

Bourdon tube pressure gauge with electrical output signal Stainless steel, safety version Model PGT23.063 UHP, for ultrapure gas applications

WIKA data sheet PV 12.05



intelliGAUGE®

Applications

- Acquisition and display of process values
- Suitable for all UHP (Ultra High Purity) applications
- Transmission of process values to the control room, 4 ... 20 mA
- Semiconductor and flat panel industries, gas distribution systems, medical gases.
- Safety-related applications

Special features

- "Plug and play" with no configuration necessary
- VCR® compatible face seal fittings
- Helium leak tested
- Process connection surface finish $Ra \leq 0.5 \mu m$
- Safety pressure gauge S3 per EN 837-1



intelliGAUGE model PGT23.063 UHP

Description

At any point where the process pressure has to be indicated locally with limited space available, and, at the same time, a signal is wanted to be transmitted to a central controller or remote control room, the model PGT23.063 UHP intelliGAUGE (patent applied for, among others European Patent No. EP 06113003) can be used.

Through the combination of a mechanical measuring system and precise electronic signal processing, the process pressure can be read securely, even if the power supply is lost.

The intelliGAUGE model PGT23.063 UHP fulfils all safety-related requirements of the relevant standards and regulations for the on-site display of the operating pressure of pressure vessels. An additional measuring point for mechanical pressure indication can thus be saved.

The model PGT23.063 is based upon a model 232.30 high-quality, stainless steel safety pressure gauge with a

nominal size of 63. The pressure gauge is manufactured in accordance with EN 837-1.

The all welded, robust bourdon tube 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, 4 ... 20 mA, is produced.

The electronic WIKA transmitter, integrated into the high-quality mechanical pressure gauge, combines the advantages of electrical signal transmission with the advantages of a local mechanical display.

The measuring span (electrical output signal) is set automatically along with the mechanical display, i.e. the scale over the full display range corresponds to 4 ... 20 mA.

Standard version

Nominal size in mm

63

Accuracy class

1.6

Scale ranges

0 ... 1 to 0 ... 400 bar

or all other equivalent vacuum or combined pressure and vacuum ranges

Process connection

Stainless steel 316L,

lower mount (LM)

VCR® compatible face seal fitting optionally:

With union nut,

with male nut

or with male thread 9/16-18 UNF fixed

Male thread ¼ NPT

Pressure element

Stainless steel 316L

< 100 bar: C-type

≥ 100 bar: Helical type

Measuring system in crevice free design,

jet-finished and passivated after welding

Ra < 0.5 µm (Ra < 20 µinch)

Leak tightness: Leak rate ≤ 10⁻⁹ mbar · l / s

Test method: Helium mass spectrometry

Movement

Brass

Dial

Aluminium, white, black lettering

Pointer

Aluminium, black

Case

Stainless steel, with solid baffle wall (Solidfront) and blow-out back, electropolished,

Scale ranges ≤ 0 ... 16 bar with compensating valve to vent case, ingress protection IP 54

Window

Polycarbonate

Bezel ring

Cam ring (bayonet type), stainless steel, electropolished

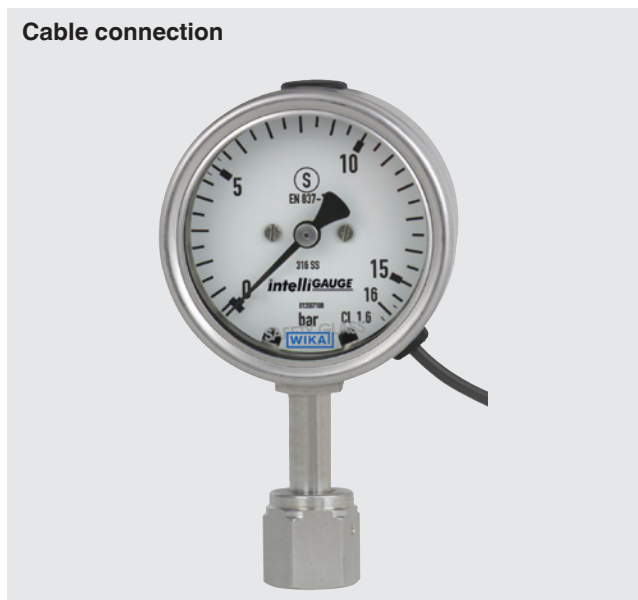
Connection

Free cable, length 2 m

Options

- Other process connection
- Smaller process connection surface finish Ra ≤ 0.25 µm
- Dual scale
- Inverted electrical output signal
- Electrical connection via miniature connector M8 x 1, 4-pin
- Panel mounting flange, polished stainless steel
- Surface mounting lugs on the back, stainless steel
- Window made of laminated safety glass
- Gost standard approval

Cable connection

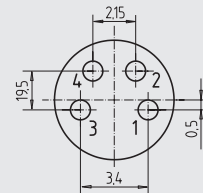


Specifications

intelliGAUGE model PGT23.063 UHP

Electrical data

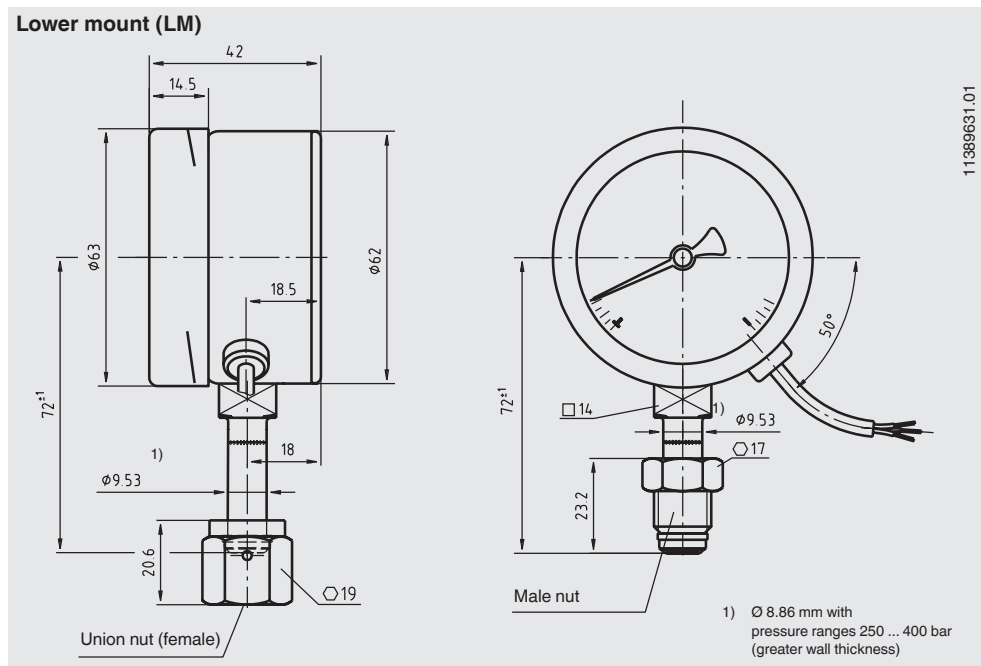
Power supply U_B	DC V	$12 < U_B \leq 30$															
Influence of power supply	% FS/10 V	< 0.1															
Permissible residual ripple	% ss	< 10															
Output signal		4 ... 20 mA, 2-wire															
Permissible max. load R_A		$R_A \leq (U_B - 12 \text{ V})/0.02 \text{ A}$ with R_A in Ohm and U_B in Volt, however max. 600 Ω															
Effect of load	% FS	≤ 0.1															
Accuracy																	
■ Long-term stability of electronics	% FS/a	< 0.5															
■ Electr. output signal		≤ 1.6 % of the measuring span															
Linearity	% of span	≤ 1.6 % (terminal method) ¹⁾															
Electrical connection		Free cable or optionally miniature connector M8 x 1, 4-pin															
Wiring protection		IP 54 per EN 60529 / IEC 529 (with connection via miniature connector M8 x 1, 4-pin: IP 65)															
Cable assignment		<table border="1"> <thead> <tr> <th>Cable</th> <th>Connector</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>red</td> <td>Pin 1</td> <td>UB+/Sig +</td> </tr> <tr> <td>black</td> <td>Pin 4</td> <td>0 V/Sig -</td> </tr> <tr> <td>brown</td> <td>Pin 2</td> <td>n.c.</td> </tr> <tr> <td>- - -</td> <td>Pin 3</td> <td>n.c.</td> </tr> </tbody> </table>	Cable	Connector	Meaning	red	Pin 1	UB+/Sig +	black	Pin 4	0 V/Sig -	brown	Pin 2	n.c.	- - -	Pin 3	n.c.
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red	Pin 1	UB+/Sig +															
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brown	Pin 2	n.c.															
- - -	Pin 3	n.c.															



Mechanical data

Mechanical design		Safety pressure gauge S3 with solid baffle wall per EN 837-1
Display		Nominal size 63
Measuring ranges	bar	0 ... 1 bar to 0 ... 400 bar; -1 ... 0; -1 ... +25 (others as options)
Process connection		VCR® compatible face seal fittings optionally: With union nut, with male nut or with male thread 9/16-18 UNF fixed, male thread 1/4 NPT (others as options)
Pressure limitation		
■ Steady		3/4 x full scale value
■ Fluctuating		2/3 x full scale value
■ Short time		Full scale value
		The recommendations for the use of mechanical pressure measuring systems in accordance with EN 837-1 must be observed
Accuracy		
■ Mechanical display		≤ 1.6 % of measuring span (class 1.6 per EN 837-1) ¹⁾
Permissible temperature range		
■ Medium	°C	-40... +100
■ Ambient	°C	-40 ... +80 (with window in laminated safety glass max. 60 °C)
Temperature effect	%/10 K	max. ± 0.4 of full scale value (when the temperature deviates from 20 °C reference temperature)
Case ingress protection		IP 54

1) For technical reasons, up to the first scale marking, the measured value can lie outside of the class accuracy

Dimensions in mm**Standard version****CE conformity****Pressure equipment directive**

97/23/EC, PS > 200 bar, module A, pressure accessory

EMC directive

2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application)

Ordering information

Model / Scale range / Connection size / Connection location / Output signal / Options

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