

# Product Environmental Profile

## M172 Performance Logic Controller





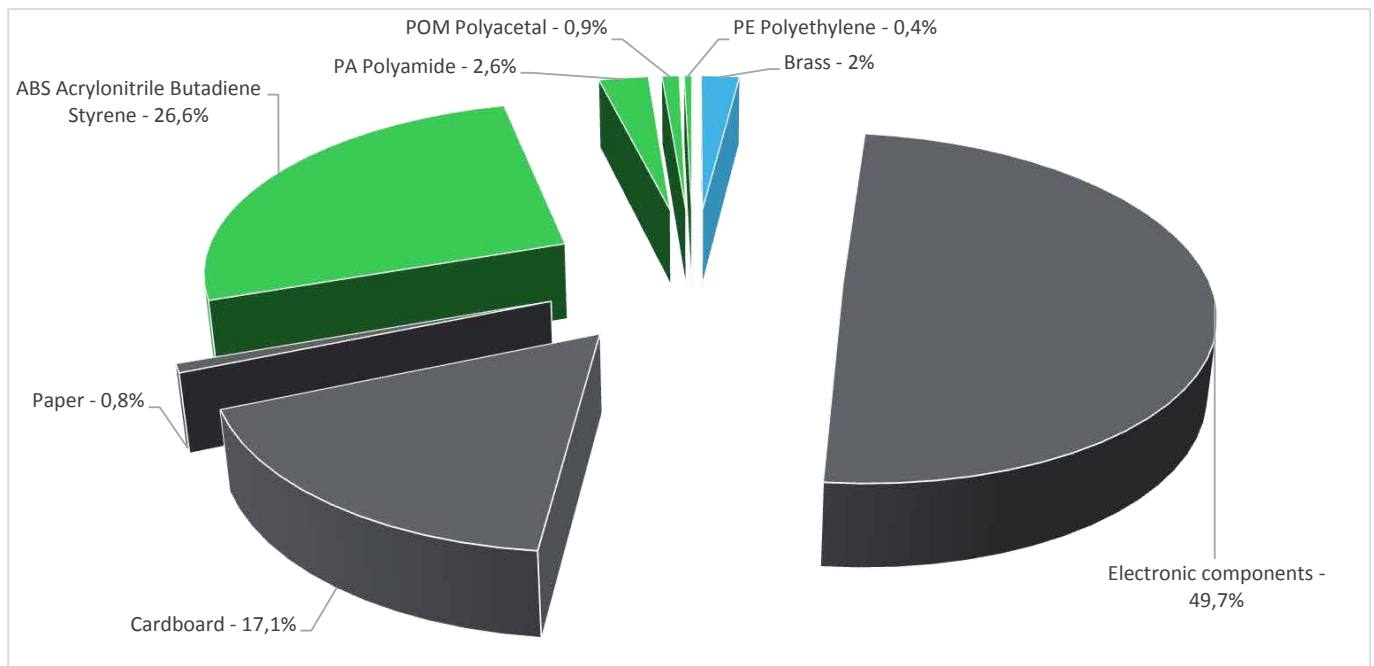
## General information

|                                   |   |
|-----------------------------------|---|
| <b>Representative product</b>     | M172 Performance Logic Controller - TM172PDG42S   |
| <b>Description of the product</b> | The TM172PDG42S is a Schneider Electric programmable controller with a built-in graphical user display, part of the range Modicon M171/M172, suitable for managing a wide range of HVAC, pumping and many other applications, from the simplex to the most complex. The reference is available as 8 DIN rail-mounted version, which saves time in terms of wiring. The 8 DIN format provides extra flexibility and easy installation. |
| <b>Description of the range</b>   | The Modicon M172P is a Schneider Electric range of programmable controller, suitable for managing a wide range of HVAC/R and many other applications, from the simplex to the most complex<br><br>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.  |
| <b>Functional unit</b>            | For managing a wide range of HVAC/R, pumping and many other applications and a 100% of the time for 10 years  |



## Constituent materials

|                               |   |
|-------------------------------|---|
| <b>Reference product mass</b> | 465,39 g including the product, its packaging and additional elements and accessories |
|-------------------------------|---|



|          |       |
|----------|-------|
| Plastics | 30,5% |
| Metals   | 2,0%  |
| Others   | 67,6% |



## 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.

Details of ROHS and REACH substances information are available on the Schneider-Electric Green Premium website <http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page>

## Additional environmental information

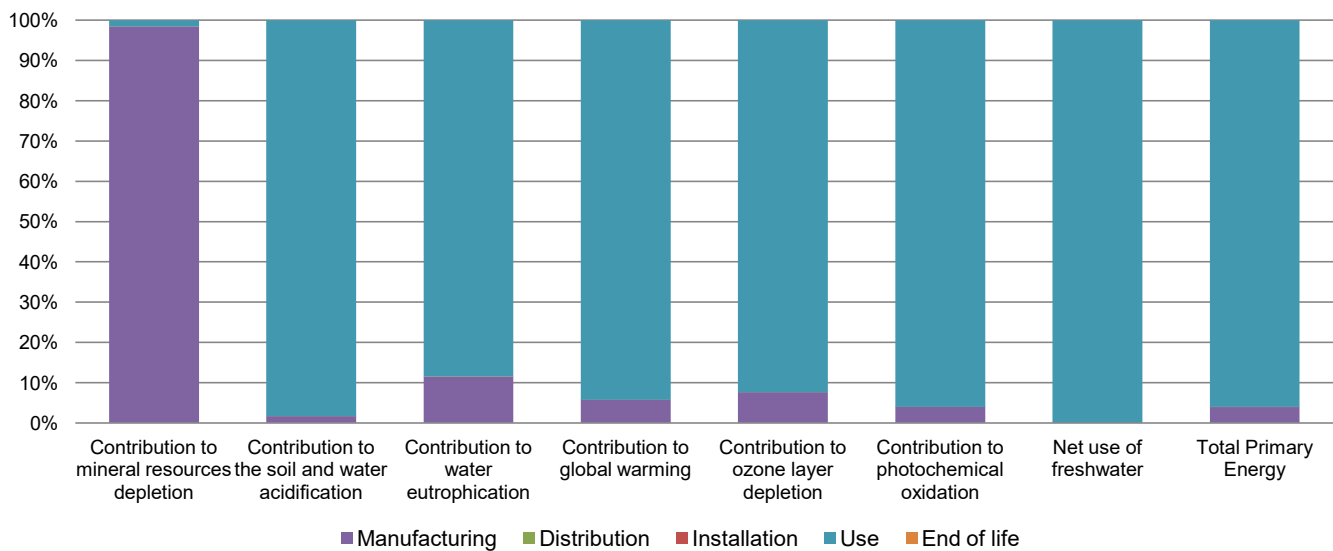
The M172 Performance Logic Controller presents the following relevant environmental aspects

|                      |  |
|----------------------|--|
| <b>Manufacturing</b> | Manufactured at a Schneider Electric production site ISO14001 certified  |
| <b>Distribution</b>  | Weight and volume of the packaging optimized, based on the European Union's packaging directive<br>Packaging weight is 82,2 g, consisting of cardboard(97%), paper(3%)<br><br>Product distribution optimised by setting up local distribution centres  |
| <b>Installation</b>  | The analysis does not include the installation phase   |
| <b>Use</b>           | The product does not require special maintenance operations.   |
| <b>End of life</b>   | End of life optimized to decrease the amount of waste and allow recovery of the product components and materials<br><br>This product contains Electronic cards(143g) and battery (2,5gr) that should be separated from the stream of waste so as to optimize end-of-life treatment.<br><br>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<br><br><a href="http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page">http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page</a><br><br>Recyclability potential: <b>11%</b> Based on "ECO'DEEE recyclability and recoverability calculation method" (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME). |

## Environmental impacts

|   |   |  |  |  |
|---|---|--|--|--|
| <b>Reference life time</b>              | 10 years  |  |  |  |
| <b>Product category</b>                 | Other equipments - Active product   |  |  |  |
| <b>Installation elements</b>            | No special components needed  |  |  |  |
| <b>Use scenario</b>                     | it is 15 W in active mode 100% of the time for the referenced TM172PDG42S   |  |  |  |
| <b>Geographical representativeness</b>  | Worldwide   |  |  |  |
| <b>Technological representativeness</b> | The TM172PDG42S is a Schneider Electric programmable controller with a built-in graphical user display, part of the range Modicon M171/M172, suitable for managing a wide range of HVAC, pumping and many other applications, from the simplex to the most complex. The reference is available as 8 DIN rail-mounted version, which saves time in terms of wiring. The 8 DIN format provides extra flexibility and easy installation. |  |  |  |
| <b>Energy model used</b>                | <b>Manufacturing</b>  | <b>Installation</b>  | <b>Use</b>   | <b>End of life</b>   |
|   | Energy model used: Italy  | Electricity grid mix; AC; consumption mix, at consumer; < 1kV; EU-27 | Electricity grid mix; AC; consumption mix, at consumer; < 1kV; EU-27 | Electricity grid mix; AC; consumption mix, at consumer; < 1kV; EU-27 |

| Compulsory indicators                            |                                     | M172 Performance Logic Controller - TM172PDG42S |               |              |              |          |             |
|--|-------------------------------------|---|---------------|--------------|--------------|----------|-------------|
| Impact indicators                                | Unit                                | Total   | Manufacturing | Distribution | Installation | Use      | End of Life |
| Contribution to mineral resources depletion      | kg Sb eq                            | 3,56E-03  | 3,50E-03      | 0*           | 0*           | 5,59E-05 | 0*          |
| Contribution to the soil and water acidification | kg SO <sub>2</sub> eq               | 2,73E+00  | 4,67E-02      | 2,74E-04     | 0*           | 2,69E+00 | 0*          |
| Contribution to water eutrophication             | kg PO <sub>4</sub> <sup>3-</sup> eq | 1,83E-01  | 2,11E-02      | 6,31E-05     | 0*           | 1,62E-01 | 1,14E-04    |
| Contribution to global warming                   | kg CO <sub>2</sub> eq               | 6,83E+02  | 3,91E+01      | 0*           | 0*           | 6,44E+02 | 3,69E-01    |
| Contribution to ozone layer depletion            | kg CFC11 eq                         | 4,54E-05  | 3,49E-06      | 0*           | 0*           | 4,19E-05 | 1,27E-08    |
| Contribution to photochemical oxidation          | kg C <sub>2</sub> H <sub>4</sub> eq | 1,54E-01  | 6,15E-03      | 1,96E-05     | 0*           | 1,48E-01 | 1,69E-05    |
| Resources use                                    | Unit                                | Total   | Manufacturing | Distribution | Installation | Use      | End of Life |
| Net use of freshwater                            | m3                                  | 2,33E+03  | 4,77E-01      | 0*           | 0*           | 2,33E+03 | 0*          |
| Total Primary Energy                             | MJ                                  | 1,34E+04  | 5,31E+02      | 0*           | 0*           | 1,29E+04 | 0*          |



| Optional indicators   |                | M172 Performance Logic Controller - TM172PDG42S |               |              |              |          |             |
|---|----------------|---|---------------|--------------|--------------|----------|-------------|
| Impact indicators   | Unit           | Total   | Manufacturing | Distribution | Installation | Use      | End of Life |
| Contribution to fossil resources depletion  | MJ             | 7,87E+03  | 5,58E+02      | 8,44E-01     | 0*           | 7,31E+03 | 8,48E-01    |
| Contribution to air pollution   | m <sup>3</sup> | 3,16E+04  | 3,85E+03      | 0*           | 0*           | 2,77E+04 | 6,52E+00    |
| Contribution to water pollution   | m <sup>3</sup> | 2,92E+04  | 2,62E+03      | 9,87E+00     | 0*           | 2,66E+04 | 1,51E+01    |
| Resources use   | Unit           | Total   | Manufacturing | Distribution | Installation | Use      | End of Life |
| Use of secondary material   | kg             | 5,39E-03  | 5,39E-03      | 0*           | 0*           | 0*       | 0*          |
| Total use of renewable primary energy resources   | MJ             | 1,65E+03  | 1,27E+01      | 0*           | 0*           | 1,64E+03 | 0*          |
| Total use of non-renewable primary energy resources   | MJ             | 1,17E+04  | 5,19E+02      | 0*           | 0*           | 1,12E+04 | 0*          |
| Use of renewable primary energy excluding renewable primary energy used as raw material         | MJ             | 1,65E+03  | 1,10E+01      | 0*           | 0*           | 1,64E+03 | 0*          |
| Use of renewable primary energy resources used as raw material                                  | MJ             | 1,67E+00  | 1,67E+00      | 0*           | 0*           | 0*       | 0*          |
| Use of non renewable primary energy excluding non renewable primary energy used as raw material | MJ             | 1,17E+04  | 5,10E+02      | 0*           | 0*           | 1,12E+04 | 0*          |
| Use of non renewable primary energy resources used as raw material                              | MJ             | 8,38E+00  | 8,38E+00      | 0*           | 0*           | 0*       | 0*          |
| Use of non renewable secondary fuels  | MJ             | 0,00E+00  | 0*            | 0*           | 0*           | 0*       | 0*          |
| Use of renewable secondary fuels  | MJ             | 0,00E+00  | 0*            | 0*           | 0*           | 0*       | 0*          |

| Waste categories                | Unit | Total    | Manufacturing | Distribution | Installation | Use      | End of Life |
|---------------------------------|------|----------|---------------|--------------|--------------|----------|-------------|
| Hazardous waste disposed        | kg   | 3,04E+01 | 2,92E+01      | 0*           | 0*           | 3,36E-01 | 9,34E-01    |
| Non hazardous waste disposed    | kg   | 2,41E+03 | 9,05E+00      | 0*           | 0*           | 2,40E+03 | 0*          |
| Radioactive waste disposed      | kg   | 1,61E+00 | 4,08E-03      | 0*           | 0*           | 1,60E+00 | 0*          |
| Other environmental information | Unit | Total    | Manufacturing | Distribution | Installation | Use      | End of Life |
| Materials for recycling         | kg   | 1,36E-01 | 1,20E-02      | 0*           | 8,16E-02     | 0*       | 4,27E-02    |
| Components for reuse            | kg   | 0,00E+00 | 0*            | 0*           | 0*           | 0*       | 0*          |
| Materials for energy recovery   | kg   | 1,04E-01 | 9,13E-04      | 0*           | 1,80E-05     | 0*       | 1,03E-01    |
| Exported Energy                 | MJ   | 0,00E+00 | 0*            | 0*           | 0*           | 0*       | 0*          |

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

Life cycle assessment performed with EIME version EIME v5.6.0.1, database version 2016-11 in compliance with ISO 14044.

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.

Depending on the impact analysis, the environmental indicators (without ADPe) of other products in this family may be proportional extrapolated by energy consumption values. For ADPe (Abiotic depletion), impact may be proportional extrapolated by mass 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.

|   |                  |                                     |  |
|---|------------------|-------------------------------------|--|
| Registration number   | ENVPEP1709014_V1 | Drafting rules                      | PCR-ed3-EN-2015 04 02  |
| Date of issue   | 10/2017          |                                     |  |
| Validity period   | 5 years          | Information and reference documents | <a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a> |
| <b>Independent verification of the declaration and data</b>   |                  |                                     |  |
| Internal  | X                | External                            |  |
| The elements of the present PEP cannot be compared with elements from another program.  |                  |                                     |  |
| Document in compliance with ISO 14021:2016 « Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling) » |                  |                                     |  |

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