Baumer
Passion for Sensors

Pressure measurement

PBMN low pressure

Pressure transmitter for industrial applications

PBMN-2############2##0#0

Overview

- Excellent accuracy and active temperature compensation for precise pressure measurements
- Measuring range from -0.1 ... 0.1 bar up to 0 ... 40 bar
- Universal field of applications due to robust stainless steel housing
- Optionally available with Ex certification (4 ... 20 mA output)
- Absolute pressure, relative pressure and vacuum measurement
- External programming of zero point and span with FlexProgrammer 9701

Picture similar

Technical data

Performance characteristics	
Pressure type	Absolute Relative (gauged)
Compensated temperature range	-40 … 85 °C
Long term stability	≤ 0.1 % FSR/a , measuring range > 1 bar ≤ 1 mbar , measuring range ≤ 1 bar
Max. measuring error	± 0.1 % FSR ± 0.25 % FSR Including zero-point and span error, non-linearity (by terminal base line), hysteresis and non-repeatability (EN 61298-2) For turndown, multiply this value by the applied turndown ratio
Max. measuring span	40 bar
Max. turndown ratio	5 : 1
Measuring range	-1 … 40 bar
Standard error of measurement (BFSL)	± 0.04 % FSR ± 0.1 % FSR Including non-linearity, hysteresis and non-repeatability according BFSL
Min. measuring span	0.1 bar
Rise time (10 ... 90 %)	≤ 5 ms
Temperature coefficient	≤ 0.03 % FSR/10 K , measuring span ≤ 0.03 % FSR/10 K , zero point
Process conditions	
Process temperature	-40 … 120 °C
Process pressure	Refer to section "Operating conditions"
Process connection	
Connection variants	Refer to section "Dimensional drawings"
Wetted parts material	AISI 316L (1.4404)
Wetted parts material, membrane	AISI 316L (1.4435)

Process connection	
Wetted parts material, gasket	NBR, optional FKM, optional, gaskets require a minimum ambient temperature of -20 °C and a minimum medium temperature of -25 °C
Ambient conditions	
Operating temperature range	-40 … 85 °C
Storage temperature range	-40 … 85 °C
Degree of protection (EN 60529)	IP 65 , with connector DIN EN 175301-803 A (DIN 43650 A), 4-pin IP 67 , with cable outlet IP 67 , with connection head IP 67 , with connector M12-A, 4-pin
Insulation resistance	> 100 MΩ , 500 V DC
Bump (EN 60068-2-27)	100 g / 2 ms, 4000 impulses per axis and direction
Shock (EN 60068-2-27)	50 g / 11 ms, 100 g / 6 ms, 10 impulses per axis and direction
Vibration (sinusoidal) (EN 60068-2-6)	1.5 mm p-p (10 … 58 Hz), 10 g (58 Hz … 2 kHz), 10 cycles (2.5 h) per axis
Vibration, broad-band random (EN 60068-2-64)	0.1 g² / Hz, > 10 gRMS (20 Hz … 1 kHz), 30 min. per axis
Output signal	
Current output	4 … 20 mA , 2-wire 20 … 4 mA , 2-wire
Voltage output	0 … 10 V , 3-wire 0 … 5 V , 3-wire 0.5 … 4.5 V , 3-wire 1 … 5 V , 3-wire 10 … 0 V , 3-wire
Load resistance	≥ 5 kΩ
Short circuit protection	Yes

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Technical data

Output signal	
Shunt resistance	Rs ≤ (Vs - 8 V)/0.0205 A Rs ≤ 750 Ω, Vs = 24 V
Housing	
Style	Compact transmitter
Overall size	Refer to section "Dimensional drawings"
Material	AISI 316L (1.4404)
Electrical connection	
Connector	DIN EN 175301-803 A (DIN 43650 A), 4-pin M12-A, 4-pin
Cable gland	Cable Ø 8 … 10, stainless steel
Cable outlet	1.5 m, 3-wire, shielded
Power supply	
Voltage supply range	13 … 30 V DC , with voltage output 8 … 30 V DC , with current output
ATEX II 1/2G Ex ia IIC T4/T6 Ga/Gb	
Please note	For the application in Ex zone you have to respect the conditions mentioned in the type examination certificate (SEV 11 ATEX 0129 / IECEx SEV 22.0006).You will find the relevant certificates and instructions at www.baumer.com
Maximum values for barrier selection, Ui	30 V DC , max.
Maximum values for barrier selection, Ii	100 mA
Maximum values for barrier selection, Pi	750 mW
Internal capacitance, Ci	58 nF
Internal inductance, Li	0.22 µH
ATEX II 1D Ex ia IIIC T (200) 107°C IP6X Da	
Please note	For the application in Ex zone you have to respect the conditions mentioned in the type examination certificate (SEV 11 ATEX 0129 / IECEx SEV 22.0006).You will find the relevant certificates and instructions at www.baumer.com
ATEX II 1D Ex ia IIIC T (200) 107°C IP6X Da	
Degree of protection for cable accessories	IP 65
Maximum values for barrier selection, Ui	30 V DC , max.
ATEX II 1G Ex ia IIC T4/T6 Ga	
Please note	For the application in Ex zone you have to respect the conditions mentioned in the type examination certificate (SEV 11 ATEX 0129 / IECEx SEV 22.0006).You will find the relevant certificates and instructions at www.baumer.com
Maximum values for barrier selection, Ui	30 V DC , max.
Maximum values for barrier selection, Ii	100 mA
Maximum values for barrier selection, Pi	750 mW
Internal capacitance, Ci	58 nF
Internal inductance, Li	0.22 µH
Compliance and approvals	
EMC	EN 61000-6-3 2014/30/EU (EMC) 2014/34/EU (EX)
Explosion protection	ATEX II 1/2G Ex ia IIC T4/T6 Ga/Gb ATEX II 1D Ex ia IIIC T (200) 107 °C IP6X Da ATEX II 1G Ex ia IIC T4/T6 Ga

Operating conditions

Measuring range (bar)								Proof pressure (bar)	Burst Pressure (bar)
				0 … 0,1	0 … 0,16	0 … 0,25		1	2
-0,1 … 0,1	-0,2 … 0,2	-1 … 0	-1 … 0,6	0 … 0,4	0 … 0,6	0 … 1		3	6
	-1 … 1,5	-1 … 3	-1 … 5	0 … 1,6	0 … 2	0 … 2,5	0 … 4	15	30
		-1 … 9	-1 … 15	0 … 6	0 … 10	0 … 16	0 … 20	60	120
			-1 … 24	0 … 25				70	140
			-1 … 39	0 … 40				135	270

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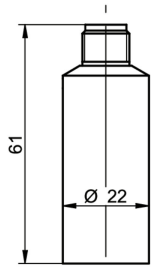
Operating conditions

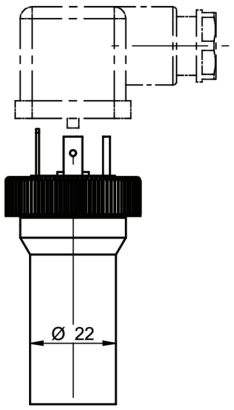
Explosion protection (with 4 … 20 mA output signal only)	Connectors [code]	Order key
ATEX II 1G Ex ia IIC T4/T6 Ga	M12-A [14]	PBMN-######A114######1#
	Connection head [54]	PBMN-######A154######1#
ATEX II 1D Ex ia IIIC T (200) 107 °C IP6X DA	M12-A [14]	PBMN-######A1########1#
	Connection head [54]	
	DIN EN 175301-803 A [44]	
ATEX II 1/2G Ex ia IIC T4/T6 Ga/Gb	DIN EN 175301-803 A [44]	PBMN-######A144######1#

Dimensional drawings (mm)

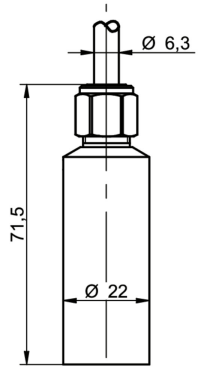
Housing



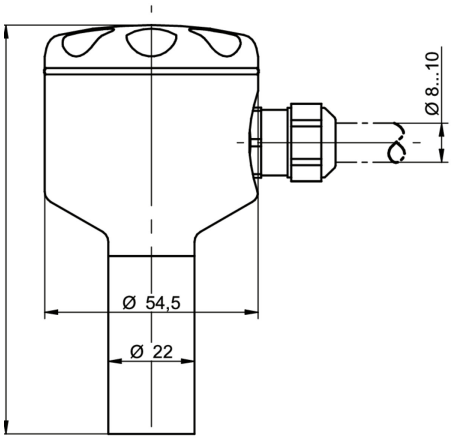
Housing with connector M12-A, 4-pin



Housing with connector DIN EN 175301-803 A (DIN 43650 A), 4-pin



Housing with cable outlet, 3-wire, 1.5 m length



Field housing with cable gland

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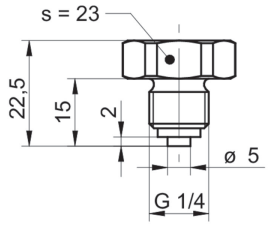
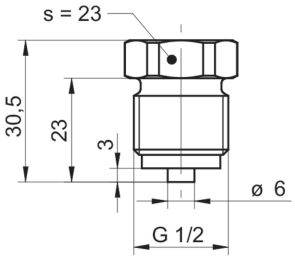
Dimensional drawings (mm)

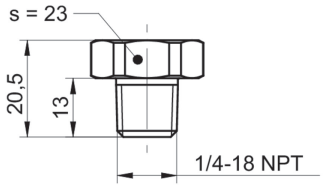
Process connection



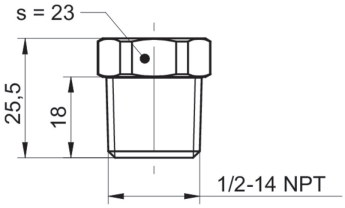
G30-02
G 1/4 B EN 837-1 (BCID: G30)



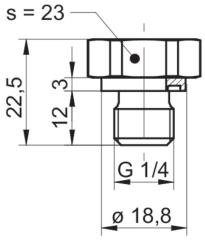
G31-03
G 1/2 B EN 837-1 (BCID: G31)



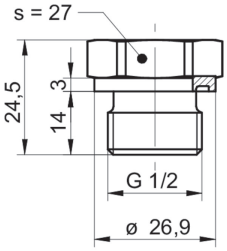
N01-04
1/4-18 NPT (BCID: N01)



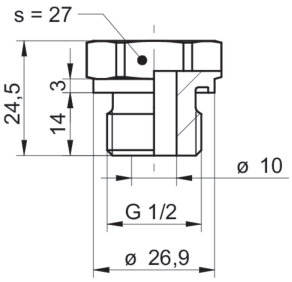
N02-05
1/2-14 NPT (BCID: N02)



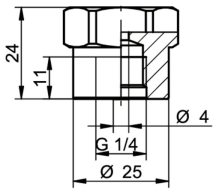
G50-06
G 1/4 A DIN 3852-E (BCID: G50)



G51-09
G 1/2 A DIN 3852-E (BCID: G51)



G51-19
G 1/2 A DIN 3852-E, hole Ø 10 mm (BCID: G51)



G21-12
G 1/4 A ISO 228-1 female thread (BCID: G21)

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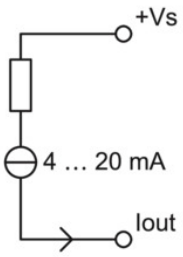
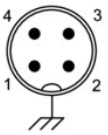
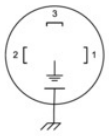
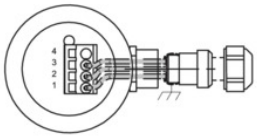
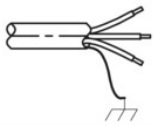
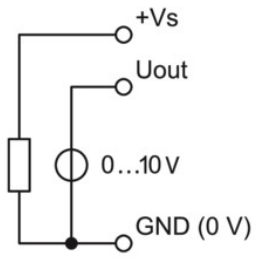
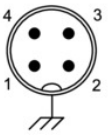
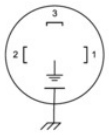
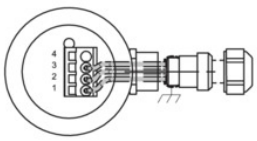
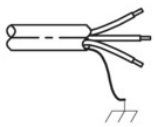
Electrical connection

Output signal	Equivalent circuit	Electrical connection	Function	Pin assignment
4 … 20 mA (2-wire)			+Vs	1
			Iout	3
			Frame Ground	Plug thread
			n.c.	2, 4
			+Vs	1
			Iout	2
			Frame Ground	Grounding lug
			n.c.	3
			+Vs	1
			Iout	2
			Frame Ground	Shield
			n.c.	3, 4
			+Vs	RD
			Iout	BU
			Frame Ground	Shield
			n.c.	WH
0 … 10 V (3-wire)			+Vs	1
			Uout	2, 4
			GND (0 V)	3
			Frame Ground	Plug thread
			+Vs	1
			Uout	3
			GND (0 V)	2
			Frame Ground	Grounding lug
			+Vs	1
			Uout	3
			GND (0 V)	2
			Frame Ground	Shield
			n.c.	4
			+Vs	RD
			Uout	WH
			GND (0 V)	BU
			Frame Ground	Shield

Ordering information

Ordering key - Configuration possibilities see website

	PBMN	-	2	#	###	#	##	##	##	2	#	#	0	#	0
Product															
	PBMN														
Housing material															
Stainless steel 1.4404 AISI 316L			2												
Accuracy															
±0.25 % FS				4											
±0.10 % FS				5											

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Ordering information

Ordering key - Configuration possibilities see website

	PBMN	-	2	#	###	#	##	##	##	2	#	#	0	#	0
Measuring range															
0...0,1 bar (EN)					B08										
0...0,16 bar (EN)					B09										
0 ... 0.25 bar (EN)					B10										
0 ... 0.4 bar (EN)					B11										
0...0,6 bar (EN)					B12										
0...1 bar (EN)					B15										
0...1,6 bar (EN)					B16										
0...2 bar (EN)					B17										
0 ... 2.5 bar (EN)					B18										
0 ... 4 bar (EN)					B19										
0...12 bar (EN)					B1K										
-1...39 bar (EN)					B1L										
0 ... 6 bar (EN)					B20										
0 ... 10 bar (EN)					B22										
0 ... 16 bar (EN)					B24										
0...20 bar (EN)					B25										
0...25 bar (EN)					B26										
0 ... 40 bar (EN)					B27										
-0,1...0,1 bar (EN)					B2H										
-0,2...0,2 bar (EN)					B4G										
-0,6...0 bar (EN)					B58										
-1...0 bar (EN)					B59										
-1...0,6 bar (EN)					B72										
-1...1 bar (EN)					B73										
-1 ... 1,5 bar (EN)					B74										
-1...2 bar (EN)					B75										
-1...3 bar (EN)					B76										
-1...5 bar (EN)					B77										
-1...9 bar (EN)					B79										
-1...15 bar (EN)					B81										
-1...24 bar (EN)					B82										
0...5 bar (EN)					B98										
Kind of pressure															
Relative (gauged)						R									
Absolute						A									
Output signal															
20...4 mA							A0								
4...20 mA							A1								
0...10 V							A2								
1...5 V							A3								
0...5 V							A4								
0.5...4.5 V							A5								
10...0 V							A7								
Output Connection															
M12-A, 4-pin								14							
DIN EN 175301-803 A (DIN 43650 A), 4-pin								44							
Cable outlet 1.5 m, 3-wire, shielded								53							
Connection head, cable gland IP67								54							

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Ordering information

Ordering key - Configuration possibilities see website

	PBMN	-	2	#	###	#	##	##	##	2	#	#	0	#	0
Process connection															
G 1/4 B EN 837-1 (G30)									02						
G 1/2 B EN 837-1 (G31)									03						
1/4-18 NPT (N01)									04						
1/2-14 NPT (N02)									05						
G 1/4 A DIN 3852-E (G50)									06						
M20 × 1.5 ISO 261 / ISO 965 (M08)									07						
G 1/2 A DIN 3852-E (G51)									09						
G 1/4 A ISO 228-1 female thread (G21)									12						
G 1/2 A DIN 3852-E, hole Ø 10 mm (G52)									19						
G 1/4 B EN 837-1 with integrated damping element (P <= 600 bar) (G30)									22						
G 1/2 B EN 837-1 with integrated damping element (P <= 600 bar) (G31)									23						
1/4-18 NPT with integrated damping element (P <= 1000 bar) (N01)									24						
1/2-14 NPT with integrated damping element (P <= 1000 bar) (N02)									25						
G 1/4 A DIN 3852-E, pressure channel 0.6 mm (G50)									26						
G 1/2 A DIN 3852-E with integrated damping element (P <= 600 bar) (G51)									29						
Process connection material															
Stainless steel 1.4404 AISI 316L										2					
Seal															
None											0				
NBR standard											1				
FKM											3				
Oil filling															
Standard oil												1			
NSF H1 listed (FDA approved)												2			
Display															
Without display													0		
ATEX															
Standard safety														0	
ATEX according to SEV 11 ATEX 0129														1	
Approvals															
Standard approvals															0

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