

FLUSH MOUNTED 1 -10 VOLT POTENTIOMETER INSERTS

PEP ecopassport®

Product Environmental Profile



Registration number:	ABBG-00488-V01.01-EN	Drafting rules:	PCR-ed4-EN-2021 09 06
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Verifier accreditation number:	VH08	Information and reference documents:	www.pep-ecopassport.org
Date of issue:	January-25	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 (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

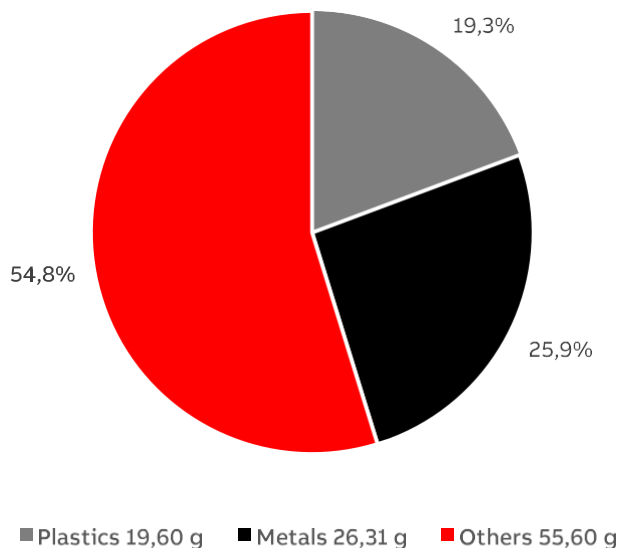


General information

Reference product	2CKA006599A2035 2112 U-101 Electronic Potentiometer FM
Description of the product	With rotary control. For controlling ballast units for fluorescent lamps with control output 1-10 V DC, control current max. 50 mA DC. For LED control via control gears Without cover plate.
Functional unit	Establish, support and interrupt the rated current 4,0 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 20 years.
Other products covered	List of other products covered or a reference to page 9.10.11
Manufacturing address	Busch-Jaeger Elektro GmbH, Freisenbergstraße 2, 58513 Lüdenscheid, Germany



Constituent Materials



Total weight of reference product and packaging

101,51

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%
Polyamide 66 GF30	19,3	Stainless steel	14,9	PCB	15,4
		Steel low-alloyed	1,4	Glue	0,2
		Aluminium band	9,7	Cardboard	30,3
				Paper	8,9

The reference product and other products in this range are 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. Plastics used for the reference product are halogen-free materials (IEC/61249-2-21) and they are also recyclable.



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; as well as the generated wastes during the manufacturing process.
Distribution	Includes the transportation of the packaged product from the manufacturer's last logistic platform to the distributor and then to end users.
Installation	Includes the manual installation of the products and the end-of-life of packaging.
Use	Energy consumption is calculated by following the use scenario of the corresponding PSR: the loss of energy at a 10% of the load rate with a use time rate of 30% during 20 years
End of life	Includes the transportation of the product to the final end-of-life treatment site and 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.

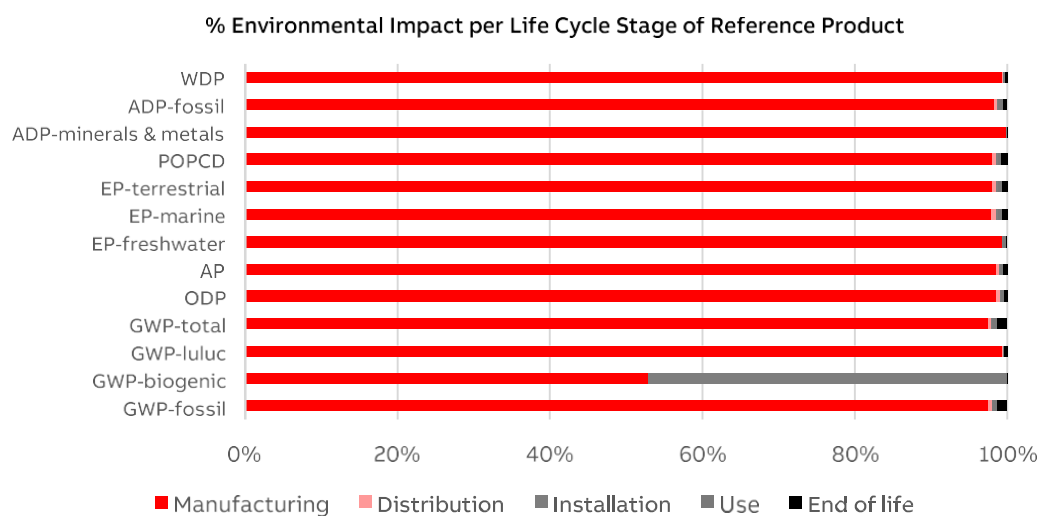


Environmental Impacts

Reference lifetime	20 years
Product category	Switches Wall-mounted section (3.7)
Installation elements	Installation carried out manually. End of life of packaging.
Use scenario	Europe
Geographical representativeness	Europe
Technological representativeness	Technological representativeness
Software and database used	SimaPro 9.6.0.1 & Ecoinvent 3.10

Energy model used	
Manufacturing	Germany Energy Mix at low voltage obtained from IEA data
Installation	Manually done.
Use	Customers' electricity mix at low voltage (DE, NL, AT and CZ).
End of life	Recycling of product and packaging (Europe).

Common base of mandatory indicators



Environmental impact indicators

Indicator		Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
GWP	Total	kg CO2 eq.	3,43E+00	3,34E+00	1,34E-02	8,70E-03	2,31E-02	4,31E-02	-1,47E-01
	Fossil	kg CO2 eq.	3,41E+00	3,33E+00	1,34E-02	3,25E-03	2,31E-02	4,31E-02	-1,46E-01
	Biogenic	kg CO2 eq.	1,16E-02	6,13E-03	2,39E-06	5,45E-03	5,37E-06	7,13E-06	-1,84E-04
	Luluc	kg CO2 eq.	4,96E-03	4,92E-03	4,37E-06	1,08E-06	3,11E-06	2,40E-05	-3,16E-05
ODP		kg CFC-11 eq.	6,27E-08	6,18E-08	2,66E-10	6,68E-11	2,35E-10	2,92E-10	-1,90E-10
AP		H+ eq.	1,45E-02	1,43E-02	4,18E-05	1,51E-05	6,44E-05	8,02E-05	-6,33E-04
EP	Freshwater	kg P eq.	2,51E-04	2,49E-04	1,03E-07	3,66E-08	1,19E-06	2,33E-07	-6,26E-06
	Marine	kg N eq.	2,78E-03	2,72E-03	1,39E-05	9,36E-06	1,32E-05	1,93E-05	-2,33E-04
	Terrestrial	mol N eq.	3,03E-02	2,97E-02	1,53E-04	6,05E-05	1,53E-04	2,10E-04	-1,23E-03
POPCD		kg NMVOC eq.	1,10E-02	1,07E-02	6,55E-05	2,40E-05	4,56E-05	8,48E-05	-3,76E-04
ADP	Minerals & metals	kg SB eq.	2,79E-04	2,79E-04	4,27E-08	1,24E-08	1,28E-07	1,12E-07	-1,19E-07
	Fossil	MJ	4,51E+01	4,44E+01	1,88E-01	3,82E-02	3,17E-01	2,37E-01	-2,28E+00
WDP		m³ eq. depr.	6,39E-01	6,35E-01	7,69E-04	1,92E-04	1,46E-03	1,96E-03	-1,64E-01

Resource use indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
PERE	MJ	2,26E+00	2,22E+00	3,08E-03	1,34E-03	1,51E-02	1,95E-02	-5,98E-02
PERM	MJ	5,23E-01	5,23E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,79E+00	2,75E+00	3,08E-03	1,34E-03	1,51E-02	1,95E-02	-5,98E-02
PENRE	MJ	4,47E+01	4,39E+01	1,88E-01	3,82E-02	3,17E-01	2,37E-01	-2,28E+00
PENRM	MJ	4,24E-01	4,24E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,52E+01	4,44E+01	1,88E-01	3,82E-02	3,17E-01	2,37E-01	-2,28E+00

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	3,93E-02	3,89E-02	2,57E-05	-6,53E-06	2,99E-04	6,13E-05	-3,89E-03

Waste category indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
HWD	kg	2,61E-04	2,58E-04	1,26E-06	2,50E-07	5,76E-07	1,53E-06	-5,96E-07
N-HWD	kg	1,44E-01	1,18E-01	8,91E-03	4,93E-03	8,11E-04	1,08E-02	-1,71E-03
RWD	kg	9,29E-05	9,17E-05	5,98E-08	2,87E-08	7,63E-07	3,05E-07	-8,15E-07

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	2,98E-01	2,15E-01	0,00E+00	3,26E-02	0,00E+00	5,04E-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	1,76E-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:

$y = a \cdot x_0$

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
2CKA006599A2035 / 2112 U-101 Electronic Potentiometer FM	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
2CKA006599A2873 / 2112 U-101-500 Electronic Potentiometer FM	9.84E-01	1.10E+00	1.00E+00	1.05E+00	9.74E-01	9.74E-01

Extrapolation Factors

Manufacturing stage

Impact category	2CKA006599A2035 (reference product)	2CKA006599A2873
GWP-total	1.000	0.984
GWP- fossil	1.000	0.984
GWP-biogenic	1.000	0.984
GWP-luluc	1.000	0.984
ODP	1.000	0.984
AP	1.000	0.984
EP-freshwater	1.000	0.984
EP-marine	1.000	0.984
EP-terrestrial	1.000	0.984
POCP	1.000	0.984
ADP-minerals	1.000	0.984
ADP-fossil	1.000	0.984
WDP	1.000	0.984
PERE	1.000	0.984
PERM	1.000	0.984
PERT	1.000	0.984
PENRE	1.000	0.984
PENRM	1.000	0.984
PENRT	1.000	0.984
SM	1.000	0.984
RSF	1.000	0.984
NRSF	1.000	0.984
FW	1.000	0.984
HWD	1.000	0.984
NHWD	1.000	0.984
RWD	1.000	0.984
CRU	1.000	0.984
MFR	1.000	0.984
MER	1.000	0.984
EE	1.000	0.984
Biogenic C, product	1.000	0.984
Biogenic C, packaging	1.000	0.984

Extrapolation Factors

Distribution stage

Impact category	2CKA006599A2035 (reference product)	2CKA006599A2873
GWP-total	1.000	1.100
GWP- fossil	1.000	1.100
GWP-biogenic	1.000	1.100
GWP-luluc	1.000	1.100
ODP	1.000	1.100
AP	1.000	1.100
EP-freshwater	1.000	1.100
EP-marine	1.000	1.100
EP-terrestrial	1.000	1.100
POCP	1.000	1.100
ADP-minerals	1.000	1.100
ADP-fossil	1.000	1.100
WDP	1.000	1.100
PERE	1.000	1.100
PERM	1.000	1.100
PERT	1.000	1.100
PENRE	1.000	1.100
PENRM	1.000	1.100
PENRT	1.000	1.100
SM	1.000	1.100
RSF	1.000	1.100
NRSF	1.000	1.100
FW	1.000	1.100
HWD	1.000	1.100
NHWD	1.000	1.100
RWD	1.000	1.100
CRU	1.000	1.100
MFR	1.000	1.100
MER	1.000	1.100
EE	1.000	1.100
Biogenic C, product	1.000	1.100
Biogenic C, packaging	1.000	1.100

Extrapolation Factors

Installation stage

Impact category	2CKA006599A2035 (reference product)	2CKA006599A2873
GWP-total	1.000	1.000
GWP- fossil	1.000	1.000
GWP-biogenic	1.000	1.000
GWP-luluc	1.000	1.000
ODP	1.000	1.000
AP	1.000	1.000
EP-freshwater	1.000	1.000
EP-marine	1.000	1.000
EP-terrestrial	1.000	1.000
POCP	1.000	1.000
ADP-minerals	1.000	1.000
ADP-fossil	1.000	1.000
WDP	1.000	1.000
PERE	1.000	1.000
PERM	1.000	1.000
PERT	1.000	1.000
PENRE	1.000	1.000
PENRM	1.000	1.000
PENRT	1.000	1.000
SM	1.000	1.000
RSF	1.000	1.000
NRSF	1.000	1.000
FW	1.000	1.000
HWD	1.000	1.000
NHWD	1.000	1.000
RWD	1.000	1.000
CRU	1.000	1.000
MFR	1.000	1.000
MER	1.000	1.000
EE	1.000	1.000
Biogenic C, product	1.000	1.000
Biogenic C, packaging	1.000	1.000

Extrapolation Factors

Use stage

Impact category	2CKA006599A2035 (reference product)	2CKA006599A2873
GWP-total	1.000	1.000
GWP- fossil	1.000	1.000
GWP-biogenic	1.000	1.000
GWP-luluc	1.000	1.000
ODP	1.000	1.000
AP	1.000	1.000
EP-freshwater	1.000	1.000
EP-marine	1.000	1.000
EP-terrestrial	1.000	1.000
POCP	1.000	1.000
ADP-minerals	1.000	1.000
ADP-fossil	1.000	1.000
WDP	1.000	1.000
PERE	1.000	1.000
PERM	1.000	1.000
PERT	1.000	1.000
PENRE	1.000	1.000
PENRM	1.000	1.000
PENRT	1.000	1.000
SM	1.000	1.000
RSF	1.000	1.000
NRSF	1.000	1.000
FW	1.000	1.000
HWD	1.000	1.000
NHWD	1.000	1.000
RWD	1.000	1.000
CRU	1.000	1.000
MFR	1.000	1.000
MER	1.000	1.000
EE	1.000	1.000
Biogenic C, product	1.000	1.000
Biogenic C, packaging	1.000	1.000

Extrapolation Factors

Use stage

Impact category	2CKA006599A2035 (reference product)	2CKA006599A2873
GWP-total	1.000	0.974
GWP- fossil	1.000	0.974
GWP-biogenic	1.000	0.974
GWP-luluc	1.000	0.974
ODP	1.000	0.974
AP	1.000	0.974
EP-freshwater	1.000	0.974
EP-marine	1.000	0.974
EP-terrestrial	1.000	0.974
POCP	1.000	0.974
ADP-minerals	1.000	0.974
ADP-fossil	1.000	0.974
WDP	1.000	0.974
PERE	1.000	0.974
PERM	1.000	0.974
PERT	1.000	0.974
PENRE	1.000	0.974
PENRM	1.000	0.974
PENRT	1.000	0.974
SM	1.000	0.974
RSF	1.000	0.974
NRSF	1.000	0.974
FW	1.000	0.974
HWD	1.000	0.974
NHWD	1.000	0.974
RWD	1.000	0.974
CRU	1.000	0.974
MFR	1.000	0.974
MER	1.000	0.974
EE	1.000	0.974
Biogenic C, product	1.000	0.974
Biogenic C, packaging	1.000	0.974

Extrapolation Factors

Benefits stage

Impact category	2CKA006599A2035 (reference product)	2CKA006599A2873
GWP-total	1.000	0.974
GWP- fossil	1.000	0.974
GWP-biogenic	1.000	0.974
GWP-luluc	1.000	0.974
ODP	1.000	0.974
AP	1.000	0.974
EP-freshwater	1.000	0.974
EP-marine	1.000	0.974
EP-terrestrial	1.000	0.974
POCP	1.000	0.974
ADP-minerals	1.000	0.974
ADP-fossil	1.000	0.974
WDP	1.000	0.974
PERE	1.000	0.974
PERM	1.000	0.974
PERT	1.000	0.974
PENRE	1.000	0.974
PENRM	1.000	0.974
PENRT	1.000	0.974
SM	1.000	0.974
RSF	1.000	0.974
NRSF	1.000	0.974
FW	1.000	0.974
HWD	1.000	0.974
NHWD	1.000	0.974
RWD	1.000	0.974
CRU	1.000	0.974
MFR	1.000	0.974
MER	1.000	0.974
EE	1.000	0.974
Biogenic C, product	1.000	0.974
Biogenic C, packaging	1.000	0.974

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]
- [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 2012-10
- [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)