Product Environmental Profile

Ethernet Modicon TM3 Bus Coupler Module

Modicon TM3 Bus coupler module
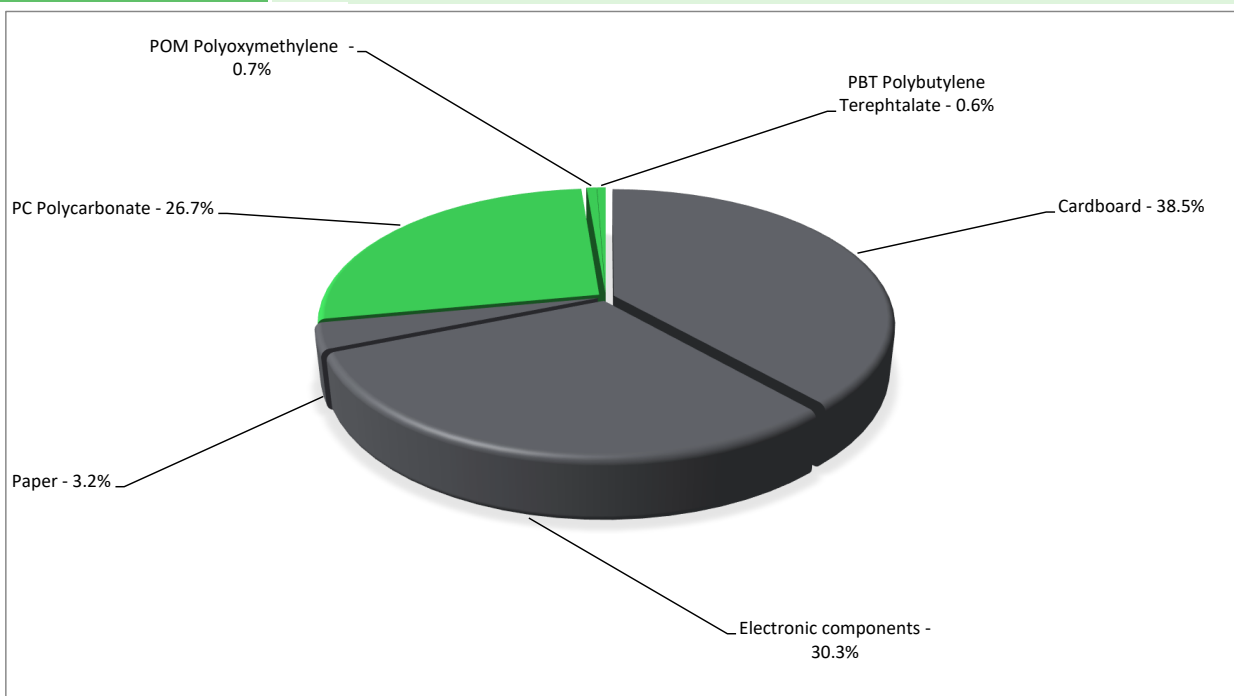

Schneider Electric

📖 General information

Reference product	Ethernet Modicon TM3 Bus Coupler Module - TM3BCEIP
Description of the product	The TM3BC Bus Coupler is a solution which enables the creation of separate groups of industrial I/Os, each positioned as a near to the machine as possible, that are managed by a master controller (PLC, PC or variable speed drive) via a fieldbus or communication network (EtherNet/IP, Modbus TCP, CANopen & Modbus Serial Lien) . TM3BC is IIoT Ready with Web server, Cybersecurity & Plug & Work concept inside. The most compact on the market & simple to integrate, TM3BC reduce the cabling & installation costs.
Description of the range	The products of the range are: This range consists of bus coupler module for Modicon TM3 PLC 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 communicate I/Os data coming from TM3 I/O Modules connected on the right side of the TM3 Bus Controller, up to the main controller via the Fieldbus Ethernet at 3.6 W 100% of the time during the 10 years of product servixe lifetime based on following specific parameter.
Specifications are:	Technical data: -Transmission rate:10/100Mbit/s -IP degree :IP20 conforming to IEC/EN 61010-2-201

⚗️ Constituent materials

Reference product mass	172 g	including the product, its packaging and additional elements and accessories

POM Polyoxymethylene - 0.7%
PBT Polybutylene Terephtalate - 0.6%
PC Polycarbonate - 26.7%
Cardboard - 38.5%
Paper - 3.2%
Electronic components - 30.3%

🟩 Plastics	28.00%	
🟦 Metals	0.00%	
⬛ Others	72.00%	

📏 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:	**0%**	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 100% of the time with a power use of 3.6 W.			
Time representativeness	The collected data are representative of the year 2023			
Technological representativeness	The Modules of Technologies such as material production, manufacturing processes and transport technology used in the PEP analysis (LCA EIME in the case) are Similar and représentaive of the actual type of technologies used to make the product.			
Geographical representativeness	Rest of the World			
	[A1 - A3]	**[A5]**	**[B6]**	**[C1 - C4]**
Energy model used	Electricity Mix; Low voltage; 2018; Indonesia, ID	Electricity Mix; Low voltage; 2018; China, CN	Electricity Mix; Low voltage; 2018; China, CN	Electricity Mix; Low voltage; 2018; China, CN
		Electricity Mix; Low voltage; 2018; United States, US	Electricity Mix; Low voltage; 2018; United States, US	Electricity Mix; Low voltage; 2018; United States, US
		Electricity Mix; Low voltage; 2018; Spain, ES	Electricity Mix; Low voltage; 2018; Spain, ES	Electricity Mix; Low voltage; 2018; Spain, ES
		Electricity Mix; Low voltage; 2018; Italy, IT	Electricity Mix; Low voltage; 2018; Italy, IT	Electricity Mix; Low voltage; 2018; Italy, IT
		Electricity Mix; Low voltage; 2018; France, FR	Electricity Mix; Low voltage; 2018; France, FR	Electricity Mix; Low voltage; 2018; France, FR

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		Ethernet Modicon TM3 Bus Coupler Module - TM3BCEIP						
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	2.38E+02	1.71E+01	2.85E-02	0*	2.21E+02	2.98E-01	0.00E+00
Contribution to climate change-fossil	kg CO2 eq	2.38E+02	1.71E+01	2.85E-02	0*	2.21E+02	2.98E-01	0.00E+00
Contribution to climate change-biogenic	kg CO2 eq	1.00E-01	2.65E-02	0*	0*	7.35E-02	0*	0.00E+00
Contribution to climate change-land use and land use change	kg CO2 eq	5.39E-05	5.39E-05	0*	0*	0*	0*	0.00E+00
Contribution to ozone depletion	kg CFC-11 eq	2.85E-06	1.68E-06	0*	0*	1.17E-06	0*	0.00E+00
Contribution to acidification	mol H+ eq	1.64E+00	1.04E-01	1.84E-04	0*	1.53E+00	1.98E-04	0.00E+00
Contribution to eutrophication, freshwater	kg (PO4)³⁻ eq	1.83E-04	2.38E-05	0*	0*	1.58E-04	1.23E-06	0.00E+00
Contribution to eutrophication marine	kg N eq	1.84E-01	1.67E-02	8.62E-05	0*	1.67E-01	9.52E-05	0.00E+00
Contribution to eutrophication, terrestrial	mol N eq	2.12E+00	1.79E-01	9.49E-04	0*	1.93E+00	9.99E-04	0.00E+00
Contribution to photochemical ozone formation - human health	kg NMVOC eq	6.10E-01	5.27E-02	2.44E-04	0*	5.57E-01	2.41E-04	0.00E+00
Contribution to resource use, minerals and metals	kg Sb eq	1.25E-03	1.24E-03	0*	0*	5.23E-06	0*	0.00E+00
Contribution to resource use, fossils	MJ	4.19E+03	2.12E+02	0*	0*	3.97E+03	0*	0.00E+00
Contribution to water use	m3 eq	1.33E+01	4.05E+00	0*	6.60E-03	9.25E+00	1.30E-02	0.00E+00

Inventory flows Indicators			Ethernet Modicon TM3 Bus Coupler Module - TM3BCEIP						
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	5.11E+02	4.78E+00	0*	0*	5.06E+02	0*	0.00E+00
Contribution to use of renewable primary energy resources used as raw material	MJ	1.48E+00	1.48E+00	0*	0*	0*	0*	0.00E+00
Contribution to total use of renewable primary energy resources	MJ	5.12E+02	6.26E+00	0*	0*	5.06E+02	0*	0.00E+00
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	4.18E+03	2.09E+02	0*	0*	3.97E+03	0*	0.00E+00
Contribution to use of non renewable primary energy resources used as raw material	MJ	2.39E+00	2.39E+00	0*	0*	0*	0*	0.00E+00
Contribution to total use of non-renewable primary energy resources	MJ	4.19E+03	2.12E+02	0*	0*	3.97E+03	0*	0.00E+00
Contribution to use of secondary material	kg	3.82E-06	3.82E-06	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	m³	3.11E-01	9.49E-02	0*	1.54E-04	2.15E-01	3.03E-04	0.00E+00
Contribution to hazardous waste disposed	kg	2.81E+01	2.20E+01	0*	0*	6.06E+00	5.23E-02	0.00E+00
Contribution to non hazardous waste disposed	kg	4.11E+01	4.92E+00	0*	7.21E-02	3.61E+01	5.24E-02	0.00E+00
Contribution to radioactive waste disposed	kg	3.77E-03	1.45E-03	7.09E-07	0*	2.32E-03	2.25E-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	8.20E-07	8.20E-07	0*	0*	0*	0*	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	3.05E-06	3.05E-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	2.07E-02

Mandatory Indicators			Ethernet Modicon TM3 Bus Coupler Module - TM3BCEIP						
Impact indicators	Unit	[B1 - B7] - Use	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]
Contribution to climate change	kg CO2 eq	2.21E+02	0*	0*	0*	0*	0*	2.21E+02	0*
Contribution to climate change-fossil	kg CO2 eq	2.21E+02	0*	0*	0*	0*	0*	2.21E+02	0*
Contribution to climate change-biogenic	kg CO2 eq	7.35E-02	0*	0*	0*	0*	0*	7.35E-02	0*
Contribution to climate change-land use and land use change	kg CO2 eq	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to ozone depletion	kg CFC-11 eq	1.17E-06	0*	0*	0*	0*	0*	1.17E-06	0*
Contribution to acidification	mol H+ eq	1.53E+00	0*	0*	0*	0*	0*	1.53E+00	0*
Contribution to eutrophication, freshwater	kg (PO4)³⁻ eq	1.58E-04	0*	0*	0*	0*	0*	1.58E-04	0*
Contribution to eutrophication marine	kg N eq	1.67E-01	0*	0*	0*	0*	0*	1.67E-01	0*
Contribution to eutrophication, terrestrial	mol N eq	1.93E+00	0*	0*	0*	0*	0*	1.93E+00	0*
Contribution to photochemical ozone formation - human health	kg NMVOC eq	5.57E-01	0*	0*	0*	0*	0*	5.57E-01	0*
Contribution to resource use, minerals and metals	kg Sb eq	5.23E-06	0*	0*	0*	0*	0*	5.23E-06	0*
Contribution to resource use, fossils	MJ	3.97E+03	0*	0*	0*	0*	0*	3.97E+03	0*
Contribution to water use	m3 eq	9.25E+00	0*	0*	0*	0*	0*	9.25E+00	0*

| Inventory flows Indicators | | Ethernet Modicon TM3 Bus Coupler Module - TM3BCEIP | | | | | | | |
Inventory flows	Unit	[B1 - B7] - Use	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]
Contribution to use of renewable primary energy excluding renewable primary energy used as raw material	MJ	5.06E+02	0*	0*	0*	0*	0*	5.06E+02	0*
Contribution to use of renewable primary energy resources used as raw material	MJ	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to total use of renewable primary energy resources	MJ	5.06E+02	0*	0*	0*	0*	0*	5.06E+02	0*
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	3.97E+03	0*	0*	0*	0*	0*	3.97E+03	0*
Contribution to use of non renewable primary energy resources used as raw material	MJ	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to total use of non-renewable primary energy resources	MJ	3.97E+03	0*	0*	0*	0*	0*	3.97E+03	0*
Contribution to use of secondary material	kg	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to use of renewable secondary fuels	MJ	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to use of non renewable secondary fuels	MJ	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to net use of freshwater	m³	2.15E-01	0*	0*	0*	0*	0*	2.15E-01	0*
Contribution to hazardous waste disposed	kg	6.06E+00	0*	0*	0*	0*	0*	6.06E+00	0*
Contribution to non hazardous waste disposed	kg	3.61E+01	0*	0*	0*	0*	0*	3.61E+01	0*
Contribution to radioactive waste disposed	kg	2.32E-03	0*	0*	0*	0*	0*	2.32E-03	0*
Contribution to components for reuse	kg	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to materials for recycling	kg	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to materials for energy recovery	kg	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to exported energy	MJ	0*	0*	0*	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 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 :	ENVPEP1712005_V2		*Drafting rules*	PCR-4-ed4-EN-2021 09 06
			Supplemented by	PSR-0005-ed3-EN-2023 06 06
Date of issue	09-2024		*Information and reference documents*	www.pep-ecopassport.org
			Validity period	5 years

Independent verification of the declaration and data, in compliance with ISO 14021 : 2016
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 14021:2016 "Environmental labels and declarations. Type II environmental declarations"

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