Product Environmental Profile

NHI Accessory Standard Auxiliary Contact

Representative product	NHI12-PKZ0 (72895) Product Category: Other Equipment – Passive Products
Description of the product	Eaton NHI12-PKZ0 standard auxiliary contact are designed to provide remote information about the status of the main circuit breaker. The NHI12-PKZ0 Standard auxiliary contact provides remote information of the circuit breaker status and can be retrofitted on the right side of motor-protective circuit-breakers, Screw terminals.
Homogeneous Environmental Families Covered	The PEP concerns following product offerings from Eaton Moeller series NHI-PKZ0 Motor-protective circuit-breaker as mentioned below: • Series: NHI-PKZ0 Standard Auxiliary Contact 72895(reference), 72896, 268049, 72894, 198299, 202816
Functional unit	"To indicate the contacts position (1 N/O & 2N/C) of the associated device for a period of 20 years."
Company information	Eaton Industries GmbH Plant Gladbach, Alteckstraße 48, 56566, Neuwied, Germany Email: productstewardship-es@eaton.com

Constituent Materials			
Reference product mass	4.67E-02 Kg (With packaging)		
Category PEP Material	**Material constituent**	**Mass (kg)**	**% Contribution**
Plastics	PA66GF30	2.27E-02	48.6%
Metals	Steel Wire Rod	1.13E-02	24.3%
Other	Wooden Pallet	4.67E-03	10.0%
Other	Cardboard	4.58E-03	9.8%
Metals	Bronze CuSn6	1.44E-03	3.1%
Other	Paper	1.00E-03	2.1%
Other	PE-LD	5.02E-04	1.1%
Metals	Silver	3.17E-04	0.7%
Other	Label	1.02E-04	0.2%
Metals	Nickel	3.52E-05	0.1%
Total		**4.67E-02**	100%

Substance Assessment
The representative product is compliant with the EU-RoHS Directive (2011/65/EU) without exemption and the product doesn't contain any 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 plant Gladbach, Germany 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 and there is no waste other than the obsolete product packaging generated during this step.
Use	The product does not require maintenance during operation.
End of life	The recyclability rate of the overall product is 35.9%, The rate is calculated based on the method described in Table 7 PCR-ed4-EN-2021 09 06 Guidelines for end-of-life information provided by manufacturers and recyclers and for recyclability rate calculation of electrical and electronic equipments.

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 v6.3.0.1with 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 facility Eaton Industries GmbH Plant Gladbach, Alteckstraße 48, 56566, Neuwied, Germany plant. Energy model used: Germany
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. There is no energy consumption for reference product. Energy model used: Europe
Use Phase	Reference lifetime: 20 Years Usage profile: The product has power loss of 0.04W per contact at full load condition of 3.5A. For considering 30% of the loading rate and 100% of the use time rate, total losses are 1261.44Wh over the 20 years. Product do not require any maintenance/replacement during useful life, is considered as per PSR-0005 section 3.15. Energy model used: Europe
End 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 CO_2 eq.	8.62E-01	3.42E-01	1.11E-02	2.45E-02	4.45E-01	4.03E-02	-5.20E-02
Climate change - fossil fuels (GWP-f)	kg CO_2 eq.	8.57E-01	3.53E-01	1.11E-02	9.90E-03	4.44E-01	3.85E-02	-5.95E-02
Climate change - biogenics (GWP-b)	kg CO_2 eq.	5.89E-03	-1.13E-02	0.00E+00	1.46E-02	8.18E-04	1.80E-03	7.54E-03
Climate change - land use and land use transformation (GWP-lu)	kg CO_2 eq.	2.00E-08	1.21E-08	0.00E+00	1.34E-10	0.00E+00	7.74E-09	0.00E+00

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
Ozone depletion (ODP)	kg eq. CFC-11	1.43E-08	1.07E-08	1.71E-11	1.22E-10	2.15E-09	1.36E-09	-1.66E-08
Acidification (AP)	mole of H+ eq.	4.36E-03	1.78E-03	7.05E-05	2.18E-05	2.28E-03	2.04E-04	-4.54E-04
Freshwater eutrophication (Ep-fw)	kg P eq.	1.80E-05	8.14E-06	4.18E-09	8.80E-08	1.17E-06	8.58E-06	-5.03E-07
Marine aquatic eutrophication (Ep-m)	kg of N eq.	7.43E-04	3.86E-04	3.30E-05	8.73E-06	2.77E-04	3.85E-05	-4.73E-05
Terrestrial eutrophication (Ep-t)	mole of N eq.	7.98E-03	2.63E-03	3.62E-04	6.54E-05	4.46E-03	4.60E-04	-5.04E-04
Photochemical ozone formation (POCP)	kg of NMVOC eq.	1.93E-03	8.21E-04	9.14E-05	1.62E-05	8.73E-04	1.30E-04	-1.84E-04
Depletion of abiotic resources - elements (ADP-e)	kg eq. Sb	4.39E-04	4.39E-04	4.38E-10	3.69E-10	1.57E-07	2.61E-07	-1.71E-04
Depletion of abiotic resources - fossil fuels (ADP-f)	MJ	2.16E+01	8.03E+00	1.55E-01	6.93E-02	1.12E+01	2.12E+00	-8.60E-01
Water scarcity (WDP)	m^3 eq.deprivation worldwide	8.91E-01	8.40E-01	4.23E-05	6.58E-04	3.41E-02	1.65E-02	-3.62E-01

*Note: The Impacts of phases B1-B5, B7 are Zero (0), Hence not included in the table.

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	3.15E+00	1.16E-01	2.07E-04	3.16E-02	2.97E+00	3.73E-02	-4.27E-02
Use of renewable primary energy resources used as raw materials	MJ	3.10E-01	3.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.90E-02
Total use of renewable primary energy resources (primary energy and primary	MJ	3.46E+00	4.25E-01	2.07E-04	3.16E-02	2.97E+00	3.73E-02	-1.12E-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
energy resources used as raw materials)								
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	2.10E+01	7.42E+00	1.55E-01	6.93E-02	1.12E+01	2.12E+00	-8.59E-01
Use of non-renewable primary energy resources used as raw materials	MJ	6.15E-01	6.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.33E-03
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	2.16E+01	8.03E+00	1.55E-01	6.93E-02	1.12E+01	2.12E+00	-8.60E-01
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	m^3	2.08E-02	1.96E-02	9.84E-07	3.91E-05	8.00E-04	3.87E-04	-8.42E-03
Hazardous waste disposed of	kg	1.11E+00	1.04E+00	0.00E+00	8.99E-04	1.95E-02	4.45E-02	-8.45E-01
Non-hazardous waste disposed of	kg	2.37E-01	1.46E-01	3.91E-04	4.11E-03	7.51E-02	1.17E-02	-2.29E-02
Radioactive waste disposed of	kg	9.92E-05	7.86E-05	2.78E-07	4.55E-07	1.72E-05	2.66E-06	-1.16E-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	3.41E-02	1.74E-02	0.00E+00	5.49E-03	0.00E+00	1.13E-02	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	1.60E-03	0.00E+00	0.00E+00	1.54E-03	0.00E+00	5.16E-05	0.00E+00
Biogenic carbon content of the product	kg of C.	4.27E-04	4.27E-04	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.	6.74E-03	6.74E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*Note: The Impacts of phases B1-B5, B7 are Zero (0), Hence not included in the table.

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	3.16E-08	1.13E-08	5.73E-10	1.31E-10	1.83E-08	1.27E-09	-1.24E-08
Ionizing radiation, human health	kBq U^{235} eq.	1.90E+00	2.04E-01	2.71E-05	9.76E-02	6.39E-01	9.54E-01	-1.25E-01
Ecotoxicity, fresh water	CTUe	3.21E+00	1.94E+00	7.29E-03	9.43E-02	8.40E-01	3.22E-01	-6.34E-01
Human toxicity, cancer effects	CTUh	3.97E-09	3.35E-09	1.96E-13	5.50E-10	5.59E-11	1.48E-11	-7.21E-08
Human toxicity, non-cancer effects	CTUh	8.61E-09	6.32E-09	3.78E-12	2.23E-11	1.34E-09	9.33E-10	-2.78E-09
Impacts related to land use/soil quality	-	5.25E-02	2.19E-02	0.00E+00	2.80E-05	1.23E-02	1.82E-02	-1.56E-04
Total use of primary energy during the life cycle	MJ	2.51E+01	8.46E+00	1.55E-01	1.01E-01	1.42E+01	2.16E+00	-9.72E-01

*Note: The Impacts of phases B1-B5, B7 are Zero (0), Hence not included in the table.

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:

Product Number	Phases	GWP	GWP-f	GWP-b	GWP-lu	ODP	AP	Ep-fw	Ep-m	Ep-t	POCP	ADP-e	ADP-f	WDP
72895	All Phases	1												
72894	All Phases	1												
198299	All Phases	1												
72896	Manufacturing	0.76	0.77	1.12	0.31	0.91	0.68	1.23	0.62	0.91	0.91	0.74	0.79	0.62
	Distribution	0.93	0.93	1.00	1.00	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	Installation	0.50	0.50	0.50	1.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	End of Life	0.80	0.79	0.97	0.65	0.92	0.82	0.67	0.86	0.87	0.84	0.67	0.74	0.74
	Module-D	0.76	0.79	0.99	1.00	0.14	0.55	0.54	0.72	0.70	0.66	0.64	1.86	0.65
268049	Manufacturing	0.76	0.77	1.12	0.31	0.91	0.68	1.23	0.62	0.91	0.91	0.74	0.79	0.62
	Distribution	0.93	0.93	1.00	1.00	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	Installation	0.50	0.50	0.50	1.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	End of Life	0.80	0.79	0.97	0.65	0.92	0.82	0.67	0.86	0.87	0.84	0.67	0.74	0.74
	Module-D	0.76	0.79	0.99	1.00	0.14	0.55	0.54	0.72	0.70	0.66	0.64	1.86	0.65
202816	Manufacturing	0.76	0.77	1.12	0.31	0.91	0.68	1.23	0.62	0.91	0.91	0.74	0.79	0.62
	Distribution	0.93	0.93	1.00	1.00	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	Installation	0.50	0.50	0.50	1.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	End of Life	0.80	0.79	0.97	0.65	0.92	0.82	0.67	0.86	0.87	0.84	0.67	0.74	0.74
	Module-D	0.76	0.79	0.99	1.00	0.14	0.55	0.54	0.72	0.70	0.66	0.64	1.86	0.65

Factors for Use Phase:

Product Number	Use Phase Extrapolation Factors
72895	1
72894	1
198299	1
72896	0.5
268049	0.5
202816	0.5

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 Number	EATO-00347-V01.01-EN	*Drafting rules*	PCR-ed4-EN-2021 09 06
Verifier accreditation Number	VH54	Supplemented by	PSR-0005-ed3.1-EN-2023 12 08
Date of issue	08-2025	*Information and reference documents*	www.pep-ecopassport.org
		Validity period	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)			
PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 *The components of the present PEP may not be compared with components from any other program.*			
Document complies with ISO 14025: 2010 « Environmental labels and declarations. Type III environmental declarations »			