

## Product Environmental Profile

### RCBO 1P+N from 2 to 40A, 30mA



#### Company information

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#### References covered

RCBO 1P+N, B and C curves, 30mA, A, AC,A-G and HI classes

#### Methodology

PEP has been performed according to the PCR version PEP-PCR-ed 2.1-FR-2012 12 11 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

RCBO 1P+N, C curve, 13A, 30mA, A class, quickconnect (ADS913D)

## Functional unit

Protect for 20 years an installation against overload and short circuits and protect persons and buildings presenting risks of fire or explosion against insulation faults in a circuit crossed by a current of 230V and 13A. The protection is ensured respecting the following parameters:

- number of poles 2
- interrupting capacity 6kA
- curve C
- sensitivity 30mA
- class A

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 66	37.07	16.76%	Steel	45.95	20.77%	Talcum	17.96	8.12%
PA 66	4.27	1.93%	Copper	32.35	14.62%	Cardboard	12.68	5.73%
PC	0.40	0.18%	Iron	8.02	3.62%	Other	34.85	15.75%
Epoxy resin	0.21	0.10%	Stainless steel	7.97	3.60%			
PET	0.12	0.05%	Other	19.38	8.76%			
<b>Total mass of reference product :</b>				<b>219.54 g</b>				

### RoHS

All our products comply, on voluntary basis, with the restrictions on substances specified in the RoHS directive.

### REACH

At the date of PEP release, the product doesn't contain, as far as we know, any substances from the candidate list for authorisation from the REACH regulation with a concentration above 0,1% w/w.

## 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: 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 0.340 W in active mode during 30% of the time. This corresponds to a total energy consumption of 17.870 kWh for the use span of 20 years.

### Energy model of the use phase :

Electricity Mix 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, we considered only a 1000 km transport of the product at end of life, as recommended by the PCR.

The recycling potential of the product is: 16%. The calculation of this rate is based on the Eco'DEEE method developed by CODDE BUREAU VERITAS.

## Environmental impacts

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

All calculations are done with EIME software version 5.5.0.8 with the database version HAGER 2014 V1 .

Extrapolation rules for the covered references:

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

### ADS9XXD

Current rate (A)	2	6	10	13	16	20	25	32	40
Use	0.41	0.57	1.00	1.12	1.54	1.96	2.76	2.46	3.29

AD5XXX,AD6XXX,AD7XXX,AD8XXX,AD9XXX,ADA5XXX,ADA8XXX,ADA9XXD,ADA9XXG,ADA9XXH,ADA9XXU,ADCXXXX,ADGXXXX,ADHXXXX,ADIXXXX,QTQXXXX,QTWXXXX

Current rate (A)	2	6	10	13	16	20	25	32	40
RMM	Air toxicity 0.82								
	Raw material depletion 1.60								
D/EoL	1.08								
U	0.41	0.57	1.00	1.12	1.54	1.96	2.76	2.46	3.29

### ADA9XXC et ADH9XXC

Current rate (A)	2	6	10	13	16	20	25	32	40
RMM	Air toxicity 0.89								
	Ozone depletion potential 1.11								
	Raw material depletion 1.29								
D/EoL	1.05								
U	0.41	0.57	1.00	1.12	1.54	1.96	2.76	2.46	3.29

### ADS9XXC

Current rate (A)	2	6	10	13	16	20	25	32	40
RMM	Air toxicity 0.89								
	Ozone depletion potential 1.13								
	Raw material depletion 1.27								
U	0.41	0.57	1.00	1.12	1.54	1.96	2.76	2.46	3.29

Indicators	Unit	Manufacturing RMM	Distribution D	Installation I	Use U	End Of Life EoL	GLOBAL
Air Acidification	kg H+ eq	2.1953E-04	2.0371E-06	0.0000E+00	2.2796E-03	1.9174E-06	2.5031E-03
Air toxicity	m³	3.4686E+05	3.0278E+03	0.0000E+00	2.6440E+06	2.8499E+03	2.9968E+06
Energy Depletion	MJ	2.2009E+01	1.5451E-01	0.0000E+00	2.1376E+02	1.4544E-01	2.3606E+02
Global Warming Potential	kg CO <sub>2</sub> eq.	1.2262E+00	1.0954E-02	0.0000E+00	1.0559E+01	1.0311E-02	1.1806E+01
Hazardous Waste Production	kg	2.4067E-02	1.3572E-08	0.0000E+00	1.8114E-03	1.2774E-08	2.5878E-02
Ozone Depletion Potential	kg CFC-11 eq.	1.4479E-07	2.0776E-11	0.0000E+00	2.4055E-06	1.9555E-11	2.5503E-06
Photochemical Ozone Creation	kg C <sub>2</sub> H <sub>4</sub> eq.	4.7626E-04	2.4444E-06	0.0000E+00	6.5242E-04	2.3008E-06	1.1334E-03
Raw Material Depletion	Y-1	5.9843E-14	2.2408E-19	0.0000E+00	1.4242E-16	2.1091E-19	5.9986E-14
Water Depletion	dm3	2.9798E+01	1.1385E-03	0.0000E+00	2.7523E+01	1.0716E-03	5.7323E+01
Water Eutrophication	kg PO <sub>4</sub> <sup>3-</sup> eq.	3.7517E-04	2.0373E-08	0.0000E+00	1.0037E-04	1.9176E-08	4.7558E-04
Water Toxicity	m³	3.8689E-01	4.6869E-03	0.0000E+00	4.7008E+00	4.4115E-03	5.0968E+00

## Verification

Registration N°: HAGE-2015-035-V1-EN	Applicable PCR: PEP-PCR-ed 2.1-FR-2012 12 11
Verifier accreditation N°: VH03	Information and reference documents: www.pep-ecopassport.org
Date of publication: 07/01/2016	Period of validity: 4 years
Independent verification of the declaration and data, according to NF EN ISO 14025:2010	
Internal <input checked="" type="radio"/> External <input type="radio"/>	
In compliance with NF EN ISO 14025:2010 standard type III environmental declarations	
PCR review was conducted by an expert panel chaired by J. Chevalier(CSTB)	
The elements of the actual PEP cannot be compared with elements from another program	



### 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.