

# LON DIN-Rail power supplies

## Product Environmental Profile



# Product Environmental Profile – PEP

## Product overview

The main function of the LON DIN-rail Power Supplies product range is to provide linked-power to LON networks used for building automation systems.

This range consists of: LPT LON Power Supply LPS133.

The representative product used for the analysis is LON Power Supply LPS133 ref. MTN884019.

The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with the same technology.

The environmental analysis was performed in conformity with ISO14040 “Environmental management: Life cycle assessment – Principle and framework”.

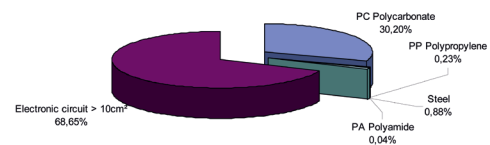
This analysis takes the stages in the life cycle of the product into account.

## Constituent materials

The mass of the concerned product is 532G for the LON POWER SUPPLY LPS133 Ref.MTN884019, packaging excluded.

The constituent materials are distributed as follows:

Categories	Materials	Mass (g):	%
Metals	Steel	4,7	0,88
Plastics	PC Polycarbonate	160,55	30,20
	PA Polyamide	0,2	0,04
	PP Polypropylene	1,2	0,23
Various	Electronic circuit > 10cm <sup>2</sup>	365	68,65
	<b>Total</b>	<b>531,65</b>	<b>100%</b>



All necessary steps have been taken with our services, suppliers and subcontractors to ensure that the materials used in the composition of the LON DIN-rail Power Supplies range do not contain any substances prohibited by the legislation that was in force\* when the product or range was put on the market.

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2002/95/EC of 27 January 2003) and do not contain, or in the authorised proportions, lead, mercury, cadmium, chromium hexavalent, flame retardant (polybromobiphenyls PBB, polybromodiphenylthethers PBDE) as mentioned in the Directive.

\* according to the list available on request .

## Manufacturing

The LON DIN-rail Power Supply product range is manufactured at a Schneider Electric production site in Merten Wiehl on which an ISO14001 certified environmental management system has been established.

## Distribution

The weight and volume of the packaging have been reduced, in compliance with the European Union's packaging directive.

The LON Power Supply packaging weight is 140G. It consists of Cardboard (96% recycled, grey board) 5G, Paper (Recycled, Without Deinking) 0,8G, Paper (Recycled, With Deinking) 3G, Cardboard (Duplex-Triplex) 131G, PP (Polypropylene) 0,2G.

The product distribution flows have been optimised by setting up local distribution centres close to the market areas.

## Utilisation

The products of the LON DIN-rail Power Supplies range do not generate environmental pollution requiring special precautionary measures (noise, emissions, and so on).

The dissipated power depends on the conditions under which the product is implemented and used.

This dissipated power at nominal load is for referenced LON DIN-rail Power Supply LPS133 app. 66,5W.

## End of life

At end of life, the products in the LON POWER SUPPLY have been optimized to decrease the amount of waste and valorise the components and materials of the product in the usual end of life treatment process.

The design and information have been achieved so as components are able to enter the usual end of life treatment processes as appropriate: depollution if recommended, reuse and/or dismantling if recommended so as to increase the recycling performances and shredding for separating the rest of materials.

At end of life, the products in the LON POWER SUPPLY have been optimized to decrease the amount of waste and valorise the components and materials of the product in the usual end of life treatment process.

The potential of recyclability of the products has been evaluated using the Codde" recyclability and recoverability calculation method" (version V1, 20 Sep. 2008) and published by ADEME (French Agency for Environment and Energy Management).

By this method, this product range doesn't contain recyclable materials as the lack of processes for recycling these plastics types.

The recommendations to optimize the recycling performance are detailed in the product "End of Life Instructions" of this product range.

## Environmental impacts

The EIME (Environmental Impact and Management Explorer) software, version 4.0, and its database, version V10 were used for the life cycle assessment (LCA).

The assumed service life of the product is 10 years with a utilisation rate of the installation of 100% and the electrical power model used is ON (ON, OFF, Stand by).

The scope of the analysis was limited to a LON Power Supply LPS133 ref. MTN884019.

The environmental impacts were analysed for the Manufacturing (M) phases, the Distribution (D) and the Utilisation (U) phases.

This product range is included in the category Energy consuming product (assumed lifetime service is 10 years and using scenario: 66.5W for 100% uptime).

The EIME (Environmental Impact and Management Explorer) software, version 4.0, and its database, version 10.0 were used for the life cycle assessment (LCA).

The calculation has been done on LON Power Supply LPS133 ref. MTN884019.

The electrical power model used is EUROPEAN model.



### Presentation of the product environmental impacts

Indicator	Unit	For 1 LON Power Supply LPS133 ref. MTN884019			
		S = M + D + U	M	D	U
Raw Material Depletion	Y-1	3.2775E-13	2.6135E-13	9.1655E-18	6.6394E-14
Energy Depletion	MJ	5.9812E4	4.7654E2	6.513	5.9329E4
Water Depletion	dm3	9.5341E3	3.5819E2	1.7	9.1742E3
Global Warming Potential	g ~CO2	3.064E6	3.2155E4	3.1544E2	3.0315E6
Ozone Depletion	g ~CFC-11	2.7133E-1	1.0298E-2	1.7975E-4	2.6085E-1
Photochemical Ozone Creation	m3	5.8818E8	3.9849E6	6.1988E4	5.8413E8
Air Acidification	g ~C2H4	1.0584E3	6.133	2.3056E-1	1.0521E3
Hazardous Waste Production	g ~H+	4.8272E2	2.9	4.429E-2	4.7978E2
Water Eutrophication	dm3	7.4047E5	3.4536E3	49.639	7.3697E5
Air toxicity	g ~PO4	9.556	8.8531E-1	1.2782E-2	8.658
Water toxicity	kg	48.72	4.0523E-1	8.5924E-5	48.315

The life cycle analysis shows that the USE phase (M, D or U phase) is the life cycle phase which has the greatest impact on the majority of environmental indicators. The environmental parameters of this phase have been optimized at the design stage.

The product benefits from previous versions is that it is a new device built with state of the art electronics components, reduced size and design which allows to reduce device impact on environment.

The environmental impacts variability between the upper part and the lower part of the range was not applicable. Values given above are only valid within the context specified. They can not be used directly to compile the environmental report on the installation.

# Product Environmental Profile – PEP

## System approach

The LON Power Supply LPS133 can reduce impacts onto environment, because by its utilization, LON network for control of building functions and processes can be powered and significant savings in electrical energy consumption within whole building achieved.

As the products of the range are designed in accordance with the RoHS Directive (European Directive 2002/95/EC of 27 January 2003), they can be incorporated without any restriction within an assembly or an installation submitted to this Directive.

Please note that the environmental impacts of the product depend on the use and installation conditions of the product. Impacts values given above are only valid within the context specified and cannot be directly used to draw up the environmental assessment of the installation.

## Glossary

Raw Material Depletion (RMD)	This indicator quantifies the consumption of raw materials during the life cycle of the product. It is expressed as the fraction of natural resources that disappear each year, with respect to all the annual reserves of the material.
Energy Depletion (ED)	This indicator gives the quantity of energy consumed, whether it be from fossil, hydroelectric, nuclear or other sources. This indicator takes into account the energy from the material produced during combustion. It is expressed in MJ.
Water Depletion (WD)	This indicator calculates the volume of water consumed, including drinking water and water from industrial sources. It is expressed in m <sup>3</sup> .
Global Warming Potential (GWP)	The global warming of the planet is the result of the increase in the greenhouse effect due to the sunlight reflected by the earth's surface being absorbed by certain gases known as "greenhouse-effect" gases. The effect is quantified in gram equivalent of CO <sub>2</sub> .
Ozone Depletion (OD)	This indicator defines the contribution to the phenomenon of the disappearance of the stratospheric ozone layer due to the emission of certain specific gases. The effect is expressed in gram equivalent of CFC-11.
Photochemical Ozone Creation (POC)	This indicator quantifies the contribution to the "smog" phenomenon (the photochemical oxidation of certain gases which generates ozone) and is expressed in gram equivalent of methane (C <sub>2</sub> H <sub>4</sub> ).
Air Acidification (AA)	The acid substances present in the atmosphere are carried by rain. A high level of acidity in the rain can cause damage to forests. The contribution of acidification is calculated using the acidification potentials of the substances concerned and is expressed in mode equivalent of H <sup>+</sup> .
Hazardous Waste Production (HWP)	This indicator gives the quantity of waste, produced along the life cycle of the product (manufacturing, distribution, use, including production of energy), that requires special treatments. It is expressed in kg.



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ENVPEP100703EN\_V0

This document is complying with ISO14020 which relates to the general principles of environmental declarations and to the ISO 14025 relating to life-cycle environmental declarations.

- PEP certificate number by Schneider Electric: ENVPEP100703EN\_V0

- Publication date: 07 / 2010

- The version of the Guide used to create the document: Product Environmental Profiles Drafting Guide version V12

- Schneider Electric: [www.schneider-electric.com](http://www.schneider-electric.com)