



ENVIRONMENTAL PRODUCT DECLARATION

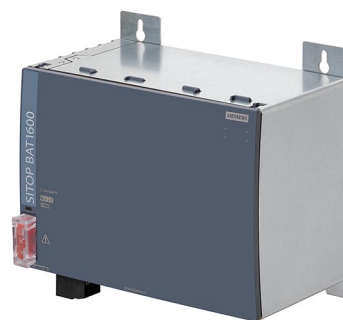
**SITOP BAT1600**

**SITOP BAT8600**

**SITOP UPS1100**

**SITOP DC UPS**

Type II according to ISO 14021 including life cycle impact assessment (LCIA)



**SIEMENS**

# General information

This environmental product declaration (EPD) is based on the international standard ISO 14021 (“Environmental labels and declarations – Self declared environmental claims – Type II environmental labelling”). The data in this EPD has been evaluated on a full-scale life cycle assessment (LCA) study according to ISO 14040/44, Taking into account the product category rules (PCR) for electronic and electrotechnical products and systems defined in EN 50693.

Siemens is dedicated to an environmentally conscious design of its products in line with IEC 62430 and has implemented an integrated management system according to ISO 9001, ISO 14001 and ISO 45001.

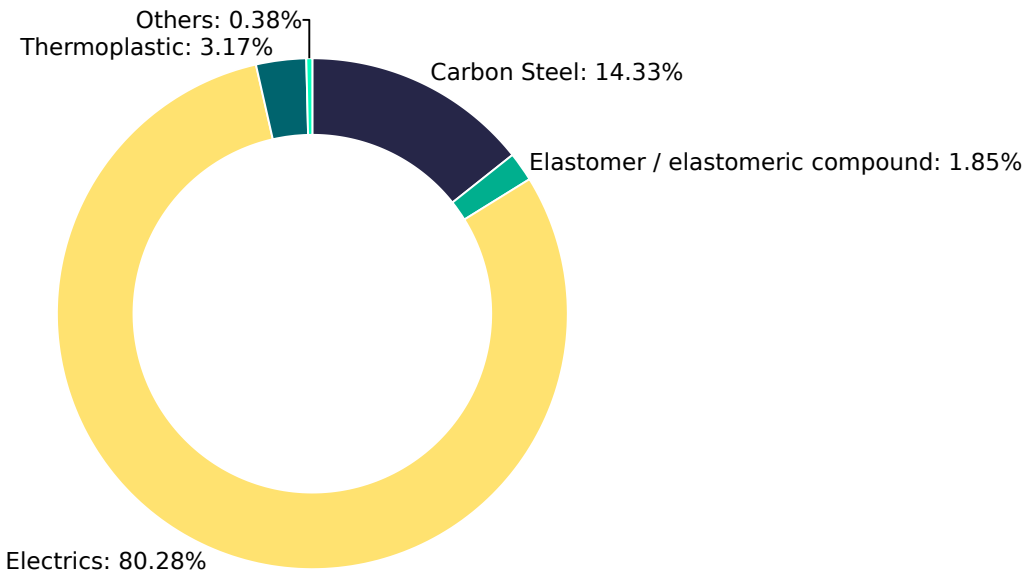
Products	Please refer to annex
Represented by the reference product	6EP4135-0GE00-0AY0
Product Description	SITOP BAT1600 24 V DC 12 Ah Pb battery module with maintenance-free closed lead-acid battery for SITOP UPS1600
Functional Unit	Production of 1 pc. SITOP BAT1600 12Ah Pb including two battery replacements and use over the reference service lifetime of 10 years. <sup>1</sup>

<sup>1</sup> The lifetime value used for calculation is a reference value and does not equate with the minimum, average or real life time.

# Material composition

The following chart outlines the overall material composition of the calculated reference product without packaging. Product weight of 10.01 kg adds up with packaging weight of 0.53 kg to a total weight of 10.54 kg. Packaging consists of: Corrugated box, average composition, PE film, Graphic Paper.




Product Weight 10.01 kg



# Substance assessment

At Siemens, we are committed to the development and production of environmentally sound and sustainably produced equipment. This includes avoiding hazardous substances in our products without compromising their benefits for our customers. Please visit the following website to learn more about how we comply with product-related environmental regulations like RoHS, REACH, WEEE and others: [Product Related Environmental Protection](#)

## Life cycle stages and reference scenarios

 <b>Manufacturing</b>  This stage covers the extraction of natural resources, production of raw materials, manufacturing, packaging, and transportation.	 <b>Distribution and Operation</b>  This stage covers the product's distribution, installation, use, and maintenance. Different operating conditions can lead to deviations from the reference scenario.	 <b>End-of-Life</b>  This stage covers the disassembly or shredding and material recycling of all recyclable materials, as well as energy recovery, thermal treatment and the disposal of all other materials.
<b>Scenarios</b>		
<b>Energy model used:</b> Europe (standard mix)  <b>Transportation model:</b> Truck-trailer, 34 - 40t gross weight 3500 km	<b>Energy model used:</b> Europe (standard mix)  <b>Distribution scenario:</b> Truck-trailer, 34 - 40t gross weight 3500 km  <b>Use Scenario:</b> Continuous trickle charge and one buffer event per month (full discharge and subsequent recharge); 100% service uptime; 10 years reference lifetime	<b>Energy model used:</b> EMEA  <b>End-of-life methodology:</b> Modeled according to Cut-off methodology.

# Key environmental performance indicators

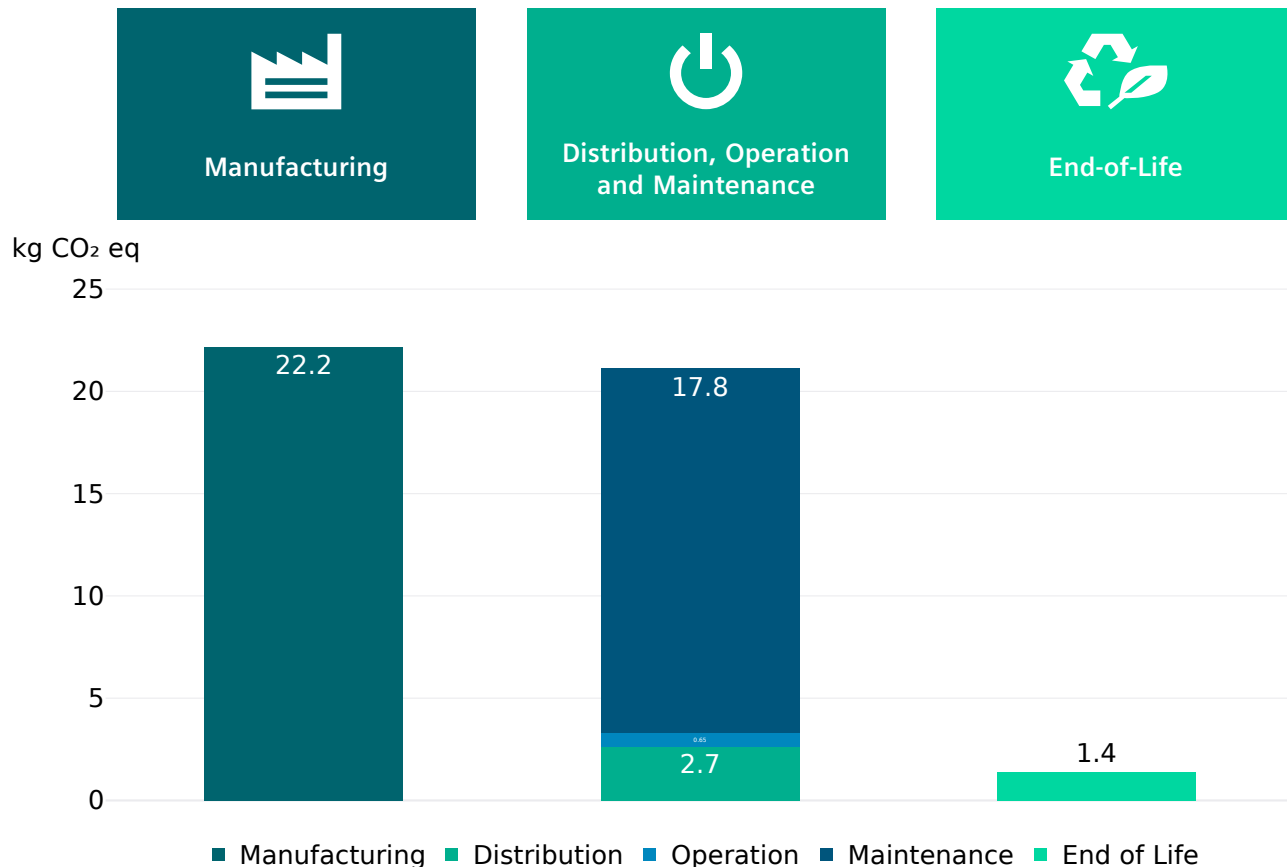
The following impact categories characterize the product's environmental footprint. They have been calculated with LCIA methodology EF3.1; LCA tool: Green Digital Twin (GDT), Database: One Siemens LCA Database (based on MLC CUP 2023.2, formerly GaBi).

To ensure the high quality and completeness of the LCA results, Primary Data have been used whenever possible. Datasets for resources, such as electrical energy or natural gas, are chosen from the region where the device is produced and assembled. If primary data are not available, datasets reflecting state-of-the-art manufacturing technology are considered.

Impact Category	Unit	Total	Manufacturing	Distribution	Operation	End-of-life
Acidification	Mole of H+ eq	7.70E-1	2.83E-1	3.39E-3	4.82E-1	1.59E-3
Climate change – total	kg CO <sub>2</sub> eq	4.47E+1	2.22E+1	2.65E+0	1.84E+1	1.40E+0
Climate change – fossil	kg CO <sub>2</sub> eq	4.45E+1	2.21E+1	2.62E+0	1.84E+1	1.40E+0
Climate change – biogenic	kg CO <sub>2</sub> eq	1.05E-1	5.61E-2	7.10E-3	4.07E-2	7.72E-4
Climate Change, land use and land use change	kg CO <sub>2</sub> eq	3.42E-2	3.10E-2	2.45E-2	2.78E-3	3.67E-4
Ecotoxicity, freshwater – total	CTUe	2.55E+2	1.35E+2	2.58E+1	9.21E+1	1.75E+0
Eutrophication, freshwater	kg P eq	1.09E-4	7.20E-5	9.67E-6	2.58E-5	1.91E-6
Eutrophication, marine	kg N eq	2.87E-2	1.48E-2	1.15E-3	1.23E-2	4.95E-4
Eutrophication, terrestrial	Mole of N eq	3.12E-1	1.60E-1	1.38E-2	1.33E-1	5.60E-3
Human toxicity, cancer – total	CTUh	4.49E-8	3.77E-8	5.24E-10	6.48E-9	1.98E-10
Human toxicity, non-cancer – total	CTUh	1.59E-6	6.11E-7	2.33E-8	9.36E-7	1.82E-8
Ionising radiation, human health	kBq U235 eq	3.50E+0	1.93E+0	1.01E-2	1.55E+0	1.16E-2
Land Use	dimensionless (pt)	1.76E+2	9.06E+1	1.51E+1	6.99E+1	5.67E-1
Ozone depletion	kg CFC-11 eq	1.09E-8	1.08E-8	3.44E-13	6.03E-11	6.95E-13
Particulate matter	Disease incidences	5.20E-6	2.03E-6	2.48E-8	3.13E-6	1.39E-8
Photochemical ozone formation, human health	kg NMVOC eq	1.27E-1	5.79E-2	2.93E-3	6.44E-2	1.44E-3
Resource use, fossils	MJ	6.74E+2	3.40E+2	3.60E+1	2.92E+2	5.63E+0
Resource use, mineral and metals	kg Sb eq	4.02E-2	1.39E-2	1.75E-7	2.64E-2	1.08E-8
Water use	m <sup>3</sup> water eq deprived water	1.00E+1	5.45E+0	3.20E-2	4.46E+0	8.75E-2

# Climate change

This chart shows the overall impact of the product on climate change – total. The manufacturing phase is the lifecycle phase with the biggest overall impact. Different operating conditions can lead to deviations from the reference scenario. The distribution stage of the reference product is not shown in the chart due to its relatively small contribution to climate change and its impact is included in the operation bar.



## End-of-life results

The end-of-life stage was modelled by shredding of the device, followed by sorting and material separation process.



It leads to:

- an overall **product recyclability of up to 48%** mainly due to metal content
- an **energy recoverability of up to 2%** from plastic materials
- a **minimum disposal rate of 50%**

The exact final values depend on the used recycling process and add up to 100%.

**Note:** The device should not be disposed of as unsorted municipal waste. Special treatment for specific components may be mandated by law or recommended for environmental reasons. Observe all local and applicable laws.

# Appendix

For the „Key environmental performance indicators“ of similar products please refer to the following factors:

Product	Description	Manufacturing	Distribution	Operation	End-of-Life
6EP4135-0GE00-0AY0	SITOP BAT1600 12Ah Pb	1	1	1	1
6EP1935-6MC01	Akku-Modul 1,2Ah	0,183	0,183	0,100	0,183
6EP1935-6MD11	Akku-Modul 3,2Ah	0,356	0,356	0,267	0,356
6EP1935-6MD31	Akku-Modul 2,5Ah	0,422	0,422	0,208	0,422
6EP1935-6ME21	Akku-Modul 7Ah	0,578	0,578	0,583	0,578
6EP1935-6MF01	Akku-Modul 12Ah	0,911	0,911	1	0,911
6EP4131-0GB00-0AY0	SITOP UPS1100 1,2Ah	0,211	0,211	0,100	0,211
6EP4132-0GB00-0AY0	SITOP UPS1100 2,5Ah	0,411	0,411	0,208	0,411
6EP4133-0GA00-0AY0	SITOP BAT1600 3,2Ah Pb	0,422	0,422	0,267	0,422
6EP4133-0GB00-0AY0	SITOP UPS1100 3,2Ah	0,422	0,422	0,267	0,422
6EP4133-0GD00-0AY0	SITOP BAT1600 3,2Ah Pb Ex	0,422	0,422	0,267	0,422
6EP4134-0GB00-0AY0	SITOP UPS1100 7Ah	0,611	0,611	0,583	0,611
6EP4135-0GB00-0AY0	SITOP UPS1100 12Ah	0,944	0,944	1	0,944
6EP4135-0GL00-0AY0	SITOP BAT1600 12Ah Pb Ex	1	1	1	1
6EP4145-8GB00-0XY0	SITOP BAT8600 Pb 380Wh	1,389	1,389	1,342	1,389
6EP4130-0GJ00-0AY0	SITOP BAT1600 Battery Monitor	0,033	0,033	-	0,033
6EP4137-0GE00-0AY0	SITOP BAT1600 38Ah Pb	3,100	3,100	0,127 2)	3,100

2) impact of 38Ah device calculated based on batteries with 10 years lifetime.

# Legal Disclaimer

This Environmental Product Declaration (EPD) is for information purposes only. It is based upon the standards mentioned above. This EPD does not warrant or guarantee the composition of a product or that the product will retain a particular composition for a particular period. Therefore, all warranties, representations, conditions, and all other terms of any kind whatsoever implied by statute or common law are – to the fullest extent permitted by applicable law – excluded.

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Please be aware that the data of this EPD cannot be compared with data calculated based upon product category rules (PCRs) other than the standards mentioned above. The values given are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an installation.

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