

US/U x.3

PEP ecopassport®

Product Environmental Profile




Registration number:	ABBG-00861-V01.01-EN	Drafting rules:	PCR-ed4-EN-2021 09 06
Contact information:	Pia Denninghoff (pia.denninghoff@de.abb.com) &	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. 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 context of this PEP cannot be compared with the content based on another program/database.

Scan QR code for more information

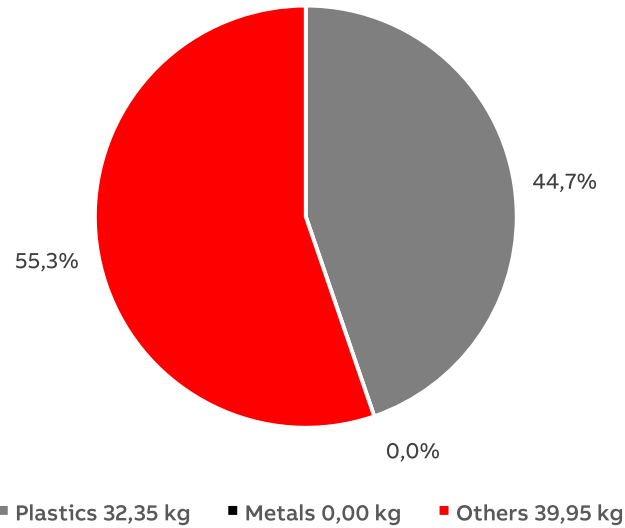


General information

Reference product	2CDG110308R0011 US/U2.3
Description of the product	The Universal Interface has 2 channels which can be parameterised as inputs or outputs, e.g. for connection of conventional push-buttons, auxiliary contacts and LEDs.
Functional unit	The device operates with a rated voltage 20 V and for the reference service life of the product of 10 years.
Other products covered	0
Manufacturing address	Hauptstrasse 14-16, 78132 Hornberg, Baden-Wuerttemberg



Constituent Materials



Total weight of reference product and packaging

72,3

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	37,2			Electronic components	14,7
PA	7,6			Cardboard	15,2
				Paper	25,4



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

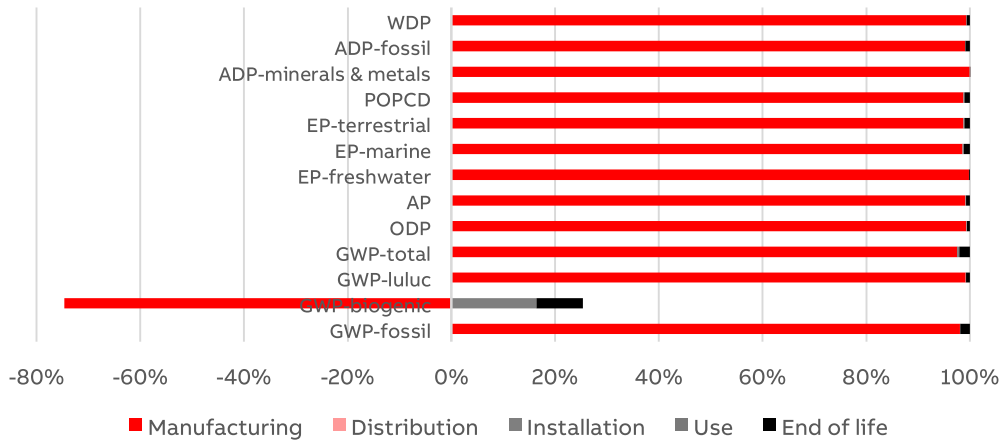
Reference lifetime	20 years
Product category	Other Equipment (3.15)
Installation elements	Installation elements
Use scenario	Global
Geographical representativeness	Global
Technological representativeness	Technological representativeness
Software and database used	SimaPro 9.6.0.1 & Ecoinvent 3.10

Energy model used

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

Common base of mandatory indicators

% Environmental Impact per Life Cycle Stage of Reference Product



Environmental impact indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
GWP	Total	kg CO2 eq. 1,55E+00	1,51E+00	2,54E-05	6,33E-03	0,00E+00	3,18E-02	-8,32E-01
	Fossil	kg CO2 eq. 1,56E+00	1,53E+00	2,54E-05	1,60E-03	0,00E+00	2,92E-02	-8,35E-01
	Biogenic	kg CO2 eq. -1,42E-02	-2,15E-02	1,70E-08	4,73E-03	0,00E+00	2,58E-03	4,40E-03
	Luluc	kg CO2 eq. 1,51E-03	1,50E-03	8,39E-09	5,13E-07	0,00E+00	1,14E-05	-1,28E-03
ODP	kg CFC-11 eq.	3,78E-08	3,75E-08	5,03E-13	3,31E-11	0,00E+00	2,20E-10	-2,79E-08
AP	H+ eq.	8,01E-03	7,94E-03	9,11E-08	8,00E-06	0,00E+00	6,06E-05	-5,38E-03
EP	Freshwater	kg P eq. 1,34E-04	1,33E-04	1,94E-10	2,03E-08	0,00E+00	3,01E-07	-8,95E-05
	Marine	kg N eq. 1,44E-03	1,42E-03	2,92E-08	3,12E-06	0,00E+00	1,74E-05	-9,31E-04
	Terrestrial	mol N eq. 1,63E-02	1,61E-02	3,22E-07	3,35E-05	0,00E+00	1,75E-04	-1,05E-02
POPCD	kg NMVOC eq.	6,22E-03	6,14E-03	1,32E-07	1,21E-05	0,00E+00	6,81E-05	-4,23E-03
ADP	Minerals & metals	kg SB eq. 1,90E-04	1,89E-04	8,03E-11	6,52E-09	0,00E+00	7,96E-08	-1,54E-04
	Fossil	MJ 2,15E+01	2,13E+01	3,56E-04	1,68E-02	0,00E+00	1,87E-01	-1,21E+01
WDP	m³ eq. depr.	3,06E-01	3,04E-01	1,45E-06	1,07E-04	0,00E+00	1,97E-03	-2,20E-01

Resource use indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
PERE	MJ	1,43E+00	1,42E+00	5,78E-06	7,00E-04	0,00E+00	1,01E-02	-1,25E+00
PERM	MJ	4,00E-01	4,00E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,83E+00	1,82E+00	5,78E-06	7,00E-04	0,00E+00	1,01E-02	-1,25E+00
PENRE	MJ	2,05E+01	2,03E+01	3,56E-04	1,68E-02	0,00E+00	1,87E-01	-1,21E+01
PENRM	MJ	9,64E-01	9,64E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,15E+01	2,13E+01	3,56E-04	1,68E-02	0,00E+00	1,87E-01	-1,21E+01

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	m ³	1,41E-02	1,40E-02	4,84E-08	5,68E-06	0,00E+00	6,27E-05	-7,35E-03

Waste category indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
HWD	kg	1,54E-04	1,52E-04	2,39E-09	1,08E-07	0,00E+00	1,53E-06	-1,18E-04
N-HWD	kg	7,05E-02	6,01E-02	1,67E-05	3,03E-03	0,00E+00	7,39E-03	-3,93E-02
RWD	kg	3,98E-05	3,97E-05	1,12E-10	1,61E-08	0,00E+00	1,47E-07	-2,18E-05

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 1,25E-02

Extrapolation Factors

For products other than the Reference product covered by this PEP, the environmental impacts for each phase of the life cycle are obtained by multiplying the values of the Reference product by the extrapolation factors provided in the tables below, with the following formulas:

$$y = a * x0$$

Where:

y is the selected impact category

a is the extrapolation factor from the tables below

x0 is the environmental indicator of the reference product

All stages

Order code	Manufacturing stage	Distribution stage	Installation stage	Use stage	End-of-life stage	Benefits stage
2CDG110308R0011/ US/U2.3	1,00E+00	1,00E+00	1,00E+00	0,00E+00	1,00E+00	1,00E+00
2CDG110309R0011/ US/U4.3	1,02E+00	1,02E+00	1,00E+00	0,00E+00	1,02E+00	1,02E+00
2CDG510023R0011/ BI-F-2.0.2	1,00E+00	1,00E+00	1,00E+00	0,00E+00	1,00E+00	1,00E+00
2CDG510023R0021/ BI-F-2.0.12	1,00E+00	1,00E+00	1,00E+00	0,00E+00	1,00E+00	1,00E+00
2CDG510024R0011/ BI-F-4.0.2	1,02E+00	1,02E+00	1,00E+00	0,00E+00	1,02E+00	1,02E+00
2CDG510024R0021/ BI-F-4.0.12	1,02E+00	1,02E+00	1,00E+00	0,00E+00	1,02E+00	1,02E+00

Extrapolation Factors

Manufacturing stage

Impact category	2CDG11030 8R0011 (reference product)	2CDG1103 09R0011	2CDG5100 23R0011	2CDG51002 3R0021	2CDG51002 4R0011	2CDG51002 4R0021
GWP-total	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-fossil	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-biogenic	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-luluc	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ODP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
AP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-freshwater	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-marine	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-terrestrial	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
POCP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ADP-minerals	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ADP-fossil	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
WDP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERT	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRT	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
SM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
RSF	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
NRSF	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
FW	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
HWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
NHWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
RWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
CRU	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
MFR	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
MER	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
Biogenic C, product	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
Biogenic C, packaging	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00

Extrapolation Factors

Distribution stage

Impact category	2CDG11030 8R0011 (reference product)	2CDG1103 09R0011	2CDG5100 23R0011	2CDG51002 3R0021	2CDG51002 4R0011	2CDG51002 4R0021
GWP-total	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-fossil	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-biogenic	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-luluc	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ODP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
AP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-freshwater	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-marine	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-terrestrial	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
POCP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ADP-minerals	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ADP-fossil	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
WDP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERT	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRT	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
SM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
RSF	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
NRSF	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
FW	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
HWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
NHWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
RWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
CRU	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
MFR	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
MER	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
Biogenic C, product	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
Biogenic C, packaging	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00

Extrapolation Factors

Instalation stage

Impact category	2CDG11030 8R0011(reference product)	2CDG1103 09R0011	2CDG5100 23R0011	2CDG51002 3R0021	2CDG51002 4R0011	2CDG51002 4R0021
GWP-total	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-fossil	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-biogenic	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-luluc	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ODP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
AP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-freshwater	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-marine	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-terrestrial	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
POCP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ADP-minerals	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ADP-fossil	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
WDP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERT	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRT	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
SM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
RSF	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
NRSF	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
FW	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
HWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
NHWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
RWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
CRU	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
MFR	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
MER	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
Biogenic C, product	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
Biogenic C, packaging	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00

Extrapolation Factors

Use stage

Impact category	2CDG11030 8R0011(reference product)	2CDG11030 9R0011	2CDG51002 3R0011	2CDG51002 3R0021	2CDG51002 4R0011	2CDG51002 4R0021
GWP-total	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
GWP-fossil	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
GWP-biogenic	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
GWP-luluc	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
ODP	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
AP	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
EP-freshwater	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
EP-marine	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
EP-terrestrial	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
POCP	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
ADP-minerals	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
ADP-fossil	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
WDP	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
PERE	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
PERM	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
PERT	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
PENRE	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
PENRM	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
PENRT	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
SM	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
RSF	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
NRSF	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
FW	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
HWD	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
NHWD	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
RWD	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
CRU	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
MFR	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
MER	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
EE	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
Biogenic C, product	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00
Biogenic C, packaging	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00	1,00E+00

Extrapolation Factors

EoL stage

Impact category	2CDG11030 8R0011(reference product)	2CDG1103 09R0011	2CDG5100 23R0011	2CDG51002 3R0021	2CDG51002 4R0011	2CDG51002 4R0021
GWP-total	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-fossil	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-biogenic	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-luluc	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ODP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
AP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-freshwater	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-marine	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-terrestrial	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
POCP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ADP-minerals	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ADP-fossil	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
WDP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERT	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRT	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
SM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
RSF	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
NRSF	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
FW	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
HWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
NHWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
RWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
CRU	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
MFR	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
MER	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
Biogenic C, product	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
Biogenic C, packaging	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00

Extrapolation Factors

Benefits stage

Impact category	2CDG11030 8R0011 (reference product)	2CDG1103 09R0011	2CDG5100 23R0011	2CDG51002 3R0021	2CDG51002 4R0011	2CDG51002 4R0021
GWP-total	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-fossil	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-biogenic	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
GWP-Juluc	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ODP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
AP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-freshwater	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-marine	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EP-terrestrial	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
POCP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ADP-minerals	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
ADP-fossil	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
WDP	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PERT	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
PENRT	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
SM	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
RSF	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
NRSF	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
FW	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
HWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
NHWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
RWD	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
CRU	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
MFR	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
MER	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
EE	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
Biogenic C, product	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00
Biogenic C, packaging	1,00E+00	1,02E+00	1,00E+00	1,00E+00	1,02E+00	1,02E+00

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 reaching 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

- [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)
- [9] IEC/TR 62635 - Guidelines for end-of-life information provided by manufacturers and recyclers and for recyclability rate calculation of electrical and electronic equipment - Edition 1.0
- [10] <https://www.ecosystemspa.com/>
- [11] LB-DT 17-21D - RoHS II (MCCBs and ACBs)
- [12] LB-DT 18-21D - REACH (MCCBs and ACBs)
- [13] 1SDL000571R0 Ver 01 - RoHS Exemptions (MCCBs and ACBs)
- [14] 1SDL000572R0 Ver 01 - SVHC present in excess of 0.1% (MCCBs and ACBs)