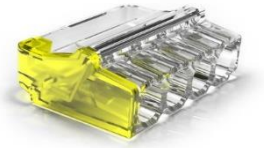
Powering Business Worldwide	**Product Environmental Profile**	PEP ecopassport®

	**Connection Terminal: Slim Connector**

Representative product	Slim connector with 4 entries and plastic bag packaging Product category : Power connection accessories
Description of the product	EATON Capri offers slim connectors which are used to connect together rigid wires from 0.5 to 2.5 mm² in the residential application. It has an option of 2 to 5 inputs in order to have optimal connections as per the requirement with 24A of maximum current intensity and are certified in accordance with EN60998-1 and EN60998-2-2 standards. These are also offered in pot & suitcase packaging.
Homogeneous Environmental Families Covered	The PEP concerns all the other product offerings covering slim type connection terminals as described below: 1. Slim connector with 2 entries and plastic bag packaging 2. Slim connector with 3 entries and plastic bag packaging 3. Slim connector with 5 entries and plastic bag packaging 4. Slim connector with 2 entries and plastic pot packaging 5. Slim connector with 3 entries and plastic pot packaging 6. Slim connector with 4 entries and plastic pot packaging 7. Slim connector with 5 entries and plastic pot packaging 8. Slim connector with 2 entries and plastic suitcase packaging 9. Slim connector with 3 entries and plastic suitcase packaging 10. Slim connector with 4 entries and plastic suitcase packaging 11. Slim connector with 5 entries and plastic suitcase packaging
Functional unit	To connect together the power transmission cables for one packaging unit, under operating conditions identical to those of the cable, namely: 1A during 30 years, with a use rate of 70%. Lifetime and use rate correspond to the residential building application as defined in the table given in Appendix 1 of the specific rules for Wire, Cables and Accessories.
Company information	Eaton Cooper Capri SAS 36, rue des Fontenils 41600, Nouan-le-Fuzelier, France Email: productstewardship-es@eaton.com

Constituent Materials			
Reference product mass	1.82E-03 kg (With packaging)		
Category PEP Material	Materials	Mass (kg)	Percentage (%)
Plastic	Polycarbonate	1.17E-03	64.4%
Metal	Stainless Steel	3.60E-04	19.8%
Metal	Copper	1.90E-04	10.5%
Others	Cardboard	8.00E-05	4.4%
Plastic	PELD	1.60E-05	0.9%
Metal	Tin	1.81E-07	<0.1%
Total		**1.82E-03**	**100%**

Substance Assessment
The representative product is compliant with the EU-RoHS Directive (2011/65/EU) by application of exemptions and the product contains lead (Pb) which is listed as Substance-of-Very-High-Concern (SVHC) on the Candidate List of the EU-REACH Regulation (1907/2006/EC). However, the Lead concentration is below threshold as per the Article definition under the REACH Regulation.

Additional Environmental Information	
Manufacturing	The reference product is manufactured at the direct source supplier plant in China which has set operational procedures for environmental protection and complies with local regulations.
Distribution	Eaton is committed to minimizing weight and volume of product and packaging with focus to optimize transport efficiency.
Installation	The installation of the product requires standard tools which do not require any additional energy source and no waste other than the obsolete product packaging is generated during this step.
Use	The product does not require maintenance during operation.
End of life	If product undergoes direct shredding, then the recyclability rate is 21.4% The rate is calculated based on the method of the IEC /TR 62635.

Environmental Impacts	
The calculation of the environmental impacts is the result of the Product's Life Cycle Analysis in accordance with ISO 14040/44, covering the entire lifecycle, i.e. "Cradle-to-Grave" including the following life cycle phases: production, distribution, installation, use and end of life. System modelling was carried out using the commercial LCA software EIME v5.9.4 with database version CODDE-2022-01.	
Manufacturing Phase	The product is manufactured at direct source supplier in China. The packed product is then shipped to Eaton facility Eaton Neuan-Le-Fuzelier, France plant through 440 km by lorry and 20,200 km by container ship. Energy model used: China
Distribution Phase	Distribution of the product in its packaging from the Eaton's last logistics platform to the installation place in France is considered as per PCR rules.

Installation Phase	Product is installed in France. Only treatment of packaging waste is considered in this phase. Energy model used for treatment of packaging: Europe
Use Phase	Reference lifetime: 30 Years Usage rate: 70% of reference lifetime Energy model used: France Usage profile: Power loss with 1A current flow is **2.47E-04** W. The product is active for 70% of the time. Total energy losses are 45.35 Wh over the 30 years calculated at 1A current.
End of life Phase	Product disposed with WEEE guidelines. Energy model used: Europe

Environmental Impact Indicators: Mandatory

Impact Indicators	Unit	Total	Manufacturing	Distribution	Installation	Use*(B6 Only)	End of life
Global warming (GWP100)	kg CO_2 eq.	1.47E-02	1.13E-02	1.22E-04	9.13E-06	2.93E-03	3.21E-04
Ozone layer depletion	kg CFC-11 eq.	1.07E-09	1.02E-09	2.48E-13	2.03E-14	4.04E-11	1.27E-11
Acidification potential	kg SO_2 eq.	4.46E-05	3.50E-05	5.49E-07	4.10E-08	8.55E-06	4.19E-07
Eutrophication	kg PO_4^{3-} eq.	6.67E-05	6.48E-05	1.26E-07	9.68E-09	1.62E-06	1.38E-07
Photochemical oxidation	kg ethylene eq.	3.77E-06	3.20E-06	3.90E-08	2.91E-09	4.80E-07	4.65E-08
Abiotic depletion (elements)	kg antimony eq.	4.42E-07	4.40E-07	4.89E-12	3.67E-13	2.82E-09	4.00E-12
Abiotic depletion (fossil fuels)	MJ	2.31E-01	1.85E-01	1.72E-03	1.28E-04	4.28E-02	1.63E-03
Water Pollution	m^3	2.56E+00	2.43E+00	2.01E-02	1.50E-03	8.92E-02	1.93E-02
Air pollution	m^3	1.43E+00	1.15E+00	5.01E-03	3.80E-04	2.64E-01	1.78E-02

*B6 is energy requirements during the use stage. Other sub modules in the use stage (B1-B5, B7) are equal to zero. So, it is not listed in the table.

Environmental Impact Indicators: Optional

Impact Indicators	Unit	Total	Manufacturing	Distribution	Installation	Use*(B6 Only)	End of life
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	5.76E-02	3.77E-03	2.30E-06	1.92E-07	5.38E-02	2.24E-06
Use of renewable primary energy resources used as raw materials	MJ	2.16E-04	2.16E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	5.78E-02	3.99E-03	2.30E-06	1.92E-07	5.38E-02	2.24E-06

Impact Indicators	Unit	Total	Manufacturing	Distribution	Installation	Use*(B6 Only)	End of life
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	7.50E-01	1.64E-01	1.73E-03	1.29E-04	5.82E-01	2.13E-03
Use of non-renewable primary energy resources used as raw materials	MJ	3.76E-02	3.76E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	7.87E-01	2.01E-01	1.73E-03	1.29E-04	5.82E-01	2.13E-03
Use of secondary materials	kg	4.88E-04	4.88E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	m^3	1.76E-04	5.21E-05	1.09E-08	8.78E-10	1.23E-04	2.61E-07
Hazardous waste disposed of	kg	3.55E-02	3.24E-02	0.00E+00	3.40E-10	4.51E-05	3.08E-03
Non-hazardous waste disposed of	kg	1.39E-02	1.36E-02	4.35E-06	1.04E-06	2.91E-04	6.72E-06
Radioactive waste disposed of	kg	3.57E-06	3.43E-06	3.09E-09	2.54E-10	1.22E-07	1.18E-08
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	4.48E-04	0.00E+00	0.00E+00	8.02E-05	0.00E+00	3.68E-04
Materials for energy recovery	kg	1.51E-05	0.00E+00	0.00E+00	1.51E-05	0.00E+00	0.00E+00
Exported energy	MJ by energy vector	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of primary energy during the life cycle	MJ	8.45E-01	2.05E-01	1.73E-03	1.29E-04	6.36E-01	2.13E-03

*B6 is energy requirements during the use stage. Other sub modules in the use stage (B1-B5, B7) are equal to zero. So, it is not listed in the table.

The above results are with the following parameters:
- 1 slim connector for the production, distribution, installation and end of life stages
- 1 slim connector and 1A for the use stage

The potential impact of the use stage, estimated as Joule losses, shall be calculated by the user of the PEP as a function of the actual amperage during the use of the product by multiplying the impact considered by the square of the intensity. The PEP is valid within an intensity range taking into account of the maximum permissible intensity of 24A.

To evaluate the environmental impact of other product covered by this PEP, multiply the impact figures by

Factors for Manufacturing, Distribution, Installation, Use and End-of-Life Phase:

Products	Phases	Global warming (kg CO_2 eq.)	Ozone depletion (kg CFC-11 eq.)	Acidification potential (kg SO_2 eq)	Eutrophication (kg PO_4^{3-} eq.)	Photochemical oxidation (kg ethylene eq.)	Abiotic depletion – elements (kg antimony eq.)	Abiotic depletion - fossil fuels (MJ)	Water pollution (m^3)	Air pollution (m^3)
Slim connector with 4 entries and plastic bag packaging	All Phases	1.00								
Slim connector with 2 entries and plastic bag packaging	Manufacturing	0.55	0.50	0.55	0.56	0.55	0.48	0.56	0.56	0.52
	Distribution	0.56								
	Installation	0.90	0.91	0.90	0.90	0.90	0.90	0.90	0.90	0.90
	Use	0.49								
	End of Life	0.56	0.54	0.54	0.55	0.54	0.54	0.54	0.55	0.54
Slim connector with 3 entries and plastic bag packaging	Manufacturing	0.74	0.71	0.73	0.75	0.74	0.69	0.75	0.75	0.72
	Distribution	0.74								
	Installation	0.90	0.91	0.90	0.90	0.90	0.90	0.90	0.90	0.90
	Use	0.75								
	End of Life	0.74	0.73	0.73	0.74	0.73	0.73	0.73	0.74	0.73
Slim connector with 5 entries and plastic bag packaging	Manufacturing	1.19	1.23	1.20	1.17	1.19	1.27	1.18	1.18	1.22
	Distribution	1.20								
	Installation	1.00								
	Use	1.25								
	End of Life	1.18	1.21	1.21	1.19	1.21	1.21	1.21	1.20	1.21
Slim connector with 2 entries and plastic pot packaging	Manufacturing	0.67	0.52	0.67	0.57	0.67	0.48	0.65	0.59	0.62
	Distribution	0.72								
	Installation	3.95	4.78	3.94	4.20	3.95	4.00	3.93	3.93	4.10
	Use	0.49								
	End of Life	0.62	0.54	0.64	0.64	0.60	0.63	0.61	0.64	0.57
Slim connector with 3 entries and plastic pot packaging	Manufacturing	0.90	0.73	0.91	0.77	0.90	0.69	0.86	0.78	0.86
	Distribution	0.97								
	Installation	5.26	6.36	5.24	5.59	5.25	5.32	5.23	5.23	5.45
	Use	0.75								
	End of Life	0.80	0.73	0.74	0.77	0.73	0.74	0.73	0.76	0.74
Slim connector with 4 entries and plastic pot packaging	Manufacturing	1.25	1.04	1.26	1.02	1.25	1.00	1.18	1.05	1.20
	Distribution	1.36								
	Installation	7.88	9.55	7.86	8.37	7.87	7.98	7.84	7.83	8.18
	Use	1.00								
	End of Life	1.08	1.00	1.01	1.04	1.00	1.00	1.00	1.03	1.01
Slim connector with 5 entries and plastic pot packaging	Manufacturing	1.45	1.27	1.47	1.20	1.45	1.27	1.36	1.23	1.42
	Distribution	1.56								
	Installation	7.88	9.55	7.86	8.37	7.87	7.98	7.84	7.83	8.18
	Use	1.25								

Products	Phases	Global warming (kg CO_2 eq.)	Ozone depletion (kg CFC-11 eq.)	Acidification potential (kg SO_2 eq)	Eutrophication (kg PO_4^{3-} eq.)	Photochemical oxidation (kg ethylene eq.)	Abiotic depletion – elements (kg antimony eq.)	Abiotic depletion - fossil fuels (MJ)	Water pollution (m^3)	Air pollution (m^3)
	End of Life	1.29	1.21	1.22	1.26	1.22	1.22	1.22	1.25	1.22
Slim connector with 2 entries and plastic suitcase packaging	Manufacturing	0.64	0.51	0.66	0.57	0.67	0.48	0.71	0.62	0.59
	Distribution	0.69								
	Installation	3.49	4.67	3.48	3.84	3.48	3.56	3.46	3.46	3.70
	Use	0.49								
	End of Life	0.49	0.52	0.53	0.51	0.54	0.54	0.54	0.52	0.53
Slim connector with 3 entries and plastic suitcase packaging	Manufacturing	0.86	0.73	0.89	0.77	0.91	0.69	0.95	0.83	0.82
	Distribution	0.94								
	Installation	4.73	6.33	4.71	5.21	4.72	4.83	4.69	4.69	5.02
	Use	0.75								
	End of Life	0.65	0.70	0.72	0.68	0.73	0.73	0.73	0.69	0.72
Slim connector with 4 entries and plastic suitcase packaging	Manufacturing	1.16	1.03	1.22	1.02	1.23	1.00	1.28	1.12	1.13
	Distribution	1.28								
	Installation	6.47	8.65	6.43	7.11	6.45	6.59	6.40	6.40	6.85
	Use	1.00								
	End of Life	0.88	0.96	0.98	0.93	0.99	1.00	0.99	0.95	0.99
Slim connector with 5 entries and plastic suitcase packaging	Manufacturing	1.40	1.27	1.48	1.20	1.48	1.27	1.53	1.32	1.38
	Distribution	1.56								
	Installation	7.86	10.50	7.82	8.64	7.84	8.01	7.78	7.78	8.32
	Use	1.25								
	End of Life	1.05	1.16	1.19	1.12	1.21	1.21	1.21	1.14	1.20

Disclaimer

This Product Environmental Profile and its content is based on information available to us. It refers to the product at the date of issue. We make no express or implied representations or warranties with respect to the information contained herein.

Registration N°	EATO-00056-V01.01-EN	*Drafting rules*	PCR-ed3-EN-2015 04 02
Verifier accreditation N°	VH47	Supplemented by	PSR-0001-ed3-EN-2015 10 16
Date of issue	10-2022	*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	X	External	
The PCR review was conducted by a panel of experts chaired by chaired by Philippe Osset (SOLINNEN)			
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 »			