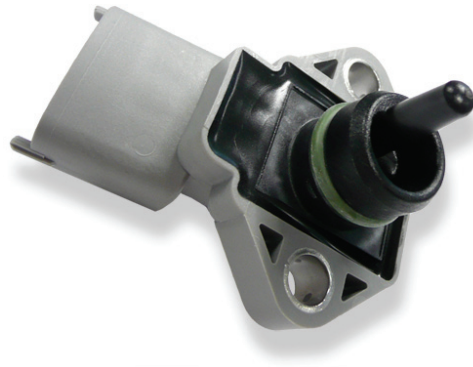


## Pressure Sensor Air PST

This sensor is designed to measure absolute air pressure and air temperature, especially the air box pressure of gasoline or Diesel engines.

An integrated circuit combines a piezo-resistive sensor element, electronics for signal-amplification and temperature-compensation. The output of the sensor is an analog, ratiometric signal. An NTC resistance is used for temperature measurements.

The main feature of this sensor is the integration of two functions (air pressure and air temperature) in one housing. A further benefit of the PST is the high quality of the series part at a low price.



| Application             |   |
|-------------------------|---|
| Application 1           | 0.1 ... 1.15 bar (a)  |
| Application 2           | -40 ... 125 °C  |
| Pressure Reference Type | absolute  |
| Max. Pressure           | 5 bar   |
| Operating Temp. Range   | -40 ... 125 °C  |
| Media Temp. Range       | -40 ... 125 °C  |
| Storage Temp. Range     | -40 ... 130 °C  |
| Max. Vibration          | 0.19 mm @ 100 ... 200 Hz<br>250 m/s <sup>2</sup> @ 200 ... 500 Hz<br>sine |

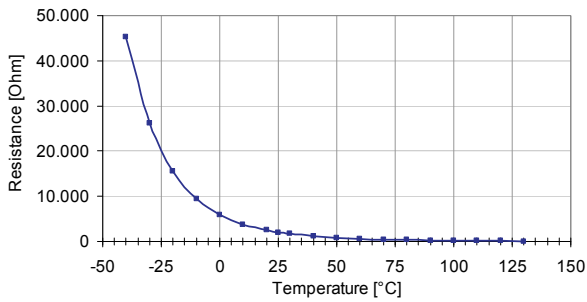
| Mechanical Data |                        |
|-----------------|------------------------|
| Mounting        | M6                     |
| Fitting         | 18 mm                  |
| Weight w/o Wire | 30 g                   |
| Sealing         | O-ring 13.95 x 2.62 mm |

| Electrical Data                        |               |
|--|---------------|
| Power Supply U <sub>s</sub>            | 4.5 ... 5.5 V |
| Max Power Supply U <sub>s</sub> max.   | 16 V          |
| Full Scale Output U <sub>A</sub> @ 5 V | 0.3 ... 4.8 V |
| Current I <sub>s</sub>                 | 9 mA          |



### Characteristic Application 1

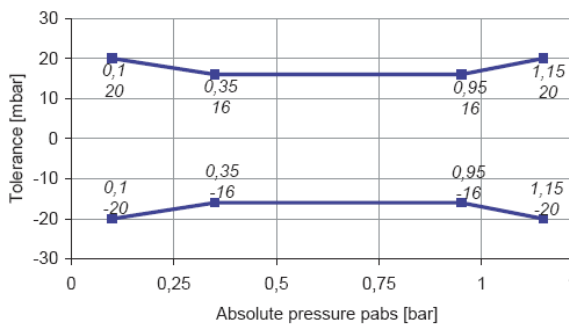
|                                       |              |
|---------------------------------------|--------------|
| Response Time T10/90                  | 0.2 ms       |
| Compensated Range                     | 10 ... 85 °C |
| Tolerance (FS) @ U <sub>s</sub> = 5 V | ± 0.016 bar  |
| Tolerance (FS)                        | ± 1.39 %     |
| Sensitivity                           | 4,047 mV/bar |
| Offset                                | -4.76 mV     |



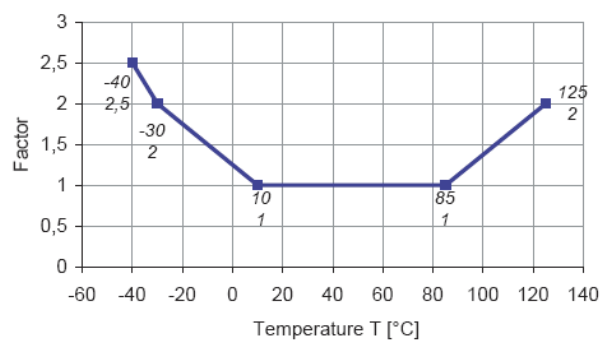
### Characteristic Application 2

| T [°C]                    | R [Ohm]                |
|---------------------------|------------------------|
| -40                       | 45,313                 |
| -30                       | 26,114                 |
| -20                       | 15,462                 |
| -10                       | 9,397                  |
| 0                         | 5,896                  |
| 10                        | 3,792                  |
| 20                        | 2,500                  |
| 25                        | 2,057                  |
| 30                        | 1,707                  |
| 40                        | 1,175                  |
| 50                        | 834                    |
| 60                        | 596                    |
| 70                        | 436                    |
| 80                        | 323                    |
| 90                        | 243                    |
| 100                       | 187                    |
| 110                       | 144                    |
| 120                       | 113                    |
| 130                       | 89                     |
| Resistance @ 20 °C        | 2.5 kOhm               |
| Tolerance                 | 5 %                    |
| Response Time $\tau_{63}$ | 45 s @ air ; v = 6 m/s |

### Tolerance



### Expansion of Tolerance f(T)



### Connectors and Wires

|                  |                |
|------------------|----------------|
| Connector        | Bosch Compact  |
| Mating connector | D 261 205 336  |
| Pin 1            | Gnd            |
| Pin 2            | NTC            |
| Pin 3            | U <sub>s</sub> |
| Pin 4            | Pressure Sig   |
| Pin 5            | -              |

Various motorsport and automotive connectors are available on request.

Please specify the required wire length with your order.

### Application Hint

The PST is designed for engines using ROZ95, ROZ98, M15, E22 and Diesel.

The sensor can be connected directly to most control units.

To avoid noise, an ECU-input circuit with a RC-lowpass filter ( $\tau = 2$  ms) is recommended.

For the temperature measurement, a 1 kOhm pull-up at 5 V is recommended.

Use engine oil (5W40) as O-Ring grease (no silicone based grease).

Avoid miss-pinning (max. 5 minutes @ I = 0.3 A).

Please find further application hints in the offer drawing (<http://www.bosch-motorsport.com>).

Free download of the sensor configuration file (\*.sdf) for the Bosch Data Logging System (<http://www.bosch-motorsport.com>).

### Part Number

Absolute Pressure Sensor PST **0 261 230 022**

