

# 5 Acceleration sensors

## Piezoelectric vibration sensor



### Product type

**KS-4-S**

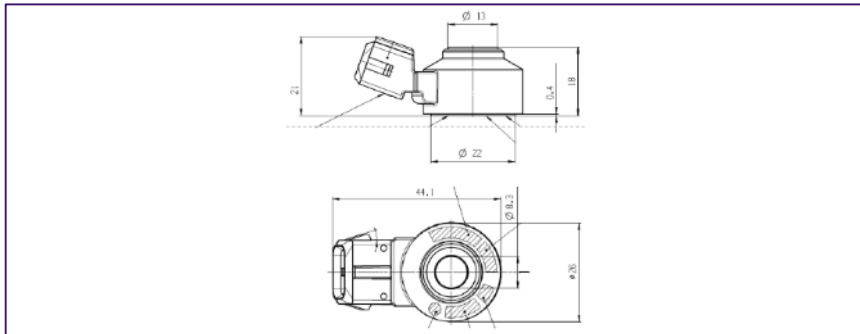
### Part number

**0 261 231 208**

### Picture



### Dimensional drawings



### Technical data

Vibration sensors	2-pole, without cable
Frequency range	0 ... 24 kHz
Self-impedance	> 1 MΩ
Operating temperature range	- 40 ... + 130 °C
Permissible sustained vibration	≤ 80 g
Pin coating	Tin-plated

### Accessories

Connector housing	2-pin	1 284 485 070

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

# 5 Acceleration sensors

## Piezoelectric vibration sensor



### Product type

**KS-4-S**

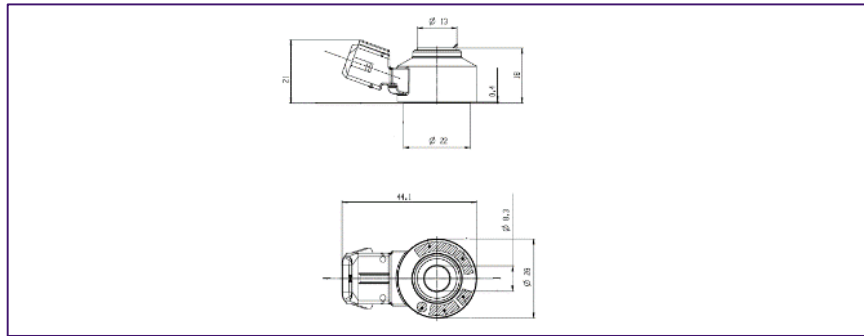
### Part number

**0 261 231 300**

### Picture



### Dimensional drawings



### Technical data

Vibration sensors	2-pole, without cable
Frequency range	0 ... 24 kHz
Self-impedance	> 1 MΩ
Operating temperature range	- 40 ... + 150 °C
Permissible sustained vibration	≤ 80 g
Pin coating	Gold-plated

### Accessories

Connector housing	2-pin	1 928 402 070

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

# 6.1 Pressure sensors

## Differential pressure sensor



- ▶ Pressure range -100 – 500 kPa
- ▶ High level of accuracy
- ▶ With temperature compensation



### Application

This sensor is used for measurement of the differential pressure at the diesel particulate filter to determine its load condition.

### Design and operation

The piezo-resistive pressure sensor element and a suitable circuitry for signal amplification and temperature compensation are integrated on a silicon chip. The pressure measured operates to the back side of the silicon diaphragm, which is resistant to corrosive media and protected by a gel film against diaphragm cracks. The reference pressure operates from above to the active side of the silicon diaphragm. The upper chip surface and the wire-bonding onto the ceramic substrate are protected from corrosion by a anti-corrosive gel.

### Explanation of characteristic data

$p_e$	Differential pressure
$U_A$	Output voltage (signal voltage)
$U_V$	Supply voltage
$k$	Tolerance multiplier
D	After endurance test
N	As-new condition

### Installation instructions

The sensor is designed for attachment to the bodywork or to the engine of motor vehicles. The sensor should be installed to avoid condensate accumulating in the pressure cell or the reference opening (pressure sampling point at top of intake manifold, pressure connection angled downwards etc.). As a general rule, the installation position should ensure that liquids cannot accumulate in the sensor and pressure hose. If it freezes, water in the sensor can lead to malfunction.

# 6.1 Pressure sensors

## Differential pressure sensor



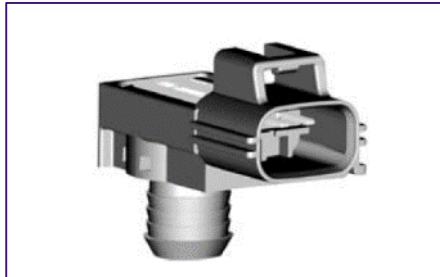
### Product type

**DS-D2**

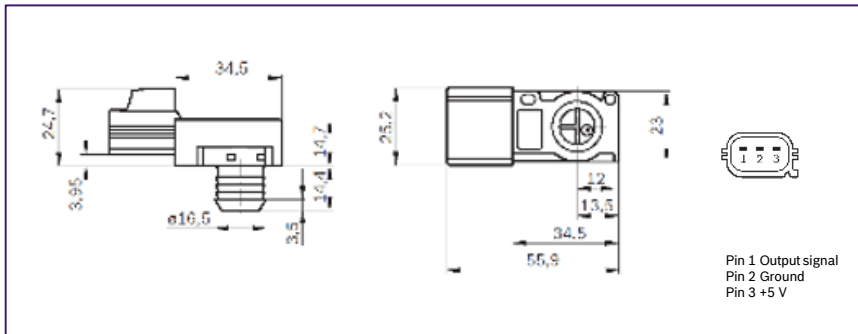
### Part number

**0 261 230 121**

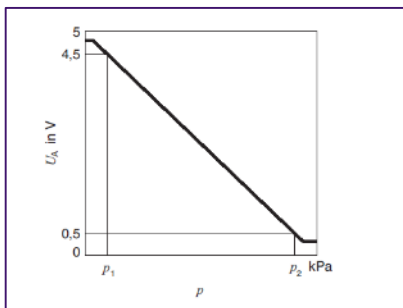
### Picture



### Dimensional drawings



### Characteristic curve



### Technical data

Parameter		min.	type	Max.	
Pressure measuring range ( $p_1 \dots p_2$ )	$p_e$	kPa	-100	0	
Operating temperature	$\vartheta_B$	°C	-40	+130	
Supply voltage $U_V$	$U_V$	V	4,75	5, 5,25	
Current input at $U_V = 5$ V	$I_V$	mA	6,0	9,0	12,5
Load current at output	$I_L$	mA	-1,0	0,5	
Load resistance to $U_V$ or ground	$R_{pull-up}$	k $\Omega$	5		
Load resistance to $U_V$ or ground	$R_{pull-down}$	k $\Omega$	10		
Response time	$\tau_{10/90}$	ms		1	
Voltage limitation at $U_V = 5$ V – lower limit	$U_{Amin}$	V	0,25	0,3	0,35
Voltage limitation at $U_V = 5$ V – upper limit	$U_{Amax}$	V	4,75	4,8	4,85

### Limit data

Supply voltage	$U_V$	V		16
Pressure	$p_e$	kPa	-500	+500
Storage temperature	$v_L$	°C	-40	+130

### Accessories

Connector housing	3-pin	Yazaki number	7283-5880-10 <sup>1)</sup>
Contact pins	For $\varnothing$ 0.35...0.5 mm <sup>2</sup>	Yazaki number	7116-4102-02 <sup>1)</sup>
Contact pins	For $\varnothing$ 0.75...1.0 mm <sup>2</sup>	Yazaki number	7116-4102-03 <sup>1)</sup>
Single-wire seal	For $\varnothing$ 0.35...0.5 mm <sup>2</sup>	Yazaki number	7158-3030-50 <sup>1)</sup>
Single-wire seal	For $\varnothing$ 0.75...1.0 mm <sup>2</sup>	Yazaki number	7158-3031-90 <sup>1)</sup>
Dummy plug		Yazaki number	7158-3032-60 <sup>1)</sup>

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.  
<sup>1)</sup> Available from Yazaki Europe LTD.

# 6.1 Pressure sensors

## Differential pressure sensor



### Product type

**DS-D2**

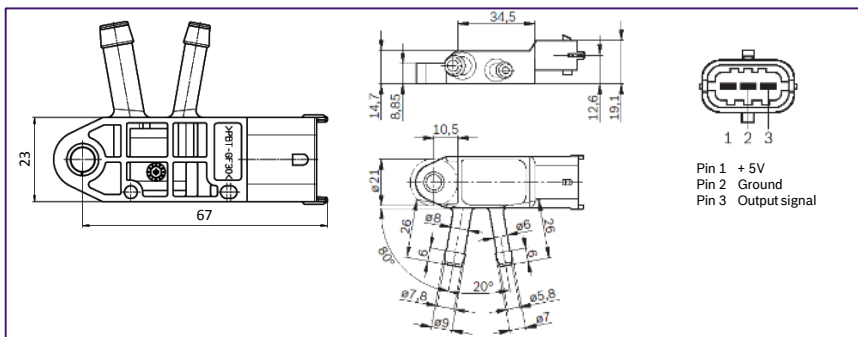
### Part number

**0 281 002 772**

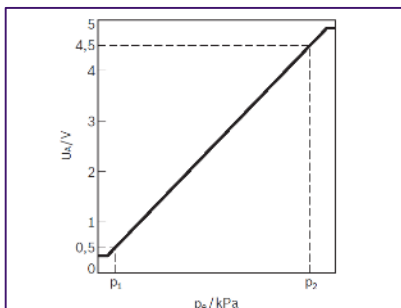
### Picture



### Dimensional drawings



### Characteristic curve



### Technical data

Parameter			min	max
Pressure measuring range ( $U_{AA} \dots p_2$ )	$p_e$	kPa	0	100
Operating temperature	$\vartheta_B$	°C	-40	+130
Load resistance to $U_V$ or ground	$R_{pull-up}$	k $\Omega$	5	680
Limit data				
Pressure	$p_e$	kPa	-350	+350
Storage temperature	$v_L$	°C	-40	+130

### Accessories

Connector housing	3-pin	1 928 403 966
Contact pins	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Single-wire seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Single-wire seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

# 6.1 Pressure sensors

## Differential pressure sensor



### Product type

**DS-D2**

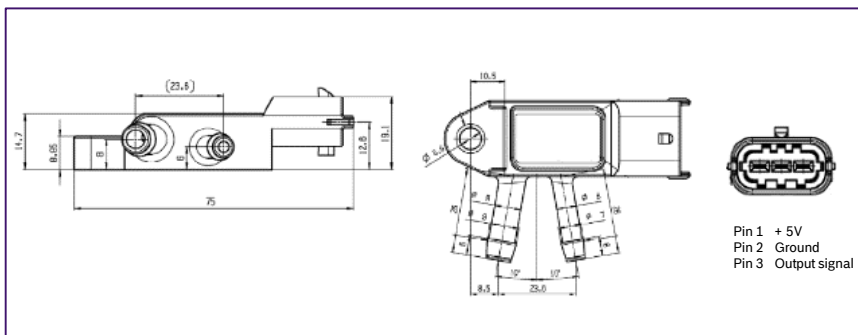
### Part number

**0 281 006 207**

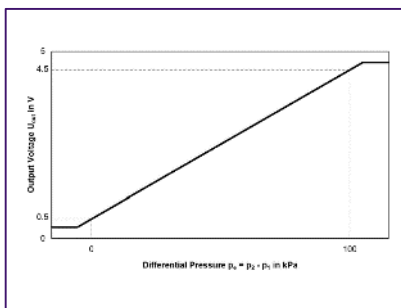
### Picture



### Dimensional drawings



### Characteristic curve



### Technical data

Parameter			min	max
Pressure measuring range ( $U_{AA} \dots p_2$ )	$p_e$	kPa	0	100
Operating temperature	$\vartheta_B$	°C	-40	+130
Load resistance to $U_V$ or ground	$R_{pull-up}$	k $\Omega$	5	68
Limit data				
Pressure	$p_e$	kPa	-350	+350
Storage temperature	$v_L$	°C	-40	+130

### Accessories

Connector housing	3-pin	1 928 403 966
Contact pins	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Single-wire seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Single-wire seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

# 6.1 Pressure sensors

## Differential pressure sensor



### Product type

**DS-K-TF**

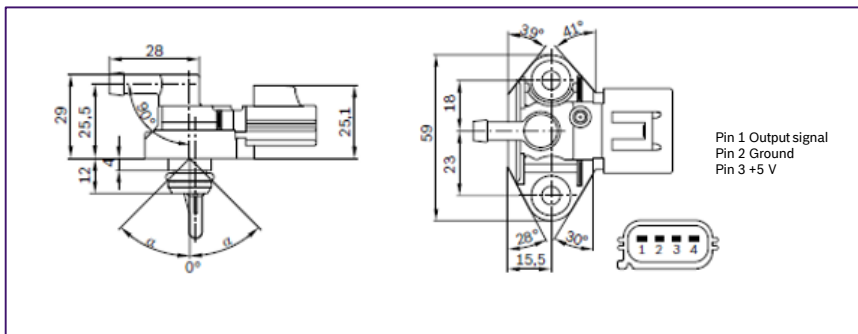
### Part number

**0 261 230 093**

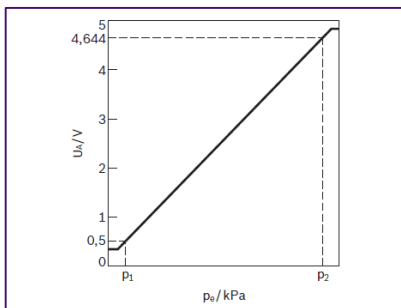
### Picture



### Dimensional drawings



### Characteristic curve



### Technical data

Parameter		min	max
Features		Integrated temperature sensor	
Pressure measuring range ( $U_{AA...p_2}$ )	$p_e$	kPa	0 500
Operating temperature	$\vartheta_B$	°C	-40 +125
Load resistance to $U_V$ or ground	$R_{pull-up}$	k $\Omega$	4,7
Limit data			
Pressure	$p_e$	kPa	+3000
Storage temperature	$v_L$	°C	+130

### Accessories

Connector housing	4-pin	Yazaki number	7283-5886-30 <sup>1)</sup>
Contact pins	For $\varnothing$ 0.35...0.5 mm <sup>2</sup>	Yazaki number	7116-4102-08 <sup>1)</sup>
Contact pins	For $\varnothing$ 0.75...1.0 mm <sup>2</sup>	Yazaki number	7116-4103-08 <sup>1)</sup>
Single-wire seal	For $\varnothing$ 0.35...0.5 mm <sup>2</sup>	Yazaki number	7158-3030-50 <sup>1)</sup>
Single-wire seal	For $\varnothing$ 0.75...1.0 mm <sup>2</sup>	Yazaki number	7158-3031-90 <sup>1)</sup>
Dummy plug		Yazaki number	7158-3032-60 <sup>1)</sup>

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.  
<sup>1)</sup> Available from Yazaki Europe LTD.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-T3**

#### Part number

**0 261 230 162**

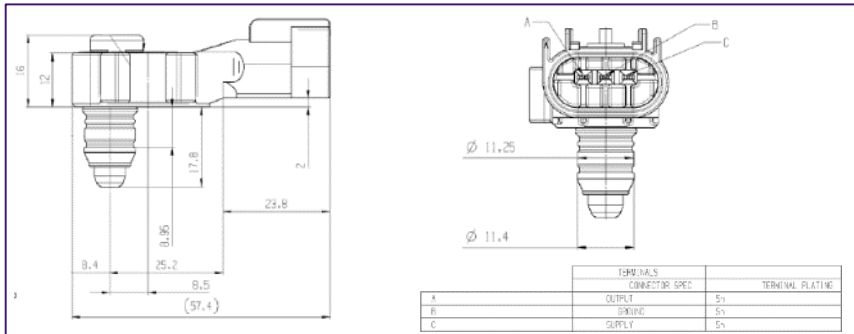
#### Picture



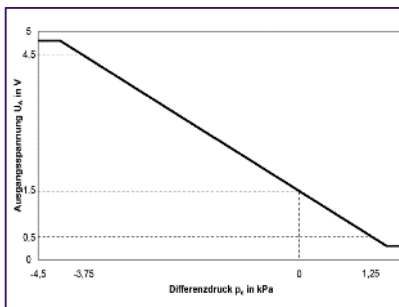
#### Technical data

Parameter		min.	type	Max.
Pressure range ( $p_1 \dots p_2$ )	kPa	-3,75		+1,25
Supply voltage $U_V$	V	4,75	5	5,25
Load current $I_L$ at output	mA	-1,0		0,5
Response time $\tau_{10/90}$	ms			5,0
Operating temperature	°C	0		+80
<b>Limit data</b>				
Operating temperature	°C	-50		+90

#### Dimensional drawings



#### Characteristic curve



## 6.2 Pressure sensors

### Absolute pressure sensors

- ▶ Pressure range 0 – 1000 kPa
- ▶ High level of accuracy
- ▶ EMC protection better than  $100 \text{ V m}^{-1}$
- ▶ With temperature compensation
- ▶ Version with additional integrated temperature sensor



#### Application

The sensor is used to measure the absolute intake-manifold or boost pressure. In addition it can be used to measure the absolute fuel or oil pressure. The version with integrated temperature sensor additionally measures the temperature of the detected medium.

#### Design and operation

The piezo-resistive pressure sensor element and a suitable circuitry for signal amplification and temperature compensation are integrated on a silicon chip. The measured pressure operates from above to the active side of the silicon diaphragm. Between the backside and a glass socket a reference vacuum is enclosed. The temperature sensor element is an NTC-resistor. By a suitable coating process the pressure and temperature sensor are protected against vapours and fluids existing in the intake-manifold, exhaust gas or exhaust gas condensate, however, may affect the sensor lifetime.

#### Explanation of characteristic data

$U_A$	Output voltage
$U_V$	Supply voltage
$k$	Tolerance multiplier
D	After endurance test
N	As-new condition

#### Installation instruction

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 sensor should be installed to avoid condensate accumulating in the pressure cell (pressure sampling point at top of intake manifold, pressure connection angled downwards etc.).



## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S1-TF**

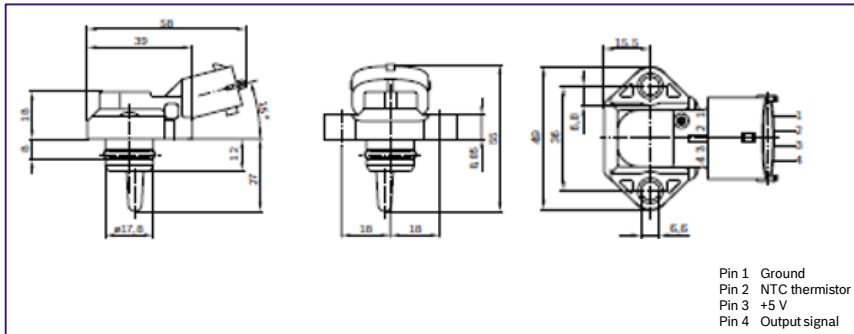
#### Part number

**0 281 002 316**

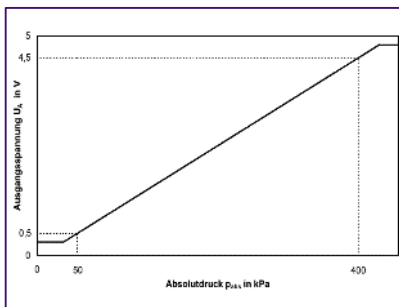
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	max.
Features		Integrated temperature sensor		
Pressure range ( $p_1 \dots p_2$ )	kPa	50		400
Supply voltage $U_V$	V	4,5	5	5,5
Load current $I_L$ at output	mA	-0,1		0,1
Load resistance to ground or $U_V$	k $\Omega$	50		
Response time $\tau_{10/90}$	ms		0,2	
Operating temperature	$^{\circ}\text{C}$	-40		+125
Limit data				
Operating temperature	$^{\circ}\text{C}$	-40		+130
Recommendation for signal evaluation				
Load resistance to ground	k $\Omega$		100	
Low-pass resistance	k $\Omega$		21,5	
Low-pass capacitance	nF		100	
Temperature sensor				
Measuring range	$^{\circ}\text{C}$	-40		+125
Measurement current <sup>1)</sup>	mA			1
Rated resistance at +20 $^{\circ}\text{C}$	k $\Omega$		2,5 $\pm$ 5 %	
Temperature/time constant $\tau_{63}$ <sup>2)</sup>	s			45

<sup>1)</sup> Operation with 1 k $\Omega$  series resistance.

<sup>2)</sup> In air with flow velocity 6 m/s.

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Individual seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Individual seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S1-TF**

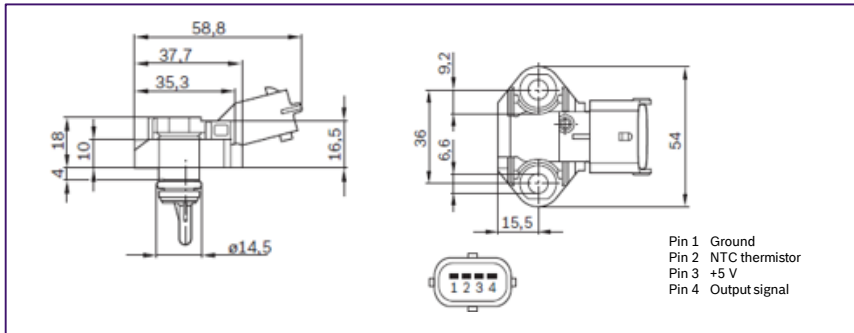
#### Part number

**0 281 002 693**

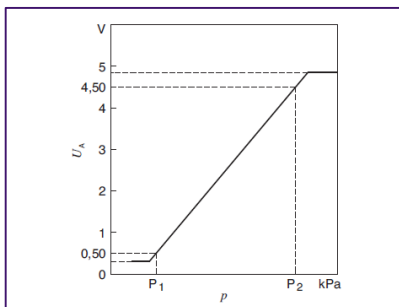
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	max.
Feature		Integrated temperature sensor		
Pressure range kPa ( $p_1 \dots p_2$ )		50		1000
Operating temperature	$\vartheta_B$	°C	-40	+125
Supply voltage (1 min)	$U_V$	V	4,75	5, 5,25
Load resistance to $U_V$ or ground	$R_{pull-up}$	k $\Omega$	5	
Load resistance to $U_V$ or ground	$R_{pull-down}$	k $\Omega$	10	
Response time	$\tau_{10/90}$	ms		1

#### Limit data

Storage temperature	$\vartheta_L$	°C	-40	+130
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#### Temperature sensor

Measuring range	$\vartheta_M$	°C	-40	+125
Measurement current	$I_M$	mA		1 <sup>1)</sup>
Rated resistance at +20°C	k $\Omega$		2,5 ± 6%	
Temperature/time constant	$\tau_{63}$	s		45 <sup>2)</sup>

<sup>1)</sup> Operation at 5 V with 1 $\Omega$  series resistance.

<sup>2)</sup> In air with flow velocity 6 m/s.

TO cell

#### Accessories

Connector housing	Quantity required: 1 x	1 928 403 736
Contact pins	Quantity required: 4 x; Contents: 100 x	1 928 498 060
Individual seals	Quantity required: 4 x; Contents: 10 x	1 928 300 599

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S2**

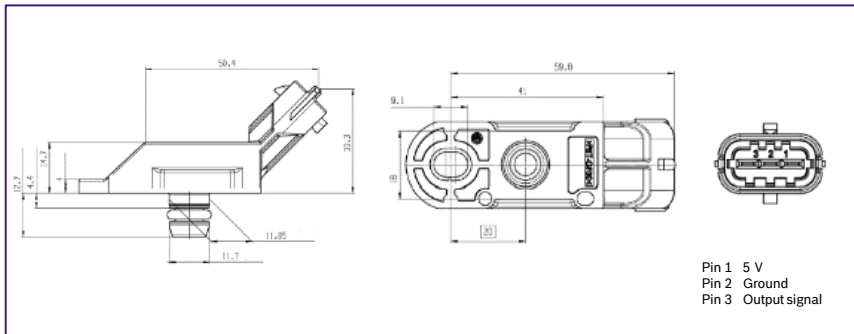
#### Part number

**0 261 230 061**

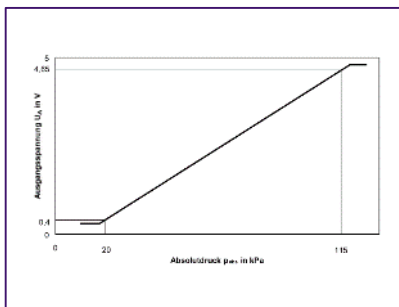
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	Max.
Pressure range ( $p_1 \dots p_2$ )	kPa	20		115
Supply voltage $U_V$	V	4,75	5	5,25
Load current $I_L$ at output	mA	-1		0,1
Response time $\tau_{10/90}$	ms			1
Operating temperature	°C	-40		+130
Limit data				
Operating temperature	°C	-40		+130

#### Accessories

Connector housing	3-pin	1 928 403 110
Contact pins (gold-plated)	For $\varnothing 0.5 \dots 1.0 \text{ mm}^2$	AMP 2 929 939 1
Contact pins (gold-plated)	For $\varnothing 1.5 \dots 2.5 \text{ mm}^2$	AMP 2 929 937 1
Single-wire seal	For $\varnothing 0.5 \dots 1.0 \text{ mm}^2$	AMP 828 905
Single-wire seal	For $\varnothing 1.5 \dots 2.5 \text{ mm}^2$	AMP 828 905
Dummy plug		AMP 828 922

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S2-TF**

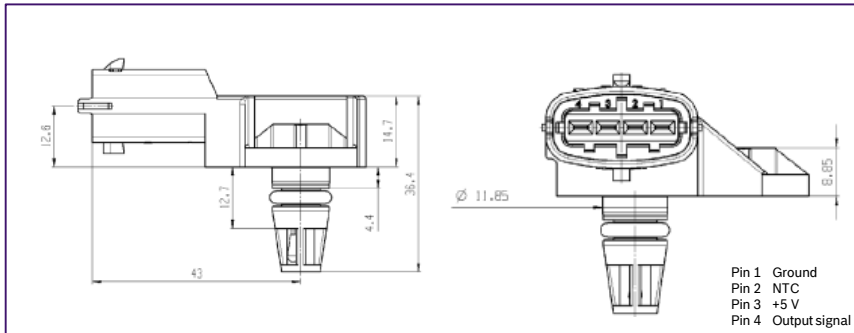
#### Part number

**0 261 230 133**

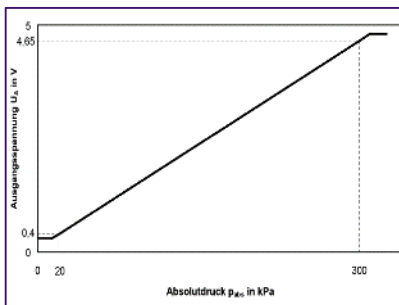
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	Max.
Features		Integrated temperature sensor		
Pressure range ( $p_1...p_2$ )	kPa	20		300
Supply voltage $U_v$	V	4,75	5	5,25
Load current $I_L$ at output	mA	-1		0,5
Response time $\tau_{10/90}$	ms			1
Operating temperature	°C	-40		+130
<b>Limit data</b>				
Operating temperature	°C	-40		+130

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Single-wire seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Single-wire seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors

#### Product type

**DS-S2**

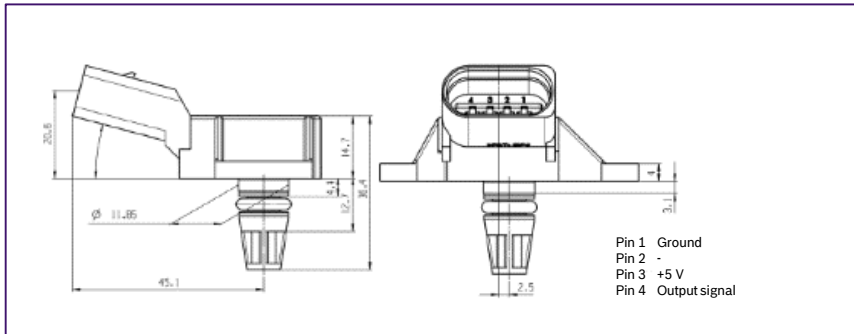
#### Part number

**0 261 230 167**

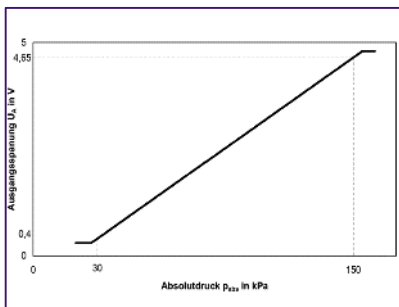
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	Max.
Pressure range ( $p_1 \dots p_2$ )	kPa	30		150
Supply voltage $U_V$	V	4,75	5	5,25
Load current $I_L$ at output	mA	-1		0,5
Response time $\tau_{10/90}$	ms			1
Operating temperature	°C	-40		+130
Limit data				
Operating temperature	°C	-40		+130

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S2-TF**

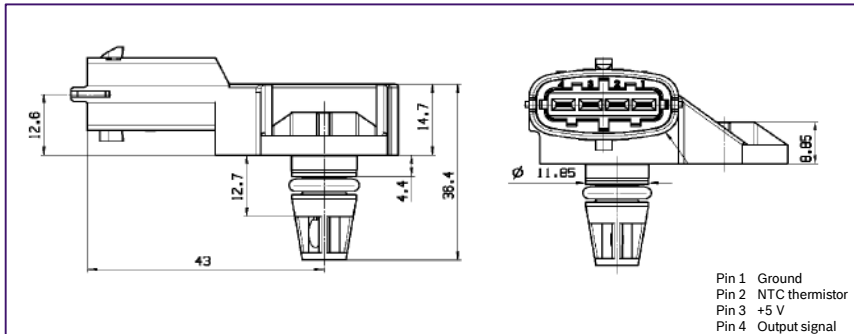
#### Part number

**0 281 002 437**

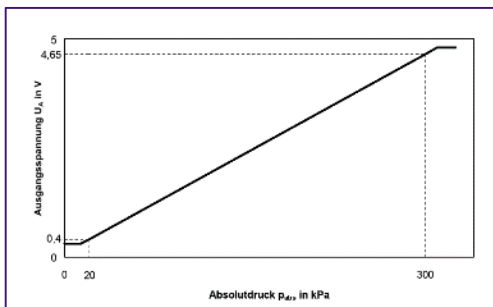
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter	min.	type	Max.
Features	Integrated temperature sensor		
Pressure range ( $p_1 \dots p_2$ )	kPa	20	300
Supply voltage $U_V$	V	4,75	5,25
Load current $I_L$ at output	mA	-1	0,5
Response time $\tau_{10/90}$	ms		1
Operating temperature	°C	-40	+130

#### Limit data

Operating temperature	°C	-40	+130
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#### Temperature sensor

Measuring range	°C	-40	+130
Measurement current <sup>1)</sup>	mA		1
Rated resistance at +20°C	kΩ	2,5 ± 5 %	
Temperature/time constant $\tau_{63}$ <sup>2)</sup>	s		10

<sup>1)</sup> Operation with 1 kΩ series resistance.

<sup>2)</sup> In air with flow velocity 6 m/s.

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins	For Ø 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins	For Ø 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Single-wire seal	For Ø 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Single-wire seal	For Ø 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S2-TF**

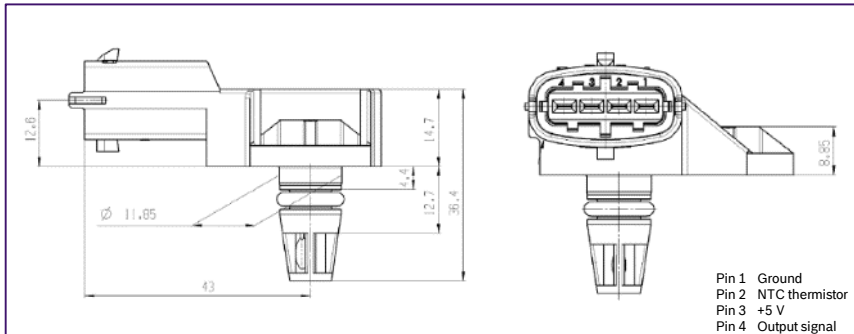
#### Part number

**0 281 002 456**

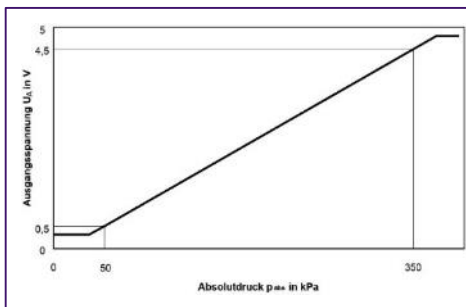
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	Max.
Features		Integrated temperature sensor		
Pressure range ( $p_1 \dots p_2$ )	kPa	50		350
Supply voltage $U_V$	V	4,5	5	5,5
Load current $I_L$ at output	mA	-1		0,5
Response time $\tau_{10/90}$	ms			1
Operating temperature	°C	-40		+130

#### Limit data

Operating temperature	°C	-40		+130
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#### Temperature sensor

Measuring range	°C	-40		+130
Measurement current <sup>1)</sup>	mA			1
Rated resistance at +20°C	kΩ		2,5 ± 5 %	
Temperature/time constant $\tau_{63}$ <sup>2)</sup>	s			10

<sup>1)</sup> Operation with 1 kΩ series resistance.

<sup>2)</sup> In air with flow velocity 6 m/s.

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins (tin-plated)	For Ø 0.5...1.0 mm <sup>2</sup> ; Contents:	1 928 498 060
Contact pins (tin-plated)	For Ø 1.5...2.5 mm <sup>2</sup> ; Contents:	1 928 498 061
Single-wire seal	For Ø 0.5...1.0 mm <sup>2</sup> ; Contents:	1 928 300 599
Single-wire seal	For Ø 1.5...2.5 mm <sup>2</sup> ; Contents:	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S2**

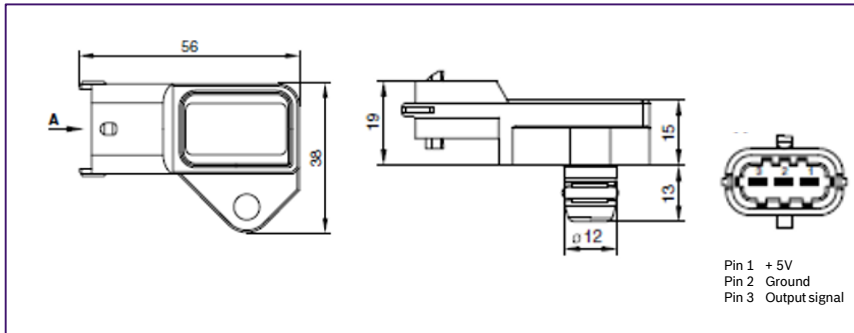
#### Part number

**0 281 002 487**

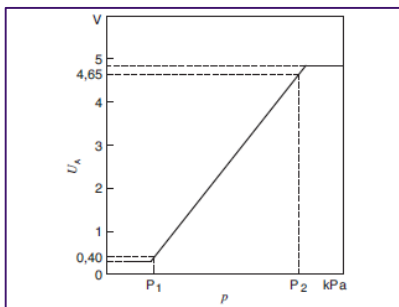
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter	min.	type	Max.	Parameter
Pressure range ( $p_1 \dots p_2$ )		20		250
Operating temperature	$\vartheta_B$	°C	-40	+130
Supply voltage (1 min)	$U_V$	V	4,5	5,5
Load resistance to $U_V$ or ground	$R_{pull-up}$	k $\Omega$	5	680
Load resistance to $U_V$ or ground	$R_{pull-down}$	k $\Omega$	10	100
Response time	$\tau_{10/90}$	ms		1

#### Limit data

Storage temperature	$v_L$	°C	-40	+130
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#### Accessories

Connector housing	Quantity required: 1 x	1 928 403 966
Contact pins	Quantity required: 3 x; Contents: 100 x	1 928 498 060
Individual seals	Quantity required: 3 x; Contents: 10 x	1 928 300 599

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S2-TF**

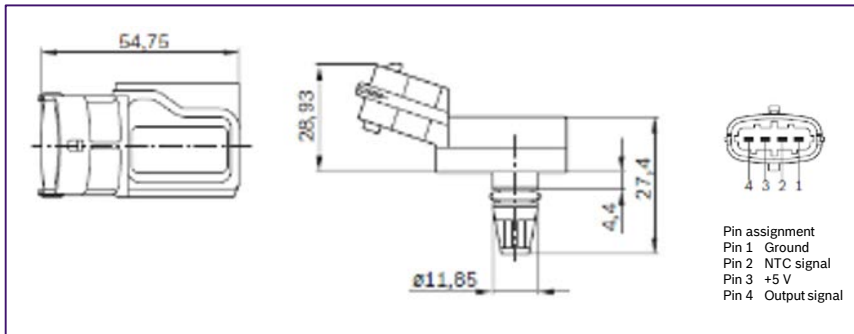
#### Part number

**0 281 002 573**

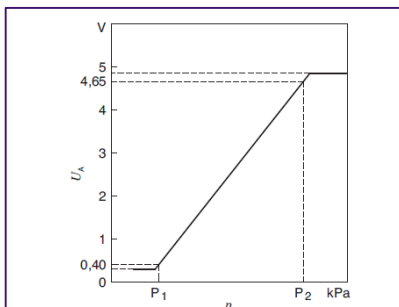
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	max.
Feature		Integrated temperature sensor		
Pressure range kPa ( $p_1...p_2$ )		20		250
Operating temperature	$\vartheta_B$	°C	-40	+130
Supply voltage (1 min)	$U_V$	V	4,75	5, 5,25
Load resistance to $U_V$ or ground	$R_{pull-up}$	kΩ	5	680
Load resistance to $U_V$ or ground	$R_{pull-down}$	kΩ	10	100
Response time	$\tau_{10/90}$	ms		1

#### Limit data

Storage temperature	$\vartheta_L$	°C	-40
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#### Temperature sensor

Measuring range	$\vartheta_M$	°C	-40	+130
Measurement current	$I_M$	mA		1 <sup>1)</sup>
Rated resistance at +20°C	kΩ		2,5 ± 5%	
Temperature/time constant	$\tau_{63}$	s		10 <sup>2)</sup>

<sup>1)</sup> Operation with 5 V series resistance.

<sup>2)</sup> In air with flow velocity 6 m/s.

#### Accessories

Connector housing	Quantity required: 1 x	1 928 403 736
Contact pins	Quantity required: 4 x; Contents: 100 x	1 928 498 060
Individual seals	Quantity required: 4 x; Contents: 10 x	1 928 300 599

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S2-TF**

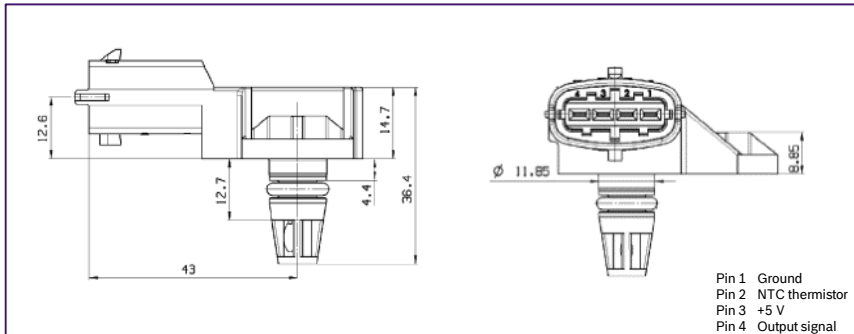
#### Part number

**0 281 002 576**

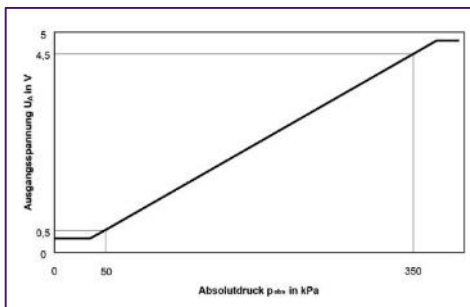
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	Max.
Features		Integrated temperature sensor		
Pressure range ( $p_1 \dots p_2$ )	kPa	50		400
Supply voltage $U_V$	V	4,75	5	5,25
Load current $I_L$ at output	mA	-1		0,5
Response time $\tau_{10/90}$	ms			1
Operating temperature	°C	-40		+130

#### Limit data

Operating temperature	°C	-40		+130
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#### Temperature sensor

Measuring range	°C	-40		+130
Measurement current <sup>1)</sup>	mA			1
Rated resistance at +20°C	kΩ		2,5 ± 5 %	
Temperature/time constant $\tau_{63}$ <sup>2)</sup>	s			10

<sup>1)</sup> Operation with 1 kΩ series resistance.

<sup>2)</sup> In air with flow velocity 6 m/s.

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins (tin-plated)	For Ø 0.5...1.0 mm <sup>2</sup> ; Contents:	1 928 498 060
Contact pins (tin-plated)	For Ø 1.5...2.5 mm <sup>2</sup> ; Contents:	1 928 498 061
Single-wire seal	For Ø 0.5...1.0 mm <sup>2</sup> ; Contents:	1 928 300 599
Single-wire seal	For Ø 1.5...2.5 mm <sup>2</sup> ; Contents:	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.



## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S2**

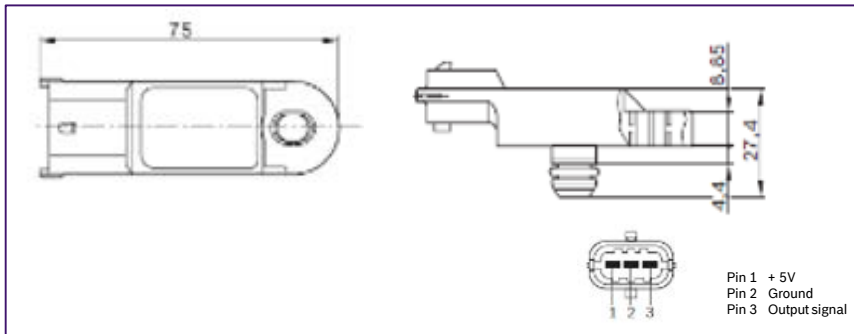
#### Part number

**0 281 002 616**

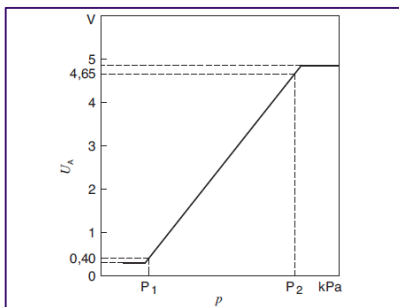
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	max.
Pressure range kPa ( $p_1 \dots p_2$ )		20		250
Operating temperature	$\vartheta_B$	°C	-40	+130
Supply voltage (1 min)	$U_V$	V	4,75	5, 5,25
Load resistance to $U_V$ or ground	$R_{pull-up}$	k $\Omega$	5	
Load resistance to $U_V$ or ground	$R_{pull-down}$	k $\Omega$	10	
Response time	$\tau_{10/90}$	ms		1

#### Limit data

Storage temperature	$\vartheta_L$	°C	-40	+130
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#### Accessories

Connector housing	Quantity required: 1 x	1 928 403 966
Contact pins	Quantity required: 3 x; Contents: 100 x	1 928 498 060
Individual seals	Quantity required: 3 x; Contents: 10 x	1 928 300 599

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S3-TF**

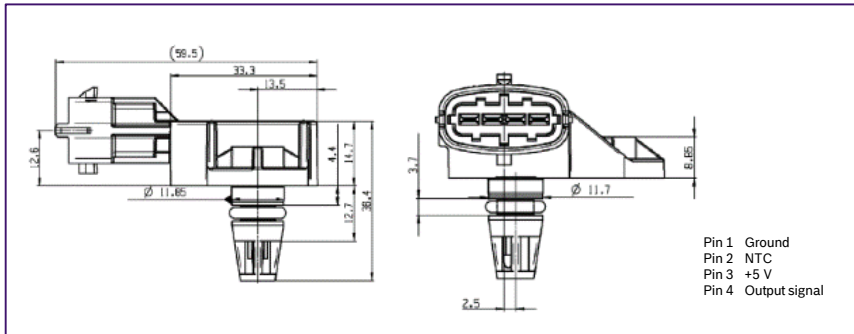
#### Part number

**0 261 230 217**

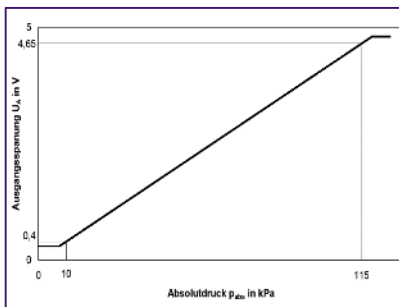
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	Max.
Features		Integrated temperature sensor		
Pressure range ( $p_1...p_2$ )	kPa	10		115
Supply voltage $U_V$	V	4,75	5	5,25
Load current $I_L$ at output	mA	-1		0,5
Response time $\tau_{10/90}$	ms			1
Operating temperature	°C	-40		+130
<b>Limit data</b>				
Operating temperature	°C	-40		+130

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Single-wire seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Single-wire seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S3-TF**

#### Part number

**0 261 230 416**

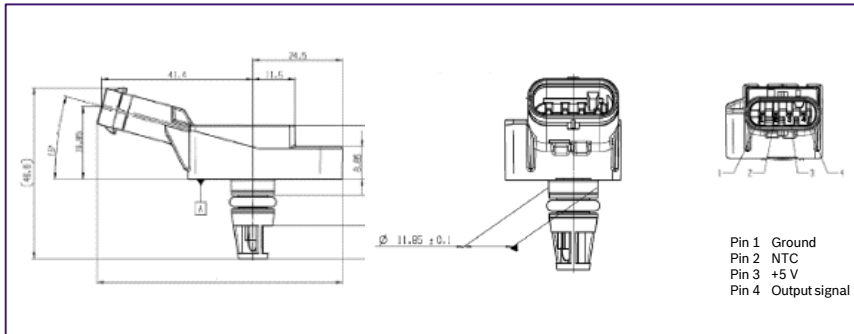
#### Picture



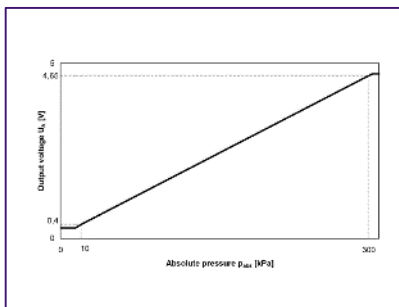
#### Technical data

Parameter		min.	type	Max.
Features		Integrated temperature sensor		
Pressure range ( $p_1 \dots p_2$ )	kPa	10		300
Supply voltage $U_V$	V	4,75	5	5,25
Response time $\tau_{10/90}$	ms			1
Operating temperature	°C	-40		+130
<b>Limit data</b>				
Operating temperature	°C	-40		+130

#### Dimensional drawings



#### Characteristic curve



## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S3-TF**

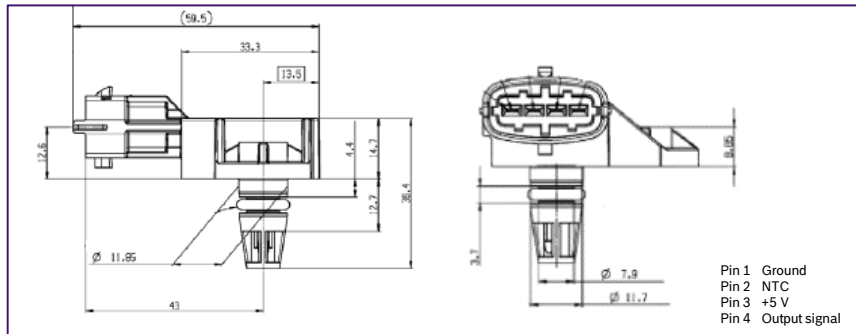
#### Part number

**0 281 006 028**

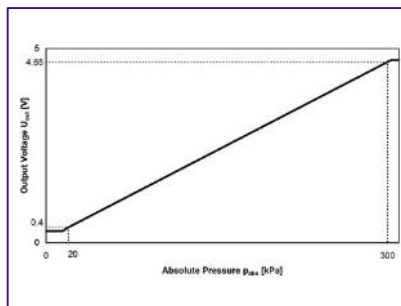
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	Max.
Features		Integrated temperature sensor		
Pressure range ( $p_1...p_2$ )	kPa	20		300
Supply voltage $U_V$	V	4,75	5	5,25
Response time $\tau_{10/90}$	ms			1
Operating temperature	°C	-40		+130
<b>Limit data</b>				
Operating temperature	°C	-40		+130

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Single-wire seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Single-wire seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-S3-TF**

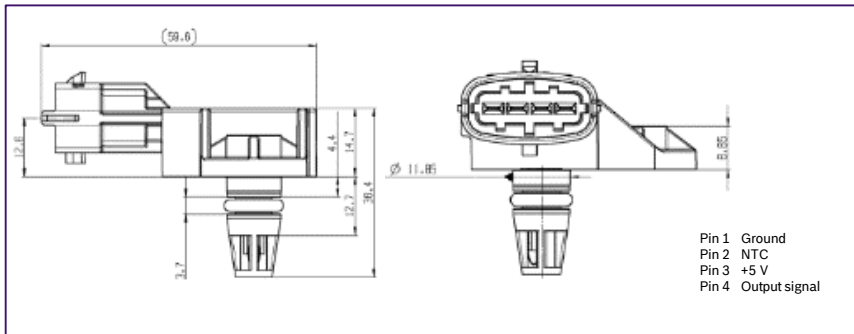
#### Part number

**0 281 006 102**

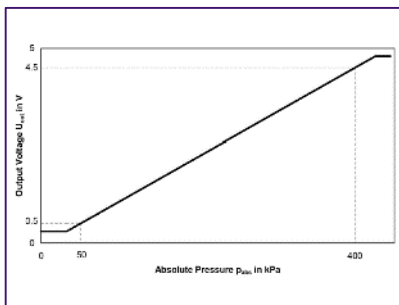
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter	min.	type	Max.
Features	Integrated temperature sensor		
Pressure range ( $p_1...p_2$ )	kPa	50	400
Supply voltage $U_V$	V	4,75	5,25
Load current $I_L$ at output	mA	-1	0,5
Response time $\tau_{10/90}$	ms		1
Operating temperature	°C	-40	+130
Limit data			
Operating temperature	°C	-40	+130

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Single-wire seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Single-wire seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-K-TF (fuel)**

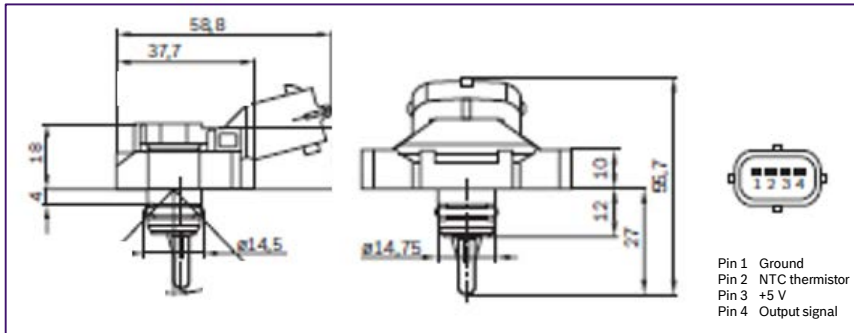
#### Part number

**0 261 230 112**

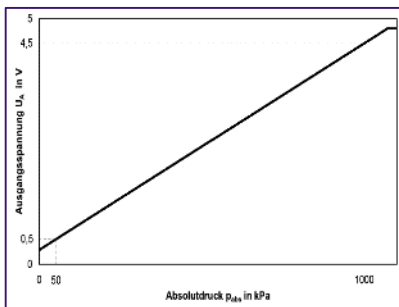
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter	min.	type	Max.
Features	Integrated temperature sensor		
Application/medium	fuel		
Pressure range ( $p_1...p_2$ )	kPa	50	1000
Supply voltage $U_V$	V	4,75	5, 5,25
Load current $I_L$ at output	mA	-1	0,5
Response time $\tau_{10/90}$	ms		1
Operating temperature	°C	-40	+125

#### Limit data

Operating temperature	°C	-40	+130
-----------------------	----	-----	------

#### Temperature sensor

Measuring range	°C	-40	+125
Measurement current <sup>1)</sup>	mA		1
Rated resistance at +20°C	kΩ		2,5 ± 6 %
Temperature/time constant $\tau_{63}$ <sup>2)</sup>	s		45

<sup>1)</sup> Operation with 1 kΩ series resistance.

<sup>2)</sup> In air with flow velocity 6 m/s.

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins	For Ø 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins	For Ø 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Single-wire seal	For Ø 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Single-wire seal	For Ø 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-O-TF (oil)**

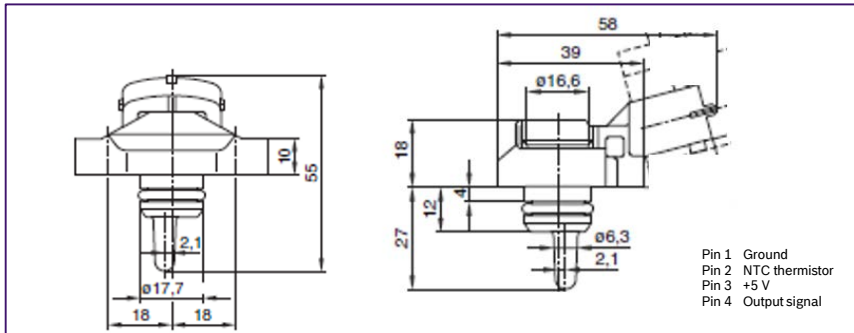
#### Part number

**0 281 006 282**

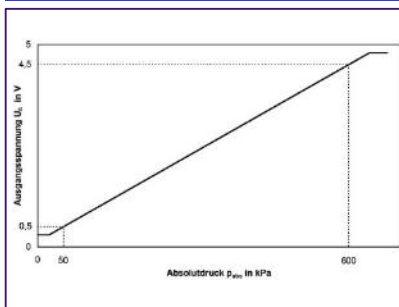
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter	min.	type	max.
Features	Integrated temperature sensor		
Application/medium	oil		
Pressure range ( $p_1 \dots p_2$ )	kPa	50	600
Supply voltage $U_V$	V	4,5	5,5
Load current $I_L$ at output	mA	-0,1	0,1
Load resistance to ground or $U_V$	k $\Omega$	50	
Response time $\tau_{10/90}$	ms	0,2	
Operating temperature	$^{\circ}\text{C}$	-40	+125
Limit data			
Operating temperature	$^{\circ}\text{C}$	-40	+130
Recommendation for signal evaluation			
Load resistance to ground	k $\Omega$	100	
Low-pass resistance	k $\Omega$	21,5	
Low-pass capacitance	nF	100	
Temperature sensor			
Measuring range	$^{\circ}\text{C}$	-40	+125
Measurement current <sup>1)</sup>	mA	1	
Rated resistance at +20 $^{\circ}\text{C}$	k $\Omega$	2,5 $\pm$ 5 %	
Temperature/time constant $\tau_{63}$ <sup>2)</sup>	s	45	

<sup>1)</sup> Operation with 1 k $\Omega$  series resistance.

<sup>2)</sup> In air with flow velocity 6 m/s.

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Single-wire seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Single-wire seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.2 Pressure sensors

### Absolute pressure sensors



#### Product type

**DS-AM5**

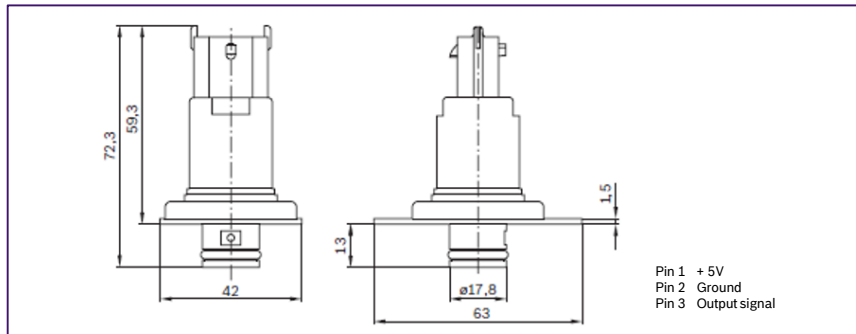
#### Part number

**0 281 002 668**

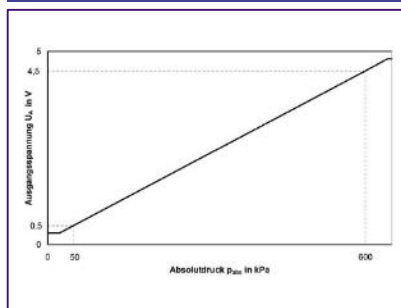
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	max.
Pressure range ( $p_1 \dots p_2$ )	kPa	<b>50</b>		<b>600</b>
Supply voltage $U_V$	V	4,75	5	5,25
Load current $I_L$ at output	mA	-1		0,5
Response time $\tau_{10/90}$	ms		1	
Operating temperature	°C	-40		+125
Limit data				
Operating temperature	°C	-40		+130

#### Accessories

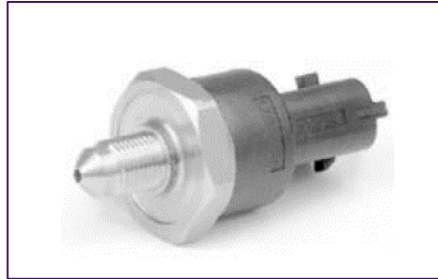
Connector housing	3-pin	1 928 403 966
Contact pins (tin plated)	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 100 x	1 928 498 056
Contact pins (tin plated)	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 100 x	1 928 498 057
Single-wire seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup> ; Contents: 10 x	1 928 300 599
Single-wire seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup> ; Contents: 10 x	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.3 Pressure sensors

### High pressure sensors

- ▶ Pressure range 1 – 260 MPa
- ▶ Ratiometric signal evaluation (relative to supply voltage)
- ▶ Self-monitoring offset and sensitivity.
- ▶ Excellent media resistance (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

High pressure sensors are used in motor vehicles to measure the pressure in a braking system or in the fuel rail of direct-injection gasoline or common-rail 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 utilization 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.

#### Explanation of characteristic data

$U_A$	Output voltage
$U_V$	Supply voltage
bar	Pressure
$U_S$	Input voltage
$p$	Pressure [MPa]
$C_O$	0.1
$C_1$	$0.8 \cdot p / P_N$
$P_N$	Rated pressure [MPa]

#### Installation instruction

The pressure sensor is designed for attachment to the fuel rail. The pressure port has the conical sealing surface to ensure the sealing to the fuel rail and to ensure that no water can collect at the diaphragm.

The pressure sensor consists of a pressure port of metal and a housing of plastic. The pressure port has a conical sealing and a hexagon. The housing must not be twisted against the pressure port during installation. The pressure sensor has to be handled during screwing-in only at the hexagon. Tools for installation, e. g. socket wrench, have to be applied only at the hexagon. After the pressure sensor has been screwed in at its installation position in this way, it is tightened at the hexagon. A gap remains between the hexagon of the pressure sensor and the fuel rail.

## 6.3 Pressure sensors

### High pressure sensor



#### Product type

**DS-HD-KV4.2**

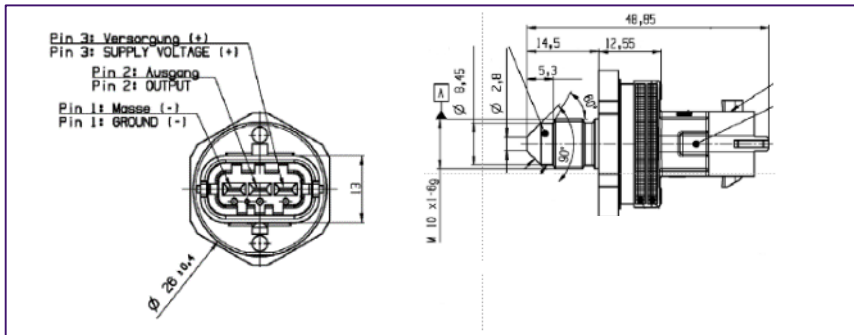
#### Part number

**0 261 545 030**

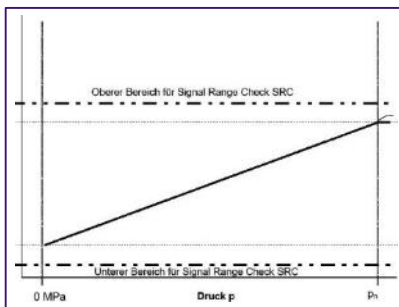
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Pressure range	$P_N$	bar (Mpa)	260 (26)
Thread			M 10 x 1
Connector			Compact 1.1
Application/medium			CNG
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	320
Rupture pressure	$p_{max}$	bar	250
Response time	$\tau_{10/90}$	ms	2

<sup>1)</sup> FS = Full Scale

#### Accessories

Connector housing	4-pin	1 928 403 966
Contact pins (gold-plated)	For $\varnothing 0.5...1.0$ mm <sup>2</sup>	1 928 498 054
Contact pins (gold-plated)	For $\varnothing 1.5...2.5$ mm <sup>2</sup>	1 928 498 055
Single-wire seal	For $\varnothing 0.5...1.0$ mm <sup>2</sup>	1 928 300 599
Single-wire seal	For $\varnothing 1.5...2.5$ mm <sup>2</sup>	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

[▶ Product groups](#)

## 6.3 Pressure sensors

### High pressure sensor



#### Product type

**DS-HD-KV4.2**

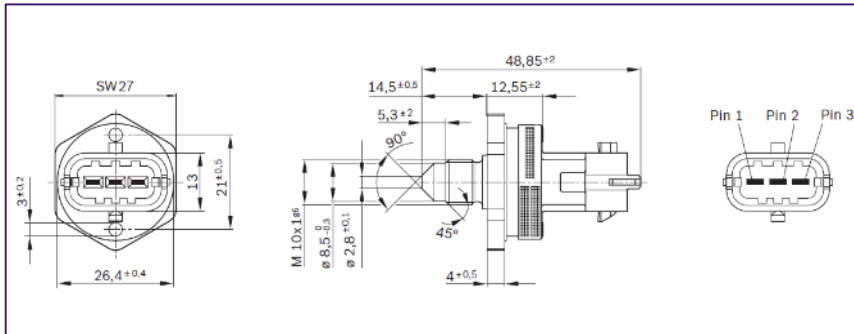
#### Part number

**0 261 545 053**

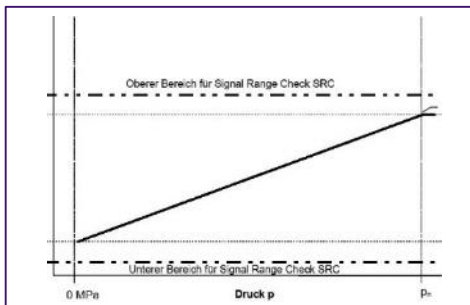
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Pressure range	$P_N$	bar (Mpa)	140 ( 14 )
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	180
Rupture pressure	$p_{max}$	bar	>150
Response time	$\tau_{10/90}$	ms	2

<sup>1)</sup> FS = Full Scale

#### Accessories

Connector housing	4-pin	1 928 403 966
Contact pins (gold-plated)	For $\varnothing 0.5...1.0$ mm <sup>2</sup>	1 928 498 054
Contact pins (gold-plated)	For $\varnothing 1.5...2.5$ mm <sup>2</sup>	1 928 498 055
Single-wire seal	For $\varnothing 0.5...1.0$ mm <sup>2</sup>	1 928 300 599
Single-wire seal	For $\varnothing 1.5...2.5$ mm <sup>2</sup>	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.3 Pressure sensors

### High pressure sensor



#### Product type

**DS-HD-KV4.2**

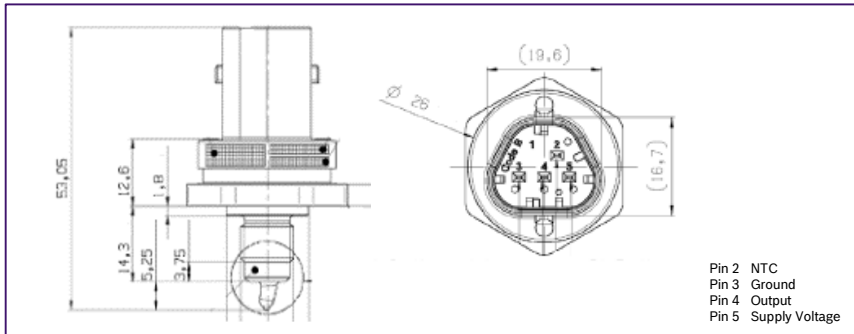
#### Part number

**0 281 006 650**

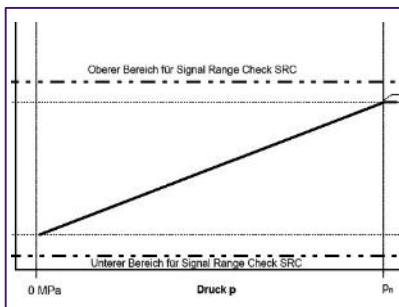
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Pressure range	$P_N$	bar (Mpa)	260 (26)
Thread			M 10 x 1
Connector			Trapez
Application/medium			Unleaded fuel
Max. feed voltage	$U_s$	V	18
Supply voltage	$U_V$	V	$5 \pm 0,25$
Supply current	$I_V$	mA	9...15
Load capacitance to ground		nF	15,1
Temperature range		°C	- 40 ... + 140
Max. overpressure	$p_{max}$	bar	400
Rupture pressure	$p_{max}$	bar	375
Response time	$\tau_{10/90}$	s	9

<sup>1)</sup> FS = Full Scale

#### Accessories

Connector housing	4-pin	1 928 405 159
Matrix-Hv Terminal	For $\varnothing 0.35 \dots 0.5 \text{ mm}^2$ ; Contents: 4 x	1 928 498 810
Mating single wire seal	For $\varnothing 0.35 \dots 0.5 \text{ mm}^2$ ; Contents: 4 x	1 928 300 934
Cavity Plug	For $\varnothing 0.35 \dots 0.5 \text{ mm}^2$ ; Contents: 1 x	1 928 300 935

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.3 Pressure sensors

### High pressure sensor



#### Product type

**DS-RPS4-18**

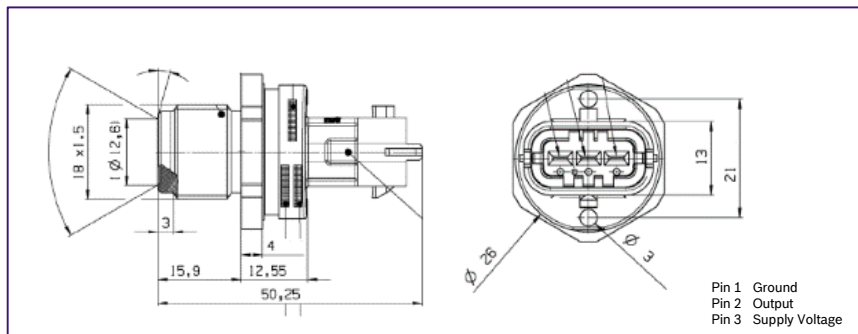
#### Part number

**0 281 002 907**

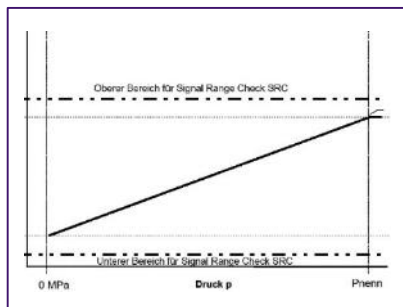
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Pressure range	$P_N$	bar (MPa)	1500 ( 150 )
Max. feed voltage	$U_s$	V	16
Supply voltage	$U_v$	V	$5 \pm 0,25$
Load capacitance to ground		nF	10
Thread			M 18 x 1,5
Application/medium			Diesel or biodiesel <sup>2)</sup>
Temperature range		°C	- 40 ... + 130
Max. overpressure	$p_{max}$	bar	2300
Rupture pressure	$p_{berst}$	bar	4000
Response time	$\tau_{10/90}$	ms	2

<sup>2)</sup> RME rapeseed methyl ester.

#### Accessories

Connector housing	3-pin	1 928 403 968
Contact pins (gold plated)	For $\varnothing 0.5 \dots 1.0 \text{ mm}^2$	1 928 498 054
Single-wire seal	For $\varnothing 0.5 \dots 1.0 \text{ mm}^2$	1 928 300 599
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.3 Pressure sensors

### High pressure sensor



#### Product type

**DS-RPS4-18**

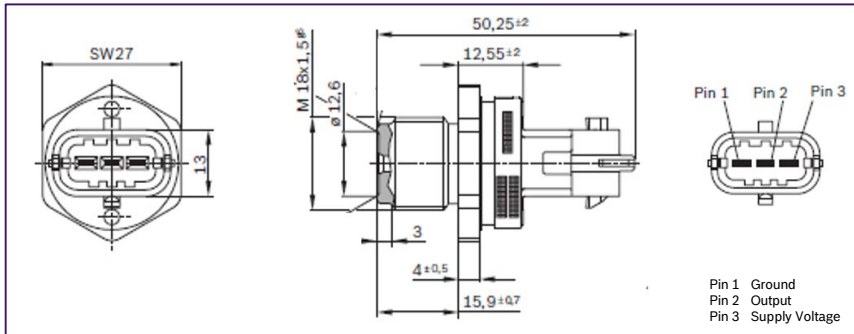
#### Part number

**0 281 002 930**

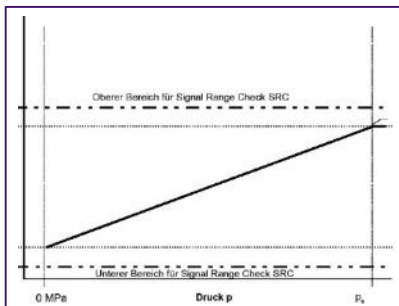
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Pressure range	$P_N$	bar (MPa)	2000 ( 200 )
Max. feed voltage	$U_s$	V	16
Supply voltage	$U_V$	V	$5 \pm 0,25$
Load capacitance to ground		nF	10
Thread			M 18 x 1,5
Application/medium			Diesel or biodiesel <sup>2)</sup>
Temperature range			- 40 ... + 130
Max. overpressure	$p_{max}$	bar	2300
Rupture pressure	$p_{berst}$	bar	4000
Response time	$\tau_{10/90}$	ms	2

- <sup>1)</sup> FS = Full Scale.
- <sup>2)</sup> RME rapeseed methyl ester.
- <sup>4)</sup> Output current with pull-up resistor.
- <sup>5)</sup> +140°C for max. 250 h.

#### Accessories

Connector housing	3-pin	1 928 403 968
Contact pins (gold plated)	For $\varnothing 0.5 \dots 1.0$ mm <sup>2</sup>	1 928 498 054
Single-wire seal	For $\varnothing 0.5 \dots 1.0$ mm <sup>2</sup>	1 928 300 599
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.3 Pressure sensors

### High pressure sensor



#### Product type

**DS-RPS4-2**

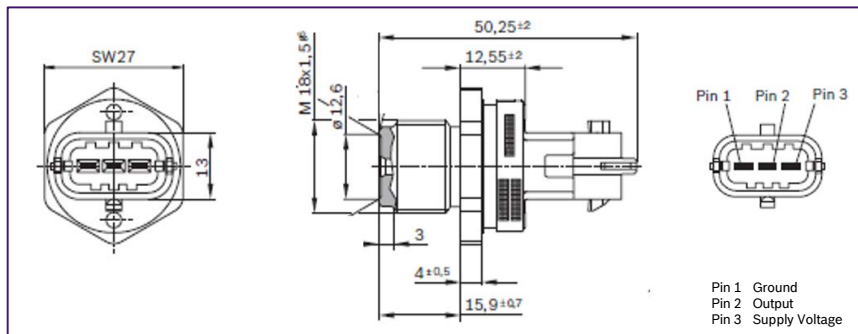
#### Part number

**0 281 002 937**

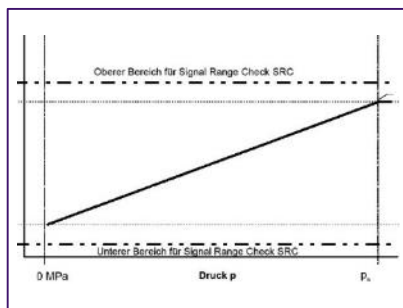
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Pressure range	$P_N$	bar (MPa)	1800 ( 180 )
Max. feed voltage	$U_s$	V	16
Supply voltage	$U_V$	V	$5 \pm 0,25$
Load capacitance to ground		nF	10
Thread			M 18 x 1,5
Application/medium			Diesel or biodiesel <sup>2)</sup>
Temperature range		°C	- 40 ... + 130
Max. overpressure	$p_{max}$	bar	2300
Rupture pressure	$p_{berst}$	bar	4000
Response time	$\tau_{10/90}$	ms	2

<sup>1)</sup> FS = Full Scale.

<sup>2)</sup> RME rapeseed methyl ester.

<sup>4)</sup> Output current with pull-up resistor.

<sup>5)</sup> +140°C for max. 250 h.

#### Accessories

Connector housing	3-pin	1 928 403 968
Contact pins (gold plated)	For $\varnothing 0.5 \dots 1.0$ mm <sup>2</sup>	1 928 498 054
Single-wire seal	For $\varnothing 0.5 \dots 1.0$ mm <sup>2</sup>	1 928 300 599
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.3 Pressure sensors

### High pressure sensor



#### Product type

**DS-RPS4-22**

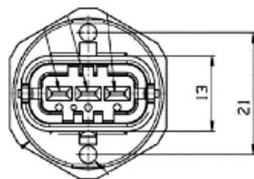
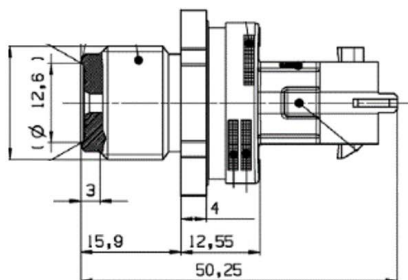
#### Part number

**0 281 006 117**

#### Picture

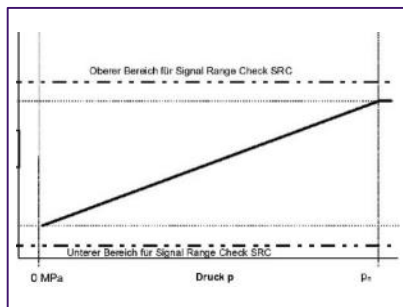


#### Dimensional drawings



Pin 1 Ground  
Pin 2 Output  
Pin 3 Supply Voltage

#### Characteristic curve



#### Technical data

Pressure range	$P_N$	bar (MPa)	2400 ( 240 )
Max. feed voltage	$U_s$	V	16
Supply voltage	$U_v$	V	$5 \pm 0,25$
Load capacitance to ground		nF	10
Thread			M 18 x 1,5
Application/medium			Diesel or biodiesel <sup>2)</sup>
Temperature range			- 40 ... + 130
Max. overpressure	$p_{max}$	bar	2800
Rupture pressure	$p_{berst}$	bar	4000
Response time	$\tau_{10/90}$	ms	2

<sup>1)</sup> FS = Full Scale.

<sup>2)</sup> RME rapeseed methyl ester.

<sup>4)</sup> Output current with pull-up resistor.

<sup>5)</sup> +140°C for max. 250 h.

#### Accessories

Connector housing	3-pin	1 928 403 968
Contact pins (gold plated)	For $\varnothing 0.5 \dots 1.0 \text{ mm}^2$	1 928 498 054
Single-wire seal	For $\varnothing 0.5 \dots 1.0 \text{ mm}^2$	1 928 300 599
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.4 Pressure sensors

### Pressure sensors for CNG and LPG



- ▶ Pressure range 20 – 1000 kPa
- ▶ High level of accuracy
- ▶ EMC protection up to  $100 \text{ Vm}^{-1}$
- ▶ With temperature compensation
- ▶ Ratiometric output signal
- ▶ All sensors and sensor cells are resistant against natural gas (CNG) and partly against gaseous liquefied petroleum gas (LPG).



#### Application

The sensor is used to measure and regulate the absolute pressure and the temperature in the fuel rail pipe of natural-gas systems that are operated with CNG. The fuel pressure sensor is resistant against natural gas (CNG) and partly against gaseous liquefied petroleum gas (LPG).

#### Design and operation

The piezo-resistive pressure sensor element and a suitable circuitry for signal amplification and temperature compensation are integrated on a silicon chip. The measured pressure operates from above to the active side of the silicon diaphragm. The temperature sensor element is an NTC-resistor.

#### Explanation of characteristic data

$U_A$	Output voltage
$U_V$	Supply voltage
$k$	Tolerance multiplier
D	After endurance test
N	As-new condition

#### Installation instructions

The sensor has been designed for attachment to a flat surface. Both pressure port piece and temperature sensor project into the line, and sealing from the atmosphere is by means of an O-ring. The hole on the customer side for holding and fastening the sensor in place shall be such that a permanently tight fit at the pressure port as well as stability towards the measuring medium will be assured. The installed position in the vehicle shall be only on the side of medium purity. Neither substances that can freeze nor any condensates at the pressure port are allowed, and neither shall be introduced during transportation of assembly.

## 6.4 Pressure sensors

### Pressure sensors for CNG and LPG



#### Product type

**DS-G3-TF**

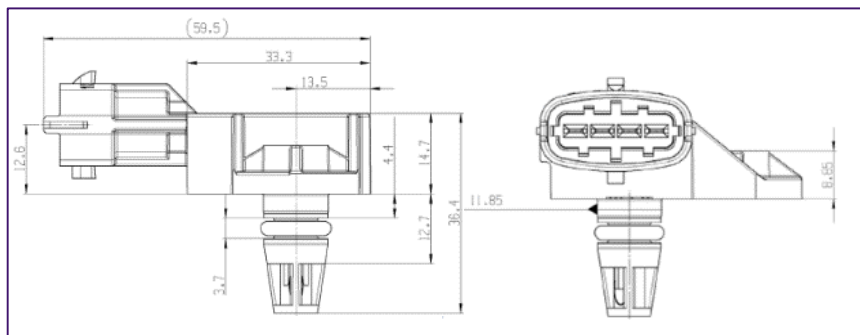
#### Part number

**0 261 230 373**

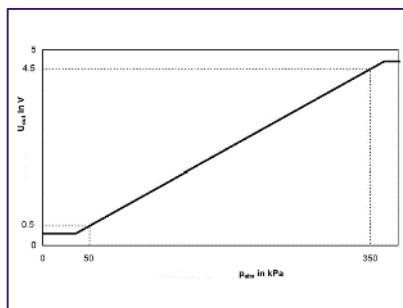
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter		min.	type	Max.
Features		integrated temperature sensor		
Application/medium		approved for CNG and LPG		
Pressure range ( $p_1 \dots p_2$ )	kPa	50		350
Supply voltage $U_V$	V	4,75	5	5,25
Current input $I_V$ at $U_V = 5$ V	mA	6	9	12,5
Load current $I_L$ at output	mA	-1		0,5
Load resistance to ground or $U_V$	k $\Omega$	5		10
Lower limit at $U_V = 5$ V	V	0,25	0,3	0,35
Upper limit at $U_V = 5$ V	V	4,65	4,7	4,75
Output resistance to ground, $U_V$ open	k $\Omega$			
Output resistance to $U_V$ , ground open	k $\Omega$			
Response time $\tau_{10/90}$	ms		1	
Operating temperature	$^{\circ}$ C	-40		120

#### Accessories

Connector housing	4-pin	1 928 403 734
Contact pins (tin-plated)	For $\varnothing$ 0.5...1.0 mm <sup>2</sup>	1 928 498 056
Contact pins (tin-plated)	For $\varnothing$ 1.5...2.5 mm <sup>2</sup>	1 928 498 057
Single-wire seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup>	1 928 300 599
Single-wire seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup>	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.

## 6.4 Pressure sensors

### Pressure sensors for CNG and LPG



#### Product type

**DS-K-TF**

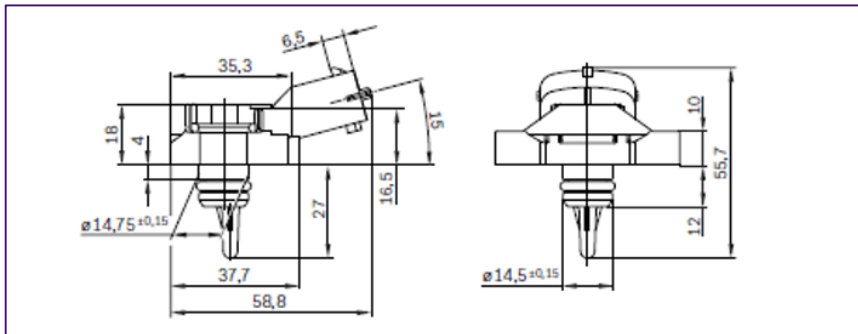
#### Part number

**0 261 230 145**

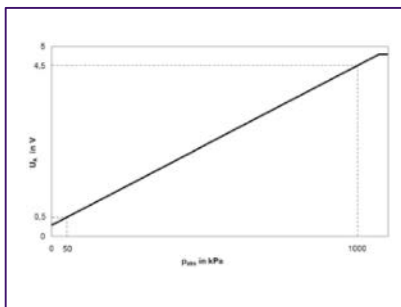
#### Picture



#### Dimensional drawings



#### Characteristic curve



#### Technical data

Parameter	min.	type	Max.
Features	integrated temperature sensor		
Application/medium	approved for CNG		
Pressure range ( $p_1 \dots p_2$ )	kPa	50	1000
Load current $I_L$ at output	mA	-1	0,5
Load resistance to ground or $U_V$	k $\Omega$	5	10
Lower limit at $U_V = 5$ V	V	0,25	0,3
Upper limit at $U_V = 5$ V	V	4,75	4,8
Output resistance to ground, $U_V$ open	k $\Omega$		
Output resistance to $U_V$ , ground open	k $\Omega$		
Response time	$\tau_{10/90}$	ms	1
Operating temperature	$^{\circ}$ C	-40	130

#### Accessories

Connector housing	4-pin	1 928 403 736
Contact pins (tin-plated)	For $\varnothing$ 0.5...1.0 mm <sup>2</sup>	1 928 498 056
Contact pins (tin-plated)	For $\varnothing$ 1.5...2.5 mm <sup>2</sup>	1 928 498 057
Single-wire seal	For $\varnothing$ 0.5...1.0 mm <sup>2</sup>	1 928 300 599
Single-wire seal	For $\varnothing$ 1.5...2.5 mm <sup>2</sup>	1 928 300 600
Dummy plug		1 928 300 601

Accessories are not included in the scope of delivery of the sensor and therefore to be ordered separately as required.