# Unica

## Stand-alone electronic thermostat

Product Environmental Profile


Schneider Electric

# Product Environmental Profile - PEP

## Product overview

The main function of the Thermostats product range is to control floor heating cables. This range consists of: Floor thermostat and Room thermostat.

The representative product used for the analysis is UTF-10 (ref. --.503.---). The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with the same technology.

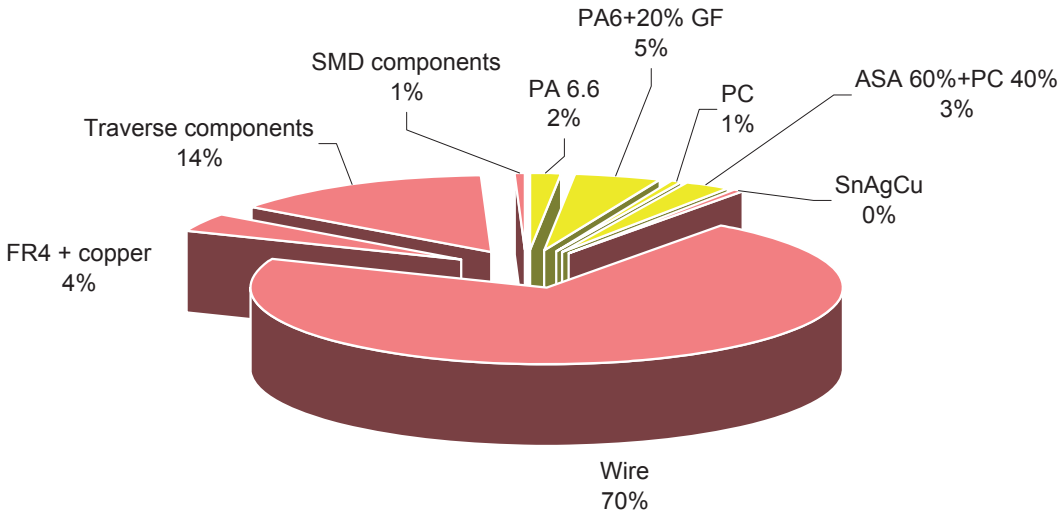
The environmental analysis was performed in conformity with ISO14040 “Environmental management: Life cycle assessment – Principle and framework”.

This analysis takes the stages in the life cycle of the product into account.

## Constituent materials

The mass of product is 190 G  packing excluded.

The constituent materials are distributed as follows:




All necessary steps have been taken with our services, suppliers and subcontractors to ensure that the materials used in the composition of the Thermostats range do not contain any substances prohibited by the legislation that was in force* when the product or range was put on the market.

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.

*according to the list available on request

## Manufacturing

The Thermostats 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 reduced, in compliance with the European Union's packaging directive.

The Thermostats packaging weight is 100 g. It consists of cardboards.

The weight gain of the packaging is none.

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

## Utilization


The products of the Thermostats range do not generate environmental pollution requiring special precautionary measures (noise, emissions, and so on).

The dissipated power depends on the conditions under which the product is implemented and used.

The electrical power consumed by the Thermostats range spreads out between 1.3 W and 1.5 W. It is 1.3 W in active mode and 100% in stand-by mode for the referenced UFT-10.This consumed power represents less than 0.01% of the total power which passes through this product.

## End of life

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

The proportion of recyclable material is higher than 90%.

This percentage includes the following materials:  specify the simple rules adopted.

- Printed circuit board
- Components
- Floor sensor cable

The products of this range also include Printed circuit board which have to be disassembled and which must be sent to specialised treatment systems.

The end of life details appear on the product end-of-life recovery sheet.

## Environmental impacts

The EIME (Environmental Impact and Management Explorer) software, version 1.6, and its data base, version EIME were used for the life cycle assessment (LCA).

The assumed service life of the product is 15 years with an utilisation rate of the installation of 100% and the electrical power model used is Europe.

The scope of the analysis was limited to a UFT-10.

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

### Presentation of the environmental impacts

| Environmental indicators | Short | Unit | Stand-alone electronic Thermostat (1,000 unit) | | | |
|---|---|---|---|---|---|---|
| | | | S = M + D + U | M | D | U |
| **Raw material depletion** | **RMD** | **Y-1** | **$2.91E^{-14}$** | $2.71E^{-14}$ | $2.21E^{-17}$ | $1.93E^{-15}$ |
| **Energy depletion** | **ED** | **MJ** | **$2.24E^{3}$** | $4.42E^{1}$ | $3.24E^{1}$ | $2.16E^{3}$ |
| **Water depletion** | **WD** | **$dm^3$** | **$3.46E^{2}$** | $3.39E^{1}$ | $3.03E^{1}$ | $2.81E^{2}$ |
| **Global warming** | **GW** | **g ~$CO_2$** | **$1.39E^{5}$** | $2.62E^{3}$ | $7.90E^{2}$ | $1.36E^{5}$ |
| **Ozone depletion** | **OD** | **g ~CFC-11** | **$1.76E^{-2}$** | $4.25E^{-4}$ | $3.98E^{-4}$ | $1.68E^{-2}$ |
| **Photochemical ozone creation** | **POC** | **g ~$C_2H_4$** | **$5.08E^{1}$** | 2.23 | $7.14E^{-1}$ | $4.78E^{1}$ |
| **Air acidification** | **AA** | **g ~$H^+$** | **$2.42E^{1}$** | $9.64E^{-1}$ | $2.40E^{-1}$ | $2.30E^{1}$ |
| **Hazardous waste production** | **HWP** | **kg** | **1.98** | $3.72E^{-2}$ | $8.54E^{-4}$ | 1.94 |

The life cycle analysis shows that the User phase (M, D or U phase) is the life cycle phase which has the greatest impact on the majority of environmental indicators. The environmental parameters of this phase have been optimized at the design stage.

The product benefits from the previous versions is that it is lighter and less components are used which allows reducing its impact on environment.

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## System approach

With the UTF-10 you can reduce impacts on environment. Temperature of the room can be adjusted very accurately with the trimming potentiometer.

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.

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 he annual reserves of this material.

**Energy Depletion (ED)**

This indicator gives the quantity of energy consumed, whether if 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 $m^3$.

**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. This effect is quantified in gram equivalent $CO_2$.

**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. This 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 the rain. A high level of acidity in rain can cause damage to forests. The contribution of acidification is calculated using the acidification potentials of the substances concerned and is expressed in mole equivalent of $H^+$.

**Hazardous Waste Production (HWP)**

This indicator gives the quantity of waste, produced along the life cycle of the product (manufacturing, distribution, use, including production of energy), that requires special treatments. It is expressed in kg.


We are committed to safeguarding our planet by "Combining innovation and continuous improvement to meet the new environmental challenges".

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