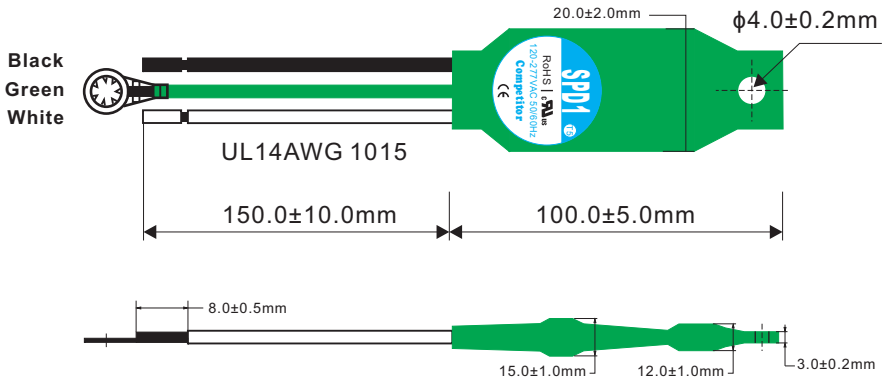
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA/15kA/20kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 20kV/10kA, IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology IP67 type only
- *Parallel and Series Connected SPD Options
- *IP65 Water-proof and Dust-proof
- *UL1449 Recognized(120VAC and 277VAC voltage ratings)
- *Series-connected option for 220VAC to 480VAC is IEC 61643-11 Test Class II and EN61643-11 Type 3 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class I and Class II installation based on IEC luminaire protection classes
- *Protection mode: L-N, L-G, N-G
Up<1300V, power system: TN
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

SPD UL Type Dimensions



SPD1 UL

Notes:

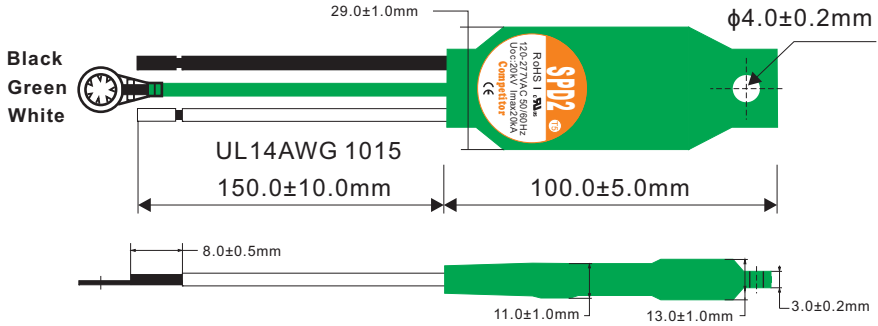
1. SJOW or VDE 3x1.0 Cable connection enable. CE, UL.
2. Caution: Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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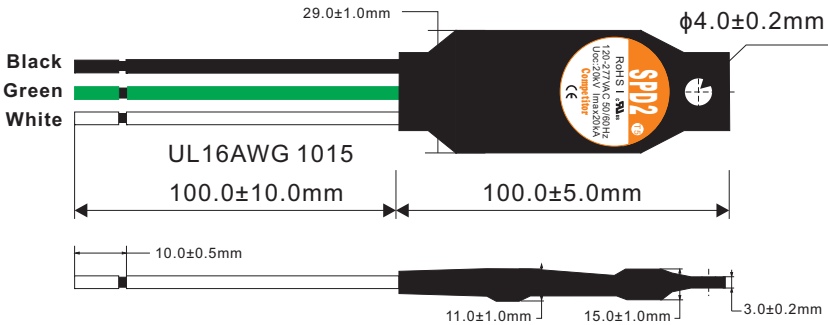
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Revised: 02.18.2020

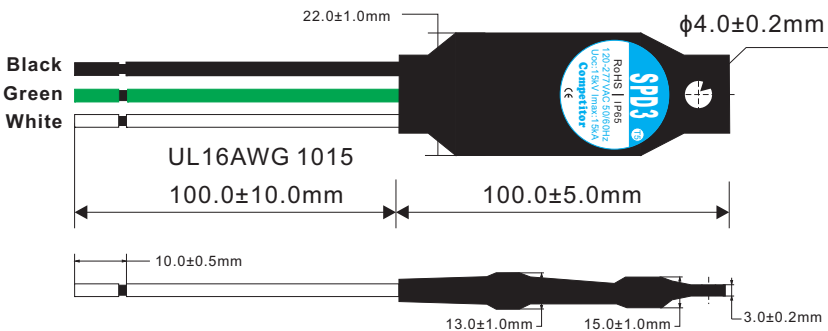
SPD UL Type Dimensions



SPD2 UL



Customized Type



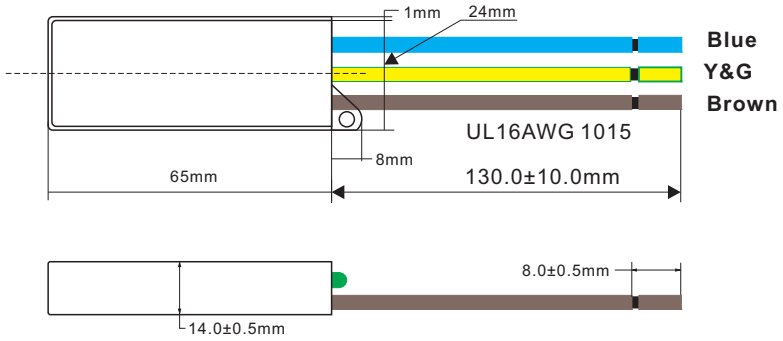
Customized Type

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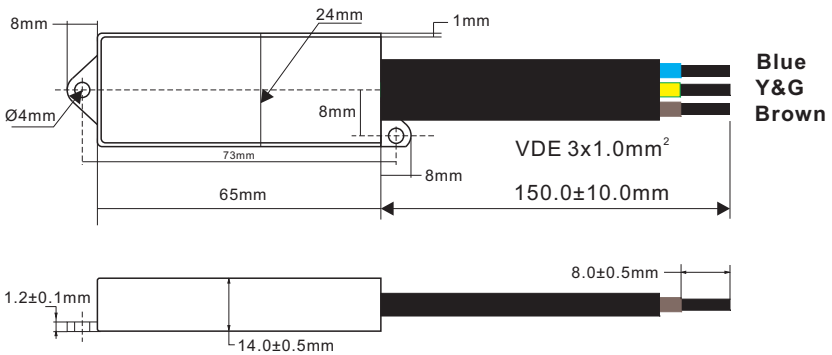
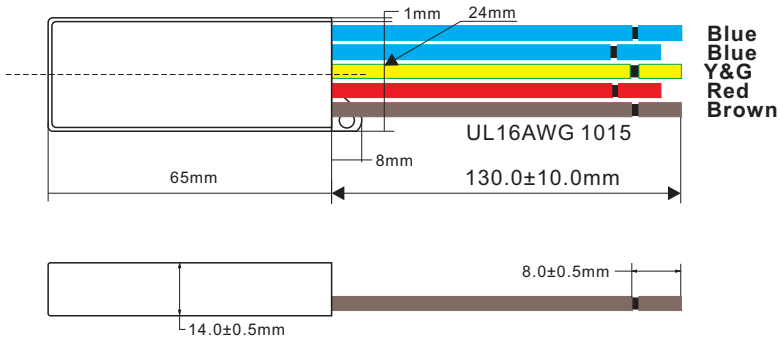
Specifications are subject to change without notice.

Revised:02.18.2020

SPD IP67 TUV CE Type Dimensions

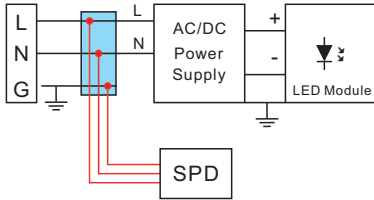


TUV Certification Type

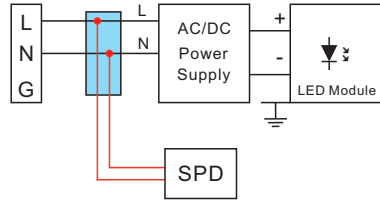


Customized Type

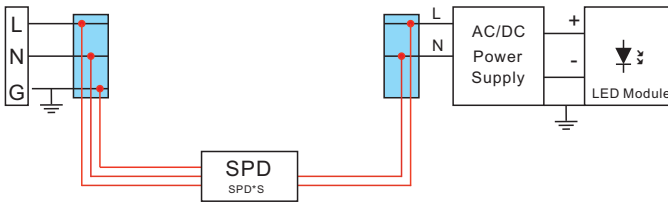
Application Installation Schematic



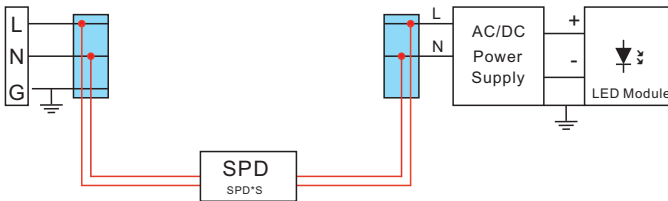
Parallel Connection



Parallel Connection
(for Class II Unearthed)



Series Connection



Series Connection
(for Class II Unearthed)

Notes:

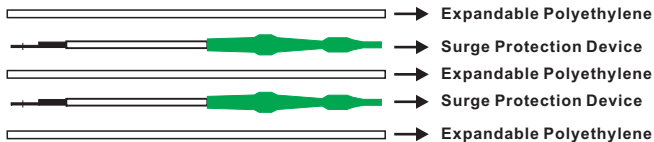
1. SJOW or H05RN-F is three-core cable connection.
2. Brown(or Red)-Line, Blue-Neutral, Yellow&Green-Ground.
3. Black wire is AC line voltage (hot); white wire is AC neutral voltage, Green wire is ground. for USA , Canada etc. (UL, CSA...).
4. Designed in UL1449^{4th} , Type 5 and IEC61643-11 T3(CE, TUV).
5. The Cable series certificated for CQC, CE , TUV, UL, CSA.
6. Other certifications can be applied.

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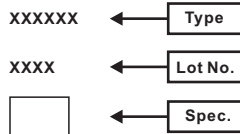
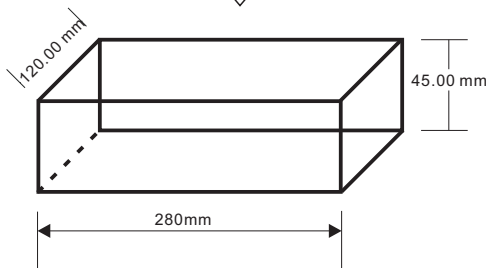
Specifications are subject to change without notice.

Revised:02.18.2020

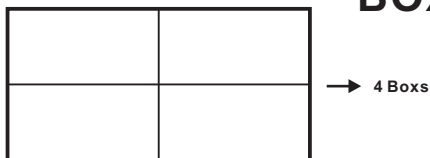
Products Packing



↓ 20PCS SPD

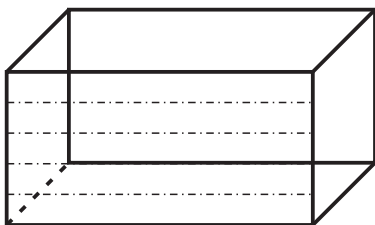


BOX



Box	20PCS SPD
Carton	400PCS SPD

↓ 20 Boxes SPD



Shipping Mark

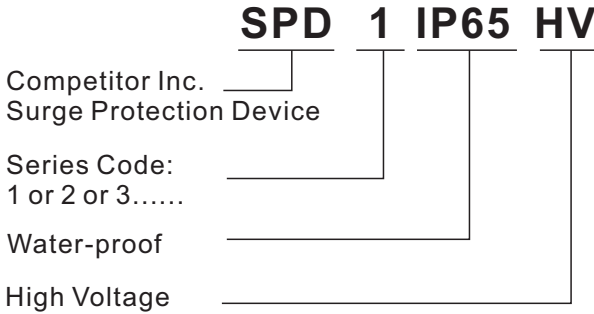
Customer:	_____
Products:	_____
Order Code:	_____
Part No.:	_____
Quantity:	_____
QC:	_____
Date:	_____
Made in China	

SPD1	50g	SPD1S	50g
SPD1 HV	55g	SPD TUV	50g
SPD2	60g	SPD3	48g
SPD2 HV	74g	

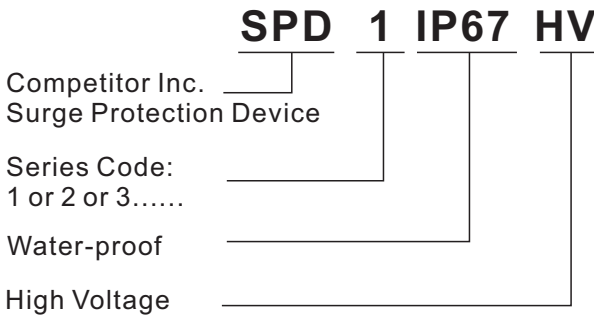
Carton

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Part Number Code System



UL Type

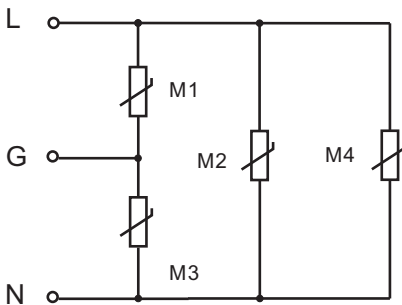


TUV Type

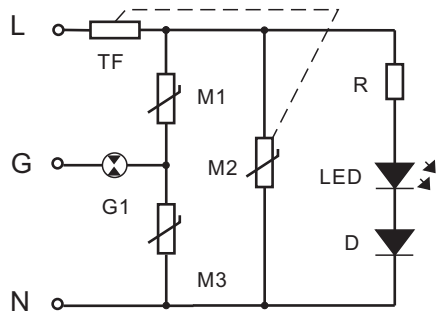
Notes

- 1.RVV、SJOW、VDE Cable optional .
- 2.H:With 1500VAC Hi-Pot withstand capability in common mode(L-G and N-G),
Blank:No Hi-Pot withstand capability in common mode .

Circuit Diagram



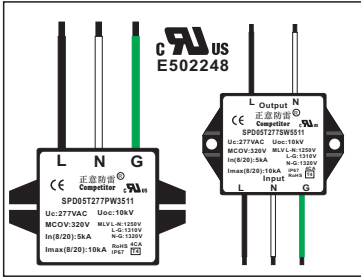
UL Type



TUV Type

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Revised:02.18.2020

LED Lighting Surge Protection Device



The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor LED and commercial LED lighting fixtures for transient over volatge protection. It is constructed with Epcos(TDK) varistor technology . Its built-in thermal disconnect function provides additional ptotection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *Outdoor LED
- *Traffic lighting
- *Digital signage
- *Roadway lighting
- *High Bay Lighting
- *Special application LED
- *Street lighting
- *Flood lighting
- *Tunnel lighting
- *Low Bay Lighting
- *Wash wall lighting
- *Parking garage/lot lighting

Agency Test standard: IEC/EN 61643-11/UL1449^{4th}

CE UL CSA TUV



Absolute Maximum Rating

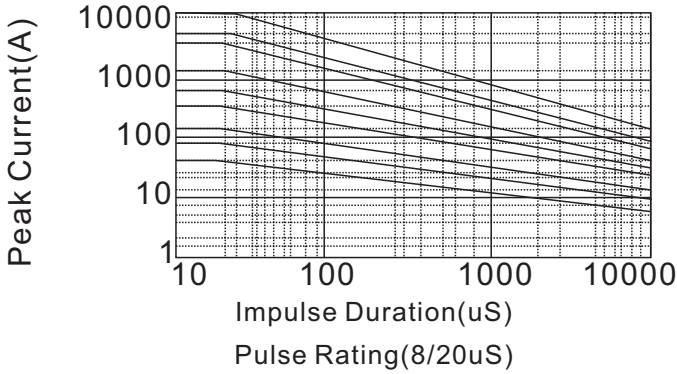
Continous:	SPD05 Series	Units
Max AC Voltage Range(V _{rms})	140 to 510	V
Continuous Current	5	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Strikes	Surge	Surge
1	10000A	10000A
2	6000A	7000A
15	5000A	6000A
100	1200A	1400A
1000	680A	700A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE	UL
SPD05T100*	100	140	5kA	10kA	700	X	
SPD05T120*	120	150	5kA	10kA	800	X	
SPD05T240*	240	275	5kA	10kA	1000	X	X
SPD05T277*	277	320	5kA	10kA	1200	X	X
SPD05T347*	347	420	5kA	10kA	1500	X	
SPD05T480*	480	510	5kA	10kA	1800	X	X
SPD05T240LL*	L-L:240 L-N/G:120	L-L:275 L-N/G:150	5kA	10kA	L-L:1200 L-N/G:800		X
SPD05T480LL*	L-L:480 L-N/G:277	L-L:510 L-N/G:320	5kA	10kA	L-L:1800 L-N/G:1200		X

Notes:

- 1.*=SWXXXX or PWXXXX; Part number with "I"-Indication only.
- 2.Up-IEC 61643-11 voltage protection level; the highest value of residual voltage measurements during the application of impulses of 8/20uS. nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s. voltage that could be continuously applied to the SPD.

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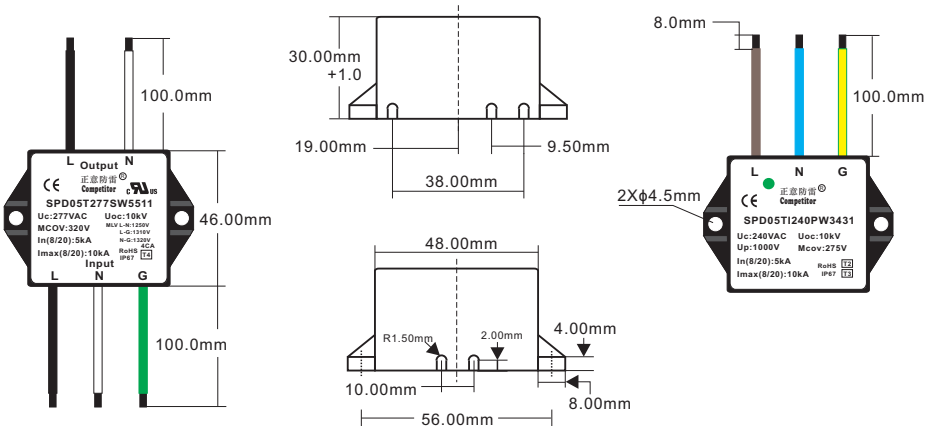
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *UL1449 Recognized(120VAC and 240VAC voltage ratings)
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class II and EN61643-11 Type 2 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class I and Class II installation based on IEC luminaire protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Dimensions



Notes:

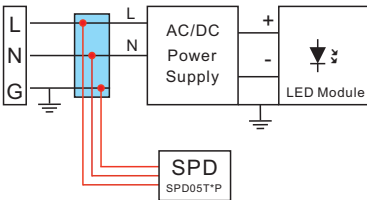
1. Black:Line, White:Neutral, Green:Ground. (P/N with W3511/W2511; Red:Line, Blue:Neutral, Green-Yellow stripe:Ground)
2. Wire Gauge:AWG16,wire length:100±10mm,wire stripping length:10mm
3. Caution:Line/Neutral wires must be correctly connected to AC power grid, Wiring error on, line/neutral polarity may cause module failure.

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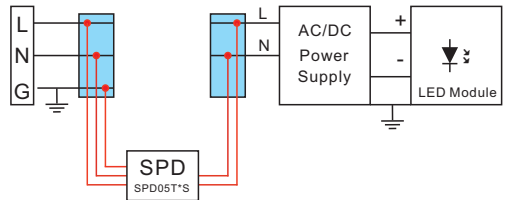
Specifications are subject to change without notice.

Revised:02.18.2020

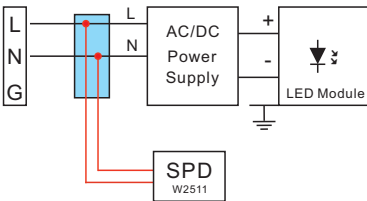
Application Installation Schematic



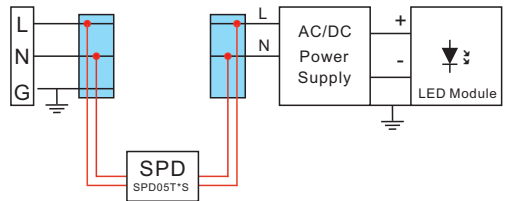
Parallel Connection



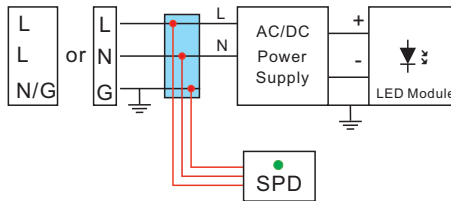
Series Connection



Parallel Connection
(for Class II Unearthed)



Series Connection
(for Class II Unearthed)



Parallel Connection

With LED indicating SPD status
 -ON (Green):SPD is online
 -OFF:SPD needs replacement

Notes:

- 1.Series module used in parallel connection for indication circuit connection.
- 2.LED indicator and associated circuitry are not included in the module.
- 3.Black wire is AC line voltage (hot);white wire is AC neutral voltage.
- 4.Black wire voltage is cut off when SPD needs replacement.
- 5.R is current limiting resistor,it resistance/wattage is determined by AC line voltage and desired current driving LED. Example:AC line voltage 240VAC,LED :1.6mA.
- 6.External indicator must be current limiting resistor.

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

SPD 05 T I 277 P Wxxxx

Competitor Inc.
Surge Protection Device

5kA(Normal
Discharge Current)

Thermal Protection

Led Indicator

Operating Voltage

P:Parallel Connection
S:Series Connection

Other Options:

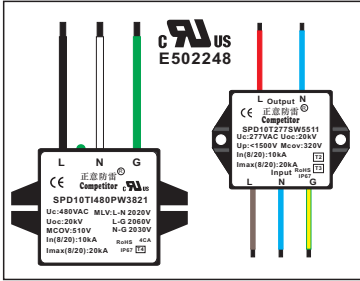
W3511 With GND wire connection,available for 240VAC and 277VAC rating with CE Marking for Class I earthed luminaire installation wire color: Line:Red,Neutral:Blue, G/PE:Green with yellow stripe.

W2511:without GND wire connection,available for 240VAC and 277VAC rating with CE Marking for Class II unearthed luminaire installation wire color:Line:Brown, Neutral:Blue.

Notes

- 1.With "N":Non-waterproof Blank:Waterproof IP67.
- 2.H:With 1500VAC Hi-Pot withstand capability in common mode(L-G and N-G),
Blank:No Hi-Pot withstand capability in common mode.
- 3.Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

LED Lighting Surge Protection Device



The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor LED and commercial LED lighting fixtures for transient over voltage protection. It is constructed with Epcos(TDK) varistortechonology . Its built-in thermal disconnect function provides additional ptotection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *Outdoor LED
- *Traffic lighting
- *Digital signage
- *Roadway lighting
- *High Bay Lighting
- *Special application LED
- *Street lighting
- *Flood lighting
- *Tunnel lighting
- *Low Bay Lighting
- *Wash wall lighting
- *Parking garage/lot lighting

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE UL CSA TUV



Absolute Maximum Rating

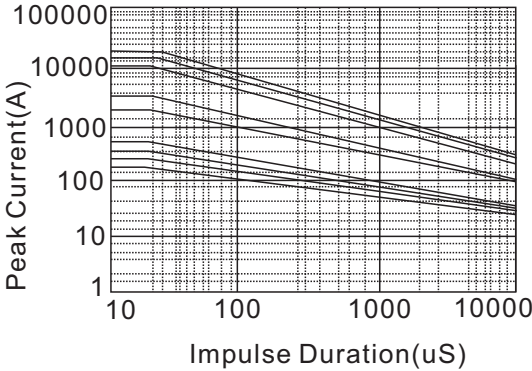
Continuous:	SPD10 Series	Units
Max AC Voltage Range(Vmrms)	140 to 510	V
Continuous Current	8-16	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	20000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	10000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	20000A
2	13000A
15	10000A
100	2500A
1000	1300A
10000	600A
100000	350A

Specifications

Part Number	Operating Voltage	MCOV	In	Imax	Up	Safety CE UL
SPD10T100*	100	140	10kA	20kA	700	X
SPD10T120*	120	150	10kA	20kA	800	X
SPD10T240*	240	275	10kA	20kA	1000	X X
SPD10T277*	277	320	10kA	20kA	1200	X X
SPD10T347*	347	420	10kA	20kA	1500	X
SPD10T480*	480	510	10kA	20kA	1800	X X
SPD10T240LL*	L-L:240 L-N/G:120	L-L:275 L-N/G:150	10kA	20kA	L-L:1200 L-N/G:800	X
SPD10T480LL*	L-L:480 L-N/G:277	L-L:510 L-N/G:320	10kA	20kA	L-L:1800 L-N/G:1200	X

Notes:

- 1.*=SWXXXX or PWXXXX;Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS.norninal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s. voltage that could be continuously applied to the SPD.

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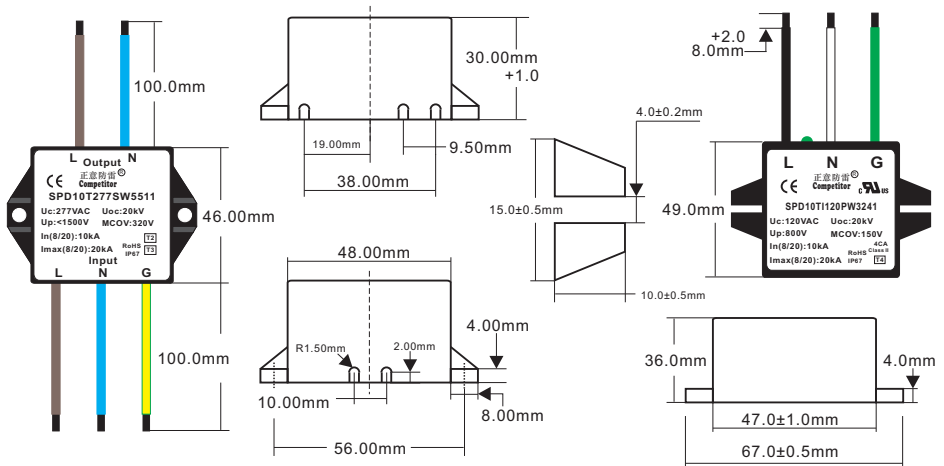
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 20kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 20kV/10kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *UL 1449 Recognized(120VAC and 240VAC voltage ratings)
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class II and EN61643-11 Type 2 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class I and Class II installation based on IEC luminaire protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Dimensions

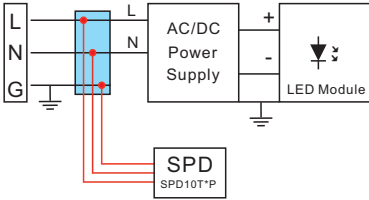


Notes:

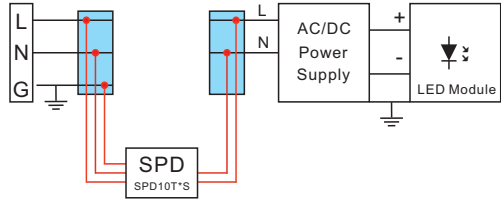
1. Black:Line,White:Neutral,Green:Ground.(P/N with W3511/W2511 Red:Line;Blue:Neutral,Green-Yellow stripe:Ground).
2. Wire Gauge:16AWG,wire length:100±10mm,wire stripping length:8mm.
3. Caution:Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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 Specifications are subject to change without notice.
 Revised:02.18.2020

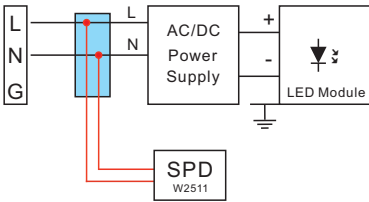
Application Installation Schematic



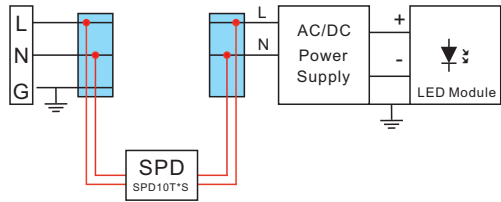
Parallel Connection



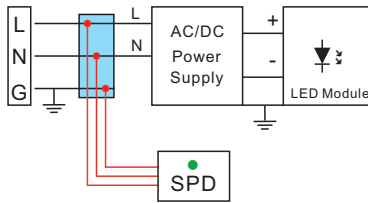
Series Connection



Parallel Connection
(for Class II Unearthed)



Series Connection
(for Class II Unearthed)



Parallel Connection

With LED indicating SPD status
 -ON (green):SPD is online
 -OFF:SPD needs replacement

Notes:

1. Series module used in parallel connection for indication circuit connection.
2. LED indicator and associated circuitry are not included in the module.
3. Black wire is AC line voltage (hot); white wire is AC neutral voltage.
4. Black wire voltage is cut off when SPD needs replacement.
5. R is current limiting resistor, its resistance/wattage is determined by AC line voltage and desired current driving LED. Example: AC line voltage 240VAC, LED :1.6mA.
6. External indicator must be current limiting resistor.

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

SPD 10 T I 277 P Wxxxx

Competitor Inc. _____
Surge Protection Device

10kA(Normal
Discharge Current) _____

Thermal Protection _____

Led Indicator _____

Operating Voltage _____

P:Parallel Connection
S:Series Connection

Other Options:

W3511 With GND wire connection, available for 240VAC and 277VAC rating with CE Marking for Class I earthed luminaire installation wire color: Line:Red, Neutral:Blue, G/PE:Green with yellow stripe.

W2511:without GND wire connection, available for 240VAC and 277VAC rating with CE Marking for Class II unearthed luminaire installation wire color:Line:Brown, Neutral:Blue.

Notes

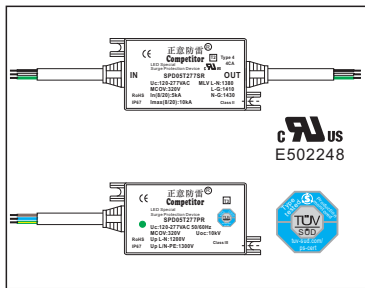
1. With "N":Non-waterproof Blank:Waterproof IP67.
2. H:With 1500VAC Hi-Pot withstand capability in common mode(L-G and N-G),
Blank:No Hi-Pot withstand capability in common mode.
3. Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

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Specifications are subject to change without notice.

Revised:02.18.2020

LED Lighting Surge Protection Device



Description

The Competitor 's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor LED and commercial LED lighting fixtures for transient overvoltage protection. It is constructed with Epcos varistortechonlogy. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Outdoor LED
- *Traffic lighting
- *Digital signage
- *Roadway lighting
- *High Bay Lighting
- *Special application LED
- *Street lighting
- *Flood lighting
- *Tunnel lighting
- *Low Bay Lighting
- *Wash wall lighting
- *Parking garage/lot lighting

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE UL CSA TUV



Absolute Maximum Rating

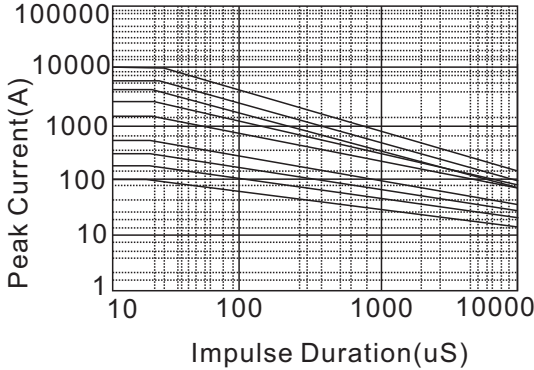
Continous:	SPD05TP/SR Series	Units
Max AC Voltage Range(Vmrms)	150 to 510	V
Continuous Current	5	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	10000A
2	6000A
15	5000A
100	1200A
1000	600A
10000	300A
100000	100A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE	UL
SPD05T120*	120	150	5kA	10kA	800	X	
SPD05T240*	240	275	5kA	10kA	1000	X	X
SPD05T277*	277	320	50kA	10kA	1200	X	X
SPD05T347*	347	420	5kA	10kA	1500	X	
SPD05T480*	480	510	5kA	10kA	1800	X	X
SPD05T240LL*	L-L:240 L-N/G:120	L-L:275 L-N/G:150	5kA	10kA	L-L:1200 L-N/G:800	X	
SPD05T480LL*	L-L:480 L-N/G:277	L-L:510 L-N/G:320	5kA	10kA	L-L:1800 L-N/G:1200	X	

Notes:

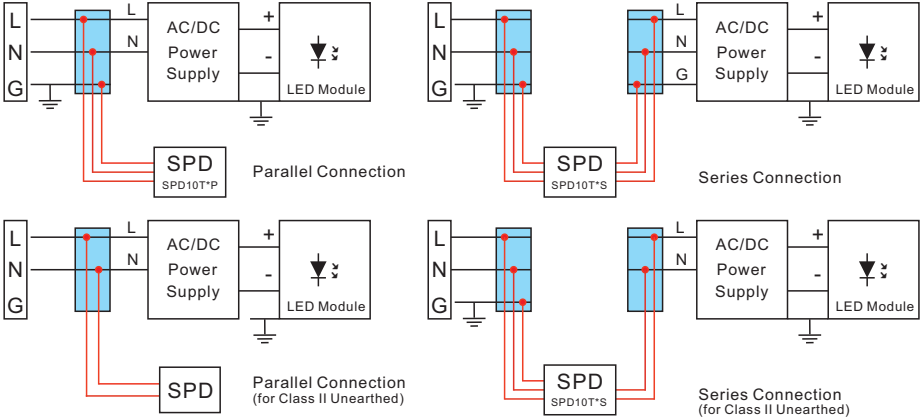
- 1.*=SR or PR or PRD or SRD;Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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Specifications are subject to change without notice.

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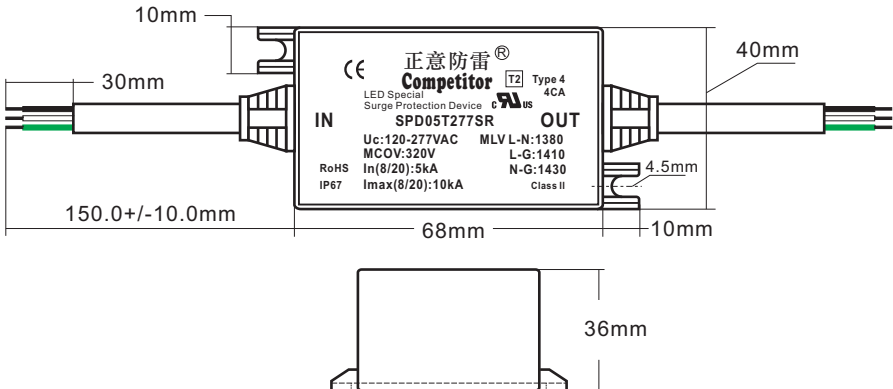
Application Installation Schematic



Notes:

1. Series module used in parallel connection for indication circuit connection.
2. LED indicator and associated circuitry are included in the module.
3. For UL1449, Black wire is AC line voltage (hot); white wire is AC neutral voltage.
4. Black wire voltage is cut off when SPD needs replacement.
5. R is current limiting resistor, its resistance/wattage is determined by AC line voltage and desired current driving LED. Example: AC line voltage 240VAC, LED :1.6mA.

Dimensions



Notes:

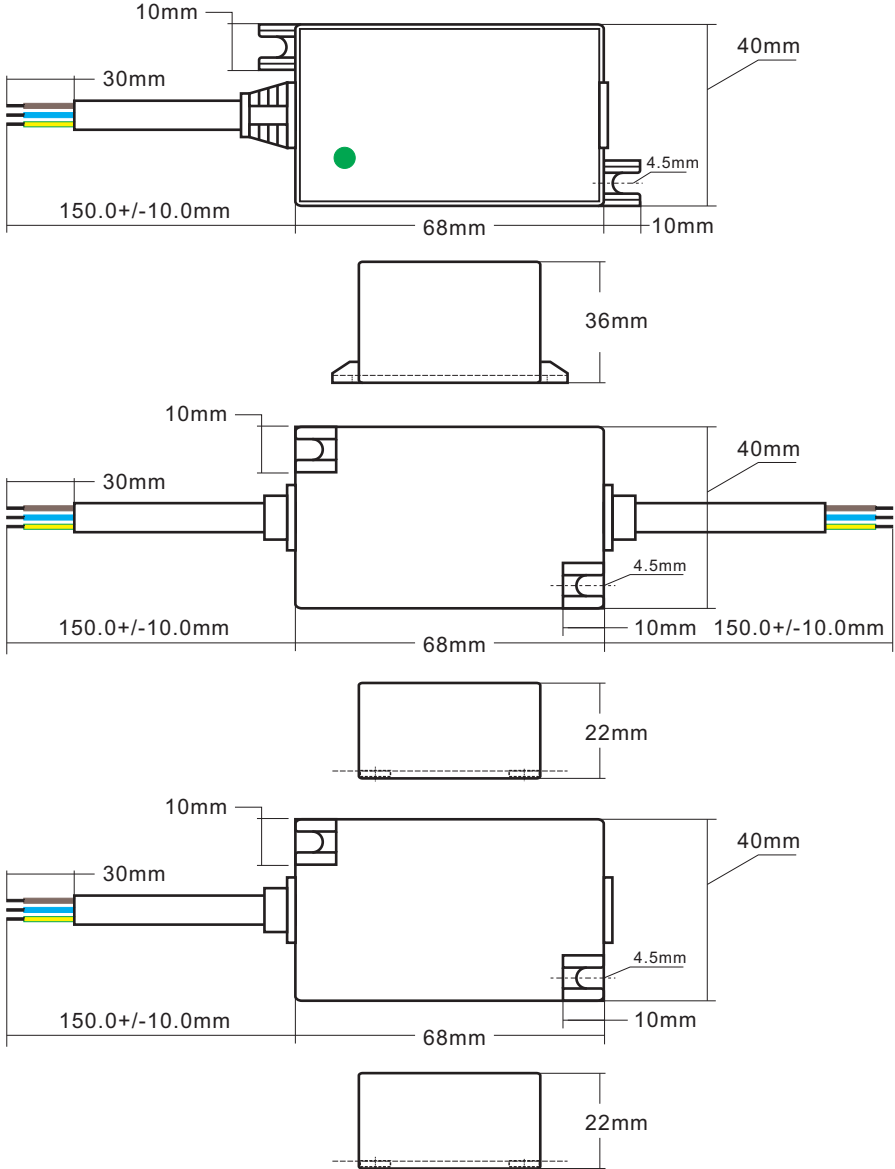
1. SJOW Cable: with 3*16AWG or 3*18AWG, Black, White, Green.
2. VDE Cable: with Cable 3*1.0mm² or 3*1.5mm², Brown, Blue, Yellow-Green.
3. Caution: Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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Specifications are subject to change without notice.

Revised: 02.18.2020

Dimensions



Notes:

1. SJOW Cable: with 3*16AWG or 3*18AWG, Black, White, Green.
2. VDE Cable: with Cable 3*1.0mm² or 3*1.5mm², Brown, Blue, Yellow-Green.
3. Caution: Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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Specifications are subject to change without notice.

Revised: 02.18.2020

Part Number Code System

SPD 05 T I 277 P Rxxxx

Competitor Inc. _____
Surge Protection Device

5kA(Nominal
Discharge Current)

Thermal Protection

Led Indicator

Operating Voltage

P: Parallel Connection
S: Series Connection

Other Options:

RVV3C: with RVV3X1.0
cable, VDE marking, 240V
AC and 277VAC rating.

SJOW: with 3X18AWG
cable, UL marking, 240V
AC and 277VAC rating.

Notes

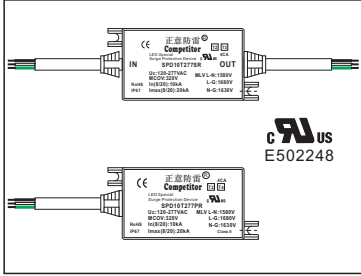
1. With "N": Non-waterproof Blank: Waterproof IP67.
2. H: With 1500VAC Hi-Pot withstand capability in common mode (L-G and N-G),
Blank: No Hi-Pot withstand capability in common mode.
3. Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

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Specifications are subject to change without notice.

Revised: 02.18.2020

LED Lighting Surge Protection Device



Description

The Competitor 's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor LED and commercial LED lighting fixtures for transient over volatge protection. It is constructed with Epcos varistortechonlogy. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *Outdoor LED
- *Street lighting
- *Traffic lighting
- *Flood lighting
- *Digital signage
- *Tunnel lighting
- *Roadway lighting
- *Low Bay Lighting
- *High Bay Lighting
- *Wash wall lighting
- *Special application LED
- *Parking garage/lot lighting

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE UL CSA TUV



Absolute Maximum Rating

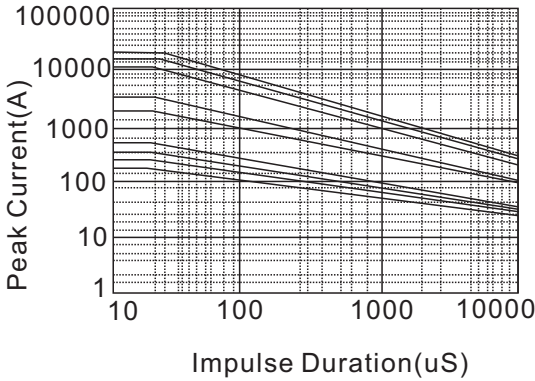
Continous:	SPD10TP/SR Series Units	
Max AC Voltage Range(Vmrms)	150 to 510	V
Continuous Current	5-10	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	20000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	10000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

©2020 Competitor Inc.

Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	20000A
2	13000A
15	10000A
100	2500A
1000	1300A
10000	600A
100000	350A

Specifications

Part Number	Operating Voltage	MCOV	In	Imax	Up	Safety CE	UL
SPD10T120*	120	150	10kA	20kA	800	X	
SPD10T240*	240	275	10kA	20kA	1000	X	X
SPD10T277*	277	320	10kA	20kA	1200	X	X
SPD10T347*	347	420	10kA	20kA	1500	X	
SPD10T480*	480	510	10kA	20kA	1800	X	X
SPD10T240LL*	L-L:240 L-N/G:120	L-L:275 L-N/G:150	10kA	20kA	L-L:1200 L-N/G:800	X	
SPD10T480LL*	L-L:480 L-N/G:277	L-L:510 L-N/G:320	10kA	20kA	L-L:1800 L-N/G:1200	X	

Notes:

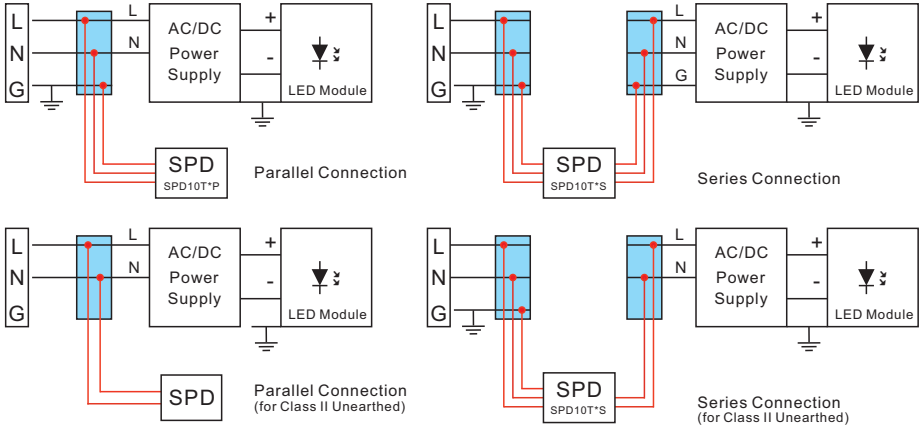
- 1.*=SR or PR or PRD or SRD;Part number with "I"-Indication only.
- 2.Up-IEC 61643-11 voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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Specifications are subject to change without notice.

Revised:02.18.2020

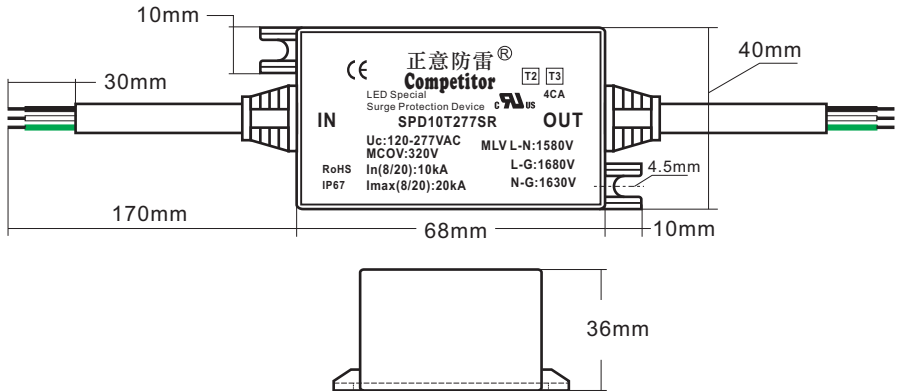
Application Installation Schematic



Notes:

1. Series module used in parallel connection for indication circuit connection.
2. LED indicator and associated circuitry are included in the module.
3. For UL1449, Black wire is AC line voltage (hot); white wire is AC neutral voltage.
4. Black wire voltage is cut off when SPD needs replacement.
5. R is current limiting resistor, its resistance/wattage is determined by AC line voltage and desired current driving LED. Example: AC line voltage 240VAC, LED : 1.6mA.

Dimensions



Notes:

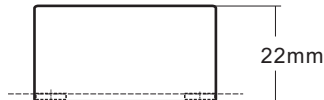
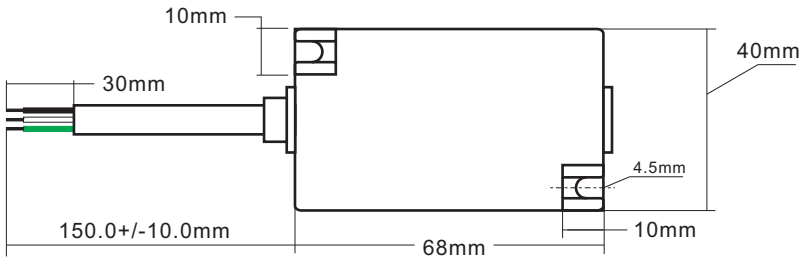
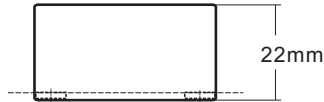
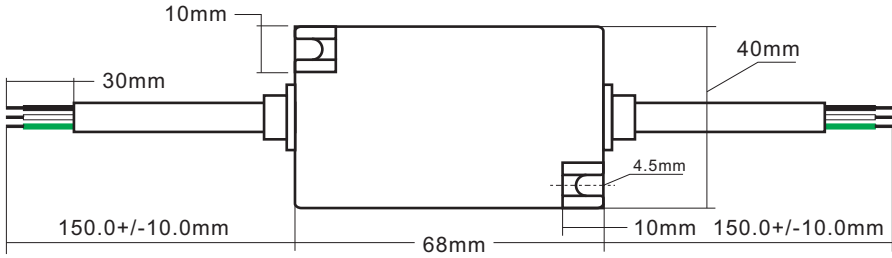
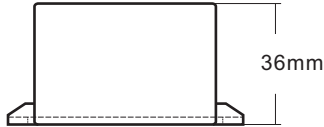
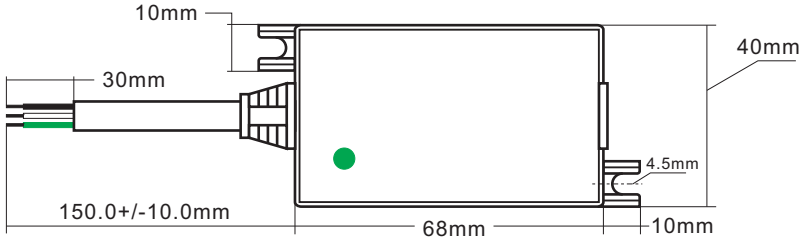
1. Wire Gauge: 14AWG, wire length: 200mm±10mm, wire stripping length: 8mm.
2. VDE or SJOW: With Cable 3*1.0mm², Brown, Blue, Yellow-Green.
3. Caution: Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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Specifications are subject to change without notice.

Revised: 02.18.2020

Dimensions



Notes:

1. SJOW Cable: with 3*16AWG or 3*18AWG, Black, White, Green.
2. VDE Cable: with Cable 3*1.0mm² or 3*1.5mm², Brown, Blue, Yellow-Green.
3. Caution: Line/Neutral wires must be correctly connected to AC power grid,

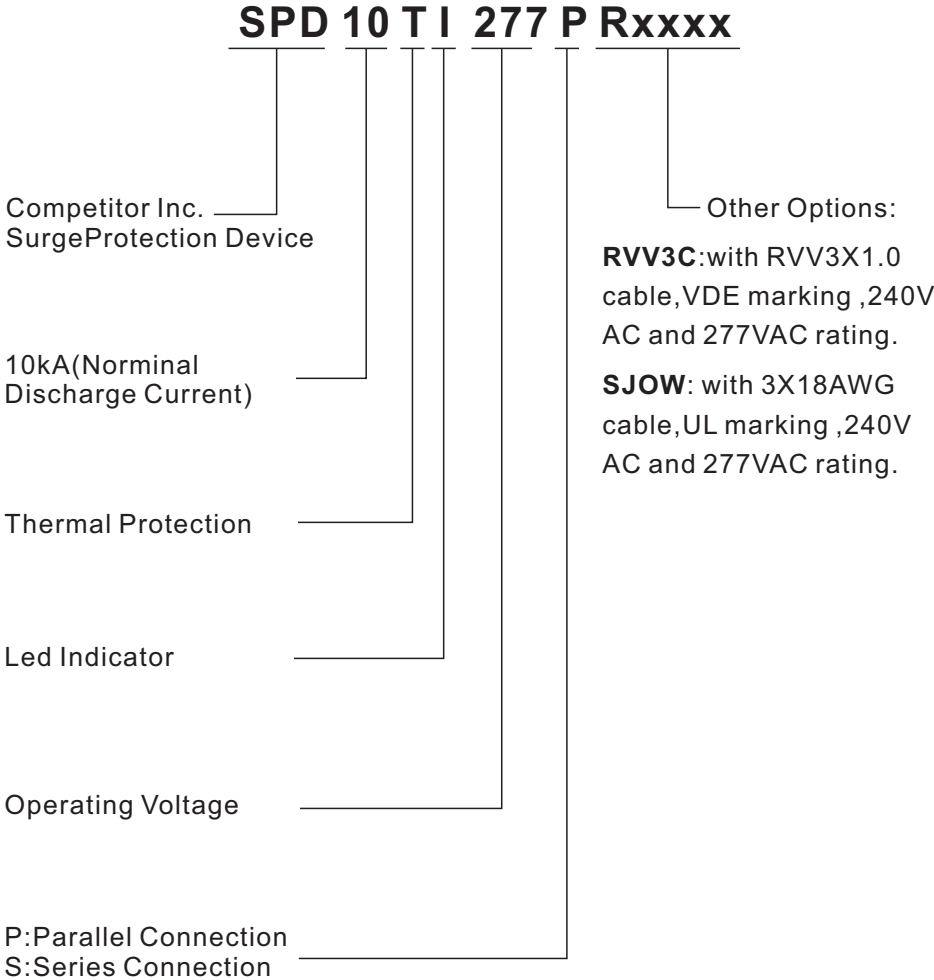
Wiring error on line/neutral polarity may cause module failure.

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Specifications are subject to change without notice.

Revised: 02.18.2020

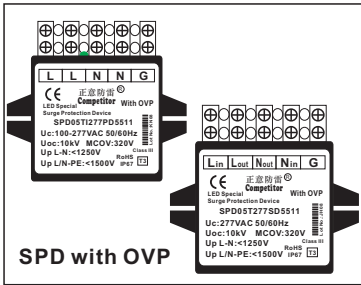
Part Number Code System



Notes

1. With "N": Non-waterproof Blank: Waterproof IP67.
2. H: With 1500VAC Hi-Pot withstand capability in common mode (L-G and N-G),
Blank: No Hi-Pot withstand capability in common mode.
3. Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

LED Lighting SPD with OVP Function



Description

The Competitor 's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor LED and commercial LED lighting fixtures for transient over volatge protection. It is constructed with Epcos varistortechonlogy. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *Outdoor LED
- *Traffic lighting
- *Digital signage
- *Roadway lighting
- *High Bay Lighting
- *Special application LED
- *Street lighting
- *Flood lighting
- *Tunnel lighting
- *Low Bay Lighting
- *Wash wall lighting
- *Parking garage/lot lighting

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE UL CSA TUV



Absolute Maximum Rating

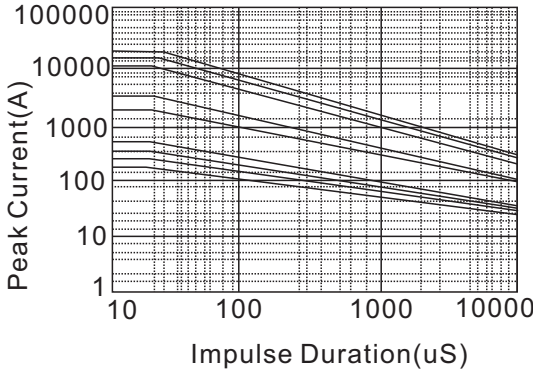
Continous:	SPD05/10 Series	Units
Max AC Voltage Range(Vmrms)	140 to 510	V
Continuous Current	5-10	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000/20000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000/10000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability for Terminal Series



Pulse Rating(8/20uS)	
Strikes	Surge
1	20000A
2	13000A
15	10000A
100	2500A
1000	1300A
10000	600A
100000	350A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE UL
SPD05T100*	100	140	5kA	10kA	500	X
SPD10T100*	100	140	10kA	20kA	700	X
SPD05T120*	120	150	5kA	10kA	600	X
SPD10T120*	120	150	10kA	20kA	800	X
SPD05T240*	240	275	5kA	10kA	800	X X
SPD10T240*	240	275	10kA	20kA	1000	X X
SPD05T277*	277	320	5kA	10kA	1000	X X
SPD10T277*	277	320	10kA	20kA	1200	X X
SPD05T347*	347	420	5kA	10kA	1200	X
SPD10T347*	347	420	10kA	20kA	1500	X
SPD05T480*	480	510	5kA	10kA	1500	X X
SPD10T480*	480	510	10kA	20kA	1800	X X
SPD10T240LL*	L-L:240 L-N/G:120	L-L:275 L-N/G:150	10kA	20kA	L-L:1200 L-N/G:800	X
SPD10T480LL*	L-L:480 L-N/G:277	L-L:510 L-N/G:320	10kA	20kA	L-L:1800 L-N/G:1200	X

Notes:

- 1.*=SDXXXX or PDXXXX;Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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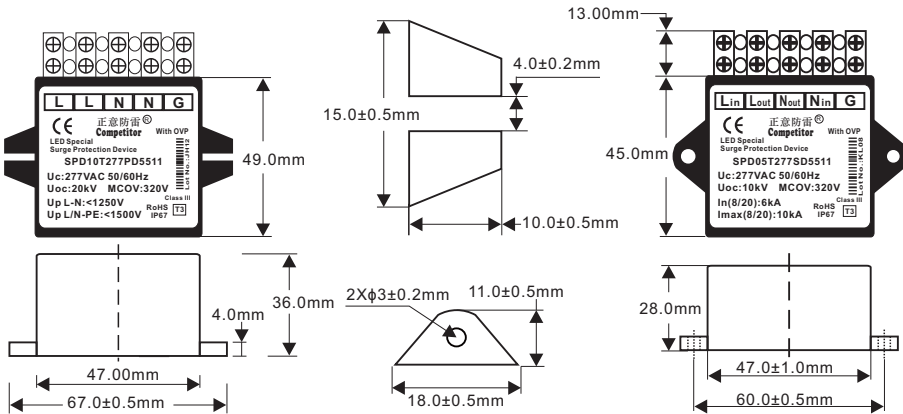
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 20kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 20kV/10kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *UL1449 Recognized(120VAC and 240VAC voltage ratings)
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class II and EN61643-11 Type 2 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *With over voltage protection function
- *240VAC and 277VAC are CE compliant and available for Class I and Class II installation based on IEC luminaire protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Dimensions



Notes:

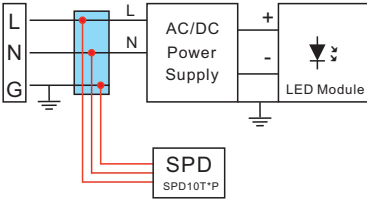
- 1.PA8 Terminal connection.5 Pin,CE,UL,VDE,450V,10A.
- 2.Caution:Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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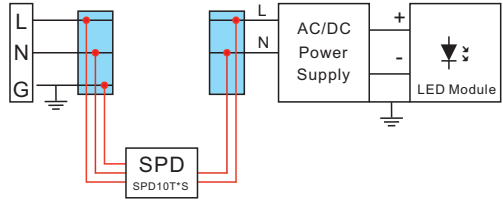
Specifications are subject to change without notice.

Revised:02.18.2020

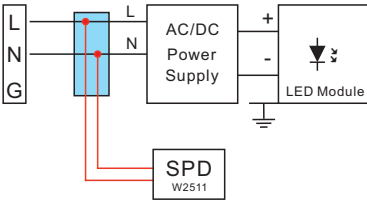
Application Installation Schematic



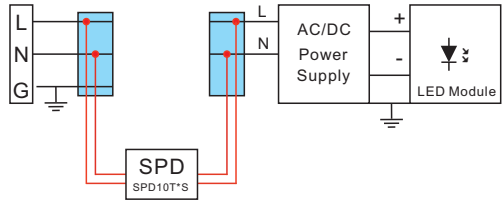
Parallel Connection



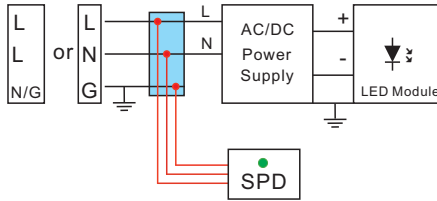
Series Connection



Parallel Connection
(for Class II Unearthed)



Series Connection
(for Class II Unearthed)



Parallel Connection

With LED indicating SPD status

-ON (green):SPD is online

-OFF:SPD needs replacement

Notes:

1. Series module used in parallel connection for indication circuit connection.
2. LED indicator and associated circuitry are not included in the module.
3. L terminal is AC line voltage (hot); N terminal is AC neutral voltage.
4. L (AC) line voltage is cut off when SPD needs replacement.
5. R is current limiting resistor, its resistance/wattage is determined by AC line voltage and desired current driving LED. Example: AC line voltage 240VAC, LED : 1.6mA.
6. External indicator must be current limiting resistor.

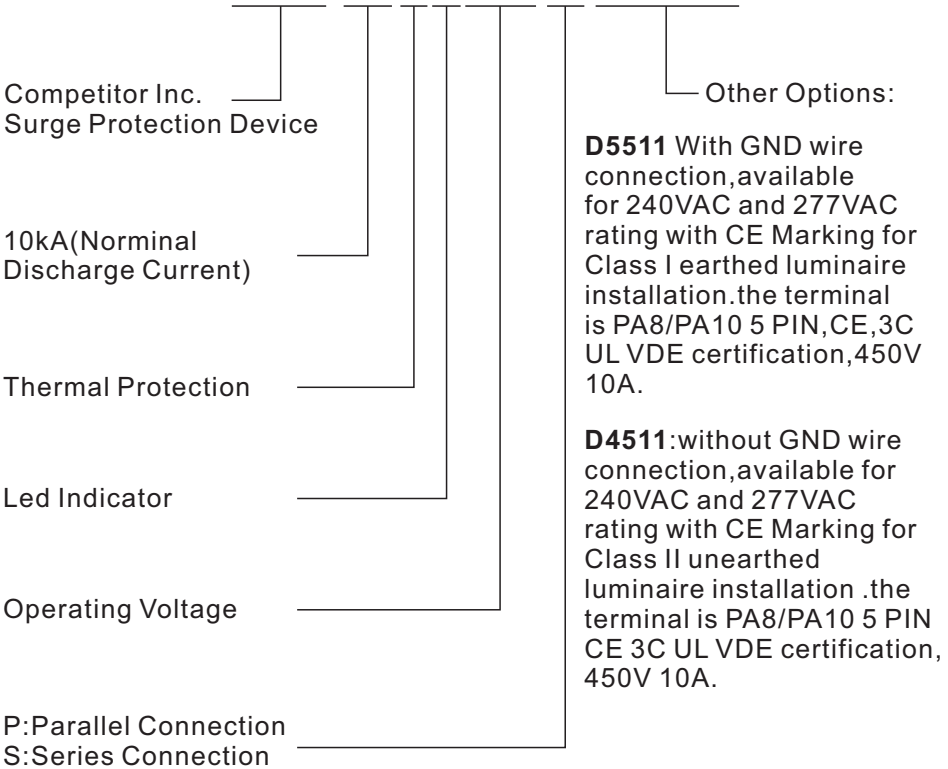
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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

SPD 10 T I 277 P Dxxxx

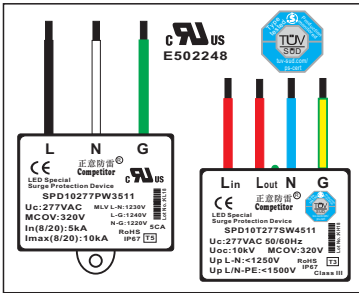


OVP:over voltage protection funtion,When the power supply voltage exceeds 280V, SPD over-voltage protection, LED off, when the voltage returns to below 280V, the LED is normally on .

Notes

- 1.With "N":Output wint NTC protection; Blank:Waterproof IP67.
- 2.H:With 1500VAC Hi-Pot withstand capability in common mode(L-G and N-G), Blank:No Hi-Pot withstand capability in common mode.
- 3.Can customize the model not in the list, please inform the parameters.
- 4.A specific customer has a specific serial number that is not in circulation of products.
- 5.Over voltage protection is optional for full series of products ,please refer to us before ordering.

LED Lighting Surge Protection Device



Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor LED and commercial LED lighting fixtures for transient over voltage protection. It is constructed with Epcos varistortechonology. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Outdoor LED
- *Traffic lighting
- *Digital signage
- *Roadway lighting
- *High Bay Lighting
- *Special application LED
- *Street lighting
- *Flood lighting
- *Tunnel lighting
- *Low Bay Lighting
- *Wash wall lighting
- *Parking garage/lot lighting

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE UL CSA TUV



Absolute Maximum Rating

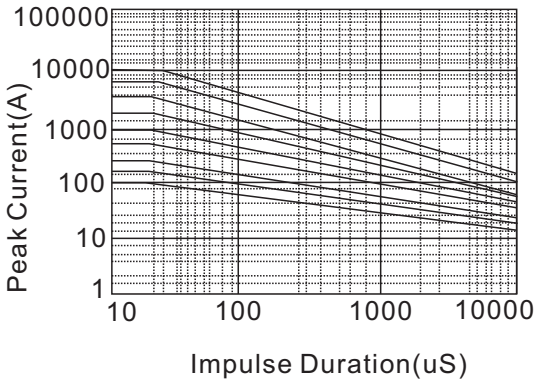
	SPD10 SERIES	Units
Continous:		
Max AC Voltage Range(Vmrms)	140 to 510	V
Continuous Current	5-10A	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

©2020 Competitor Inc.

Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	10000A
2	8000A
15	5000A
100	1000A
1000	620A
10000	280A
100000	100A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE UL
SPD10100*	100	140	5kA	10kA	800	X
SPD10120*	120	150	5kA	10kA	900	X X
SPD10240*	240	275	5kA	10kA	1000	X X
SPD10277*	277	320	5kA	10kA	1200	X X
SPD10N277*	277	320	5kA	10kA	1200	X
SPD45T277*	277	320	4.5kA	6kA	1200	X
SPD10240LL*	L-L:240 L-N/G:120	L-L:275 L-N/G:150	5kA	10kA	L-L:1200 L-N/G:800	X
SPD10480LL*	L-L:480 L-N/G:277	L-L:510 L-N/G:320	5kA	10kA	L-L:1800 L-N/G:1200	X

Notes:

- 1.*=SWXXXX or PWXXXX;Part number with "N"-Output with NTC only.
- 2.Up-IEC 61643-11 voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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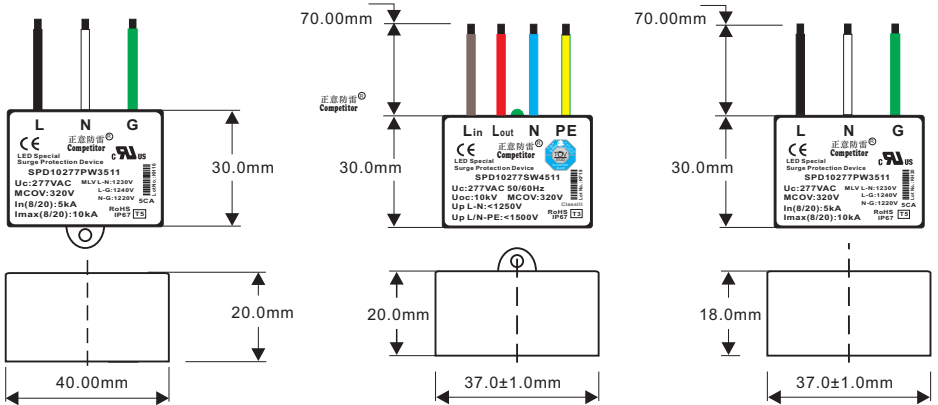
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *UL1449 Recognized(120VAC and 240VAC voltage ratings)
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class III and EN61643-11 Type 3 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class II and Class III installation based on IEC luminaire protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Dimensions



Notes:

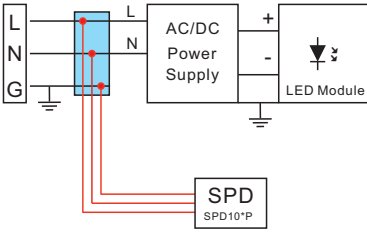
1. Black:Line,White:Neutral,Green:Ground.
2. Wire Gauge: 16AWG,wire length:70±10mm,wire stripping length:8mm.
3. Caution:Line/Neutral wites must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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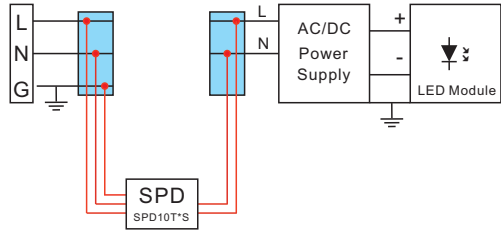
Specifications are subject to change without notice.

Revised:02.18.2020

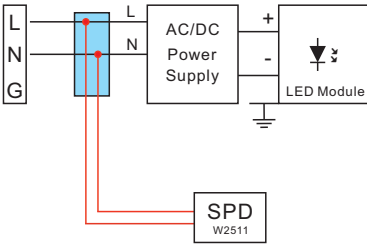
Application Installation Schematic



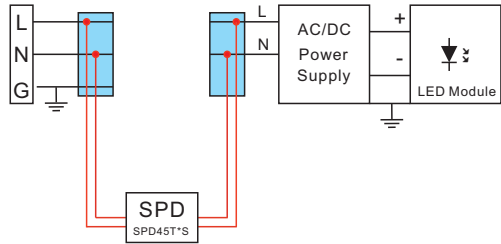
Parallel Connection



Series Connection



Parallel Connection
(for Class II Unearthed)



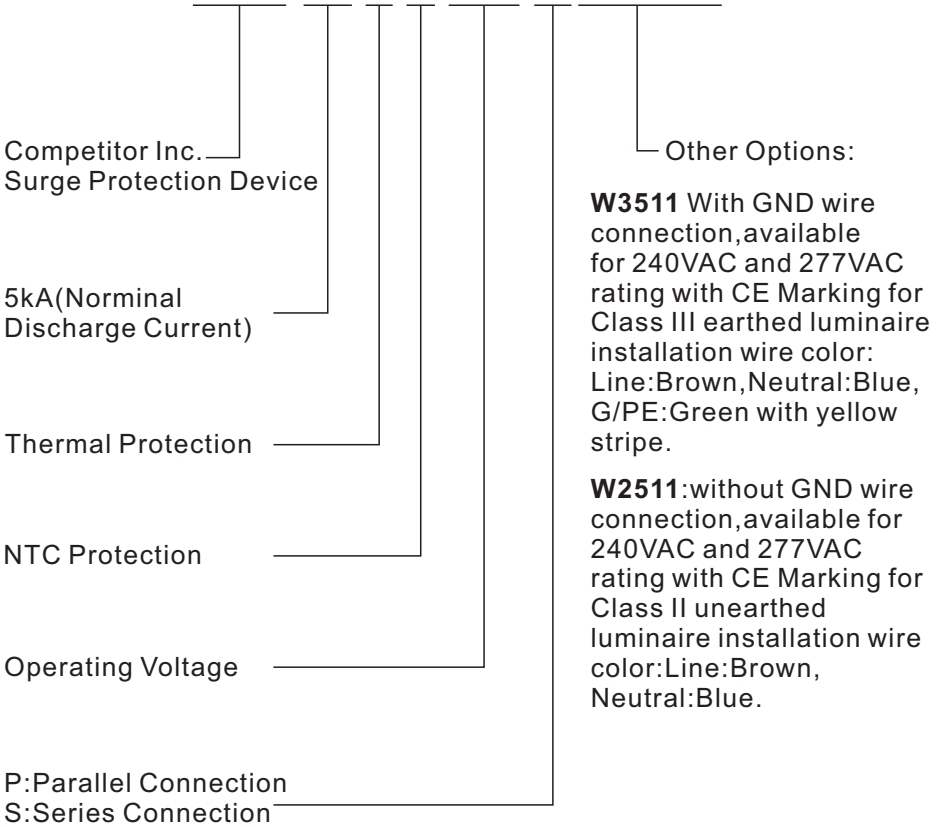
Series Connection
(for Class II Unearthed)

Notes:

1. Series module used in parallel connection for indication circuit connection.
2. LED indicator and associated circuitry are not included in the module.
3. L terminal is AC line voltage (hot); N terminal is AC neutral voltage.
4. Series connection type, L terminal line voltage is cut off when SPD needs replacement.
5. R is current limiting resistor, its resistance/wattage is determined by AC line voltage and desired current driving LED. Example: AC line voltage 240VAC, LED : 1.6mA.
6. External indicator must be current limiting resistor.

Part Number Code System

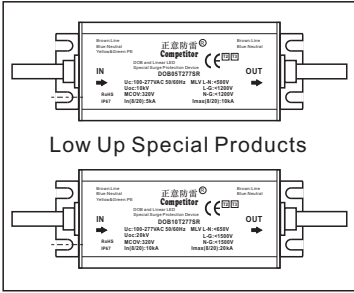
SPD 05 T N 277 P Wxxxx



Notes

1. With "N": NTC protection, Blank: Waterproof IP67.
2. H: With 1500VAC Hi-Pot withstand capability in common mode (L-G and N-G),
Blank: No Hi-Pot withstand capability in common mode.
3. Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

DOB and Linear LED Lighting SPD



Description

The Competitor's DOB and Linear LED lighting special surge protection thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor and commercial LED lighting fixtures for transient overvoltage protection. It is constructed with Epcos varistor technology. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Outdoor LED
- *Traffic lighting
- *Digital signage
- *Roadway lighting
- *High Bay Lighting
- *Special application LED
- *Street lighting
- *Flood lighting
- *Tunnel lighting
- *Low Bay Lighting
- *Wash wall lighting
- *Parking garage/lot lighting

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE GB/T 18802.1

CE GB/T 18802.1

Absolute Maximum Rating

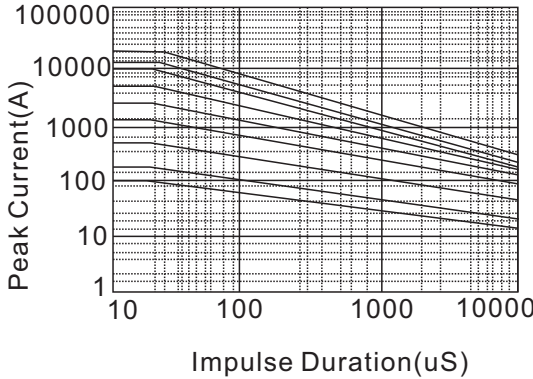
Continous:	DOB SERIES	Units
Max AC Voltage Range(V _{rms})	140 to 510	V
Continuous Current	0.1-1.8A	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	10000A
2	6000A
15	5000A
100	1000A
1000	620A
10000	280A
100000	100A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T
DOB05T100SR	100	140	5kA	10kA	200	X
DOB10T100SR	100	140	5kA	10kA	300	X
DOB05T120SR	120	150	5kA	10kA	300	X
DOB10T120SR	120	150	5kA	10kA	350	X
DOB05T240SR	240	275	5kA	10kA	400	X X
DOB10T240SR	240	275	5kA	10kA	450	X X
DOB05T277SR	277	320	5kA	10kA	500	X X
DOB10T277SR	277	320	10kA	20kA	600	X X
DOB05T347SR	347	385	5kA	10kA	700	X
DOB10T347SR	347	385	5kA	10kA	900	X
DOB05T480SR	480	510	5kA	10kA	1000	X X
DOB10T480SR	480	510	5kA	10kA	1200	X X

Notes:

- 1.Part number with "N"-Output with NTC protection only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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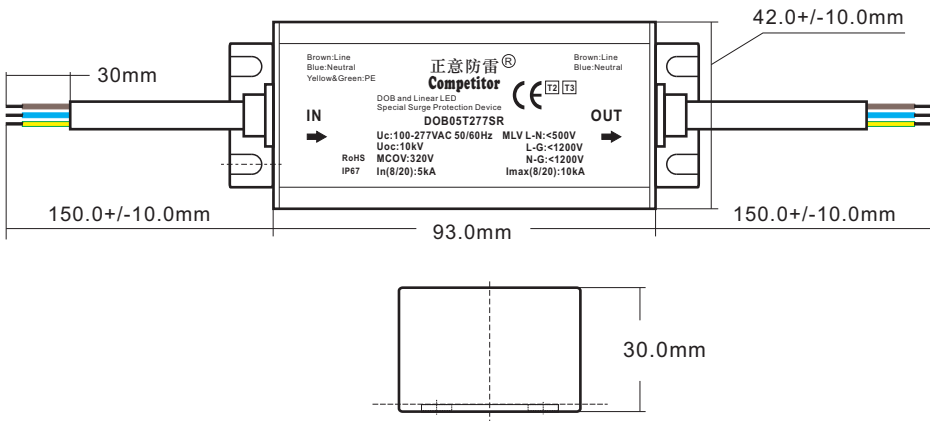
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *UL 1449 Recognized(120VAC and 240VAC voltage ratings)
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class III and EN61643-11 Type 3 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class II and Class III installation based on IEC luminaire protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Dimensions



Notes:

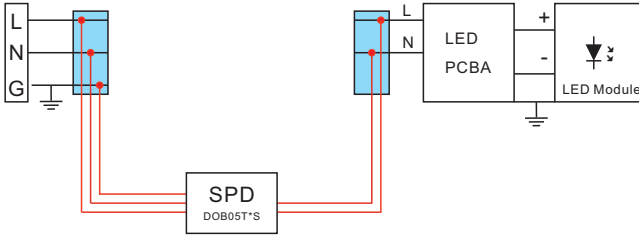
1. Black:Line, White:Neutral, Green:Ground.
2. Wire Gauge: 16AWG, wire length: 70±10mm, wire stripping length: 8mm.
3. Caution: Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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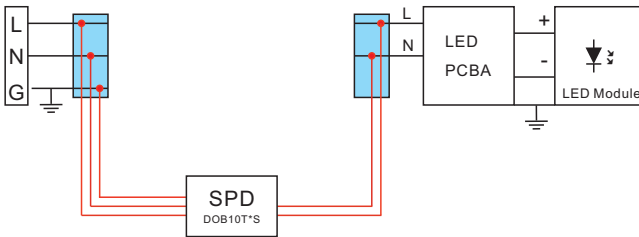
Specifications are subject to change without notice.

Revised: 02.18.2020

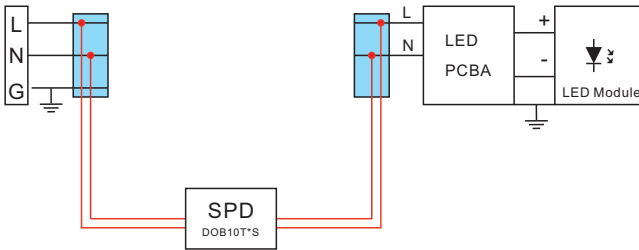
Application Installation Schematic



DOB05T*SR Series Connection



DOB10T*SR Series Connection



Series Connection
(for Class II Unearthed)

Notes:

1. Series module used in parallel connection for indication circuit connection.
2. LED indicator and associated circuitry are not included in the module.
3. L terminal is AC line voltage (hot); N terminal is AC neutral voltage.
4. Series connection type, L terminal line voltage is cut off when SPD needs replacement.
5. R is current limiting resistor, its resistance/wattage is determined by AC line voltage and desired current driving LED. Example: AC line voltage 240VAC, LED : 1.6mA.
6. External indicator must be current limiting resistor.

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

DOB 05 T N 277 S R

Competitor Inc.
DOB and Linear
LED Special SPD

5kA(Normal
Discharge Current)

Thermal Protection

NTC Protection

Operating Voltage

S:Series Connection

Other Options:

SJOW:With GND wire connection,available for 240VAC and 277VAC rating with CE Marking for Class III earthed luminaire installation wire color: Line:Black,Neutral:white, G/PE:Green.

RVV Cable:With GND wire connection,available for 240VAC and 277VAC rating with CE Marking for Class III earthed luminaire installation wire color: Line:Brown,Neutral:Blue, G/PE:Green with yellow stripe.

VDE Cable:without GND wire connection,available for 240VAC and 277VAC rating with CE Marking for Class II unearthed luminaire installation wire color Line: Brown,Neutral:Blue.

Notes

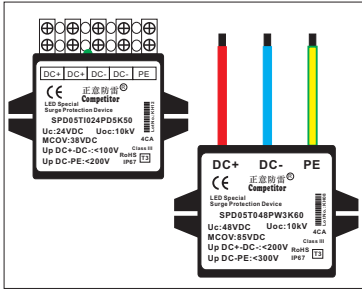
1. With "N":output with NTC protection; full series products Waterproof IP67.
2. H:With 1500VAC Hi-Pot withstand capability in common mode(L-G and N-G),
Blank:No Hi-Pot withstand capability in common mode.
3. Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

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Specifications are subject to change without notice.

Revised:02.18.2020

DC Power Surge Protection Device



Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor LED and commercial LED lighting fixtures for transient over volatge protection. It is constructed with Epcos varistortechology. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- * DC Outdoor LED
- * Solar Street lighting
- * Solar Digital signage
- * DC Power Equipment
- * Solar Roadway Lighting
- * Solar Special application LED
- * DC Power System
- * Solar Flood lighting
- * Solar Tunnel lighting
- * Solar Low Bay Lighting
- * Solar Wash wall lighting
- * Parking garage/lot lighting

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE

CE

Absolute Maximum Rating

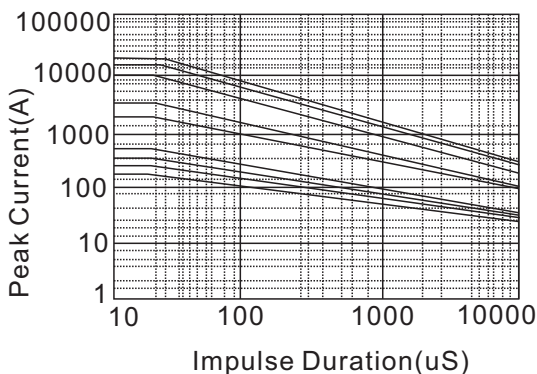
Continous:	SPD05/10 DC Series	Units
Max DC Voltage Range (V _{mrms})	14 to 670	V
Continuous Current	5	A
Transient		
Maximum Discharge Current 8/20uS Waveform (I _{max})	10000/20000	A
Norminal Discharge Current 8/20uS Waveform (I _n)	5000/10000	A
Operating Ambient Temperature Range (T _a)	-45 to +85	°C
Storage Temperature Range (T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

©2020 Competitor Inc.

Specifications are subject to change without notice.

Revised: 02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	10000A
2	6000A
15	5000A
100	1200A
1000	600A
10000	280A
100000	120A

DC Power Series Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE
SPD05T005*	DC5V	14	2kA	4kA	50	X
SPD05T012*	DC12V	26	3kA	5kA	90	X
SPD05T024*	DC24V	38	3kA	6kA	200	X
SPD05T048*	DC48V	65	5kA	10kA	300	X
SPD10T048*	DC48V	85	10kA	20kA	400	X
SPD05T080*	DC100V	120	5kA	10kA	500	X
SPD10T080*	DC100V	120	10kA	20kA	700	X
SPD05T100*	DC100V	150	5kA	10kA	600	X
SPD10T100*	DC100V	150	10kA	20kA	800	X
SPD05T024LL*	L-L:48 L-N/G:24	L-L:85 L-N/G:38	5kA	8kA	L-L:300 L-N/G:200	X
SPD05T048LL*	L-L:100 L-N/G:48	L-L:150 L-N/G:85	5kA	10kA	L-L:500 L-N/G:300	X

Notes:

- 1.*=SWXXXX or PWXXXX or SDXXXX or PDXXXX;Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS normal discharge current (I_n); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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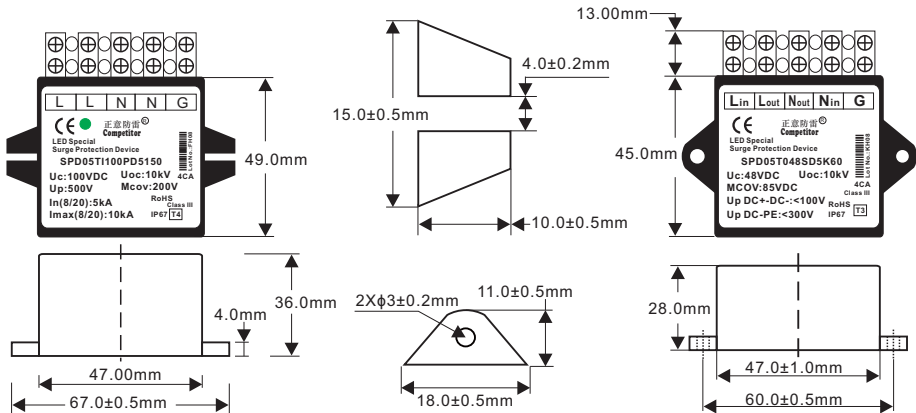
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *UL1449 Recognized(120VAC and 240VAC voltage ratings)
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class II and EN61643-11 Type 2 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class I and Class II installation based on IEC luminaire protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Dimensions



Notes:

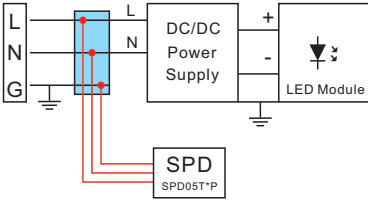
1. PA8 Terminal connection. 5 Pin, CE, UL, VDE, 450V, 10A.
2. Caution: Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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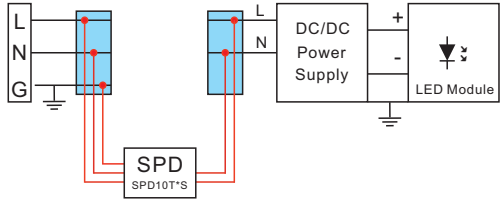
Specifications are subject to change without notice.

Revised: 02.18.2020

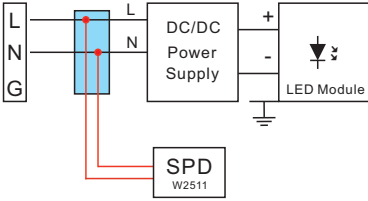
Application Installation Schematic



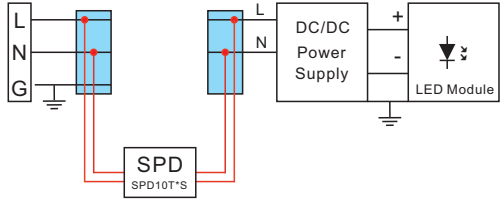
Parallel Connection



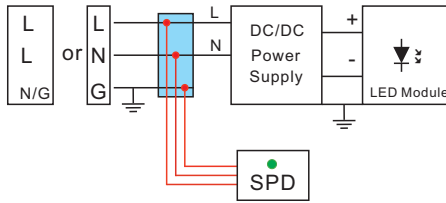
Series Connection



Parallel Connection
(for Class II Unearthed)



Series Connection
(for Class II Unearthed)



Parallel Connection

With LED indicating SPD status
 -ON (Green):SPD is online
 -OFF:SPD needs replacement

Notes:

1. Series module used in parallel connection for indication circuit connection.
2. LED indicator and associated circuitry are not included in the module.
3. L terminal is AC line voltage (hot); N terminal is AC neutral voltage.
4. L (AC) line voltage is cut off when SPD needs replacement.
5. R is current limiting resistor, its resistance/wattage is determined by AC line voltage and desired current driving LED. Example: AC line voltage 240VAC, LED : 1.6mA.
6. External indicator must be current limiting resistor.

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

SPD 10 T I 024 P Dxxxx

Competitor Inc.
Surge Protection Device

10kA(Normal
Discharge Current)

Thermal Protection

Led Indicator

Operating Voltage

P:Parallel Connection
S:Series Connection

Other Options:

D5511:With GND wire connection,available for 24VDC and 48VDC rating with CE Marking for Class I earthed luminaire installation.the terminal is PA8 5 PIN,CE,3C UL VDE certification,450V 10A.

D4511:without GND wire connection,available for 24VDC and 48VDC rating with CE Marking for ClassII unearthed luminaire installation .the terminal is PA8/PA10 5 PIN CE 3C UL VDE certification,450V 10A.

Notes

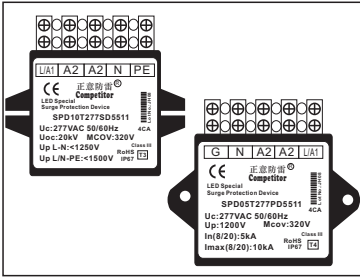
1. With "N":output with NTC protection;Blank:Waterproof IP67.
2. H:With 500VAC Hi-Pot withstand capability in common mode(L-G and N-G),
Blank:No Hi-Pot withstand capability in common mode.
3. Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

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Specifications are subject to change without notice.

Revised:02.18.2020

Sound and Light Alarm Series SPD



Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor LED and commercial LED lighting fixtures for transient over volatge protection. It is constructed with Epcos varistor technology. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- * Outdoor LED
- * Traffic lighting
- * Digital signage
- * Roadway lighting
- * High Bay Lighting
- * Special application LED
- * Street lighting
- * Flood lighting
- * Tunnel lighting
- * Low Bay Lighting
- * Wash wall lighting
- * Parking garage/lot lighting

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE

CE

Absolute Maximum Rating

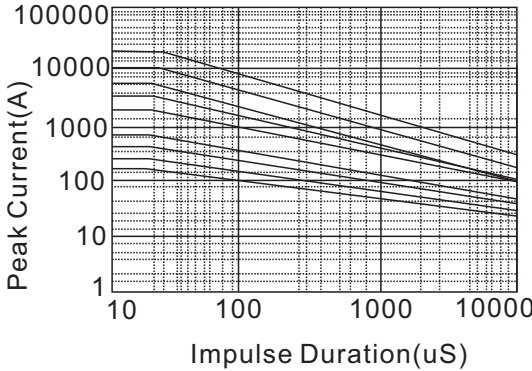
Continous:	Alarm Series	Units
Max AC Voltage Range(Vmrms)	140 to 510	V
Continous Current	5	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000/20000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000/10000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	10000A
2	6000A
15	5000A
100	1200A
1000	600A
10000	350A
100000	200A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE
SPD05T100*	100	140	5kA	10kA	700	X
SPD05T120*	120	150	5kA	10kA	800	X
SPD05T240*	240	275	5kA	10kA	1000	X
SPD10T240*	240	275	10kA	20kA	1200	X
SPD05T277*	277	320	5kA	10kA	1200	X
SPD10T277*	277	320	10kA	20kA	1500	X
SPD05T347*	347	420	5kA	10kA	1500	X
SPD10T347*	347	420	10kA	20kA	1800	X
SPD05T480*	480	510	5kA	10kA	1800	X
SPD10T480*	480	510	10kA	20kA	2000	X
SPD05T240LL*	L-L:240 L-N/G:120	L-L:275 L-N/G:150	5kA	10kA	L-L:1000 L-N/G:800	X
SPD05T480LL*	L-L:480 L-N/G:277	L-L:510 L-N/G:320	5kA	10kA	L-L:2000 L-N/G:1200	X

Notes:

- 1.*=SDXXXXA or PDXXXXA;Part number with "I"-Indication only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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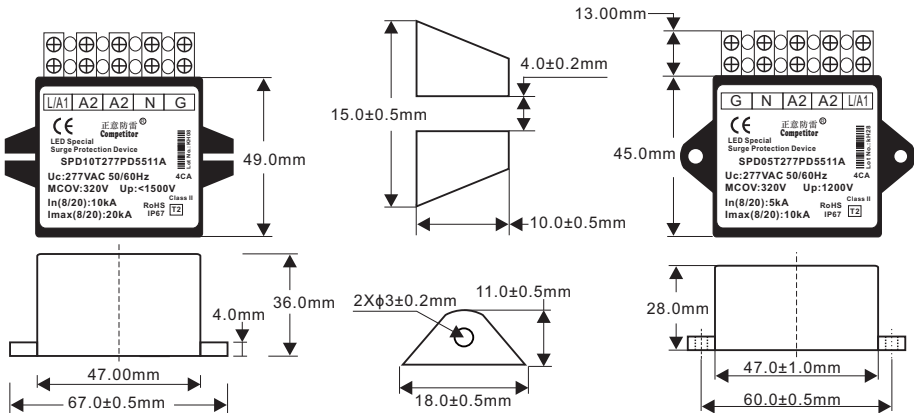
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *UL 1449 Recognized(120VAC and 240VAC voltage ratings)
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class II and EN61643-11 Type 2 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class I and Class II installation based on IEC luminaire protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Dimensions



Notes:

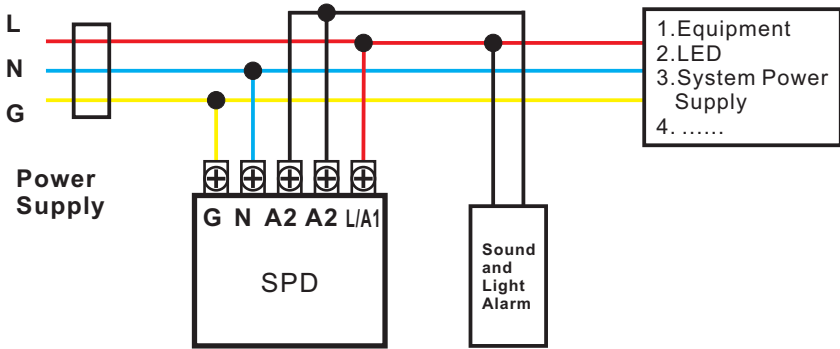
- 1.PA8 Terminal connection.5 Pin,CE,UL,VDE,450V,10A.
- 2.Caution:Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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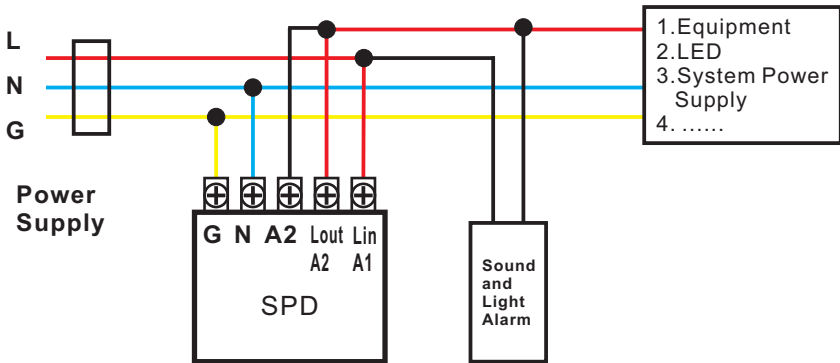
Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic



Parallel Connection



Series Connection

Notes:

1. Full series module has failure indication when it is used in parallel connection.
2. LED indicator and associated circuitry are included in the module.
3. L terminal is AC line voltage (hot); N terminal is AC neutral voltage.
4. L (AC) line voltage is cut off when SPD needs replacement.
5. R is current limiting resistor, its resistance/wattage is determined by AC line voltage and desired current driving LED. Example: AC line voltage 240VAC, LED : 1.6mA.

Part Number Code System

SPD 10 T I 277 P Dxxxx A

Competitor Inc. _____
Surge Protection Device

10kA(Normal
Discharge Current)

Thermal Protection

Led Indicator

Operating Voltage

P:Parallel Connection
S:Series Connection

Other Options:

D5511 With GND wire connection,available for 240VAC and 277VAC rating with CE Marking for Class I earthed luminaire installation.the terminal is PA8 5 PIN,CE,3C UL VDE certification,450V 10A.

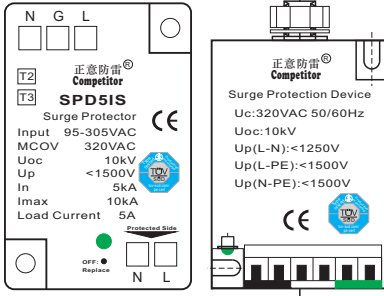
D2511:without GND wire connection,available for 240VAC and 277VAC rating with CE Marking for Class II unearthed luminaire installation .the terminal is PA8 5 PIN CE 3C UL VDE certification, 450V 10A.

A:Sound and Light Alarm.

Notes

- 1.With "N":output with NTC protection;Blank:Waterproof IP67.
- 2.H:With 1500VAC Hi-Pot withstand capability in common mode(L-G and N-G),
Blank:No Hi-Pot withstand capability in common mode.
- 3.Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

LED Lighting Surge Protection Device



The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor LED and commercial LED lighting fixtures for transient over voltage protection . It is constructed with Epcos varistortechonlogy . Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Outdoor LED
- *Traffic lighting
- *Digital signage
- *Roadway lighting
- *High Bay Lighting
- *Special application LED
- *Street lighting
- *Flood lighting
- *Tunnel lighting
- *Low Bay Lighting
- *Wash wall lighting
- *Parking garage/lot lighting

Agency

Test standard: IEC/EN 61643-11/UL 1449^{4th}

CE TUV



Absolute Maximum Rating

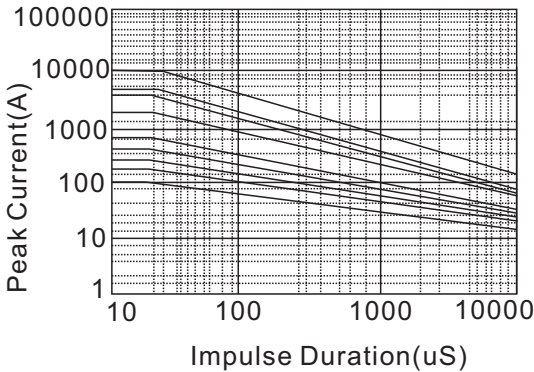
Continuous:	SPD5/10IS SERIES	Units
Max AC Voltage Range (V _m rms)	140 to 510	V
Continuous Current	5-10	A
Transient		
Maximum Discharge Current 8/20uS Waveform (I _{max})	10000/20000	A
Norminal Discharge Current 8/20uS Waveform (I _n)	5000/10000	A
Operating Ambient Temperature Range (T _a)	-45 to +85	°C
Storage Temperature Range (T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised: 02.18.2020

Repetitive Surge Capability for Terminal Series



Pulse Rating(8/20uS)	
Strikes	Surge
1	10000A
2	6000A
15	5000A
100	1000A
1000	620A
10000	280A
100000	100A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE TUV
SPD5IS100*	100	140	5kA	10kA	600	X
SPD5IS120*	120	150	5kA	10kA	700	X
SPD5IS240*	240	275	5kA	10kA	1000	X X
SPD5IS277*	277	320	5kA	10kA	1200	X X
SPD5IS347*	347	385	5kA	10kA	1500	X
SPD5IS480*	480	510	5kA	10kA	1800	X
SPD10IS100*	100	140	10kA	20kA	700	X
SPD10IS120*	120	150	10kA	20kA	800	X
SPD10IS240*	240	275	10kA	20kA	1200	X X
SPD10IS277*	277	320	10kA	20kA	1500	X X
SPD10IS347*	347	385	10kA	20kA	1800	X
SPD10IS480*	480	510	10kA	20kA	2000	X

Notes:

- *=XXXX; Part number with "P"-Input with PTC only.
- Up-IEC 61643-11 voltage protection level; the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- MCOV/Uc: Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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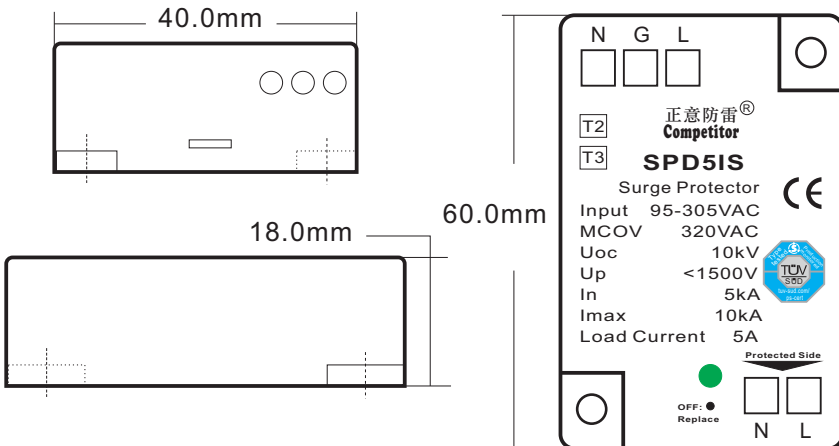
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current (I_{max})10kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP20 Water-proof and Dust proof
- *UL1449 Recognized(120VAC and 240VAC voltage ratings)
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class II and EN61643-11 Type 2 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class I and Class II installation based on IEC luminaire protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Style A Dimensions



Notes:

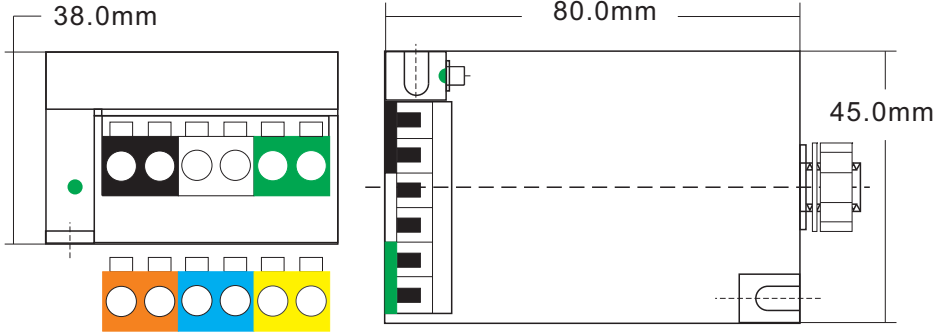
1. Terminal:DA260-5.0 with 2 Pin and 3 Pin ,3C CE UL 300V 10A.
2. Caution:Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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Specifications are subject to change without notice.

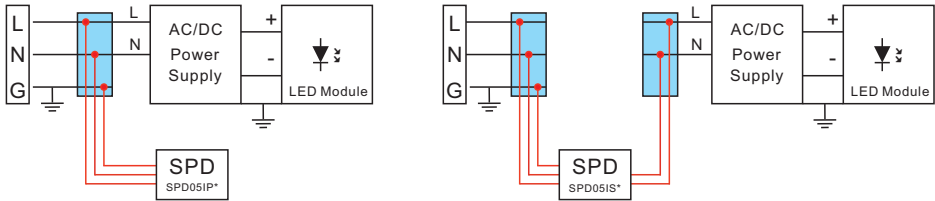
Revised:02.18.2020

Style B Dimensions



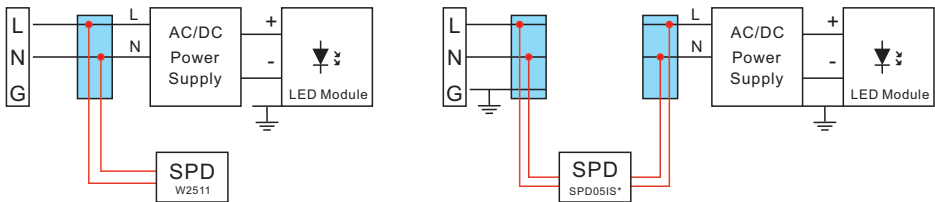
Remark: terminal color optional , UL type and TUV type .

Application Installation Schematic



Parallel Connection

Series Connection



Parallel Connection
(for Class II Unearthed)

Series Connection
(for Class II Unearthed)

Notes:

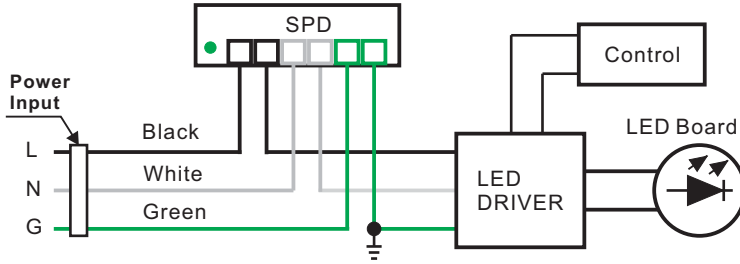
- 1.SPД used in parallel connection for indication circuit connection.
- 2.LED indicator and associated circuitry are included in the module.
- 3.L terminal is AC line voltage (hot);N terminal is AC neutral voltage.
- 4.L terminal line voltage is cut off and indicator off when SPD needs replacement.

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Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic



Remark: optional parallel and series connection products .

Part Number Code System

SPD 5 I S P 277 xxxx

Competitor Inc.
 Surge Protection Device

5kA(Normal
 Discharge Current)

Indicator LED

S: Series Connection
 P: Parallel Connection

PTC Input Protection

Operating Voltage

Other Options:

Blank: standard products, series connection, available for 240VAC and 277VAC rating with CE Marking for Class I earthed luminaire installation wire color: Line: Brown, Neutral: Blue, G/PE: Green with yellow stripe.

XXXX: customize products, available for 100VAC and 480VAC rating with CE .

Notes:

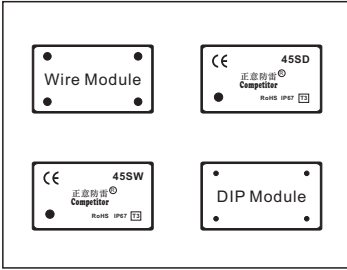
- 1.H: With 1500VAC Hi-Pot withstand capability in common mode (L-G and N-G), Blank: No Hi-Pot withstand capability in common mode.
2. Can customize the model not in the list, please inform the parameters.
3. A specific customer has a specific serial number that is not in circulation of products.

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Specifications are subject to change without notice.

Revised: 02.18.2020

Sodium Lamp Light Source Replacement Module



Competitor's sodium lamp light source replacement SPD module, applied to the renovation project of sodium lamp light source, with SPD function, thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor and commercial LED lighting fixtures for transient over voltage protection. It is constructed with Epcos varistor technology. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications



In order to save energy and transform the light source of sodium lamp, the LED light source can be replaced by the LED light source by adding this module without changing the original overall wiring. LED light source add module can also be used in the market sodium lamp transformation needs

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE

CE

Absolute Maximum Rating

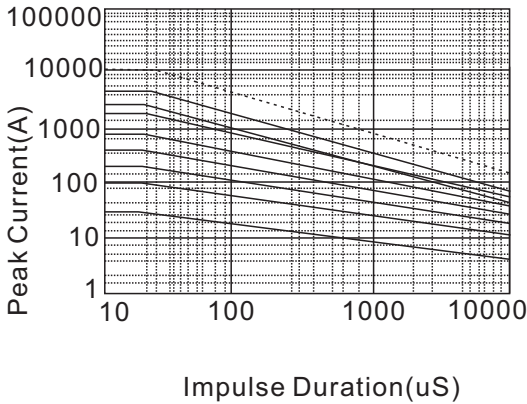
Continous:	45SD/SW Series	Units
Max AC Voltage Range(V _{mrms})	140 to 510	V
Continuous Current	1-2	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	6000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	4500	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability for Module Series



Pulse Rating(8/20uS)

Strikes	Surge
1	6000A
2	5000A
15	4500A
100	600A
1000	200A
10000	100A
100000	50A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety
SPD45T100*	100	140	4.5kA	6kA	500	CE
SPD45T120*	120	150	4.5kA	6kA	600	CE
SPD45T240*	240	275	4.5kA	6kA	800	CE
SPD45T277*	277	320	4.5kA	6kA	1200	CE
SPD45T347*	347	385	4.5kA	6kA	1500	CE
SPD45T480*	480	510	4.5kA	6kA	1800	CE

Notes:

- *=SD or SW .SD:DIP install module;SW:wires output type .
- Up-IEC 61643-11 voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS normal discharge current (I_n); an rounding voltage value of maximum measurement.
- MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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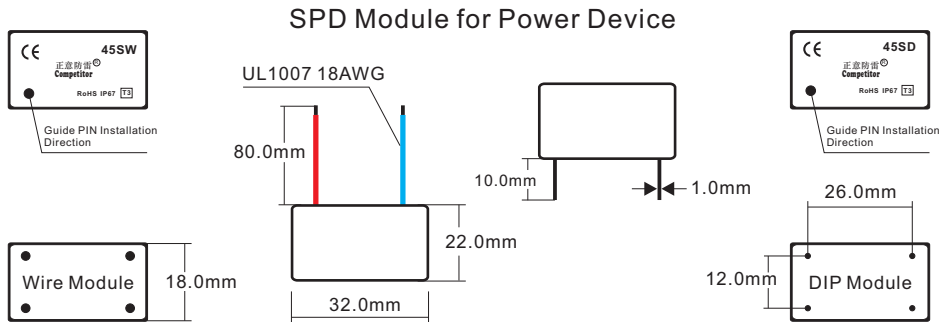
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 6kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 6kV/4.5kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *UL1449 Recognized(120VAC and 240VAC voltage ratings)
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class II and EN61643-11 Type 2 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class I and Class II installation based on IEC luminaire protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Dimensions



Notes:

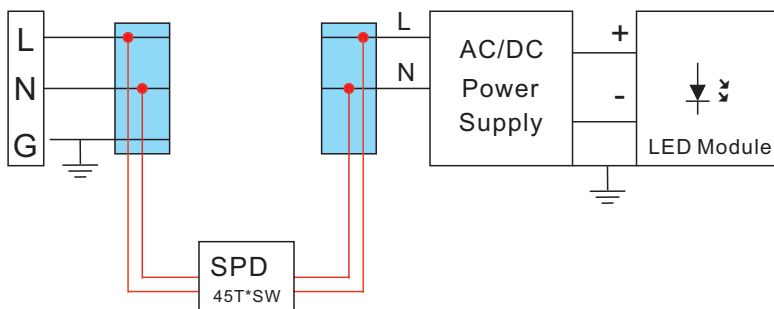
1. Brown:Line,White:Neutral,(P/N with SW,Red:Line;Blue:Neutral).
2. P/N with SD,DIP type ,the pin diameter 1.0mm,Length:10.0mm.
3. Wire Gauge:UL1007 18AWG,wire length:80±10mm,wire stripping length:5mm.
4. Caution:Line/Neutral wires must be correctly connected to AC power grid,Wiring error on line/neutral polarity may cause module failure.

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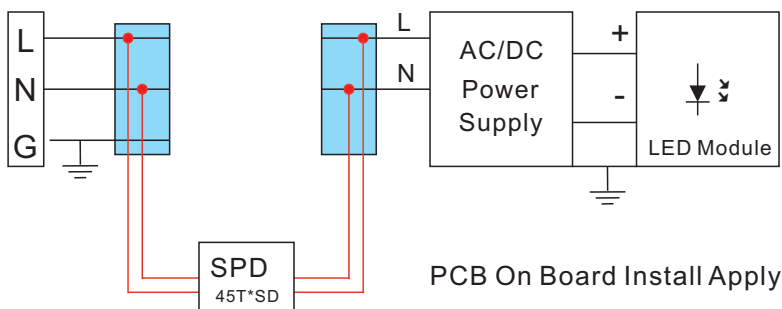
Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic



Series Connection



Series Connection (for Class III Unearthed)

Notes:

1. With thermal cutoffs protection, product code "T".
2. LED indicator and associated circuitry are not included in the module.
3. Brown wire is AC line voltage (hot); white wire is AC neutral voltage.
4. Brown wire voltage is cut off when SPD needs replacement.
5. Caution: Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

Part Number Code System

SPD 45 T N 277 S D

Competitor Inc.
Surge Protection Device

10kA(Normal
Discharge Current)

Thermal Protection

NTC Protection

Operating Voltage

S:Series Connection

Other Options:

D: With DIP module type connection,available for 240VAC and 277VAC rating with CE Marking for Class III earthed luminaire installation , The DIP Pin diameter 1.0mm.

W:with wire module type connection,available for 240VAC and 277VAC rating with CE Marking for Class III unearthed luminaire installation wire color:Line:Brown, Neutral:Blue.

Notes

- 1.With "N":output with NTC protection;Blank:Waterproof IP67.
- 2.H:With 1500VAC Hi-Pot withstand capability in common mode(L-G and N-G),
Blank:No Hi-Pot withstand capability in common mode.
- 3.Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.



Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in construction machinery and equipments for transient overvoltage protection. It is constructed with Epcos varistortechonology. It's built-in thermal disconnect function provides additional ptotection to prevent catastrophic failure and fire hazard evenunder the extreme circumstancesof varistor end-of -life or sustaining over voltage conditions.

Applications

- *Piling machine
- *Sanitation vehicle
- *Engineering vehicle
- *Disinfection vehicle
- *Excavating machinery
- *Engineering equipment
- *Construction machinery
- *Household Power Supply Box
- *Geological exploration machinery
- *Outdoor Power Supply machinery

Certification Standard

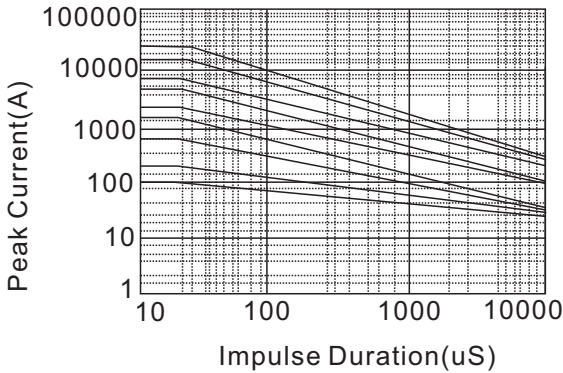
TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

Continuous:	CSM-40I Series	Units
Max AC Voltage Range(Vmrms)	220/277/347	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	40	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	20	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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 Specifications are subject to change without notice.
 Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	40000A
2	30000A
15	20000A
100	2000A
1000	800A
10000	300A
100000	100A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T
CSM-20I220	220	275	10kA	20kA	1200	X X
CSM-20I277	277	385	10kA	20kA	1500	X X
CSM-20I347	347	440	10kA	20kA	1800	X
CSM-20I480	480	550	10kA	20kA	2000	X
CSM-30I220	220	275	15kA	30kA	1300	X X
CSM-30I277	277	385	15kA	30kA	1800	X X
CSM-30I347	347	440	15kA	30kA	2000	X
CSM-30I480	480	550	15kA	30kA	2500	X
CSM-40I220	220	275	20kA	40kA	1500	X X
CSM-40I277	277	385	20kA	40kA	1800	X X
CSM-40I347	347	440	20kA	40kA	2000	X
CSM-40I480	480	550	20kA	40kA	2500	X

Notes:

1. Part number with "I"-Indication only.
2. Up-IEC 61643-11 voltage protection level; the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
3. MCOV/Uc: Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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Application Installation Schematic

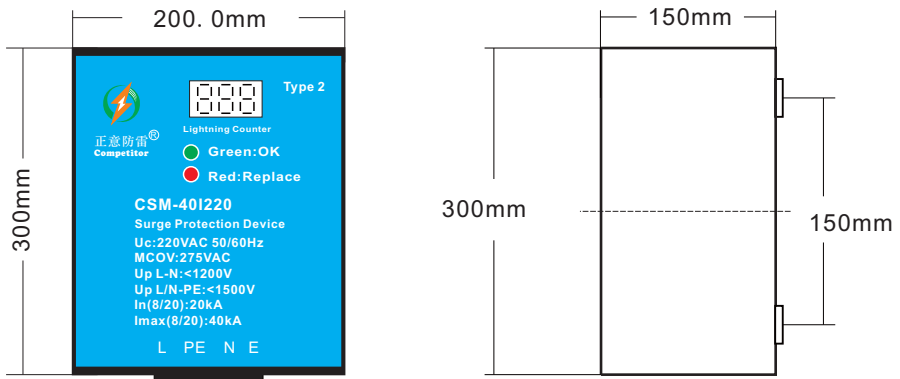


Parallel Connection

Notes:

1. SPD parallel connection must be Kevin connected(GB/T 18802.1).
2. Various application voltage products can provide, E: equipotential point.
3. For GB/T 18802.1-2011 approved, design in UI1449th.
4. When the indicator window is off, SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD structure is terminal connection type.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. Connection wires standard: 2.5-10mm².
2. When the circuit current exceeds the SPD load current, it must be connected in parallel.
3. Please contact us directly when ordering products with special requirements, we can customize more functions and specifications.

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Revised: 02.18.2020

Part Number Code System

CSM 40 I 220 LC RS

Competitor Inc.
Surge Arrester

40kA(Maximum
Discharge Current)

Failure Indication

Operating Voltage

Lightning Counter

Other Options:

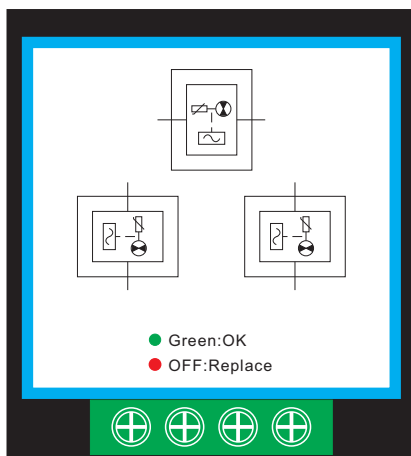
Blank:Standard product.

RS:with remote signal

Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



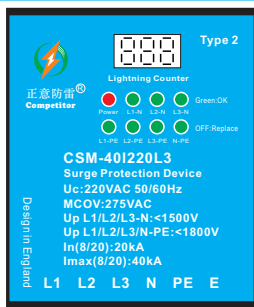
Notes:

- 1.Module With thermal protection technology .
- 2.SPД protection full mode L-N,L-G and N-G .
- 3.Each mode is MOV series GDT, with leakage current almost zero .

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Revised:02.18.2020



Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in three phase power supply system and construction machinery for transient overvoltage protection. It is constructed with Epcos varistortechonology. It's built-in thermal disconnect function provides additional ptotection to prevent catastrophic failure and fire hazard evenunder the extreme circumstancesof varistor end-of -life or sustaining over voltage conditions.

Applications

- *Piling machine
- *Sanitation vehicle
- *Engineering vehicle
- *Disinfection vehicle
- *Excavating machinery
- *Engineering equipment
- *Construction machinery
- *Three Phase Power Surge Box
- *Geological exploration machinery
- *Three Phase Power Supply System

Certification Standard

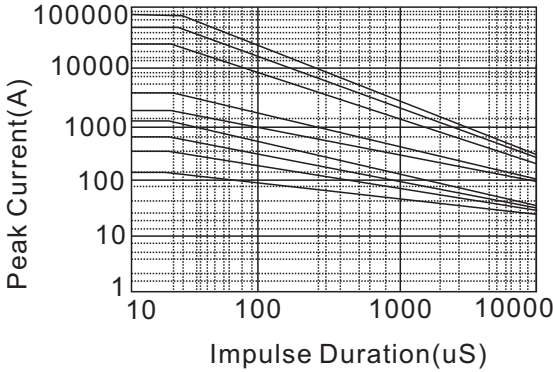
TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

Continous:	CSM-40I Series	Units
Max AC Voltage Range(Vmrms)	220/277/380/480	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	40	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	20	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	80000A
2	60000A
15	40000A
100	3000A
1000	1200A
10000	500A
100000	200A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T	
CSM-40I220*	220	275	20kA	40kA	1200	X	X
CSM-40I277*	277	385	20kA	40kA	1500	X	X
CSM-40I380*	380	440	20kA	40kA	1800	X	
CSM-40I480*	480	550	20kA	40kA	2000	X	
CSM-60I220*	220	275	30kA	60kA	1500	X	X
CSM-60I277*	277	385	30kA	60kA	1800	X	X
CSM-60I380*	380	440	30kA	60kA	2000	X	
CSM-60I480*	480	550	30kA	60kA	2500	X	
CSM-80I220*	220	275	40kA	80kA	1800	X	X
CSM-80I277*	277	385	40kA	80kA	2000	X	X
CSM-80I380*	380	440	40kA	80kA	2500	X	
CSM-80I480*	480	550	40kA	80kA	3000	X	

Notes:

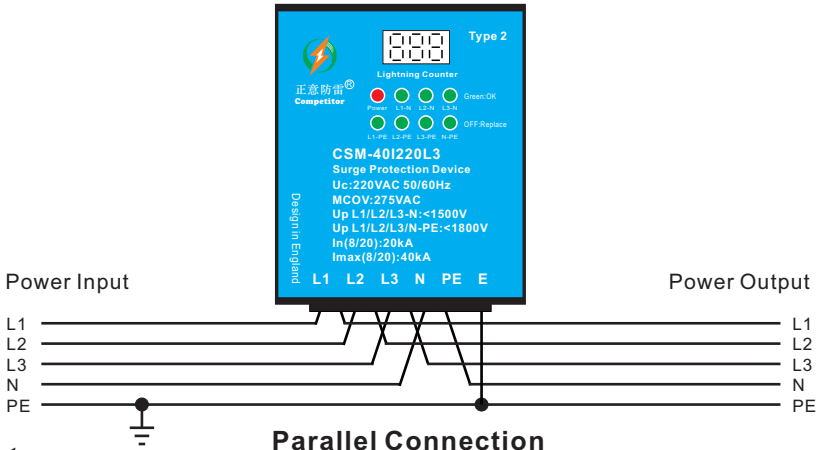
- 1.**=RS or C or RSC,Part number with "I"-Indication only.
- 2.Up-IEC 61643-11 voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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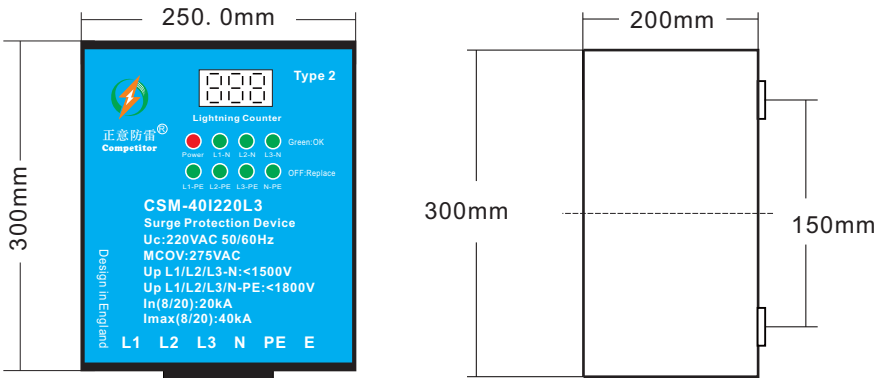
Application Installation Schematic



Notes:

- 1.SPД parallel connection must be Kevin connected(GB/T 18802.1).
- 2.Various application voltage products can provide.
- 3.For GB/T 18802.1-2011 approved,design in UL1449^{4th}.
- 4.When the indicator window is off,SPД needs to be replaced.
- 5.Design in CQC and IEC61643-11;SPД structure is terminal connection type.
- 6.The ground wire must be correctly connected,do not fall off to avoid electric shock.

Dimensions



Notes:

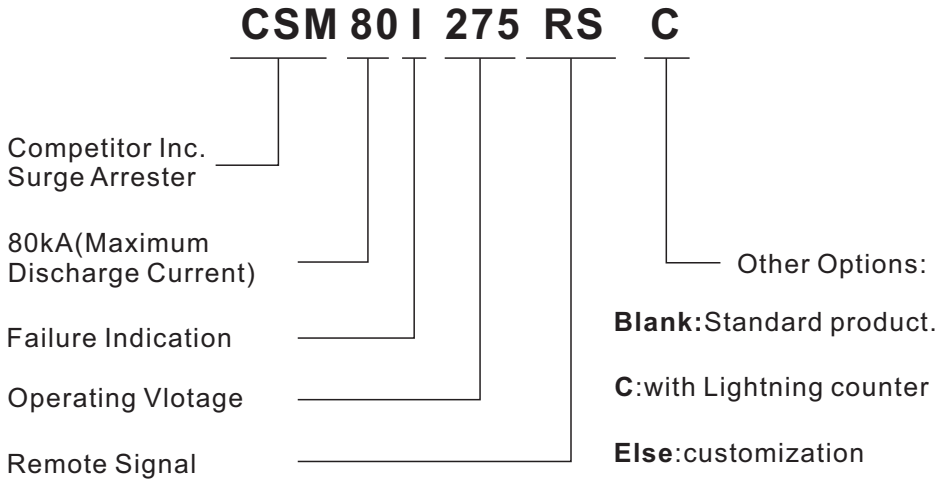
- 1.Connection wires standard:4.0-25.0mm².
- 2.Kevin connection is adopted for surge protection device, it must be connected in parallel.
- 3.Please contact us directly when ordering products with special requirements,we can customize more functions and specifications.

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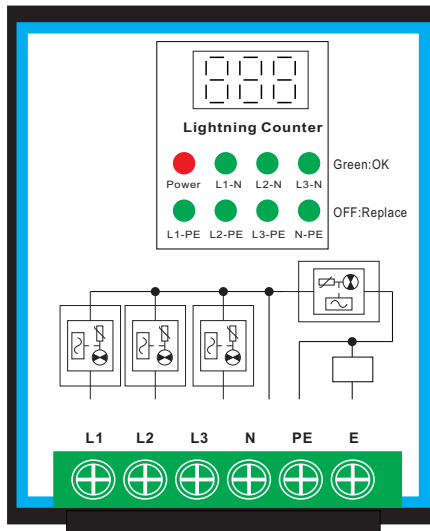
Revised:02.18.2020

Part Number Code System



Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



Notes:

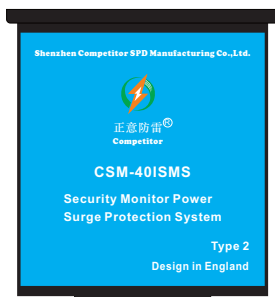
- 1.Module With thermal protection technology .
- 2.SP.D protection full mode L1/L2/L3-N,L1/L2/L3-G and N-G .
- 3.Each mode is MOV series GDT, with leakage current almost zero .

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Revised:02.18.2020

Security Monitor Power Surge System



Description

The Competitor 's SMS applied to security monitoring system, product integration of multiple functional modules , Various functional modules can be combined and selected , the basic functions include surge protection module and automatic reclosing module , power module , Network surge protection module , data acquisition module , optical fiber transmission module , multi output power module, lightning counter module IoT module can be selected, full series product support is highly customized.

Applications

- *Public Security System
- *Security Monitor System
- *CCTV Power Surge System
- *Online Monitoring System Power
- *Visual System Power Surge Protection
- *Security Monitor Power
- *Outdoor Visual System
- *Remote Monitoring System
- *CCTV Power System Surge Box
- *Remote Monitoring Data System

Certification Standard

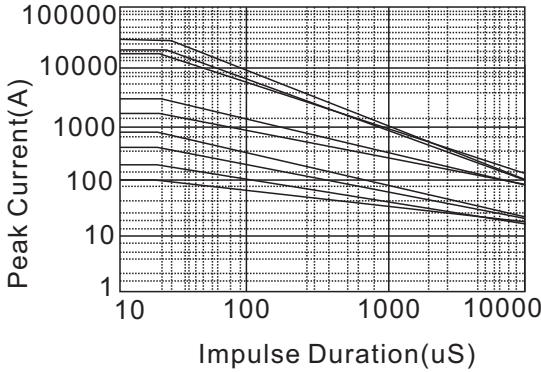
TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

Continuous:	CSM-SMS Series Units	
Max AC Voltage Range(V _{rms})	120/220/380/480	V
Max Continuous Current(Internal Power)	15	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	40	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	20	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.
Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	40000A
2	25000A
15	20000A
100	1500A
1000	600A
10000	280A
100000	100A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T
CSM-40I100*	100	140	20kA	40kA	500	X X
CSM-40I120*	120	150	20kA	40kA	600	X X
CSM-40I220*	220	275	20kA	40kA	1000	X X
CSM-40I277*	277	320	20kA	40kA	1200	X X
CSM-40I347*	347	385	20kA	40kA	1500	X
CSM-40I380*	380	420	20kA	40kA	1800	X
CSM-40I400*	400	440	20kA	40kA	2000	X
CSM-40I480*	480	550	20kA	40kA	2500	X

Notes:

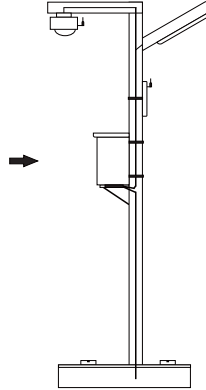
- 1.***=SMS or SMSRC or SMSRCIN ... ,Part number with "I"-Indication only.
- 2.Up-IEC 61643-11 voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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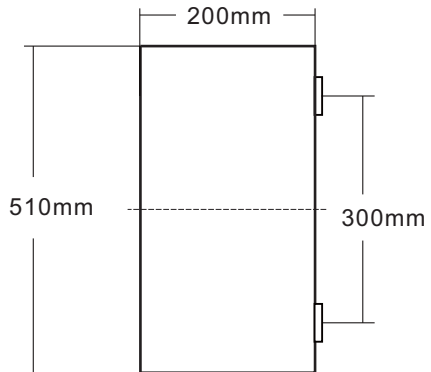
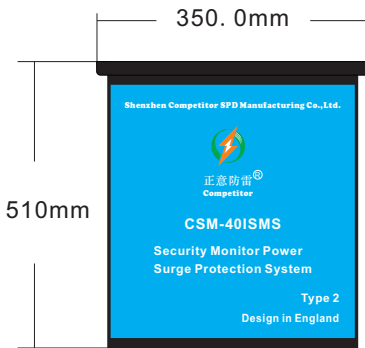
Application Installation Schematic



Notes:

1. Internal SPD parallel connection must be Kevin connected(GB/T 18802.1).
2. Various application voltage products can provide, various function modules are optional.
3. For GB/T 18802.1 approved, design in UI1449th, we can assist customers in safety certification.
4. When the indicator window is shown in red, internal SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD structure is track installation connection type.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. Connection wires standard: $4.0-25.0\text{mm}^2$.
2. Kevin connection is adopted for surge protection device, it must be connected in parallel.
3. Please contact us directly when ordering products with special requirements, we can customize more functions and specifications.

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Revised:02.18.2020

Part Number Code System

CSM 40 I 220 SMS R C I N

Competitor Inc.
Surge Arrester

40kA(Maximum
Discharge Current)

Failure Indication

Operating Voltage

Standard Module

Other Options:

Blank:Standard product.

I:with IoT Module

R:with Remote Signal

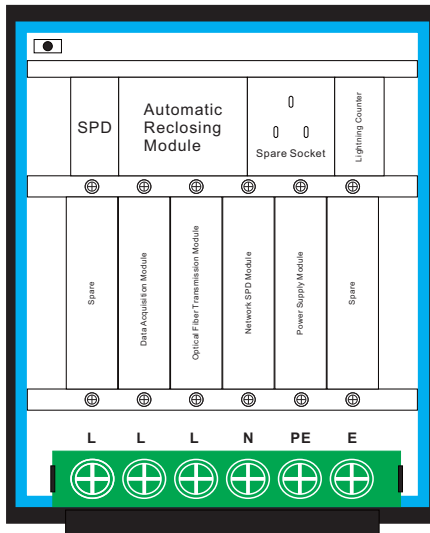
C:with Lightning counter

N:with Network Module

Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



Notes:

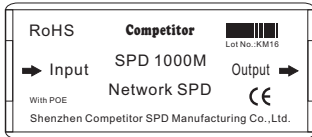
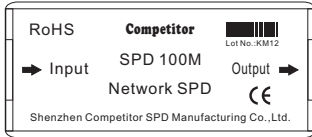
1. Module With thermal protection technology .
2. SPD protection full mode L1/L2/L3-N, L1/L2/L3-G and N-G .
3. Each mode is MOV series GDT, with leakage current almost zero .

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Specifications are subject to change without notice.

Revised:02.18.2020

Ethernet Surge Protection Device



Description

Competitor's ethernet surge protection device, applied to ethernet network, with POE function, thermally protected surge protective device is a self-protected device which is specially design to be used in ethernet network for transient overvoltage protection. It is constructed with Epcos GDT technology and TE PTC protection. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Digital Camera
- *Digital Monitoring
- *Network Protection
- *CCTV Surge Protection
- *Network POE Power
- *Ethernet Data Protection
- *Ethernet Transmission
- *Network Surge Protection
- *Network Terminal Protection
- *Remote Network Transmission
- *Ethernet With POE Power Supply
- *Network Data Surge Protection

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE

CE

Absolute Maximum Rating

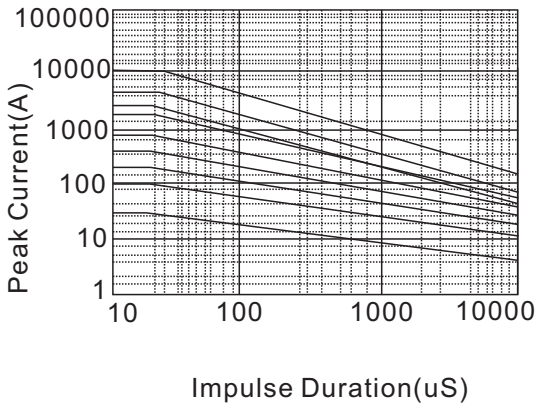
Continuous:	SPD100M/1000M Series	Units
Max DC Voltage Range(V_{mrms})	5 to 60	V
Continuous Current	0.2-1	A
Transient		
Maximum Discharge Current 8/20 μ S Waveform(I_{max})	10000	A
Norminal Discharge Current 8/20 μ S Waveform(I_n)	5000	A
Operating Ambient Temperature Range(T_a)	-45 to +85	°C
Storage Temperature Range(T_{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	M Ω

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Specifications are subject to change without notice.

Revised: 02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	10000A
2	6000A
15	5000A
100	600A
1000	200A
10000	100A
100000	50A

Specifications

1. Operating Voltage:5-60VDC
2. Differential Mode Surge Voltage(Line-Line, 1.2/50uS): 10kV
3. Breakdown Voltage(4,5-7,8) and (3,6-1,2): 90-180VDC
4. Common Mode Surge Voltage(Line-PE, 1.2/50uS): 10kV
5. Breakdown Voltage(8 lines-PE): 70-120VDC
6. Data Rates:100/1000Mbps
7. Lines protected terminal:1,2,3,6 / 4,5,7,8
8. Insertion Loss: ≤ 0.5 dB
9. Response Time: ≤ 5 ns

Notes:

1. With POE function ,please submit before order .
2. Up-IEC 61643-11 voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS normal discharge current (In); an rounding voltage value of maximum measurement.
3. MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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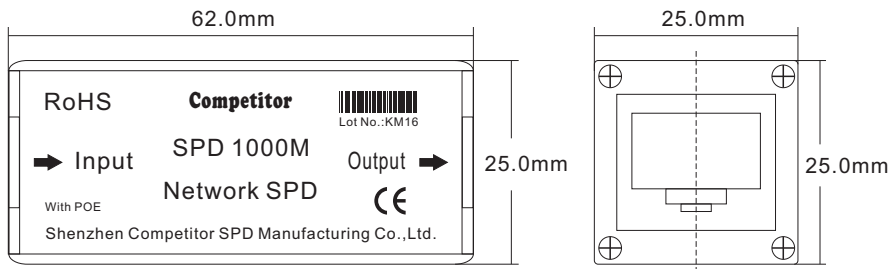
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected TE'S PTC Technology
- *Series Connected SPD,POE Options
- *IP20 Water-proof and Dust-proof
- *Design in UL1449^{4th} standard(5-60V voltage ratings)
- *Connector type:RJ45,8 lines surge protection,Indoor using case or box inside installation
- *Metal shell,protected against bumping and striking
- *Compact form factor with mounting tabs
- *Support PoE wire with IEEE802.3af/IEEE802.3at standards
- *IEEE802.3 10Base-T Ethernet
- *IEEE802.3u 100Base-Tx Fast ethernet
- *IEEE802.3ab 1000Base-T Gigabit ethernet
- *Easy install with 4 install hole
- *Support 60W PoE++ standards
- *Compact Size Network SPD
- *RoHS compliant

Dimensions



Notes:

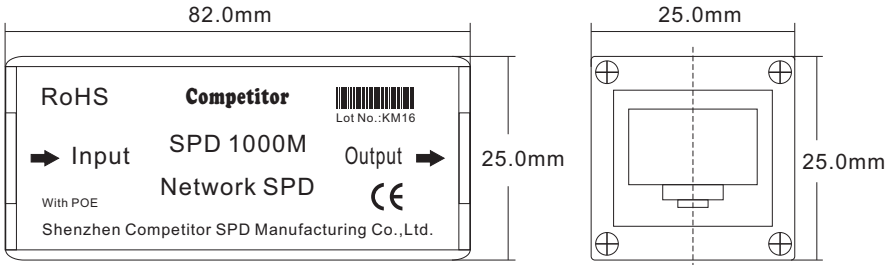
- 1.Connection type :RJ45,8 lines surge protection.
- 2.Indoor using case or box inside installation.
- 3.100Mbit/S and 1000Mbit/S mode can selection.
- 4.POE function can be selected ,100Mbit/S with POE and 1000Mbit/S with POE .
- 5.The color of aluminum alloy shell can be customized ,please submit before order .
- 6.Mass order can be customized product length ,the delivery time of the order will be extended.

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Specifications are subject to change without notice.

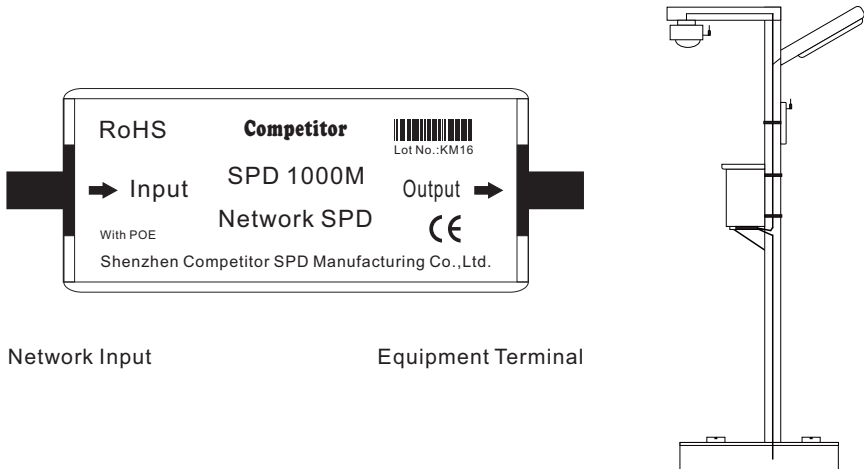
Revised:02.18.2020

Customized Dimensions



Remark: Mass order can be customized product length, the delivery time of the order will be extended.

Application Installation Schematic



Notes:

- 1.RJ45 8 lines surge protection.
- 2.Connection to the protected equipment terminal .
- 3.100Mbit/S and 1000Mbit/S product adaptation.
- 4.Ethernet surge protection device with POE function can be selected.
- 5.PE wire must be reliably connected and cannot fall off , Otherwise, the terminal equipment will not be well protected .

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

SPD 1000M POE XXX

Competitor Inc.
Surge Protection Device

100M:100Mbit/S
1000M:1000Mbit/S

With POE Function

Other Options:

Blank:standard products,
dimensions:62*25*25mm.

082:customized products,
dimensions:82*25*25mm.

092:customized products,
dimensions:92*25*25mm.

XXX:other customization.

Notes

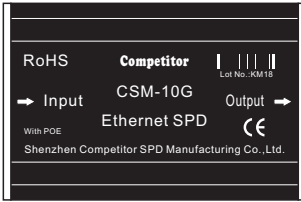
- 1.100Mbit/S network surge protection device 1,2,3,6 lines protected .
- 2.1000Mbit/S network surge protection device 1,2,3,4,5,6,7,8 lines protected .
- 3.Can customized the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

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Specifications are subject to change without notice.

Revised:02.18.2020

Ethernet Surge Protection Device



Description

Competitor's ethernet surge protection device, applied to the ethernet network, with POE function, thermally protected surge protective device is a self-protected device which is specially design to be used in ethernet network for transient overvoltage protection. It is constructed with Epcos GDT technology and TE PTC protection. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Digital Camera
- *Digital Monitoring
- *Network Protection
- *CCTV Surge Protection
- *Network POE Power
- *Ethernet Data Protection
- *Ethernet Transmission
- *Network Surge Protection
- *Network Terminal Protection
- *Remote Network Transmission
- *Ethernet With POE Power Supply
- *Network Data Surge Protection

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE

CE

Absolute Maximum Rating

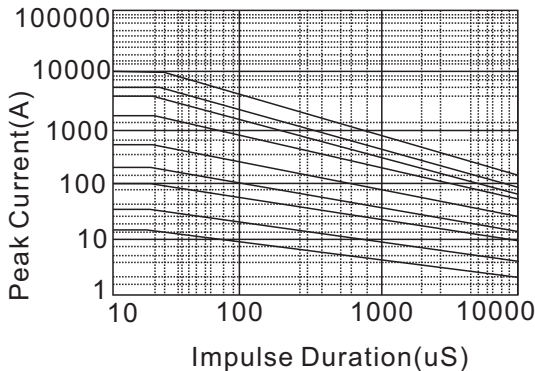
Continous:	CSM-1000M/10G SERIES	Units
Max DC Voltage Range(V _{rms})	5.0 to 48.0	V
Continuous Current	0.2-1	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	6000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	3000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	6000A
2	5000A
15	3000A
100	300A
1000	100A
10000	50A
100000	20A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE
CSM-1000M*	5	6.8	3kA	6kA	<20	X
CSM-10G*	5	6.8	3kA	6kA	<20	X
CSM-1000MPOE*	5-48	60	3kA	6kA	<100	X
CSM-10GPOE*	5-48	60	3kA	6kA	<100	X

Product Features:

1. Operating Voltage: 5.0-48VDC
2. Differential Mode Surge Voltage(Line-Line, 1.2/50uS): 10kV
3. Breakdown Voltage(4,5-7,8) and (3,6-1,2): <100V(only with POE)
4. Common Mode Surge Voltage(Line-PE, 1.2/50uS): 10kV
5. Breakdown Voltage(8 lines-PE): <180VDC
6. Data Rates: 1000M/10000Mbit/S
7. Lines protected terminal: 1,2,3,6 / 4,5,7,8
8. Insertion Loss: ≤0.5dB
9. Response Time: ≤1ns

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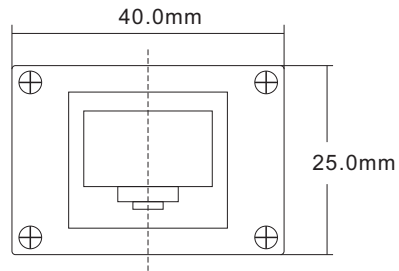
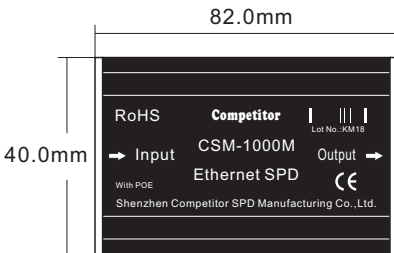
Specifications are subject to change without notice.

Revised: 02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected TE'S PTC Technology
- *Series Connected SPD,POE Options
- *IP20 Water-proof and Dust-proof
- *Design in UL1449^{4th} standard(5-60V voltage ratings)
- *Connector type:RJ45,8 lines surge protection,Indoor using case or box inside installation
- *Metal shell,protected against bumping and striking
- *Compact form factor with mounting tabs
- *Support PoE wire with IEEE802.3af/IEEE802.3at standards
- *IEEE802.3 10Base-T Ethernet
- *IEEE802.3u 100Base-Tx Fast ethernet
- *IEEE802.3ab 1000Base-T Gigabit ethernet
- *Easy install with 4 install hole
- *Support 60W PoE++ standards
- *Compact Size Network SPD
- *RoHS compliant

Dimensions



Notes:

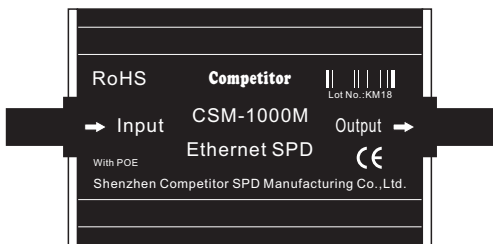
- 1.Connection type :RJ45,8 lines surge protection.
- 2.Indoor using case or box inside installation.
- 3.1000Mbit/S and 10000Mbit/S mode can selection.
- 4.POE function can be selected ,1000Mbit/S with POE and 10000Mbit/S with POE .
- 5.The color of aluminum alloy shell can be customized ,please submit before order .
- 6.Mass order can be customized product length ,the delivery time of the order will be extended.

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Specifications are subject to change without notice.

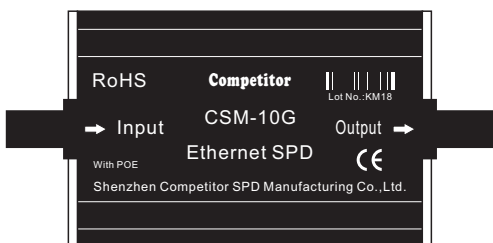
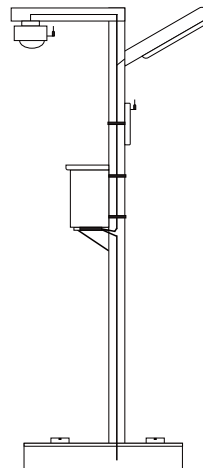
Revised:02.18.2020

Application Installation Schematic



Network Input

Equipment Terminal



Network Input

Equipment Terminal

Notes:

1. RJ45 8 lines surge protection.
2. Connection to the protected equipment terminal .
3. 1000Mbit/S and 10000Mbit/S(10G) product adaptation.
4. Ethernet surge protection device with POE function can be selected.
5. PE wire must be reliably connected and cannot fall off , Otherwise, the terminal equipment will not be well protected .

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Specifications are subject to change without notice.
Revised:02.18.2020

Part Number Code System

CSM 1000M POE XXX

Competitor Inc.
Surge Protection Device

1000M:1000Mbit/S
10G:10000Mbit/S

With POE Function

Other Options:

Blank:CSM-10G products,
dimensions:92*25*25mm.

082:customized products,
dimensions:82*25*25mm.

102:customized products,
dimensions:102*25*25mm.

XXX:other customization.

Notes

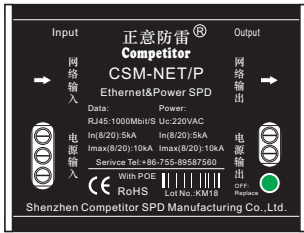
- 1.CSM-10G POE product is 35mm track installed.
- 2.Can customized the model not in the list, please inform the parameters.
- 3.10Gbit/S network surge protection device 1-2,3-6,4-5,7-8 and lines-PE protected .
- 4.1000Mbit/S network surge protection device 1-2,3-6,4-5,7-8 and lines-PE protected .
5. A specific customer has a specific serial number that is not in circulation of products.

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Specifications are subject to change without notice.

Revised:02.18.2020

Ethernet and Power Surge Protection Device



Competitor's ethernet surge protection device, applied to the ethernet network and power supply terminal, with POE function, thermally protected surge protective device is a self-protected device which is specially design to be used in ethernet network and power for transient overvoltage protection. It is constructed with Epcos MOV technology and TE PTC protection. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Digital Camera
- *Network Protection
- *Network POE Power
- *Ethernet Transmission
- *Network Terminal Protection
- *Ethernet With POE Power Supply
- *Digital Monitoring
- *CCTV Surge Protection
- *Ethernet Data Protection
- *Network Surge Protection
- *Remote Network Transmission
- *Network Data Surge Protection

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}



Absolute Maximum Rating

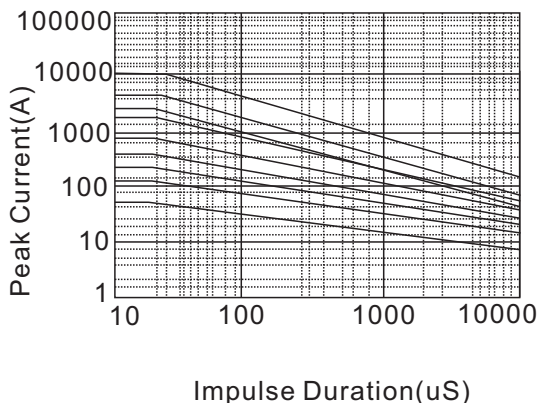
Continuous:	CSM-RJ45/P Series	Units
Max DC Voltage Range(V _m rms)	5 to 60	V
Continuous Current	0.2-1	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	10000A
2	6000A
15	5000A
100	720A
1000	260A
10000	120A
100000	80A

Specifications

Part Number	Network Mbit/S	Power V	In	I _{max}	Safety CE
CSM-100M/DC012*	100	DC12	5kA	10kA	X
CSM-100M/DC024*	100	DC24	5kA	10kA	X
CSM-100M/AC220*	100	AC220	5kA	10kA	X
CSM-1000M/DC012*	1000	DC12	5kA	10kA	X
CSM-1000M/DC024*	1000	DC24	5kA	10kA	X
CSM-1000M/AC220*	1000	AC220	5kA	10kA	X

Notes:

- 1.*=With POE function ,please submit before order .
- 2.Differential Mode Surge Voltage(Line-Line,1.2/50uS): 10kV.
- 3.Common Mode Surge Voltage(Line-PE,1.2/50uS): 10kV.
4. Lines protected terminal:1,2,3,6 / 4,5,7,8 ,optional.
- 5.Insertion Loss:≤0.5dB.
- 6.Response Time:≤5ns.

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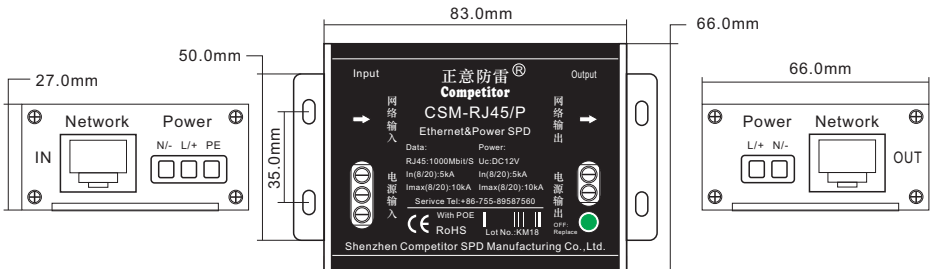
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA, 8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA, IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected TE'S PTC Technology
- *Series Connected SPD, POE Options
- *IP20 Water-proof and Dust-proof
- *Design in UL1449^{4th} standard(5-60V voltage ratings)
- *Connector type: RJ45, 8 lines surge protection, Indoor using case or box inside installation
- *Metal shell, protected against bumping and striking
- *Compact form factor with mounting tabs
- *Support PoE wire with IEEE802.3af/IEEE802.3at standards
- *IEEE802.3 10Base-T Ethernet
- *IEEE802.3u 100Base-Tx Fast ethernet
- *IEEE802.3ab 1000Base-T Gigabit ethernet
- *Easy install with 4 install hole
- *Support 60W PoE++ standards
- *Compact Size Network SPD
- *RoHS compliant

Dimensions



Notes:

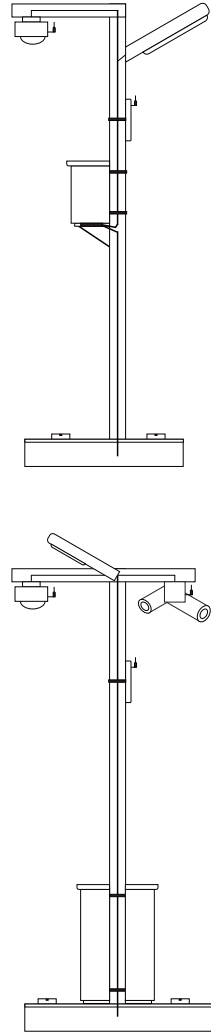
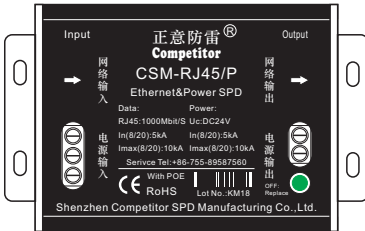
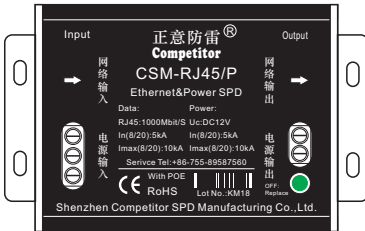
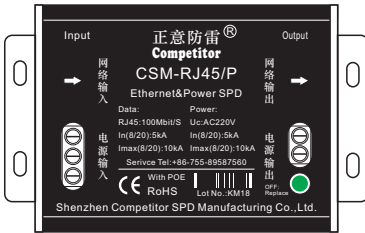
1. Connection type :RJ45, 8 lines surge protection.
2. Indoor using case or box inside installation.
3. 100Mbit/S and 1000Mbit/S mode can selection.
4. POE function can be selected , 100Mbit/S with POE and 1000Mbit/S with POE .
5. The color of aluminum alloy shell can be customized , please submit before order .
6. Mass order can be customized product length , the delivery time of the order will be extended.

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Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic



Notes:

- 1.RJ45 8 lines surge protection.
- 2.Connection to the protected equipment terminal .
- 3.100Mbit/S and 1000Mbit/S product adaptation.
- 4.Ethernet surge protection device with POE function can be selected.
- 5.PE wire must be reliably connected and cannot fall off , Otherwise, the terminal equipment will not be well protected .

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

CSM 1000M DC 012 POE

Competitor Inc.
Surge Protection Device

100M:100Mbit/S
1000M:1000Mbit/S

Power Type
DC or AC

Operating Voltage
012:DC12V
024:DC24V
220:AC220V
...

Options:

Blank:standard products,
dimensions:83*27*66mm.

POE:with POE function,
load current:0.2-1A.

XXX:other customization.

Notes

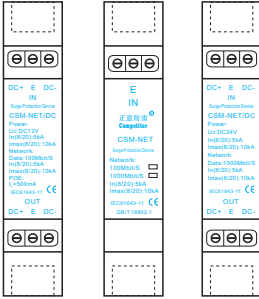
- 1.100Mbit/S network surge protection device 1,2,3,6 lines protected .
- 2.1000Mbit/S network surge protection device 1,2,3,4,5,6,7,8 lines protected .
- 3.Can customized the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

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Specifications are subject to change without notice.

Revised:02.18.2020

Track Type Network&Power SPD



Competitor's ethernet surge protection device, applied to the ethernet network and power supply terminal, with POE function, thermally protected surge protective device is a self-protected device which is specially design to be used in ethernet network and power for transient overvoltage protection. It is constructed with Epcos MOV technology and TE PTC protection. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Digital Camera
- *Network Protection
- *Network POE Power
- *Ethernet Transmission
- *Network Terminal Protection
- *Ethernet With POE Power Supply
- *Digital Monitoring
- *CCTV Surge Protection
- *Ethernet Data Protection
- *Network Surge Protection
- *Remote Network Transmission
- *Network Data Surge Protection

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE

CE

Absolute Maximum Rating

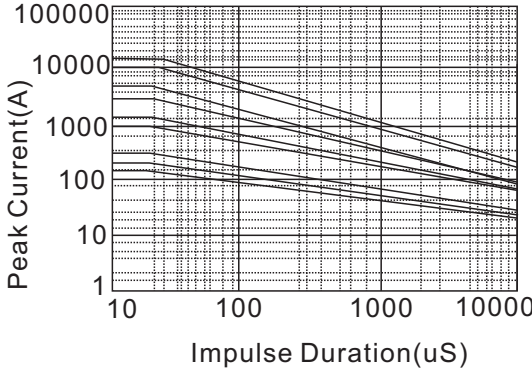
Continous:	CSM-NET/DC Series	Units
Max DC Voltage Range(V _{mrms})	5 to 60	V
Continuous Current	0.2-1	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	10000A
2	6000A
15	5000A
100	1000A
1000	400A
10000	200A
100000	120A

Network and Power SPD Specifications

Part Number	Network	Power	In	I _{max}	POE I _L
CSM-100M*	100	X	5kA	10kA	O
CSM-1000M*	1000	X	5kA	10kA	O
CSM-DC012	X	DC12	5kA	10kA	X
CSM-DC024	X	DC12	5kA	10kA	X
CSM-AC220	X	AC220	5kA	10kA	X
CSM-100M/DC012*	100	DC12	5kA	10kA	O
CSM-100M/DC024*	100	DC24	5kA	10kA	O
CSM-100M/AC220*	100	AC220	5kA	10kA	O
CSM-1000M/DC012*	1000	DC12	5kA	10kA	O
CSM-1000M/DC024*	1000	DC24	5kA	10kA	O
CSM-1000M/AC220*	1000	AC220	5kA	10kA	O

Notes:

1. "*"=With POE function , "X"=None, "O"=Optional .
2. Differential Mode Surge Voltage(Line-Line,1.2/50uS): 10kV.
3. Common Mode Surge Voltage(Line-PE,1.2/50uS): 10kV.
4. Lines protected terminal:1,2,3,6 / 4,5,7,8 ,optional.

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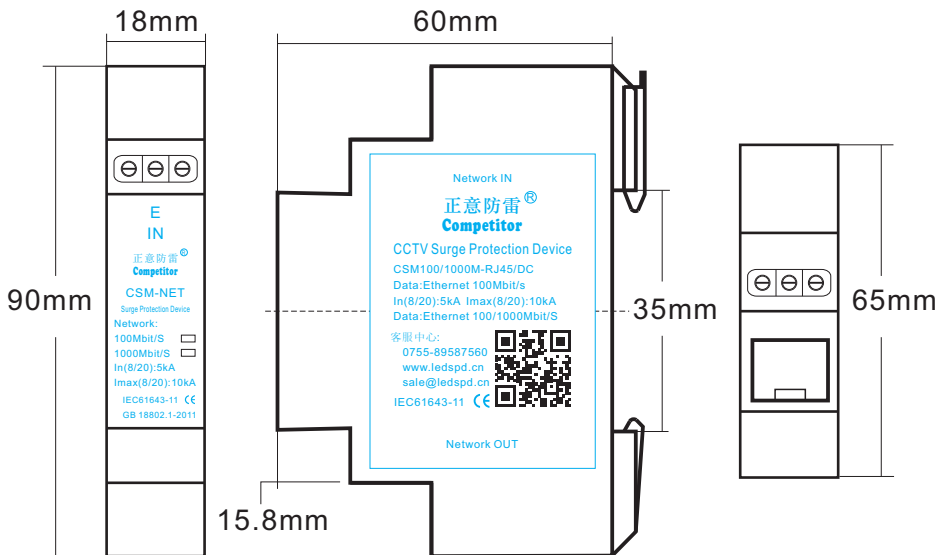
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Easy install with track type
- *Thermally Protected TE'S PTC Technology
- *Series Connected SPD,POE Options
- *Design in UL1449^{4th} standard (5-60V voltage ratings)
- *Connector type:RJ45,8 lines surge protection,Indoor using case or box inside installation
- *Metal shell,protected against bumping and striking
- *Support PoE wire with IEEE802.3af/IEEE802.3at standards
- *IEEE802.3 10Base-T Ethernet
- *IEEE802.3u 100Base-Tx Fast ethernet
- *IEEE802.3ab 1000Base-T Gigabit ethernet
- *Support 60W PoE++ standards
- *Compact Size Network SPD
- *RoHS compliant

Dimensions



Notes:

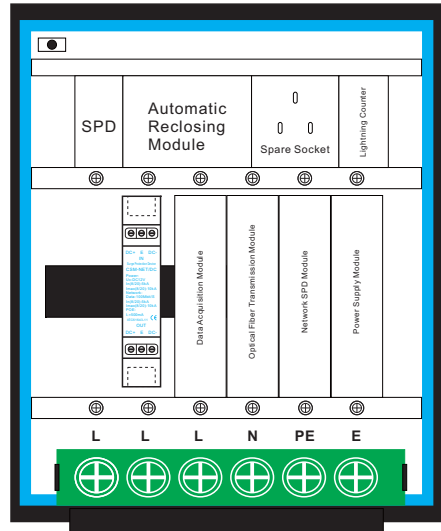
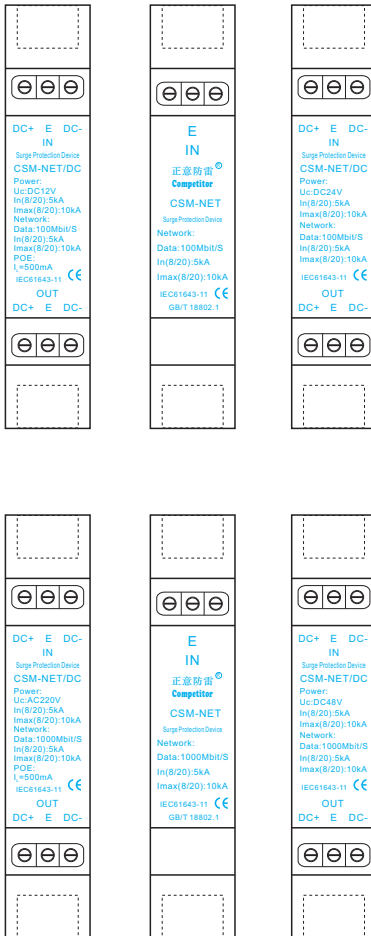
- 1.Connection type :RJ45,8 lines surge protection.
- 2.Indoor using case or box inside installation.
- 3.100Mbit/S and 1000Mbit/S mode can selection.

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Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic



Notes:

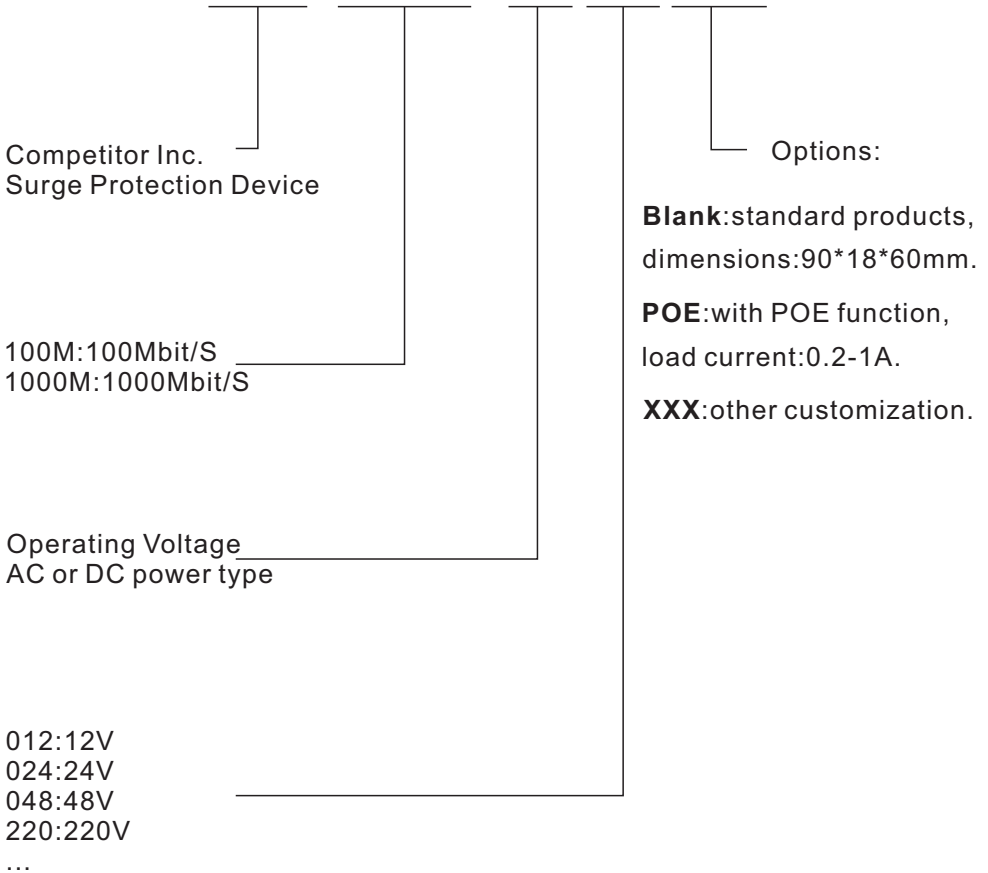
- 1.RJ45 8 lines surge protection.
- 2.Connection to the protected equipment terminal .
- 3.100Mbit/S and 1000Mbit/S product adaptation.
- 4.Ethernet surge protection device with POE function can be selected.
- 5.PE wire must be reliably connected and cannot fall off , Otherwise, the terminal equipment will not be well protected .

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Revised:02.18.2020

Part Number Code System

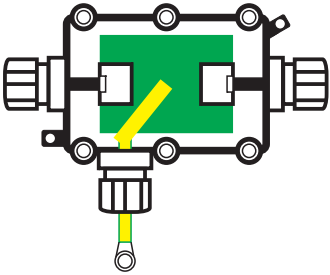
CSM- 1000M / DC 024 POE



Notes

- 1.100Mbit/S network surge protection device 1,2,3,6 lines protected .
- 2.1000Mbit/S network surge protection device 1,2,3,4,5,6,7,8 lines protected .
- 3.Can customized the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

Waterproof Box Ethernet SPD



Competitor's ethernet surge protection device, applied to the ethernet network, with POE function, thermally protected surge protective device is a self-protected device which is specially design to be used in ethernet network for transient overvoltage protection. It is constructed with Epcos GDT technology and TE PTC protection. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *Digital Camera
- *Network Protection
- *Network POE Power
- *Ethernet Transmission
- *Network Terminal Protection
- *Ethernet With POE Power Supply
- *Digital Monitoring
- *CCTV Surge Protection
- *Ethernet Data Protection
- *Network Surge Protection
- *Remote Network Transmission
- *Network Data Surge Protection

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE

CE

Absolute Maximum Rating

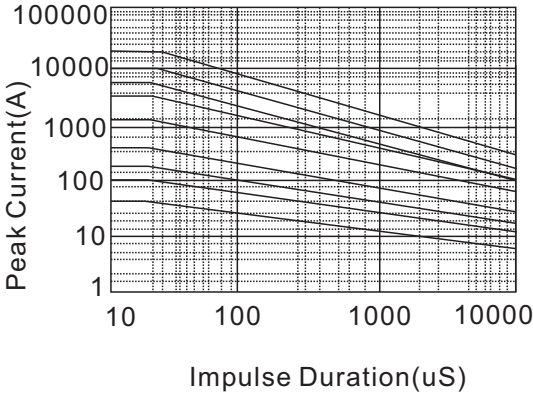
Continuous:	Waterproof Box Series	Units
Max DC Voltage Range (V _{mrms})	5 to 60	V
Continuous Current	0.2-1.0	A
Transient		
Maximum Discharge Current 8/20uS Waveform (I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform (I _n)	5000	A
Operating Ambient Temperature Range (T _a)	-45 to +85	°C
Storage Temperature Range (T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised: 02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	10000A
2	6000A
15	5000A
100	600A
1000	200A
10000	100A
100000	50A

Specifications

Part Number	Network	In	I _{max}	POE	Safety CE
SPD686NET100M*	100M	5kA	10kA	O	X
SPD686NET1000M*	1000M	5kA	10kA	O	X

Remark: "*"=With POE function , "X"=None, "O"=Optional .

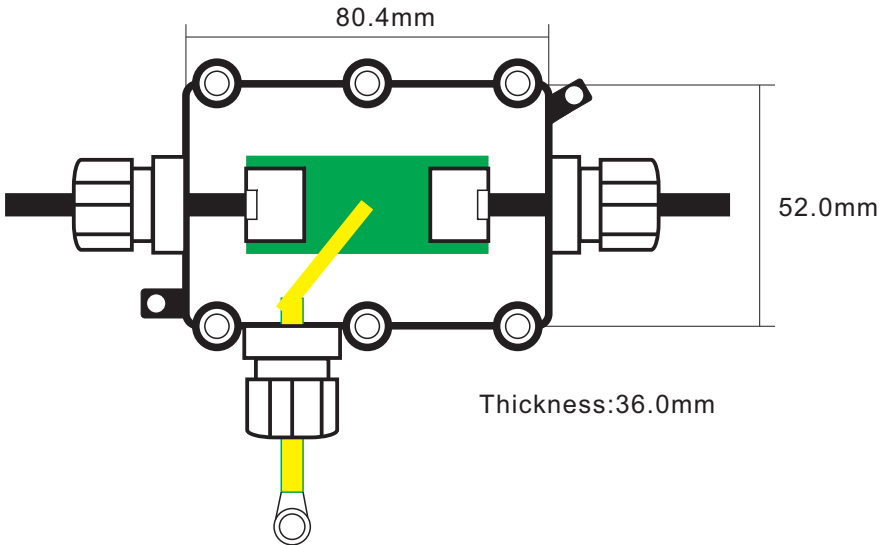
Notes:

1. Operating Voltage: 5-60VDC
2. Differential Mode Surge Voltage (Line-Line, 1.2/50uS): 10kV
3. Breakdown Voltage (4,5-7,8) and (3,6-1,2): 90-180VDC
4. Common Mode Surge Voltage (Line-PE, 1.2/50uS): 10kV
5. Breakdown Voltage (8 lines-PE): 70-120VDC
6. Data Rates: 100/1000Mbit/S
7. Lines protected terminal: 1,2,3,6 / 4,5,7,8
8. Insertion Loss: ≤0.5dB
9. Response Time: ≤5ns

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Support PoE wire with IEEE802.3af /IEEE802.3at standards
- *Thermally Protected TE'S PTC Technology
- *Series Connected SPD,POE Options
- *IP20 Water-proof and Dust-proof
- *Design in UL1449^{4th} standard(5-60V voltage ratings)
- *Connector type:RJ45,8 lines surge protection,Indoor using case or box inside installation
- *Metal shell,protected against bumping and striking
- *Compact form factor with mounting tabs
- *IEEE802.3 10Base-T Ethernet
- *IEEE802.3u 100Base-Tx Fast ethernet
- *IEEE802.3ab 1000Base-T Gigabit ethernet
- *Easy install with 4 install hole
- *Support 60W PoE++ standards
- *Compact Size Network SPD
- *RoHS compliant

T Model Dimensions

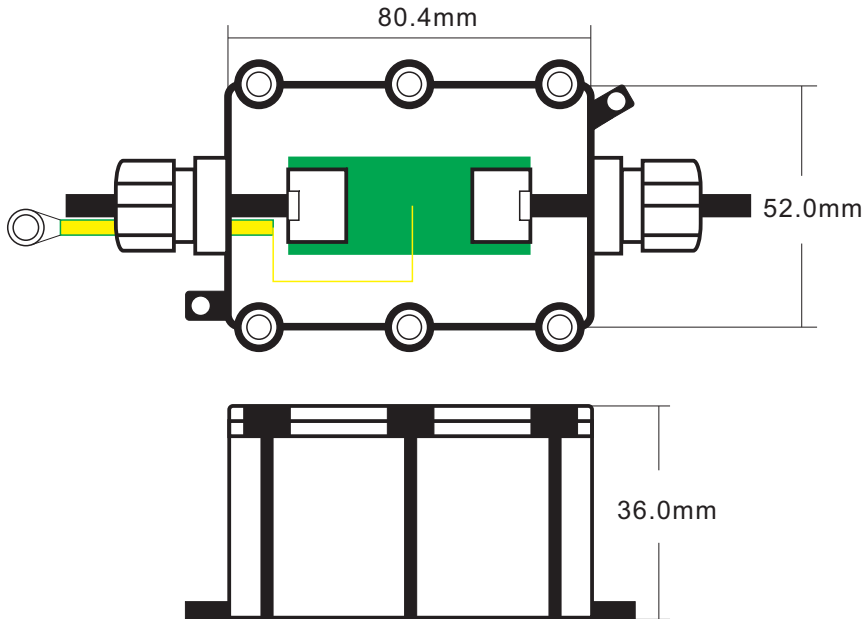


Notes:

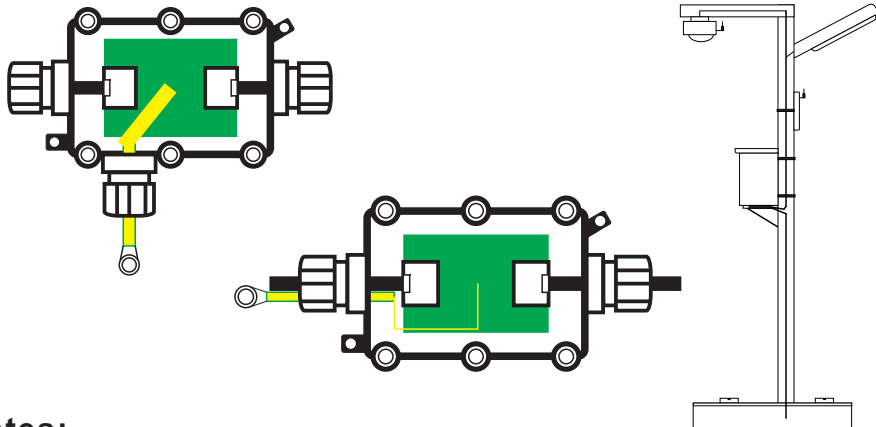
- 1.Connection type :RJ45 surge protection.
- 2.Outdoor using waterproof box installation.

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Specifications are subject to change without notice.
Revised:02.18.2020

I Model Dimensions



Application Installation Schematic



Notes:

1. Ethernet surge protection device with POE function can be selected.
2. PE wire must be reliably connected and cannot fall off , Otherwise, the terminal equipment will not be well protected .

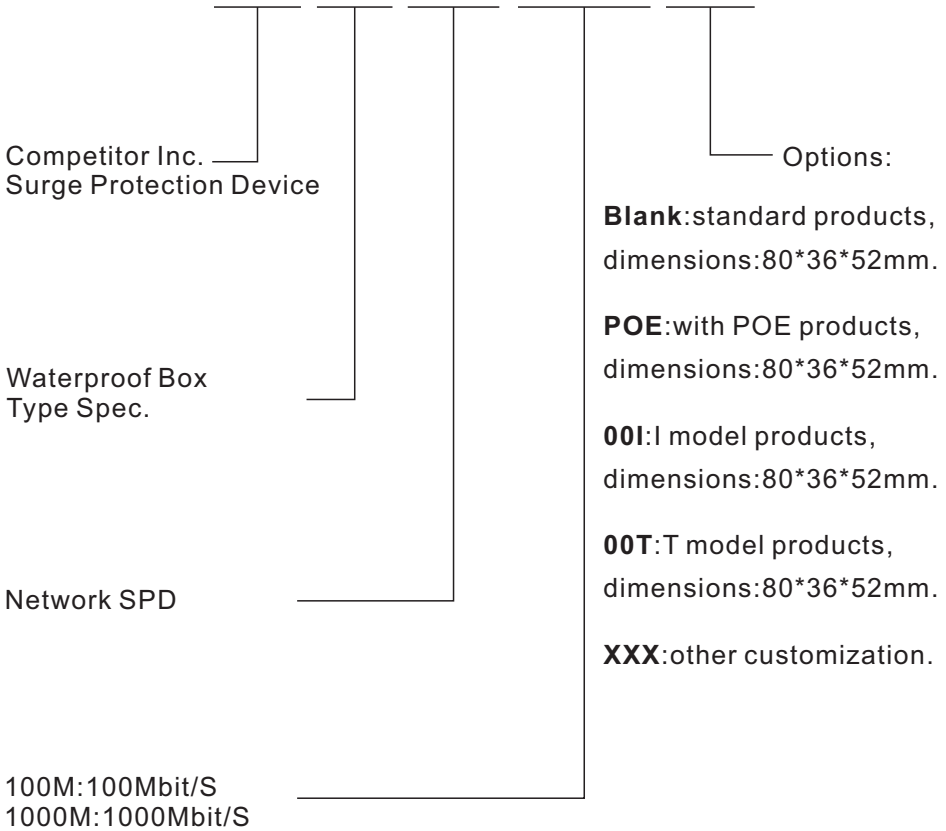
©2020 Competitor Inc.

Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

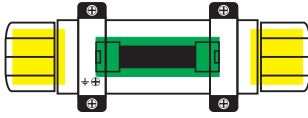
SPD 686 NET 1000M POE



Notes

- 1.100Mbit/S network surge protection device 1,2,3,6 lines protected .
- 2.1000Mbit/S network surge protection device 1,2,3,4,5,6,7,8 lines protected .
- 3.Can customized the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

Aluminum alloy shell Network&POE SPD



100M/1000M with POE

Competitor's ethernet surge protection device, applied to the ethernet network and power supply terminal, with POE function, thermally protected surge protective device is a self-protected device which is specially design to be used in ethernet network and power for transient over volatge protection. It is constructed with Epcos MOV technology and TE PTC protection. Its built-in thermal disconnect function provides additional potection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining overvoltage conditions.

Applications

- *Digital Camera
- *Network Protection
- *Network POE Power
- *Ethernet Transmission
- *Network Terminal Protection
- *Ethernet With POE Power Supply
- *Digital Monitoring
- *CCTV Surge Protection
- *Ethernet Data Protection
- *Network Surge Protection
- *Remote Network Transmission
- *Network Data Surge Protection

Agency

Test standard: IEC/EN 61643-11/UL 1449^{4th}

CE

CE

Absolute Maximum Rating

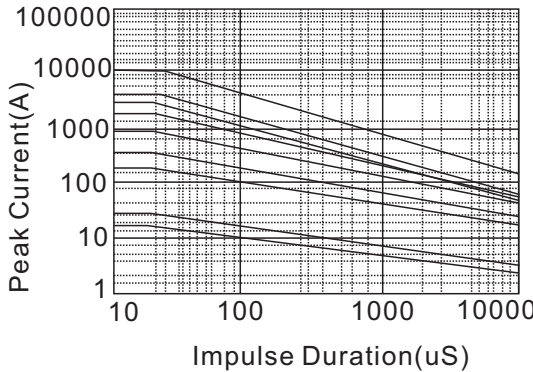
Continous:	CSM-NETPOE Series	Units
Max DC Voltage Range(V _m rms)	5 to 48	V
Continuous Current	0.2-1	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	6000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	3000	A
Ingress Protection	IP67	/
Connection Type	Series	/
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	6000A
2	5000A
15	3000A
100	500A
1000	200A
10000	60A
100000	30A

Specifications

Part Number	Network Mbit/s	In	I _{max}	POE I _L
CSM-100MNET	100	3kA	6kA	X
CSM-1000MNET	1000	3kA	6kA	X
CSM-10000MNET	10000	3kA	6kA	X
CSM-100MNET POE	100	3kA	6kA	O
CSM-1000MNET POE	1000	3kA	6kA	O
CSM-10000MNET POE	10000	3kA	6kA	O

Remark: "X"=None, "O"=Optional .

Notes:

1. Operating Voltage: 5-48VDC
2. Differential Mode Surge Voltage (Line-Line, 1.2/50uS): 10kV
3. Breakdown Voltage (4,5-7,8) and (3,6-1,2): <10-70VDC
4. Common Mode Surge Voltage (Line-PE, 1.2/50uS): 10kV
5. Breakdown Voltage (8 lines-PE): <120VDC
6. Data Rates: 100M/1000M/10000M (10G) bit/S
7. Lines protected terminal: 1,2,3,6 / 4,5,7,8
8. Insertion Loss: ≤0.5dB
9. Response Time: ≤1ns

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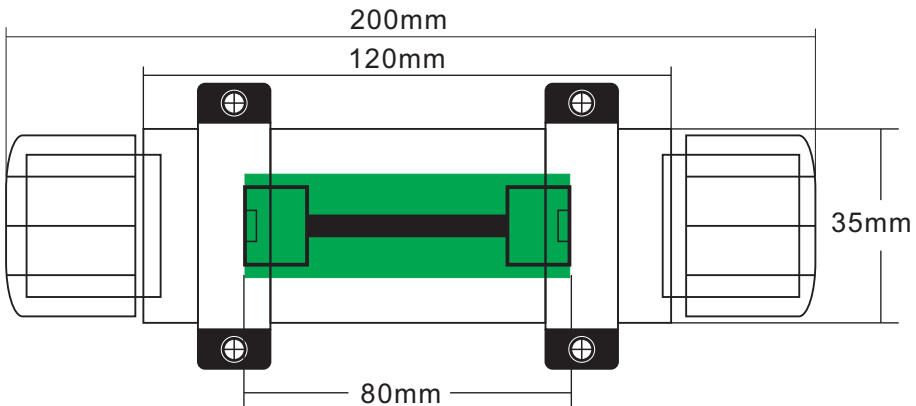
Specifications are subject to change without notice.

Revised: 02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 6kA,8/20uS
- *Easy install with 4 install hole
- *Thermally Protected TE'S PTC Technology
- *Series Connected SPD,POE Options
- *Design in UL1449^{4th} standard (5-48V voltage ratings)
- *Connector type:RJ45,8 lines surge protection,Indoor using case or box inside installation
- *Metal shell,protected against bumping and striking
- *Support PoE wire with IEEE802.3af/IEEE802.3at standards
- *IEEE802.3 10Base-T Ethernet
- *IEEE802.3u 100Base-Tx Fast ethernet
- *IEEE802.3ab 1000Base-T Gigabit ethernet
- *Support 60W PoE++ standards
- *Compact Size Network SPD
- *RoHS compliant

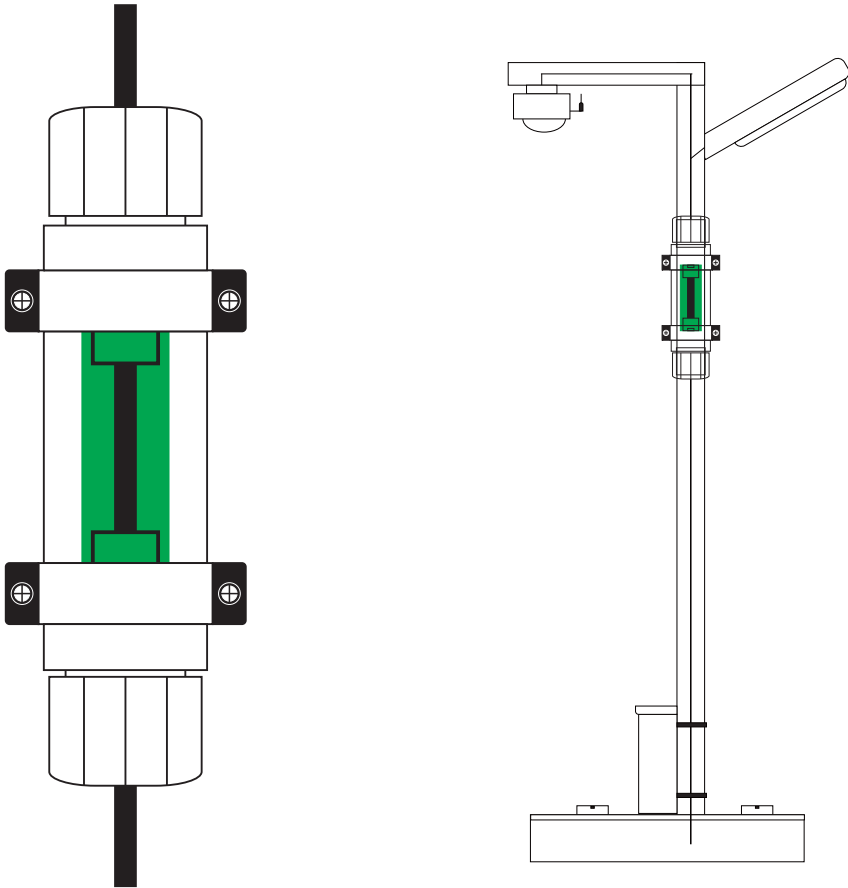
Dimensions



Notes:

- 1.Connection type :RJ45,8 lines surge protection.
- 2.Indoor using case or box inside installation.
- 3.100Mbit/S,1000Mbit/S and 10000Mbit/s mode can selection.
- 4.POE function can be selected ,100Mbit/S,1000Mbit/S and 10Gbit/s with POE .
- 5.The color of aluminum alloy shell can be customized ,please submit before order .
- 6.Mass order can be customized product length ,the delivery time of the order will be extended.

Application Installation Schematic

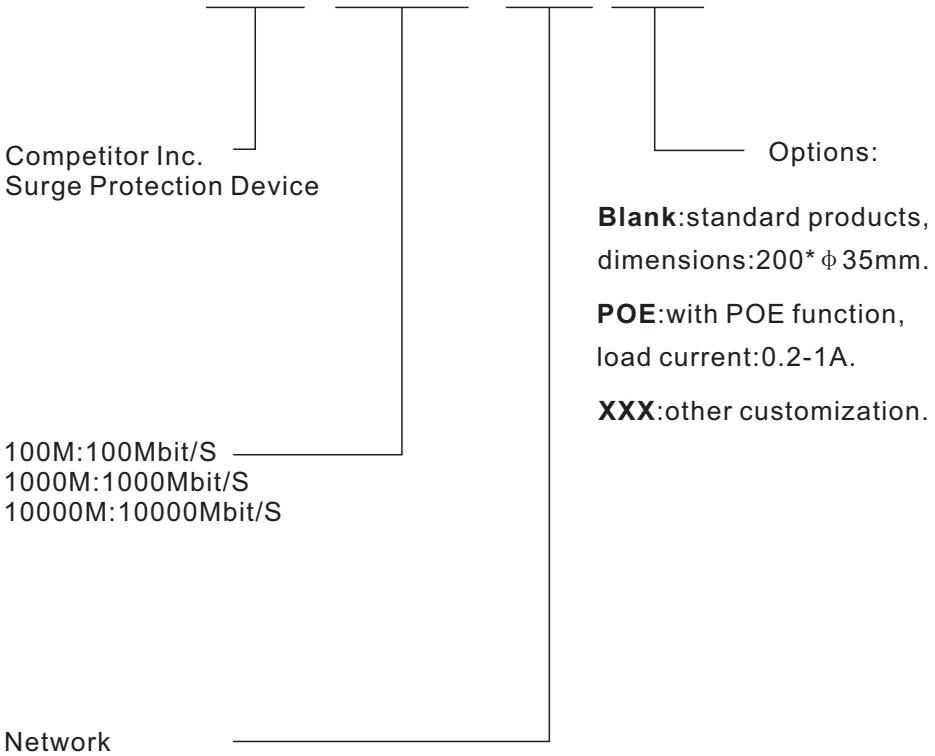


Notes:

- 1.RJ45 8 lines surge protection.
- 2.Connection to the protected equipment terminal .
- 3.100Mbit/S,1000Mbit/S and 10000Mbit/S product adaptation.
- 4.Ethernet surge protection device with POE function can be selected.
- 5.PE wire must be reliably connected and cannot fall off , Otherwise, the terminal equipment will not be well protected .

Part Number Code System

CSM- 1000M / NET POE



Notes

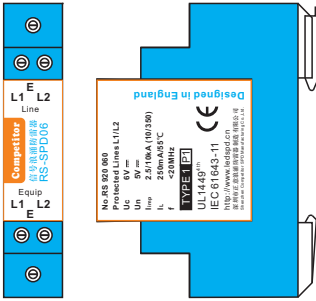
1. 100Mbit/S network surge protection device 1,2,3,6 lines protected .
2. 1000Mbit/S network surge protection device 1,2,3,4,5,6,7,8 lines protected .
3. 10000M(10G)bit/S network surge protection device 1,2,3,4,5,6,7,8 lines protected .
4. Can customized the model not in the list, please inform the parameters.
5. A specific customer has a specific serial number that is not in circulation of products.

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Control Signal Surge Protection Device



Competitor's control signal surge protection device, applied to the signal and data transmission line, thermally protected surge protective device is a self protected device which is specially design to be used in ethernet network for transient overvoltage protection. It is constructed with Epcos(TDK) GDT technology and TE TVS protection. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *RS485 Data Line
- *RS232 Data Line
- *RS422 Data Line
- *Control Signal Data
- *Transmission Signal
- *Telemetry Signal Data
- *Remote Control Signal
- *Outdoor Test Probe Signal
- *Data Terminal Protection
- *Remote Data Transmission
- *DC Remote Control Signal
- *Signal Data Surge Protection

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE GB/T 18802.1 (E) GB 18802.1-2011

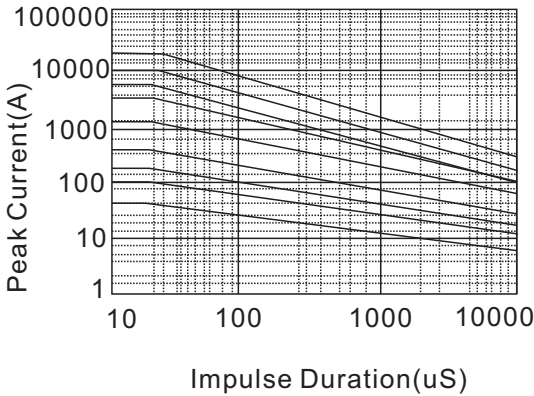
Absolute Maximum Rating

Continuous:	RS-SPD Series	Units
Max DC Voltage Range(V _m rms)	5 to 100	V
Continuous Current	0.1-1.0	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	10000A
2	6000A
15	5000A
100	600A
1000	200A
10000	100A
100000	50A

Specifications

Part Number	Operating Voltage(V)	MCOV (V)	In	I _{max}	Up	Safety CE
RS-SPD06	DC5V	DC6V	5kA	10kA	10V	X
RS-SPD12	DC12V	DC18V	5kA	10kA	25V	X
RS-SPD24	DC24V	DC39V	5kA	10kA	56V	X
RS-SPD36	DC36V	DC51V	5kA	10kA	73V	X
RS-SPD48	DC48V	DC62V	5kA	10kA	85V	X
RS-SPD60	DC60V	DC82V	5kA	10kA	113V	X
RS-SPD72	DC72V	DC91V	5kA	10kA	125V	X
RS-SPD80	DC80V	DC120V	5kA	10kA	165V	X

Remark: "X"=Approved, "O"=Optional .

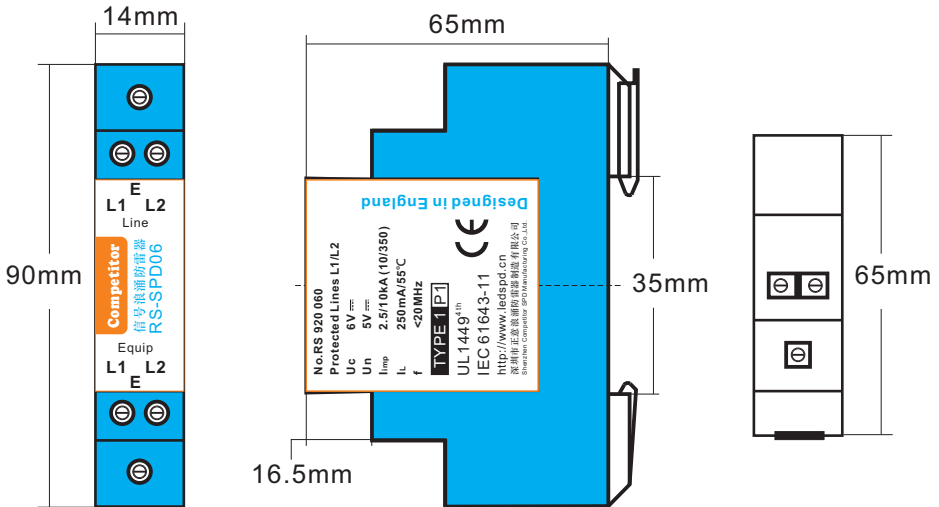
Notes:

1. Differential Mode Surge Voltage(Line-Line, 1.2/50uS): 10kV .
2. Common Mode Surge Voltage(Line-PE, 1.2/50uS): 10kV.
3. Lines protected terminal:L1-L2,L1-E,L2-E .

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Metal shell,protected against bumping and striking
- *Thermally Protected TE'S TVS Technology
- *Compact form factor with mounting tabs
- *Series Connected SPD
- *Easy install with 6 install hole
- *IP20 Waterproof and Dust proof
- *Support RS485 data standards
- *Design in UL1449^{4th} standard(5-100V voltage ratings)
- *Support RS422 data standards
- *Connector type:Install hole surge protection,Indoor using case or box inside installation
- *Support RS232 data standards
- *Compact Size Signal SPD
- *RoHS compliant

Dimensions



Notes:

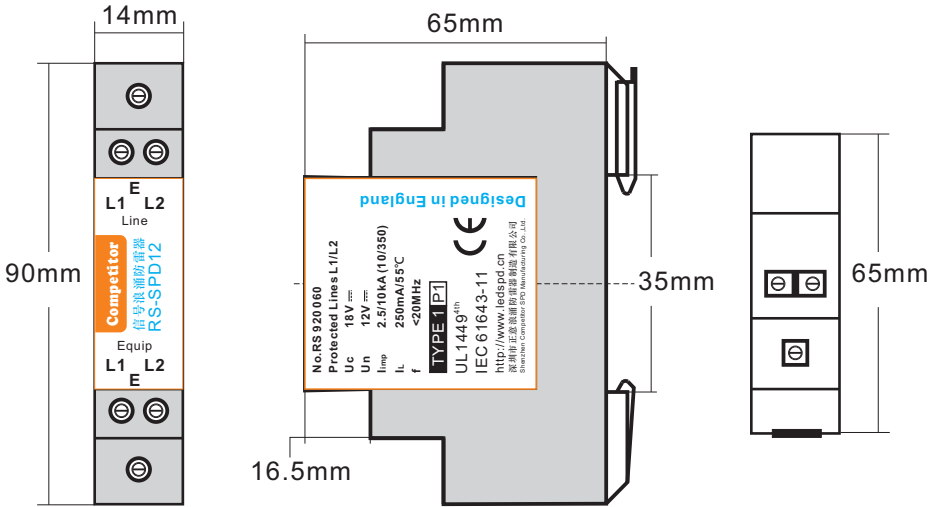
- 1.Outdoor using waterproof box installation.
- 2.Connection type :Series install hole surge protection mode.

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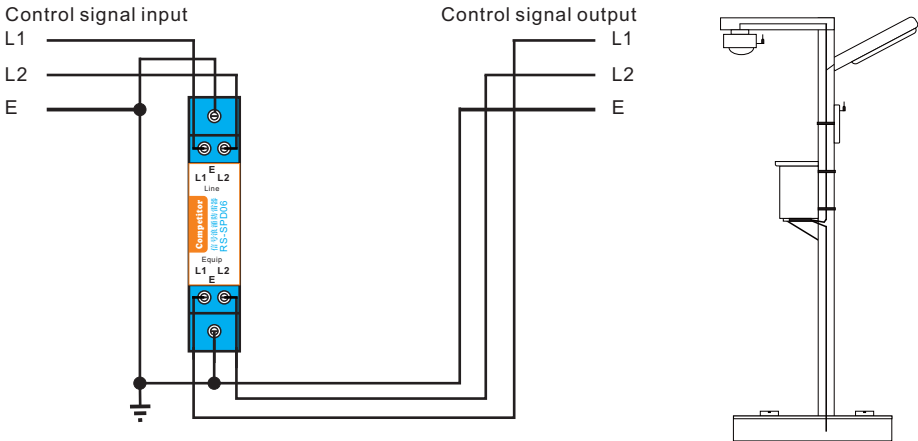
Specifications are subject to change without notice.

Revised:02.18.2020

Dimensions



Application Installation Schematic



Notes:

1. Control signal surge protection device, voltage can be selected.
2. PE wire must be reliably connected and cannot fall off, Otherwise, the terminal equipment will not be well protected.

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Revised: 02.18.2020

Part Number Code System

RS - SPD 06 XXX

Competitor Inc.
Signal SPD

Options:

Blank: standard products,
dimensions: 90*14*65mm.

XXX: other customization.

Surge Protection
Device

06: DC6V
12: DC12V
24: DC24V
36: DC36V
48: DC48V
....

Notes

1. Control signal surge protection device: L1-L2, L1-E, L2-E protected .
2. Apply to Rs485 ,RS232,RS422,remote control signal protection etc. .
3. Can customized the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

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Revised: 02.18.2020

Signal Surge Protection Device



Competitor's control signal surge protection device, applied to the signal and data transmission line, thermally protected surge protective device is a self-protected device which is specially design to be used in ethernet network for transient overvoltage protection. It is constructed with Epcos(TDK) GDT technology and TE TVS protection. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *RS485 Data Line
- *RS422 Data Line
- *Transmission Signal
- *Remote Control Signal
- *Data Terminal Protection
- *DC Remote Control Signal
- *RS232 Data Line
- *Control Signal Data
- *Telemetry Signal Data
- *Outdoor Test Probe Signal
- *Remote Data Transmission
- *Signal Data Surge Protection

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE GB/T 18802.1 CE GB 18802.1-2011

Absolute Maximum Rating

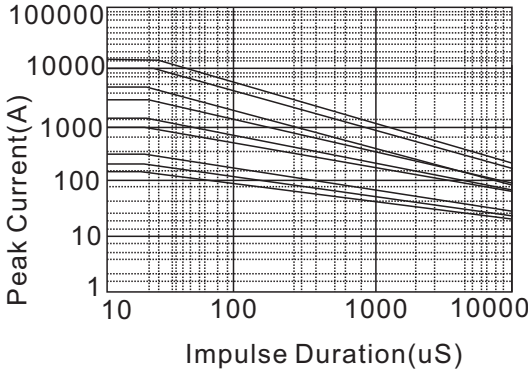
Continous:	CSM-RS Series	Units
Max DC Voltage Range(V _{mrms})	5 to 72	V
Continuous Current	0.1-1.0	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	10000A
2	6000A
15	5000A
100	1000A
1000	400A
10000	200A
100000	120A

Specifications

Part Number	Operating Voltage(V)	I _L (A)	In	I _{max}	Safety CE
CSM-RS485*	DC5V	0.1-0.25	5kA	10kA	X
CSM-RS422*	DC12V	0.1-0.25	5kA	10kA	O
CSM-RS232*	DC24V	0.1-0.25	5kA	10kA	O
CSM-RS005*	DC5V	0.1-0.25	5kA	10kA	X
CSM-RS012*	DC12V	0.1-0.25	5kA	10kA	X
CSM-RS024*	DC24V	0.1-0.25	5kA	10kA	X
CSM-RS036*	DC36V	0.1-0.25	5kA	10kA	O
CSM-RS048*	DC48V	0.1-0.25	5kA	10kA	X
CSM-RS060*	DC60V	0.1-0.25	5kA	10kA	O
CSM-RS072*	DC72V	0.1-0.25	5kA	10kA	O

Notes:

- 1."*"=With high speed module , "X"=Approved, "O"=Optional .
- 2.Differential Mode Surge Voltage(Line-Line, 1.2/50uS): 10kV.
- 3.Common Mode Surge Voltage(Line-PE, 1.2/50uS): 10kV.
4. Lines protected terminal:1,2,3,6 / 4,5,7,8 , optional.

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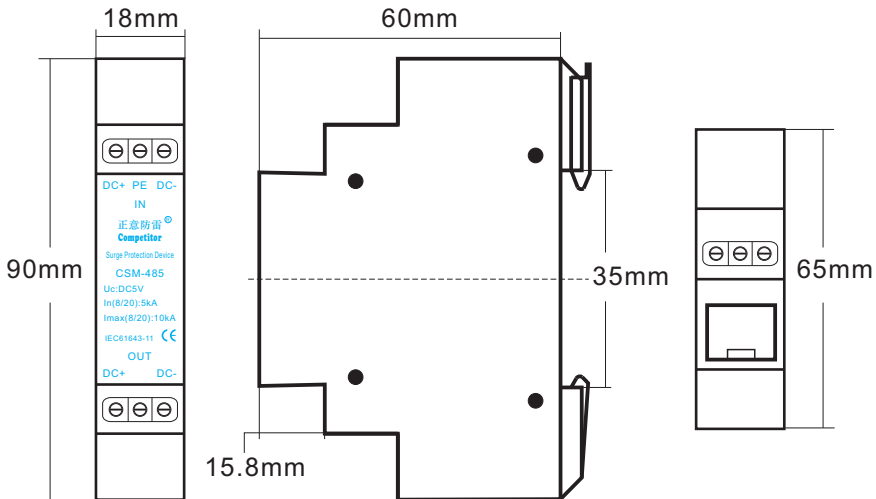
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Metal shell,protected against bumping and striking
- *Thermally Protected TE'S TVS Technology
- *Compact form factor with mounting tabs
- *Series Connected SPD
- *Easy install with 6 install hole
- *IP20 Waterproof and Dust proof
- *Support RS485 data standards
- *Design in UL1449^{4th} standard(5-100V voltage ratings)
- *Support RS422 data standards
- *Support RS232 data standards
- *Connector type:Install hole surge protection,Indoor using case or box inside installation
- *Compact Size Signal SPD
- *RoHS compliant

Dimensions



Notes:

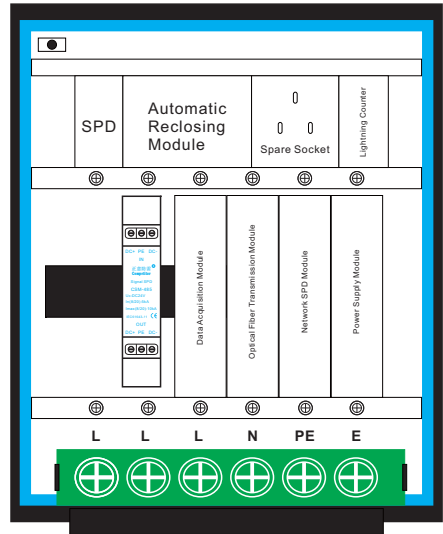
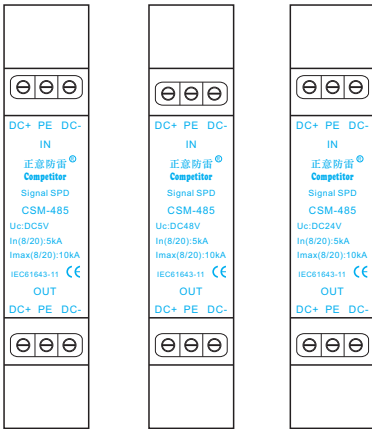
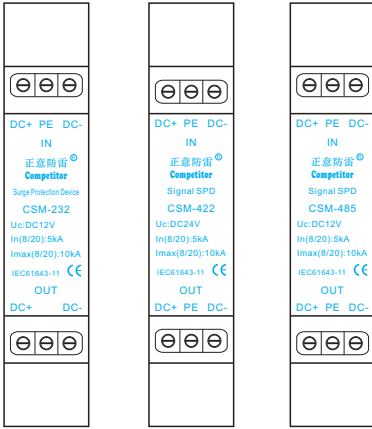
- 1.Connection type :301 terminal connection.
- 2.Indoor using case or box inside installation.
- 3.Applied voltage and control signal mode can selection.

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Application Installation Schematic

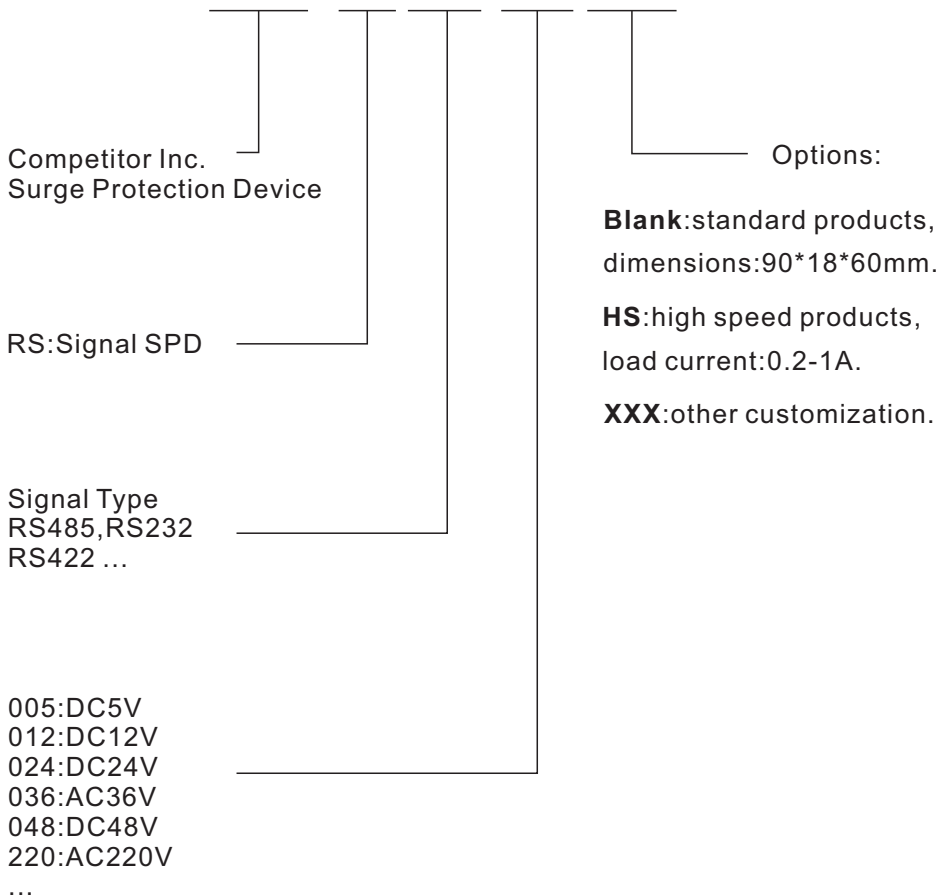


Notes:

- 1.301 terminal connection series type surge protection.
- 2.Series connection to the protected equipment terminal .
- 3.High speed data transmission and control signal type product adaptation.
- 4.PE wire must be reliably connected and cannot fall off , Otherwise, the terminal equipment will not be well protected .

Part Number Code System

CSM- RS 485 012 XXX



Notes

- 1.Series type remote signal surge protection products .
- 2.Series type RS485 or RS232 or RS422 etc. signal surge protection products .
- 3.Series type control signal and data transmission signal surge protection products.
4. Can customized the model not in the list, please contact us inform the parameters.
5. A specific customer has a specific serial number that is not in circulation of products.

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⊕ Ni	⊕ Li	⊕ Li	⊕ Li
正原標商 Competitor CSM-SCB60 Ue:230V~ Ic:30A Ic:3A SPD性能標記 ON	正原標商 Competitor CSM-SCB60 Ue:230V~ Ic:30A Ic:3A SPD性能標記 ON	正原標商 Competitor CSM-SCB60 Ue:230V~ Ic:30A Ic:3A SPD性能標記 ON	正原標商 Competitor CSM-SCB60 Ue:230V~ Ic:30A Ic:3A SPD性能標記 ON
No ⊕	Lo ⊕	Lo ⊕	Lo ⊕

The Competitor's SPD circuit breaker thermally protected surge protective device is a self-protected device which is specially design to be used in power supply systems for transient over load circuit protection. It is constructed with EPCOS(TDK) GDT technology. It's built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of GDT end-of-life or sustaining over load circuit conditions.

Applications

- *Traffic lighting
- *Elevator control box
- *Power supply box
- *Plant power supply system
- *Power Supply Systems
- *Household power supply box
- *Municipal construction power supply
- *Computer room power supply
- *Centralized power supply for buildings
- *Industrial power supply system

Certification Standard

TUV CE	IEC61643-11:2015	CQC	NB/T 42150-2018
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

Continous:	CSM-SCB Series	Units
Max AC Voltage Range(Vmrms)	230	V
Max Continuous Current(Kevin Connection)	3	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	20-100	kA
Norminal Discharge Current 8/20uS Waveform(I _n)	10-50	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Revised:02.18.2020

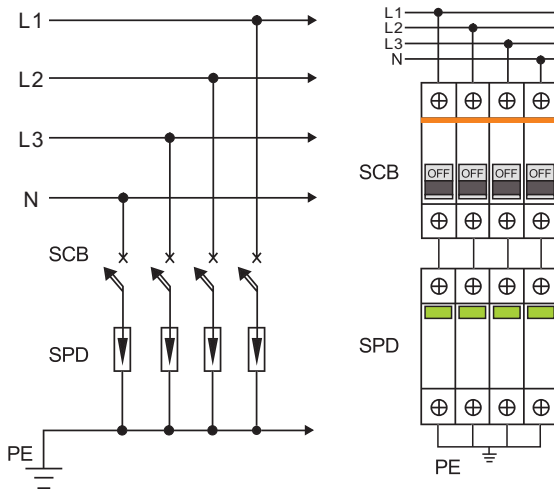
Specifications

Part Number	Operating Voltage	Type1 Type2	Ie	Iimp	Io	Safety CE NBT	
CSM-SCB20*	230/400	T2	20kA	X	3A	X	X
CSM-SCB40*	230/400	T2	40kA	X	3A	X	X
CSM-SCB60*	230/400	T2	60kA	X	3A	X	X
CSM-SCB80*	230/400	T2	80kA	X	3A	X	X
CSM-SCB100*	230/400	T2	100kA	X	3A	X	X
CSM-SCB15*	230/400	T1	X	15kA	3A	X	X
CSM-SCB25*	230/400	T1	X	25kA	3A	X	
CSM-SCB50*	230/400	T1	X	50kA	3A	X	

Notes:

- 1.Part number with "*" -T1 or T2 only.
- 2.Approved in NBT 42150 standard ,SPD circuit breaker full series products.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

Application Installation Schematic



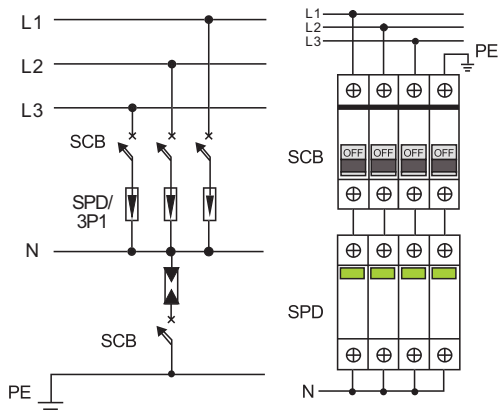
4P SPD Connection

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Revised:02.18.2020

Application Installation Schematic

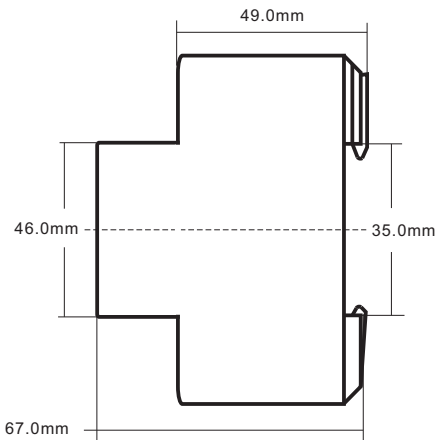
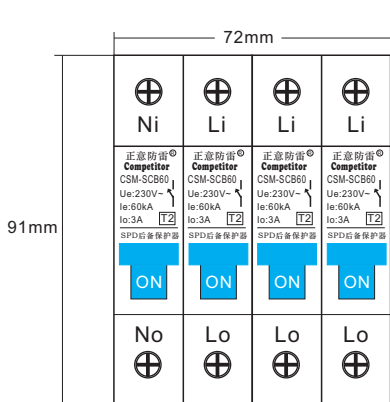


3P+1 SPD Connection

Notes:

1. Surge circuit breaker must be Kevin connected(NBT 42150).
2. Various application voltage(230V/400V) products can provide.
3. For NB/T 42150-2018 approved, SPD circuit breaker design in UL1449th.
4. When the indicator window is display off, SPD circuit breaker is protected.
5. Design in CQC and IEC61643-11; SCB structure is divided into 4P and 3P+N.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

T2 Type Dimensions



Notes:

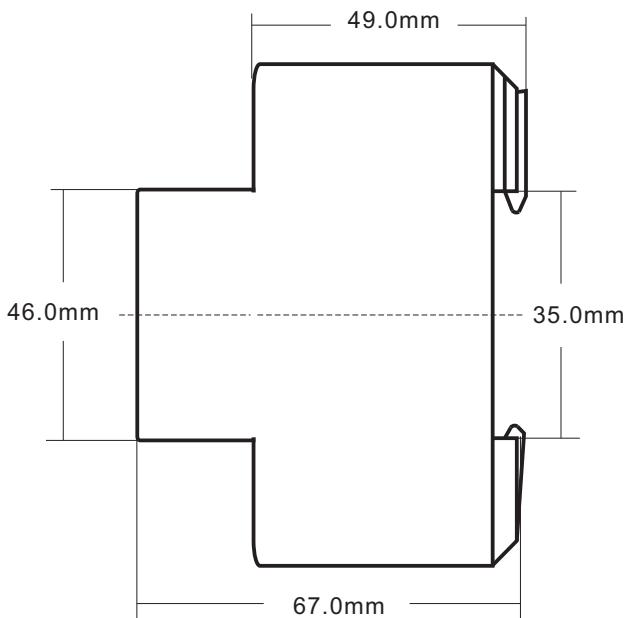
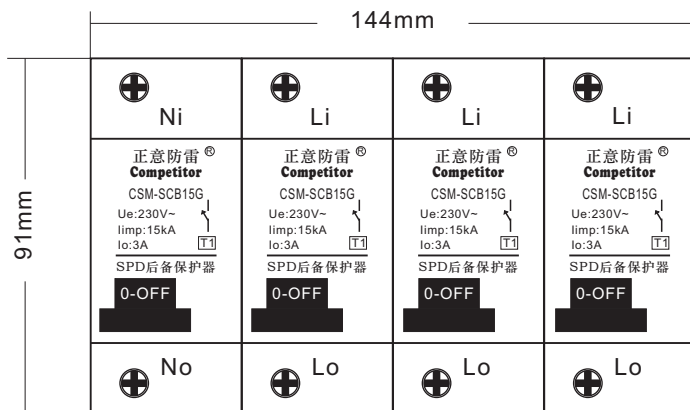
1. Connection wires standard: 2.5-25mm².
2. CSM-SCB80/100 T2 series are a split-type shell only.
3. Other series are single pin combination products, if there are special requirements, please put forward when ordering.

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Specifications are subject to change without notice.

Revised:02.18.2020

T1 Type Dimensions



Notes:

- 1.Connection wires standard:2.5-25mm².
- 2.CSM-SCB15G/25G/50G T1 series are a split-type shell only.
- 3.Other series are single pin combination products,If there are special requirements, please put forward when ordering.

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Revised:02.18.2020

Part Number Code System

CSM-SCB 40 T2 230 4P RS

Competitor Inc.
SPD Brand

SPD Circuit
Breaker

Ie(T2 20/40/60/80
100kA; T1 15/25/50kA)

T1 or T2 Type

Operating Voltage
(230V/400V)

1P/2P/3P/4P

Options:

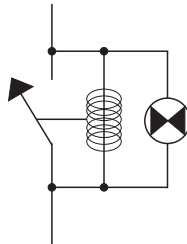
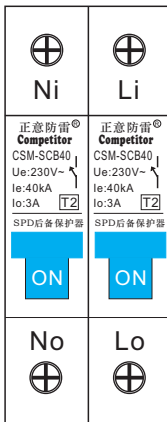
Blank: Standard product.

RS: with remote signal PIN

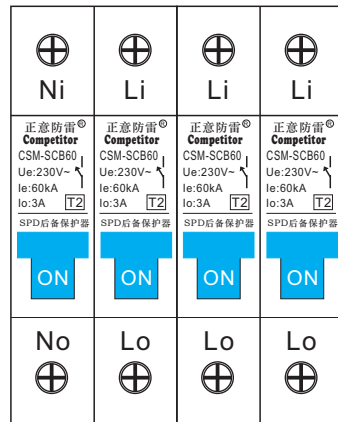
Else: customization

Notes: Remote signaling can choose terminal output and wire output.

Circuit Diagram



2P Mode



4P Mode

Notes:

1. With load circuit protection technology.
2. SPD circuit breaker products 1P or 2P or 3P or 4P protection mode .

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Specifications are subject to change without notice.

Revised:02.18.2020

Lightning Counter



Competitor's lightning counter, applied to the surge protection device line, when the line lightning strikes, the lightning counter records the number of lightning strikes, this lightning counter product adopts passive technology and can be connected with external line power supply, you can also customize the built-in battery version, which can be used independently without external power supply, there are many versions of the product for customers to choose. please contact us when you order for details.

Applications

- *Traffic control box
- *Elevator control box
- *Power supply box
- *Plant power supply system
- *Power Supply Systems
- *Household power supply box
- *Municipal construction power supply
- *Computer room power supply
- *Centralized power supply for buildings
- *Industrial power supply system

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE

CE

Absolute Maximum Rating

Continous:	CSM-LC Series	Units
Max DC Voltage Range(V _{rms})	3 to 12	V
Continuous Current	0.1	A
Transient		
Count Maximum Discharge Current 8/20uS	200000	A
Count Minimum Discharge Current 8/20uS	500	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Revised:02.18.2020

Features

- *Count Minimum Discharge Current 500A,8/20uS
- *Count Maximum Discharge Current 100kA,8/20uS
- *IP67 Waterproof and Dust proof
- **Display the number of lightning strikes
- *Connector type:Track Install
- *Display date and time
- *External Install Sensor
- *Thermally Protected Technology
- *Optional without power supply
- *Optional LED mode type
- *Easy install with 4 install hole
- *Design in IEC61643-11 standard
- *Design in UL1449^{4th} standard
- *Design in CQC standard
- *RoHS compliant

Specifications

Part Number	Operating Voltage(V)	Imin(A)	I _{max} (kA)	Safety CE
CSM-LC01*	DC3.0-12.0V	500A	100kA	O
CSM-LC02*	DC3.0-12.0V	500A	200kA	X
CSM-LC03*	DC3.0-12.0V	400A	200kA	X

Notes:

- 1."*"=Customized products ,"X"=Approved,"O"=Optional .
- 2.Sensor connect to the power supply line input terminal.
- 3.Lightning counter can reset the record number of lightning strikes.
4. Optional with battery and with single phase power supply input line .
- 5.External sensor can be near to input power line ,general referance ground wire .
- 6.CSM-LC01 display component can select the moduel with battery.
- 7.CSM-LC02 and CSM-LC03 can select the with battery and external connection power supply.
- 8.Display moduel can choose different styles.
- 9.External sensor wire length can be customized.

Dimensions



Notes:

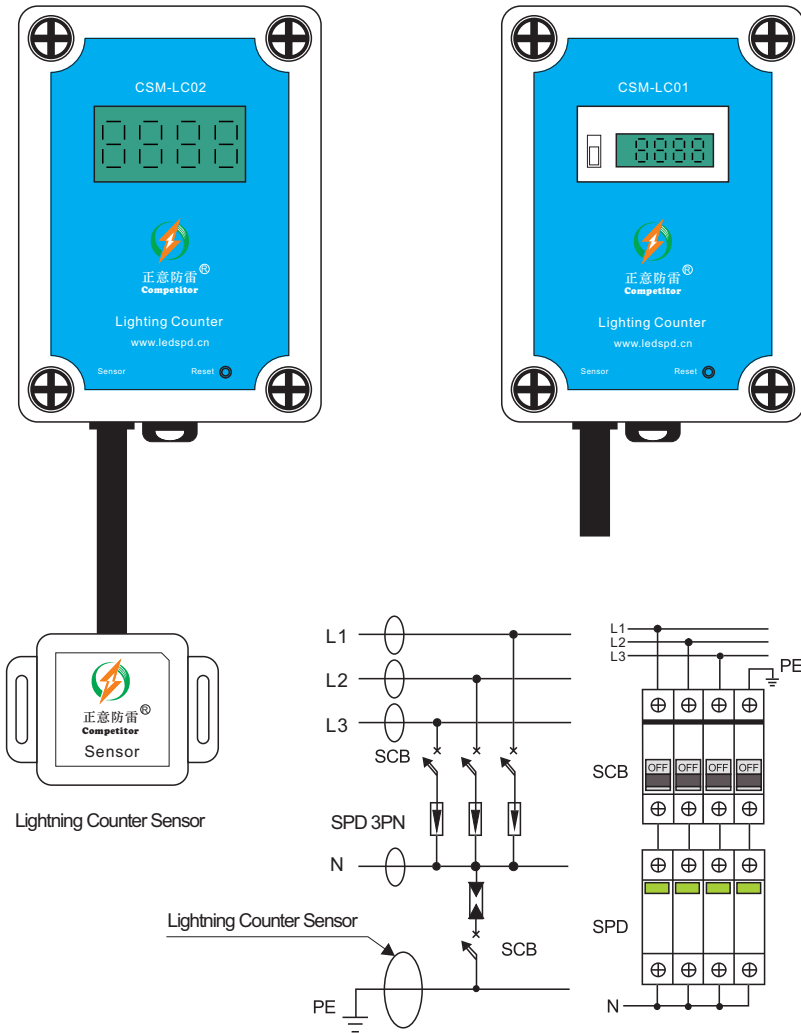
1. Installation type :Track Installation.
2. External installation contactless sensor.
3. Applied to power supply box SPD protection line .

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Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic



Notes:

1. Sensor use VDE 2*0.3mm² cable connection lightning counter.
2. Lightning counter sensor close to the power supply input terminal .
3. The lightning counter has a variety of function products to choose from.

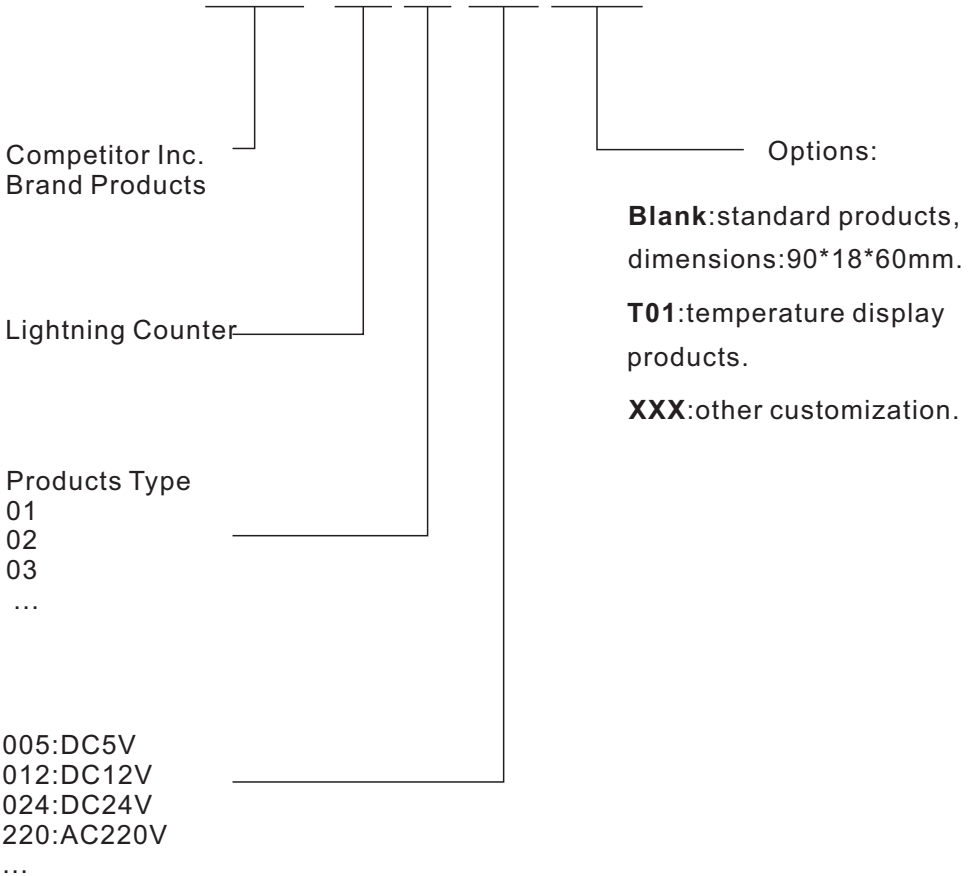
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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

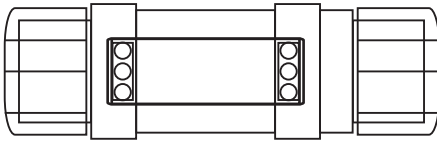
CSM- LC 03 005 XXX



Notes

- 1.Voltage option only applies to products powered by external power supply .
- 2.Different display modules can be selected, example : 01 or 02 or 03 etc. .
- 3.Sensor type and cable length can be selected ,sensor near to power input line.
4. Can customized the model not in the list, please contact us inform the parameters.
5. A specific customer has a specific serial number that is not in circulation of products.

Lighting Engineering SPD



OVP685

Competitor 's OVP SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor lighting engineering LED lighting fixtures for transient overvoltage protection. It is constructed with Epcos varistor technology. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustain over voltage conditions.

Applications

- *Outdoor LED
- *Street lighting
- *Traffic lighting
- *Flood lighting
- *Digital signage
- *Tunnel lighting
- *Roadway lighting
- *Low Bay Lighting
- *High Bay Lighting
- *Wash wall lighting
- *Municipal construction LED
- *Lighting engineering LED

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE

CE

Absolute Maximum Rating

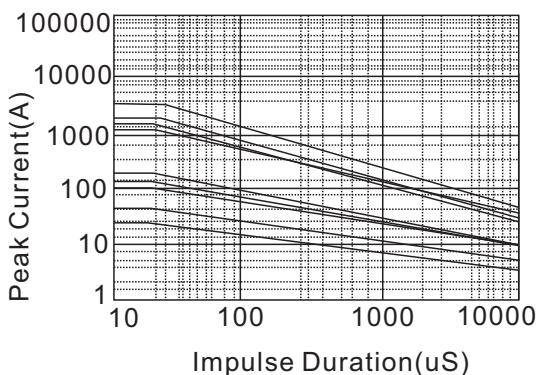
Continous:	OVP685 Series	Units
Max AC Voltage Range(V _{mrms})	140 to 510	V
Continuous Current	0.5-2	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	2500	A
Norminal Discharge Current 8/20uS Waveform(I _n)	1200	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	2500A
2	1500A
15	1200A
100	250A
1000	130A
10000	60A
100000	50A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE	UL
OVP12T100*	100	140	1.2kA	2.5kA	500	O	O
OVP12T120*	120	150	1.2kA	2.5kA	600	O	O
OVP12T240*	240	275	1.2kA	2.5kA	1000	X	O
OVP12T277*	277	320	1.2kA	2.5kA	1200	X	O
OVP12T347*	347	420	1.2kA	2.5kA	1500	X	O
OVP12T480*	480	510	1.2kA	2.5kA	1800	X	O

Notes:

- 1."*" - load current ,0.5A-2A can be selected.
- 2."X" - Approved , "O" - Optional authentication parameters
- 3.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 4.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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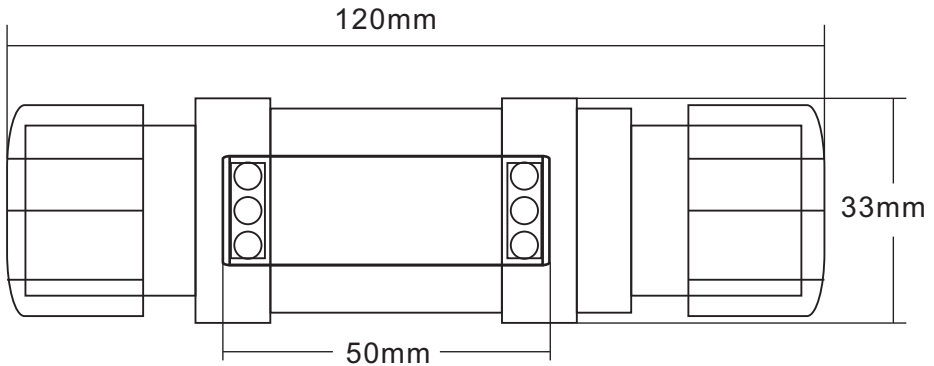
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 2.5kA,8/20uS
- *Meets ANSI C136.2 Enhanced Level 2.5kV/1kA,IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *UL1449 Recognized(120VAC and 240VAC voltage ratings)
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class II and EN61643-11 Type 2 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 277VAC
- *With over voltage protection function
- *240VAC and 277VAC are CE compliant and available for Class I and Class II installation based on IEC luminaire protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Dimensions



Notes:

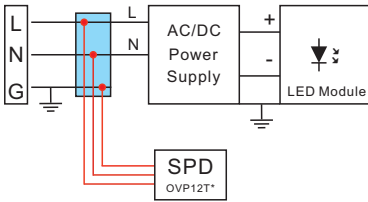
1. Inside DA301 terminal connection,3 Pin,CE,UL,VDE,300V,10A.
2. Caution:Line/Neutral wires must be correctly connected to AC power grid, Wiring error on line/neutral polarity may cause module failure.

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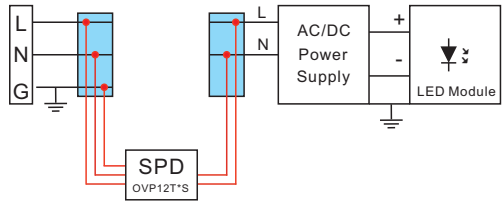
Specifications are subject to change without notice.

Revised:02.18.2020

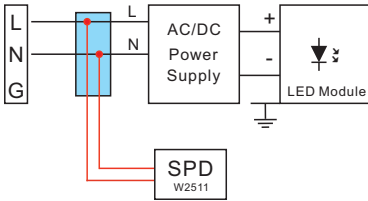
Application Installation Schematic



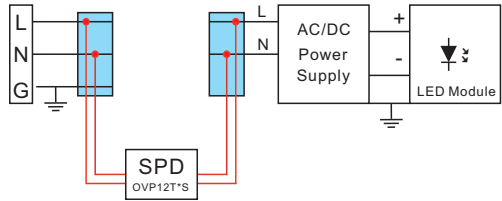
Parallel Connection



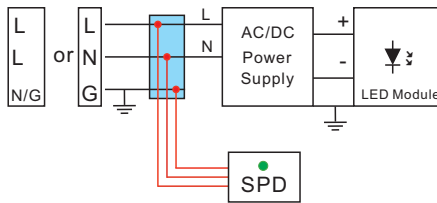
Series Connection



Parallel Connection
(for Class II Unearthed)



Series Connection
(for Class II Unearthed)



Parallel Connection

With LED indicating SPD status

- ON (green):SPD is online
- OFF:SPD needs replacement

Notes:

- 1.Parallel connection without OVP function .
- 2.LED indicator and associated circuitry are included in the module.
- 3.L terminal is AC line voltage (hot);N terminal is AC neutral voltage.
- 4.L(AC) line voltage is cut off when SPD needs replacement.
- 5.R is current limiting resistor,it resistance/wattage is determined by AC line voltage and desired current driving LED. Example:AC line voltage 240VAC,LED :1.6mA.
- 6.External indicator must be current limiting resistor.

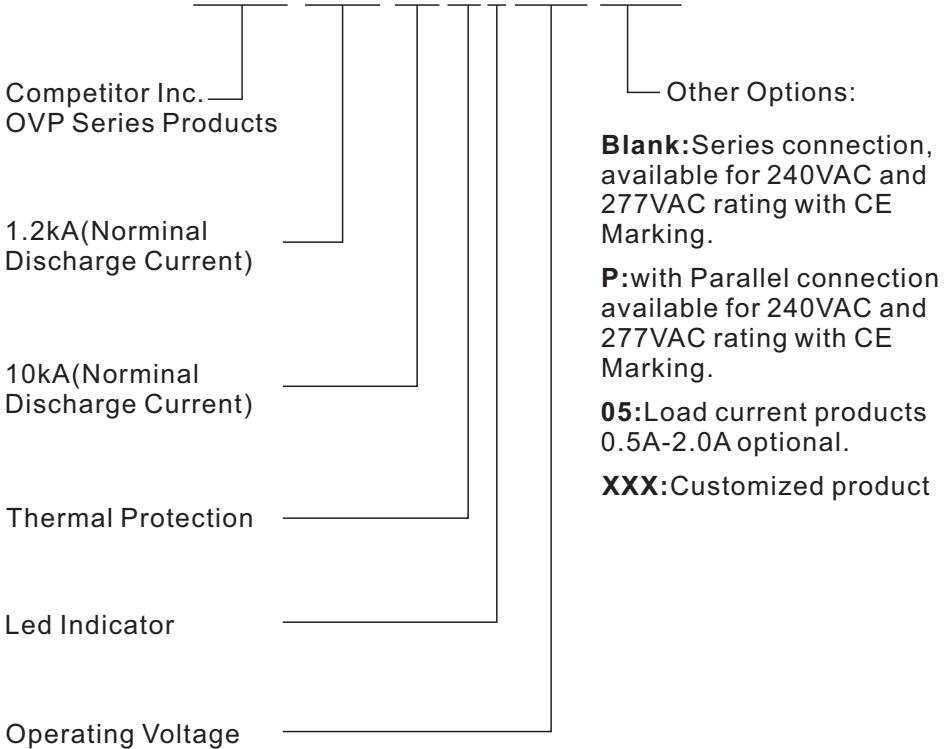
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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

OVP 685 12 T I 277 xxx

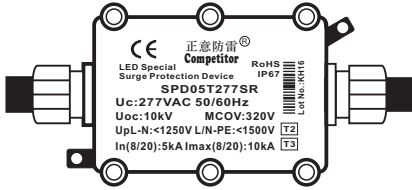


OVP: over voltage protection function, When the power supply voltage exceeds 280V, SPD over-voltage protection, LED off, when the voltage returns to below 280V, the LED is normally on .

Notes

1. OVP products is a Waterproof IP67 products.
2. H: With 1500VAC Hi-Pot withstand capability in common mode(L-G and N-G),
Blank: No Hi-Pot withstand capability in common mode.
3. Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.
5. Over voltage protection is optional for full series of products ,please refer to us before ordering.

Lighting Engineering SPD



The Competitor 's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor lighting engineering LED lighting fixtures for transient overvoltage protection. It's constructed with Epcos varistortechonology. Its built-in thermal disconnect function provides additional ptotection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *Outdoor LED
- *Traffic lighting
- *Digital signage
- *Roadway lighting
- *Municipal engineering LED
- *Municipal construction LED
- *Street lighting
- *Flood lighting
- *Tunnel lighting
- *Low Bay Lighting
- *Wash wall lighting
- *Lighting engineering LED

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE

CE

Absolute Maximum Rating

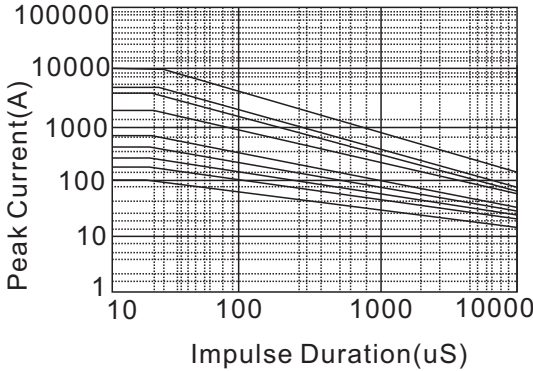
Continous:	SPD686 SERIES	Units
Max AC Voltage Range(V _{rms})	140 to 510	V
Continuous Current	1-10	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)	
Strikes	Surge
1	10000A
2	6000A
15	5000A
100	1000A
1000	620A
10000	280A
100000	100A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE
SPD05T100*	100	140	5kA	10kA	500	X
SPD05T120*	120	150	5kA	10kA	600	X
SPD05T240*	240	275	5kA	10kA	1000	X
SPD05T277*	277	320	5kA	10kA	1200	X
SPD05T347*	347	385	5kA	10kA	1500	X
SPD05T480*	480	510	5kA	10kA	1800	X
SPD05T240LL*	L-L:240 L-N/G:120	L-L:275 L-N/G:150	5kA	10kA	L-L:1200 L-N/G:800	X
SPD05T480LL*	L-L:480 L-N/G:277	L-L:510 L-N/G:320	5kA	10kA	L-L:1800 L-N/G:1200	X

Notes:

- 1."*" = SRXXXX or PRXXXX; Part number with "N" - output with NTC only.
- 2.Up-IEC 61643-11 voltage protection level; the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc: Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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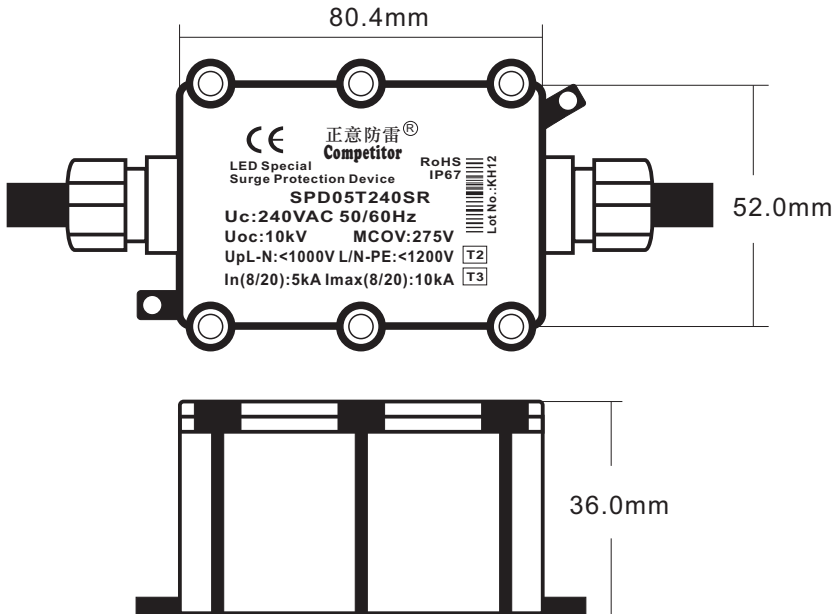
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 10kA,8/20uS
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class II and EN61643-11 Type 2 compliant
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class I and Class II installation based on IEC luminaire protection classes
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Dimensions

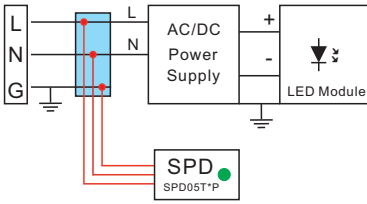


Notes:

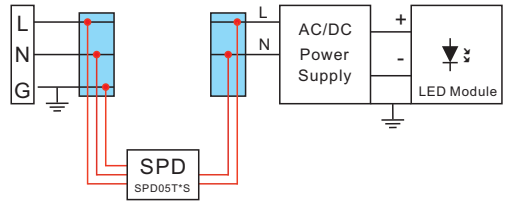
1. M20/M25 waterproof joint ,M686 waterproof box,3C CE TUV 450V 24A .
2. Caution:Line/Neutral wires must be correctly connected to AC power grid, wiring error on line/neutral polarity may cause module failure.

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 Specifications are subject to change without notice.
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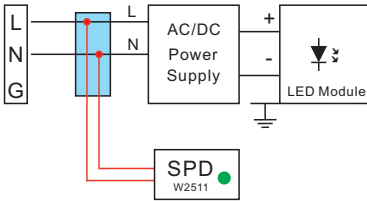
Application Installation Schematic



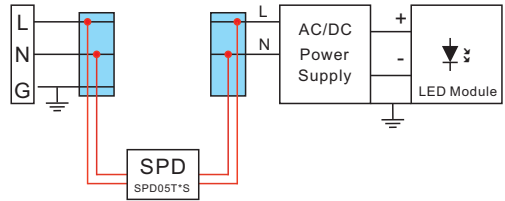
Parallel Connection



Series Connection



Parallel Connection
(for Class II Unearthed)



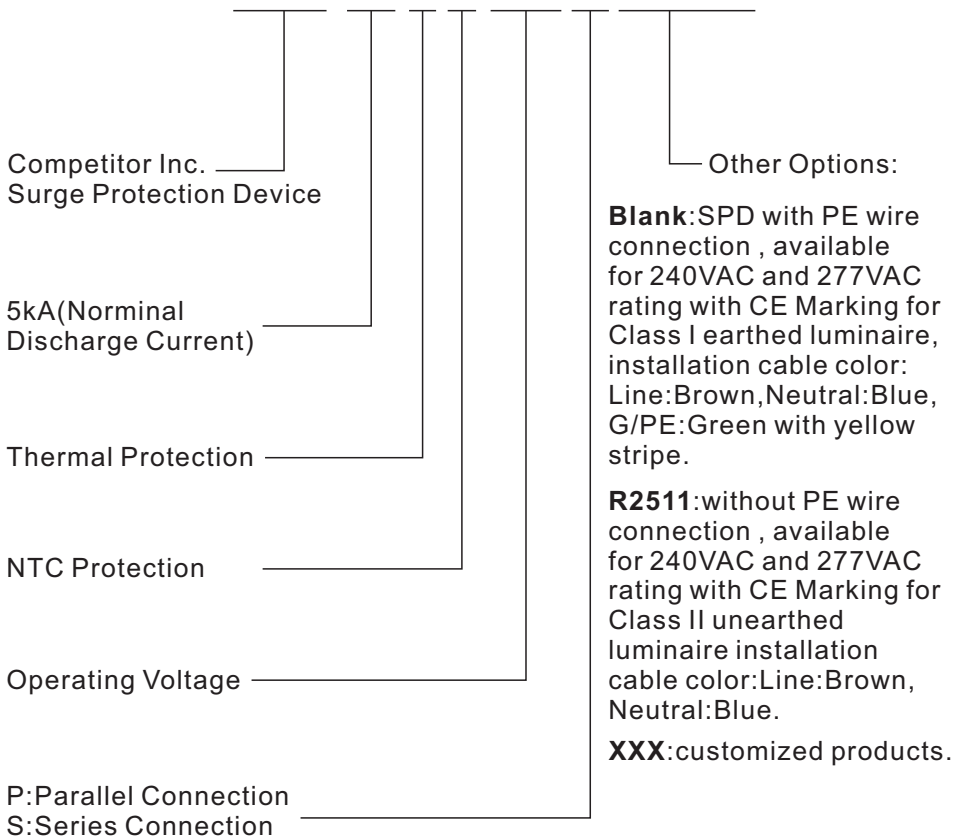
Series Connection
(for Class II Unearthed)

Notes:

1. SPD used in parallel connection for indication circuit connection.
2. LED indicator and associated circuitry are not included in the module.
3. L line (Brown) is AC line voltage (hot); N line (Blue) is AC neutral voltage.
4. Series connection type, L line voltage is cut off when SPD needs replacement.
5. R is current limiting resistor, its resistance/wattage is determined by AC line voltage and desired current driving LED. Example: AC line voltage 240VAC, LED: 1.6mA.
6. External indicator must be current limiting resistor.

Part Number Code System

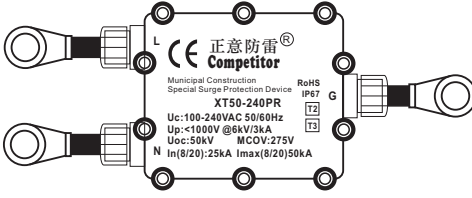
SPD 05 T N 277 P Rxxxx



Notes

1. With "N":NTC input protection; Blank:cable connection waterproof IP67.
2. H:With 1500VAC Hi-Pot withstand capability in common mode(L-G and N-G),
Blank:No Hi-Pot withstand capability in common mode.
3. Can customize the model not in the list, please inform the parameters.
4. A specific customer has a specific serial number that is not in circulation of products.

Lighting Engineering SPD



The Competitor 's special surge protection thermally protected surge protective device is a self-protected device which is specially design to be used in outdoor municipal and lighting engierring LED lighting fixtures for transient overvoltage protection. It is constructed with Epcos(TDK)varistor technology. It's built-in the thermal disconnect function provides additional potection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining overvoltage conditions.

Applications

- *Outdoor LED
- *Traffic Lighting
- *Blasting Machinery
- *Seabed Exploration
- *Lighting Engineering LED
- *Municipal Engineering LED
- *Power Equip
- *Street Lighting
- *Laser Equipment
- *Engineer Equipment
- *Outdoor Power Equipment
- *Municipal Construction LED

Agency

Test standard: IEC/EN 61643-11/UL1449^{4th}

CE GB/T 18802.1 (E) GB 18802.1-2011

Absolute Maximum Rating

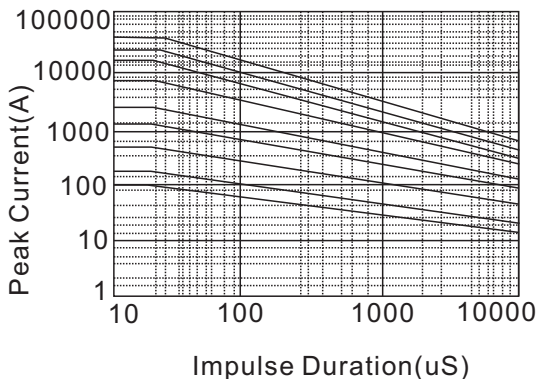
Continuous:	XT SERIES	Units
Max AC Voltage Range(Vmrms)	140 to 510	V
Connect Cable	2.5-25	mm ²
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	50000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	25000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	50000A
2	30000A
15	25000A
100	4000A
1000	1800A
10000	800A
100000	300A

Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up	Safety CE GB/T
XT50-100PR	100	140	25kA	50kA	800	X
XT100-100PR	100	140	50kA	100kA	1000	X
XT50-120PR	120	150	25kA	50kA	1000	X
XT100-120PR	120	150	50kA	100kA	1200	X
XT50-240PR	240	275	25kA	50kA	1500	X X
XT100-240PR	240	275	50kA	100kA	1800	X X
XT50-277PR	277	320	25kA	50kA	1500	X X
XT100-277PR	277	320	50kA	100kA	2000	X X
XT50-347PR	347	385	25kA	50kA	2000	X O
XT100-347PR	347	385	50kA	100kA	2500	X O
XT50-480PR	480	510	25kA	50kA	2500	X X
XT100-480PR	480	510	50kA	100kA	3000	X X
XT50-120LL	120/240	150/275	25kA	50kA	1500	X O
XT50-240L3	240	275	25kA	50kA	2000	X X
XT50-480L3	480	510	25kA	50kA	3000	X X

Notes:

- 1."O":optional authentication , "X":approved .
- 2.Single phase and three phase products can be customized .

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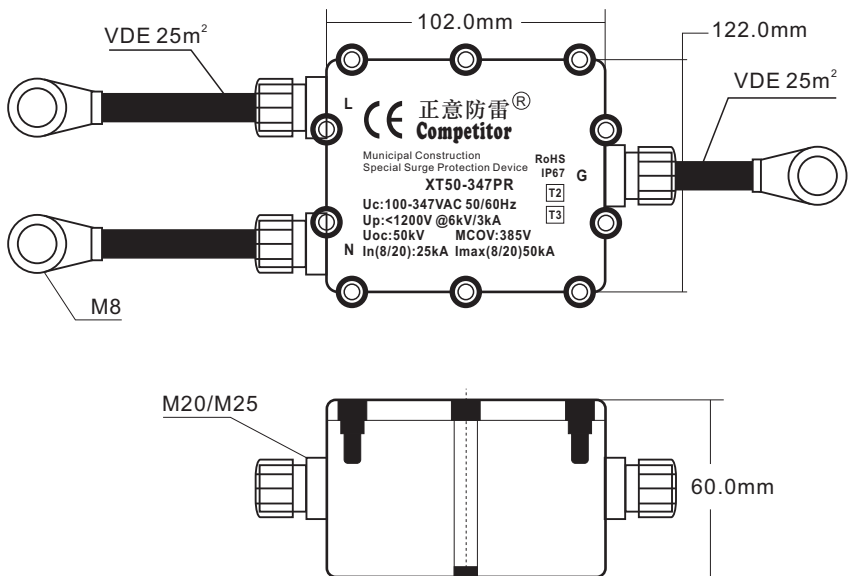
Specifications are subject to change without notice.

Revised:02.18.2020

Features

- *Maximum Discharge Current(I_{max}) 100kA,8/20uS
- *Thermally Protected Varistor Technology
- *Parallel and Series Connected SPD Options
- *IP67 Water-proof and Dust-proof
- *Series-connected option for 240VAC and 277VAC is IEC 61643-11 Test Class III and EN61643-11 Type 3 compliant
- *Compact form factor with mounting tabs
- *240VAC and 277VAC are CE compliant and available for Class II and Class III installation based on IEC luminaire protection classes
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

Single Phase SPD Dimensions



Notes:

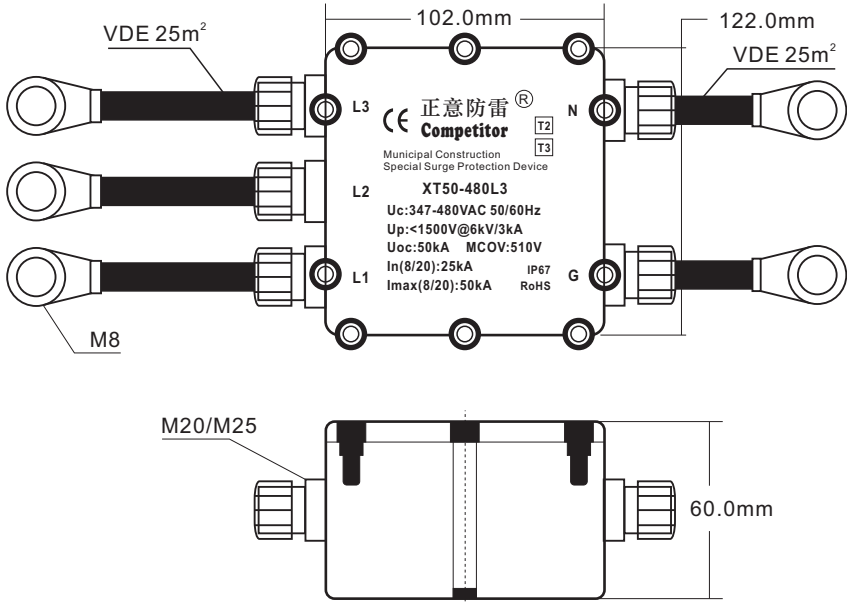
1. Brown:Line,Blue:Neutral,Yellow&Green:Ground(PE) .
2. Cable Gauge:25mm², cable length can be customized .
3. Caution:Line/Neutral wires must be correctly connected to AC power grid, wiring error on line/neutral polarity may cause module failure.

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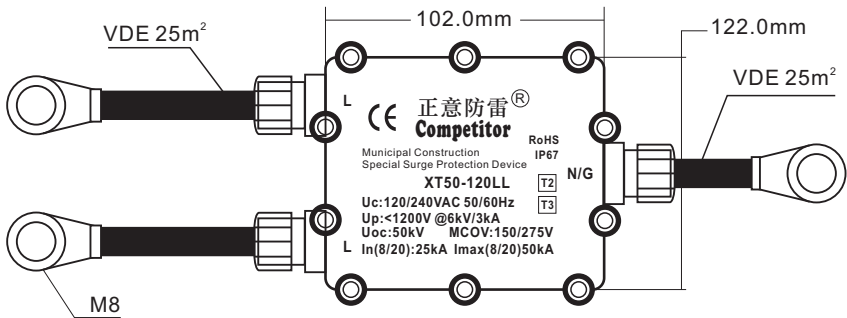
Specifications are subject to change without notice.

Revised:02.18.2020

Three Phase SPD Dimensions



XT50-120LL SPD Dimensions



Notes:

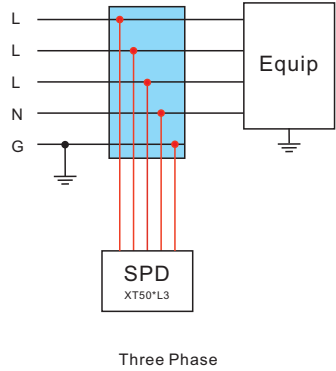
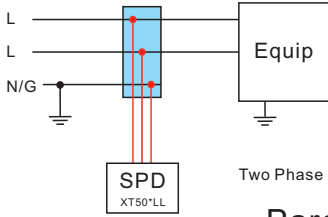
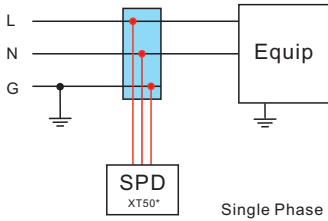
1. L line is AC line voltage (hot); N line is AC neutral voltage.
2. External indicator must be current limiting resistor.
3. LED indicator and associated circuitry are not included in the module.

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Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic



Parallel Connection

Part Number Code System

XT 50-240 P R

Competitor Inc.
Special SPD

50kA(Maximum
Discharge Current)

Operating Voltage

P:Parallel Connection

Other Options:

Blank:parallel connection product,VDE 25mm² cable length can be customized.

LL:two phase products, VDE 25mm² cable,voltage and cable length can be customized.

L3:three phase products, VDE 25mm² cable,voltage and cable length can be customized.

Notes

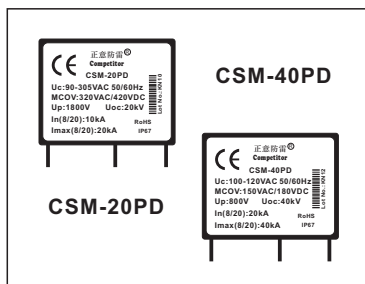
- 1.Can customize the model not in the list, please inform the parameters.
2. A specific customer has a specific serial number that is not in circulation of products.

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Specifications are subject to change without notice.

Revised:02.18.2020

Electric Appliances Surge Protection Module



Description

Competitor's module is based on thermal protection technology and applied to electric product, communication product circuit design on-board for transient overvoltage protection. It is constructed with Epcos varistor technology. It's built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *5G Base Station
- *Communication Circuit
- *Product Design On Board
- *Electric Appliance Product
- *Telecommunication distribution cabinet
- *Electric Surge Protect
- *Household Electric PCBA
- *Telecommunications room
- *Power Distribution Cabinet
- *Column communication cabinet

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

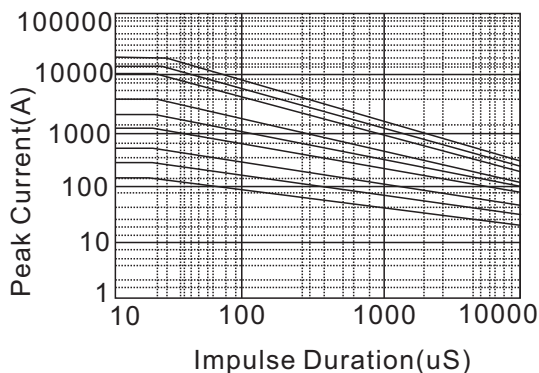
Continous:	CSM-PD/SD Series	Units
Max AC Voltage Range(V _{rms})	12 to 510	V
Max DC Voltage Range(V _{rms})	5 to 670	V
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	10000	A
Norminal Discharge Current 8/20uS Waveform(I _n)	5000	A
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability for Module



Pulse Rating(8/20uS)

Strikes	Surge
1	10000A
2	6000A
15	5000A
100	1200A
1000	600A
10000	280A
100000	120A

Module Series Specifications

Part Number	Operating Voltage	MCOV	In	I _{max}	Up
CSM-10PD*	DC5-24V	DC14-38V	2kA	5kA	36-100V
CSM-15PD*	DC24-72V	DC65-125V	5kA	10kA	100-300V
CSM-20PD*	AC100-480V	AC140-510V	5kA	10kA	360-2000V
CSM-30PD*	AC100-480V	AC140-510V	8kA	15kA	360-2100V
CSM-40PD*	AC100-480V	AC140-510V	10kA	20kA	360-2500V
CSM-10SD*	DC12-80V	DC18-150V	5kA	10kA	100-500V
CSM-15SD*	AC100-480V	AC140-510V	15kA	30kA	360-3500V
CSM-20SD*	AC100-480V	AC140-510V	20kA	40kA	360-4000V
CSM-30SD*	AC100-480V	AC140-510V	20kA	40kA	360-4000V
CSM-40SD*	DC12-80V	DC18-150V	20kA	40kA	300-500V

Notes:

- 1.*=XXX,005=DC5V,012=DC12V;Part number with "RS"-Remote Signal only.
- 2.Up-IEC 61643-11voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the surege module.

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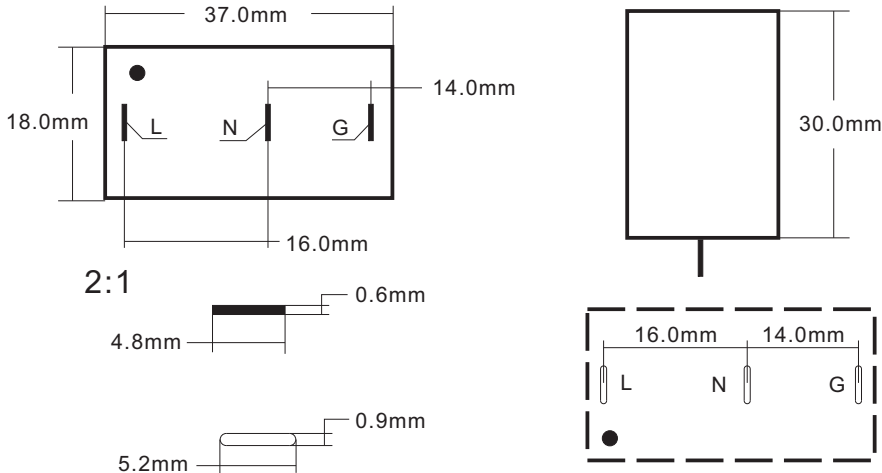
Specifications are subject to change without notice.

Revised:02.18.2020

Module Features

- *Maximum Discharge Current(I_{max}) 10kA/15kA/20kA/30kA/40kA, 8/20uS
- *Meets ANSI C136.2 Enhanced Level 10kV/5kA, IEEE C62.41.2 Location Category C Low Exposure and US Dept. of Energy MSSLC Model Spec.
- *Thermally Protected Varistor Technology
- *Parallel Connected Surge Protection Module
- *IP67 Water-proof and Dust-proof
- *Design in UL1449^{4th} (120VAC and 240VAC voltage ratings)
- *Parallel for 240VAC and 480VAC is IEC61643-11 Test Class III and EN61643-11 Type 3 compliant
- *IEC CB Scheme Certificate NL-37684 available for 240VAC and NL-40516 for 480VAC
- *Compact form factor with mounting tabs
- *240VAC and 480VAC are CE compliant and available for Class II and Class III installation based on IEC protection classes
- *Series connected Varistor thermal protection indication by removal of power to luminaire
- *High line to earth/ground resistance
- *RoHS compliant
- *Compact Size SPD

CSM-PD Module Dimensions



PCB Layout

Notes:

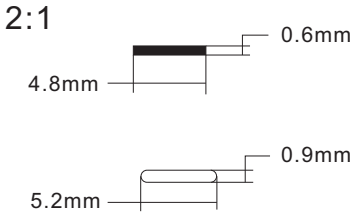
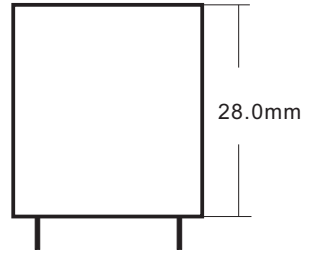
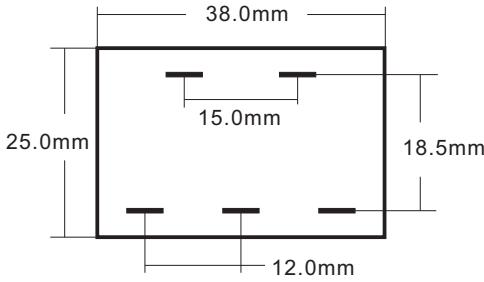
1. PIN are 4.8mm wide 0.6mm thick PCB terminals
2. Remote signal output is optional active and passive output

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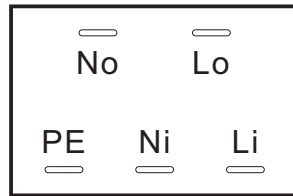
Specifications are subject to change without notice.

Revised:02.18.2020

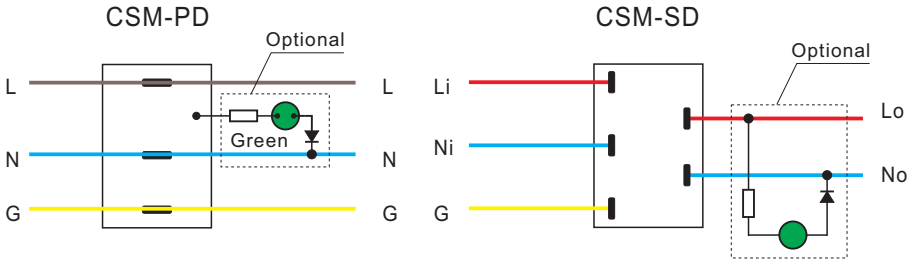
CSM-SD Module Dimensions



PCB Layout



Application Installation Schematic



With LED indicating Module status
 -ON (Green):SPD is online
 -OFF(Red):SPD needs replacement

Notes:

- 1.Module used in parallel connection for indication circuit connection.
- 2.LED indicator and associated circuitry are not included in the module.
- 3.L terminal is AC line voltage;N terminal is AC neutral voltage;G terminal is ground.
- 4.Series connection module L(AC) line voltage is cut off when SPD needs replacement.
- 5.R is current limiting resistor,it resistance/wattage is determined by AC line voltage and desired current driving LED. Example:AC line voltage 240VAC,LED :1.6mA.
- 6.External indicator must be current limiting resistor.

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Specifications are subject to change without notice.

Revised:02.18.2020

Part Number Code System

CSM-10 T I 277 P D 1

Competitor Inc.
Surge Protection Module

10kA(Maximum
Discharge Current)

Thermal Protection

Remote Signal

Operating Voltage

P:Parallel
S:Series

D:Terminal
W:Wires

Other Options:

1:With ϕ 1mm lead pin,
tinned copper,length
15-20mm.

4:With 4.8mm terminal,
tinned copper,length
5mm,pins thickness
0.6mm.

X:Module wire length
and colors can be
customized.

Notes

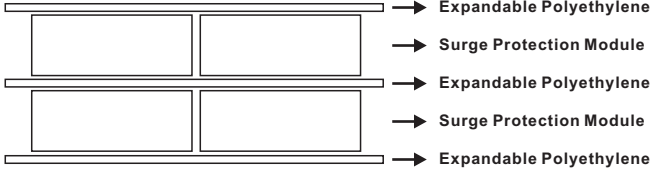
1. "I":with failure indication PIN .
- 2.W:wires connection type ,It's a customized product.
3. Series type and parallel type are optional,please ask us when you place an order.
4. Some contents in the model will not appear on the label, which is the recessive material code.

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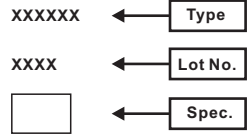
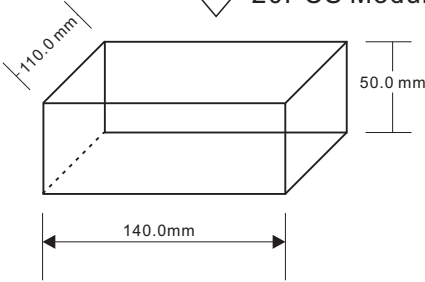
Specifications are subject to change without notice.

Revised:02.18.2020

Products Packing



↓ 20PCS Module

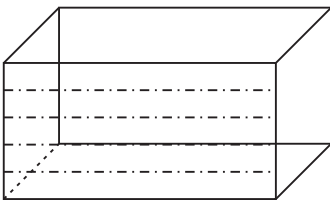


Box	20PCS SPM
Carton	400PCS SPM



→ 4PCS SPD

↓ 20 Boxes Module



Shipping Mark

Customer:	_____
Products:	_____
Order Code:	_____
Part No.:	_____
Quantity:	_____
QC:	_____
Date:	_____
Made in China	

CSM-10PD/SD	52g
CSM-15PD/SD	52g
CSM-20PD/SD	55g
CSM-40PD/SD

Carton

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Specifications are subject to change without notice.

Revised:02.18.2020

RED: Surge Competitor Surge Arrestor Uc:DC670V Uoc:20kV Up:<2.5kV In:10kA Imax:20kA	RED: Surge Competitor Surge Arrestor Uc:DC670V Uoc:20kV Up:<2.5kV In:10kA Imax:20kA	RED: Surge Competitor Surge Arrestor Uc:DC670V Uoc:20kV Up:<2.5kV In:20kA Imax:40kA	RED: Surge Competitor Surge Arrestor Uc:DC670V Uoc:20kV Up:<2.5kV In:20kA Imax:40kA	RED: Surge Competitor Surge Arrestor Uc:DC670V Uoc:20kV Up:<2.5kV In:20kA Imax:40kA
CSM-201 	CSM-201 	CSM-401 	CSM-401 	CSM-401
正壓防雷 Competitor 電源浪涌防護器		正壓防雷 Competitor 電源浪涌防護器		

Description

The Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in PV DC power supply systems for transient overvoltage protection. It is constructed with LKD varistor technology. It's built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions.

Applications

- *PV Power System
- *DC Elevator Control Box
- *DC Power Supply Box
- *Plant Power Supply System
- *DC Power Supply Systems
- *Photovoltaic Power Supply Box
- *Municipal Construction Power Supply
- *Photovoltaic Power Generation
- *Centralized Power Supply for Buildings
- *Industrial Power Supply System

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

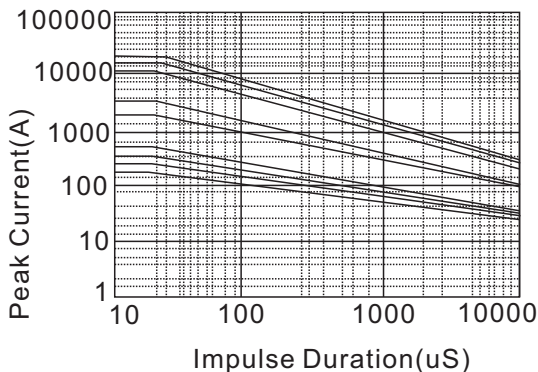
Continous:	CSM-201/40I Series Units	
Max AC Voltage Range(Vmrms)	670/1000/1300	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 8/20uS Waveform(Imax)	20/40	kA
Normalind Discharge Current 8/20uS Waveform(In)	10/20	kA
Operating Ambient Temperature Range(Ta)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	20000A
2	13000A
15	10000A
100	2500A
1000	1300A
10000	600A
100000	350A

Specifications

Part Number	Operating Voltage	In	I _{max}	Up	Safety CE GB/T
CSM-20I670*	670	10kA	20kA	1500	X X
CSM-20I750*	750	10kA	20kA	1800	X X
CSM-20I1000*	1000	10kA	20kA	2000	X
CSM-20I1300	1300	10kA	20kA	2500	X
CSM-40I670	670	20kA	40kA	1800	X X
CSM-40I750	750	20kA	40kA	2000	X X
CSM-40I1000	1000	20kA	40kA	2500	X
CSM-40I1300	1300	20kA	40kA	3000	X

Notes:

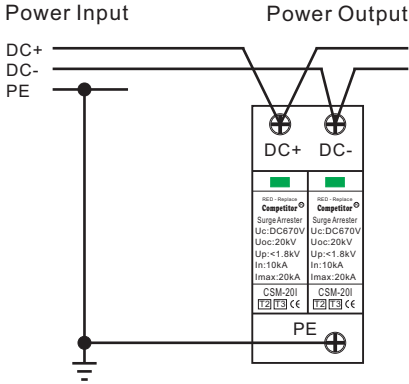
- 1.Part number with "I"-Indication only.
- 2.Up-IEC 61643-11 voltage protection level;the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); an rounding voltage value of maximum measurement.
- 3.MCOV/Uc:Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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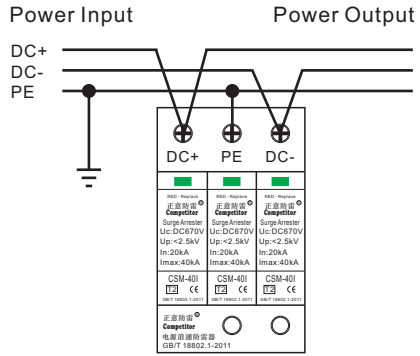
Specifications are subject to change without notice.

Revised:02.18.2020

Application Installation Schematic



CSM-2016702P

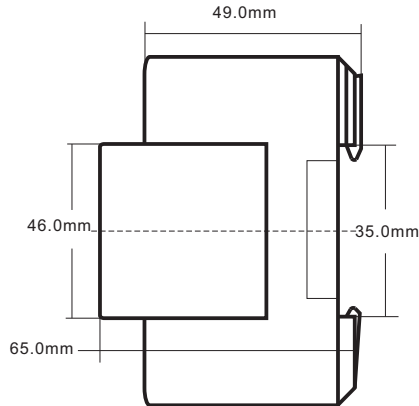
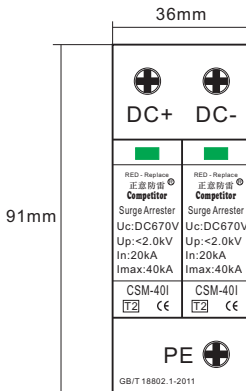


CSM-4016703P

Notes:

1. Surge arrester must be Kevin connected(GB/T 18802.1).
2. Various application voltage products can provide.
3. For GB/T 18802.1-2011 approved, design in UL1449th.
4. When the indicator window is red, SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD structure is divided into 2P and 3P.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. Connection wires standard: 2.5-25mm².
2. CSM-601 series CSM-801 series and CSM-1001 series are a split-type shell only.
3. Other series are single pin combination products. If there are special requirements, please put forward when ordering.

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Specifications are subject to change without notice.

Revised: 02.18.2020

Part Number Code System

CSM 20 I 670 2P RS

Competitor Inc.
Surge Arrester

20kA(Maximum
Discharge Current)

Failure Indication

Operating Voltage

2 PIN or 3 PIN

Other Options:

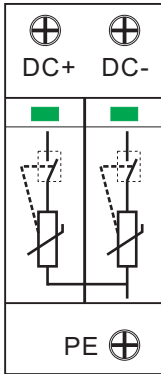
Blank:Standard product.

RS:with remote signal PIN

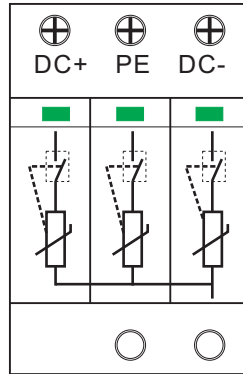
Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



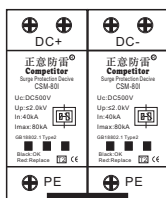
2P Mode



3P Mode

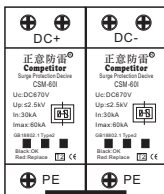
Notes:

1. With thermal protection technology.
2. SPD protection mode DC+-G and DC--G.
3. Different voltage products can be customized.



CSM-80I

CSM-60I



Description

Competitor's SPD thermally protected surge protective device is a self-protected device which is specially design to be used in PV DC power supply systems for transient overvoltage protection. It is constructed with LKD MOV varistortechonology. It's built-in thermal disconnect function provides additional ptection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of -life or sustaining over voltage conditions.

Applications

- *PV Power System
- *DC Power Supply Box
- *DC Power Supply Systems
- *Municipal Construction Power Supply
- *Centralized Power Supply for Building
- *DC Elevator Control Box
- *Plant Power Supply System
- *Photovoltaic Power Supply Box
- *Photovoltaic Power Generation
- *Industrial Power Supply System

Certification Standard

TUV CE	IEC61643-11:2015	CQC	GB/T 18802.1-2011
UL	UL1449 ^{4th}	CSA	C22.2 No.269.5-17

Absolute Maximum Rating

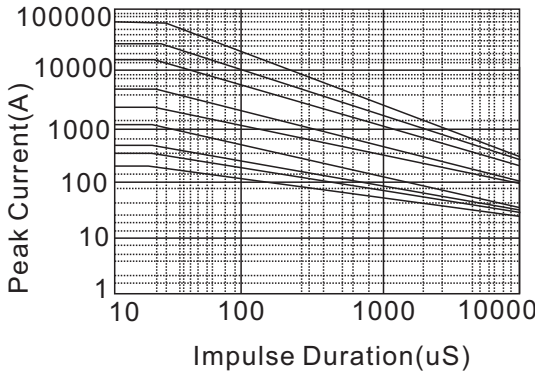
Continous:	CSM-60I/80I Series	Units
Max AC Voltage Range(V _{rms})	500/670/750	V
Max Continuous Current(Kevin Connection)	115	A
Transient		
Maximum Discharge Current 8/20uS Waveform(I _{max})	60/80	kA
Normalinal Discharge Current 8/20uS Waveform(I _n)	30/40	kA
Operating Ambient Temperature Range(T _a)	-45 to +85	°C
Storage Temperature Range(T _{STG})	-45 to +125	°C
Shell Isolation Voltage Capability	600	V
Insulation Resistance	>1000	MΩ

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Specifications are subject to change without notice.

Revised:02.18.2020

Repetitive Surge Capability



Pulse Rating(8/20uS)

Strikes	Surge
1	80000A
2	50000A
15	40000A
100	30000A
1000	1500A
10000	600A
100000	400A

Specifications

Part Number	Operating Voltage	In	I _{max}	Up	Safety CE GB/T
CSM-60I500*	500	30kA	60kA	1800	X X
CSM-60I670*	670	30kA	60kA	2000	X X
CSM-60I750*	750	30kA	60kA	2500	X
CSM-60I1000*	1000	30kA	60kA	3000	X
CSM-80I500*	500	40kA	80kA	2000	X X
CSM-80I670*	670	40kA	80kA	2500	X X
CSM-80I750*	750	40kA	80kA	3000	X
CSM-80I1000*	1000	40kA	80kA	3500	X
CSM-100I500*	500	50kA	100kA	2500	X X
CSM-100I670*	670	50kA	100kA	2800	X X
CSM-100I750*	750	50kA	100kA	3000	X
CSM-100I1000*	1000	50kA	100kA	3500	X

Notes:

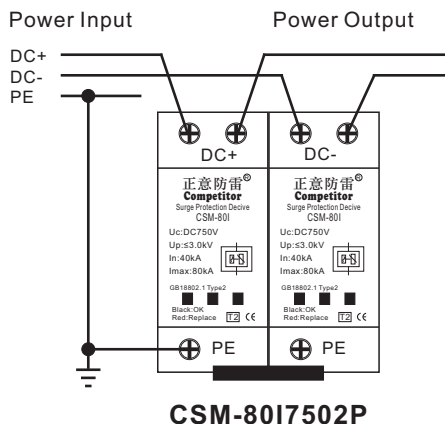
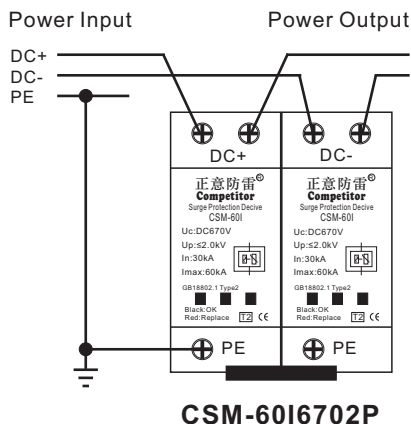
1. Part number with "I"-Indication only.
2. Up-IEC 61643-11 voltage protection level; the highest value of residual voltage measurements during the application of impulses of 8/20uS nominal discharge current (In); a rounding voltage value of maximum measurement.
3. MCOV/Uc: Maximum Continuous Operating Voltage-maximum r.m.s voltage that could be continuously applied to the SPD.

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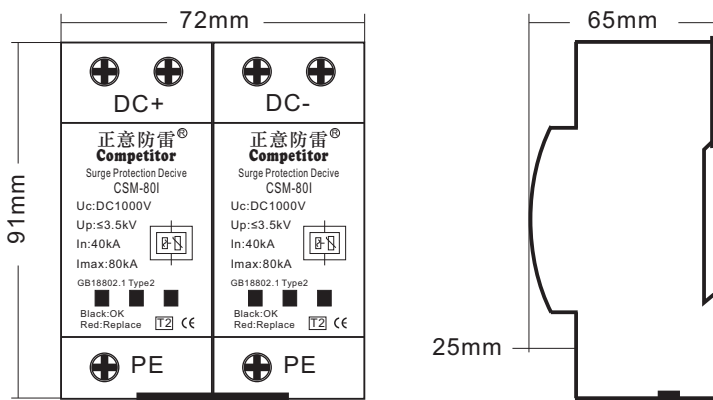
Application Installation Schematic



Notes:

1. Surge arrester must be Kevin connected(GB/T 18802.1).
2. Various application voltage products can provide.
3. For GB/T 18802.1-2011 approved, design in UL1449th.
4. When the indicator window is red, SPD needs to be replaced.
5. Design in CQC and IEC61643-11; SPD structure is divided into 2P and 1P+N.
6. The ground wire must be correctly connected, do not fall off to avoid electric shock.

Dimensions



Notes:

1. Connection wires standard: 2.5-25mm².
2. CSM-201 series and CSM-401 series are an integrated shell only.
3. Other series are single pin combination products. If there are special requirements, please put forward when ordering.

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Specifications are subject to change without notice.

Revised: 02.18.2020

Part Number Code System

CSM 80 I 750 2P RS

Competitor Inc.
Surge Arrester

80kA(Maximum
Discharge Current)

Failure Indication

DC Operating Voltage

2 PIN or 3 PIN

Other Options:

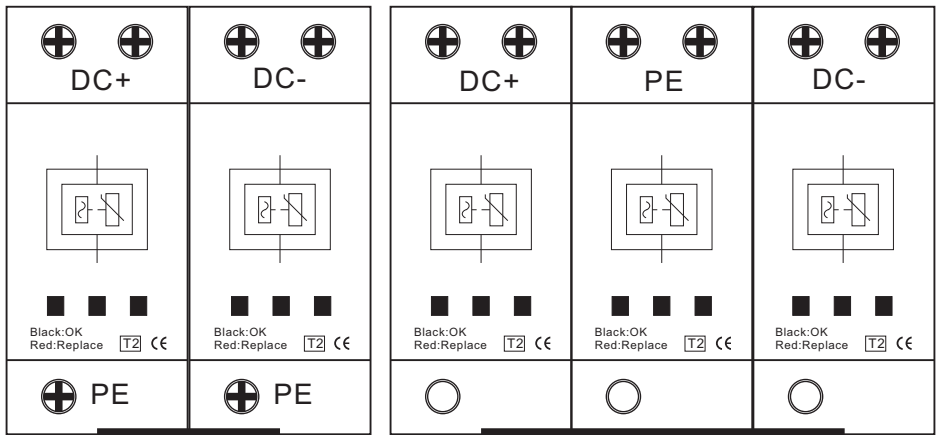
Blank:Standard product.

RS:with remote signal PIN

Else:customization

Notes:Remote signaling can choose terminal output and wire output.

Circuit Diagram



2P Mode

3P Mode

Notes:

1. With thermal protection technology.
2. DC SPD protection mode L-G, N-G and L-N.

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Specifications are subject to change without notice.

Revised:02.18.2020



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