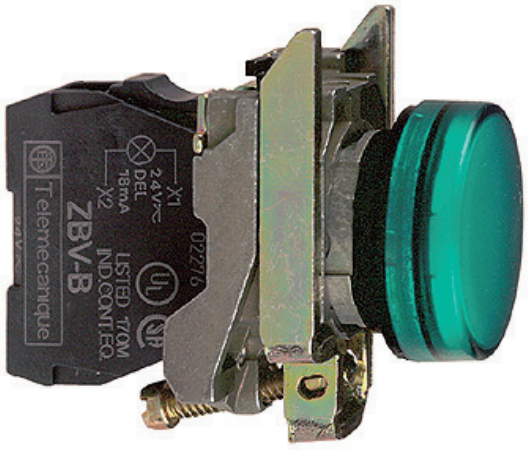
Product Environmental Profile

Harmony XB4-BVB#
LED pilot light
Metal Ø 22 mm



PEP ecoPASSPORT®

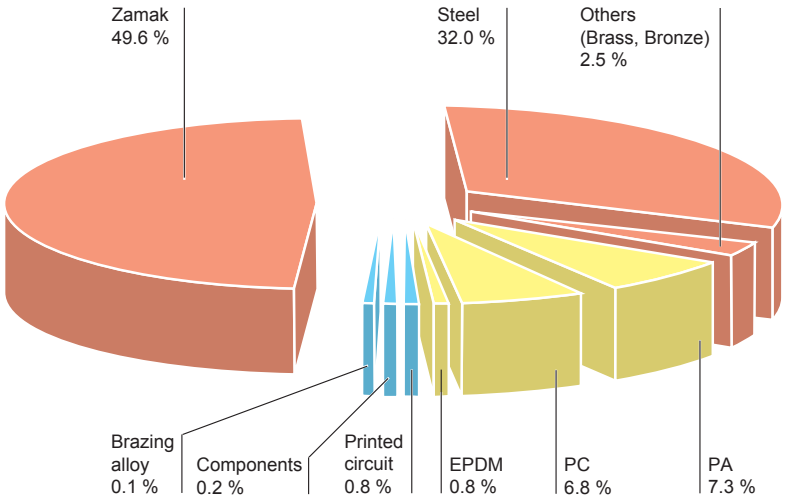
Schneider Electric

Product Overview

The main purpose of the Harmony XB4 Ø 22 product range is man-machine communication. It offers indicator light or contact functions and is divided into pilot lights or control units designed to ensure the safety of persons, machines or work in progress.
The XB4 pilot lights consist of metal products for base lamps or LEDs, with or without pulsed or rotary actuators.
The representative product used for the analysis of the pilot lights without actuators is the XB4-BVB# LED pilot light, where "#" represents the product colour code.
The environmental impacts of this referenced product are representative of the impacts of the other products in the range 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 products in the range is from 64 g to 152 g, packaging not included. It is 64.5 g for the XB4-BVB# analysed.
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 Harmony XB4 Ø 22 product range is manufactured at a Schneider Electric production site on which an ISO 14001 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 weight of the packaging of the XB4-BVB# is 7.7 g.
It is made of 100 % recyclable cardboard.
The product distribution flows have been optimised by setting up local distribution centres close to the market areas.

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Use

The products in the Harmony XB4 Ø 22 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 XB4-BVB# referenced is 432 mW in active mode.
This low consumption ensures that the environmental impact of the product is negligible when it is in use.

End of life

At end of life, the products in the Harmony XB4 Ø 22 range can either be shredded to facilitate the recovery of the various constituent materials.
The recycling potential is more than 91 %.
This percentage includes metals such as steel and zamak as well as plastics such as polycarbonate.
In addition, the recovery potential of the product is greater than 99 %.

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 analysis focused on the XB4-BVB#.

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

Presentation of the environmental impacts

Environmental indicators	Unit	For 1 XB4-BVB# LED pilot light		
		F + D	F	D
Depletion of natural resources	**Y-1**	**$3.49\ 10^{-15}$**	$3.48\ 10^{-15}$	$1.61\ 10^{-18}$
Water depletion	**dm^3**	**7.27**	6.88	$3.88\ 10^{-1}$
Global Warming	**g≈CO_2**	**$5.38\ 10^{2}$**	$4.39\ 10^{2}$	99.2
Ozone Depletion	**g≈CFC-11**	**$1.24\ 10^{-4}$**	$1.04\ 10^{-4}$	$2.06\ 10^{-5}$
Photochemical Ozone Creation	**g≈C_2H_4**	**$6.76\ 10^{-1}$**	$5.06\ 10^{-1}$	$1.70\ 10^{-1}$
Air acidification	**g≈H^+**	**$9.67\ 10^{-1}$**	$9.53\ 10^{-1}$	$1.42\ 10^{-2}$
Hazardous waste production	**kg**	**$2.98\ 10^{-3}$**	$2.97\ 10^{-3}$	$1.55\ 10^{-5}$

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.

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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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