Differential pressure gauge with output signal
For the process industry, high overload safety up to 650 bar
Models DPGT43HP.100 and DPGT43HP.160

For further approvals, see page 5

intelliGAUGE®

Applications

- Acquisition and indication of processes
- Output signals 4 ... 20 mA, 0 ... 20 mA, 0 ... 10 V for the transmission of process values to the control room
- For measuring locations with a high differential pressure overload and/or high operating pressures (static pressures), also in aggressive environments
- Easy-to-read, analogue on-site indication needing no auxiliary power

Special features

- High operating pressure (static pressure) and high overload safety, selectable up to 40, 100, 250, 400 or 650 bar
- Measuring cell liquid damping against rapid pressure changes
- No configuration necessary due to “plug-and-play”
- QR code on dial links to instrument-specific information
- Individual, non-linear characteristic curves (e.g. x^2 or $\sqrt{x}$ for flow measurement)

Differential pressure gauge, model DPGT43HP.100

Description

Wherever the differential pressure must be indicated on site and, at the same time, a signal transmission to the central control or control room is desired, the model DPGT43HP intelliGAUGE® (patent, property right: e.g. DE 202007019025) can be used.

The model DPGT43HP is based upon a model 732.14 high-quality, stainless steel pressure gauge with a nominal size of 100 or 160. The pressure measuring instrument is manufactured in accordance with EN 837-3.
The use of high-quality stainless steel materials and the robust design are geared to applications in the chemical and process engineering industries. Thus the instrument is suitable for liquid and gaseous media, also in aggressive environments.
A high overload safety is achieved by the all-metal construction and the close-fitting design of the measuring element.

The robust diaphragm measuring system 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. From this, the electrical output signal, proportional to the pressure, of 4 ... 20 mA, is produced. The electronic WIKA sensor, integrated into the high-quality mechanical differential pressure gauge, combines the advantages of electrical signal transmission with an on-site mechanical indication that remains readable during a power failure.

The QR code on the dial allows instrument-specific information such as the serial number, the order number, certificates and other product data to be retrieved from the internet easily and in the long term.

Data sheets showing similar products:
Differential pressure gauge with electrical output signal, for the process industry; model DPGS43HP.1x0; see data sheet PV 27.13

Smart in sensing

Specifications

Models DPGT43HP.100 and DPGT43HP.160	
Version	Highest overload safety either side, pressure ratings PN 40, 100, 250, 400 or 650. Pressure transmission medium of the measuring cell causes damping of the indication. Full-scale loadable per EN 837-3.
Nominal size in mm	■ 100 ■ 160
Accuracy class	1.6 Option: ■ 1.0 (application test required) ■ 2.5 (Monel or Hastelloy version)
Scale ranges	Instruments with PN 40 and 100: ■ 0 … 60 mbar to 0 … 160 mbar (measuring cell ☐ 140) ■ 0 … 0.25 bar to 0 … 40 bar (measuring cell ☐ 82) Instruments with PN 250: ■ 0 … 60 mbar to 0 … 250 mbar (measuring cell ☐ 140) ■ 0 … 0.4 bar to 0 … 40 bar (measuring cell ☐ 82) Instruments with PN 400 and 650: 0 … 0.4 bar to 0 … 40 bar (measuring cell ☐ 86) Dimensions of measuring cells from page 6 Other units (e.g. psi, kPa) available as well as all other vacuum and compound measuring ranges
Scale	Single scale Option: ■ Dual scale ■ Scale layout with individual non-linear characteristic curves
Zero point setting	By means of adjustment appliance
Pressure limitation	
Steady	Full scale value
Fluctuating	0.9 x full scale value Observe the recommendations for the use of mechanical pressure measuring systems in accordance with EN 837-2
Overload safety and max. operating pressure (static pressure)	Instruments with PN 40, 100, 250 and 400: ■ Max. 40, 100, 250 or 400 bar [580, 1,450, 3,625 or 5,800 psi], on one, both and alternatingly on the ⊕ and ⊖ sides Instruments with PN 650: ■ Max. 400 bar [5,800 psi], on one side and alternatingly on the ⊕ and ⊖ sides ■ Max. 650 bar [9,425 psi], on both the ⊕ and ⊖ sides
Connection location	Lower mount (radial) Option: ■ Back mount ■ Connection at 12 o'clock
Process connection	■ G ½ female ■ G ½ B male ■ ½ NPT male ■ Differential process connection per EN 61518 Other process connections via female or male threads on request
Permissible temperature [1]	
Medium	-20 ... +100 °C
Ambient	-20 ... +60 °C Option: -40 ... +60 °C (silicone oil filling)
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. ±0.5 %/10 K of full scale value
Case filling	Without Option: With case filling

1) For hazardous areas, the permissible temperatures of the output signal variant 2 will apply exclusively (see page 4). These must not be exceeded at the instrument either (for details, see operating instructions). If necessary, measures for cooling (e.g. syphon, instrumentation valve, etc.) have to be taken.

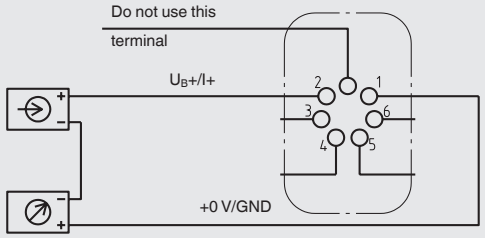
Models DPGT43HP.100 and DPGT43HP.160	
Venting of the media chambers	■ Instruments with PN 40 and 100: for scale ranges ≤ 0.16 bar [1] (option for scale ranges ≥ 0.25 bar) [1] ■ Instruments with PN 250, 400 and 650: standard for scale ranges ≤ 0.25 bar [2] (option for scales ranges ≥ 0.4 bar) [2]
Pressure transmission medium of the measuring cell	Silicone oil Option: Measuring cell filling with special medium, e.g. for use in oxygen applications Others on request
Materials (wetted)	
Measuring flanges with process connection	Stainless steel 316L
Pressure elements [2]	■ ≤ 0.25 bar: stainless steel 316L ■ ≥ 0.4 bar: NiCr alloy (Inconel)
Venting of the media chambers	Stainless steel 316L
Seals	FPM/FKM
Materials (non-wetted)	
Intermediate flange	■ PN 40 / 100: stainless steel ■ PN 250 / 400 / 650: chromium steel
Flange connecting screws	■ PN 40 / 100: stainless steel ■ PN 250 / 400 / 650: steel, corrosion-protected
Case, movement, bayonet bezel	Stainless steel
Dial	Aluminium, white, black lettering
Pointer	Aluminium, black
Window	■ Laminated safety glass ■ Polycarbonate
Ingress protection per IEC/EN 60529	IP54 Option: IP65 with liquid filling
Installation	According to affixed symbols: ⊕ high pressure, ⊖ low pressure
Mounting	■ Rigid measuring lines ■ Drilled mounting holes at the back of the measuring cell Option: ■ Panel mounting flange ■ Instrument mounting bracket for wall or pipe mounting

1) For customised scale ranges between 0.16 bar [2.3 psi] and 0.25 bar [3.6 psi], this is determined after application-specific testing.
2) For customised scale ranges between 0.25 bar [3.6 psi] and 0.4 bar [5.8 psi], this is determined after application-specific testing.

Other versions

- Wetted parts made of special material (Monel, Hastelloy)
- Oil- and grease-free
- Oil- and grease-free for oxygen
- For hydrogen [1]
- Silicone-free
- Per NACE [2] MR0175 / ISO 15156, use in H_2S-containing environments in oil and gas production
- Per NACE [2] MR0103 / ISO 17945, metals resistant to hydrogen sulphide stress cracking
- With pre-volume deflagration flame arrester [3] for mounting to zone 0 (EPL Ga); model 910.21; see data sheet AC 91.02
- Differential pressure gauge, high overload safety up to 650 bar; models 73x.14 and 76x.14; see data sheet PM 07.13
- Differential pressure gauge with switch contacts, high overload safety; model DPGS43HP: see data sheet PV 27.13

1) Only with gold-plated diaphragm element and application-specific testing
2) General information about NACE standards; see data sheet IN 00.21
3) Only for instruments with Ex approval

Models DPGT43HP.100 and DPGT23HP.160	
Output signal	Variant 1: 4 … 20 mA, 2-wire, passive, per NAMUR NE 43 Variant 2: 4 ... 20 mA, 2-wire, for hazardous areas Variant 3: 0 ... 20 mA, 3-wire Variant 4: 0 ... 10 V, 3-wire
Auxiliary power U_B	DC 12 V < U_B ≤ 30 V (variant 1 and 3) DC 14 V < U_B ≤ 30 V (variant 2) DC 15 V < U_B ≤ 30 V (variant 4)
Influence of auxiliary power	≤ 0.1 % of full scale/10 V
Permissible residual ripple of U_B	≤ 10 % ss
Permissible max. load R_A	Variant 1, 2, 3: R_A ≤ (U_B - 12 V)/0.02 A with R_A in Ω and U_B in V, however max. 600 Ω Variant 4: R_A = 100 kΩ
Influence of load (variant 1, 2, 3)	≤ 0.1 % of full scale
Impedance at voltage output	0.5 Ω
Electrical zero point	Through a jumper across terminals 5 and 6 (see operating instructions)
Long-term stability of electronics	< 0.3 % of full scale per year
Electr. output signal	≤ 1 % of measuring span
Linear error	≤ 1 % of measuring span (terminal method)
Resolution	0.13 % of full scale (10 bit resolution at 360°)
Refresh rate (measuring interval)	600 ms
Electrical connection	Cable socket PA 6, black Per VDE 0110 insulation group C/250 V Cable gland M20 x 1.5 Strain relief 6 screw terminals + PE for conductor cross-section 2.5 mm²
Assignment of connection terminals, 2-wire (variant 1 and 2) For assignment of connection terminals for 3-wire (variant 3 and 4), see operating instructions	 Terminals 3 and 4: for internal use only Terminals 5 and 6: reset zero point

Safety-related maximum values (variant 2)

Ui	Ii	Pi	Ci	Li
DC 30 V	100 mA	720 mW	11 nF	Negligible

Permissible temperature ranges (variant 2)

T6	T5	T4 ... T1
-20 ... +45 °C	-20 ... +60 °C	-20 ... +70 °C

T85°C	T100°C	T135°C
-20 ... +45 °C	-20 ... +60 °C	-20 ... +70 °C

For further information on hazardous areas, see operating instructions.

Approvals

Logo	Description	Region
CE	**EU declaration of conformity**	European Union
	EMC Directive	
	Pressure Equipment Directive PS > 200 bar, module A, pressure accessory	
	RoHS directive	

Optional approvals

Logo	Description	Region
CE Ex	**EU declaration of conformity**	European Union
	ATEX directive Hazardous areas - Ex ia Gas [II 2G Ex ia IIC T6/T5/T4 Gb] Dust [II 2D Ex ia IIIB T85°C/T100°C/T135°C Db]	
IEC IECEx	**IECEx** Hazardous areas - Ex ia Gas [Ex ia IIC T6/T5/T4 Gb] Dust [Ex ia IIIB T85°C/T100°C/T135°C Db]	International
EAC	**EAC**	Eurasian Economic Community
	EMC Directive	
	Low Voltage Directive	
	Ex Ukraine Hazardous areas	Ukraine
Ex NEPSI	**NEPSI** Hazardous areas	China
	PAC Kazakhstan Metrology, measurement technology	Kazakhstan
	PAC Ukraine Metrology, measurement technology	Ukraine
	PAC Uzbekistan Metrology, measurement technology	Uzbekistan
-	**PAC China** Metrology, measurement technology	China
-	**CRN** Safety (e.g. electr. safety, overpressure, ...)	Canada

Certificates (option)

Certificates	
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. material proof for wetted metal parts, indication accuracy)
Recommended calibration interval	1 year (dependent on conditions of use)

→ For approvals and certificates, see website

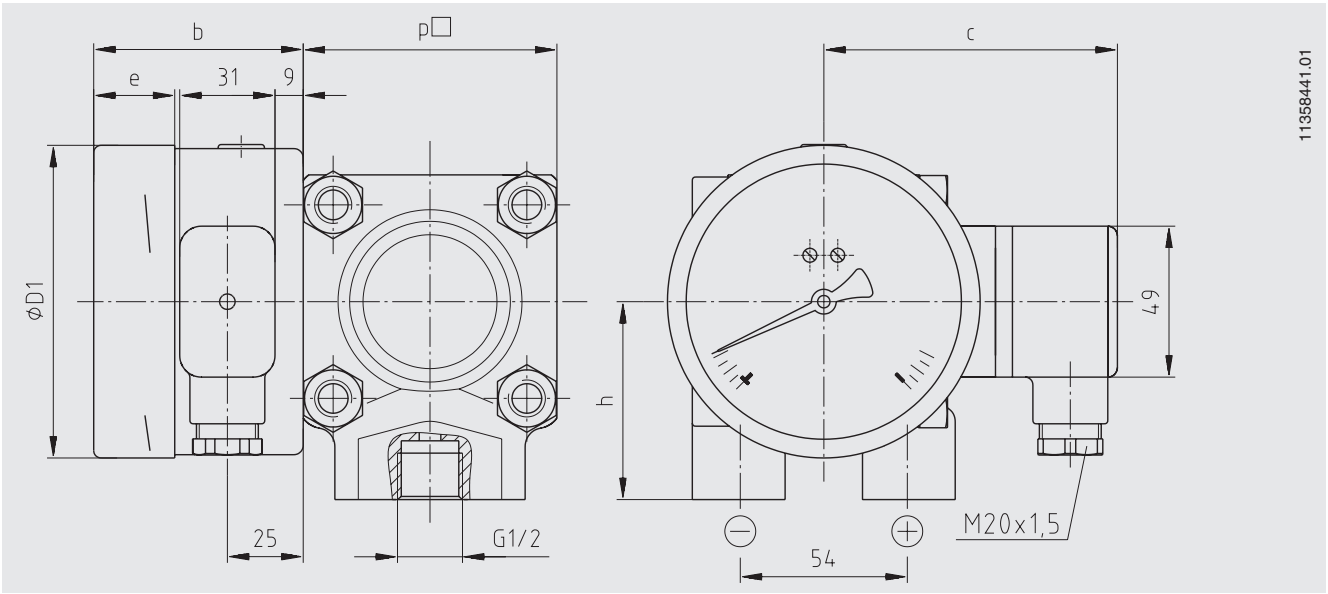
Patents, property rights

Patent number	Description
DE 202007019025, US 2010045366, CN 101438333	Pointer measuring instrument with output signal 4 ... 20 mA
US Design D1051747S, CPC CN 01677074, DE Design 402022100171, EU Design 402022100171, IR Design DM/222416, EU 3D trademark 018659564	WIKA blue identity design patent

The WIKA blue identity design is protected in various countries under various rights.

Dimensions in mm

intelliGAUGE® models DPGT43HP.100 and DPGT43HP.160



NS	Scale range [1]	Dimensions in mm					Weight in kg [2]		
		b	D1	h ±1	p□ PN 40 ... 250	p□ PN 400, 650	PN 40, 100	PN 250	PN 400, 650
100	≤ 0.25 bar [3.63 psi]	58.5	101	86	140	-	12.1	13.1	-
	≥ 0.4 bar [5.8 psi]	58.5	101	64	82	86	3.6	3.9	4.5
160	≤ 0.25 bar [3.63 psi]	65.5	161	86	140	-	12.5	13.5	-
	≥ 0.4 bar [5.8 psi]	65.5	161	64	82	86	4.0	4.3	4.9

1) The dimensions of customised scale ranges between 0.25 bar [3.63 psi] and 0.4 bar [5.8 psi] are determined after application-specific testing.
2) For instruments without case filling

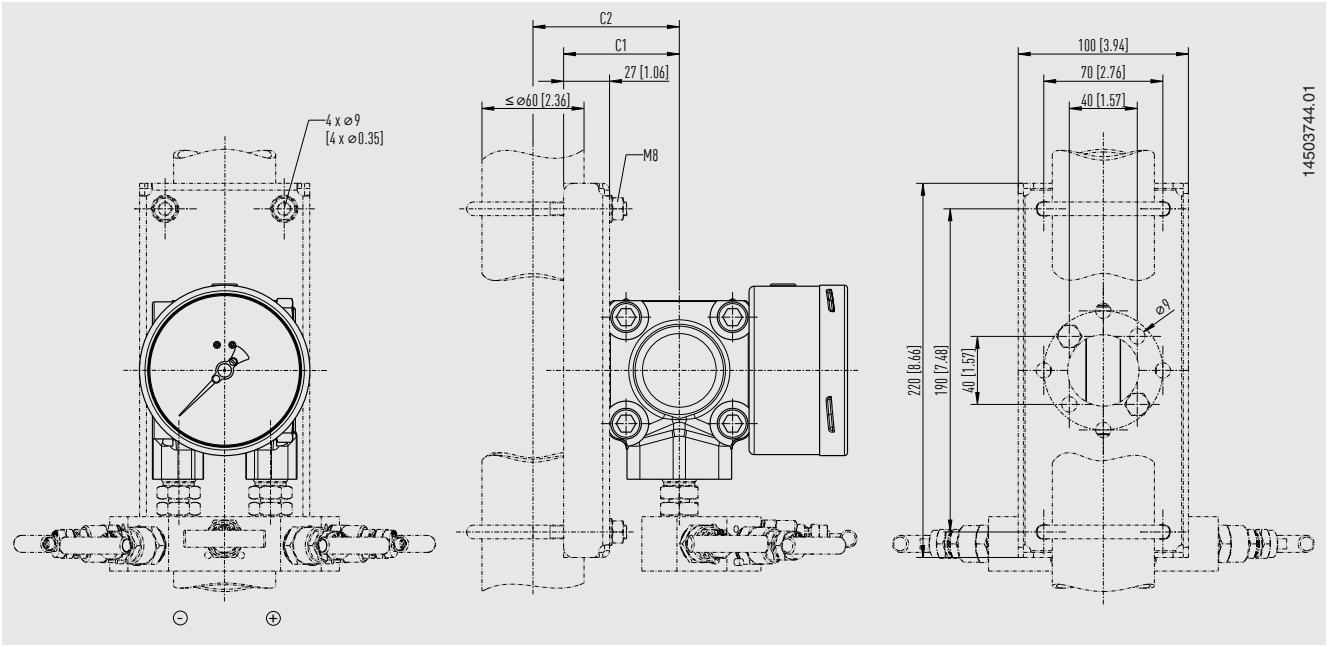
Accessories and spare parts

Model		Description	Order number
	**910.33**	Adhesive label set for red and green circular arcs → See data sheet AC 08.03	-
		NS 100 [4"]	14238945
		NS 160 [6"]	14228352
	**910.17**	Seals → See data sheet AC 09.08	On request
	**910.13**	Overpressure protector → See data sheet AC 09.04	On request
	**IV315**	3-valve manifold Process connection / Instrument connection: 2 x G ½, male thread / 2 x G ½, male nut	81640945
		3-valve manifold Process connection / Instrument connection: 2 x ½ NPT, male thread / 2 x G ½, male nut	36709683
	**IV515**	5-valve manifold Process connection / instrument connection / Vent connection: 2 x G ½, male thread / 2 x G ½, male nut / 2 x G ¼, female thread	83141757
		5-valve manifold Process connection / instrument connection / Vent connection: 2 x ½ NPT, male thread / 2 x G ½, male nut / 2 x G ¼, female thread	84050640
		Other valve manifolds for differential pressure measuring instruments → See data sheet AC 09.23	On request
	-	Instrument mounting bracket for wall or pipe mounting Steel, silver painted	2393340
		Instrument mounting bracket for wall or pipe mounting Stainless steel	2094941

Accessories

Dimensions in mm [in]

Representation with mounting bracket for wall or pipe mounting and fitted 5-valve manifold



Pressure ratings PN 40 ... PN 100

NS	Scale range [1]	Dimensions in mm [in]	
		C1	C2
100 [4"]	≤ 0.16 bar [2.3 psi]	97 [3.82]	115 [4.53]
	≥ 0.25 bar [3.6 psi]	68 [2.68]	86 [3.39]
160 [6"]	≤ 0.16 bar [2.3 psi]	97 [3.82]	115 [4.53]
	≥ 0.25 bar [3.6 psi]	68 [2.68]	86 [3.39]

1) The dimensions of customised scale ranges between 0.16 bar [2.3 psi] and 0.25 bar [3.6 psi] are determined after application-specific testing.

Pressure rating PN 250

NS	Scale range [1]	Dimensions in mm [in]	
		C1	C2
100 [4"]	≤ 0.25 bar [3.6 psi]	97 [3.82]	115 [4.53]
	≥ 0.4 bar [5.8 psi]	68 [2.68]	86 [3.39]
160 [6"]	≤ 0.25 bar [3.6 psi]	97 [3.82]	115 [4.53]
	≥ 0.4 bar [5.8 psi]	68 [2.68]	86 [3.39]

1) The dimensions of customised scale ranges between 0.25 bar [3.6 psi] and 0.4 bar [5.8 psi] are determined after application-specific testing.

Pressure ratings PN 400 ... PN 650

NS	Dimensions in mm [in]	
	C1	C2
100 [4"]	70 [2.76]	88 [3.46]
160 [6"]	70 [2.76]	88 [3.46]

Ordering information

Model / Nominal size / Scale range / Output signal / Connection location / Process connection / Scale layout (linear pressure or square root incrementation) / Max. operating pressure (static pressure) / Options

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