DSX301C DIFFERENTIAL CIRCUIT BREAKER

# 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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| ADDRESS | | WEBSITE | | | |
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| STATUS | SECURITY LEVEL | REGISTRATION NUMBER | REV. | LANG. | PAGE |
| Approved | Public | ABBG-00214-V01.01-EN | 1 | EN | 1/14 |

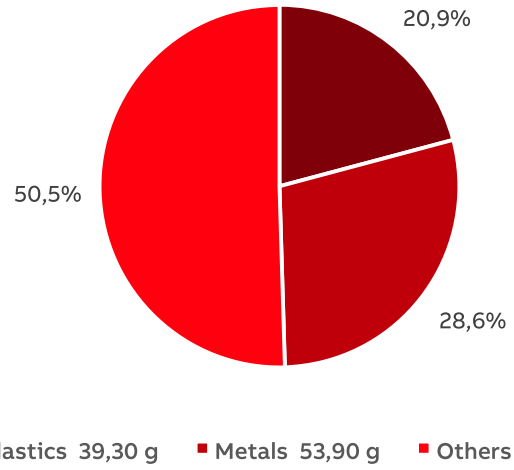
# ABB Purpose & Embedding Sustainability

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** | DSX301C B16 A30 - 2CSR255165R1165 |
| **Description of the product** | The compact DSX301C/DS301C Type A are universal current-sensitive residual current circuit breakers RCCBs designed for industrial applications where there is increasing use of devices like frequency converters, medical equipment and product systems. The RCCB Type A protect faults occurred due to smooth DC residual currents or currents with low residual ripple which are common in the above applications. |
| **Functional unit** | The functional unit is designed to protect for 20 years the installation against overloads and short-circuits and people and premises at risk of fire or explosion against insulation defects in circuit with assigned voltage 230 V and rated current 16 A. This protection is ensured in accordance with the following parameters:<br>- Number of poles 1P+N<br>- Rated breaking capacity Icn 6kA<br>- Tripping curve Cd type B<br>- Sensitivity 30 mA<br>- Type of differential protection A |
| **Other products covered** | DSX301C & DS301C homogeneous family:<br>Beaking capacity up to 6kA<br>1+N Poles in 1 module with 230V rated voltage<br>B & C char from 6 up to 20 A<br>Senstivity of 30mA type A & AC |

# Constituent Materials




| | | |
|---|---|---|
| **Total weight of Reference product** | 188,2 | 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% |
| **PA 66** | 17,3 | **STEEL** | 12,2 | **WOOD** | 33,2 |
| **PC** | 1,8 | **COPPER** | 9,6 | **CARDBOARD** | 7,9 |
| **PET** | 1,0 | **ALUMINIUM** | 2,8 | **GF** | 5,9 |
| **PA6** | 0,9 | **IRON** | 2,2 | **PAPER** | 0,9 |
| **–** | – | **OTHER METALS** | 1,9 | **OTHER METALS** | 2,6 |

Total weight of the reference product is 109,1 and its packaging is 79,1g

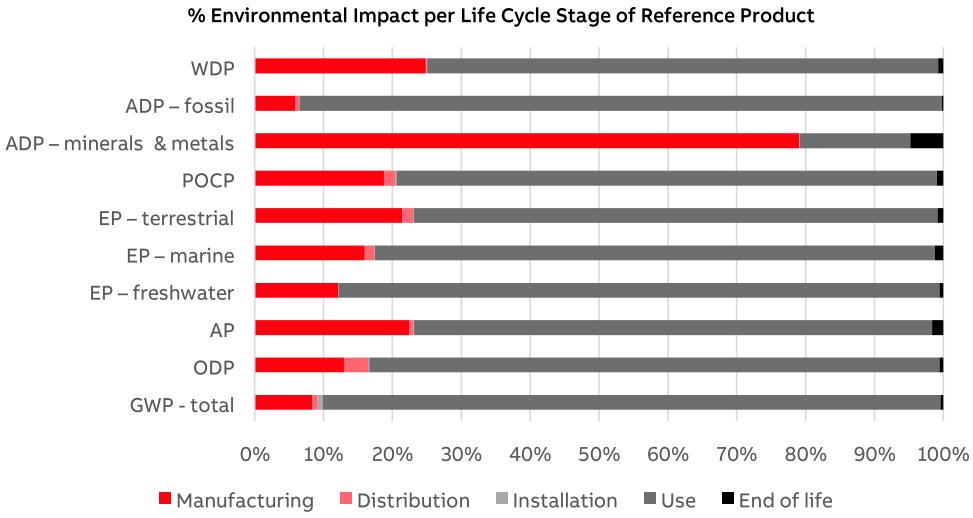
# Additional Environmental Information

| | |
|---|---|
| **Manufacturing** | Includes the environmental impacts associated with extraction and processing of the raw materials used to produce and assembly the product and its pacakging, distribution to the manufacturer’s last logistic platform. |
| **Distribution** | Includes the transportation in its pacakging from the manufacturer's last logistic platform to the distributor. |
| **Installation** | Installation stage includes the installation of the products made manually and waste treatment of discarded materials. |
| **Use** | Energy consumption is calculated by following the PSR. The energy models used in this phase are the specific energy mixes based on ABB distribution. No maintenance is necessary. |
| **End of life** | Includes its removal, dismantling and transportationof the dismantled product to the treatment site and the treatment process. A value of 1000 km transport by lorry is used for the transportation. |
| **Benefits and loads beyond the system boundaries** | N/A |

# Environmental Impacts

| | |
|---|---|
| **Reference lifetime** | 20 years |
| **Product category** | Differential Circuit Breaker |
| **Installation elements** | Installation carried out manually. End of life of packaging. |
| **Use scenario** | Load time: 50% of rated current in continuous operation (In).<br>Use time rate: 30% of reference lifetime (RLT). |
| **Geographical representativeness** | Europe |
| **Technological representativeness** | Materials and processes data are specific for the production of DSX301C B16 A30 - 2CSR255165R1165 and its family |
| **Software and database used** | Simapro 9.4.0.2 and Ecoinvent v3.8 |
| **Energy model used** | |
| **Manufacturing** | Electricity, medium voltage {IT}\| market for \| Cut-off, System_GO energy mix_ei 3.8 System |
| **Installation** | Manually done. Europe |
| **Use** | Electricity, low voltage {RER}\| market group for \| Cut-off, S |
| **End of life** | The energy-related processes used for the inputs of the end-of-life stage are those included in the ecoinvent d atasets selected for the analysis |

# Common base of mandatory indicators




## Environmental impact indicators

| Indicator | Unit | Total | Manu-facturing | Distri-bution | Installation | Use | End of life | Bene-fits |
|---|---|---|---|---|---|---|---|---|
| **GWP-total** | **kg $CO_2$ eq.** | 1,65E+01 | 1,38E+00 | 1,28E-01 | 1,26E-01 | 1,48E+01 | 7,18E-02 | NA |
| **GWP-fossil** | **kg $CO_2$ eq.** | 1,59E+01 | 1,38E+00 | 1,28E-01 | 8,79E-03 | 1,43E+01 | 6,93E-02 | NA |
| **GWP-biogenic** | **kg $CO_2$ eq.** | 5,84E-01 | 2,97E-03 | 1,19E-04 | 1,17E-01 | 4,61E-01 | 2,50E-03 | NA |
| **GWP-luluc** | **kg $CO_2$ eq.** | 3,62E-02 | 2,30E-03 | 5,02E-05 | 3,50E-06 | 3,38E-02 | 7,16E-05 | NA |
| 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 | | | | | | | | |
| **ODP** | **kg CFC-11 eq.** | 8,70E-07 | 1,13E-07 | 1,28E-01 | 8,79E-03 | 1,43E+01 | 6,93E-02 | NA |
| ODP = Depletion potential of the stratospheric ozone layer | | | | | | | | |
| **AP** | **H+ eq.** | 1,08E-01 | 2,43E-02 | 6,51E-04 | 5,15E-05 | 8,13E-02 | 1,78E-03 | NA |
| AP = Acidification potential, Accumulated Exceedance | | | | | | | | |
| **EP-freshwater** | **kg P eq.** | 1,65E-02 | 2,00E-03 | 8,29E-06 | 8,98E-07 | 1,44E-02 | 9,32E-05 | NA |
| **EP-marine** | **kg N eq.** | 1,67E-02 | 2,67E-03 | 2,24E-04 | 2,93E-05 | 1,36E-02 | 2,07E-04 | NA |
| **EP-terrestrial** | **mol N eq.** | 1,56E-01 | 3,35E-02 | 2,45E-03 | 2,03E-04 | 1,19E-01 | 1,32E-03 | NA |
| 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 | | | | | | | | |
| **POCP** | **kg NMVOC eq.** | 4,18E-02 | 7,84E-03 | 7,03E-04 | 6,10E-05 | 3,28E-02 | 3,99E-04 | NA |
| POCP = Formation potential of tropospheric ozone | | | | | | | | |
| **ADP-minerals & metals** | **kg Sb eq.** | 8,34E-04 | 6,59E-04 | 4,26E-07 | 2,49E-08 | 1,34E-04 | 4,02E-05 | NA |
| **ADP-fossil** | **MJ** | 3,26E+02 | 1,91E+01 | 1,97E+00 | 1,36E-01 | 3,04E+02 | 8,08E-01 | NA |
| ADP-minerals & metals = Abiotic depletion potential for non-fossil resources<br>ADP-fossil = Abiotic depletion for fossil resources potential | | | | | | | | |
| **WDP** | **$m^3$ eq. depr.** | 4,70E+00 | 1,17E+00 | 6,06E-03 | 5,64E-04 | 3,49E+00 | 3,69E-02 | NA |
| WDP = Water Deprivation potential | | | | | | | | |

# Common base of mandatory indicators

## Inventory flows indicator – Resource use indicators

| Indicator | Unit | Total | Manu-facturing | Distri-bution | Installation | Use | End of life | Bene-fits |
|---|---|---|---|---|---|---|---|---|
| **PERE** | **MJ** | 6,91E+01 | 6,29E+00 | 2,73E-02 | 2,81E-03 | 6,27E+01 | 1,25E-01 | NA |
| **PERM** | **MJ** | 2,56E-01 | 2,56E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | NA |
| **PERT** | **MJ** | 6,94E+01 | 6,54E+00 | 2,73E-02 | 2,81E-03 | 6,27E+01 | 1,25E-01 | NA |
| **PENRE** | **MJ** | 3,25E+02 | 1,79E+01 | 1,97E+00 | 1,36E-01 | 3,04E+02 | 8,07E-01 | NA |
| **PENRM** | **MJ** | 1,23E+00 | 1,23E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | NA |
| **PENRT** | **MJ** | 3,26E+02 | 1,91E+01 | 1,97E+00 | 1,36E-01 | 3,04E+02 | 8,07E-01 | NA |

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-facturing | Distri-bution | Installation | Use | End of life | Bene-fits |
|---|---|---|---|---|---|---|---|---|
| **SM** | **kg** | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | NA |
| **RSF** | **MJ** | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | NA |
| **NRSF** | **MJ** | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | NA |
| **FW** | **$m^3$** | 2,96E-01 | 2,99E-02 | 2,22E-04 | 3,72E-05 | 2,65E-01 | 1,11E-03 | NA |

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-facturing | Distri-bution | Installation | Use | End of life | Bene-fits |
|---|---|---|---|---|---|---|---|---|
| **Hazardous waste disposed** | **kg** | 4,54E-04 | 2,04E-04 | 5,07E-06 | 3,20E-07 | 2,32E-04 | 1,23E-05 | NA |
| **Non- hazardous waste disposed** | **kg** | 1,59E+00 | 2,91E-01 | 1,14E-01 | 3,56E-02 | 1,06E+00 | 8,95E-02 | NA |
| **Radioactive waste disposed** | **kg** | 2,31E-03 | 5,14E-05 | 1,33E-05 | 9,06E-07 | 2,24E-03 | 4,41E-06 | NA |

# Common base of mandatory indicators

## Inventory flows indicator – Output flow indicators

| Indicator | Unit | Total | Manu-facturing | Distri-bution | Installation | Use | End of life | Bene-fits |
|---|---|---|---|---|---|---|---|---|
| Components for re-use | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | NA |
| Materials for recycling | kg | 1,40E-01 | 5,43E-02 | 0,00E+00 | 3,31E-02 | 0,00E+00 | 5,26E-02 | NA |
| Materials for energy recovery | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | NA |
| Exported energy | MJ | 1,46E-01 | 0,00E+00 | 0,00E+00 | 1,11E-01 | 0,00E+00 | 3,54E-02 | 0,00E+00 |

## Inventory flow indicator – other indicators

| Indicator | Unit | Total | Manu-facturing | Distri-bution | Installation | Use | End of life | Bene-fits |
|---|---|---|---|---|---|---|---|---|
| Biogenic carbon content of the product | kg of C | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | NA |
| Biogenic carbon content of the associated packaging | kg of C | 3,64E-02 | 3,64E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | NA |

# Optional indicators

## Environmental indicators

| Indicator | Unit | Total | Manu-facturing | Distri-bution | Installation | Use | End of life | Bene-fits |
|---|---|---|---|---|---|---|---|---|
| Total use of primary energy during the life cycle | MJ | 3,96E+02 | 3,96E+02 | 2,57E+01 | 1,99E+00 | 1,38E-01 | 9,33E-01 | NA |
| Emissions of fine particles | incidence of diseases | 3,99E-07 | 3,99E-07 | 1,20E-07 | 1,21E-08 | 1,07E-09 | 6,45E-09 | NA |
| Ionizing radiation, human health | kBq U235 eq. | 8,49E+00 | 8,49E+00 | 1,38E-01 | 1,01E-02 | 7,86E-04 | 1,11E-02 | NA |
| Ecotoxicity (fresh water) | CTUe | 4,01E+02 | 4,01E+02 | 1,96E+02 | 1,53E+00 | 1,26E-01 | 1,01E+01 | NA |
| Human toxicity, car-cinogenic effects | CTUh | 1,29E-08 | 1,29E-08 | 5,74E-09 | 4,85E-11 | 1,02E-11 | 1,22E-09 | NA |
| Human toxicity, non-carcinogenic effects | incidence of diseases | 4,64E-07 | 4,64E-07 | 2,40E-07 | 1,62E-09 | 1,42E-10 | 3,31E-08 | NA |
| Impact related to land use/soil quality | | 8,34E+01 | 8,34E+01 | 2,58E+01 | 1,49E+00 | 1,50E-01 | 9,29E-01 | NA |

## Other indicators

| Indicator | Unit | Total | Manu-facturing | Distri-bution | Installation | Use | End of life | Bene-fits |
|---|---|---|---|---|---|---|---|---|
| No Other indicators used | | | | | | | | |

# Extrapolation Factors

For other products than the Reference product covered by this PEP, the environmental impacts for each phase of the lifecycle are obtained by a linear correlation with respect to weight for the production, distribution, and end-of-life phase and with respect to average power loss for the use phase. Each environmental indicator value shall be calculated using the following formulas:

For the **manufacturing stage, distribution stage and end-of-life stage**:

$$y = a_n x_1 + b_n$$

where **y** is the considered impact at a specific stage and $\mathbf{x_1}$ is the **weight of the product**.

For the **use stage**:

$$y = a_n x_2 + b_n$$

Where **y** is the considered impact at a specific stage and $\mathbf{x_2}$ is the average **power loss** of the product.

The next tables report the linear coefficients $a_n$ & $b_n$ for each life cycle stage.

Note: The calculation of the coefficient $a_3$ & $b_3$ for the Installation Stage was not performed because the selected parameters do not affect the values for this stage.

| IMPACT CATEGORY | MANUFACTURING | | DISTRIBUTION | | INSTALLATION | | USE | | END OF LIFE | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $a_1$ | $b_1$ | $a_2$ | $b_2$ | $a_3$ | $b_3$ | $a_4$ | $b_4$ | $a_5$ | $b_5$ |
| *Climate change* | 1.11E-02 | 1.75E-01 | 6.83E-04 | 5.40E-02 | 1.00E+00 | 0.00E+00 | 4.04E-01 | 1.86E-03 | 6.58E-04 | -1.20E-05 |
| *Climate change - Fossil* | 1.10E-02 | 1.80E-01 | 6.82E-04 | 5.39E-02 | 1.00E+00 | 0.00E+00 | 3.90E-01 | 1.80E-03 | 6.35E-04 | -1.16E-05 |
| *Climate change - Biogenic* | 8.21E-05 | -5.99E-03 | 6.31E-07 | 4.99E-05 | 1.00E+00 | 0.00E+00 | 1.26E-02 | 5.81E-05 | 2.30E-05 | -4.18E-07 |
| *Climate change - Land use and LU change* | 1.75E-05 | 3.83E-04 | 2.67E-07 | 2.11E-05 | 1.00E+00 | 0.00E+00 | 9.22E-04 | 4.26E-06 | 6.56E-07 | -1.20E-08 |
| *Ozone depletion* | 8.63E-10 | 1.84E-08 | 1.60E-10 | 1.26E-08 | 1.00E+00 | 0.00E+00 | 1.97E-08 | 9.08E-11 | 4.84E-11 | -8.81E-13 |
| *Acidification* | 2.02E-04 | 2.28E-03 | 3.46E-06 | 2.73E-04 | 1.00E+00 | 0.00E+00 | 2.22E-03 | 1.03E-05 | 1.64E-05 | -2.98E-07 |
| *Eutrophication, freshwater* | 1.74E-05 | 1.04E-04 | 4.41E-08 | 3.48E-06 | 1.00E+00 | 0.00E+00 | 3.93E-04 | 1.81E-06 | 8.54E-07 | -1.56E-08 |
| *Eutrophication, marine* | 2.09E-05 | 3.87E-04 | 1.19E-06 | 9.40E-05 | 1.00E+00 | 0.00E+00 | 3.70E-04 | 1.71E-06 | 1.89E-06 | -3.45E-08 |
| *Eutrophication, terrestrial* | 2.67E-04 | 4.31E-03 | 1.30E-05 | 1.03E-03 | 1.00E+00 | 0.00E+00 | 3.26E-03 | 1.51E-05 | 1.21E-05 | -2.21E-07 |
| *Photochemical ozone formation* | 6.10E-05 | 1.18E-03 | 3.74E-06 | 2.95E-04 | 1.00E+00 | 0.00E+00 | 8.96E-04 | 4.14E-06 | 3.66E-06 | -6.66E-08 |
| *Resource use, minerals and metals* | 5.75E-06 | 3.11E-05 | 2.27E-09 | 1.79E-07 | 1.00E+00 | 0.00E+00 | 3.67E-06 | 1.69E-08 | 3.69E-07 | -6.72E-09 |
| *Resource use, fossils* | 1.48E-01 | 2.98E+00 | 1.04E-02 | 8.26E-01 | 1.00E+00 | 0.00E+00 | 8.31E+00 | 3.84E-02 | 7.40E-03 | -1.35E-04 |
| *Water use (AWARE)* | 8.65E-03 | 2.27E-01 | 3.22E-05 | 2.55E-03 | 1.00E+00 | 0.00E+00 | 9.53E-02 | 4.40E-04 | 3.39E-04 | -6.17E-06 |
| *Total use of primary energy during the life cycle* | 1.69E-01 | 7.20E+00 | 1.06E-02 | 8.37E-01 | 1.00E+00 | 0.00E+00 | 1.00E+01 | 4.63E-02 | 8.55E-03 | -1.56E-04 |
| *Use of renewable primary energy, excluding renewable primary energy resources used as raw materials* | 2.12E-02 | 3.97E+00 | 1.45E-04 | 1.15E-02 | 1.00E+00 | 0.00E+00 | 1.71E+00 | 7.90E-03 | 1.15E-03 | -2.09E-05 |
| *Use of renewable primary energy resources used as raw materials* | 0.00E+00 | 2.56E-01 | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| *Total use renew. primary energy res.* | 2.12E-02 | 4.22E+00 | 1.45E-04 | 1.15E-02 | 1.00E+00 | 0.00E+00 | 1.71E+00 | 7.90E-03 | 1.15E-03 | -2.09E-05 |
| *Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials* | 1.48E-01 | 1.75E+00 | 1.04E-02 | 8.26E-01 | 1.00E+00 | 0.00E+00 | 8.31E+00 | 3.84E-02 | 7.40E-03 | -1.35E-04 |
| *Use of non-renewable primary energy resources used as raw materials* | 0.00E+00 | 1.23E+00 | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| *Total use non-renew. primary energy res.* | 1.48E-01 | 2.98E+00 | 1.04E-02 | 8.26E-01 | 1.00E+00 | 0.00E+00 | 8.31E+00 | 3.84E-02 | 7.40E-03 | -1.35E-04 |

| IMPACT CATEGORY | MANUFACTURING | | DISTRIBUTION | | INSTALLATION | | USE | | END OF LIFE | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $a_1$ | $b_1$ | $a_2$ | $b_2$ | $a_3$ | $b_3$ | $a_4$ | $b_4$ | $a_5$ | $b_5$ |
| *Total use non-renew. primary energy res.* | 1.48E-01 | 2.98E+00 | 1.04E-02 | 8.26E-01 | 1.00E+00 | 0.00E+00 | 8.31E+00 | 3.84E-02 | 7.40E-03 | -1.35E-04 |
| *Use of secondary material* | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| *Use of renewable secondary fuels* | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| *Use of non-renewable secondary fuels* | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| *Net use of fresh water* | 2.26E-04 | 5.20E-03 | 1.18E-06 | 9.31E-05 | 1.00E+00 | 0.00E+00 | 7.22E-03 | 3.34E-05 | 1.02E-05 | -1.86E-07 |
| *Hazardous waste disposed* | 1.80E-06 | 7.23E-06 | 2.70E-08 | 2.13E-06 | 1.00E+00 | 0.00E+00 | 6.32E-06 | 2.92E-08 | 1.13E-07 | -2.05E-09 |
| *Non-hazardous waste disposed* | 2.22E-03 | 4.86E-02 | 6.07E-04 | 4.80E-02 | 1.00E+00 | 0.00E+00 | 2.90E-02 | 1.34E-04 | 8.21E-04 | -1.49E-05 |
| *Radioactive waste disposed* | 4.00E-07 | 7.71E-06 | 7.06E-08 | 5.58E-06 | 1.00E+00 | 0.00E+00 | 6.11E-05 | 2.82E-07 | 4.05E-08 | -7.37E-10 |
| *Particulate matter* | 9.43E-10 | 1.70E-08 | 6.41E-11 | 5.07E-09 | 1.00E+00 | 0.00E+00 | 7.08E-09 | 3.27E-11 | 5.91E-11 | -1.08E-12 |
| *Ionising radiation* | 1.11E-03 | 1.75E-02 | 5.35E-05 | 4.23E-03 | 1.00E+00 | 0.00E+00 | 2.28E-01 | 1.05E-03 | 1.02E-04 | -1.86E-06 |
| *Ecotoxicity, freshwater* | 1.68E+00 | 1.18E+01 | 8.15E-03 | 6.45E-01 | 1.00E+00 | 0.00E+00 | 5.26E+00 | 2.43E-02 | 9.22E-02 | -1.68E-03 |
| *Human toxicity, cancer* | 4.57E-11 | 7.50E-10 | 2.58E-13 | 2.04E-11 | 1.00E+00 | 0.00E+00 | 1.62E-10 | 7.47E-13 | 1.12E-11 | -2.03E-13 |
| *Human toxicity, non-cancer* | 1.99E-09 | 2.32E-08 | 8.60E-12 | 6.80E-10 | 1.00E+00 | 0.00E+00 | 5.16E-09 | 2.38E-11 | 3.04E-10 | -5.53E-12 |
| *Land use* | 7.95E-02 | 1.71E+01 | 7.93E-03 | 6.27E-01 | 1.00E+00 | 0.00E+00 | 1.50E+00 | 6.93E-03 | 8.51E-03 | -1.55E-04 |
| *Component for reuse* | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| *Materials for recycling* | 8.52E-05 | 4.50E-02 | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.82E-04 | -8.78E-06 |
| *Materials for energy recovery* | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| *Exported energy* | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.25E-04 | -5.91E-06 |

For the weight and average power loss data of the variants, please refer to table below.

| ABB Code of the specific product | Name | Type of differential protection | Rated voltage (V) | Rated current in continuous operation (A) | Number of protected poles | Sensitivity (mA) | Weight of the product (g) | Average power loss (Wloss) |
|---|---|---|---|---|---|---|---|---|
| 2CSR255165R1065 | DSX301C B6 A30 | A | 230 | 6 | 1P+N | 30 | 108.62 | 0.422 |
| 2CSR255165R1105 | DSX301C B10 A30 | A | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255165R1135 | DSX301C B13 A30 | A | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255165R1165 | DSX301C B16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255165R1205 | DSX301C B20 A30 | A | 230 | 20 | 1P+N | 30 | 109.59 | 0.959 |
| 2CSR255165R1064 | DSX301C C6 A30 | A | 230 | 6 | 1P+N | 30 | 108.62 | 0.422 |
| 2CSR255165R1104 | DSX301C C10 A30 | A | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255165R1134 | DSX301C C13 A30 | A | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255165R1164 | DSX301C C16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255165R1204 | DSX301C C20 A30 | A | 230 | 20 | 1P+N | 30 | 109.59 | 0.959 |
| 2CSR245163R1164 | DS301C L C16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR245163R1064 | DS301C L C6 A30 | A | 230 | 6 | 1P+N | 30 | 108.62 | 0.422 |
| 2CSR245163R1104 | DS301C L C10 A30 | A | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR245163R1204 | DS301C L C20 A30 | A | 230 | 20 | 1P+N | 30 | 109.59 | 0.959 |
| 2CSR255063R1205 | DS301C B20 AC30 | AC | 230 | 20 | 1P+N | 30 | 109.59 | 0.959 |
| 2CSR255063R1104 | DS301C C10 AC30 | AC | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255063R1105 | DS301C B10 AC30 | AC | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255063R1204 | DS301C C20 AC30 | AC | 230 | 20 | 1P+N | 30 | 109.59 | 0.959 |
| 2CSR255063R1065 | DS301C B6 AC30 | AC | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255063R1164 | DS301C C16 AC30 | AC | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255063R1165 | DS301C B16 AC30 | AC | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255063R1064 | DS301C C6 AC30 | AC | 230 | 6 | 1P+N | 30 | 108.62 | 0.422 |
| 2CSR255063U1134 | DS301C C13 AC30 | AC | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255063U1135 | DS301C B13 AC30 | AC | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255063R1135 | DS301C B13 AC30 | AC | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255063R1134 | DS301C C13 AC30 | AC | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255063U1165 | DS301C B16 AC30 | AC | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255063U1104 | DS301C C10 AC30 | AC | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255063U1105 | DS301C B10 AC30 | AC | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255063U1164 | DS301C C16 AC30 | AC | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |

| ABB Code of the specific product | Name | Type of differential protection | Rated voltage (V) | Rated current in continuous operation (A) | Number of protected poles | Sensitivity (mA) | Weight of the product (g) | Average power loss (Wloss) |
|---|---|---|---|---|---|---|---|---|
| 2CSR255164R1134 | DS301CT C13 A30 | A | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255164R1135 | DS301CT B13 A30 | A | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255163R1205 | DS301C B20 A30 | A | 230 | 20 | 1P+N | 30 | 109.59 | 0.959 |
| 2CSR255163R1105 | DS301C B10 A30 | A | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255163R1204 | DS301C C20 A30 | A | 230 | 20 | 1P+N | 30 | 109.59 | 0.959 |
| 2CSR255163R1104 | DS301C C10 A30 | A | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255163R1065 | DS301C B6 A30 | A | 230 | 6 | 1P+N | 30 | 108.62 | 0.422 |
| 2CSR255163R1165 | DS301C B16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255163R1064 | DS301C C6 A30 | A | 230 | 6 | 1P+N | 30 | 108.62 | 0.422 |
| 2CSR255163R1164 | DS301C C16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255163U1134 | DS301C C13 A30 | A | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255163U1135 | DS301C B13 A30 | A | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255164R1064 | DS301CT C6 A30 | A | 230 | 6 | 1P+N | 30 | 108.62 | 0.422 |
| 2CSR255164R1065 | DS301CT B6 A30 | A | 230 | 6 | 1P+N | 30 | 108.62 | 0.422 |
| 2CSR255164R1164 | DS301CT C16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255164R1165 | DS301CT B16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255163R1135 | DS301C B13 A30 | A | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255163R1134 | DS301C C13 A30 | A | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255164R1104 | DS301CT C10 A30 | A | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255164R1105 | DS301CT B10 A30 | A | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255164R1204 | DS301CT C20 A30 | A | 230 | 20 | 1P+N | 30 | 109.59 | 0.959 |
| 2CSR255164R1205 | DS301CT B20 A30 | A | 230 | 20 | 1P+N | 30 | 109.59 | 0.959 |
| 2CSR255165U1134 | DSX301C C13 A30 | A | 230 | 13 | 1P+N | 30 | 109.01 | 0.615 |
| 2CSR255163U1105 | DS301C B10 A30 | A | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255163U1104 | DS301C C10 A30 | A | 230 | 10 | 1P+N | 30 | 108.53 | 0.480 |
| 2CSR255165U1165 | DSX301C B16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255163U1165 | DS301C B16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255165U1164 | DSX301C C16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |
| 2CSR255163U1164 | DS301C C16 A30 | A | 230 | 16 | 1P+N | 30 | 109.13 | 0.697 |

# 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 $CO_2$ 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., kg N eq., 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. | $m^3$ 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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PEP are compliant with XP C08-100-1 :2016 or EN 50693:2019
The elements of the present PEP cannot be compared with elements from any other program.

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