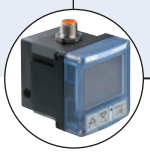
bürkert
FLUID CONTROL SYSTEMS

Pressure Transmitter

- Ceramic/thick film measurement cell
- Two-wire version for 4... 20 mA output
- Compact, stable construction for the highest operational reliability

Type 8316 can be combined with...



Type 8611
Universal Controller
eControl

Type 8802-GD
Continuous
SideControl system

Type 8619
Multifunction
transmitter/controller

PLC

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

General data	
Body material	Stainless steel 1.4305 AISI 303
Wetted parts materials	Ceramics (Al_2O_3), stainless steel 1.4305, FKM seal (for pressure 0 - 100 bar, only stainless steel 1.4305, no FKM seal, no ceramics)
Electrical connection	Round male connector M12x1
Process connection	G 1/4" external to DIN 3852 Form E NPT 1/4" external
Installation	As required, preferably with pressure connection in downward position
Measurement technology	Ceramic or thick film
Measurement procedure	Relative pressure measurement
Measuring range	0 to 1, 4, 6, 10, 16, 40 or 100 bar *(0 to 14.51, 58.04, 87.06, 145.1, 232.16, 580.4, 1451 PSI)*
Overload, bursting pressure	3 x full scale at 0... 4 bar *(0... 58.04 PSI)* 2.5 x full scale at 6... 100 bar *(87.06... 1451 PSI)*
Fluid temperature	-15 to +125°C *(5 to 257°F)*
Accuracy	Sum of linearity, hysteresis and reproductibility, balancing accuracy of zero point and full scale: ≤ 0.5% of F.S.*
Resolution	0.1% of F.S.
Dynamic response	Suitable for static and dynamic measurements response time < 2 ms, typ. 1 ms

* F.S. = full scale

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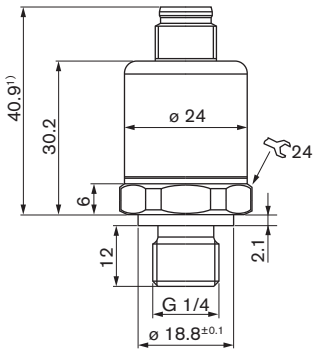
Electrical data	
Operating voltage (U)	7 to 33 V DC, unregulated
Output signal	Standard 4... 20 mA (two-wire) or 0... 10 V DC (three-wire) signal
Load in Ω	< (U - 7 V) / 0.02 A
Protected connection	Short-circuit proof & protected against reverse polarity
Environment	
Ambient temperature	-15 to + 85°C *(5 to 185 °F)*
Temperature coefficient	< 0.2% of F.S.* / 10K
Standard and approvals	
Protection class	IP67
EMC	EN 61326-2-3
Approval	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22 No.61010-1)
Test/Admissions	
Shock acc. EN 60068-2-27	25g, 6 ms half sine wave, all three directions.
Drop test acc. EN 60068-2-23	from 1 m on concrete
Vibration acc. EN 60770-1	50m/s, 10... 1000 Hz, 1 Octave/min, 20 constant load per axis

Dimensions [mm]

[1] Keep in mind that the total length is increased by the cable connection



Ordering chart for pressure transmitter Type 8316

Process connection	Pressure range	Operating voltage	Output signal	Electrical connection	Item no.
G 1/4" UL-Recognized for US and Canada	0 - 1.00 bar	7... 33 V DC	4... 20 mA	M12 male connector	563 777
	0 - 4.00 bar	7... 33 V DC	4... 20 mA	M12 male connector	563 778
	0 - 6.00 bar	7... 33 V DC	4... 20 mA	M12 male connector	563 779
	0 - 10.0 bar	7... 33 V DC	4... 20 mA	M12 male connector	563 780
			0... 10 V DC	M12 male connector	563 784
	0 - 16.0 bar	7... 33 V DC	4... 20 mA	M12 male connector	563 781
	0 - 40.0 bar	7... 33 V DC	4... 20 mA	M12 male connector	563 782
	0 - 100.0 bar	7... 33 V DC	4... 20 mA	M12 male connector	563 783
NPT 1/4" UL-Recognized for US and Canada	0 - 60 PSI	7... 33 V DC	4... 20 mA	M12 male connector	564 466
	0 - 150 PSI	7... 33 V DC	4... 20 mA	M12 male connector	564 467
	0 - 300 PSI	7... 33 V DC	4... 20 mA	M12 male connector	564 468

Further versions on request

Pressure
other measuring ranges

Port connection
NPT 1/4", ...

Electrical connection
connectors: mini DIN, DIN ...

Additional
electrical outputs: 0 - 10 V DC, 0 - 5 V DC

Materials
EPDM seal, stainless steel 1.4404 AISI 316L

Ordering chart accessories

Description	Item no.
5-pin M12 female cable connector with plastic threaded locking ring	917 116
5-pin M12 female connector moulded on cable (2 m, shielded)	438 680

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In case of special application conditions, please consult for advice.

Subject to alteration.
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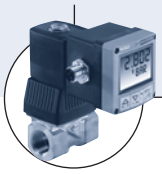
FLUID CONTROL SYSTEMS

Pressure transmitter for general applications, 0 - 25 bar

- Piezoresistive or thin film sensor element
- Available with flush diaphragm standard or acc. to EHEDG
- Housing and wetted parts in corrosion-resistant stainless steel
- Standard signal 4...20 mA for connection to automation-systems
- Plug for quick installation and service

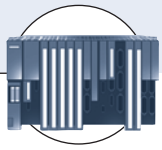
Type 8323 can be combined with...



Type 8624-2
PI controller

Type 2712 (1067)
Control valve with SideControl

Type 0911
Process indicator



PLC

This pressure transmitter is designed to cover the majority of industrial applications in the field of industrial pressure measurement technology. High accuracy, compact design, robust construction and flexibility make this instrument universal and suitable for different measurement functions. For technical reasons piezoresistive sensor element is used for measuring ranges up to 16 bar and thin film sensor element for the measuring range of 25 bar. Wetted parts are made of stainless steel and completely welded. Internal seal elements, which could restrict the choice of measuring materials, are excluded.

General data	
Compatibility Standard version Flush Diaphragm version	Any pipe with sensor connection G 1/2" A according to DIN 16288, G 1" B with O-ring (range up to 1.6 bar) G 1/2" B with O-ring (range > 1.6 bar) G 1" B for EHEDG (all ranges) (Weld-on socket with connection G1/2"B, G1"B)
Materials Housing Wetted parts Standard version Flush Diaphragm version Internal transmitting liquid	 Stainless steel 1.4301 Stainless steel 1.4571 (and 1.4542 with 25 bar) Stainless steel 1.4571, FKM seal Synthetic Oil (only for pressure range up to 16 bar or flush diaphragm units)
Electrical connections	4 pin cable plug acc. to EN 175301-803
Measuring range (Pressure reference = relative pressure [atmospheric])	0 up to 0.1; 0.16; 0.25; 0.4; 0.6; 1.0; 1.6; 2.5; 4.0; 6.0; 10.0; 16.0 or 25.0 bar (in PSI on request)
Measuring element	piezo (≤ 16 bar) / thin film (25 bar)
Fluid temperature Standard version Flush Diaphragm stand. vers. Flush Diaphragm EHEDG vers.	 -20 up to +100°C -30 up to +100°C -20 up to +150°C
Compensated T° range	0 up to +80°C
Temperature coefficient Average Tc of zero Standard version Flush Diaphragm version Average Tc of Span	in compensated T° range ≤ 0.2% of F.S.* / 10K ≤ -0.2...+0.3% of F.S.* / 10K ≤ 0.2% of F.S.* / 10K
Accuracy	≤ 0.5% of F.S.* (2-point calibration)[1)] ≤ 0.25% of F.S.* (Best fit calibration, BFSL)[1)]
Hysteresis	≤ 0.1% of F.S.*
Repeatability	≤ 0.05% of F.S.*
1-year stability	≤ 0.2% of F.S.* (at reference conditions)

[1)] Calibrated in vertical mounting position with pressure connection bottom
* F.S.=Full scale

Electrical data -	
Power supply [V+]	10 -30 V DC
Reversed polarity of DC	Protected
Overvoltage protection	Yes
Short circuit protection	Yes
Output	Standard 4-20 mA signal, 2 wires
Load in Ω	≤ (V+ [V] - 10 [V]) / 0.02 [A]
Adjustability: Zero / span	± 10%
Response time	≤ 1 ms

Environment	
Ambient temperature	
Standard version	-20 up to +80°C
Flush Diaphragm stand. vers.	-20 up to +80°C
Flush Diaphragm EHEDG vers.	-20 up to +80°C
Storage temperature	
Standard version	-40 up to +100°C
Flush Diaphragm stand. vers.	-40 up to +100°C
Flush Diaphragm EHEDG vers.	-20 up to +100°C

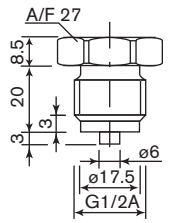
Standards and approvals	
Protection class	IP65 with cable plug EN175301-803 mounted and tightened
Standard:	
EMC	EN 50081-1, 50081-2, 50082-2
Shock resistance	IEC 770, 1000g (mechanical shock)
Vibration resistance	IEC 770, 2g (vibration under resonance)

Dimensions

Pressure connection:

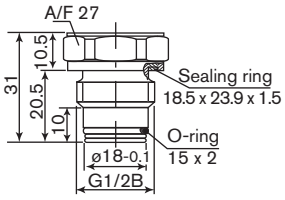
Standard version

G 1/2“ A

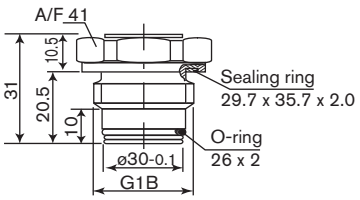


Flush diaphragm version

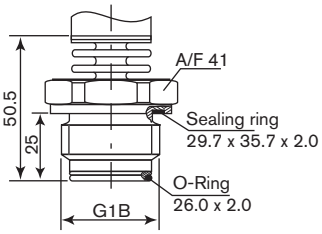
G 1/2“ B

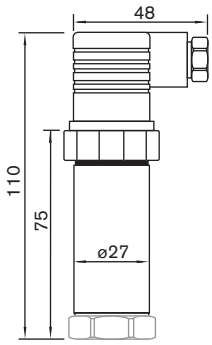


G 1“ B



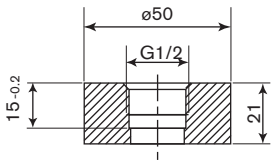
EHEDG G 1“ B



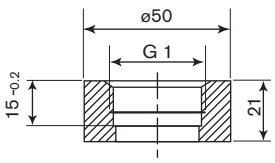


Weld-on socket for pressure connection flush diaphragm version

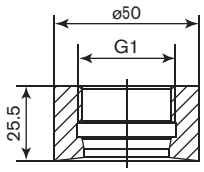
G 1/2“ B



G 1“ B



EHEDG G 1” B



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Ordering chart for Type 8323 (other versions on request)

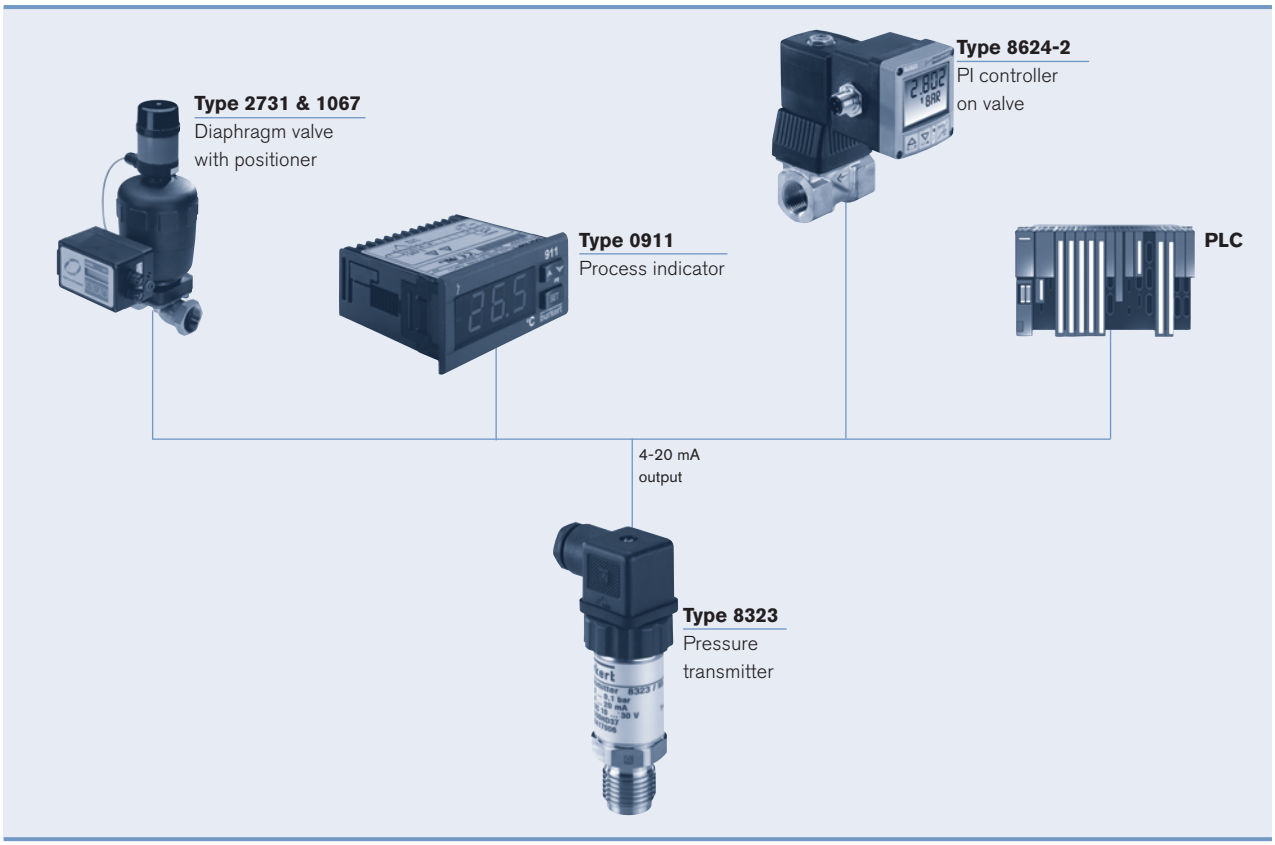
Pressure range [bar]	Pressure max. [bar]	Bursting pressure [bar]	Power supply	Output signal	Item no.			
					Standard	Flush diaphragm standard G 1/2" B	Flush diaphragm standard G 1" B	Flush diaphragm EHEDG 1" B
0 - 0.10	1	2	10 - 30 V DC	4...20 mA	417 692	-	552 063	551 803
0 - 0.16	1.5	2	10 - 30 V DC	4...20 mA	417 693	-	552 064	-
0 - 0.25	2	2	10 - 30 V DC	4...20 mA	417 694	-	-	-
0 - 0.40	2	2	10 - 30 V DC	4...20 mA	417 695	-	552 065	551 675
0 - 0.60	4	4	10 - 30 V DC	4...20 mA	417 696	-	-	551 676
0 - 1.00	5	5	10 - 30 V DC	4...20 mA	417 697	-	552 066	551 677
0 - 1.60	10	10	10 - 30 V DC	4...20 mA	417 698	-	-	551 678
0 - 2.50	10	10	10 - 30 V DC	4...20 mA	417 699	-	-	551 679
0 - 4.00	17	17	10 - 30 V DC	4...20 mA	417 700	-	-	-
0 - 6.00	35	35	10 - 30 V DC	4...20 mA	417 701	552 067	-	-
0 - 10.0	35	35	10 - 30 V DC	4...20 mA	417 702	552 068	-	551 684
0 - 16.0	80	80	10 - 30 V DC	4...20 mA	417 703	552 069	-	-
0 - 25.0	50	250	10 - 30 V DC	4...20 mA	417 704	-	-	-

Ordering chart for accessories (to be ordered separately)

Description	Item no.
Weld-on socket for flush diaphragm standard version G 1/2"	443 295
Weld-on socket for flush diaphragm standard version G 1"	444 137
Weld-on socket for flush diaphragm EHEDG version G 1"	443 296

DTS 1000011112 EN Version: L Status: RL (released | freigegeben | validé) printed: 04.07.2008

Interconnection possibilities with other Bürkert products



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