






## Pressure measuring device

- Ceramic/thick film measuring cell
- 2-wire variant for 4...20 mA output
- Compact, stable construction for the highest operational reliability

Product variants described in the data sheet may differ from the product presentation and description.

### Can be combined with

	<b>Type 8802</b> Continuous control valve systems ELEMENT – overview	▶
	<b>Type 8611</b> eCONTROL – Universal controller	▶
	<b>Type 8619</b> multiCELL – multi-channel/ multi-function transmitter/ controller	▶

### Type description

The compact Type 8316 pressure measuring device meets the highest requirements with regard to mechanical loading, EMC characteristics and operational reliability. It is particularly suitable for demanding industrial applications.

For aggressive media where stainless steel is not resistant, process connections in PVDF are available.

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## 1. General technical data

### Product properties

#### Material

Make sure the device materials are compatible with the fluid you are using.

Further information can be found in chapter [“3.1. Bürkert resistApp” on page 6](#).

#### Non-wetted parts

Housing Stainless steel 1.4404 (316L)

#### Wetted parts

Process connection Stainless steel 1.4404 (316L)

Measuring element

- Variant P<sub>max.</sub> ≤ 0.6 bar: ceramic Al<sub>2</sub>O<sub>3</sub> (99.6 %)
- Variant P<sub>max.</sub> > 0.6 bar and ≤ 60 bar: ceramic Al<sub>2</sub>O<sub>3</sub> (96 %)
- Variant 0...100 bar: stainless steel

Seal

- Variant P<sub>max.</sub> ≤ 0.6 bar: FKM (others on request)
- Variant P<sub>max.</sub> > 0.6 bar and ≤ 60 bar: FKM (others on request)
- Variant P<sub>max.</sub> = 100 bar: none

Dimensions

Further information can be found in chapter [“4. Dimensions” on page 6](#).

Weight

- Variant P<sub>max.</sub> ≤ 0.6 bar: approx. 120 g
- Variant P<sub>max.</sub> > 0.6 bar: approx. 90 g

Measurement technology

- Variant P<sub>max.</sub> ≤ 0.6 bar: ceramic
- Variant P<sub>max.</sub> > 0.6 bar and ≤ 60 bar: ceramic
- Variant P<sub>max.</sub> = 100 bar: metallic

Measured quantity

Relative pressure (absolute pressure on request)

Measuring range

- Variant P<sub>max.</sub> ≤ 0.6 bar 0...0.05, 0.1 or 0.25 (0...0.4 or 0.6 bar on request)
- Variant P<sub>max.</sub> > 0.6 bar and ≤ 60 bar:
  - 0...1, 4, 6, 10, 16, 40 (0...60 bar on request)
  - 0...50, 150 or 300 PSI
- Variant P<sub>max.</sub> = 100 bar : 0...100 bar

### Performance data

Temperature coefficient

- Variant P<sub>max.</sub> ≤ 0.6 bar: ± 0.07 % of full scale / 10 K (the zero point and range at -15...+85 °C (+5...+185 °F))
- Variant P<sub>max.</sub> > 0.6 bar: ± 0.2 % of full scale / 10 K (in the range -15...+85 °C (+5...+185 °F))

Measuring range resolution

< 0.1 % of full scale

Measurement deviation

Sum of linearity, hysteresis and reproducibility, balancing accuracy of zero point and full scale

- Variant P<sub>max.</sub> ≤ 0.6 bar: ± 0.35 % of full scale (for full scale < 100 mbar: ± 0.7 % of full scale)
- Variant P<sub>max.</sub> > 0.6 bar: ± 0.5 % max. of full scale (typical; ≤ 0.3 % of full scale)

Response time

Suitable for static and dynamic measurements

- Variant P<sub>max.</sub> ≤ 0.6 bar: < 150 ms
- Variant P<sub>max.</sub> > 0.6 bar: < 2 ms, typical 1 ms

Load cycle

< 100 Hz

Overload / bursting pressure

- Variant P<sub>max.</sub> ≤ 0.6 bar: 2 bar
- Variant P<sub>max.</sub> > 0.6 bar and ≤ 60 bar:
  - 3 x full scale (variant ≤ 0...4 bar)
  - 2.5 x full scale (0...4 bar < variant ≤ 0...60 bar)
- Variant P<sub>max.</sub> = 100 bar:
  - 3 x full scale (overload)
  - 6 x full scale (bursting pressure)

### Electrical data

Operating voltage (U)	<ul style="list-style-type: none"> <li>Variant P<sub>max.</sub> ≤ 0.6 bar : 10...33 V DC, unregulated (variant with 4...20 mA output)</li> <li>Variant P<sub>max.</sub> &gt; 0.6 bar : 7...33 V DC, unregulated (variant with 4...20 mA output), 12...33 V DC, unregulated (variant with 0...10 V DC output)</li> </ul>
DC reverse polarity protection	Yes
Short circuit protection	Yes
Protection class	Class III
Current consumption	Max. 23 mA
Load	<ul style="list-style-type: none"> <li>Variant P<sub>max.</sub> ≤ 0.6 bar : &lt; (U - 10 V) / 0.02 A (in Ω)</li> <li>Variant P<sub>max.</sub> &gt; 0.6 bar : &lt; (U - 7 V) / 0.02 A (in Ω)</li> </ul>
Insulation voltage	500 V DC
Output	<ul style="list-style-type: none"> <li>Variant P<sub>max.</sub> ≤ 0.6 bar : standard signal 4...20 mA (two-wire)</li> <li>Variant P<sub>max.</sub> &gt; 0.6 bar and ≤ 60 bar : standard signal 4...20 mA (two-wire) or 0...10 V DC (three-wire)</li> <li>Variant P<sub>max.</sub> = 100 bar : standard signal 4...20 mA (two-wire)</li> </ul>

### Medium data

Fluid temperature	<ul style="list-style-type: none"> <li>Variant P<sub>max.</sub> ≤ 0.6 bar : - 15...+ 85 °C (+ 5...+ 185 °F)</li> <li>Variant P<sub>max.</sub> &gt; 0.6 bar and ≤ 60 bar : - 15...+ 125 °C (+ 5...+ 257 °F)</li> <li>Variant P<sub>max.</sub> = 100 bar : - 40...+ 135 °C (- 40...+ 275 °F)</li> </ul>
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### Product connections

Process connection	<ul style="list-style-type: none"> <li>Thread G ¼ according to DIN 3852 Form E</li> <li>Thread NPT ¼</li> </ul>
Electrical connection	M12 × 1 male connector

### Approvals and conformities

#### Directives

CE directive	Further information on the CE Directive can be found in chapter <b>"2.3. Standards"</b> on page 5.
Pressure Equipment Directive	<ul style="list-style-type: none"> <li>The device does not meet the requirements for "safety accessories" within the meaning of the Pressure Equipment Directive 2014/68/EU.</li> <li>Complying with article 4, paragraph 1 of 2014/68/EU directive.</li> </ul> Further information on the Pressure Equipment Directive can be found in chapter <b>"2.4. Pressure Equipment Directive (PED)"</b> on page 5.
North America (USA/Canada)	UL Listed for US and Canada (UL 61010-1 + CAN/CSA-C22.2 No. 61010-1)

### Environment and installation

Ambient temperature	<ul style="list-style-type: none"> <li>Variant P<sub>max.</sub> ≤ 0.6 bar :               <ul style="list-style-type: none"> <li>Operation: - 25...+ 85 °C (- 13...+ 185 °F)</li> <li>Storage: - 40...+ 85 °C (- 40...+ 185 °F)</li> </ul> </li> <li>Variant P<sub>max.</sub> &gt; 0.6 bar :               <ul style="list-style-type: none"> <li>Operation: - 30...+ 85 °C (- 22...+ 185 °F)</li> <li>Storage: - 50...+ 100 °C (- 58...+ 212 °F)</li> </ul> </li> </ul>
Application range	Indoors and outdoors Protect the device against electromagnetic interference, ultraviolet rays and, when installed outdoors, against the effects of climatic conditions.
Degree of protection according to IEC/EN 60529	IP67
Mounting condition	<ul style="list-style-type: none"> <li>Variant P<sub>max.</sub> ≤ 0.6 bar : as required (position error: with horizontal mounting: + 0.1 mbar, with vertical mounting, pressure connection upward: + 0.2 mbar)</li> <li>Variant P<sub>max.</sub> &gt; 0.6 bar and ≤ 60 bar : as required, preferably with pressure connection in downward position</li> <li>Variant P<sub>max.</sub> = 100 bar : as required</li> </ul>

## 2. Approvals and conformities

### 2.1. General notes

- The approvals and conformities listed below must be stated when making enquiries. This is the only way to ensure that the product complies with all required specifications.
- Not all available variants can be supplied with the below mentioned approvals or conformities.

### 2.2. Conformity

In accordance with the Declaration of Conformity, the product is compliant with the EU Directives.

### 2.3. Standards

The applied standards which are used to demonstrate compliance with the EU Directives are listed in the EU-Type Examination Certificate and/or the EU Declaration of Conformity.

### 2.4. Pressure Equipment Directive (PED)

The device conforms to article 4, paragraph 1 of the Pressure Equipment Directive (PED) 2014/68/EU under the following conditions:

#### Device used on a pipe

##### Note:

- The data in the table is independent of the chemical compatibility of the material and the fluid.
- PS = maximum admissible pressure (in bar), DN = nominal diameter of the pipe

Type of fluid	Conditions
Fluid group 1, article 4, paragraph 1.c.i	DN ≤ 25
Fluid group 2, article 4, paragraph 1.c.i	DN ≤ 32 or PS*DN ≤ 1000
Fluid group 1, article 4, paragraph 1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, paragraph 1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

#### Device used on a vessel

##### Note:

- The data in the table is independent of the chemical compatibility of the material and the fluid.
- PS = maximum admissible pressure (in bar), V = vessel volume

Type of fluid	Conditions
Fluid group 1, article 4, paragraph 1.a.i	V > 1 L and PS*V ≤ 25 bar.L or PS ≤ 200 bar
Fluid group 2, article 4, paragraph 1.a.i	V > 1 L and PS*V ≤ 50 bar.L or PS ≤ 1000 bar
Fluid group 1, article 4, paragraph 1.a.ii	V > 1 L and PS*V ≤ 200 bar.L or PS ≤ 500 bar
Fluid group 2, article 4, paragraph 1.a.ii	PS > 10 bar and PS*V ≤ 10000 bar.L or PS ≤ 1000 bar

### 2.5. North America (USA/Canada)

Approval	Description
	<b>Optional: UL Listed for the USA and Canada</b> The product variants $P_{max} > 0.6$ bar are UL Listed for the USA and Canada according to: <ul style="list-style-type: none"> <li>• UL 61010-1 (ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE – Part 1: General Requirements)</li> <li>• CAN/CSA-C22.2 No. 61010-1</li> </ul> Certificate number: 20171018-E312665

### 3. Materials

#### 3.1. Bürkert resistApp



#### Bürkert resistApp – Chemical resistance chart

You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

[Start chemical resistance check](#)

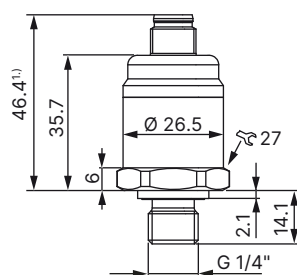
### 4. Dimensions

#### 4.1. Variant $P_{\max.} \leq 0.6 \text{ bar}$

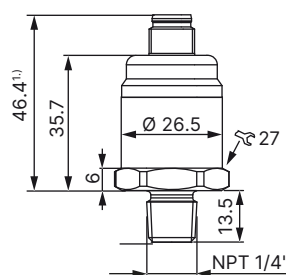
##### Note:

Dimensions in mm, unless otherwise stated

With process connection G 1/4"



With process connection NPT 1/4"



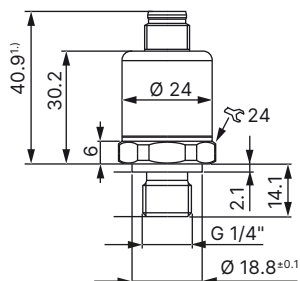
1.) The total height is increased by the height of the used female connector and cable.

#### 4.2. Variant $P_{\max.} > 0.6 \text{ bar and } \leq 60 \text{ bar}$

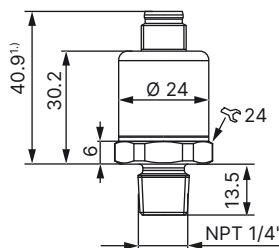
##### Note:

Dimensions in mm, unless otherwise stated

With process connection G 1/4"



With process connection NPT 1/4"

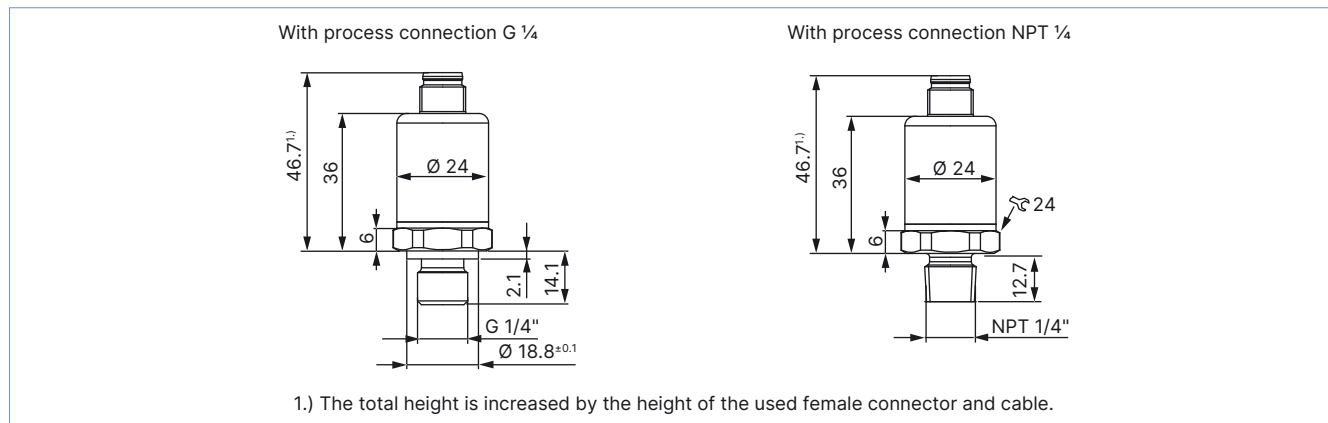


1.) The total height is increased by the height of the used female connector and cable.

### 4.3. Variant $P_{\max.} = 100 \text{ bar}$

**Note:**

Dimensions in mm, unless otherwise stated



## 5. Ordering information

### 5.1. Bürkert eShop



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### 5.2. Bürkert product filter














#### Bürkert product filter – Get quickly to the right product

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### 5.3. Ordering chart






#### Variant with process connection G ¼

Pressure range [bar]	Operating voltage [V DC]	Output	UL approval	Electrical connection	Article no.
0...0.05	10...33	4...20 mA	–	M12 male connector	570536 
0...0.10	10...33	4...20 mA	–	M12 male connector	567953 
0...0.25	10...33	4...20 mA	–	M12 male connector	570721 
0...1.00	7...33	4...20 mA	UL Listed	M12 male connector	563777 
0...4.00	7...33	4...20 mA	UL Listed	M12 male connector	563778 
0...6.00	7...33	4...20 mA	UL Listed	M12 male connector	563779 
0...10.0	7...33	4...20 mA	UL Listed	M12 male connector	563780 
	12...33	0...10 V DC	UL Listed	M12 male connector	563784 
0...16.0	7...33	4...20 mA	UL Listed	M12 male connector	563781 
0...40.0	7...33	4...20 mA	UL Listed	M12 male connector	563782 
0...100.0	7...33	4...20 mA	UL Listed	M12 male connector	563783 

#### Variant with process connection NPT ¼

Pressure range [PSI]	Operating voltage [V DC]	Output [mA]	UL approval	Electrical connection	Article no.
0...60	7...33	4...20	UL Listed	M12 male connector	564466 
0...150	7...33	4...20	UL Listed	M12 male connector	564467 
0...300	7...33	4...20	UL Listed	M12 male connector	564468 


#### Further variants on request

	<b>Process connection</b> NPT ¼ and more		<b>Pressure</b> Other relative or absolute measuring ranges
	<b>Electrical connection</b> Connectors: mini DIN, DIN and more		<b>Additional</b> Electrical outputs: 0...10 V DC, 0...5 V DC
	<b>Material</b> EPDM seal, PVDF process connection		

### 5.4. Ordering chart accessories

#### Note:

The following accessories are intended for all variants of the pressure measuring device.

Description	Article no.
M12 female connector with plastic threaded clamping ring, 5-pin, straight, to be wired	917116 
M12 female connector with moulded cable (shielded), 5-pin, straight, cable length: 2 m	438680 