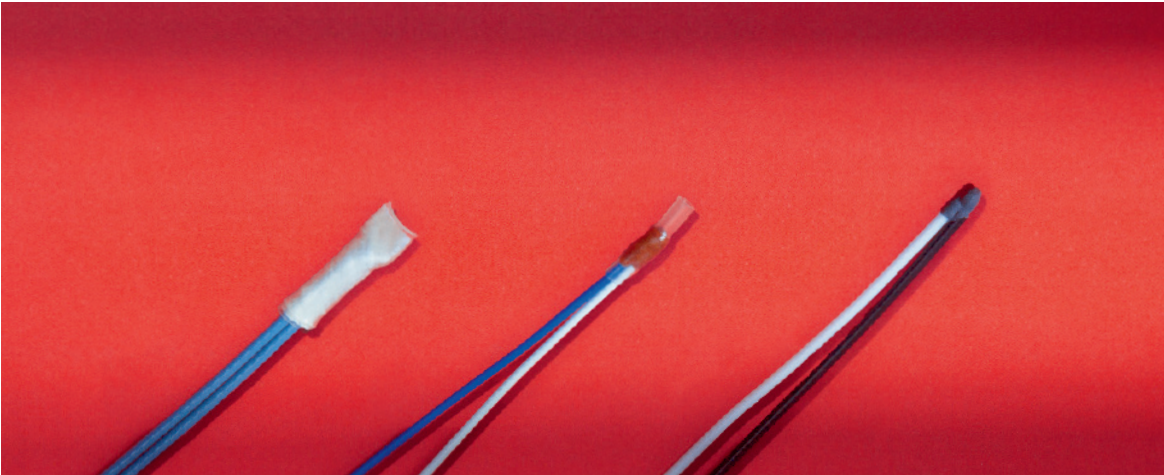


Temperature sensor  
PTC thermistor  
up to 190 °C



Technical specifications | TMC **M series**  
Version 2.1 EN 2025  
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**Description**

PTC thermistors of the series M are ceramic semiconductor devices on the basis of Bariumtitanat. Due to their shape they are perfectly suitable to be used in electrical windings of motors and transformers. In case the nominal response temperature is exceeded they change their resistance in a sudden rise. This change in resistance can be registered for example by an electronic device.

**Customer specific solutions**

Our creative R&D team turn your ideas into innovative products. Please contact us.

**Internationally applicable**

because of UL-Wiring Harness

**High response sensitivity**

by use of a miniature PTC with smallest diameter of 2 mm, 1.8 mm diameter optionally

**Reliable evaluation**

by cold resistance  $R_{25} < 100 \Omega$

**Standardised characteristic curve**

according to DIN VDE V 0898-1-401

**High mechanical and chemical resistance**

by a thermally conductive protection layer

**Long term thermal stability**

by optimised material composition of the PTC ceramic

**Safe separation**

by suitable insulation structure

**Cost efficient special versions**

for further automated processing

**TMC product range overview**

**Temperature limiter:**

Product design	Feature	Application	Series
	automatic reset	up to 250 mA	<b>F</b>
	automatic reset	up to 6,3 A	<b>C</b>
	selfhold	up to 10 A	<b>R</b>
	automatic reset	up to 12 A	<b>H</b>

**Temperature sensors:**

Product design	Version	Features	Series
	PTC	sudden change of resistance	<b>M</b>
	Pt100 / Pt1000 NTC	consistent dimensions	<b>S</b>
	Platinum sensor	extremely precise	<b>PT</b>

**Imprint**

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Edition 07/25



PTC thermistors

M series

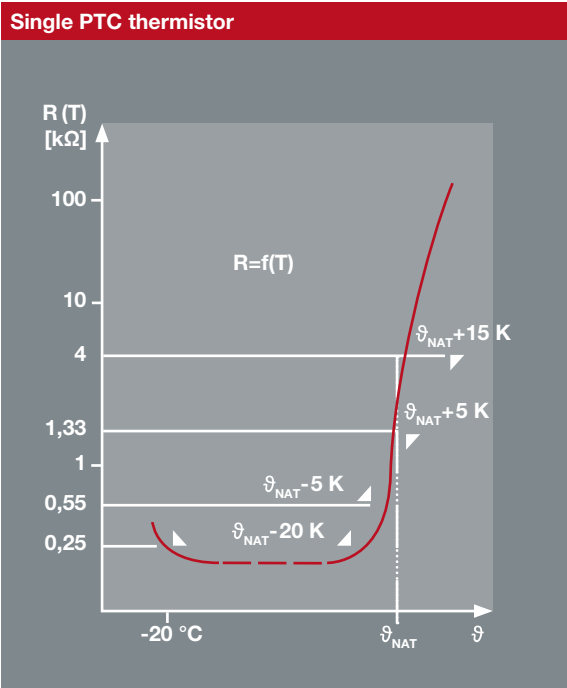
Technical specifications

Specifications

	Single	Triplet
Max. operating voltage $U_{max}$	30 V	
Nominal response temperature $\vartheta_{NAT}$	60 °C ... 190 °C	
Tolerance of $\vartheta_{NAT}$	$\pm 5$ K	
Reproducibility of $\vartheta_{NAT}$	$\pm 0,5$ K	
$R_{25}^*$	$\leq 100 \Omega$	$\leq 300 \Omega$
Resistance at $\vartheta_{NAT} - T^*$	$\leq 550 \Omega$	$\leq 1650 \Omega$
Resistance at $\vartheta_{NAT} + T^*$	$\geq 1330 \Omega$	$\geq 3990 \Omega$
Resistance at $\vartheta_{NAT} + 15 K^{**}$	$\geq 4 k\Omega$	$\geq 12 k\Omega$
Thermal response time	< 5 s	
Dielectric strength of insulation	2 kV	
Max. operating temperature	200 °C	
Ambient temperature	-25 °C ... 200 °C	

\* measuring DC voltage  $\leq 2,5$  V    \*\* measuring DC voltage  $\leq 7,5V$

Curve


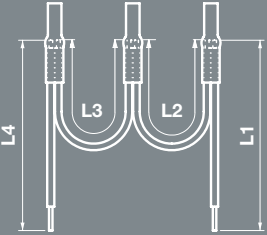


The resistance can be  $> 250 \Omega$  for temperatures  $< -20$  °C.

Colour code

$\vartheta_{NAT}$ °C	Colour
60	outer / outer
70	white / grey
80	white / brown
90	white / white
100	green / green
110	red / red
120	brown / brown
130	grey / grey
140	blue / blue
145	white / blue
150	white / black
155	black / black
160	blue / black
165	blue / red
170	white / green
180	white / red
190	black / grey

Options


Connectors	Version 5	Example: Triplet in version 5
- Wire end sleeves - Wire end eyelets - Push-on contacts - Snap-on contacts	Sensor insulated Kynar-tubing  Leads: stranded, solid	Sensor insulated Kynar-tubing 

Dimensions in mm. Further options on request.

Wires

Standard	
Type (Insulation)	FEP, colour code according to table
Length	Single: 500 mm; Triplet: Outer 500 mm, inner 200 mm
Stripped length	7 mm
Cross section	AWG26 rsp. 0,14 mm <sup>2</sup>
Operating voltage	300 V

Ordering example for standard version

MF5 - D150 - 500/200/200/500	Wiring
 Wire length (500 mm/200 mm/200 mm/500 mm) Nominal response temperature (150 °C) Wiring (Triplet) Version (5 = Kynar-tubing) M series, Type MF	E    Single Z    Twin D    Triplet S    Sextuplet

Approvals

Institut	Standard	Zulassungsnr.
UL	Wiring Harness	E541166
UL	Update in progress	