Schneider Electric

Product Environmental Profile – PEP

Product overview

The main purpose of the Modicon Momentum I/O base is to support the communication adapter, processor adapter and option adapter all snap onto the I/O base to form a versatile distributed I/O system.

This range consists of Modicon Momentum I/O base family.

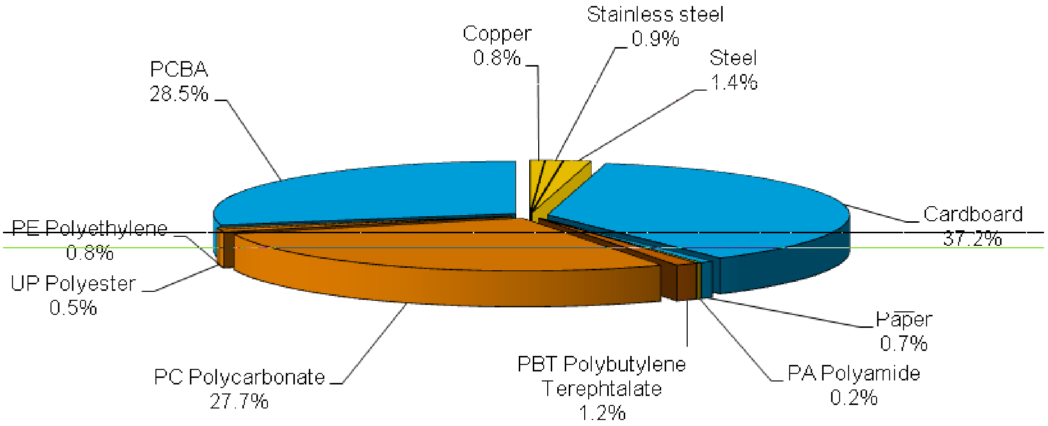
The representative product used for the analysis is 170ANR12091.

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.

Constituent materials

The mass of the product range is from 200g and 400g including packaging. It is 375g for the 170ANR12091. 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

The Modicon Momentum I/O base product range 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.

The Modicon Momentum I/O base packaging weight is 140*g*. It consists of 140g cardboard.

The product distribution flows have been optimised by setting up local distribution centres close to the market areas.

Use

The products of the Modicon Momentum I/O base 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 Modicon Momentum I/O base range is between 4W and 6W. It is 4W in active mode and 0% in standby mode for the referenced for the feferenced 170ANR12091.

The product range does not require special maintenance operations.

End of life

At end of life, the products in the Modicon Momentum I/O base have been optimized to decrease the amount of waste and allow recovery of the product components and materials.

This product range contains one PCBA 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 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 without packaging is: 46%.

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 Modicon Momentum I/O base (170ANR12091)
- 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 lifetime is 10 years and use scenario is consumed power 4W during 100% uptime in active phase.
- The geographical representative area for the assessment is North American and the electrical power model used for calculation is US model.
- End of life impacts are based on a worst case transport distance to the recycling plant (1000km)

Presentation of the product environmental impacts

Environmental indicators	Unit	170ANR12091					
		S = M + D + I + U + E	M	D	I	U	E
Air Acidification (AA)	**kg H+ eq**	4.2221E-02	7.7682E-04	1.0482E-05	0.0000E+00	4.1434E-02	0.0000E+00
Air toxicity (AT)	**m³**	4.9930E+07	1.0044E+06	1.5610E+04	0.0000E+00	4.8910E+07	0.0000E+00
Energy Depletion (ED)	**MJ**	3.2252E+03	6.2379E+01	7.5253E-01	0.0000E+00	3.1621E+03	0.0000E+00
Global Warming Potential (GWP)	**kg CO_2 eq.**	2.4702E+02	3.6961E+00	5.3418E-02	0.0000E+00	2.4328E+02	0.0000E+00
Hazardous Waste Production (HWP)	**kg**	5.3293E+00	2.2076E-01	6.6097E-08	0.0000E+00	5.1085E+00	0.0000E+00
Ozone Depletion Potential (ODP)	**kg CFC-11 eq.**	4.7340E-06	3.4223E-07	1.0118E-10	0.0000E+00	4.3916E-06	0.0000E+00
Photochemical Ozone Creation Potential (POCP)	**kg C_2H_4 eq.**	4.5685E-02	1.5458E-03	1.3296E-05	0.0000E+00	4.4126E-02	0.0000E+00
Raw Material Depletion (RMD)	**Y-1**	1.5875E-13	1.5515E-13	1.0913E-18	0.0000E+00	3.5944E-15	0.0000E+00
Water Depletion (WD)	**dm3**	4.4732E+02	1.8524E+01	5.5447E-03	0.0000E+00	4.2879E+02	0.0000E+00
Water Eutrophication (WE)	**kg PO_4^{3} eq.**	1.1782E-03	3.9930E-04	9.9223E-08	0.0000E+00	7.7880E-04	0.0000E+00
Water Toxicity (WT)	**m³**	1.9862E+01	1.6088E+00	2.2826E-02	0.0000E+00	1.8231E+01	0.0000E+00

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.

According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range: the RMD of the product of the family maybe proportional extrapolated by mass of product. And the other environmental indicators of the range may be proportional extrapolated by power dissipation of the product.

System approach

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.

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