

Product Environmental Profile



SUNSYS C-Cab L 50 - 600kVA

DC/AC Converter for Energy Storage Systems, from 50kVA to 600kVA



Socomec is member of :



Member of WEEE Europe



Environment and sustainable development commissions



The commitments of Socomec to respect the environment

As part of its environmental policy, Socomec is committed to:

- Incorporate the principles of the circular economy into the design of new products and services
- Promote longer product lifetimes
- Promote the use of environmentally responsible materials
- Design and develop solutions to further improve the energy efficiency of our products and services
- Inform our customers in a transparent manner about the environmental impact of our products throughout their life cycle.

To this end, Socomec is committed to constantly monitoring, anticipating and complying with environmental regulations as well as customer expectations relating to its products, and to ensuring that all those involved adhere to and take responsibility for its commitments.

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Innovative Power Solutions

PRODUCT ENVIRONMENTAL PROFILE

• Product information :

| Reference product | |
|-----------------------------|--|
| Model | SUNSYS C-Cab L 300kVA |
| Sales reference | 71LSEZZ31C01000 & 6*SUN-HES-MOD50 |
| Description | DC/AC Converter for Energy Storage Systems, from 50kVA to 600kVA |
| General data | |
| Power [W] | 300000 |
| Apparent power [VA] | 300000 |
| Efficiency | |
| Weighted STS efficiency [%] | 97,47% |
| Weight & dimensions | |
| Mass without packaging [kg] | 914,75 |
| Mass of the packaging [kg] | 81,25 |

Functional unit

Convert bidirectionally AC/DC power for Energy Storage Systems (ESS) from 100kVA to 600kVA rated power during a useful life time of 15 years.

References covered by this PEP with extrapolation rules:

SUNSYS C-Cab concept covers a wide range of solutions, based on 3 standardized bricks

- System: 71LSEZZ31C01000; 71LSEZZ31C010P1; 71LSEZZ31C01001
- Power modules: SUN-HES-MOD50

| Solution | System | | Power modules | |
|-----------------------|----------|-----------------|---------------|---------------|
| | Quantity | Part number | Quantity | Part number |
| SUNSYS C-Cab L 300kVA | 1 | 71LSEZZ31C01000 | 6 | SUN-HES-MOD50 |
| SUNSYS C-Cab L 50kVA | 1 | 71LSEZZ31C01000 | 1 | SUN-HES-MOD50 |
| SUNSYS C-Cab L 100kVA | 1 | 71LSEZZ31C01000 | 2 | SUN-HES-MOD50 |
| SUNSYS C-Cab L 150kVA | 1 | 71LSEZZ31C01000 | 3 | SUN-HES-MOD50 |
| SUNSYS C-Cab L 200kVA | 1 | 71LSEZZ31C01000 | 4 | SUN-HES-MOD50 |
| SUNSYS C-Cab L 250kVA | 1 | 71LSEZZ31C01000 | 5 | SUN-HES-MOD50 |
| SUNSYS C-Cab L 350kVA | 1 | 71LSEZZ31C010P1 | 7 | SUN-HES-MOD50 |
| | 1 | 71LSEZZ31C01001 | | SUN-HES-MOD50 |
| SUNSYS C-Cab L 400kVA | 1 | 71LSEZZ31C010P1 | 8 | SUN-HES-MOD50 |
| | 1 | 71LSEZZ31C01001 | | SUN-HES-MOD50 |
| SUNSYS C-Cab L 450kVA | 1 | 71LSEZZ31C010P1 | 9 | SUN-HES-MOD50 |
| | 1 | 71LSEZZ31C01001 | | SUN-HES-MOD50 |
| SUNSYS C-Cab L 500kVA | 1 | 71LSEZZ31C010P1 | 10 | SUN-HES-MOD50 |
| | 1 | 71LSEZZ31C01001 | | SUN-HES-MOD50 |
| SUNSYS C-Cab L 550kVA | 1 | 71LSEZZ31C010P1 | 11 | SUN-HES-MOD50 |
| | 1 | 71LSEZZ31C01001 | | SUN-HES-MOD50 |
| SUNSYS C-Cab L 600kVA | 1 | 71LSEZZ31C010P1 | 12 | SUN-HES-MOD50 |
| | 1 | 71LSEZZ31C01001 | | SUN-HES-MOD50 |

PRODUCT ENVIRONMENTAL PROFILE

• Materials and substances

Declaration of the constitutive materials

Total mass of the reference product (including packaging): 996 kg among which packaging: 81,25 kg

For the reference product:

| Plastics as % of weight | | Metals as % of weight | | Other as % of weight | |
|---------------------------------|-------|--------------------------|-------------------------------|-----------------------|--------------------------------|
| Polyester | 1,86% | Steel | 39,38% | Wood | 6,93% |
| Polyamide | 1,31% | Aluminium and its alloys | 24,17% | Electronic components | 4,33% |
| PVC | 0,95% | Copper and its alloys | 12,47% | Cardboard | 0,73% |
| PET | 0,74% | Other ferrous alloys | 3,74% | Miscellaneous | 0,65% |
| PE | 0,32% | Tin and its alloys | <0,1% | Other inorganics | 0,31% |
| Epoxy resin | 0,49% | Stainless steel | <0,1% | Paper | <0,1% |
| PC | 0,31% | Precious metals | <0,1% | Other organics | <0,1% |
| ABS | 0,10% | Nickel and its alloys | <0,1% | | |
| Phenolic resin | <0,1% | Zinc and its alloys | <0,1% | | |
| PBT | <0,1% | Other metals | <0,1% | | |
| PTFE | <0,1% | | | | |
| Other plastics | 1,08% | | | | |
| Total Plastics: 71,59 kg | | 7,19% | Total Metals: 795,4 kg | 79,86% | Total Others: 129,01 kg |
| | | | | | 12,95% |

Substances management

Socomec is leading a program to limit the use of hazardous substances in the design of new products and to monitor the presence of substances of concern in its supplies to anticipate future use restrictions.



Directive 2011/65/EU : Product references covered by this PEP meet the requirements of the RoHS Directive on the restriction of substances such as lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl (PBB), polybrominated diphenyl ethers (PBDEs) and phthalates (DIBP, DEHP, BBP, DBP).



REACH 1907/2006 regulation: To the best of our knowledge, based on the supplier declarations, at the publication date of this document, the product do not contain any SVHC in a concentration above 0,1% per weight.

• Manufacturing



The products covered by this PEP are manufactured on the production site of Isola Vincentina, Italy whose environmental management system has been ISO 14001 certified. Impacts on the environment are reduced by optimizing its energy consumption and by practicing a rigorous waste management.

• Distribution

As part of its distribution policy aiming to respect the environment, Socomec is in favor of groupage transports and ISO 14001 certified logistic partners.

No reconditionning is planned for the product. This phase is consequently neglected.

The sizing of the packaging has been optimized to ensure the best possible protection of the product at the lowest possible volume in order to reduce the impact of the transport stage on the environment.

PRODUCT ENVIRONMENTAL PROFILE

• Installation

The installation stage consists in connecting the product to the existing electrical installation.

The installation does not generate any significant impacts on the environment, except impacts from packaging waste.

• Use phase

Consumption scenario, based on one battery cycle per day

Use phase scenario: European energy mix

| | | |
|--------------------------------|--------------|------|
| Converter power capability [%] | 0% | 100% |
| Proportion of time spent [%] | 83% | 17% |
| Converter efficiency [%] | Up to 97,47% | |

| | |
|------------------------------|------|
| Auxiliary consumption [kW] | 1,3 |
| Proportion of time spent [%] | 100% |

Total energy consumption during 15 years

| | |
|----------------------------------|------------|
| Total average energy consumption | 337041 kWh |
|----------------------------------|------------|

Care and maintenance

It is recommended to carry out periodic specialized maintenance in order to keep the equipment at the maximum level of efficiency and to avoid the installation being out of service with possible damage/risks.

Typical consumables which are subjects to maintenance:

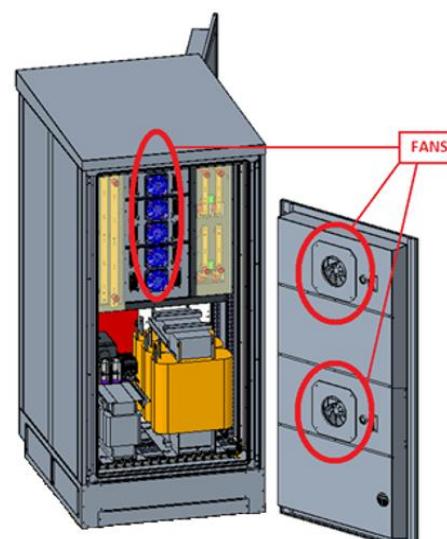
| Consumables | Fans | PCBa | Capacitors | Control Module Power Supply | SPDs | UPS (C-CAB supply) | Air filter | Measurement instruments |
|-----------------------|------------------------|------|------------|-----------------------------|------|--------------------|------------|-------------------------|
| Number of replacement | 2 | 2 | 2 | 1 | 1 | 5 | 14 | 1 |
| Consumables | Auxiliary power supply | | | | | | | |
| Number of replacement | 2 | | | | | | | |

• End of life

End of life treatment

The following parts require specific care and selective treatment in accordance with Annex VII of the WEEE Directive 2012/19/EU: Waste of electrical and electronic equipment. Maintenance and disassembly should always be conducted by qualified personnel.

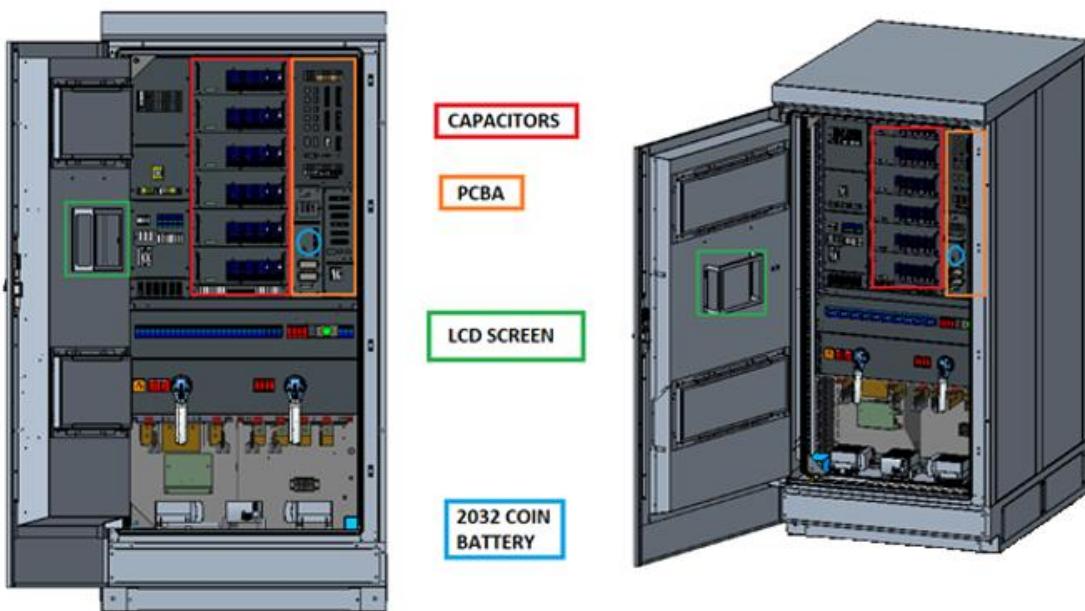
| Type of component | Item |
|---|--------------|
| Potential security hazard for operators | LCD Screen |
| | Coin Battery |
| | Capacitors |
| | PCBA |
| Necessity of a selective treatment | LCD Screen |
| | Coin Battery |
| | Fans |



Recyclability potential of the product according to IEC TR 62635

The recyclability potential of the product is 76,88%.

This covers material and energy recovery potentials.



• Environmental impacts

Calculation methodology: life cycle assessment (LCA)



The calculation of the impacts on the environment was made using a life cycle assessment methodology in accordance with the ISO 14040 requirements and with PEP eco passport product category rules. For more details follow the link:

www.pep-ecopassport.org

This study was carried out with the following version of the software EIME and of the database:

EIME version: EIME v6.3.1

Database version: CODDE-2025-04

For biogenic carbon storage the following methodology was used : 0/0

The whole life cycle has been taken into account:

| Step | Geographical representativeness | Scenario |
|----------------------------------|--|---|
| Manufacturing (M) (A1-A3) | Production of electronic components : Asia Production of other components and packaging : Europe Assembly : France | From the raw material extraction to the last Socomec logistic platform, including packaging Waste generated during manufacturing phase are taken into account. |
| Distribution (D) (A4) | Distribution scenario : Europe | From the last Socomec logistic platform to the final customer. |
| Installation (I) (A5) | Transport and treatment of packaging wastes : Local | Local road transport of 1000 km of generated wastes to the treatment site, end of life treatment. |
| Use phase (U) (B1-B7) | Energy mix : Europe Production of maintenance components: analog to manufacturing phase | Power consumption required during 15 years and maintenance according to consumption scenario above mentioned. |
| End of life (EOL) (C1-C4) | Transport and treatment : Local | Road transport of 1000 km from the final customer to the treatment sites. End of life treatment. |

PRODUCT ENVIRONMENTAL PROFILE

Environmental impacts of the SUNSYS C-Cab L 300kVA, per FU

The following impacts have been calculated to best represent geographically, temporally and technologically each step of the life cycle.

| Indicators | Unit | Total impact | M (A1-A3) | D (A4) | I (A5) | U (B1-B7) | EOL (C1-C4) |
|---|--------------------|--------------|-----------|----------|----------|-----------|-------------|
| Climate change | kg CO2 eq. | 1,46E+05 | 8,79E+03 | 2,21E+02 | 1,29E+02 | 1,37E+05 | 2,70E+02 |
| Climate change-Biogenic | kg CO2 eq. | 3,22E+03 | 8,04E+01 | 0* | 1,21E+02 | 3,01E+03 | 0* |
| Climate change-Fossil | kg CO2 eq. | 1,43E+05 | 8,70E+03 | 2,21E+02 | 0* | 1,34E+05 | 2,70E+02 |
| Climate change-Land use and land use change | kg CO2 eq. | 6,76E-03 | 6,15E-03 | 3,34E-04 | 8,31E-06 | 2,55E-04 | 1,43E-05 |
| Ozone depletion | kg CFC-11 eq. | 1,71E-03 | 1,05E-03 | 2,68E-06 | 4,35E-07 | 6,46E-04 | 4,14E-06 |
| Acidification | mol H+ eq. | 8,08E+02 | 9,17E+01 | 3,52E-01 | 0* | 7,16E+02 | 0* |
| Eutrophication, freshwater | kg P eq. | 3,73E-01 | 4,29E-02 | 8,27E-04 | 5,48E-05 | 3,29E-01 | 4,10E-04 |
| Eutrophication, marine | kg N eq. | 9,27E+01 | 8,86E+00 | 6,48E-02 | 0* | 8,37E+01 | 2,40E-02 |
| Eutrophication, terrestrial | mol N eq. | 1,44E+03 | 9,87E+01 | 7,11E-01 | 0* | 1,34E+03 | 2,04E-01 |
| Photochemical ozone formation - human health | kg NMVOC eq. | 2,98E+02 | 3,16E+01 | 2,28E-01 | 0* | 2,66E+02 | 1,26E-01 |
| Resource use, minerals and metals | kg SB eq. | 8,88E-01 | 7,62E-01 | 0* | 0* | 1,26E-01 | 0* |
| Resource use, fossils | MJ | 3,56E+06 | 2,78E+05 | 3,93E+03 | 0* | 3,28E+06 | 0* |
| Water use | m3 eq. | 1,62E+04 | 5,32E+03 | 7,95E+00 | 0* | 1,08E+04 | 9,79E+00 |
| Particulate matter | Disease occurrence | 6,26E-03 | 6,35E-04 | 3,00E-06 | 0* | 5,62E-03 | 0* |
| Ionising radiation, human health | kBq U235 eq. | 1,83E+05 | 4,28E+03 | 0* | 0* | 1,79E+05 | 0* |
| Ecotoxicity, freshwater | CTUe | 6,70E+05 | 4,48E+05 | 6,43E+03 | 1,90E+02 | 2,15E+05 | 5,29E+02 |
| Human toxicity, cancer | CTUh | 3,08E-04 | 1,92E-04 | 4,32E-08 | 0* | 1,16E-04 | 0* |
| Human toxicity, non-cancer | CTUh | 9,37E-04 | 5,09E-04 | 8,24E-07 | 0* | 4,27E-04 | 3,96E-07 |
| Land use | No dimension | 3,72E+03 | 8,72E+01 | 9,44E-01 | 0* | 3,63E+03 | 0* |
| Renewable primary energy used as energy | MJ | 7,74E+05 | 7,91E+03 | 0* | 0* | 7,66E+05 | 0* |
| Renewable primary energy used as raw material | MJ | 2,06E+03 | 2,04E+03 | 0* | 0* | 1,76E+01 | 0* |
| Total renewable primary energy | MJ | 7,76E+05 | 9,95E+03 | 0* | 0* | 7,66E+05 | 0* |
| Non renewable primary energy used as energy | MJ | 3,55E+06 | 2,74E+05 | 3,93E+03 | 0* | 3,28E+06 | 0* |
| Non renewable primary energy used as raw material | MJ | 3,68E+03 | 3,40E+03 | 0* | 0* | 2,77E+02 | 0* |
| Total non renewable primary energy | MJ | 3,56E+06 | 2,78E+05 | 3,93E+03 | 0* | 3,28E+06 | 0* |
| Total primary energy | MJ | 4,33E+06 | 2,88E+05 | 3,94E+03 | 0* | 4,04E+06 | 0* |
| Use of secondary material | kg | 0,00E+00 | 0* | 0* | 0* | 0* | 0* |
| Use of renewable secondary fuels | MJ | 0,00E+00 | 0* | 0* | 0* | 0* | 0* |
| Use of non renewable secondary fuels | MJ | 0,00E+00 | 0* | 0* | 0* | 0* | 0* |
| Net use of fresh water | m3 | 3,77E+02 | 1,24E+02 | 1,85E-01 | 0* | 2,53E+02 | 4,13E-02 |
| Hazardous waste disposed | kg | 3,34E+04 | 2,76E+04 | 0* | 0* | 5,85E+03 | 0* |
| Non hazardous waste disposed | kg | 3,04E+04 | 9,54E+03 | 2,05E+01 | 0* | 2,08E+04 | 0* |
| Radioactive waste disposed | kg | 1,26E+01 | 7,49E+00 | 1,62E-02 | 0* | 5,04E+00 | 1,66E-03 |
| Components for reuse | kg | 0,00E+00 | 0* | 0* | 0* | 0* | 0* |
| Materials for recycling | kg | 6,34E-01 | 4,99E-01 | 0* | 0* | 1,35E-01 | 0* |
| Materials for energy recovery | kg | 0,00E+00 | 0* | 0* | 0* | 0* | 0* |
| Exported Energy | MJ | 0,00E+00 | 0* | 0* | 0* | 0* | 0* |
| Biogenic carbon content - Product | kg of C | 0,00E+00 | 0* | 0* | 0* | 0* | 0* |
| Biogenic carbon content - Packaging | kg of C | 3,05E+01 | 3,02E+01 | 0* | 0* | 2,96E-01 | 0* |

NB : 0* means that this impact either represents less than 0.01% of the total life cycle of the reference flow, or has no impact (in the case where the total impact is zero).

PRODUCT ENVIRONMENTAL PROFILE

For the products covered by the PEP other than the reference product, the environmental impacts of each phase of the lifecycle are calculated with the following extrapolation factors :

| Model | M (A1-A3) | D (A4) | I (A5) | U (B1-B7) | EOL (C1-C4) |
|-----------------------|-----------|--------|--------|-----------|-------------|
| SUNSYS C-Cab L 300kVA | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| SUNSYS C-Cab L 50kVA | 0,86 | 0,86 | 0,69 | 0,17 | 0,88 |
| SUNSYS C-Cab L 100kVA | 0,89 | 0,89 | 0,76 | 0,33 | 0,90 |
| SUNSYS C-Cab L 150kVA | 0,92 | 0,92 | 0,82 | 0,50 | 0,92 |
| SUNSYS C-Cab L 200kVA | 0,94 | 0,94 | 0,89 | 0,67 | 0,95 |
| SUNSYS C-Cab L 250kVA | 0,97 | 0,97 | 0,96 | 0,83 | 0,97 |
| SUNSYS C-Cab L 350kVA | 1,86 | 1,86 | 1,72 | 1,17 | 1,87 |
| SUNSYS C-Cab L 400kVA | 1,89 | 1,89 | 1,78 | 1,33 | 1,90 |
| SUNSYS C-Cab L 450kVA | 1,92 | 1,92 | 1,85 | 1,50 | 1,92 |
| SUNSYS C-Cab L 500kVA | 1,94 | 1,94 | 1,92 | 1,67 | 1,95 |
| SUNSYS C-Cab L 550kVA | 1,97 | 1,97 | 1,99 | 1,83 | 1,97 |
| SUNSYS C-Cab L 600kVA | 2,00 | 2,00 | 2,06 | 2,00 | 2,00 |

Extrapolation factors were determined as follows:

- For the Manufacturing and Distribution phases they are proportional to the mass of the product with its packaging;
- For the Installation phase they are proportional to the mass of the packaging;
- For the Use phase they are proportional to the output power.
- For the End of Life phase they are proportional to the mass of the product without its packaging;

| | | |
|---|---|--|
| Registration number : SOCO-00049-V02.02-EN | Drafting Rules : "PEP-PCR-ed4-EN 2021 09 06" | |
| Verifier accreditation number : VH12 | Information and reference documents : www.pep-ecopassport.org | |
| Date of issue: 09-2025 | Validity period : 5 years | |
| Independant verification of the declaration and data, in compliance with ISO 14025 : 2006 | | |
| Internal : <input checked="" type="checkbox"/> External : <input type="checkbox"/> | <p>The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDomain) PEPs are compliant with XP C08-100-1 : 2016 or EN 50693:2019 The components of the present PEP may not be compared with components from any other program. Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"</p>  | |

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