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

	**Large Contactor**

Representative product	DILM185A22(RAC240) (Large Contactor) (Y7-139537) Product Category: Contactors, Remote Control Switch
Description of the product	Eaton's Power Contactors DILM - DILM185A22(RAC240) is designed to establish and cut off the supply of a downstream installation from an electrical and/or mechanical control in industrial application areas. The reference product has 7 poles, can operate at 1000V AC, Control Circuit Voltage of 190-240V 50/60Hz AC and have screw terminals.
Homogeneous Environmental Families Covered	DILM185A/22(RAC240) (Y7-139537) (Reference) DILM300A/22(RA250) (Y7-139556), DILM250/22(RA250) (Y7-208201)
Functional unit	Establish and cut off the supply of a downstream installation from an electrical and/or mechanical control characterized by composition of 3NO main poles , contact type of 2NO + 2NC auxiliary contact, a rated voltage of 1000V AC, a rated current of 185A at AC-3, a control circuit voltage of 190 - 240 V 50/60 Hz, with 7 poles, with IP00 rating, in the industrial application areas, according to the industrial use scenario, and during the reference service life of 20 years.
Company information	Eaton Electro Productie s.r.l, Independentei 8, Sarbi, Romania, 437157 Email: productstewardship-es@eaton.com

Constituent Materials			
Reference product mass	3.85E+00 Kg (With packaging)		
Category PEP Material	**Material constituent**	**Mass (kg)**	**% Contribution**
Metals	Steel	1.63E+00	42.3%
Plastic	PA66GF30	1.20E+00	31.2%
Others	Carton	4.43E-01	11.5%
Metals	Copper	2.14E-01	5.5%
Others	Wooden Palette	1.17E-01	3.0%
Plastic	Polycarbonate	5.80E-02	1.5%
Others	PWB	5.59E-02	1.5%
Metals	Silver	4.20E-02	1.1%
Plastic	LD-PE Film	4.04E-02	1.0%
Others	Electronic Components	1.95E-02	0.5%
Metals	Brass	1.50E-02	0.4%
Others	Paper	8.84E-03	0.2%
Plastic	Silicone Rubber	2.54E-03	0.1%
Others	Label	3.89E-03	0.1%
Metals	Aluminum	9.22E-04	<0.1%
Others	Miscellaneous	1.85E-03	<0.1%
Total		**3.85E+00**	**100%**

Substance Assessment
The representative product is compliant with the EU-RoHS Directive (2011/65/EU) with exemption and the product does contain lead as 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 plant Sarbi, 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 and there is no waste other than the obsolete product packaging generated during this step.
Use	The product requires energy consumption during operation.
End of life	The recyclability rate of the overall product is 89.03% if it is properly dismantled prior to shredding. The rate is calculated based on “ECO’DEEE recyclability and recoverability calculation method” (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME).

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 v6.2.22 with database version CODDE-2023-02. Indicators Set: PEF EF 3.0 (Compliance: PEP ed.4, EN15804+A2) v2.0	
Manufacturing Phase	The product is assembled as well as packed at Eaton facility Eaton Electro Productie s.r.l, Independentei 8, Sarbi, Romania plant. 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. 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 15.99 W at full load condition. For Industrial applications considering 50% of the loading rate and 50% use time rate, total losses are 350.181 kWh over the 20 years. Product do not require any maintenance/replacement during useful life. Industrial Usage profile is considered. 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	Manufacturing	Distribution	Installation	Use (Only B6)	End of life	Module-D
Resource use, minerals and metals (ADPe)	kg SB eq.	5.26E-02	5.26E-02	3.62E-08	1.65E-08	1.04E-05	4.52E-05	-2.94E-02
Resource use, fossils (ADPf)	MJ	5.02E+03	9.93E+02	1.28E+01	4.87E+00	3.66E+03	3.55E+02	-4.68E+02
Acidification (AP)	mole of H^+ eq.	1.09E+00	2.27E-01	5.82E-03	1.48E-03	8.19E-01	3.30E-02	-1.16E-01
Eutrophication, freshwater (Epf)	kg P eq.	2.64E-03	8.16E-04	3.44E-07	7.84E-06	3.93E-04	1.42E-03	-9.73E-05
Eutrophication marine (Epm)	kg N eq.	1.36E-01	3.34E-02	2.73E-03	7.04E-04	9.30E-02	6.52E-03	-1.81E-02
Eutrophication, terrestrial (Ept)	mol N eq.	1.77E+00	2.85E-01	2.99E-02	4.54E-03	1.40E+00	5.21E-02	-1.27E-01
Climate change (GWP)	kg CO_2 eq.	1.88E+02	3.64E+01	9.19E-01	6.66E-01	1.44E+02	6.23E+00	-1.78E+01
Climate change-Biogenic (GWPb)	kg CO_2 eq.	4.03E-01	1.39E-01	0.00E+00	2.31E-02	1.91E-01	4.96E-02	-8.00E-02
Climate change-Fossil (GWPf)	kg CO_2 eq.	1.87E+02	3.62E+01	9.19E-01	6.43E-01	1.43E+02	6.18E+00	-1.77E+01

Mandatory environmental impact indicators	Units	Sum	Manufacturing	Distribution	Installation	Use (Only B6)	End of life	Module-D
Climate change-Land use and land use change (GWPlu)	kg CO_2 eq.	1.15E-06	3.70E-07	0.00E+00	-1.41E-08	0.00E+00	7.91E-07	0.00E+00
Ozone depletion (ODP)	kg CFC-11 eq.	4.50E-06	3.49E-06	1.41E-09	7.31E-09	6.14E-07	3.90E-07	-7.36E-07
Photochemical ozone formation - human health (POCP)	kg NMVOC eq.	4.19E-01	9.42E-02	7.54E-03	1.08E-03	2.99E-01	1.74E-02	-4.26E-02
Water use (WU)	m^3 eq.	6.14E+01	1.63E+01	3.49E-03	8.04E-02	5.08E+00	4.00E+01	-9.14E+00

Inventory Flow Indicators: Mandatory

Inventory flow indicators	Units	Sum	Manufacturing	Distribution	Installation	Use (Only B6)	End of life	Module-D
Use of renewable primary energy excluding renewable primary energy used as raw material	MJ	7.28E+02	2.22E+01	1.71E-02	1.16E+00	7.02E+02	2.38E+00	-1.52E+00
Use of renewable primary energy resources used as raw material	MJ	1.03E+01	1.03E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.33E+00
Total use of renewable primary energy resources	MJ	7.38E+02	3.25E+01	1.71E-02	1.16E+00	7.02E+02	2.38E+00	-8.86E+00
Use of non-renewable primary energy excluding non-renewable primary energy used as raw material	MJ	4.99E+03	9.61E+02	1.28E+01	4.87E+00	3.66E+03	3.55E+02	-4.41E+02
Use of non-renewable primary energy resources used as raw material	MJ	3.15E+01	3.15E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.69E+01
Total use of non-renewable primary energy resources	MJ	5.02E+03	9.93E+02	1.28E+01	4.87E+00	3.66E+03	3.55E+02	-4.68E+02
Use of secondary material	kg	1.74E-05	1.74E-05	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 freshwater	m^3	1.54E+00	3.79E-01	8.12E-05	1.87E-03	1.18E-01	1.04E+00	-2.13E-01
Components for reuse	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	3.89E+00	8.40E-01	0.00E+00	5.23E-02	0.00E+00	3.00E+00	0.00E+00
Materials for energy recovery	kg	1.12E-01	2.06E-03	0.00E+00	9.19E-02	0.00E+00	1.85E-02	0.00E+00
Exported Energy	MJ	3.86E-02	0.00E+00	0.00E+00	3.86E-02	0.00E+00	0.00E+00	0.00E+00
Hazardous waste disposed	kg	1.69E+02	1.63E+02	0.00E+00	1.21E-02	2.68E+00	3.33E+00	-9.46E+01
Non-hazardous waste disposed	kg	4.19E+01	1.76E+01	3.22E-02	3.18E-01	2.07E+01	3.29E+00	-1.03E+01
Radioactive waste disposed	kg	3.27E-02	2.58E-02	2.30E-05	2.90E-05	4.32E-03	2.51E-03	-1.10E-03
Biogenic carbon content of the product	kg C	3.21E-04	3.21E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content of the associated packaging	kg C	2.21E-01	2.21E-01	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	Manufacturing	Distribution	Installation	Use (Only B6)	End of life	Module-D
Ecotoxicity, freshwater	CTUe	2.15E+03	3.92E+02	6.19E-01	6.50E+00	1.55E+03	2.02E+02	-1.31E+02
Human toxicity, cancer	CTUh	7.92E-06	6.22E-06	1.61E-11	5.50E-08	1.67E-08	1.63E-06	-4.10E-06
Human toxicity, non-cancer	CTUh	2.59E-06	1.69E-06	1.75E-09	2.42E-09	6.64E-07	2.38E-07	-9.48E-07

Optional Environmental impact indicators	Units	Sum	Manufacturing	Distribution	Installation	Use (Only B6)	End of life	Module-D
Ionising radiation, human health	kBq U^{235} eq.	3.74E+02	1.60E+02	2.24E-03	8.06E-02	2.13E+02	3.79E-01	-6.54E+01
Land use	No dimension	9.52E+00	1.92E+00	0.00E+00	1.84E-01	2.86E+00	4.57E+00	-3.47E-04
EF-particulate Matter	Disease occurrence	8.03E-06	1.43E-06	4.73E-08	9.13E-09	6.35E-06	1.93E-07	-7.02E-07
Total Primary Energy	MJ	5.76E+03	1.03E+03	1.28E+01	6.02E+00	4.36E+03	3.58E+02	-4.77E+02

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 Name	Part Number	Phases	ADPe (kg Sb eq.)	ADPf (MJ)	AP (mol H^+ eq.)	Epf (kg P eq.)	Epm (kg N eq.)	Ept (mol N eq.)	GWP (kg CO_2 eq.)	GWPb (kg CO_2 eq.)	GWPf (kg CO_2 eq.)	GWPlu (kg CO_2 eq.)	ODP (kg CFC-11 eq.)	POCP (kg NMVOC eq.)	WU (m^3 eq.)
DILM185A/22 (RAC240) (Reference)	Y7-139537	All Phase	1.00												
DILM300A/22 (RA250)	Y7-139556	Manufacturing	1.24	1.98	2.74	4.70	1.80	1.96	1.84	0.46	1.84	8.67	1.91	2.07	2.44
		Distribution	2.13												
		Installation	1.03	1.02	1.04	1.05	1.04	1.06	1.13	1.01	1.14	1.00	1.03	1.08	1.05
		End of life	5.60	1.93	2.34	5.61	2.12	2.24	2.04	5.73	2.02	5.39	1.58	2.10	3.17
		Module-D	1.24	1.74	2.70	1.19	1.47	1.59	1.58	3.73	1.57	1.00	2.33	1.82	2.18
DILM250/22 (RA250)	Y7-208201	Manufacturing	1.24	1.98	2.74	4.70	1.80	1.96	1.84	0.46	1.84	8.67	1.91	2.07	2.44
		Distribution	2.13												
		Installation	1.03	1.02	1.04	1.05	1.04	1.06	1.13	1.01	1.14	1.00	1.03	1.08	1.05
		End of life	5.60	1.93	2.34	5.61	2.12	2.24	2.04	5.73	2.02	5.39	1.58	2.10	3.17
		Module-D	1.24	1.74	2.70	1.19	1.47	1.59	1.58	3.73	1.57	1.00	2.33	1.82	2.18

Multiplying Factors and Use Phase Energy Consumption for homogenous products:

Product Name	Part Number	Equipment heat dissipation, current-dependent (W)	Energy Consumption in Its RLT	Extrapolation Factor
DILM185A/22(RAC240) (Reference)	Y7-139537	15.99	350181	1.00
DILM300A/22(RA250)	Y7-139556	21	459900	1.31
DILM250/22(RA250)	Y7-208201	27.99	612981	1.75

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		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: 2006 « Environmental labels and declarations. Type III environmental declarations »			