

# Product Environmental Profile



## MASTERYS BC+ 160kVA

Uninterruptible Power Supply up to 160 kVA



### 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 :



Member of WEEE Europe



Environment and sustainable development commissions



PEP ecopassport® Registration number: SOCO-00104-V01.01-EN

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## ● Product information :

| Reference product              |                                            |
|--------------------------------|--------------------------------------------|
| Model                          | MASTERYS BC+ 160kVA                        |
| Sales reference                | U4BC163T00-0-00                            |
| Description                    | Uninterruptible Power Supply up to 160 kVA |
| General data                   |                                            |
| UPS Configuration              | Single                                     |
| UPS topology                   | Double conversion                          |
| UPS Performance classification | VFI-SS-111                                 |
| Number of phases available     | Three phase                                |
| Power [W]                      | 160000                                     |
| Apparent power [VA]            | 160000                                     |
| Acoustic noise [dB]            | < 57 dBA                                   |
| Efficiency                     |                                            |
| Weighted UPS efficiency [%]    | 95,83%                                     |
| Weight & dimensions            |                                            |
| Dimensions W*H*D [mm]          | 600 x 855 x 1930 mm                        |
| Mass without packaging [kg]    | 332,47                                     |
| Mass of the packaging [kg]     | 29,53                                      |

The UPS is not equipped with an energy storage system.

### Functional unit :

To ensure the supply of power to remain within specified characteristics to equipment with load of 100 watts for a RSL of 1 years.

### Declared unit :

To ensure the supply of power to remain within specified characteristics to equipment with load of 160000 watts for a RSL of 15 years.

*Mathematic relation between DU (declared unit) and FU (functional unit) mentioned in PSR-0010-ed2.0-EN 2023 12 08*

### References covered by this PEP with extrapolation rules:

- MASTERYS BC+ 160kVA with sales references: U4BC163T00-0-00
- MASTERYS BC+ 160kVA with sales references: U4BG163T00-0-00
- MASTERYS BC+ 160kVA with sales references: U4BQ163T00-0-00

### Characteristics of the covered references:

| Model                              | Power [W] | Weighted UPS efficiency [%] | Product mass [kg] | Packaging mass [kg] |
|------------------------------------|-----------|-----------------------------|-------------------|---------------------|
| Declared Unit: U4BC163T00-0-00     | 160000    | 95,83%                      | 332               | 30                  |
| Extrapolated unit: U4BG163T00-0-00 | 144000    | 95,83%                      | 332               | 30                  |
| Extrapolated unit: U4BQ163T00-0-00 | 144000    | 95,83%                      | 332               | 30                  |

## • Materials and substances

### Declaration of the constitutives materials

Total mass of the MASTERYS BC+ 160kVA (including packaging): 362 kg among which packaging: 29,53 kg

For the reference product:

| Plastics as % of weight         |              | Metals as % of weight          |               | Other as % of weight          |               |
|---------------------------------|--------------|--------------------------------|---------------|-------------------------------|---------------|
| Polyester                       | 0,97%        | Stainless steel                | 33,34%        | Electronic components         | 13,87%        |
| Polyamide                       | 0,76%        | Steel                          | 13,81%        | Wood                          | 6,65%         |
| PC                              | 0,56%        | Copper and its alloys          | 10,10%        | Cardboard                     | 5,32%         |
| Epoxy resin                     | 0,46%        | Other ferrous alloys           | 9,49%         | Miscellaneous                 | 0,12%         |
| PET                             | 0,41%        | Aluminium and its alloys       | 2,70%         | Other inorganics              | <0,1%         |
| PVC                             | 0,25%        | Tin and its alloys             | <0,1%         | Other organics                | <0,1%         |
| PE                              | <0,1%        | Zinc and its alloys            | <0,1%         | Paper                         | <0,1%         |
| ABS                             | <0,1%        | Other metals                   | <0,1%         |                               |               |
| PBT                             | <0,1%        | Precious metals                | <0,1%         |                               |               |
|                                 |              | Nickel and its alloys          | <0,1%         |                               |               |
|                                 |              |                                |               |                               |               |
| Other plastics                  | 0,83%        |                                |               |                               |               |
| <b>Total Plastics: 15,64 kg</b> |              | <b>Total Metals: 251,69 kg</b> |               | <b>Total Others: 94,68 kg</b> |               |
|                                 | <b>4,32%</b> |                                | <b>69,53%</b> |                               | <b>26,15%</b> |

### 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.

## • 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

### Consumption scenario

Use phase scenario: European energy mix

| Load (%)                     | 25% | 50% | 75% | 100% |
|------------------------------|-----|-----|-----|------|
| Proportion of time spent (%) | 25% | 50% | 25% | 0%   |

Total energy consumption during 15 years

| Total average energy consumption | 440190 kWh |
|----------------------------------|------------|
| Average UPS efficiency           | 95,83%     |

### 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 parts which are subjects to maintenance:

| Components            | DC capacitor filtering | AC capacitor filtering | Fans |
|-----------------------|------------------------|------------------------|------|
| Number of replacement | 2                      | 2                      | 3    |

### Consumables

The product does not require consumables.

## • End of life

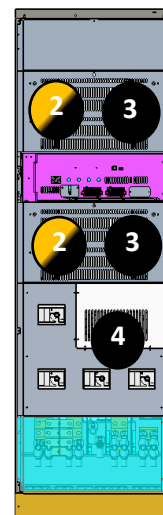
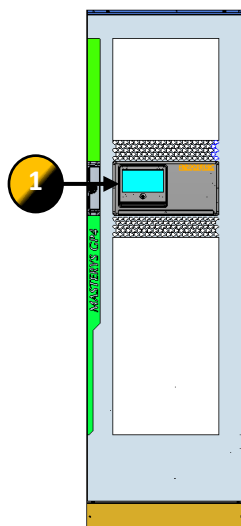
### End of life treatment

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.

Maintenance and disassembly should always be conducted by qualified personnel.

| Type of risk                            | Type of component | Location |
|-----------------------------------------|-------------------|----------|
| Potential security hazard for operators | LCD Screen        | 1        |
|                                         | Capacitors        | 2        |
| Necessity of a selective treatment      | LCD Screen        | 1        |
|                                         | Capacitors        | 2        |
|                                         | PCBA              | 3        |
|                                         | Fans              | 4        |



Recyclability potential of the product according to IEC TR 62635

The recyclability potential of the product is 77,45%.

This covers material and energy recovery potentials.

Additional information



This environmental declaration lists the information required in Annex A and B of IEC 62040-4 (Edition 1.0 2013-04) and EN 62040-4:2013 (2014-03).

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](http://www.pep-ecopassport.org)

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

EIME version: v6.2.1

Database version: CODDE-2024-04

For biogenic carbon storage the following methodology was used : -1/+1

The whole life cycle has been taken into account:

| Step                      | Geographical representativeness                                                                                         | Scenario                                                                                                                                                          |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturing (M) (A1-A3) | Production of electronic components : Asia<br>Production of other components and packaging : Europe<br>Assembly : Italy | From the raw material extraction to the last Socomec logistic platform, including packaging<br>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.<br>No product reconditionning.                                                                     |
| 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<br>Production of maintenance components: analog to manufacturing phase                              | Power consumption required during 15 years 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.<br>End of life treatment.                                                               |

## Environmental impacts of the MASTERYS BC+ 160kVA per functional unit (power of 100W and a lifespan of 1 year)

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.         | 6,65E+00     | 1,14E-01  | 2,66E-03 | 9,13E-04 | 6,53E+00  | 1,08E-03    |
| Climate change-Biogenic                           | kg CO2 eq.         | 1,32E-02     | 5,30E-04  | 0*       | 3,96E-04 | 1,23E-02  | 0*          |
| Climate change-Fossil                             | kg CO2 eq.         | 6,64E+00     | 1,14E-01  | 2,66E-03 | 0*       | 6,52E+00  | 1,08E-03    |
| Climate change-Land use and land use change       | kg CO2 eq.         | 1,27E-07     | 1,21E-07  | 0*       | 0*       | 6,02E-09  | 0*          |
| Ozone depletion                                   | kg CFC-11 eq.      | 5,68E-08     | 1,22E-08  | 0*       | 6,44E-12 | 4,45E-08  | 9,96E-12    |
| Acidification                                     | mol H+ eq.         | 3,48E-02     | 1,15E-03  | 1,68E-05 | 0*       | 3,36E-02  | 5,92E-06    |
| Eutrophication, freshwater                        | kg P eq.           | 1,80E-05     | 4,12E-07  | 0*       | 6,02E-09 | 1,75E-05  | 9,33E-08    |
| Eutrophication, marine                            | kg N eq.           | 4,23E-03     | 1,29E-04  | 7,90E-06 | 8,16E-07 | 4,09E-03  | 2,72E-06    |
| Eutrophication, terrestrial                       | mol N eq.          | 6,69E-02     | 1,41E-03  | 8,66E-05 | 6,85E-06 | 6,54E-02  | 2,74E-05    |
| Photochemical ozone formation - human health      | kg NMVOC eq.       | 1,34E-02     | 4,53E-04  | 2,18E-05 | 1,61E-06 | 1,29E-02  | 7,06E-06    |
| Resource use, minerals and metals                 | kg SB eq.          | 1,85E-05     | 8,39E-06  | 0*       | 0*       | 1,01E-05  | 0*          |
| Resource use, fossils                             | MJ                 | 1,69E+02     | 4,35E+00  | 3,71E-02 | 0*       | 1,65E+02  | 0*          |
| Water use                                         | m3 eq.             | 6,84E-01     | 1,09E-01  | 0*       | 9,20E-05 | 5,74E-01  | 0*          |
| Particulate matter                                | Disease occurrence | 2,78E-07     | 7,23E-09  | 1,37E-10 | 0*       | 2,70E-07  | 4,39E-11    |
| Ionising radiation, human health                  | kBq U235 eq.       | 2,02E+01     | 1,05E+01  | 0*       | 0*       | 9,64E+00  | 0*          |
| Ecotoxicity, freshwater                           | CTUe               | 1,65E+01     | 3,90E+00  | 1,74E-03 | 7,76E-03 | 1,25E+01  | 6,00E-03    |
| Human toxicity, cancer                            | CTUh               | 6,37E-07     | 6,33E-07  | 0*       | 0*       | 4,14E-09  | 0*          |
| Human toxicity, non-cancer                        | CTUh               | 2,89E-08     | 7,31E-09  | 0*       | 0*       | 2,16E-08  | 0*          |
| Land use                                          | No dimension       | 1,82E-01     | 1,52E-03  | 0*       | 0*       | 1,81E-01  | 0*          |
| Renewable primary energy used as energy           | MJ                 | 4,33E+01     | 6,52E-02  | 0*       | 0*       | 4,33E+01  | 0*          |
| Renewable primary energy used as raw material     | MJ                 | 3,70E-02     | 3,36E-02  | 0*       | 0*       | 3,40E-03  | 0*          |
| Total renewable primary energy                    | MJ                 | 4,34E+01     | 9,88E-02  | 0*       | 0*       | 4,33E+01  | 0*          |
| Non renewable primary energy used as energy       | MJ                 | 1,69E+02     | 4,29E+00  | 3,71E-02 | 0*       | 1,65E+02  | 0*          |
| Non renewable primary energy used as raw material | MJ                 | 1,05E-01     | 5,99E-02  | 0*       | 0*       | 4,49E-02  | 0*          |
| Total non renewable primary energy                | MJ                 | 1,69E+02     | 4,35E+00  | 3,71E-02 | 0*       | 1,65E+02  | 0*          |
| Total primary energy                              | MJ                 | 2,12E+02     | 4,45E+00  | 3,72E-02 | 0*       | 2,08E+02  | 0*          |
| Use of secondary material                         | kg                 | 1,26E-06     | 4,19E-07  | 0*       | 0*       | 8,36E-07  | 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                 | 1,60E-02     | 2,54E-03  | 0*       | 2,14E-06 | 1,35E-02  | 0*          |
| Hazardous waste disposed                          | kg                 | 8,00E-01     | 3,48E-01  | 0*       | 0*       | 4,52E-01  | 0*          |
| Non hazardous waste disposed                      | kg                 | 1,23E+00     | 7,13E-02  | 0*       | 7,49E-04 | 1,15E+00  | 1,43E-02    |
| Radioactive waste disposed                        | kg                 | 4,64E-04     | 9,11E-05  | 6,65E-08 | 0*       | 3,73E-04  | 1,62E-07    |
| Components for reuse                              | kg                 | 0,00E+00     | 0*        | 0*       | 0*       | 0*        | 0*          |
| Materials for recycling                           | kg                 | 3,00E-04     | 8,98E-06  | 0*       | 2,73E-04 | 1,78E-05  | 0*          |
| Materials for energy recovery                     | kg                 | 6,37E-04     | 0*        | 0*       | 6,37E-04 | 0*        | 0*          |
| Exported Energy                                   | MJ                 | 2,99E-04     | 2,99E-04  | 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            | 5,70E-04     | 5,13E-04  | 0*       | 0*       | 5,65E-05  | 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).



The aforementioned impacts are declared for the functional unit of the reference product.

The environmental impacts of the reference product per declared unit can be calculated by multiplying the values of the environmental indicators by the factor available in the following table.

| Life cycle phase | All life cycle phase |
|------------------|----------------------|
| Factor           | 24000                |

|                                                                                                                    |  |                                                                                                            |                                                                                     |
|--------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Registration number : SOCO-00104-V01.01-EN                                                                         |  | Drafting Rules : "PEP-PCR-ed4-EN 2021 09 06"                                                               |                                                                                     |
|                                                                                                                    |  | Supplemented by : "PSR-0010-ed2.0-EN 2023 12 08"                                                           |                                                                                     |
| Verifier accreditation number : VH12                                                                               |  | Information and reference documents : <a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a> |                                                                                     |
| Date of issue: 07-2024                                                                                             |  | 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"/>                                                                        |                                                                                     |
| 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" |  |                                                                                                            |                                                                                     |

*This document is intended to be only informative and non-contractual and does not create any right or obligation or commitment for Socomec towards its associates, customers or any other person or entity. All the values indicated in this document may change depending on many factors (use conditions, applications, installations, environment...). The life time mentioned in this document is only indicative and is not intended to be the minimal, maximal or average life time of the product.*

## Other covered references

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

| Model               | Part number     | M (A1-A3) | D (A4) | I (A5) | U (B1-B7) | EOL (C1-C4) |
|---------------------|-----------------|-----------|--------|--------|-----------|-------------|
| MASTERYS BC+ 160kVA | U4BC163T00-0-00 | 1,00      | 1,00   | 1,00   | 1,00      | 1,00        |
| MASTERYS BC+ 160kVA | U4BG163T00-0-00 | 1,00      | 1,00   | 1,00   | 0,90      | 1,00        |
| MASTERYS BC+ 160kVA | U4BQ163T00-0-00 | 1,00      | 1,00   | 1,00   | 0,90      | 1,00        |