

JRA/S4.230.7.2

# PEP ecopassport®

## Product Environmental Profile



|                                                                                                                                                                                  |                                                  |                                      |                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------|-------------------------------------|
| Registration number:                                                                                                                                                             | ABBG-00860-V01.01-EN                             | Drafting rules:                      | PCR-ed4-EN-2021 09 06               |
| Contact information:                                                                                                                                                             | Pia Denninghoff (pia.denninghoff@de.abb.com) & L | Supplemented by:                     | PSR-0005-ed3-EN-2023 06 06          |
| Verifier accreditation number:                                                                                                                                                   | VH08                                             | Information and reference documents: | www.pep-ecopassport.org             |
| Date of issue:                                                                                                                                                                   | July-25                                          | Validity period:                     | 5 years                             |
| Independent verification of the declaration and data in compliance with ISO 14025: 2006                                                                                          |                                                  |                                      |                                     |
| Internal:                                                                                                                                                                        | <input type="checkbox"/>                         | External:                            | <input checked="" type="checkbox"/> |
| The PCR review was conducted by a panel of experts chaired by Julie Orgelet (Ddomain)                                                                                            |                                                  |                                      |                                     |
| PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 or NF E38-500 :2022<br>The components of the present PEP may not be compared with components from any other program. |                                                  |                                      |                                     |
| Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"                                                               |                                                  |                                      |                                     |





# 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. The content of this PEP cannot be compared with the content based on another program/database. Scan QR code for more information

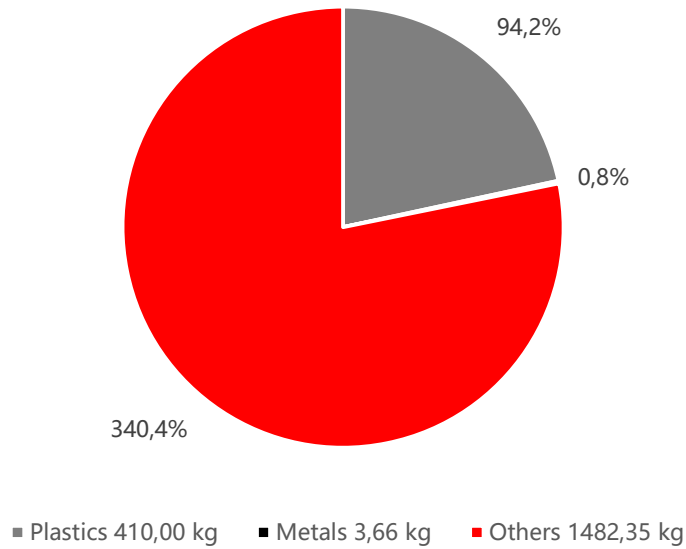


## General information

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference product          | 2CDG110294R0011 JRA/S4.230.7.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Description of the product | For the control of independent 230 V AC motors via ABB i-bus® KNX. The devices are designed for positioning blinds, roller shutters, awnings and other shading products as well as for controlling doors, windows and ventilation flaps. Additional auxiliary voltage is not needed. To protect the motor, the output contacts are electromechanically locked against each other. Push-buttons are located at the front of the device to control the outputs e.g., during commissioning. The current status of the output is displayed via LEDs if the output is selected. |
| Functional unit            | The device operates with a rated current 6 A and rated voltage 230 V, with IP20 degree of protection for a wall-mounted installation according to the appropriate use scenario, and for the reference service life of the product of 10 years.                                                                                                                                                                                                                                                                                                                             |
| Other products covered     | Single product                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Manufacturing address      | Hauptstrasse 14-16, 78132 Hornberg, Baden-Wuerttemberg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



## Constituent Materials



Total weight of reference product and packaging

435,4

kg

| 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                      | 94,2    | Stainless steel       | 0,8     | Electronic components | 256,3   |
|                         |         |                       |         | Cardboard             | 63,1    |
|                         |         |                       |         | Paper                 | 20,8    |
|                         |         |                       |         | Adhesive              | 0,1     |



## Additional 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.                                                                                                                               |
| 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 transportation from the installation site to the final end of life treatment site, and end of life treatment processes. A value of 100 km transport by lorry is used for the transportation. |
| Benefits and loads beyond the system boundaries | Prevented impacts of recycling materials.                                                                                                                                                                 |



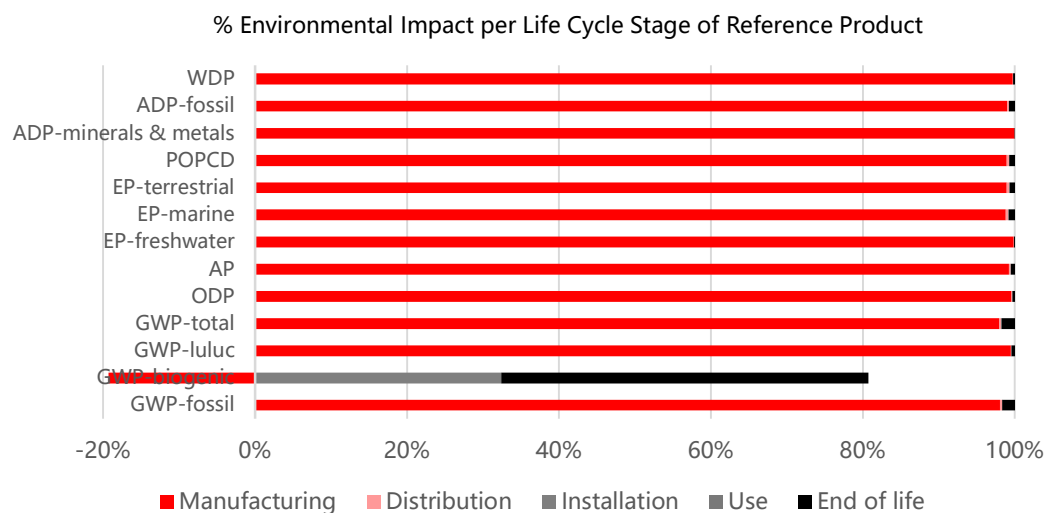
# Environmental Impacts

|                                  |                                  |
|----------------------------------|----------------------------------|
| Reference lifetime               | 20 years                         |
| Product category                 | Other Equipment (3.15)           |
| Installation elements            | Installation elements            |
| Use scenario                     | Global                           |
| Geographical representativeness  | Global                           |
| Technological representativeness | Technological representativeness |
| Software and database used       | SimaPro 9.6.0.1 & Ecoinvent 3.10 |

## Energy model used

|               |                                                                    |
|---------------|--------------------------------------------------------------------|
| Manufacturing | A specific mix of ABB's trading company has been used (Confidentia |
| Installation  | Non-applicable                                                     |
| Use           | Non-applicable                                                     |
| End of life   | Recycling of product and packaging                                 |

## Common base of mandatory indicators



### Environmental impact indicators

| Indicator |                      | Unit             | Total    | Manufacturing | Distributi<br>on | Installation | Use      | End of<br>life | Benefits  |
|-----------|----------------------|------------------|----------|---------------|------------------|--------------|----------|----------------|-----------|
| GWP       | Total                | kg CO2 eq.       | 2,16E+01 | 2,11E+01      | 5,67E-02         | 1,81E-02     | 0,00E+00 | 3,77E-01       | -1,62E+01 |
|           | Fossil               | kg CO2 eq.       | 2,15E+01 | 2,11E+01      | 5,66E-02         | 4,59E-03     | 0,00E+00 | 3,57E-01       | -1,62E+01 |
|           | Biogenic             | kg CO2 eq.       | 2,58E-02 | -8,08E-03     | 3,41E-05         | 1,35E-02     | 0,00E+00 | 2,03E-02       | -5,98E-03 |
|           | Luluc                | kg CO2 eq.       | 3,06E-02 | 3,04E-02      | 1,94E-05         | 1,47E-06     | 0,00E+00 | 1,42E-04       | -2,41E-02 |
| ODP       |                      | kg CFC-11<br>eq. | 7,58E-07 | 7,54E-07      | 1,10E-09         | 9,50E-11     | 0,00E+00 | 2,26E-09       | -5,63E-07 |
| AP        |                      | H+ eq.           | 1,46E-01 | 1,45E-01      | 3,02E-04         | 2,29E-05     | 0,00E+00 | 7,82E-04       | -1,14E-01 |
| EP        | Freshwater           | kg P eq.         | 2,65E-03 | 2,65E-03      | 4,17E-07         | 5,82E-08     | 0,00E+00 | 2,86E-06       | -2,00E-03 |
|           | Marine               | kg N eq.         | 2,50E-02 | 2,47E-02      | 8,87E-05         | 8,95E-06     | 0,00E+00 | 1,97E-04       | -1,91E-02 |
|           | Terrestrial          | mol N eq.        | 2,85E-01 | 2,82E-01      | 9,80E-04         | 9,59E-05     | 0,00E+00 | 1,95E-03       | -2,19E-01 |
| POPCD     |                      | kg NMVOC<br>eq.  | 1,10E-01 | 1,09E-01      | 3,59E-04         | 3,47E-05     | 0,00E+00 | 7,77E-04       | -8,56E-02 |
| ADP       | Minerals &<br>metals | kg SB eq.        | 4,78E-03 | 4,78E-03      | 1,71E-07         | 1,87E-08     | 0,00E+00 | 9,63E-07       | -3,67E-03 |
|           | Fossil               | MJ               | 2,82E+02 | 2,79E+02      | 7,87E-01         | 4,82E-02     | 0,00E+00 | 2,12E+00       | -2,14E+02 |
| WDP       |                      | m³ eq. depr.     | 5,50E+00 | 5,49E+00      | 3,12E-03         | 3,06E-04     | 0,00E+00 | 1,14E-02       | -4,33E+00 |

### Resource use indicators

| Indicator | Unit | Total    | Manufacturing | Distribution | Installation | Use      | End of life | Benefits  |
|-----------|------|----------|---------------|--------------|--------------|----------|-------------|-----------|
| PERE      | MJ   | 2,88E+01 | 2,87E+01      | 1,24E-02     | 2,01E-03     | 0,00E+00 | 1,21E-01    | -2,32E+01 |
| PERM      | MJ   | 1,11E+00 | 1,11E+00      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00  |
| PERT      | MJ   | 2,99E+01 | 2,98E+01      | 1,24E-02     | 2,01E-03     | 0,00E+00 | 1,21E-01    | -2,32E+01 |
| PENRE     | MJ   | 2,79E+02 | 2,76E+02      | 7,87E-01     | 4,82E-02     | 0,00E+00 | 2,12E+00    | -2,14E+02 |
| PENRM     | MJ   | 2,85E+00 | 2,85E+00      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00  |
| PENRT     | MJ   | 2,82E+02 | 2,79E+02      | 7,87E-01     | 4,82E-02     | 0,00E+00 | 2,12E+00    | -2,14E+02 |

## Common base of mandatory indicators

### Use of secondary materials, water, and energy resources

| Indicator | Unit | Total    | Manufacturing | Distribution | Installation | Use      | End of life | Benefits  |
|-----------|------|----------|---------------|--------------|--------------|----------|-------------|-----------|
| 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        | m³   | 1,90E-01 | 1,90E-01      | 1,04E-04     | 1,63E-05     | 0,00E+00 | 4,31E-04    | -1,46E-01 |

### Waste category indicators

| Indicator | Unit | Total    | Manufacturing | Distribution | Installation | Use      | End of life | Benefits  |
|-----------|------|----------|---------------|--------------|--------------|----------|-------------|-----------|
| HWD       | kg   | 2,28E-03 | 2,26E-03      | 5,21E-06     | 3,11E-07     | 0,00E+00 | 1,20E-05    | -1,80E-03 |
| N-HWD     | kg   | 9,26E-01 | 8,15E-01      | 3,47E-02     | 8,67E-03     | 0,00E+00 | 6,77E-02    | -6,32E-01 |
| RWD       | kg   | 5,73E-04 | 5,71E-04      | 2,39E-07     | 4,61E-08     | 0,00E+00 | 1,44E-06    | -4,36E-04 |

### Output flow indicators

| Indicator | Unit | Total    | Manufacturing | Distribution | Installation | Use      | End of life | Benefits |
|-----------|------|----------|---------------|--------------|--------------|----------|-------------|----------|
| CfRu      | kg   | 0,00E+00 | 0,00E+00      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00 |
| MfR       | kg   | 3,08E-01 | 2,15E-01      | 0,00E+00     | 4,05E-02     | 0,00E+00 | 5,23E-02    | 0,00E+00 |
| MfER      | kg   | 0,00E+00 | 0,00E+00      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00 |
| EE        | MJ   | 0,00E+00 | 0,00E+00      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00 |

### Other indicators

| Indicator       |           | Unit    | Total    |
|-----------------|-----------|---------|----------|
| Biogenic Carbon | Product   | kg of C | 0,00E+00 |
|                 | Packaging | kg of C | 3,69E-02 |

# Glossary

## Environmental impact Indicators

|                |                                                                                 |
|----------------|---------------------------------------------------------------------------------|
| GWP-total      | Global Warming Potential total (Climate change)                                 |
| GWP-fossil     | Global Warming Potential fossil                                                 |
| GWP-biogenic   | Global Warming Potential biogenic                                               |
| GWP-luluc      | Global Warming Potential land use and land use change                           |
| ODP            | Depletion potential of the stratospheric ozone layer                            |
| AP             | Acidification potential                                                         |
| EP-freshwater  | Eutrophication potential - freshwater compartment                               |
| EP-marine      | Eutrophication potential - fraction of nutrients reachin marine end compartment |
| EP-terrestrial | Eutrophication potential - Accumulated Exceedance                               |
| POPCD          | Formation potential of tropospheric ozone                                       |
| ADP-m&m        | Abiotic Depletion for non-fossil resources potential                            |
| ADP-fossil     | Abiotic Depletion for fossil resources potential, WDP                           |
| WDP            | Water deprivation potential                                                     |

## Resource indicators

|       |                                                                                                                         |
|-------|-------------------------------------------------------------------------------------------------------------------------|
| PENRE | Use of non-renewable primary energy excluding renewable primary energy resources used as raw material                   |
| PENRM | Use of non-renewable primary energy resources used as raw material                                                      |
| PENRT | Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) |
| PERE  | Use of renewable primary energy excluding non-renewable primary energy resources used as raw material.                  |
| PERM  | Use of renewable primary energy resources used as raw material                                                          |
| PERT  | Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)     |

| Secondary materials, water and energy resources |                                      | Waste category indicators |                              |
|-------------------------------------------------|--------------------------------------|---------------------------|------------------------------|
| SM                                              | Use of secondary materials           | HWD                       | Hazardous waste disposed     |
| RSF                                             | Use of renewable secondary fuels     | N-HWD                     | Non-hazardous waste disposed |
| NRSF                                            | Use of non-renewable secondary fuels | RWD                       | Radioactive waste disposed   |
| FW                                              | Net use of fresh water               |                           |                              |

## Output flow indicators

|      |                               |
|------|-------------------------------|
| CfRu | Components for re-use         |
| MfR  | Materials for recycling       |
| MfER | Materials for energy recovery |
| EE   | Exported Energy               |

## References

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- [1] PCR “PEP-PCR-ed4-EN-2022\_09\_06” - Product Category Rules for Electrical, Electronic and HVAC-R Products (published: 6th September 2022)
  - [2] PSR “PSR-0005-ed2-EN-2016 03 29” - SPECIFIC RULES FOR Electrical switchgear and control gear Solutions (Circuit breakers)
  - [3] EN 50693:2019 - Product category rules for life cycle assessments of electronic and electrical products and systems
  - [4] ISO 14040:2006 - Environmental management -Life cycle assessment - Principles and framework
  - [5] ISO 14044:2006 - Environmental management - Life cycle assessment - Requirements and guidelines
  - [6] ecoinvent v3.8 (2022). ecoinvent database version 3.8 - (<https://ecoinvent.org/>)
  - [7] SimaPro Software version 9.3.0.3 - PRé Sustainability
  - [8] UNI EN 15804:2012+A2:2019: Sustainability of constructions - Environmental product declarations (September 2019)
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  - [10] <https://www.ecosystemspa.com/>
  - [11] LB-DT 17-21D - RoHS II (MCCBs and ACBs)
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  - [14] 1SDL000572R0 Ver 01 - SVHC present in excess of 0.1% (MCCBs and ACBs)