



LEGRAND'S ENVIRONMENTAL COMMITMENTS

- Incorporate environmental management into our industrial sites**
 Of all Legrand sites worldwide, over 85% are ISO 14001-certified [sites belonging to the Group for more than five years].
- Offer our customers environmentally friendly solutions**
 Develop innovative solutions to help our customers design more energy efficient, better managed and more environmentally friendly installations.
- Involve the environment in product design and provide informations in compliance with ISO 14025**
 Reduce the environmental impact of products over their whole life cycle.
 Provide our customers with all relevant information (composition, consumption, end of life, etc.).



REFERENCE PRODUCT

Function	To protect the load of 500 kW against input power failure during 15 years and switch to the energy storage system to avoid power outage.
Reference Product	<div style="text-align: center;">  </div> <p style="text-align: center;">LG-953503</p> <p style="text-align: center;">Triphase UPS KEOR HPE - 500 kVA - 500 kW - dimensions 1978 x 1430 x 970 mm. UPS configuration : UPS with bypass. Mass without energy storage system : 1185 kg (without packaging). Location of the manufacturing plants : Italy. Characteristics according to IEC 62040-3 : VFI, VFD, multimode. Power factor : 1. UPS performance classification: On-line double conversion VFI SSI 111. Redundancy : N+1, 2N.</p>

The company reserves the right to change specifications and designs without notice. All illustrations, descriptions, dimensions and weights in the document are for guidance and cannot be held binding on the company.



PRODUCTS CONCERNED

The environmental data is representative of the following products:.

LG-953503
LG-960572, LG-953500, LG-953501, LG-953502, LG-311130

Product Environmental Profile

**UPS
Keor HPE**



■ CONSTITUENT MATERIALS

This Reference Product contains no substances prohibited by the regulations applicable at the time of its introduction to the market. It respects the restrictions on use of hazardous substances as defined in the RoHS directive 2011/65/EU and its delegated directive 2015/863/EU.

Total weight of Reference Product	1250 kg (all packaging included)				
Plastics as % of weight		Metals as % of weight		Other as % of weight	
Thermoset	2,2 %	Steel	56,3 %	Electrolyte capacitors	5,3 %
Polyamide	1,3 %	Aluminium	18,2 %	Cables / Electric wires	1,0 %
PBT	0,7 %	Copper alloys	7,8 %	Electronic cardboards	0,6 %
Silicon rubber	0,6 %	Other metals	0,3 %	Other electronic components	0,4 %
Polycarbonate	0,5 %				
Other plastics	0,4 %				
Packaging as % of weight					
				Wood	3,1 %
				Paper / Cardboard	1,3 %
Total plastics	5,7 %	Total metals	82,6 %	Total others	11,7 %

Estimated recycled material content: 33 % by mass.



■ MANUFACTURE

This Reference Product comes from a site that has received ISO14001 certification.



■ DISTRIBUTION

Products are distributed from logistics centres located with a view to optimize transport efficiency. The Reference Product is therefore transported over an average distance of 780 km by road from our warehouse to the local point of distribution into the European market.

Packaging is compliant with european directive 2004/12/EU concerning packaging and packaging waste. At their end of life, its recyclability rate is 96 % (in % of packaging weight).



■ INSTALLATION

For the installation of the product, only standard tools are needed.



■ USE

Average energy efficiency of the product in the heaviest operation mode (double conversion VFI): 95,9 %. Under normal conditions of use, this product requires maintenance. In particular these are the components considered to be substituted during 15 years:

- DC and AC capacitors of fi ltering PCBs (2 times);
- Fans (3 times);
- Power supply PCBs (2 times);
- Lithium-ion battery (2 times).



END OF LIFE

The product end-of-life factors are taken into account during the design phase. Dismantling and sorting of components or materials is made as easy as possible with a view to recycling or failing that, another form of reuse. This product falls within the scope of the WEEE directive (2012/19/EU). Therefore it must be processed through local WEEE recycling/recovery channels.

• **Elements to process specifically:**

In accordance with the requirements of this Directive, the following components must be removed and sent to specific channels for processing which comply with the WEEE Directive 2012/19/EU:

- electrolyte capacitors (height > 25 mm, diameter > 25 mm or proportionately similar volume): 66002 g
- electronic cards more than 10 cm²: 7418 g
- LCD screens more than 100 cm²: 228 g

• **Extended producer responsibility:**

The sale of this product is subject to a contribution to eco-organisations in each country responsible for managing end-of-life products in the field of application of the European Waste Electronic and Electrical Equipment Directive.

• **Recyclability rate:**

Calculated using the method described in technical report IEC/TR 62635, the recyclability rate of the product is estimated at 90,1 %. This value is based on data collected from a technological channel operating on an industrial basis. It does not pre-validate the effective use of this channel for the end of life of this product.

Separated into:

- plastic materials (excluding packaging) : 2,5 %
- metal materials (excluding packaging) : 82,5 %
- other materials (excluding packaging) : 0,8 %
- packaging (all types of materials) : 4,3 %



ENVIRONMENTAL IMPACTS

The evaluation of environmental impacts examines the stages of the Reference Product life cycle: manufacturing, distribution, installation, use and end of life. It is representative from products marketed and used in Europe in an electrical installation in compliance with associated product standards.

For each phase, the following modelling elements were taken in account:

Manufacture	Materials and components of the product, all transport for the manufacturing, the packaging and the waste generated by the manufacturing.
Distribution	Transport between the last Group distribution centre and an average delivery point in the sales area.
Installation	The end of life of the packaging.
Use	<ul style="list-style-type: none"> • Product category: «PSR-0010-ed1.1-EN-2015 10 16 - UPS» • Use scenario: consumption of 1330425 kW during the 15 years working life due to an average energy efficiency of 95,9% referred to the heaviest operation mode (double conversion VFI). Substitution of the maintenance components as indicated in the Use paragraph. This modelling duration does not constitute a minimum durability requirement. • Energy model: Electricity Mix, Europe 27 - 2008.
End of life	The default end of life scenario maximizing the impacts.
Software and database used	EIME V5 and its database «CODDE-2018-11»



SELECTION OF ENVIRONMENTAL IMPACTS

	Total for Life cycle		Raw material and manufacture		Distribution		Installation		Use		End of life	
Global warming	6.59E+05	kgCO₂ eq.	5.49E+03	< 1%	4.82E+01	< 1%	3.00E+00	< 1%	6.53E+05	99%	8.20E+01	< 1%
Ozone depletion	4.35E-02	kgCFC-11 eq.	7.35E-04	2%	9.76E-08	< 1%	1.24E-08	< 1%	4.27E-02	98%	8.35E-07	< 1%
Acidification of soils and water	2.74E+03	kgSO₂ eq.	1.88E+01	< 1%	2.16E-01	< 1%	1.39E-02	< 1%	2.72E+03	99%	3.40E-01	< 1%
Water eutrophication	1.67E+02	kg[PO₄]³⁻ eq.	2.06E+00	1%	4.97E-02	< 1%	7.65E-03	< 1%	1.65E+02	98%	5.36E-01	< 1%
Photochemical ozone formation	1.51E+02	kgC₂H₄ eq.	1.77E+00	1%	1.54E-02	< 1%	9.84E-04	< 1%	1.50E+02	99%	2.57E-02	< 1%
Depletion of abiotic resources - elements	6.28E-01	kgSb eq.	5.57E-01	89%	1.93E-06	< 1%	1.25E-07	< 1%	7.01E-02	11%	3.81E-06	< 1%
Total use of primary energy	1.32E+07	MJ	1.93E+05	1%	6.81E+02	< 1%	4.18E+01	< 1%	1.30E+07	99%	1.00E+03	< 1%
Net use of fresh water	2.36E+06	m³	9.51E+01	< 1%	4.31E-03	< 1%	5.44E-04	< 1%	2.36E+06	100%	3.11E-02	< 1%
Depletion of abiotic resources - fossil fuels	7.46E+06	MJ	5.11E+04	< 1%	6.77E+02	< 1%	4.12E+01	< 1%	7.41E+06	99%	9.62E+02	< 1%
Water pollution	2.73E+07	m³	2.70E+05	< 1%	7.92E+03	< 1%	4.80E+02	< 1%	2.70E+07	99%	1.12E+04	< 1%
Air pollution	2.95E+07	m³	1.28E+06	4%	1.97E+03	< 1%	2.15E+02	< 1%	2.82E+07	96%	5.64E+03	< 1%

The values of the 27 impacts defined in the PCR-ed3-EN-2015 04 02 are available in the digital database of pep-ecopassport.org website.

For the products covered by the PEP other than the Reference Product, the environmental impacts of each phase of the lifecycle are calculated as follows:

- For the Manufacturing phase they are proportional to the mass of the product;
- For the Installation, Distribution and End of Life phases they are assimilated to the Reference Product values;
- For the Use phase they are proportional to the output power.

Registration N°: LGRP-01495-V01.01-EN	Drafting rules: PEP-PCR-ed3-EN-2015 04 02 Supplemented by PSR-0010-ed1.1-2015 10 16
Verifier accreditation N°: VH23	Information and reference documents : www.pep-ecopassport.org
Date of issue: 02-2022	Validity period: 5 years
Independent verification of the declaration and data, in compliance with ISO 14025:2010 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 : 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»	
Environmental data in alignment with EN 15804 : 2012 + A1 : 2013	

