Temperature Limiter Q
(self holding)

Limitor
Temperature, Current, Time under Control



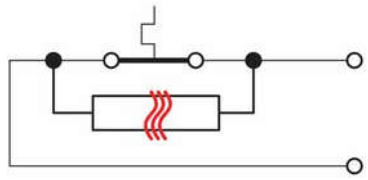
- → very compact constructional size
- → mould-proof housing
- → excellent thermal conduction characteristics due to homogenous constructional size
- → high temperature sensitivity
- → permanent cut-out by self-holding

Area of Application
The temperature limiter Q is used wherever, on one hand, protection against overtemperatures is required, and, on the other hand, automatic reset function of the device to be protected - subsequent to a follow-on cooling down period - is undesirable or not permissible.

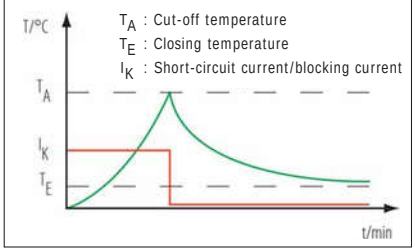
Function
The temperature limiter Q operates independent from any current supply. Temperature detection is effected by means of a bimetal disk which was first dimensioned in accordance with the required cut-off temperature. When this fixed cut-off temperature T_A is reached, this bimetal disk will snap over, breaking a contact system and thereby interrupting the electric circuit of the device to be protected. In order to prevent any automatic reset function of the device when the switch cools down again, the switch is equipped with an electrical self-holding resistor inside.

Self-holding
Caused of a high value resistor heat is generated by the supply voltage applied after breaking the contact. This prevents any decrease in temperature below the value necessary for the closing temperature T_E. In this way, the switch will keep its contact open, irrespective of its ambient temperature. Make the contact of the switch, and thus closing the circuit, will be possible only after disconnection from the supply voltage.

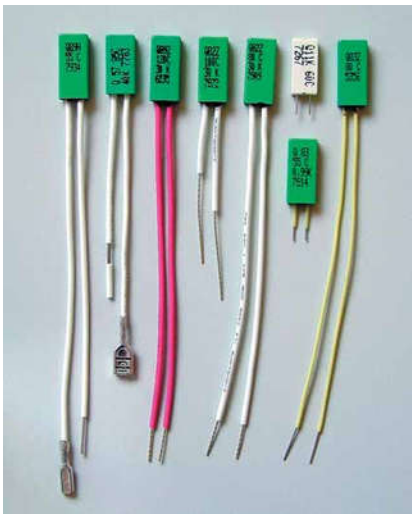
Circuit diagram



Functional diagram



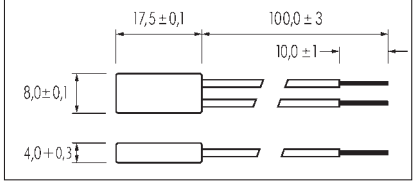
Configuration examples



Technical Specifications Temperature Limiter Q

nom. breaking capacity:	250 V; 2,5 (1,0) A / 60 Hz
min. current:	5 V / 20 mA
max. breaking capacity:	2,5 A cos Φ 1,00 / 250 V, 150°C, 3000 cycles 3,0 A cos Φ 0,45 / 230 V, 135°C, 3000 cycles 4,0 A cos Φ 0,45 / 230 V, 135°C, 2000 cycles 6,5 A cos Φ 1,00 / 120 V, 120°C, 100 cycles
switching temperature:	40°C – 120°C (150°C), ±5 K
type of action:	1.C (3000 cycles) 2.C (max. drift ±5 K)
max. ambient temperature:	160°C
holding resistor:	0,1 kΩ - 60 kΩ, take note of safety instruction*
approvals:	VDE (EN 60730), UL, (2111) conform to RoHS

Dimensions Q8

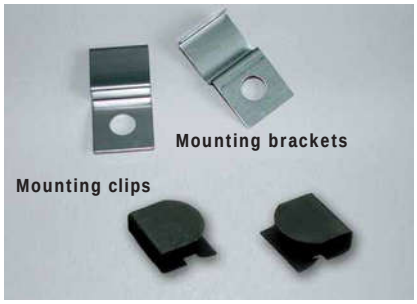


alternativ:

Q5 housing type:
L 4,0 x **W** 8,0 x **H** 16,0

Q1 housing type:
L 3,6 x **W** 8,0 x **H** 14,5

Accessories



Technical Data

The housing of this switch consists of a single part bag housing which is closed at its end by resin (Q8 housing type); this makes the switch mould-proof. This mould-proof switch may thus also be used in "tough" environments subject to the detrimental influences of humidity or dirt. Alternative housing types: unsealed version (Q5) or plate bar version (Q1). All housing types are voltage-free. Due to its constructional size the Q switch is one of the most compact thermostats available. This ensures a very fast response rate.

Its rectangular homogenous constructional size provides excellent thermal conduction characteristics. The housing is resistant against temperatures (permanent temperature: 160°C), with a temporary increase in temperature up to 200°C max. being permissible for a short period only.

The standard version is equipped with 100 mm long (length of stripped isolation: 10 mm) insulated leads or wire connection (AWG 24).

Special leads or wire (larger diameter to AWG 22) or different lengths available on request.

***Safety Instruction**
Adjusting right hold resistor value on its final assembling position under real heat conduction, otherwise risk of overheating! (table-sheet selfhold resistor value)

Type reference Q switch

Q 8 X-X-XXX-XX-XXX

- Length of leads/wires
  Standard = 100 mm
- temperature tolerance in K
  (+/- 5/10 K)
- Cut-off temperature in °C
  40,45,50,...150°C
- self-holding resistor
- Connection type:
  2 = insulated leads
  3 = insulated wires
  •
  •
  •
  8 = sealed housing

Example for type reference:

Q 8 2 - Z - 125 - 05 - 100

thermal switch with
electrical self-holding function

insulated lead (standard AWG 24)

holding resistor 30 kΩ

125°C cut-off temperature

tolerance ±5 K

100 mm lead length
(10 mm stripped length)

Limitor
Temperature, Current, Time under Control

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