

SOLID-CORE SENSOR

# Product Environmental Profile

## Environmental Product Declaration



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

|  |                |                                    |      |       |      |
|--|----------------|------------------------------------|------|-------|------|
| ORGANIZATION   |                | CONTACT INFORMATION                |      |       |      |
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| Approved   | Public         | ABBG-00528-V01.01-EN               | 1    | en    | 1/17 |



# 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.



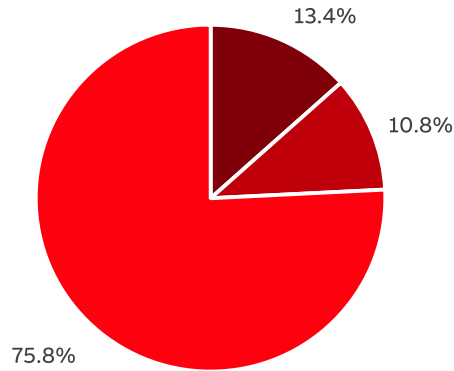
## General Information

|                            |  |
|----------------------------|--|
| Reference product          | One CMS-101PS (40A TRMS) solid-core sensor (2CCA880101R0001)   |
| Description of the product | The CMS-101PS (40A TRMS) solid-core sensor serves as current sensor and necessary component of the measuring system since it collects and send information from electrical cables  |
| Functional unit            | Measure, collect and send information, about all types of current up to 40 A in TRMS, from the electrical cables during 10 years with 100% use time rate, having the following dimensions 17.4 mm x 26.5 mm x 41 mm  |
| Other products covered     | <ul style="list-style-type: none"> <li>• CMS-10xPS: CMS-100PS, CMS-101PS, CMS-102PS</li> <li>• CMS-10xCA: CMS-100CA, CMS-101CA, CMS-102CA</li> <li>• CMS-20xCA: CMS-200CA, CMS-201CA, CMS-202CA</li> <li>• CMS-10xS8: CMS-100S8, CMS-101S8, CMS-102S8</li> <li>• CMS-10xDR: CMS-100DR, CMS-101DR, CMS-102DR</li> <li>• CMS-20xDR: CMS-200DR, CMS-201DR, CMS-202DR</li> <li>• CMS-20xS8: CMS-200S8, CMS-201S8, CMS-202S8</li> </ul> |

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# Constituent Materials



■ Plastics 6.31 g ■ Metals 5.09 g ■ Others 35.72 g

**Total weight of Reference product**

12.42 g plus 34.70 g of packaging = 47.12 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% |
| Glass fiber filled polycarbonate | 10.2    | Ni-Fe alloy 50-50     | 8.2     | Cardboard             | 70.5    |
| Polyethylene                     | 3.2     | Brass                 | 2.6     | Printed circuit board | 5.3     |

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## Additional Environmental Information

|  |   |
|--|---|
| <b>Manufacturing</b>                                   | Product manufacturing by external suppliers in Switzerland<br>Calibration and packaging by ABB Switzerland Ltd. CMC Low Voltage Products at Schaffhausen                                |
| <b>Distribution</b>                                    | Global distribution from Schaffhausen to countries where product was sold in 2022-2023  |
| <b>Installation</b>                                    | For the installation of the product, only standard tools are needed. The installation stage includes the disposal of the packaging and the transport of packaging materials to disposal |
| <b>Use</b>   | The product does not require special maintenance operations   |
| <b>End of life</b>                                     | The end of life stage is modelled according to PCR-ed4-EN-2021 09 06 and PSR-0005-ed3.1-EN-2023 08 12   |
| <b>Benefits and loads beyond the system boundaries</b> | The benefits are modelled according to PCR-ed4-EN-2021 09 06 methodology of calculating net benefits and loads beyond the system boundaries stage                                       |

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# Environmental Impacts

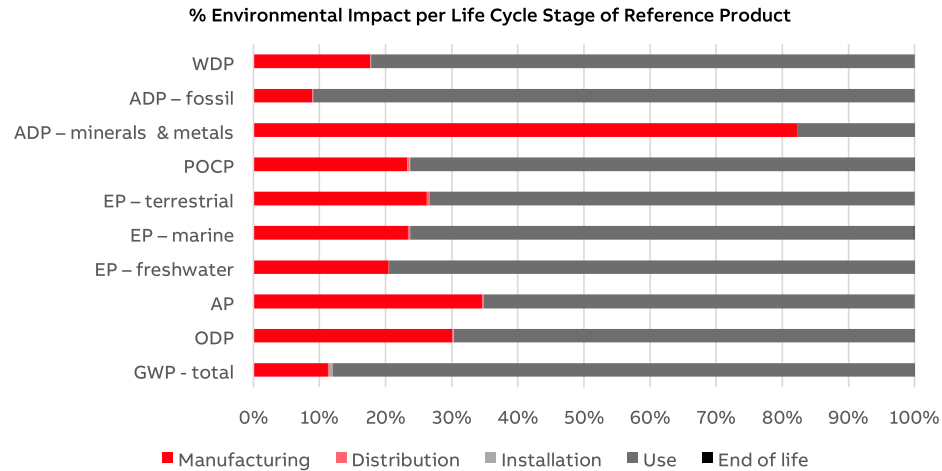
|                                  |   |
|----------------------------------|---|
| Reference lifetime               | 10 years  |
| Product category                 | PCR-ed4-EN-2021 09 06<br>PSR-0005-ed3.1-EN-2023 08 12<br>Other equipment - active products  |
| Installation elements            | No additional elements needed during installation   |
| Use scenario                     | Reference service life - 10 years<br>ON operating mode - power consumption 0.27 W, 100% use time rate<br>OFF operating mode - power consumption 0W, 0% use time rate  |
| Geographical representativeness  | Manufacturing: Switzerland<br>Other stages: Global  |
| Technological representativeness | Manufacturing representative of the year 2022<br>Primary data on materials were collected<br>The process datasets used are representative of the average industrial technology for a specific product group |
| Software and database used       | SimaPro 9.6.0.1 and ecoinvent 3.9.1   |

## Energy model used

|               |   |
|---------------|---|
| Manufacturing | Swiss medium voltage  |
| Installation  | Medium voltage of countries where product was sold in 2022-2023 |
| Use           | Low voltage of countries where product was sold in 2022-2023    |
| End of life   | Medium voltage of countries where product was sold in 2022-2023 |

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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 | Benefits  |
|---|--------------------------|----------|--------------------|-------------------|--------------|----------|----------------|-----------|
| <b>GWP-total</b>  | kg CO <sub>2</sub> eq.   | 1.08E+01 | 1.21E+00           | 1.65E-02          | 6.17E-02     | 9.46E+00 | 1.16E-02       | -1.64E-01 |
| <b>GWP-fossil</b>   | kg CO <sub>2</sub> eq.   | 1.02E+01 | 1.25E+00           | 1.65E-02          | 9.25E-03     | 8.92E+00 | 1.15E-02       | -1.62E-01 |
| <b>GWP-biogenic</b>   | kg CO <sub>2</sub> eq.   | 5.27E-01 | -3.99E-02          | 1.24E-05          | 5.24E-02     | 5.14E-01 | 3.85E-05       | -1.04E-03 |
| <b>GWP-luluc</b>  | kg CO <sub>2</sub> eq.   | 3.09E-02 | 2.65E-03           | 8.38E-06          | 2.07E-06     | 2.82E-02 | 4.60E-06       | -3.36E-04 |
| 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<br>eq.         | 2.29E-07 | 6.91E-08           | 3.47E-10          | 1.21E-10     | 1.60E-07 | 7.85E-11       | -7.89E-09 |
| ODP = Depletion potential of the stratospheric ozone layer  |                          |          |                    |                   |              |          |                |           |
| <b>AP</b>   | H+ eq.                   | 4.65E-02 | 1.61E-02           | 8.44E-05          | 1.85E-05     | 3.03E-02 | 2.42E-05       | -4.65E-03 |
| AP = Acidification potential, Accumulated Exceedance  |                          |          |                    |                   |              |          |                |           |
| <b>EP-freshwater</b>  | kg P eq.                 | 8.63E-03 | 1.77E-03           | 1.13E-06          | 4.01E-07     | 6.86E-03 | 1.55E-06       | -2.32E-04 |
| <b>EP-marine</b>  | kg N eq.                 | 8.04E-03 | 1.88E-03           | 2.19E-05          | 7.42E-06     | 6.11E-03 | 1.42E-05       | -2.50E-04 |
| <b>EP-terrestrial</b>   | mol N eq.                | 7.67E-02 | 2.01E-02           | 2.34E-04          | 6.89E-05     | 5.62E-02 | 5.34E-05       | -2.76E-03 |
| 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<br>eq.          | 2.63E-02 | 6.12E-03           | 9.44E-05          | 2.53E-05     | 2.01E-02 | 2.03E-05       | -1.01E-03 |
| POCP = Formation potential of tropospheric ozone  |                          |          |                    |                   |              |          |                |           |
| <b>ADP-minerals &amp;<br/>metals</b>  | kg Sb eq.                | 5.77E-04 | 4.75E-04           | 4.19E-08          | 1.18E-08     | 1.03E-04 | 2.31E-08       | -5.85E-05 |
| <b>ADP-fossil</b>   | MJ                       | 1.82E+02 | 1.62E+01           | 2.39E-01          | 6.07E-02     | 1.65E+02 | 6.78E-02       | -2.07E+00 |
| 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. | 2.51E+00 | 4.44E-01           | 1.09E-03          | 1.41E-03     | 2.06E+00 | 1.01E-03       | -1.33E-01 |
| WDP = Water Deprivation potential   |                          |          |                    |                   |              |          |                |           |

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## Common base of mandatory indicators

### Inventory flows indicator – Resource use indicators

| Indicator | Unit | Total    | Manu-<br>facturing | Distri-<br>bution | Installation | Use      | End of<br>life | Bene-<br>fits |
|-----------|------|----------|--------------------|-------------------|--------------|----------|----------------|---------------|
| PERE      | MJ   | 4.45E+01 | 3.02E+00           | 3.32E-03          | 1.07E-03     | 4.15E+01 | 5.75E-03       | -5.72E-01     |
| PERM      | MJ   | 4.76E-01 | 4.76E-01           | 0.00E+00          | 0.00E+00     | 0.00E+00 | 0.00E+00       | 0.00E+00      |
| PERT      | MJ   | 4.50E+01 | 3.49E+00           | 3.32E-03          | 1.07E-03     | 4.15E+01 | 5.75E-03       | -5.72E-01     |
| PENRE     | MJ   | 1.82E+02 | 1.60E+01           | 2.39E-01          | 6.07E-02     | 1.65E+02 | 6.78E-02       | -2.07E+00     |
| PENRM     | MJ   | 2.08E-01 | 2.08E-01           | 0.00E+00          | 0.00E+00     | 0.00E+00 | 0.00E+00       | 0.00E+00      |
| PENRT     | MJ   | 1.82E+02 | 1.62E+01           | 2.39E-01          | 6.07E-02     | 1.65E+02 | 6.78E-02       | -2.07E+00     |

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 | Bene-<br>fits |
|-----------|----------------|----------|--------------------|-------------------|--------------|----------|----------------|---------------|
| SM        | kg             | 0.00E+00 | 0.00E+00           | 0.00E+00          | 0.00E+00     | 0.00E+00 | 0.00E+00       | 0.00E+00      |
| RSF       | MJ             | 0.00E+00 | 0.00E+00           | 0.00E+00          | 0.00E+00     | 0.00E+00 | 0.00E+00       | 0.00E+00      |
| NRSF      | MJ             | 0.00E+00 | 0.00E+00           | 0.00E+00          | 0.00E+00     | 0.00E+00 | 0.00E+00       | 0.00E+00      |
| FW        | m <sup>3</sup> | 1.18E-01 | 1.54E-02           | 3.59E-05          | 4.83E-05     | 1.02E-01 | 3.90E-05       | -3.63E-03     |

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 | Bene-<br>fits |
|------------------------------|------|----------|--------------------|-------------------|--------------|----------|----------------|---------------|
| Hazardous waste disposed     | kg   | 5.15E-04 | 7.76E-05           | 1.46E-06          | 3.71E-07     | 4.36E-04 | 2.71E-07       | -1.16E-05     |
| Non-hazardous waste disposed | kg   | 9.04E-01 | 1.63E-01           | 1.92E-02          | 5.44E-03     | 7.06E-01 | 1.04E-02       | -3.93E-02     |
| Radioactive waste disposed   | kg   | 9.56E-04 | 4.10E-05           | 6.78E-08          | 1.95E-08     | 9.15E-04 | 1.50E-07       | -5.83E-06     |

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## Common base of mandatory indicators

### Inventory flows indicator – Output flow indicators

| Indicator                     | Unit | Total    | Manu-<br>facturing | Distri-<br>bution | Installation | Use      | End of<br>life | Bene-<br>fits |
|-------------------------------|------|----------|--------------------|-------------------|--------------|----------|----------------|---------------|
| Components for re-use         | kg   | 0.00E+00 | 0.00E+00           | 0.00E+00          | 0.00E+00     | 0.00E+00 | 0.00E+00       | 0.00E+00      |
| Materials for recycling       | kg   | 8.70E-03 | 4.48E-03           | 0.00E+00          | 0.00E+00     | 0.00E+00 | 4.22E-03       | 0.00E+00      |
| Materials for energy recovery | kg   | 3.54E-03 | 1.14E-03           | 0.00E+00          | 0.00E+00     | 0.00E+00 | 2.40E-03       | 0.00E+00      |
| Exported energy               | MJ   | 0.00E+00 | 0.00E+00           | 0.00E+00          | 0.00E+00     | 0.00E+00 | 0.00E+00       | 0.00E+00      |

### Inventory flow indicator – other indicators

| Indicator   | Unit    | Total    | Manu-<br>facturing | Distri-<br>bution | Installation | Use      | End of<br>life | Bene-<br>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       | 0.00E+00      |
| Biogenic carbon content of the associated packaging | kg of C | 2.00E-02 | 2.00E-02           | 0.00E+00          | 0.00E+00     | 0.00E+00 | 0.00E+00       | 0.00E+00      |

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## 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 multiplying the values of the Reference product by the following coefficients.

### Scaling factors for manufacturing stage

| Impact category  | CMS-10xPS | CMS-10xCA | CMS-20xCA | CMS-10xS8 | CMS-10xDR | CMS-20xDR | CMS-20xS8 |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| GWP - total      | 1.00      | 1.01      | 0.90      | 1.02      | 1.01      | 0.90      | 0.91      |
| GWP - fossil     | 1.00      | 1.01      | 0.91      | 1.02      | 1.01      | 0.91      | 0.91      |
| GWP - biogenic   | 1.00      | 1.01      | 1.06      | 1.00      | 1.01      | 1.06      | 1.06      |
| GWP - luluc      | 1.00      | 1.00      | 0.93      | 0.99      | 1.00      | 0.93      | 0.92      |
| ODP              | 1.00      | 1.03      | 0.85      | 0.99      | 1.03      | 0.85      | 0.82      |
| AP               | 1.00      | 0.95      | 1.29      | 0.96      | 0.95      | 1.29      | 1.30      |
| EP - freshwater  | 1.00      | 0.97      | 0.79      | 0.96      | 0.97      | 0.79      | 0.78      |
| EP – marine      | 1.00      | 0.99      | 0.88      | 1.01      | 0.99      | 0.88      | 0.90      |
| EP - terrestrial | 1.00      | 0.98      | 0.87      | 0.98      | 0.98      | 0.87      | 0.87      |
| POCP             | 1.00      | 0.99      | 0.98      | 0.99      | 0.99      | 0.98      | 0.98      |
| ADP – minerals   | 1.00      | 0.98      | 0.74      | 0.98      | 0.98      | 0.74      | 0.74      |
| ADP – fossil     | 1.00      | 1.02      | 0.94      | 1.02      | 1.02      | 0.94      | 0.94      |
| WDP              | 1.00      | 1.00      | 1.43      | 1.05      | 1.00      | 1.43      | 1.48      |
| PERE             | 1.00      | 1.00      | 1.18      | 1.00      | 1.00      | 1.18      | 1.18      |
| PERM             | 1.00      | 1.01      | 1.04      | 1.01      | 1.01      | 1.04      | 1.04      |
| PERT             | 1.00      | 1.00      | 1.16      | 1.00      | 1.00      | 1.16      | 1.16      |
| PENRE            | 1.00      | 1.02      | 0.93      | 1.02      | 1.02      | 0.93      | 0.93      |
| PENRM            | 1.00      | 1.53      | 2.02      | 1.36      | 1.53      | 2.02      | 1.85      |
| PENRT            | 1.00      | 1.02      | 0.94      | 1.02      | 1.02      | 0.94      | 0.94      |
| SM               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| RSF              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| NRSF             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| FW               | 1.00      | 1.00      | 1.26      | 1.03      | 1.00      | 1.26      | 1.29      |
| HWD              | 1.00      | 0.92      | 0.86      | 0.91      | 0.92      | 0.86      | 0.85      |
| NHWD             | 1.00      | 0.99      | 1.31      | 0.98      | 0.99      | 1.31      | 1.30      |
| RWD              | 1.00      | 1.01      | 0.98      | 1.00      | 1.01      | 0.98      | 0.97      |
| CRU              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| MFR              | 1.00      | 0.31      | 1.53      | 0.94      | 0.94      | 1.53      | 1.53      |
| MER              | 1.00      | 1.24      | 1.68      | 1.24      | 1.24      | 1.68      | 1.68      |
| EE               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |

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## Scaling factors for distribution stage

| Impact category  | CMS-10xPS | CMS-10xCA | CMS-20xCA | CMS-10xS8 | CMS-10xDR | CMS-20xDR | CMS-20xS8 |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| GWP - total      | 1.00      | 1.08      | 1.36      | 1.09      | 0.98      | 1.21      | 1.40      |
| GWP - fossil     | 1.00      | 1.08      | 1.36      | 1.09      | 0.98      | 1.21      | 1.40      |
| GWP - biogenic   | 1.00      | 1.16      | 1.30      | 1.27      | 0.50      | 0.32      | 1.62      |
| GWP - luluc      | 1.00      | 1.05      | 1.38      | 1.03      | 1.15      | 1.53      | 1.33      |
| ODP              | 1.00      | 1.10      | 1.34      | 1.14      | 0.84      | 0.95      | 1.47      |
| AP               | 1.00      | 0.81      | 1.55      | 0.52      | 2.50      | 4.06      | 0.72      |
| EP - freshwater  | 1.00      | 1.10      | 1.34      | 1.15      | 0.83      | 0.93      | 1.47      |
| EP – marine      | 1.00      | 0.82      | 1.54      | 0.54      | 2.43      | 3.94      | 0.75      |
| EP - terrestrial | 1.00      | 0.81      | 1.54      | 0.52      | 2.49      | 4.05      | 0.73      |
| POCP             | 1.00      | 0.92      | 1.47      | 0.75      | 1.88      | 2.90      | 1.00      |
| ADP – minerals   | 1.00      | 1.11      | 1.33      | 1.17      | 0.77      | 0.83      | 1.49      |
| ADP – fossil     | 1.00      | 1.09      | 1.35      | 1.11      | 0.92      | 1.10      | 1.43      |
| WDP              | 1.00      | 1.11      | 1.33      | 1.16      | 0.80      | 0.87      | 1.48      |
| PERE             | 1.00      | 1.11      | 1.33      | 1.17      | 0.77      | 0.82      | 1.50      |
| PERM             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| PERT             | 1.00      | 1.11      | 1.33      | 1.17      | 0.77      | 0.82      | 1.50      |
| PENRE            | 1.00      | 1.09      | 1.35      | 1.11      | 0.92      | 1.10      | 1.43      |
| PENRM            | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| PENRT            | 1.00      | 1.09      | 1.35      | 1.11      | 0.92      | 1.10      | 1.43      |
| SM               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| RSF              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| NRSF             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| FW               | 1.00      | 1.11      | 1.33      | 1.16      | 0.80      | 0.88      | 1.48      |
| HWD              | 1.00      | 1.09      | 1.34      | 1.13      | 0.87      | 1.01      | 1.45      |
| NHWD             | 1.00      | 1.13      | 1.32      | 1.21      | 0.66      | 0.62      | 1.55      |
| RWD              | 1.00      | 1.12      | 1.32      | 1.19      | 0.71      | 0.71      | 1.52      |
| CRU              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| MFR              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| MER              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| EE               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |

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## Scaling factors for installation stage

| Impact category  | CMS-10xPS | CMS-10xCA | CMS-20xCA | CMS-10xS8 | CMS-10xDR | CMS-20xDR | CMS-20xS8 |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| GWP - total      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| GWP - fossil     | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| GWP - biogenic   | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| GWP - luluc      | 1.00      | 1.00      | 1.00      | 0.99      | 1.03      | 1.04      | 0.99      |
| ODP              | 1.00      | 1.01      | 0.99      | 1.03      | 0.93      | 0.89      | 1.03      |
| AP               | 1.00      | 1.00      | 1.00      | 0.99      | 1.03      | 1.04      | 0.99      |
| EP - freshwater  | 1.00      | 0.99      | 1.00      | 0.98      | 1.05      | 1.07      | 0.98      |
| EP – marine      | 1.00      | 1.00      | 1.00      | 1.00      | 1.01      | 1.02      | 1.00      |
| EP - terrestrial | 1.00      | 1.00      | 1.00      | 0.99      | 1.02      | 1.02      | 0.99      |
| POCP             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| ADP – minerals   | 1.00      | 1.00      | 1.00      | 1.00      | 1.01      | 1.01      | 1.00      |
| ADP – fossil     | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.01      | 1.00      |
| WDP              | 1.00      | 1.00      | 1.00      | 1.00      | 1.01      | 1.01      | 1.00      |
| PERE             | 1.00      | 1.01      | 1.00      | 1.02      | 0.96      | 0.94      | 1.01      |
| PERM             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| PERT             | 1.00      | 1.01      | 1.00      | 1.02      | 0.96      | 0.94      | 1.01      |
| PENRE            | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.01      | 1.00      |
| PENRM            | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| PENRT            | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.01      | 1.00      |
| SM               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| RSF              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| NRSF             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| FW               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| HWD              | 1.00      | 1.00      | 1.00      | 1.00      | 1.01      | 1.02      | 1.00      |
| NHWD             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| RWD              | 1.00      | 1.02      | 0.99      | 1.04      | 0.89      | 0.84      | 1.04      |
| CRU              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| MFR              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| MER              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| EE               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |

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## Scaling factors for use stage

| Impact category  | CMS-10xPS | CMS-10xCA | CMS-20xCA | CMS-10xS8 | CMS-10xDR | CMS-20xDR | CMS-20xS8 |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| GWP - total      | 1.00      | 1.15      | 1.39      | 0.98      | 1.24      | 1.92      | 0.70      |
| GWP - fossil     | 1.00      | 1.16      | 1.42      | 0.95      | 1.28      | 2.03      | 0.68      |
| GWP - biogenic   | 1.00      | 1.15      | 0.79      | 1.45      | 0.62      | 0.06      | 0.97      |
| GWP - luluc      | 1.00      | 0.65      | 0.62      | 0.33      | 0.32      | 0.54      | 1.19      |
| ODP              | 1.00      | 1.19      | 1.29      | 1.22      | 1.50      | 1.48      | 0.86      |
| AP               | 1.00      | 1.14      | 2.58      | 1.19      | 0.93      | 2.59      | 0.92      |
| EP - freshwater  | 1.00      | 1.41      | 1.27      | 0.29      | 0.67      | 2.47      | 0.27      |
| EP – marine      | 1.00      | 1.20      | 2.09      | 0.91      | 0.91      | 2.47      | 0.73      |
| EP - terrestrial | 1.00      | 1.15      | 2.28      | 1.12      | 0.96      | 2.33      | 0.87      |
| POCP             | 1.00      | 1.06      | 1.94      | 1.29      | 1.26      | 2.10      | 0.94      |
| ADP – minerals   | 1.00      | 1.04      | 1.00      | 1.00      | 0.95      | 0.95      | 0.97      |
| ADP – fossil     | 1.00      | 1.03      | 1.21      | 0.85      | 1.07      | 1.44      | 0.86      |
| WDP              | 1.00      | 0.89      | 1.41      | 2.50      | 0.54      | 1.24      | 1.90      |
| PERE             | 1.00      | 0.94      | 0.92      | 1.15      | 0.48      | 0.37      | 1.28      |
| PERM             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| PERT             | 1.00      | 0.94      | 0.92      | 1.15      | 0.48      | 0.37      | 1.28      |
| PENRE            | 1.00      | 1.03      | 1.21      | 0.85      | 1.07      | 1.44      | 0.86      |
| PENRM            | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| PENRT            | 1.00      | 1.03      | 1.21      | 0.85      | 1.07      | 1.44      | 0.86      |
| SM               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| RSF              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| NRSF             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| FW               | 1.00      | 0.88      | 1.03      | 1.49      | 0.51      | 0.58      | 1.38      |
| HWD              | 1.00      | 1.03      | 1.04      | 1.28      | 1.55      | 1.11      | 0.88      |
| NHWD             | 1.00      | 1.09      | 1.55      | 0.94      | 0.87      | 1.40      | 0.89      |
| RWD              | 1.00      | 0.84      | 0.76      | 0.52      | 0.36      | 0.65      | 1.16      |
| CRU              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| MFR              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| MER              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| EE               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |

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## Scaling factors for end of life stage

| Impact category  | CMS-10xPS | CMS-10xCA | CMS-20xCA | CMS-10xS8 | CMS-10xDR | CMS-20xDR | CMS-20xS8 |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| GWP - total      | 1.00      | 1.41      | 2.09      | 1.39      | 1.45      | 2.19      | 2.05      |
| GWP - fossil     | 1.00      | 1.41      | 2.09      | 1.40      | 1.45      | 2.19      | 2.06      |
| GWP - biogenic   | 1.00      | 0.77      | 1.44      | 0.79      | 0.68      | 1.23      | 1.50      |
| GWP - luluc      | 1.00      | 0.84      | 1.56      | 0.81      | 1.01      | 1.95      | 1.44      |
| ODP              | 1.00      | 1.09      | 1.71      | 1.10      | 1.01      | 1.59      | 1.75      |
| AP               | 1.00      | 0.77      | 1.36      | 0.74      | 0.93      | 1.73      | 1.24      |
| EP - freshwater  | 1.00      | 0.79      | 1.50      | 0.77      | 0.85      | 1.65      | 1.46      |
| EP – marine      | 1.00      | 1.29      | 1.90      | 1.28      | 1.36      | 2.06      | 1.84      |
| EP - terrestrial | 1.00      | 0.96      | 1.62      | 0.93      | 1.09      | 1.91      | 1.52      |
| POCP             | 1.00      | 0.98      | 1.64      | 0.95      | 1.12      | 1.96      | 1.53      |
| ADP – minerals   | 1.00      | 0.81      | 1.45      | 0.80      | 0.91      | 1.68      | 1.37      |
| ADP – fossil     | 1.00      | 0.95      | 1.61      | 0.94      | 1.00      | 1.72      | 1.57      |
| WDP              | 1.00      | 1.35      | 1.66      | 1.57      | 0.04      | -1.36     | 2.65      |
| PERE             | 1.00      | 0.76      | 1.40      | 0.77      | 0.70      | 1.27      | 1.44      |
| PERM             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| PERT             | 1.00      | 0.76      | 1.40      | 0.77      | 0.70      | 1.27      | 1.44      |
| PENRE            | 1.00      | 0.95      | 1.61      | 0.94      | 1.00      | 1.72      | 1.57      |
| PENRM            | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| PENRT            | 1.00      | 0.95      | 1.61      | 0.94      | 1.00      | 1.72      | 1.57      |
| SM               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| RSF              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| NRSF             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| FW               | 1.00      | 1.19      | 1.63      | 1.34      | 0.31      | -0.40     | 2.29      |
| HWD              | 1.00      | 1.06      | 1.71      | 1.05      | 1.15      | 1.89      | 1.65      |
| NHWD             | 1.00      | 1.19      | 1.78      | 1.19      | 1.19      | 1.76      | 1.78      |
| RWD              | 1.00      | 0.83      | 1.47      | 0.88      | 0.55      | 0.83      | 1.68      |
| CRU              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| MFR              | 1.00      | 1.05      | 1.59      | 0.83      | 0.83      | 1.59      | 1.59      |
| MER              | 1.00      | 1.85      | 2.60      | 1.84      | 1.85      | 2.60      | 2.59      |
| EE               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |

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## Scaling factors for benefits and loads (Module D)

| Impact category  | CMS-10xPS | CMS-10xCA | CMS-20xCA | CMS-10xS8 | CMS-10xDR | CMS-20xDR | CMS-20xS8 |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| GWP - total      | 1.00      | 0.98      | 1.65      | 0.98      | 0.98      | 1.66      | 1.64      |
| GWP - fossil     | 1.00      | 0.98      | 1.65      | 0.98      | 0.98      | 1.66      | 1.64      |
| GWP - biogenic   | 1.00      | 1.03      | 1.66      | 1.06      | 0.97      | 1.54      | 1.69      |
| GWP - luluc      | 1.00      | 0.97      | 1.72      | 0.97      | 0.97      | 1.71      | 1.73      |
| ODP              | 1.00      | 1.00      | 1.42      | 1.00      | 1.00      | 1.41      | 1.42      |
| AP               | 1.00      | 0.93      | 2.49      | 0.93      | 0.93      | 2.49      | 2.48      |
| EP - freshwater  | 1.00      | 0.89      | 1.35      | 0.89      | 0.89      | 1.36      | 1.34      |
| EP – marine      | 1.00      | 0.94      | 1.63      | 0.94      | 0.93      | 1.63      | 1.62      |
| EP - terrestrial | 1.00      | 0.92      | 1.61      | 0.92      | 0.92      | 1.61      | 1.60      |
| POCP             | 1.00      | 0.94      | 1.95      | 0.94      | 0.94      | 1.95      | 1.94      |
| ADP – minerals   | 1.00      | 0.92      | 1.28      | 0.92      | 0.92      | 1.28      | 1.28      |
| ADP – fossil     | 1.00      | 0.99      | 1.69      | 0.98      | 0.99      | 1.69      | 1.68      |
| WDP              | 1.00      | 0.96      | 2.63      | 0.97      | 0.96      | 2.63      | 2.64      |
| PERE             | 1.00      | 0.98      | 2.42      | 0.98      | 0.97      | 2.40      | 2.43      |
| PERM             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| PERT             | 1.00      | 0.98      | 2.42      | 0.98      | 0.97      | 2.40      | 2.43      |
| PENRE            | 1.00      | 0.99      | 1.69      | 0.98      | 0.99      | 1.69      | 1.68      |
| PENRM            | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| PENRT            | 1.00      | 0.99      | 1.69      | 0.98      | 0.99      | 1.69      | 1.68      |
| SM               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| RSF              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| NRSF             | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| FW               | 1.00      | 0.97      | 2.46      | 0.97      | 0.96      | 2.45      | 2.46      |
| HWD              | 1.00      | 0.78      | 1.27      | 0.78      | 0.78      | 1.26      | 1.26      |
| NHWD             | 1.00      | 0.96      | 2.51      | 0.96      | 0.96      | 2.50      | 2.50      |
| RWD              | 1.00      | 0.98      | 1.88      | 0.97      | 0.97      | 1.87      | 1.90      |
| CRU              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| MFR              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| MER              | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |
| EE               | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      | 1.00      |

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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-00528-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>06-2024</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)  |   |
| PEP are compliant with XP C08-100-1 :2016 or EN 50693:2019<br>The components of the present PEP may not be compared with components from any other program |   |
| Document in compliance with ISO 14025: 2006 "Environmental labels and declarations. Type III environmental declarations"                                   |   |
|   |   |

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