Product Environmental Profile

ZMLPA2P0SH switch & display device for pressure transmitter

Telemecanique
Sensors

Product Environmental Profile - PEP

Product overview

The main purpose of ZMLPA2P0SH and more generally any switch and display device is firstly to display pressure value and secondly to provide one or two switching outputs allowing to control automatically an action on the machine or equipment. The switching points are adjustable. This device has to be connected with a pressure transmitter.

This range consists of 6 plastic products, only depending of output configuration (with or without 4-20mA analogue output, with one or two switching outputs). The mechanical design and materials used are the same for all products.

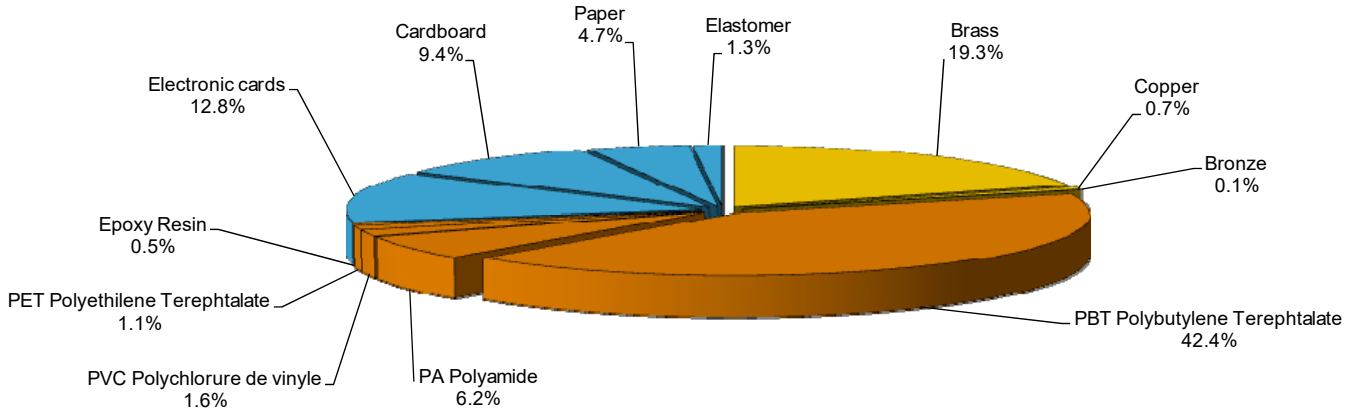
The representative product used for the analysis is ZMLPA2P0SH which has two PNP switching outputs. The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with a similar technology.

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 about 100 g including packaging. It is 104 g for the ZMLPA2P0SH.
The constituent materials are distributed as follows:



Substance assessment

Products of this range are designed in conformity with the requirements of the European RoHS directive 2011/65/EU 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.

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)

Manufacturing

ZMLPA2P0SH 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.
ZMLPA2P0SH packaging weight is 14 g. It consists of paper and cardboard.
The product distribution flows have been optimised by setting up local distribution centres close to the market areas.

Use

The switch & display devices for pressure transmitter range do not generate environmental pollution (noise, emissions) requiring special precautionary measures in standard use.
The electrical power consumption depends on the conditions under which the product is implemented and used. The electrical power consumed by the switch and display devices range is between 0.72 W and 1.2 W. It is typically 0.72 W in active mode for ZMLPA2P0SH.
The product range does not require special maintenance.

End of life

At end of life, the switch and display devices have been optimized to decrease the amount of waste and allow recovery of the product components and materials.
This product range contains a PCBA and a plastic body 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 on the Schneider-Electric Green Premium website Green Premium website (http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page).

The recyclability potential of the products has been evaluated using the "ECO DEE 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 without packaging is: 18%.
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 the ZMLPA2P0SH
- 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: the consumed power is 0.72 W 100% of the time
- the geographical representative area for the assessment is Europe and the electrical power model used for calculation is the 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 ZMLPA2P0SH					
		S = M + D + I + U + E	M	D	I	U	E
Air Acidification (AA)	kg H+ eq	7.9E-03	3.8E-04	3.2E-06	0.0E+00	7.5E-03	1.3E-06
Air toxicity (AT)	m^3	9.3E+06	6.2E+05	4.8E+03	0.0E+00	8.7E+06	2.0E+03
Energy Depletion (ED)	MJ	7.4E+02	2.7E+01	2.3E-01	0.0E+00	7.1E+02	9.5E-02
Global Warming Potential (GWP)	kg CO_2 eq.	3.7E+01	1.8E+00	1.6E-02	0.0E+00	3.5E+01	6.7E-03
Hazardous Waste Production (HWP)	kg	4.9E-02	4.3E-02	2.0E-08	0.0E+00	6.1E-03	8.3E-09
Ozone Depletion Potential (ODP)	kg CFC-11 eq.	8.3E-06	2.0E-07	3.1E-11	0.0E+00	8.1E-06	1.3E-11
Photochemical Ozone Creation Potential (POCP)	kg C_2H_4 eq.	3.0E-03	7.9E-04	4.1E-06	0.0E+00	2.2E-03	1.7E-06
Raw Material Depletion (RMD)	Y-1	4.5E-14	4.5E-14	3.4E-19	0.0E+00	4.8E-16	1.4E-19
Water Depletion(WD)	dm3	1.1E+02	1.4E+01	1.7E-03	0.0E+00	9.2E+01	7.0E-04
Water Eutrophication (WE)	kg PO_4^{3-} eq.	5.1E-04	1.7E-04	3.1E-08	0.0E+00	3.3E-04	1.2E-08
Water Toxicity (WT)	m^3	1.6E+01	5.4E-01	7.0E-03	0.0E+00	1.6E+01	2.9E-03

Note: Pay attention that order and unit of the environmental impacts have changed according to the EIME V5 version.

Life cycle assessment has been performed with the EIME software (Environmental Impact and Management Explorer), version 5, and with its database version 2013-02.
The use phase is the life cycle phase which has the greatest impact on the majority of environmental indicators but on the Raw Material Depletion.

System approach

Indicate the environmental gains which are brought by the product to the installation (e.g. reduction in the installation's energy consumption due to the product).
As the products of the range are designed in accordance with the European RoHS Directive 2011/65/EU, 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

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^+.
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.
Energy Depletion (ED)	This indicator gives the quantity of energy consumed, whether it is from fossil, hydroelectric, nuclear or other sources. It takes into account the energy from the material produced during combustion. It is expressed in MJ.
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.
Hazardous Waste Production (HWP)	This indicator quantifies 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.
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.
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_2H_4).
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.
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.
Water Eutrophication (WE)	Eutrophication is a natural process defined as the enrichment in mineral salts of marine or lake waters or a process accelerated by human intervention, defined as the enrichment in nutritive elements (phosphorous compounds, nitrogen compounds and organic matter). This indicator represents the water eutrophication of lakes and marine waters by the release of specific substances in the effluents. It is expressed in grams equivalency of PO43-(phosphate).
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.

Registration number	ENVPEP1401011_V2	*Drafting rules*	PCR-ed 2-EN-2011 12 09
Date of review	11/2017	*Date of issue*	02/2014
Validity period	4 years	*Information and reference documents*	www.pep-ecopassport.org

Independant verification of the declaration and data Internal X External	
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)"*	

Schneider Electric Industries SAS
35, rue Joseph Monier
CS 30323
F- 92506 Rueil Malmaison Cedex
RCS Nanterre 954 503 439
Capital social 896 313 776 €

www.schneider-electric.com

Published by: Schneider Electric