

# Electronic Pressure Switch Model PSA-21, sterile aseptic

WIKA Data Sheet PE 81.84



## Applications

- Food and beverage industry
- Pharmaceutical industry
- Biotechnology industry
- Sterile process technology

## Special Features

- 1 or 2 fully programmable switching points
- Wetted parts and case made of stainless steel
- Flush diaphragm with a surface roughness of  $Ra < 0,4 \mu m$
- Aseptic process connections
- Pressure transmitting fluid listed by FDA



Pressure Switch PSA-21 with Clamp and L-Connector

## Description

The PSA-21 pressure switch has been specially designed to meet the requirements of the food, beverage, pharmaceutical and biotechnology industries.

This pressure switch is particularly suited to the conditions of CIP/SIP cleaning processes.

The flush, all-metal diaphragm is directly welded to the process connection to ensure a crevice free seal between the process connection and the measuring diaphragm.

This eliminates the need for additional sealing gaskets or metal sealing cones, and ensures there are no dead spaces caused by these instruments.

A range of aseptic process connections (Clamp, threaded or VARIVENT®) are available.

The pressure switches have up to two fully programmable switching points available, and are powered by a supply of 10 ... 30V DC.

### Factory programming

Since the switches are designed so that they cannot be altered by unauthorised people, the switching parameters (e.g. closing or opening switching point and switching hysteresis) are normally configured in the factory to customer specifications

### Programming on site via PC

If required, the user can adjust the switching parameters via the optionally available programming module. This module comes complete with connecting cable for the pressure switch, an RS 232 cable to the PC and our Easy Switch software. The parameters can then be easily set via the PC under Windows within a few seconds.

## Specifications

## Model PSA-21

Pressure ranges	bar	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Over pressure safety	bar	2	2	4	5	10	10	17	35	35	80	50
Burst pressure	bar	2.4	2.4	4.8	6	12	12	20.5	42	42	96	96
{Vacuum, gauge pressure, compound range, absolute pressure are available}												
Process connection		Tri-Clamp 1 ½", 2" Clamp DIN 32 676 DN 32, 40, 50 Clamp ISO 2852 DN 33,7, 38, 40, 51 Female union nut DIN 11 851 DN 25, 40, 50 Female union nut DIN 11 864-1 DN 40, 50 VARIVENT® form F, N										
Material												
■ wetted parts		Stainless steel 1.4435										
■ case		Stainless steel 1.4571										
Internal transmission fluid		KN 77, FDA approval										
Power supply U <sub>B</sub>	DC V	10 (12) < U <sub>B</sub> ≤ 30 (using the programming module)										
Type of switch		A	B	C	D	E	F					
Number of switch outputs		1	1	2	2	2	1					
Switching current (max. DC 30 V)	DC A	4	0.3	2	0.3	0.3	0.3					
Mode of connection		PNP	NPN	PNP/PNP	NPN/NPN	PNP/NPN	potentialfree	(Opto-Relay)				
Switch												
■ Function		NC or NO										
■ Adjustment of switching points	% of span	0 ... 100										
■ Switching hysteresis	% of span	1 ... 99										
■ Switching window	% of span	0 ... 100										
■ Default values	low / high	Are set 20 ms after the instrument has been switched on at the latest <sup>1)</sup>										
■ Damping	ms	0 ... 500										
■ Manufacturer's settings		When selected via the software the manufacturer's values are activated										
■ Switching time	ms	≤ 6 for switch type A and C										
	ms	≤ 10 for switch type B, D, E and F										
Adjustment accuracy of switch points	% of span	≤ 1.0 (limit point calibration)										
	% of span	≤ 0.5 (BFSL)										
Repeatability	% of span	≤ 0.25										
1-year stability	% of span	≤ 0.2 (at reference conditions)										
Permissible temperature ranges												
■ Medium	°C	-20 ... +150										
■ Ambient	°C	-20 ... + 80										
■ Storage	°C	-40 ... +100										
Compensated temperature range	°C	0 ... + 80										
Temperature coefficients in compensated temperature range												
■ Mean TC of zero	% of span /10K	≤ 0.2 (≤ 0.25 with pressure range 0 ... 0.4 bar, ≤ 0.4 with pressure range 0 ... 0.25 bar)										
■ Mean TC of span	% of span /10K	≤ 0.2										
- Conformity		89/336/EWG interference emission and immunity see EN 61 326 97/23/EG pressure equipment directive										
Shock resistance	g	500 according to IEC 60068-2-27 (mechanical shock)										
Vibration resistance	g	15 according to IEC 60068-2-6 (vibration under resonance)										
Wiring protection		Supply circuit protection against reverse polarity; overvoltage protection; short circuit protection for model A and C										
Ingress protection		Per IEC 60 529 / EN 60 529, see page 3										
Weight	kg	Approx. 0.5										

1) This guarantees a clear definition of the switching state, when the instrument is switching on within the hysteresis pressure range.

{ } Items in curved brackets are optional extras for additional price.

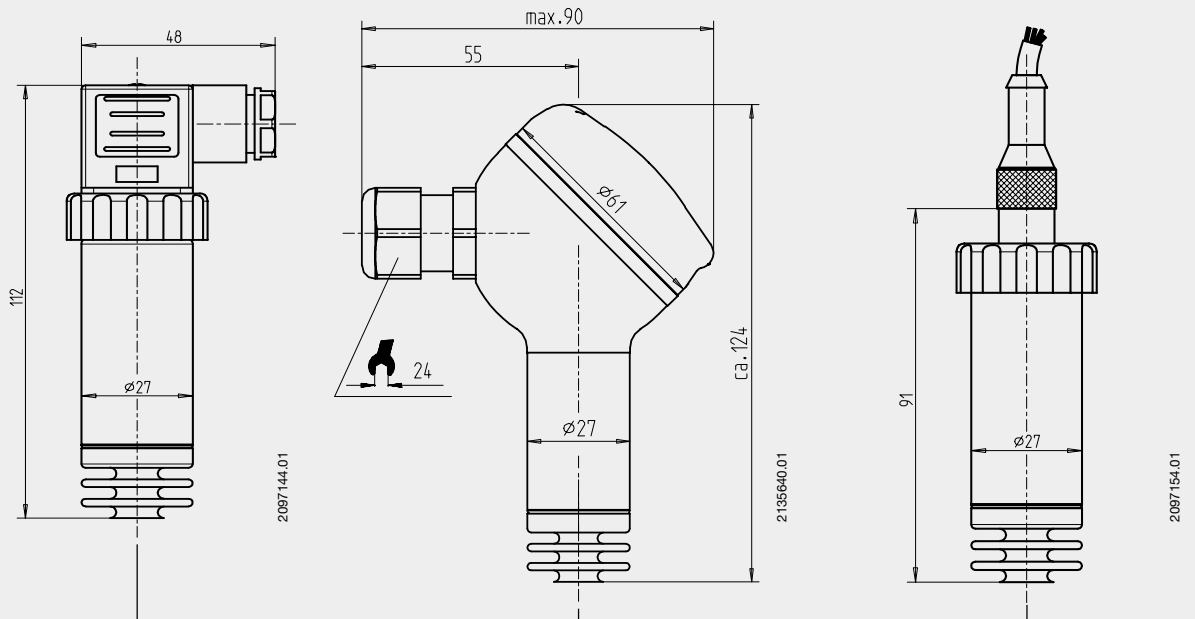
## Dimensions in mm

### Electrical connections

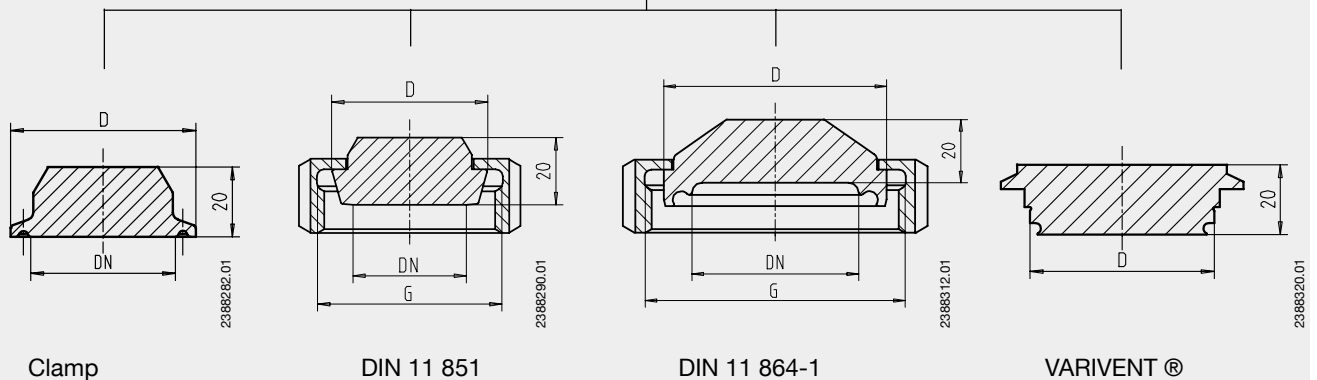
L-connector, 4-pin,  
DIN 43 650,  
IP 65

Field case  
IP 68

Circular connector, 4-pin,  
M 12x1, IP 67

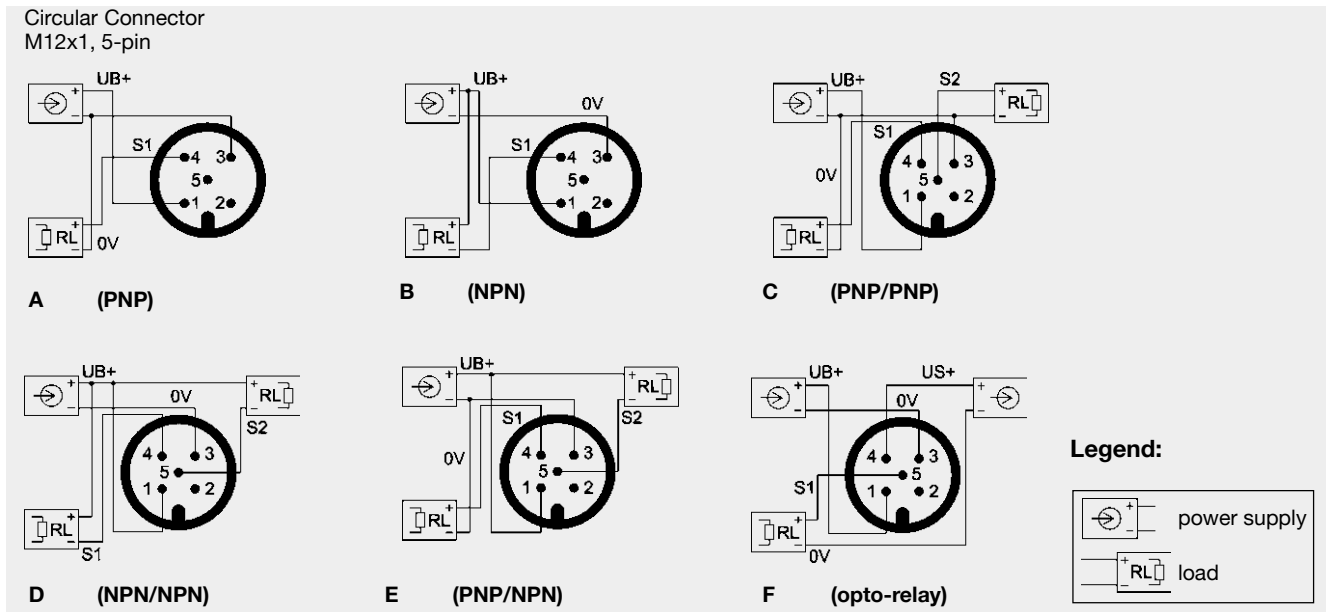


### Process connections



Process connection		Nominal size DN in mm / in.	Dimensions in mm	
			D	G
Clamp	Tri-Clamp	1 1/2 "	50	
		2 "	64	
	DIN 32 676	DN 32	50	
		DN 40	50	
		DN 50	64	
	ISO 2852	DN 33.7	50	
		DN 38	50	
DN 40		64		
DN 51		64		
Female union nut DIN 11 851		DN 25	44	Rd 52 x 1/6
with conical coupling, for pipes acc. to DIN 11 850		DN 40	56	Rd 65 x 1/6
		DN 50	68.5	Rd 78 x 1/6
		DN 40	54.9	Rd 65 x 1/6
Female union nut DIN 11 864-1		DN 50	66.9	Rd 78 x 1/6
VARIVENT®	form F	DN 25/32	50	
	form N	DN 40/50	68	

# Electrical connections



Configuration	L-connector	Field case	Circular Connector M 12 x 1
Power supply ( $U_{B+}$ )	1	1	1
0 V	2	3	3
Switch 1 (S 1)	3	4	4
Switch 2 (S 2)	-	2	5

## Manufacturer's settings:

Manufacturer's settings of the switching outputs for each switch, when not specified by the customer and when the programming module is included in the order:

Switch 1 (S1):	Opening	
	Switching point 1:	40% of span
	Switching point 2:	60% of span
	Damping:	0 ms
	Default settings SO1:	
	Type 0 =	closed
	Type 1 =	open
	Type 2 =	closed
	Type 3 =	open
Switch 2 (S2):	Closing	
	Switching point 1:	40% of span
	Switching point 2:	60% of span
	Damping:	0 ms
	Default settings SO1:	
	Type 0 =	closed
	Type 1 =	open
	Type 2 =	closed
	Type 3 =	open

## Order details:

When ordering pressure switches with customer-specific programming, please send us the following information.

<b>Switch S1</b>		
Switching hysteresis		or Switching window
	0 = opening	
	1 = closing	
Pressure value for lower switching point SP1		→ <input type="text"/>
Pressure value for higher switching point SP2		→ <input type="text"/>
Default setting after power cut A = open / B = closed		→ <input type="text"/>
Damping value (0 ms / 20 ms / 100 ms / 200 ms / 500 ms)		→ <input type="text"/>
<b>Switch S2 (not available for Type A, B and F)</b>		
Switching hysteresis		or Switching window
	0 = opening	
	1 = closing	
Pressure value for lower switching point SP1		→ <input type="text"/>
Pressure value for higher switching point SP2		→ <input type="text"/>
Default setting after power cut A = open / B = closed		→ <input type="text"/>
Damping value (0 ms / 20 ms / 100 ms / 200 ms / 500 ms)		→ <input type="text"/>

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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