

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

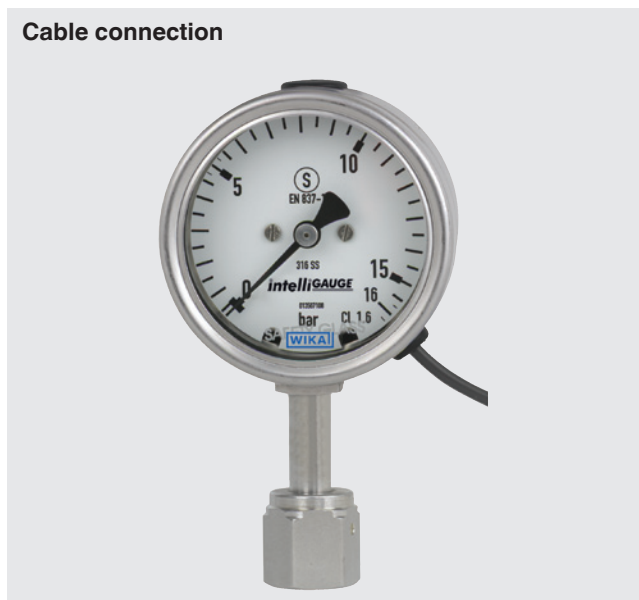
Connection

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

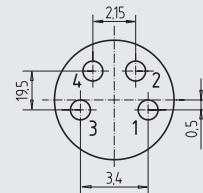


Specifications

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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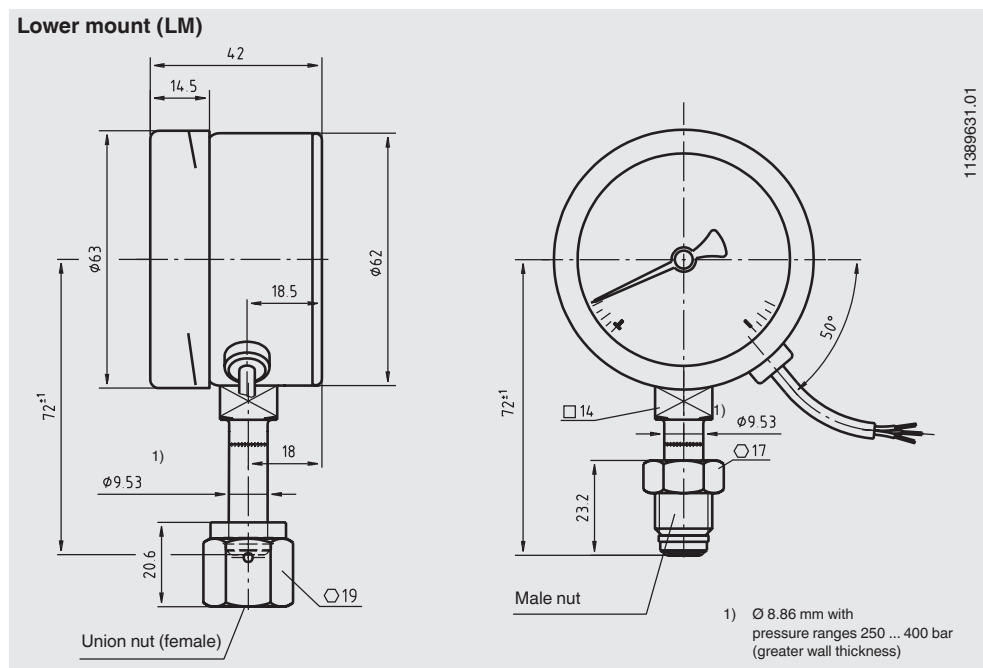
Mechanical data

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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