# Product Environmental Profile

## Harmony XVC
## Monolithic indicator banks

PEP ecoPASSPORT®

Schneider Electric

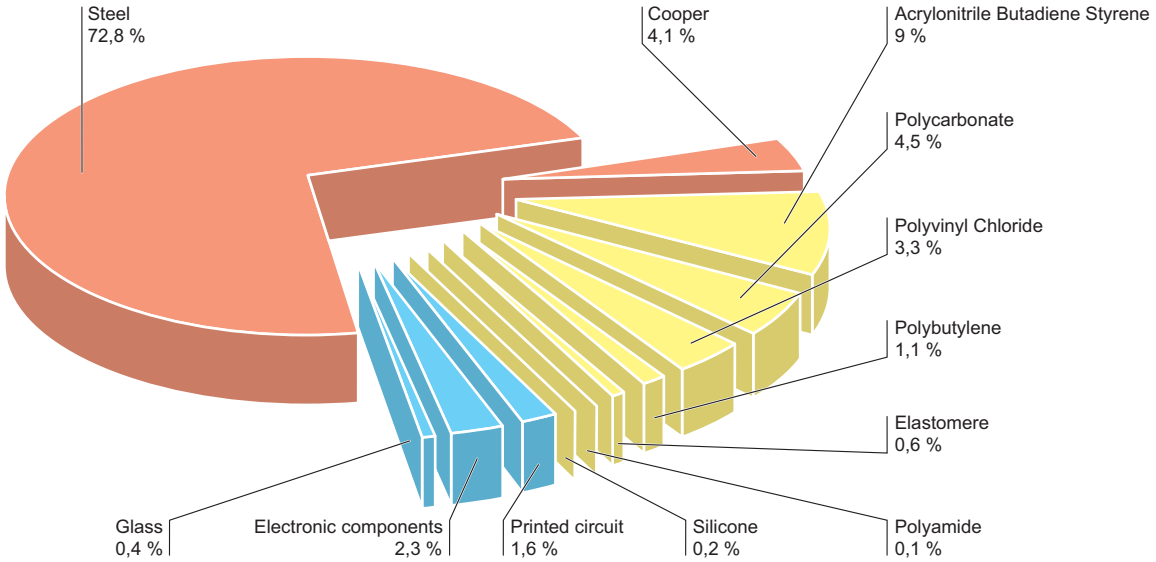
# Product Environmental Profile - PEP

## Product overview

With a wide variety of models, audible warning indicators, illuminated effects and fixing system, the Harmony XVC range meets all remote indication requirements.
For greater simplicity and effectiveness, the illuminated indicator banks are supplied preassembled and prewired with IP54 protection.
The Harmony XVC range is based on an energy-saving design offering low electricity consumption. Due its high resistance to mechanical impacts and vibrations, LED technology can provide 100000 maintenance-free hours of light.
The Harmony XVC range becomes an integral part of our “Solutions” in various fields: Agri-food, medical devices, electronics, leisure activities, process control, machine tools, and so on.
This range consists of 15 models which differ mainly by their diameter: Ø40, Ø60, Ø100 mm, the type of mounting device and the number of illuminated modules.
The representative product used for the analysis is the Harmony XVC4B35S. 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 100 g to 680 g, not including the packaging. It is 683 g for the Harmony XVC4B35S 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 XVC 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 Harmony XVC4B35S is 118.5 g.
It is made of recyclable materials: cardboard (95 g), paper (14 g) and Polyethylene (9.5 g).

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

## Use

The products in the Harmony XVC 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 consumed by the "Harmony XVC" range is between 0.96 W and 13.02 W in active mode and 0.96 W in standby mode for the Harmony XVC4B35S referenced.

## End of life

At end of life, the products in the Harmony XVC range can either be dismantled or crushed to facilitate the recovery of the various constituent materials.

The recycling potential of the Harmony XVC range is between 60 % and 87 %, according to the models. This percentage is mainly due to the use of metals and non-filled plastics (ABS and PC).

The end of life data appears on the product end-of-life sheet.

## Environmental impacts

The EIME (Environmental Impact and Management Explorer) software, version 4, and its database, version 10, were used for the Life Cycle Assessment (LCA).

The assumed service life of the product is 10 years, the utilisation rate of the installation is 82 % and the European electrical power model is used.

The analysis focused on a Harmony XVC4B35S.

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:**

| Indicator | Unit | For a Harmony XVC4B35S | | | |
|---|---|---|---|---|---|
| | | S = F + D + U | F | D | U |
| **Depletion of natural resources** | **Y-1** | **3.80 $10^{-14}$** | 91.2 % | 0.0 % | 8.8 % |
| **Water depletion** | **$dm^3$** | **5.10 $10^{2}$** | 8.9 % | 0.5 % | 90.5 % |
| **Contribution to the greenhouse effect** | **g≈$CO_2$** | **1.56 $10^{5}$** | 2.3 % | 0.1 % | 97.6 % |
| **Contribution to the destruction of the ozone layer** | **g≈CFC-11** | **1.37 $10^{-2}$** | 4.3 % | 0.2 % | 95.5 % |
| **Atmospheric ozone creation** | **g≈$C_2H_4$** | **5.40 $10^{1}$** | 1.8 % | 0.1 % | 98.1 % |
| **Air acidification** | **g≈$H^+$** | **2.48 $10^{1}$** | 2.5 % | 0.1 % | 97.4 % |
| **Hazardous waste production** | **kg** | **2.47** | 1.4% | 0.0 % | 98.6 % |

The life cycle analysis showed that the Utilization phase has the greatest impact on most of the environmental indicators; 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 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 ethene ($C_2H_4$).

**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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