SOCKET OUTLETS FOR SURFACE MOUNTING

PEP Ecopassport

Product Environmental Profile

Product Environmental Profile - PEP Ecopassport.
Document in compliance with ISO 14025: 2006 "Environmental labels and declarations. Type III environmental declarations"

ORGANIZATION		CONTACT INFORMATION			
ABB Oy Wiring Accessories		ella.helynranta@fi.abb.com			
ADDRESS		WEBSITE			
Porvoon Sisäkehä 2, 06100 Porvoo, Finland		www.abb.com			
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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.

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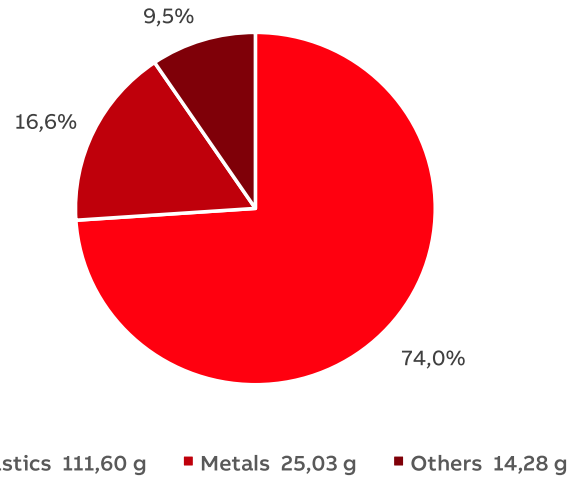
General Information

Reference product	2TKA00001607 - 402EA-84
Description of the product	Surface mounted 2-gang socket outlet. There are terminals for each contact of the socket outlet for max 4 rigid wires. No 2 X-terminals.
Functional unit	Connect/disconnect the plug of a load consuming 16 A maximum under a voltage of 250 V while protecting the user from direct contact with live parts according to the appropriate use scenario with a protection class IP21, and for the reference service life of the product of 20 years.
Other products covered	The PEP covers other similar socket outlets from Jussi, Impressivo and Saga design ranges. The other products covered by the PEP are listed on page 9.

Constituent Materials



Total weight of Reference product with packaging	150,91	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%
Polycarbonate	62,9	**Brass alloy**	14,6	**Carton**	9,5
Polyamide 6 GF20	7,9	**Stainless steel**	1,1	–	x
Polyamide 66 GF30	0,5	**Carbon steel**	0,9	–	x
packaging plastic	2,7	–	x	–	x

The analysed product is 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.

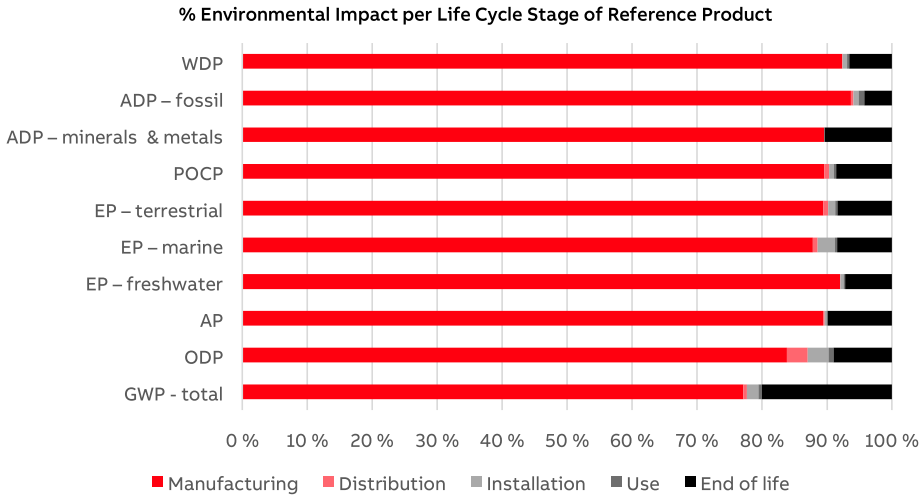
Additional Environmental Information

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. The product is manufactured at an ISO 14000 certified plant.
Distribution	Includes the transportation of the packaged product from the manufacturer's last logistic platform to the distributor.
Installation	Includes the manual installation of the products and the end-of-life of packaging.
Use	The product does not require special maintanence operations.
End of life	Includes the transportation of the product to the final end-of-life treatment site and treatment processes.
Benefits and loads beyond the system boundaries	Prevented impacts of recycling materials.

Environmental Impacts

Reference lifetime	20 years
Product category	Power socket
Installation elements	No additional materials needed
Use scenario	Load rate: 10% of rated current Use rate: 30% of RTL
Geographical representativeness	Main market is the Finnish market, with some products going to Sweden and the rest of Europe
Technological representativeness	The manufactruing processes considered are representative of the products production
Software and database used	Software: SimaPro version 9.4.0.2 Database: ecoinvent 3.8 and Industry data 2.0
Energy model used	
Manufacturing	Finland
Installation	Finland
Use	Finland
End of life	Finland

Common base of mandatory indicators



Environmental impact indicators

Indicator	Unit	Total	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
GWP-total	**kg CO_2 eq.**	1,01E+00	7,76E-01	5,01E-03	1,78E-02	5,21E-03	2,02E-01	-2,13E-01
GWP-fossil	**kg CO_2 eq.**	1,01E+00	7,78E-01	5,00E-03	1,66E-02	5,10E-03	2,01E-01	-2,14E-01
GWP-biogenic	**kg CO_2 eq.**	-1,50E-03	-3,07E-03	3,76E-06	1,14E-03	6,15E-05	3,70E-04	1,59E-03
GWP-luluc	**kg CO_2 eq.**	1,74E-03	1,50E-03	2,06E-06	6,26E-05	4,60E-05	1,29E-04	-3,15E-04
GWP-fossil = Global Warming Potential fossil fuels GWP-biogenic = Global Warming Potential biogenic GWP-luluc = Global Warming Potential land use and land use change								
ODP	**kg CFC-11 eq.**	3,62E-08	3,04E-08	1,15E-09	1,17E-09	2,88E-10	3,25E-09	-7,14E-09
ODP = Depletion potential of the stratospheric ozone layer								
AP	**H+ eq.**	1,25E-02	1,12E-02	2,88E-05	4,16E-05	2,23E-05	1,24E-03	-5,84E-04
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	**kg P eq.**	8,76E-04	8,06E-04	3,13E-07	4,40E-06	1,80E-06	6,33E-05	-3,27E-05
EP-marine	**kg N eq.**	1,11E-03	9,73E-04	8,14E-06	2,91E-05	4,05E-06	9,35E-05	-1,52E-04
EP-terrestrial	**mol N eq.**	1,24E-02	1,11E-02	8,93E-05	1,33E-04	4,23E-05	1,05E-03	-1,46E-03
EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment EP-terrestrial = Eutrophication potential, Accumulated Exceedance								
POCP	**kg NMVOC eq.**	3,52E-03	3,16E-03	2,61E-05	2,75E-05	1,13E-05	3,02E-04	-5,14E-04
POCP = Formation potential of tropospheric ozone								
ADP-minerals & metals	**kg Sb eq.**	2,57E-04	2,30E-04	1,68E-08	6,00E-08	6,42E-08	2,66E-05	-8,39E-07
ADP-fossil	**MJ**	1,78E+01	1,66E+01	7,49E-02	1,40E-01	1,54E-01	7,56E-01	-4,95E+00
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	**m^3 eq. depr.**	5,12E-01	4,73E-01	2,19E-04	3,55E-03	1,78E-03	3,36E-02	-5,61E-02
WDP = Water Deprivation potential								

Common base of mandatory indicators

Inventory flows indicator – Resource use indicators

Indicator	Unit	Total	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
PERE	**MJ**	1,62E+00	1,41E+00	1,03E-03	2,26E-02	3,78E-02	1,54E-01	-2,93E-01
PERM	**MJ**	1,84E-01	1,84E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	**MJ**	1,81E+00	1,59E+00	1,03E-03	2,26E-02	3,78E-02	1,54E-01	-2,93E-01
PENRE	**MJ**	1,42E+01	1,30E+01	7,49E-02	1,40E-01	1,52E-01	7,53E-01	-4,94E+00
PENRM	**MJ**	3,58E+00	3,58E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	**MJ**	1,77E+01	1,66E+01	7,49E-02	1,40E-01	1,52E-01	7,53E-01	-4,94E+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-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
SM	**kg**	1,52E-02	1,52E-02	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**	2,35E-02	2,23E-02	6,21E-06	9,49E-05	9,85E-05	9,66E-04	-6,99E-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-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
Hazardous waste disposed	**kg**	6,73E-05	6,61E-05	1,89E-07	2,06E-07	6,46E-08	7,01E-07	-3,03E-06
Non- hazardous waste disposed	**kg**	2,76E-01	2,74E-01	2,46E-04	1,54E-04	3,15E-05	2,21E-03	-1,12E-01
Radioactive waste disposed	**kg**	1,94E-04	1,86E-04	5,07E-07	3,89E-07	1,62E-06	5,16E-06	-6,62E-05

Common base of mandatory indicators

Indicator	Unit	Total	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	8,07E-02	0,00E+00	0,00E+00	1,53E-02	0,00E+00	6,53E-02	0,00E+00
Materials for energy recovery	kg	7,28E-02	3,45E-03	0,00E+00	2,93E-03	0,00E+00	6,64E-02	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-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
Biogenic carbon content of the product	kg of C	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content of the associated packaging	kg of C	6,43E-03	6,43E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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

Product name	Manu-facturing	Distri-bution	Installation	Use	End of life	Benefits
2TKA00001413	0,76	0,76	1,19	1,00	0,71	0,76
2TKA00001309	0,63	0,63	1,19	0,60	0,55	0,63
2TKA00001415	1,46	1,46	2,05	2,00	1,38	1,46
2TKA00001501	0,54	0,54	2,05	1,00	0,33	0,54
2TKA00002389	1,17	1,17	1,56	1,00	1,12	1,17
2TKA00002391	1,10	1,10	1,83	1,00	1,00	1,10
2TKA00002393	1,60	1,60	1,48	2,00	1,62	1,60
2TKA00002383	0,86	0,86	1,96	1,00	0,71	0,86
2TKA00005057	1,01	1,01	1,61	1,00	0,93	1,01
2TKA00005062	1,17	1,17	1,61	1,00	1,12	1,17
2TKA00001610	1,07	1,07	0,77	1,00	1,12	1,07
2TKA00003941	0,29	0,29	0,07	1,00	0,32	0,29
2TKA000660G1	0,56	0,56	0,61	0,60	0,55	0,56
2TKA000994G1	0,74	0,74	0,98	1,00	0,71	0,74
2TKA001001G1	1,31	1,31	0,77	2,00	1,39	1,31
2TKA003883G1	1,00	1,00	0,77	1,00	1,03	1,00
2TKA00001608	0,94	0,94	1,00	1,00	0,93	0,94
2TKA00001611	1,07	1,07	0,77	1,00	1,12	1,07
2TKA00001613	1,52	1,52	0,77	2,00	1,62	1,52
2TKA00002273	1,24	1,24	1,20	1,00	1,25	1,24
2TKA00003272	1,11	1,11	1,20	1,00	1,10	1,11
2TKA00001029	0,74	0,74	0,98	1,00	0,71	0,74
2TKA00001609	1,00	1,00	1,00	1,00	1,00	1,00
2TKA00001612	1,07	1,07	0,77	1,00	1,12	1,07
2TKA00002274	1,24	1,24	1,20	1,00	1,25	1,24
2TKA00002967	1,00	1,00	1,00	1,00	1,00	1,00
2TKA00002969	0,99	0,99	1,00	1,00	0,99	0,99
2TKA00004442	0,94	0,94	1,00	1,00	0,93	0,94
2TKA00004443	1,07	1,07	0,77	1,00	1,12	1,07
2TKA00001614	1,51	1,51	0,77	2,00	1,62	1,51
2TKA00001615	1,52	1,52	0,77	2,00	1,62	1,52
2TKA00002275	1,24	1,24	1,20	1,00	1,25	1,24
2TKA00004444	1,24	1,24	1,20	1,00	1,25	1,24
2TKA00004462	1,51	1,51	0,77	2,00	1,62	1,51
2TKA00002966	0,99	0,99	1,00	1,00	0,98	0,99
2TKA00002968	0,99	0,99	1,00	1,00	0,99	0,99

Extrapolation Factors

Product name	Manu-facturing	Distri-bution	Installation	Use	End of life	Benefits
2TKA00004825	1,01	1,01	1,00	1,00	1,01	1,01
2TKA00004826	1,24	1,24	0,77	1,00	1,30	1,24
2TKA00004827	1,25	1,25	1,20	1,00	1,25	1,25
2TKA00004834	1,12	1,12	0,77	1,00	1,17	1,12
2TKA00005391	0,56	0,56	0,61	0,60	0,55	0,56
2TKA00005175	0,91	0,91	0,78	1,00	0,93	0,91
2TKA00005216	0,47	0,47	0,61	0,33	0,45	0,47

Environmental Impact Indicator Glossary

Impact indicators

Indicator	Description	Distri-bution
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. GWP-total = GWP-fossil + GWP-biogenic + GWP- land use and land use change	kg CO_2 eq.
Ozone depletion (ODP)	Emissions to air that contribute to the destruction of the stratospheric ozone layer	kg CFC-11 eq.
Acidification of soil and water (A)	Acidification of soils and water caused by the release of certain gases to the atmosphere, such as nitrogen oxides and sulphur oxides	H+ eq.
Eutrophication (E)	Indicator of the contribution to eutrophication of water by the enrichment of the aquatic ecosystem with nutritional elements, e.g. industrial or domestic effluents, agriculture, etc. This indicator is divided to three: freshwater, marine and terrestrial.	kg P eq., kg N eq., mole N eq.
Photochemical ozone creation (POCP)	Indicator of emissions of gases that affect the creation of photochemical ozone in the lower atmosphere (smog) because of the rays of the sun.	kg NMVOC eq.
Depletion of abiotic resources – elements (ADPe)	Indicator of the depletion of natural non-fossil resources	kg Sb eq.
Depletion of abiotic resources – fossil fuels (ADPf)	The use of non-renewable fossil resources in an unsustainable way (e.g. from material to waste)	MJ (lower heating value)
Water Deprivation potential (WDP)	Deprivation-weighted water consumption. Assesses the potential of water deprivation, to either humans or ecosystems, building on the assumption that the less water remaining available per area, the more likely another user will be deprived.	m^3 eq. depr.

Resource use indicators

Indicator	Description	Distri-bution
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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Date of issue: ***09-2024***	Validity period: **5 years**

Independent verification of the declaration and data, in compliance with ISO 14025: 2006

Internal: ○ **External:** ◉

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 or NE E38-500 :2022
The components of the present PEP may not be compared with elements from any other program.

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