

High-pressure sensors

Measurement up to 14 MPa

- Ratiometric signal evaluation (relative to supply voltage)
- Self-monitoring offset and sensitivity.
- Excellent media resistance as the medium only comes into contact with stainless steel.
- Resistant to brake fluids, mineral oils, fuel, water and air.
- Protection against reverse polarity, overvoltage and short circuit of the output to supply voltage or ground.



Application

Pressure sensors of this type are used in motor vehicles to measure the pressure in a braking system or in the fuel rail of direct-injection gasoline engines or common-rail system diesel engines.

Design and operation

Use is made of polysilicon metal thin-film strain gauge elements. These are connected to form a Wheatstone bridge. This permits good signal utilisation and temperature compensation. The measurement signal is amplified in an evaluation IC and corrected with regard to offset and sensitivity. Further temperature compensation is then implemented, so that the calibrated measurement cell and ASIC unit exhibits only a low degree of dependence on temperature. The evaluation IC also incorporates a diagnosis function for detection of the following possible faults: - Break in bonding wire to measurement cell. - Break in any signal wire at any point. - Break in supply and ground wire at any point. Only for 0 265 005 303 The following additional diagnosis function distinguishes this sensor from conventional sensors: The comparison of two signal paths in the sensor permits detection of - Offset error - Amplification error.

Storage conditions

Temperature range: -30...+60 °C
 Rel. humidity: 0...80 % rF
 Maximum storage time: 5 years
 The specified storage conditions do not cause any change in function.
 The sensors are no longer to be used once the maximum storage time has expired.

Explanation of characteristic quantities

U_A Output voltage
 U_V Supply voltage
 p Pressure
 U_S Input voltage
 p Pressure [MPa]
 C_0 0.1
 C_1 $0.8 \cdot p / P_N$ Rated pressure [MPa]
 For 0 265 005 303:
 C_0 0.75
 C_1 $0.12 \cdot p / P_N$

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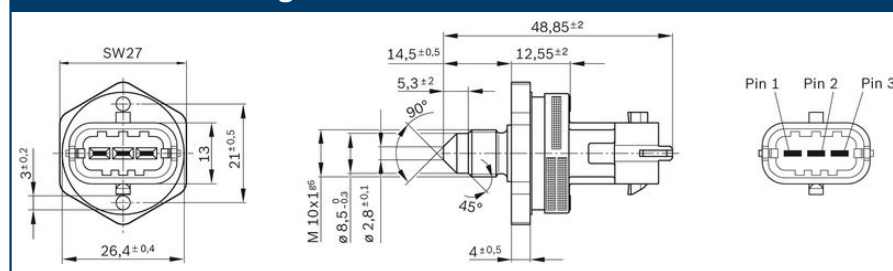
Part number

0 261 545 053

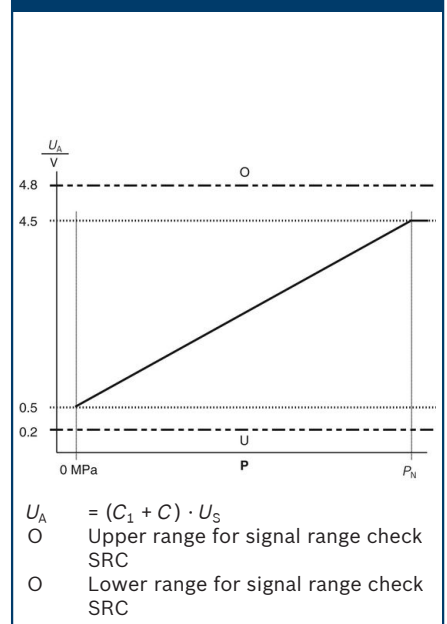
Technical data

Pressure range	P_N	bar (MPa)
140 (14)		
Pressure-sensor type		KV4.2
Thread		M 10 x 1
Connector		Compact 1.1
Application/medium		Unleaded fuel
Max. feed voltage	U_s	V
16		
Supply voltage	U_V	V
$5 \pm 0,25$		
Supply current	I_V	mA
12...15		
Load capacitance to ground		nF
13		
Temperature range		°C-
40 ...+ 130		
Max. overpressure	p_{\max}	bar
1800		
Rupture pressure	p_{berst}	bar
>1500		
Response time	$\tau_{10/90}$	ms
2		

Dimensional drawings



Characteristic curve



Measurement circuit

