



M22 Accessory with LED (24V)

Representative product	M22-CLEDC-B (218062) Product Category: Other Equipment- Passive product - Non-Continuous Operation
Description of the product	Eaton Moeller series M22 Created and designed to work alongside a contact block, Eaton M22 range of light blocks perform as an add on that mount to a push button to act as an indicator light. E. g. Once the push button is pressed, the light block turns on and illuminates through the button head.
Homogeneous Environmental Families Covered	The PEP concerns the following product offering from Eaton Moeller series M22 Accessory with LED (24V) as mentioned below: 216574 M22-CLEDC-G 216573 M22-CLEDC-R 216572 M22-CLEDC-W 218061 M22-CLED-B 216571 M22-CLED-G 216570 M22-CLED-R 216569 M22-CLED-W 279388 M22-LED12-W 279389 M22-LED12-R 216559 M22-LED-G 218058 M22-LEDC-B 216562 M22-LEDC-G 216561 M22-LEDC-R 216560 M22-LEDC-W 218057 M22-LED-B

	216558 M22-LED-R 216557 M22-LED-W
Functional unit	'To illuminate the front element with LED e.g two contacts rated voltage of 24 V within the lifespan of 20 years.'
Company information	EATON INDUSTRIES GMB Kompetenzzentrum Baederstrasse, Holzhausen, Germany, 56357 Email: productstewardship-es@eaton.com

Constituent Materials			
Reference product mass	1.58E-02 kg (With packaging)		
Category PEP Material	Material constituent	Mass (kg)	% Contribution
Plastics	Polyamide 6.6 GF30	6.15E-03	39.0%
Metals	Copper	3.26E-03	20.6%
Metals	Stainless Steel	3.24E-03	20.5%
Other	Cardboard	1.66E-03	10.5%
Plastics	Low density Polyethylene	5.02E-04	3.2%
Other	Printed Circuit Board	5.00E-04	3.2%
Other	Wood	2.50E-04	1.6%
Other	Electronic Components	2.06E-04	1.3%
Other	Label	2.50E-05	0.2%
Total		1.58E-02	100.00%

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 plant in Holzhausen, 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 requires energy consumption during operation.
End of life	The recyclability rate of the overall product is 39.3% if it is properly dismantled prior to shredding. The rate is calculated based on "WEEE 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 v6.2.5-3 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 INDUSTRIES GMB Kompetenzzentrum Baederstrasse, Holzhausen, Germany plant, 56357. Energy model used: Germany
Distribution Phase	Distribution of the product in its packaging from 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 a power loss of 0.45 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 2.1286 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
End of life Phase	Product disposed of 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.	9.33E-01	1.58E-01	3.76E-03	5.56E-03	7.50E-01	1.48E-02	-1.68E-02
Climate change - fossil fuels (GWP-f)	kg CO2 eq.	9.27E-01	1.58E-01	3.76E-03	2.43E-03	7.49E-01	1.43E-02	-1.84E-02
Climate change – biogenics (GWP-b)	kg CO2 eq.	5.54E-03	5.72E-04	0.00E+00	3.13E-03	1.38E-03	4.54E-04	1.60E-03
Climate change - land use and land use transformation (GWP-lu)	kg CO2 eq.	1.06E-08	3.95E-09	0.00E+00	0.00E+00	0.00E+00	6.63E-09	0.00E+00
Ozone depletion (ODP)	kg eq. CFC-11	2.26E-08	1.83E-08	5.77E-12	3.25E-11	3.64E-09	5.78E-10	-5.11E-09
Acidification (AP)	mole of H+ eq.	5.62E-03	1.63E-03	2.39E-05	7.30E-06	3.84E-03	1.16E-04	-3.96E-04
Freshwater eutrophication (EP-fw)	kg P eq.	2.16E-05	7.02E-06	1.41E-09	3.34E-08	1.98E-06	1.26E-05	-6.99E-08
Marine aquatic eutrophication (EP-m)	kg of N eq.	6.81E-04	1.67E-04	1.12E-05	2.80E-06	4.68E-04	3.14E-05	-1.46E-05

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
Terrestrial eutrophication (EP-t)	mole of N eq.	9.26E-03	1.40E-03	1.23E-04	2.22E-05	7.52E-03	1.86E-04	-1.58E-04
Photochemical ozone formation (POCP)	kg of NMVOC eq.	2.02E-03	4.57E-04	3.09E-05	5.18E-06	1.47E-03	5.06E-05	-7.16E-05
Depletion of abiotic resources – elements (ADPe)	kg eq. Sb	1.57E-05	1.51E-05	1.48E-10	1.07E-10	2.65E-07	4.06E-07	-4.40E-06
Depletion of abiotic resources - fossil fuels (ADP-f)	MJ	2.25E+01	2.86E+00	5.26E-02	2.33E-02	1.89E+01	6.54E-01	-2.84E-01
Water scarcity (WDP)	m3 of eq. deprivation worldwide	5.04E-01	1.23E-01	1.43E-05	1.74E-04	5.75E-02	3.23E-01	-2.16E-02

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	5.11E+00	8.14E-02	7.01E-05	4.21E-03	5.01E+00	1.41E-02	-3.96E-03
Use of renewable primary energy resources used as raw materials	MJ	1.81E-01	1.81E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.60E-02
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	5.29E+00	2.62E-01	7.01E-05	4.21E-03	5.01E+00	1.41E-02	-2.99E-02
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	2.23E+01	2.65E+00	5.26E-02	2.33E-02	1.89E+01	6.54E-01	-2.74E-01
Use of non-renewable primary energy resources used as raw materials	MJ	2.14E-01	2.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.78E-03
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	2.25E+01	2.86E+00	5.26E-02	2.33E-02	1.89E+01	6.54E-01	-2.84E-01
Use of secondary materials	kg	3.23E-05	3.23E-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 fresh water	m3	1.27E-02	2.90E-03	3.33E-07	1.27E-05	1.35E-03	8.42E-03	-5.03E-04
Hazardous waste disposed of	kg	8.90E-01	8.41E-01	0.00E+00	2.06E-04	3.29E-02	1.59E-02	-3.70E-01
Non-hazardous waste disposed of	kg	2.20E-01	8.94E-02	1.32E-04	9.96E-04	1.27E-01	3.12E-03	-5.68E-03
Radioactive waste disposed of	kg	1.20E-04	9.05E-05	9.42E-08	1.54E-07	2.91E-05	2.98E-07	-2.87E-06
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	1.54E-02	9.20E-03	0.00E+00	1.66E-03	0.00E+00	4.55E-03	0.00E+00
Materials for energy recovery	kg	5.30E-04	3.40E-04	0.00E+00	1.90E-04	0.00E+00	0.00E+00	0.00E+00

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
Exported energy	MJ by energy vector	5.92E-04	4.18E-04	0.00E+00	1.74E-04	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.	4.28E-03	4.28E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Other sub modules in the use stage (B1-B5, B7) are equal to 0, hence not listed 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	4.61E-08	1.44E-08	1.94E-10	4.45E-11	3.09E-08	5.60E-10	-5.05E-09
Ionizing radiation, human health	kBq of U235 eq.	2.45E+00	1.37E+00	9.18E-06	4.12E-04	1.08E+00	1.76E-03	-5.63E-01
Ecotoxicity, fresh water	CTUe	3.01E+00	1.08E+00	2.47E-03	2.91E-02	1.42E+00	4.79E-01	-1.47E-01
Human toxicity, cancer effects	CTUh	3.78E-08	3.73E-08	6.62E-14	2.02E-10	9.43E-11	1.78E-10	-1.90E-08
Human toxicity, non-cancer effects	CTUh	1.53E-08	1.18E-08	1.28E-12	6.96E-12	2.25E-09	1.25E-09	-4.55E-09
Impacts related to land use/soil quality	-	8.10E-02	1.90E-02	0.00E+00	7.34E-06	2.08E-02	4.12E-02	-1.02E-06
Total use of primary energy during the life cycle	MJ	2.78E+01	3.12E+00	5.26E-02	2.75E-02	2.40E+01	6.69E-01	-3.14E-01

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	Product Number	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 (m3 eq.)
218062 (Reference)	M22-CLEDC-B (Reference)	All Phases Except Use Phase	1.00												
216574	M22-CLEDC-G	All Phases Except Use Phase	1.00												
216573	M22-CLEDC-R	All Phases Except Use Phase	1.00												

Product Number	Product Number	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 (m3 eq.)
216572	M22-CLEDC-W	All Phases Except Use Phase	1.00												
218061	M22-CLED-B	All Phases Except Use Phase	1.00												
216571	M22-CLED-G	All Phases Except Use Phase	1.00												
216570	M22-CLED-R	All Phases Except Use Phase	1.00												
216569	M22-CLED-W	All Phases Except Use Phase	1.00												
279388	M22-LED12-W	Manufacturing	0.95	0.96	-0.51	0.76	0.90	0.65	0.51	0.96	0.93	0.87	0.68	0.95	0.70
		Distribution	0.86												
		Installation	2.54	2.56	2.53	1.00	2.56	2.57	2.55	2.53	2.56	2.56	2.56	2.56	2.51
		End of life	0.83	0.85	0.35	0.70	0.72	0.81	0.42	1.08	0.80	0.83	0.40	0.84	1.26
		Module-D	0.80	0.83	1.18	1.00	0.82	0.41	1.06	0.81	0.78	0.65	0.54	0.83	0.36
279389	M22-LED12-R	Manufacturing	0.95	0.96	-0.51	0.76	0.90	0.65	0.51	0.96	0.93	0.87	0.68	0.95	0.70
		Distribution	0.86												
		Installation	2.54	2.56	2.53	1.00	2.56	2.57	2.55	2.53	2.56	2.56	2.56	2.56	2.51
		End of life	0.83	0.85	0.35	0.70	0.72	0.81	0.42	1.08	0.80	0.83	0.40	0.84	1.26
		Module-D	0.80	0.83	1.18	1.00	0.82	0.41	1.06	0.81	0.78	0.65	0.54	0.83	0.36
216559	M22-LED-G	Manufacturing	0.95	0.96	-0.51	0.76	0.90	0.65	0.51	0.96	0.93	0.87	0.68	0.95	0.70
		Distribution	0.86												
		Installation	2.54	2.56	2.53	1.00	2.56	2.57	2.55	2.53	2.56	2.56	2.56	2.56	2.51
		End of life	0.83	0.85	0.35	0.70	0.72	0.81	0.42	1.08	0.80	0.83	0.40	0.84	1.26
		Module-D	0.80	0.83	1.18	1.00	0.82	0.41	1.06	0.81	0.78	0.65	0.54	0.83	0.36
218058	M22-LEDC-B	Manufacturing	0.95	0.96	-0.51	0.76	0.90	0.65	0.51	0.96	0.93	0.87	0.68	0.95	0.70
		Distribution	0.86												
		Installation	2.54	2.56	2.53	1.00	2.56	2.57	2.55	2.53	2.56	2.56	2.56	2.56	2.51
		End of life	0.83	0.85	0.35	0.70	0.72	0.81	0.42	1.08	0.80	0.83	0.40	0.84	1.26
		Module-D	0.80	0.83	1.18	1.00	0.82	0.41	1.06	0.81	0.78	0.65	0.54	0.83	0.36
216562	M22-LEDC-G	Manufacturing	0.95	0.96	-0.51	0.76	0.90	0.65	0.51	0.96	0.93	0.87	0.68	0.95	0.70
		Distribution	0.86												
		Installation	2.54	2.56	2.53	1.00	2.56	2.57	2.55	2.53	2.56	2.56	2.56	2.56	2.51
		End of life	0.83	0.85	0.35	0.70	0.72	0.81	0.42	1.08	0.80	0.83	0.40	0.84	1.26
		Module-D	0.80	0.83	1.18	1.00	0.82	0.41	1.06	0.81	0.78	0.65	0.54	0.83	0.36
216561	M22-LEDC-R	Manufacturing	0.95	0.96	-0.51	0.76	0.90	0.65	0.51	0.96	0.93	0.87	0.68	0.95	0.70
		Distribution	0.86												
		Installation	2.54	2.56	2.53	1.00	2.56	2.57	2.55	2.53	2.56	2.56	2.56	2.56	2.51

Product Number	Product Number	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 (m3 eq.)
		End of life	0.83	0.85	0.35	0.70	0.72	0.81	0.42	1.08	0.80	0.83	0.40	0.84	1.26
		Module-D	0.80	0.83	1.18	1.00	0.82	0.41	1.06	0.81	0.78	0.65	0.54	0.83	0.36
216560	M22-LEDC-W	Manufacturing	0.95	0.96	-0.51	0.76	0.90	0.65	0.51	0.96	0.93	0.87	0.68	0.95	0.70
		Distribution	0.86												
		Installation	2.54	2.56	2.53	1.00	2.56	2.57	2.55	2.53	2.56	2.56	2.56	2.56	2.51
		End of life	0.83	0.85	0.35	0.70	0.72	0.81	0.42	1.08	0.80	0.83	0.40	0.84	1.26
		Module-D	0.80	0.83	1.18	1.00	0.82	0.41	1.06	0.81	0.78	0.65	0.54	0.83	0.36
218057	M22-LED-B	Manufacturing	0.95	0.96	-0.51	0.76	0.90	0.65	0.51	0.96	0.93	0.87	0.68	0.95	0.70
		Distribution	0.86												
		Installation	2.54	2.56	2.53	1.00	2.56	2.57	2.55	2.53	2.56	2.56	2.56	2.56	2.51
		End of life	0.83	0.85	0.35	0.70	0.72	0.81	0.42	1.08	0.80	0.83	0.40	0.84	1.26
		Module-D	0.80	0.83	1.18	1.00	0.82	0.41	1.06	0.81	0.78	0.65	0.54	0.83	0.36
216558	M22-LED-R	Manufacturing	0.95	0.96	-0.51	0.76	0.90	0.65	0.51	0.96	0.93	0.87	0.68	0.95	0.70
		Distribution	0.86												
		Installation	2.54	2.56	2.53	1.00	2.56	2.57	2.55	2.53	2.56	2.56	2.56	2.56	2.51
		End of life	0.83	0.85	0.35	0.70	0.72	0.81	0.42	1.08	0.80	0.83	0.40	0.84	1.26
		Module-D	0.80	0.83	1.18	1.00	0.82	0.41	1.06	0.81	0.78	0.65	0.54	0.83	0.36
216557	M22-LED-W	Manufacturing	0.95	0.96	-0.51	0.76	0.90	0.65	0.51	0.96	0.93	0.87	0.68	0.95	0.70
		Distribution	0.86												
		Installation	2.54	2.56	2.53	1.00	2.56	2.57	2.55	2.53	2.56	2.56	2.56	2.56	2.51
		End of life	0.83	0.85	0.35	0.70	0.72	0.81	0.42	1.08	0.80	0.83	0.40	0.84	1.26
		Module-D	0.80	0.83	1.18	1.00	0.82	0.41	1.06	0.81	0.78	0.65	0.54	0.83	0.36

Multiplying Factors for Use Phase for homogenous products:

Part Number	Product Description	Equipment heat dissipation, current-dependent (W)	Use Phase Extrapolation Factors
218062 (Reference)	M22-CLEDC-B (Reference)	0.45	1
216574	M22-CLEDC-G	0.45	1
216573	M22-CLEDC-R	0.45	1
216572	M22-CLEDC-W	0.45	1
218061	M22-CLED-B	0.45	1
216571	M22-CLED-G	0.45	1
216570	M22-CLED-R	0.45	1
216569	M22-CLED-W	0.45	1
279388	M22-LED12-W	0.45	1
279389	M22-LED12-R	0.45	1

Part Number	Product Description	Equipment heat dissipation, current-dependent (W)	Use Phase Extrapolation Factors
216559	M22-LED-G	0.45	1
218058	M22-LEDC-B	0.45	1
216562	M22-LEDC-G	0.45	1
216561	M22-LEDC-R	0.45	1
216560	M22-LEDC-W	0.45	1
218057	M22-LED-B	0.45	1
216558	M22-LED-R	0.45	1
216557	M22-LED-W	0.45	1

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-00309-V01.01-EN	Drafting rules	PCR-ed4-EN-2021 09 06
Verifier accreditation Number	VH56	Supplemented by	PSR-0005-ed3.1-EN-2023 12 08
Date of issue	04-2025	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: 2006 « Environmental labels and declarations. Type III environmental declarations »			