

## Product Environmental Profile

### Modular switches and changeover switches



#### Company information

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#### References covered

Modular switches and changeover switches 1, 2, 3 and 4 poles from 16 to 125A (SBBXXX; SBMXXX; SBNXXXXX; SBRXXX; SBTXXX; SFXXX; SFHXXX; SFLXXX; SFTXXX; SFMXXX)

#### Methodology

PEP has been performed according to the PCR version PEP-PCR-ed3-2015 04 02 and PSR version PSR-0005-ed2-2016 03 29 issued by the PEP ecopassport program. □

For further information, please see the website of the program [www.pep-ecopassport.org](http://www.pep-ecopassport.org)

## Reference product

### Reference product identification

Modular Switch 4P 25A (SBN426)

## Functional unit

Establish, support and interrupt for 20 years rated currents in normal conditions of circuit characterized by the current 25A for the operating voltage 400V.

The functional unit is based on the use scenario recommended by the PCR for the category of the reference product.

## Materials and substances

All useful measures have been adopted to ensure that the materials used in the composition of the product do not contain any substances banned by the legislation in force at the time of marketing.

Plastics			Metals			Others		
	g	%		g	%		g	%
PA 6	84.50	28.84%	Steel	76.31	26.04%	Glass fiber	30.98	10.57%
PBT	12.31	4.20%	Stainless steel	30.61	10.45%	Cardboard	30.68	10.47%
PC	1.41	0.48%	Copper	6.03	2.06%	Flame retardants	14.77	5.04%
PA 66	0.77	0.26%	Aluminium	2.52	0.86%	Other	0.15	0.05%
EPDM	0.53	0.18%	Other	1.09	0.37%			
Total mass of reference product :				293.00 g				

## Manufacturing

These products are manufactured by a site that has received an environmental certification ISO 14001.

## Distribution

The packaging has been designed in accordance with current regulations. In particular, the European directive 94/62/CE relative to packaging and packaging waste.

The used packaging is 100% recyclable or recoverable.

Packaging and logistic flows are continuously improved in order to reduce their impact.

## Installation

### Installation processes

The processes to install the product are not considered in this study because of their weak impact compared to the other life cycles steps.

### Installation elements (non delivered with the product)

Elements non delivered with the product and needed to install the product are not considered.

## Use

For the considered scenario, the product has an average power of 1.175 W in active mode during 30% of the time. This corresponds to a total energy consumption of 61.758 kWh for the use span of 20 years.

### Energy model of the use phase :

Europe

### Consumables and maintenance :

None

## End of life

Considering the complexity and the lack of knowledge of the electric and electronic recycling channel and processes, the standard scenario set in the PCR is considered.

The recycling potential of the product is: 9%. The calculation of this rate is based on the method of the IEC/TR 62635.

## Environmental impacts

Evaluation of the environmental impact covers the following life cycle stages: raw materials + manufacturing (RMM), distribution (D), installation (I), use (U) and end of life (EoL).

All calculations are done with EIME software version 5.7.0.3 with the database version HAGER 2014 V1 .

### Environmental impact indicators

Indicators	Unit	Manufacturing RMM	Distribution D	Installation I	Use U	End Of Life EoL	GLOBAL
Global Warming	kg CO <sub>2</sub> eq.	1.54E+00	5.10E-02	1.37E-03	3.65E+01	3.25E-02	3.81E+01
Ozone Depletion	kg CFC-11 eq.	1.97E-07	1.03E-10	9.32E-12	8.86E-06	8.31E-10	9.06E-06
Acidification of soil and water	kg SO <sub>2</sub> eq.	4.37E-03	2.29E-04	6.70E-06	2.76E-01	1.24E-04	2.80E-01
Eutrophication	kg PO <sub>4</sub> <sup>3-</sup> eq.	1.22E-03	5.27E-05	7.22E-06	1.03E-02	1.41E-04	1.18E-02
Photochemical Ozone Creation	kg C <sub>2</sub> H <sub>4</sub> eq.	3.78E-04	1.63E-05	4.72E-07	1.30E-02	9.66E-06	1.34E-02
Depletion of abiotic resources - elements	kg Sb eq.	1.02E-03	2.04E-09	5.94E-11	1.66E-06	2.09E-09	1.02E-03
Depletion of abiotic resources – fossil fuels	MJ	1.98E+01	7.17E-01	1.90E-02	3.76E+02	4.64E-01	3.97E+02
Water Pollution	m <sup>3</sup>	4.59E+01	8.39E+00	2.11E-01	1.53E+03	3.67E+00	1.59E+03
Air Pollution	m <sup>3</sup>	1.27E+02	2.09E+00	1.73E-01	1.56E+03	3.86E+00	1.70E+03

### Resource use indicators

Indicators	Unit	Manufacturing RMM	Distribution D	Installation I	Use U	End Of Life EoL	GLOBAL
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	6.10E-01	9.62E-04	2.15E-04	5.29E+01	8.92E-03	5.35E+01
Use of renewable primary energy resources as raw materials	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	6.10E-01	9.62E-04	2.15E-04	5.29E+01	8.92E-03	5.35E+01
Use of non-renewable primary energy, excluding non renewable primary energy resources used as raw materials	MJ	1.70E+01	6.83E-01	1.78E-02	5.76E+02	3.36E-01	5.94E+02
Use of non-renewable primary energy resources as raw materials	MJ	9.42E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.42E-02
Total use of non renewable primary energy resources	MJ	1.71E+01	6.83E-01	1.78E-02	5.76E+02	3.36E-01	5.94E+02
Total use of primary energy	MJ	1.77E+01	6.84E-01	1.80E-02	6.29E+02	3.45E-01	6.48E+02
Use of secondary materials	kg	3.53E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.53E-01
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net fresh water use	m <sup>3</sup>	1.97E-02	4.57E-06	4.27E-07	9.51E-02	2.86E-05	1.15E-01

## Waste category indicators

Indicators	Unit	Manufacturing RMM	Distribution D	Installation I	Use U	End Of Life EoL	GLOBAL
Hazardous waste disposed	kg	1.05E-01	0.00E+00	4.99E-06	0.00E+00	1.44E-04	1.05E-01
Non-hazardous waste disposed	kg	3.39E-01	1.81E-03	2.26E-02	1.36E+02	3.03E-01	1.37E+02
Radioactive waste disposed	kg	1.90E-03	1.29E-06	1.16E-07	1.11E-01	1.04E-05	1.13E-01

## Output flow indicators

Indicators	Unit	Manufacturing RMM	Distribution D	Installation I	Use U	End Of Life EoL	GLOBAL
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	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
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00


To evaluate the environmental impact of another product covered by this PEP, multiply the environmental impact figures by the corresponding factors:

	SBN116X	SBN125X	SBN132X	SBN133X	SBN140X	SBN141N	SBN163X	SBN164X	SBN180X	SBN216X	SBN225X	SBN232X	SBN233X	SBN240X	SBN241N	SBN263X	SBN264X	SBN280X
Factor for M, D, I and EoL phases	0.2	0.2	0.2	0.3	0.3		0.3	0.3	0.2	0.2	0.2	0.5		0.5		0.5		0.6
Factor for Use phase	0.1	0.2	0.3	0.3	0.2		0.5	0.6	0.2	0.4	0.6	0.5		0.5		1.0		1.1

	SBN316X	SBN325X	SBN332X	SBN333X	SBN340X	SBN341N	SBN363X	SBN364X	SBN380X	SBN416X	SBN417QC	SBN425X	SBN426X	SBN432X	SBN433X	SBN440X	SBN441N	SBN463X	SBN464X	SBN480X	SBN490X	SBN499X
Factor for M, D, I and EoL phases	0.4	0.4	0.4	0.8	0.8		0.8	0.8	0.5	0.5	0.5	1.0	0.5	1.0	1.0	1.0		1.0	1.1	1.1	1.1	1.1
Factor for Use phase	0.3	0.6	1.0	0.8	0.7		1.5	1.7	0.3	0.9	0.8	1.0	1.3	1.0	0.9		2.0	2.3	4.7	6.8		

	SFT125X	SFM125X	SFT132X	SFM132X	SFT140X	SFT225X	SFT232X	SFT240X	SFT340X	SFT440X
Factor for M, D, I and EoL phases	0.2		0.2		0.2	0.5	0.5	0.5	0.7	0.9
Factor for Use phase	0.2		0.3		0.4	0.4	0.6	0.9	1.3	1.8

## Verification

Registration N°: HAGE-00169-V01.01-EN	Drafting Rules PEP-PCR-ed3-2015 04 02
	Supplemented by PSR-0005-ed2-2016 03 29
Verifier accreditation N°: VH03	Information and reference documents: <a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a>
Date of issue: 08-2018	Validity period: 5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2010	
Internal ● External ○	
The PCR review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN) <input type="checkbox"/>	
PEP are compliant with XP C08-100-1:2014	
The elements of the present PEP cannot be compared with elements from another program	
Document in compliance with ISO 14025 : 2010 « Environmental labels and declarations. Type III environmental declarations »	
	

### Nota :

The picture has no contractual value.

All numerical values indicated in this document may vary and depend of many factors such as the tolerance related to materials, the usage and environment conditions of the products, installation characteristics ... , real values for a product in a concrete application may therefore change.

The usage time mentioned in this document is an average duration chosen for the need of the calculations. This value cannot be assimilated to the minimum, average or real life time.

The responsibility of the company, issuing this document, can never be engaged if differences would be noticed between the values given by this document and real ones, whatever the causes and/or consequences would be.