PRODUCT ENVIRONMENTAL PROFILE



BMS detectors

Holder of the declaration

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References covered

EP10428210 ; EP10428203 ; EP10428449 ; EP10428432 ; EP10424885

Methodology

This PEP has been produced in compliance with the PCR version PCR-ed4-FR-2021 09 06 and the PSR version PSR-0005-ed3.1-FR-2023 12 08 of the PEP ecopassport program.
For more information, visit the program website www.pep-ecopassport.org

Reference product

Identification of the reference product:
EP10428210 - PD-C 360/24 BMS DALI-2

Product category (PSR-0005-ed3.1):
Family: Other equipment

Functional unit

“Manage the light occupancy of a room by switching on or off a 230 V low voltage electrical circuit, by 360° detection, in accordance with IEC 60669-2-1 standards, for tertiary or similar use over a period of 10 years”

The declared unit studied is identical to the functional unit.

Technical characteristics

Product category	Motion detector
Service life	10 years
Dimensions	Depth: 24 mm, Ø 60 mm
Finish	Round shape; White finition
Power in active mode	1.4 W
Standby power	0.1 W

Materials and substances

All useful measures have been taken to ensure that the materials used in the composition of the product do not contain substances prohibited by the regulations in force when it was placed on the market. The mass of the reference product is 0.154 kg. The mass of the product packaging is 0.164 kg. The constituent materials are:

Plastics	%	**Metals**	%	**Others**	%
PC	20.9%	Steel	11.5%	Paper	50.3%
PEHD	4.7%			Electronical components	11.2%
				Cardboard	1.3%
Total	**25.6%**	**Total**	**11.5%**	**Total**	**62.8%**
Total mass of the reference product: 0.318 kg					

The masses indicated correspond to the masses modeled within the framework of the PEP, and may present slight variations with the masses indicated in the technical documentation of the products, due to the assumptions made for the study.

The different stages of the life cycle

Manufacturing	Manufactured on an production site in Germany. The components come from Germany and China. Raw materials, transportation to the manufacturing site, manufacturing of components/parts, assembly, packaging and treatment of waste generated were considered.
Distribution	The main market is Europe. Thus, the present model incorporates intercontinental transport according to the rules of PEP-PCR-ed4-EN-2021 09 06: • Truck: 3500 km
Installation	The product does not require any special installation procedure and its installation does not require energy. The transport and disposal of the product packaging are counted in this step according to European scenarios in PSR-0005-ed3.1-FR-2023 12 08 rules
Use	The product generates no direct emissions (B1). In addition, no standard repairs (B3, B4) or refurbishments (B5) or maintenance (B2) are planned. Use of the product doesn't consume water (B7). Use of the product consumes electricity (B6) : C = (Pactive x %active + Pstandby x %standby) x Service life C = (1.4 x0.2 + 0.1 *0.8) x 10 x 8766 = 31.6 kWh • Pactive : Power in active mode (W) • Pstandby : Standby power (W) • %active : Percentage of time in active mode • %standby : Percentage of time in standby mode The main market is Europe. The European energy mix has therefore been used here.
End of life	The end-of-life treatment of presence detectors has been modeled with Ecosystem's public ICV modules (called ESR) as recommended by PCR ed 4. ESR data without virgin material substitution benefits were used. ESR data for the "Small Professional Elec. Equip. (Medical & Building & Industry & Research)" were used.

Environmental impacts

The environmental impact assessment covers the following stages of the product life cycle: Manufacturing (A1-A3), Distribution (A4), Installation (A5), Use (B1-B7), End of life (C1-C4) and Benefits and burdens across system boundaries (D).

The calculations were carried out with the OpenLCA software version 2.0.2 associated with the EcoInvent database version 3.9.1. EN15804.

PEP representative of the products covered, installed and marketed in: Europe

Energy models considered for each phase: (Energy mix taken from the year 2023)

Manufacturing (A1 - A3)	Distribution (A4)	Installation (A5)	Use (B1 - B7)	End of life (C1-C4)
Germany	Intercontinental	Europe	Europe	Europe

Environmental impact of the reference product

Mandatory environmental impact indicators

Indicators	Unit	A1-A3	A4	A5	B6	B1-B7	C1-C4	Total (excluding D)	D
Environment: Abiotic depletion potential (elements) | ADPE	kg Sb eq	6,18E-03	6,88E-07	4,74E-08	1,36E-04	1,36E-04	2,76E-09	6,32E-03	-1,99E-05
Environment: Abiotic depletion potential (fossils) | ADPF	MJ (net calorific)	2,05E+02	2,99E+00	1,43E-01	2,61E+02	2,61E+02	0,00E+00	4,69E+02	6,55E-03
Environment: Acidification potential | AP	mol H+ eq	1,11E-01	6,83E-04	4,93E-05	6,50E-02	6,50E-02	1,58E-03	1,78E-01	-7,98E-04
Environment: Eutrophication potential (freshwater) | EPF	kg P eq	2,22E-02	1,47E-05	1,29E-06	1,07E-02	1,07E-02	3,08E-09	3,30E-02	3,05E-07
Environment: Eutrophication potential (marine) | EPM	kg N eq	2,21E-02	2,35E-04	1,99E-05	1,05E-02	1,05E-02	1,14E-06	3,29E-02	-1,16E-06
Environment: Eutrophication potential (terrestrial) | EPT	mol N eq	2,38E-01	2,48E-03	1,93E-04	9,51E-02	9,51E-02	1,47E-04	3,36E-01	-2,44E-04
Environment: Global warming potential (biogenic) | GWPB	kg CO2 eq	-2,00E-02	1,83E-04	-2,02E-02	3,80E-01	3,80E-01	-4,55E-04	3,39E-01	1,15E-01
Environment: Global warming potential (fossil) | GWPF	kg CO2 eq	1,54E+01	2,10E-01	1,20E-02	1,13E+01	1,13E+01	1,97E-01	2,71E+01	-1,11E-01
Environment: Global warming potential (land use) | GWPL	kg CO2 eq	3,31E-02	1,03E-04	4,73E-06	2,84E-02	2,84E-02	0,00E+00	6,16E-02	2,92E-07
Environment: Global warming potential (total) | GWPT	kg CO2 eq	1,54E+01	2,10E-01	-8,19E-03	1,18E+01	1,18E+01	1,97E-01	2,75E+01	3,88E-03
Environment: Ozone depletion potential | ODP	kg CFC-11 eq	9,17E-07	4,56E-09	1,76E-10	2,16E-07	2,16E-07	2,08E-08	1,16E-06	-7,22E-09
Environment: Photochemical ozone creation potential | POCP	kg NMVOC eq	6,68E-02	1,02E-03	7,57E-05	3,05E-02	3,05E-02	1,82E-04	9,86E-02	-1,92E-04
Environment: Water deprivation potential | WDP	m3 world eq	5,83E+00	1,47E-02	7,17E-05	6,26E+00	6,26E+00	0,00E+00	1,21E+01	1,75E-04

Optional environmental impact indicators

Indicators	Unit	A1-A3	A4	A5	B6	B1-B7	C1-C4	Total (excluding D)	D
Environment: Ecotoxicity potential (freshwater) | ETPF	CTUe	4,80E+02	1,47E+00	5,18E-02	4,31E+01	4,31E+01	4,64E-01	5,25E+02	-1,42E-01
Environment: Human toxicity (carcinogenic) | HTC	CTUh	1,45E-08	9,54E-11	6,87E-12	5,64E-09	5,64E-09	8,66E-11	2,04E-08	-3,52E-10
Environment: Human toxicity (non-carcinogenic) | HTNC	CTUh	6,16E-07	2,11E-09	5,78E-11	2,26E-07	2,26E-07	9,69E-09	8,54E-07	-5,61E-09
Environment: Ionising radiation (human health) | IRH	kBq U235 eq	1,91E+00	3,97E-03	4,28E-04	7,17E+00	7,17E+00	9,56E-03	9,10E+00	-2,59E-03
Environment: Land use and land use change | LULUC	dimensionless	2,38E+02	2,09E+00	6,66E-02	6,90E+01	6,90E+01	1,66E-01	3,10E+02	-2,63E-01
Environment: Particulate matter formation | PMF	disease incidence	8,62E-07	1,67E-08	1,12E-09	2,37E-07	2,37E-07	1,07E-08	1,13E-06	-1,22E-08

Resource utilisation indicators

Indicators	Unit	A1-A3	A4	A5	B6	B1-B7	C1-C4	Total (excluding D)	D
Primary energy: Non-renewable (energy use) | PENRE	MJ (PENRE)	1,99E+02	2,73E+00	1,32E-01	2,57E+02	2,57E+02	3,78E-01	4,60E+02	-7,60E-02
Primary energy: Non-renewable (material use) | PENRM	MJ (PENRM)	5,40E+00	2,60E-01	1,15E-02	3,77E+00	3,77E+00	0,00E+00	9,44E+00	1,22E-04
Primary energy: Non-renewable (total) | PENRT	MJ (PENRT)	2,05E+02	2,99E+00	1,43E-01	2,61E+02	2,61E+02	3,78E-01	4,69E+02	-7,59E-02
Primary energy: Renewable (energy use) | PERE	MJ (PERE)	2,48E+01	4,61E-02	4,16E-03	5,61E+01	5,61E+01	0,00E+00	8,10E+01	6,69E-04
Primary energy: Renewable (material use) | PERM	MJ (PERM)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Primary energy: Renewable (total) | PERT	MJ (PERT)	2,48E+01	4,61E-02	4,16E-03	5,61E+01	5,61E+01	0,00E+00	8,10E+01	6,69E-04
Resource: Net use of fresh water | FW	m3(FW)	1,26E-01	3,57E-04	8,48E-06	2,03E-01	2,03E-01	1,17E+00	1,50E+00	-6,30E-01
Resource: Non-renewable secondary fuels | NRSF	MJ (NRSF)	6,24E-01	1,72E-03	1,46E-04	1,94E+00	1,94E+00	0,00E+00	2,56E+00	1,13E-05
Resource: Renewable secondary fuels | RSF	MJ (RSF)	2,75E-01	8,74E-04	1,77E-04	1,92E+00	1,92E+00	0,00E+00	2,19E+00	4,69E-06
Resource: Secondary materials | SM	kg (SM)	8,78E-01	3,24E-03	1,37E-01	3,30E+00	3,30E+00	0,00E+00	4,32E+00	7,99E-05

Waste category indicators

Indicators	Unit	A1-A3	A4	A5	B6	B1-B7*	C1-C4	Total (excluding D)	D
Waste: Hazardous waste disposed | HWD	kg	9,56E-01	2,77E-03	9,54E-05	2,56E-01	2,56E-01	2,31E-01	1,44E+00	-1,74E-03
Waste: Non-hazardous waste disposed | NHWD	kg	4,95E-01	1,42E-01	-9,89E-03	7,81E-01	7,81E-01	2,32E-01	1,36E+00	-2,17E-03
Waste: Radioactive waste disposed | RWD	kg	4,71E-04	9,65E-07	1,08E-07	1,84E-03	1,84E-03	1,25E-05	2,32E-03	-2,95E-06

Output flow indicators

Indicators	Unit	A1-A3	A4	A5	B6	B1-B7	C1-C4	Total (excluding D)	D
Output: Components for reuse | CRU	kg (CRU)	0,00E+00*	0,00E+00	0,00E+00*	0,00E+00*	0,00E+00*	0,00E+00*	0,00E+00*	0,00E+00*
Output: Exported energy (electrical) | EEE	MJ (EEE)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Output: Exported energy (thermal) | EET	MJ (EET)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00*
Output: Materials for energy recovery | MER	kg (MORE)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00*
Output: Materials for recycling | MFR	kg (MFR)	2,62E+00	2,93E-03	3,97E-04	3,21E+00	3,21E+00	0,00E+00	5,83E+00	9,72E-05

* represents less than 0.01% of the impacts on the total life cycle of the reference flow

Biogenic Carbon Inventory Flow

Indicators	Unit	Total
Biogenic carbon content of the product	kg	0
Biogenic Carbon content of associated packaging	kg	6,16E-02*

*According to ADEME: Cardboard contains 28% biogenic carbon. According to APESA/RECORD: Paper contains 37.8% biogenic carbon

Extrapolation factor of homogeneous environmental families

Technical caracteristics	Mass without packaging (kg)	Mass packaging (kg)	Power in active mode (W)	Power in standby mode (W)
EP10428203	0,1301	0,0575	1,40	0,10
EP10428449	0,138	0,047	1,40	0,10
EP10428432	0,133	0,057	1,40	0,10
EP10428885	0,134	0,056	1,40	0,10

To assess the environmental impact of other products covered by the PEP, multiply the impact values by the corresponding factors:

Coefficients Extrapolation	A1-A3	A4	A5	B1-B7	C1-C4	D
EP10428203	0,6	0,6	0,4	1,0	0,8	0,8
EP10428449	0,6	0,6	0,3	1,0	0,9	0,9
EP10428432	0,6	0,6	0,3	1,0	0,9	0,9
EP10428885	0,6	0,6	0,3	1,0	0,9	0,9

Registration number: EL01-00008-V01.02-EN	Editorial rules: “PCR-ed4-FR-2021 09 06” supplemented by “PSR-0005-ed3.1-FR-2023 12 08”
Verifier authorization number: VH52	Information and repositories: www.pep-ecopassport.org
Edition date: 10-2024	Validity period: 5 years
Independent verification of declaration and data in accordance with ISO 14025:2010 Internal ☐ External ☒	
Critical review of the PCR conducted by a panel of experts chaired by Julie ORGELET (DDemain)	
PEPs comply with standards NF C08-100-1:2016 and EN 50693:2019. PEP elements cannot be compared with elements from another program	
Document compliant with standard ISO 14025: 2006 “Environmental markings and declarations. Type III Environmental Declarations »	