

# Product Environmental Profile



## UPS Mastersys 160kVA 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:

- Develop innovating solutions primarily focused on energy efficiency to help its customer in the design of less energy-consuming, better managed and ecofriendly installations.
- Diversify its product offer in the renewable energy and energy efficiency sectors,
- Minimize the environmental impact of its industrial activities through the progressive ISO 14001 certification of its production sites,
- Minimize at the preliminary design stage the environmental impacts of its products taking into account their whole life cycle,
- Provide his customers with reliable data on the environmental performance of the products.

Socomec is member of :



Environment and sustainable development commissions



## ■ Representative product

### Reference product

The representative product is the MASTERYS BC+ 160 kVA with sales reference U4BC163T00-0-00.

**Input dependency characteristics:** VFI

**Configuration:** Double Conversion

**UPS performance classification:** VFI SS 111

**Power kVA/kW:** 160/144

**Product dimensions:** 600 x 855 x 1930 mm

**Mass without storage system:** 362 kg

**Power factor:** 0,9

**Battery type:** Lead-Acid (not covered by this PEP)

### Functional unit

To protect the load of 160 kVA against input power failure during 15 years and provide a backup time ranging from a few minutes to a few hours in case of a power outage.

## ■ Material and substances

### Declaration of the constitutive materials according to IEC 62474

Total mass of the reference product (including packaging): 362 kg

Total mass of packaging: 29 kg. The packaging is composed of carton, paper, film packaging and a wooden pallet.

#### For the MASTERYS BC-160 kVA

Metals, % weight		Plastics, % weight		Others, % weight	
Other ferrous alloys – non stainless steel	56,0 %	Others thermoplastics	5,9 %	Others Organics materials	10,0 %
Aluminium and its alloys	12,0 %	Other plastics and rubber	2,6 %	Ceramics and Glass	0,9 %
Copper and its alloys	11,4 %	PVC	0,3 %	Others Inorganics materials	0,6 %
Other non-ferrous metals and alloys	0,1 %				
Stainless steels	< 0,1 %				
Zinc and its alloy	< 0,1 %				

The estimated content of recycled materials is 25 %, based on a Life Cycle Analysis model with EIME software which is a software distributed by CODDE, a subsidiary of Bureau Veritas.

### 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.



ROHS directives 2011/65/EU and 2015/863 compliance: 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 (DEHP, DBP, BBP, DIBP).



REACH 1907/2006 regulation: to the best of our knowledge at the publication date of this document, none of the substance of the candidate list to authorization (SVHC) has been found in the references covered by this PEP.



Power cables used in this product are declared halogen free by our suppliers.

## ■ Manufacturing



The products covered by this PEP are manufactured on the Isola Vicentina production site 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 ISO14001 certified logistic partners.

The packaging is mainly made of : wood pallet (19,25 kg), cardboard (9,4 kg), plastic (0,8 kg). No reconditioning is needed for this product.



The packaging complies with Directive 94/62/EC. 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.

Packaging design solutions favors mono-material recyclable cardboard without coloring or bleaching. The wedging of the packaged product is made of recycled cardboard, no polystyrene is used.

## ■ 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

Use phase scenario: European energy mix

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

Product power consumption during its total lifespan (15 years): 473 040 kWh, calculated with an average UPS efficiency double conversion mode of 95,0 %.

### 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.

Components	Fans	AC/DC filtration capacitor	Power supply card
Number of replacements*	3	2	2

\* From PCR-ed3-FR-2015 04 02

### Consumables

The product does not require consumables.

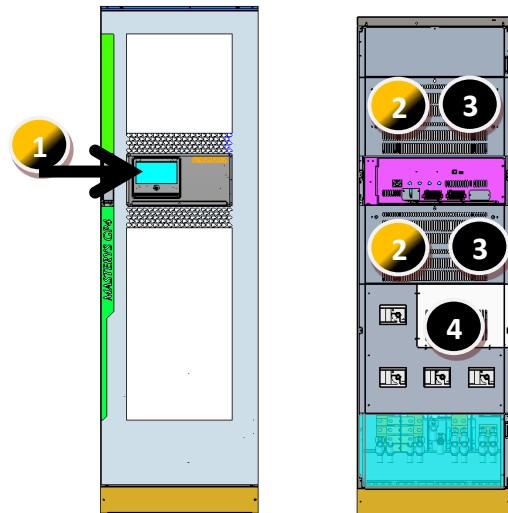
## ■ End of life

### End of life treatment

During dismantling, some parts could constitute a safety hazard for treatment operators and damage environment. See below the location of such components that need to be dismantled and oriented towards appropriate end of life facilities according to the applicable local legislation.

Maintenance and disassembly should always be conducted by qualified personnel.

Type of risk	Type of component	Mass (%)	Location
Potential security hazard for operators	LCD screen	<1%	1
	Capacitors	3,0%	2
Necessity of a selective treatment	LCD screen	<1%	1
	Capacitors	3,0%	2
	PCBA	1,2%	3
	Fans	1%	4



### Recovery potential of the product according to IEC TR 62635

The total potential value of this product is 77,0 %.

This potential value takes into account the material recycling and energy recovery.

## ■ Additional information



This environmental declaration lists the information required in the Annex A and B (substances: criterion 1) 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 version 5.8.1 of the software EIME with version database CODDE\_2018\_11. The software is distributed by CODDE which is a subsidiary of Bureau Veritas.

This product follows the rules defined in the PSR 0010\_ASI.

The whole life cycle has been taken into account:

Step	Geographical representativeness	Scenario						
<b>Manufacturing (M)</b>	Production of electronic components : Asia Production of other components and packaging : Europe Assembly : Italia	From the raw material extraction to the last Socomec logistic platform, including packaging						
<b>Distribution (D)</b>	Distribution scenario : Europe	From the last Socomec logistic platform to the final customer						
<b>Installation (I)</b>	Transport and treatment of packaging wastes : Local	Local road transport of generated wastes to the treatment site, and landfilling						
<b>Use phase (U)</b>	Energy mix : Europe Production of maintenance components : analog to manufacturing phase	Power consumption required during 15 years and maintenance according to consumption scenario described on page 3.						
		<table border="1"> <thead> <tr> <th>Components</th> <th>AC/DC filtrator capacitor</th> <th>Fans</th> <th>Batteries</th> </tr> </thead> <tbody> <tr> <td>Number of replacement</td> <td>2</td> <td>3</td> <td>2</td> </tr> </tbody> </table>	Components	AC/DC filtrator capacitor	Fans	Batteries	Number of replacement	2
Components	AC/DC filtrator capacitor	Fans	Batteries					
Number of replacement	2	3	2					
<b>End Of Life (EOL)</b>	Transport and treatment : Local	Road transport from the final customer to the treatment sites. End of life treatment.						


## Environmental impacts of the MASTERYS BC+ 160 kVA – U4BC163T00-0-00

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

Indicators	Unit	Total impact	M	D	I	U	EOL
Contribution to global warming	kg CO <sub>2</sub> eq.	2,34E+05	1,74E+03	1,89E+02	6,45E+00	2,32E+05	7,30E+01
Contribution to ozone layer depletion	kg CFC11 eq.	1,53E-02	1,83E-04	3,83E-07	9,60E-08	1,52E-02	1,09E-06
Contribution to the soil and water acidification	kg SO <sub>2</sub> eq.	9,80E+02	1,06E+01	8,50E-01	2,66E-02	9,68E+02	3,01E-01
Contribution to water eutrophication	kg (PO <sub>4</sub> ) <sup>3-</sup> eq.	6,02E+01	1,27E+00	1,95E-01	1,83E-02	5,85E+01	2,07E-01
Contribution to photochemical ozone formation	kg C <sub>2</sub> H <sub>4</sub> eq.	5,41E+01	7,81E-01	6,04E-02	1,98E-03	5,32E+01	2,24E-02
Contribution to the depletion of abiotic resources - elements	kg Sb eq.	1,92E-01	1,53E-01	7,57E-06	3,44E-07	3,95E-02	3,90E-06
Contribution to the depletion of abiotic resources - fossil fuels	MJ	2,65E+06	1,59E+04	2,66E+03	7,55E+01	2,63E+06	8,54E+02
Contribution to water pollution	m <sup>3</sup>	9,80E+06	1,68E+05	3,11E+04	8,80E+02	9,59E+06	9,95E+03
Contribution to air pollution	m <sup>3</sup>	1,04E+07	3,96E+05	7,76E+03	5,38E+02	1,00E+07	6,09E+03
Use of renewable primary energy (excl. raw materials)	MJ	5,89E+05	4,52E+02	3,57E+00	1,02E+00	5,89E+05	1,16E+01
Use of renewable primary energy used as raw materials	MJ	6,42E+02	6,21E+02	0*	0*	2,09E+01	0*
Total use of renewable primary energy resources	MJ	5,90E+05	1,07E+03	3,57E+00	1,02E+00	5,89E+05	1,16E+01
Use of non-renewable primary energy (excl. raw materials)	MJ	4,10E+06	5,39E+04	2,67E+03	7,88E+01	4,05E+06	8,92E+02
Use of non-renewable primary energy used as raw materials	MJ	1,69E+03	1,13E+03	0*	0*	5,54E+02	0*
Total use of non-renewable primary energy resources	MJ	4,11E+06	5,50E+04	2,67E+03	7,88E+01	4,05E+06	8,92E+02
Use of secondary materials	kg	1,12E+02	1,03E+02	0*	0*	9,21E+00	0*
Use of renewable secondary fuels	MJ	0*	0*	0*	0*	0*	0*
Use of non-renewable secondary fuels	MJ	0*	0*	0*	0*	0*	0*
Net use of fresh water	m <sup>3</sup>	8,40E+05	2,03E+01	1,69E-02	3,37E-03	8,40E+05	3,81E-02
Hazardous waste disposed of	kg	5,86E+03	4,93E+03	0,00E+00	1,56E-02	9,25E+02	1,77E-01
Non-hazardous waste disposed of	kg	8,66E+05	1,12E+03	6,72E+00	3,30E+01	8,65E+05	3,73E+02
Radioactive waste disposed of	kg	5,79E+02	1,10E+00	4,79E-03	1,20E-03	5,77E+02	1,36E-02
Components for reuse	kg	0*	0*	0*	0*	0*	0*
Materials for recycling	kg	0*	0*	0*	0*	0*	0*
Materials for energy recovery	kg	0*	0*	0*	0*	0*	0*
Exported energy	MJ by energy vector	0*	0*	0*	0*	0*	0*
Total use of primary energy during the life cycle	MJ	4,70E+06	5,61E+04	2,68E+03	7,98E+01	4,64E+06	9,03E+02

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).



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<b>Independant verification of the declaration and data, in compliance with ISO 14025 : 2010</b>	
Internal : <input checked="" type="checkbox"/>	External : <input type="checkbox"/>
The PCR review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN)	
PEP are compliant with XP C08-100-1 :2014	
The elements of the present PEP cannot be compared with elements from another program	
Document in compliance with ISO 14025: 2010 « Environmental labels and declarations. Type III environmental declarations »	

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