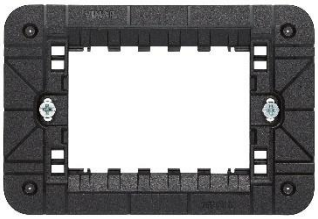
VIMAR FOR THE ENVIRONMENT

One of Vimar's strategic choices is to protect and respect the environment by optimising consumption, reducing waste, using energy production systems from highly efficient alternative sources; with a focus on the pursuit for materials and production processes for its products, which allow waste to be recovered and reduced, and promoting the development of a circular economy, to be applied also outside of the company. To implement all the above, Vimar operates in an integrated manner, respecting the environment in compliance with ISO 14001.

PRODUCT INFORMATION

FUNCTIONAL UNIT	
To establish, support and interrupt for 20 years (Reference Life Time - RLT) rated currents I_{th} = 10A under normal conditions with operating voltage U_e = 250V. The use scenario is load current 50% I_{th} and frequency of use of 30% of RLT. The reference product is characterized by an IP40 protection degree.	
REFERENCE PRODUCT DESCRIPTION	
	
30613 Frame 3-module + screws	**30653.00** Cover plate 3-module technopolymer white
30004.B 1P 10AX 2-way switch 1-module white	**2 x 30041.B** Blank module white

COVERED COMMERCIAL REFERENCES

The environmental declaration is also representative of the following products:

30004.B (white)	30041.B (white)	30613	30653.00 (white)
30004.C (canvas) 30004.G (black) 30004A.B (axial white) 30004A.C (axial canvas) 30004A.G (axial black)	30041.C (canvas) 30041.G (black)		30653.01 (canvas) 30653.02 (black)

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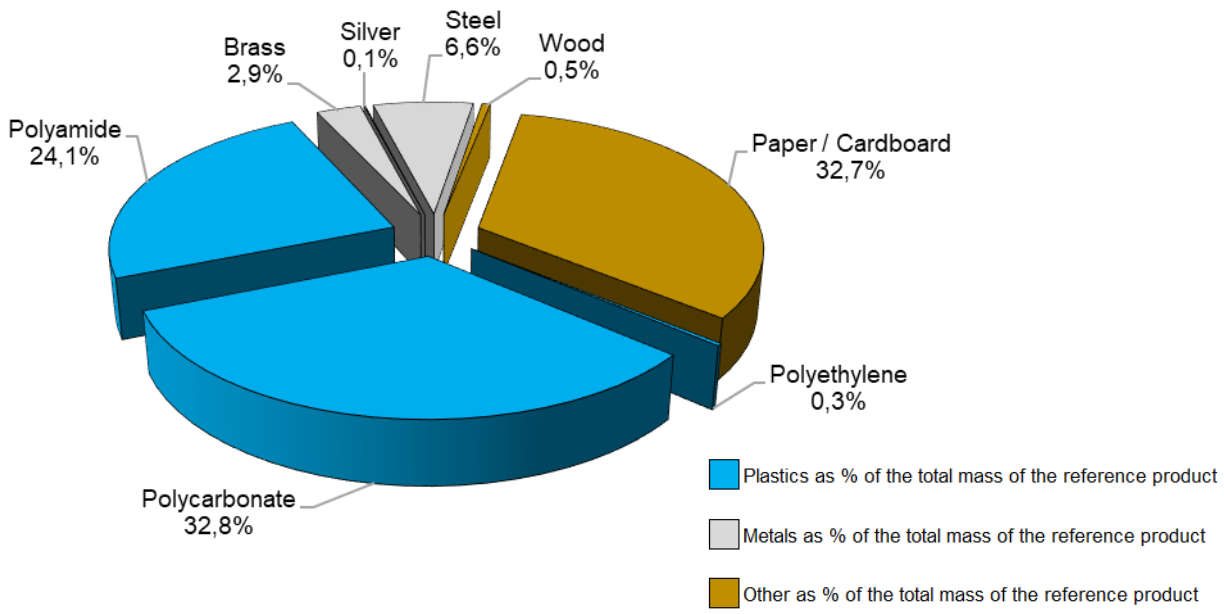
MATERIALS COMPOSITION

The products do not contain any of the restricted substances in compliance with REACh Regulation (EU) n.1907/2006 and RoHS Directive 2011/65/EU according to the latest updates.

TOTAL MASS OF THE REFERENCE PRODUCT INCLUDING ITS PACKAGING	123,8 g



The recycled content in the packaging material is 18% of the reference product mass

Details of the materials composition for the covered commercial references are given below:

TOTAL MASS OF THE CANVAS-COLORED LIGHTING DEVICE INCLUDING ITS PACKAGING					124,4 g
Plastics as % of the total mass		**Metals as % of the total mass**		**Other as % of the total mass**	
Product					
PC - Polycarbonate	33,2%	Steel	6,5%		
PA - Polyamide	23,9%	Brass	2,9%		
		Silver	0,1%		
Packaging					
PE - Polyethylene	0,3%			Paper / Cardboard	32,6%
				Wood	0,5%
The recycled content in the packaging material is 18% of the reference product mass					

TOTAL MASS OF THE BLACK-COLORED LIGHTING DEVICE INCLUDING ITS PACKAGING					123,8 g
Plastics as % of the total mass		**Metals as % of the total mass**		**Other as % of the total mass**	
Product					
PC - Polycarbonate	32,8%	Steel	6,6%		
PA - Polyamide	24,1%	Brass	2,9%		
		Silver	0,1%		
Packaging					
PE - Polyethylene	0,3%			Paper / Cardboard	32,7%
				Wood	0,5%
The recycled content in the packaging material is 18% of the reference product mass					

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TOTAL MASS OF THE WHITE-COLORED LIGHTING DEVICE WITH AXIAL 1P 10AX 2-WAY SWITCH INCLUDING ITS PACKAGING					123,6 g
Plastics as % of the total mass		**Metals as % of the total mass**		**Other as % of the total mass**	
Product					
PC - Polycarbonate	32,7%	Steel	6,6%		
PA - Polyamide	24,1%	Brass	2,9%		
		Silver	0,1%		
Packaging					
PE - Polyethylene	0,3%			Paper / Cardboard	32,8%
				Wood	0,5%
The recycled content in the packaging material is 18% of the reference product mass					

TOTAL MASS OF THE CANVAS-COLORED LIGHTING DEVICE WITH AXIAL 1P 10AX 2-WAY SWITCH INCLUDING ITS PACKAGING					124,2 g
Plastics as % of the total mass		**Metals as % of the total mass**		**Other as % of the total mass**	
Product					
PC - Polycarbonate	33,1%	Steel	6,5%		
PA - Polyamide	24,0%	Brass	2,9%		
		Silver	0,1%		
Packaging					
PE - Polyethylene	0,3%			Paper / Cardboard	32,6%
				Wood	0,5%
The recycled content in the packaging material is 18% of the reference product mass					

TOTAL MASS OF THE BLACK-COLORED LIGHTING DEVICE WITH AXIAL 1P 10AX 2-WAY SWITCH INCLUDING ITS PACKAGING					123,6 g
Plastics as % of the total mass		**Metals as % of the total mass**		**Other as % of the total mass**	
Product					
PC - Polycarbonate	32,7%	Steel	6,6%		
PA - Polyamide	24,1%	Brass	2,9%		
		Silver	0,1%		
Packaging					
PE - Polyethylene	0,3%			Paper / Cardboard	32,8%
				Wood	0,5%
The recycled content in the packaging material is 18% of the reference product mass					

MANUFACTURING STAGE

The products are designed in view of facilitating re-use, dismantling and recovery of WEEE (Waste of Electric and Electronic Equipment), its components and materials, according to Directive 2012/19/EU.
The packaging materials are compliant with Directive 2004/12/CE.
The products of interest are manufactured in the Italian plants of Vimar, certified according to ISO 14001.

DISTRIBUTION STAGE

The distribution phase is implemented considering the products' market. The distance and the means of transportation adopted are in accordance with PEP-PCR-ed4-EN-2021 09 06.

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INSTALLATION STAGE

In the installation phase there are no significant environmental impacts since the installation takes place through screwing and interlocking of the devices. The installation phase concerns only the management of the packaging waste (e.g. cardboard packs and containers, pallets), which consists in collection, transport, and treatment up to the final disposal.

USE STAGE

The products do not require assistance, maintenance, or additional products under normal conditions of use. The potential environmental impacts of the use phase are determined by the power dissipated by the device during the 30% of its RLT. The calculation was conducted in accordance with PSR-0005-ed2-EN-2016 03 29 - Product Specific Rules for Electrical switchgear and control gear Solutions (§ 3.5) and the electrical resistance of the device.

END-OF-LIFE STAGE

In accordance with the WEEE Directive 2012/19/EU, Vimar products are designed to be easily disassembled and recycled into every component at the end of their life.
The reference product is characterized by a recyclability rate of **43%** divided into:

- Plastic materials: 7%
- Metallic materials: 7%
- Packaging materials: 29%

Values are estimated according to PEP-PCR-ed4-EN-2021 09 06 and ISPRA Waste Report 355/2021.

LIFE CYCLE IMPACT ASSESSMENT

The life cycle impact assessment considers all the life stages from “cradle to grave”, according to the PEP-PCR-ed4-EN-2021 09 06, and it is representative of the production, marketing, and use of products mainly in Italy and to a small extent in Europe. The life cycle stages considered are:

Manufacturing stage[1]	The manufacturing phase considers: 1. Production (extraction, treatment, transformation, etc.), transportation and packaging of raw materials and components that constitute the reference product, including packaging, the waste generated and its disposal. 2. Industrial processes to manufacture and assemble the reference product and packaging components. 3. Transport of the packaged product from the factory to the manufacturer's last logistics platform.
Distribution stage	The distribution phase considers the transport of the product in its packaging from the last logistics platform of the manufacturer to the distributor and from the distributor to the place of installation.
Installation stage[2]	The installation phase concerns only the management of waste generated at the installation site (collection and treatment up to the final disposal) due to product packaging and the production of waste associated with the installation processes.
Use stage[3]	The use phase considers product operation under normal conditions of use and refers to the energy consumption and other flows of the products during their use in the Reference Life Time (RLT) according to the load conditions indicated in the PSR-0005-ed2-EN-2016 03 29. In particular the scenario was modeled considering 20 years of RLT with a loading rate of 50% of the nominal current and 30% as use time rate.

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End-of-life stage[3]	The end-of-life phase considers: 1. Transport required to collect the products at end-of-life and transport them from the installation site to the final treatment site. 2. Treatment processes of items covered by the WEEE Directive 2012/19/EU to be sent to special end-of-life product treatment facilities until final treatment.

[1] For the Manufacturing stage are considered the following energy models:
- Extraction of raw materials: European mix
- Production: Italian mix

[2] For the Installation stage no energy model is considered, because there are no energy consuming operations.

[3] For the Use and the End-of-life stages the energy models considered are representative of the actual market of the products. In order of importance Italian mix and Rest of the World mix.

For LCA modelling the following tools are used:

- **LCA Software:** *SIMAPRO v. 9.3.0.2*
- **Database:** *Ecoinvent v. 3.8*

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ENVIRONMENTAL IMPACTS – RESULTS

The environmental impacts are calculated for a lighting outlet position composed by frame 3-module, cover plate 3-module white, one 1P 10AX 2-way switch 1-module white and two blank modules white.

TOTAL	Manufacturing stage		Distribution stage		Installation stage		Use stage		End-of-life stage	
MANDATORY ENVIRONMENTAL INDICATORS										
Climate change – total expressed in kg CO_2 eq.										
3,09E+00	9,28E-01	**30%**	2,32E-02	**< 1%**	3,21E-02	**< 1%**	2,00E+00	**65%**	9,82E-02	**3%**
Climate change - fossil fuels expressed in kg CO_2 eq.										
2,88E+00	9,24E-01	**32%**	2,31E-02	**< 1%**	2,56E-02	**< 1%**	1,81E+00	**63%**	9,82E-02	**3%**
Climate change - biogenics expressed in kg CO_2 eq.										
2,02E-01	3,79E-03	**2%**	5,51E-05	**< 1%**	6,50E-03	**3%**	1,91E-01	**94%**	8,78E-06	**0***
Climate change - land use and land use transformation expressed in kg CO_2 eq.										
1,27E-03	3,94E-04	**31%**	1,00E-05	**< 1%**	4,08E-05	**3%**	8,09E-04	**64%**	1,45E-05	**1%**
Ozone depletion expressed in kg CFC-11 eq.										
2,76E-07	3,48E-08	**13%**	5,29E-09	**2%**	3,16E-09	**1%**	2,29E-07	**83%**	3,68E-09	**1%**
Acidification Potential expressed in mol H+ eq.										
1,58E-02	6,28E-03	**40%**	1,90E-04	**1%**	1,43E-04	**< 1%**	9,06E-03	**57%**	1,27E-04	**< 1%**
Freshwater eutrophication expressed in kg P eq.										
1,05E-03	4,00E-04	**38%**	1,41E-06	**< 1%**	1,52E-05	**1%**	6,33E-04	**60%**	4,61E-06	**< 1%**
Marine aquatic eutrophication expressed in kg N eq.										
2,54E-03	9,73E-04	**38%**	5,69E-05	**2%**	3,60E-05	**2%**	1,36E-03	**54%**	1,07E-04	**4%**
Terrestrial eutrophication expressed in mol N eq.										
2,64E-02	1,03E-02	**39%**	6,26E-04	**2%**	3,96E-04	**1%**	1,47E-02	**56%**	4,30E-04	**2%**
Photochemical ozone formation expressed in kg NMVOC eq.										
6,96E-03	2,92E-03	**42%**	1,53E-04	**2%**	8,84E-05	**1%**	3,69E-03	**53%**	1,05E-04	**2%**
Abiotic resource depletion - metals and minerals expressed in kg Sb eq.										
1,55E-04	1,37E-04	**88%**	7,53E-08	**< 1%**	6,25E-08	**< 1%**	1,77E-05	**11%**	1,49E-07	**< 1%**
Abiotic resource depletion - fossil fuels or fossil resource expressed in MJ										
4,19E+01	1,17E+01	**28%**	3,45E-01	**< 1%**	4,69E-01	**1%**	2,90E+01	**69%**	3,17E-01	**< 1%**
Water requirement expressed in m^3 of equivalent deprivation worldwide										
1,59E+00	4,40E-01	**28%**	9,56E-04	**< 1%**	3,40E-03	**< 1%**	1,14E+00	**71%**	5,41E-03	**< 1%**
OPTIONAL ENVIRONMENTAL INDICATORS										
Total use of primary energy during the life cycle expressed in MJ										
5,29E+01	1,34E+01	**25%**	3,50E-01	**< 1%**	7,04E-01	**1%**	3,81E+01	**72%**	3,29E-01	**< 1%**
Emission of fine particles expressed in incidence of diseases										
9,51E-08	5,69E-08	**60%**	1,55E-09	**2%**	1,17E-09	**1%**	3,41E-08	**36%**	1,35E-09	**1%**
Ionizing radiation, human health expressed in kBq U-235 eq.										
4,01E-01	4,03E-02	**10%**	1,75E-03	**< 1%**	8,78E-03	**2%**	3,49E-01	**87%**	1,82E-03	**< 1%**
Ecotoxicity (fresh water) expressed in CTUe										
7,09E+01	4,63E+01	**65%**	2,64E-01	**< 1%**	1,08E+00	**2%**	2,27E+01	**32%**	5,28E-01	**< 1%**
Human toxicity, cancer effects expressed in CTUh										
1,60E-09	8,69E-10	**54%**	9,47E-12	**< 1%**	1,19E-11	**< 1%**	6,89E-10	**43%**	1,59E-11	**< 1%**
Human toxicity, non-cancer effects expressed in CTUh										
6,30E-08	4,26E-08	**68%**	2,67E-10	**< 1%**	4,31E-10	**< 1%**	1,91E-08	**30%**	6,26E-10	**< 1%**
Impacts related to land use/soil quality expressed in Pt										
1,54E+01	4,97E+00	**32%**	2,26E-01	**2%**	9,77E-01	**6%**	8,99E+00	**59%**	2,03E-01	**1%**

** represents less than 0,01% of the total life cycle of the reference flow.*

Vimar S.p.A. guarantees that the sum of the percentage values, for each category, is 100%. The notation "<1%" was chosen for a reason of data relevance.

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The use phase is the life cycle phase which has the greatest impact on most environmental indicators.

TOTAL	Manufacturing stage		Distribution stage		Installation stage		Use stage		End-of-life stage	
MANDATORY INVENTORY FLOWS INDICATOR										
Use of renewable primary energy non used as raw materials expressed in MJ										
9,42E+00	1,04E+00	**11%**	3,45E-03	**< 1%**	4,63E-02	**< 1%**	8,32E+00	**88%**	9,28E-03	**< 1%**
Use of renewable primary energy resources used as raw materials expressed in MJ										
5,86E-01	5,86E-01	**100%**	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***
Total use of renewable primary energy resources expressed in MJ										
1,10E+01	1,63E+00	**14%**	4,62E-03	**< 1%**	2,35E-01	**2%**	9,14E+00	**83%**	1,23E-02	**< 1%**
Use of non-renewable primary energy non used as raw materials expressed in MJ										
3,98E+01	9,73E+00	**24%**	3,45E-01	**< 1%**	4,68E-01	**1%**	2,90E+01	**73%**	3,17E-01	**< 1%**
Use of non-renewable primary energy resources used as raw materials expressed in MJ										
2,02E+00	2,02E+00	**100%**	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***
Total use of non-renewable primary energy resources expressed in MJ										
4,19E+01	1,17E+01	**28%**	3,45E-01	**< 1%**	4,68E-01	**1%**	2,90E+01	**69%**	3,17E-01	**< 1%**
Use of secondary materials expressed in kg										
2,21E-02	2,21E-02	**100%**	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***
Use of renewable secondary fuels expressed in MJ										
0,00E+00	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**
Use of non-renewable secondary fuels expressed in MJ										
0,00E+00	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**
Net use of fresh water expressed in m^3										
4,42E-02	1,09E-02	**24%**	3,42E-05	**< 1%**	-6,59E-05	**0***	3,31E-02	**75%**	1,73E-04	**< 1%**
Hazardous waste disposed of expressed in kg										
1,10E-04	5,60E-05	**51%**	8,45E-07	**< 1%**	4,93E-07	**< 1%**	5,20E-05	**47%**	6,58E-07	**< 1%**
Non-hazardous waste disposed of expressed in kg										
2,41E-01	6,40E-02	**26%**	1,61E-02	**7%**	9,63E-03	**4%**	1,03E-01	**43%**	4,77E-02	**20%**
Radioactive waste disposed of expressed in kg										
1,27E-04	1,53E-05	**12%**	2,34E-06	**2%**	3,08E-06	**3%**	1,04E-04	**82%**	1,70E-06	**1%**
Components for reuse expressed in kg										
0,00E+00	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**
Materials for recycling expressed in kg										
5,27E-02	0,00E+00	**0***	0,00E+00	**0***	3,59E-02	**68%**	0,00E+00	**0***	1,69E-02	**32%**
Materials for energy recovery expressed in kg										
3,42E-02	0,00E+00	**0***	0,00E+00	**0***	3,05E-03	**9%**	0,00E+00	**0***	3,11E-02	**91%**
Exported energy expressed in MJ										
0,00E+00	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**
Biogenic carbon content of the product expressed in kg C										
0,00E+00	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**	0,00E+00	**-**
Biogenic carbon content of the associated packaging expressed in kg C										
2,01E-02	2,01E-02	**100%**	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***

** represents less than 0,01% of the total life cycle of the reference flow.*

Vimar S.p.A. guarantees that the sum of the percentage values, for each category, is 100%. The notation "< 1%" was chosen for a reason of data relevance.

For the covered commercial references, the environmental impacts are calculated as follow:

- for the canvas and black-colored lighting device and for the white, canvas, and black-colored lighting device with axial 1P 10AX 2-way switch the environmental impacts do not differ from those of the Reference Product.

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Registration number: VMAR-30004-V01.01-EN	**Drafting Rules:** «PCR-ed4-EN-2021 09 06» Supplemented by «PSR-0005-ed2-EN-2016 03 29»
Verifier accreditation number: VH42	**Information and reference documents:** www.pep-ecopassport.org
Date of issue: 06-2022	**Validity period:** 5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2006	
Internal: ☐	External: ☒
The PCR review was conducted by a panel of experts chaired by Julie ORGELET (DDemain)	
PEP are compliant with XP C08-100-1 :2016 or EN 50693:2019 The elements of the present PEP cannot be compared with elements from another program.	
Document in compliance with ISO 14025 : 2006 «Environmental labels and declarations. Type III environmental declarations»	

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