

Temperature controller

Temperature limiter

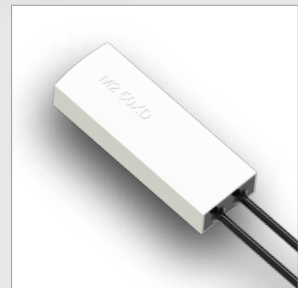
M

MQT8K

MQT8H

M3

M2



## Applications

- Electrical controllers
- Air conditioner and floor heating
- Antifreeze
- Curing tube
- Additional heaters for sensor systems in cold countries

## Benefits

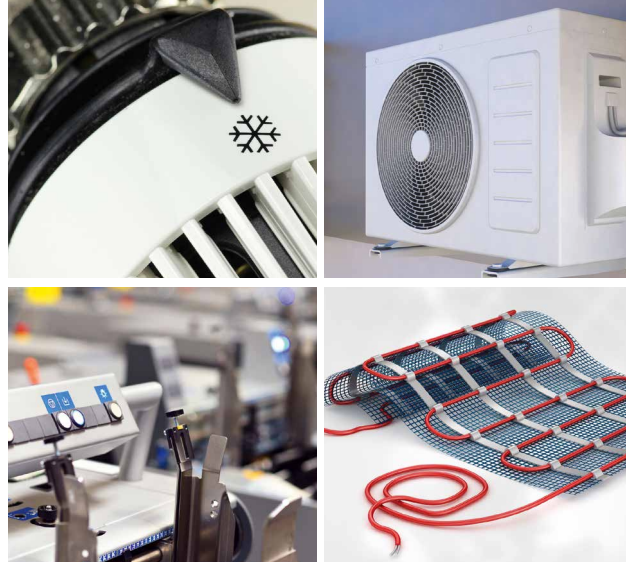
- Highest precision
- Low tolerance, small hysteresis
- Long-life (2 mio. mechan. switching cycles)
- splashproof
- electric. insulated plastic housing

## Description



With response temperatures between -10°C to 110°C (special version up to 160°C), long-life and a splash-proof housing, the **M-series** is characterized as a very reliable switch series in terms of regulation.

Possible applications include control electronics, air conditioning, underfloor heating and frost protection. In particular, however, in the area for the **control of additional device heaters**.

By using these **reliable electromechanical switches**, an entire system of temperature sensors, evaluation and switching electronics can be saved. Typical risks in electronic solutions (such as solder errors on PCBs, failure of electronic components) are eliminated using this pure electro-mechanical system. Switches can easily be screwed on surfaces, a simple method of handling is guaranteed.



## Technical data

ratings		switch type			
		MQT 8K	MQT 8H	M3	M2
function	normally closed contact	when temperature is increasing, the contacts will be opened and disconnect the current			
	normally open contact	when temperature is increasing, the contacts will be closed and activate the current			
	reset	reset is done automatically			
contact configuration		X (normally closed contact) Y (normally open contact)		X (normally closed contact) Y (normally open contact) Option: switch over contact Z (3 leads XZ or YZ)	
approval according to VDE EN 60730-1 /-2-9 	response temperature	-10°C ~ +110°C		-10°C ~ +110°C	
	current / voltage	2.0 A / AC 125 V 1.3 A / AC 250 V 2.0 A / DC 12 V 1.3 A / DC 24 V 0.6 A / DC 48 V		5 A / AC 125 V 3 A / AC 240 V 5 A / DC 12 V 3 A / DC 24 V 0.8 A / DC 48 V	
	lifetime	10,000 life cycles		10,000 life cycles	
approval according to UL 873 	response temperature	-10°C ~ +100°C		-10°C ~ +110°C	
	current / voltage	2 A / AC 125 V		5 A / AC 125 V	
	lifetime	10,000 life cycles		30,000 life cycles	
ambient temperature range		-30°C ~ +85°C (standard) -30°C ~ +125°C (special) use within 60° above the response temperature, no icing and no condensing			
contact resistance		< 70 mΩ			
withstanding voltage		2,000 V AC/2 sec.			
insulation resistance		min. 100 MΩ			
vibration resistance		according to JIS-C-0911-1984 constant 50 Hz: 0,2 mm=1G 10 - 55 Hz: 0,35 mm fixed 2 h in X,Y and Z-direction = 0,1G to 2,2G (according to tolerance class)			
guaranteed lifetime according to manufacturer		mechanical cycles: 2,000,000 electrical cycles at rated load: 100,000			
suitable for use in protection category		I, II			
water tightness		waterproof by resin cover, increased waterproof by double sealed construction on request			
standard wiring		AWM1015/AWG22 black 150mm length <+75°C AWM3271/AWG22 gray 150mm length >+76°C		AWM1015/AWG20 black 150mm length <+75°C AWM3271/AWG20 gray 150mm length >+76°C	
guidelines and norms		WEE 2002/95 EG RoHS-conformity, REACH-conformity production according to DIN EN ISO 9001			

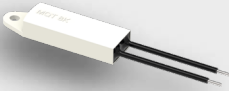
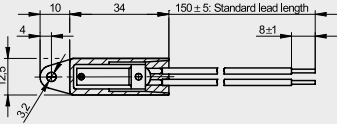
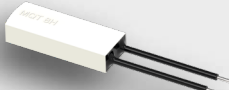
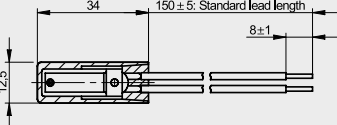

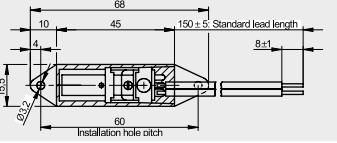
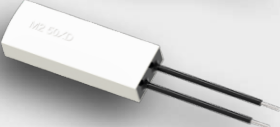
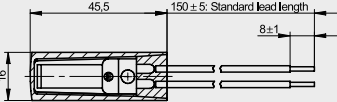
## Tolerance of setting temperature and differential vs. setting temp.

### 2 Amp. series MQT 8K and MQT 8H as well as 5 Amp. series M3 and M2

response temperature	-10°C ~ -1°C		0°C ~ +50°C		+51°C ~ +65°C		+66°C ~ +75°C		+76°C ~ +110°C	
execution	X	Y	X	Y	X	Y	X	Y	X	Y
differential										
A: 3.5±1.5 (2~5)°C	-	-	±3	±3	-	-	-	-	-	-
B: 4.5±1.5 (3~6)°C	±4	±4	±3	±3	±4	±4				
C: 6.5±1.5 (5~8)°C	±4	±4	±3	±3	±4	±4	±5	±5		
D: 10±2 (8~12)°C	±4	±4	±4	±4	±5	±5	±5	±5	±5	±5

Note: 1. Above list is valid for standard tolerance 2. Special tolerance ±1.5K or ±2K are available on request

## Standard types

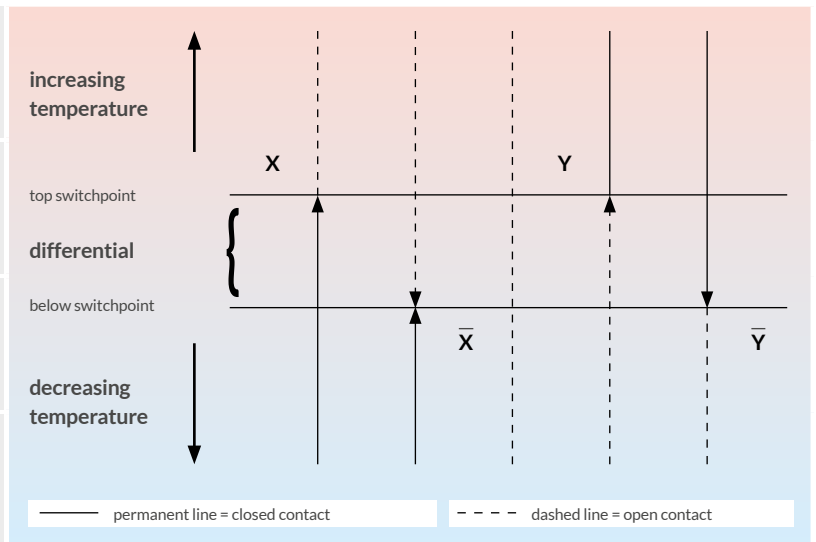
switch type	illustration	drawing dimensions ( mm )	technical Specification
MQT 8K			standard execution, flat (6.4 mm), with 1 fixing eyelet, with 2 leads, 44x12.5x6.4mm option: execution MQT 8KT with tab terminals
MQT 8H			standard execution, flat (6.4 mm), without fixing eyelet, with 2 leads, 34x12.5x6.4mm option: execution MQT 8HT with tab terminals
M3			standard execution (10.8 mm), with 2 fixing eyelets, hole distance 60 mm, with leads: execution X or Y with 2 leads, 68x15.5x10.8mm option: execution M3Z with 3 leads (switch over contact XZ or YZ)
M2			standard execution (7.5 mm), without fixing eyelets, with 2 leads, 45.5x16x7.5mm option: execution M2F with fuse installed

## Contact capacity by voltage used and by differential ranking

type			MQT 8	M3	M2	low current applications with crossbar contact (only for MQT)
voltage	max. current	differential	max. current (100.000 life cycles)	max. current (100.000 life cycles)	max. current (100.000 life cycles)	max. current (100.000 life cycles)
		-	DC 48V	A: 3.5±1.5 (2~5)°C	50mA - 0.3A	0.1A - 0.3A
		B: 4.5±1.5 (3~6)°C	50mA - 0.3A	0.1A - 0.5A	-	
		C: 6.5±1.5 (5~8)°C	50mA - 0.3A	0.1A - 0.8A	-	
		D: 10±2 (8~12)°C	50mA - 0.6A	0.1A - 0.8A	0.1A - 0.8A	
AC 250V	DC 24V	A: 3.5±1.5 (2~5)°C	50mA - 0.6A	0.5A - 1.5A	-	1mA - 49mA
		B: 4.5±1.5 (3~6)°C	50mA - 0.9A	0.5A - 2A	-	
		C: 6.5±1.5 (5~8)°C	50mA - 1.3A	0.5A - 3A	-	
		D: 10±2 (8~12)°C	50mA - 1.3A	0.5A - 3A	0.5A - 3A	
AC 125V	DC 12V	A: 3.5±1.5 (2~5)°C	50mA - 1.0A	0.5A - 3A	-	1mA - 49mA
		B: 4.5±1.5 (3~6)°C	50mA - 1.5A	0.5A - 4A	-	
		C: 6.5±1.5 (5~8)°C	50mA - 2.0A	0.5A - 5A	-	
		D: 10±2 (8~12)°C	50mA - 2.0A	0.5A - 5A	0.5A - 5A	

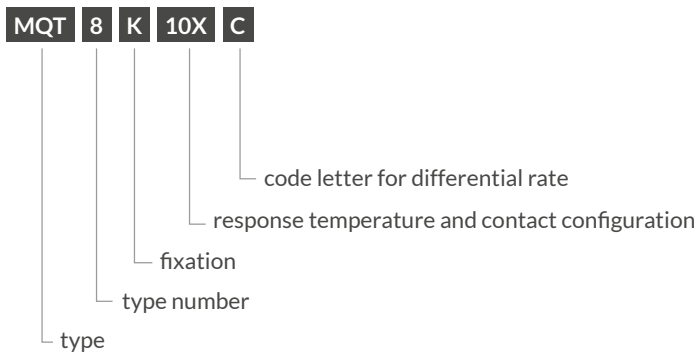
## Contact types

X normally closed	contact opens when temperature is increasing
$\bar{X}$ normally closed	contact closes when temperature is decreasing
Y normally open	contact closes when temperature is increasing
$\bar{Y}$ normally open	contact opens when temperature is decreasing



## Ordering and marking example

Ordering example for standard execution



## Microtherm GmbH

Taschenwaldstraße 3  
75181 Pforzheim  
Deutschland  
Tel.: +49 7231 787-0  
Fax: +49 7231 787-155  
info@microtherm.de  
www.microtherm.de



**MICROTHERM**  
sentronic