

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

mTemp Universal



EPD-Global

Owner of the declaration:

CTM Lyng AS

Product:

mTemp Universal

Declared unit:

1 pcs

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019, EN 50693:2019
and PCR EPD Italy 007 serves as core PCR
PCR EPD Italy 012 - Electronic and electrical products and
systems - Switches

Program operator:

EPD-Global

Declaration number:

NEPD-14436-14878

Issue date:

15.12.2025

Valid to:

15.12.2030

EPD software:

LCAno EPD generator ID: 502975

General information

Product

mTemp Universal

Program operator:

EPD-Global
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-global.com

Declaration number:

NEPD-14436-14878

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019, EN 50693:2019 and PCR
EPD Italy 007 serves as core PCR
PCR EPD Italy 012 - Electronic and electrical products and systems -
Switches

Statement of liability:

The owner of the declaration shall be liable for the underlying
information and evidence. EPD-Global shall not be liable with respect
to manufacturer information, life cycle assessment data and
evidences.

Declared unit:

1 pcs mTemp Universal

Declared unit with option:

A1, A2, A3, A4, A5, B6, C1, C2, C3, C4, D

Functional unit:

1 pc of thermostat, installed and used to manage temperature,
during a service life of 7 years, including waste treatment at end-of-
life.

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information
and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4.
Verification of each EPD is made according to EPD-Global's guidelines
for verification and approval requiring that tools are i) integrated into
the company's environmental management system, ii) the procedures
for use of the EPD tool are approved by EPD-Global, and iii) the
process is reviewed annually by an independent third party verifier.
See Appendix G of EPD-Global's General Programme Instructions for
further information on EPD tools

Verification of EPD tool:

Owner of the declaration:

CTM Lyng AS
Contact person: Vidar Gangstad
Phone: +47 40006023
e-mail: vidar@ctmlyng.no

Manufacturer:

CTM Lyng AS
Verkstedveien 19
7125 Vanvikan, Norway

Place of production:

CTM Lyng production site Vanvikan (Norway)
Verkstedveien 19
7125 Vanvikan, Norway

Management system:

NS-EN ISO 9001:2015

Organisation no:

936285244

Issue date:

15.12.2025

Valid to:

15.12.2030

Year of study:

2024

Comparability:

EPD of construction products may not be comparable if they not
comply with EN 15804 and seen in a building context.

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03,
developed by LCA.no. The EPD tool is integrated in the company's
management system, and has been approved by EPD-Global.

Developer of EPD: Vidar Gangstad - CTM Lyng AS

Reviewer of company-specific input data and EPD: Ståle Sund - CTM
Lyng AS

Approved:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPD-Global's procedures and guidelines for verification and approval of EPD tools. Approval number: NEPDT57.



Håkon Hauan, CEO EPD-Global

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

Product

Product description:

Affordable project thermostat, 16A/2300VA 2P

Product specification

MTemp shows the exact temperature in a digital display. Temperature is easily adjusted using the + and - buttons.

The display shows the actual temperature in the room where the thermostat or the external sensor is located. When operating + / -, the display changes to display the set desired temperature and then returns to the actual temperature.

Red LED indicates that heating is in progress.

The perfect project thermostat .

Materials	kg	%
Electronic - Cable	0.01667	12.35
Electronic - Capacitor	0.001887	1.40
Electronic - Diode	0.0003766	0.279
Electronic - Inductor	0.001954	1.45
Electronic - Integrated circuit	0.0006202	0.4595
Electronic - LED chip	0.0000091	0.006743
Electronic - Printed wiring board	0.01629	12.07
Electronic - Resistor	0.0009923	0.7352
Electronic - Solder material	0.00003672	0.02721
Electronic - Switch	0.002783	2.06
Electronic - Transistor	0.00002846	0.02109
Electronic - Unspecified	0.04545	33.68
Metal - Steel	0.01565	11.60
Plastic - Acrylonitrile butadiene styrene (ABS)	0.01276	9.45
Plastic - Plexiglass (PMMA)	0.0000396	0.02934
Plastic - Polycarbonate (PC)	0.00817	6.05
Plastic compound - PC and ABS	0.01124	8.33
Total	0.135	100.00

Packaging	kg	%
Packaging - Cardboard	0.01	79.41
Packaging - Paper	0.00	20.59
Total incl. packaging	0.15	100.00

Technical data:

Link to the CE Declaration and product data on our website:

<https://ctmlyng.no/produkter/mtemp-hv-universal/>

Market:

Norway.

Reference service life, product

7 years. Estimated based on the characteristics of the product and the intended application.

Reference service life, building or construction works

60 years. Standard service life for buildings according to the PCR Part A of EPD Norway.

LCA: Calculation rules

Declared unit:

1 pcs mTemp Universal

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

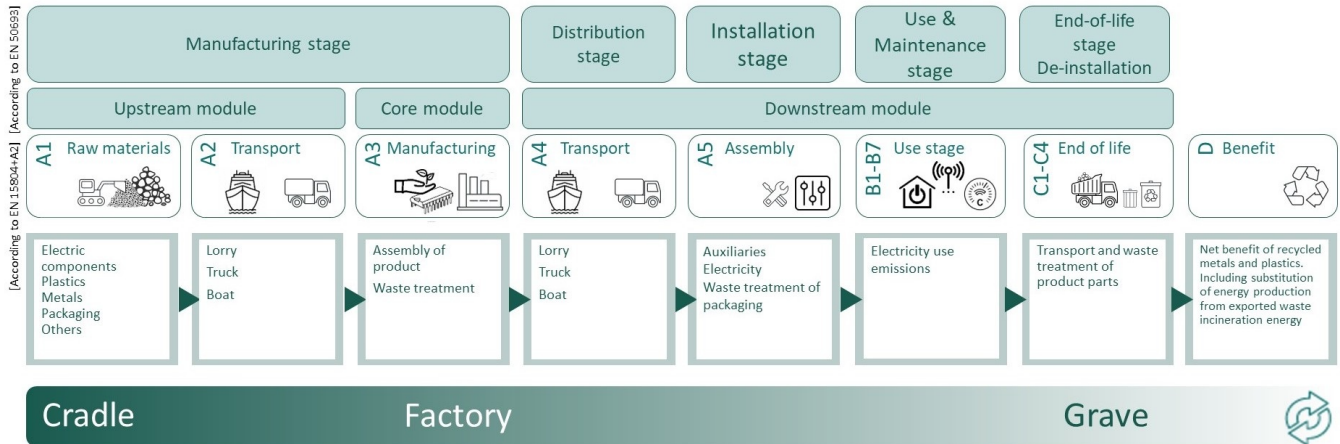
Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Materials	Source	Data quality	Year
Electronic - Cable	ecoinvent 3.6	Database	2019
Electronic - Capacitor	ecoinvent 3.6	Database	2019
Electronic - Diode	ecoinvent 3.6	Database	2019
Electronic - Inductor	ecoinvent 3.6	Database	2019
Electronic - Integrated circuit	ecoinvent 3.6	Database	2019
Electronic - LED chip	Scholand et al. (2012) + Ecoinvent 3.6	Scientific literature + database	2017
Electronic - Printed wiring board	Modified ecoinvent 3.6	Database	2019
Electronic - Resistor	ecoinvent 3.6	Database	2019
Electronic - Solder material	ecoinvent 3.6	Database	2019
Electronic - Switch	ecoinvent 3.6	Database	2019
Electronic - Transistor	ecoinvent 3.6	Database	2019
Electronic - Unspecified	ecoinvent 3.6	Database	2019
Metal - Steel	ecoinvent 3.6	Database	2019
Packaging - Cardboard	ecoinvent 3.6	Database	2019
Packaging - Paper	ecoinvent 3.6	Database	2019
Plastic - Acrylonitrile butadiene styrene (ABS)	ecoinvent 3.6	Database	2019
Plastic - Plexiglass (PMMA)	ecoinvent 3.6	Database	2019
Plastic - Polycarbonate (PC)	ecoinvent 3.6	Database	2019
Plastic compound - PC and ABS	ecoinvent 3.6	Database	2019

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery- Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MND	MNR	MND	X	MND	X	X	X	X	X

System boundary:



Additional technical information:

The reference product mTemp Universal, represents all two colors that the product comes in: White (5401442), Polar White (5401440).

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Module A4 = An average transport distance from the production site in Vanvikan to the warehouses we deliver to was included. This transport consist of 14 km by ferry and 516 km by truck. An average distance of 300 km by truck was also added as additional transport to market.

Modules A5 = installation is done by manual labour. The use of portable electrical devices such as drills usually have low energy requirements falling under the cut-off criterion of 1% and are therefore neglected (especially for small retail devices). No product scraps are generated during installation, but the end-of-life treatment of packaging is systematically accounted for in this module.

Module B6 = The operational energy use of the switch is calculated based on the methodology provided in the PCR EPD Italy 012 Part B for switches. To calculate the electricity use of the mTemp Universal, the following scenario parameters have been applied:

- Power consumed (Puse) = 2,047 watt
- Reference service life (RSL) = 7 years
- Number of hours in a year = 8760 hours (according to section 4.2.3.5 of the PCR)
- Operating time coefficient (a) = 30 percent (according to section 4.2.3.5 of the PCR)
- Reference current = 100% (according to section 4.2.3.5 of the PCR – used to calculate Puse)

In our calculation, we have considered that the product spends less time switched on than a normal light switch, and therefore we have used a reference current value of 30% in the calculation (instead of 50%).

Module C1 = De-installation is done by manual labour. The use of portable electrical devices such as drills usually have low energy requirements falling under the cut-off criterion of 1% and are therefore neglected (especially for small retail devices).

Module C2 = Transport from the installation site to the nearest waste treatment facility is based on an average distance of 300 km.

Modules C3 and C4 = Waste treatment of the product follows the default values provided in EN 50693, Product Category Rules for life cycle assessments of electronic and electrical products and systems, table G.4. This table specified how different types of raw materials used in A1 will likely be treated during the end-of-life of the product. Waste treatments in C3 include material recycling and incineration with energy recovery and fly ash extraction. Disposal in C4 consist of landfilling of different waste fractions and of ashes.

Module D = The recyclability of metals, plastics, and electronic components allows the producers a credit for the net scrap that is produced at the end of a product's life. The benefits from recycling of net scrap are described in formula from EN 15804:2012+A2:2019. Substitution of heat and electricity generated by the incineration with energy recovery of plastic insulation and other parts is also calculated in module D.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 4 (km) - Europe	36.7 %	300.00	0.044	l/tkm	13.20
Assembly (A5)	Unit	Value			
Waste, packaging, paper printed, to average treatment - A5 including transport (kg)	kg	0.00375			
Waste, packaging, corrugated board box, to average treatment - A5 including transport (kg)	kg	0.01446			
Operational energy (B6)	Unit	Value			
Electricity, Norway (kWh)	kWh/DU	96.90			
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 5 (km) - Europe	36.7 %	300.00	0.044	l/tkm	13.20
Waste processing (C3)	Unit	Value			
Waste treatment per kg used PWB, shredding and separation - C3 (kg)	kg	0.07043			
Waste treatment per kg electronics scrap from PWB, with components, recycling of metals C3 (kg)	kg	0.03521			
Steel to recycling (kg)	kg	0.0133			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0.02206			
Waste treatment per kg used electronic plug connector, manual separation (kg)	kg	0.01399			
Copper to recycling (kg)	kg	0.0007342			
Waste treatment per kg used electronic cable, manual separation (kg)	kg	0.00268			
Acrylonitrile butadiene styrene (ABS) to recycling	kg	0.002552			

Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0.0008699			
Landfilling of hazardous waste (kg)	kg	0.03521			
Landfilling of steel (kg)	kg	0.003326			
Landfilling of plastic mixture (kg)	kg	0.02206			
Landfilling of copper (kg)	kg	0.0004895			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity, in Norway (MJ)	MJ	0.03822			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	0.5782			
Substitution of primary metals with net scrap from PWB, with components (kg)	kg	0.01035			
Substitution of primary steel with net scrap (kg)	kg	0.003237			
Substitution of primary copper with net scrap (kg)	kg	0.0001281			
Substitution of acrylonitrile butadiene styrene, ABS, granulate (kg)	kg	0.002552			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact							
Indicator	Unit	A1	A2	A3	A4	A5	
 GWP-total	kg CO ₂ -eq	7.19E+00	8.30E-02	2.63E-03	7.59E-03	3.13E-02	
 GWP-fossil	kg CO ₂ -eq	7.18E+00	8.29E-02	2.51E-03	7.59E-03	2.95E-04	
 GWP-biogenic	kg CO ₂ -eq	-5.78E-03	2.99E-05	1.10E-04	3.12E-06	3.10E-02	
 GWP-luluc	kg CO ₂ -eq	1.20E-02	3.89E-05	8.98E-06	2.67E-06	9.74E-08	
 ODP	kg CFC11 -eq	5.24E-07	1.83E-08	1.70E-10	1.74E-09	6.20E-11	
 AP	mol H ⁺ -eq	7.02E-02	1.10E-03	1.70E-05	3.86E-05	1.39E-06	
 EP-FreshWater	kg P -eq	1.36E-03	5.69E-07	1.57E-07	6.01E-08	2.42E-09	
 EP-Marine	kg N -eq	1.03E-02	2.67E-04	2.04E-06	1.31E-05	4.61E-07	
 EP-Terrestrial	mol N -eq	1.23E-01	2.97E-03	2.52E-05	1.45E-04	4.99E-06	
 POCP	kg NMVOC -eq	3.82E-02	8.11E-04	6.89E-06	4.13E-05	1.44E-06	
 ADP-minerals&metals ¹	kg Sb-eq	4.05E-03	1.70E-06	1.57E-07	2.07E-07	7.17E-09	
 ADP-fossil ¹	MJ	9.14E+01	1.18E+00	3.02E-02	1.15E-01	4.12E-03	
 WDP ¹	m ³	2.46E+02	7.40E-01	1.20E-01	1.10E-01	5.22E-03	

Indicator	Unit	B6	C1	C2	C3	C4	D
 GWP-total	kg CO ₂ -eq	2.36E+00	0.00E+00	7.66E-03	7.44E-02	1.01E-02	-6.05E-01
 GWP-fossil	kg CO ₂ -eq	2.29E+00	0.00E+00	7.65E-03	7.44E-02	1.01E-02	-6.02E-01
 GWP-biogenic	kg CO ₂ -eq	6.32E-02	0.00E+00	3.12E-06	2.55E-05	6.81E-06	-1.70E-03
 GWP-luluc	kg CO ₂ -eq	9.43E-03	0.00E+00	2.67E-06	4.87E-05	6.64E-05	-9.67E-04
 ODP	kg CFC11 -eq	1.57E-07	0.00E+00	1.74E-09	1.75E-09	4.66E-10	-2.44E-04
 AP	mol H ⁺ -eq	1.79E-02	0.00E+00	3.13E-05	7.97E-05	3.72E-05	-3.72E-02
 EP-FreshWater	kg P -eq	1.64E-04	0.00E+00	6.01E-08	3.23E-07	3.38E-07	-2.04E-04
 EP-Marine	kg N -eq	1.96E-03	0.00E+00	9.28E-06	1.88E-05	1.05E-05	-1.90E-03
 EP-Terrestrial	mol N -eq	2.55E-02	0.00E+00	1.03E-04	2.06E-04	8.43E-05	-2.61E-02
 POCP	kg NMVOC -eq	6.87E-03	0.00E+00	3.14E-05	5.87E-05	4.02E-05	-7.47E-03
 ADP-minerals&metals ¹	kg Sb-eq	1.70E-04	0.00E+00	2.07E-07	2.36E-07	4.54E-08	-8.84E-04
 ADP-fossil ¹	MJ	3.12E+01	0.00E+00	1.15E-01	1.71E-01	8.88E-02	-7.97E+00
 WDP ¹	m ³	5.44E+03	0.00E+00	1.10E-01	2.88E+00	1.35E-01	-1.82E+01

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks to environmental impacts

Additional environmental impact indicators

Indicator	Unit	A1	A2	A3	A4	A5
 PM	Disease incidence	4.23E-07	3.51E-09	1.27E-10	5.51E-10	2.00E-11
 IRP ²	kgBq U235 -eq	3.36E-01	5.10E-03	5.23E-04	5.04E-04	1.76E-05
 ETP-fw ¹	CTUe	8.31E+02	8.30E-01	1.35E-01	8.49E-02	5.50E-03
 HTP-c ¹	CTUh	7.83E-09	0.00E+00	6.00E-12	0.00E+00	0.00E+00
 HTP-nc ¹	CTUh	3.73E-07	6.82E-10	1.51E-10	9.20E-11	6.00E-12
 SQP ¹	dimensionless	3.88E+01	6.16E-01	1.60E-02	7.95E-02	2.76E-03

Indicator	Unit	B6	C1	C2	C3	C4	D
 PM	Disease incidence	1.28E-07	0.00E+00	5.51E-10	4.95E-10	6.80E-10	-7.56E-08
 IRP ²	kgBq U235 -eq	5.66E-01	0.00E+00	5.04E-04	9.78E-04	1.54E-04	-2.87E-02
 ETP-fw ¹	CTUe	1.42E+02	0.00E+00	8.50E-02	4.84E-01	2.58E+00	-2.63E+02
 HTP-c ¹	CTUh	6.78E-09	0.00E+00	0.00E+00	5.94E-10	3.30E-11	-1.23E-09
 HTP-nc ¹	CTUh	1.60E-07	0.00E+00	9.20E-11	3.50E-08	2.40E-10	-8.39E-08
 SQP ¹	dimensionless	1.57E+01	0.00E+00	7.95E-02	6.07E-02	2.31E-01	-5.90E+00

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
2. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Resource use							
Indicator		Unit	A1	A2	A3	A4	A5
	PERE	MJ	9.11E+00	1.35E-02	3.69E-01	1.63E-03	6.78E-05
	PERM	MJ	1.72E-01	0.00E+00	0.00E+00	0.00E+00	-1.72E-01
	PERT	MJ	9.28E+00	1.35E-02	3.69E-01	1.63E-03	-1.71E-01
	PENRE	MJ	8.92E+01	1.18E+00	3.02E-02	1.15E-01	4.12E-03
	PENRM	MJ	2.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	9.16E+01	1.18E+00	3.02E-02	1.15E-01	4.12E-03
	SM	kg	8.10E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	1.46E-01	4.23E-04	2.95E-04	5.83E-05	2.25E-06
	NRSF	MJ	2.54E-02	2.26E-03	7.56E-04	2.08E-04	9.28E-06
	FW	m ³	6.88E-02	1.07E-04	2.80E-03	1.21E-05	1.94E-06

Indicator		Unit	B6	C1	C2	C3	C4	D
	PERE	MJ	4.04E+02	0.00E+00	1.63E-03	2.76E-02	2.94E-02	-1.01E+00
	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	4.04E+02	0.00E+00	1.63E-03	2.76E-02	2.94E-02	-1.01E+00
	PENRE	MJ	3.12E+01	0.00E+00	1.15E-01	1.71E-01	8.89E-02	-7.97E+00
	PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	-2.40E+00	0.00E+00	0.00E+00
	PENRT	MJ	3.12E+01	0.00E+00	1.15E-01	-2.23E+00	8.89E-02	-7.97E+00
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.60E-04	8.96E-05
	RSF	MJ	3.17E-01	0.00E+00	5.83E-05	2.76E-04	6.99E-05	8.53E-05
	NRSF	MJ	7.90E-01	0.00E+00	2.08E-04	-3.56E-05	6.59E-03	-1.38E-02
	FW	m ³	3.02E+00	0.00E+00	1.21E-05	1.94E-04	5.22E-05	-5.98E-03

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

End of life - Waste

Indicator		Unit	A1	A2	A3	A4	A5
	HWD	kg	3.02E-02	6.49E-05	2.54E-04	5.88E-06	0.00E+00
	NHWD	kg	8.43E-01	4.04E-02	2.34E-03	5.51E-03	1.82E-02
	RWD	kg	2.64E-04	8.06E-06	2.63E-07	7.86E-07	0.00E+00

Indicator		Unit	B6	C1	C2	C3	C4	D
	HWD	kg	2.00E-02	0.00E+00	5.88E-06	1.76E-05	3.54E-02	-2.11E-03
	NHWD	kg	2.40E+00	0.00E+00	5.51E-03	2.37E-02	2.60E-02	-1.00E-01
	RWD	kg	2.79E-04	0.00E+00	7.87E-07	8.73E-07	4.24E-08	-2.47E-05

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

End of life - Output flow

Indicator		Unit	A1	A2	A3	A4	A5
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	0.00E+00	0.00E+00	7.06E-04	0.00E+00	1.69E-02
	MER	kg	0.00E+00	0.00E+00	4.92E-04	0.00E+00	1.27E-03
	EEE	MJ	0.00E+00	0.00E+00	2.81E-04	0.00E+00	1.04E-03
	EET	MJ	0.00E+00	0.00E+00	4.26E-03	0.00E+00	1.58E-02

Indicator		Unit	B6	C1	C2	C3	C4	D
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	0.00E+00	0.00E+00	0.00E+00	1.66E-02	1.98E-06	-3.51E-06
	MER	kg	0.00E+00	0.00E+00	0.00E+00	2.21E-02	4.84E-08	-4.62E-07
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	3.39E-02	3.14E-06	-1.13E-06
	EET	MJ	0.00E+00	0.00E+00	0.00E+00	5.13E-01	4.75E-05	-1.71E-05

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in accompanying packaging	kg C	8.46E-03

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Source	Amount	Unit
Electricity, Norway (kWh)	ecoinvent 3.6	24.33	g CO ₂ -eq/kWh

Dangerous substances

The product contains no substances on the REACH Candidate list at or above 100 ppm, 0,01 % by weight.

Indoor environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products							
Indicator	Unit	A1	A2	A3	A4	A5	
GWPIOBC	kg CO ₂ -eq	7.22E+00	8.30E-02	2.59E-03	7.59E-03	2.95E-04	
Indicator	Unit	B6	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	2.35E+00	0.00E+00	7.66E-03	7.44E-02	1.02E-02	-6.06E-01

GWPIOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Bibliography

ISO 14025:2010. Environmental labels and declarations - Type III environmental declarations - Principles and procedures. International Organization for Standardization.

ISO 14044:2006. Environmental management - Life cycle assessment - Requirements and guidelines. International Organization for Standardization.

EN 15804:2012+A2:2019. Environmental product declaration - Core rules for the product category of construction products. European Committee for Standardization.

ISO 21930:2017. Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products. International Organization for Standardization.

EN 50693:2019. Product category rules for life cycle assessments of electronic and electrical products and systems. European Committee for Standardization.

Ecoinvent v3, 2019. Allocation, cut-off by classification. Swiss Centre of Life Cycle Inventories.

Iversen et al., (2021). eEPD v2021.09, background information for EPD generator tool system verification, LCA.no. Report number: 07.21. System verification report.

Ruud & Philis (2023). EPD generator for PCR EPD Italy 012 part B for switches, background information for EPD generator application and LCA data, LCA.no. Report number: 01.23. PCR verification report.

EPD Italy (2020). PCR EPD Italy 007 Part A for electronic and electrical products and systems. EPD Italy. Version 3, issue 13-01-2023 and valid until 19-01-2025.

EPD Italy (2020). PCR EPD Italy 012 Part B for switches. EPD Italy. Version 0, issue 16-03-2020 and valid until 15-03-2025.

 epd-global Powered by EPD-Norway	Program operator and publisher EPD-Global Postboks 5250 Majorstuen, 0303 Oslo, Norway	Phone: +47 977 22 020 e-mail: post@epd-norge.no web: www.epd-global.com
	Owner of the declaration: CTM Lyng AS Verkstedveien 19, 7125 Vanvikan, Norway	Phone: +47 40006023 e-mail: vidar@ctmlyng.no web: ctmlyng.no
	Author of the Life Cycle Assessment LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	Developer of EPD generator LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	ECO Platform ECO Portal	web: www.eco-platform.org web: ECO Portal