Product Environmental Profile

Modular DIN rail Solid State Relay

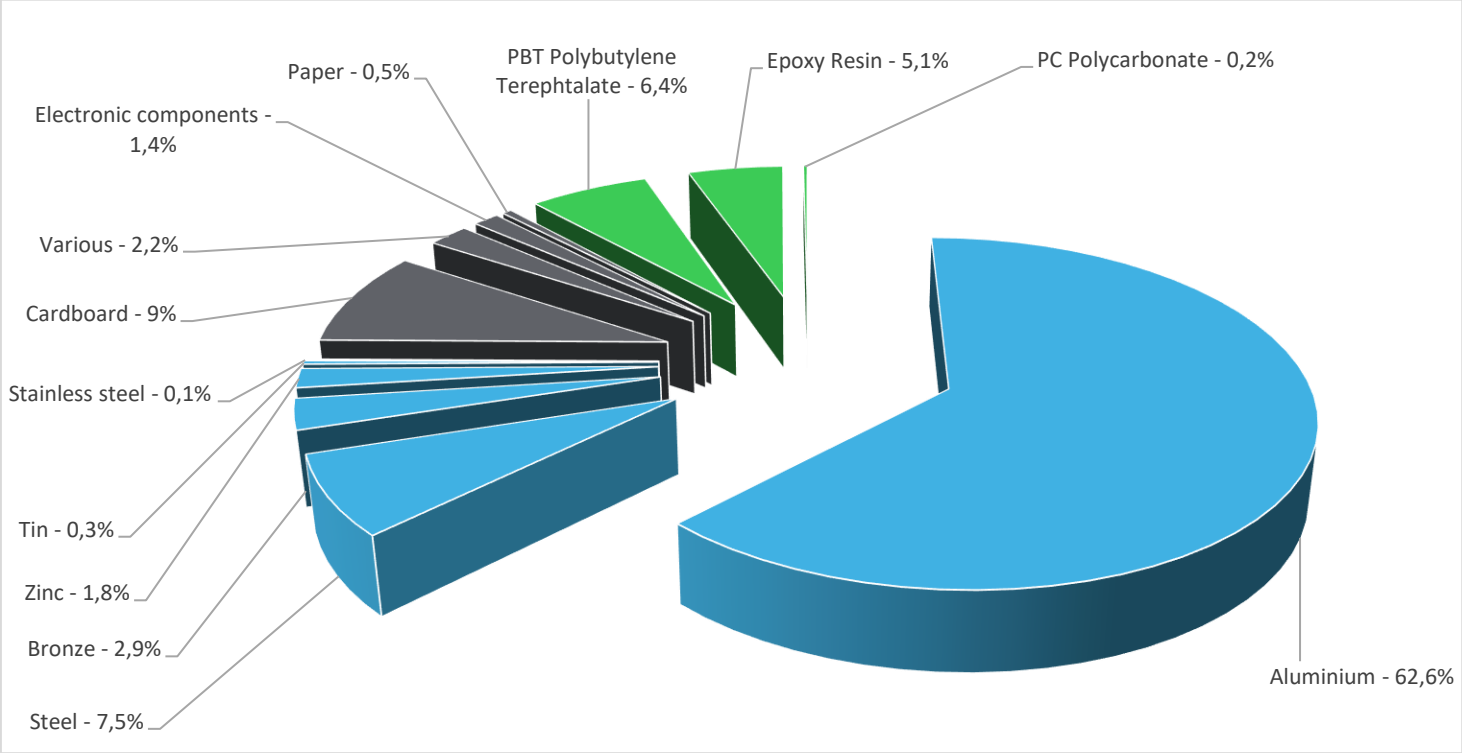
Harmony Relay

General information

Representative product	Modular DIN rail Solid State Relay - SSM1A455BD
Description of the product	Modular DIN rail Solid State Relay products are compact and offer greater power density.The main purpose is to serve as an electronic switching device, in which a small control signal controls a larger load of current or voltage. It employs semiconductor switching elements and has no movable contacts.
Description of the range	Modular Din Rail solid state relays are with compact design offering greater power density, the modular IP 20 housing design and built-in heat sink offer optimized operating solutions. The range comprises: 1, SSM1: Single-phase SSR relays with 20, 30, 45, and 55 A rating, 2, SSM3: Three-phase SSR relays with 25 A rating, 3, SSD1: Single-phase SSR relays with 20, 35, 45, and 60 A rating. The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with a similar technology.
Functional unit	To switch ON/OFF electronic contact during 10 years at a 50% use rate.

Constituent materials

Reference product mass	530 g	including the product, its packaging and additional elements and accessories



	Plastics	11,7%
	Metals	75,2%
	Others	13,1%

Substance assessment

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2011/65/EU of 8 June 2011) and do not contain, or only contain in the authorised proportions, lead, mercury, cadmium, hexavalent chromium or flame retardants (polybrominated biphenyls - PBB, polybrominated diphenyl ethers - PBDE) as mentioned in the Directive

As the products of the range are designed in accordance with the RoHS Directive (European Directive 2002/95/EC of 27 January 2003), they can be incorporated without any restriction in an assembly or an installation subject to this Directive.

Details of ROHS and REACH substances information are available on the Schneider-Electric Green Premium website
http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page

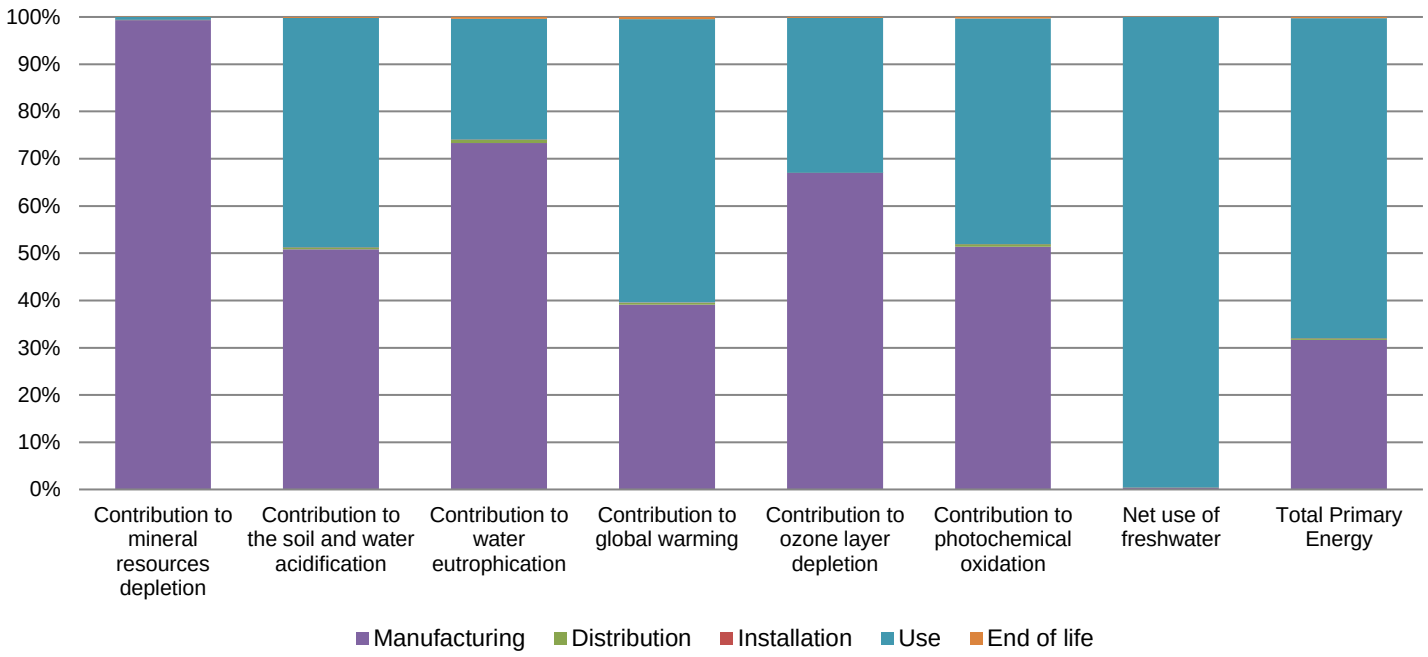
Additional environmental information

The Modular DIN rail Solid State Relay presents the following relevent environmental aspects	
Manufacturing	Manufactured at a production site complying with the regulations
Distribution	Weight and volume of the packaging optimized, based on the European Union's packaging directive Packaging weight is 50,4 g, consisting of Cardboard (94.6%), Paper(5.4%) Packaging recycled materials is 100% of total packaging mass.
Installation	SSM1A455BD does not require any installation operations.
Use	The product does not require special maintenance operations.
End of life	End of life optimized to decrease the amount of waste and allow recovery of the product components and materials This product contains PCBA assembly(7.69g) that should be separated from the stream of waste so as to optimize end-of-life treatment. The location of these components and other recommendations are given in the End of Life Instruction document which is available on the Schneider-Electric Green Premium website http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page Recyclability potential: **75%** Based on “ECO’DEEE recyclability and recoverability calculation method” (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME).

Environmental impacts

Reference life time	10 years			
Product category	Other equipments - Active product			
Installation elements	No special components needed			
Use scenario	The product is in active mode with a power use of 0.45 W for 10 years at a 50% use rate.			
Geographical representativeness	Europe			
Technological representativeness	Modular DIN rail Solid State Relay products are compact and offer greater power density.The main purpose is to serve as an electronic switching device, in which a small control signal controls a larger load of current or voltage. It employs semiconductor switching elements and has no movable contacts.			
Energy model used	**Manufacturing**	**Installation**	**Use**	**End of life**
	Energy model used: Mexico	Electricity grid mix; AC; consumption mix, at consumer; < 1kV; EU-27	Electricity grid mix; AC; consumption mix, at consumer; < 1kV; EU-27	Electricity grid mix; AC; consumption mix, at consumer; < 1kV; EU-27

Compulsory indicators	Modular DIN rail Solid State Relay - SSM1A455BD						
Impact indicators	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to mineral resources depletion	kg Sb eq	1,33E-04	1,33E-04	0*	0*	8,39E-07	0*
Contribution to the soil and water acidification	kg SO_2 eq	8,29E-02	4,22E-02	3,12E-04	1,14E-05	4,03E-02	1,45E-04
Contribution to water eutrophication	kg PO_4^{3-} eq	9,54E-03	6,99E-03	7,19E-05	2,76E-06	2,43E-03	3,96E-05
Contribution to global warming	kg CO_2 eq	1,61E+01	6,30E+00	6,84E-02	2,73E-03	9,66E+00	7,26E-02
Contribution to ozone layer depletion	kg CFC11 eq	1,92E-06	1,29E-06	0*	0*	6,29E-07	3,42E-09
Contribution to photochemical oxidation	kg C_2H_4 eq	4,63E-03	2,38E-03	2,23E-05	8,49E-07	2,21E-03	1,52E-05
Resources use	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Net use of freshwater	m3	3,52E+01	1,47E-01	0*	0*	3,50E+01	0*
Total Primary Energy	MJ	2,85E+02	9,01E+01	9,67E-01	3,56E-02	1,93E+02	7,12E-01



Optional indicators	Modular DIN rail Solid State Relay - SSM1A455BD						
Impact indicators	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to fossil resources depletion	MJ	1,67E+02	5,54E+01	9,61E-01	3,53E-02	1,10E+02	5,72E-01
Contribution to air pollution	m^3	1,14E+03	7,16E+02	2,91E+00	0*	4,16E+02	5,09E+00
Contribution to water pollution	m^3	1,21E+03	7,95E+02	1,12E+01	4,13E-01	3,98E+02	6,09E+00
Resources use	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Use of secondary material	kg	1,19E-04	1,19E-04	0*	0*	0*	0*
Total use of renewable primary energy resources	MJ	2,97E+01	5,21E+00	0*	0*	2,45E+01	0*
Total use of non-renewable primary energy resources	MJ	2,55E+02	8,49E+01	9,66E-01	3,55E-02	1,68E+02	7,11E-01
Use of renewable primary energy excluding renewable primary energy used as raw material	MJ	2,87E+01	4,22E+00	0*	0*	2,45E+01	0*
Use of renewable primary energy resources used as raw material	MJ	9,92E-01	9,92E-01	0*	0*	0*	0*
Use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	2,53E+02	8,29E+01	9,66E-01	3,55E-02	1,68E+02	7,11E-01
Use of non renewable primary energy resources used as raw material	MJ	1,93E+00	1,93E+00	0*	0*	0*	0*
Use of non renewable secondary fuels	MJ	0,00E+00	0*	0*	0*	0*	0*
Use of renewable secondary fuels	MJ	0,00E+00	0*	0*	0*	0*	0*

Waste categories	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Hazardous waste disposed	kg	5,41E+00	4,80E+00	0*	0*	5,03E-03	6,10E-01
Non hazardous waste disposed	kg	4,64E+01	1,03E+01	0*	0*	3,60E+01	0*
Radioactive waste disposed	kg	3,22E-02	8,19E-03	0*	0*	2,40E-02	3,47E-06
Other environmental information	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Materials for recycling	kg	4,60E-01	4,89E-02	0*	5,01E-02	0*	3,61E-01
Components for reuse	kg	0,00E+00	0*	0*	0*	0*	0*
Materials for energy recovery	kg	8,89E-03	0*	0*	0*	0*	8,89E-03
Exported Energy	MJ	1,59E-04	1,50E-05	0*	1,44E-04	0*	0*

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

Life cycle assessment performed with EIME version EIME v5.8.1, database version 2016-11 in compliance with ISO14044.

The manufacturing phase is the life cycle phase which has the greatest impact on the majority of environmental indicators (based on compulsory indicators).

According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range.

Depending on the impact analysis, the mineral resources depletion of other products may be extrapolated by product mass, the water eutrophication and the ozone layer depletion of other products may be extrapolated 70% by product mass and 30% by energy consumption values, the soil and water acidification and photochemical oxidation of other products may be extrapolated 50% by product mass and 50% by energy consumption values, the global warming and total primary energy of other products may be extrapolated 35% by product mass and 65% by energy consumption values, the net use of freshwater of other products may be extrapolated by energy consumption values.

Please note that the values given above are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an installation.

Registration number	ENVPEP1508007_V3	*Drafting rules*	PCR-ed3-EN-2015 04 02
Date of issue	12/2019	*Supplemented by*	PSR-0005-ed2-EN-2016 03 29
Validity period	5 years	*Information and reference documents*	www.pep-ecopassport.org

Independent verification of the declaration and data

Internal X External

The elements of the present PEP cannot be compared with elements from another program.

Document in compliance with ISO 14021:2016 « Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling) »

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