

# Pressure transmitter For sanitary applications Model SA-11

WIKA data sheet PE 81.80



for further approvals  
see page 8

## Applications

- For gases, compressed air, vapour, liquids, pastes and powdery media
- Ultra-pure steam systems for SIP
- Hydrostatic level measurement:
- Vacuum pressure monitoring, e.g. vacuum conveyors, pump monitoring
- Food and beverage manufacturing, pharmaceutical industry, biotechnology, sanitary applications

## Special features

- Wide variety of aseptic process connections, for process temperatures up to 302 °F (150 °C)
- Flush diaphragm with a surface roughness of  $R_a < 0.38 \mu\text{m}$
- Fully welded
- Suitable for SIP and CIP
- Ingress protection up to IP 68

## Description

The model SA-11 pressure transmitter is designed especially for the requirements of the food and beverage, pharmaceutical and biotechnology industries. It is particularly suitable for the special conditions of CIP/SIP cleaning processes, such as chemical stability towards cleaning liquids and high temperatures.

The flush diaphragm is directly welded to the process connection. This guarantees a crevice-free connection of the process connection and the measuring cell so that additional sealings are not required. For dead-space free instrumentation, aseptic process connections (clamp, threaded, VARIVENT® and NEUMO®) are available.

The SA-11 pressure transmitter is ideally suited to fulfil the stringent demands of sanitary applications and is EHEDG certified. Furthermore, the SA-11 is marked with the 3-A symbol and current version number, as it conforms, based on a third party verification, to the 3-A standard.



Pressure transmitter model SA-11 with field case and VARIVENT® connection

## Design

A diaphragm made of 1.4435 stainless steel forms a flush separation of the process medium from the pressure measuring instrument.

The process pressure is transmitted hydrostatically from the diaphragm, via an FDA-approved system fill fluid, to a piezo-resistive sensor.

The measuring range covers 0 ... 5 psi up to 0 ... 300 (0 ... 250 mbar up to 0 ... 25 bar). The SA-11 pressure transmitter is powered with a DC voltage of 10 (14) ... 30 V. Available electronic output signals are 4 ... 20 mA, 0 ... 20 mA or 0 ... 10 V output.

A stainless steel case with an ingress protection of up to IP 68 offers a secure protection for external cleaning with splashed water and enables its use in high-humidity environments. Through the integrated cooling section, process temperatures of up to 302 °F (150 °C) can be realised.

## Specifications

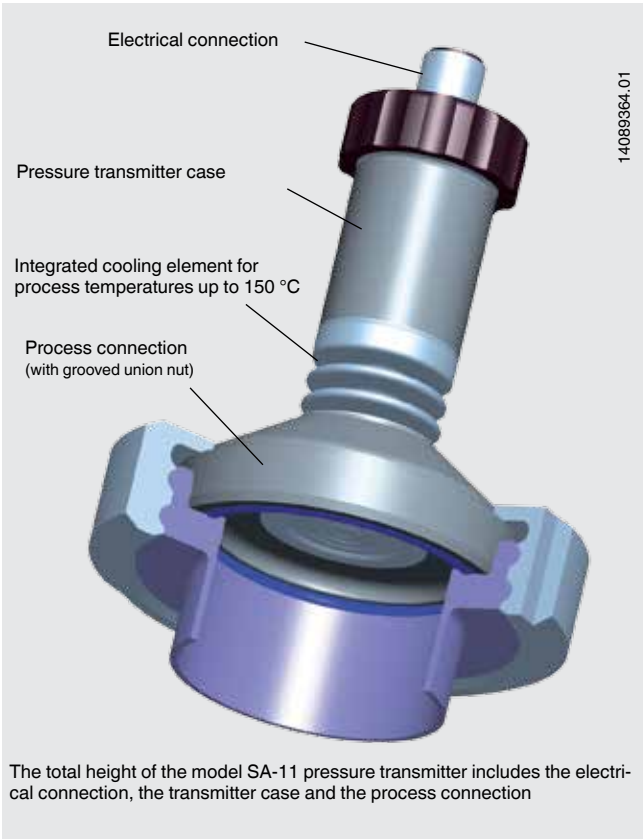
## Model SA-11

Measuring range	bar	0.25	0.4	0.6	1	2.5	4	6	10	16	25
Overpressure limit 1)	bar	2	2	4	5	10	17	35	35	80	80
Burst pressure	bar	2.4	2.4	4.8	6	12	20.5	42	42	96	96
{Vacuum, overpressure, +/-, and absolute pressure (from 1 bar) are available}											
1) The pressure containment of the connection fittings must be considered											
Process connection		see page 4 ff.									
Material											
■ wetted parts		Stainless steel 1.4435									
■ Case		Stainless steel 1.4571									
Pressure transmission medium		Synthetic oil, KN 77, FDA conform, FDA CFR No. 21CFR178.3750 {Neobee ® M-20, KN 59, FDA conform, FDA CFR No. 21CFR174.5}									
Power supply U+	U+ in DC V	10 < U+ ≤ 30 (14 ... 30 for 0 ... 10 V output signal, 11 ... 30 V for field case)									
Output signal and	R <sub>A</sub> in Ohm	4 ... 20 mA, 2-wire    R <sub>A</sub> ≤ (U+ - 10 V) / 0.02 A									
Permissible max. load R <sub>A</sub>		0 ... 20 mA, 3-wire    R <sub>A</sub> ≤ (U+ - 3 V) / 0.02 A									
		{0 ... 10 V, 3-wire}    R <sub>A</sub> > 10 k {other output signals, e.g. CANopen, on request}									
Adjustability of zero point/span	%	±5 through potentiometer within the instrument									
Response time (10 ... 90 %)	ms	≤ 10 ms									
Dielectric strength	DC V	500 2)									
2) NEC class 02 voltage supply (low voltage and low current max. 100 VA even under fault conditions)											
Accuracy 3)	% of span	≤ 0.5 {0.25} (Calibrated in vertical mounting position, process connection downwards)									
3) Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2)											
Non-linearity	% of span	≤ 0.2 (BFSL) per IEC 61298-2									
Non-repeatability	% of span	≤ 0.1									
Stability per year	% of span	≤ 0.2 (at reference conditions)									
Permissible temperature ranges											
■ Medium 4)		-4 ... +302 °F (-20 ... +150 °C)									
■ Ambient 4)		-4 ... 176 °F (-20 ... +80 °C)									
■ Storage 4)		-40 ... 212 °F (-40 ... +100 °C)									
4) Also meets EN 50178, tab. 7, operation (C) 4K4H, storage (D) 1K4, transport (E) 2K3											
Compensated temperature range	°C	0 ... +80									
Temperature coefficients in compensated temperature range											
■ Mean TC of zero point	% of span	≤ 0.2 / 10 K for measuring range 0 ... 0.6 bar to 0 ... 25 bar									
	% of span	≤ 0.25 / 10 K for measuring range 0 ... 0.4 bar									
	% of span	≤ 0.4 / 10 K for measuring range 0 ... 0.25 bar									
■ Mean TC of span	% of span	≤ 0.2 / 10 K									
Shock resistance	g	500 per IEC 60068-2-27 (mechanical shock)									
Vibration resistance	g	15 per IEC 60068-2-6 (vibration under resonance)									
Electrical connection		see page 4									
Wiring protection											
■ Overvoltage protection	DC V	36									
■ Short-circuit resistance		S+ vs. U-									
■ Reverse polarity protection		U+ vs. U-									
■ Ingress protection		In accordance with EN 60529 / IEC 60529, see page 4									
Weight		Approx. 1.1lbs (0.5 kg) (approx. 1.3lbs (0.6 kg) with option of linear error 0.25 % of span)									

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

# Installation example

Pressure transmitter model SA-11 with M12 x 1 circular connector and DIN 11864-1 grooved union nut mounted on a welding socket



# Pressure transmitter model SA-11 and the 4 electrical connection variants



## Dimensions in mm

Ingress protection IP per IEC 60529. The stated ingress protections only apply when connected and when using mating connectors that have the appropriate ingress protection.

### Electrical connections

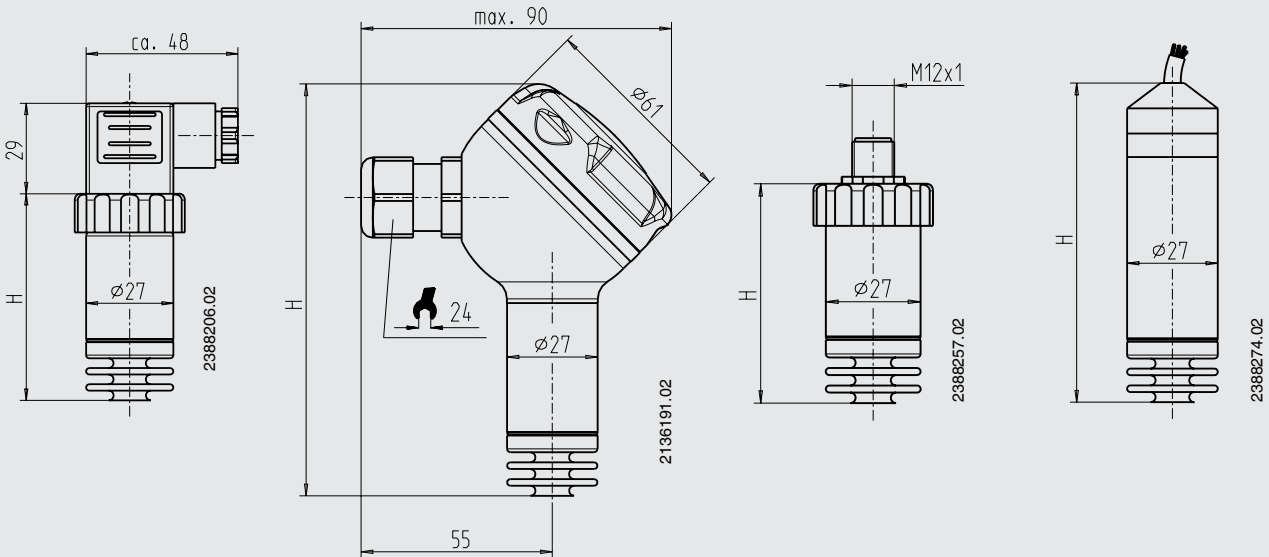
DIN 175301-803 A  
Angular connector  
Conductor cross-section up to max. 1.5 mm<sup>2</sup>,  
Conductor outer diameter 6-8 mm  
IP 65  
Order code: A4

Stainless steel field case  
IP 67  
Compression fitting, nickel-plated copper alloy  
Order code: FH  
Option: field case with conduit connection

M12 x 1  
Circular connector  
4-pin  
IP 67  
Order code: M4

Mating connectors are not included in the delivery

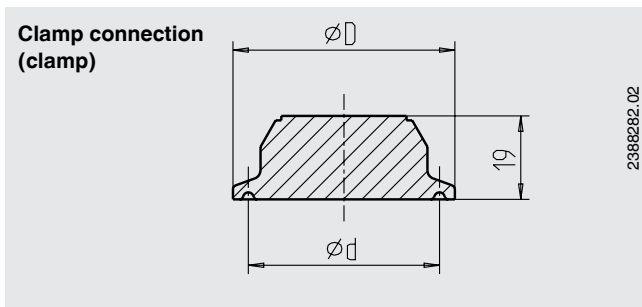
Cable outlet without access to zero point and span potentiometer, for conductor cross-sections of 0.5 mm<sup>2</sup>, AWG 20 with end splices, conductor outer diameter 6.8 mm, IP 68  
Order code: EM



Version	Dimension H in mm	
	with accuracy 0.5 %	with accuracy 0.25 %
Angular connector	64	84
Field case	123	138.5
M12 x 1	64	84
Cable outlet	79.5	95

Other electrical connections on request

### Process connections



Version	Dimensions in mm		
		ØD	Ød
Tri-Clamp <sup>1)</sup>	1 1/2"	50.5	43.5
	2"	64	56.6
DIN 32676	DN 32	50.5	43.5
	DN 40	50.5	43.5
	DN 50	64	56.6
ISO 2852	DN 33.7	50.5	43.5
	DN 38	50.5	43.5
	DN 40	64	56.6
	DN 51	64	56.6

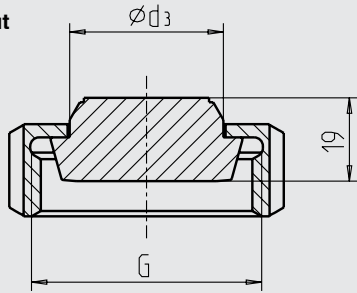


<sup>1)</sup> Process connections per ASME BPE

EHEDG compliant only in combination with a Kalrez stainless steel gasket from Dupont de Nemours or with a T-ring seal from Combifit International B.V.

**Grooved union nut  
DIN 11851**

with conical coupling  
for pipes per  
DIN 11850



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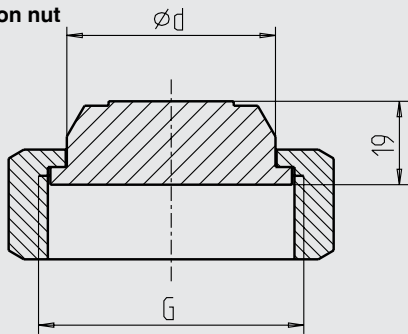
Version	Dimensions in mm		
	G		Ød <sub>3</sub>
DIN 11851	DN 25	Rd 52 x 1/6	44
	DN 40	Rd 65 x 1/6	48
	DN 50	Rd 78 x 1/6	61



3-A compliant only in combination with profile sealing from SKS Komponenten BV or Kieselmann GmbH.

EHEDG compliant only in combination with ASEPTO-STAR k-flex upgrade sealing from Kieselmann GmbH

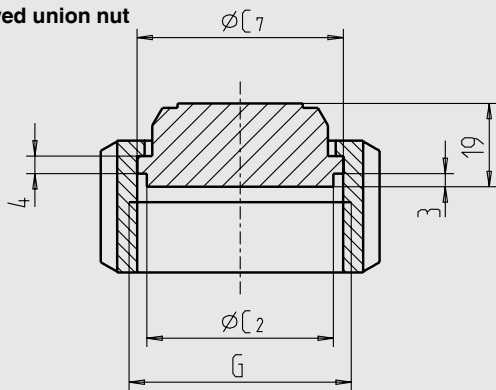
**Grooved union nut  
SMS**



11490071.01

Version	Dimensions in mm		
	G		Ød <sub>3</sub>
SMS	1 1/2"	Rd 60 x 1/6	47.5
	2"	Rd 70 x 1/6	60

**Grooved union nut  
IDF**



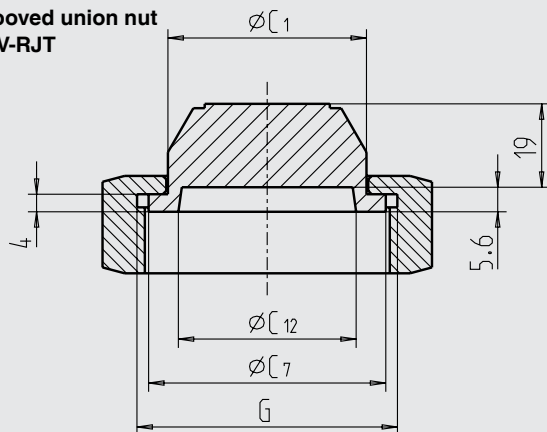
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Version	Dimensions in mm		
	G	ØC <sub>2</sub>	ØC <sub>7</sub>
IDF	1 1/2"	IDF 1.5	42.5
	2"	IDF 2	56



3-A compliant only in combination with a sealing with support ring per ISO 2853

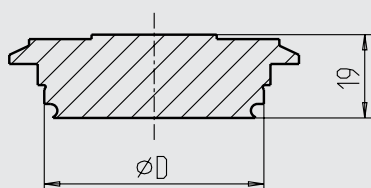
**Grooved union nut  
APV-RJT**



11490293.01

Version	Dimensions in mm			
	G	ØC <sub>1</sub>	ØC <sub>7</sub>	ØC <sub>12</sub>
APV-RJT	1 1/2"	2 5/16" x 8	45.2	54
	2"	2 7/8" x 6	57.7	66.6

**VARIVENT®**



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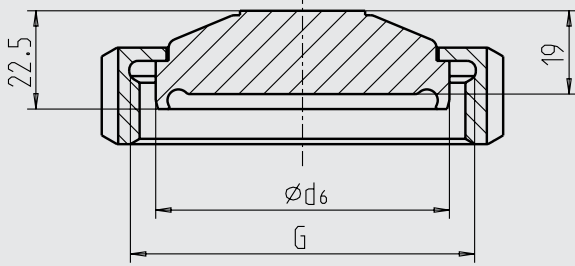
Version	Dimensions in mm		
		G	ØD
VARIVENT®	Form F	50	
	Form N	68	



EHEDG compliant only in combination with EPDM O-ring

### Grooved union nut

**DIN 11864-1** Form A collar connecting sleeve, for pipes in accordance with DIN 11850 and DIN 11866 series A



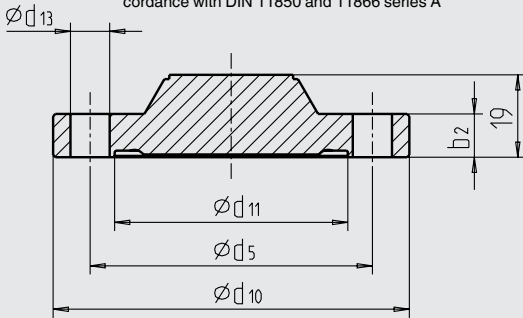
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Version	Dimensions in mm		
	G	Ød <sub>6</sub>	
<b>DIN 11864-1</b>	DN 40	Rd 65 x 1/6	54.9
	DN 50	Rd 78 x 1/6	66.9



### Flange connection

**DIN 11864-2** Flange with notch for pipe dimensions in accordance with DIN 11850 and 11866 series A



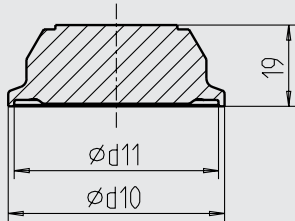
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Version	Dimensions in mm				
	Ød <sub>5</sub>	Ød <sub>10</sub>	Ød <sub>11</sub>	Ød <sub>13</sub>	Øb <sub>2</sub>
<b>DIN 11864-2</b>	DN 40	65	82	53.7	4 x 9 10
	DN 50	77	94	65.7	4 x 9 10



### Clamp connection

**DIN 11864-3** Clamp with notch for pipe dimensions in accordance with DIN 11850 and 11866 series A

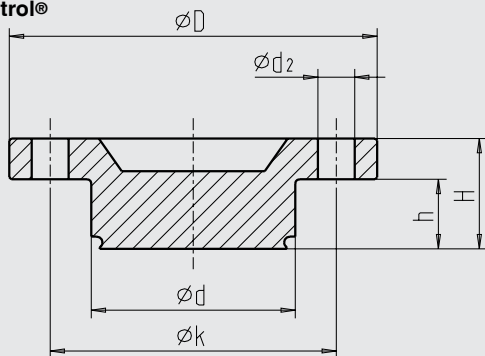


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Version	Dimensions in mm		
	Ød <sub>10</sub>	Ød <sub>11</sub>	
<b>DIN 11864-3</b>	DN 40	64	53.7
	DN 50	77.5	65.7



### NEUMO BioControl®



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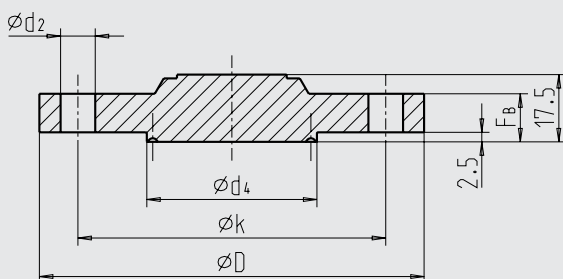
Version	Dimensions in mm					
	Ød	Ød <sub>2</sub>	ØD	Øk	h	H
<b>BioControl®</b>	Size 50	50	4x9	90	70	17 27
	Size 65	68	4x11	120	95	17 27

suitable for mounting to a NEUMO BioControl® case, see data sheet AC 09.14



### NEUMO BioConnect®

Flange form V

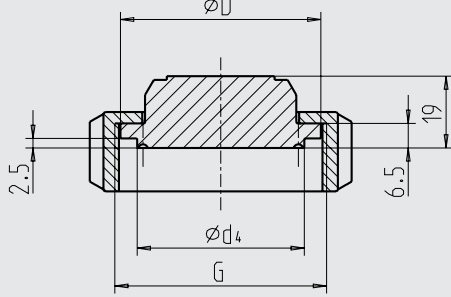


1128631.02

Version	Dimensions in mm				
	Ød <sub>2</sub>	Ød <sub>4</sub>	ØD	Øk	F <sub>B</sub>
<b>BioConnect®</b>	DN 40	4 x 9	44.2	100	80 10
	DN 50	4 x 9	56.2	110	90 12



**NEUMO BioConnect®** Collar connecting sleeve for threaded connection (form V)

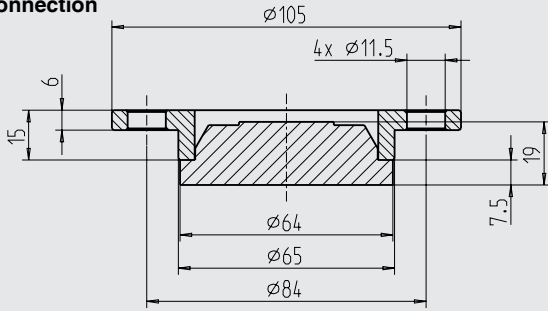


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Version	Dimensions in mm			
	G	Ød <sub>4</sub>	ØD	
BioConnect®	DN 40	M56 x 2	44.2	53
	DN 50	M68 x 2	56.2	65



**DRD flange connection**



11489732.01

3-A compliant in self-draining mounting position (see data sheet DS 99.39, bottom of page 2)



Other process connections on request

**Electrical connections**

Version	2-wire	3-wire
Angular connector DIN 175301-803 A		
Stainless steel field case		
Circular connector M12 x 1, 4-pin		
Cable outlet with 1.5 m cable length		
<b>Legend:</b> Voltage supply Load		

## CE conformity

### EMC directive

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

### RoHS conformity

Yes

## Approvals

- **GOST**, metrology/measurement technology, Russia
- **GOST-R**, import certificate, Russia
- **CRN**, safety (e.g. electr. safety, overpressure, ...), Canada
- **CSA**, safety, sanitary applications, Canada

## Certificates <sup>1)</sup>

- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy for diaphragm seal systems)
- 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metallic parts, indication accuracy for diaphragm seal systems)
- FDA conformity of the system fill fluid
- 3-A conformity only in connection with the above-mentioned process connections, based on third party verification, in accordance with 3-A standard No. 74
- EHEDG conformity only in connection with the process connections appropriately marked above
- Manufacturer's declaration regarding EU regulation 1935/2004 EC
- Others on request

1) Option

Approvals and certificates, see website

## Ordering information

Model / Output signal / Measuring range / Process connection / Electrical connection / Certificates / Options

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**WIKA Instrument Corporation**  
1000 Wiegand Boulevard  
Lawrenceville, GA 30043-5868  
Tel: 888-WIKA-USA • 770-513-8200  
Fax: 770-338-5118  
E-Mail: [info@wika.com](mailto:info@wika.com)  
[www.wika.com](http://www.wika.com)