

LIFE-CYCLE MANUAL OF KATKO PRODUCTS

Appropriate Use, General Installation and Life-Cycle

Version 2.0

Data subject to change without notice. This manual is a general guide; always follow product-specific instructions. Product-specific instructions override this manual.

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1 Maintenance and operating instructions for KATKO switches

These instructions contain important safety information for the installation, use, and maintenance of KATKO switches.

After unpacking:

- Verify that the delivery is complete (e.g., switch, shaft, and handle if applicable).
- Inspect the product for any transport damage.
- If in doubt, do not use the product; contact the supplier.

Before installation, confirm that the data on the switch label matches the intended application, utilization category, and supply network.

The switch must only be used for its intended purpose. Any other use is improper and may be dangerous. The manufacturer is not responsible for damage arising from improper, careless, or unreasonable handling.

Installation and use shall comply with applicable international and national regulations and standards, including IEC 60364, IEC 61439 series (switchboards), IEC 60947-1 and IEC 60947-3.

Maintenance must be performed at least annually.

Before cleaning or maintenance, disconnect the electrical supply and verify de-energization by appropriate measurement.

WARNING: All parts must be treated as live until de-energization has been verified by appropriate measurement. Measure phase-to-phase, phase-to-neutral, and phase-to-PE (protective earth). Test the measuring instrument on a known live source before and after the measurement.

In case of malfunction, do not operate or tamper with the product; contact the supplier for inspection or repair.

During maintenance:

- Inspect and, if necessary, retighten all fixings to the specified torques.
- Remove dust, liquids, or foreign material from the product and its immediate vicinity.
- Verify smooth mechanical operation and correct interlocking (if equipped).

Failure to comply with these instructions may compromise safety and render the warranty null and void.

2 General guidelines for installing KATKO products

To ensure safe and reliable installation, always follow the product-specific installation guide together with the general instructions below.

2.1 Outdoor installation

When installing switches outdoors, mount the switch so that water cannot enter or collect on the device. Follow the recommended mounting orientation shown in the product-specific dimensional drawing.

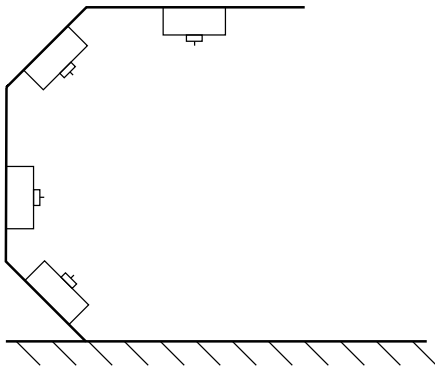


Figure 1. Recommended product orientation outdoors (see product-specific dimensional drawing).

2.2 Spacing between switches and enclosure

The clearance between two switches, and between a switch and an enclosure wall, must be at least equal to the terminal spacing (D) of the switch. Ensure adequate ventilation and access for wiring and maintenance.

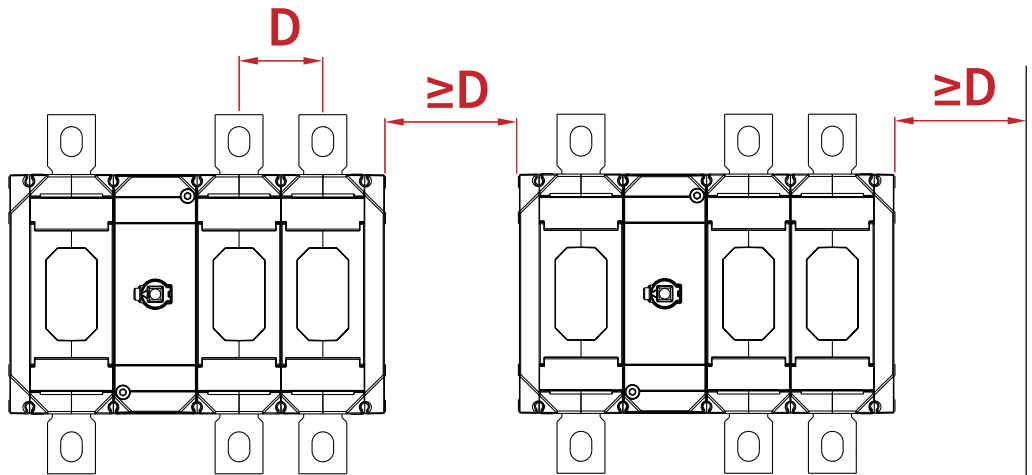


Figure 2. Spacing between switches and enclosure

2.3 Pollution degree

Pollution degree describes the environmental conditions for which the equipment is intended. KATKO products are rated for Pollution Degree 3.

Pollution Degree 3: conductive pollution may occur, or dry non-conductive pollution may become conductive due to condensation.

2.4 Auxiliary contacts for KU 100–160 A range

Auxiliary contacts 160KU1V, 160KU2V, 160KU1VAU and 160KU2VAU, when used with 4-pole or 8-pole KU 100–160 A (IEC) and KU 60–100 A (UL98) switches, may have less than 20 ms time interval between the opening of the auxiliary contacts and the opening of the main poles. Account for this in control-circuit design.

2.5 KU 100–160 A configurations (8-pole / change-over)

Parallel and change-over configurations for KU 100–160 A (8-pole and 4-pole change-over) must only be assembled by KATKO or with written permission from KATKO. Field assembly without permission is not permitted. These products are available factory-assembled.

3 Normal service, mounting and transport conditions

Switches are intended for use under normal operating conditions as defined in IEC 60947-1, Section 6. If installation conditions differ from the standard, the installation must be agreed with the manufacturer in advance.

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	

Table 1. Normal service conditions (refer to IEC 60947-1)

4 KATKO product warranty

4.1 KATKO warranty terms

KATKO warranty terms follow General Terms and Conditions of Sale of KATKO Oy. All KATKO products are supplied with a one-year warranty from the date of purchase against manufacturing or material defects that alter product performance, provided that the product is used within agreed operating conditions, installed as instructed, and not modified after shipment (excluding defects caused by modifications or incorrect installation).

During the warranty period, KATKO will replace the defective product. KATKO must be notified of a defect in writing without undue delay and no later than two weeks after the warranty period ends. The notice must include a clear description of the defect and the product. If requested, the product shall be delivered to KATKO for inspection. KATKO is not liable for defects caused by purchaser-provided materials or purchaser-specified designs.

4.2 Appropriate use of the product

Appropriate use is defined by applicable IEC standards and KATKO instructions. Use is considered appropriate when:

- The product is used for its original intended purpose.
- The product is selected according to relevant utilization categories and nominal operational currents/ratings.
- Recommended operating conditions are fulfilled.
- Installation is carried out by a qualified electrician following KATKO instructions.
- The product is not exposed to foreseeable misuse or physical damage.
- The product has not been altered without KATKO permission.
- The product and connected equipment are maintained according to manufacturer guidelines.

4.3 Operational environment

The product is intended for normal KATKO-defined operating conditions. For ambient air temperatures above +40 °C, the maximum load must be derated according to KATKO instructions. Special products (e.g., Fire Rated 300 °C/2 h, 200 °C/3 h, ATEX) have separate operating conditions specified in their additional documents.

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	

Table 2. Normal operational environment (refer to IEC 60947-1)

4.4 Additional information

For product or warranty questions, contact:

KATKO Oy – Quality Department
 Ruosilantie 2, 00390 Helsinki, FINLAND
 Phone: +358 (0)9 849 600
 Email: customerservice@katko.com

5 Waste management and recycling policy (WEEE)

KATKO participates in the EU-wide WEEE2 recycling program for electrical and electronic equipment (EEE). At end of life, dispose of products according to local regulations and deliver them to an authorized collection or recycling facility. A WEEE certificate is available upon request.

6 General installation notes

The following instructions must be followed in addition to product-specific guides to ensure correct installation, safe operation, and warranty validity.

6.1 Cables and conductors

Always confirm cable compatibility. Use correct stripping length so that the conductor is fully stripped inside the terminal and insulation remains intact outside the terminal. Aluminium conductors generally require bi-metal connectors even when connecting to tunnel terminals.

KATKO terminals are suitable for connecting both aluminium and copper conductors. When connecting Al conductors, brushing the conductor and using joint grease (e.g., Penetrox A-13) is recommended to prevent oxidation. For fine-stranded conductors (class 5 or 6), the use of ferrules is recommended. Sector-shaped conductors must be reshaped to round before installation. When the terminal is used for protective earth (PE) or neutral (N) connections, each incoming and outgoing PE and N conductor must have its own separate terminal.

6.2 Strain relief of cables

When installing or maintaining enclosed switches, use appropriate strain reliefs/cable clamps. Cables must enter perpendicular to the switch to avoid lateral strain.

6.3 Termination of cables

Tighten terminals to the specified torque during installation using a calibrated torque tool. Verify torque after installation to ensure reliable contact. Hold the terminal in place when applying torque to avoid stressing DIN rails or mounting parts. Re-check torque annually; thermal cycling can loosen terminations.

Tightening torques for cable connectors and terminal blocks are available from KATKO torque tables. Tightening torques for switches and switch fuses are available in the product data sheets.

6.4 Use of grease and lubricants

Use electrical installation grease whenever stated in the product installation guide. Only greases intended for electrical installations may be used.

6.5 IP class

To maintain the declared IP rating:

- Do not drill additional holes or enlarge existing holes beyond the indicated size.
- Tighten screws to the specified torque.
- Open knockouts only according to dimensional drawings/instructions; unused knockouts must remain closed.
- Use only approved cable glands/components with the same IP class as the KATKO product.
- Follow all applicable norms, regulations, and standards.

Incorrect modification of cable entry holes may reduce IP rating and create a hazard.

6.6 Panel and control panel board installation

When a switch is installed with an external shaft and handle, ensure correct shaft length and alignment. Misalignment may cause twisting forces or mechanical stress.

6.7 Auxiliary contacts

When installing auxiliary contacts, ensure correct switch position and verified actuation according to the product-specific guide.

6.8 Mounting enclosure

Use correct screw length and cap size. Tighten cover screws in a crisscross pattern to ensure even gasket compression.

6.9 Sheet steel enclosures

Painted sheet steel enclosures are suitable for outdoor environments classified as C3-M according to EN ISO 12944-2. This declaration applies only to painted parts and does not constitute a warranty period.

6.10 Enclosure material and environment

Select enclosure material according to the installation environment. For example, polycarbonate (flammability rating UL94 V-0) enclosures are not suitable for

environments with lactic (milk) acid exposure. ABS (UL94 HB) enclosures are not recommended for outdoor use. Contact KATKO sales or Quality Department for material suitability in specific environments.