

PMR04

Bourdon Tube Pressure Gauge

- **Nominal sizes:**
4"/100 mm, 6.3"/160 mm, 9.8"/250 mm
- **Designs with brass connection and stainless steel housing or completely in stainless steel**
- **Measuring ranges from -30 inHG...0 psig / -1...0 bar up to 0...25000 psi / 0...1600 bar**
- **With or without liquid filling for vibration dampening**
- **Electrical supplementary devices such as limit contacts or analog output signals**
- **Fast delivery**



Description:

Model series PMR04 Bourdon tube pressure gauges can be supplied in brass or stainless steel versions, with filled or unfilled gauges. A coiled, drawn brass or stainless steel tube filled with the fluid or gas being monitored is deformed to an extent depending on the pressure exerted by the fluid or gas. The resulting movement of the coil is transmitted to an indicator mechanism with a graduated display. This movement can be dampened by means of an optionally available liquid filling so that any vibrations have far less impact on the accuracy and stability of the reading. The natural lubricating properties of this liquid filling also reduce wear to moving parts, entry of caustic/corrosive gases and accumulation of condensation. The stainless steel version allows pressure measurement of even the most caustic liquids and gases. These pressure gauges are fitted with a threaded connection at the bottom or on the back. They may also be fitted with up to four limit contacts or with a transmitter for remote transmission of the measured value.

Applications:

Bourdon tube gauges are used throughout industry and are especially suitable for taking measurements at locations where there is no supply of electrical power available. Model PMR04 Bourdon tube pressure gauges, with a brass responsive element, are frequently used in industrial machinery and systems, on pumps, compressors, or block-type thermal power stations (BTTPs) since in these applications they only need to meet minimal requirements for withstanding the effects of the media being monitored. In contrast, PMR04 Bourdon tube pressure gauges of stainless steel are designed to withstand contact with the very caustic/corrosive media often encountered in the chemical and petrochemical industries, the food and beverage industries, pharmaceutical production processes or in power plants, where they have provided the best service for decades. When fitted with the optionally available switching contacts or analog output, these gauges can also be used for electronic pressure monitoring.

Designs:

Nominal size: Housing diameter 4" / 100 mm, 6.3" / 160 mm, 9.8" / 250 mm

Materials:







PMR04.x.M: Housing of stainless steel AISI 304 / 1.4301, measuring element of copper alloy, above 1000 psi / 60 bar, stainless steel, connection of brass

PMR04.x.E: Housing of stainless steel AISI 304 / 1.4301, measuring element and connection of stainless steel AISI 316 Ti / 1.4571

Process connection: G1/2 or 1/2" NPT at bottom or on back

Vibration dampening: Optional glycerin, oil or special filling

Measuring Ranges:

Measuring range (bar / psi)	Order code					
						
	For all nominal sizes					Not for dia. 9.8" / 250 mm
-1200...0 mbar	A17	B17	C17	D17	E17	F17
-1...0 bar	A16	B16	C16	D16	E16	F16
-30 inHG...0 psig	A16U	B16U	C16U	D16U	E16U	F16U
-0.6...+1.0 bar	A18	B18	C18	D18	E18	F18
-18 inHG...14.5 psig	A18U	B18U	C18U	D18U	E18U	F18U
-1...+0.6 bar	A42	B42	C42	D42	E42	F42
-30 inHG...8.7 psig	A42U	B42U	C42U	D42U	E42U	F42U
-1...+1.5 bar	A43	B43	C43	D43	E43	F43
-30 inHG...21.8 psig	A43U	B43U	C43U	D43U	E43U	F43U
-1...+3 bar	A44	B44	C44	D44	E44	F44
-30 inHG...43.5 psig	A44U	B44U	C44U	D44U	E44U	F44U
-1...+5 bar	A45	B45	C45	D45	E45	F45
-30 inHG...72.5 psig	A45U	B45U	C45U	D45U	E45U	F45U
-1...+9 bar	A46	B46	C46	D46	E46	F46
-30 inHG...130.5 psig	A46U	B46U	C46U	D46U	E46U	F46U
-1...+15 bar	A49	B49	C49	D49	E49	F49
-30 inHG...217.6 psig	A49U	B49U	C49U	D49U	E49U	F49U
0.2...1 bar	A50	B50	C50	D50	E50	F50
-	-	-	-	-	-	-
0...0.6 bar	A67-	B67	C67	D67	E67	F67
0...10 psi	A67U	B67U	C67U	D67U	E67U	F67U
0...1 bar	A69	B69	C69	D69	E69	F69
0...16 psi	A69U	B69U	C69U	D69U	E69U	F69U
0...1.6 bar	A70	B70	C70	D70	E70	F70
0...25 psi	A70U	B70U	C70U	D70U	E70U	F70U
0...2.5 bar	A72	B72	C72	D72	E72	F72
0...40 psi	A72U	B72U	C72U	D72U	E72U	F72U
0...4 bar	A73	B73	C73	D73	E73	F73
0...60 psi	A73U	B73U	C73U	D73U	E73U	F73U
0...6 bar	A74	B74	C74	D74	E74	F74
0...100 psi	A74U	B74U	C74U	D74U	E74U	F74U
0...10 bar	A75	B75	C75	D75	E75	F75
0...160 psi	A75U	B75U	C75U	D75U	E75U	F75U
0...16 bar	A76	B76	C76	D76	E76	F76
0...250 psi	A76U	B76U	C76U	D76U	E76U	F76U
0...25 bar	A78	B78	C78	D78	E78	F78
0...400 psi	A78U	B78U	C78U	D78U	E78U	F78U
0...40 bar	A79	B79	C79	D79	E79	F79
0...600 psi	A79U	B79U	C79U	D79U	E79U	F79U
0...60 bar	A80	B80	C80	D80	E80	F80
0...1000 psi	A80U	B80U	C80U	D80U	E80U	F80U
0...100 bar	A81	B81	C81	D81	E81	F81
0...1600 psi	A81U	B81U	C81U	D81U	E81U	F81U
0...160 bar	A82	B82	C82	D82	E82	F82
0...2500 psi	A82U	B82U	C82U	D82U	E82U	F82U
0...250 bar	A84	B84	C84	D84	E84	F84
0...4000 psi	A84U	B84U	C84U	D84U	E84U	F84U
0...400 bar	A86	B86	C86	D86	E86	F86
0...6000 psi	A86U	B86U	C86U	D86U	E86U	F86U
0...600 bar	A87	B87	C87	D87	E87	F87
0...10000 psi	A87U	B87U	C87U	D87U	E87U	F87U
0...1000 bar	A88	B88	C88	D88	E88	F88
0...16000 psi	A88U	B88U	C88U	D88U	E88U	F88U
0...1600 bar	A89	B89	C89	D89	E89	F89
0...25000 psi	A89U	B89U	C89U	D89U	E89U	F89U

Model Coding:

Order number: PMR04. 10. M. 1. 0. A75. 0. 0

Bourdon tube pressure gauge

Design:

10 = 4" / 100 mm
16 = 6.3" / 160 mm
25 = 9.8" / 250 mm

Materials:

M = Housing of stainless steel, connection of brass
E = Housing of stainless steel, connection of stainless steel
S = Special materials (please specify in writing)

Process connection:

1 = G 1/2 at bottom
2 = G 1/2 eccentric on back
3 = 1/2" NPT at bottom
4 = 1/2" NPT eccentric on back
8 = with adapter for connection of diaphragm seal
9 = custom connection

Vibration dampening:

0 = None
1 = With glycerin filling
2 = With oil filling (for devices with contact or analog output)

Design and measuring ranges (see "measuring ranges" table):

A17...F89 = bar ranges
A18U...F89U = psi ranges

Optional electrical devices:

0 = None
xxx = see „Contacts and Analog Outputs“ table

Options and accessories (more than one may be selected)

0 = None
xx = see "Options and Accessories" table

Technical Details:

Housing: Round gauge housing of stainless steel, d = 4" / 100 mm, 6.3" / 160 mm, 9.8" / 250 mm; Protection type IP45

Liquid-filled design: Glycerin filling (other filling optional), with pressure-relief opening and inside pressure equalization
Protection type IP65

Stainless steel version: With pressure-relief opening (optional for increased safety with solid baffle wall and blow-out back)

Pressure sensing element:
PMR04.xx.M: Bourdon tube, up to 1000 psi / 60 bar copper alloy, soldered, above 1000 psi / 60 bar stainless steel 316 Ti / 1.4571, brazed

PMR04.xx.E: Bourdon tube of stainless steel AISI 316 Ti / 1.4571

Indicator element:
PMR04.xx.M: Brass, moving parts of nickel silver
PMR04.xx.E: Stainless steel AISI 316 Ti, 304 / 1.4571, 1.4301

Dial face: Aluminum, white, black characters, As per EN 837-1

Viewing window:
PMR04.xx.M: Instrument glass, PMR04.25.M.x.1/2 Polycarbonate
PMR04.xx.E: Multilayer safety glass

Accuracy: Class 1.0

Maximum liquid temperature: 140 °F / 60 °C, for PMR04.xx.M up to 1000 psi / 60 bar, 212 °F / 100°C for all other devices

Overload protection: Short-term 1.3 times

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Options and Accessories

Description	Code	for model PMR04...
Design for increased safety (solid baffle wall and blow-out back)	ES	x.E..., unfilled not for dia. 9.8" / 250 mm, only designs A, B
Protective cap of blue rubber	GB	10.M... designs A, D
Bright metal bezel	FP	x.E... designs B, E, F
Housing suitable for tropical climates	GT	only unfilled devices
Indicator element of stainless steel	ZE	x.M... unfilled
Indicator element dampened	ZD	only unfilled devices
Scale with fine graduations and knife edge pointer	SFS	all models
Double-scale dial (e.g. bar/psi)	SD	all models
Multiple scale	SM	all models
Scale labeling	SA	all models
Refrigerant double-scale dial Pressure / R22, R134a, R507 Pressure / R22, R12, R502 Pressure / R12 Pressure / R22 Pressure / R507 Pressure / R134a	SK... ...1 ...2 ...3 ...4 ...5 ...6	x.M...
Refrigerant double-scale dial for pressure / R717 (NH3)	SK7	x.E...
Print plate for creating special scale (single color or multi-colored)	SS1 SSx	all models
Multilayer safety glass	WS	x.M..., unfilled
Measuring system free of oil and grease for use with oxygen	MO	all models
Measuring system free of silicone	MS	all models
Silicone oil filled	FS	x.E..., filled, and with option ES (increased safety)
Glycerin filled	FG	only with option ES (increased safety)
Measuring system with excess pressure protection >1.3 times	U	all models
Pressure throttling screw in the connection, d = 0.8 or 0.3 mm	D08 D03	all models
Process connection G 1/4 B, 1/4" NPT, 7/16"-20 UNF	Px	all models, not for dia. 9.8" / 250 mm
Process connection G 1/4 female thread, G 3/8 B, 3/8" NPT, M20 x 1.5, small flange DN10, stainless steel	Px	all models
Process connection M16x1.5 female thread	Px	x.E...
Yellow graduations on dial face for N2 or Blue graduations on dial face for O2	MG MB	x.M..., unfilled, not for dia. 9.8" / 250 mm
Red graduations on dial face	MR	all models
Red gliding mark pointer in the viewing window	ZR	all models
Red gliding mark pointer on the dial face 1 or 2	ZR1 ZR2	only unfilled devices
Maximum pointer, can be reset, 1 or 2	ZS1 ZS2	all models
Adjustable pointer on bushing	ZZ	all models
Can be calibrated as per calibration regulations	E	all models
Test certificate all models	P	all models
Factory certificate as per EN-10204, 2.1, 2.2, 2.3, 3.1B	Wxxx	all models
Factory calibration	K	all models
Pressure sensor integrated in back of housing	PU	x.E..., unfilled,

Limit Contacts

Designs: magnetic spring contact

As NO contact, NC contact (maximum 4 units) or changeover contact (maximum 2 units)
Switching capacity: maximum 30W / 50 VA
Switching voltage: 24...250V

Inductive contact

As NO contact or NC contact (maximum 4 units)
Nominal voltage: 8 VDC
Power consumption: high: >3 mA, low: < 1 mA
Optional with Ex-certification as per ATEX
For use in zone 1 or 2

Other contact designs such as slow-action contacts or electronic contacts for direct connection to a PLC are available upon request.

Description (Contact operation with pointer movement in the clockwise direction)	Code
1 magnetic spring contact, NO contact	M1
1 magnetic spring contact, NC contact	M2
1 magnetic spring contact, changeover contact	M3
2 magnetic spring contacts, switching function x = NC contact, NO contact or changeover contact	Mxx
3 magnetic spring contacts, switching function x = NC contact or NO contact	Mxxx
4 magnetic spring contacts, switching function x = NC contact or NO contact	Mxxxx
1 inductive contact, NO contact	I1
1 inductive contact, NC contact	I2
2 inductive contacts, switching function x = NC contact or NO contact	Ixx
3 inductive contacts, switching function x = NC contact or NO contact	Ixxx
4 inductive contacts, switching function x = NC contact or NO contact	Ixxxx

Analog Outputs

Designs:

Angle-of-rotation transducer (potentiometric):

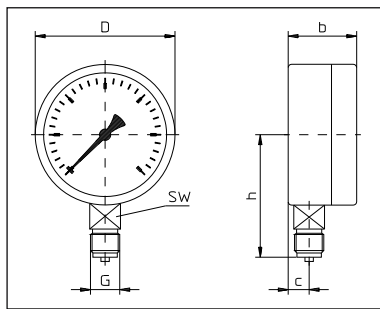
Power supply: 23...30 VDC
Output: 0 (4)...20 mA, 3-wire
Maximum load: 750 ohm at 24 V
Linearity error: ± 0.5%
Electrical connection: cable box
Operating temperature: -13 °F...+176 °F / -25...+80°C

Description	Code
Output signal 0...20 mA	AP0
Output signal 4...20 mA	AP4

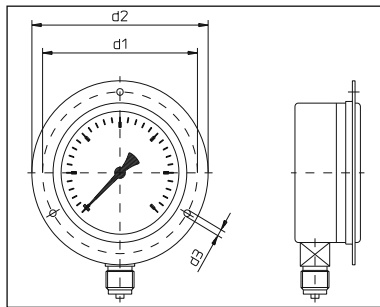
Capacitive angle-of-rotation transducer in 2-, 3-, or 4-wire circuitry available upon request.

Caution: When using supplementary electrical devices, liquid-filled devices must be filled with oil instead of glycerin.

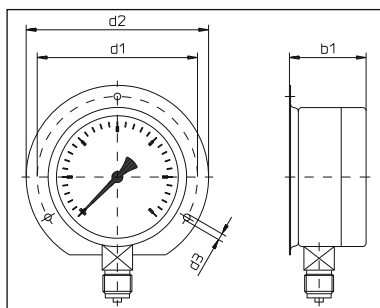
Dimensions:



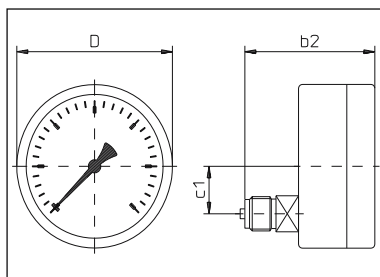
Design A:
Connection at bottom



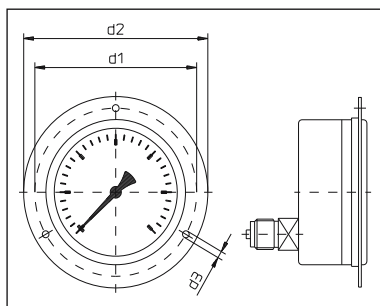
Design B:
Connection at bottom,
rim at front



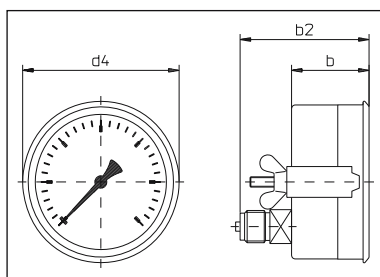
Design C:
Connection at bottom,
rim at back



Design D:
Connection on back



Design E:
Connection on back,
rim at front



Design F:
Connection on back,
Triangular front ring
and retaining clip

Standard version

Measurement:	Dimensions in mm		
	dia. 4" / 100 mm	dia. 6.3" / 160 mm	dia 9.8" / 250 mm
b	1.97" / 50 mm	1.97" / 50 mm	2.17" / 55 mm
b1	2.2" / 56 mm	2.2" / 56 mm	2.4" / 61 mm
b2	3.41" / 86.5mm	3.46" / 88 mm	3.66" / 93 mm
c	0.59" / 15 mm	0.57" / 14.5mm	0.63" / 16 mm
c1	1.14" / 29 mm	1.97" / 50 mm	1.97" / 50 mm
D	3.97" / 100.8mm	6.35" / 161.3mm	9.88" / 251 mm
d1	4.57" / 116 mm	7.01" / 178mm	10.67" / 271 mm
d2	5.2" / 132 mm	7.72" / 196 mm	11.22" / 285 mm
d3	0.19" / 4.8mm	0.23" / 5.8 mm	0.23" / 5.8mm
d4	4.21" / 107 mm	6.54" / 166 mm	---
h	3.43" / 87 mm	4.65" / 118 mm	6.5" / 165 mm
SW	0.87" / 22 mm	0.87" / 22 mm	0.87" / 22 mm
weight (kg)	1.1 lbs. / 0.5 kg	2.42 lbs. / 1.1 kg	4.85 lbs / 2.2 kg

Design with angle-of-rotation transducer

Measurement:	Dimensions in mm		
	dia. 4" / 100 mm	dia. 6.3" / 160 mm	dia 9.8" / 250 mm
b	1.97" / 50mm	1.97" / 50 mm	2.17" / 55 mm
b1	2.2" / 56 mm	2.2" / 56 mm	2.4" / 61 mm
b2	3.41" / 86.5mm	3.46" / 88 mm	3.66" / 93 mm
c	0.59" / 15 mm	0.57" / 14.5mm	0.63" / 16 mm
c1	1.14" / 29 mm	1.97" / 50 mm	1.97" / 50 mm
D	3.97" / 100.8mm	6.35" / 161.3mm	9.88" / 251 mm
d1	4.57" / 116 mm	7.01" / 178mm	10.67" / 271 mm
d2	5.2" / 132 mm	7.72" / 196 mm	11.22" / 285 mm
d3	0.19" / 4.8mm	0.23" / 5.8mm	0.23" / 5.8mm
d4	4.21" / 107 mm	6.54" / 166 mm	---
h	3.43" / 87 mm	4.65" / 118 mm	6.5" / 165 mm
SW	0.87" / 22 mm	0.87" / 22 mm	0.87" / 22 mm
weight (kg)	1.74 lbs. / 0.79 kg	3.3 lbs. / 1.5 kg	6.6 lbs / 3 kg