

ETL DSST SERIES

# PEP ecopassport®

## Product Environmental Profile



Document in compliance with ISO 14025: 2006 "Environmental labels and declarations. Type III environmental declarations"

|                                       |                |                          |      |       |      |
|---------------------------------------|----------------|--------------------------|------|-------|------|
| ORGANIZATION                          |                | CONTACT INFORMATION      |      |       |      |
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| STATUS                                | SECURITY LEVEL | REGISTRATION NUMBER      | REV. | LANG. | PAGE |
| Approved                              | Public         | ABBG-00521-V01.01-EN     | 1    | en    | 1/13 |



# ABB Purpose & Embedding Sustainability

ABB is committed to continually promoting and embedding sustainability across its operations and value chain, aspiring to become a role model for others to follow. With its ABB Purpose, ABB is focusing on reducing harmful emissions, preserving natural resources and championing ethical and humane behavior.



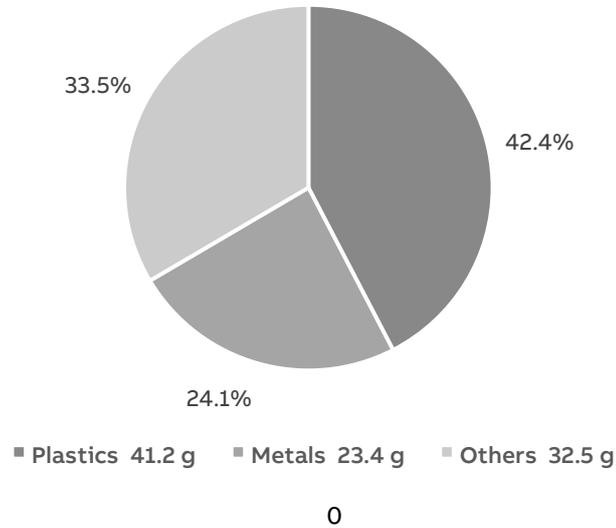
## General Information

|                            |  |
|----------------------------|--|
| Reference product          | Reference product identification:<br>ETL-2, 2CDS200982R0012<br>PSR product category:<br>Other equipment  |
| Description of the product | The DSST (Dual Single Shunt Trip) is an auxiliary switch for the remotely tripping (disconnection) of a circuit breaker.   |
| Functional unit            | The functional of the DSST is to protect the circuit breaker with a self-break within 10 ms, and during the reference service life of the product of 10 years in accordance with the IEC 60947-5-1 standard.   |
| Other products covered     | The ETL-2 DSST is the reference product for the ETL product family. Another product of the family is the ETL-1. The ETL-1 differs from the ETL-2 only in the weight of the coil. The extrapolation factors for the distribution and the end-of-life stage of the ETL-1 are calculated by dividing it by the weight of the ETL-2. For the manufacturing stage an extrapolation factor for each indicator is calculated. |

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# Constituent Materials



**Total weight of Reference product  
(incl. packaging)**

97.1

g

| Plastics as % of weight |         | Metals as % of weight |         | Others as % of weight |         |
|-------------------------|---------|-----------------------|---------|-----------------------|---------|
| Name and CAS number     | Weight% | Name and CAS number   | Weight% | Name and CAS number   | Weight% |
| <b>GFRP</b>             | 39.4    | <b>Steel</b>          | 12.1    | <b>Cardboard</b>      | 31.4    |
| <b>Other plastic</b>    | 3.0     | <b>Copper</b>         | 8.2     | <b>Paper</b>          | 2.1     |
| –                       | x       | <b>Copper alloys</b>  | 3.3     | –                     | x       |
| –                       | x       | <b>Aluminium</b>      | 0.5     | –                     | x       |

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## Life Cycle Stages Information

|  |  |
|--|--|
| <b>Manufacturing</b>                                   | The product is manually assembled in Bulgaria. The production site of the products is certified according to ISO 14001.  |
| <b>Distribution</b>                                    | Specific transport distances based on sales data are applied to model the distribution.  |
| <b>Installation</b>                                    | As installation is performed manually, no environmental burdens are associated to this phase besides the disposal of product packaging.  |
| <b>Use</b>   | For the ETL-2, no use-phase is modelled. Due to its function as a shunt trip, the ETL-2 only uses a negligible amount of power over its lifetime. The power loss from the use stage is cut off. The power consumption for the DSST is 1.5 A at 230 V. The maximum time of one release is 10 ms and a maximum of 600 releases can happen over the lifetime of the DSST. The average amount of releases is unknown. This leads to a maximum of power consumption over the lifetime of 5.75E-4 kWh. This most conservative (not realistic) approximation of power loss amounts to less than 5% of the total electricity use. For all indicator results, the results of the most conservative (not realistic) approximation of power loss are less than 0.1% of the results for the total life cycle of the product. Therefore, the power loss of the use stage is neglected in this study (marked with 0*). |
| <b>End of life</b>                                     | Due to the lack of knowledge of the disposal pathway, landfilling as proposed standard scenario in the PCR is considered.  |
| <b>Benefits and loads beyond the system boundaries</b> | Not considered   |

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# Environmental Impacts

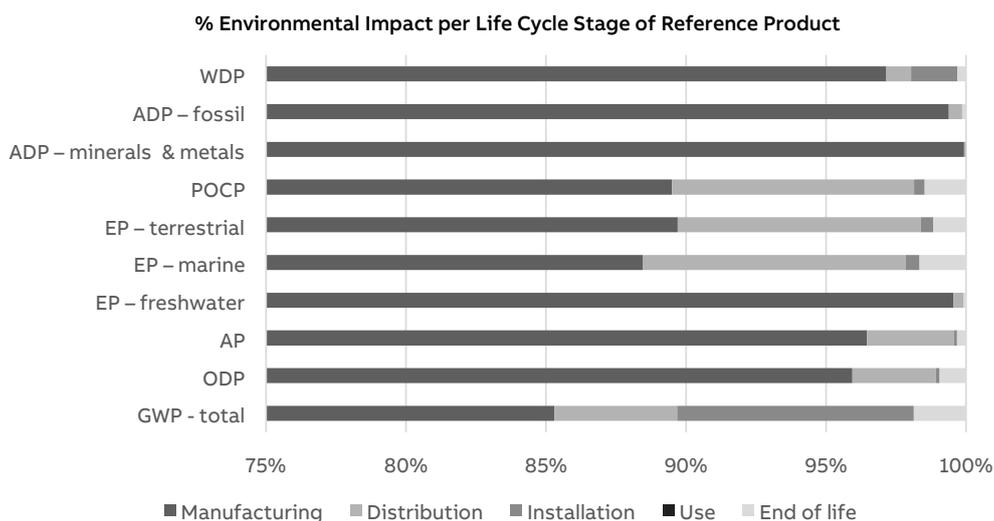
|                                  |  |
|----------------------------------|--|
| Reference lifetime               | 10 years   |
| Product category                 | Electrical switchgear and control gear solutions                   |
| Installation elements            | Does not require any special installation elements.                |
| Use scenario                     | No use-stage modelled. See "Life Cycle Stages Information"         |
| Geographical representativeness  | Global   |
| Technological representativeness | Represents the actual production technology of the series ETL      |
| Software and database used       | SimaPro 9.6.0.1 with ecoinvent 3.10, cut-off and industry data 2.0 |

## Energy model used

|               |  |
|---------------|--|
| Manufacturing | Electricity, medium voltage [BG]   market for electricity, medium voltage   Cut-off, S |
| Installation  | no energy model used (manual installation)   |
| Use           | No use-stage modelled. See "Life Cycle Stages Information"                             |
| End of life   | no energy model used (landfill)  |

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## Common base of mandatory indicators



### Environmental impact indicators

| Indicator   | Unit                     | Total    | Manu-<br>facturing | Distri-<br>bution | Installation | Use | End of<br>life |
|---|--------------------------|----------|--------------------|-------------------|--------------|-----|----------------|
| <b>GWP-total</b>  | kg CO <sub>2</sub> eq.   | 6.25E-01 | 5.33E-01           | 2.74E-02          | 5.28E-02     | 0*  | 1.17E-02       |
| <b>GWP-fossil</b>   | kg CO <sub>2</sub> eq.   | 6.16E-01 | 5.75E-01           | 2.74E-02          | 2.72E-03     | 0*  | 1.16E-02       |
| <b>GWP-biogenic</b>   | kg CO <sub>2</sub> eq.   | 7.98E-03 | -4.21E-02          | 6.12E-06          | 5.01E-02     | 0*  | 5.46E-06       |
| <b>GWP-luluc</b>  | kg CO <sub>2</sub> eq.   | 5.58E-04 | 5.44E-04           | 1.08E-05          | 4.16E-07     | 0*  | 2.73E-06       |
| GWP-fossil = Global Warming Potential fossil fuels<br>GWP-biogenic = Global Warming Potential biogenic<br>GWP-luluc = Global Warming Potential land use and land use change   |                          |          |                    |                   |              |     |                |
| <b>ODP</b>  | kg CFC-11 eq.            | 1.65E-08 | 1.58E-08           | 4.92E-10          | 2.22E-11     | 0*  | 1.56E-10       |
| ODP = Depletion potential of the stratospheric ozone layer  |                          |          |                    |                   |              |     |                |
| <b>AP</b>   | H+ eq.                   | 1.00E-02 | 9.65E-03           | 3.11E-04          | 1.07E-05     | 0*  | 3.25E-05       |
| AP = Acidification potential, Accumulated Exceedance  |                          |          |                    |                   |              |     |                |
| <b>EP-freshwater</b>  | kg P eq.                 | 5.57E-05 | 5.54E-05           | 1.77E-07          | 1.54E-08     | 0*  | 6.41E-08       |
| <b>EP-marine</b>  | kg N eq.                 | 9.21E-04 | 8.14E-04           | 8.64E-05          | 4.60E-06     | 0*  | 1.53E-05       |
| <b>EP-terrestrial</b>   | mol N eq.                | 1.10E-02 | 9.89E-03           | 9.57E-04          | 4.80E-05     | 0*  | 1.30E-04       |
| EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment<br>EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment<br>EP-terrestrial = Eutrophication potential, Accumulated Exceedance |                          |          |                    |                   |              |     |                |
| <b>POCP</b>   | kg NMVOC eq.             | 3.41E-03 | 3.05E-03           | 2.94E-04          | 1.29E-05     | 0*  | 5.05E-05       |
| POCP = Formation potential of tropospheric ozone  |                          |          |                    |                   |              |     |                |
| <b>ADP-minerals &amp; metals</b>  | kg Sb eq.                | 1.13E-04 | 1.13E-04           | 5.84E-08          | 3.05E-09     | 0*  | 1.99E-08       |
| <b>ADP-fossil</b>   | MJ                       | 6.23E+00 | 6.19E+00           | 2.68E-02          | 2.39E-03     | 0*  | 9.47E-03       |
| ADP-minerals & metals = Abiotic depletion potential for non-fossil resources<br>ADP-fossil = Abiotic depletion for fossil resources potential   |                          |          |                    |                   |              |     |                |
| <b>WDP</b>  | m <sup>3</sup> eq. depr. | 1.45E-01 | 1.41E-01           | 1.29E-03          | 2.40E-03     | 0*  | 4.51E-04       |
| WDP = Water Deprivation potential   |                          |          |                    |                   |              |     |                |

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## Common base of mandatory indicators

\* if indicator is "0\*", it represents less than 0,01% of the total life cycle of the reference flow

### Inventory flows indicator – Resource use indicators

| Indicator | Unit | Total    | Manu-<br>facturing | Distri-<br>bution | Installation | Use | End of<br>life |
|-----------|------|----------|--------------------|-------------------|--------------|-----|----------------|
| PERE      | MJ   | 1.05E+00 | 1.04E+00           | 4.88E-03          | 3.81E-04     | 0*  | 1.76E-03       |
| PERM      | MJ   | 4.22E-01 | 4.22E-01           | 0.00E+00          | 0.00E+00     | 0*  | 0.00E+00       |
| PERT      | MJ   | 1.47E+00 | 1.46E+00           | 4.88E-03          | 3.81E-04     | 0*  | 1.76E-03       |
| PENRE     | MJ   | 8.25E+00 | 7.76E+00           | 3.70E-01          | 1.32E-02     | 0*  | 1.14E-01       |
| PENRM     | MJ   | 9.71E-01 | 9.71E-01           | 0.00E+00          | 0.00E+00     | 0*  | 0.00E+00       |
| PENRT     | MJ   | 9.23E+00 | 8.73E+00           | 3.70E-01          | 1.32E-02     | 0*  | 1.14E-01       |

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials

PERM = Use of renewable primary energy resources used as raw materials

PERT = Total Use of renewable primary energy resources

PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials

PENRM = Use of non-renewable primary energy resources used as raw materials

PENRT = Total Use of non-renewable primary energy resources

### Inventory flows indicator – Indicators describing the use of secondary materials, water, and energy resources

| Indicator | Unit           | Total    | Manu-<br>facturing | Distri-<br>bution | Installation | Use | End of<br>life |
|-----------|----------------|----------|--------------------|-------------------|--------------|-----|----------------|
| SM        | kg             | 0.00E+00 | 0.00E+00           | 0.00E+00          | 0.00E+00     | 0*  | 0.00E+00       |
| RSF       | MJ             | 0.00E+00 | N/A                | N/A               | N/A          | N/A | N/A            |
| NRSF      | MJ             | 0.00E+00 | N/A                | N/A               | N/A          | N/A | N/A            |
| FW        | m <sup>3</sup> | 4.04E-03 | 3.94E-03           | 3.79E-05          | 5.64E-05     | 0*  | 1.34E-05       |

SM = Use of secondary material

RSF = Use of renewable secondary fuels

NRSF = Use of non-renewable secondary fuels

FW = Use of net fresh water

### Inventory flows indicator – Waste category indicators

| Indicator                        | Unit | Total    | Manu-<br>facturing | Distri-<br>bution | Installation | Use | End of<br>life |
|----------------------------------|------|----------|--------------------|-------------------|--------------|-----|----------------|
| Hazardous<br>waste disposed      | kg   | 2.33E-02 | 2.33E-02           | 0.00E+00          | 0.00E+00     | 0*  | 0.00E+00       |
| Non- hazardous<br>waste disposed | kg   | 3.35E-03 | 3.35E-03           | 0.00E+00          | 0.00E+00     | 0*  | 0.00E+00       |
| Radioactive<br>waste disposed    | kg   | 0.00E+00 | 0.00E+00           | 0.00E+00          | 0.00E+00     | 0*  | 0.00E+00       |

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## Common base of mandatory indicators

\* if indicator is "0\*", it represents less than 0,01% of the total life cycle of the reference flow

### Inventory flows indicator – Output flow indicators

| Indicator                     | Unit | Total    | Manu-<br>facturing | Distri-<br>bution | Installation | Use | End of<br>life |
|-------------------------------|------|----------|--------------------|-------------------|--------------|-----|----------------|
| Components for re-use         | kg   | 0.00E+00 | 0.00E+00           | 0.00E+00          | 0.00E+00     | 0*  | 0.00E+00       |
| Materials for recycling       | kg   | 9.24E-03 | 9.24E-03           | 0.00E+00          | 0.00E+00     | 0*  | 0.00E+00       |
| Materials for energy recovery | kg   | 2.06E-03 | 2.06E-03           | 0.00E+00          | 0.00E+00     | 0*  | 0.00E+00       |
| Exported energy               | MJ   | 1.13E-02 | 1.13E-02           | 0.00E+00          | 0.00E+00     | 0*  | 0.00E+00       |

### Inventory flow indicator – other indicators

| Indicator   | Unit    | Total    |
|---|---------|----------|
| Biogenic carbon content of the product              | kg of C | 0.00E+00 |
| Biogenic carbon content of the associated packaging | kg of C | 1.37E-02 |

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## Optional indicators

\* if indicator is "0\*", it represents less than 0,01% of the total life cycle of the reference flow

### Environmental indicators

| Indicator                                | Unit                  | Total    | Manu-<br>facturing | Distri-<br>bution | Installation | Use | End of<br>life |
|--|-----------------------|----------|--------------------|-------------------|--------------|-----|----------------|
| Emissions of fine particles              | incidence of diseases | 4.12E-08 | 3.82E-08           | 2.12E-09          | 1.13E-10     | 0*  | 7.96E-10       |
| Ionizing radiation, human health         | kBq U235 eq.          | 5.03E-02 | 5.01E-02           | 1.37E-04          | 8.04E-06     | 0*  | 4.99E-05       |
| Ecotoxicity (fresh water)                | CTUe                  | 1.47E+01 | 1.43E+01           | 1.04E-01          | 6.40E-02     | 0*  | 2.23E-01       |
| Human toxicity, car-cinogenic effects    | CTUh                  | 7.48E-09 | 7.27E-09           | 1.50E-10          | 1.42E-11     | 0*  | 4.63E-11       |
| Human toxicity, non-carcinogenic effects | CTUh                  | 1.24E-07 | 1.22E-07           | 2.57E-10          | 1.30E-10     | 0*  | 1.38E-09       |
| Impact related to land use/soil quality  | kBq U235 eq.          | 9.28E+00 | 8.86E+00           | 2.81E-01          | 7.68E-03     | 0*  | 1.34E-01       |

### Other indicators

| Indicator                | Unit | Total | Manu-<br>facturing | Distri-<br>bution | Installation | Use | End of<br>life |
|--------------------------|------|-------|--------------------|-------------------|--------------|-----|----------------|
| No Other indicators used |      |       |                    |                   |              |     |                |

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## Environmental Impact Indicator Glossary

### Impact indicators

| Indicator  | Description   | Distribution                         |
|--|---|--------------------------------------|
| Global warming potential (GWP) - total               | Indicator of potential global warming caused by emissions to air contributing to the greenhouse effect. The total global warming potential (GWP-total) is the sum of three sub-categories of climate change.<br>GWP-total = GWP-fossil + GWP-biogenic + GWP- land use and land use change | kg CO <sub>2</sub> eq.               |
| Ozone depletion (ODP)                                | Emissions to air that contribute to the destruction of the stratospheric ozone layer  | kg CFC-11 eq.                        |
| Acidification of soil and water (A)                  | Acidification of soils and water caused by the release of certain gases to the atmosphere, such as nitrogen oxides and sulphur oxides   | H+ eq.                               |
| Eutrophication (E)                                   | Indicator of the contribution to eutrophication of water by the enrichment of the aquatic ecosystem with nutritional elements, e.g. industrial or domestic effluents, agriculture, etc. This indicator is divided to three: freshwater, marine and terrestrial.                           | kg P eq.,<br>kg N eq.,<br>mole N eq. |
| Photochemical ozone creation (POCP)                  | Indicator of emissions of gases that affect the creation of photochemical ozone in the lower atmosphere (smog) because of the rays of the sun.  | kg NMVOC eq.                         |
| Depletion of abiotic resources – elements (ADPe)     | Indicator of the depletion of natural non-fossil resources  | kg Sb eq.                            |
| Depletion of abiotic resources – fossil fuels (ADPf) | The use of non-renewable fossil resources in an unsustainable way (e.g. from material to waste)   | MJ (lower heating value)             |
| Water Deprivation potential (WDP)                    | Deprivation-weighted water consumption. Assesses the potential of water deprivation, to either humans or ecosystems, building on the assumption that the less water remaining available per area, the more likely another user will be deprived.  | m <sup>3</sup> eq. depr.             |

### Resource use indicators

| Indicator                   | Description  | Distribution             |
|-----------------------------|--|--------------------------|
| Total use of primary energy | Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) + Total use of renewable primary energy re-sources (primary energy and primary energy resources used as raw materials) | MJ (lower heating value) |

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|---|---|
| Registration number: <b>ABBG-00521-V01.01-EN</b>  | Drafting Rules: <b>PCR-ed4-EN-2021 09 06</b>                        |
|   | <b>Supplemented by: PSR-0005-ed3.1-EN-2023 08 12</b>                |
| Verifier accreditation number: <b>VH50</b>  | Information and reference documents: <b>www.pep-ecopassport.org</b> |
| Date of issue: <b>05-2024</b>   | Validity period: <b>5 years</b>                                     |
| <b>Independent verification of the declaration and data, in compliance with ISO 14025: 2006</b>   |   |
| <b>Internal:</b> <input type="radio"/>  | <b>External:</b> <input checked="" type="radio"/>                   |
| The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)   |   |
| "PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019<br>The components of the present PEP may not be compared with components from any other program. |   |
| Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"  |   |
|    |   |

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