

ENVIRONMENTAL PRODUCT DECLARATION

# SIPART PS2

## 4...20 mA, Ex/nEx, Polycarbonate

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.

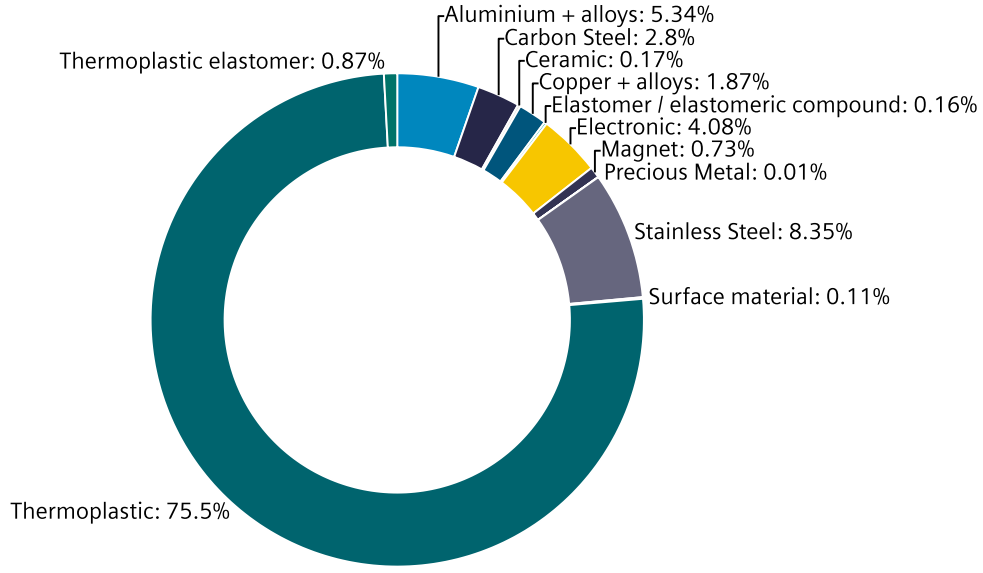
| | |
|---|---|
| **Products** | **6DR5010-0{E,N}G00-0{A,B,K}{A,B,E,K,N,W}0 - SIPART PS2 4...20mA SA Ex/nEx**<br>**6DR5110-0NG00-0{A,B,K}{A,B,E,K,N,W}0 - SIPART PS2 4...20mA Hart SA nEx**<br>**6DR5210-0EG00-0{A,B,K}{A,B,E,K,N,W}0 - SIPART PS2 4...20mA Hart SA Ex**<br>**6DR5310-0NG00-0{A,B,K}{A,B,E,K,N,W}0 - SIPART PS2 4...20mA SA nEx** |
| **Represented by the reference product** | 6DR5010-0NG00-0AA0 – SIPART PS2 4...20 mA SA nEx |
| **Product Description** | Valve positioner for linear and part-turn actuators with 2/4 wire connection with and without HART communication w/o explosion protection |
| **Functional Unit** | Production of 1 pc. SIPART PS2 and use over the reference service lifetime of 10 years.[1] |

[1] 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 0.91 kg adds up with packaging weight of 0.17 kg to a total weight of 1.08 kg. Packaging consists of: Corrugated box (average composition), PE film, Graphic paper, EPS-Foam (30 kg/m3).

**Product Weight 0.91 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



## Manufacturing

This stage covers the extraction of natural resources, production of raw materials, manufacturing, packaging, and transportation.



## Distribution and Operation

This stage covers the product's distribution, installation, use, and maintenance. Different operating conditions can lead to deviations from the reference scenario.



## End-of-Life

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.

**Scenarios**

**Energy model used:**
Europe (standard mix), France (renewable mix), Romania (standard mix), Romania (Thermal energy from natural gas)

**Transportation model:**
Truck-trailer (GLO), 34-40t gross weight, 3500 km default distance

**Energy model used:**
Europe (standard mix);

**Distribution scenario:**
Truck-trailer (34-40 t) 3500 km

**Use Scenario:**
0.12 W full load and 0.01 $Nm^3/h$ compressed air calculated at 7 bar medium power consumption of 120 $Wh/Nm^3$, 100% service uptime, reference lifetime 10 years

**Energy model used:**
EMEA

**End-of-Life methodology:**
Modeled according to Cut-off methodology.

# Key environmental performance indicators

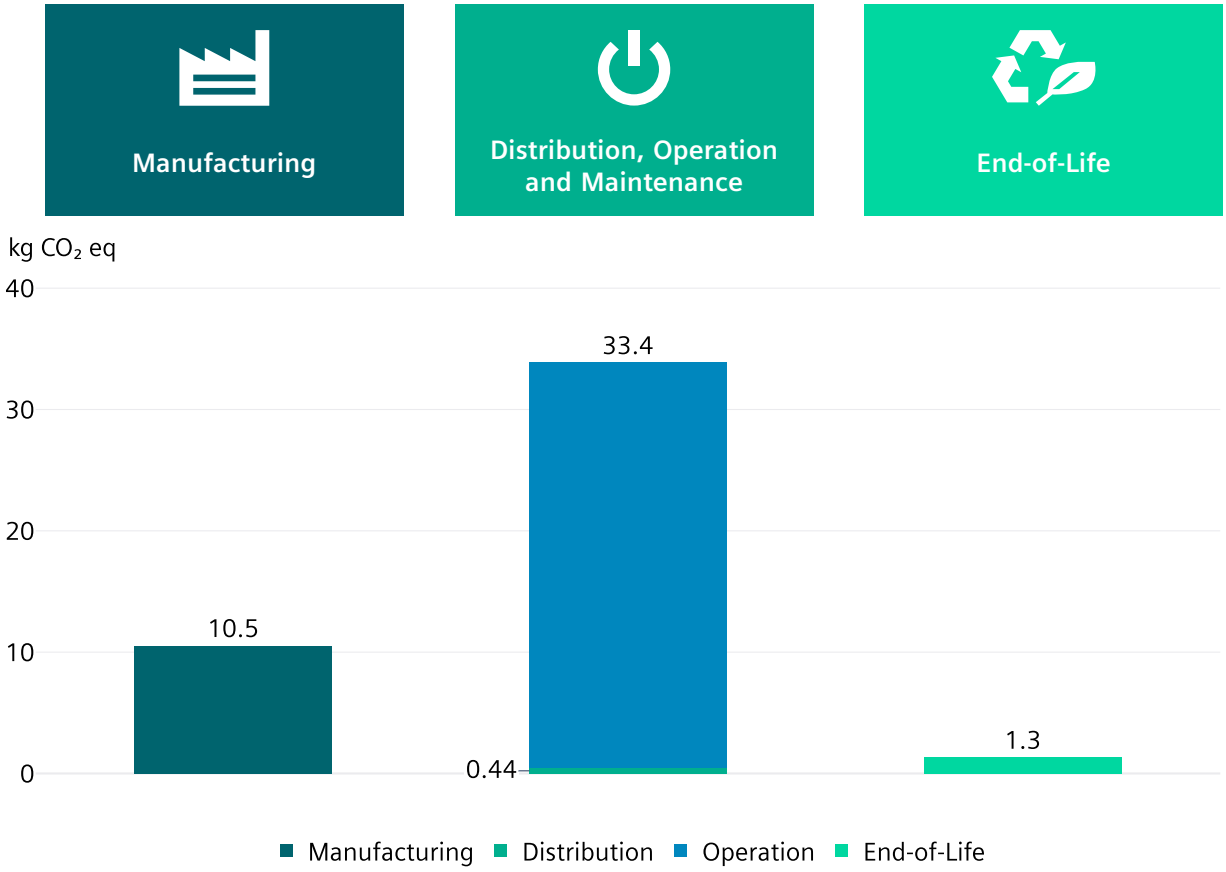
The following impact categories characterize the product's environmental footprint. They have been calculated with LCIA methodology EN15804+A2 (EF 3.1); LCA tool: Green Digital Twin Version 4.0, Database: One Siemens LCA Database (based on Sphera MLC CUP 2024.1).

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 |
|---|---|---|---|---|---|---|
| Climate change – total | kg $CO_2$ eq | 4.57E+1 | 1.05E+1 | 4.38E-1 | 3.34E+1 | 1.33E+0 |
| Climate change – fossil | kg $CO_2$ eq | 4.54E+1 | 1.05E+1 | 4.15E-1 | 3.31E+1 | 1.33E+0 |
| Climate change – biogenic | kg $CO_2$ eq | 3.39E-1 | 2.44E-2 | 1.60E-2 | 2.98E-1 | 6.26E-5 |
| Climate Change, land use and land use change | kg $CO_2$ eq | 2.44E-2 | 1.44E-2 | 4.98E-3 | 5.04E-3 | 3.24E-5 |
| Ozone depletion | kg CFC-11 eq | 3.34E-8 | 3.27E-8 | 5.22E-14 | 7.51E-10 | 1.59E-13 |
| Acidification | Mole of H+ eq | 1.24E-1 | 5.94E-2 | 4.22E-4 | 6.39E-2 | 2.80E-4 |
| Eutrophication, freshwater | kg P eq | 2.19E-4 | 7.56E-5 | 1.34E-6 | 1.38E-4 | 3.99E-6 |
| Eutrophication, marine | kg N eq | 2.67E-2 | 1.05E-2 | 1.52E-4 | 1.60E-2 | 9.96E-5 |
| Eutrophication, terrestrial | Mole of N eq | 2.60E-1 | 9.02E-2 | 1.83E-3 | 1.67E-1 | 1.33E-3 |
| Photochemical ozone formation, human health | kg NMVOC eq | 6.99E-2 | 2.71E-2 | 4.17E-4 | 4.22E-2 | 2.70E-4 |
| Resource use, mineral and metals | kg Sb eq | 6.59E-4 | 6.53E-4 | 2.59E-8 | 6.20E-6 | 1.80E-9 |
| Resource use, fossils | MJ | 8.68E+2 | 1.70E+2 | 3.93E+0 | 6.94E+2 | 3.71E-1 |
| Water use | $m^3$ world eq deprived water | 1.37E+1 | 4.58E+0 | 1.62E-2 | 9.02E+0 | 1.15E-1 |
| Particulate matter | Disease incidences | 1.18E-6 | 6.44E-7 | 4.16E-9 | 5.34E-7 | 1.45E-9 |
| Ionising radiation, human health | kBq U235 eq | 1.90E+1 | 8.20E-1 | 1.19E-3 | 1.82E+1 | 3.08E-3 |
| Ecotoxicity, freshwater – total | CTUe | 3.62E+2 | 1.58E+2 | 2.91E+0 | 2.01E+2 | 3.47E-1 |
| Human toxicity, cancer – total | CTUh | 1.77E-7 | 1.66E-7 | 5.94E-11 | 1.13E-8 | 1.23E-11 |
| Human toxicity, non-cancer – total | CTUh | 3.23E-7 | 1.47E-7 | 2.64E-9 | 1.73E-7 | 1.75E-10 |
| Land Use | dimensionless (pt) | 3.33E+2 | 3.76E+1 | 1.93E+0 | 2.94E+2 | 9.95E-2 |

# 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.The end-of-life parameters are calculated according to IEC TR 62635.

It leads to:

- **product recyclability of up to 17%** mainly due to metal content
- **energy recoverability of up to 72%** from plastic materials
- **minimum disposal rate of 11%**

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.

**Siemens therefore does not assume any liability for any error or for any consequence which may arise from the use of this information to the maximum extent under the law.**

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.

**Published by**

Siemens AG

Digital Industries

Process Automation

Östliche Rheinbrückenstr. 50

76187 Karlsruhe

Germany

Subject to changes and errors.

The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. In particular no assurance is given that those descriptions and performance features stand under warranty or guarantee in sense of any liability for any error or for any consequence which may arise from the use of this information to the maximum extent under the law. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

All product designations may be trademarks or product names of Siemens AG or other companies whose use by third parties for their own purposes could violate the rights of the owners.

© 2025 by Siemens