

# Product Environmental Profile

Harmony Electrical Relays

SSP. Solid State Relays





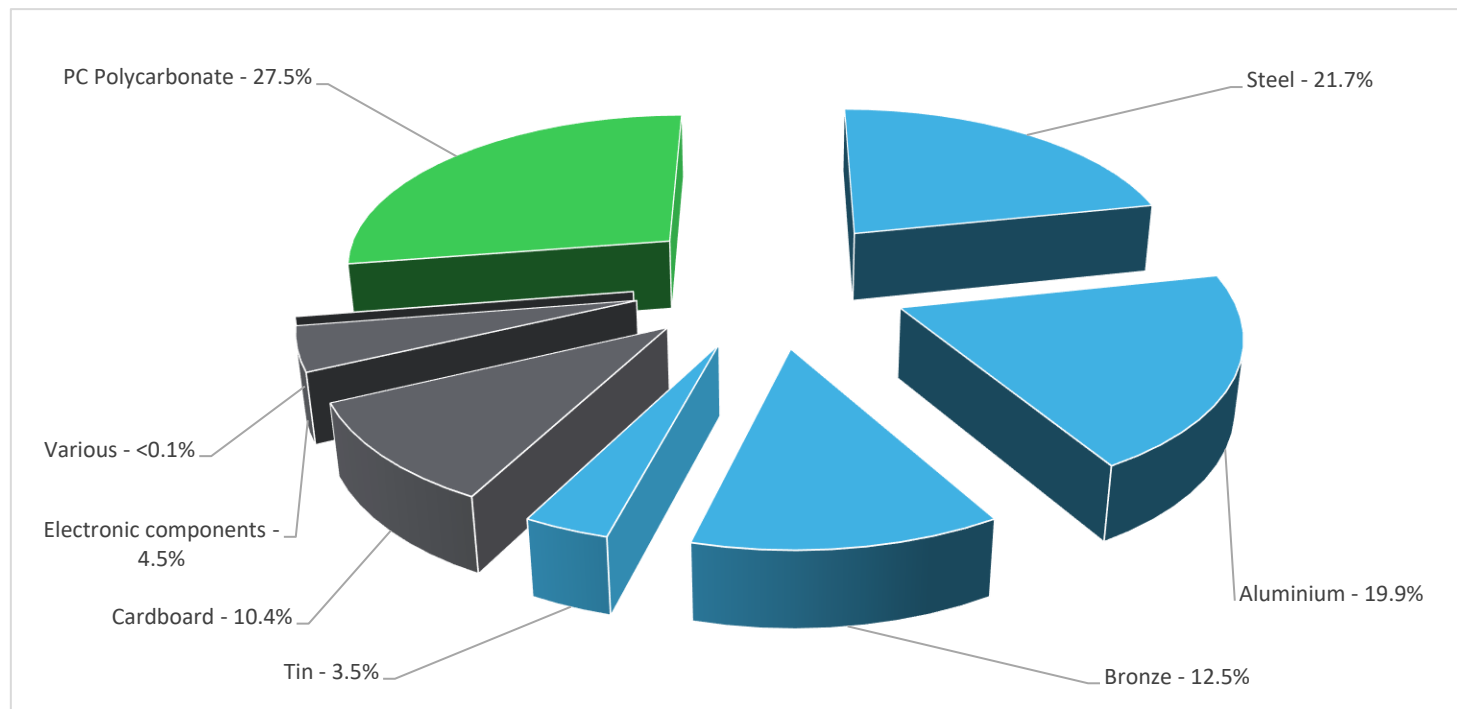
## General information

|                                   |   |
|-----------------------------------|---|
| <b>Representative product</b>     | SSP Solid State Relay - SSP1A4125BDS  |
| <b>Description of the product</b> | SSP solid state relays are panel mount relay products that offer complete solid state control and switching solutions. The main purpose is to serve as an electronic switching device, in which a small control signal controls a larger load of current or voltage. It employs semiconductor switching elements and has no movable contacts.   |
| <b>Description of the range</b>   | <p>SSP solid state relays are single-phase and three-phase panel mount relay products that offer complete solid state control and switching solutions.</p> <p>The SSP relay range comprises:</p> <ol style="list-style-type: none"> <li>1, SSP1: Single-phase panel mount solid state relays available with/without embedded thermal pad and smart diagnostic features, extended load output voltage of up to 660 V a and load current rating of 10 A to 125 A.</li> <li>2, SSP3: Three-phase panel mount solid state relays integrated with R-C snubber circuit, TVS (Transient Voltage Suppression), and load current ratings of 25 A and 50 A</li> </ol> <p>The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with a similar technology.</p> |
| <b>Functional unit</b>            | To switch ON/OFF electronic contact during 10 years at a 50% use rate.  |



## Constituent materials

**Reference product mass** 97 g including the product, its packaging and additional elements and accessories



|          |       |
|----------|-------|
| Plastics | 27.5% |
| Metals   | 57.6% |
| Others   | 14.9% |

## Substance assessment

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2011/65/EU of 8 June 2011) and do not contain, or only contain in the authorised proportions, lead, mercury, cadmium, hexavalent chromium or flame retardants (polybrominated biphenyls - PBB, polybrominated diphenyl ethers - PBDE) as mentioned in the Directive

As the products of the range are designed in accordance with the RoHS Directive (European Directive 2002/95/EC of 27 January 2003), they can be incorporated without any restriction in an assembly or an installation subject to this Directive.

Details of ROHS and REACH substances information are available on the Schneider-Electric Green Premium website

<http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page>

## Additional environmental information

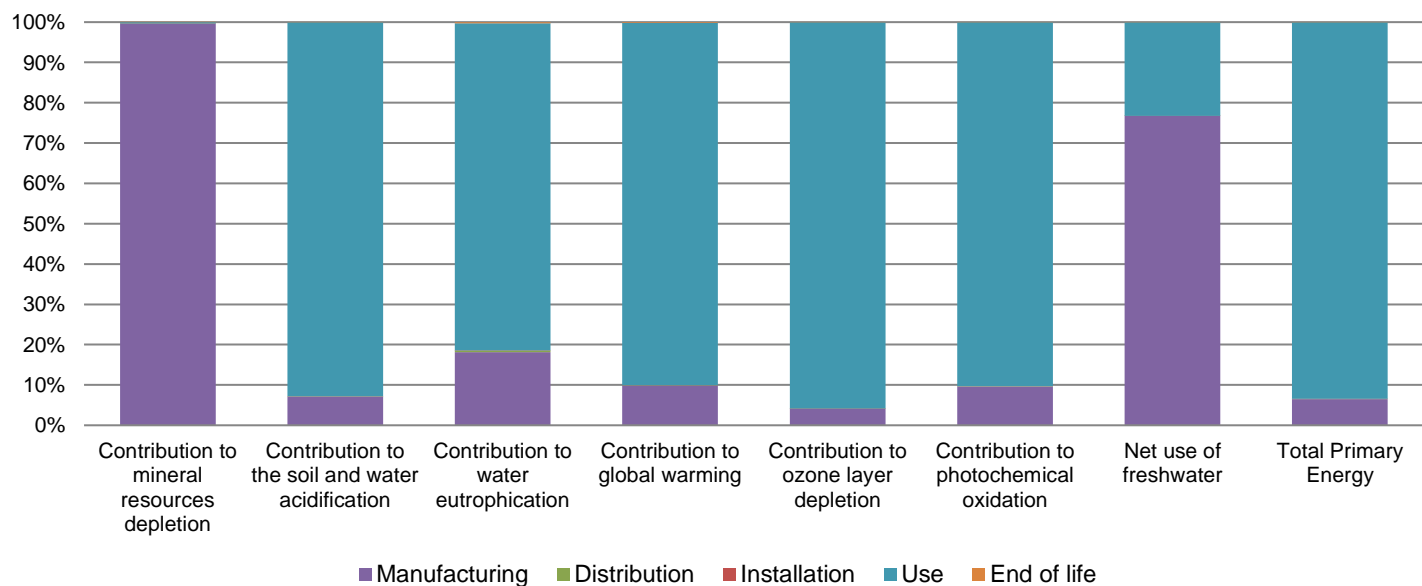
The SSP Solid State Relay presents the following relevant environmental aspects

|                      |  |
|----------------------|--|
| <b>Manufacturing</b> | Manufactured at a production site complying with the regulations   |
| <b>Distribution</b>  | Weight and volume of the packaging optimized, based on the European Union's packaging directive<br>Packaging weight is 10.1 g, consisting of Cardboard (56.2%), Paper(43.8%)<br>Packaging recycled materials is 100% of total packaging mass.  |
| <b>Installation</b>  | SSP1A4125BDS does not require any installation operations.   |
| <b>Use</b>           | The product does not require special maintenance operations.   |
| <b>End of life</b>   | End of life optimized to decrease the amount of waste and allow recovery of the product components and materials<br><br>This product contains PCBA assembly(4.32g) that should be separated from the stream of waste so as to optimize end-of-life treatment.<br><br>The location of these components and other recommendations are given in the End of Life Instruction document which is available on the Schneider-Electric Green Premium website<br><br><a href="http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page">http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page</a><br><br>Recyclability potential: <b>56%</b> Based on "ECO'DEEE recyclability and recoverability calculation method" (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME). |

## Environmental impacts

|   |   |   |   |   |
|---|---|---|---|---|
| <b>Reference life time</b>              | 10 years  |   |   |   |
| <b>Product category</b>                 | Other equipments - Active product   |   |   |   |
| <b>Installation elements</b>            | No special components needed  |   |   |   |
| <b>Use scenario</b>                     | The product is in active mode with a power use of 0.38 W for 10 years at a 50% use rate.  |   |   |   |
| <b>Geographical representativeness</b>  | Europe  |   |   |   |
| <b>Technological representativeness</b> | SSP solid state relays are panel mount relay products that offer complete solid state control and switching solutions. The main purpose is to serve as an electronic switching device, in which a small control signal controls a larger load of current or voltage. It employs semiconductor switching elements and has no movable contacts. |   |   |   |
| <b>Energy model used</b>                | <b>Manufacturing</b>  | <b>Installation</b>   | <b>Use</b>  | <b>End of life</b>  |
|   | Energy model used: Mexico   | Electricity Mix; AC; consumption mix, at consumer; < 1kV; EU-27 | Electricity Mix; AC; consumption mix, at consumer; < 1kV; EU-27 | Electricity Mix; AC; consumption mix, at consumer; < 1kV; EU-27 |

| Compulsory indicators                            |                                     | SSP Solid State Relay - SSP1A4125BDS |               |              |              |          |             |
|--|-------------------------------------|--------------------------------------|---------------|--------------|--------------|----------|-------------|
| Impact indicators                                | Unit                                | Total                                | Manufacturing | Distribution | Installation | Use      | End of Life |
| Contribution to mineral resources depletion      | kg Sb eq                            | 1.36E-04                             | 1.36E-04      | 0*           | 0*           | 4.48E-07 | 0*          |
| Contribution to the soil and water acidification | kg SO <sub>2</sub> eq               | 8.01E-02                             | 5.68E-03      | 5.71E-05     | 0*           | 7.43E-02 | 2.93E-05    |
| Contribution to water eutrophication             | kg PO <sub>4</sub> <sup>3-</sup> eq | 3.43E-03                             | 6.23E-04      | 1.32E-05     | 5.51E-07     | 2.79E-03 | 9.75E-06    |
| Contribution to global warming                   | kg CO <sub>2</sub> eq               | 1.09E+01                             | 1.08E+00      | 1.25E-02     | 0*           | 9.83E+00 | 2.30E-02    |
| Contribution to ozone layer depletion            | kg CFC11 eq                         | 2.49E-06                             | 1.04E-07      | 0*           | 0*           | 2.39E-06 | 9.17E-10    |
| Contribution to photochemical oxidation          | kg C <sub>2</sub> H <sub>4</sub> eq | 3.89E-03                             | 3.73E-04      | 4.08E-06     | 0*           | 3.51E-03 | 2.89E-06    |
| Resources use                                    | Unit                                | Total                                | Manufacturing | Distribution | Installation | Use      | End of Life |
| Net use of freshwater                            | m3                                  | 1.10E-01                             | 8.48E-02      | 0*           | 0*           | 2.56E-02 | 1.58E-05    |
| Total Primary Energy                             | MJ                                  | 2.13E+02                             | 1.39E+01      | 1.77E-01     | 0*           | 1.99E+02 | 1.38E-01    |



| Optional indicators   |                | SSP Solid State Relay - SSP1A4125BDS |               |              |              |          |             |
|---|----------------|--------------------------------------|---------------|--------------|--------------|----------|-------------|
| Impact indicators   | Unit           | Total                                | Manufacturing | Distribution | Installation | Use      | End of Life |
| Contribution to fossil resources depletion  | MJ             | 1.11E+02                             | 9.39E+00      | 1.76E-01     | 0*           | 1.01E+02 | 1.12E-01    |
| Contribution to air pollution   | m <sup>3</sup> | 5.52E+02                             | 1.29E+02      | 5.32E-01     | 0*           | 4.21E+02 | 9.95E-01    |
| Contribution to water pollution   | m <sup>3</sup> | 6.34E+02                             | 2.18E+02      | 2.06E+00     | 8.25E-02     | 4.12E+02 | 1.42E+00    |
| Resources use   | Unit           | Total                                | Manufacturing | Distribution | Installation | Use      | End of Life |
| Use of secondary material   | kg             | 2.05E-06                             | 2.05E-06      | 0*           | 0*           | 0*       | 0*          |
| Total use of renewable primary energy resources   | MJ             | 1.48E+01                             | 5.57E-01      | 0*           | 0*           | 1.42E+01 | 0*          |
| Total use of non-renewable primary energy resources   | MJ             | 1.99E+02                             | 1.34E+01      | 1.77E-01     | 0*           | 1.85E+02 | 1.38E-01    |
| Use of renewable primary energy excluding renewable primary energy used as raw material         | MJ             | 1.46E+01                             | 3.58E-01      | 0*           | 0*           | 1.42E+01 | 0*          |
| Use of renewable primary energy resources used as raw material                                  | MJ             | 2.00E-01                             | 2.00E-01      | 0*           | 0*           | 0*       | 0*          |
| Use of non renewable primary energy excluding non renewable primary energy used as raw material | MJ             | 1.98E+02                             | 1.25E+01      | 1.77E-01     | 0*           | 1.85E+02 | 1.38E-01    |
| Use of non renewable primary energy resources used as raw material                              | MJ             | 8.89E-01                             | 8.89E-01      | 0*           | 0*           | 0*       | 0*          |
| Use of non renewable secondary fuels  | MJ             | 0.00E+00                             | 0*            | 0*           | 0*           | 0*       | 0*          |
| Use of renewable secondary fuels  | MJ             | 0.00E+00                             | 0*            | 0*           | 0*           | 0*       | 0*          |
| Waste categories  | Unit           | Total                                | Manufacturing | Distribution | Installation | Use      | End of Life |
| Hazardous waste disposed  | kg             | 2.47E+00                             | 2.34E+00      | 0*           | 0*           | 0*       | 1.33E-01    |
| Non hazardous waste disposed  | kg             | 3.76E+01                             | 7.98E-01      | 0*           | 0*           | 3.68E+01 | 0*          |
| Radioactive waste disposed  | kg             | 3.05E-02                             | 5.80E-04      | 0*           | 0*           | 3.00E-02 | 0*          |

| Other environmental information | Unit | Total    | Manufacturing | Distribution | Installation | Use | End of Life |
|---------------------------------|------|----------|---------------|--------------|--------------|-----|-------------|
| Materials for recycling         | kg   | 6.78E-02 | 8.89E-03      | 0*           | 1.00E-02     | 0*  | 4.89E-02    |
| Components for reuse            | kg   | 0.00E+00 | 0*            | 0*           | 0*           | 0*  | 0*          |
| Materials for energy recovery   | kg   | 4.64E-03 | 0*            | 0*           | 0*           | 0*  | 4.64E-03    |
| Exported Energy                 | MJ   | 3.18E-05 | 2.99E-06      | 0*           | 2.88E-05     | 0*  | 0*          |

\* represents less than 0.01% of the total life cycle of the reference flow

Life cycle assessment performed with EIME version EIME v5.8.1, database version 2016-11 in compliance with ISO14044.

The use phase is the life cycle phase which has the greatest impact on the majority of environmental indicators (based on compulsory indicators).

According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range.

Depending on the impact analysis, the impact of mineral resources depletion and net use of freshwater may be proportional extrapolated by mass of the other products in this family and the other environmental indicators of other products in this family may be proportional extrapolated by energy consumption values.

Please note that the values given above are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an installation.

|  |                  |                                     |  |
|--|------------------|-------------------------------------|--|
| Registration number  | ENVPEP1505006_V2 | Drafting rules                      | PCR-ed3-EN-2015 04 02  |
| Date of issue  | 05/2019          | Supplemented by                     | PSR-0005-ed2-EN-2016 03 29   |
| Validity period  | 5 years          | Information and reference documents | <a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a> |
| <i>Independent verification of the declaration and data</i>  |                  |                                     |  |
| Internal   | X                | External                            |  |
| <i>The elements of the present PEP cannot be compared with elements from another program.</i>  |                  |                                     |  |
| <i>Document in compliance with ISO 14021:2016 « Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling) »</i> |                  |                                     |  |

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