Modicon M340
Automation platform

RoHS program
leadfree electronics

Product Environmental Profile

70 % lighter
25 % more economical
With an 80 % recycling rate

Telemecanique

Product Environmental Profile - PEP

Product overview

The Modicon M340 automation platform is the ideal solution for manufacturers of machines for applications such as secondary packaging, handling, textiles, printing, agro-food, wood-working, ceramics, etc.

Altivar and Lexium variable speed drives, Magelis display units and Preventa safety modules have been particularly extensively integrated in the platform to simplify the implementation and operation of Telemecanique solutions.

The Modicon M340 automation platform is also ideal for use with Modicon Premium and Modicon Quantum to meet the automation requirements of the industrial processes and infrastructures central to the Transparent Ready architectures.

An M340 automation platform configuration uses the following product families: Rack, Power supply, Central processing unit, Communication, Input/Output, Analogue, Metering.

The representative configuration selected consists of the following modules:

- *1 BMX XBP0800*
- *1 BMX CPS 2000*
- *1 BMX P342020*
- *1 BMX DDI 3202 K*
- *2 BMX DDM 3202 K*
- *1 BMX AMI 0410*
- *1 BMX NOE 0100*

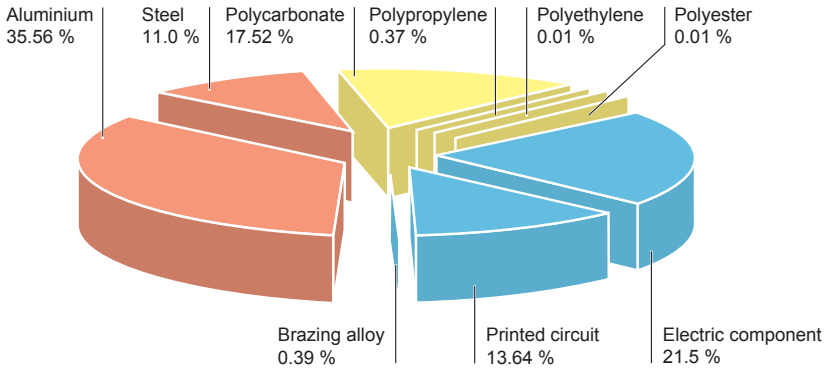
The environmental impacts of this referenced configuration are representative of the impacts of the other possible configurations for which the same technology is used.

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 configuration analysed for the Modicon M340 automation platform is 2020 g, not including the packaging.
The constituent materials are distributed as follows:



All necessary steps have been taken with our services, suppliers and subcontractors to ensure that the materials used in the composition of the Modicon M340 automation platform do not contain any substances prohibited by the legislation that was in force(1) when it was put on the market.

The products in the range are designed in compliance with the requirements of the RoHS directive (2002/95/EC of 27 January 2003) and do not contain levels of lead, mercury, cadmium, hexavalent chromium or flame retardants (polybrominated biphenyls PBB, polybrominated diphenyl ethers PBDE) above the permissible thresholds mentioned in the directive.

(1) *according to the list available on request.*

Manufacturing

The Modicon M340 automation platform product range is manufactured at a Schneider Electric production site on which an ISO 14001 certified environmental management system has been established.

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Distribution

The weight and volume of the packaging have been reduced in compliance with the European Union's packaging directive.
The weight of the packaging of the Modicon M340 automation platform product configuration analysed is 435.83 g. This packaging consists mainly of cardboard and paper, which are 100 % recyclable.
The product distribution flows have been optimised by setting up local distribution centres close to the market areas.

Utilization

The products in the Modicon M340 automation platform range do not generate any environmental pollution requiring special precautionary measures (noise, emissions, etc.).
The dissipated power depends on the conditions under which the product is implemented and used.
The power consumption of the Modicon M340 automation platform referenced is 21.6 W maximum.

End of life

At end of life, the products in the Modicon M340 automation platform range can either be crushed or dismantled to facilitate the recovery of the various constituent materials.
The recycling potential is more than 79 %. This percentage mainly includes the aluminium used for the rack, the shielding plates and the non-filled plastic material of the housings.
The end of life data appears on the product end-of-life sheet.

Environmental impacts

The EIME (Environmental Impact and Management Explorer) software, version 1.6, and its database, version 5.4, were used for the Life Cycle Assessment.

The assumed service life of the product is 10 years, the utilisation rate of the installation is 34 % and the European electrical power model is used.

The analysis focused on the reference Modicon M340 automation platform.

The environmental impacts were analysed for the Manufacturing (M) phase, including the processing of raw materials, and for the Distribution (D) and Utilisation (U) phases.

Presentation of product environmental impacts

Environmental impacts	Unit	For the configuration of the selected Modicon M340 automation platform			
		S = M + D + U	M	D	U
Depletion of natural resources	Y-1	$1.06\ 10^{-13}$	95 %	0 %	5 %
Water depletion	dm^3	$5.09\ 10^{3}$	82 %	0 %	17 %
Contribution to the greenhouse effect	g≈CO_2	$8.97\ 10^{5}$	53 %	0 %	46 %
Destruction of the ozone layer	g≈CFC-11	$1.67\ 10^{-1}$	54 %	0 %	45 %
Atmospheric ozone creation	g≈C_2H_4	$6.96\ 10^{2}$	57 %	1 %	43 %
Air acidification	g≈H^+	$2.00\ 10^{2}$	56 %	8 %	36 %
Hazardous waste production	kg	$1.46\ 10^{1}$	58 %	0 %	42 %

The life cycle analysis showed that the Manufacturing phase (phase M) has the greatest impact on most of the environmental indicators and the environmental parameters of this phase were optimised at the design stage.
The product benefits from a number of improvements with respect to its mass, its consumption and the choice of materials, which has made it possible to reduce its impact on the environment.

Objective	Benefits of Eco-design
Lower product weight	70 %
Lower packaging weight	60 %
Lower energy consumption	25 %
Improved recycling rate	20 %

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System approach

As the products in the range were designed in conformity with the RoHS directive (2002/95/EC of 27 January 2003), they can be integrated unrestrictedly in a device or installation directly governed by these regulations.

N.B.: the environmental impacts of the product depend on the conditions under which it is installed and used.
The environmental impact values listed in the above table are only valid within the specified context and cannot be used directly in the environmental report on 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.

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 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_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 methane (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.

We are committed to safeguarding our planet by "Combining innovation and continuous improvement to meet the new environmental challenges".

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