Product Environmental Profile

Modicon STB IP20 distributed inputs/outputs and power modules
**General information**

**Representative product**
Modicon STB IP20 distributed inputs/outputs -STBACI1400K

**Description of the product**
Modicon STB IP20 distributed inputs/outputs to monitor and control industrial automation process

**Description of the range**
Modicon STB IP20 distributed inputs/outputs and power modules

**Functional unit**
To monitor and control industrial automation process during 10 years 100% of the time

**Constituent materials**

**Reference product mass**
140 g including the product, its packaging and additional elements and accessories

- Polyethersulfone (PES) - 1.7%
- Epoxy resin - 5%
- Polyamide resin 6.6 (PA 6.6) - 18.9%
- Polycarbonate (PC) - 33.9%
- Polyester resin - 0.3%
- Copper - 9%
- Stainless steel with chrome - 0.9%
- Brass - 0.5%
- Nickel - 0.2%
- Tin - 0.2%
- Magnesium - 0.1%
- Cardboard - 16.9%
- Glass fibre - 9.9%
- Quartz sand - 1.2%
- Various - 0.7%
- Tetrabromobisphenol A - 0.6%

**Substance assessment**

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2011/65/EU of 8 June 2011) 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.

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.

### Additional environmental information

**The Modicon STB IP20 distributed inputs/outputs presents the following relevant environmental aspects**

#### Design
- Products are designed to be “Green Premium”

#### Manufacturing
- Manufactured at a Schneider Electric production site ISO14001 certified

#### Distribution
- Weight and volume of the packaging optimized, based on the European Union's packaging directive
- Product distribution optimised by setting up local distribution centers

#### Installation
- Does not require any special installation operations

#### Use
- The product does not require special maintenance operations.

#### End of life
- End of life optimized to decrease the amount of waste and allow recovery of the product components and materials
- This product contains Electronic cards, 25.4g
- Plastic housing assembly, 39.0g
- Plastic base assembly, 20.7g that should be separated from the stream of waste so as to optimize end-of-life treatment.

The location of these components and other recommendations are given in the End of Life Instruction document which is available on the Schneider-Electric Green Premium website


### Environmental impacts

#### Reference life time
- 10 years

#### Product category
- Active products

#### Installation elements
- No special components needed

#### Use scenario
- Consumed power is 2 W 100 % of the time in Active mode, 0 W 0 % of the time in Standby mode, 0 W 0 % of the time in Sleep mode and 0 W 0 % of the time in Off mode.

#### Geographical representativeness
- Europe

#### Technological representativeness
- Modicon STB IP20 distributed inputs/outputs to monitor and control industrial automation process

#### Energy model used
- Energy model used: Indonesia
- Electricity Mix; AC; consumption mix, at consumer; < 1kV; EU-27
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- Electricity Mix; AC; consumption mix, at consumer; < 1kV; EU-27

### Compulsory indicators

<table>
<thead>
<tr>
<th>Impact indicators</th>
<th>Unit</th>
<th>Total</th>
<th>Manufacturing</th>
<th>Distribution</th>
<th>Installation</th>
<th>Use</th>
<th>End of Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to mineral resources depletion</td>
<td>kg Sb eq</td>
<td>8.36E-04</td>
<td>8.31E-04</td>
<td>0*</td>
<td>0*</td>
<td>4.71E-06</td>
<td>0*</td>
</tr>
<tr>
<td>Contribution to the soil and water acidification</td>
<td>kg SO₂ eq</td>
<td>7.95E-01</td>
<td>1.29E-02</td>
<td>8.25E-05</td>
<td>0*</td>
<td>7.82E-01</td>
<td>0*</td>
</tr>
<tr>
<td>Contribution to water eutrophication</td>
<td>kg PO₄³⁻ eq</td>
<td>3.27E-02</td>
<td>3.36E-03</td>
<td>1.90E-05</td>
<td>0*</td>
<td>2.93E-02</td>
<td>1.63E-05</td>
</tr>
<tr>
<td>Contribution to global warming</td>
<td>kg CO₂ eq</td>
<td>1.11E+02</td>
<td>7.30E+00</td>
<td>1.81E-02</td>
<td>0*</td>
<td>1.03E+02</td>
<td>4.17E-02</td>
</tr>
<tr>
<td>Contribution to ozone layer depletion</td>
<td>kg CFC11 eq</td>
<td>2.56E-05</td>
<td>5.04E-07</td>
<td>0*</td>
<td>0*</td>
<td>2.51E-05</td>
<td>0*</td>
</tr>
<tr>
<td>Contribution to photochemical oxidation</td>
<td>kg C₂H₆ eq</td>
<td>3.82E-02</td>
<td>1.18E-03</td>
<td>5.89E-06</td>
<td>0*</td>
<td>3.70E-02</td>
<td>4.15E-06</td>
</tr>
</tbody>
</table>
### Resources use

<table>
<thead>
<tr>
<th>Resources use</th>
<th>Unit</th>
<th>Total</th>
<th>Manufacturing</th>
<th>Distribution</th>
<th>Installation</th>
<th>Use</th>
<th>End of Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net use of freshwater</td>
<td>m³</td>
<td>3.00E-01</td>
<td>2.99E-02</td>
<td>0*</td>
<td>0*</td>
<td>2.70E-01</td>
<td>0*</td>
</tr>
<tr>
<td>Total Primary Energy</td>
<td>MJ</td>
<td>2.20E+03</td>
<td>1.02E+02</td>
<td>2.55E-01</td>
<td>0*</td>
<td>2.10E+03</td>
<td>2.29E-01</td>
</tr>
</tbody>
</table>

### Impact indicators

**Optional indicators**

- **Modicon STB IP20 distributed inputs/outputs - STBAC1400K**

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<tr>
<th>Impact indicators</th>
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<th>End of Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to fossil resources depletion</td>
<td>MJ</td>
<td>1.16E+03</td>
<td>9.05E+01</td>
<td>2.54E-01</td>
<td>0*</td>
<td>1.07E+03</td>
<td>1.90E-01</td>
</tr>
<tr>
<td>Contribution to air pollution</td>
<td>m³</td>
<td>4.90E+03</td>
<td>4.63E+02</td>
<td>7.68E-01</td>
<td>0*</td>
<td>4.44E+03</td>
<td>1.45E+00</td>
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<tr>
<td>Contribution to water pollution</td>
<td>m³</td>
<td>5.44E+03</td>
<td>1.09E+03</td>
<td>2.97E+00</td>
<td>0*</td>
<td>4.34E+03</td>
<td>2.34E+00</td>
</tr>
</tbody>
</table>

### Resources use

<table>
<thead>
<tr>
<th>Resources use</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Use of secondary material</td>
<td>kg</td>
<td>1.37E-03</td>
<td>1.37E-03</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
</tr>
<tr>
<td>Total use of renewable primary energy resources</td>
<td>MJ</td>
<td>1.52E+02</td>
<td>1.68E+00</td>
<td>0*</td>
<td>0*</td>
<td>1.50E+02</td>
<td>0*</td>
</tr>
<tr>
<td>Total use of non-renewable primary energy resources</td>
<td>MJ</td>
<td>2.05E+03</td>
<td>1.00E+02</td>
<td>2.55E-01</td>
<td>0*</td>
<td>1.95E+03</td>
<td>2.29E-01</td>
</tr>
<tr>
<td>Use of renewable primary energy excluding renewable primary energy used as raw material</td>
<td>MJ</td>
<td>1.51E+02</td>
<td>1.20E+00</td>
<td>0*</td>
<td>0*</td>
<td>1.50E+02</td>
<td>0*</td>
</tr>
<tr>
<td>Use of renewable primary energy resources used as raw material</td>
<td>MJ</td>
<td>4.82E-01</td>
<td>4.82E-01</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
</tr>
<tr>
<td>Use of non renewable primary energy excluding non renewable primary energy used as raw material</td>
<td>MJ</td>
<td>2.04E+03</td>
<td>9.74E+01</td>
<td>2.55E-01</td>
<td>0*</td>
<td>1.95E+03</td>
<td>2.29E-01</td>
</tr>
<tr>
<td>Use of non renewable primary energy resources used as raw material</td>
<td>MJ</td>
<td>2.91E+00</td>
<td>2.91E+00</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
</tr>
<tr>
<td>Use of non renewable secondary fuels</td>
<td>MJ</td>
<td>0.00E+00</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
</tr>
<tr>
<td>Use of renewable secondary fuels</td>
<td>MJ</td>
<td>0.00E+00</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
</tr>
</tbody>
</table>

### Waste categories

<table>
<thead>
<tr>
<th>Waste categories</th>
<th>Unit</th>
<th>Total</th>
<th>Manufacturing</th>
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<th>Use</th>
<th>End of Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous waste disposed</td>
<td>kg</td>
<td>3.97E+00</td>
<td>3.73E+00</td>
<td>0*</td>
<td>4.75E-02</td>
<td>0*</td>
<td>1.87E-01</td>
</tr>
<tr>
<td>Non hazardous waste disposed</td>
<td>kg</td>
<td>3.88E+02</td>
<td>1.54E+00</td>
<td>0*</td>
<td>0*</td>
<td>3.87E+02</td>
<td>0*</td>
</tr>
<tr>
<td>Radioactive waste disposed</td>
<td>kg</td>
<td>3.16E-01</td>
<td>4.42E-04</td>
<td>0*</td>
<td>0*</td>
<td>3.15E-01</td>
<td>0*</td>
</tr>
</tbody>
</table>

### Other environmental information

<table>
<thead>
<tr>
<th>Other environmental information</th>
<th>Unit</th>
<th>Total</th>
<th>Manufacturing</th>
<th>Distribution</th>
<th>Installation</th>
<th>Use</th>
<th>End of Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials for recycling</td>
<td>kg</td>
<td>7.99E-02</td>
<td>9.82E-03</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>7.01E-02</td>
</tr>
<tr>
<td>Components for reuse</td>
<td>kg</td>
<td>0.00E+00</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
</tr>
<tr>
<td>Materials for energy recovery</td>
<td>kg</td>
<td>1.09E-02</td>
<td>4.01E-04</td>
<td>0*</td>
<td>1.19E-03</td>
<td>0*</td>
<td>9.36E-03</td>
</tr>
<tr>
<td>Exported Energy</td>
<td>MJ</td>
<td>0.00E+00</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
</tr>
</tbody>
</table>

* represents less than 0.01% of the total life cycle of the reference flow

Life cycle assessment performed with EIME version EIME v5.5, database version 2015-04.
The use phase is the life cycle phase which has the greatest impact on the majority of environmental indicators (based on compulsory indicators).

According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range.

The mineral resources depletion of the product of the family maybe proportional extrapolated by mass of product. And the other environmental indicators of the range may be proportional extrapolated by power consumption of the product.

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.

Schneider Electric Industries SAS

35, rue Joseph Monier
CS 30323
F- 92506 Rueil Malmaison Cedex
RCS Nanterre 954 503 439
Capital social 896 313 776 €

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Published by Schneider Electric
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