PRODUCT ENVIRONMENTAL PROFILE

Flat BMS
PD-FLAT 360/8 SW BMS DALI-2

Holder of the declaration

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PEP directed by
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References covered

EP10423024, EP10423031, EP10423055

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:
PD-FLAT 360/8 SW BMS DALI-2 - EP10423024

Product category (PSR) :
Family: Electrical switchgear and control gear solutions
Sub-family: Other equipments

Functional unit

Detect a 360 ° presence to switch on the lights, for 10 years

Technical characteristics

Rate of uptime in on mode	10 %
Rate of uptime in standby mode	90 %
Detector detection angle	360 °
Power consumption in on mode	0.2 W
Power consumption in standby mode	0.1 W
Detector function	Light switching

Covered References

The environmental data of the Reference Product are representative of the environmental data of the following associated references :

EP10423031, EP10423055

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 0.07 kg. The mass of the product packaging is 0.058 kg.
The constituent materials are:

Plastics	g	%	Metals	g	%	Others	g	%
Polycarbonate	35.94	27.49	Galvanized steel plate (zinc)	20.0	15.3	Cardboard	40.0	30.6
HDPE	1.0	0.8	23MnB4 1.5535	0.72	0.55	Paper	18.0	13.7
LDPE	1.0	0.8				PCBA	14.08	10.7
Total	37.94	29.02	**Total**	21.44	15.85	**Total**	72.08	55.13
Total mass of the reference product : 0.13 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. These masses do not include the packaging materials of the raw materials, which are modeled according to the recommendations of the PCR-ed4-FR-2021 09 06.

Additional environmental information

Manufacturing	Manufactured in a factory in Germany. The components are sourced from Germany, China, and India. The raw materials, transportation to the production site, manufacturing of components and parts, assembly, packaging, and waste disposal were all taken into consideration.
Distribution	The main market is Europe. Distribution has been modeled considering an intracontinentall transport scenario of 3,500 km by truck, as described in PEP-PCR-ed4-FR-2021 09 06.
Installation	The product does not require any specific installation procedure and its installation does not require energy. Transportation and disposal of the product packaging are included in this step, in accordance with the European scenarios of the PSR-0005-ed3.1-FR-2023 12 08 rules.
Use	The product does not generate any direct emissions (B1). Furthermore, no standard repairs (B3, B4), refurbishment (B5), or maintenance (B2) are anticipated. The use of the product does not require water (B7). The use of the product results in electricity consumption (B6): C= (Pactive x %active + Pstandby x %standby) x Lifetime C = (0.2 * 10.0/100 + 0.1 * 90.0/100) * 10.0 * 8766.0/1000 = 9.64 kWh Pactive: Power in active mode (W) Pstandby: Consumption in standby mode (W) % active: Percentage of time in active mode % standby: Percentage of time in standby mode The main market is Europe, so the European energy mix has been used here.
End of life	The end-of-life treatment of presence detectors was modeled using Ecosystem's public ICV modules (referred to as ESR), in accordance with the recommendations of PCR Edition 4. ESR data without virgin material substitution benefits were used. ESR data for "small professional electrical equipment (medical, construction, industry, and 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 3.91 and the Ecosystem database.

Indicator set : Indicators for PEF EF 3.1 (Compliance: PEP ed.4, EN15804+A2) v2.0 PEP

Representative of the products covered, installed and marketed in: Europe Energy models

considered for each phase:

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

Environmental impact of the reference product calculated for the functional unit

This environmental declaration has been developed considering the following functional unit: Detect a 360 ° presence to switch on the lights, for 10 years

Mandatory environmental impact indicators

Indicators	Unit	A1-A3	A4	A5	B1-B7*	C1-C4	Total (excluding D)	D
Environment: Global warming potential (total) | GWPT	kg CO2 eq	6.01E+00	8.45E-02	1.29E-02	3.54E+00	1.32E-01	9.78E+00	-8.92E-02
Environment: Global warming potential (fossil) | GWPF	kg CO2 eq	6.02E+00	8.44E-02	2.50E-03	3.41E+00	1.32E-01	9.65E+00	-9.31E-02
Environment: Global warming potential (biogenic) | GWPB	kg CO2 eq	-2.23E-02	7.38E-05	1.04E-02	1.17E-01	-3.92E-05	1.05E-01	3.85E-03
Environment: Global warming potential (land use) | GWPL	kg CO2 eq	1.22E-02	4.09E-05	6.62E-07	8.51E-03	0	2.08E-02	0
Environment: Ozone depletion potential | ODP	kg CFC-11 eq	3.64E-07	1.83E-09	3.20E-11	6.50E-08	6.20E-09	4.37E-07	-7.29E-09
Environment: Acidification potential | AP	mol H+ eq	4.33E-02	2.75E-04	5.82E-06	1.96E-02	5.86E-04	6.37E-02	-2.34E-03
Environment: Eutrophication potential (freshwater) | EPF	kg P eq	8.71E-03	5.90E-06	1.24E-07	3.23E-03	1.27E-09	1.19E-02	-5.12E-26
Environment: Eutrophication potential (marine) | EPM	kg N eq	8.73E-03	9.46E-05	6.23E-06	3.16E-03	7.94E-07	1.20E-02	-4.92E-06
Environment: Eutrophication potential (terrestrial) | EPT	mol N eq	9.34E-02	9.99E-04	2.25E-05	2.86E-02	1.07E-04	1.23E-01	-7.14E-04
Environment: Photochemical ozone creation potential | POCP	kg NMVOC eq	2.63E-02	4.11E-04	8.58E-06	9.19E-03	5.07E-05	3.59E-02	-2.78E-04
Environment: Abiotic depletion potential (elements) | ADPE	kg Sb eq	2.43E-03	2.77E-07	4.29E-09	4.15E-05	8.04E-10	2.47E-03	-1.36E-04
Environment: Abiotic depletion potential (fossils) | ADPF	MJ (net calorific)	8.00E+01	1.20E+00	1.85E-02	7.90E+01	0	1.60E+02	0
Environment: Water deprivation potential | WDP	m3 world eq	2.27E+00	5.91E-03	4.79E-04	1.96E+00	0	4.24E+00	0

*The detailed results of the module B can be found in the tables located at this end of this section.

Optional environmental impact indicators

Indicators	Unit	A1-A3	A4	A5	B1-B7*	C1-C4	Total (excluding D)	D
Environment: Particulate matter formation | PMF	disease incidence	3.31E-07	6.71E-09	1.09E-10	7.17E-08	3.37E-09	4.13E-07	-1.08E-08
Environment: Ionising radiation (human health) | IRH	kBq U235 eq	7.37E-01	1.60E-03	2.70E-05	2.19E+00	3.26E-03	2.93E+00	-3.17E-03
Environment: Ecotoxicity potential (freshwater) | ETPF	CTUe	1.92E+02	5.90E-01	2.14E-02	1.30E+01	2.58E-01	2.06E+02	-4.29E-01
Environment: Human toxicity (carcinogenic) | HTC	CTUh	5.82E-09	3.84E-11	1.10E-12	1.71E-09	4.01E-11	7.61E-09	-3.90E-10
Environment: Human toxicity (non-carcinogenic) | HTNC	CTUh	2.44E-07	8.48E-10	3.66E-11	6.85E-08	4.13E-09	3.18E-07	-2.57E-08
Environment: Land use and land use change | LULUC	dimensionless	3.35E+01	7.12E-01	1.20E-02	1.51E+01	2.44E-02	4.94E+01	-4.76E-01

*The detailed results of the module B can be found in the tables located at this end of this section.

Resource utilisation indicators

Indicators	Unit	A1-A3	A4	A5	B1-B7*	C1-C4	Total (excluding D)	D
Primary energy: Renewable (energy use) | PERE	MJ (PERE)	9.60E+00	1.86E-02	3.36E-04	1.74E+01	0	2.70E+01	0
Primary energy: Renewable (material use) | PERM	MJ (PERM)	0	0	0	0	0	0	0
Primary energy: Renewable (total) | PERT	MJ (PERT)	9.60E+00	1.86E-02	3.36E-04	1.74E+01	0	2.70E+01	0
Primary energy: Non-renewable (energy use) | PENRE	MJ (PENRE)	7.79E+01	1.10E+00	1.69E-02	7.78E+01	1.70E-01	1.57E+02	-8.00E-02
Primary energy: Non-renewable (material use) | PENRM	MJ (PENRM)	2.15E+00	1.05E-01	1.54E-03	1.13E+00	0	3.39E+00	0
Primary energy: Non-renewable (total) | PENRT	MJ (PENRT)	8.00E+01	1.20E+00	1.85E-02	7.90E+01	1.70E-01	1.60E+02	-8.00E-02
Resource: Secondary materials | SM	kg (SM)	3.22E-01	1.30E-03	2.35E-05	1.02E+00	0	1.34E+00	0
Resource: Renewable secondary fuels | RSF	MJ (RSF)	9.67E-02	3.52E-04	5.39E-06	5.91E-01	0	6.88E-01	0

Indicators	Unit	A1-A3	A4	A5	B1-B7*	C1-C4	Total (excluding D)	D
Resource: Non-renewable secondary fuels | NRSF	MJ (NRSF)	2.44E-01	6.92E-04	1.15E-05	5.86E-01	0	8.30E-01	0
Resource: Net use of fresh water | FW	m3 (FW)	4.78E-02	1.44E-04	7.78E-06	6.27E-02	4.13E-01	5.23E-01	-6.35E-01

*The detailed results of the module B can be found in the tables located at this end of this section.

Waste category indicators

Indicators	Unit	A1-A3	A4	A5	B1-B7*	C1-C4	Total (excluding D)	D
Hazardous waste disposed | HWD	kg (HWD)	-2.83E-01	-1.12E-03	-1.40E-04	-7.73E-02	9.59E-02	-2.66E-01	-6.72E-03
Non-hazardous waste disposed | NHWD	kg (NHWD)	-2.27E-01	-5.74E-02	-6.44E-03	-2.40E-01	9.63E-02	-4.34E-01	-7.04E-03
Radioactive waste disposed | RWD	kg (RWD)	-1.82E-04	-3.89E-07	-6.57E-09	-5.60E-04	4.08E-06	-7.38E-04	-3.33E-06

*The detailed results of the module B can be found in the tables located at this end of this section.

Output flow indicators

Indicators	Unit	A1-A3	A4	A5	B1-B7*	C1-C4	Total (excluding D)	D
Output: Components for reuse | CRU	kg (CRU)	0	0	0	0	0	0	0
Output: Materials for recycling | MFR	kg (MFR)	1.03E+00	1.18E-03	1.90E-05	9.88E-01	0	2.02E+00	0
Output: Materials for energy recovery | MER	kg (MER)	0	0	0	0	0	0	0
Output: Exported energy (electrical) | EEE	MJ (EEE)	0	0	0	0	0	0	0
Output: Exported energy (thermal) | EET	MJ (EET)	0	0	0	0	0	0	0

*The detailed results of the module B can be found in the tables located at this end of this section.

Biogenic Carbon Inventory Flow

Indicators	Unit	Total
Biogenic carbon content of the product	kg of C	0
Biogenic Carbon content of associated packaging	kg of C	1.88E-02

Indicators calculated based on the following values :

Wood : 39.5% (EN16485), Paper : 37.8% (APSESA/RECORD) and Cardboard : 28% (ADEME)

Detailed Module B

Indicators	Unit	B1	B2	B3	B4	B5	B6	B7	Total module B
Environment: Global warming potential (total) | GWPT	kg CO2 eq	0	0	0	0	0	3.54E+00	0	3.54E+00
Environment: Global warming potential (fossil) | GWPF	kg CO2 eq	0	0	0	0	0	3.41E+00	0	3.41E+00
Environment: Global warming potential (biogenic) | GWPB	kg CO2 eq	0	0	0	0	0	1.17E-01	0	1.17E-01
Environment: Global warming potential (land use) | GWPL	kg CO2 eq	0	0	0	0	0	8.51E-03	0	8.51E-03
Environment: Ozone depletion potential | ODP	kg CFC-11 eq	0	0	0	0	0	6.50E-08	0	6.50E-08
Environment: Acidification potential | AP	mol H+ eq	0	0	0	0	0	1.96E-02	0	1.96E-02
Environment: Eutrophication potential (freshwater) | EPF	kg P eq	0	0	0	0	0	3.23E-03	0	3.23E-03
Environment: Eutrophication potential (marine) | EPM	kg N eq	0	0	0	0	0	3.16E-03	0	3.16E-03
Environment: Eutrophication potential (terrestrial) | EPT	mol N eq	0	0	0	0	0	2.86E-02	0	2.86E-02
Environment: Photochemical ozone creation potential | POCP	kg NMVOC eq	0	0	0	0	0	9.19E-03	0	9.19E-03
Environment: Abiotic depletion potential (elements) | ADPE	kg Sb eq	0	0	0	0	0	4.15E-05	0	4.15E-05
Environment: Abiotic depletion potential (fossils) | ADPF	MJ (net calorific)	0	0	0	0	0	7.90E+01	0	7.90E+01
Environment: Water deprivation potential | WDP	m3 world eq	0	0	0	0	0	1.96E+00	0	1.96E+00
Environment: Particulate matter formation | PMF	disease incidence	0	0	0	0	0	7.17E-08	0	7.17E-08
Environment: Ionising radiation (human health) | IRH	kBq U235 eq	0	0	0	0	0	2.19E+00	0	2.19E+00
Environment: Ecotoxicity potential (freshwater) | ETPF	CTUe	0	0	0	0	0	1.30E+01	0	1.30E+01
Environment: Human toxicity (carcinogenic) | HTC	CTUh	0	0	0	0	0	1.71E-09	0	1.71E-09
Environment: Human toxicity (non-carcinogenic) | HTNC	CTUh	0	0	0	0	0	6.85E-08	0	6.85E-08
Environment: Land use and land use change | LULUC	dimensionless	0	0	0	0	0	1.51E+01	0	1.51E+01

Indicators	Unit	B1	B2	B3	B4	B5	B6	B7	Total module B
Primary energy: Renewable (energy use) | PERE	MJ (PERE)	0	0	0	0	0	1.74E+01	0	1.74E+01
Primary energy: Renewable (material use) | PERM	MJ (PERM)	0	0	0	0	0	0	0	0
Primary energy: Renewable (total) | PERT	MJ (PERT)	0	0	0	0	0	1.74E+01	0	1.74E+01
Primary energy: Non-renewable (energy use) | PENRE	MJ (PENRE)	0	0	0	0	0	7.78E+01	0	7.78E+01
Primary energy: Non-renewable (material use) | PENRM	MJ (PENRM)	0	0	0	0	0	1.13E+00	0	1.13E+00
Primary energy: Non-renewable (total) | PENRT	MJ (PENRT)	0	0	0	0	0	7.90E+01	0	7.90E+01
Resource: Secondary materials | SM	kg (SM)	0	0	0	0	0	1.02E+00	0	1.02E+00
Resource: Renewable secondary fuels | RSF	MJ (RSF)	0	0	0	0	0	5.91E-01	0	5.91E-01
Resource: Non-renewable secondary fuels | NRSF	MJ (NRSF)	0	0	0	0	0	5.86E-01	0	5.86E-01
Resource: Net use of fresh water | FW	m3 (FW)	0	0	0	0	0	6.27E-02	0	6.27E-02
Hazardous waste disposed | HWD	kg (HWD)	0	0	0	0	0	-7.73E-02	0	-7.73E-02
Non-hazardous waste disposed | NHWD	kg (NHWD)	0	0	0	0	0	-2.40E-01	0	-2.40E-01
Radioactive waste disposed | RWD	kg (RWD)	0	0	0	0	0	-5.60E-04	0	-5.60E-04
Output: Components for reuse | CRU	kg (CRU)	0	0	0	0	0	0	0	0
Output: Materials for recycling | MFR	kg (MFR)	0	0	0	0	0	9.88E-01	0	9.88E-01
Output: Materials for energy recovery | MER	kg (MER)	0	0	0	0	0	0	0	0
Output: Exported energy (electrical) | EEE	MJ (EEE)	0	0	0	0	0	0	0	0
Output: Exported energy (thermal) | EET	MJ (EET)	0	0	0	0	0	0	0	0

Extrapolation factor of homogeneous environmental families

The extrapolation factors calculated for the use phase are based on the power consumption of the references covered by this PEP, and for all other phases according to their weight.

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

Coefficients d'extrapolation	A1-A3	A4	A5	B1-B7	C1-C4	D
Produit de référence						
EP10423024	1.00	1	1	1	1	1
Produits homogènes						
EP10423031	1.08	1.08	1.08	1.00	1.08	1.08
EP10423055	1.15	1.15	1.15	1.00	1.15	1.15

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Edition date: 08-2025	Validity period: 5 years

Independent verification of declaration and data in accordance with ISO 14025:2006

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 »	