M3 Series

Basic Switch

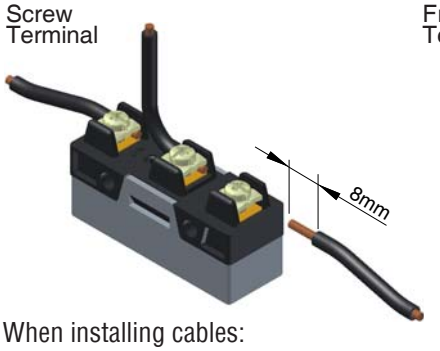
INSTALLATION INSTRUCTIONS

⚠ WARNING

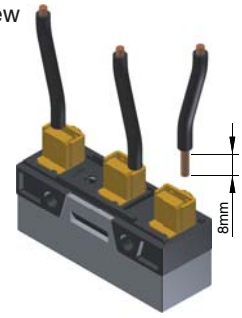
- Turn off the power to make electrical connections or before any maintenance on the switch or equipment where it is applied. ***Electric shock will result in death or serious injury***.
- Do not use these products as safety or emergency stop devices or in any other application where the failure of the product could result in personal injury.
- Installation and maintenance services for electrical equipment should be executed only by qualified personnel.
- Read these instructions carefully. Retain instructions for future reference.
- Inappropriate use of the product could result in personal injury and/or property.
- To install the product, attempt to the specified limits to ensure a correct performance.
- Do not use these products as a mechanical stop.
- Avoid environments where: - temperature changes in cause condensation
  - occur excessive vibration and shock and may demage the proper functioning of the switch
  - there is explosive or inflammable gas.
- Additional informations: sak@kap.com.br

1- Electrical Connections

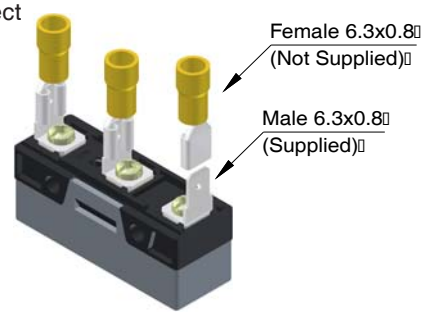
Screw Terminal



Front Screw Terminal



Quick- connect Terminal



When installing cables:
- Use appropriate driver for the applied load (IEC 61058-1).
- Do not exceed the specified torque.
- Test the fixation drivers before applying the load.
- Front screw terminal: install the cables fixing them on the largest surface of the terminal.

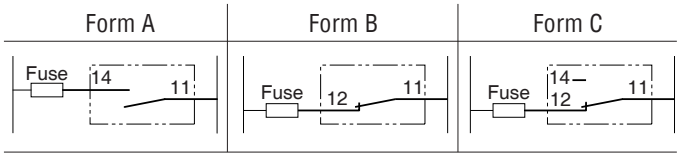
1.1- Cables - IEC 61058-1 (flexible cables)

- minimum: 1 x 1 mm^2
- maximum: 1 x 2,5mm^2

1.2- Cables - Fixing Torque

Terminal	Thread	Torque (N.m)	Torque (lb.in)
(all models)	M3,5	0.5...0.8	4.4...7.1

1.3- Circuitry (with protection fuse)



- Marking: IEC 60947-1

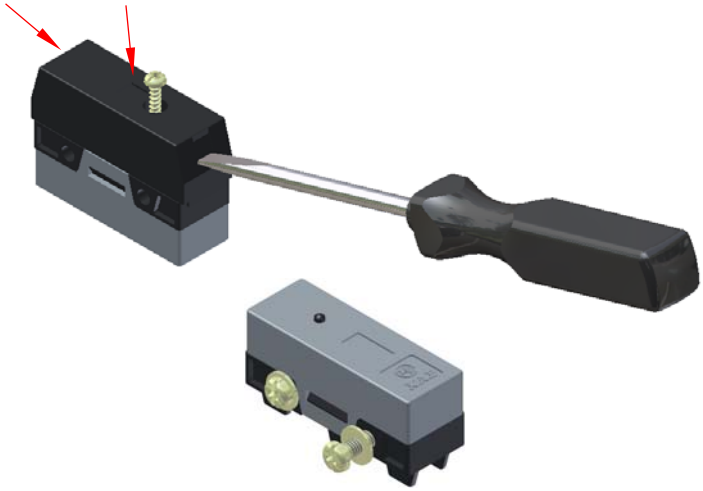
1.4- Short-circuit protective device

- 10 A 500 V fuse, type gG, connected in series with the security circuit.

- Use female connectors according to IEC 61058-1, appropriated to the load and the conductor specified.
- When connecting female connectors, push it up to stop the male terminal.
- Use appropriate tool to crimp the conductor to the female terminal.

1.5- Switch M3 with M33 terminal cover

- We recommend using M33 to protect people against access to dangerous parts.
- The M33 is fixed to M3 by self-tapping screw.
- Fixing torque: 0,2 until 0,5 Nm
- Triple cables output options: the first one is indicated by screwdriver and the others by arrows (see figure below).
- To create the cable outline, use screw diver to break the membrene of the choosen output.



2- Housing Fixing

- Use M4 screws with flat washer.
- Fixing Torque: 0,4...0,7 Nm / 3.5...6.2 lb.in

Subject to change without prior notice

KAP COMPONENTES ELÉTRICOS Ltda.

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Basic Switch

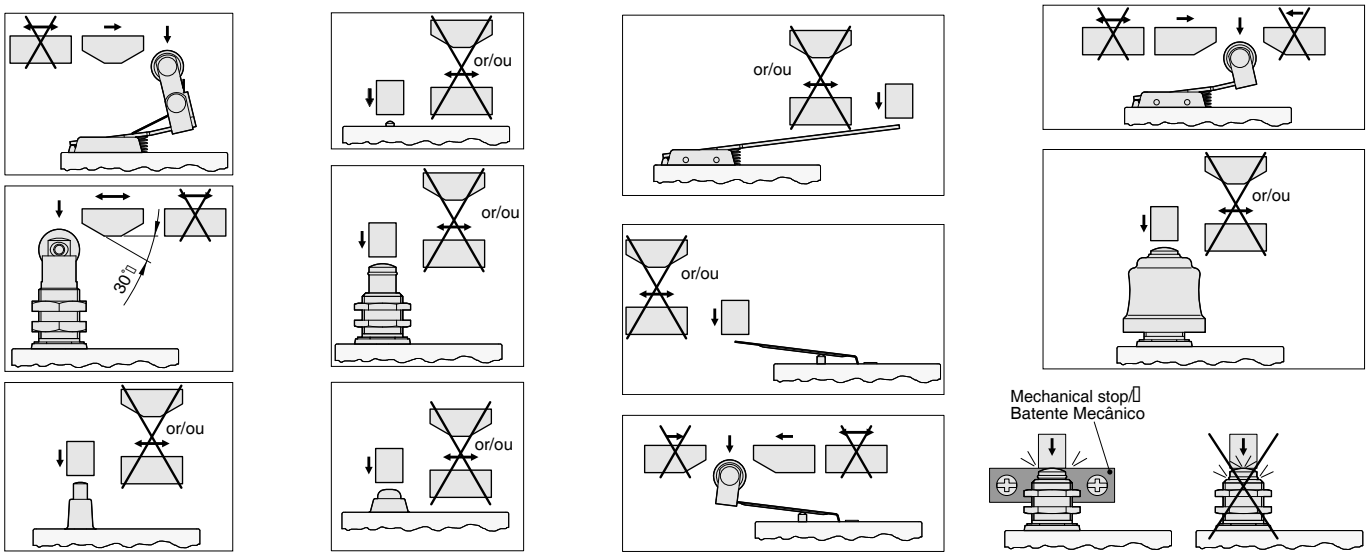
INSTALLATION INSTRUCTIONS - Continuation

3- Technical Data

- In conformity with standards	IEC 61058-1 / Directive 2014/35/EU
- Rated Voltage	250 V; 50/60 Hz
- Rated Current	16(3) A; switch for a.c. only; circuit disconnection: full disconnection
- Impulse Withstand Voltage	1.5 kV
- Insulation Resistance	100 MΩ minimum (at 500 Vcc)
- Dielectric Strength	1.5 kV minimum (at 50/60 Hz / 60 s)
- Contact Resistance	50 mΩ maximum initial (at 1 A 5 Vdc)
- Ambient Temperature	+85ºC maximum
- Protection Against Electric Shock	Class 0 - protection against electric shock relies upon basic insulation
- Mechanical Durability	1E6 (1.000.000) cycles until 90 cycles/min max.
- Electrical Durability	5E4 (50.000) cycles until 10 cycles/min max.
- Degree of Protection (IEC 61058-1)	IP40 (all actuators except X actuator): protected against solid foreign objects of 1,0 mm diameter and greater (IP4X); non-protected against ingress of water (IPX0) IP62 (X actuator): dust-tight (IP6X); protected against vertically falling water drops when enclosure tilted up to 15° (IPX2)
- Pollution Degree (IEC 61058-1)	Degree 2: only non-conductive pollution occurs except that occasionally a temporary conductivity caused by condensation is to be expected
- Electromagnetic Compatibility (EMC) (IEC 61058-1)	Not applicable - Imunity: mechanical switches without electronic circuits are considered not to be affected by electromagnetic disturbances - Emission: mechanical switches without electronic circuits are considered not to generate continuous electromagnetic disturbances
- Material Housing	Resistance to ignitability by the glow wire temperature: 750ºC
- Operating Speed	0,05 mm/s minimum until 1 m/s maximum (at pin plunger)

4- Operation Recomendations

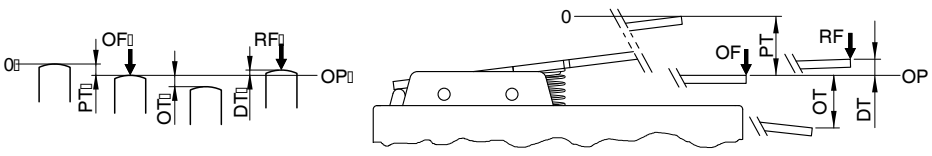
The correct way to operate the switch may affect significantly their durability. Check below some examples of actuators and their directions of operation.



5- Travels ①

Terminology:

OF..... Operation force
RF.....Release force
DT..... Differential travel
PT..... Pre travel
FP..... Free position
OP..... Operating position
OT..... Overtravel



① Forces and courses values vary for each model and can be obtained from commercial catalog or www.kap.com.br.

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