Product Environmental Profile

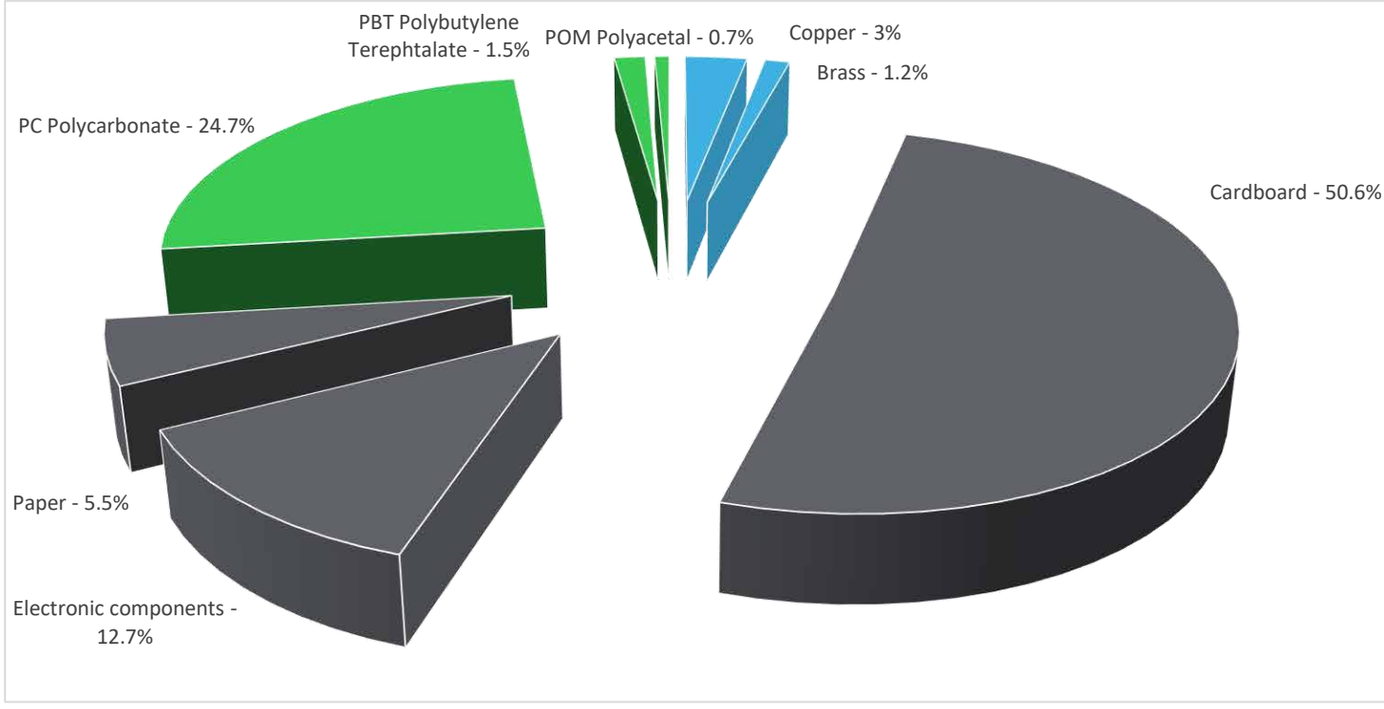
Modicon TM3 Expander

General information

Representative product	Modicon TM3 Expander - TM3XTRA1
Description of the range	The Modicon TM3 transmitter and receiver modules can be used to: - increase from 7 to 14 the number of TM3 I/O expansion modules that can be connected to an M2•• logic controller - locate Modicon TM3 expansion modules remotely, up to 5 m (16.404 ft.) away The transmitter and receiver modules are physically linked by a VDIP184546••• bus expansion cable, or any other shielded cable Cat 5E, F/UT. 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 connect the I/O modules of the M2•• automation system in a remote position and enhance the capabilities of the logic controllers 78.60% of the time for 10 years

Constituent materials

Reference product mass	169.4 g	including the product, its packaging and additional elements and accessories



Plastics	26.9%
Metals	4.2%
Others	68.8%

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

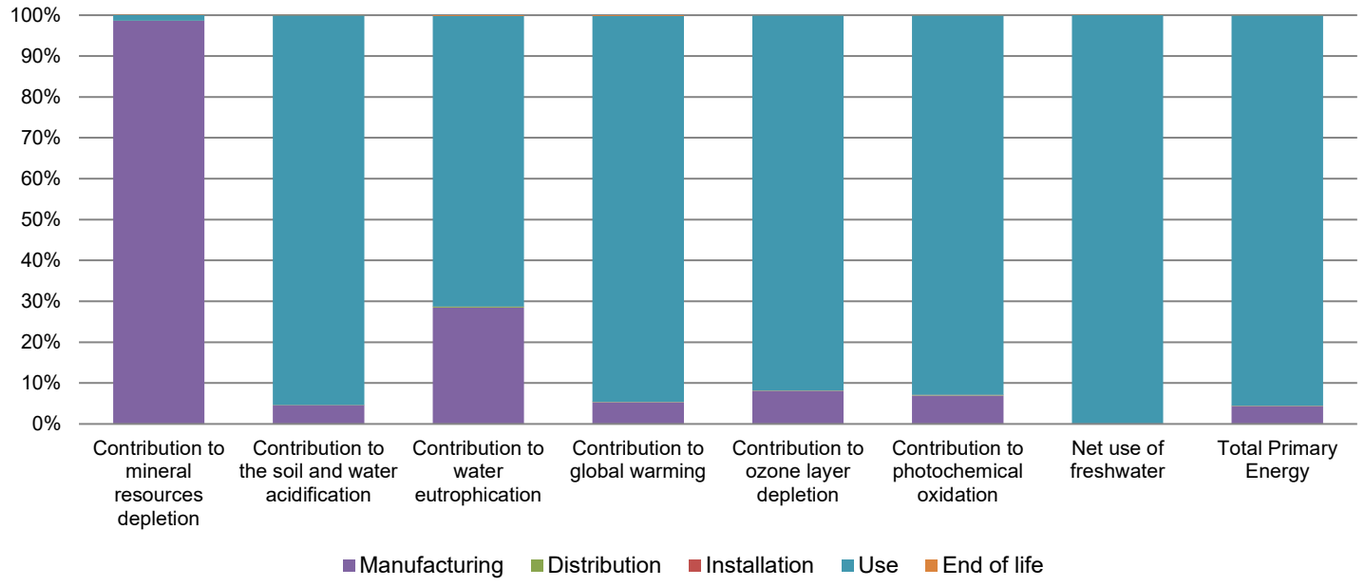
Additional environmental information

The Modicon TM3 Expander presents the following relevent environmental aspects	
Manufacturing	Manufactured at a Schneider Electric production site ISO14001 certified
Distribution	Weight and volume of the packaging optimized, based on the European Union's packaging directive Packaging weight is 94.4 g, consisting of cardboard (90,6%) and paper (9,4%)
Installation	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 one electronic card (22g) 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: **12%** 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			
Installation elements	No special components needed			
Use scenario	The product is in active mode 57,20% of the time with a power use of 850mW and in stand-by mode 21,40% of the time with a power use of 530mW, and 21.40% of the time off, for 10 years			
Geographical representativeness	Europe			
Energy model used	**Manufacturing**	**Installation**	**Use**	**End of life**
	Energy model used: Indonesia	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	Modicon TM3 Expander - TM3XTRA1						
Impact indicators	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to mineral resources depletion	kg Sb eq	1.72E-04	1.70E-04	0*	0*	2.24E-06	0*
Contribution to the soil and water acidification	kg SO_2 eq	1.13E-01	5.11E-03	9.98E-05	0*	1.07E-01	3.33E-05
Contribution to water eutrophication	kg PO_4^{3-} eq	9.11E-03	2.59E-03	2.30E-05	0*	6.48E-03	1.55E-05
Contribution to global warming	kg CO_2 eq	2.73E+01	1.45E+00	2.19E-02	0*	2.57E+01	4.67E-02
Contribution to ozone layer depletion	kg CFC11 eq	1.83E-06	1.49E-07	0*	0*	1.68E-06	1.58E-09
Contribution to photochemical oxidation	kg C_2H_4 eq	6.35E-03	4.44E-04	7.12E-06	0*	5.90E-03	2.86E-06
Resources use	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Net use of freshwater	m3	9.33E+01	1.46E-02	0*	0*	9.33E+01	0*
Total Primary Energy	MJ	5.38E+02	2.36E+01	3.09E-01	0*	5.14E+02	1.44E-01



Optional indicators	Modicon TM3 Expander - TM3XTRA1						
Impact indicators	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to fossil resources depletion	MJ	3.13E+02	2.07E+01	3.07E-01	0*	2.92E+02	1.34E-01
Contribution to air pollution	m^3	1.29E+03	1.77E+02	9.30E-01	0*	1.11E+03	1.05E+00
Contribution to water pollution	m^3	1.27E+03	2.06E+02	3.59E+00	0*	1.06E+03	2.10E+00
Resources use	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Use of secondary material	kg	1.11E-02	1.11E-02	0*	0*	0*	0*
Total use of renewable primary energy resources	MJ	6.78E+01	2.42E+00	0*	0*	6.54E+01	0*
Total use of non-renewable primary energy resources	MJ	4.70E+02	2.12E+01	3.09E-01	0*	4.49E+02	1.44E-01
Use of renewable primary energy excluding renewable primary energy used as raw material	MJ	6.60E+01	6.56E-01	0*	0*	6.54E+01	0*
Use of renewable primary energy resources used as raw material	MJ	1.76E+00	1.76E+00	0*	0*	0*	0*
Use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	4.68E+02	1.92E+01	3.09E-01	0*	4.49E+02	1.44E-01
Use of non renewable primary energy resources used as raw material	MJ	2.01E+00	2.01E+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	1.40E+00	1.22E+00	0*	4.72E-04	1.34E-02	1.63E-01
Non hazardous waste disposed	kg	9.64E+01	4.91E-01	0*	0*	9.60E+01	0*
Radioactive waste disposed	kg	6.44E-02	3.43E-04	0*	0*	6.41E-02	0*
Other environmental information	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Materials for recycling	kg	1.17E-01	1.43E-02	0*	9.40E-02	0*	8.70E-03
Components for reuse	kg	0.00E+00	0*	0*	0*	0*	0*
Materials for energy recovery	kg	1.28E-02	4.61E-04	0*	0*	0*	1.23E-02
Exported Energy	MJ	0.00E+00	0*	0*	0*	0*	0*

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

Life cycle assessment performed with EIME version EIME v 5.7.0.3, database version 2016-11 in compliance with ISO14044.

The use 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 environmental indicators (without mineral resources depletion) of other products in this family may be proportional extrapolated by energy consumption values. For mineral resources depletion, impact may be proportional extrapolated by mass of the product.

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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Verifier accreditation N°	VH33		
Date of issue	07/2018	*Information and reference documents*	www.pep-ecopassport.org
		Validity period	5 years

Independent verification of the declaration and data, in compliance with ISO 14025 : 2010

Internal External X

The PCR review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN)

PEP are compliant with XP C08-100-1 :2014

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

Document in compliance with ISO 14025 : 2010 « Environmental labels and declarations. Type III environmental declarations »

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