



**MULTI-POLE  
LIGHTNING CURRENT AND  
SURGE ARRESTERS FOR  
PHOTOVOLTAIC SYSTEMS  
CLASS I / (B+C) AND CLASS II / (C)  
COMPACT AND MODULAR HOUSING**



## PV ISPRO BS(R) 12,5



The PV ISPRO BS(R) 12,5 series of over voltage surge protective devices has been developed to protect against partial direct and indirect lightning discharges and is intended to provide protect photovoltaic system.

The circuit topology consists of two varistor stages each protected by a thermal disconnection device.

|                                |  |
|--------------------------------|--|
| Category IEC/EN/VDE            | Class I/Type 1/B+C                                       |
| Location of use                | Photovoltaic systems – PV module side                    |
| Protection modes               | (+)-PE, (-)-PE   |
| Protection element             | High Energy MOVs   |
| High surge discharge ratings   | $I_{imp} = 12,5$ kA per pole, $I_{max} = 40$ kA per pole |
| Internal protection and safety | Separate thermal disconnecter for each MOV block         |
| Status indication              | Mechanical flag + remote contacts (R)                    |
| Housing                        | Compact design   |



### Technical data

| Type                                    |           |                    |  | PV ISPRO BS(R) 12,5/xxx |       |
|---|-----------|--------------------|--|-------------------------|-------|
|   |           |                    |  | 550                     | 1000  |
| Standards                               |           |                    |  | IEC-61643-1             |       |
| Max. continuous operating voltage (DC)  | $U_c$     | V                  | 550  |                         | 1000  |
| Nominal discharge current (8/20)        | $I_n$     | kA                 | 20 per pole  |                         |       |
| Max. discharge current (8/20)           | $I_{max}$ | kA                 | 40 per pole  |                         |       |
| Impulse current (10/350)                | $I_{imp}$ | kA                 | 12,5   |                         |       |
| Specific energy                         |           | $\text{kJ}/\Omega$ | 39   |                         |       |
| Charge                                  |           | As                 | 6,25   |                         |       |
| Protection level                        | $U_p$     | kV                 | < 2,0  |                         | < 2,6 |
| Residual voltage at $I_{imp}$           | $U_{res}$ |                    | < 1,7  |                         | < 2,4 |
| Follow current                          | $I_f$     | $A_{RMS}$          | NO   |                         |       |
| Response time                           | $t_A$     | ns                 | < 25   |                         |       |
| Residual current at $U_c$               | $I_{PE}$  | mA                 | < 2,5  |                         |       |
| Thermal protection                      |           |                    | YES  |                         |       |
| Terminal screw torque                   |           | Nm                 | max. 4,5   |                         |       |
| Back-up fuse gL (if mains > 250 A)      |           | A                  | 250  |                         |       |
| Short-circuit withstand current (50 Hz) |           | kA                 | 25   |                         |       |
| Temperature range                       |           | $^{\circ}\text{C}$ | -40 ... +80  |                         |       |
| Terminal cross section                  | solid     | mm <sup>2</sup>    | 35   |                         |       |
|   | stranded  |                    | 25   |                         |       |
| Mounting                                |           |                    | 35 mm wide mounting rail in accordance with EN 60715 |                         |       |
| Degree of protection                    |           |                    | IP 20  |                         |       |
| Housing material                        |           |                    | thermoplastic; extinguishing degree UL 94 V-0        |                         |       |
| Dimensions DIN 43880                    |           |                    | 4TE  |                         |       |
| Weight per unit                         |           | kg                 | 0,370  |                         | 0,578 |



## PV ISPRO BS(R) 12,5

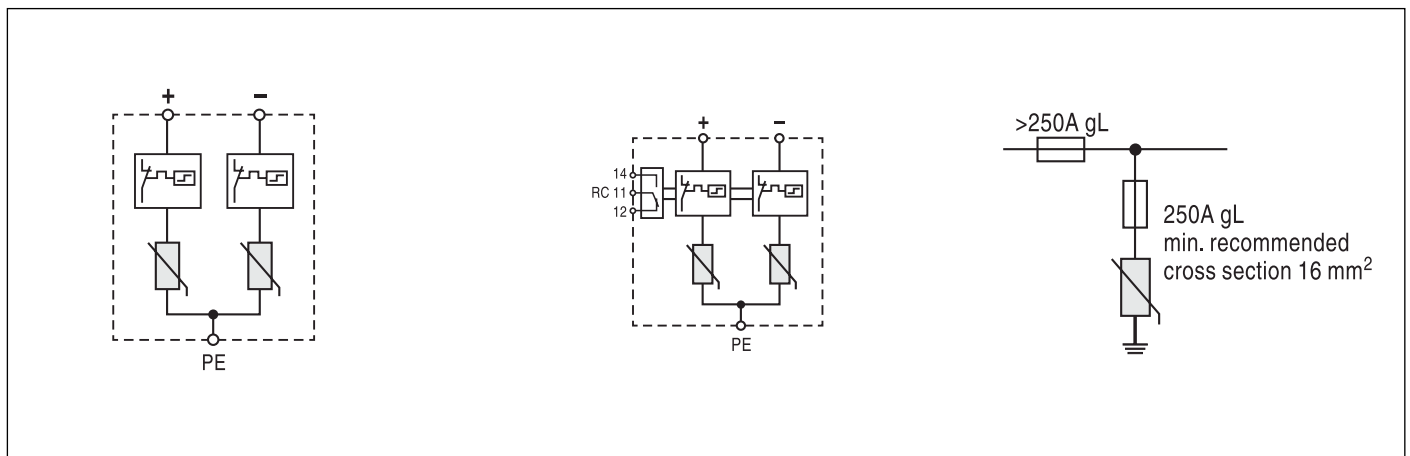
| PV ISPRO BSR 12,5 (with remote contacts) |       |                 |                  |
|--|-------|-----------------|------------------|
| Remote contacts                          |       |                 | YES              |
| Contact ratings AC                       | 250 V | A               | 0,5              |
|  | 125 V |                 | 3                |
| Terminal cross section                   |       | mm <sup>2</sup> | max. 1,5         |
| Remote terminal torque                   |       | Nm              | 0,25             |
| Weight per unit                          |       | kg              | 0,375      0,583 |

### Connection diagram

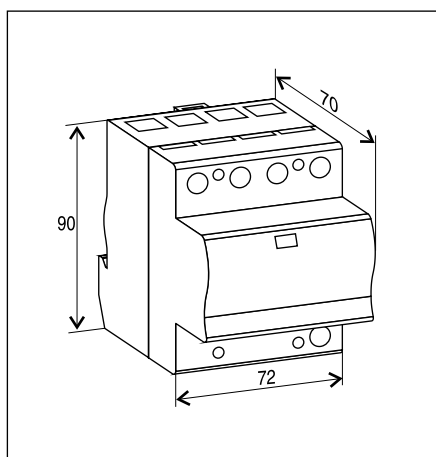
PV ISPRO BS 12,5/xxx

PV ISPRO BSR 12,5/xxx

Selection of back-up fuse



### Dimensions



## PV ISPRO C(R) 40



The PV ISPRO C(R) 40 series of over voltage surge protective devices has been developed to protect against indirect lightning discharges and is intended to protect photovoltaic system.

The circuit topology consists of two(three) varistor stages each protected by a thermal disconnection device.

|                                |   |
|--------------------------------|---|
| Category IEC/EN/VDE            | Class II/Type 2/C                                 |
| Location of use                | Branch sub-distribution boards                    |
| Protection modes               | (+)-PE, (-)-PE                                    |
| Protection element             | High Energy MOVs                                  |
| High surge discharge ratings   | $I_n = 20 \text{ kA}$ , $I_{max} = 40 \text{ kA}$ |
| Internal protection and safety | Thermal disconnecter                              |
| Status indication              | Mechanical flag + remote contacts (R)             |
| Housing                        | Compact design                                    |



### Technical data

| Type                                    | PV ISPRO C(R) 40/xxx |                 |  |       |
|---|----------------------|-----------------|--|-------|
|   |                      | 550             | 1000   |       |
| Standards                               |                      | IEC-61643-1     |  |       |
| Max. continuous operating voltage (DC)  | $U_c$                | V               | 550  | 1000  |
| Nominal discharge current (8/20)        | $I_n$                | kA              | 20 per pole  |       |
| Max. discharge current (8/20)           | $I_{max}$            | kA              | 40 per pole  |       |
| Protection level                        | $U_p$                | kV              | < 2,1  | < 4,0 |
| Follow current                          | $I_f$                | $A_{RMS}$       | NO   |       |
| Response time                           | $t_A$                | ns              | < 25   |       |
| Residual current at $U_c$               | $I_{PE}$             | mA              | < 1,5  |       |
| Thermal protection                      |                      |                 | YES  |       |
| Terminal screw torque                   |                      | Nm              | max. 4,5   |       |
| Back-up fuse gL (if mains > 125 A)      |                      | A               | 125  |       |
| Short-circuit withstand current (50 Hz) |                      | kA              | 25   |       |
| Temperature range                       |                      | °C              | -40 ... +80  |       |
| Terminal cross section                  | solid                | mm <sup>2</sup> | 35   |       |
|   | stranded             |                 | 25   |       |
| Mounting                                |                      |                 | 35 mm wide mounting rail in accordance with EN 60715 |       |
| Degree of protection                    |                      |                 | IP 20  |       |
| Housing material                        |                      |                 | thermoplastic; extinguishing degree UL 94 V-0        |       |
| Dimensions DIN 43880                    |                      |                 | 2TE  | 3TE   |
| Weight per unit                         |                      | kg              | 0,307  | 0,403 |



## PV ISPRO C(R) 40

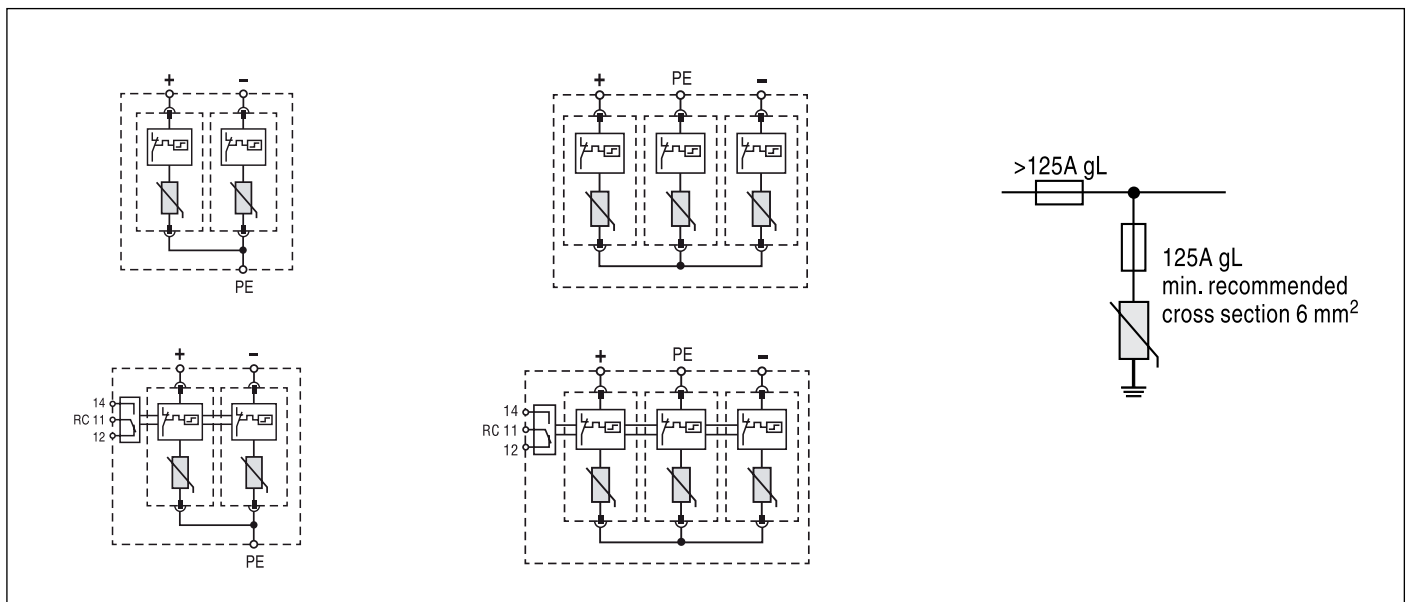
| PV ISPRO CR 40 (with remote contacts) |       |                 |          |       |
|---------------------------------------|-------|-----------------|----------|-------|
| Remote contacts                       |       |                 | YES      |       |
| Contact ratings AC                    | 250 V | A               | 0,5      |       |
|                                       | 125 V |                 | 3        |       |
| Terminal cross section                |       | mm <sup>2</sup> | max. 1,5 |       |
| Remote terminal torque                |       | Nm              | 0,25     |       |
| Weight per unit                       |       | kg              | 0,307    | 0,403 |

### Connection diagram

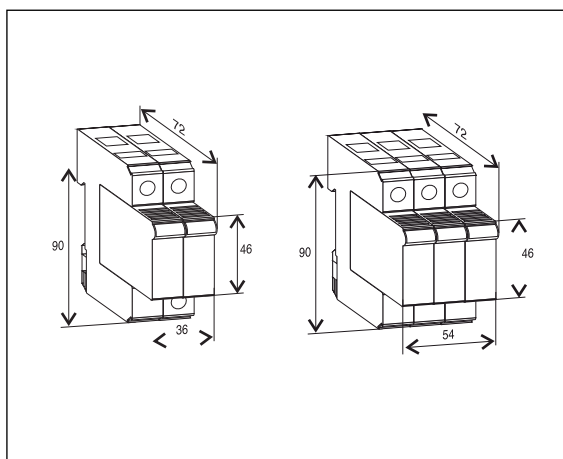
PV ISPRO C 40/500

PV ISPRO CR 40/100

Selection of back-up fuse



### Dimensions



### Accessory part for PV-ISPRO C(R) 40/xxx (4+0)

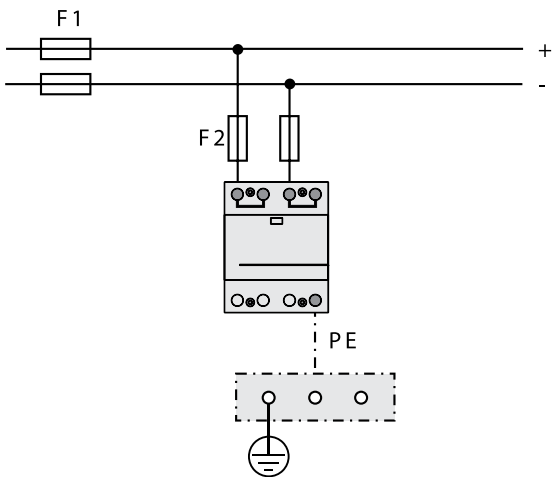


| Type | Module ISPRO C(R) 40/xxx |     |     |     |     |
|------|--------------------------|-----|-----|-----|-----|
|      | 150                      | 275 | 320 | 385 | 440 |

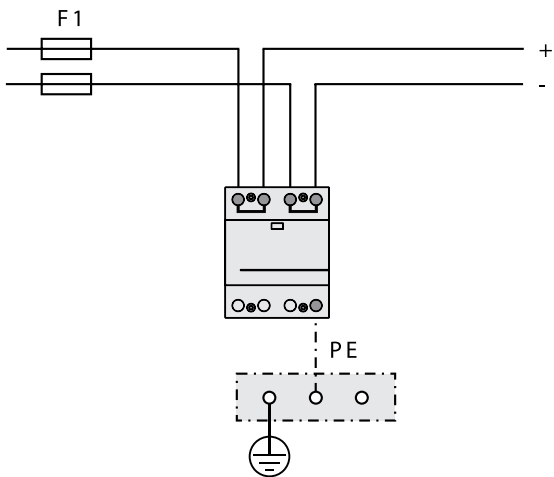
# PHOTOVOLTAIC SYSTEMS CONNECTIONS



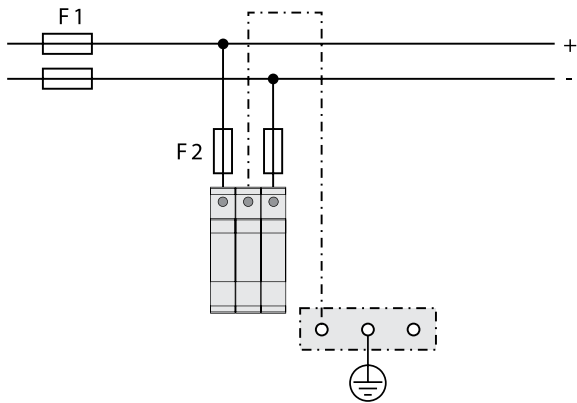
Parallel wiring



Serial (V-type) wiring



Parallel wiring



Serial (V-type) wiring

