Product Environmental Profile

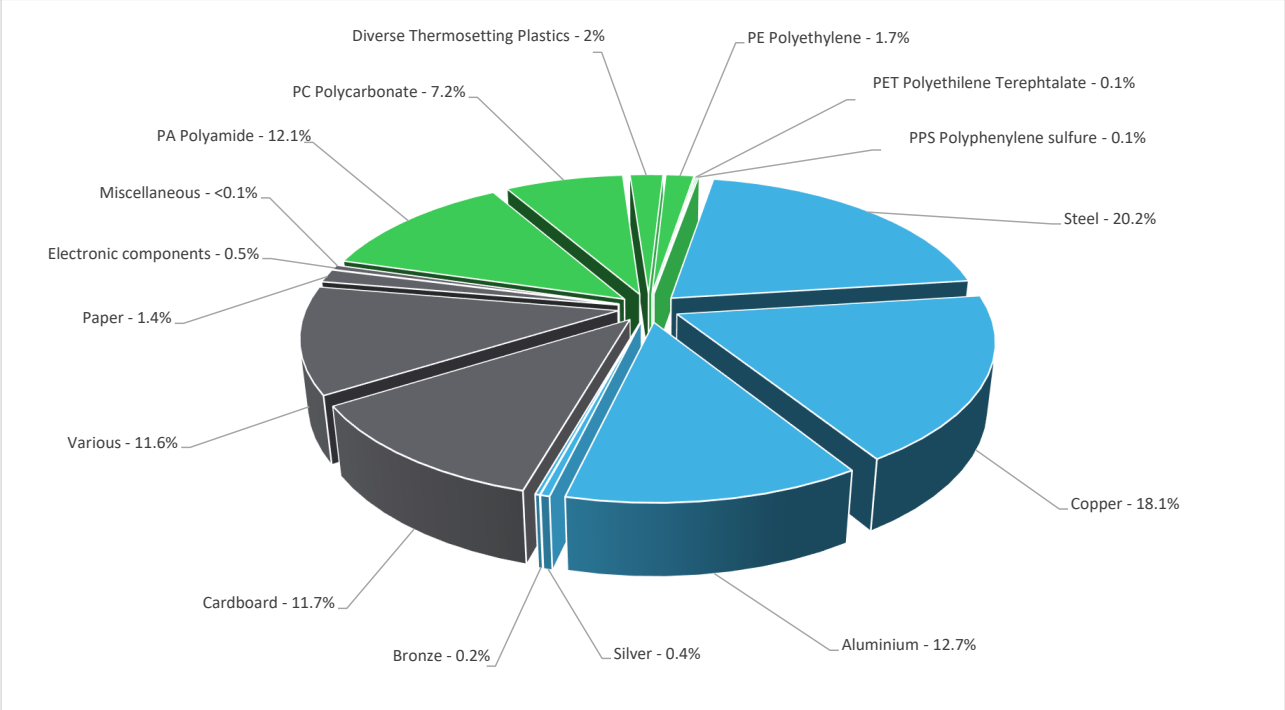
Powerpact™ L-frame molded case circuit breaker with micrologic™ trip unit

General information

Reference product	Powerpact™ L-frame molded case circuit breaker with micrologic™ trip unit - LLL36600U31X
Description of the product	The main purpose of the PowerPact™ L-Frame Molded Case Circuit Breaker with Micrologic™ Trip Unit is to protect electrical systems from damages caused by overloads and short circuits.
Description of the range	Single product
Functional unit	Protect the installation from overloads and short circuits in a circuit with rated voltage Ue, rated current In, with Np poles, a rated breaking capacity Icu, and, if applicable, the specific specifications, in the Industrial application area, according to the appropriate use scenario, and during the reference service life of the product of 20 years.
Specifications are:	Protect during 20 years the installation against overloads and short-circuits in circuit with assigned voltage 600 V and rated current 600 A. This protection is ensured in accordance with the following parameters: Ue = Rated operating voltage (V) - 600V In = Rated current (A) - 600A Np = Number of poles / number of protected poles - 3 NOS Icu: Rated breaking capacity (A) - 50 kA Current type - AC

Constituent materials

Reference product mass	8040 g	including the product and its packaging



Metals	51.6%
Others	25.2%
Plastics	23.2%

Substance assessment

Details of ROHS and REACH substances information are available on the Schneider-Electric website
https://www.se.com

Additional environmental information

End Of Life	Recyclability potential:	**59%**	The recyclability rate was calculated from the recycling rates of each material making up the product based on REEECY'LAB 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

Reference service life time	20 years			
Product category	Circuit-breakers - Industrial			
Life cycle of the product	The manufacturing, the distribution, the installation, the use and the end of life were taken into consideration in this study			
Electricity consumption	The electricity consumed during manufacturing processes is considered for each part of the product individually, the final assembly generates a negligable consumption and is not considered in the analysis.			
Installation elements	The product does not require any installation operations & end of life instructions of packaging is considered in installation phase.			
Use scenario	Use time rate: 30% of RLT The energy consumption of the product is 113.4 W on full time load by confirmed from designer.According to PSR0005, load rate: 50 % of In; Use time rate: 30% of the RLT as 28.35 W The end user must refer to maintenance guide of the product in order to do the appropriate maintenance operations. The MODULE T - U31 UL 3P 600A (3P3T MICROLOGIC 3.3 600A TRIP UNIT) and VISI-TRIP HANDLE C2 MODULE to be replaced every 10 years and the battery (Lithium Coin) every 5 years.			
Time representativeness	The collected data are representative of the year 2025			
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 representative of the actual type of technologies used to make the product.			
Geographical representativeness	**Final assembly site**	**Use phase**		**End-of-life**
	Columbia, US	US		US
Energy model used	**[A1 - A3]**	**[A5]**	**[B6]**	**[C1 - C4]**
	Electricity Mix; Europe, EU Electricity Mix; Global, GLO	No energy used	Electricity Mix; Low voltage; 2020; 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		**Powerpact™ L-frame molded case circuit breaker with micrologic™ trip unit - LLL36600U31X**						
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	7.97E+02	5.18E+01	2.32E+00	2.24E+00	7.29E+02	1.22E+01	-2.34E+01
Contribution to climate change-fossil	kg CO2 eq	7.91E+02	5.13E+01	2.32E+00	7.24E-01	7.25E+02	1.21E+01	-2.26E+01
Contribution to climate change-biogenic	kg CO2 eq	5.97E+00	5.32E-01	0*	1.52E+00	3.82E+00	9.58E-02	-7.09E-01
Contribution to climate change-land use and land use change	kg CO2 eq	8.59E-04	8.11E-04	0*	0*	4.59E-05	1.97E-06	0.00E+00
Contribution to ozone depletion	kg CFC-11 eq	1.92E-05	1.28E-05	2.06E-06	1.21E-08	4.13E-06	2.08E-07	-3.75E-06
Contribution to acidification	mol H+ eq	4.02E+00	5.64E-01	1.05E-02	2.05E-03	3.41E+00	3.33E-02	-3.58E-01
Contribution to eutrophication, freshwater	kg P eq	1.86E-03	4.79E-04	2.73E-07	3.92E-07	1.36E-03	2.16E-05	-6.66E-05
Contribution to eutrophication marine	kg N eq	4.78E-01	4.47E-02	4.85E-03	5.15E-04	4.20E-01	7.38E-03	-1.46E-02
Contribution to eutrophication, terrestrial	mol N eq	5.59E+00	4.85E-01	5.25E-02	6.86E-03	4.96E+00	8.52E-02	-1.65E-01
Contribution to photochemical ozone formation - human health	kg COVNM eq	1.61E+00	1.73E-01	1.70E-02	1.45E-03	1.40E+00	2.24E-02	-6.81E-02
Contribution to resource use, minerals and metals	kg Sb eq	3.96E-02	3.75E-02	2.01E-10	4.76E-08	2.07E-03	0*	-4.24E-03
Contribution to resource use, fossils	MJ	1.68E+04	9.76E+02	2.90E+01	6.20E+00	1.57E+04	9.31E+01	-3.85E+02
Contribution to water use	m3 eq	7.48E+01	2.83E+01	1.18E-01	5.35E-02	4.48E+01	1.50E+00	-1.66E+01

Inventory flows Indicators		Powerpact™ L-frame molded case circuit breaker with micrologic™ trip unit - LLL36600U31X						
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	1.94E+03	3.26E+01	0*	5.27E-01	1.90E+03	5.71E+00	-1.61E+01
Contribution to use of renewable primary energy resources used as raw material	MJ	2.62E+01	2.12E+01	0*	0*	5.03E+00	0*	0.00E+00
Contribution to total use of renewable primary energy resources	MJ	1.97E+03	5.38E+01	0*	5.27E-01	1.91E+03	5.71E+00	-1.61E+01
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	1.67E+04	9.09E+02	2.90E+01	6.20E+00	1.57E+04	9.31E+01	-3.85E+02
Contribution to use of non renewable primary energy resources used as raw material	MJ	7.65E+01	6.75E+01	0*	0*	8.96E+00	0*	0.00E+00
Contribution to total use of non-renewable primary energy resources	MJ	1.68E+04	9.76E+02	2.90E+01	6.20E+00	1.57E+04	9.31E+01	-3.85E+02
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	m³	1.75E+00	6.58E-01	2.76E-03	1.24E-03	1.05E+00	4.16E-02	-3.88E-01
Contribution to hazardous waste disposed	kg	5.43E+02	4.29E+02	0*	3.59E-01	1.14E+02	9.02E-02	-3.32E+02
Contribution to non hazardous waste disposed	kg	2.01E+02	7.62E+01	0*	1.75E-01	1.18E+02	6.43E+00	-2.91E+01
Contribution to radioactive waste disposed	kg	6.29E-02	3.48E-02	4.64E-04	2.24E-05	2.73E-02	3.30E-04	-2.14E-02
Contribution to components for reuse	kg	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to materials for recycling	kg	4.98E+00	1.62E-01	0*	0*	7.56E-01	4.06E+00	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	4.94E-02	1.74E-03	0*	0*	7.50E-03	4.02E-02	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	2.74E-01

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

Mandatory Indicators		Powerpact™ L-frame molded case circuit breaker with micrologic™ trip unit - LLL36600U31X							
Impact indicators	Unit	[B1 - B7] - Use	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]
Contribution to climate change	kg CO2 eq	7.29E+02	0*	1.18E+01	0*	0*	0*	7.17E+02	0*
Contribution to climate change-fossil	kg CO2 eq	7.25E+02	0*	1.17E+01	0*	0*	0*	7.13E+02	0*
Contribution to climate change-biogenic	kg CO2 eq	3.82E+00	0*	1.23E-01	0*	0*	0*	3.70E+00	0*
Contribution to climate change-land use and land use change	kg CO2 eq	4.59E-05	0*	4.59E-05	0*	0*	0*	0*	0*
Contribution to ozone depletion	kg CFC-11 eq	4.13E-06	0*	1.36E-06	0*	0*	0*	2.77E-06	0*
Contribution to acidification	mol H+ eq	3.41E+00	0*	1.45E-01	0*	0*	0*	3.27E+00	0*
Contribution to eutrophication, freshwater	kg P eq	1.36E-03	0*	1.69E-04	0*	0*	0*	1.19E-03	0*
Contribution to eutrophication marine	kg N eq	4.20E-01	0*	9.17E-03	0*	0*	0*	4.11E-01	0*
Contribution to eutrophication, terrestrial	mol N eq	4.96E+00	0*	1.01E-01	0*	0*	0*	4.86E+00	0*
Contribution to photochemical ozone formation - human health	kg COVNM eq	1.40E+00	0*	3.62E-02	0*	0*	0*	1.36E+00	0*
Contribution to resource use, minerals and metals	kg Sb eq	2.07E-03	0*	1.96E-03	0*	0*	0*	1.09E-04	0*
Contribution to resource use, fossils	MJ	1.57E+04	0*	1.72E+02	0*	0*	0*	1.55E+04	0*
Contribution to water use	m3 eq	4.48E+01	0*	8.83E+00	0*	0*	0*	3.60E+01	0*

Inventory flows Indicators		Powerpact™ L-frame molded case circuit breaker with micrologic™ trip unit - LLL36600U31X							
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	1.90E+03	0*	8.26E+00	0*	0*	0*	1.90E+03	0*
Contribution to use of renewable primary energy resources used as raw material	MJ	5.03E+00	0*	5.03E+00	0*	0*	0*	0*	0*
Contribution to total use of renewable primary energy resources	MJ	1.91E+03	0*	1.33E+01	0*	0*	0*	1.90E+03	0*
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	1.57E+04	0*	1.63E+02	0*	0*	0*	1.55E+04	0*
Contribution to use of non renewable primary energy resources used as raw material	MJ	8.96E+00	0*	8.96E+00	0*	0*	0*	0*	0*
Contribution to total use of non-renewable primary energy resources	MJ	1.57E+04	0*	1.72E+02	0*	0*	0*	1.55E+04	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	m^3	1.05E+00	0*	2.06E-01	0*	0*	0*	8.40E-01	0*
Contribution to hazardous waste disposed	kg	1.14E+02	0*	1.00E+02	0*	0*	0*	1.34E+01	0*
Contribution to non hazardous waste disposed	kg	1.18E+02	0*	1.23E+01	0*	0*	0*	1.06E+02	0*
Contribution to radioactive waste disposed	kg	2.73E-02	0*	2.23E-03	0*	0*	0*	2.51E-02	0*
Contribution to components for reuse	kg	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to materials for recycling	kg	7.56E-01	0*	7.56E-01	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	7.50E-03	0*	7.50E-03	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

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 :	SCHN-02043-V01.01-EN	*Drafting rules*	PEP-PCR-ed4-2021 09 06
		Supplemented by	PSR-0005-ed3.1-EN-2023 12 08
Verifier accreditation N°	VH42	*Information and reference documents*	www.pep-ecopassport.org
Date of issue	`	*Validity period*	5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2006			
Internal	External X		
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
Head Office
35, rue Joseph Monier
CS 30323
F- 92500 Rueil Malmaison Cedex
RCS Nanterre 954 503 439
Capital social 928 298 512 €

www.se.com
SCHN-02043-V01.01-EN
Published by Schneider Electric