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ДАТЧИКИ И РЕЛЕ ДАВЛЕНИЯ






Pressure measuring device

- Ceramic/thick film measuring cell
- 2-wire version 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

	Type 8802 ELEMENT continuous control valve systems - overview
	Type 8611 ▶ eCONTROL - Universal controller
	Type 8619 ▶ multiCELL - Multi-channel and 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.

1. General Technical Data

Product properties	
Material	
Non wetted parts	
Housing	Stainless steel 1.4404 (316L)
Connector holder	Polyarylamide 50 % GF 94V-0
Wetted parts	
Pressure connection	Stainless steel 1.4404 (316L)
Measurement element	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: ceramic Al_2O_3 (99.6 %) Version $P_{max.} > 0.6$ bar and ≤ 60 bar: ceramic Al_2O_3 (96 %) Version 0...100 bar: stainless steel
Seal	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: FKM (others on request) Version $P_{max.} > 0.6$ bar and ≤ 60 bar: FKM (others on request) Version $P_{max.} = 100$ bar: none
Dimensions	Detailed information can be found in chapter "3. Dimensions" on page 5.
Measurement technology	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: ceramic Version $P_{max.} > 0.6$ bar and ≤ 60 bar: ceramic Version $P_{max.} = 100$ bar: metallic
Measuring principle	Relative pressure measurement (absolute pressure measurement on request)
Measuring range	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar 0...0.05, 0.1, 0.2 or 0.4 bar (0...0.6 bar on request) Version $P_{max.} > 0.6$ bar and ≤ 60 bar: <ul style="list-style-type: none"> 0...1, 4, 6, 10, 16, 40 (0...60 bar on request) 0...50, 150 or 300 PSI Version $P_{max.} = 100$ bar : 0...100 bar
Weight	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: approx. 120 g Version $P_{max.} > 0.6$ bar: approx. 90 g
Performance data	
Measurement deviation	Sum of linearity, hysteresis and reproducibility, balancing accuracy of zero point and full scale <ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: ± 0.35 % of full scale (for full scale < 100 mbar: ± 0.7 % of full scale) Version $P_{max.} > 0.6$ bar: ± 0.5 % max. of full scale (typical; ≤ 0.3 % of full scale)
Temperature coefficient	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: ± 0.07 % of full scale/10K (the zero point and range at -15...+85 °C (+5...+185 °F)) Version $P_{max.} > 0.6$ bar: ± 0.2 % of full scale/10K (in the range -15...+85 °C (+5...+185 °F))
Response time	Suitable for static and dynamic measurements <ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: < 150 ms Version $P_{max.} > 0.6$ bar: < 2 ms, typical 1 ms
Measuring range resolution	< 0.1 % of full scale
Load cycle	< 100 Hz
Overload, bursting pressure	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: 2 bar Version $P_{max.} > 0.6$ bar and ≤ 60 bar: <ul style="list-style-type: none"> 3 x full scale (version $\leq 0...4$ bar) 2.5 x full scale (0...4 bar < version $\leq 0...60$ bar) Version $P_{max.} = 100$ bar: <ul style="list-style-type: none"> 3 x full scale (overload) 6 x full scale (bursting pressure)
Electrical data	
Operating voltage (U)	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar : 10...33 V DC, unregulated (version with 4...20 mA output) Version $P_{max.} > 0.6$ bar : 7...33 V DC, unregulated (version with 4...20 mA output), 12...33 V DC, unregulated (version with 0...10 V DC output)
DC reverse polarity protection	Yes
Short circuit proof	Yes

Output signal	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: standard signal 4...20 mA (two-wire) Version $P_{max.} > 0.6$ bar and ≤ 60 bar: standard signal 4...20 mA (two-wire) or 0...10 V DC (three-wire) Version $P_{max.} = 100$ bar: standard signal 4...20 mA (two-wire)
Load	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: $< (U - 10 \text{ V}) / 0.02 \text{ A}$ (in Ω) Version $P_{max.} > 0.6$ bar: $< (U - 7 \text{ V}) / 0.02 \text{ A}$ (in Ω)
Current consumption	Max. 23 mA
Insulation voltage	500 V DC
Medium data	
Fluid temperature	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: $-15...+85 \text{ }^\circ\text{C}$ ($+5...+185 \text{ }^\circ\text{F}$) Version $P_{max.} > 0.6$ bar and ≤ 60 bar: $-15...+125 \text{ }^\circ\text{C}$ ($+5...+257 \text{ }^\circ\text{F}$) Version $P_{max.} = 100$ bar: $-40...+135 \text{ }^\circ\text{C}$ ($-40...+275 \text{ }^\circ\text{F}$)
Process/Port connection & communication	
Process connection	<ul style="list-style-type: none"> Thread G 1/4" according to DIN 3852 Form E Thread NPT 1/4"
Electrical connection	M12 x 1 male connector
Approvals and certificates	
Standards	
Degree of protection according to IEC/ EN 60529	IP67
Protection class	Class III
Electromagnetic compatibility (EMC)	CE conformity according to EN 61326-2-3 (increased interference immunity for version > 0.6 bar: EN 50121-3-2)
Shock according to IEC 68-2-27	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: 50 g, 6 ms, half sine wave, all 6 directions, free fall from 1 m on concrete (6x) Version $P_{max.} > 0.6$ bar: 100 g, 11 ms, half sine wave, all 6 directions, free fall from 1 m on concrete (6x)
Vibration according to IEC 68-2-6	20 g, 15...2000 Hz, 15...25 Hz with amplitude ± 15 mm, 1 octave/min. all 3 directions, 50 constant load
Directives	
CE directives	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Certification	
UL-Recognized for US and Canada	UL 61010-1 + CAN/CSA-C22.2 No. 61010-1
Environment and installation	
Assembly conditions	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar : as required (position error: With horizontal mounting: $+0.1$ mbar ; With vertical mounting, pressure connection upward: $+0.2$ mbar) Version $P_{max.} > 0.6$ bar and ≤ 60 bar: as required, preferably with pressure connection in downward position Version $P_{max.} = 100$ bar: as required
Ambient temperature	<ul style="list-style-type: none"> Version $P_{max.} \leq 0.6$ bar: <ul style="list-style-type: none"> Operation: $-25...+85 \text{ }^\circ\text{C}$ ($-13...+185 \text{ }^\circ\text{F}$) Storage: $-40...+85 \text{ }^\circ\text{C}$ ($-40...+185 \text{ }^\circ\text{F}$) Version $P_{max.} > 0.6$ bar : <ul style="list-style-type: none"> Operation: $-30...+85 \text{ }^\circ\text{C}$ ($-22...+185 \text{ }^\circ\text{F}$) Storage: $-50...+100 \text{ }^\circ\text{C}$ ($-58...+212 \text{ }^\circ\text{F}$)

2. Approvals

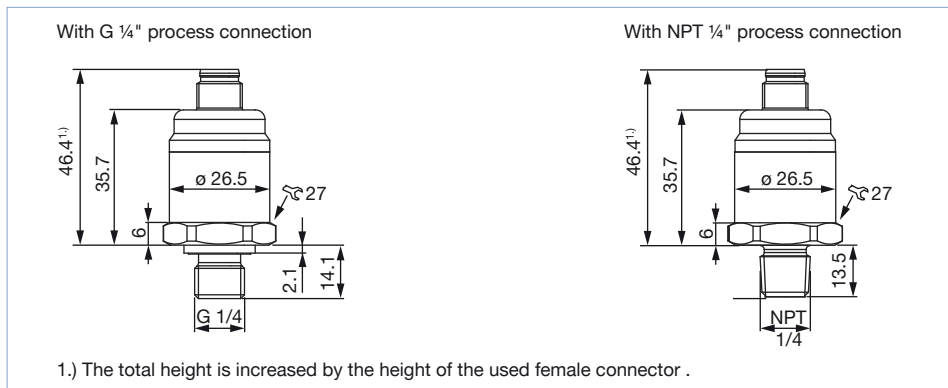
Approvals	Description
	UL 61010-1 + CAN/CSA-C22.2 No. 61010-1 for version $P_{max.} > 0.6$ bar

3. Dimensions

3.1. Version P_{max.} ≤ 0.6 bar

Note:

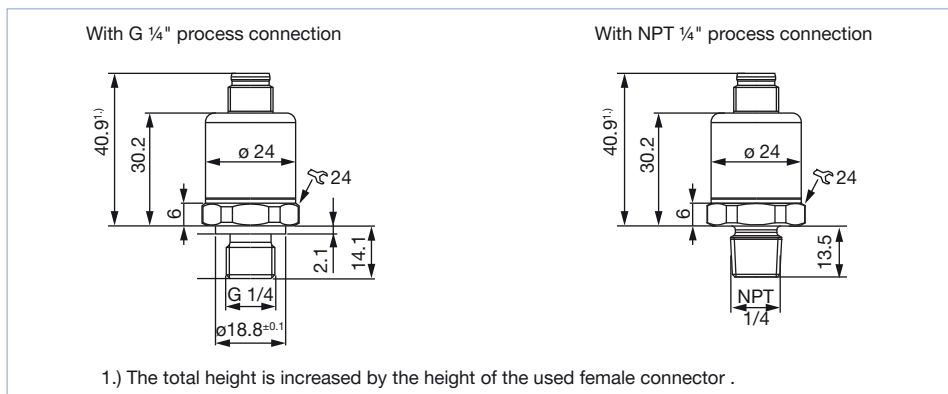
Dimensions in mm



3.2. Version P_{max.} > 0.6 bar and ≤ 60 bar

Note:

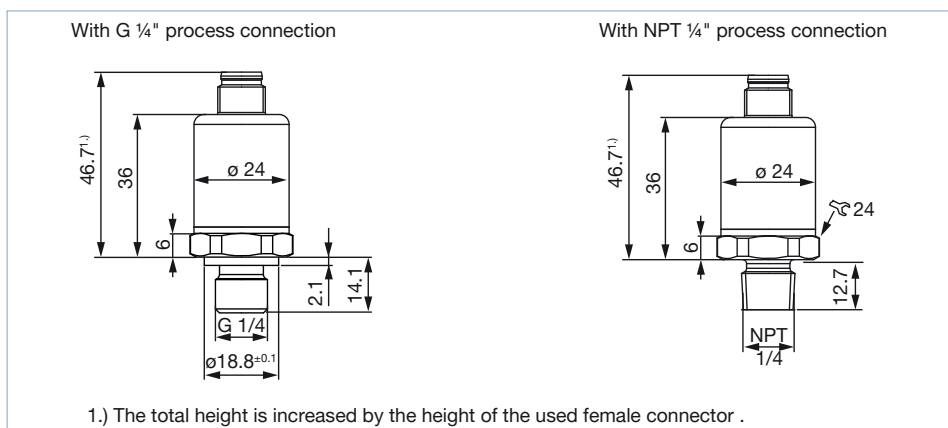
Dimensions in mm



3.3. Version P_{max.} = 100 bar

Note:

Dimensions in mm



DTS 1000182539 EN Version: | Status: RL (released | freigegeben | valide) printed: 31.03.2020

4. Ordering information

4.1. Bürkert eShop – Easy ordering and quick delivery



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Bürkert product filter – Get quickly to the right product













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4.3. Ordering chart




Note:






The following values apply exclusively to the standard version with process connection G 1/4".

Pressure range [bar]	Operating voltage [V DC]	Output signal	Certification UL-Listed	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...0.40	10...33	4...20 mA	–	M12 male connector	570722 
0...1.00	7...33	4...20 mA	Yes	M12 male connector	563777 
0...4.00	7...33	4...20 mA	Yes	M12 male connector	563778 
0...6.00	7...33	4...20 mA	Yes	M12 male connector	563779 
0...10.0	7...33	4...20 mA	Yes	M12 male connector	563780 
	12...33	0...10 V DC	Yes	M12 male connector	563784 
0...16.0	7...33	4...20 mA	Yes	M12 male connector	563781 
0...40.0	7...33	4...20 mA	Yes	M12 male connector	563782 
0...100.0	7...33	4...20 mA	Yes	M12 male connector	563783 

Note:


The following values apply exclusively to the standard version with process connection NPT 1/4".

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

Further versions on request			
	Process connection NPT 1/4", ...		Pressure Other relative or absolute measuring ranges
	Electrical connection Connectors: mini DIN, DIN ...		Additional Electrical outputs: 0...10 V DC, 0...5 V DC
	Material EPDM seal, PVDF process connection		

4.4. Ordering chart accessories

Accessories for all versions of the pressure measuring device

Description	Article no.
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116 
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680 