

# Product Environmental Profile

**Counter module - encoder emulation channel (A/B) - 4 MHz**

**Modicon TM5 I/O Expansion Module**

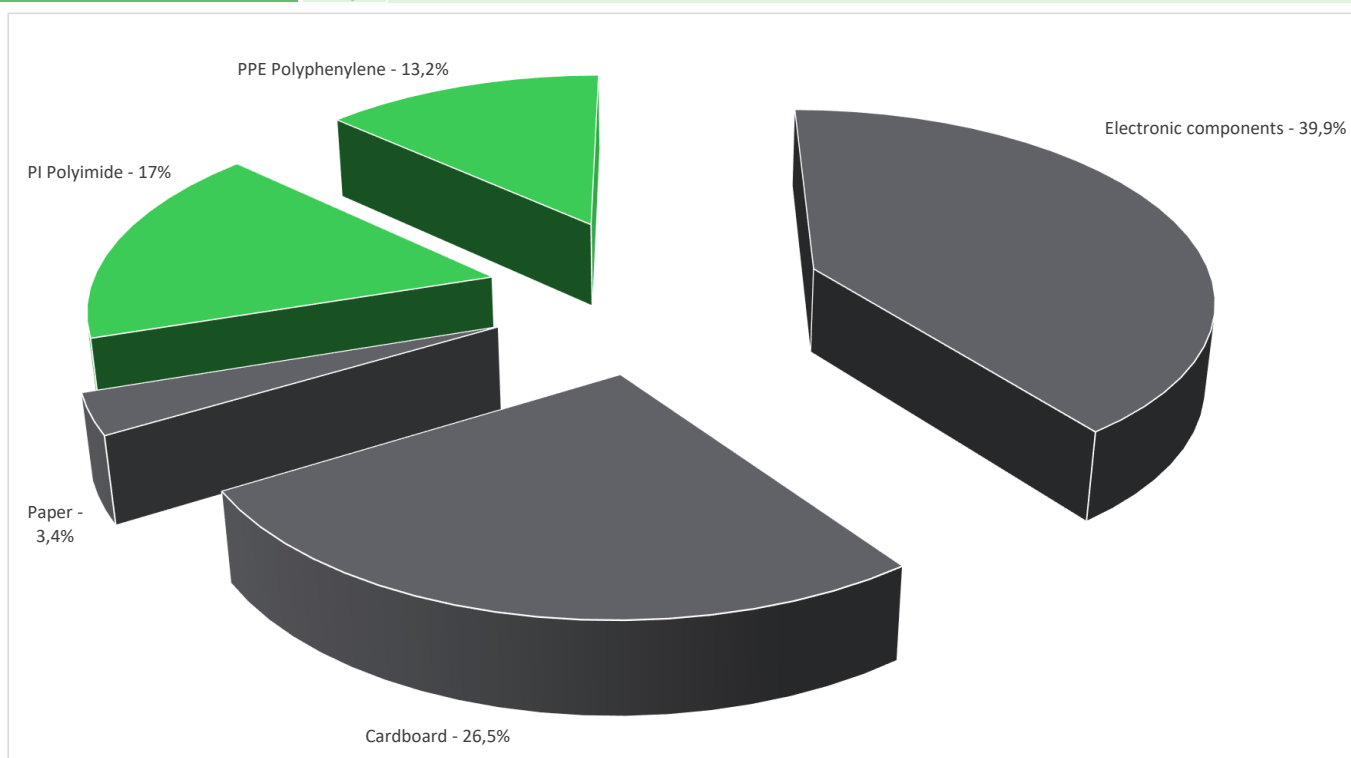


## General information

Reference product	Counter module - encoder emulation channel (A/B) - 4 MHz - TM5SE1MISC20005
Description of the product	<p>This product is used to count pulses generated by a sensor, or to process signals from an incremental encoder, depending on the reference selected.</p> <p>The TM5SE1MISC20005 module provides the following features:</p> <ul style="list-style-type: none"> <li>- 3 digital 5 V channels, configurable as inputs or outputs</li> <li>- 2 digital 24 V input channels</li> <li>- Encoder evaluation (A/B) with one reference pulse</li> </ul>
Description of the range	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. The TM5 modules are used to count the pulses generated by a sensor or to process signals from an incremental encoder, depending on the selected reference.
Functional unit	To manage digital or analog I/O signal 100% of the time for 10 years with dissipation power of 1.51W.
Specifications are:	<p>Counting frequency : 4 MHz</p> <p>Encoder type : 1 incremental encoder</p>

## Constituent materials

Reference product mass	46,9 g	including the product, its packaging, additional elements and accessories
------------------------	--------	---



Plastics	30,2%
Metals	0,0%
Others	69,8%

## Substance assessment

Details of ROHS and REACH substances information are available on the Schneider-Electric website

<https://www.se.com>

## Additional environmental information

<b>End Of Life</b>	Recyclability potential:	<b>0%</b>	The recyclability rate was calculated from the recycling rates of each material making up the product based on REEECYLAB tool developed by Ecosystem, for components/materials not covered by the tool, data from the EIME database and the related PSR was taken. If no data was found a conservative assumption was used (0% recyclability).
--------------------	--------------------------	-----------	--

## Environmental impacts

<b>Reference service life time</b>	10 years			
<b>Product category</b>	Other equipments - Active product			
<b>Life cycle of the product</b>	The manufacturing, the distribution, the installation, the use and the end of life were taken into consideration in this study.			
<b>Electricity consumption</b>	The electricity consumed during manufacturing processes is considered for each part of the product individually, the final assembly generates a negligible consumption.			
<b>Installation elements</b>	The product does not require any installation operations.			
<b>Use scenario</b>	TM5 System I/O Extension consume 1.51 W during 100% of its lifetime, 10 years.			
<b>Time representativeness</b>	The collected data are representative of the year 2025.			
<b>Technological representativeness</b>	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 representative of the actual type of technologies used to make the product.			
<b>Geographical representativeness</b>	<b>Final assembly site</b>	<b>Use phase</b>		<b>End-of-life</b>
	Eggelsberg, AT	Rest of the world		Rest of the world
<b>Energy model used</b>	<b>[A1 - A3]</b>	<b>[A5]</b>	<b>[B6]</b>	<b>[C1 - C4]</b>
	Electricity Mix; Low voltage; 2020; Austria, AT	No energy used	Electricity Mix; Low voltage; 2020; Turkey, TR Electricity Mix; Low voltage; 2020; China, CN Electricity Mix; Low voltage; 2020; Italy, IT Electricity Mix; Low voltage; 2020; Europe, EU-27 United States, US	Global, European and French datasets are used.

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.se.com/contact>

Mandatory Indicators		Counter module - encoder emulation channel (A/B) - 4 MHz - TM5SE1MISC20005						
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	6,26E+01	1,55E+00	1,61E-02	3,18E-02	6,09E+01	7,35E-02	0,00E+00
Contribution to climate change-fossil	kg CO2 eq	6,15E+01	1,57E+00	1,61E-02	9,71E-03	5,98E+01	7,35E-02	0,00E+00
Contribution to climate change-biogenic	kg CO2 eq	1,12E+00	0*	0*	2,21E-02	1,12E+00	0*	0,00E+00
Contribution to climate change-land use and land use change	kg CO2 eq	5,88E-08	2,80E-08	2,07E-08	3,64E-09	0*	6,49E-09	0,00E+00
Contribution to ozone depletion	kg CFC-11 eq	4,36E-07	2,29E-07	1,64E-10	3,44E-10	2,06E-07	1,03E-10	0,00E+00
Contribution to acidification	mol H+ eq	2,96E-01	8,92E-03	3,25E-05	5,19E-05	2,87E-01	0*	0,00E+00
Contribution to eutrophication, freshwater	kg P eq	3,82E-05	7,37E-06	5,29E-08	1,77E-08	3,03E-05	4,39E-07	0,00E+00
Contribution to eutrophication, marine	kg N eq	3,55E-02	8,87E-04	7,53E-06	1,26E-05	3,46E-02	1,08E-05	0,00E+00
Contribution to eutrophication, terrestrial	mol N eq	5,40E-01	1,04E-02	8,25E-05	1,66E-04	5,29E-01	9,77E-05	0,00E+00
Contribution to photochemical ozone formation - human health	kg COVNM eq	1,14E-01	3,22E-03	2,42E-05	3,56E-05	1,11E-01	2,28E-05	0,00E+00
Contribution to resource use, minerals and metals	kg Sb eq	1,20E-04	1,03E-04	0*	0*	1,64E-05	0*	0,00E+00
Contribution to resource use, fossils	MJ	1,06E+03	2,51E+01	2,75E-01	1,78E-01	1,03E+03	0*	0,00E+00
Contribution to water use	m3 eq	4,93E+00	7,68E-01	5,34E-04	5,39E-04	4,16E+00	2,45E-03	0,00E+00

Inventory flows Indicators		Counter module - encoder emulation channel (A/B) - 4 MHz - TM5SE1MISC20005							
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 renewable primary energy used as energy	MJ	2,13E+02	2,21E+00	0*	0*	2,11E+02	0*	0,00E+00	
Contribution to renewable primary energy used as raw material	MJ	2,94E-01	2,94E-01	0*	0*	0*	0*	0,00E+00	
Contribution to total renewable primary energy	MJ	2,13E+02	2,51E+00	0*	0*	2,11E+02	0*	0,00E+00	
Contribution to non renewable primary energy used as energy	MJ	1,05E+03	2,43E+01	2,75E-01	1,78E-01	1,03E+03	0*	0,00E+00	
Contribution to non renewable primary energy used as raw material	MJ	7,47E-01	7,47E-01	0*	0*	0*	0*	0,00E+00	
Contribution to total non renewable primary energy	MJ	1,06E+03	2,51E+01	2,75E-01	1,78E-01	1,03E+03	0*	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 fresh water	m³	1,15E-01	1,78E-02	1,24E-05	1,24E-05	9,72E-02	5,71E-05	0,00E+00	
Contribution to hazardous waste disposed	kg	2,96E+00	1,57E+00	0*	8,20E-03	1,36E+00	1,88E-02	0,00E+00	
Contribution to non hazardous waste disposed	kg	8,88E+00	2,64E-01	1,31E-03	1,23E-03	8,60E+00	7,17E-03	0,00E+00	
Contribution to radioactive waste disposed	kg	2,45E-03	1,33E-04	1,03E-06	5,83E-07	2,32E-03	5,24E-07	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	2,01E-03	2,01E-03	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	8,31E-07	8,31E-07	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 of C 0,00E+00

Contribution to biogenic carbon content of the associated packaging kg of C 4,10E-03

\* The calculation of the biogenic carbon is based on the Ademe for the Cardboard (28%), EN16485 for Wood (39,52%), and APESA/RECORD for Paper (37,8%)

Mandatory Indicators		Counter module - encoder emulation channel (A/B) - 4 MHz - TM5SE1MISC20005								
Impact indicators	Unit	[B1 - B7] - Use	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]	
Contribution to climate change	kg CO2 eq	6,09E+01	0*	0*	0*	0*	0*	6,09E+01	0*	
Contribution to climate change-fossil	kg CO2 eq	5,98E+01	0*	0*	0*	0*	0*	5,98E+01	0*	
Contribution to climate change-biogenic	kg CO2 eq	1,12E+00	0*	0*	0*	0*	0*	1,12E+00	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	2,06E-07	0*	0*	0*	0*	0*	2,06E-07	0*	
Contribution to acidification	mol H+ eq	2,87E-01	0*	0*	0*	0*	0*	2,87E-01	0*	
Contribution to eutrophication, freshwater	kg P eq	3,03E-05	0*	0*	0*	0*	0*	3,03E-05	0*	
Contribution to eutrophication marine	kg N eq	3,46E-02	0*	0*	0*	0*	0*	3,46E-02	0*	
Contribution to eutrophication, terrestrial	mol N eq	5,29E-01	0*	0*	0*	0*	0*	5,29E-01	0*	
Contribution to photochemical ozone formation - human health	kg COVNM eq	1,11E-01	0*	0*	0*	0*	0*	1,11E-01	0*	
Contribution to resource use, minerals and metals	kg Sb eq	1,64E-05	0*	0*	0*	0*	0*	1,64E-05	0*	
Contribution to resource use, fossils	MJ	1,03E+03	0*	0*	0*	0*	0*	1,03E+03	0*	
Contribution to water use	m3 eq	4,16E+00	0*	0*	0*	0*	0*	4,16E+00	0*	

Inventory flows Indicators		Counter module - encoder emulation channel (A/B) - 4 MHz - TM5SE1MISC20005							
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	2,11E+02	0*	0*	0*	0*	0*	2,11E+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	2,11E+02	0*	0*	0*	0*	0*	2,11E+02	0*
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	1,03E+03	0*	0*	0*	0*	0*	1,03E+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	1,03E+03	0*	0*	0*	0*	0*	1,03E+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	9,72E-02	0*	0*	0*	0*	0*	9,72E-02	0*
Contribution to hazardous waste disposed	kg	1,36E+00	0*	0*	0*	0*	0*	1,36E+00	0*
Contribution to non hazardous waste disposed	kg	8,60E+00	0*	0*	0*	0*	0*	8,60E+00	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 v6.2.5-6, database version 2024-01 in compliance with ISO14044, EF3.1 method is applied, for biogenic carbon storage, assessment methodology -1/1 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 :	ENVPEP1511026_V2	Drafting rules	PCR-4-ed4-FR-2021 09 06
Date of issue	12-2025	Supplemented by	PSR-0005-ed3-EN-2023 06 06
		Information and reference documents	<a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a>
		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"			

Schneider Electric Industries SAS

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

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