Product Environmental Profile

Modicon M580 ePAC controller

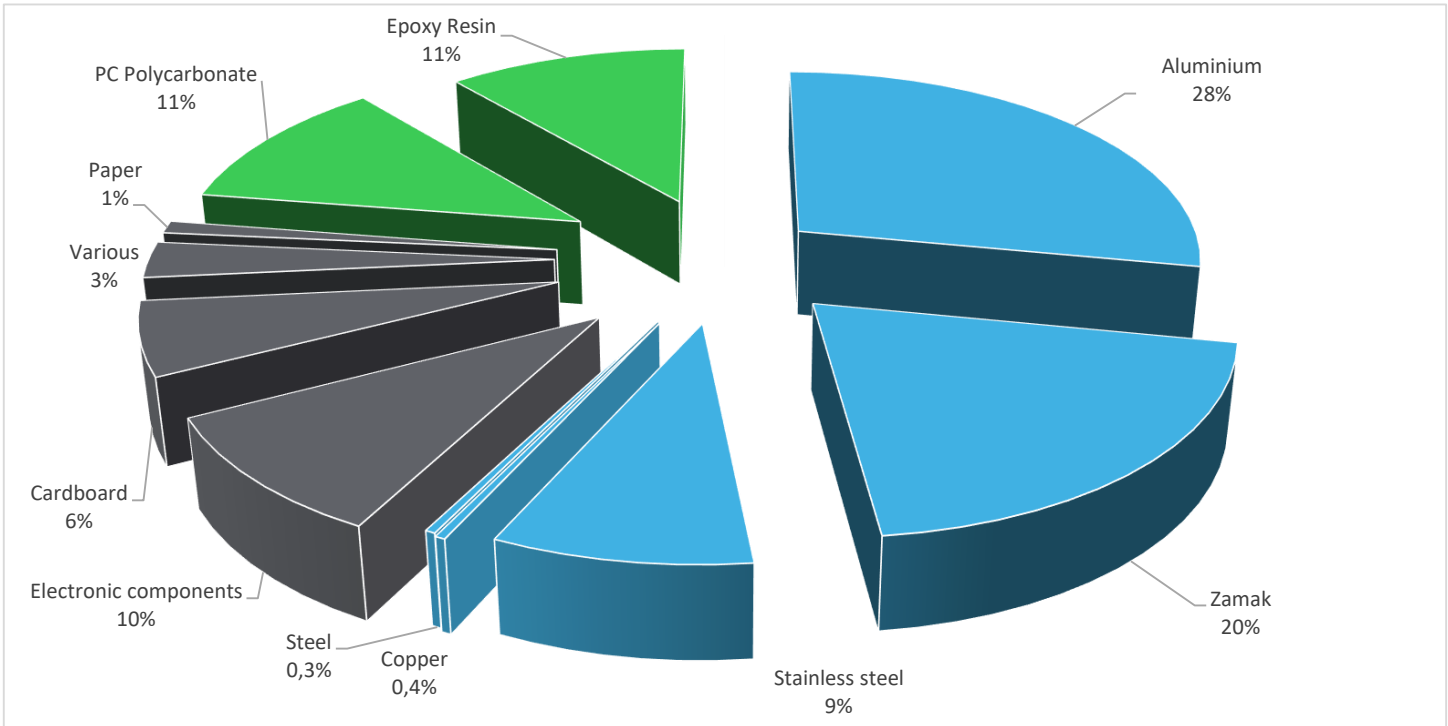
Modicon M580

General information

Representative product	Modicon M580 ePAC controller - BMEP582040
Description of the product	The Modicon M580 ePAC is the first high-end integrated controller CPU built for EcoStruxure™ Plant in an open, flexible, reliable, sustainable, safe, and secure architecture. It features redundant controllers and safety controllers (safety PLC SIL3) with native Ethernet, and cybersecurity embedded in its core.Modicon M580 is high-end CPU for Hybrid Automation Systems.
Description of the range	The M580 product range corresponds to the M580 central processing unit (CPU) product range which is full ethernet communication. This range includes x9 main commercial references which have the same function, housing and very similar components inside. The other CPU product range (named M340 product range) which is not full ethernet communication, includes different electronic components 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	The Modicon M580 ePAC module provides cutting-edge features and high-end performances for small to large process automation for 15 years with a 100% use rate. Typical electrical power is 7,08 W (295 mA at 24 V DC)

Constituent materials

Reference product mass	852 g	including the product, its packaging and additional elements and accessories



	Plastics	22,5%
	Metals	57,6%
	Others	19,9%

Substance assessment

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2011/65/EU of 2 January 2013, amended in March 2015, 2015/863/EU and in November 2017, 2017/2102/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), Bis (2-ethylhexyl)phthalate - DEHP, Benzyl butyl phthalate– BBP, Dibutyl phthalate - DBP, Diisobutyl phthalate - DIBP) 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

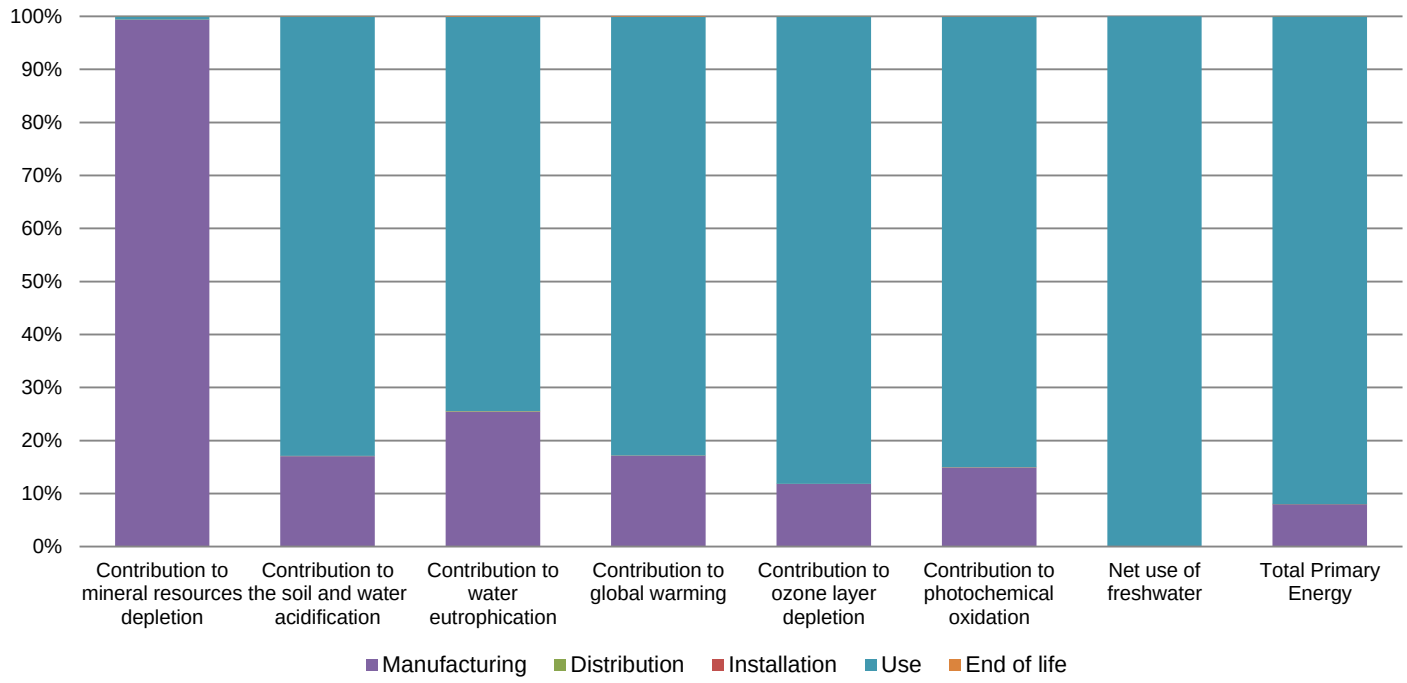
Additional environmental information

The Modicon M580 ePAC controller 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 57,5 g, consisting of Cardboard (86%), paper (14%) Product distribution optimised by setting up local distribution centres
Installation	Modicon M580 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 Electronic card (134g), electrolytics capacitors (21g), plastic part (90g) 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: **68%** 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	15 years			
Installation elements	No special components needed			
Use scenario	The product alone is in active mode 100% of the time with a power use of 7.08W (295mA on 24V_BAC output) during 15 years			
Geographical representativeness	Europe, America, Asia,			
Technological representativeness	The Modicon M580 ePAC is the first high-end integrated controller CPU built for EcoStruxure™ Plant in an open, flexible, reliable, sustainable, safe, and secure architecture. It features redundant controllers and safety controllers (safety PLC SIL3) with native Ethernet, and cybersecurity embedded in its core.Modicon M580 is high-end CPU for Hybrid Automation Systems.			
Energy model used	**Manufacturing**	**Installation**	**Use**	**End of life**
	Energy model used: France	Electricity grid mix; AC; consumption mix, at consumer; 230V; FR/Electricity mix; AC; consumption mix, at consumer; 120V; US/Electricity grid mix; AC; consumption mix, at consumer; 230V; CH		

Compulsory indicators	**Modicon M580 ePAC controller - BMEP582040**						
Impact indicators	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to mineral resources depletion	kg Sb eq	1,06E-02	1,06E-02	0*	0*	5,88E-05	0*
Contribution to the soil and water acidification	kg SO_2 eq	5,24E-01	8,92E-02	5,02E-04	0*	4,34E-01	3,08E-04
Contribution to water eutrophication	kg PO_4^{3-} eq	1,03E-01	2,62E-02	1,16E-04	0*	7,67E-02	1,28E-04
Contribution to global warming	kg CO_2 eq	3,64E+02	6,24E+01	1,10E-01	0*	3,01E+02	3,60E-01
Contribution to ozone layer depletion	kg CFC11 eq	7,30E-05	8,62E-06	0*	0*	6,44E-05	1,36E-08
Contribution to photochemical oxidation	kg C_2H_4 eq	5,52E-02	8,23E-03	3,58E-05	0*	4,69E-02	2,80E-05
Resources use	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Net use of freshwater	m3	3,61E+03	6,42E-01	0*	0*	3,61E+03	0*
Total Primary Energy	MJ	9,30E+03	7,42E+02	1,55E+00	0*	8,56E+03	1,39E+00



Optional indicators		Modicon M580 ePAC controller - BMEP582040					
Impact indicators	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to fossil resources depletion	MJ	4,16E+03	6,34E+02	1,54E+00	0*	3,52E+03	1,13E+00
Contribution to air pollution	m³	2,68E+04	5,74E+03	4,68E+00	0*	2,10E+04	9,95E+00
Contribution to water pollution	m³	2,00E+04	5,09E+03	1,81E+01	0*	1,49E+04	1,78E+01
Resources use	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Use of secondary material	kg	1,67E-01	1,67E-01	0*	0*	0*	0*
Total use of renewable primary energy resources	MJ	1,18E+03	2,70E+01	0*	0*	1,16E+03	0*
Total use of non-renewable primary energy resources	MJ	8,12E+03	7,15E+02	1,55E+00	0*	7,40E+03	1,39E+00
Use of renewable primary energy excluding renewable primary energy used as raw material	MJ	1,18E+03	2,70E+01	0*	0*	1,16E+03	0*
Use of renewable primary energy resources used as raw material	MJ	0,00E+00	0*	0*	0*	0*	0*
Use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	8,11E+03	7,09E+02	1,55E+00	0*	7,40E+03	1,39E+00
Use of non renewable primary energy resources used as raw material	MJ	6,08E+00	6,08E+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	2,03E+02	1,95E+02	0*	0*	5,86E+00	1,20E+00
Non hazardous waste disposed	kg	3,48E+02	1,66E+01	0*	0*	3,32E+02	0*
Radioactive waste disposed	kg	1,57E+00	8,81E-03	0*	0*	1,56E+00	0*
Other environmental information	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Materials for recycling	kg	6,32E-01	6,00E-02	0*	5,73E-02	0*	5,14E-01
Components for reuse	kg	8,80E-04	0*	0*	0*	0*	8,80E-04
Materials for energy recovery	kg	8,90E-02	0*	0*	0*	0*	8,90E-02
Exported Energy	MJ	1,79E-04	1,47E-05	0*	1,65E-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 2020-12 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.

Excepted for Contribution to mineral resources depletion, the compulsory indicators are mainly driven by Use phase and ,to a lesser degree, by Manufacturing phase. For calculations of the similar products included in the M580 product range, extrapolations can be made from the referent

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°	VH39		
Date of issue	12/2022	*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 :2016

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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