Product Environmental Profile

MODICON TM3 Expansion Module

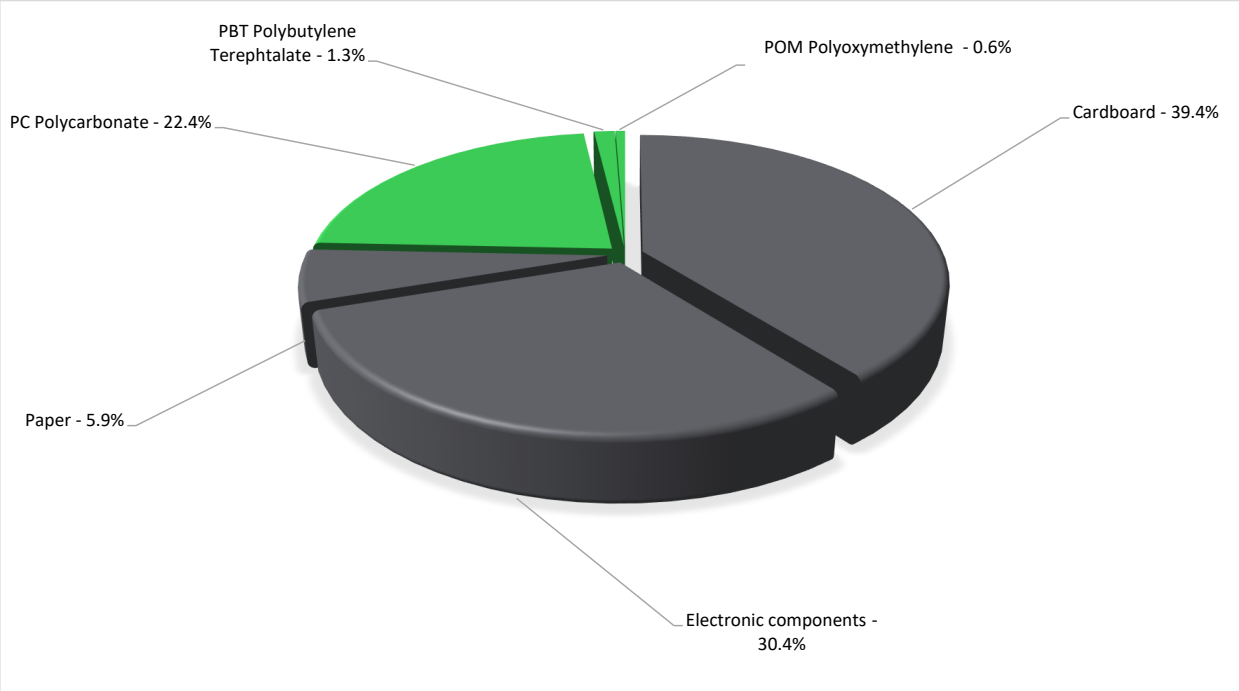
Modicon TM3

General information

Reference product	MODICON TM3 Expansion Module - TM3DQ32TK
Description of the product	Modicon TM3 I/O system enables flexible and customisable expansion of the I/O terminals in all the controllers. Up to 14 terminals can be added to logic controllers without tools.
Description of the range	The products of the range are: The specially developed Modicon TM3 I/O system enables flexible and customizable expansion of the I/O terminals in all of the controllers. Up to 14 terminals can be added to the controllers. - Digital I/O modules which can be used to create configurations with up to 264 digital I/O. These modules are available with the same connections as the controllers. - Analog I/O modules which can be used to create configurations with up to 114 analog I/O and are designed to receive, amongst other things, position, temperature or speed sensor signals. They are also capable of controlling variable speed drives or any device equipped with a current or voltage input. The environmental impacts of this reference product are representative of the impacts of the other products of the range which are developed with a similar technology.
Functional unit	To enhance the capabilities of Modicon M221, M262, M241 and M251 logic controllers by creating configurations with up to 264 digital I/O and up to 114 analog I/O, 57.20% of the time for 10 years.
Specifications are:	Technical data: -Number of logic outputs:32 outputs -Output type: Transistor, source - Protect degree: IP20

Constituent materials

Reference product mass	201 g	including the product, its packaging and additional elements and accessories



Plastics	24.3%
Metals	0.0%
Others	75.7%

Substance assessment

Details of ROHS and REACH substances information are available on the Schneider-Electric Green Premium website
https://www.se.com/ww/en/work/support/green-premium/

Additional environmental information

End Of Life	Recyclability potential:	**3%**	The recyclability rate was calculated from the recycling rates of each material making up the product with the exception of data using the ESR database. For materials or components using the ESR database or the absence of data the conservative hypothesis "0% recyclability" was used.

Environmental impacts

Reference service life time	10 years
Product category	Other equipments - Active product
Installation elements	The product does not require any installation operations
Use scenario	The product is in active mode 57,20% of the time with a power use of 1,08W and off 42.80% of the time, for 10 years
Time representativeness	The collected data are representative of the year 2024
Technological representativeness	The Modules of Technologies such as material production, manufacturing process and transport technology used in this PEP analysis (LCA-EIME in this case) are Similar and representative of the actual type of technologies used to make the product in production
Geographical representativeness	Rest of the World

	[A1 - A3]	[A5]	[B6]	[C1 - C4]
Energy model used	Electricity Mix; Low voltage; 2018; Taiwan, TW	Electricity Mix; Low voltage; 2018; China, CN Electricity Mix; Low voltage; 2018; Europe, EU-27 Electricity Mix; Low voltage; 2018; United States, US Electricity Mix; Low voltage; 2018; Asia Pacific, APAC	Electricity Mix; Low voltage; 2018; China, CN Electricity Mix; Low voltage; 2018; Europe, EU-27 Electricity Mix; Low voltage; 2018; United States, US Electricity Mix; Low voltage; 2018; Asia Pacific, APAC	Electricity Mix; Low voltage; 2018; China, CN Electricity Mix; Low voltage; 2018; Europe, EU-27 Electricity Mix; Low voltage; 2018; United States, US Electricity Mix; Low voltage; 2018; Asia Pacific, APAC

Detailed results of the optional indicators mentioned in PCRed4 are available in the LCA report and on demand in a digital format - Country Customer Care Center - http://www.schneider-electric.com/contact

Mandatory Indicators		MODICON TM3 Expansion Module - TM3DQ32TK						
Impact indicators	**Unit**	**Total (without Module D)**	**[A1 - A3] - Manufacturing**	**[A4] - Distribution**	**[A5] - Installation**	**[B1 - B7] - Use**	**[C1 - C4] - End of life**	**[D] - Benefits and loads**
Contribution to climate change	kg CO2 eq	5.00E+01	8.66E+00	2.99E-02	0*	4.10E+01	3.21E-01	0.00E+00
Contribution to climate change-fossil	kg CO2 eq	5.00E+01	8.63E+00	2.99E-02	0*	4.10E+01	3.20E-01	0.00E+00
Contribution to climate change-biogenic	kg CO2 eq	4.62E-02	3.21E-02	0*	0*	1.41E-02	2.58E-05	0.00E+00
Contribution to climate change-land use and land use change	kg CO2 eq	5.34E-05	5.34E-05	0*	0*	0*	2.05E-08	0.00E+00
Contribution to ozone depletion	kg CFC-11 eq	1.31E-06	1.08E-06	0*	1.40E-10	2.21E-07	4.13E-10	0.00E+00
Contribution to acidification	mol H+ eq	3.54E-01	6.27E-02	1.92E-04	4.76E-05	2.91E-01	2.20E-04	0.00E+00
Contribution to eutrophication, freshwater	kg $(PO4)^{3-}$ eq	3.63E-05	1.34E-05	1.12E-08	1.75E-08	2.14E-05	1.53E-06	0.00E+00
Contribution to eutrophication marine	kg N eq	3.92E-02	7.51E-03	9.02E-05	2.25E-05	3.15E-02	1.06E-04	0.00E+00
Contribution to eutrophication, terrestrial	mol N eq	4.48E-01	7.99E-02	9.90E-04	2.29E-04	3.66E-01	1.10E-03	0.00E+00
Contribution to photochemical ozone formation - human health	kg NMVOC eq	1.31E-01	2.61E-02	2.50E-04	5.50E-05	1.05E-01	2.67E-04	0.00E+00
Contribution to resource use, minerals and metals	kg Sb eq	9.77E-04	9.76E-04	0*	0*	8.25E-07	0*	0.00E+00
Contribution to resource use, fossils	MJ	8.30E+02	1.19E+02	4.17E-01	0*	7.10E+02	3.98E-01	0.00E+00
Contribution to water use	m3 eq	3.72E+00	1.96E+00	0*	8.36E-03	1.73E+00	1.81E-02	0.00E+00

Additional indicators for the French regulation are available as well

Inventory flows Indicators		MODICON TM3 Expansion Module - TM3DQ32TK						
Inventory flows	Unit	Total (without Module D)	[A1 - A3] - Manufacturing	[A4] - Distribution	[A5] - Installation	[B1 - B7] - Use	[C1 - C4] - End of life	[D] - Benefits and loads
Contribution to use of renewable primary energy excluding renewable primary energy used as raw material	MJ	8.53E+01	2.39E+00	0*	0*	8.29E+01	0*	0.00E+00
Contribution to use of renewable primary energy resources used as raw material	MJ	1.86E+00	1.86E+00	0*	0*	0*	0*	0.00E+00
Contribution to total use of renewable primary energy resources	MJ	8.72E+01	4.25E+00	0*	0*	8.29E+01	0*	0.00E+00
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	8.27E+02	1.16E+02	4.17E-01	0*	7.10E+02	3.98E-01	0.00E+00
Contribution to use of non renewable primary energy resources used as raw material	MJ	2.76E+00	2.76E+00	0*	0*	0*	0*	0.00E+00
Contribution to total use of non-renewable primary energy resources	MJ	8.30E+02	1.19E+02	4.17E-01	0*	7.10E+02	3.98E-01	0.00E+00
Contribution to use of secondary material	kg	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to use of renewable secondary fuels	MJ	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to use of non renewable secondary fuels	MJ	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to net use of freshwater	m^3	8.72E-02	4.62E-02	0*	1.95E-04	4.04E-02	4.22E-04	0.00E+00
Contribution to hazardous waste disposed	kg	1.26E+01	1.14E+01	0*	0*	1.15E+00	6.12E-02	0.00E+00
Contribution to non hazardous waste disposed	kg	1.11E+01	4.04E+00	0*	9.14E-02	6.89E+00	4.99E-02	0.00E+00
Contribution to radioactive waste disposed	kg	1.40E-03	9.34E-04	7.47E-07	0*	4.67E-04	2.50E-06	0.00E+00
Contribution to components for reuse	kg	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to materials for recycling	kg	3.71E-03	9.57E-07	0*	0*	0*	3.70E-03	0.00E+00
Contribution to materials for energy recovery	kg	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to exported energy	MJ	3.55E-06	3.55E-06	0*	0*	0*	0*	0.00E+00

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

Contribution to biogenic carbon content of the product	kg de C	0.00E+00
Contribution to biogenic carbon content of the associated packaging	kg de C	2.67E-02

Life cycle assessment performed with EIME version v6.1, database version 2023-02 in compliance with ISO14044, EF 3.0 method is applied, for biogenic carbon storage, assessment methodology 0/0 is used

According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range, ratios to apply can be provided upon request

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.

Registration number :	ENVPEP1402009_V4	*Drafting rules*	PCR-4-ed4-EN-2021 09 06
Verifier accreditation N°		*Supplemented by*	PSR-0005-ed3-EN-2023 06 06
Date of issue	04-2024	*Information and reference documents*	www.pep-ecopassport.org
		Validity period	5 years

Independent verification of the declaration and data, in compliance with ISO 14025 : 2006

Internal X External

The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)

PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 or NF E38-500 :2022

The components of the present PEP may not be compared with components from any other program.

Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"

Schneider Electric Industries SAS

Country Customer Care Center
http://www.se.com/contact

35, rue Joseph Monier
CS 30323
F- 92500 Rueil Malmaison Cedex
RCS Nanterre 954 503 439
Capital social 928 298 512 €

www.se.com

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