The Siemon Sustainability Pledge:

Reduce our carbon footprint

Minimize all forms of waste

Eliminate pollution and support biodiversity

Produce and deliver safe products

Share, listen and act

SIEMON SUSTAINABILITY PLEDGE

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Siemon Z-MAX Shielded Outlet

Z-MAX™

EPD HUB, HUB-3426

Published on 06.06.2025, last updated on 06.06.2025, valid until 05.06.2030

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1 (5 Dec 2023) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	The Siemon Company
Address	101 Siemon Company Drive, 06795, Watertown, USA
Contact details	Material-Compliance@siemon.com
Website	www.siemon.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	ISO 14025:2006, ISO 21930:2017 and EN 15804:2012+A2:2019
PCR Reference PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023 PSR Specific Rules for Wires, Cables, and Accessories
Sector	Construction product
Category of EPD	Third party verified EPD
LICA Methodology and Version Number	CML 4.1 (EN 15804:2012+A1:2016), TRACI 2.2 (2024) & (EN15804:2012+A2:2019)
Scope of the EPD	Cradle to grave with options, A1-A3, A4-A5, and modules C1-C4, D
EPD author	Jonathan Ciccio
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Imane Uald Lamkaddam as an authorized verifier for EPD Hub

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PRODUCT

Product name	Z-MAX Shielded Outlet by Siemon
Product reference	Z6A-S(X)(XX)(X)(X)
Place of production	Watertown CT, United States
Period for data	Calendar Year 2024
Averaging in EPD	No averaging

ENVIRONMENTAL DATA SUMMARY

Declared unit	One ZMAX Shielded Outlet
Declared unit mass	0.01681 kg
GWP-total, A1-A3 ($kgCO_2e$)	1.39E-01
GWP-total, All Stages ($kgCO_2e$)	1.38E-01
Secondary material, inputs (%)	5.77
Secondary material, outputs (%)	0
Total energy use, A1-A3 (kWh)	0.6
Net freshwater use, A1-A3 (m^3)	0

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Established in 1903, Siemon is an industry leader specializing in the design and manufacture of high-quality, high-performance IT infrastructure solutions and services for Data Centers, LANs, and Smart Buildings. Headquartered in Connecticut, USA, with global sales, technical, and logistics expertise spanning 150 countries, Siemon offers the most comprehensive suites of copper and optical fiber cabling systems, racks, cable management, and Intelligent Infrastructure Management solutions. With more than 400 patents specific to structured cabling, Siemon Labs invests heavily in R&D and the development of Industry Standards, underlining the company's long-standing commitment to its customers and the industry. Through an ongoing commitment to waste and energy reduction, Siemon's environmental sustainability benchmarks are unparalleled in the industry. Siemon OEM Technologies is a Siemon business unit comprised of a team of dedicated technical sales professionals supported by Siemon Labs, mechanical, electrical, and signal integrity engineers committed to solving industry and customer-driven interconnect challenges. We provide custom network infrastructure solutions to OEMs, Leading Manufacturers, Value-Added Resellers, and System Integrators.

PRODUCT DESCRIPTION

The shielded Z-MAX outlet offers best-in-class performance in every critical specification, exceeding all Category 6A performance requirements, including alien crosstalk. Its innovative features not only speed and simplify termination, but remove installation variability for consistently high and repeatable performance — every termination, every time! Further information can be found at: https://go.siemon.com/200-01012

APPLICATION

Copper telecommunication outlets are designed to transmit data and low-voltage power as part of an overall structured cabling system which includes 4-pair Category (5e, 6, 6A, etc) cables, outlets, patch panels and patch cords.

PRODUCT RAW MATERIAL MAIN COMPOSITION

The material composition of Siemon ZMAX Shielded Outlets mainly consists of thermoplastic resins (PC, PC+ABS, Glass-filled LCP) and metals like zinc and steel. Zinc alloy with nickel plating and thermoplastic have the largest percentage of materials content in the production of ZMAX Shielded Outlets. Reference Siemon ZMAX Shieled Outlet HPD:

Raw material category	Amount, mass %
Zinc alloy with nickel plating	67.5%
Thermoplastic Resin	27.0%
Printed Circuit Board	2.6%
Steel	2.0%
Copper alloy with nickel & tin plating	0.9%

PLACING ON THE MARKET / APPLICATION RULES

Industry Standards	ANSI/TIA-568.2-E (Category 6A), ISO/IEC 11801-1 (Class EA), ANSI/TIA 1096-A, IEC 60603-7-51
Applications Standards	10GBASE-T, 2.5/5GBASE-T, 10/100/1000BASE-T, PoE (Type 1,2,3,4) and PoH
Safety & Certifications	IEC 60512-99-002 (3rd party verified), ETL Tested, UL1863
ISO Compliance	ISO 9001:2015, ISO 14001:2015, ISO 45001:2018
RoHS	Compliant without Exemption
REACh	Does Not Contain SVHCs > 0,01 % (100 ppm)
Conflict Minerals	DRC Conflict-Free

PROPERTIES OF DECLARED PRODUCT AS SHIPPED

Siemon ZMAX Shielded Outlets are delivered as finished goods, inclusive of all installation materials and instructions.

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	One ZMAX Shielded Outlet
Mass per declared unit	0.01681 kg
Functional unit	One ZMAX Shielded Outlet
Reference service life	30 years

SUBSTANCES, REACH – VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,01 % (100 ppm).

LEED PRECHECKS

LEED v4 & 4.1 Option 1

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This is a cradle to grave Environmental Product Declaration that covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
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	MND	MND	MND	MND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The production of plastic components involves a streamlined process. Plastic granulate is fed into an injection molding system, where it is melted and injected under pressure into a closed mold. Water and air cooling rapidly solidify the part, and compressed air ensures efficient ejection.

The manufacturing process for the diecast housing begins with the creation of the multi-section mold, followed by heating the metal to a molten state. The liquid metal is then injected into the mold cavity under intense pressure, where it rapidly cools and solidifies. The mold is subsequently opened, and the formed part is ejected. The diecasted part then undergoes final finishing processes.

The production of copper alloy contacts and IDCs begins with raw strips of metals that are shaped through stamping tools and then plated for enhanced performance. The plating is tailored to specific requirements, with both full and selective plating processes employed.

Printed Circuit Boards (PCBs) are supplied from external suppliers.

Automated assembly lines then integrate these high-quality components into our final ZMAX Outlets.

All packaging for bulk packed ZMAX Outlets is 100% recyclable and made from 75% post-consumer recycled content. (see manufacturing diagram on page 7)

Z-MAX Shielded Outlet by Siemon

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions. ZMAX Shielded outlets are manufactured in the US. This model considers International Transport (worst case) 6,000km by boat and 1000km truck transport to site. There is no energy or power consumed in the installation process.

- Domestic Transport: 1,000 km by truck
- International Transport: 6,000 km by boat, 1000km by truck

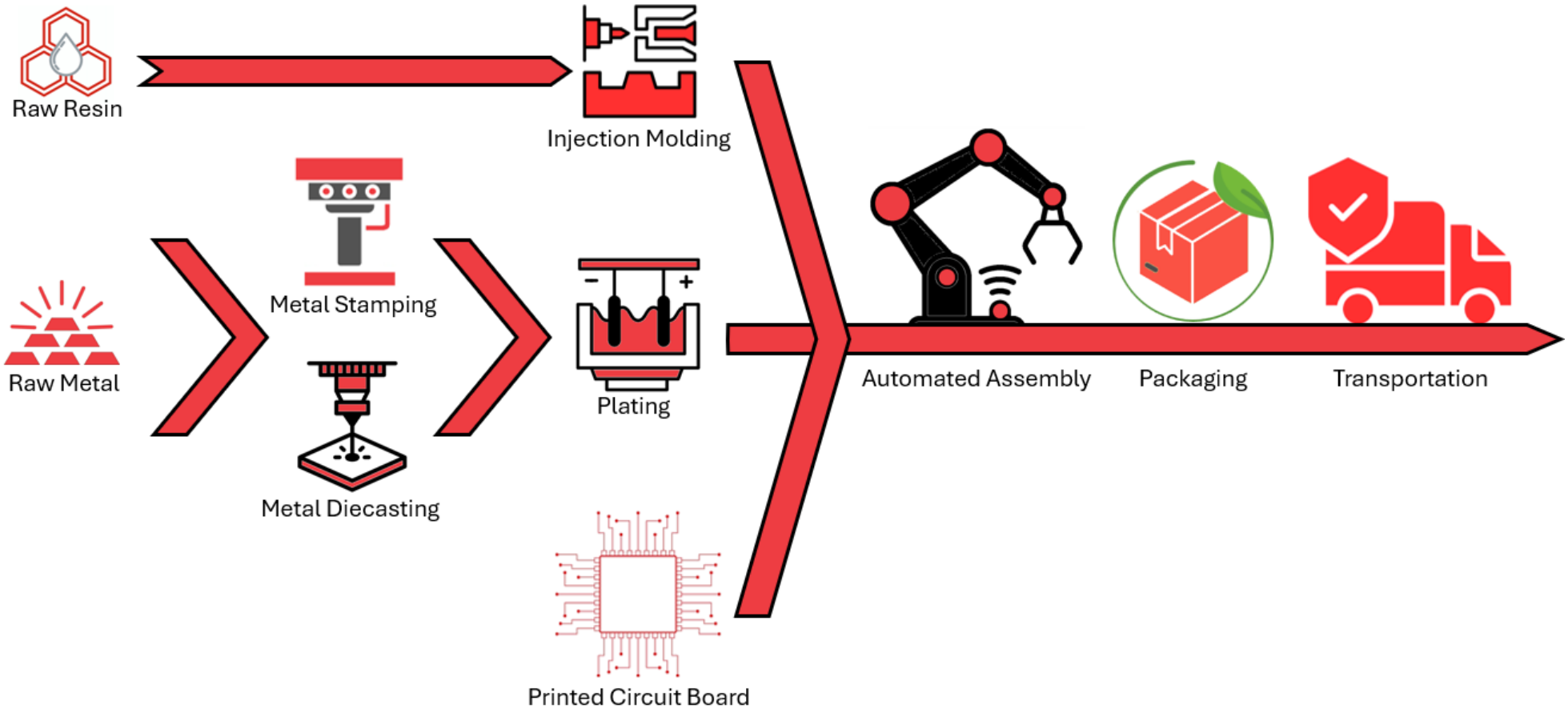
PRODUCT USE AND MAINTENANCE (B1-B7)

The product installed (B1), maintenance (B2), repair (B3), replacement (B4), restoration (B5), and water requirements (B7 are not applicable modules in the analysis of Siemon ZMAX Shielded Outlets. The use stage of ZMAX Shielded Outlets involves connecting cables and wires to the outlet and using it to transmit data and low voltage power (POE) in a variety of network applications. Operational energy stage (B6) does not use electricity for ZMAX Shielded Outlets, therefore there is no impact associated. Any resistive heat loss associated with POE is considered to be negligible.

PRODUCT END OF LIFE (C1-C4, D)

For the deconstruction and demolition stages (C1), manual dismantling is assumed. No loading in trucks or containers is needed. Regarding the transport to EoL (C2), a transport distance of 1000 km by truck must be assumed. In the waste processing and disposal stage (C3 to C4), Siemon ZMAX Shielded outlets are assumed to have a reference service life of 30 years. The outlets are removed manually and recycled or sent to landfill.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	No allocation
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable

This EPD is product and factory specific and does not contain average calculations. Siemon's manufacturing information for outlets and panels are directly used in this study.

Estimation for transport to the building site (A4) was assumed to be worst case of 6,000 km by boat, 1000km by truck International Transport.

DECLARATION OF METHODOLOGICAL FRAMEWORK

This EPD is declared under a "Cradle-to-grave", where all staged of the life cycle have been included: manufacturing, distribution, installation, use, and end-of-life.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	1.29E-01	1.35E-03	7.56E-03	1.38E-01	2.84E-03	3.17E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.81E-03	0.00E+00	4.90E-03	0.00E+00
GWP – fossil	kg CO_2e	1.28E-01	1.35E-03	9.07E-03	1.39E-01	2.84E-03	3.39E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.81E-03	0.00E+00	8.50E-04	0.00E+00
GWP – biogenic	kg CO_2e	2.91E-04	1.67E-07	-1.58E-03	-1.29E-03	5.71E-07	3.13E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.10E-07	0.00E+00	4.05E-03	0.00E+00
GWP – LULUC	kg CO_2e	4.56E-04	7.02E-07	7.29E-05	5.30E-04	1.37E-06	2.56E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.10E-07	0.00E+00	2.94E-07	0.00E+00
Ozone depletion pot.	kg CFC_{-11}e	1.83E-09	1.95E-11	1.23E-10	1.97E-09	4.15E-11	2.53E-13	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.67E-11	0.00E+00	5.73E-12	0.00E+00
Acidification potential	mol H^+e	1.11E-03	3.19E-05	1.66E-05	1.16E-03	3.65E-05	1.53E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.17E-06	0.00E+00	2.86E-06	0.00E+00
EP-freshwater[2)]	kg Pe	8.14E-05	5.64E-08	1.06E-06	8.25E-05	1.73E-07	7.85E-09	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.41E-07	0.00E+00	1.28E-06	0.00E+00
EP-marine	kg Ne	1.69E-04	8.01E-06	6.59E-06	1.84E-04	9.58E-06	6.80E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.03E-06	0.00E+00	2.40E-05	0.00E+00
EP-terrestrial	mol Ne	1.83E-03	8.89E-05	5.09E-05	1.97E-03	1.06E-04	4.35E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.21E-05	0.00E+00	8.90E-06	0.00E+00
POCP ("smog")[3)]	kg NMVOCe	6.12E-04	2.46E-05	2.45E-05	6.61E-04	3.18E-05	1.50E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	9.09E-06	0.00E+00	5.63E-06	0.00E+00
ADP-minerals & metals[4)]	kg Sbe	2.21E-05	1.86E-09	2.49E-08	2.21E-05	6.05E-09	2.78E-10	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.05E-09	0.00E+00	6.04E-10	0.00E+00
ADP-fossil resources	MJ	1.73E+00	1.72E-02	2.95E-01	2.05E+00	3.89E-02	3.32E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.63E-02	0.00E+00	5.38E-03	0.00E+00
Water use[5)]	m^3e depr.	6.12E-02	5.74E-05	8.47E-03	6.97E-02	1.65E-04	5.15E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.30E-04	0.00E+00	5.92E-05	0.00E+00

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	9.12E-09	6.12E-11	2.32E-10	9.41E-09	2.12E-10	8.41E-12	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.81E-10	0.00E+00	3.85E-11	0.00E+00
Ionizing radiation[6)]	kBq U235e	1.04E-02	9.59E-06	1.10E-02	2.14E-02	2.85E-05	1.12E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.29E-05	0.00E+00	1.31E-05	0.00E+00
Ecotoxicity (freshwater)	CTUe	5.03E+00	1.56E-03	1.87E-02	5.05E+00	4.64E-03	2.69E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.71E-03	0.00E+00	1.68E-01	0.00E+00
Human toxicity, cancer	CTUh	1.98E-10	2.72E-13	1.77E-12	2.00E-10	5.18E-13	4.99E-14	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.99E-13	0.00E+00	5.28E-13	0.00E+00
Human tox. non-cancer	CTUh	5.66E-09	5.96E-12	5.14E-11	5.72E-09	2.01E-11	2.01E-12	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.70E-11	0.00E+00	7.97E-11	0.00E+00
SQP[7)]	-	6.32E-01	5.41E-03	1.33E-01	7.70E-01	2.74E-02	2.80E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.64E-02	0.00E+00	1.01E-02	0.00E+00

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	1.88E-01	1.58E-04	4.12E-02	2.29E-01	4.56E-04	-1.75E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.60E-04	0.00E+00	-1.54E-01	0.00E+00
Renew. PER as material	MJ	0.00E+00	0.00E+00	1.40E-02	1.40E-02	0.00E+00	-1.40E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	1.88E-01	1.58E-04	5.52E-02	2.43E-01	4.56E-04	-3.15E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.60E-04	0.00E+00	-1.54E-01	0.00E+00
Non-re. PER as energy	MJ	1.61E+00	1.72E-02	2.95E-01	1.92E+00	3.89E-02	3.32E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.63E-02	0.00E+00	-9.57E-02	0.00E+00
Non-re. PER as material	MJ	1.23E-01	0.00E+00	-4.97E-04	1.22E-01	0.00E+00	-1.14E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	-1.22E-01	0.00E+00
Total use of non-re. PER	MJ	1.73E+00	1.72E-02	2.94E-01	2.05E+00	3.89E-02	2.18E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.63E-02	0.00E+00	-2.18E-01	0.00E+00
Secondary materials	kg	9.70E-04	7.99E-06	8.79E-04	1.86E-03	1.72E-05	6.41E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.12E-05	0.00E+00	1.77E-06	0.00E+00
Renew. secondary fuels	MJ	7.97E-05	3.69E-08	1.21E-04	2.01E-04	1.55E-07	3.12E-09	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.42E-07	0.00E+00	3.06E-08	0.00E+00
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	1.50E-03	1.52E-06	2.00E-04	1.70E-03	4.74E-06	1.28E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.88E-06	0.00E+00	-6.33E-05	0.00E+00

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1.76E-02	2.44E-05	2.46E-04	1.79E-02	6.12E-05	3.08E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.45E-05	0.00E+00	1.47E-05	0.00E+00
Non-hazardous waste	kg	3.27E-01	3.67E-04	4.74E-03	3.32E-01	1.05E-03	6.70E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.23E-04	0.00E+00	8.61E-02	0.00E+00
Radioactive waste	kg	2.63E-06	2.34E-09	2.75E-06	5.38E-06	6.98E-09	2.72E-10	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.60E-09	0.00E+00	3.20E-09	0.00E+00

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	8.40E-05	8.40E-05	0.00E+00	1.10E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy –	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	1.28E-01	1.34E-03	9.22E-03	1.38E-01	2.83E-03	6.34E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.80E-03	0.00E+00	9.44E-03	0.00E+00
Ozone depletion Pot.	kg $CFC_{-11}e$	1.65E-09	1.55E-11	1.07E-10	1.77E-09	3.31E-11	2.10E-13	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.13E-11	0.00E+00	4.60E-12	0.00E+00
Acidification	kg SO_2e	9.34E-04	2.54E-05	1.20E-05	9.72E-04	2.90E-05	1.20E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.71E-06	0.00E+00	2.16E-06	0.00E+00
Eutrophication	kg PO_4^3e	2.29E-04	2.89E-06	5.50E-06	2.37E-04	3.81E-06	4.38E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.15E-06	0.00E+00	1.46E-05	0.00E+00
POCP (“smog”)	kg C_2H_4e	7.61E-05	1.29E-06	1.43E-06	7.88E-05	1.62E-06	2.42E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.20E-07	0.00E+00	2.07E-06	0.00E+00
ADP-elements	kg Sbe	2.20E-05	1.83E-09	2.50E-08	2.21E-05	5.91E-09	2.75E-10	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.92E-09	0.00E+00	5.88E-10	0.00E+00
ADP-fossil	MJ	1.57E+00	1.71E-02	1.39E-01	1.73E+00	3.84E-02	3.14E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.59E-02	0.00E+00	5.17E-03	0.00E+00

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	1.29E-01	1.35E-03	9.14E-03	1.39E-01	2.84E-03	3.39E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.81E-03	0.00E+00	8.50E-04	0.00E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

ENVIRONMENTAL IMPACTS – TRACI 2.1. / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	1.27E-01	1.33E-03	9.13E-03	1.37E-01	2.81E-03	5.99E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.78E-03	0.00E+00	8.48E-03	0.00E+00
Ozone Depletion	kg $CFC_{-11}e$	1.95E-09	2.06E-11	1.35E-10	2.11E-09	4.38E-11	2.70E-13	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.82E-11	0.00E+00	6.05E-12	0.00E+00
Acidification	kg SO_2e	9.22E-04	2.71E-05	1.42E-05	9.64E-04	3.13E-05	1.44E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.48E-06	0.00E+00	2.80E-06	0.00E+00
Eutrophication	kg Ne	1.59E-04	1.08E-06	5.98E-06	1.66E-04	1.55E-06	2.96E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.78E-07	0.00E+00	3.34E-05	0.00E+00
POCP (“smog”)	kg O_3e	1.06E-02	5.19E-04	3.05E-04	1.14E-02	6.28E-04	2.33E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.40E-04	0.00E+00	4.74E-05	0.00E+00
ADP-fossil	MJ	1.62E+00	1.72E-02	2.95E-01	1.93E+00	3.89E-02	3.35E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.63E-02	0.00E+00	-9.57E-02	0.00E+00

LIFE-CYCLE INTERPRETATION

DATA QUALITY ASSESSMENT

The purpose of this data quality assessment is to evaluate the reliability, consistency, and accuracy of the data used in the Life-Cycle Assessment (LCA) report. This assessment ensures that the data utilized in the LCA study meets the required standards for quality and is suitable for deriving meaningful and reliable conclusions.

The data quality assessment has been conducted on the life cycle modules that are considered mandatory acc. to ISO 21930 and the respective PCR. The cradle-to-gate stage (A1-A3) represents primary and measured data over which the manufacturer has direct control.

Inventory data of product stage (A1-A3) have been collected via a questionnaire and personal contact with a representative of the manufacturer. The collected information includes primary data about annual quantities of used raw and supplementary materials (including production losses) as well as information about suppliers, transportation types and distances, energy and water consumption, and waste generation. Where specific data has been unavailable, secondary data sources are used – the ecoinvent database, statistical data, peer-reviewed papers and reports, as relevant. Published EPDs have been used for raw materials when available, and their quality can be considered very good. Subsequent stages like transport (A4, C2), installation (A5), and disposal (C4) are typically modelled using standardized scenarios based on the PCRs typical practices, relying heavily generic datasets using the ecoinvent database.

All significant materials and processes are included in the assessment. The cut-off rules of ISO 21930, ISO 14040, ISO 14044, and the PCR apply, so data can be considered complete and consistent. Data collection was conducted by trained personnel, and procedures were documented to ensure traceability. Data sources were evaluated for their reliability based on their publication and peer-review status, with preference given to sources with established credibility.

INTERPRETATION OF THE RESULTS

This Lifecycle Assessment provides the cradle-to-grave environmental performance for the Siemon ZMAX Shielded Outlet. This study reveals that the manufacturing stage (A1-A3) exerts the most substantial environmental impact on the ZMAX Shielded Outlet. The extraction and processing of plastics (e.g., ABS, polycarbonate) and metals like copper for the outlet's housing and components likely contribute significantly to the overall environmental impact. This interpretation highlights the crucial role of the product stage (A1-A3) in the environmental impact of the Siemon ZMAX Shielded Outlet. By focusing on material sourcing and manufacturing processes, significant improvements in environmental sustainability can be achieved.

ASSUMPTIONS AND LIMITATIONS ASSOCIATED WITH THE INTERPRETATION

Life-Cycle Assessment (LCA) is a comprehensive method used to evaluate the environmental impacts associated with all stages of a product's life cycle. However, certain assumptions and limitations are inherent to this methodology, which must be considered when interpreting the results. The system boundaries define which processes are included in the LCA. All significant processes contributing to the environmental impact are included within these boundaries. The data used in the LCA, whether primary or secondary, is accurate and representative of the actual processes. Some materials/energy in small amounts (less than 1%) are excluded due to lack of data or unavailable proxies. The recycling and incineration rates modelled in the end-of-life scenario reflect the current situation on the market where the product is sold and used. Specifically, module A4 considers International Transport, which represents a worst-case scenario for Global Warming Potential (GWP).

Allocation methods are used to distribute environmental impacts among co-products or multiple functions. It is assumed that the chosen method (mass-based) appropriately reflects the impact distribution. All other assumptions are listed in their respective sections under Product Life-Cycle.

CONCLUSIONS AND RECOMMENDATIONS

The environmental impacts are highest during the A1-A3 stage. Optimization of the supply chain for raw materials (modules A1 and A2) and the manufacturing process (module A3) can help reduce the product’s environmental impacts. The actions taken to decrease environmental impacts in product stage (A1-A3) have a multiplicative effect on further life cycle modules as well.

Possible solutions can include the use of recycled and alternative raw materials, renewable energy and the use of more sustainable transport options. Use of recycled materials will help to reduce impacts, and the emissions will decrease in proportion to the ratio of recycled content. Electricity generated from renewable energy sources should be used in the manufacturing plant and sustainable transportation options should be preferred instead of conventional transportation.

DETAILED CUT-OFF DOCUMENTATION

The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available, are included in the calculation using a threshold of 100 ppm.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

ADDITIONAL ENVIRONMENTAL INFORMATION

SIEMON SUSTAINABILITY AND CERTIFICATIONS

Siemon has long integrated sustainability principles into our core values and business operations, recognizing our responsibility to protect people and the environment, and contribute positively to the communities where we operate. Our commitment is deeply rooted in our engineering heritage, driving us to create efficient, long-lasting solutions while minimizing our operational footprint. Our dedication is exemplified across our global manufacturing locations in the US, Mexico and China, which operate under stringent environmental, safety, and quality controls and incorporate energy-efficient practices. Siemon is dedicated to minimizing environmental impact throughout the product lifecycle and across our global footprint, pursuing ongoing reductions in energy consumption, waste generation, and emissions through continuous improvement programs. We believe in corporate transparency and accountability. Siemon is committed to providing clear insight into the impact of our business activities on people and the environment through comprehensive annual ESG reporting. Our reporting process is guided by and aligned with established frameworks and standards, including the Responsible Business Alliance (RBA), the UN Global Compact (UNGC), the Global Reporting Initiative (GRI), and the EU Corporate Sustainability Reporting Directive (CSRD). A key focus of our transparency efforts is reporting on the global warming potential (GWP) associated with our products and activities. We are assessing the climate impact of our business operations, supported by platforms like Greenly and aligning our reduction efforts with frameworks such as the Science Based Targets initiative (SBTi) according to the GHG Protocol. For our products, we provide detailed environmental performance data through third-party verified Environmental Product Declarations (EPDs) and Health Product Declarations (HPDs), both of which are pre-screened to LEED v4 and 4.1. We have set a goal to publish HPDs and EPDs covering 80% of our product sales by 2029. Siemon's environmental, safety and operational stewardship activities include:

ISO 14001:2015 Certification: Maintaining Environmental Management System certification at our manufacturing locations, demonstrating a systematic approach to environmental responsibility.
ISO 9001:2015 Certification: Ensuring all Siemon manufacturing facilities adhere to the rigorous Quality Management System standard, reflecting our commitment to producing reliable, high-quality products. Designing high-performance, durable network infrastructure solutions built to last, reducing the need for frequent replacements and minimizing associated environmental impact and waste.
ISO 45001:2018 Certification: Achieving Occupational Health and Safety Management System certification at key facilities, underscoring our commitment to providing a safe and healthy work environment for all employees.
Energy Management: Implementing comprehensive energy management programs across our facilities focused on operational efficiency and exploring the expanded use of renewable energy sources.
Compliance: Strict adherence to environmental and material compliance regulations, including thorough supply chain assessments and supplier engagement to ensure responsible sourcing of materials. Publishing Health Product Declarations (HPDs) and Environmental Product Declaration (EPDs) for key product lines, providing detailed insight into material ingredients to demonstrate that our products are safe for people and the environment. Product regulations and standards include UL, CUL, Anatel, CE, Rohs, Reach and Conflict Minerals and can be found on our Product Compliance Page.

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online
This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Imane Uald Lamkaddam as an authorized verifier for EPD Hub Limited
06.06.2025