

COVER PLATE ROTARY DIMMER METAL

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			
Busch-Jaeger Elektro GmbH		pia.denninghoff@de.abb.com			
ADDRESS		WEBSITE			
Freisenbergstrasse 2, 58513 Lüdenscheid, Germany		busch-jaeger.com			
STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00489-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.

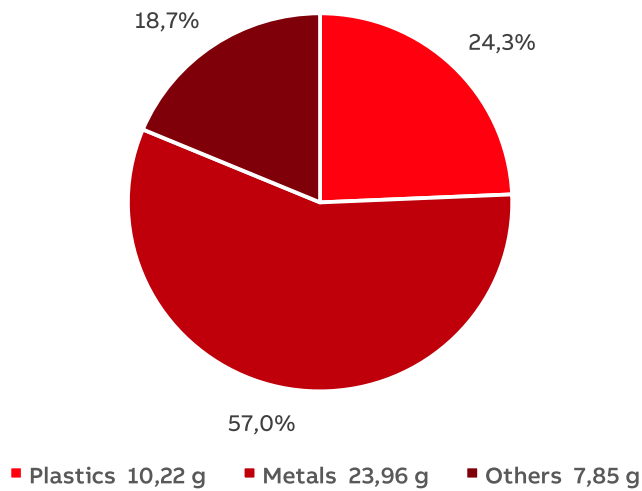


General Information

Reference product	6540-866-102 Cover Plate Rotary Dimmer (2CKA006599A2959)
Description of the product	The metal cover plate for rotary dimmer in stainless steel is designed for the manual control of rotary dimmers or potentiometers that control LED bulbs and luminaires. It is suitable for indoor use without exposure to extreme conditions.
Functional unit	Protecting the user from direct contact with live parts. The product achieves performance levels defined by IEC 60529 (IP20 protection) and IEC 62262 (IK0 resistance) standards over a reference service life of 20 years.
Other products covered	N/A

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00489-V01.01-EN	1	en	2/11

Constituent Materials



Total weight of Reference product

42,039 g - including the product and its packaging
35,439 g - for the reference product only

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%
Plastic - PC	23,3	Metal - Steel	57,0	Carton	13,3
Plastic - PA6	1,0	–	x	PE foil	2,4
–	x	–	x	Electronics	2,4
–	x	–	x	Glue	0,6

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00489-V01.01-EN	1	en	3/11



Additional Environmental Information

Manufacturing	Manufactured by Busch-Jaeger Elektro GmbH, ISO 14001 certified. Plastic items are produced at the factory in Aue, while the production of metal items and final assembly takes place at the factory in Lüdenscheid. The manufacturing phase in the LCA model includes the production of raw materials, items, and packaging, as well as the industrial processes required for production, assembly, and packaging of the reference product. The final assembly is modeled using economic and mass allocation approaches. The electricity mix for production facilities is modeled using custom LCA datasets based on hydropower energy imported from Norway, incorporating energy transformation and transmission losses.
Distribution	Transport between the last group distribution centre and an average delivery point in the sales area. Average packaging weight is 6.6g, consisting of a cardboard box and the PE packaging foil.
Installation	For the installation of the product, only standard tools are needed. The installation stage includes the disposal of the packaging and the transport of packaging material to disposal. During installation, the customer can decide whether the glow lamp will be installed or disposed. According to reference life cycle scenario, glow lamp is mounted at the installation stage. In alternative scenario glow lamp is disposed at the installation stage.
Use	The product with glow lamp has an average power consumption of 16.2 mW, which corresponds to the total energy consumption of 2 838 Wh, calculated according to PSR-0005-ed3.1-EN-2023 12 08. In alternative scenario there is no electricity consumption during use stage.
End of life	The end-of-life stage is modelled according to PCR-ed4-EN-2021 09 06 and PSR-0005-ed3.1-EN-2023 12 08.
Benefits and loads beyond the system boundaries	The Module D formula from the PCR was used to calculate the benefits and loads beyond the system boundaries.

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00489-V01.01-EN	1	en	4/11



Environmental Impacts

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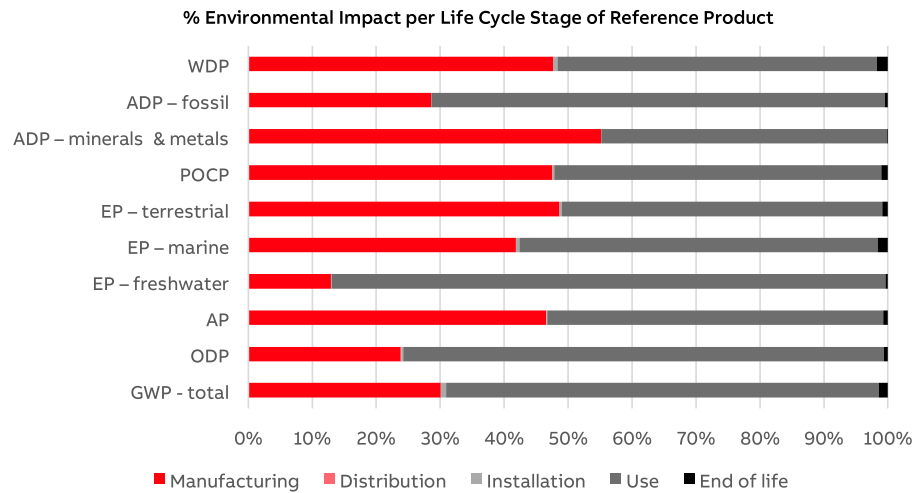
Reference lifetime	20 years
Product category	Other equipments - passive product
Installation elements	No additional elements needed during installation
Use scenario	Reference life time (RLT): 20 years Reference scenario: Load rate = 30%, Use rate = 100% The electricity consumption equals 2 838 Wh for 20 years Alternative scenario: No electricity consumption
Geographical representativeness	Manufacturing: Germany Distribution, Installation, Use and End-of-life: Germany, Netherlands, Rest of Europe
Technological representativeness	Manufacturing of metal cover plate for rotary dimmer representative of the year 2023.
Software and database used	SimaPro 9.6.0.1, ecoinvent 3.10, Industry Data 2.0

Energy model used

Manufacturing	Busch-Jaeger Elektro GmbH energy mix in 2023, specific for both plants. Energy mix in Aue: 90.0% - hydropower energy imported from Norway (confirmed by certificate of origin), 10.0% - local CHP generation. Energy mix in Lüdenscheid: 67.3% - hydropower energy imported from Norway (confirmed by certificate of origin), 21.8% - local solar power generation, 10.9% - local CHP generation.
Installation	No energy consumption occur during the installation stage.
Use	Electricity low voltage, consumption mix at consumer (Germany, Netherlands, Rest of Europe).
End of life	The energy-related processes used for the inputs of the end-of-life stage are those included in the ecoinvent datasets selected for the analysis.

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00489-V01.01-EN	1	en	5/11

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.	1,79E+00	5,38E-01	1,52E-03	1,36E-02	1,21E+00	2,62E-02	-1,17E-01
GWP-fossil	kg CO ₂ eq.	1,70E+00	5,44E-01	1,51E-03	4,44E-03	1,12E+00	2,49E-02	-1,23E-01
GWP-biogenic	kg CO ₂ eq.	9,00E-02	-6,09E-03	4,83E-07	9,10E-03	8,57E-02	1,24E-03	6,38E-03
GWP-luluc	kg CO ₂ eq.	2,33E-03	4,20E-04	8,43E-08	2,80E-05	1,87E-03	1,29E-05	-1,09E-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.	2,77E-08	6,59E-09	3,08E-11	8,44E-11	2,08E-08	1,73E-10	-1,03E-09
ODP = Depletion potential of the stratospheric ozone layer								
AP	H ⁺ eq.	6,26E-03	2,91E-03	1,88E-06	1,29E-05	3,29E-03	4,74E-05	-6,34E-04
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	kg P eq.	1,36E-03	1,75E-04	1,97E-08	1,90E-06	1,17E-03	4,94E-06	-4,27E-05
EP-marine	kg N eq.	1,40E-03	5,87E-04	4,27E-07	7,42E-06	7,85E-04	2,28E-05	-1,22E-04
EP-terrestrial	mol N eq.	1,29E-02	6,29E-03	4,62E-06	4,46E-05	6,47E-03	1,16E-04	-1,28E-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.	4,07E-03	1,93E-03	3,92E-06	1,15E-05	2,08E-03	4,14E-05	-4,10E-04
POCP = Formation potential of tropospheric ozone								
ADP-minerals & metals	kg Sb eq.	3,15E-05	1,74E-05	2,43E-10	1,19E-08	1,41E-05	5,30E-08	-2,43E-06
ADP-fossil	MJ	1,58E+01	4,50E+00	3,51E-04	1,10E-02	1,12E+01	7,74E-02	-8,55E-01
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	m ³ eq. depr.	2,79E-01	1,33E-01	1,94E-05	1,69E-03	1,39E-01	4,82E-03	-3,26E-02
WDP = Water Deprivation potential								

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00489-V01.01-EN	1	en	6/11

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	7,64E+00	1,81E+00	8,95E-05	7,33E-03	5,80E+00	2,18E-02	-3,14E-01
PERM	MJ	1,33E-01	1,33E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-5,91E-02
PERT	MJ	7,78E+00	1,95E+00	8,95E-05	7,33E-03	5,80E+00	2,18E-02	-3,73E-01
PENRE	MJ	2,44E+01	6,47E+00	2,01E-02	4,39E-02	1,77E+01	1,72E-01	-1,40E+00
PENRM	MJ	5,31E-01	5,31E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,92E-02
PENRT	MJ	2,49E+01	7,00E+00	2,01E-02	4,39E-02	1,77E+01	1,72E-01	-1,42E+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	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	1,96E-02	8,46E-03	8,19E-07	5,39E-05	1,10E-02	1,51E-04	-9,70E-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	1,03E-04	2,54E-05	1,35E-07	2,09E-07	6,19E-05	1,56E-05	-5,62E-06
Non- hazardous waste disposed	kg	1,33E-01	4,12E-02	7,63E-06	1,15E-03	7,81E-02	1,26E-02	-9,41E-03
Radioactive waste disposed	kg	8,23E-05	8,85E-06	2,16E-09	7,27E-08	7,27E-05	6,07E-07	-2,46E-06

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00489-V01.01-EN	1	en	7/11

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	6,27E-02	3,85E-02	0,00E+00	4,99E-03	0,00E+00	1,92E-02	0,00E+00
Materials for energy recovery	kg	8,23E-03	2,23E-03	0,00E+00	8,74E-04	0,00E+00	5,12E-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- 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	3,60E-03	3,60E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00489-V01.01-EN	1	en	8/11

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Extrapolation Factors

For alternative product life cycle scenario (glow lamp disposed by customer at the installation stage) impacts for each phase of the lifecycle are obtained by multiplying the values of the reference product by the following coefficients:

Impact category	Total	Manufacturing	Distribution	Installation	Use	End of Life	Module D
GWP-total	0.325	1.000	1.000	1.180	0.000	0.996	1.000
GWP- fossil	0.340			1.548		0.996	
GWP-biogenic	0.047			1.001		1.000	
GWP-luluc	0.198			1.014		0.995	
ODP	0.249			1.277		0.988	
AP	0.476			1.202		0.995	
EP-freshwater	0.135			1.365		0.997	
EP-marine	0.441			1.086		0.998	
EP-terrestrial	0.500			1.136		0.995	
POCP	0.489			1.229		0.992	
ADP-minerals	0.554			1.285		0.999	
ADP-fossil	0.292			1.199		0.997	
WDP	0.501			1.073		0.998	
PERE	0.241			1.087		0.997	
PERM	1.000			1.000		1.000	
PERT	0.254			1.087		0.997	
PENRE	0.275			1.262		0.991	
PENRM	1.000			1.000		1.000	
PENRT	0.291			1.262		0.991	
SM	1.000			1.000		1.000	
RSF	1.000			1.000		1.000	
NRSF	1.000			1.000		1.000	
FW	0.441			1.081		1.000	
HWD	0.259			2.557		0.041	
NHWD	0.408			1.201		0.923	
RWD	0.116			1.215		0.997	
CRU	1.000			1.000		1.000	
MFR	1.000			1.000		1.000	
MER	1.000			1.000		1.000	
EE	1.000			1.000		1.000	

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. 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	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)

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00489-V01.01-EN		1 en	10/11

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Verifier accreditation number: VH08		Information and reference documents: www.pep-ecopassport.org	
Date of issue: 01-2025		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"			

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00489-V01.01-EN	1	en	11/11

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