



**APPROPRIATE USE, GENERAL INSTALLATION
AND LIFE-CYCLE MANUAL OF KATKO
PRODUCTS**

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MAINTENANCE AND OPERATING INSTRUCTIONS FOR KATKO SWITCHES

These instructions contain important information on safety during installation, use and maintenance. After unpacking, check contents: such as switch, shaft, and (if applicable) handle. Also check apparatus for any damage during transport. If in doubt do not use appliance but contact supplier directly. Before installing, check that data on switch label conform to those for which the appliance was purchased and that they are compatible with network.

Appliance must only be used for its intended purpose. Any other use is improper and dangerous. The producer cannot be held responsible for any damage arising from improper, careless or unreasonable treatment. For apparatus use international regulations according to IEC 60364, 60439-1, 60947-1 and 60947-3 must be observed.

Maintenance of apparatus must be performed annually. Before cleaning or maintenance, electrical supply must be disconnected. In case of breakdown and/or faulty working of apparatus, do not use or tamper with same apparatus but contact supplier directly for checking or repair.

Along with maintenance of apparatus tightening torque of all fixings must be inspected (and when needed, adjusted according to producer's guidelines) and dust, liquids or any alien material must be removed from the apparatus and its immediate vicinity.

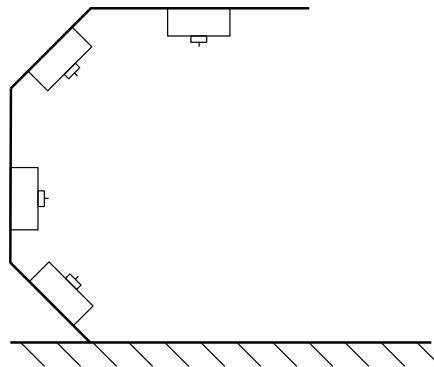
Failure to comply with the above may compromise safety of apparatus and render guarantee null and void.

GENERAL GUIDELINES FOR INSTALLING KATKO PRODUCTS

To ensure safe and lasting installation of Katko's products, please follow these guidelines:

Outdoor Installation

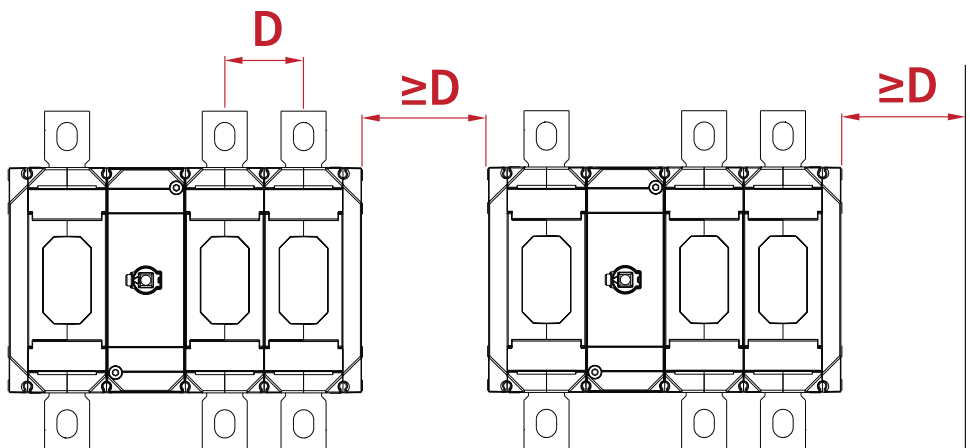
Recommended switch mounting orientation when installing switches outdoors:



Product orientation outdoors

Spacing Between Switches and Enclosure

Space between two switches and a switch and an enclosure wall must be equal or more than the space between switch terminals (D).



Pollution Degree

The pollution degree refers to the environmental conditions for which the equipment is intended. Pollution degree rating for KATKO's products is 3.

Pollution degree 3:

Conductive pollution occurs, or dry, non-conductive pollution occurs which becomes conductive due to condensation.

Auxiliary Contacts for KU 100-160 A Range – 4-pole, 8-pole and 4-pole change-over

Auxiliary contacts 160KU1V, 160KU2V, 160KU1VAU and 160KU2VAU used with 4 pole and 8 pole KU 100-160A (IEC) and KU 60-100A (UL98) might have less than 20ms time interval between the opening of the contacts of the auxiliary switch and the contacts of the main poles.

Configurations of KU 100-160A Range – 8-pole and 4-pole change-over

Aforementioned configurations cannot be assembled with parallel kit/change-over kit and switches outside of KATKO factory and without the permission of KATKO. The products are available when assembled at the KATKO factory.

NORMAL SERVICE, MOUNTING AND TRANSPORT CONDITIONS

The switch is intended to use in normal conditions as per IEC standard described there below (Table). If the conditions differ from the IEC standard (IEC 60947-1, Section 6) normal operating conditions, the installation must be agreed with the manufacturer.

| Ambient air temperature | |
|--|--------|
| The ambient air temperature does not exceed | +40 °C |
| Its average over a period of 24 h does not exceed | +35 °C |
| The lower limit of the ambient air temperature is | -5 °C |
| Recommended (at least) | +5 °C |
| Altitude | |
| The altitude of the site of installation does not exceed | 2000 m |
| Humidity | |
| The relative humidity of the air (+40°C) | < 50 % |
| The relative humidity of the air (+20 °C) | < 90 % |
| Pollution degree | |
| Pollution degree 3 of IEC 60947-1. | |
| Pollution | |
| The ambient air must not be significantly polluted by dust, smoke, corrosive and/or flammable gases, vapors or salt. | |
| Conditions during transport and storage | |
| -25 °C - +55 °C and, for short periods not exceeding 24 h, up to +70 °C | |

KATKO PRODUCT WARRANTY 1/2

KATKO Warranty Terms

KATKO warranty terms are as per ORGALIME S 2012: General Conditions. All KATKO Products are supplied with a one-year warranty from the date of purchase against manufacturing faults or material defects that might alter the performance of the products, when the product is used in the agreed operating conditions, installed as instructed and not otherwise modified after shipment (not including defects arising from modifications or incorrect installation). To the exclusion of any other remedies, during that time KATKO shall replace the defect product. For a defect product to be replaced, KATKO must be notified of the defect in writing without undue delay and no later than two weeks after the expiry period of the one-year warranty.

Furthermore, the notice must contain a clear description of the defect and the defect product, and if requested by KATKO the product shall be delivered to KATKO for inspection. KATKO is not liable for defects arising out of the materials provided, or a design stipulated or specified by the purchaser.

Appropriate Use of the Product

Appropriate use of the product is determined as per the prevailing and appropriate IEC standards and KATKO's instructions. KATKO deems the use of the product appropriate when the following conditions are met:

- The product is used for its original intended purpose.
- The product in an application is chosen as per relevant utilization categories and nominal operational currencies (can handle the electric loads of the application).
- The recommendations for operating conditions are fulfilled.
- The Installation is conducted by a professional electrician with the appropriate skills and knowledge to install electrical products and follows the installation instructions of KATKO.
- The product is not exposed to any reasonable and foreseeable harm or misuse (such as: physical impact, or other activity), but is used and operated with the same amount of care as any electrical device
- The product has not been altered or modified in any way without permission from KATKO
- The product and/or equipment connected to the product has been maintained according to manufacturer's maintenance guidelines

KATKO PRODUCT WARRANTY 2/2

Operational Environment

The product is intended to be used in normal operating conditions defined by KATKO to its products as:

| Ambient air temperature | |
|--|-----------------------|
| The ambient air temperature does not exceed | +60 °C (*)(**) |
| Its average over a period of 24 h does not exceed | +55 °C |
| The lower limit of the ambient air temperature is | -40 °C |
| Recommended (at least) | -25 °C |
| Altitude | |
| The altitude of the site of installation does not exceed | 2000 m |
| Humidity | |
| The relative humidity of the air (+40°C) | < 50 % |
| The relative humidity of the air (+20 °C) | < 90 % |
| Pollution degree | |
| Pollution degree 3 of IEC 60947-1. | |
| Pollution | |
| The ambient air must not be significantly polluted by dust, smoke, corrosive and/or flammable gases, vapors or salt. | |
| Conditions during transport and storage | |
| -25 °C - +55 °C and, for short periods not exceeding 24 h, up to +70 °C | |

(* For higher ambient air temperatures than +40°C the maximum load of the switch needs to be derated according to the instructions provided by KATKO.)

(**Special products, such as Fire Rated (300°C/2h and 200°C/3h) and ATEX products have special operating conditions, which are specified in the additional documents relating to those products – available upon purchase and/or on demand.)

Additional Information

For additional information regarding KATKO Products or their warranties please contact KATKO Oy – Quality Department

Address: Ruosilantie 2, 00390 Helsinki, FINLAND

Phone: +358(0)9849600

Email: info@katko.fi

WASTE MANAGEMENT AND RECYCLING POLICY

Environmentally friendly disposal of electrical and electronic equipment

Katko is participating in a European Union-wide recycling program, WEEE2.

The European Commission published on 4th of July 2012 the Directive 2012/19/EU of the European Parliament and of the Council (“WEEE2”), regarding waste of electrical and electronic equipment (“EEE”). From 15th of August 2018 all EEE shall be classified within the 6 categories set out in Annex III of the WEEE21.

Link to certificate: https://www.katko.com/wp-content/uploads/2019/12/Katko_WEEE2_ENG.pdf

General installation guidelines / notes

Additional instructions that must be followed in addition to product specific instructions to ensure proper installation, maintenance and validity of product warranty!

Cables

Always confirm compatibility of cables during installation. Pay attention to correct cable stripping length. Cable inserted inside terminal must be completely stripped. Cable outside of terminal must not be stripped. Generally aluminium cables require use of bi-metal cable connectors even when connecting directly to tunnel terminals.

Strain Relief of Cables

When installing/maintaining enclosed switches pay attention to proper utilization of strain reliefs/cable clamps. Cables must be installed perpendicular to the switch to ensure there is no lateral strain to the cable.

Termination of Cables

Pay attention to correct torque of terminal during termination of cables. Cables must be tightened to correct torque during installation. After installation correct torque must be confirmed to ensure proper contact with cable and terminal. When applying torque to a terminal make sure no force/torque is applied to DIN rail or other mounting/fixing by holding the terminal on place with a tool. Terminal torque must be checked annually and re-tightened if needed as thermal expansion may cause cable termination to loosen up.

Tightening torques for cable connectors and terminal blocks are available from this document:

https://www.katko.com/wp-content/uploads/2020/10/KATKO_Table_Cross-section-mm2-number-of-conductors.xlsx

Tightening torques for switches and switch fuses are available from this document:

<https://www.katko.com/wp-content/uploads/2021/10/Switch-Data.pdf>

Use of Grease and Lubricants

Electric installation grease must always be used whenever stated in product installation guide. A grease meant for electrical installations must be always used when grease is used as it does not turn resistive.

IP Class

To ensure a correct IP rating:

- Do not drill additional holes, or;
- Enlarge the existing holes beyond the indicated size
- Make sure screws are tightened to correct torque
- In case the product is equipped with "knockouts" they must be opened according to installation instructions and/or dimensional drawings. Knockouts of unused holes must not be opened.
- Always use approved and certified components that have the same IP-class as the KATKO product when preparing cable entries (e.g., cable glands, etc.)
- Make sure to follow other relevant norms, regulations, and standards

Failing to follow instructions in opening (cable entry) holes or modifying holes in any way may cause impurities in the product leading to a potential hazard or loss of IP rating.

Panel and Control Panel Board Installation

When a switch is installed with an external shaft and handle correct alignment of switch and shaft, and correct length of shaft must be ensured. Any mistakes in alignment may cause unwanted twisting or other force to the switch.

Auxiliary Contacts

When installing auxiliary contacts ensure correct position of switch.

Mounting Enclosure

Pay attention to correct screw length when mounting enclosure and size of screw cap when mounting enclosure cover to the base. Screws must be tightened in a crisscross pattern when installing enclosure cover.

Sheet Steel Enclosures

The products are suitable to be installed in outdoor environments classified as C3 M*, according to standard EN ISO 12944-2. The declaration refers to only to painted parts.

*The durability is not a guarantee period.

Enclosure material and environment

When choosing enclosure material for enclosed switches pay attention to installation environment. For example, polycarbonate enclosures are not suitable to be used in environments where they may get in touch with lactic (milk) acid. Please consult Katko sales personnel or quality department for more information about suitable and unsuitable environments for each enclosure material.

ABS enclosures are not recommended for outdoor installation.