

Bourdon tube pressure gauge with output signal

Stainless steel case, NS 50 [2"] and 63 [2 ½"]

Model PGT21

WIKA data sheet PV 21.02

For approvals,
see page 6

intelliGAUGE®

Applications

- General machine building
- Industrial and medical gases
- Renewable energies

Special features

- Non-contact sensor (wear-free)
- Robust stainless steel case
- Nominal sizes 50 [2"] and 63 [2 ½"]
- Scale ranges 0 ... 1.6 bar to 0 ... 400 bar
[0 ... 30 psi to 0 ... 6,000 psi]
- Analogue output signal 4 ... 20 mA or DC 0.5 ... 4.5 V



Configurator



Bourdon tube pressure gauge model PGT21

Description

The model PGT21 intelliGAUGE® is a combination of a Bourdon tube pressure gauge and a pressure sensor. It offers the usual analogue indication, which enables reading the process pressure on site, and in addition an analogue output signal (4 ... 20 mA or DC 0.5 ... 4.5 V).

The measuring system with Bourdon tube per EN 837-1 produces a pointer rotation proportional to the pressure. An electronic angle encoder, proven in safety-critical automotive applications, determines the position of the pointer shaft – it is a non-contact sensor and therefore completely free from wear and friction. That provides a pressure-proportional signal for further processing.

The intelliGAUGE® is available as standard in scale ranges from 0 ... 1.6 bar to 0 ... 400 bar [0 ... 30 psi to 0 ... 6,000 psi] with an accuracy class of 2.5 and a 2 m round cable for the electrical connection. The stainless steel case fulfils the requirements of IP65 ingress protection. The resistance to shock and vibration can be increased by the silicone oil case filling. Thus the instrument is perfectly suited for use in harsh industrial environments.

Through various options (e.g. higher accuracy class, other cable length) the pressure gauge can be matched exactly to the customer-specific requirements of each application.

Specifications

Basic information	
Standard	
Bourdon tube pressure gauges	EN 837-1
→ For information on the “Selection, installation, handling and operation of pressure gauges”, see technical information IN 00.05.	
Other version	Oil- and grease-free for oxygen
Nominal size (NS)	■ Ø 50 mm [2"] ■ Ø 63 mm [2 ½"]
Connection location	■ Lower mount (radial) ■ Centre back mount
Window	Polycarbonate (PC)
Case	
Design	Safety level “S1” per EN 837-1: with blow-out device
Material	Stainless steel 1.4301 (304)
Mounting ¹⁾	■ Panel mounting flange, stainless steel ■ Triangular profile ring, stainless steel, with mounting bracket
Movement	Copper alloy

1) Only selectable for instruments with connection location centre back mount.

Measuring element	
Type of measuring element	Bourdon tube, C-type or helical type
Materials (wetted)	Copper alloy
Leak tightness	Helium tested, leakage rate: $< 5 \cdot 10^{-5}$ mbar l/s

Accuracy specifications	
Accuracy class of mechanical display	2.5
Accuracy class of output signal	2.5
Temperature error	On deviation from the reference conditions at the measuring system: $\leq \pm 0.4 \%$ per 10 °C [$\leq \pm 0.4 \%$ per 18 °F] of full scale value
Reference conditions	
Ambient temperature	20 °C [68 °F]

Scale ranges

bar	
0 ... 1.6	0 ... 40
0 ... 2.5	0 ... 60
0 ... 4	0 ... 100
0 ... 6	0 ... 160
0 ... 10	0 ... 250
0 ... 16	0 ... 315
0 ... 25	0 ... 400

psi	
0 ... 30	0 ... 800
0 ... 60	0 ... 1,000
0 ... 100	0 ... 1,500
0 ... 160	0 ... 2,000
0 ... 200	0 ... 3,000
0 ... 300	0 ... 4,000
0 ... 400	0 ... 5,000
0 ... 600	0 ... 6,000

kPa	
0 ... 160	0 ... 4,000
0 ... 250	0 ... 6,000
0 ... 400	0 ... 10,000
0 ... 600	0 ... 16,000
0 ... 1,000	0 ... 25,000
0 ... 1,600	0 ... 31,500
0 ... 2,500	0 ... 40,000

kg/cm ²	
0 ... 1.6	0 ... 40
0 ... 2.5	0 ... 60
0 ... 4	0 ... 100
0 ... 6	0 ... 160
0 ... 10	0 ... 250
0 ... 16	0 ... 315
0 ... 25	0 ... 400

MPa	
0 ... 0.16	0 ... 4
0 ... 0.25	0 ... 6
0 ... 0.4	0 ... 10
0 ... 0.6	0 ... 16
0 ... 1	0 ... 25
0 ... 1.6	0 ... 31,5
0 ... 2.5	0 ... 40

Vacuum and compound scale ranges

bar	
-0.6 ... 0	-1 ... +5
-1 ... 0	-1 ... +9
-1 ... +0.6	-1 ... +15
-1 ... +1.5	-1 ... +24
-1 ... +3	-

psi	
-30 inHg ... 0	-30 inHg ... +100
-30 inHg ... +15	-30 inHg ... +160
-30 inHg ... +30	-30 inHg ... +200
-30 inHg ... +60	-30 inHg ... +300

kPa	
-60 ... 0	-100 ... +500
-100 ... 0	-100 ... +900
-100 ... +60	-100 ... +1,500
-100 ... +150	-100 ... +2,400
-100 ... +300	-

MPa	
-0.06 ... 0	-0.1 ... +0.5
-0.1 ... 0	-0.1 ... +0.9
-0.1 ... +0.06	-0.1 ... +1.5
-0.1 ... +0.15	-0.1 ... +2.4
-0.1 ... +0.3	-

→ Other scale ranges on request

Further details on: scale ranges		
Unit	bar psi kg/cm² MPa kPa	
	Other units on request	
Dial		
Scale layout	Single scale Dual scale	
Scale colour	Single scale	Black
	Dual scale	Black/red
Material	Plastic	
Customer-specific version	Other scales, e.g. with red mark, circular arcs or circular sectors, on request	
Instrument pointer	Plastic, black	

Process connection		
Standard	■ EN 837 ■ ANSI/B1.20.1 ■ ISO 7	
	Size	
EN 837-1	■ G ½ B, male thread ■ G ¼ B, male thread ■ M10 x 1, male thread	
	ANSI/B1.20.1	
ISO 7	■ ½ NPT, male thread ■ ¼ NPT, male thread	
	Restrictor	
Materials (wetted)	■ Without ■ Ø 0.3 mm [0.012"], copper alloy ■ Ø 0.5 mm [0.020"], copper alloy ■ Sintered metal insert	
	Measuring element	Copper alloy
Process connection		Copper alloy

→ Other process connections on request

Output signal	
Voltage supply	
Supply voltage	■ $U_B = \text{DC } 5 \text{ V}$ ■ $U_B = \text{DC } 12 \dots 32 \text{ V}$
Signal type	
$U_B = \text{DC } 5 \text{ V}$	■ $0.5 \dots 2.5 \text{ V}$, ratiometric ■ $0.5 \dots 3.5 \text{ V}$, ratiometric ■ $0.5 \dots 4.5 \text{ V}$, ratiometric
$U_B = \text{DC } 12 \dots 32 \text{ V}$	■ $0.5 \dots 2.5 \text{ V}$ ■ $0.5 \dots 3.5 \text{ V}$ ■ $0.5 \dots 4.5 \text{ V}$ ■ $4 \dots 20 \text{ mA}$, 2-wire
Output signal and permissible load	
Voltage output	$R_A > 5 \text{ k}\Omega$
Current output $4 \dots 20 \text{ mA}$, 2-wire	$R_A \leq (U_{\text{SIG}} - 10 \text{ V}) / 0.02 \text{ A}$ with R_A in Ω and U_{SIG} in DC V

Electrical connection	
Connection type	Cable outlet with 2 m cable length
Wire cross-section	$3 \times 0.14 \text{ mm}^2$
Cable diameter	4 mm

Cable outlet, cable ends tin-plated for soldered joints per standard IPC-WHMA-A-620A			
		2-wire	3-wire
	U_B	Red	Red
	GND	Black	Black
	U_{SIG}	-	Orange

Operating conditions	
Medium temperature range	$\leq +60 \text{ }^\circ\text{C}$ [$+140 \text{ }^\circ\text{F}$]
Ambient temperature range	$-20 \dots +60 \text{ }^\circ\text{C}$ [$-4 \dots +140 \text{ }^\circ\text{F}$]
Storage temperature range	$-40 \dots +70 \text{ }^\circ\text{C}$ [$-40 \dots +158 \text{ }^\circ\text{F}$]
Pressure limitation	
Steady	3/4 x full scale value
Fluctuating	2/3 x full scale value
Ingress protection per IEC/EN 60529	IP65

Approvals

Logo	Description	Region
	EU declaration of conformity	European Union
	EMC directive	
	Low Voltage Directive	
	RoHS directive	
-	CRN Safety (e.g. electr. safety, overpressure, ...)	Canada

Optional approvals

Logo	Description	Region
-	PAC Ukraine Metrology, measurement technology	Ukraine

Certificates

Description	
Certificates	■ 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, indication accuracy) ■ 3.1 inspection certificate per EN 10204 (e.g. indication accuracy)
Recommended calibration interval	1 year (dependent on conditions of use)

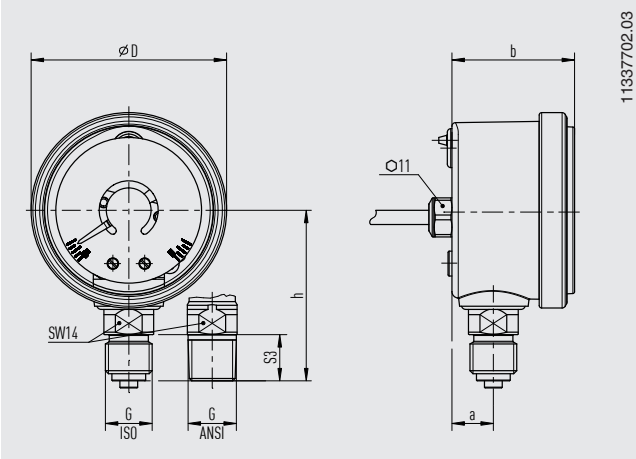
Patents, property rights

Patent number	Description
DE 202007019025, US 2010045366, CN 101438333	Pointer measuring instrument with output signal

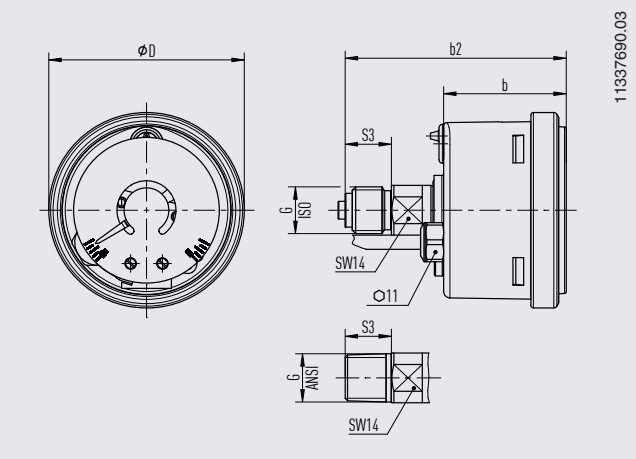
→ For approvals and certificates, see website

Dimensions in mm [in]

Model PGT21.050, lower mount



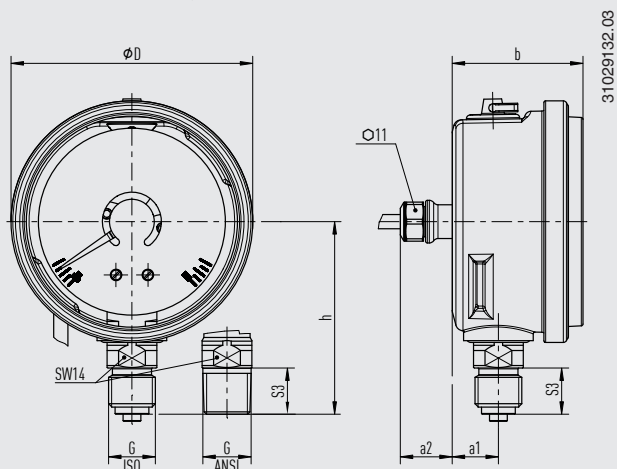
Model PGT21.050, centre back mount



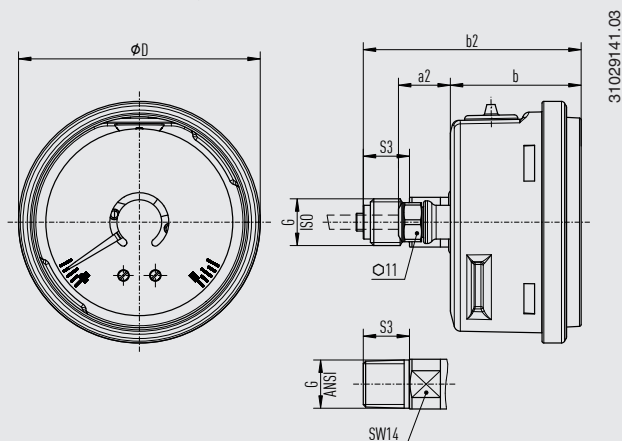
NS 50 [2"]

G	Dimensions in mm [in]					
	D	a	b ±0.5 [±0.02]	b2 ±0.5 [±0.02]	h ±1 [±0.04]	S3
G ½ B	55 [2.17]	11.65 [0.46]	34.5 [1.36]	59 [2.32]	45 [1.77]	10 [0.39]
G ¼ B	55 [2.17]	11.65 [0.46]	34.5 [1.36]	62 [2.44]	48 [1.89]	13 [0.51]
M10 x 1	55 [2.17]	11.65 [0.46]	34.5 [1.36]	59 [2.32]	45 [1.77]	10 [0.39]
½ NPT	55 [2.17]	11.65 [0.46]	34.5 [1.36]	59 [2.32]	45 [1.77]	10 [0.39]
¼ NPT	55 [2.17]	11.65 [0.46]	34.5 [1.36]	62 [2.44]	48 [1.89]	13 [0.51]
R ½	55 [2.17]	11.65 [0.46]	34.5 [1.36]	59 [2.33]	45 [1.77]	10 [0.39]
R ¼	55 [2.17]	11.65 [0.46]	34.5 [1.36]	62 [2.44]	48 [1.89]	13 [0.51]

Model PGT21.063, lower mount



Model PGT21.063, centre back mount



NS 63 [2 1/2"]

G	Dimensions in mm [in]						
	D	a1	a2	$b \pm 0.5$ [± 0.02]	$b2 \pm 0.5$ [± 0.02]	$h \pm 1$ [± 0.04]	S3
G 1/8 B	68 [2.68]	13 [0.51]	14.5 [0.57]	37 [1.46]	58 [2.28]	51 [2.01]	10 [0.39]
G 1/4 B	68 [2.68]	13 [0.51]	14.5 [0.57]	37 [1.46]	61 [2.40]	54 [2.13]	13 [0.51]
M10 x 1	68 [2.68]	13 [0.51]	14.5 [0.57]	37 [1.46]	58 [2.28]	45 [1.77]	10 [0.39]
1/8 NPT	68 [2.68]	13 [0.51]	14.5 [0.57]	37 [1.46]	58 [2.28]	51 [2.01]	10 [0.39]
1/4 NPT	68 [2.68]	13 [0.51]	14.5 [0.57]	37 [1.46]	61 [2.40]	54 [2.13]	13 [0.51]
R 1/8	68 [2.68]	13 [0.51]	14.5 [0.57]	37 [1.46]	58 [2.28]	51 [2.01]	10 [0.39]
R 1/4	68 [2.68]	13 [0.51]	14.5 [0.57]	37 [1.46]	61 [2.40]	54 [2.13]	13 [0.51]

Accessories and spare parts

Model	Description	
	910.17	Seals → See data sheet AC 09.08
	910.15	Syphons → See data sheet AC 09.06
	910.13	Overpressure protector → See data sheet AC 09.04
	IV1	Needle valve and multiport needle valve → See data sheet AC 09.22
	IV2	Block-and-bleed valve → See data sheet AC 09.19

Ordering information

Model / Nominal size / Contact model / Contact version / Scale range / Connection location / Process connection / Options

Configurator



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The specifications given in this document represent the state of the art at the time of publishing.
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