Product Environmental Profile

Motor management system : Control unit LTM CU

PEP ecoPASSPORT®

Schneider Electric

Profil Environnemental Produit - PEP

Product Overview

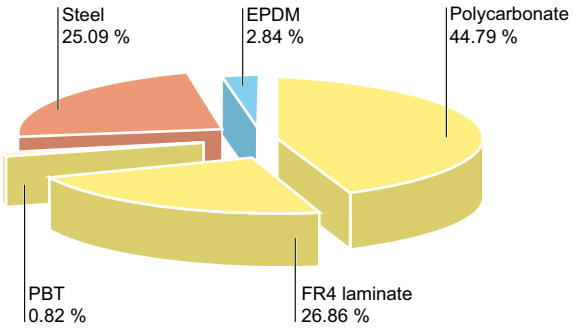
The TeSys T product range is a motor management system performing protection, measurement and supervision functions for single-phase and three-phase AC motors at constant speed.
LTM CU is an operator control unit intended to operate within the motor management system TeSys T range.
The Product Environmental Profile of the LTM R motor management controller and the LTM EV extension module are considered in a specific document.
The Product Environmental Profile (PEP) covers the entire range:

- Configure the parameters of the LTM R controller
- Display information on controller configuration and operation
- Monitor the alarms and faults generated by the controller
- Locally control of the motor

The environmental analysis was performed in conformity with ISO 14040 “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 analysed LTM CU is 210g without packaging.
The constituent materials are distributed as follows:



Substance assessment

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 (polybromobiphenyles PBB, polybromodiphenylthers PBDE) as mentioned in the Directive.

Manufacturing

The LTM CU is manufactured at a production site which complies with the regulations governing industrial sites.

Distribution

The packing was designed in order to reduce its weight and volume, in compliance with the European Union’s packaging directive, 94/62/EC.
The weight of the packing of the LTM CU is 63.42 g. It is constituted of recyclable cardboard (63.12 g) and of an adhesive paper label of 0,3 g.
The product distribution flows have been optimised by setting up local distribution centres close to the market areas.
The impact of transporting the products is included in the environmental analysis.

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Utilization

The LTMCU operator control unit does not generate environmental pollution requiring special precautionary measures (noise, emissions, and so on).
The maximum electrical power consumed by the referred product is 1 W. As an example, when controlling a 11 kW motor the LTMCU consumed power represents less than 1 over 10000 of the total power of the motor.

End of life

At end of life, the LTM CU can be else crushed or dismantled in order to better validate the various constitutive.
The recycling potential is more than 70 %. This percentage includes the metallic materials conforming to the RoHS Directive and the marked plastics materials.
The LTM CU includes also a PCB's card, with its components, which can easily be dismantled in order to be sent to specific treatment channel.
The weight of this part is lower than 30 % of the total weight of the product.

Environmental impacts

TThe EIME (Environmental Impact and Management Explorer) software, version 2.6 and its database, version 6 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 70 % and the electrical power model used is the electricity Europe model.
The scope of the analysis is the LTM CU.
The environmental impacts were analysed for the Manufacturing (M) phase, including the processing of raw materials, and for the Distribution (D) and Utilization (U) phases.

Presentation of product environmental impacts

Environmental indicators	Unit	For a LTM CU operator control unit			
		S = M + D + U	**M**	**D**	**U**
Raw Material Depletion	**Y-1**	**$3.578\ 10^{-15}$**	$3.578\ 10^{-15}$	$1.459\ 10^{-19}$	$1.34\ 10^{-16}$
Energy Depletion	**MJ**	**8.13**	8.023	$1.076\ 10^{-1}$	$7.874\ 10^{2}$
Water depletion	**dm^3**	**2.198**	2.193	$4.553\ 10^{-3}$	$1.87\ 10^{2}$
Global Warming Potential	**g≈CO_2**	**$5.046\ 10^{2}$**	$4.961\ 10^{2}$	8.491	$7.08\ 10^{5}$
Ozone Depletion	**g≈CFC-11**	**$7.105\ 10^{-5}$**	$6.853\ 10^{-5}$	$2.516\ 10^{-6}$	$1.121\ 10^{-3}$
Photochemical Ozone Creation	**g≈C_2H_4**	**$2.069\ 10^{-1}$**	$1.985\ 10^{-1}$	$8.389\ 10^{-3}$	$2.87\ 10^{1}$
Air acidification	**g≈H^+**	**$9.284\ 10^{-2}$**	$9.064\ 10^{-2}$	$2.198\ 10^{-3}$	$1.27\ 10^{1}$
Hazardous waste production	**kg**	**$6.249\ 10^{-3}$**	$6.248\ 10^{-3}$	$1.419\ 10^{-6}$	$1.34\ 10^{1}$

The life cycle analysis shows that the Utilization (U) phase is the life cycle phase which has the greatest impact on the majority of environmental indicators. The environmental parameters of this phase were optimised at the design stage to reduce these environmental impacts.

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System approach

As the product 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.

N.B.: 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 dm^3.

Global Warming (GW)

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_2.

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 ethylene (C_2H_4).

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^+.

Hazardous Waste Production (HWP)

This indicator calculates the quantity of specially treated waste created during all the life cycle phases (manufacturing, distribution and utilization). For example, special industrial waste in the manufacturing phase, waste associated with the production of electrical power, etc.
It is expressed in kg.

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