

Data Sheet

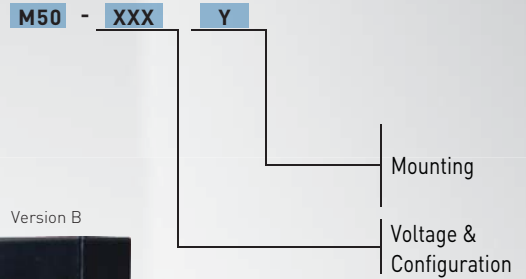
Type 2 Surge Protective Device *M50F Series*



Version A



Version B



Application

- Industrial
- Commercial
- Residential

Features

- I_{max} 50kA 8/20 μ s
- All single and three phase configurations from 120 to 600Vac
- Hybrid Technology for enhanced TOV protection with no leakage current and EMI/RFI Filtering
- Real-time diagnostics include an LED per phase and audible alarm
- Indoor/Outdoor IP66/NEMA6 rated enclosure (NEMA6 exceeds NEMA4 or 4X)
- Panel mount via M22 or 1/2" NPT
- Mounting is available on side, back or din rail
- Hardwired connection #12 AWG 36" leads
- 10-year free replacement warranty

UL

- Listed for standalone or integrated applications
- UL Type 2 SPD, cUL Type 2 SPD - Installed on line or load side of the main disconnect
- In 20kA (All models)
- SCCR 200kA (All models)
- VPR L-N is 700V for 120V, 120/240V, 120/208V (See page 2 for full table)
- VPR L-N is 1200V for 220V, 220/380V, 230/400V, 240/415V, 277/480V (See page 2 for full table)
- Meets requirements of UL96A Lightning Protection Master Label
- UL Type 1 SPD option available (M50 Series)
- File # VZCA.E326289 (www.ul.com)



CITEL

Data Sheet

Type 2 Surge Protective Device M50F Series

Technical Data

Description	M50F-120Y-X	M50F-120T-X	M50F-120S-X	M50F-230S-X	M50F-240T-X	M50F-240D-X	M50F-277Y-X	M50F-347Y-X	M50F-480D-X	M50F-600D-X		
Product Part Number - A version	750101	750102	750103	750303	750402	750404	750501	750601	750704	750804		
Product Part Number - B version	750111	750112	750113	750313	750412	750414	750511	750611	750714	750814		
System voltage	120-208	120-240	120	230	240-480	240	277-480	347-600	480	600		
System	4W+G (Wye)	3W+G (Split Ph)	2W+G (single)	2W+G (single)	3W+G (Split Ph)	3W+G (Delta)	4W+G (Wye)	4W+G (Wye)	3W+G (Delta)	3W+G (Delta)		
Maximum Operating Voltage	L-G 140	L-G 140	L-G 140	L-G 270	L-G 280	L-G 280	L-G 320	L-G 400	L-G 550	L-G 690		
	L-N 140	L-N 140	L-N 140	L-N 270	L-N 280	L-N /	L-N 320	L-N 400	L-N /	L-N /		
	N-G 120	N-G 120	N-G 120	N-G 230	N-G 240	N-G /	N-G 280	N-G 350	N-G /	N-G /		
	L-L 240	L-L 280	L-L /	L-L /	L-L 480	L-L 280	L-L 560	L-L 690	L-L 560	L-L 690		
Operating Current	Ic	mA	25 per line									
Follow current	If	A	None									
Short Circuit Current Rating	SCCR	kA	200									
Maximum Leakage Current	Ipe	mA	None									
Maximum Recommended fuse	Rating, Type	200A, Class J										
Frequency	F	Hz	50 - 60									
Nominal discharge current	In (8-20)	kA	20									
Maximum Discharge Current	L-G		50									
	N-G		100									
Impulse Discharge Current per phase	Iimp (10-350)	kA	4									
Total Maximal Discharge Current	Itotal (8-20)	kA	100									
Total Maximal Discharge Current	Itotal (10-350)	kA	15	12	8	8	12	12	15	15	12	12
Let through Voltage	Ures (V) at 20kA	L-G	1500	1500	1500	1900	1900	1500	1900	2500	1900	2300
	L-N	900	900	900	1500	1500	N/A	1500	1800	N/A	N/A	
	N-G	1500	1500	1500	1500	1500	N/A	1500	1800	N/A	N/A	
	L-L	1500	1500	N/A	N/A	3100	1500	3100	3300	3100	3800	
Voltage Protection Level	L-G	1200	1200	1200	1500	1500	1200	1500	2000	1500	1800	
	L-N	700	700	700	1200	1200	N/A	1200	1400	N/A	N/A	
	N-G	1200	1200	1200	1200	1200	N/A	1200	1800	N/A	N/A	
	L-L	1200	1200	N/A	N/A	2500	1200	2500	2600	2500	3000	
Shipping Dimensions	Inches	3.46 x 4.02 x 2.35										
Shipping Weight	Ibs	2.4										
Standard's Compliance or recognition	UL1449 ed4	File: E326289	Type 2									
	IEC 61643-11 ed2		Type 2									
Visual disconnection indicator			LED									
Sound disconnection indicator			Continuous Buzzer									
Wiring type			AWG 12 wires									
Maximum altitude	ft	6500										
Operating Temperature	*F	-40 +185										
Housing - Enclosure material		Aluminum cast										
Mounting type		Side or back nipple (Version A or B) Threaded (M22) . NPT 1/2 adaptor available										
Environmental rating	IP	IP66										
	Nema	NEMA 6										
Location Installation		Indoor / outdoor										

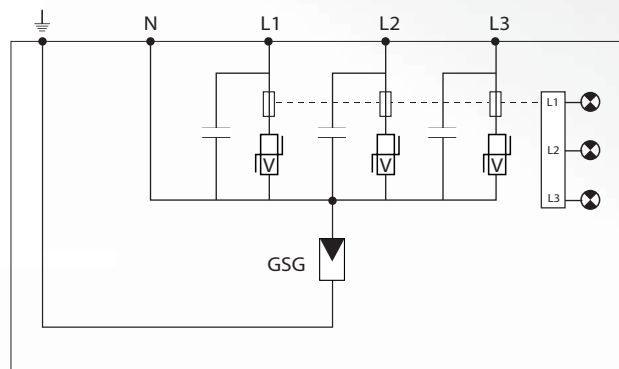


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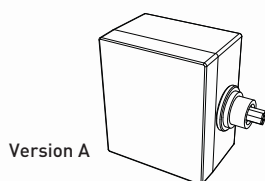
Data Sheet

Type 2 Surge Protective Device *M50F Series*

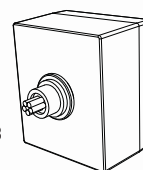
Electrical Diagram



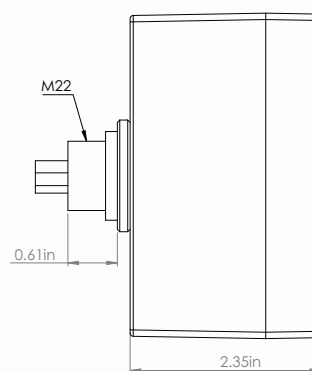
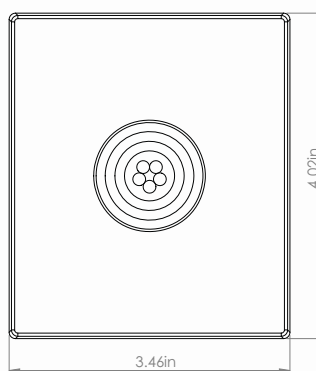
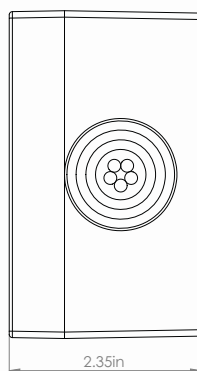
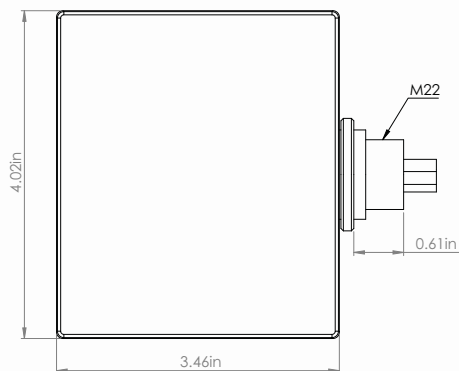
Dimensions



Version A



Version B

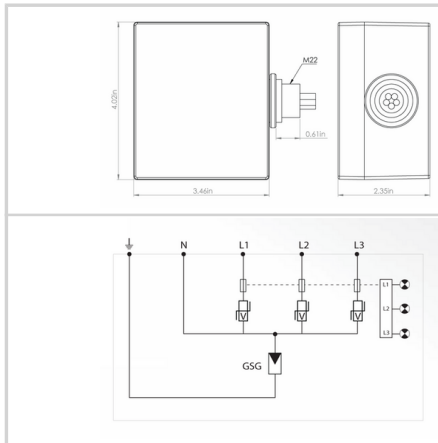


*NPT 1/2 adaptor available in both versions

M50F-230S-A



- ↳ Hybrid MOV-GSG Technology
- ↳ UL1449 Type 2 LISTED
- ↳ 50kA Surge Current Rating per mode
- ↳ Extended life with no leakage current
- ↳ Visual LED fault indicator and audible alarm
- ↳ NEMA 6 (exceeds NEMA 4X or 4)
- ↳ UL1283 Filter
- ↳ 10-Year warranty



Electrical Characteristics		
Let through VoltageUres at 20kA	V	1500.0000
POWER SPD TYPE		UL1449 TYPE 2 LISTED
VOLTS	(V)	230
AC/DC/DC PV/RF		AC
PHASE	(PH)	1
AMPS	(A)	N/A
AMBIENT MIN	(C)	-35
AMBIENT MAX	(C)	+80
MODES		L-N, L-G, N-G
VPR	(V)	1200/1500/1200
MCOV	(V)	280/280/140
IN15 impulses 8/20µs	(kA)	20
SCCR	(kA)	150
IMAX8/20µs	(kA)	50
Installation		
Operating TemperatureMin	°C	-40.0000
Operating TemperatureMax	°C	85.0000
Operating TemperatureMin	°F	-40.0000
Operating TemperatureMax	°F	85.0000
Operating Relative HumidityMax	%RH	Can be submerged
Operating AltitudeMin	Ft	2000.0000
Operating AltitudeMax	Ft	6500.0000
Housing/Enclosure material		Aluminum cast
Mounting		Side mount
IP Environmental ratingIP		IP66
NEMA Environmental ratingNEMA		NEMA 6
Installation Location		Indoor / outdoor
Accessories		brackets
Product DimensionL	mm	102.0000
Product DimensionH	mm	62.0000
Product DimensionW	mm	88.0000
Product DimensionL	In	4.0160
Product DimensionH	In	2.4410
Product DimensionW	In	3.4650
Miscellaneous		
Individual Pack		Yes
Storage TemperatureMin	°C	-40.0000
Storage TemperatureMax	°C	85.0000
Storage TemperatureMin	°F	-40.0000
Storage TemperatureMax	°F	85.0000
Mechanical Characteristics		
TECHNOLOGY		MOV-GSG
NETWORK CONFIGURATION		3PH, 4W+G, Wye
CONNECTION METHOD		3/6" #12 AWG LEADS
MOUNTING		SIDE MOUNT, THREADED M22 (1/4" NPT ADAPTER)
MATERIAL		Aluminum cast
NEMA RATING (IP RATING)		NEMA 6P (IP67)
FAIL-SAFE BEHAVIOR		Yes, no upstream over current protection required
REAL-TIME DIAGNOSTICS		LED and audible alarm
DIMENSIONS		See diagram
WEIGHT		2.5 lbs.
Standards		
UL STANDARD		UL1449 5th Edition
UL CATEGORY		VZCA, VZCA7
UL FILE NUMBER		E326289
STANDARDS		NOM-003-SCFI-2014, NOM-001-SCFI-1993
ENVIRONMENTAL STANDARDS		ROHS

M50F-230S-A

Part number

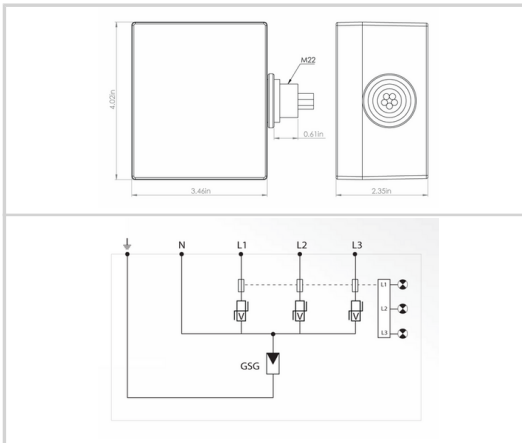
89750303



M50-277Y-A



- Hybrid MOV-GSG Technology
- UL1449 Type 1 LISTED
- 50kA Surge Current Rating per mode
- Extended life with no leakage current
- Visual LED fault indicator and audible alarm
- NEMA 6 (exceeds NEMA 4X or 4)
- Optional Type 2 LISTED with UL1283 Filter
- 10-Year warranty

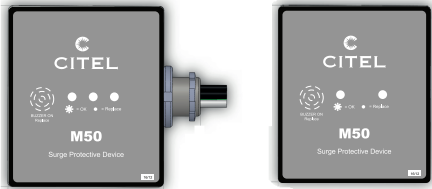


Electrical Characteristics		
POWER SPD TYPE		UL1449 TYPE 1/2 LISTED
VOLTS	(V)	277/480
AC/DC/DC PV/RF		AC
PHASE	(PH)	3Y
AMPS	(A)	N/A
AMBIENT MIN	(C)	-35
AMBIENT MAX	(C)	+80
MODES		L-L, L-N, L-G, N-G
VPR	(V)	2500/1200/1500/1200
MCOV	(V)	560/320/320/280
IN15 impulses 8/20µs	(kA)	20
SCCR	(kA)	150
IMAX8/20µs	(kA)	50
Mechanical Characteristics		
TECHNOLOGY		MOV-GSG
NETWORK CONFIGURATION		3PH, 4W+G, Wye
CONNECTION METHOD		36" #12 AWG LEADS
MOUNTING		SIDE MOUNT, THREADED M22 (1/4" NPT ADAPTER)
MATERIAL		Aluminum cast
NEMA RATING (IP RATING)		6 (IP66)
FAIL-SAFE BEHAVIOR		Yes, no upstream over current protection required
REAL-TIME DIAGNOSTICS		LED and audible alarm
DIMENSIONS		See diagram
WEIGHT		2.5 lbs.
Standards		
UL STANDARD		UL1449 5th Edition
UL CATEGORY		VZCA
UL FILE NUMBER		E326289
STANDARDS		NOM-003-SCFI-2014, NOM-001-SCFI-1993
ENVIRONMENTAL STANDARDS		ROHS
Part number		
89751501		

INSTALLATION INSTRUCTIONS - NOTICE D'INSTALLATION
 NOTICIA DE INSTALACIÓN - INSTALLATIONSHINWEISE
 ISTRUZIONI PER L'INSTALLAZIONE
 INSTRUCOES DE INSTALCAO - MONTÁŽNÍ NÁVOD
 РУКОВОДСТВО ПО МОНТАЖУ - 安装指导书

AC surge protector - Parafoudre Basse Tension
 Protectiones Baja Tension
 Überspannungsschutz für Niederspannungsnetze
 Scaricatori da sovratensioni per rete di energia
 Protetor de Surto CA. - Svodiče přepětí pro AC
 Устройство защиты от импульсных перенапряжений, AC - 低压浪涌保护器

M50 Series



Technical Data

	P/N																				
	M50(F)-120Y-A*	M50(F)-120T-A*	M50(F)-120S-A*	M50(F)-120Y-B*	M50(F)-120T-B*	M50(F)-120S-B*	M50(F)-240D-A*	M50(F)-240D-B*	M50(F)-230S-A*	M50(F)-230S-B*	M50(F)-240T-A*	M50(F)-240T-B*	M50(F)-277Y-A*	M50(F)-277Y-B*	M50(F)-480D-A*	M50(F)-480D-B*	M50(F)-347Y-A*	M50(F)-347Y-B*	M50(F)-600D-A*	M50(F)-600D-B*	
2000 m max. 6500 ft max.																					
-40/+185°C max. -40/+85°F max. IP66																					
Characteristics																					
Single phase			●			●			●	●											
Split phase		●			●						●	●									
Wye	●			●									●	●			●	●			
Delta							●	●							●	●			●	●	
Max. Discharge Current by mode (Imax)	50 kA																				
Nominal Discharge Current by mode (In)	20 kA																				
MCOV L-N (Vac)	140	140	140	140	140	140	N/A	N/A	270	270	280	280	320	320	N/A	N/A	400	400	N/A	N/A	
MCOV L-L (Vac)	240	280	N/A	240	280	N/A	280	280	N/A	N/A	480	480	560	560	N/A	N/A	690	690	N/A	N/A	

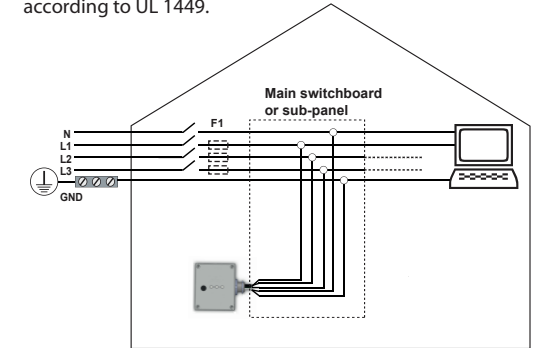
Note:

A: for the side nipple
 B: for the nipple in the back

* M50F : contains a condenser.

Installation (Fig. 1)

Fusing not required but only recommended when SPD installed according to UL 1449.



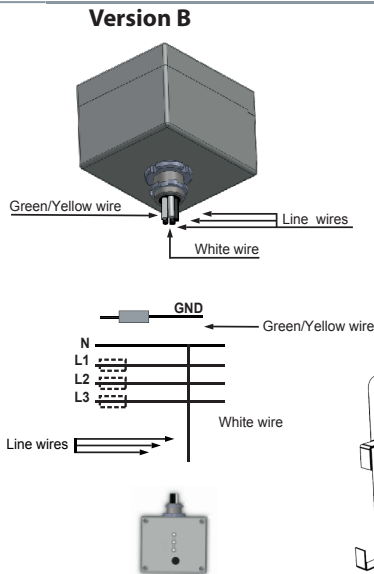
Installation

Installation

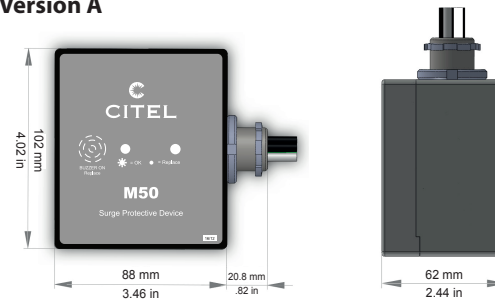
1. Turn off all power supplying this equipment before working on or inside equipment. See Installation - Figure 1.
2. Confirm M50 device is rated for your system by comparing voltage measurements to the Line Voltage on the product label.
3. Install in accordance with article 285 of the National Electric Code.
4. Confirm that the electrical terminals used to attach this device are identified for these conductors.
5. Twist conductors 1/2 turn or more for every 12 inches of length.
6. Keep conductor length as short as possible with no sharp bends.
7. Do not loop or coil wires.
8. Ensure a high quality ground is in place.

Diagnostic Operation

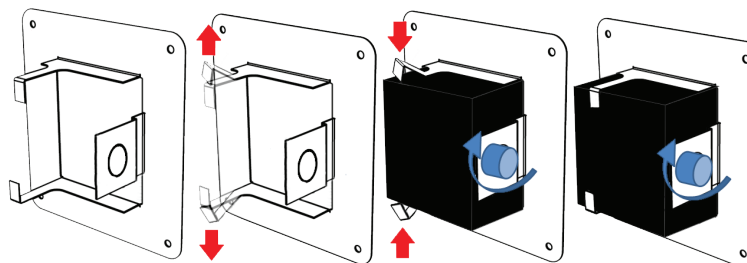
- LED ON = Normal operation
- LED OFF (one or more) = Fault, check phase voltage and connections. If OK, replace unit.
- Audible Alarm ON = Fault, check phase



Version A



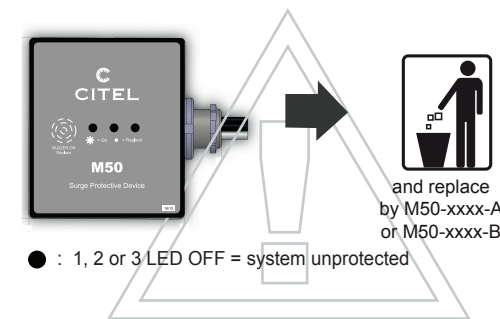
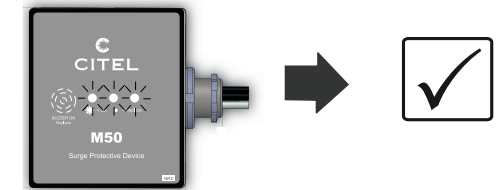
Optional Surface Mount Installation*



*To avoid faceplate damage, DO NOT remove protective cover until after installed to surface mount.

Maintenance

☀ : 3 LED ON = system protected





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SAFETY INSTRUCTIONS
 CONSIGNES DE SECURITE
 SICHERHEITSHINWEISE
 ADVERTENCIA DE SEGURIDAD
 AVVERTENZE IMPORTANTI
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安全須知



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N121002a



ATTENTION !

GB

- Installation must be performed only by electrically skilled operator.
- National electrical installation rules must be followed.
- The unit must be used only as surge protector and according the conditions described in this document.
- Surge protectors must be selected in relation with an dedicated AC network (see Table)
- Dedicated fuses must be installed in the surge protector branch.
- In case of red indicator, the surge protector must be replaced.



ATENCIÓN !

ES

- Solo un operador eléctrico capacitado puede realizar la instalación.
- Las reglas generales nacionales de instalación eléctrica deben ser respetadas.
- El producto solo tiene un uso de protección contra sobretensiones transitorias y debe ser utilizado en las condiciones mencionadas en este documento.
- Las protecciones contra sobretensiones transitorias se usan en relación con una red de baja tensión determinada (ver tabla).
- Fusibles dedicados deben ser instalados aguas arriba de la protección, en la conexión en paralelo.
- Se debe sustituir la protección cuando el indicador esta puesto en rojo.



ВНИМАНИЕ!

RUS

- монтаж и подключение изделия должны производиться только специалистами-электриками.
- необходимо учитывать требования местных норм и стандартов.
- изделие может использоваться только для защиты от импульсных перенапряжений в соответствии с настоящей инструкцией.
- параметры сети должны соответствовать характеристикам изделия (см. таблицу).
- обязательна установка токовых предохранителей соответствующего номинала.
- при обнаружении индикатора состояния красного цвета изделие должно быть заменено.



ATTENTION !

FR

- L'installation ne doit être effectuée que par un opérateur électricien dûment qualifié.
- Les règles générales d'installation électrique nationales doivent être respectées.
- Le produit est uniquement destiné à un usage parafoudre et doit être utilisé dans les conditions décrites dans ce document.
- Les parafoudres sont utilisés en fonction d'un réseau BT déterminé (voir table)
- Des fusibles dédiés doivent être installés dans les branches du parafoudre.
- En cas d'indicateur passant au rouge, le parafoudre doit être remplacé.



ATTENZIONE !

IT

- L'installazione deve essere fatta solamente da elettricisti qualificati.
- Devono essere rispettate le regolamentazioni nazionali e locali riguardanti l'installazione di apparati elettrici.
- L'unità deve essere usata solo come protezione da sovratensioni e secondo le condizioni descritte in questo documento.
- Le protezioni da sovratensione devono essere scelte in funzione della corrente alternata di rete (vedere la tabella).
- Fusibili dedicati devono essere installati nel ramo protetto da sovratensione.
- Nel caso in cui si accenda l'indicatore rosso, l'unità di protezione da sovratensione deve essere sostituita.



VAROVÁNÍ

CZ

- Montáž a připojení svodiče přepětí smí provádět pouze pracovník s příslušnou elektrotechnickou kvalifikací.
- Je zapotřebí dodržovat zásady bezpečnosti práce i platné národní elektrotechnické předpisy.
- Svodič přepětí se smí používat pouze v souladu se svými technickými parametry a podle těchto montážních pokynů.
- Svodiče přepětí je zapotřebí zvolit a používat tak, aby odpovídaly napájecí síti (viz tabulka).
- Potřeba instalace pojistek pro předjištění před svodiče a jejich volba.
- Pokud ukazatel správné funkce má ČERVENOU barvu, pak svodič/modul je VADNÝ a musí být vyměněn.



WARNING !

D

- Die Montage und der Anschluss des Gerätes dürfen nur durch eine Elektrofachkraft durchgeführt werden.
- Nationale Installations Vorschriften sind zu beachten.
- Das Gerät ist nur im Rahmen dieser Installationshilfe und seiner technischen Daten zu verwenden.
- Die Ableiter sind nach der Niederspannungsnetzform auszuwählen (siehe Tabelle).
- Die Versicherungen sind nach der Tabelle zu selektieren und zu installieren.
- Ist die Anzeige im Sichtfenster auf ROT umgeschaltet, so ist das Modul DEFECT und muss ausgetauscht werden.



AVISO !

PT

- A instalação deve ser feita por um electricista habilitado.
- Devem ser seguidas todas as regras de segurança indicadas pelo operador eléctrico.
- Esta protecção deve ser utilizada apenas como protecção contra sobretensões e de acordo com as condições mencionadas neste documento.
- A protecção deve ser escolhida de acordo com a rede eléctrica AC (ver quadro).
- Devem ser instalados fúsiveis de protecção a montante da protecção.
- Caso o indicador vermelho esteja activo, dever-se-á substituir a protecção.



安全須知!

中文

- 产品安装只能由具备专业资质的人员实施;
- 请遵守国家电气安装相关规范;
- 本产品仅作为浪涌保护器且在本文件所规定的条件下使用;
- 请根据不同的电源网络制式选用浪涌保护器, 参见 Table;
- 请在浪涌保护器前端安装规定的熔断器, 参见 Table;
- 当状态指示变为红色时, 须及时更换浪涌保护器;