

Ultra High Purity Pressure Switch Model WUS-10, Single End

WIKA Data Sheet PE 87.04

Applications

- Semiconductor and flat panel industry
- Microelectronics engineering
- Gas distribution systems
(Gas panels, bulk-gas supply)
- Ultra high purity water supply

Special Features

- Thin-film sensor
- Excellent long-term stability
- Fast switch time
- No span adjustment required
- Ingress protection IP 65

Description

Quick and precise

Quick response time and high precision are the features of the redeveloped intelligent pressure switch series WUS-1X. Up to two switching outputs (NPN open collector), which are absolutely independent of each other, may be digitally configured with its high-class microprocessor. Moreover, the switching characteristics (normally open / normally closed functionality) within the switching hysteresis is explicitly definable; an extremely important feature of pressure switches in measuring and control engineering. The user is thus provided with a precise instrument with excellent switching functionality.

Stable switching point

In order to enable stable switching characteristics of pressure switches, it is possible to program an individually varying hysteresis span. For pressure switches of the WUS-1X series it is recommended to set a hysteresis of 1%.

Reliable

Thin-film sensors produced by WIKA have ensured high accuracy, long-term stability and repeatability in industrial pressure measurement instrumentation for decades.



Fig. Pressure Switch WUS-10

Special thin-film sensors made of Elgiloy® have been developed in order to meet the particular requirements of the ultra pure media industry.

By hermetically welding the thin-film sensor, a total separation of medium has been reached, as well as a long-term high impermeability which is required by the user.

Versatile

The modular design makes it possible to configure a high number of variants in order to comply with the manifold requirements of UHP applications. All wetted parts are electropolished using state-of-the art equipment prior to the final assembly.

The integrated potentiometer enables adjustment of the zero point up to 5% of the full scale value. No adjustment of the span is required.

The high ingress protection (NEMA-4) allows operation even under the most difficult conditions.

Specifications

Model WUS-10

Pressure ranges	bar	4	7	10	16	25	40	60	100	160	250	400
	psi	60	100	160	250	300	500	1000	1500	2000	3000	5000
Over pressure safety ¹⁾	bar	8	14	20	32	50	80	120	200	320	500	500
Burst pressure ¹⁾	bar	40	70	100	160	250	400	550	720	720	720	720
		Other pressure ranges and pressure units (e.g. MPa, kg/cm ²) on request										
Measuring principle		Thin-film sensor										
Materials												
■ Wetted parts		Elgiloy® (Sensor); 316L VIM/VAR (Pressure connection)										
■ Case		Stainless steel										
Surface finish		Electropolished, typical Ra ≤ 0.18 µm (RA 7); max. ≤ Ra 0.25 µm (RA 10)										
Dead volume	mm ³	< 1500										
Permissible Medium		Liquid / Gas / Vapour										
Power supply U _B	V DC	10 < U _B ≤ 30										
Switch points												
■ Number		2										
■ Function		Normally open / Normally closed (NPN open collector)										
■ Accuracy ^{*)}	% of span	≤ 0.5 (≤ 0.25 BFSL) for pressure ranges ≥ 0 bar										
	% of span	≤ 1.5 (≤ 0.75 BFSL) for pressure ranges ≤ 0 bar (Vacuum)										
■ Max. switching current	mA	300 (None-inductive); not protected against short circuit										
■ Response time (switch time)	ms	< 10										
■ Adjustment (switch points)	% of span	1 ... 99										
■ Switch hysteresis ^{2)/3)}	% of span	0.5 ... 5 (if not specified, the hysteresis is 1 % of span)										
Boot Time	s	1										
Linearity	% of span	≤ 0.2 (**)										
Hysteresis	% of span	≤ 0.03										
Reproduceability	% of span	≤ 0.15										
Repeatability	% of span	≤ 0.05										
1-year stability	% of span	≤ 0.2 (at reference conditions)										
Influence of the power supply	VDC	< 0.1 % / 10 K										
Permissible temperature range												
■ Medium	°C	-40 ... +100										
■ Ambient	°C	-20 ... +85										
■ Storage	°C	-40 ... +100										
■ Compensated	°C	-20 ... +80										
Temperature coefficients in compensated temperature range:												
■ mean TC of zero	% of span	≤ 0.3 / 10 K										
■ mean TC of range	% of span	≤ 0.15 / 10 K										
CE -conformity		Interference emission and compatibility see EN 61 326										
Shock resistance	g	500 according to IEC 770 (mechanical shock)										
Vibration resistance	g	10 according to IEC 770 (vibration under resonance)										
Wiring protection		Protected against polarity crossing										
Ingress protection												
IEC 60529 / EN 60529		IP 65 (NEMA 4)										
Weight	kg	Approx. 0.1										

1) 1 bar = 14.50 psi

2) Ex factory calibrated

3) If the pressure of the pressure switch should lie within the switch hysteresis during first power up or after power loss, a definite on/off-state can be defined.

This definite on/off-state should be specified by the placement of the order.

*) Calibrated in vertical mounting position (Accuracy ≤ 1 % (≤ 0.5 % BFSL) of span with pressure range 0 ... 4 bar or -1 ... 3 bar)

***)Linearity ≤ 0.4 % of span with pressure range 0 ... 4 bar or -1 ... 3 bar.

Dimensions in inch [mm]

Circular connector
M12x1, 4-pin
Code: M4

1/4" Swivel Female
Face Seal,
Code: WI

Variants electrical connection

Flying leads
Code: DI

MIL-connector
Code: O4

Process connection variants

1/4" Weld stub
Code: VN

1/4" Swivel Male Face Seal,
Code: WH

1/4" T-Connector, weld stub,
Code: WI

Wiring details

Circular conector M12x1,
4-pin

Flying leads

MIL-connector,
4-polig

Order-Code for Typ WUS-10

Further UHP-Pressure Switches

Field No.	Code	Features
		Pressure range
	BCH	-1 bar ... 3 bar
	BCT	-1 bar ... 6 bar
	BCL	-1 bar ... 9 bar
	BCP	-1 bar ... 15 bar
	BCQ	-1 bar ... 25 bar
	BCX	-1 bar ... 40 bar
	BCY	-1 bar ... 60 bar
	BC1	-1 bar ... 100 bar
	BC2	-1 bar ... 160 bar
	BC3	-1 bar ... 250 bar
	BBG	0 bar ... 4 bar
	BEF	0 bar ... 7 bar
	BBI	0 bar ... 10 bar
	BBK	0 bar ... 16 bar
	BBL	0 bar ... 25 bar
	BBM	0 bar ... 40 bar
	BBN	0 bar ... 60 bar
	BBO	0 bar ... 100 bar
	BBP	0 bar ... 160 bar
	BBQ	0 bar ... 250 bar
	BBS	0 bar ... 400 bar
	PCE	-30 inHg ... 45 psi
	PCF	-30 inHg ... 60 psi
	PCH	-30 inHg ... 100 psi
	PCK	-30 inHg ... 160 psi
	PCI	-30 inHg ... 250 psi
	PCM	-30 inHg ... 300 psi
	PCX	-30 inHg ... 500 psi
	PBE	0 psi ... 60 psi
	PBF	0 psi ... 100 psi
	PBG	0 psi ... 160 psi
	PDG	0 psi ... 250 psi
	PBI	0 psi ... 300 psi
	PDI	0 psi ... 500 psi
	PBN	0 psi ... 1000 psi
	PBO	0 psi ... 1500 psi
	PBP	0 psi ... 2000 psi
	PBQ	0 psi ... 3000 psi
	PBS	0 psi ... 5000 psi
1	<input type="text"/>	?? other
		Process connection
	VN	1/4" Weld Stub
	WH	1/4" Swivel Male Face Seal
	WI	1/4" Swivel Female Face Seal
	WT	T-connector
2	<input type="text"/>	?? other
		Electrical connection
	M4	4-pin locking plug M12x1
	DI	flying lead, IP 65
	O4	4-pin MIL-plug
3	<input type="text"/>	?? other
		Cable length
	Z	without <i>always choose if plug version</i>
	C	1.5 m
	E	3 m
4	<input type="text"/>	? other

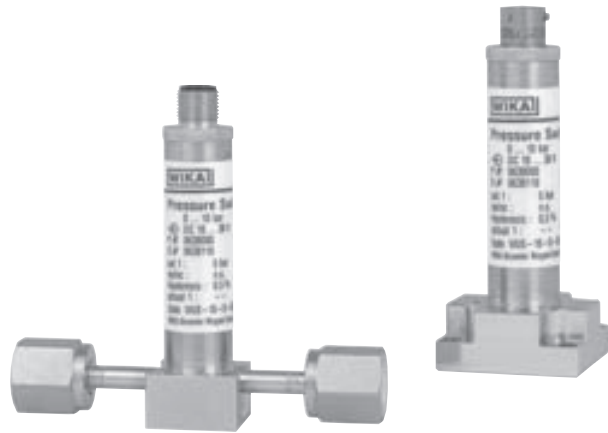


Fig. left Pressure Switch WUS-15
Fig. right Pressure Switch WUS-16

Order code:

WUS-10 - D - - - 7 B G Z

Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.



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