



Product Environmental Profile



Eaton ZV Plug-in Busbar System 50A/80A. Busbar CU, 1 meter, with cross section 16 mm² / 25 mm²

Representative product	ZV-SS-80A (263957) Product Category: Other Equipment-Passive Product
Description of the product	Eaton's ZV variable plug-in busbar system offers flexible connection options for 3-phase and 1-phase switchgear assemblies in accordance with EN 61439-1. With just three different connection brackets and one phase busbar type, residual current devices (RCDs) and miniature circuit breakers (MCBs) can be easily connected. The busbar can be shortened as required and is then sealed with an insulating profile cover and the appropriate end caps. Its flexible design allows for easy integration into final distribution boards in Residential, light commercial and large commercial applications.
Homogeneous Environmental Families Covered	The PEP concerns following product offerings from Eaton distribution parts busbar as mentioned below: 263957 ZV-SS-80A (Representative) 263956 ZV-SS
Functional unit	"To supply the electrical power in the Final Distribution Boards , handling current up to 80A with 1m length for a reference service life of 20 years."
Company information	Eaton Electro Productie s.r.l, Independentei 8, Sarbi, Romania Email: productstewardship-es@eaton.com

Constituent Materials			
Reference product mass	2.47E-01Kg (With packaging)		
Category PEP Material	Material constituent	Mass (kg)	% Contribution
Metals	Copper	2.35E-01	95.3%

Other	Cardboard	7.46E-03	3.0%
Other	Wood	3.50E-03	1.4%
Other	Wrapping foil	3.90E-04	0.2%
Plastics	Polyamide 6.6	2.00E-04	<0.1%
Other	Nickel Plating	1.83E-04	<0.1%
Total		2.47E-01	100.0%

Substance Assessment

The representative product is compliant with the EU-RoHS Directive (2011/65/EU) and the product doesn't contain any substance listed as Substance-of-Very-High-Concern (SVHC) on the Candidate List of the EU-REACH Regulation (1907/2006/EC).

Additional Environmental Information

Manufacturing	The reference product is assembled at an Eaton Romania holding management system certifications according to ISO 14001 standards.
Distribution	Eaton is committed to minimizing weight and volume of product and packaging with focus to optimize transport efficiency.
Installation	The installation process does not require any energy consumption.
Use	The product does not require maintenance or replacement during operation.
End of life	Recyclability of product is equal to 60.2% based on the method described in IEC/TR 62635, Edition 1.0/2012-10 "Guidelines for end-of-life information provided by manufacturers and recyclers and for recyclability rate calculation of electrical and electronic equipment".

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 v6.2.5-6 with database version CODDE-2024-04 - updated on 2024-06-04

Indicators Set: PEF EF 3.1 (Compliance: PEP ed.4, EN15804+A2) v2.0

Manufacturing Phase	The product is assembled as well as packed at Eaton Electro Productie s.r.l, Independentei 8, Sarbi, Romania Energy model used: Romania
Distribution Phase	Distribution of the product in its packaging from the Eaton's last logistics platform to the installation place in Europe is considered as per PCR rules.
Installation Phase	Product is installed in Europe. Installation of product and treatment of packaging waste are considered in this phase. Energy model used: Europe
Use Phase	Reference lifetime: 20 Years Usage profile: The product has power loss of 4.30 W at full load condition. For non-continuous operation considering 30% of the loading rate and 30% of the use time rate, total losses are 20.34 kWh over the 20 years. Product do not require any maintenance/replacement during useful life. non-continuous operation is considered as per PSR-0005 section 3.15.2.1. Energy model used: Europe

of life Phase	Product disposed with WEEE guidelines. Energy model used: Europe
Module-D	Module D is calculated according to PCR-ed4-EN-2021 09 06 based on the materials recycled and the modelled end-of-life scenario. It expresses the net benefits and loads beyond the boundaries of the system and are not to be included in the life cycle totals.

Environmental Impact Indicators: Mandatory

Mandatory environmental impact indicators	Units	Sum	A1-A3 - Manufacturing	A4 - Distribution	A5 - Installation	B6 - Operational energy use	C1-C4 - End of life	D - Benefits and loads beyond the system boundaries
Climate change – total (GWP)	kg CO2 eq.	8.87E+00	1.33E+00	5.87E-02	2.90E-02	7.17E+00	2.76E-01	-3.16E-01
Climate change - fossil fuels (GWP-f)	kg CO2 eq.	8.74E+00	1.26E+00	5.87E-02	1.17E-02	7.16E+00	2.47E-01	-2.98E-01
Climate change – biogenics (GWP-b)	kg CO2 eq.	1.28E-01	6.85E-02	0.00E+00	1.73E-02	1.32E-02	2.89E-02	-1.74E-02
Climate change - land use and land use transformation (GWP-lu)	kg CO2 eq.	6.84E-07	2.05E-07	0.00E+00	0.00E+00	0.00E+00	4.79E-07	0.00E+00
Ozone depletion (ODP)	kg eq. CFC-11	3.11E-07	2.57E-07	9.02E-11	3.33E-10	3.47E-08	1.90E-08	-9.16E-08
Acidification (AP)	mole of H+ eq.	1.01E-01	6.01E-02	3.73E-04	3.39E-05	3.67E-02	3.48E-03	-2.30E-02
Freshwater eutrophication (EP-fw)	kg P eq.	1.31E-03	3.88E-04	2.21E-08	1.17E-07	1.89E-05	9.01E-04	-5.30E-07
Marine aquatic eutrophication (EP-m)	kg of N eq.	6.54E-03	1.53E-03	1.75E-04	1.26E-05	4.48E-03	3.48E-04	-3.53E-04
Terrestrial eutrophication (EP-t)	mole of N eq.	9.68E-02	1.79E-02	1.92E-03	9.41E-05	7.19E-02	4.94E-03	-4.11E-03
Photochemical ozone formation (POCP)	kg of NMVOC eq.	2.43E-02	8.58E-03	4.83E-04	2.34E-05	1.41E-02	1.14E-03	-2.60E-03
Depletion of abiotic resources – elements (ADPe)	kg eq. Sb	4.93E-04	4.61E-04	2.32E-09	7.29E-10	2.54E-06	2.93E-05	-1.88E-04
Depletion of abiotic resources - fossil fuels (ADP-f)	MJ	2.09E+02	2.32E+01	8.21E-01	9.68E-02	1.81E+02	3.70E+00	-5.32E+00
Water scarcity (WDP)	m3 of eq.. deprivation worldwide	4.48E+00	3.16E+00	2.23E-04	2.24E-03	5.49E-01	7.69E-01	-1.12E+00

Inventory Flow Indicators: Mandatory

Inventory flow indicators	Units	Sum	A1-A3 - Manufacturing	A4 - Distribution	A5 - Installation	B6 - Operational energy use	C1-C4 - End of life	D - Benefits and loads beyond the system boundaries
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	5.20E+01	3.36E+00	1.10E-03	5.04E-02	4.79E+01	7.23E-01	-5.79E-01

Inventory flow indicators	Units	Sum	A1-A3 - Manufacturing	A4 - Distribution	A5 - Installation	B6 - Operational energy use	C1-C4 - End of life	D - Benefits and loads beyond the system boundaries
Use of renewable primary energy resources used as raw materials	MJ	3.90E-01	3.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.16E-01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	5.24E+01	3.75E+00	1.10E-03	5.04E-02	4.79E+01	7.23E-01	-6.95E-01
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	2.09E+02	2.31E+01	8.21E-01	9.68E-02	1.81E+02	3.70E+00	-5.30E+00
Use of non-renewable primary energy resources used as raw materials	MJ	9.74E-02	9.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.22E-02
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	2.09E+02	2.32E+01	8.21E-01	9.68E-02	1.81E+02	3.70E+00	-5.32E+00
Use of secondary materials	kg	0.00E+00	0.00E+00	0.00E+00	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	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	0.00E+00
Net use of fresh water	m3	1.04E-01	7.35E-02	5.20E-06	8.55E-05	1.29E-02	1.79E-02	-2.62E-02
Hazardous waste disposed of	kg	4.19E+01	4.13E+01	0.00E+00	8.73E-04	3.14E-01	2.89E-01	-1.73E+01
Non-hazardous waste disposed of	kg	1.46E+00	1.86E-01	2.06E-03	4.58E-03	1.21E+00	5.16E-02	-2.79E-02
Radioactive waste disposed of	kg	3.80E-04	9.76E-05	1.47E-06	5.64E-07	2.78E-04	3.01E-06	-2.70E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	2.15E-01	6.68E-02	0.00E+00	7.40E-03	0.00E+00	1.41E-01	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ by energy vector	3.48E-03	2.27E-03	0.00E+00	1.21E-03	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content of the product	kg of C.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content of the associated packaging	kg of C.	9.06E-03	9.06E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Impact Indicators: Optional

Optional Environmental impact indicators	Units	Sum	A1-A3 - Manufacturing	A4 - Distribution	A5 - Installation	B6 - Operational energy use	C1-C4 - End of life	D - Benefits and loads beyond the system boundaries
Emission of fine particles	incidence of diseases	6.82E-07	3.64E-07	3.03E-09	2.00E-10	2.96E-07	1.90E-08	-1.38E-07
Ionizing radiation, human health	kBq of U235 eq.	1.05E+02	9.35E+01	1.43E-04	9.29E-01	1.03E+01	5.26E-02	-3.96E+01

Optional Environmental impact indicators	Units	Sum	A1-A3 - Manufacturing	A4 - Distribution	A5 - Installation	B6 - Operational energy use	C1-C4 - End of life	D - Benefits and loads beyond the system boundaries
Ecotoxicity, fresh water	CTUe	7.01E+01	2.94E+01	3.85E-02	1.23E-01	1.35E+01	2.70E+01	-5.46E+00
Human toxicity, cancer effects	CTUh	1.29E-08	1.03E-08	1.03E-12	7.76E-10	9.02E-10	9.00E-10	-3.97E-09
Human toxicity, non-cancer effects	CTUh	8.58E-07	7.67E-07	2.00E-11	2.86E-11	2.15E-08	6.88E-08	-3.09E-07
Impacts related to land use/soil quality	-	4.10E+00	1.18E+00	0.00E+00	3.08E-05	1.98E-01	2.73E+00	-1.55E-04
Total use of primary energy during the life cycle	MJ	2.61E+02	2.70E+01	8.22E-01	1.47E-01	2.29E+02	4.42E+00	-6.01E+00


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

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

Part Number	Product Description	Phases	GWP (kg CO ₂ eq.)	GWP-f (kg CO ₂ eq.)	GWP-b (kg CO ₂ eq.)	GWP-lu (kg CO ₂ eq.)	ODP (kg CFC-11 eq.)	AP (mol H ⁺ eq.)	EP-fw (kg P eq.)	EP-m (kg N eq.)	EP-t (mol N eq.)	POCP (kg NMVOC eq.)	ADP-e (kg Sb eq.)	ADP-f (MJ)	WDP (m ³ eq.)
263957 (Reference)	ZV-SS-80A (Reference)	All Phases	1.00												
263956	ZV-SS	Manufacturing	0.60	0.60	0.63	0.60	0.60	0.60	0.60	0.59	0.59	0.60	0.60	0.60	0.60
		Distribution	0.60	0.60	1.00	1.00	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
		Installation	0.43	0.38	0.46	1.00	0.73	0.42	0.27	0.27	0.35	0.39	0.59	0.34	0.76
		Use	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
		End of Life	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
		Module D	0.60	0.59	0.75	1.00	0.60	0.60	0.52	0.59	0.59	0.60	0.60	0.60	0.60

Disclaimer

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		<i>Validity period</i>	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)			
<i>PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019</i>			
<i>The components of the present PEP may not be compared with components from any other program.</i>			
<i>Document complies with ISO 14025: 2006 « Environmental labels and declarations. Type III environmental declarations »</i>			