FREE@HOME® WIRELESS DIMMING ACTUATORS (PILLS)

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			
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Freisenbergstraße 2, 58513 Lüdenscheid, Germany		https://www.busch-jaeger.de/online-katalog/detail/2CKA006710A0036			
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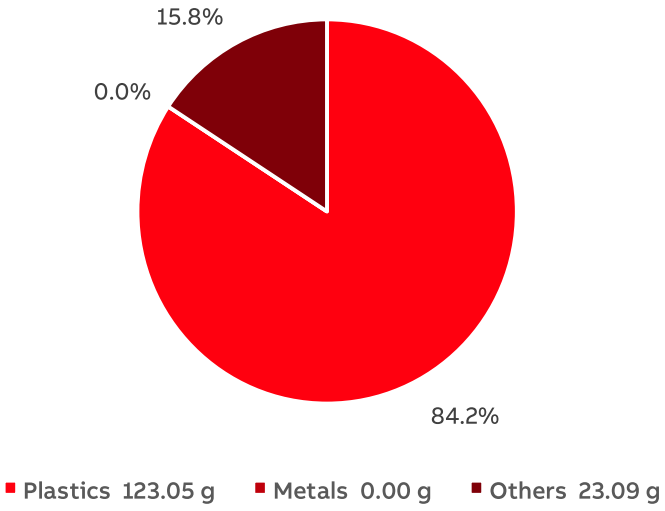
ABB Purpose & Embedding Sustainability

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.

General Information

Reference product	62851 U-WL Dimming Actuator 1gang, FM, WL (2CKA006710A0036)
Description of the product	The eBox Pills are wireless pills for Free@Home residential applications. They are installed in a flush mounted box (VDE) or ceiling box, with gray plastic housing and a printed circuit board. There is a terminal for connection to 230V for power supply and wireless connectivity to the Free@Home system. The conductors are connected with push-in terminals. The dimming actuators are designed for switching and dimming light.
Functional unit	Switching and dimming lights, with rated current 0,78A and rated voltage 230V, with a degree of protection IP20 and for the reference service life of the product of 10 years.
Other products covered	62851 U-WL-500 Dimming Actuator 1gang, FM, WL (2CKA006710A0038), 62851/10 U-WL Dimming Actuator 1gang, FM, WL, x10 (2CKA006710A0037), 62851/10 U-WL-500 Dimming Actuator 1gang, FM, WL, x10 (2CKA006710A0039)

Constituent Materials



Total weight of Reference product with packaging	146.14	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%
PBT 7% glass-fibre	68.4	–	–	**PCBA**	10.3
Polyester	0.7	–	x	**Paper**	5.5
Rubber	15.1	–	x	–	x

All products in this range are in conformity with the provisions of RoHS directive 2011/65/EU, covering 2015/863(EU), REACH regulation No 1907/2006 and national legislation.

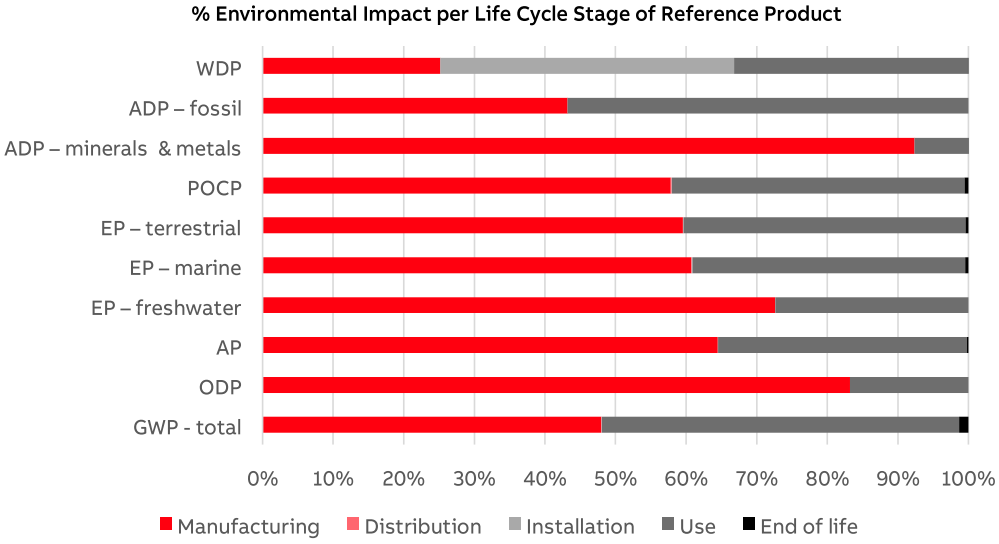
Additional Environmental Information

Manufacturing	The product is produced at and delivered from the Fideltronik manufacturing site in Krakow (Poland). No recycled material content is assumed. The default scenario from the PCR is assumed for intracontinental transport of the components.The manufacturing waste for all materials is included. Electricity is modelled using the Polish residual mix. For transport of waste from the manufacturing site to the treatment facility, the default distance of 100 km by truck is used, in line with the PSR. Specific one-year data from 2023 on manufacturing site level was collected and allocated to the products by economic allocation, following the requirements of ISO 14044.
Distribution	A BJE specific transport scenario is used.
Installation	Installation is done manually with negligible use of energy or other auxiliary materials. Treatment of packaging waste is included in this stage, assuming the European nd International end-of-life scenario's mentioned in chapter 5.1.5.2.1 of the PSR.
Use	The reference product is on stand-by for 100% of the time with an energy consumption of 0,4W. With a reference lifetime of 10 years and 8760 hours per year, this results in a power consumption of 35,04 kWh over the lifetime.
End of life	The standard scenario set in the PCR is considered with parameters listed in Appendix D and a transport distance of 1000 km.
Benefits and loads beyond the system boundaries	Product raw materials were not included here, due to a material recovery rate of 0. For the product packaging, the default (European) end-of-life data from chapter 3.1.5.2.1 of the PSR is used to determine the recycling rates. According to that, cardboard and paper have a recovery rate of 82%, and plastic a recovery rate of 40% which are also included in this stage.

Environmental Impacts

Reference lifetime	10 years
Product category	Other equipment
Installation elements	Not applicable
Use scenario	Active product
Geographical representativeness	Europe + Australia
Technological representativeness	Materials and process data are specific for the production of the eBox Pills.
Software and database used	SimaPro version 10.1.0.5, Ecoinvent version 3.10
Energy model used	
Manufacturing	Electricity, medium voltage {PL}| electricity, medium voltage, residual mix
Installation	A market for electricity from all European countries is included in the datase used to model the recycling of cardboard ("Electricity, medium voltage {DE}| market group for electricity, medium voltage")
Use	Electricity, low voltage {DE}| market for electricity, low voltage Electricity, low voltage {NL}| market for electricity, low voltag Electricity, low voltage {SE}| market for electricity, low voltage Electricity, low voltage {AU}| market for electricity, low voltage Electricity, low voltage {FI}| market for electricity, low voltage Electricity, low voltage {DK}| market for electricity, low voltage
End of life	Not applicable

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.**	2.23E+01	1.07E+01	8.59E-03	9.04E-03	1.13E+01	2.91E-01	-1.08E-02
GWP-fossil	**kg CO_2 eq.**	2.21E+01	1.07E+01	8.59E-03	6.56E-03	1.11E+01	2.74E-01	-1.78E-02
GWP-biogenic	**kg CO_2 eq.**	2.09E-01	2.97E-02	3.41E-07	2.36E-03	1.59E-01	1.78E-02	7.07E-03
GWP-luluc	**kg CO_2 eq.**	3.92E-02	7.28E-03	3.44E-06	1.32E-05	3.19E-02	1.77E-05	-2.66E-05
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.**	2.09E-06	1.74E-06	1.23E-10	1.60E-10	3.50E-07	1.13E-09	-6.72E-09
ODP = Depletion potential of the stratospheric ozone layer								
AP	**H+ eq.**	9.23E-02	5.95E-02	3.99E-05	3.24E-05	3.25E-02	2.18E-04	-9.74E-05
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	**kg P eq.**	1.72E-03	1.25E-03	7.41E-08	5.67E-07	4.70E-04	5.90E-07	-9.20E-07
EP-marine	**kg N eq.**	1.60E-02	9.74E-03	1.20E-05	9.75E-06	6.20E-03	7.22E-05	-1.95E-05
EP-terrestrial	**mol N eq.**	1.88E-01	1.12E-01	1.32E-04	9.23E-05	7.52E-02	7.64E-04	-2.10E-04
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.**	5.57E-02	3.22E-02	4.95E-05	2.11E-05	2.31E-02	2.97E-04	-6.46E-05
POCP = Formation potential of tropospheric ozone								
ADP-minerals & metals	**kg Sb eq.**	2.17E-03	2.00E-03	2.20E-08	2.27E-08	1.65E-04	1.53E-07	-6.54E-08
ADP-fossil	**MJ**	1.62E+02	7.02E+01	1.12E-02	4.28E-02	9.21E+01	6.56E-02	-1.23E-01
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	**m^3 eq. depr.**	7.07E+00	1.78E+00	6.11E-04	2.94E+00	2.34E+00	7.92E-03	-8.53E-03
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**	8.93E+01	8.90E+00	1.56E-03	5.91E-02	8.03E+01	1.36E-02	-2.27E-02
PERM	**MJ**	1.74E-01	1.74E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.43E-01
PERT	**MJ**	8.94E+01	9.07E+00	1.56E-03	5.91E-02	8.03E+01	1.36E-02	-1.65E-01
PENRE	**MJ**	1.53E+02	6.09E+01	1.12E-02	4.28E-02	9.20E+01	6.56E-02	-8.81E-02
PENRM	**MJ**	9.28E+00	9.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.46E-02
PENRT	**MJ**	1.62E+02	7.02E+01	1.12E-02	4.28E-02	9.20E+01	6.56E-02	-1.23E-01

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**	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**	4.20E-01	1.71E-01	1.75E-05	6.85E-02	1.80E-01	2.86E-04	-2.42E-04

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**	2.59E-02	1.09E-02	0.00E+00	0.00E+00	0.00E+00	1.50E-02	0.00E+00
Non- hazardous waste disposed	**kg**	1.76E-01	5.18E-02	0.00E+00	2.22E-03	0.00E+00	1.22E-01	0.00E+00
Radioactive waste disposed	**kg**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Common base of mandatory indicators

Inventory flows indicator – Output flow 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	6.91E-03	0.00E+00	0.00E+00	6.91E-03	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	3.05E-03	0.00E+00	-3.05E-03	0.00E+00	0.00E+00	0.00E+00

Optional indicators

Environmental indicators

Indicator	Unit	Total	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
Total use of primary energy during the life cycle	MJ	2.51E+02	7.93E+01	1.28E-02	1.02E-01	1.72E+02	7.93E-02	-2.88E-01
Emissions of fine particles	incidence of diseases	4.98E-07	3.29E-07	8.04E-10	2.75E-10	1.65E-07	3.24E-09	-1.09E-09
Ionizing radiation, human health	kBq U235 eq.	4.98E-07	2.41E-01	4.06E-05	4.85E-04	1.61E+00	3.47E-04	-6.98E-04
Ecotoxicity (fresh water)	CTUe	4.98E-07	1.44E+02	3.75E-02	1.24E-01	7.32E+01	2.23E+00	-1.48E-01
Human toxicity, car-cinogenic effects	CTUh	4.98E-07	1.66E-08	4.12E-11	1.78E-11	2.84E-08	3.70E-10	-4.96E-11
Human toxicity, non-carcinogenic effects	incidence of diseases	4.98E-07	2.17E-07	9.72E-11	3.57E-10	1.80E-07	1.96E-09	-2.31E-10
Impact related to land use/soil quality		4.98E-07	3.29E+01	1.16E-01	2.25E-01	8.24E+01	3.12E-01	-6.34E-01

Other indicators

Indicator	Unit	Total	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
No Other indicators used								

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
Dimming Actuator 1gang, FM, WL, x10 (2CKA006710A0037)	0.99	0.96	0.23	1.00	1.00	0.23

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: ***05-2025***	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"	