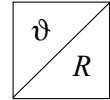
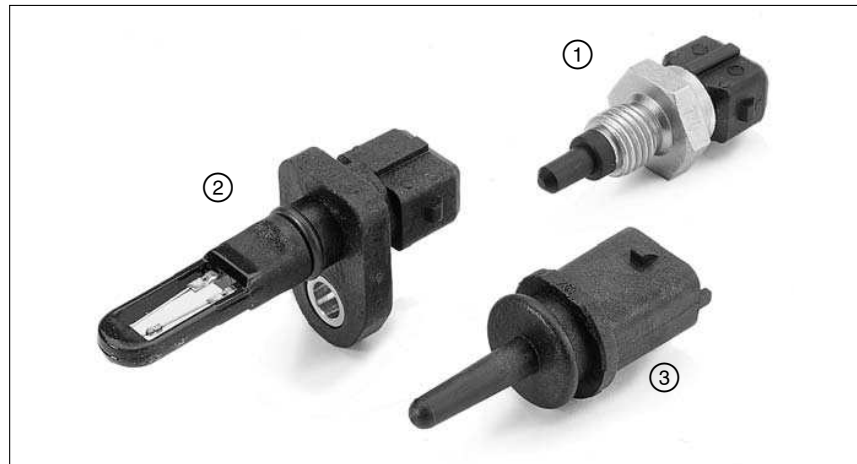


# NTC temperature sensors

Measurement of air temperatures between  $-40\text{ °C}$  and  $+130\text{ °C}$



- Measurement with temperature-dependent resistors.
- Broad temperature range.



## Range

### NTC temperature sensor

NTC resistor in plastic sheath

Steel housing  
Screw fastening **0 280 130 039**

Polyamide housing  
Plug-in mounting **0 280 130 092**  
Plug-in mounting **0 280 130 085**

## Accessories

For **0 280 130 039; .. 085**

Connector **1 237 000 036**

For **0 280 130 092**

Design- nation	For cable cross-section	Part number
Plug housing	–	<b>1 928 403 137</b>
Contact	0.5...1.0 mm <sup>2</sup>	<b>1 987 280 103</b>
pins	1.5...2.5 mm <sup>2</sup>	<b>1 987 280 105</b>
Individual	0.5...1.0 mm <sup>2</sup>	<b>1 987 280 106</b>
gaskets	1.5...2.5 mm <sup>2</sup>	<b>1 987 280 107</b>

### Note

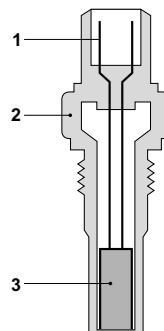
Each 2-pole plug requires 1 plug housing, 2 contact pins, and 2 individual gaskets. For automotive applications, original AMP crimping tools must be used.

### Explanation of symbols:

$R$  Resistance  
 $t$  Temperature

### Temperature sensor (principle).

- 1 Electrical connection  
2 Housing  
3 NTC resistor



### Block diagram.

## Technical data

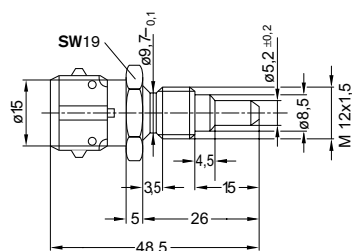
Part number	<b>0 280 130 039</b>	<b>0 280 130 085</b>	<b>0 280 130 092</b>
Illustration	1	2	3
Characteristic curve	1	2	1
Measuring range	°C	$-40...+130$	$-40...+130$
Permissible temp., max.	°C	$+130$	$+130$
Electrical resistance at $20\text{ °C}$	kΩ	$2.5 \pm 5\%$	$2.5 \pm 5\%$
Electrical resistance at $-10\text{ °C}$	kΩ	$8.26...10.56$	$8.727...10.067$
	kΩ	$2.28...2.72$	$2.290...2.551$
	kΩ	$0.290...0.364$	–
Nominal voltage	V	$\leq 5$	$\leq 5$
Measured current, max.	mA	1	1
Self-heating at max. permissible power loss			
$P = 2\text{ mW}$ and stationary air ( $23\text{ °C}$ )	K	$\leq 2$	$\leq 2$
Thermal time constant <sup>1)</sup>	s	ca. 20	$\leq 5$ <sup>2)</sup>
Guide value for permissible vibration acceleration (sinusoidal vibration)	m · s <sup>-2</sup>	100	$\leq 300$
Corrosion-tested as per	DIN 50 018	DIN 50 018	DIN 50 018

<sup>1)</sup> At  $20\text{ °C}$ . Time required to reach 63% of final value for difference in resistance, given an abrupt increase in air temperature; air pressure 1000 mbar; air-flow rate  $6\text{ m} \cdot \text{s}^{-1}$ .

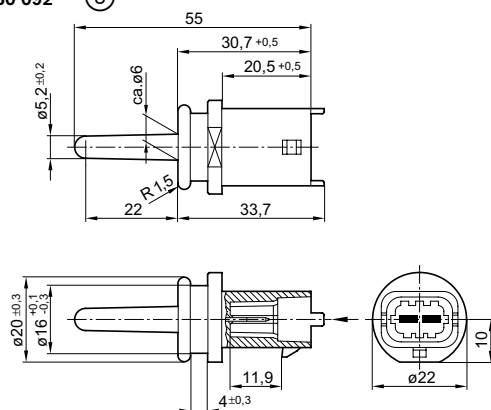
<sup>2)</sup> Time constant  $\tau_{63}$  in air for a temperature jump of  $-80\text{ °C}$  to  $+20\text{ °C}$  at an air-flow rate of  $\geq 6\text{ m} \cdot \text{s}^{-1}$ .

**Dimension drawings.**

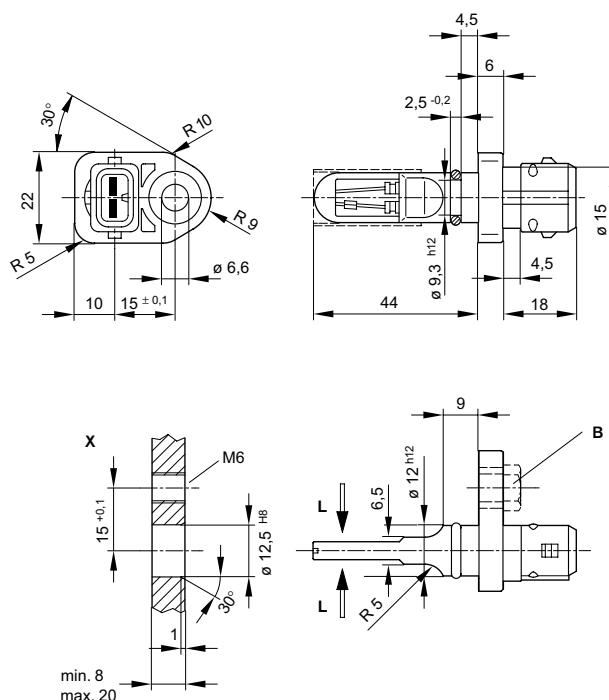
0 280 130 039 SW A/F size ①



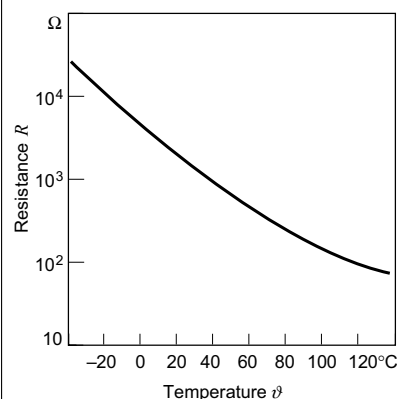
0 280 130 092 (3)



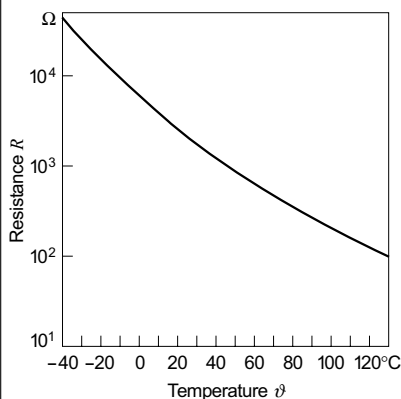
**0 280 130 085** (2)  
**B** Mounting screw  
**X** Thread in contact area  
**L** Air flow



**Characteristic curve 1.**



**Characteristic curve 2.**



## Design and function

NTC sensor:

The sensing element of an NTC temperature sensor (NTC = **N**egative **T**emperature **C**oefficient), is a resistor comprised of metal oxides and oxidized mixed crystals. This mixture is produced by sintering and pressing with the addition of binding agents. For automotive applications, NTC resistors are enclosed in a protective sheath.

If NTC resistors are exposed to external heat, their resistance drops drastically and, provided the supply voltage remains constant, their input current climbs rapidly. This property can be utilised for temperature measurement. NTC resistors are suitable for an extremely wide range of ambient conditions, and with them it is possible to measure a wide range of temperatures.

## Installation instructions

Installation is to be such that the front part of the sensing element is directly exposed to the air flow.