Complete protection from damaging surges and overvoltages

Product description:
The unique nature of Photovoltaic (PV) installations make them vulnerable to damage from lightning strikes and overvoltage events.

Bussmann™ series DIN-Rail PV Surge Protection Devices (SPDs) combine surge and lightning protection for complete PV protection from overvoltage events.

Bussmann series PV PRO is ideal for protection from damaging surges and overvoltages with its high performance ratings. Bussmann series PV HEAVY DUTY with integrated overcurrent protection ensures complete device isolation for enhanced system safety. Bussmann series PV ADVANCE combines lightning protection and surge protection for complete PV system protection.

Features and benefits:
- Modular, DIN-Rail design with IP20 finger-safe construction and snap-in modules provides easy installation and maintenance.
- easyD™ local visual indication provides status at a glance and optional remote contact signaling simplifies integration into monitoring systems.
- UL® 1449 4th Edition Recognized for UL markets and EN 50539-11 for IEC® markets ensures global requirements are met.

Complete surge protection:
- PV PRO
- PV HEAVY DUTY
- PV ADVANCE

DIN-Rail surge protective devices combine surge and lightning protection to maximize PV system productivity.

RoHS
PV PRO

- UL 1449 4th Edition Recognized, and EN 50539-11 SPDs for most popular bi-polar popular protection of 600Vdc and 1000Vdc PV applications.
- Modular DIN-Rail mounting with IP20 finger-safe construction makes it easy to install and maintain.
- Protects arrays and inverters from direct and indirect lightning strikes, and damaging surges.
- Built-in thermal disconnect technology eliminates the need for any additional fuse installation and wiring.
- easyID local visual indication and optional remote contact signaling make status monitoring simple.
- Two-year warranty.

Module circuit diagrams:

BSPP YPV*
Shown with optional remote contract signaling
*For remote signaling contact, ass “R” suffix to the part number.
E.G., BSPP3600YPVR

See data sheet no. 10991 for more information.

"Y" series connection:

Series connection of modules between line and ground extends MOV life and permits higher voltage ratings.

SCI technology operation:

1. Normal module operating state; conduction path is through MOV to ground
2. MOV failure trips thermal disconnect, moving contact of the MOV and DC arc starts
3. As contact moves, DC arc is extinguished and the contact engages the fuse
4. Fuse opens, isolating PV-SPD from system, allowing safe module replacement and continued, uninterrupted flow of power from PV arrays to inverter

PV HEAVY DUTY

- Patented, fast-acting hybrid Short-Circuit Interrupting (SCI) technology isolates system to prevent damage caused by DC arcs.
- UL 1449 4th Edition Recognized and EN 50539-11 SPDs for enhanced 600, 1000 and 1200Vdc protection in mono-and bi-pole applications.
- Modular DIN-Rail mounting with IP20 finger-safe construction makes it easy to install and maintain.
- easyID local visual indication and optional remote contact signaling make status monitoring simple.
- Five-year warranty.

Module circuit diagrams:

BSPP YPV*
SCI technology utilizes an internal fast-acting fuse to fully isolate the SDP when a fault condition is encountered.
Shown with optional remote contract signaling
*For remote signaling contact, ass “R” suffix to the part number.
E.G., BSPH3600YPVR

See data sheet no. 2055 (3-module) and 2145 (2-module) for more information.

BSPH2600PV*

See data sheet no. 2055 (3-module) and 2145 (2-module) for more information.
PV ADANCE

- Class I SPD per IEC 61643-11 standards for PV systems up to 1000Vdc.
- Complements and enhances total PV system protection when used in combination with Bussmann series PV HEAVY DUTY or PV PRO SPDs up to 1000Vdc.
- Protects arrays and inverters from direct and indirect lightning strikes, and damaging surges.
- Triple terminal allows multiple PV string protection with one device.
- High lightning current discharge capacity using Trigger Spark Gap (TSG) technology eliminates DC short-circuit currents up to 100A DC.
- Five-year warranty.

Applications A
Two energized poles/modes up to 1000Vdc systems

PV ADVANCE

BSPS31000PVP
Circuit diagram and application wiring
See data sheet no. 2148 for more information.

Complete system protection

Overvoltage surge protection

PV PRO
High performance SPD for protecting PV investments from damaging surges

PV SPD with integrated overcurrent protection ensures complete device isolation for enhanced system safety

PV HEAVY DUTY

PV SPD with integrated overcurrent protection ensures complete device isolation for enhanced system safety

PV ADVANCE

Combined lightning current and surge protection for PV arrays and inverters

Catalog numbers

<table>
<thead>
<tr>
<th>PV PRO—(base + modules)</th>
<th>600 Vdc</th>
<th>1000 Vdc</th>
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<tbody>
<tr>
<td>W/O remote signaling</td>
<td>BSPP3600YPV</td>
<td>BSPP31000YPV</td>
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<tr>
<td>With remote signaling</td>
<td>BSPP3600YPVR</td>
<td>BSPP31000YPVR</td>
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<td>Replacement module</td>
<td>BPP300SYPV</td>
<td>BPP500SYPV</td>
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<table>
<thead>
<tr>
<th>PV HEAVY DUTY—(base + modules)</th>
<th>600 Vdc</th>
<th>1000 Vdc</th>
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<tr>
<td>W/O remote signaling</td>
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<td>BSPH31000YPV</td>
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<tr>
<td>With remote signaling</td>
<td>BSPH3600YPVR</td>
<td>BSPH31000YPVR</td>
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<tr>
<td>Replacement module</td>
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<td>BPP31000YPVR</td>
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<thead>
<tr>
<th>PV HEAVY DUTY—(base + modules)</th>
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<td>BSPH31200YPVR</td>
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<td>Replacement module</td>
<td>Outer (2) BSPH31000YPVR Center BPM300YPV</td>
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<table>
<thead>
<tr>
<th>PV HEAVY DUTY—(base + modules)</th>
<th>600 Vdc</th>
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<td>Replacement module</td>
<td>Left BPH300YPV Right BPM300YPV</td>
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<table>
<thead>
<tr>
<th>PV ADVANCE—(complete assembly)</th>
<th>1000 Vdc Max. system voltage</th>
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<tbody>
<tr>
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<tr>
<td>With remote signaling</td>
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<tr>
<td>Replacement module</td>
<td>Outer (2) BSPH31000YPVR Center (1) BPM600YPV</td>
</tr>
</tbody>
</table>

PV ADVANCE

BSPS31000PVP
Circuit diagram and application wiring

Preformance

Safety

Lightning
PV wiring applications

**Applications B:** "Y" configuration - two energized poles/modes 600, 1000 and 1200Vdc* system

**Applications C:** "I" configuration - one energized poleemode 600Vdc and 1000Vdc system only

**Applications D:** "I" configuration - two energized poles/modes 600 and 1000Vdc** system

**Applications E:** "I" configuration - two energized poles/modes 600Vdc mono-pole systems only

### Ratings

<table>
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<tr>
<th></th>
<th>PV PRO</th>
<th>PV HEAVY DUTY</th>
<th>PV ADVANCE</th>
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<tbody>
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<td>Nominal system voltage V&lt;sub&gt;n&lt;/sub&gt;</td>
<td>600, 1000Vdc</td>
<td>600, 1000, 1200Vdc</td>
<td>Up to 1000Vdc</td>
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<tr>
<td>System type</td>
<td>Bi-pole</td>
<td>Mono-pole, bi-pole</td>
<td>Bi-pole</td>
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<tr>
<td>Protection from</td>
<td>Surge</td>
<td>Surge</td>
<td>Direct/indirect</td>
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<td></td>
<td></td>
<td></td>
<td>Lighting currents</td>
</tr>
</tbody>
</table>
| Wiring configuration / applications | *"I" and "Y" configuration applications
B, C and D* | *"I" and "Y" configuration applications
B, C, D, and E* | Application A |
| Nominal discharge current I<sub>N</sub>-IEC | 20kA                    | 12.5kA                          | 100kA                       |
| Nominal discharge current (8x20µs) I<sub>imp</sub> | 20kA                    | 10kA                            | —                           |
| Impulse current rating (10/350µs) I<sub>max</sub> | —                       | —                               | 50kA                        |
| Max. discharge current (8x20µs) I<sub>max</sub> | 40kA                    | 25kA                            | N/A                         |
| PV Short-Circuit Rating I<sub>scpv</sub> amps | 125A                    | 1000A                           | —                           |
| Technology       | MOV                     | MOV SCI                         | Trigger spark gap           |
| Agency information | UL Recognized, EN 50539-11 | UL Recognized EN 50539-11      | IEC 61643-11                |
| Product warranty  | 2 years                 | 5 years                         | 5 years                     |
| Typical product application | Combiner boxes          | Recombiner boxes/ inverters    | Arrays/ inverters           |

* See limited warranty statement (3A1502) for details.

* BSPP31200YPV(R) only.
** BSPP31000YPV(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.
2. No metal covers are permitted in the area of the module release button.

For Eaton's Bussmann series product information, call 1-855-287-7626 or visit: Eaton.com/bussmannseries

Follow us on social media to get the latest product and support information.

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