

KOSTI LIGHT SWITCHES

# PEP ecopassport®

## Environmental Product Declaration



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

|                                           |                |                                              |      |       |      |
|-------------------------------------------|----------------|----------------------------------------------|------|-------|------|
| ORGANIZATION                              |                | CONTACT INFORMATION                          |      |       |      |
| ABB Oy, Wiring Accessories                |                | Ella Helynranta - ella.helynranta@fi.abb.com |      |       |      |
| ADDRESS                                   |                | WEBSITE                                      |      |       |      |
| Porvoon Sisäkehä 2, 06100 Porvoo, Finland |                | www.new.abb.com                              |      |       |      |
| STATUS                                    | SECURITY LEVEL | REGISTRATION NUMBER                          | REV. | LANG. | PAGE |
| Approved                                  | Public         | ABBG-00217-V01.01-EN                         | 1    | en    | 1/11 |

# 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.

Scan QR code for more information



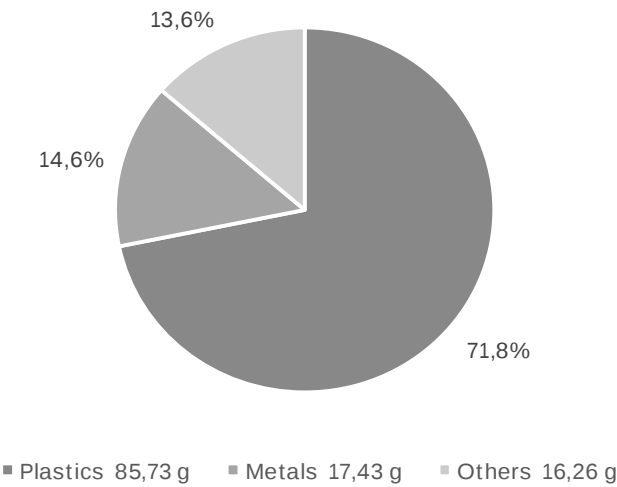
## General Information

|                            |                                                                                                                                                                 |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference product          | 2TKA000192G1                                                                                                                                                    |
| Description of the product | Kosti surface switches are described as switch with screwless terminals, including switch insert and rocker. The terminals are for max 2 rigid wires.           |
| Functional unit            | Establish, support and interrupt for 20 years rated currents in normal conditions of circuit characterized by the current 16 A, for the operating voltage 250 V |
| Other products covered     | The list of other products covered by this PEP is on page 9.                                                                                                    |

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# Constituent Materials



|                                   |        |   |
|-----------------------------------|--------|---|
| Total weight of Reference product | 119,48 | 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% |
| PC                      | 53,6    | Bronze                | 6,4     | Cardboard box (unit)  | 9,6     |
| SEBS                    | 10,1    | Stainless steel       | 4,2     | Cardboard box (macro) | 4,0     |
| PA                      | 8,0     | Brass                 | 2,7     | –                     | –       |
| –                       | –       | Steel                 | 1,2     | –                     | –       |
| –                       | –       | Other metals          | 0,1     | –                     | –       |

The reference product and other products in this range are in conformity with the provisions of Low Voltage Directive 2014/35/EU, RoHS directive 2011/65/EU, covering 2015/863(EU), REACH regulation No 1907/2006, and national legislation. Plastics used for the reference product are halogen-free materials (IEC/61249-2-21) and they are also recyclable.

|          |                |                      |      |       |      |
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## Additional Environmental Information

|                                                 |                                                                                                                                                                                                            |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturing                                   | Includes the environmental impacts associated with extraction and processing of the raw materials used to produce the product and its packaging, transport to the manufacturing site and assembly.         |
| Distribution                                    | Includes the transportation in its packaging from the manufacturer's last logistic platform to the distributor.                                                                                            |
| Installation                                    | Installation stage includes the installation of the products made manually and the end of life of packaging.                                                                                               |
| Use                                             | Energy consumption is calculated by following the use scenario of the corresponding PSR: a use time rate of 30% of the reference lifetime and a load rate of 50% of the maximum intensity.                 |
| End of life                                     | Includes its transportation from the installation site to the final end of life treatment site, and end of life treatment processes. A value of 1000 km transport by lorry is used for the transportation. |
| Benefits and loads beyond the system boundaries | Prevented impacts of recycling materials.                                                                                                                                                                  |

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Environmental Impacts

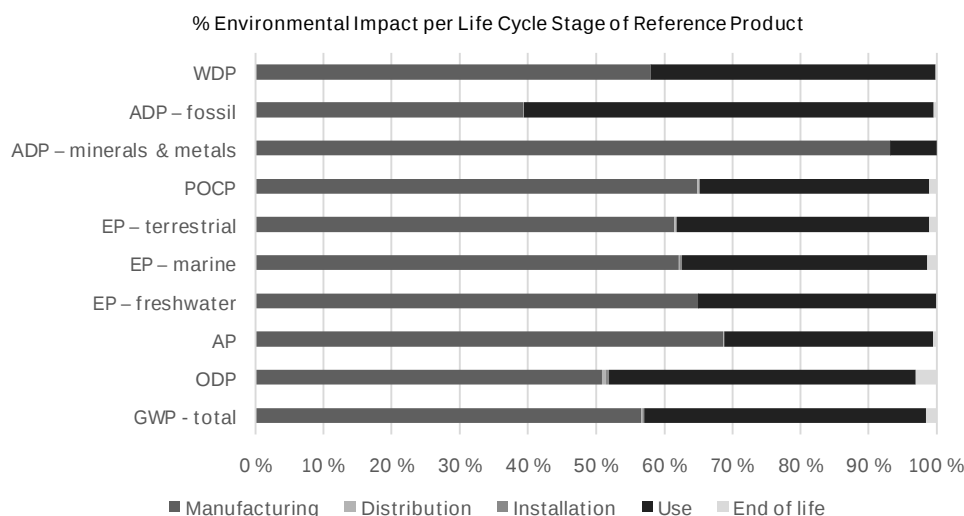
|                                  |                                                                                                    |
|----------------------------------|----------------------------------------------------------------------------------------------------|
| Reference lifetime               | 20 years                                                                                           |
| Product category                 | Switches                                                                                           |
| Installation elements            | End of life of packaging                                                                           |
| Use scenario                     | Europe                                                                                             |
| Geographical representativeness  | Global                                                                                             |
| Technological representativeness | Materials and processes data are specific for the production of the family of Kosti Light Switches |
| Software and database used       | SimaPro 9.3 and ecoinvent 3.8.                                                                     |

Energy model used

|               |                                                                                                                                                                            |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturing | Finland energy mix at low voltage obtained from IEA data                                                                                                                   |
| Installation  | Non-applicable                                                                                                                                                             |
| Use           | Electricity, low voltage {FI}  market for   Cut-off, S<br>Electricity, low voltage {SE}  market for   Cut-off, S<br>Electricity, low voltage {IS}  market for   Cut-off, S |
| End of life   | Recycling of product and packaging                                                                                                                                         |

|          |                |                      |      |       |      |
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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 | Benefi-<br>fits |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------|--------------------|-------------------|--------------|----------|----------------|-----------------|
| GWP-total                                                                                                                                                                                                                                                               | kg CO <sub>2</sub> eq. | 2,56E+00 | 1,45E+00           | 2,83E-03          | 8,67E-03     | 1,06E+00 | 4,18E-02       | -5,94E-01       |
| GWP-fossil                                                                                                                                                                                                                                                              | kg CO <sub>2</sub> eq. | 2,53E+00 | 1,45E+00           | 2,82E-03          | 2,75E-03     | 1,03E+00 | 4,02E-02       | -5,95E-01       |
| GWP-biogenic                                                                                                                                                                                                                                                            | kg CO <sub>2</sub> eq. | 1,54E-02 | -6,55E-03          | 2,49E-06          | 5,91E-03     | 1,44E-02 | 1,63E-03       | 1,71E-03        |
| GWP-luluc                                                                                                                                                                                                                                                               | kg CO <sub>2</sub> eq. | 1,21E-02 | 9,87E-04           | 1,13E-06          | 1,10E-06     | 1,11E-02 | 7,31E-06       | -6,19E-05       |
| 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<br>eq.       | 1,29E-07 | 6,56E-08           | 6,52E-10          | 6,41E-10     | 5,80E-08 | 4,07E-09       | -3,29E-09       |
| ODP = Depletion potential of the stratospheric ozone layer                                                                                                                                                                                                              |                        |          |                    |                   |              |          |                |                 |
| AP                                                                                                                                                                                                                                                                      | H <sup>+</sup> eq.     | 1,49E-02 | 0,00E+00           | 1,29E-05          | 1,19E-05     | 4,57E-03 | 7,77E-05       | -2,13E-03       |
| AP = Acidification potential, Accumulated Exceedance                                                                                                                                                                                                                    |                        |          |                    |                   |              |          |                |                 |
| EP-freshwater                                                                                                                                                                                                                                                           | kg P eq.               | 1,17E-04 | 9,87E-04           | 1,96E-08          | 2,01E-08     | 4,06E-05 | 1,47E-07       | -8,82E-06       |
| EP-marine                                                                                                                                                                                                                                                               | kg N eq.               | 1,98E-03 | 1,23E-03           | 3,77E-06          | 6,07E-06     | 7,14E-04 | 2,76E-05       | -3,85E-04       |
| EP-terrestrial                                                                                                                                                                                                                                                          | mol N eq.              | 2,35E-02 | 1,44E-02           | 4,16E-05          | 3,97E-05     | 8,69E-03 | 2,66E-04       | -3,90E-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 |                        |          |                    |                   |              |          |                |                 |
| POCP                                                                                                                                                                                                                                                                    | kg<br>NMVOCeq.         | 6,88E-03 | 4,46E-03           | 1,25E-05          | 1,28E-05     | 2,31E-03 | 7,99E-05       | -1,44E-03       |
| POCP = Formation potential of tropospheric ozone                                                                                                                                                                                                                        |                        |          |                    |                   |              |          |                |                 |
| ADP-minerals &<br>metals                                                                                                                                                                                                                                                | kg Sb eq.              | 2,10E-04 | 1,95E-04           | 9,71E-09          | 6,41E-10     | 1,43E-05 | 6,26E-08       | -7,35E-07       |
| ADP-fossil                                                                                                                                                                                                                                                              | MJ                     | 5,58E+01 | 2,19E+01           | 4,26E-02          | 4,16E-02     | 3,35E+01 | 2,69E-01       | -7,24E+00       |
| ADP-minerals & metals = Abiotic depletion potential for non-fossil resources<br>ADP-fossil = Abiotic depletion for fossil resources potential                                                                                                                           |                        |          |                    |                   |              |          |                |                 |
| WDP                                                                                                                                                                                                                                                                     | m <sup>3</sup> e depr. | 9,36E-01 | 5,43E-01           | 1,27E-04          | 1,43E-04     | 3,91E-01 | 1,37E-03       | -1,90E-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   | 1,05E+01 | 1,68E+00           | 5,95E-04          | 6,78E-04     | 8,83E+00 | 3,95E-03       | -1,51E-01     |
| PERM                                                                                                               | MJ   | 1,80E-01 | 1,80E-01           | 0,00E+00          | 0,00E+00     | 0,00E+00 | 0,00E+00       | 0,00E+00      |
| PERT                                                                                                               | MJ   | 1,07E+01 | 1,86E+00           | 5,95E-04          | 6,78E-04     | 8,83E+00 | 3,95E-03       | -1,51E-01     |
| PENRE                                                                                                              | MJ   | 5,28E+01 | 1,93E+01           | 4,26E-02          | 4,16E-02     | 3,32E+01 | 2,69E-01       | -7,24E+00     |
| PENRM                                                                                                              | MJ   | 2,66E+00 | 2,66E+00           | 0,00E+00          | 0,00E+00     | 0,00E+00 | 0,00E+00       | 0,00E+00      |
| PENRT                                                                                                              | MJ   | 5,55E+01 | 2,19E+01           | 4,26E-02          | 4,16E-02     | 3,32E+01 | 2,69E-01       | -7,24E+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 re-sources

| 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> | 4,85E-02 | 1,81E-02           | 4,71E-06          | 6,30E-06     | 3,03E-02 | 4,68E-05       | -4,50E-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   | 7,73E-05 | 6,30E-05           | 1,10E-07          | 1,08E-07     | 1,34E-05 | 6,98E-07       | -2,64E-06     |
| Non- hazardous waste disposed | kg   | 2,55E-01 | 1,25E-01           | 2,16E-03          | 3,66E-03     | 9,67E-02 | 2,76E-02       | -2,19E-02     |
| Radioactive waste disposed    | kg   | 4,39E-04 | 6,91E-05           | 2,88E-07          | 2,81E-07     | 3,67E-04 | 1,79E-06       | -1,20E-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   | 2,31E-04 | 2,31E-04           | 0,00E+00          | 0,00E+00     | 0,00E+00 | 0,00E+00       | 0,00E+00      |
| Materials for recycling       | kg   | 9,85E-02 | 9,51E-04           | 0,00E+00          | 1,33E-02     | 0,00E+00 | 8,43E-02       | 0,00E+00      |
| Materials for energy recovery | kg   | 1,63E-02 | 6,54E-03           | 0,00E+00          | 1,49E-03     | 0,00E+00 | 8,31E-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 | 8,13E-03 | 0,00E+00           | 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:

\* if the coefficient is "1", the impacts of the phase of the life cycle are assimilated to the Reference product, meaning that the impacts are unchanged in comparison to the Reference product

[illegible]

## 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> e 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:                                                                                                                                | Drafting Rules:                      | PCR-ed4-EN-2021 09 06      |
| ABBG-00217-V01.01-EN                                                                                                                                | Supplemented by:                     | PSR-0005-ed2-EN—2016 03 29 |
| Verifier accreditation number:                                                                                                                      | Information and reference documents: |                            |
| VH26                                                                                                                                                | www.pep-ecopassport.org              |                            |
| Date of issue:                                                                                                                                      | 05/2023                              | Validity period: 5 years   |
| Internal <input type="radio"/> External <input checked="" type="radio"/>                                                                            |                                      |                            |
| Independent verification of the declaration and data, in compliance with ISO 14025: 2006                                                            |                                      |                            |
| 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 elements of the present PEP cannot be compared with elements from another program |                                      |                            |
| Document in compliance with ISO 14025: 2006 "Environmental labels and declarations. Type III environmental declarations"                            |                                      |                            |



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