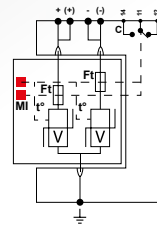
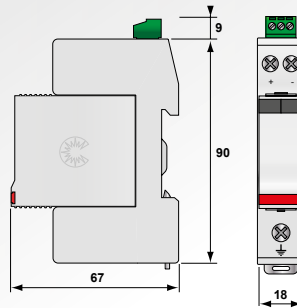


DC power surge protector DS2x0-xxDC series



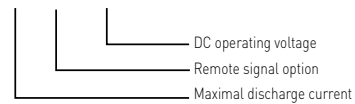
DS230-48DC



C: Remote signalling contact
V: Varistor
Ft: Thermal fuse
t°: Thermal disconnection system
MI: Disconnection indicators

- From 12 to 350 Vdc
- Very low Up protection level
- Compact design
- I_{max}: 20 to 40 kA
- Pluggable module
- Remote signaling (option)

DS2xx S-xxxDC



Characteristics

| CITEL Model | DS220-12DC | DS220-24DC | DS230-48DC | DS240-75DC | DS240-95DC | DS240-110DC | DS240-130DC | DS240-220DC | DS240-280DC | DS240-350DC |
|--|--|---|---|---|---|--|--|--|--|--|
| Description | DC or PV power surge protector | | | | | | | | | |
| Network | 12 Vdc | 24 Vdc | 48 Vdc | 75 Vdc | 95 Vdc | 110 Vdc | 130 Vdc | 220 Vdc | 280 Vdc | 350 Vdc |
| Connection mode | +/-/PE | +/-/PE | +/-/PE | +/-/PE | +/-/PE | +/-/PE | +/-/PE | +/-/PE | +/-/PE | +/-/PE |
| Protection mode(s) | CM | CM | CM | CM | CM | CM | CM | CM | CM | CM |
| Max. DC operating voltage | Uc | 24 Vdc | 38 Vdc | 65 Vdc | 100 Vdc | 125 Vdc | 150 Vdc | 180 Vdc | 275 Vdc | 350 Vdc |
| Max. AC operating voltage | Uc | 20 Vac | 30 Vac | 50 Vac | 75 Vac | 95 Vac | 115 Vac | 150 Vac | 210 Vac | 350 Vac |
| Residual current - Leakage current at U _c | I _{pe} | < 0.1 mA | < 0.1 mA | < 0.1 mA | < 0.1 mA | < 0.1 mA | < 0.1 mA | < 0.1 mA | < 0.1 mA | < 0.1 mA |
| Max. Load current (if connection serie) | IL | 20 A | 20 A | 20 A | 20 A | 20 A | 20 A | 20 A | 20 A | 20 A |
| Nominal discharge current - 15 x 8/20 μs impulses | I _n | 10 kA | 10 kA | 15 kA | 20 kA | 20 kA | 20 kA | 20 kA | 20 kA | 20 kA |
| Max. discharge current - max. withstand @ 8/20 μs by pole | I _{max} | 20 kA | 20 kA | 20 kA | 40 kA | 40 kA | 40 kA | 40 kA | 40 kA | 40 kA |
| CM Protection level @ I _n | U _p | 250 V | 250 V | 300 V | 390 V | 450 V | 500 V | 620 V | 900 V | 1400 V |
| Associated disconnectors | | | | | | | | | | |
| Thermal disconnector | internal | | | | | | | | | |
| Fuses (if required) | Fuses type gG - 20 A | Fuses type gG - 20 A | Fuses type gG - 50 A | Fuses type gG - 50 A | Fuses type gG - 50 A | Fuses type gG - 50 A | Fuses type gG - 50 A | Fuses type gG - 50 A | Fuses type gG - 50 A | Fuses type gG - 50 A |
| Mechanical characteristics | | | | | | | | | | |
| Dimensions | see diagram | | | | | | | | | |
| Connection to Network | by screw terminals: 1.5-10mm ² (actives wires) and 2.5-25mm ² (ground) | | | | | | | | | |
| Disconnection indicator | 2 mechanical indicators | | | | | | | | | |
| Remote signaling of disconnection | Option DS220S-12DC : output on changeover contact | Option DS220S-24DC : output on changeover contact | Option DS230S-48DC : output on changeover contact | Option DS240S-75DC : output on changeover contact | Option DS240S-95DC : output on changeover contact | Option DS240S-110DC : output on changeover contact | Option DS240S-130DC : output on changeover contact | Option DS240S-220DC : output on changeover contact | Option DS240S-280DC : output on changeover contact | Option DS240S-350DC : output on changeover contact |
| Spare unit | DSM220-12DC | DSM220-24DC | DSM230-48DC | DSM240-75DC | DSM240-95DC | DSM240-110DC | DSM240-130DC | DSM240-220DC | DSM240-280DC | DSM240-350DC |
| Mounting | Symmetrical rail 35 mm (EN60715) | | | | | | | | | |
| Operating temperature | -40/+85°C | | | | | | | | | |
| Protection rating | IP20 | | | | | | | | | |
| Housing material | Thermoplastic UL94-V0 | | | | | | | | | |
| Standards compliance | IEC 61643-11 / EN 61643-11 / UL1449 ed.4/EN 50539-11 | | | | | | | | | |
| Part number | 390101 | 390501 | 390401 | 310601 | 310301 | 310701 | 310801 | 310201 | 310501 | 310901 |

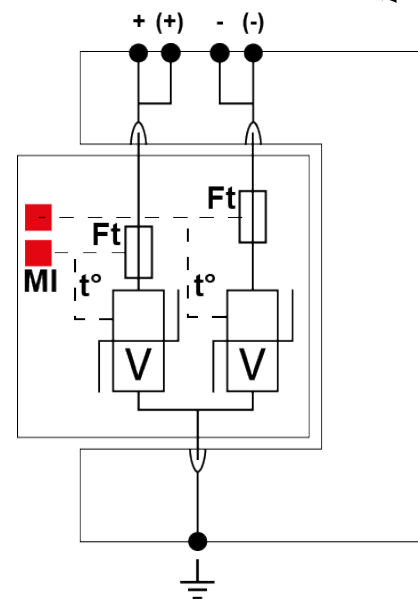
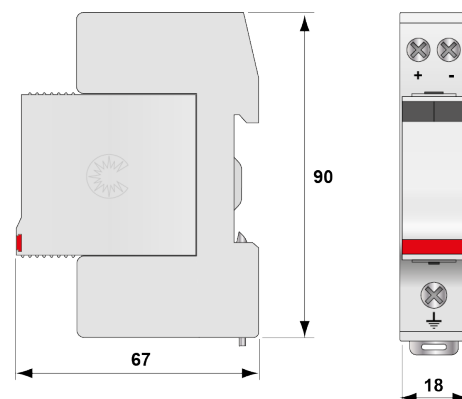


DS220-12DC



- DC or PV power surge protector
- 12 Vdc
- Compact design
- I_{max} : 20 kA
- Pluggable module
- Remote signaling (option)
- Very low Up protection level

| Electrical Characteristics | | |
|---|--------------------|------------------------|
| SPD type <i>following IEC test</i> | | 2 |
| Network | | DC or PV network 12Vdc |
| Nominal DC voltage | U_{n-dc} | 12 Vdc |
| Nominal PV voltage | U_{ocstc} | 12 Vdc |
| Max. AC operating voltage L-N | U_c | 20 Vac |
| Max. PV operating voltage | U_{cpv} | 24 Vdc |
| Max. DC operating voltage | U_c | 24 Vdc |
| Max. load current | I_L | 20 A |
| Residual Current <i>Leakage current to Ground</i> | I_{pe} | < 0.1 mA |
| Operating current <i>Continuous current at U_c</i> | I_c | < 0.1 mA |
| PV Permanent Operating current <i>Current consumption at U_{cpv}</i> | I_{cpv} | < 0.1 mA |
| Follow current | I_f | None |
| Nominal discharge current <i>15 x 8/20 μs impulses</i> | I_n | 10 kA |
| Max. discharge current <i>max. withstand @ 8/20 μs by pole</i> | I_{max} | 20 kA |
| Total Maximal discharge current <i>max. total withstand @ 8/20 μs</i> | I_{max} Total | 40 kA |
| Current withstand short circuit PV | I_{scpv} | 1000 A |
| Connection mode(s) | | +/-/PE |
| Protection mode(s) | | Common mode |
| Protection level <i>@ I_n (8/20μs)</i> | U_p | 250 V |
| Protection level L/PE <i>@ I_n (8/20μs)</i> | U_p L/PE | 250 V |
| Residual Voltage at 3 kA <i>@ 8/20μs</i> | U_p -3kA | 195 V |

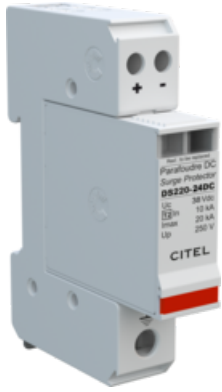


V: High-energy varistor
 Ft: Thermal fuse
 t°: Thermal disconnection system
 MI: Disconnection indicator



CITEL

| Mechanical Characteristics | |
|-----------------------------------|---|
| Technology | MOV |
| SPD configuration | 2 poles |
| Connection to Network | By screw terminals: 1.5-10mm ² (active wires) and 2.5-25mm ² (ground) |
| Format | Plug-in modular box |
| Mounting | Symmetrical rail 35 mm (EN60715) |
| Housing material | Thermoplastic UL94-V0 |
| Operating temperature | -40/+85°C |
| Protection rating | IP20 |
| Failsafe behavior | disconnection from DC line |
| Disconnection indicator | 2 mechanical indicators |
| Spare module(s) | DSM220-12DC |
| Remote signaling of disconnection | Option DS220S-12DC : output on changeover contact |
| Dimensions | See diagram |
| Disconnectors | |
| Thermal disconnector | internal |
| Fuses | Fuses type gG - 20A |
| Standards | |
| Standards compliance | IEC 61643-11 / EN 61643-11 / UL1449 ed.4 |
| Certification | UL |
| Part Number | 390101 |

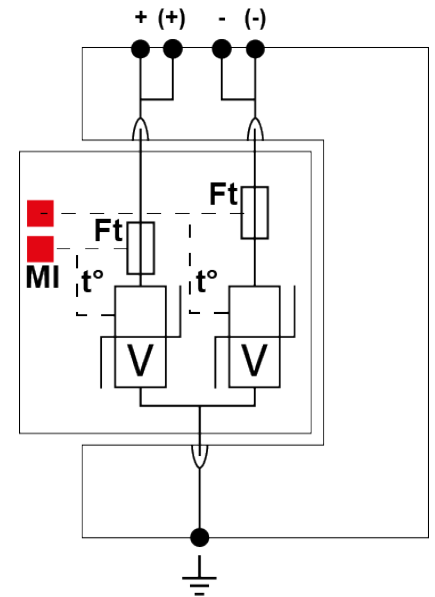
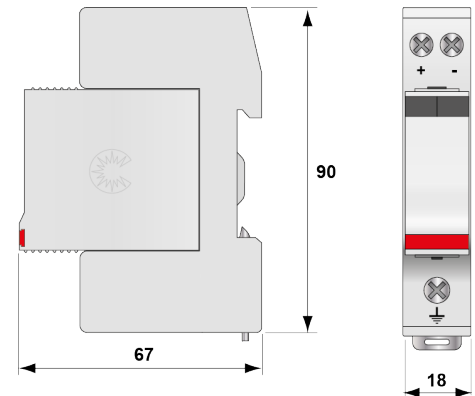


DS220-24DC



- DC or PV power surge protector
- 24 Vdc
- Compact design
- I_{max} : 20 kA
- Pluggable module
- Remote signaling (option)
- Very low U_p protection level

| Electrical Characteristics | | |
|---|---------------------------|------------------------|
| SPD type <i>following IEC test</i> | | 2 |
| Network | | DC or PV network 24Vdc |
| Nominal DC voltage | U_{n-dc} | 24 Vdc |
| Nominal PV voltage | U_{ocstc} | 24 Vdc |
| Max. AC operating voltage L-N | U_c | 30 Vdc |
| Max. PV operating voltage | U_{cpv} | 38 Vdc |
| Max. DC operating voltage | U_c | 38 Vdc |
| Max. load current | I_L | 20 A |
| Residual Current <i>Leakage current to Ground</i> | I_{pe} | < 0.1 mA |
| Operating current <i>Continuous current at U_c</i> | I_c | < 0.1 mA |
| PV Permanent Operating current <i>Current consumption at U_{cpv}</i> | I_{cpv} | < 0.1 mA |
| Follow current | I_f | None |
| Nominal discharge current <i>15 x 8/20 μs impulses</i> | I_n | 10 kA |
| Max. discharge current <i>max. withstand @ 8/20 μs by pole</i> | I_{max} | 20 kA |
| Total Maximal discharge current <i>max. total withstand @ 8/20 μs</i> | I_{max} <i>Total</i> | 40 kA |
| Current withstand short circuit PV | I_{scpv} | 1000 A |
| Connection mode(s) | | +/-/PE |
| Protection mode(s) | | Common mode |
| Protection level <i>@ I_n (8/20μs)</i> | U_p | 250 V |
| Protection level L/PE <i>@ I_n (8/20μs)</i> | U_p L/PE | 250 V |
| Residual Voltage at 3 kA <i>@ 8/20μs</i> | U_p -3kA | 195 V |



V: High-energy varistor
 Ft: Thermal fuse
 t°: Thermal disconnection system
 MI: Disconnection indicator

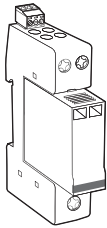


CITEL

| Mechanical Characteristics | |
|-----------------------------------|---|
| Technology | MOV |
| SPD configuration | 2 poles |
| Connection to Network | By screw terminals: 1.5-10mm ² (active wires) and 2.5-25mm ² (ground) |
| Format | Plug-in modular box |
| Mounting | Symmetrical rail 35 mm (EN60715) |
| Housing material | Thermoplastic UL94-V0 |
| Operating temperature | -40/+85°C |
| Protection rating | IP20 |
| Failsafe behavior | disconnection from DC line |
| Disconnection indicator | 2 mechanical indicators |
| Spare module(s) | DSM220-24DC |
| Remote signaling of disconnection | Option DS220S-24DC : output on changeover contact |
| Dimensions | See diagram |
| Disconnectors | |
| Thermal disconnector | internal |
| Fuses | Fuses type gG - 20A |
| Standards | |
| Standards compliance | IEC 61643-11 / EN 61643-11 / UL1449 ed.4 |
| Part Number | 390501 |

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

DC surge protector - Parafoudre DC
 Überspannungsschutz für DC - DC contra sobretensiones
 Protezione DC - Proteção DC - Svodiče přepětí pro DC
 Устройство защиты от импульсных перенапряжений для сетей DC - 直流浪涌保护器



DS2x0(S)-xxx DC

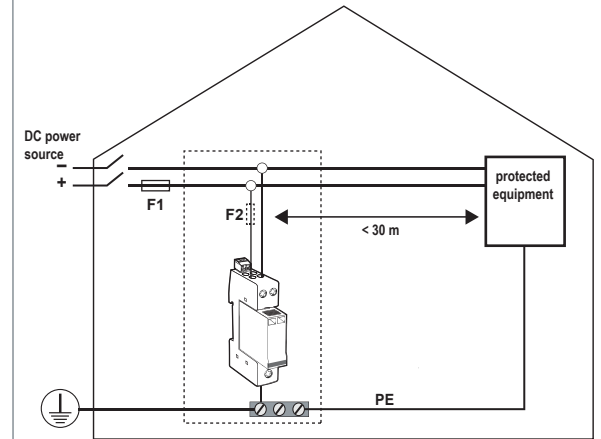
Technical Data

| DC Network | Un | P/N | | | | | | | | | |
|------------|----|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|
| | | DS220(S)-12DC | DS220(S)-24DC | DS230(S)-48DC | DS240(S)-75DC | DS240(S)-95DC | DS240(S)-110DC | DS240(S)-130DC | DS240(S)-220DC | DS240(S)-280DC | DS240(S)-350DC |
| 12 Vdc | Un | ● | | | | | | | | | |
| 24 Vdc | Un | | ● | | | | | | | | |
| 48 Vdc | Un | | | ● | | | | | | | |
| 75 Vdc | Un | | | | ● | | | | | | |
| 95 Vdc | Un | | | | | ● | | | | | |
| 110 Vdc | Un | | | | | | ● | | | | |
| 130 Vdc | Un | | | | | | | ● | | | |
| 220 Vdc | Un | | | | | | | | ● | | |
| 280 Vdc | Un | | | | | | | | | ● | |
| 350 Vdc | Un | | | | | | | | | | ● |

Remote signal option: "S" : e.g DS220S-12DC

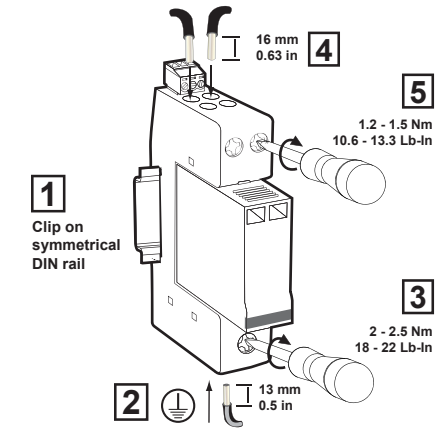
Table 1

Installation



Installation

| | min-max \varnothing |
|--|-------------------------------------|
| | 1.5 - 16 mm ² 15 - 5 AWG |
| | 1.5 - 10 mm ² 15 - 7 AWG |



| | min-max \varnothing |
|--|-------------------------------------|
| | 2.5 - 35 mm ² 13 - 2 AWG |
| | 2.5 - 25 mm ² 13 - 4 AWG |

Wiring

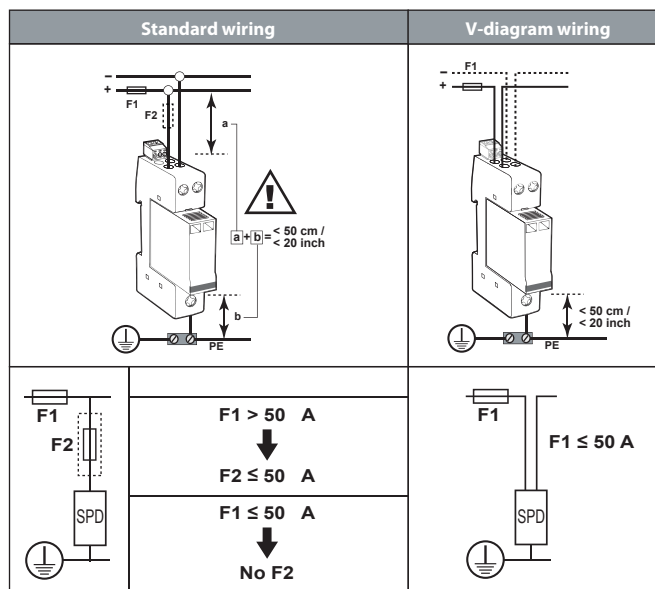


Table 2

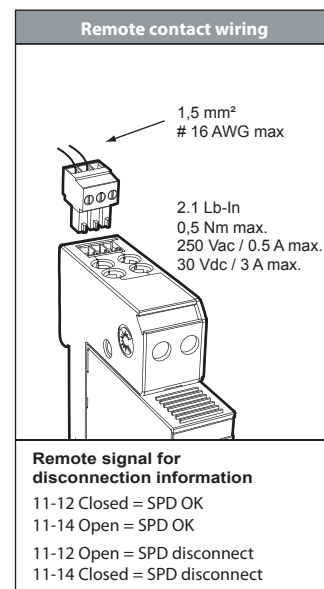
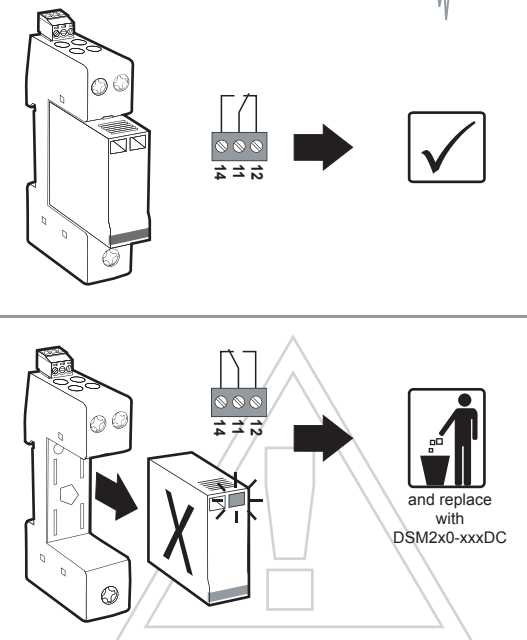


Table 3

Maintenance





CITEL

SAFETY INSTRUCTIONS
 CONSIGNES DE SECURITE
 SICHERHEITSHINWEISE
 ADVERTENCIA DE SEGURIDAD
 AVVERTENZE IMPORTANTI
 AVISOS IMPORTANTES
 МЕРЫ БЕЗОПАСНОСТИ
 BEZPEČNOSTNÍ POKYNY

安全須知



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www.citel.cz



NT11201



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 the maximum DC voltage of the installation (see Table 1)
- Depending of the short-circuit current of the network, dedicated fuses could be installed in the surge protector branch (see Table 2).
- In case of red indicator, the surge protector must be replaced.



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 doivent être sélectionnés en fonction de la tension max. DC de l'installation (voir Table 1)
- En fonction du courant de court-circuit de la ligne, des fusibles dédiés peuvent être installés dans les branches du parafoudre (voir Table 2).
- En cas d'indicateur passant au rouge, le parafoudre doit être remplacé.



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 max. Spannung auszuwählen (siehe Tabelle 1).
- Ist die Anzeige im Sichtfenster auf ROT umgeschaltet, so ist das Modul DEFECT und muss ausgetauscht werden.



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 1).
- Fusibles dedicados deben ser instalados aguas arriba de la protección, en la conexión en paralelo (ver tabla 2).
- Se debe sustituir la protección cuando el indicador esta puesto en rojo.



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 1).
- Fusibili dedicati devono essere installati nel ramo protetto da sovratensione (vedere la tabella 2).
- Nel caso in cui si accenda l'indicatore rosso, l'unità di protezione da sovratensione deve essere sostituita.



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 1).
- Devem ser instalados fúsisveis de protecção a montante da protecção (ver quadro 2).
- Caso o indicador vermelho esteja activo, dever-se-á substituir a protecção.



ВНИМАНИЕ!

RUS

- монтаж и подключение изделия должны производится 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 DC должны соответствовать характеристикам изделия (см. таблицу 1).
- при обнаружении индикатора состояния красного цвета изделие должно быть заменено.



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 musí být zvoleny podle maximálního stejnosměrného napětí fotovoltaické aplikace (při záporných teplotách - viz tabulka 1).
- Podle hodnoty zkratového proudu fotovoltaického zdroje může být zapotřebí instalovat speciální pojistky v obvodu svodiče přepětí (viz tabulka 2).
- Pokud signalizace stavu svodiče má ČERVENOU barvu, pak svodič/modul je VADNÝ a musí být vyměněn.



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；
- 本产品仅作为电涌保护器且在本文件所规定的条件下使用；
- 请根据光伏装置的最大直流电压选用电涌保护器，参见Table 1；
- 可根据光伏装置的短路电流在电涌保护器前端安装适当的熔断器，参见Table 2；
- 当状态指示变为红色时，须及时更换电涌保护器；