Product Environmental Profile

RMQ-Titan Advanced Indicator

Representative product	EP-401626 Product Category: Other Equipment (Active product)
Description of the product	An innovative display unit designed in the RMQ-Titan style, used for indicating machine and process parameters. It supports simple operation across multiple configurable display pages, including dynamic text, graphics, and color variations. The unit is tailored for enhanced user interface and user experience in industrial environments.
Functional unit	To indicate machine and process parameters using a display device over a service life of 10 years under standard operating conditions.
Company information	Eaton Industries GmbH, Hein-Moeller-Straße 7-11 ,53105 Bonn, Germany Email: productstewardship-es@eaton.com

Constituent Materials			
Reference product mass (kg)	1.16E-01 Kg (With Packaging)		
Category PEP Material	**Material constituent**	**Mass (kg)**	**% Contribution**
Other	Cardboard	2.54E-02	21.8%
Plastics	Polycarbonate (PC)	2.28E-02	19.6%
Other	Glass fiber	1.54E-02	13.2%
Plastics	Polyamide 66 (PA 66)	1.14E-02	9.8%
Metals	Brass	1.07E-02	9.2%
Plastics	Polyester resin	6.57E-03	5.6%
Other	Display panel	6.20E-03	5.3%
Plastics	Epoxy resin	5.18E-03	4.5%
Metals	Copper	3.94E-03	3.4%
Other	Quartz sand	1.45E-03	1.2%
Plastics	Polyethylene terephthalate (PET)	1.00E-03	0.9%
Metals	Tin	9.69E-04	0.8%
Other	Alumine	7.19E-04	0.6%
Other	Tetrabromobisphenol A	6.49E-04	0.6%
Metals	Aluminium	6.25E-04	0.5%
Other	Miscellaneous	3.33E-03	2.9%
Total		1.16E-01	100.0%

Substance Assessment
The product complies with EU RoHS Directive 2011/65/EU (as amended by 2015/863) under exemptions 6(c) and 7(a). It contains lead (Pb) in a concentration above 0.1% (w/w), which is listed as a 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 manufactured at the direct source supplier plant in Estonia, which holds 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	During installation of the product only standard tools are needed, 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 have maintenance during operation.
End of life	The recyclability rate of the overall product is 29.29% if properly dismantled prior to further processing at a recycling facility. The rate is calculated 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 used: PEF EF 3.1 (Compliance: PEP ed.4, EN15804+A2) v1.0	
Manufacturing Phase	The product is assembled and prepared for shipment by direct source supplier, located in Estonia. Energy model used: Europe
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. Only treatment of packaging waste is considered in this phase. Energy model used for treatment of packaging: Europe
Use Phase	Reference lifetime: 10 years (as per real scenario) Energy model used: Europe. Usage profile: The product operates in active mode at 1.2 W for 100% of the time. The total energy consumption is 105.12 kWh over the 10 years.
End of life Phase	Product disposed according to European 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 for Functional Unit

Environmental Impact Indicators: Mandatory

Mandatory environmental impact indicators	Units	Sum	A1-A3 - Manufacturing	A4 - Distribution	A5 - Installation	B1-B7 Use* (B6 Only)	C1-C4 - End of life	D - Benefits and loads beyond the system boundaries
Climate change - total	kg CO2 eq.	4.20E+01	4.82E+00	2.59E-02	3.93E-02	3.71E+01	6.83E-02	2.61E-03
Climate change - fossil fuels	kg CO2 eq.	4.19E+01	4.80E+00	2.59E-02	2.88E-02	3.70E+01	6.51E-02	-2.69E-02
Climate change - biogenics	kg CO2 eq.	1.03E-01	2.06E-02	1.06E-07	1.05E-02	6.82E-02	3.23E-03	2.95E-02
Climate change - land use and land use transformation	kg CO2 eq.	3.62E-05	3.62E-05	3.91E-08	3.51E-10	0.00E+00	6.01E-10	0.00E+00
Ozone depletion	kg eq. CFC-11	1.51E-06	1.32E-06	3.14E-10	3.88E-10	1.80E-07	5.23E-09	-9.60E-10
Acidification (AP)	mole of H+ eq.	2.09E-01	1.72E-02	4.08E-05	8.12E-05	1.90E-01	1.71E-03	-1.43E-04
Freshwater eutrophication	kg P eq.	1.22E-04	2.25E-05	9.66E-08	3.82E-07	9.75E-05	1.50E-06	-4.05E-07
Marine aquatic eutrophication	kg of N eq.	2.70E-02	2.61E-03	7.41E-06	3.74E-05	2.31E-02	1.19E-03	-4.21E-05
Terrestrial eutrophication	mole of N eq.	3.99E-01	2.61E-02	8.13E-05	2.38E-04	3.71E-01	8.24E-04	-3.50E-04
Photochemical ozone formation	kg of NMVOC eq.	8.12E-02	8.07E-03	2.63E-05	5.53E-05	7.28E-02	2.80E-04	-9.11E-05
Depletion of abiotic resources - elements	kg eq. Sb	1.04E-03	1.03E-03	9.23E-09	7.86E-10	1.31E-05	3.86E-09	-3.61E-07
Depletion of abiotic resources - fossil fuels	MJ	1.02E+03	8.40E+01	4.59E-01	2.82E-01	9.35E+02	9.55E-01	-3.38E-01
Water scarcity	m3 of eq.. deprivation worldwide	2.62E+01	2.41E+00	9.31E-04	1.91E-03	2.84E+00	2.10E+01	-6.89E-03

***Note**: B6 (energy requirements during the use stage) are considered. Other sub modules in the use stage (B1- B5, B7) are equal to zero. So, it is not listed in the result tables.

Inventory Flow Indicators: Mandatory

Inventory flow indicators	Units	Sum	A1-A3 - Manufacturing	A4 - Distribution	A5 - Installation	B1-B7 Use* (B6 Only)	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	2.50E+02	2.73E+00	1.45E-03	3.64E-02	2.48E+02	1.12E-01	8.62E-02
Use of renewable primary energy resources used as raw materials	MJ	5.03E-01	5.03E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.75E-01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	2.51E+02	3.23E+00	1.45E-03	3.64E-02	2.48E+02	1.12E-01	-2.89E-01
Use of non-renewable primary energy, excluding non-renewable	MJ	1.02E+03	8.23E+01	4.59E-01	2.82E-01	9.35E+02	9.55E-01	-3.38E-01

primary energy resources used as raw materials								
Use of non-renewable primary energy resources used as raw materials	MJ	1.65E+00	1.65E+00	0.00E+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	1.02E+03	8.40E+01	4.59E-01	2.82E-01	9.35E+02	9.55E-01	-3.38E-01
Use of secondary materials	kg	1.61E-05	1.61E-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	6.75E-01	5.60E-02	2.17E-05	4.51E-05	6.67E-02	5.52E-01	-1.60E-04
Hazardous waste disposed of	kg	1.85E+01	1.69E+01	1.08E-04	1.63E-03	1.62E+00	5.65E-02	-2.90E-02
Non-hazardous waste disposed of	kg	9.20E+00	2.92E+00	2.40E-03	9.26E-03	6.26E+00	1.46E-02	-1.65E-02
Radioactive waste disposed of	kg	1.63E-02	1.48E-02	1.90E-06	1.43E-06	1.44E-03	1.56E-06	-7.52E-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	3.80E-04	8.77E-05	0.00E+00	0.00E+00	0.00E+00	2.92E-04	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	7.25E-04	7.25E-04	0.00E+00	0.00E+00	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.	1.07E-04	1.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.89E-03

*__Note__: B6 (energy requirements during the use stage) are considered. Other sub modules in the use stage (B1- B5, B7) are equal to zero. So, it is not listed in the result tables.

Environmental Impact Indicators: Optional

Optional Environmental impact indicators	Units	Sum	A1-A3 - Manufacturing	A4 - Distribution	A5 - Installation	B1-B7 Use* (B6 Only)	C1-C4 - End of life		D - Benefits and loads beyond the system boundaries
Emission of fine particles	incidence of diseases	1.63E-06	9.90E-08	3.50E-10	4.92E-10	1.53E-06	3.92E-09		-1.43E-09
Ionizing radiation, human health	kBq of U235 eq.	6.17E+01	8.38E+00	9.15E-04	4.52E-03	5.33E+01	9.05E-03		-6.02E-03
Ecotoxicity, fresh water	CTUe	2.98E+02	2.26E+02	7.54E-01	4.21E-01	7.00E+01	1.07E+00		-5.77E-01
Human toxicity, cancer effects	CTUh	1.28E-08	4.99E-09	5.07E-12	3.05E-09	4.66E-09	1.09E-10		-7.61E-09
Human toxicity, non-cancer effects	CTUh	2.50E-07	1.26E-07	9.66E-11	9.18E-11	1.11E-07	1.26E-08		-1.46E-10
Impacts related to land use/soil quality	-	1.38E+00	1.25E-01	1.11E-04	9.24E-05	1.03E+00	2.28E-01		0.00E+00
Total use of primary energy during the life cycle	MJ	1.27E+03	8.72E+01	4.61E-01	3.18E-01	1.18E+03	1.07E+00		-6.27E-01

*__Note__: B6 (energy requirements during the use stage) are considered. Other sub modules in the use stage (B1- B5, B7) are equal to zero. So, it is not listed in the result tables.

Disclaimer

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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"			