



## ENVIRONMENTAL PRODUCT DECLARATION

# LOGO! 9 Base Module 230V

## 6ED1052-1FB08-0BA3

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.

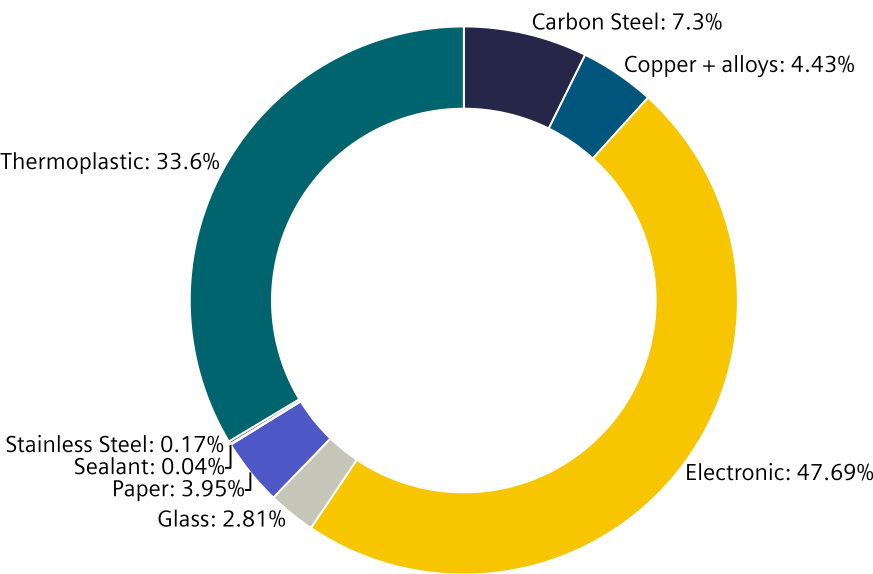
| Products                             | Variants in the product family of SIMATIC LOGO! 9 Base Module 230V - please refer to <a href="#">link</a>                                                                                                                                                                                                                        |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Represented by the reference product | 6ED1052-1FB08-0BA3                                                                                                                                                                                                                                                                                                               |
| Product Description                  | LOGO! 230RCE, logic module, color touch display, power supply/I/O: 115 V/230 V/relay, 8 DI/4 DO, memory 800 blocks, modularly expandable, Ethernet, integrated web server, data log, user-defined web pages, standard micro SD card for LOGO! Soft Comfort V9.0.0.0 or higher, cloud connection, MQTT in all LOGO! 9 basic units |
| Functional Unit                      | To control industrial automation applications 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 0.23 kg adds up with packaging weight of 0.02 kg to a total weight of 0.25 kg. Packaging consists of cardboard and paper.

Product Weight 0.23 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

|                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>Manufacturing</b><br><br>This stage covers the extraction of natural resources, production of raw materials, manufacturing, packaging, and transportation. | <br><b>Distribution and Operation</b><br><br>This stage covers the product's distribution, installation, use, and maintenance. Different operating conditions can lead to deviations from the reference scenario.                                 | <br><b>End-of-Life</b><br><br>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><br>China (standard mix),<br>China (hydro power)<br><br><b>Transportation model:</b><br>Truck-trailer, 34 – 40 t gross weight, 3500 km                                                                                    | <b>Energy model used:</b><br>Europe (standard mix)<br><br><b>Distribution scenario:</b><br>Container Ship, Panamax 52000 DWT, 5000 TEU, 19000 km; plus<br>Truck-trailer, 34 - 40 t gross weight, 1000 km<br><br><b>Use Scenario:</b><br>50% active mode (4.9 W),<br>20% idle mode (2 W)<br>30% off,<br>reference lifetime 10 years | <b>Energy model used:</b><br>Europe (standard mix)<br><br><b>End-of-Life methodology:</b><br>Avoided burden (net-scrap calculation)                                                                                                                                                                        |

# Key environmental performance indicators

The following impact categories characterize the product's environmental footprint. They have been calculated with LCIA methodology EN15804+A2 (EF 3.1); LCA tool: Green Digital Twin Version 4.7, Database: One Siemens LCA Database (based on Sphera MLC CUP 2025.1).

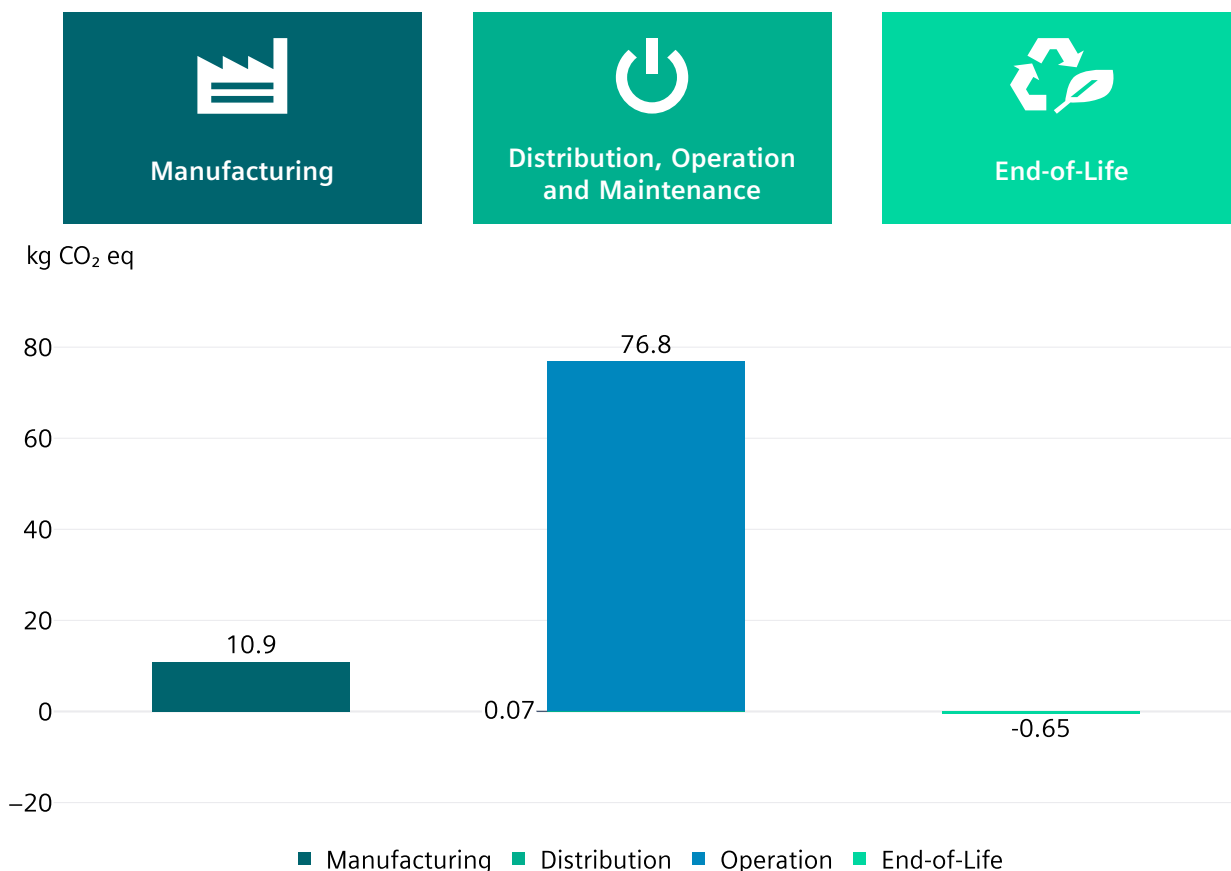
Measurement setup of the energy consumption for the active mode in operation phase: ambient temperature 25°C, supply voltage 240 V AC, all input channels connected, EM Bus on, all output channels turned on with maximum current load (relay output 10 A), program running with maximum program memory configured and with LCD back-light turned on with max brightness, Ethernet speed 100 Mbps.

Measurement setup of the energy consumption for the idle mode in operation phase: ambient temperature 25°C, supply voltage 240 V AC, no input channels connected, EM Bus off, all output channels turned off, program stopped and with LCD back-light on saver mode with min brightness, Ethernet off.

| Impact Category                              | Unit                      | Total   | Manufacturing | Distribution | Operation | End-of-Life |
|----------------------------------------------|---------------------------|---------|---------------|--------------|-----------|-------------|
| Climate change – total                       | kg CO <sub>2</sub> eq     | 8.71E+1 | 1.09E+1       | 7.26E-2      | 7.68E+1   | -6.53E-1    |
| Climate change – fossil                      | kg CO <sub>2</sub> eq     | 8.61E+1 | 1.09E+1       | 7.12E-2      | 7.58E+1   | -6.63E-1    |
| Climate change – biogenic                    | kg CO <sub>2</sub> eq     | 8.15E-1 | 2.37E-2       | 1.16E-3      | 7.79E-1   | 1.14E-2     |
| Climate Change, land use and land use change | kg CO <sub>2</sub> eq     | 2.60E-1 | 1.23E-2       | 2.05E-4      | 2.50E-1   | -2.32E-3    |
| Ozone depletion                              | kg CFC-11 eq              | 1.99E-9 | 2.69E-10      | 8.30E-15     | 1.72E-9   | -3.89E-12   |
| Acidification                                | Mole of H <sup>+</sup> eq | 2.71E-1 | 1.34E-1       | 1.68E-3      | 1.66E-1   | -3.04E-2    |
| Eutrophication, freshwater                   | kg P eq                   | 2.13E-4 | 5.19E-5       | 6.73E-8      | 1.63E-4   | -1.37E-6    |
| Eutrophication, marine                       | kg N eq                   | 5.23E-2 | 1.33E-2       | 4.16E-4      | 3.98E-2   | -1.16E-3    |
| Eutrophication, terrestrial                  | Mole of N eq              | 5.81E-1 | 1.43E-1       | 4.55E-3      | 4.46E-1   | -1.27E-2    |
| Photochemical ozone formation, human health  | kg NMVOC eq               | 1.37E-1 | 4.25E-2       | 1.18E-3      | 9.86E-2   | -4.87E-3    |
| Resource use, mineral and metals             | kg Sb eq                  | 3.82E-4 | 7.93E-4       | 2.60E-9      | 1.57E-5   | -4.27E-4    |
| Resource use, fossils                        | MJ                        | 1.68E+3 | 1.43E+2       | 8.52E-1      | 1.54E+3   | -9.95E+0    |
| Water use                                    | m <sup>3</sup> world eq   | 2.13E+1 | 2.97E+0       | 3.04E-4      | 1.87E+1   | -3.04E-1    |
| Particulate matter                           | Disease incidences        | 2.34E-6 | 1.15E-6       | 2.99E-8      | 1.37E-6   | -2.08E-7    |
| Ionising radiation, human health             | kBq U235 eq               | 4.05E+1 | 5.95E-1       | 1.69E-4      | 4.00E+1   | -2.21E-2    |
| Ecotoxicity, freshwater – total              | CTUe                      | 3.23E+2 | 6.57E+1       | 7.66E-1      | 2.61E+2   | -4.33E+0    |
| Human toxicity, cancer – total               | CTUh                      | 2.75E-8 | 3.57E-9       | 1.11E-11     | 2.45E-8   | -5.62E-10   |
| Human toxicity, non-cancer – total           | CTUh                      | 6.09E-7 | 1.04E-7       | 3.60E-10     | 5.18E-7   | -1.31E-8    |
| Land Use                                     | dimensionless (pt)        | 6.43E+2 | 2.43E+1       | 1.14E-1      | 6.20E+2   | -1.17E+0    |

# Climate change

This chart shows the overall impact of the product on climate change – total. The operations phase is the life cycle phase with the biggest overall impact. Different operating conditions can lead to deviations from the reference scenario.



## 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:

- **product recyclability of up to 24%** mainly due to metal content
- **energy recoverability of up to 46%** from plastic materials
- **minimum disposal rate of 30%**

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

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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