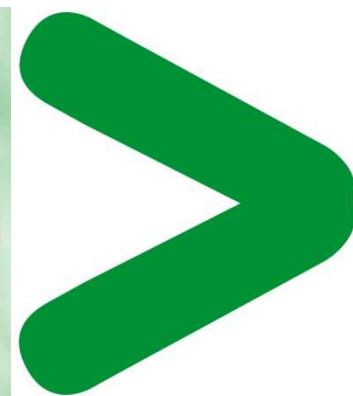
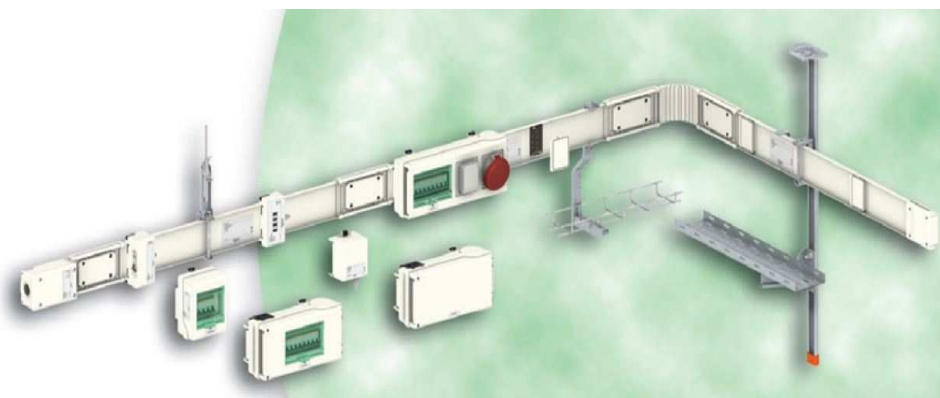


Product Environmental Profile

Canalis KNA 40A to 160A



Product Environmental Profile – PEP

Product overview

Canalis KNA is designed for low power distribution up to 160A. It can be used as the main power supply for type KDP, KBA, or KBB Lighting Busbar Trunking systems.

The Functional Unit: The function of the **Canalis KNA 40A to 160A** product range is to distribute electrical energy for low power applications at Industrial buildings, Commercial centres, Tertiary buildings etc for 20 years.

Technical characteristics of Canalis KNA:

- Length of busbar trunking components: 1.5m and 3m
- Rated busbar trunking current: 40 to 160A
- Rated tap off units current: 16 to 63A
- Rated insulating voltage: 500V
- Number of active conductors: 4 + PE
- Protection index: IP55
- Surface treatment: white RAL9001
- Regulations: compliant with IEC 60439-2

This range consists of **KNA, 40 A to 160 A, IP41/IP54**.

The representative product used for the analysis is the typical product, **Canalis KNA 63A**, which consists of:

- *1 x 63 A power feed box (cat. no. KNA63AB4)*
- *6 x 3 m straight lengths, 1 m modules for tap-off units (cat. no. KNA63ED4303)*
- *8 connectors (cat. no. KNB25CF5)*
- *7 fixing devices (cat. no. KNB160ZF1)*

Product Environmental Profile – PEP

Lists of functions included in the configuration

| Product Number | Description & Size (mm) | Qty | Device | Device Function |
|----------------|---|-----|---|--|
| 1. KNA63AB4 | END FEED UNIT 63 A A x D x E = 265 x 71 x 92 | 1 | End Feed Unit Aluminium Busbar Trunking 3L + N + PE Polarity Right or left mounting | End Feed units are equipped with a mechanical and electrical locating system (polarisation), making it possible to supply a run from the right or the left. They are supplied with an end cover. They can be mounted at the end of a line. These units are made of moulded plastic 63A rating. |
| 2. KNA63ED4303 | STRAIGHT LENGTH 63 A L x W x H = 3000 x 27.5 x 92 | 6 | Straight Length with Tap-Off Outlets Aluminium Busbar Trunking 3L + N + PE Polarity Number of outlets is 3 | These components Carry the current and supply low-power loads. Straight lengths constitute the basic structure of the line. Equipped with 4 live conductors. |
| 3. KNB25CF5 | TAPOFF UNIT 25A FOR NF FUSES A x B x F = 103 x 74.5 x 130 | 8 | Four-Pole Tap-off unit 3L + N + PE Polarity Cable clamp terminals Connection Fuse Protection | These tap-off units are used to supply loads from 16 to 63A or protect nearby loads against overloads due to lightning strikes. Can be equipped with fuse holders. Disconnection by unplugging the tap-off unit. Type of Fuse: NF 10 x 38, (Type gG: 20 A max. Type aM: 25 A max.) |
| 4. KNB160ZF1 | KN FIXING BRACKETS 40A TO 100A L x W x H = 61 x 23 x 118 | 7 | Fixing System Suspended on M8 threaded rod mounting 40A to 160A Ratings | The fixing system ensures that Canalis KN is well secured, whatever the type of building structure. These brackets are used to suspend the KN busbar trunking line to the structure of the building via threaded rods M8 and do not require tools. |

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.

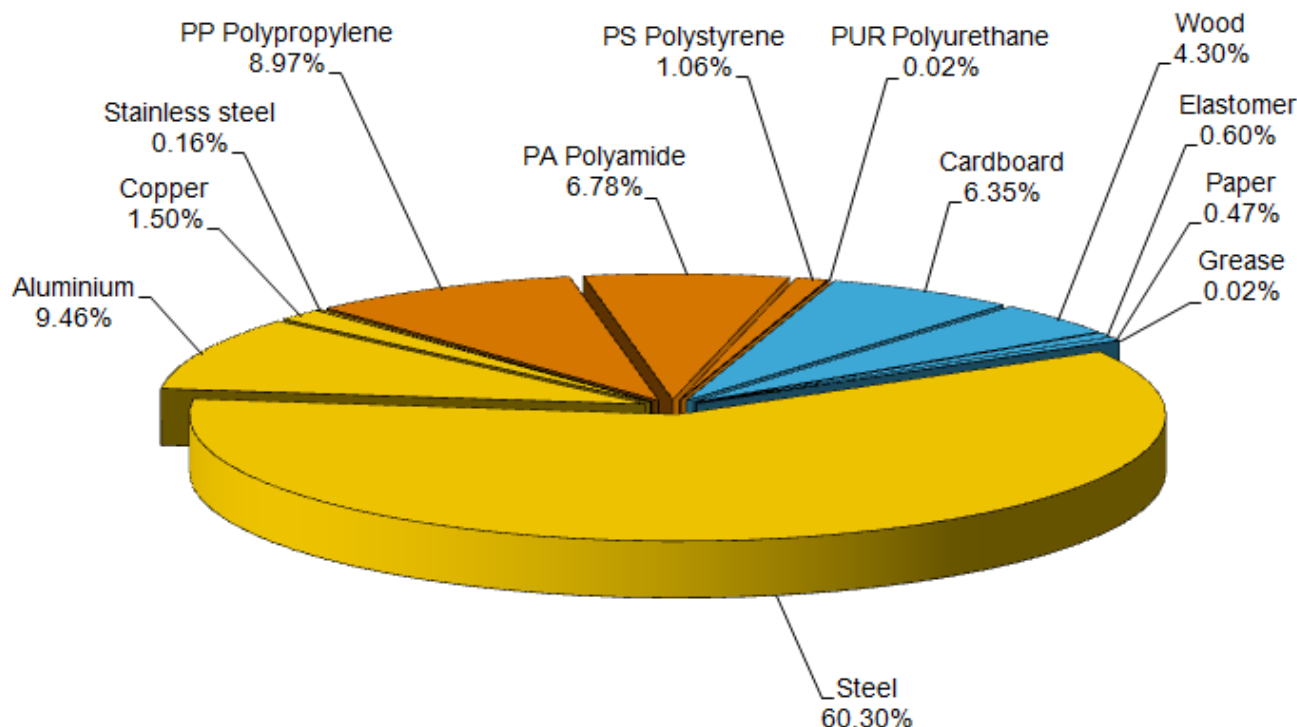
The environmental analysis was performed in conformity with ISO 14040 "Environmental management: Life cycle assessment – Principle and framework".

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

Product Environmental Profile – PEP

Constituent materials

The mass of the Canalis KNA 40A to 160A product range is from 30000 g and 40000 g including packaging. It is **37451.3 g** including packaging for the typical product, **Canalis KNA 63A**. 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 KNA 40A to 160A 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 KNA 40A to 160A packaging weight is **4163.9 g**. It consists of Paper 174.2 g, Cardboard 2379.5 g and Wood 1610.2 g.

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

Product Environmental Profile – PEP

Use

The products of the Canalis KNA 40A to 160A 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 300 W for the Canalis KNA 40A to 160A product range. It is 154 W at 30% load in Active mode and 0 W in OFF mode for the typical product, Canalis KNA 63A, referenced, i.e. 8.6 W/metre.

This thermal dissipation represents less than **0.2%** 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 KNA 40A to 160A 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: **89%**.

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 KNA 40A to 160A**.
- 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 154 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)

Product Environmental Profile – PEP

Presentation of the product environmental impacts

| Environmental indicators | Unit | For Canalis KNA 63A | | | | | |
|---|--------------------------------------|-----------------------|----------|----------|----------|----------|----------|
| | | S = M + D + I + U + E | M | D | I | U | E |
| Air Acidification (AA) | kg H+ eq | 1.07E+00 | 2.81E-02 | 1.21E-03 | 0.00E+00 | 1.03E+00 | 5.33E-03 |
| Air toxicity (AT) | m ³ | 1.25E+09 | 4.04E+07 | 1.80E+06 | 0.00E+00 | 1.20E+09 | 7.94E+06 |
| Energy Depletion (ED) | MJ | 1.01E+05 | 3.04E+03 | 9.05E+01 | 0.00E+00 | 9.70E+04 | 3.83E+02 |
| Global Warming Potential (GWP) | kg CO ₂ eq. | 5.01E+03 | 1.83E+02 | 6.44E+00 | 0.00E+00 | 4.79E+03 | 2.72E+01 |
| Hazardous Waste Production (HWP) | kg | 7.30E+00 | 6.48E+00 | 7.95E-06 | 0.00E+00 | 8.22E-01 | 3.36E-05 |
| Ozone Depletion Potential (ODP) | kg CFC-11 eq. | 1.10E-03 | 1.15E-05 | 1.22E-08 | 0.00E+00 | 1.09E-03 | 5.15E-08 |
| Photochemical Ozone Creation Potential (POCP) | kg C ₂ H ₄ eq. | 3.52E-01 | 4.70E-02 | 1.66E-03 | 0.00E+00 | 2.96E-01 | 6.76E-03 |
| Raw Material Depletion (RMD) | Y-1 | 5.08E-13 | 4.43E-13 | 1.31E-16 | 0.00E+00 | 6.46E-14 | 5.55E-16 |
| Water Depletion (WD) | dm ³ | 1.36E+04 | 1.15E+03 | 6.67E-01 | 0.00E+00 | 1.25E+04 | 2.82E+00 |
| Water Eutrophication (WE) | kg PO ₄ ³⁻ eq. | 5.95E-02 | 1.39E-02 | 1.19E-05 | 0.00E+00 | 4.56E-02 | 5.05E-05 |
| Water Toxicity (WT) | m ³ | 2.19E+03 | 4.25E+01 | 2.75E+00 | 0.00E+00 | 2.13E+03 | 1.16E+01 |

Life cycle assessment has been performed with the EIME software (Environmental Impact and Management Explorer), version 5 and with its database version 2013-02

The **USE (U)** phase is the life cycle phase which has the greatest impact on the majority of environmental indicators. The manufacturing phase is responsible for the major impacts on the Raw Material Depletion (RMD) as well as on the Hazardous Waste Production (HWP).

According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range: “Depending on the impact analysis, the environmental indicators (without RMD and HWP) of other products in this family may be proportional extrapolated by energy consumption values”. For RMD and HWP, impact may be proportional extrapolated by mass of the product.

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 mode 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 PO43-(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 V10.3 and TT02 V19 procedures in compliance with ISO14040 series standards

| | | | |
|---|--|---|---|
| Registration N° : SCHN - 2015-068 | | Applicable PCR : PEP-PCR-ed 2.1-EN-2012 12 11 | |
| Verifier accreditation N° : VH25 | | Program information: www.pep-ecopassport.org | |
| Date of issue: August-2015 | | Period of validity: 4 years | |
| Independent verification of the declaration and data, according to ISO 14025:2006 | | | |
| Internal | | External | X |
| In compliance with ISO 14025:2006 type III environmental declarations | | | |
| PCR review was conducted by an expert panel chaired by J. Chevalier (CSTB). | | | |
| The elements of the actual PEP cannot be compared with elements from another program. | | | |



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