



**Contactor
(DIL Frame 1 AC)**

Representative product	Y7-276830 DILM12-10 (230V 50Hz, 240V 60Hz) PSR product category: Contactor
Description of the product	DIL Frame 1 AC contactor is used to switch on/off an electrical power circuit. It is used to control high current and high voltage electrical devices which come under the AC-1, AC-3 and AC-4 utilization category.
Homogeneous Environmental Families Covered	The PEP concerns all the Contactor offerings coverings- Series: DIL Frame 1 AC No. of poles: 3P Rated current range: 4A (Y7-276329,Y7-276333,Y7-276364,Y7-276368,Y7-276399,Y7-276403), 7A (Y7-276550,Y7-276554,Y7-276585), 9A (Y7-276690,Y7-276694,Y7-276725), 12A (Y7-276834,Y7-276865), 15.5A (Y7-290058,Y7-290062,Y7-290093) and 22A (Y7-276970,Y7-276974)
Functional unit	Switch on and off during 20 years electrical power supply of a downstream installation with an electrical and/or mechanical control. The functional unit is characterized by a type 3P+1F, a control circuit voltage 230V 50Hz, 240V 60Hz AC, a power circuit voltage 400 V and a maximum allowed intensity by the power circuit 12A.
Company information	Eaton Electro Productie s.r.l. Plant Sarbi, 437157 Sarbi, Str. Independentei 8, Romania. Email: productstewardship-es@eaton.com

Constituent Materials			
Reference product mass	2.24E-01 kg (with packaging)		
Category PEP Material	Materials	Mass (kg)	Percentage
Plastics	Polyamide 6	7.03E-02	31.42%
Metals	Steel	6.32E-02	28.25%
Metals	Neodymium	4.55E-02	20.34%
Metals	Copper	2.18E-02	9.74%
Others	Cardboard	1.25E-02	5.59%
Metals	Zinc	9.00E-03	4.02%
Others	Rubber	7.50E-04	0.34%
Others	Paper	5.83E-04	0.26%
Others	Glue	7.18E-05	<0.1%
Metals	Silicon	4.49E-05	<0.1%
Others	Lubricant	0.00E+00	<0.1%
Total		2.24E-01	100%

Substance Assessment

The representative product is compliant with the EU-RoHS Directive (2011/65/EU) without any exemption and do not 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 holding management system certifications according to ISO9001 & 14001 standards
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	Recyclability of product is 40.5% based on the method of the IEC 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. System modelling was carried out using the commercial LCA software EIME v5.9.3 with database version CODDE-2022-01.	
Manufacturing Phase	The product is manufactured at Eaton plant located in Sarbi, Romania. <u>Energy model used for product manufacturing:</u> Romania
Distribution Phase	The shipment of the product contained in its packaging is considered per PCR requirement from the manufacturer's last logistics platform to the installation place. Reference product transported over an average distance of 3,500 km by road to serve the Europe market.
Installation Phase	Product is installed in Europe. <u>Energy model used for treatment of packaging:</u> Europe
Use Phase	<u>Reference lifetime:</u> 20 Years <u>Location of use:</u> Europe. <u>Energy model used:</u> Europe <u>Usage profile:</u> The product has an average power loss of 1.67 W in active mode with 50% of the loading rate. For 50% of the use time rate, total losses are 146.29 kWh over the 20 years. No maintenance is necessary for this product
End of life Phase	Product disposed with WEEE guidelines. <u>Energy model used:</u> Europe

Environmental Impact Indicators: Mandatory

Indicators	unit	Total	Manufacturing	Distribution	Installation	Use (only B6*)	End of Life
Global warming	kg CO ₂ eq.	6.06E+01	2.50E+00	5.52E-02	1.86E-03	5.78E+01	2.09E-01
Ozone depletion	kg CFC ⁻¹¹ eq.	3.77E-07	1.46E-07	1.12E-10	7.60E-12	2.29E-07	1.45E-09
Acidification of soil and water	kg SO ₂ eq.	1.08E-01	6.29E-03	2.48E-04	9.07E-06	1.01E-01	7.58E-05
Water eutrophication	kg PO ₄ ³⁻ eq.	2.00E-02	1.23E-03	5.70E-05	5.43E-06	1.86E-02	5.66E-05
Photochemical Ozone formation	kg ethylene eq.	8.50E-03	5.25E-04	1.76E-05	6.50E-07	7.95E-03	6.36E-06
Depletion of abiotic resources - elements	kg antimony eq.	5.19E-05	4.59E-05	2.21E-09	7.69E-11	5.95E-06	5.88E-10
Depletion of abiotic resources - fossil fuels	MJ	9.33E+02	3.06E+01	7.76E-01	2.55E-02	9.01E+02	2.08E-01
Water pollution	m ³	2.83E+03	7.70E+02	9.08E+00	2.97E-01	2.04E+03	6.79E+00
Air pollution	m ³	4.39E+03	3.84E+02	2.26E+00	1.53E-01	4.00E+03	2.80E+00

*B6 is energy requirements during the use stage. Other sub modules in the use stage (B1-B5, B7) are equal to 0, that's why they are not listed in the table.

Environmental Impact Indicators: Optional

Indicators	unit	Total	Manufacturing	Distribution	Installation	Use (only B6*)	End of Life
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	2.96E+02	2.59E+00	1.04E-03	1.46E-04	2.93E+02	2.87E-04
Use of renewable primary energy resources used as raw materials	MJ	0.00E+00	0.00E+00	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	2.96E+02	2.59E+00	1.04E-03	1.46E-04	2.93E+02	2.87E-04
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	1.57E+03	4.59E+01	7.80E-01	2.58E-02	1.53E+03	2.74E-01
Use of non-renewable primary energy resources used as raw materials	MJ	3.12E+00	3.12E+00	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	1.58E+03	4.90E+01	7.80E-01	2.58E-02	1.53E+03	2.74E-01
Use of secondary materials	kg	5.12E-02	5.12E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	m ³	2.94E+00	3.39E-01	4.94E-06	3.44E-07	2.60E+00	8.95E-05
Hazardous waste disposed of	kg	4.76E+00	3.30E+00	0.00E+00	2.93E-06	1.12E+00	3.37E-01
Non-hazardous waste disposed of	kg	1.35E+01	4.83E+00	1.96E-03	1.33E-02	8.63E+00	8.90E-04
Radioactive waste disposed of	kg	3.05E-03	1.24E-03	1.40E-06	9.48E-08	1.81E-03	1.43E-06
Materials for recycling	kg	8.54E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.54E-02

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

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

Contactor	Eaton Article Number	Product name	Multiplying factor
DIL Frame 1 AC	Y7-276830	DILM12-10(230V50HZ,240V60HZ)	1
	Y7-276329	DILA-40(230V50HZ,240V60HZ)	1
	Y7-276333	DILA-40(24V50/60HZ)	1
	Y7-276364	DILA-31(230V50HZ,240V60HZ)	1
	Y7-276368	DILA-31(24V50/60HZ)	1
	Y7-276399	DILA-22(230V50HZ,240V60HZ)	1
	Y7-276403	DILA-22(24V50/60HZ)	1
	Y7-276550	DILM7-10(230V50HZ,240V60HZ)	1
	Y7-276554	DILM7-10(24V50/60HZ)	1
	Y7-276585	DILM7-01(230V50HZ,240V60HZ)	1
	Y7-276690	DILM9-10(230V50HZ,240V60HZ)	1
	Y7-276694	DILM9-10(24V50/60HZ)	1
	Y7-276725	DILM9-01(230V50HZ,240V60HZ)	1
	Y7-276834	DILM12-10(24V50/60HZ)	1
	Y7-276865	DILM12-01(230V50HZ,240V60HZ)	1
	Y7-290058	DILM15-10(230V50HZ,240V60HZ)	1
	Y7-290062	DILM15-10(24V50/60HZ)	1
	Y7-290093	DILM15-01(230V50HZ,240V60HZ)	1
	Y7-276970	DILMP20(230V50HZ,240V60HZ)	1
	Y7-276974	DILMP20(24V50/60HZ)	1

Factors for Use Phase:

Contactor	Eaton Article Number	Product name	Energy Consumption (kWh)	Multiplying factor
DIL Frame 1 AC	Y7-276830	DILM12-10(230V50HZ,240V60HZ)	146.29	1
	Y7-276329	DILA-40(230V50HZ,240V60HZ)	134.25	0.92
	Y7-276333	DILA-40(24V50/60HZ)	134.25	0.92
	Y7-276364	DILA-31(230V50HZ,240V60HZ)	134.25	0.92
	Y7-276368	DILA-31(24V50/60HZ)	134.25	0.92
	Y7-276399	DILA-22(230V50HZ,240V60HZ)	134.25	0.92
	Y7-276403	DILA-22(24V50/60HZ)	134.25	0.92
	Y7-276550	DILM7-10(230V50HZ,240V60HZ)	130.69	0.89
	Y7-276554	DILM7-10(24V50/60HZ)	130.69	0.89
	Y7-276585	DILM7-01(230V50HZ,240V60HZ)	130.69	0.89
	Y7-276690	DILM9-10(230V50HZ,240V60HZ)	135.94	0.93
	Y7-276694	DILM9-10(24V50/60HZ)	135.94	0.93
	Y7-276725	DILM9-01(230V50HZ,240V60HZ)	135.94	0.93
	Y7-276834	DILM12-10(24V50/60HZ)	146.29	1
	Y7-276865	DILM12-01(230V50HZ,240V60HZ)	146.29	1
	Y7-290058	DILM15-10(230V50HZ,240V60HZ)	162.10	1.11
	Y7-290062	DILM15-10(24V50/60HZ)	162.10	1.11
	Y7-290093	DILM15-01(230V50HZ,240V60HZ)	162.10	1.11
	Y7-276970	DILMP20(230V50HZ,240V60HZ)	202.14	1.38
	Y7-276974	DILMP20(24V50/60HZ)	202.14	1.38

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.

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Date of issue	4-2022	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		External	X
The PCR review was conducted by a panel of experts 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 »			