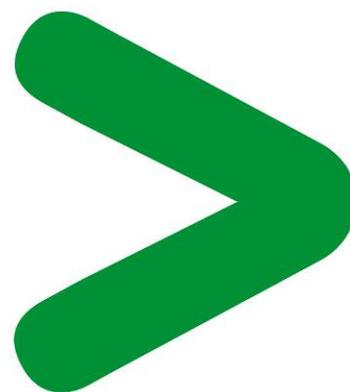


# Product Environmental Profile

## EASERGY Flair 2xD

Self-powered fault passage indicator



# Product Environmental Profile - PEP

## Product overview

Easergy Flair 2xD is a family of fault passage indicators for medium voltage switchgears up to 36kV, in DIN format, small in size, efficient and self-powered, which adapt automatically to the network.

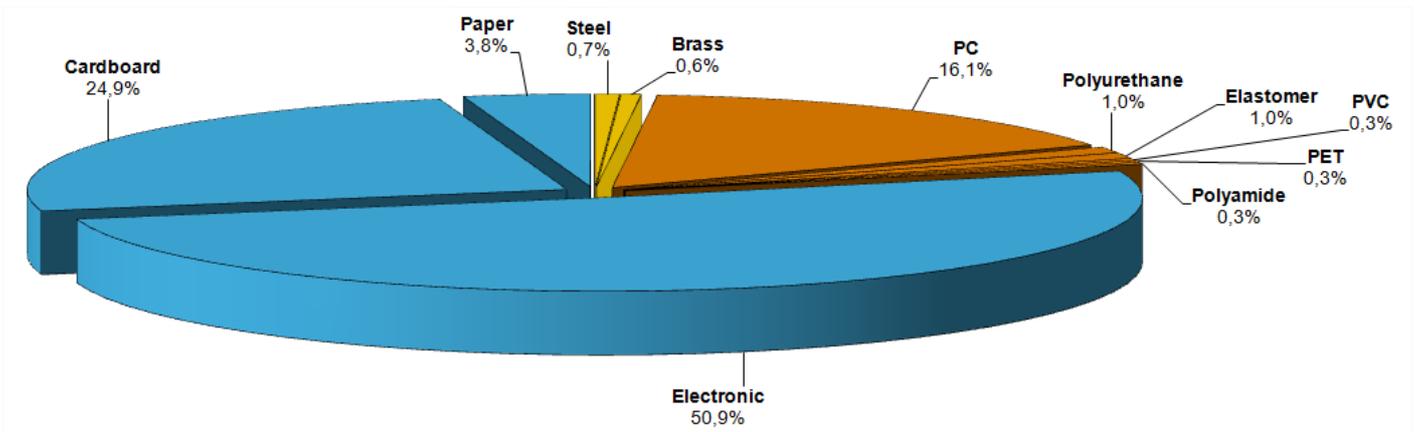
The representative product used the analysis is a Flair 23DM (combining a fault passage indicator with a voltage detector, with Modbus communication capabilities).

The environmental analysis was performed in conformity with ISO 14040.

## Constituent materials

The mass of the Flair 2xD, including packaging, varies between 239g & 254g (for the Flair 23DM)

The constituent materials are distributed as follows:



## Substance assessment

Products of this range are designed in conformity with the requirements of the European RoHS Directive 2011/65/EU 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

Details of RoHS and REACH substances information are available on the Schneider Electric's [Green Premium website](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>)

## Manufacturing

EASERGY Flair 2xD are manufactured at a Schneider Electric production site on which an ISO14001 certified environmental management system has been established.

## Distribution

Weight and volume of packaging have been optimized, based on the European Union's packaging directive. The Flair 2xD's packaging weighs 67g, consisting in cardboard and paper (user manual).

## Use

Products from the EASERGY 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. For a Flair 23DM, it ranges from 0.1mW to 2.5W in active mode

It's considered that protection devices run 100% of the time at their nominal rate, which is 1W for the Flair 23DM

# Product Environmental Profile - PEP

## End of life

This product contains PCB assemblies, an electrolytic capacitor, an LCD and a battery, 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 on the Schneider Electric's [Green Premium website](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>).

The recyclability potential of the products has been evaluated using the "ECO-DEEE 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: 32%.

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), Use (U), and End of life (E).

Modelling hypothesis and method:

- The calculation was performed on a Flair 23DM.

- Product packaging is included.

- Scenario for the Use phase: This product range is included in the category "Energy consuming products". A Flair 23DM is designed for a 15 years service-life, and is considered to run 100% of the time at its nominal consumption of 1W (corresponding to an idle protection system)

The electrical power model used for calculation is the 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

| Environmental indicators     | Unit                                | Flair 23DM |          |          |          |          |
|------------------------------|-------------------------------------|------------|----------|----------|----------|----------|
|                              |                                     | S=M+D+U+E  | M        | D        | U        | E        |
| Air Acidification            | kg H+ eq                            | 2,03E-02   | 3,49E-03 | 4,09E-06 | 1,68E-02 | 3,55E-06 |
| Air Toxicity                 | m <sup>3</sup>                      | 2,37E+07   | 4,23E+06 | 6,08E+03 | 1,94E+07 | 5,28E+03 |
| Energy Depletion             | MJ                                  | 1,78E+03   | 2,07E+02 | 3,07E-01 | 1,57E+03 | 2,55E-01 |
| Global Warming Potential     | kg CO <sub>2</sub> eq.              | 9,31E+01   | 1,54E+01 | 2,18E-02 | 7,76E+01 | 1,81E-02 |
| Hazardous Waste Production   | kg                                  | 4,37E-01   | 4,24E-01 | 2,69E-08 | 1,33E-02 | 2,24E-08 |
| Ozone Depletion Potential    | kg CFC-11                           | 1,86E-05   | 9,51E-07 | 4,13E-11 | 1,77E-05 | 3,42E-11 |
| Photochemical Ozone Creation | kg C <sub>2</sub> H <sub>4</sub> eq | 7,98E-03   | 3,17E-03 | 5,62E-06 | 4,80E-03 | 4,50E-06 |
| Raw Material Depletion       | Y <sup>-1</sup>                     | 1,72E-13   | 1,71E-13 | 4,45E-19 | 1,05E-15 | 3,69E-19 |
| Water Depletion              | dm <sup>3</sup>                     | 3,73E+02   | 1,70E+02 | 2,26E-03 | 2,02E+02 | 1,88E-03 |
| Water Eutrophication         | kg PO <sub>4</sub> <sup>3-</sup> eq | 1,49E-03   | 7,48E-04 | 4,05E-08 | 7,38E-04 | 3,36E-08 |
| Water Toxicity               | m <sup>3</sup>                      | 3,62E+01   | 1,61E+00 | 9,31E-03 | 3,46E+01 | 7,72E-03 |

Life cycle assessment has been performed with the EIME software, version 5.2.1.4, with its database from Feb 2013, and using the calculation method EIME v4.1.

The Use phase is the predominant phase for this product, except for RMD & HWP, where the Manufacturing phase dominates.

## System approach & Extension rules

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.

All Flair DINs are very similar in conception (same plastic case, 2 or 3 small e-boards). They mainly differ in electrical profiles.

In order to extend the impacts calculated for a Flair 23DM to another model in the range, the following rules can be applied:

- Manufacturing, Distribution and EoL phases: Apply a mass ratio for all impact indicators
- Use phase:
  - For non-communicating, DC-powered models, divide each impact indicator by half
  - For non-communicating, self-powered products, divide each impact indicator by 1000

## Glossary

|   |  |
|---|--|
| <b>Raw Material Depletion (RMD)</b>       | 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.   |
| <b>Energy Depletion (ED)</b>              | This indicator gives the quantity of energy consumed, whether it be from fossil, hydroelectric, nuclear or other sources.<br>This indicator takes into account the energy from the material produced during combustion. It is expressed in MJ.   |
| <b>Water Depletion (WD)</b>               | This indicator calculates the volume of water consumed, including drinking water and water from industrial sources. It is expressed in dm <sup>3</sup> .   |
| <b>Global Warming (GW)</b>                | 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 <sub>2</sub> .  |
| <b>Ozone Depletion (OD)</b>               | 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.   |
| <b>Air Toxicity (AT)</b>                  | 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. |
| <b>Photochemical Ozone Creation (POC)</b> | 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 <sub>2</sub> H <sub>4</sub> ).   |
| <b>Air Acidification (AA)</b>             | The acid substances present in the atmosphere are carried by rain. A high level of acidity in the rain can cause damage to forests.<br>The contribution of acidification is calculated using the acidification potentials of the substances concerned and is expressed in mode equivalent of H <sup>+</sup> .                      |
| <b>Water Toxicity (WT)</b>                | 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.     |
| <b>Hazardous Waste Production (HWP)</b>   | 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.<br>It is expressed in kg.               |

---

PEP in compliance with Schneider-Electric TT01 v9.3 and TT02 v15.1 procedures

---

PEP established according to PCR PEPecopassport PEP- PCR-ed 2.1-EN-2012 12 11

---

### 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 €

[www.schneider-electric.com](http://www.schneider-electric.com)