

# Surge Protection Made Simple™

## Photovoltaic Applications

### Modular DIN Rail SPD Solutions



Type 4



#### Description

The Cooper Bussmann® multi-pole, modular Surge Protective Device (SPD) (with three-step DC switching device) features *easyID™* visual indication and optional remote contact signaling (floating changeover contact) for use in PV systems.

These complete surge protective devices are suitable for all PV systems in accordance with UL 1449 3<sup>rd</sup> Edition and IEC 60364-7-712. Includes a five year limited warranty.

These prewired solutions consist of a base and locking modules that feature a combined disconnection and short-circuiting (shunting) device with safe electrical isolation to prevent fire damage due to DC arcs. An integrated DC fuse allows safe module replacement without arc formation.

In case of insulation faults in the generator circuit, a reliable and tested fault-resistant Y circuit prevents damage to the surge protective devices.

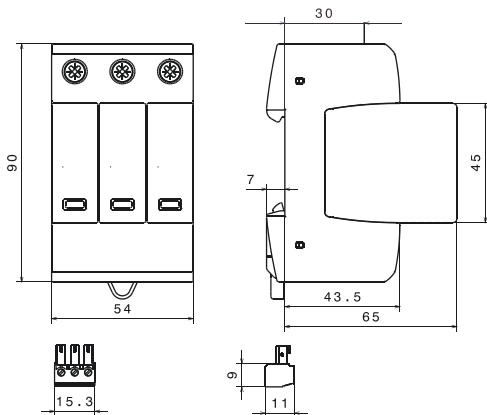
The green and red visual indicator flags show the module protective status (green = good, red = replace). Apart from this visual indication, the remote signaling option features a three terminal floating changeover contact that can be used as a make or break contact depending on the particular monitoring system design employed.



BSPH\_\_\_\_YPV(R)

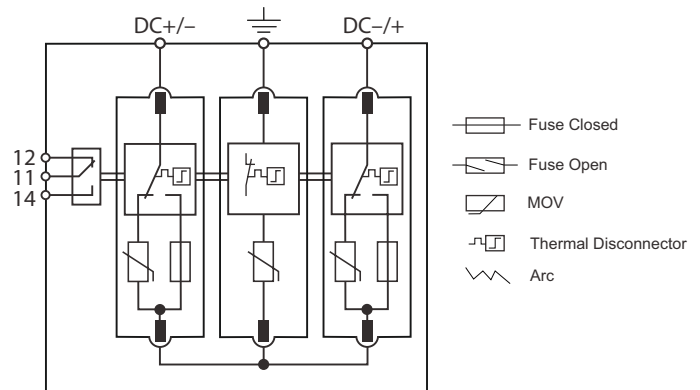
**easyID™** Visual Status Indication  Remote Signal Contact Available 

#### Dimensions - mm



Shown with optional remote contact signaling

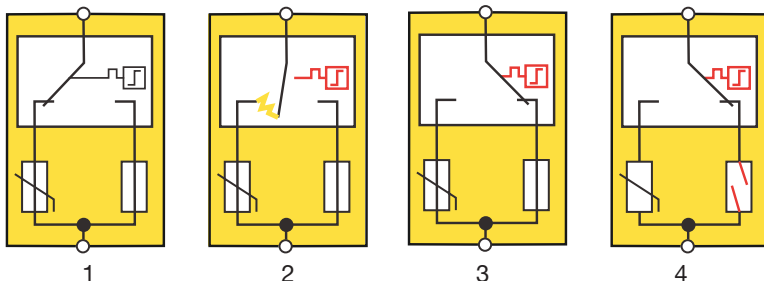
#### Module Circuit Diagrams



BSPH\_\_\_\_YPV(R)

Shown with optional remote contact signaling

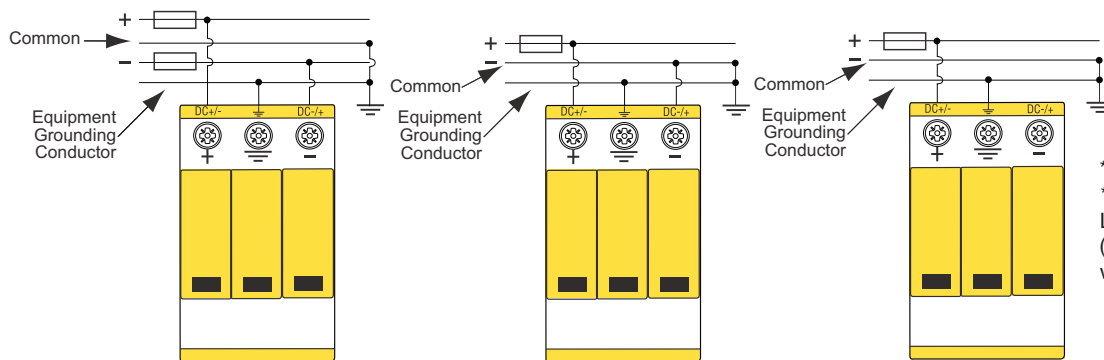
#### Short-Circuit Interrupting (SCI) Technology



1. Original State
2. Disconnection Device Response
3. Arc Extinguishes
4. Safe Electrical Isolation

| Ordering Information   |                          |   |               |               |
|--|--------------------------|---|---------------|---------------|
| Nominal PV System Voltage  |                          | 600Vdc  | 1000Vdc       | 1200Vdc       |
| Catalog Numbers:<br>(Base + Modules)   | Without Remote Signaling | BSPH3600YPV   | BSPH31000YPV  | BSPH31200YPV  |
|  | With Remote Signaling    | BSPH3600YPVR  | BSPH31000YPVR | BSPH31200YPVR |
| Replacement Modules:   | Outer (2)                | BPH300YPV   | BPH500YPV     | BPH600YPV     |
|  | Center (1)               | BPM300YPV   | BPM500YPV     | BPM600YPV     |
| Specifications   |                          |   |               |               |
| Nominal PV System Voltage  |                          | 600V  | 1000V         | 1200V         |
| MCOV [ $U_{CPV}$ ]   |                          | 700Vdc  | 1170Vdc       | 1200Vdc       |
| Max System Discharge Current (8/20 $\mu$ s) [ $I_{max}$ ]                      |                          | 40kA  | 40kA          | 30kA          |
| Voltage Protection Level [ $U_P$ ]   |                          | $\leq 2.5$ kV   | $\leq 4.0$ kV | $\leq 4.5$ kV |
| Voltage Protection Level at 5kA [ $U_P$ ]                                      |                          | $\leq 2.0$ kV   | $\leq 3.5$ kV | $\leq 4.0$ kV |
| Integrated Fuse Breaking Capacity/Interrupting Rating                          |                          | 30kA/1000Vdc  | 30kA/1000Vdc  | 30kA/1200Vdc  |
| Technology   |                          | Short-Circuit Interruption (SCI) Overcurrent Protection                   |               |               |
| Operating Temperature Range [ $T_U$ ]  |                          | -40°C to +80°C  |               |               |
| Nominal Discharge Current (8/20 $\mu$ s) [(DC+/DC-) --> PE] [ $I_n$ ]          |                          | 12.5kA  |               |               |
| Response Time [ $t_A$ ]  |                          | $\leq 25$ ns  |               |               |
| Operating State/Fault Indication   |                          | Green (good)/Red (replace)  |               |               |
| Conductor Ratings and Cross-Sectional Area: Minimum                            |                          | 60/75°C 1.5mm <sup>2</sup> /14AWG Solid/Flexible                          |               |               |
|  | Maximum                  | 60/75°C 35mm <sup>2</sup> /2AWG Stranded/25mm <sup>2</sup> /4AWG Flexible |               |               |
| Mounting   |                          | 35mm DIN Rail per EN 60715  |               |               |
| Enclosure Material   |                          | UL 94V0 Thermoplastic   |               |               |
| Degree of Protection   |                          | IP20  |               |               |
| Capacity   |                          | 3 Modules, DIN 43880  |               |               |
| Standards Information:   | UL                       | UL 1449 3 <sup>rd</sup> Edition (Type 2)*                                 |               |               |
|  | IEC                      | IEC 61643-11 Type 2, IEC 61643-1 Class II                                 |               |               |
| Product Warranty   |                          | Five Years**  |               |               |
| Remote Contact Signaling   |                          |   |               |               |
| Remote Contact Signaling Type  |                          | Changeover Contact  |               |               |
| AC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A   |               |               |
| DC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A; 125V/0.2A; 75V/0.5A  |               |               |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals |                          | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible                     |               |               |
| Ordering Information   |                          | Order from Catalog Numbers Above  |               |               |

### Typical Application Schematics

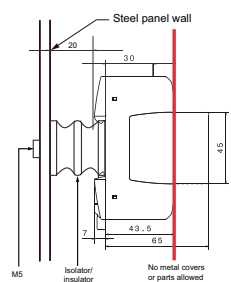


Application A  
Two energized poles/modes  
600, 1000 & 1200Vdc systems

Application B  
One energized pole/mode  
600Vdc & 1000Vdc\*\*\* systems only

Application C  
One energized pole/mode  
600Vdc & 1000Vdc\*\*\* systems only  
(Max. system discharge current  
(8/20  $\mu$ s) [ $I_{max}$ ] 25kA)

\*Does not apply to 1200Vdc.  
\*\* See Cooper Bussmann SPD  
Limited Warranty Statement  
(3A1502) for details at  
[www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge)



1000Vdc One energized pole/mode mounting detail.

\*\*\*BSPH31000YPV(R) 1000Vdc one energized pole/mode requires the following:

1. Use a suitable electrical insulator to keep a 10mm min. safety distance from the PV-SPD and other grounded parts in the housing as shown
2. No metal covers are in the area of the module release buttons as shown.

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- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

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- Техническую поддержку проекта.
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