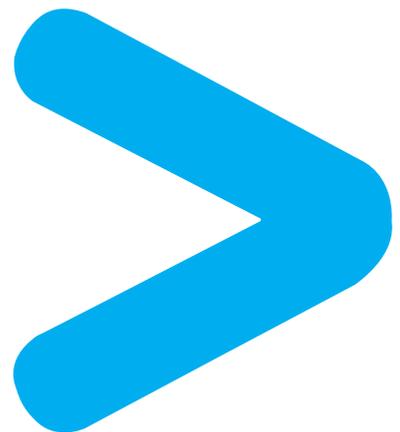
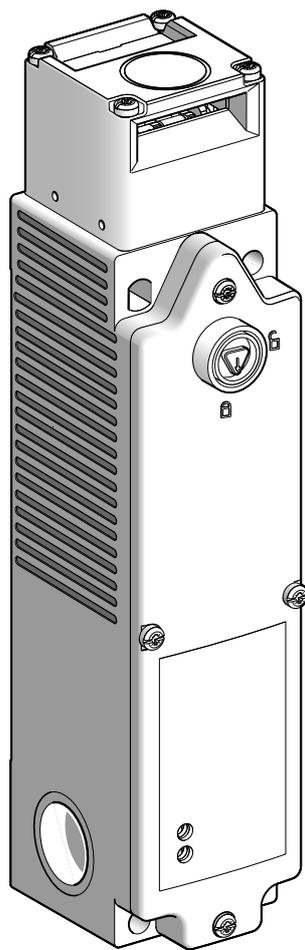


Product Environmental Profile

**XCSLE3737312 Plastic Safety Interlock
Switch**



Telemecanique

Sensors

Product Environmental Profile - PEP

Product overview

The main purpose of XCSLE3737312 and more generally of any plastic safety interlock switch, installed in automated installations, is to prevent the access to dangerous areas.

This range consists in plastic safety interlock switches with different mechanical actuators, and electrical contact blocks including two to six contacts.

The representative product used for the analysis is XCSLE3737312.

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.

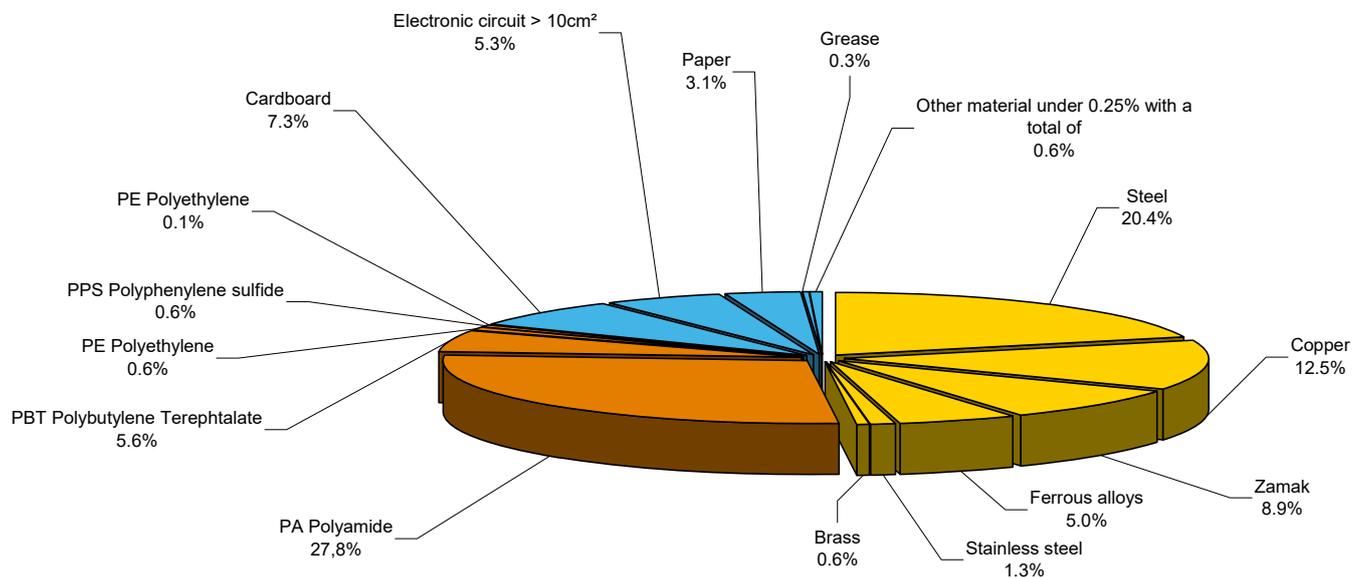
The environmental analysis was performed in conformity with ISO 14040.

For more information please contact us at: global-green-sensors@schneider-electric.com

Constituent materials

The mass of the product range is from 300 to 700 g including packaging. It is 650 g for XCSLE3737312.

The constituent materials are distributed as follows:



Substance assessment

The representative product XCSLE3737312 is designed in conformity with the requirements of the RoHS directive (European Directive 2002/95/EC of 27 January 2003) 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.

Manufacturing

XCSLE3737312 product is manufactured at a Schneider Electric production site on which an ISO14001 certified environmental management system has been established.

Distribution

The weight and volume of the packaging have been optimized, based on the European Union's packaging directive. XCSLE3737312 packaging weight is 70 g. It consists of cardboard, paper and polyethylene.

Use

The plastic safety interlock switches do not generate environmental pollution (noise, emissions) requiring special precautionary measures in standard use and do not need special maintenance operation.

The electrical power consumption depends on the conditions under which the product is implemented and used. The electrical power consumed by the XCSLE3737312 product is between 0 W in idle mode and 5.4 W in active mode. For the purpose of the present modelization it is considered to be in idle mode 95% of the time and in active mode 5% of the time.

End of life

At end of life, the plastic safety interlock switches have been optimized to decrease the amount of waste and allow recovery of the product components and materials.

This product range contains a cover, as well as printed circuit boards that should be separated from the stream of waste so as to optimize end-of-life treatment by special treatments. The location of these components and other recommendations are given in the End of Life Instruction document which is available for this product range.

The recyclability potential of the products has been evaluated using the "ECO DEEE recyclability and recoverability calculation method" (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME).

According to this method, the potential recyclability ratio is: 43%.

As described in the recyclability calculation method this ratio includes only metals and plastics which have proven industrial recycling processes.

Environmental impacts

Life cycle assessment has been performed on the following life cycle phases: Materials and Manufacturing (M), Distribution (D), Installation (I) Use (U), and End of life (E).

Modeling hypothesis and method:

- the calculation was performed on XCSLE3737312

- product packaging: is included

- installation components: no special components included.

- scenario for the Use phase: this product range is included in the category "energy consuming product" (assumed service life is 10 years and use scenario is: 5% of the time in active mode with a 5.4 W consumed power and 95% of the time in idle mode with a 0 W consumed power).

The electrical power model used for calculation is European model.

End of life impacts are based on a worst case transport distance to the recycling plant (1,000km)

Presentation of the product environmental impacts

Environmental indicators	Unit	For XCSLE3737312					
		S = M + D + I + U + E	M	D	I	U	E
Raw Material Depletion	Y-1	5.19E-14	5.16E-14	2.95E-18	0.00E+00	3.07E-16	1.35E-18
Energy Depletion	MJ	3.53E+02	7.87E+01	2.17E+00	0.00E+00	2.71E+02	9.88E-01
Water depletion	dm ³	9.42E+01	5.48E+01	2.06E-01	0.00E+00	3.91E+01	9.38E-02
Global Warming	g _≈ CO ₂	1.84E+04	4.46E+03	1.72E+02	0.00E+00	1.37E+04	7.83E+01
Ozone Depletion	g _≈ CFC-11	2.31E-03	1.39E-03	1.21E-04	0.00E+00	7.42E-04	5.53E-05
Air Toxicity	m ³	4.47E+06	2.16E+06	3.23E+04	0.00E+00	2.27E+06	1.47E+04
Photochemical Ozone Creation	g _≈ C ₂ H ₄	6.44E+00	1.61E+00	1.47E-01	0.00E+00	4.63E+00	6.69E-02
Air acidification	g _≈ H ⁺	3.01E+00	1.13E+00	2.19E-02	0.00E+00	1.85E+00	9.98E-03
Water Toxicity	dm ³	5.37E+03	1.44E+03	2.14E+01	0.00E+00	3.90E+03	9.79E+00
Water Eutrophication	g _≈ PO ₄	1.04E+00	1.01E+00	2.85E-03	0.00E+00	3.21E-02	1.30E-03
Hazardous waste production	kg	4.37E-01	2.10E-01	6.38E-05	0.00E+00	2.27E-01	2.91E-05

Life cycle assessment has been performed with the EIME software (Environmental Impact and Management Explorer), version 4.1, and with its database version 11.

The manufacturing and the use phases are the life cycle phases which have the greatest impact on the majority of environmental indicators as indicated in the table hereafter showing the contribution of each phase to the environmental indicators.

Product Environmental Profile - PEP

Environmental indicators	Weight of each phase				
	M	D	I	U	E
Raw Material Depletion	99%	0%	0%	1%	0%
Energy Depletion	22%	1%	0%	77%	0%
Water depletion	58%	0%	0%	42%	0%
Global Warming	24%	1%	0%	74%	0%
Ozone Depletion	60%	5%	0%	32%	2%
Air Toxicity	48%	1%	0%	51%	0%
Photochemical Ozone Creation	25%	2%	0%	72%	1%
Air acidification	38%	1%	0%	61%	0%
Water Toxicity	27%	0%	0%	73%	0%
Water Eutrophication	97%	0%	0%	3%	0%
Hazardous waste production	48%	0%	0%	52%	0%

System approach

As almost all 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.

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.

Glossary

Raw Material Depletion (RMD)	This indicator quantifies the consumption of raw materials during the life cycle of the product. It is expressed as the fraction of natural resources that disappear each year, with respect to all the annual reserves of the material.
Energy Depletion (ED)	This indicator gives the quantity of energy consumed, whether it be from fossil, hydroelectric, nuclear or other sources. This indicator takes into account the energy from the material produced during combustion. It is expressed in MJ.
Water Depletion (WD)	This indicator calculates the volume of water consumed, including drinking water and water from industrial sources. It is expressed in dm ³ .
Global Warming (GW)	The global warming of the planet is the result of the increase in the greenhouse effect due to the sunlight reflected by the earth's surface being absorbed by certain gases known as "greenhouse-effect" gases. The effect is quantified in gram equivalent of CO ₂ .
Ozone Depletion (OD)	This indicator defines the contribution to the phenomenon of the disappearance of the stratospheric ozone layer due to the emission of certain specific gases. The effect is expressed in gram equivalent of CFC-11.
Air Toxicity (AT)	This indicator represents the air toxicity in a human environment. It takes into account the usually accepted concentrations for several gases in the air and the quantity of gas released over the life cycle. The indication given corresponds to the air volume needed to dilute these gases down to acceptable concentrations.
Photochemical Ozone Creation (POC)	This indicator quantifies the contribution to the "smog" phenomenon (the photochemical oxidation of certain gases which generates ozone) and is expressed in gram equivalent of ethylene (C ₂ H ₄).
Air Acidification (AA)	The acid substances present in the atmosphere are carried by rain. A high level of acidity in the rain can cause damage to forests. The contribution of acidification is calculated using the acidification potentials of the substances concerned and is expressed in mode equivalent of H ⁺ .
Water Toxicity (WT)	This indicator represents the water toxicity. It takes into account the usually accepted concentrations for several substances in water and the quantity of substances released over the life cycle. The indication given corresponds to the water volume needed to dilute these substances down to acceptable concentrations.
Hazardous Waste Production (HWP)	This indicator calculates the quantity of specially treated waste created during all the life cycle phases (manufacturing, distribution and utilization). For example, special industrial waste in the manufacturing phase, waste associated with the production of electrical power, etc. It is expressed in kg.

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Independant verification of the declaration and data Internal X External	
<i>The elements of the present PEP cannot be compared with elements form another program. Documents in compliance with ISO 14021:2016 "Environmental labels and declarations – Self-declared environmental claims (Type II environmental labelling)"</i>	

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