目录

1 适用范围 Scope 2

2 术语 Glossary 2

4 安规认证 Agency Approvals 2

5 技术参数 Specifications 3

6 结构尺寸 Structure and Dimension 4

6.1 应用示意图 Application Schematic 8

7 检验 Inspection 9

7.1 大气条件 Atmospheric Conditions 9

7.2 机械特性 Mechanical Performances 9

7.3 常规检验项目 Routine Inspection Items 9

7.4 动作负载试验 Operating Duty Test 10

7.5 电压保护水平测试 Voltage Protection Level Test 10

8 安装使用及维护 Installation and maintenance 11

9 标示 Marks 11

10 包装 Packaging 11

1 适用范围 Scope

EZ10MG277M(S)-(G)-L(SP)，适用于 90V~305VAC，交流电系统。
防电涌等级: EN 61643-11：2012+A11
复合冲击波(Uoc/Icw)，10kV/5kA；
标称放电电流, 5kA (In, 8/20us)/最大放电电流 10kA(Imax, 8/20μs);
IEC 61000-4-5：
安装于受试设备后，复合波冲击波(Uoc/Icw)，10kV/5kA；L-N 差模 2 ohms，L-G/N-G 共模 12 ohms。
外壳防护等级：IP68 ;使用耐高温防火外壳。

EZ10MG277M(S)-(G)-L(SP) are apply to 90V~305VAC power system.
Surge protection level: EN 61643-11：2012+A11
Combination impulse wave, 10kV/5kA ;
Nominal discharge current, 5kA (In, 8/20us)/Maximum discharge current, 10kA (Imax, 8/20us);
IEC 61000-4-5：After installed in EUT, combination impulse wave, 10kV/5kA; L-N differential mode 2 ohms，L-G/N-G common mode 12 ohms.
Degree of protection provided by the enclosure：IP68 ; Using high temperature resistant and flameproof enclosure.

2 术语 Glossary

参考标准 Reference Standards
IEC 61643-11:2011, EN61643-11：2012+A11, GB/T 18802.11-2020, UL1449 4th ed.: 2018.

3 型号说明 Part Number System

EZ 10 MG 277 □ - □ - □□

台基电涌保护器
Ceramate Surge Protective Devices

第二类标称放电电流/最大放电电流
Class Ⅱ, Nominal/maximum discharge current
In/ Imax: 5kA/ 10kA
第三类复合波试验
依照 EN61643-11：2012+A11
Class III combination wave tests
In accordance with EN61643-11：2012+A11
Uoc / Icw：10kV / 5kA

MG 系列 MG Series

标称系统电压 Nominal System Voltage, Un

配电方式 Wiring Configuration
S：并联接法 Parallel Connection
M：串联接法 Series Connection

空白：无对地导线 Without grounding wire
G：对地有导线 With grounding wire

封装方式 Encapsulation type
SP：热缩套管防水型
Heat-shrinkable tubing, waterproof
L：塑胶壳装灌胶防水型
Plastic casing and potting, waterproof

4 安规认证 Agency Approvals

认证机构 Agency		标准 Standards	认证号 File NO.	类别 Category	执行标准 Designed to Standards
CE	TUV	低压指令 Low Voltage Directive 2014/35/EU	认证中 Under pending	附录 Ⅰ Annex Ⅰ	● GB/T18802.11-2020 ● UL 1449 4th Ed：2018 ● IEC 61643-11：2011 ● EN 61643-11：2012+A11 ● IEC 61000-4-5：2014 ● IEEE C62.41.2-2002
®	TUV	EN 61643-11：2012+A11	认证中 Under pending	Ⅱ类与Ⅲ类 Class Ⅱ and Ⅲ	

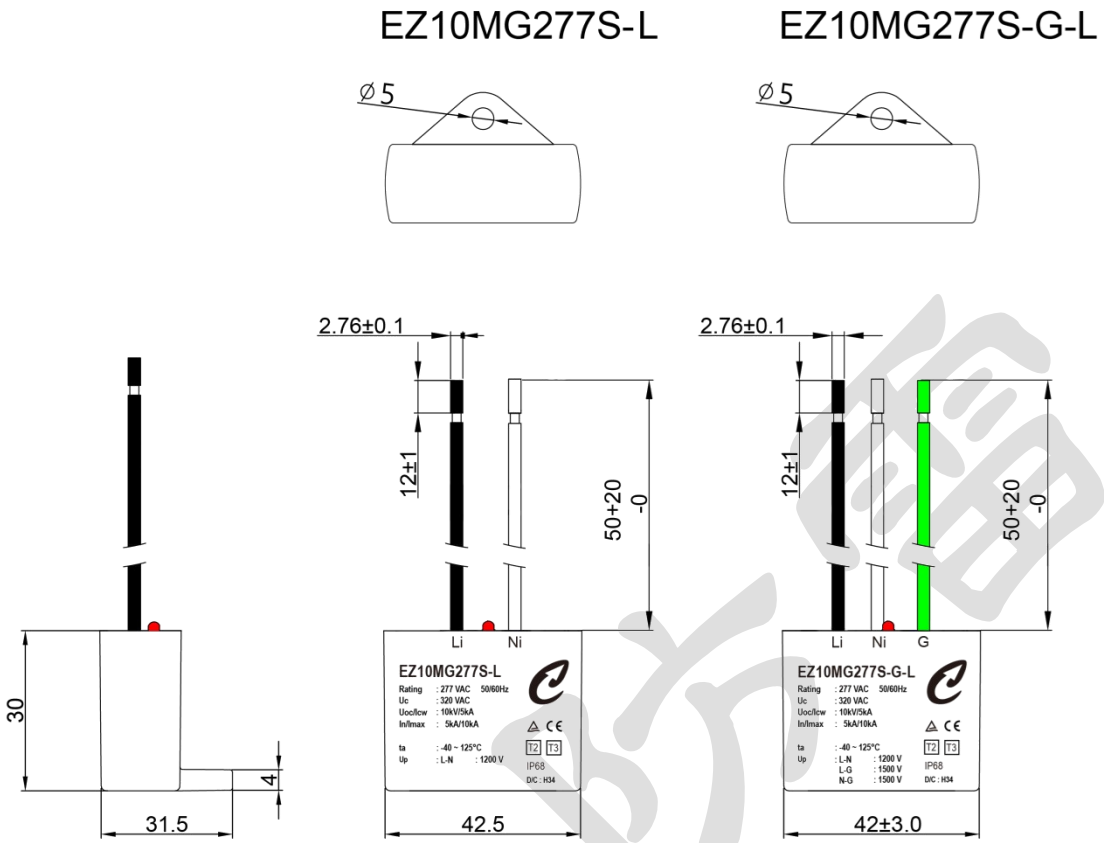
5 技术参数 Specifications

产品型号 Product Model		EZ10MG277S-L EZ10MG277S-SP	EZ10MG277S-G-L EZ10MG277S-G-SP	EZ10MG277M-L EZ10MG277M-SP	EZ10MG277M-G-L EZ10MG277M-G-SP
温湿度范围 Temperature and Humidity Range		温度 Temperature, EZ10MG277M(S)-(G)-L：-40℃至 125℃ 温度 Temperature, EZ10MG277M(S)-(G)-SP：-40℃至 85℃ 湿度 Humidity：5%~95% RH			
端口数量 Number of Ports		一端口,仅输入 one port, only input		一端口,输入/输出 one port, input/output	
配电系统 Power Distribution System		TN			
标称系统电压范围 Nominal System Voltage Range, Un		90~305VAC			
最大连续工作电压 Maximum Continuous Operating Voltage, Uc		320VAC			
工作频率 Working Frequency		50/60 Hz			
复合冲击波, EN 61643-11：2012+A11 Combination Impulse Wave Uoc (1.2 / 50 us)/Icw (8 / 20 us) 备注 1　Note 1		10kV / 5kA			
标称放电电流 Nominal Discharge Current, In (8/20us, kA)		5kA			
最大放电电流 Maximum Discharge current, Imax (8/20us, kA)		10kA			
电压保护水平 Voltage Protection Level , Up (V)	L-N	1200V	1200V	1200V	1200V
	L-G	-	1500V	-	1500V
	N-G	-	1500V	-	1500V
安全失效模式 Safe Failure Mode		开路模式 Open Circuit Mode (OCM)			
暂态过电压特性,低压系统故障 Temporary Overvoltage (TOV) Characteristic, LV-system Faults		1) 335 Vac,5 秒,耐受模式　5 sec, withstand mode (2) 440 Vac,120 分钟,耐受或安全失效模式　120min, withstand mode or safe failure mod			
预期短路电流 Prospective Short-circuit Current, Isccr (A)		300			
脱离器动作指示 Indication of Disconnector Operation		LED 指示灯由亮变灭,AC 电源断开. LED 常态有保护时亮. LED indicator from light on to light off, and AC network cut-off. Under protected LED normally on.			
外壳防护等级 Ingress Protection Level		IP68 (2M)			

备注 1: 电涌保护器安装于受试设备后,
依照 EN 61643-11：2012+A11,Ⅲ类,
或依照 IEC 61000-4-5：2014
- 测试波形：复合波；
- 同一只产品同时满足.
差模：L-N，10kV/5kA，2 ohm
共模：L-G / N-G ,10 kV / 833 A, 12 ohm
- 浪涌次数(对各耦合路径) :应分别在 0°, 90°, 180° 与 270° 相角施加正、负极性各 5 次；
- 连续脉冲间的时间间隔：1 分钟或更短；
- 耦合阻抗：差模 18 μF，共模 9 μF + 10 Ω。

Note 1: After installed SPD in EUT,
in according to EN 61643-11：2012+A11, class III,
or in according to IEC 61000-4-5：2014
- test waveform: combination wave;
- the same sample be satisfied to .
Differential mode：L-N，10kV/5kA，2 ohm
Common mode：L-G / N-G ,10 kV / 833 A, 12ohm
- number of impulses (for each coupling path): five positive and five negative impulses each at 0°, 90°, 180° and at 270°;
- time between successive impulses: 1 min or less;
- coupling impedance: differential mode 18 μF, common mode 9 μF + 10 Ω.

6 结构尺寸 Structure and Dimension



备注：

1. 线规：AWG18 号线

   电线颜色：输入：火线：黑色，零线：白色，地线：绿/黄色，线长：50^{+20}_{-0} mm。

2. EZ10MG277S-(G)-L：分离线缆，尾端 12.0±1.0 mm 割开不去皮。

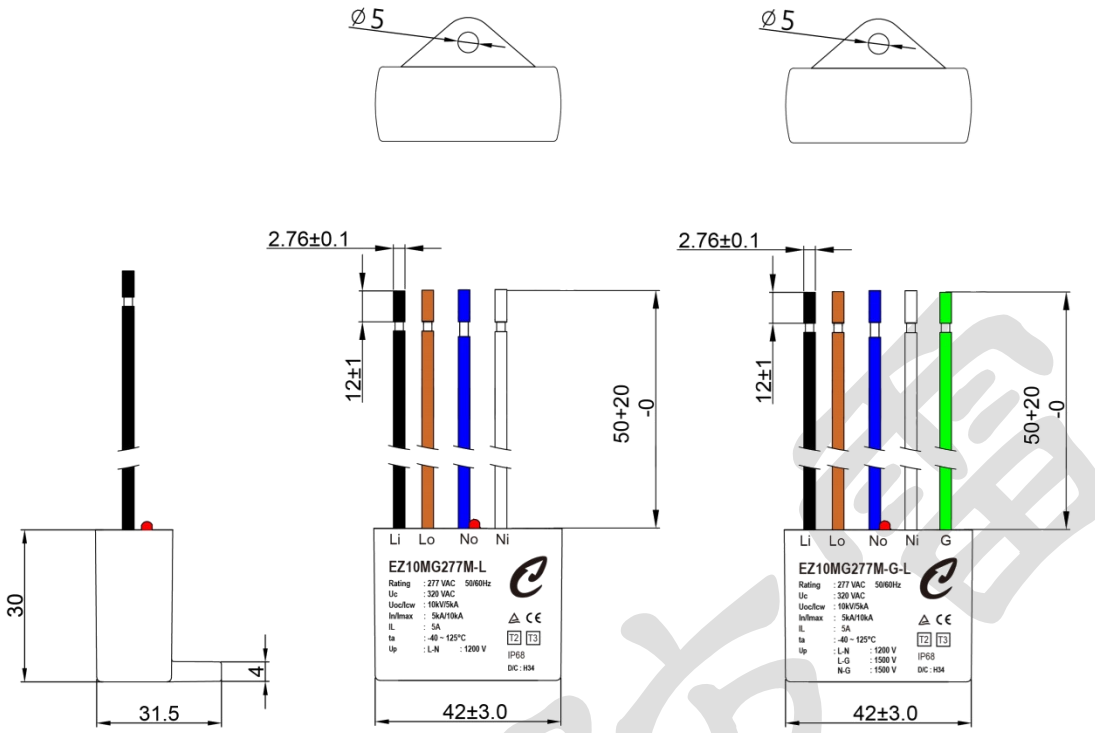
Notes：

1. Wire Gauge：AWG18 wire

   Wire Color：Input：Black：Line，White：Neutral, Green/Yellow：Ground，Line length：50^{+20}_{-0} mm.

2. EZ10MG277S-(G)-L：Separated wires，cutting on 12.0±1.0 mm from tail terminals but not stripping.

EZ10MG277M-L　　EZ10MG277M-G-L



备注：

1. 线规：AWG18 号线

电线颜色：输入：火线：黑色，零线：白色，地线：绿/黄色，线长：50^{+20}_{-0} mm。

输出：火线：棕色，零线：蓝色，线长：50^{+20}_{-0} mm。

2. EZ10MG277M-(G)-L：分离线缆，尾端 12.0±1.0 mm 割开不去皮。

Notes：

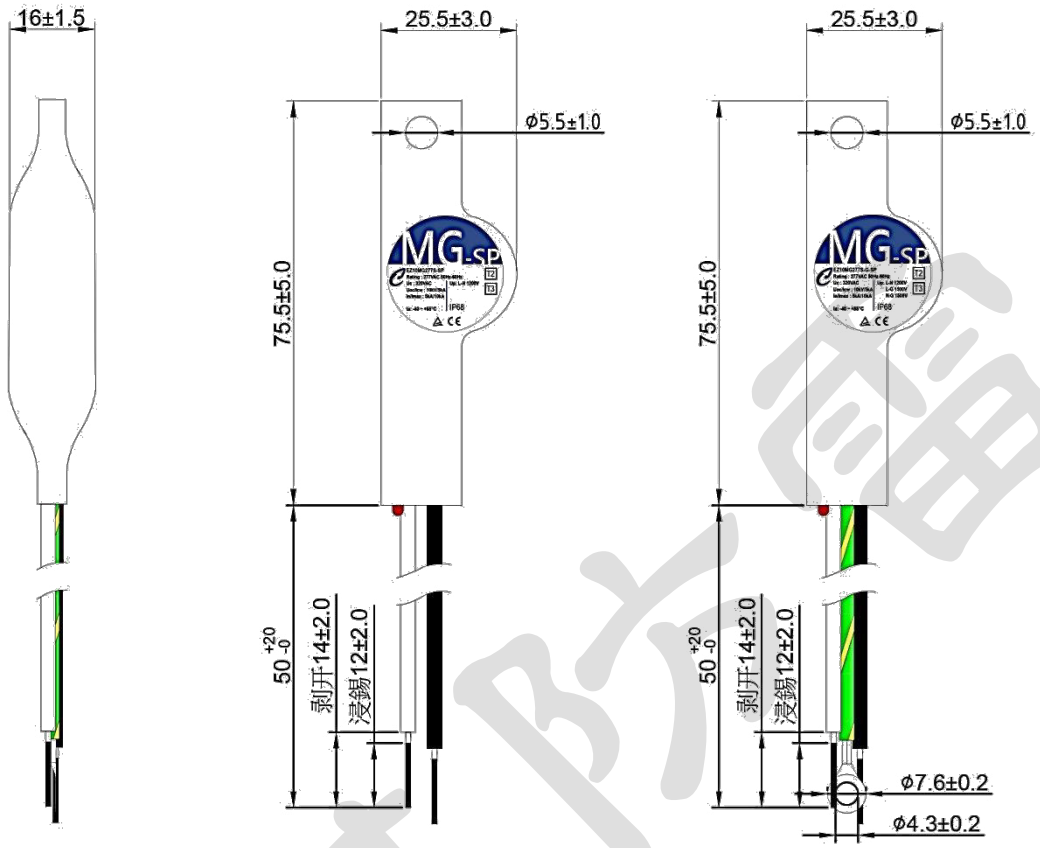
1. Wire Gauge：AWG18 wire

Wire Color：Input：Black：Line，White：Neutral, Green/Yellow：Ground，Line length：50^{+20}_{-0} mm.

Output：Brown：Line，Blue：Neutral，Line length：50^{+20}_{-0} mm.

2. EZ10MG277M-(G)-L：Separated wires，cutting on 12.0±1.0 mm from tail terminals but not stripping.

EZ10MG277S-SP　　EZ10MG277S-G-SP



备注：

1. 线规：AWG18 号线

电线颜色：输入：火线：黑色，零线：白色，地线：绿/黄色，线长：50^{+20}_{-0} mm。

2. EZ10MG277S-(G)-SP：分离线缆，剥线长度 14±2.0mm，导线尾端浸锡 12±2.0mm,

接地线加装外径 7.6±0.2mm,内孔直径 4.3±0.2mm 内通孔接地环。

Notes：

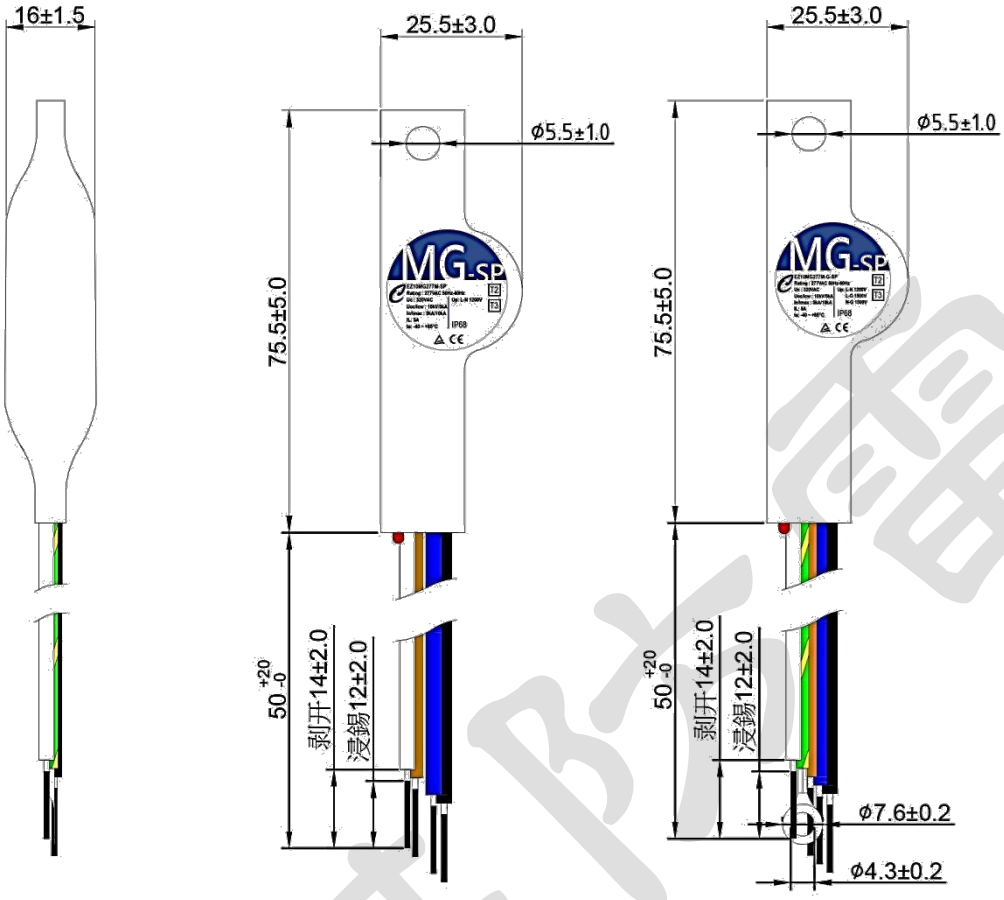
1. Wire Gauge：AWG18 wire

Wire Color：Input：Black：Line，White：Neutral, Green/Yellow：Ground，Line length：50^{+20}_{-0} mm.

2. EZ10MG277S-(G)-SP：Separated wires，cutting lead wires on 14±2.0 mm from tail terminals and soldering lead wires on 12±2.0 mm ,

grounding wire attached to terminal ring with outer diameter 7.6±0.2 mm and inner diameter 4.3±0.2 mm.

EZ10MG277M-SP　EZ10MG277M-G-SP



备注：

1. 线规：AWG18 号线

电线颜色：输入：火线：黑色，零线：白色，地线：绿/黄色，线长：50^{+20}_{-0} mm。

输出：火线：棕色，零线：蓝色，线长：50^{+20}_{-0} mm。

2. EZ10MG277M-(G)-SP：分离线缆，剥线长度 14±2.0mm，导线尾端浸锡 12±2.0mm,

接地线加装外径 7.6±0.2mm,内孔直径 4.3±0.2mm 内通孔接地环。

Notes：

1. Wire Gauge：AWG18 wire

Wire Color：Input：Black：Line，White：Neutral, Green/Yellow：Ground，Line length：50^{+20}_{-0} mm.

Output：Brown：Line，Blue：Neutral，Line length：50^{+20}_{-0} mm.

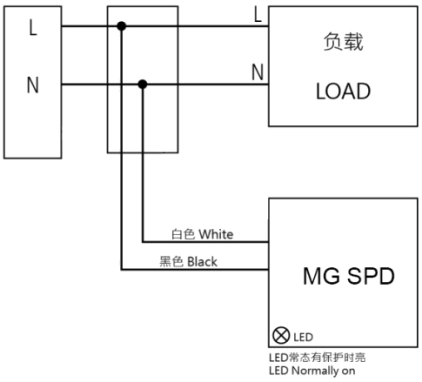
2. EZ10MG277M-(G)-SP：Separated wires，cutting lead wires on 14±2.0 mm from tail terminals and soldering lead wires on 12±2.0 mm ,

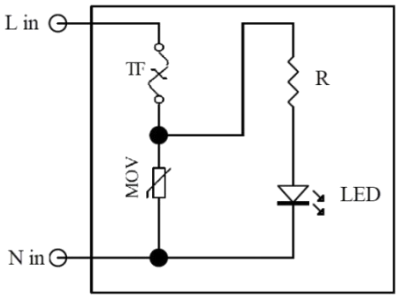
grounding wire attached to terminal ring with outer diameter 7.6±0.2 mm and inner diameter 4.3±0.2 mm.

6.1 应用示意图 Application Schematic

并联接法 Parallel Connection 无对地 Without Ground

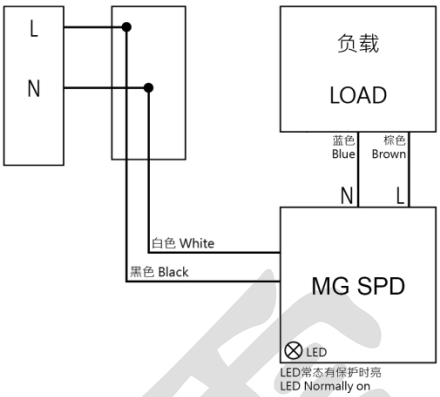
EZ10MG277S-L(SP)

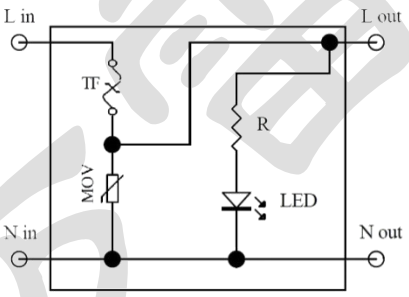




串联接法 Series Connection 无对地 Without Ground

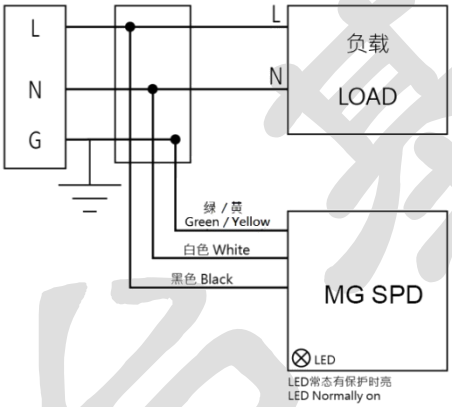
EZ10MG277M-L(SP)

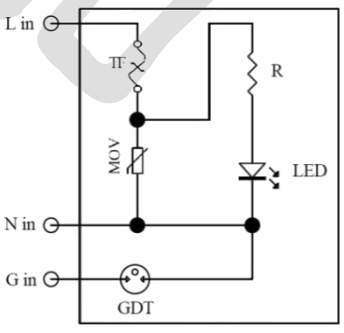




并联接法 Parallel Connection 有对地 With Ground

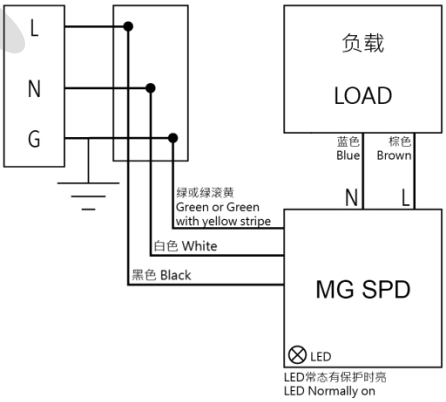
EZ10MG277S-G-L(SP)

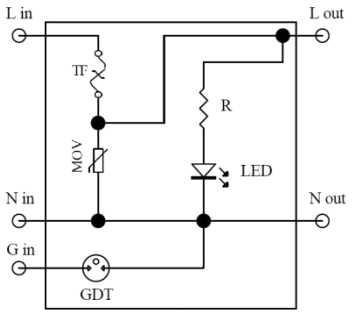




串联接法 Series Connection 有对地 With Ground

EZ10MG277M-G-L(SP)





7 检验 Inspection

7.1 大气条件 Atmospheric Conditions

温度 Temperature： 5 ℃ - 35 ℃

相对湿度 Relative Humidity： 25%-75%

大气压力 Air pressure: 86 kPa to 106 kPa

7.2 机械特性 Mechanical Performances

项目 Items	试验方法 Test methods/conditions	参考标准 Reference Standards	抽样频率和接受标准 AQL
拉力 Pull	将待测试产品安装于测试架上,所有输入或输出导线从任意角度施加总重 89N(20 磅)的法码挂钩绑牢,受力时间 1 分钟,轻放法码。 Install the product on the test shelf and tie all input or output lead wires respectively with 89N(20 lbf) weight from any angle for 1 minute. Then release the weights slightly.	EN 61643-11：2012+A11 GB/T 18802.11	3 pcs/Lot, AC=0 导线不损伤、脱落。 The lead wires shouldn't be damaged.

7.3 常规检验项目 Routine Inspection Items

序号 No.	项目 Items	试验要求 Test Requirements	参考标准 Reference Standards	抽样频率和接受标准 AQL
1	外观 Appearance	壳体无穿孔,飞边;引脚镀层良好,无氧化发黑等情况。 The case without perforation, flash, the pin coating is good and no oxidative blackening.	ISO 2768-1 GB/T 1804	G-Ⅱ, AQL=1.0
2	尺寸 Dimension	用游标卡尺测量引脚外露长度，尺寸范围参照 6。 Use vernier caliper to measure the Pin out length, size range reference 6.	ISO 2768-1 GB/T 1804	S-2, AQL=0.65
3	介电耐压 Dielectric Withstand	在引脚和外壳间施加工频电压≥2200 V， 1 分钟,不应该发生闪络和击穿 Subject the voltage no less than 2200 V, last for 1 minute between leads and enclosure, arcing or puncturing shall not occur.	EN 61643-11：2012+A11 GB/T 18802.11	S-2, AQL=1.0
4	动作负载试验 Operating Duty Test	参见第 7 章节《检验》第 7.4 条 Reference 7.4 of the chapter 5《Inspection》	EN 61643-11：2012+A11 GB/T 18802.11	3 PCS/Lot AC=0
5	电压保护水平测试 Voltage Protection Level Test	参见第 7 章节《检验》第 7.5 条 Reference 7.5 of the chapter 5《Inspection》	EN 61643-11：2012+A11 GB/T 18802.11	3 PCS/Lot AC=0

7.4 动作负载试验 Operating Duty Test

Ⅲ类测试方法：将防雷器接入测试端，冲击 2 次 Uoc（正、负极各 1 次）测试限制电压，再施加 15 次 Uoc 冲击，分成 3 组， 各 5 次正极性, 5 次负极性, 5 次正极性冲击交替。 两次冲击之间的间隔时间为 50s~60s，两组之间的间隔时间为 30min。两组冲击之间试品无需施加电压。在施加每组冲击之后，需继续加电至少一分钟来检查复燃。在最后一组冲击和继续加电一分种后，SPD 保持加电，或在少于 30 秒内加电到 Uc，保持 15 分钟来检查稳定性。30 分钟后再重复进行测试限制电压的程序。

Class Ⅲ Test Method: Terminal wires of the SPD shall be subjected to one sequence of positive polarity and one sequence of negative polarity at Uoc to determine the measured limiting voltage. And then three groups of five impulses of Uoc impulses with positive, negative and positive polarity alternately shall be applied. The interval between the impulses is 50 s ~ 60 s, the interval between the groups is 30 min. It is not required that the test sample is energized between the groups. The SPD shall be energized at Uc. After the application of each group of impulses, the SPD shall remain energized without interruption for at least 1 min to check for reignition. After the last group of impulses and the 1 min period the SPD either remains applied or is reapplied within less than 30 s to Uc for another 15 min to check for stability. 30 minutes later, the SPD shall be subjected to sequences to determine the measured limiting voltage repeatedly.

Ⅱ类测试方法：将防雷器接入测试端，冲击 2 次 In（正、负极各 1 次）测试限制电压，若是回路中有 GDT 时再施加 1.2/50us 冲击电压 6kV/10 次（正、负极各 5 次）测试限制电压，再施加 15 次 In 冲击，分成 3 组，每组 5 次冲击。每次冲击应与电源频率同步。从 0°角开始，同步角应以 30°±5°的间隔逐级增加。两次冲击之间的间隔时间为 50s~60s，两组之间的间隔时间为 30min~35min。两组冲击之间试品无需施加电压。在施加每组冲击之后，需继续加电至少一分钟来检查复燃。在最后一组冲击和继续加电一分种后，SPD 保持加电，或在少于 30 秒内加电到 Uc，保持 15 分钟来检查稳定性。30 分钟后再重复进行测试限制电压的程序。

Class Ⅱ Test Method: Terminal wires of the SPD shall be subjected to one sequence of positive polarity and one sequence of negative polarity to determine the measured limiting voltage. If there is a GDT component in the circuit, 10 times of 1,2/50us, 6kV voltage impulse are applied to the SPD, five of positive and five of negative polarity to determine the measured limiting voltage. And then three groups of five impulses of 8/20 current impulses with positive polarity shall be applied. Starting from 0° the synchronization angle shall be increased in steps of 30° with a tolerance of ± 5° for each synchronization angle. The interval between the impulses is 50 s ~ 60 s, the interval between the groups is 30 min~35 min. It is not required that the test sample is energized between the groups. The SPD shall be energized at Uc. After the application of each group of impulses, the SPD shall remain energized without interruption for at least 1 min to check for reignition. After the last group of impulses and the 1 min period the SPD either remains applied or is reapplied within less than 30 s to Uc for another 15 min to check for stability. 30 minutes later, the SPD shall be subjected to sequences to determine the measured limiting voltage repeatedly.

判定标准：产品在测试中不能有可见可闻的损坏。

Pass Criteria: During and following the surge test, there shall not have visible or smelt (or both) damage.

7.5 电压保护水平测试 Voltage Protection Level Test

Ⅲ类测试方法：将防雷器接入测试端，冲击 4 次 Uoc（正、负极性各 2 次）测试限制电压；若是回路中有 GDT 时，应依次施加峰值约为 0.1；0.2；0.5；1.0 的 Uoc 冲击电压（正、负极性各 2 次）测试限制电压。每次冲击的间隔时间应足以使试品冷却到环境温度。

Class Ⅲ Test Method: Terminal wires of the SPD shall be subjected to one sequence of positive polarity and one sequence of negative polarity to determine the measured limiting voltage；If there is a GDT component in the circuit, 8/20 current impulses with two sequence of crest values of approximately 0,1; 0,2; 0,5; 1,0 times In shall be applied to determine the measured limiting voltage. After each impulse, the rest time should be let samples cooled to the ambient temperature.

Ⅱ类测试方法：将防雷器接入测试端，冲击 2 次 In（正、负极性各 1 次）测试限制电压；若是回路中有 GDT 时，应依次施加峰值约为 0.1；0.2；0.5；1.0 In 的 8/20us 冲击电流（正、负极性各 1 次）测试限制电压。若有 Imax 则 In 测试后再施加 2 次 Imax 冲击（正、负极性各 1 次）测试限制电压，若是回路中有 GDT 时，接着再施加 1.2/50us 冲击电压 6kV/10 次（正、负极各 5 次）测试限制电压，每次冲击的间隔时间应足以使试品冷却到环境温度。

Class Ⅱ Test Method: Terminal wires of the SPD shall be subjected to one sequence of positive polarity and one sequence of negative polarity to determine the measured limiting voltage；If there is a GDT component in the circuit, 8/20 current impulses with a sequence of crest values of approximately 0,1; 0,2; 0,5; 1,0 times In shall be applied to determine the measured limiting voltage. When Imax is declared, then after In test, 2 times impulse of Imax (one time of positive and one of negative polarity) are applied to determine the measured limiting voltage. If there is a GDT component in the circuit, 10 times of 1,2/50us, 6kV voltage impulse are applied to the SPD, five of positive and five of negative polarity to determine the measured limiting voltage. After each impulse, the rest time should be let samples cooled to the ambient temperature.

判定标准 :电压和电流波形图及目测检测试品应没有击穿或闪络的现象;试验过程中不应发生可见损害;不应对人员或设备产生爆炸或其他危险。

Pass Criteria: Voltage and current records and visual inspection shall show no indication of puncture or flashover. No visible damage shall occur during the test.

8 安装使用及维护 Installation and maintenance

8.1 EZ10MG277M-(G)-L(SP) 串联接法,一端口,输入/输出。
EZ10MG277M-(G)-L(SP) Series connection one port, input / output.
EZ10MG277S-(G)-L(SP) 并联接法,一端口,仅输入
EZ10MG277S-(G)-L(SP) Parallel connection, one port, only input

8.2 不正确的安装可能会损坏 SPD 的性能，严格按照指示安装尤为重要。
Incorrect installation may damage the performance of the SPD, and it is especially important to follow the instructions.

8.3 在开始安装程序之前，需用电表验证工作电压(AC 或 DC)，以确保工作电压符合要求。
Before starting the installation procedure, use the meter to verify the operating voltage (AC or DC) to ensure that the operating voltage meets the requirements.

8.4 如果测量的电压超过电涌保护器的额定值，请勿安装 SPD。
Do not install SPD if the measured voltage exceeds the rating of the surge protector.

8.5 安装前不要接入电力系统。
Do not connect the power system before installation.

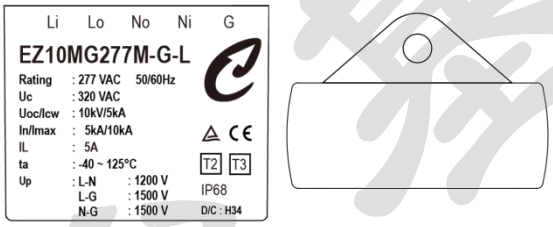
8.6 该电涌保护器在通电时 LED 灯应亮、如果 LED 灯不亮，说明电涌保护器已经损坏，需维修或更换。
The LED indicator should be light up when the surge protector is energized. If the LED indicator does not light, it indicates that the surge protector is damaged and needs to be repaired or replaced.

9 标示 Marks

本体标示 Product Body Marking:

例如 ex:

EZ10MF277M-G-L



EZ10MF277M-G-SP

10 包装 Packaging

EZ10MG277M(S)-(G)-L
塑胶壳装灌胶防水型
Plastic casing and potting, waterproof
(350×260×150mm)
100 PCS / 箱 Carton

EZ10MG277M(S)-(G)-SP
热缩套管型
Heat-shrinkable tubing
(350×260×150mm)
180 PCS / 箱 Carton

-以下无正文 END