

PRODUCT ENVIRONMENTAL PROFILE

SOFREL DL4-CORE

P.E.P.

This document is based on the following standards: ISO 14020 on the general principles of environmental declarations, and ISO 14025 on type III environmental declarations.

Product description

Remote management involves 24-hour monitoring and remote control of all the technical installations that make up a water network. It enables operators to monitor and diagnose problems, priorities and manage maintenance operations continuously and remotely, and use the data provided to optimize performance.

To overcome the constraints of the number of sites, accessibility and isolation, and the need for a permanent presence, we rely on the Data Logger. A self-contained, watertight, communicating recorder, it is the key element in making networks intelligent, by performing the functions of acquisition, processing and transmission.

Self-sufficient in energy, it enables remote acquisition and monitoring of critical physic-chemical quantities representative of the network, and consultation and diagnosis of connected equipment and sensors.



Functional unit

Sectorization and remote reading of large water consumers by acquiring, processing and transmitting information without using an external energy source for 15 years.

Component materials

The product respects the restrictions on substances specified in the RoHS directive.

Sub-assemblies	Weight	Percentage
Electronics	92 g	6,3%
Plastics	795 g	54,5%
Battery	210 g	14,4%
Cables	161 g	11,1%
Packaging	200 g	13,7%
Total (with packaging)	1 458 g	100%

Manufacturing

The SOFREL LogUP range of Data Loggers is the result of design and manufacturing processes that are fully integrated into the activities of the LACROIX group. In particular, assembly and the various steps of compliance testing are carried out at the LACROIX SYMBIOSE France ISO 9001 and ISO 14001 certified production site.

Distribution

The individual packaging has been optimized in terms of volume and weight to meet the requirements of the European Packaging Directive. It weighs 200g and is made from 100% recyclable compressed cellulose.

Distribution of the product in France and abroad is optimized for direct delivery to the customer, in compliance with the requirements for the transport of hazardous materials (regulated lithium batteries).

For distribution in France, we assume a distance of 1,000 km by road.

Installation

This product must be used in accordance with the installation and maintenance rules in force for water systems.

Installation does not require any consideration in terms of environmental impact, as it is neglected in the following analysis.

Use

Product life : 15 years

Consumption: 0W - the product is primary battery-powered

This product requires the use of the following consumables, which must be replaced every time the battery is changed, i.e. every 10.5 years: 1 battery, 1 gasket, etc.

No servicing or other maintenance is required.

End of life- Recycling

The product's recyclability potential is estimated at 74%.

(Evaluation carried out using the ECO'DEEE recyclability and recoverability calculation method)

This product contains an electronic card and a lithium battery, which must be separated into separate waste streams in order to optimize end-of-life treatment.

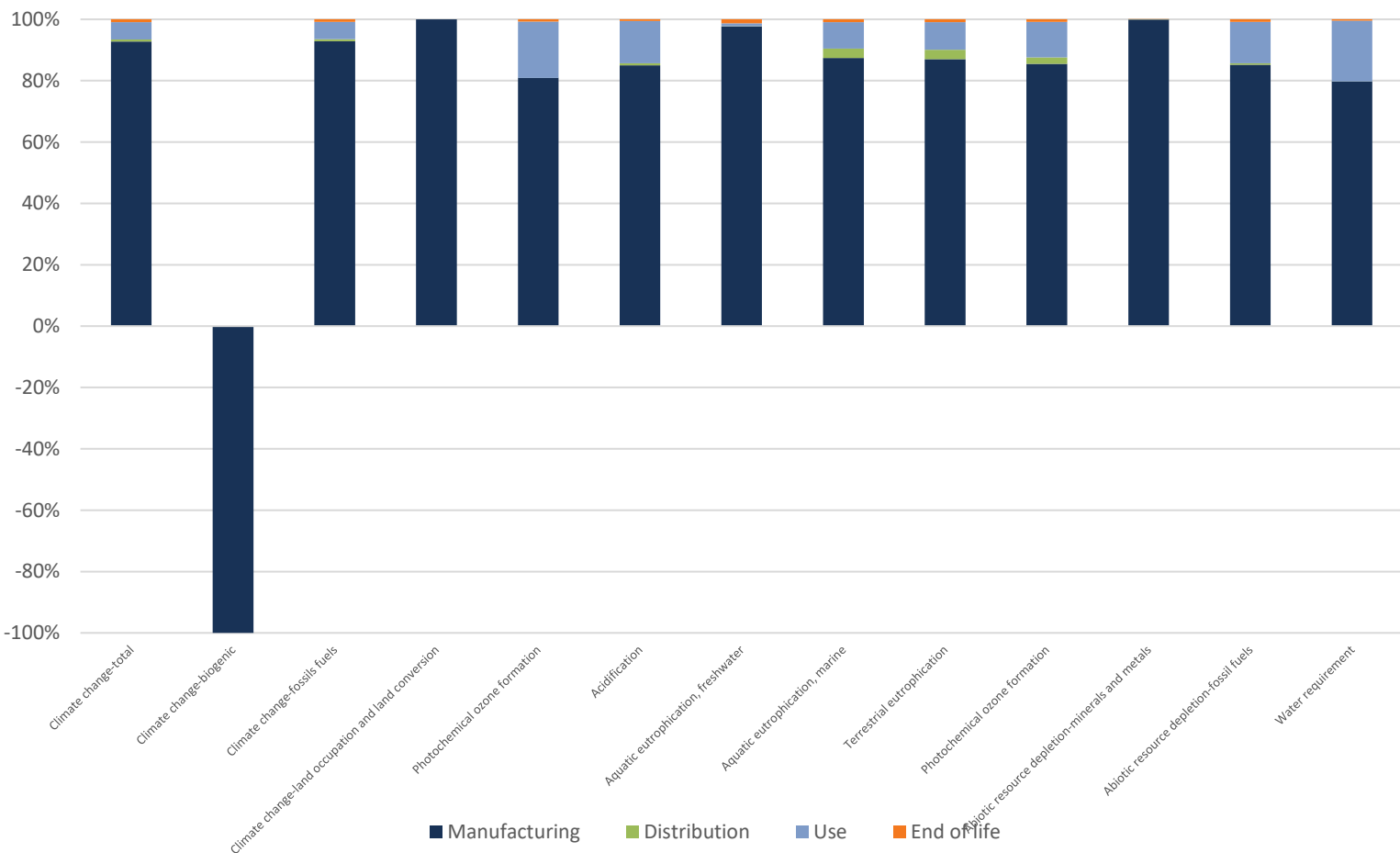
LACROIX Sofrel provides, on request, a dismantling and recommendation sheet to facilitate the recycling of the product at the end of its life.

LACROIX Sofrel is committed to applying Directive 2012/19/EU on waste electrical and electronic equipment (WEEE) to its products.

Environmental impacts

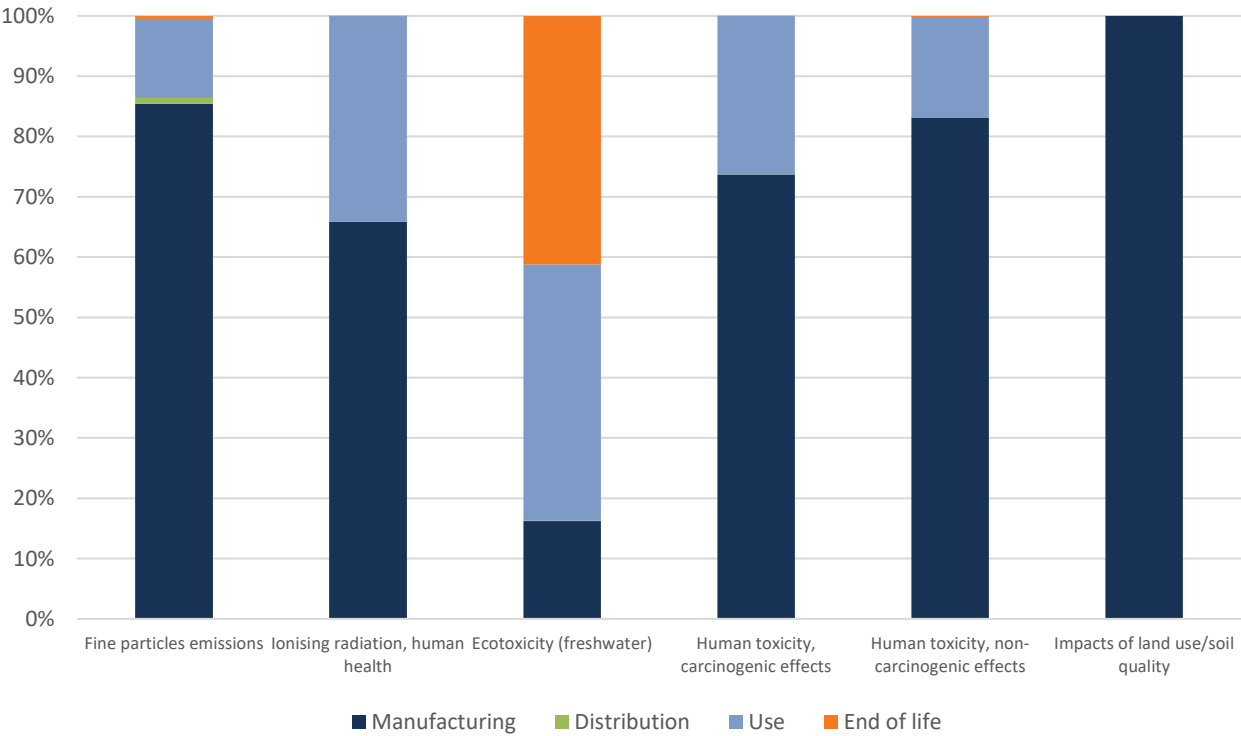
Calculated on 25/07/2024 using EIME v6 software distributed by CODDE, bureau VERITAS.
Environmental declarations from different program may not be comparable.

Référence indicators	Unit	Total	Manufacturing	Distribution	Use	End of life
Climate change- total	kg CO ₂ eq.	1,82E+01	1,69E+01	1,35E-01	1,03E+00	1,60E-01
Climate change- biogenic	kg CO ₂ eq.	-2,81E-01	-2,81E-01	0,00E+00	0,00E+00	0,00E+00
Climate change- fossil fuels	kg CO ₂ eq.	1,85E+01	1,72E+01	1,35E-01	1,03E+00	1,60E-01
Climate change- Land use (land occupation and land conversion)	kg CO ₂ eq.	2,77E-08	2,77E-08	0,00E+00	0,00E+00	0,00E+00
Ozone depletion	kg CFC-11 eq.	2,62E-06	2,12E-06	2,07E-10	4,84E-07	1,81E-08
Acidification	mol H ⁺ eq	1,41E-01	1,20E-01	9,02E-04	1,94E-02	8,15E-04
Aquatic eutrophication, freshwater	kg P eq	1,10E-04	1,08E-04	5,06E-08	1,13E-06	1,41E-06
Aquatic eutrophication, marine	kg N eq	1,41E-02	1,23E-02	4,25E-04	1,22E-03	1,23E-04
Terrestrial eutrophication	mol N eq	1,53E-01	1,34E-01	4,66E-03	1,39E-02	1,35E-03
Photochemical ozone formation	kg NMVOC eq	5,56E-02	4,75E-02	1,18E-03	6,44E-03	4,68E-04
Abiotic resources depletion-fossil fuels	kg Sb eq	2,33E-03	2,33E-03	5,31E-09	1,42E-06	4,63E-09
Abiotic resources depletion - minerals and metals	MJ	3,84E+02	3,27E+02	1,88E+00	5,19E+01	3,06E+00
Water requirement	m3 world eq	6,35E+00	5,06E+00	5,12E-04	1,26E+00	2,61E-02



Environmental impacts

Additional indicators	Unit	Total	Manufacturing	Distribution	Use	End of life
Fine particle emissions	disease incidence	8,33E-07	7,11E-07	7,79E-09	1,09E-07	4,37E-09
Ionising radiation, human health	kBq U235 eq	8,72E+01	5,74E+01	3,29E-04	2,97E+01	4,20E-02
Ecotoxicity (freshwater)	CTUe	1,32E+03	2,14E+02	8,84E-02	5,60E+02	5,43E+02
Human toxicity, carcinogenic effects	CTUh	2,31E-07	1,70E-07	2,41E-12	6,06E-08	2,62E-11
Human toxicity, non-carcinogenic effects	CTUh	4,17E-07	3,46E-07	4,64E-11	6,92E-08	8,27E-10
Impacts of land use/soil quality	Dimensionless	2,67E-02	2,67E-02	0,00E+00	0,00E+00	0,00E+00



Glossary

Reference indicators	Description	Unit	Acronym EIME
Climate change- total	Greenhouse gases (GHGs) are gaseous compounds that absorb infrared radiation emitted by the Earth's surface. The increase in their concentration in the Earth's atmosphere contributes to global warming. It is the sum of the 3 other global warming potential indicators.	kg CO ₂ eq.	PEF-GWP
Climate change-fossil fuels	This impact indicator takes into account the global warming potential (GWP) due to emissions and removals of greenhouse gases from and into any medium, resulting from the oxidation or reduction of fossil fuels or materials containing fossil carbon by means of their transformation or degradation (e.g. combustion, incineration, landfill, etc.).	kg CO ₂ eq.	PEF-GWPf
Climate change-biogenic	This indicator covers emissions of carbon into the air, originally captured by biomass of all origins, which are released during transformation or degradation (for example, combustion, digestion, composting, landfill). It also covers the absorption of CO ₂ from the atmosphere by photosynthesis during biomass growth.	kg CO ₂ eq.	PEF-GWpb
Climate change- Land use (land occupation and land conversion)	This indicator takes into account carbon removals and emissions from changes in carbon stock caused by land use and land use change. This sub-category includes exchanges of biogenic carbon from deforestation, road construction or other soil-related activities.	kg CO ₂ eq.	PEF-GWPlu
Ozone depletion	The depletion of the ozone layer is the result of complex reactions between the ozone present in the upper atmosphere and gaseous compounds, which reduce the quantity of ozone. The natural filtration of ultraviolet radiation becomes less effective, leading to harmful effects on human health, animal health and terrestrial and aquatic ecosystems.	kg CFC-11 eq	PEF-ODP
Acidification	Air acidification is linked to emissions of nitrogen oxides, sulphur oxides, ammonia and hydrochloric acid. These pollutants are transformed into acids in the presence of humidity, and their fallout can damage both ecosystems and buildings.	mol H ⁺ eq	PEF-AP
Aquatic eutrophication, freshwater	Eutrophication is defined as the enrichment of an environment with mineral salts or nutrients. While this is a natural phenomenon, necessary for the development of flora, human activities (livestock farming, agriculture, industry, etc.) have greatly amplified it since the industrial revolution. Eutrophication is assessed in 3 environments: freshwater, marine and terrestrial.	kg P eq	PEF-Epf
Aquatic eutrophication, marine		kg N eq	PEF-Epm
Terrestrial eutrophication		mol N eq	PEF-Ept
Photochemical ozone formation	Ground-level ozone is formed in the lower atmosphere from volatile organic compounds (VOCs) and nitrogen oxides under the effect of solar radiation. Ozone is a very powerful oxidant known to have health effects, as it easily penetrates the respiratory tract.	kg NMVOC eq	PEF-POCP
Depletion of abiotic resources - minerals and metals	Industrial exploitation leads to a reduction in available resources, which have limited reserves. This indicator assesses the quantity of mineral and metal resources taken from nature as if they were antimony.	kg Sb eq	PEF-ADPe
Depletion of abiotic resources – fossils fuels	The indicator represents primary energy consumption from various non-renewable sources (oil, natural gas, etc.). Calculations are based on the Lower Calorific Value (LCV) of the types of energy considered, expressed in MJ/kg. For example, 1 kg of petrol will contribute 41.87 MJ to the indicator under consideration.	MJ	PEF-ADPf
Water requirement	This indicator represents water consumption multiplied by a factor that considers the water stress in the region where the water is consumed. For example, water consumption in the Sahara will have a greater impact than in Scandinavia.	m ³ world eq	PEF-WU

Additional indicators	Description	Unit	Acronym EIME
Fine particle emissions	The presence of small-diameter fine particles in the air - particularly those smaller than 10 microns in diameter - represents a challenge for human health, as inhaling them can cause respiratory and cardiovascular problems.	disease incidence	PEF-PM
Ionising radiation, human health	Radionuclides can be released during several human activities. When radionuclides decay, they release ionising radiation. Human exposure to ionising radiation causes DNA damage, which in turn can lead to various types of cancer and birth defects.	kBq U235 eq	PEF-IR
Ecotoxicity (freshwater)	These indicators follow the entire impact chain from the emission of a chemical component to the final impact on humans and ecosystems. This includes the modelling of distribution and fate in the environment, exposure of human populations and ecosystems, and toxicity-related effects associated with exposure. Three impact categories are covered, namely human carcinogenic toxicity, human non-carcinogenic toxicity and freshwater aquatic ecotoxicity.	CTUe	PEF-CTUe
Human toxicity, carcinogenic effects		CTUh	PEF-CTUh-c
Human toxicity, non-carcinogenic effects		CTUh	PEF-CTUh-nc
Impacts of land use/soil quality	The degradation of soil quality is the obvious result of the increased pressure on land resources associated with the intensification and expansion of human activities. Soil conservation is one of the main sustainability objectives for ensuring food security and environmental protection.	Dimensionless	PEF-LU



EIME : Lifecycle Analysis and Ecodesign software that uses a set of indicators to establish the environmental impact of a product throughout its life, ‘from-cradle to-grave’.

