



## MASTERYS EM+

Uninterruptible Power Supply

from 30 to 40kVA



### 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 EM+ 30kVA with commercial reference U4EM033M00-0200 .

Input dependency characteristics	Configuration	Power kVA/kW	Dimensions	Acoustic noise	Power factor
VFI-SS-111	online double conversion	30/27	444x800x800	≤50dBA	0,9

Other product covered : MASTERYS EM+ 40kVA with commercial reference U4EM043M00-0200

Input dependency characteristics	Configuration	Power kVA/kW	Dimensions	Acoustic noise	Power factor
VFI-SS-111	online double conversion	40/36	444x800x800	≤50dBA	0,9

### Functional unit

**MASTERYS EM+ 30kVA** : To protect the load of 30 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.

**MASTERYS EM+ 40kVA** : To protect the load of 40 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

#### MASTERYS EM+ 30kVA

Total mass of the reference product (including packaging): **127kg**

Total mass of packaging: **20,97kg**. The packaging is composed of carton, paper, film packaging and a wooden pallet

Metals, 74% weight		Plastics, 9% weight		Others, 17% weight	
Other Ferrous alloys, non-stainless steels	53,2%	Others thermoplastics	7,3%	Others Organics	15,0%
Aluminium and its alloys	13,0%	Other plastics	1,7%	Other Inorganics	0,6%
Copper and its alloys	7,6%			Ceramics and Glass	1,4%
Zinc and its alloys	0,2%				
Other non-ferrous metals and alloys	< 0,1%				
Precious metals	< 0,1%				
Nickel and its alloys	< 0,1%				
Stainless steel	< 0,1%				

The estimated content of recycled materials is 24,6%, based on a Life Cycle Analysis with EIME software which is a software distributed by LCIE, a subsidiary of Bureau Veritas.

#### MASTERYS EM+ 40kVA

Total mass of the reference product (including packaging): **130kg**

Total mass of packaging: **20,97kg**. The packaging is composed of carton, paper, film packaging and a wooden pallet

Metals, 73,9% weight	Plastics, 9,4% weight	Others, 16,7% weight
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The estimated content of recycled materials is 24,5%, based on a Life Cycle Analysis with EIME software which is a software distributed by LCIE, 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.



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).



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 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.

## ■ 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

### Electrical consumption

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

## **MASTERYS EM+ 30kVA**

<b>Total average energy consumption</b>	82 043 kWh
<b>Average UPS efficiency</b>	Up to 95,8%

## **MASTERYS EM+ 40kVA**

<b>Total average energy consumption</b>	111 362 kWh
<b>Average UPS efficiency</b>	Up to 95,8%

## **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 subject to maintenance:

<b>Components</b>	<b>Fans</b>	<b>Capacitors</b>
<b>Number of replacements</b>	3	2

## **Consumables**

The product does not require consumables.

## ■ **End of life**

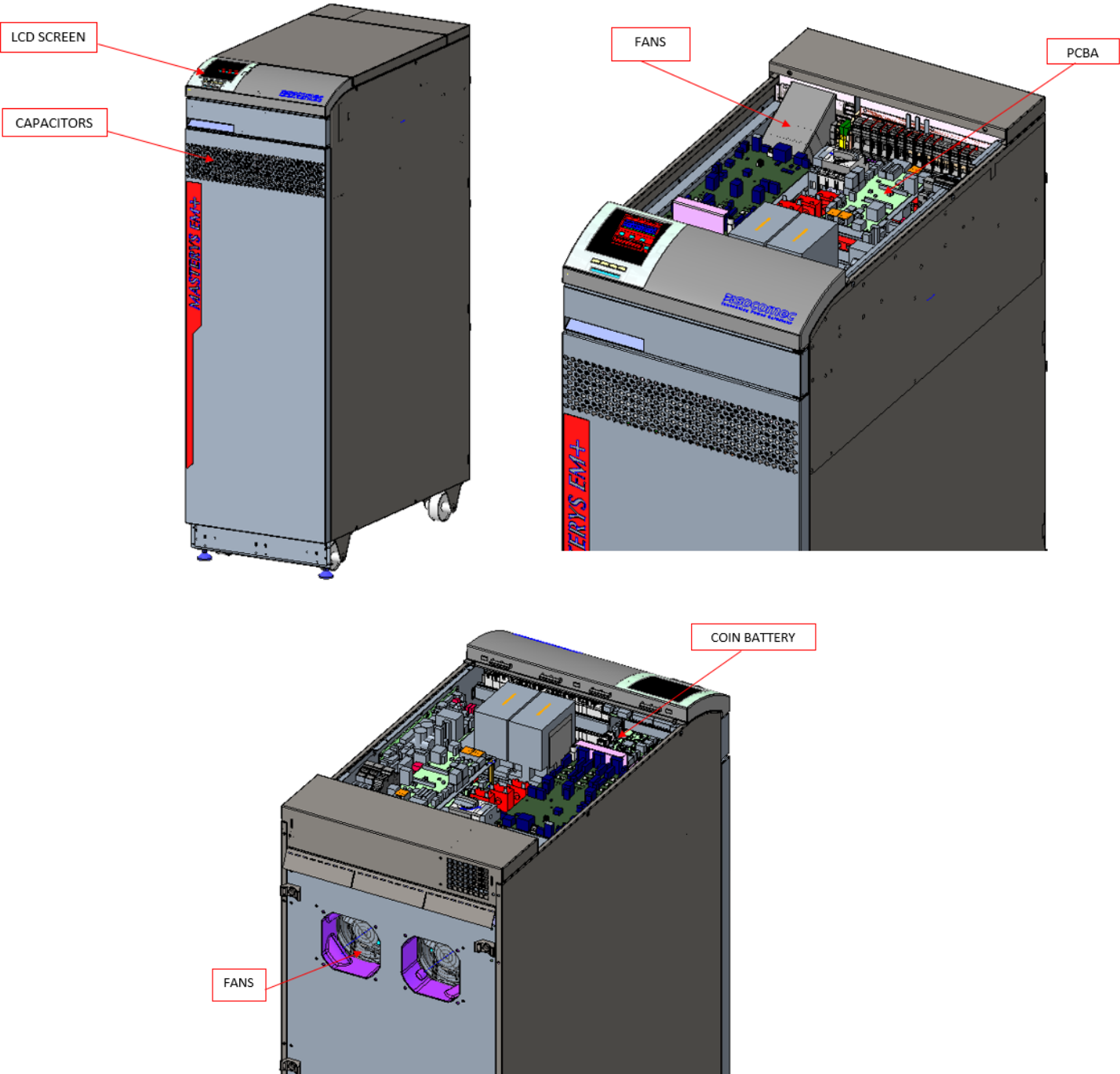
### **Recovery potential of the product according to IEC TR 62635**

The total potential value of the products covered is **86,5%**.  
This potential value takes into account the material recycling and energy recovery

Note: Maintenance and disassembly should always be conducted by qualified personnel.

### **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.



Potential Security hazard for operators	Necessity of a selective treatment
LCD screen	LCD screen
Capacitors	Capacitors
	PCBA
	Fans
	Coin battery

## ■ 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 5.9.3 of the software EIME with version database CODDE\_2016\_11. The software is distributed by CODDE which is a subsidiary of Bureau Veritas.

This product follows the rules defined in the PSR-0010-ed1.1-EN-2015 10 16

The whole life cycle has been taken into account:

Step	Geographical representativeness	Scenario
<b>Manufacturing (M)</b>	Production of electronic components : Europe Production of other components and packaging : Europe Assembly : Italy Last logistic platform Italy	From the raw material extraction to the last Socomec logistic platform, including packaging  Waste generated during manufacturing phase are taken into account.
<b>Distribution (D)</b>	Distribution scenario : Europe	From the last Socomec logistic platform to the final customer.  No product reconditioning.
<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 scenario according to consumption scenario described above.
<b>End Of Life (EOL)</b>	Transport and treatment : Local	Road transport of 1000 km from the final customer to the treatment sites.  End of life treatment.



## Environmental impacts

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

### Indicators

#### MASTERYS EM+ 30kVA


Indicators	Unit	Total impact	M	D	I	U	EOL
Contribution to global warming	kg CO <sub>2</sub> eq.	4,12E+04	5,40E+02	6,64E+01	4,60E+00	4,06E+04	2,33E+01
Contribution to ozone layer depletion	kg CFC-11 eq.	2,73E-03	5,45E-05	0*	0*	2,67E-03	3,46E-07
Contribution to the soil and water acidification	kg SO <sub>2</sub> eq.	1,72E+02	2,47E+00	2,98E-01	1,90E-02	1,69E+02	9,58E-02
Contribution to water eutrophication	kg (PO <sub>4</sub> ) <sup>3-</sup> eq.	1,07E+01	2,95E-01	6,85E-02	1,31E-02	1,03E+01	6,61E-02
Contribution to photochemical ozone formation	kg C <sub>2</sub> H <sub>4</sub> eq.	9,56E+00	2,12E-01	2,12E-02	1,41E-03	9,32E+00	7,15E-03
Contribution to the depletion of abiotic resources - elements	kg Sb eq.	6,91E-02	4,51E-02	0*	0*	2,40E-02	0*
Contribution to the depletion of abiotic resources - fossil fuels	MJ	4,65E+05	4,65E+03	9,33E+02	5,38E+01	4,59E+05	2,72E+02
Contribution to water pollution	m <sup>3</sup>	1,74E+06	3,98E+04	1,09E+04	6,28E+02	1,69E+06	3,17E+03
Contribution to air pollution	m <sup>3</sup>	1,89E+06	9,94E+04	2,72E+03	3,84E+02	1,79E+06	1,94E+03
Use of renewable primary energy (excl. raw materials)	MJ	1,02E+05	1,00E+02	0*	0*	1,02E+05	0*
Use of renewable primary energy used as raw materials	MJ	4,36E+02	4,14E+02	0*	0*	0*	0*
Total use of renewable primary energy resources	MJ	1,03E+05	5,14E+02	0*	0*	1,02E+05	0*
Use of non-renewable primary energy (excl. raw materials)	MJ	7,29E+05	1,99E+04	9,37E+02	0*	7,07E+05	2,84E+02
Use of non-renewable primary energy used as raw materials	MJ	8,97E+02	3,22E+02	0*	0*	0*	0*
Total use of non-renewable primary energy resources	MJ	7,29E+05	2,02E+04	9,37E+02	0*	7,08E+05	2,84E+02
Use of secondary materials	kg	4,54E+01	3,58E+01	0*	0*	0*	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>	1,46E+05	0*	0*	0*	1,46E+05	0*
Hazardous waste disposed of	kg	1,84E+03	9,41E+02	0*	0*	8,97E+02	0*
Non-hazardous waste disposed of	kg	1,51E+05	3,10E+02	0*	2,35E+01	1,50E+05	1,19E+02
Radioactive waste disposed of	kg	1,01E+02	3,57E-01	0*	0*	1,00E+02	0*
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	8,32E+05	2,08E+04	9,39E+02	0*	8,10E+05	2,88E+02

## MASTERYS EM+ 40kVA

Indicators	Unit	Total impact	M	D	I	U	EOL
Contribution to global warming	kg CO <sub>2</sub> eq.	5,56E+04	5,52E+02	6,79E+01	0*	5,50E+04	2,39E+01
Contribution to ozone layer depletion	kg CFC-11 eq.	3,67E-03	5,60E-05	0*	0*	3,61E-03	0*
Contribution to the soil and water acidification	kg SO <sub>2</sub> eq.	2,32E+02	2,54E+00	3,05E-01	0*	2,29E+02	9,86E-02
Contribution to water eutrophication	kg (PO <sub>4</sub> ) <sup>3-</sup> eq.	1,43E+01	3,04E-01	7,01E-02	1,31E-02	1,39E+01	6,80E-02
Contribution to photochemical ozone formation	kg C <sub>2</sub> H <sub>4</sub> eq.	1,29E+01	2,17E-01	2,17E-02	1,41E-03	1,26E+01	7,35E-03
Contribution to the depletion of abiotic resources - elements	kg Sb eq.	7,20E-02	4,67E-02	0*	0*	2,53E-02	0*
Contribution to the depletion of abiotic resources - fossil fuels	MJ	6,29E+05	4,74E+03	9,55E+02	0*	6,23E+05	2,80E+02
Contribution to water pollution	m <sup>3</sup>	2,34E+06	4,26E+04	1,12E+04	6,28E+02	2,28E+06	3,26E+03
Contribution to air pollution	m <sup>3</sup>	2,52E+06	1,09E+05	2,79E+03	3,84E+02	2,41E+06	2,00E+03
Use of renewable primary energy (excl. raw materials)	MJ	1,39E+05	1,15E+02	0*	0*	1,39E+05	0*
Use of renewable primary energy used as raw materials	MJ	4,36E+02	4,15E+02	0*	0*	0*	0*
Total use of renewable primary energy resources	MJ	1,39E+05	5,29E+02	0*	0*	1,39E+05	0*
Use of non-renewable primary energy (excl. raw materials)	MJ	9,80E+05	2,00E+04	9,59E+02	0*	9,59E+05	2,92E+02
Use of non-renewable primary energy used as raw materials	MJ	9,19E+02	3,44E+02	0*	0*	0*	0*
Total use of non-renewable primary energy resources	MJ	9,81E+05	2,03E+04	9,59E+02	0*	9,59E+05	2,92E+02
Use of secondary materials	kg	4,66E+01	3,70E+01	0*	0*	0*	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>	1,98E+05	0*	0*	0*	1,98E+05	0*
Hazardous waste disposed of	kg	2,06E+03	1,16E+03	0*	0*	9,04E+02	0*
Non-hazardous waste disposed of	kg	2,05E+05	3,25E+02	0*	2,35E+01	2,04E+05	1,22E+02
Radioactive waste disposed of	kg	1,37E+02	3,64E-01	0*	0*	1,36E+02	0*
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	1,12E+06	2,09E+04	9,61E+02	0*	1,10E+06	2,96E+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>		
<b>Internal</b> : <input checked="" type="checkbox"/>	<b>External</b> : <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 :2016		
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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