

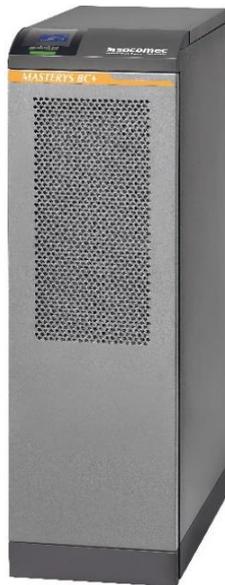
Product Environmental Profile



MASTERYS

MASTERYS BC+ 20 kVA

Uninterruptible power supply up to 20 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 :

ecosystem

Member of WEEE Europe



Gimélec

Environment and sustainable development commissions



PEP ecopassport® Registration number: SOCO-00117-V01.02-EN

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socomec
Innovative Power Solutions

● **Product information :**

Reference product	
Model	MASTERYS BC+ 20kVA
Sales reference	U4BC02CB00NS100
Description	Uninterruptible power supply up to 20 kVA
General data	
UPS Configuration	Single
UPS topology	Double conversion
UPS Performance classification	VFI-SS-111
Number of phases available	Three phase
Power [W]	20000
Apparent power [VA]	20000
Acoustic noise [dB]	<64,5dBA
Efficiency	
Weighted UPS efficiency [%]	94,62%
Weight & dimensions	
Dimensions W*H*D [mm]	370 x 770 x 1170 mm
Mass without packaging [kg]	209,46
Mass of the packaging [kg]	14,74
Batteries	
Technology of energy storage system	VRLA
Back-up time [minutes]	4 min

Functional unit :

To ensure the supply of power without interruption to equipment with load of 100 watts for a RSL of 1 years, including a backup time capacity of 5 minutes during power shortages.

Declared unit :

To ensure the supply of power without interruption to equipment with load of 20000 watts for a RSL of 15 years, including a backup time capacity of 4 minutes during power shortages.

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+ 20 kVA with sales references: U4BC02CB00NS100; U4BC021B00NY100; U4BC021M00NZ100; U4BC021M00-Z100; U4BC02CB00NY100; U4BC02CM00NZ100; U4BC02CM00-Z100

- MASTERYS BC+ 15kVA with sales references: U4BC0F1B00NX100; U4BC0F1B00NY100; U4BC0F1M00NZ100; U4BC0F1M00-Z100; U4BC0FCB00NX100; U4BC0FCB00NY100; U4BC0FCM00NZ100; U4BC0FCM00-Z100

Characteristics of the covered references:

Model	Power [W]	Back-up time [minute]	Weighted UPS efficiency [%]	Product mass [kg]	Packaging mass [kg]
U4BC02CB00NS100	20000	4	94,62%	209,46	14,74
U4BC0F1B00NX100	15000	3	94,24%	165,30	14,70
U4BC0F1B00NY100	15000	9	94,24%	235,30	14,70
U4BC0F1M00NZ100	15000	16	94,24%	310,00	15,00
U4BC0F1M00-Z100	15000	16	94,24%	310,00	15,00
U4BC0FCB00NX100	15000	3	93,61%	165,30	14,70
U4BC0FCB00NY100	15000	9	93,61%	230,30	14,70
U4BC0FCM00NZ100	15000	16	93,61%	305,00	15,00
U4BC0FCM00-Z100	15000	16	93,61%	305,00	15,00
U4BC021B00NY100	20000	6	94,59%	225,30	14,70

U4BC021M00NZ100	20000	11	94,59%	310,00	15,00
U4BC021M00-Z100	20000	11	94,59%	310,00	15,00
U4BC02CB00NY100	20000	6	94,62%	217,30	14,70
U4BC02CM00NZ100	20000	11	94,62%	304,00	15,00
U4BC02CM00-Z100	20000	11	94,62%	304,00	15,00

• Materials and substances

Declaration of the constitutives materials

Total mass of the MASTERYS BC+ 20kVA (including packaging): 224,2 kg among which packaging: 14,74 kg

For the reference product:

Plastics as % of weight		Metals as % of weight		Other as % of weight	
ABS	4,00%	Lead and its alloys	35,42%	Electronic components	8,99%
PVC	1,01%	Stainless steel	20,72%	Other inorganics	5,87%
PET	0,54%	Steel	12,01%	Wood	4,82%
Epoxy resin	0,28%	Copper and its alloys	2,16%	Cardboard	1,21%
Polyamide	0,25%	Other ferrous alloys	1,51%	Miscellaneous	<0,1%
Polyester	0,24%	Aluminium and its alloys	0,14%	Paper	<0,1%
PC	0,21%	Tin and its alloys	<0,1%		
PBT	<0,1%	Other metals	<0,1%		
PE	<0,1%	Zinc and its alloys	<0,1%		
		Precious metals	<0,1%		
Other plastics	0,42%				
Total Plastics: 15,86 kg	7,07%	Total Metals: 161,42 kg	72,00%	Total Others: 46,92 kg	20,93%

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).



As per article 33 or REACH, we declare SVHC's contained in the product:

SVHC	CAS number	Inclusion date in candidate list	SVHC included in annex XIV	SVHC localization
Lead	7439-92-1	June 27th 2018	No	VRLA batteries

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 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.

PRODUCT ENVIRONMENTAL PROFILE

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

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	69034 kWh
Average UPS efficiency	94,62%

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	Power supply PCB	Batteries
Number of replacement	2	2	3	2	2

Consumables

The product does not require consumables.

• End of life

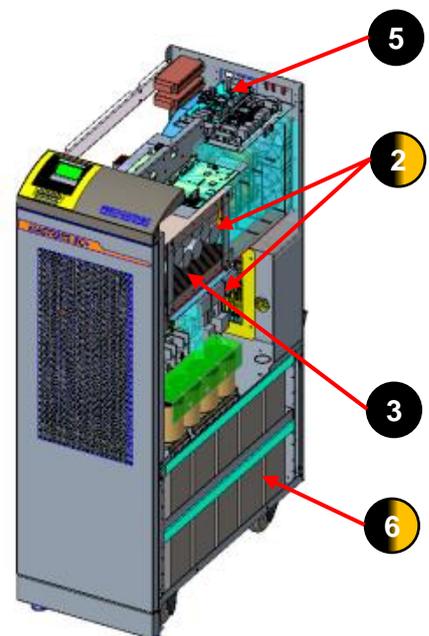
End of life treatment

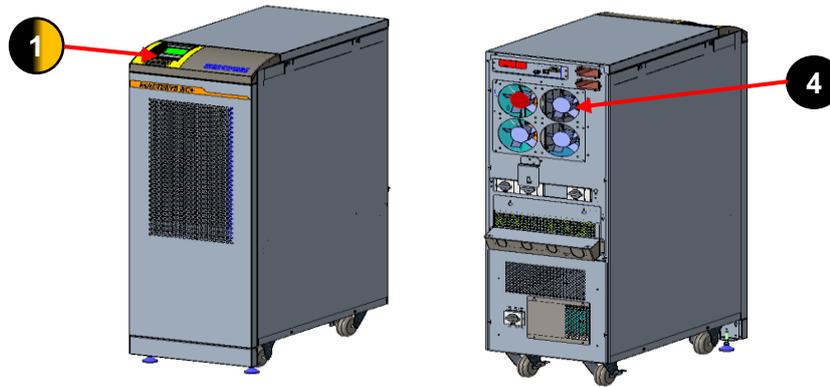
The following parts require specific care and selective treatment in accordance with Annex VII of the WEEE Directive 2012/19/EU:

Waste of electrical and electronic equipment.

Maintenance and disassembly should always be conducted by qualified personnel.

Type of risk	Type of component	Mass [%]	Location
Potential security hazard for operators	LCD screen	<1%	1
	Capacitors	<1%	2
	Lead acid battery	45%	6
Necessity of a selective treatment	LCD screen	<1%	1
	Capacitors	<1%	2
	PCBA	1,2%	3
	Fans	1,1%	4
	CR2032 coin battery	<1%	5
	Lead acid battery	45%	6





Recyclability potential of the product according to IEC TR 62635

The recyclability potential of the product is 73,45%.
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

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

EIME version: 6.2.3

Database version: CODDE-2024-04 - updated on 2024-06-04

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 & Europe Production of other components and packaging : Europe Assembly : Italy	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. 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 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. End of life treatment.

Environmental impacts of the MASTERYS BC+ 20kVA per functional unit (power of 100W, lifespan of 1 year and a back-up time capacity of 5 minutes)

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

Indicators	Unit	Total impact	M	D	I	U			EOL
			(A1-A3)	(A4)	(A5)	Total (B1-B7)	(B1-B7) without (B6)	(B6) only	(C1-C4)
Climate change	kg CO2 eq.	9,04E+00	4,58E-01	1,65E-02	4,74E-03	8,56E+00	4,47E-01	8,11E+00	6,64E-03
Climate change-Biogenic	kg CO2 eq.	1,93E-02	2,56E-03	7,35E-05	2,10E-05	1,67E-02	1,74E-03	1,49E-02	0*
Climate change-Fossil	kg CO2 eq.	8,55E+00	0*	0*	0*	8,54E+00	4,45E-01	8,10E+00	6,64E-03
Climate change-Land use and land use change	kg CO2 eq.	2,66E-03	2,56E-03	7,35E-05	2,10E-05	0*	0*	0*	0*
Ozone depletion	kg CFC-11 eq.	1,44E-07	0*	0*	0*	1,44E-07	1,04E-07	3,93E-08	5,69E-11
Acidification	mol H+ eq.	2,07E-01	1,61E-01	4,95E-05	0*	4,66E-02	5,05E-03	4,16E-02	3,67E-05
Eutrophication, freshwater	kg P eq.	2,48E-05	0*	0*	0*	2,43E-05	2,95E-06	2,14E-05	4,92E-07
Eutrophication, marine	kg N eq.	5,78E-03	0*	0*	0*	5,77E-03	7,06E-04	5,06E-03	1,71E-05
Eutrophication, terrestrial	mol N eq.	8,92E-02	0*	0*	0*	8,90E-02	7,73E-03	8,13E-02	1,71E-04
Photochemical ozone formation - human health	kg NMVOC eq.	1,84E-02	4,88E-05	2,39E-06	0*	1,83E-02	2,35E-03	1,59E-02	4,41E-05
Resource use, minerals and metals	kg SB eq.	3,96E-04	0*	0*	0*	3,96E-04	3,93E-04	2,87E-06	0*
Resource use, fossils	MJ	2,15E+02	0*	0*	0*	2,15E+02	9,82E+00	2,05E+02	8,88E-02
Water use	m3 eq.	9,90E-01	0*	0*	0*	9,90E-01	3,69E-01	6,21E-01	1,17E-04
Particulate matter	Disease occurrence	3,67E-07	0*	0*	0*	3,67E-07	3,22E-08	3,35E-07	2,72E-10
Ionising radiation, human health	kBq U235 eq.	1,28E+01	0*	0*	0*	1,28E+01	1,13E+00	1,17E+01	0*
Ecotoxicity, freshwater	CTUe	1,81E+01	0*	0*	0*	1,80E+01	2,72E+00	1,53E+01	3,57E-02
Human toxicity, cancer	CTUh	5,44E-02	5,31E-02	1,03E-03	2,93E-04	0*	0*	0*	0*
Human toxicity, non-cancer	CTUh	4,73E-06	4,31E-06	0*	0*	4,20E-07	3,95E-07	2,44E-08	0*
Land use	No dimension	2,33E-01	1,10E-03	0*	0*	2,32E-01	7,27E-03	2,24E-01	0*
Renewable primary energy used as energy	MJ	5,44E+01	0*	0*	0*	5,44E+01	2,50E-01	5,42E+01	0*
Renewable primary energy used as raw material	MJ	7,21E-02	5,31E-02	1,03E-03	2,93E-04	1,77E-02	1,77E-02	0*	0*
Total renewable primary energy	MJ	5,45E+01	5,31E-02	0*	0*	5,45E+01	2,67E-01	5,42E+01	0*
Non renewable primary energy used as energy	MJ	2,14E+02	0*	0*	0*	2,14E+02	9,46E+00	2,05E+02	8,88E-02
Non renewable primary energy used as raw material	MJ	4,09E-01	5,14E-02	1,03E-03	2,93E-04	3,56E-01	3,56E-01	0*	0*
Total non renewable primary energy	MJ	2,15E+02	0*	0*	0*	2,15E+02	9,82E+00	2,05E+02	8,88E-02
Total primary energy	MJ	2,69E+02	0*	0*	0*	2,69E+02	1,01E+01	2,59E+02	8,96E-02
Use of secondary material	kg	9,17E-05	8,88E-05	1,37E-06	3,91E-07	1,14E-06	1,14E-06	0*	0*
Use of renewable secondary fuels	MJ	0,00E+00	0*	0*	0*	0*	0*	0*	0*
Use of non renewable secondary fuels	MJ	0,00E+00	0*	0*	0*	0*	0*	0*	0*
Net use of fresh water	m3	2,32E-02	0*	0*	0*	2,32E-02	8,59E-03	1,46E-02	2,73E-06
Hazardous waste disposed	kg	9,33E-01	0*	0*	0*	9,33E-01	5,77E-01	3,56E-01	0*
Non hazardous waste disposed	kg	1,78E+00	0*	0*	0*	1,69E+00	3,25E-01	1,37E+00	8,99E-02
Radioactive waste disposed	kg	6,06E-04	6,24E-08	0*	0*	6,05E-04	2,91E-04	3,14E-04	9,28E-07
Components for reuse	kg	0,00E+00	0*	0*	0*	0*	0*	0*	0*
Materials for recycling	kg	6,29E-05	0*	0*	0*	6,29E-05	6,29E-05	0*	0*
Materials for energy recovery	kg	0,00E+00	0*	0*	0*	0*	0*	0*	0*
Exported Energy	MJ	0,00E+00	0*	0*	0*	0*	0*	0*	0*

PRODUCT ENVIRONMENTAL PROFILE

Biogenic carbon content - Product	kg of C	0,00E+00	0*	0*	0*	0*	0*	0*	0*
Biogenic carbon content - Packaging	kg of C	2,70E-03	2,41E-03	0*	0*	2,93E-04	2,93E-04	0*	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	B6 Energetic consumption phase	All phases but B6
Factor	3000	2400

Registration number : SOCO-00117-V01.02-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 : www.pep-ecopassport.org	
Date of issue: 10-2024	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

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	M (A1-A3)	D (A4)	I (A5)	U (B1-B7)	EOL (C1-C4)
U4BC02CB00NS100	1,00	1,00	1,00	1,00	1,00
U4BC0F1B00NX100	0,80	0,80	1,00	0,80	0,79
U4BC0F1B00NY100	1,12	1,12	1,00	0,80	1,12
U4BC0F1M00NZ100	1,45	1,45	1,02	0,80	1,48
U4BC0F1M00-Z100	1,45	1,45	1,02	0,80	1,48
U4BC0FCB00NX100	0,80	0,80	1,00	0,89	0,79
U4BC0FCB00NY100	1,09	1,09	1,00	0,89	1,10
U4BC0FCM00NZ100	1,43	1,43	1,02	0,89	1,46
U4BC0FCM00-Z100	1,43	1,43	1,02	0,89	1,46
U4BC021B00NY100	1,07	1,07	1,00	1,01	1,08
U4BC021M00NZ100	1,45	1,45	1,02	1,01	1,48
U4BC021M00-Z100	1,45	1,45	1,02	1,01	1,48
U4BC02CB00NY100	1,03	1,03	1,00	1,00	1,04
U4BC02CM00NZ100	1,42	1,42	1,02	1,00	1,45
U4BC02CM00-Z100	1,42	1,42	1,02	1,00	1,45