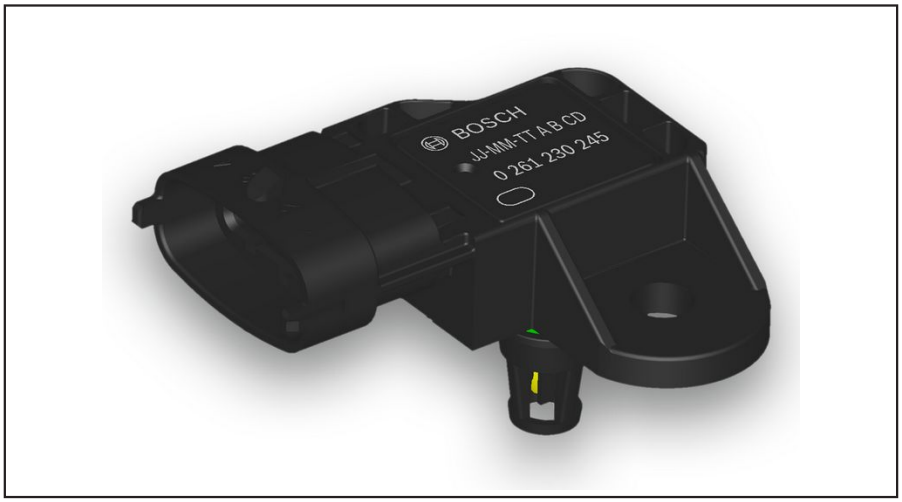
Absolute pressure sensors

Micromechanics, Premold design

Input quantity: P
Output quantity: U

- High accuracy.
- EMC protection better than 100 V m^{-1}.
- With temperature compensation.
- Version with additional integrated temperature sensor.



Application

The sensor is used to measure the absolute intake manifold pressure. The version with integrated temperature sensor additionally measures the temperature of the intake air flow.

Design and operation

The piezoresistive pressure sensor element and appropriate electronics for signal amplification and temperature compensation are integrated on a silicon chip.
The measured pressure acts from above on the active side of the silicon diaphragm. A reference vacuum is enclosed between the back and a glass base. The temperature sensor element is an NTC thermistor. A suitable coating method ensures that the pressure and temperature sensors are resistant to the gases and fluids occurring in the intake manifold.

Installation instructions

The sensor is designed for attachment to a flat surface at the intake manifold of motor vehicles. The pressure connection and the temperature sensor jointly project into the intake manifold and are sealed off from the atmosphere by an O-ring. The accumulation of condensate in the pressure cell is to be prevented by way of appropriate installation in the vehicle (pressure sampling point at top of intake manifold, pressure connection angled downwards etc.).

Explanation of characteristic quantities

U_V Supply voltage U_A Output voltage k Temperature error multiplier p_{abs} Absolute pressure g Acceleration due to gravity 9.81 m/s² DAfter endurance test NAs-new condition

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Part number 0 261 230 302

Technical data

Parameter	min	typ	max
Integrated temperature sensor			
Pressure range kPa (p_1...p_2)	20		250
Operating temperature	ϑ_B	°C	
	-40		130
Supply voltage (1 min)	U_V	V	
	4,75	5	5,25
Current input at U_V = 5 V	I_V	mA	
	6	9	12,5
Load current at output	I_L	mA	
	-1		0,5
Load resistance to U_V or ground	$R_{pull-up}$	kΩ	
		5	
Load resistance to U_V or ground	$R_{pull-down}$	kΩ	
		10	
Response time	$\tau_{10/90}$	ms	
		1	
Voltage limitation at U_V = 5 V - lower limit		V	
		0,3	0,35
Voltage limitation at U_V = 5 V - upper limit		V	
	4,65	4,7	4,75

Limit data

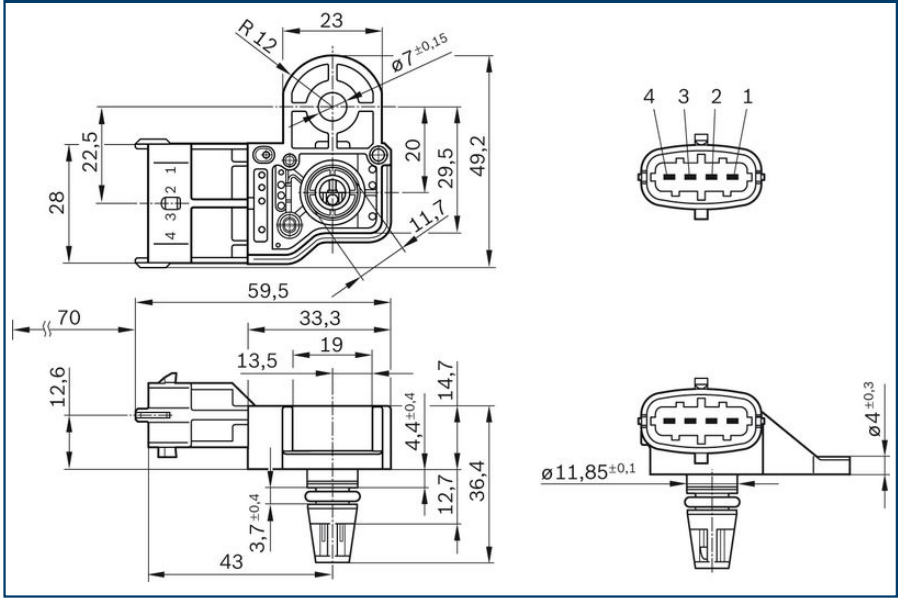
Supply voltage	$U_{V\,max}$	V	
			16
Storage temperature	ϑ_L	°C	
	-40		130

Temperature sensors

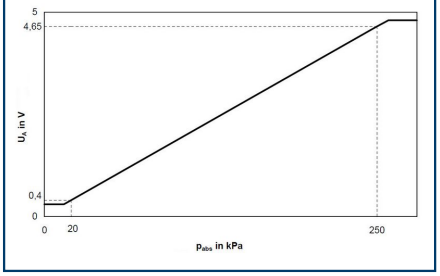
Measuring range	ϑ_M	°C	
	-40		130
Rated resistance at +20 °C		kΩ	
		2,5 ± 5 %	
Temperature/time constant	τ_{63}	s	
		10 [2])	

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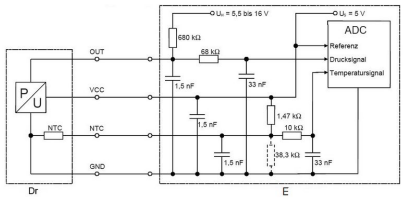
Dimensional drawings



Characteristic curve



Recommendation for signal evaluation.



Dr Pressure sensor
E Electronic control unit