ENVIRONMENTAL PRODUCT DECLARATION

LOGO! Base Module 230V

6ED1052-1FB08-0BA2

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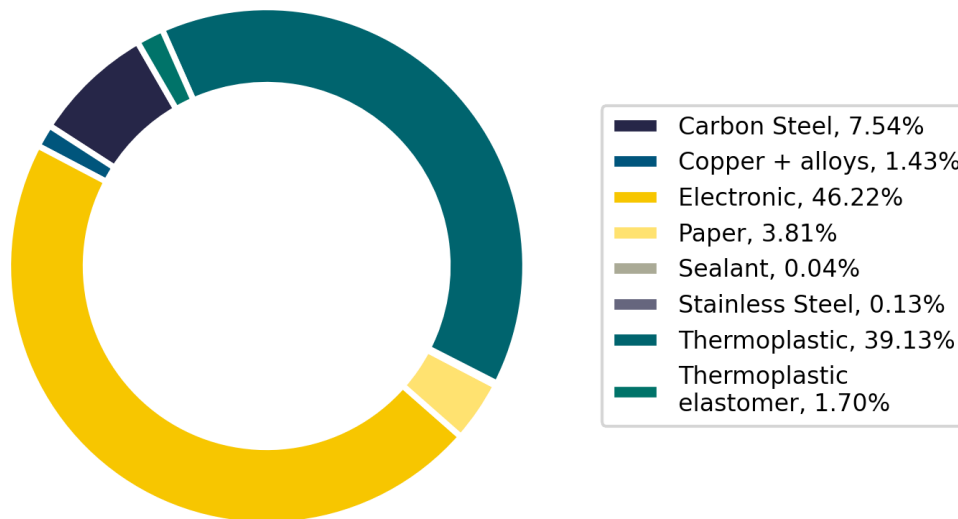
Siemens is dedicated to an environmentally conscious design of its products in line with IEC 62430 and has implemented an integrated management system according to ISO 9001, ISO 14001 and ISO 45001.

Products	**6ED1052-1FB08-0BA2 and 6ED1052-2FB08-0BA2**
Represented by	6ED1052-1FB08-0BA2
Product Description	LOGO! 230RCE, logic module, display power supply / I/O: 115 V/230 V/relay, 8 DI/4 DQ, memory 400 blocks, modularly expandable, Ethernet, integrated web server, data log, user-defined web pages, standard microSD card for LOGO! Soft Comfort V8.3 or higher, older projects executable Cloud connection, MQTT in all LOGO! 8.4 basic units
Functional Unit	To control industrial automation applications over the reference service lifetime of 10 years

Material composition

The following chart outlines the overall material composition of the calculated reference product. Product weight of 0.25 kg adds up with packaging weight of 0.02 kg to a total weight of 0.27 kg. Packaging consists of cardboard and paper.
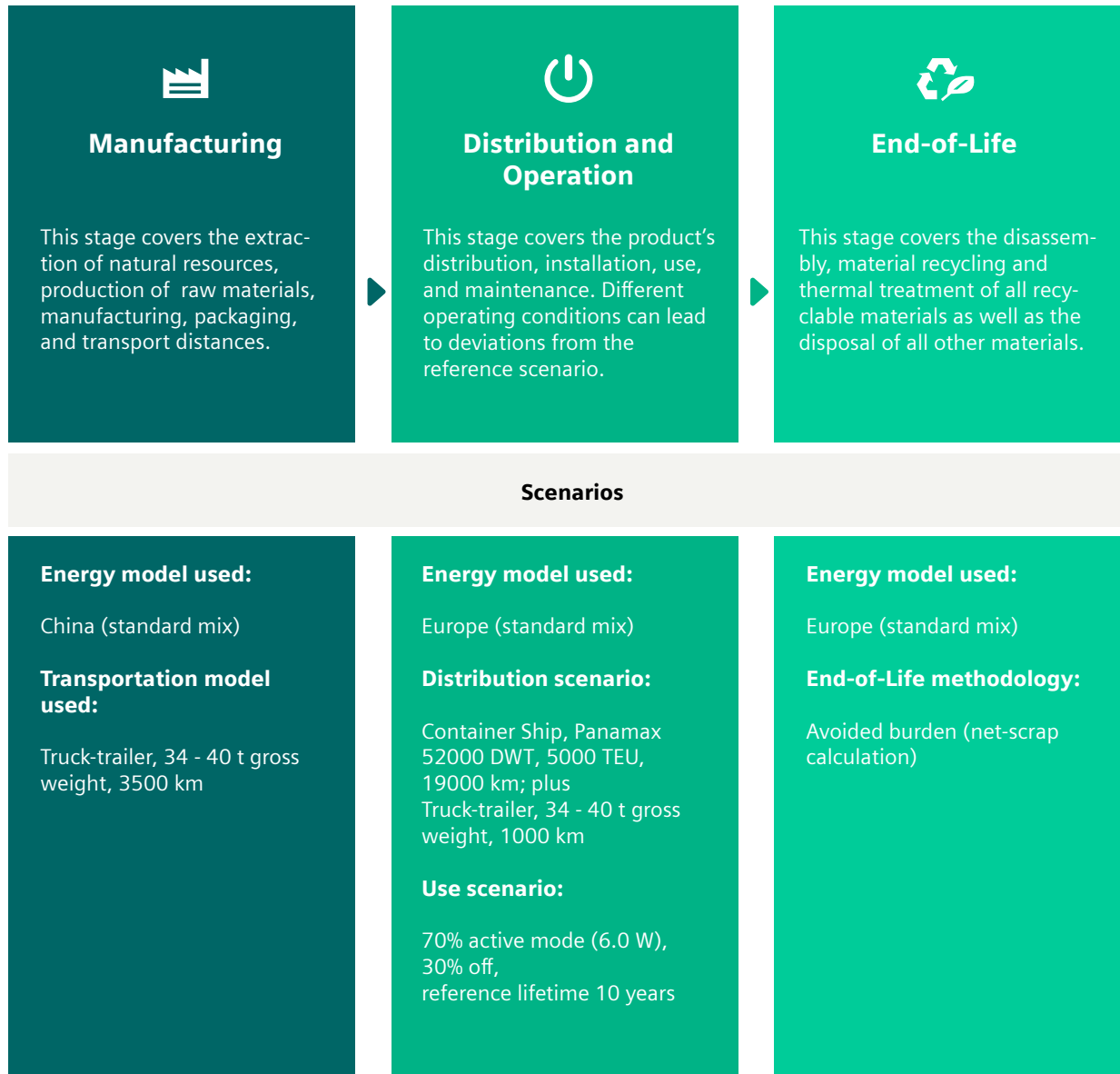
Product Weight 0.25 kg

- Carbon Steel, 7.54%
- Copper + alloys, 1.43%
- Electronic, 46.22%
- Paper, 3.81%
- Sealant, 0.04%
- Stainless Steel, 0.13%
- Thermoplastic, 39.13%
- Thermoplastic elastomer, 1.70%

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

Manufacturing	**Distribution and Operation**	**End-of-Life**
This stage covers the extraction of natural resources, production of raw materials, manufacturing, packaging, and transport distances.	This stage covers the product's distribution, installation, use, and maintenance. Different operating conditions can lead to deviations from the reference scenario.	This stage covers the disassembly, material recycling and thermal treatment of all recyclable materials as well as the disposal of all other materials.

Scenarios

Energy model used:	**Energy model used:**	**Energy model used:**
China (standard mix)	Europe (standard mix)	Europe (standard mix)
Transportation model used:	**Distribution scenario:**	**End-of-Life methodology:**
Truck-trailer, 34 - 40 t gross weight, 3500 km	Container Ship, Panamax 52000 DWT, 5000 TEU, 19000 km; plus Truck-trailer, 34 - 40 t gross weight, 1000 km	Avoided burden (net-scrap calculation)
	Use scenario:	
	70% active mode (6.0 W), 30% off, reference lifetime 10 years	

# 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).

Measurement setup of the energy consumption in operation phase for the active mode: Ambient temperature 25°C, supply voltage 240 VAC, all input channels connected, all output channels turned on with maximum current load (relay output 10 A), program running with maximum program memory configured and with LCD back-light turned on.

Impact Category	Unit	Total	Manufacturing	Distribution	Operation	End-of-Life
Acidification	Mole of H+ eq	3.28E-1	9.98E-2	1.76E-3	2.43E-1	-1.64E-2
Climate change – total	kg CO_2 eq	1.24E+2	9.93E+0	7.11E-2	1.15E+2	-3.83E-1
Climate change – fossil	kg CO_2 eq	1.23E+2	9.90E+0	7.08E-2	1.14E+2	-3.82E-1
Climate change – biogenic	kg CO_2 eq	1.03E+0	2.25E-2	9.23E-5	1.01E+0	-8.41E-4
Climate Change, land use and land use change	kg CO_2 eq	1.94E-2	7.59E-3	1.80E-4	1.24E-2	-6.54E-4
Ecotoxicity, freshwater – total	CTUe	7.27E+2	6.56E+1	6.27E-1	6.65E+2	-3.83E+0
Eutrophication, freshwater	kg P eq	4.77E-4	5.11E-5	8.26E-8	4.27E-4	-5.17E-7
Eutrophication, marine	kg N eq	6.95E-2	1.20E-2	4.34E-4	5.82E-2	-1.07E-3
Eutrophication, terrestrial	Mole of N eq	7.31E-1	1.30E-1	4.77E-3	6.08E-1	-1.16E-2
Human toxicity, cancer – total	CTUh	4.61E-8	1.12E-8	1.18E-11	3.52E-8	-3.00E-10
Human toxicity, non-cancer – total	CTUh	6.83E-7	1.33E-7	4.26E-10	5.61E-7	-1.18E-8
Ionising radiation, human health	kBq U235 eq	6.37E+1	6.11E-1	1.79E-4	6.31E+1	-9.03E-4
Land Use	dimensionless (pt)	9.64E+2	2.35E+1	1.12E-1	9.42E+2	-1.89E+0
Ozone depletion	kg CFC-11 eq	2.29E-9	1.87E-10	6.03E-15	2.10E-9	-1.05E-12
Particulate matter	Disease incidences	2.82E-6	8.84E-7	3.13E-8	2.04E-6	-1.41E-7
Photochemical ozone formation, human health	kg NMVOC eq	1.90E-1	3.70E-2	1.23E-3	1.55E-1	-3.72E-3
Resource use, fossils	MJ	2.52E+3	1.37E+2	8.84E-1	2.39E+3	-7.21E+0
Resource use, mineral and metals	kg Sb eq	4.50E-4	1.04E-3	1.75E-9	1.76E-5	-6.07E-4
Water use	m³ world eq	2.69E+1	2.18E+0	3.20E-4	2.51E+1	-2.88E-1

Climate Change

This chart shows the overall impact of the product on climate change – total. The operations 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.

Manufacturing	Distribution and Operation	End-of-Life

kgCO$_2$eq
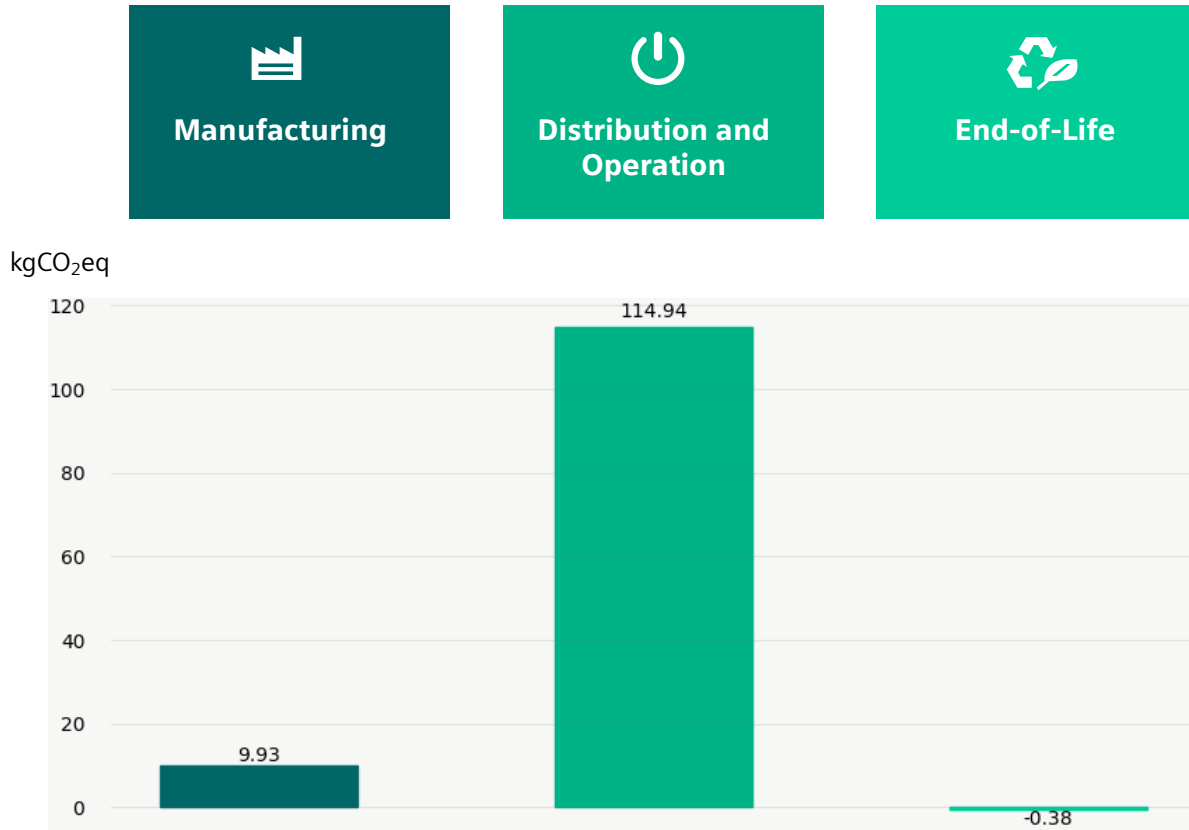
End-of-Life results

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 27%** mainly due to metal content
- an **energy recoverability of up to 50%** from plastic materials
- a **minimum disposal rate of 23%**

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

Legal Disclaimer

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**Published by
Siemens AG**

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