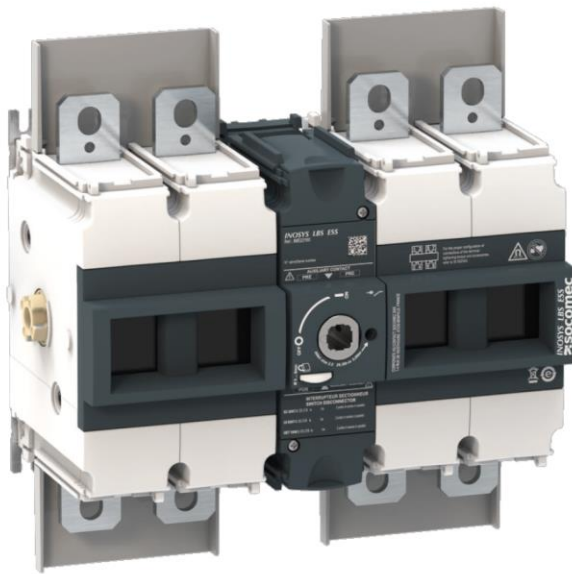


Product Environmental Profile



INOSYS

Manual load break switches from 160A and up to 1600A



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.

Socomec is member of :

ecosystem

Member of WEEE Europe



Gimélec

Environment and sustainable development commissions



PEP ecopassport® Registration number: SOCO-00067-V01.01-EN

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socomec
Innovative Power Solutions

● Product information :

Reference product

The representative product is the INOSYS LBS 800A IEC 2P2 1500V with sales reference 86P22081 with the following description: INOSYS is a range of load break switches that can be manually controlled, they ensure on-load opening/closing and safe disconnection of any low voltage electrical circuit up to 1500VDC.

Other covered references

This PEP covers other references listed in the table at the end of the document.

Functional unit

Make and break currents by separating part of the installation from a source of electrical energy, with a rated current from 160 A and up to 1600 A and rated voltage from 1000 VDC and up to 1500 VDC, according to the appropriate use scenario, and during the reference life of 20 years of the product.

Provide isolation to ensure the disconnection of the circuit according to the appropriate use scenario.

● Materials and substances

Declaration of the constitutives materials according to IEC 62474

Total mass of the reference product (including packaging): 5,96 kg among which packaging: 0,707 kg

For the reference product

| Metals | % weight | Plastics | %weight | Others | % weight |
|---|----------|----------------|---------|----------------|----------|
| Other ferrous alloys - non stainless steels | 17,8% | Other plastics | 58,1% | Other organics | 12,2% |
| Copper and its alloys | 7,7% | | | | |
| Zinc and its alloys | 4,1% | | | | |
| Stainless steel | <0,1% | | | | |
| Other non-ferrous metals and alloys | <0,1% | | | | |
| Precious metals | <0,1% | | | | |

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 other SVHC in a concentration above 0,1% per weight.

● Manufacturing

The products covered by this PEP are manufactured on the production site of ISTUN, Tunisia a site where impacts on the environment are reduced by optimizing its energy consumption and by practicing a rigorous waste management. Moreover, Socomec is committed to the progressive ISO 14001 certification of its manufacturing sites.

● 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 reconditioning 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.

● Installation

The installation phase 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

Use phase was modelised according to the following scenario:

Geography: European energy mix

Load rate: 50% of 800A (In)

Use time rate: 30% of the time over 20 years (RLT)

Care and maintenance

The product does not require any maintenance under normal conditions of use.

Consumables

The product does not require consumables.

● 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 : *Springs*.

Other parts that require specific care when handled but are not subject to WEEE: *Neodymium magnets*

Maintenance and disassembly should always be conducted by qualified personnel.

Recovery potential of the product according to IEC TR 62635

The recovery potential of the product is 38,3%.

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: 5.9.4

Database version: CODDE-2022-01

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 other components and packaging : Europe Assembly : Tunisia | 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 | Power consumption required during 20 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. |

Environmental impacts of the INOSYS LBS 800A IEC 2P2 1500V, 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) |
|---|--------------------|--------------|-----------|----------|----------|-----------|-------------|
| Resource use, minerals and metals (Abiotic resource depletion – Elements) | kg Sb eq. | 1,26E-03 | 1,29E-03 | 0* | 0* | 1,95E-05 | 0* |
| Resource use, fossils (Abiotic resource depletion – Fossil fuels) | MJ | 7,59E+03 | 6,72E+02 | 4,30E+01 | 9,89E+00 | 6,86E+03 | 3,17E+00 |
| Acidification | mol H+ eq. | 2,00E+00 | 4,31E-01 | 1,95E-02 | 3,94E-03 | 1,54E+00 | 1,33E-02 |
| Ecotoxicity, freshwater | CTUe | 3,58E+03 | 6,68E+02 | 2,07E+00 | 7,47E+00 | 2,90E+03 | 2,69E+00 |
| Human toxicity, cancer | CTUh | 7,44E-03 | 7,44E-03 | 0* | 0* | 0* | 0* |
| Human toxicity, non-cancer | CTUh | 4,70E-06 | 3,44E-06 | 5,86E-09 | 5,18E-09 | 1,25E-06 | 0* |
| Eutrophication, freshwater | kg P eq. | 8,93E-04 | 9,16E-05 | 1,15E-06 | 6,01E-06 | 7,37E-04 | 5,70E-05 |
| Eutrophication, marine | kg N eq. | 2,53E-01 | 6,03E-02 | 9,14E-03 | 1,29E-03 | 1,75E-01 | 7,35E-03 |
| Eutrophication, terrestrial | mol N eq. | 3,46E+00 | 6,42E-01 | 1,00E-01 | 9,90E-03 | 2,62E+00 | 8,06E-02 |
| Climate change - total | kg CO2 eq. | 3,17E+02 | 3,98E+01 | 3,08E+00 | 1,05E+00 | 2,69E+02 | 4,25E+00 |
| Climate change - fossil | kg CO2 eq. | 7,40E-01 | 3,44E-01 | 0* | 3,66E-02 | 3,59E-01 | 0* |
| Climate change - biogenic | kg CO2 eq. | 3,17E+02 | 3,95E+01 | 3,08E+00 | 1,01E+00 | 2,69E+02 | 4,25E+00 |
| Climate change - land use and land transformation | kg CO2 eq. | 0,00E+00 | 0* | 0* | 0* | 0* | 0* |
| Ionising radiation, human health | kBq U235 eq. | 5,93E+02 | 1,93E+02 | 0* | 0* | 4,00E+02 | 0* |
| Land use | No dimension | 5,94E+00 | 5,85E-01 | 0* | 0* | 5,36E+00 | 0* |
| Ozone depletion | kg CFC-11 eq. | 2,77E-06 | 1,52E-06 | 4,72E-09 | 5,52E-08 | 1,15E-06 | 3,62E-08 |
| Particulate matter | disease occurrence | 1,45E-05 | 2,40E-06 | 1,59E-07 | 2,67E-08 | 1,19E-05 | 4,49E-08 |
| Photochemical ozone formation, human health | kg NMVOC eq. | 8,21E-01 | 2,14E-01 | 2,53E-02 | 2,62E-03 | 5,60E-01 | 1,86E-02 |
| Water use | m³ eq. | 2,46E+01 | 1,41E+01 | 1,17E-02 | 3,69E-01 | 9,53E+00 | 6,17E-01 |
| Use of renewable primary energy excluding renewable primary energy used as raw material | MJ | 1,32E+03 | 0* | 0* | 6,16E-01 | 1,32E+03 | 0* |
| Use of renewable primary energy resources used as raw material | MJ | 1,75E+01 | 1,75E+01 | 0* | 0* | 0* | 0* |
| Total use of renewable primary energy resources | MJ | 1,33E+03 | 1,52E+01 | 0* | 6,16E-01 | 1,32E+03 | 0* |
| Use of non renewable primary energy excluding non renewable primary energy used as raw material | MJ | 7,47E+03 | 5,51E+02 | 4,30E+01 | 9,89E+00 | 6,86E+03 | 3,17E+00 |
| Use of non renewable primary energy resources used as raw material | MJ | 1,22E+02 | 1,22E+02 | 0* | 0* | 0* | 0* |
| Total use of non-renewable primary energy resources | MJ | 7,59E+03 | 6,72E+02 | 4,30E+01 | 9,89E+00 | 6,86E+03 | 3,17E+00 |
| Use of secondary material | kg | 4,71E-01 | 4,71E-01 | 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* |
| Total Primary Energy | MJ | 8,92E+03 | 6,87E+02 | 4,30E+01 | 1,05E+01 | 8,18E+03 | 3,22E+00 |
| Net use of freshwater | m³ | 5,74E-01 | 3,29E-01 | 2,72E-04 | 8,59E-03 | 2,22E-01 | 1,44E-02 |
| Hazardous waste disposed | kg | 7,11E+01 | 6,69E+01 | 0* | 9,83E-03 | 5,03E+00 | 0* |
| Non hazardous waste disposed | kg | 7,88E+01 | 3,55E+01 | 1,08E-01 | 2,93E+00 | 3,87E+01 | 1,50E+00 |
| Radioactive waste disposed | kg | 1,67E-02 | 7,54E-03 | 7,70E-05 | 3,62E-04 | 8,11E-03 | 6,18E-04 |
| Components for reuse | kg | 0,00E+00 | 0* | 0* | 0* | 0* | 0* |
| Materials for recycling | kg | 4,52E-01 | 0* | 0* | 4,52E-01 | 0* | 0* |

PRODUCT ENVIRONMENTAL PROFILE


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|-------------------------------|---------------------|----------|----|----|----------|----|----|
| Materials for energy recovery | kg | 1,91E-01 | 0* | 0* | 1,91E-01 | 0* | 0* |
| Exported Energy | MJ by energy vector | 0,00E+00 | 0* | 0* | 0* | 0* | 0* |

Biogenic carbon content in the reference product:

| | | | | | | | |
|---|---------|----------|----------|-----|-----|-----|-----|
| Biogenic carbon content of the product | kg of C | 0,00E+00 | 0* | N/A | N/A | N/A | N/A |
| Biogenic carbon content of the associated packaging | kg of C | 1,98E-01 | 1,98E-01 | N/A | N/A | N/A | N/A |

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).

For the use stage (U), the product does not require maintenance therefore the impacts values are representatives of the B6 phase from the use stage : "Energy requirements during the use stage"

| | | |
|--|--|--|
| Registration number : SOCO-00067-V01.01-EN | Drafting Rules : "PEP-PCR-ed4-EN 2021 09 06" Supplemented by : "PSR-0005-ed3-EN-2023 06 06" | |
| Verifier accreditation number : VH12 | Information and reference documents : www.pep-ecopassport.org | |
| Date of issue: 07-2023 | Validity period : 5 years | |
| Independent verification of the declaration and data in compliance with ISO 14025 : 2006 | | |
| Internal : <input checked="" type="checkbox"/> | External : <input type="checkbox"/> |  |
| The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain) | | |
| 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" | | |

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Other references covered and extrapolation

For the products covered by the PEP other than the reference product, the environmental impacts of each phase of the lifecycle may be calculated with extrapolation factors following the proportionality rules that you can find below.

Extrapolation factors are determined as follows and can be provided upon request:

- 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 power losses of the product;
- For the End of Life phase they are proportional to the mass of the product without its packaging.

| Model | Reference |
|--------------------------------|-----------|
| INOSYS LBS 800A IEC 2P2 1500V | 86P22081 |
| INOSYS LBS 800A IEC 2P2 ESS | 86E22081 |
| INOSYS LBS 800A UL 2P2 1500V | 87P22081 |
| INOSYS LBS 800A UL 2P2 ESS | 87E22081 |
| INOSYS LBS 1000A IEC 2P2 1500V | 86P22100 |
| INOSYS LBS 1000A IEC 2P2 ESS | 86E22100 |
| INOSYS LBS 1000A UL 2P2 1500V | 87P22100 |
| INOSYS LBS 1000A UL 2P2 ESS | 87E22100 |
| INOSYS LBS 1250A IEC 2P2 1500V | 86P22125 |
| INOSYS LBS 1250A IEC 2P2 ESS | 86E22125 |
| INOSYS LBS 1200A UL 2P2 1500V | 87P22120 |
| INOSYS LBS 1200A UL 2P2 ESS | 87E22120 |
| INOSYS LBS 1400A IEC 2P2 1500V | 86P22140 |
| INOSYS LBS 1400A IEC 2P2 ESS | 86E22140 |
| INOSYS LBS 1600A IEC 2P2 1500V | 86P22160 |
| INOSYS LBS 1600A IEC 2P2 ESS | 86E22160 |
| INOSYS LBS 1000VDC 2P 160A | 86P02016 |
| INOSYS LBS 1500VDC 2P 160A | 86P02017 |
| INOSYS LBS 1000VDC 2P 250A | 86P02025 |
| INOSYS LBS 1500VDC 2P 250A | 86P02026 |
| INOSYS LBS 1000VDC 2P 315A | 86P02031 |
| INOSYS LBS 1500VDC 2P 315A | 86P02032 |
| INOSYS LBS 1000VDC 2P 400A | 86P02040 |
| INOSYS LBS 1500VDC 2P 400A | 86P02041 |
| INOSYS LBS 1500VDC 2P 630A | 86P02064 |
| INOSYS LBS 1500VDC 3P 160A | 86P03016 |
| INOSYS LBS 1500VDC 3P 250A | 86P03025 |
| INOSYS LBS 1500VDC 3P 315A | 86P03031 |
| INOSYS LBS 1500VDC 1+1 160A | 86P11017 |
| INOSYS LBS 1500VDC 1+1 250A | 86P11026 |
| INOSYS LBS 1500VDC 1+1 315A | 86P11032 |
| INOSYS LBS 1500VDC 1+1 400A | 86P11041 |
| INOSYS LBS 1500VDC 1+1 630A | 86P11064 |

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|--------------------------------|----------|
| INOSYS LBS 1500VDC 2+2 400A | 86P22041 |
| INOSYS LBS 1500VDC 2+2 630A | 86P22064 |
| INOSYS LBS 1000VDC 2P 10A UL | 87P02001 |
| INOSYS LBS 1000VDC 2P 100A UL | 87P02010 |
| INOSYS LBS 1500VDC 2P 100A UL | 87P02011 |
| INOSYS LBS 1000VDC 2P 250A UL | 87P02025 |
| INOSYS LBS 1500VDC 2P 250A UL | 87P02026 |
| INOSYS LBS 1500VDC 2P 325A UL | 87P02033 |
| INOSYS LBS 1000VDC 2P 400A UL | 87P02040 |
| INOSYS LBS 1500VDC 2P 400A UL | 87P02041 |
| INOSYS LBS 1000VDC 2P 500A UL | 87P02050 |
| INOSYS LBS 1500VDC 2P 500A UL | 87P02051 |
| INOSYS LBS 1500VDC 2P 600A UL | 87P02061 |
| INOSYS LBS 1500VDC 3P 250A UL | 87P03025 |
| INOSYS LBS 1500VDC 3P 600A UL | 87P03060 |
| INOSYS LBS 1500VDC 1+1 100A UL | 87P11011 |
| INOSYS LBS 1500VDC 1+1 200A UL | 87P11021 |
| INOSYS LBS 1500VDC 1+1 250A UL | 87P11026 |
| INOSYS LBS 1500VDC 1+1 400A UL | 87P11041 |
| INOSYS LBS 1500VDC 1+1 500A UL | 87P11051 |
| INOSYS LBS 1500VDC 1+1 600A UL | 87P11061 |
| INOSYS M 1000VDC 2+2P 100A UL | 87P22010 |
| INOSYS LBS 1500VDC 2+2 400A UL | 87P22041 |
| INOSYS LBS 1500VDC 2+2 500A UL | 87P22051 |
| INOSYS LBS 1500VDC 2+2 600A UL | 87P22061 |