

Product Environmental Profile

Canalis KDP 20A



Product Environmental Profile – PEP

Product overview

Canalis KDP is Flexible busbar trunking for lighting distribution. Due to its flexible design, Canalis KDP busbar trunking simplifies routing, thus reducing design and installation times. It is the optimum solution for installations with false ceilings or floors.

The Functional unit: The main function of **Canalis KDP** product range is to distribute electrical power for lighting (without luminaire support brackets) by using Busbar Trunking systems. The functional unit provides this service for a period of 20years through the system specified by the Canalis KDP 20 A reference product.

Technical characteristics of Canalis KDP:

- Length of busbar trunking components: 24m roll or 192m winder
- Rated service current: 20A
- Permissible rated peak current: 3.6kA
- Rated tap-off units current: 10 and 16A
- Rated insulating voltage: 690V
- Number of conductors: 2 or 4 + PE
- Centre to centre distance between tap-off units: 1.2m to 3m
- Protection index: IP55
- Regulations: compliant with IEC 60439-2

This range, halogen-free, consists of: **Canalis KDP 20 A, IP55.**

The representative product used for the analysis is the typical product, Canalis KDP 20 A, which consists of:

- *1 x 20 A Power Feed Box (cat. no. KDP20ABG4)*
- *30 m of Busbar Trunking (cat. no. KDP20ED2192150)*
- *10 Connectors (cat. no. KBC10DCB20)*
- *60 Fixing Devices (cat. no. KDPZF10).*

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Lists of the Functional unit based on the Reference product included in the configuration

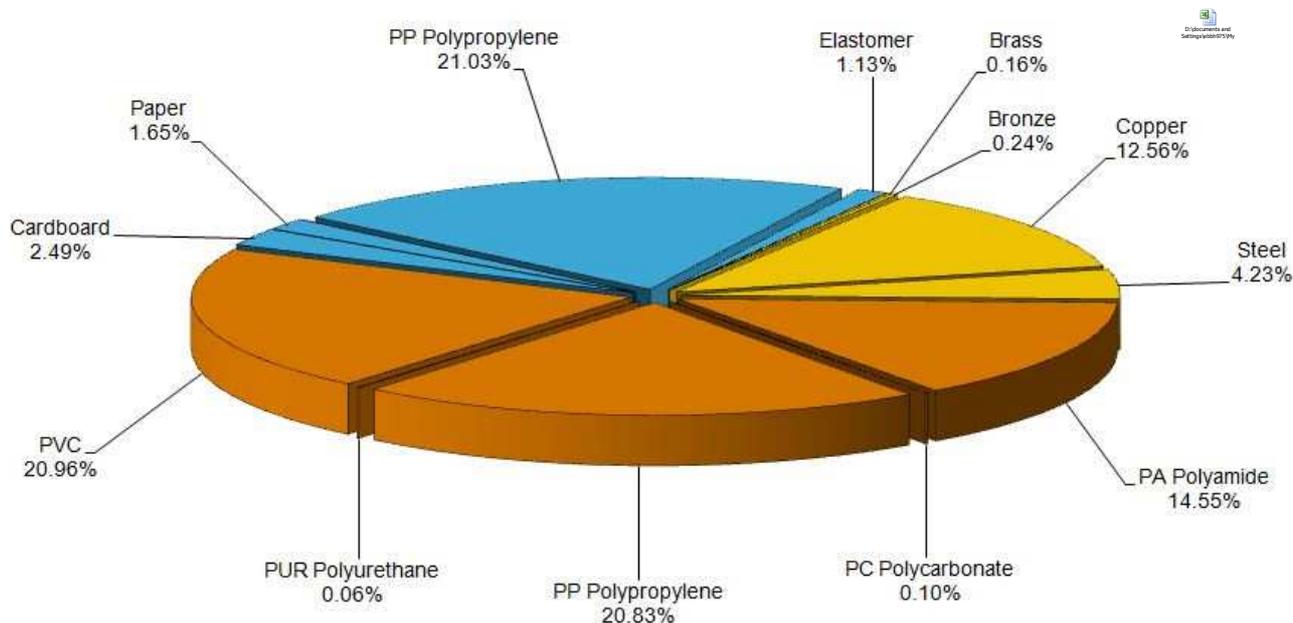
Product Number	Description & Size (mm)	Qty	Device	Device Function
1. KDP20ABG4	FEED UNIT 20A LEFT MOUNTING L x W x H = 145 x 64 x 48	1	Feed Unit Supplied with end cover Terminals 4 mm ² 3L + N + PE Polarity Left or Right mounting	The feed units delivered with end covers receive the cables supplying one end of Canalis KDP trunking. After stripping the KDP cable, the connection is made by means of a screw terminal for copper cable with a maximum c.s.a. of 4 mm ² . These components are fitted with a PG 16 cable gland. They are locked in the closed position by a screw. They can be used to supply the run from either side and for connecting two KDP runs. Each feed unit is supplied with an end cover for the opposite end of the run. The system as a whole complies with standard IEC 60439-2.
2.KDP20ED2192150	DISTRIBUTION LENGTH 20A 192M L x W x H = 192m x 32 x 54	30	DISTRIBUTION LENGTH 1500mm Distance between tap-offs L + N + PE Polarity	Carry the current and supply lighting fixtures. The run components consist of: 1. A flat ribbon cable conforming to standard IEC 60502-1 with 3 or 5 x 2.5 mm ² conductors, including one protective conductor. 2. Tap-off outlets , factory fitted. These can receive all tap-off units in the KBA and KBB ranges and ensure electrical connection of the tap-off units.
3. KBC10DCB20	10A TAPOFF UNITS L x B x H = 1114 x 60 x 62	10	TAP-OFF Unit 10 A Rating, 2-Pole + PE Polarity	The 10 and 16 A tap-off units pre-wired or not, offer phase selection or fixed polarities, and can be used on KDP, KBA and KBB ranges. To be wired for connection of luminaires using a cable of specific type, size or length. Fast connection for 3 x 0.75 to 1.5 mm ² cable. If prefabricated leads are used, the line must have 16 A protections (see possibilities of dispensing with protection in the simplified design guide for lighting distribution, in the section on protection against overloads).
4. KDPZF10	STEAL BEAM FIXING L x W x H = 29 x 9 x 9	60	Fixing System Fixing on the edge of sheet metal Fixing on the metal structures	The fixing system is used to attach Canalis KDP to the sides of cable trays, metal structures or concrete slabs. These systems are used to fix KDP in accordance with recommended installation methods. Fixing to the edge of pre-slotted sheet-metal cable trays for the ribbon cable and the feed unit. Fixings for I-beams of the 1 to 8 mm thicknesses:

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.

The environmental analysis was performed in conformity with ISO 14040

Constituent materials

The mass of the Canalis KDP product range is from 6500 g and 10000 g including packaging. It is **9082 g** including package for the **Canalis KDP 20 A**. 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 [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

The Canalis KDP 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 optimized, based on the European Union's packaging directive.

The Canalis KDP 20A packaging weight is **2428.8 g**. It consists of Polypropylene (2030g), Cardboard (240g) and Paper (158.8g).

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

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Use

The products of the Canalis KDP range do not generate environmental pollution (noise, emissions) requiring special precautionary measures in standard use.

The dissipated power depends on the conditions under which the product is implemented and used. This dissipated power is between 0 W and 110 W for the Canalis KDP product range. It is 62.42 W at 30% load in Active mode (30% of the time) and 0 W in OFF mode (at 70% of the time) for the referenced Canalis KDP 20 A, i.e. 2.1 W/metre.

This thermal dissipation represents less than **0.1%** of the power which passes through the product.

The product range does not require special maintenance operations.

End of life

At end of life, the products in the Canalis KDP 20 A have been optimized to decrease the amount of waste and allow recovery of the product components and materials.

This product range doesn't need any special end-of-life treatment. According to countries' practices this product can enter the usual end-of-life treatment process.

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 without packaging is: **38%**.

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

Modeling hypothesis and method:

- The calculation was performed on **Canalis KDP 20 A**.
- Product packaging is included.
- Installation components: No special components included.
- Scenario for the Use phase: This product range is included in the category "**Energy passing product**". Assumed service lifetime is 20 years and use scenario is Product dissipation is 62.42 W at 30% load in Active mode and 0 W in OFF mode, loading rate is 30%, service uptime is 30% and service OFF time is 70%.
- The geographical representative area for the assessment is **EUROPEAN** and the electrical power model used for calculation is **Europe** model.
- End of life impacts are based on a worst case transport distance to the recycling plant (1000km)

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Presentation of the product environmental impacts

Environmental indicators	Unit	For Canalis KDP 20 A					
		S = M + D + I + U + E	M	D	I	U	E
Air Acidification (AA)	kg H+ eq	4.30E-01	1.09E-02	3.11E-04	0.00E+00	4.19E-01	1.25E-04
Air toxicity (AT)	m ³	5.08E+08	2.18E+07	4.63E+05	0.00E+00	4.85E+08	1.86E+05
Energy Depletion (ED)	MJ	4.04E+04	1.08E+03	2.33E+01	0.00E+00	3.92E+04	8.97E+00
Global Warming Potential (GWP)	kg CO ₂ eq.	1.99E+03	4.80E+01	1.66E+00	0.00E+00	1.94E+03	6.37E-01
Hazardous Waste Production (HWP)	kg	1.49E+00	1.16E+00	2.05E-06	0.00E+00	3.33E-01	7.88E-07
Ozone Depletion Potential (ODP)	kg CFC-11 eq.	4.45E-04	3.85E-06	3.14E-09	0.00E+00	4.42E-04	1.21E-09
Photochemical Ozone Creation Potential (POCP)	kg C ₂ H ₄ eq.	1.42E-01	2.14E-02	4.28E-04	0.00E+00	1.20E-01	1.58E-04
Raw Material Depletion (RMD)	Y-1	7.11E-14	4.49E-14	3.38E-17	0.00E+00	2.61E-14	1.30E-17
Water Depletion (WD)	dm ³	5.58E+03	5.32E+02	1.72E-01	0.00E+00	5.05E+03	6.61E-02
Water Eutrophication (WE)	kg PO ₄ ³⁻ eq.	2.65E-02	8.03E-03	3.08E-06	0.00E+00	1.84E-02	1.18E-06
Water Toxicity (WT)	m ³	9.04E+02	4.01E+01	7.08E-01	0.00E+00	8.63E+02	2.72E-01

Life cycle assessment has been performed with the EIME software (Environmental Impact and Management Explorer), version 5 and with its database version CODDE-2014-04

According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range: “For other products in this family the impact of the **Hazardous Waste Production (HWP)** may be proportionally extrapolated based on the ratio of the product’s and reference product’s **Mass**. For the impacts of the **Water Eutrophication (WE)** and **Raw Material Depletion (RMD)** half of the impact may be proportionally extrapolated based on the ratio of the products **Mass**, and half may be proportionally extrapolated based on the ratio of the products **Electricity Use**. For all remaining product categories the impacts may be proportionally extrapolated based on the ratio of the products **Electricity Use**”.

System approach

As the products of the range are designed in accordance with the European RoHS Directive 2011/65/EU, they can be incorporated without any restriction in an assembly or an installation subject to this Directive.

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.

Glossary

Air Acidification (AA)	The acid substances present in the atmosphere are carried by rain. A high level of acidity in the 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 ⁺ .
Air Toxicity (AT)	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.
Energy Depletion (ED)	This indicator gives the quantity of energy consumed, whether it is from fossil, hydroelectric, nuclear or other sources. It takes into account the energy from the material produced during combustion. It is expressed in MJ.
Global Warming (GW)	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 ₂ .
Hazardous Waste Production (HWP)	This indicator quantifies 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. It is expressed in kg.
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. The 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 ₂ H ₄).
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 the annual reserves of the material.
Water Depletion (WD)	This indicator calculates the volume of water consumed, including drinking water and water from industrial sources. It is expressed in dm ³ .
Water Eutrophication (WE)	Eutrophication is a natural process defined as the enrichment in mineral salts of marine or lake waters or a process accelerated by human intervention, defined as the enrichment in nutritive elements (phosphorous compounds, nitrogen compounds and organic matter). This indicator represents the water eutrophication of lakes and marine waters by the release of specific substances in the effluents. It is expressed in grams equivalency of PO ₄ ³⁻ (phosphate).
Water Toxicity (WT)	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.

PEP achieved with Schneider-Electric TT01 V10.4 and TT02 V20 procedures in compliance with ISO14040 series standards

PEP in line with PEP ecopassport PCR : PEP-PCR-ed 2.1-EN-2012 12 11

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