Product Environmental Profile

PFXGP46 Series

Pro-face by Schneider Electric
Product overview
The main purpose of the PFXGP46 Series is to make available Graphic Operator Interface. This range consists of: products having the similar product functionality and structure.
The representative product used for the analysis PFXGP4601TADC.
The environmental impacts of this referenced product are representative of the impacts of the other products of the range, which are developed with a similar technology.
The environmental analysis was performed in conformity with ISO 14040.

Constituent materials
The mass of the product range is from under 3,447g including packaging. It is 3,408g for the PFXGP4601TADC.
The constituent materials are distributed as follows:

![Pie chart showing constituent materials]

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 only contain in the authorised proportions, lead, mercury, cadmium, hexavalent chromium or flame retardants (polybrominated biphenyls - PBB, polybrominated diphenyl ethers - PBDE) as mentioned in the Directive

Manufacturing
The PFXGP46Series product range is manufactured at a Schneider Electric production site on which an ISO14001 certified environmental management system has been established.

Distribution
The weight and volume of the packaging have been optimized, based on the European Union’s packaging directive.
The PFXGP46Series packaging weight is 947 g. It consists of cardboard, antistatic bag, install fastener, manual, power supply connector and USB clip.
The weight of recycled materials used is 90% of total packaging mass.
The product distribution flows have been optimised by setting up local distribution centres close to the market areas.
Use

The products of the PFXGP46Series range do not generate environmental pollution (noise, emissions) requiring special precautionary measures in standard use. The electrical power consumption depends on the conditions under which the product is implemented and used. The electrical power consumed by the PFXGP46Series range is under 17W. It is 13.6W in active mode for the referenced PFXGP4601TADC.

Product’s parts lifetime is the below:
- A Backlight Service Life:
  - 50,000 hrs. or more (continuous operation at 25°C [77 °F] before backlight brightness decreases to 50%)
- Touch Panel Service Life:
  - 1,000,000 times or more

End of life

At end of life, the products in the PFXGP46Series have been optimized to decrease the amount of waste and allow recovery of the product components and materials. This product range contains a removable a lithium battery, PCB that should be separated from the stream of waste so as to optimize end-of-life treatment by special treatments. The location of these components and other recommendations are given in the End of Life Instruction document which is available for this product range.

The recyclability potential of the products has been evaluated using the “Codde- BV recyclability and recoverability calculation method” (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME).

According to this method, the potential recyclability ratio is: 41%.

As described in the recyclability calculation method this ratio includes only metals and plastics which have proven industrial recycling processes.

Environmental impacts

Life cycle assessment has been performed on the following life cycle phases: Materials and Manufacturing (M), Distribution (D), Installation (I), Use (U), and End of life (E).

Modeling hypothesis and method:
- the calculation was performed on the PFXGP4601TADC.
- product packaging: is included
- installation components: no special components included.
- scenario for the Use phase: this product range is included in the category Energy consuming product: (assumed service life is 10 years and use scenario is: the consumed power 13.6W and 100% service uptime (based on the real using data).

The electrical power model used for calculation is European model.

End of life impacts are based on a worst case transport distance to the recycling plant (1000km)

Presentation of the product environmental impacts
Product Environmental Profile - PEP

<table>
<thead>
<tr>
<th>Environmental indicators</th>
<th>Unit</th>
<th>S = M + D + I + U + E</th>
<th>M</th>
<th>D</th>
<th>I</th>
<th>U</th>
<th>E</th>
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<tbody>
<tr>
<td>Raw Material Depletion</td>
<td>Y-1</td>
<td>4.15E-12</td>
<td>4.13E-12</td>
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<td>Global Warming</td>
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<td>g-CFC-11</td>
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Life cycle assessment has been performed with the EIME software (Environmental Impact and Management Explorer), version 4.1, and with its database version V11

System approach

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 in an assembly or an installation subject to this Directive.

Please note that the values given above are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an 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.

**Air Toxicity (AT)**
This indicator represents the air toxicity in a human environment. It takes into account the usually accepted concentrations for several gases in the air and the quantity of gas released over the life cycle. The indication given corresponds to the air volume needed to dilute these gases down to acceptable concentrations.

**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$_2$H$_4$).

**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$^+$.

**Water Toxicity (WT)**
This indicator represents the water toxicity. It takes into account the usually accepted concentrations for several substances in water and the quantity of substances released over the life cycle. The indication given corresponds to the water volume needed to dilute these substances down to acceptable concentrations.

**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.

*Please note that the values given above are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an installation.*

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The elements of the present PEP cannot be compared with elements from another program.